

7.5.5. Test Result

Test Mode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	5.31	5.31	---	PASS
			30~1000	5.31	-61.56	≤ -14.69	PASS
			1000~26500	5.31	-52.19	≤ -14.69	PASS
		2440	Reference	5.39	5.39	---	PASS
			30~1000	5.39	-61.64	≤ -14.61	PASS
			1000~26500	5.39	-52.43	≤ -14.61	PASS
		2480	Reference	5.06	5.06	---	PASS
			30~1000	5.06	-60.87	≤ -14.94	PASS
			1000~26500	5.06	-50.67	≤ -14.94	PASS

Test Graphs of Conducted Band Edge

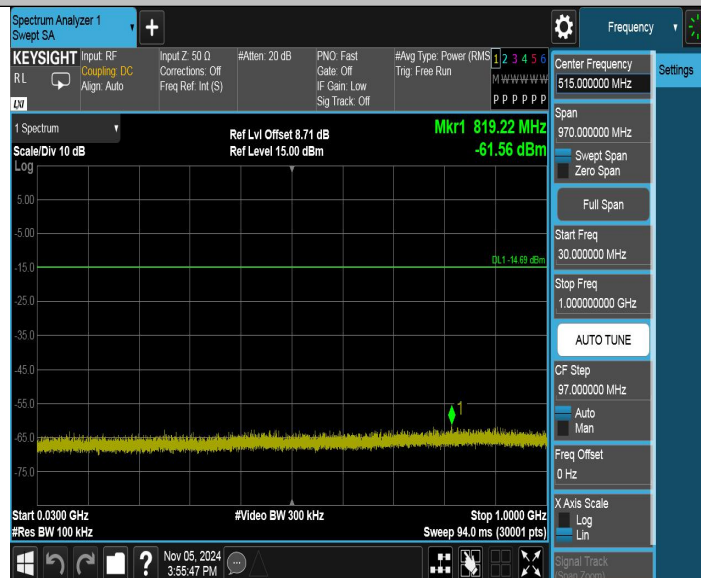


Test Graphs of Out-of-Band Emissions

BLE_1M_Ant1_2402_0~Reference



BLE_1M_Ant1_2402_30~1000



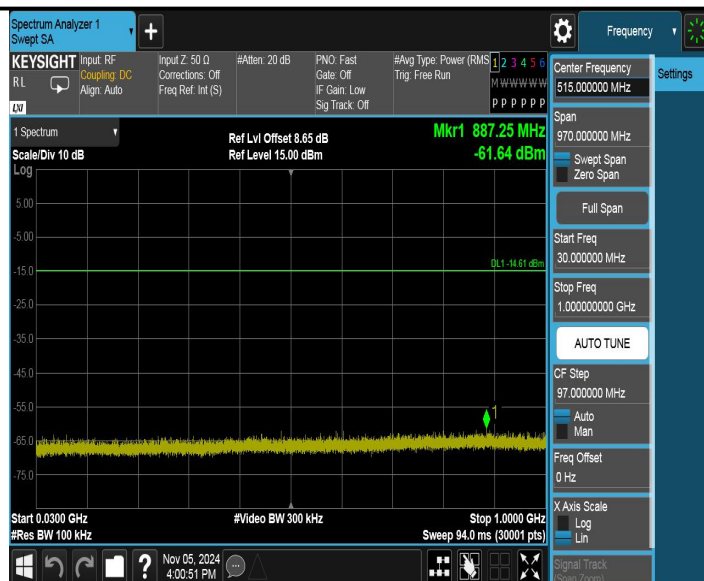
BLE_1M_Ant1_2402_1000~26500



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



7.6. Radiated Spurious Emission Measurement

7.6.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 – 0.490	2400/F (kHz)	300
0.490 – 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.6.2. Test Procedure Used

ANSI C63.10-2013 – Section 6.6.4.3

7.6.3. Test Setting

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

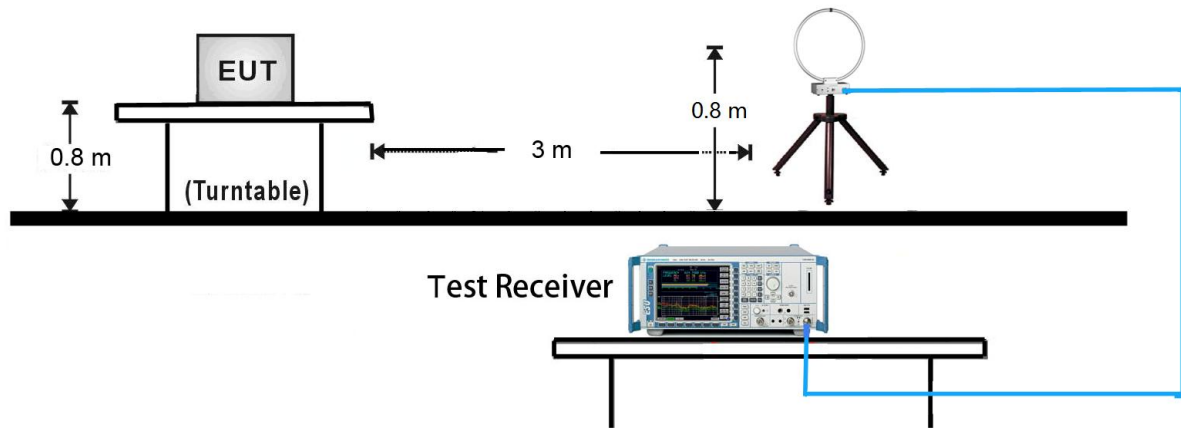
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

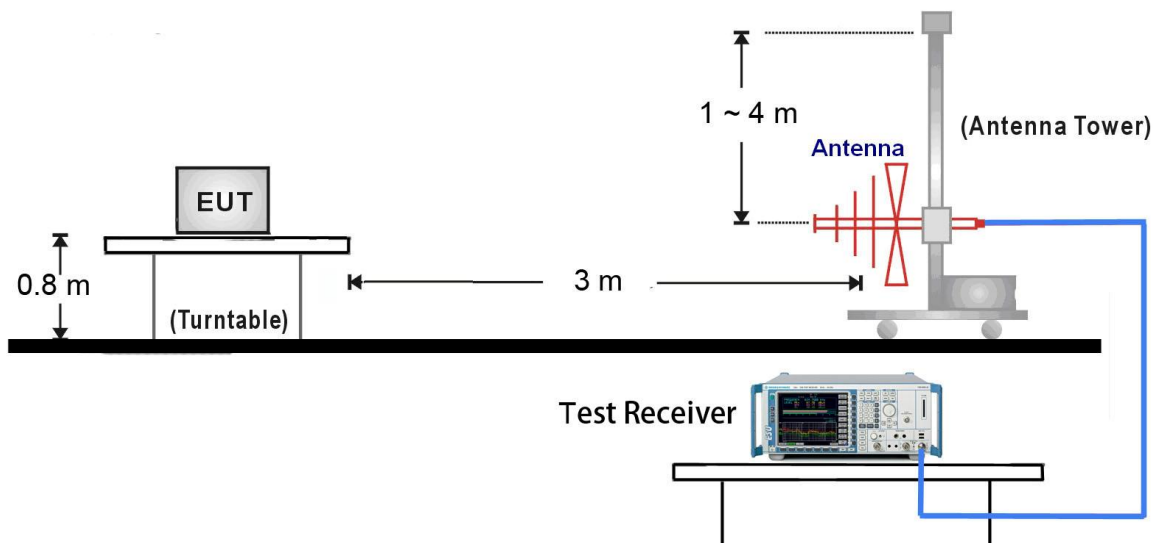
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Power Average (RMS)
5. Number of sweep point = 2001 (Number of sweep points must be $\geq 2 \times \text{span} / \text{RBW}$)
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces.

7.6.4. Test Setup

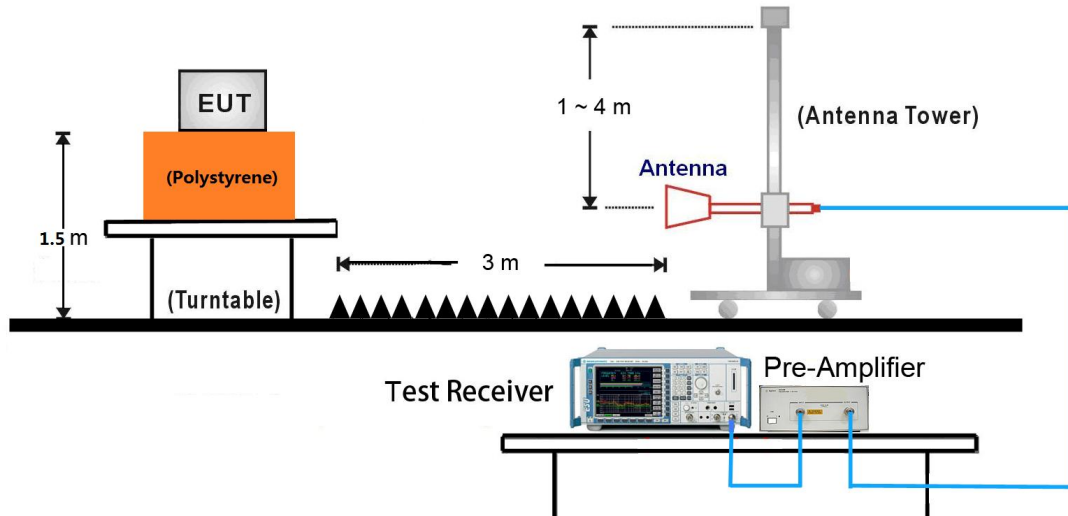
9kHz ~ 30MHz Test Setup:



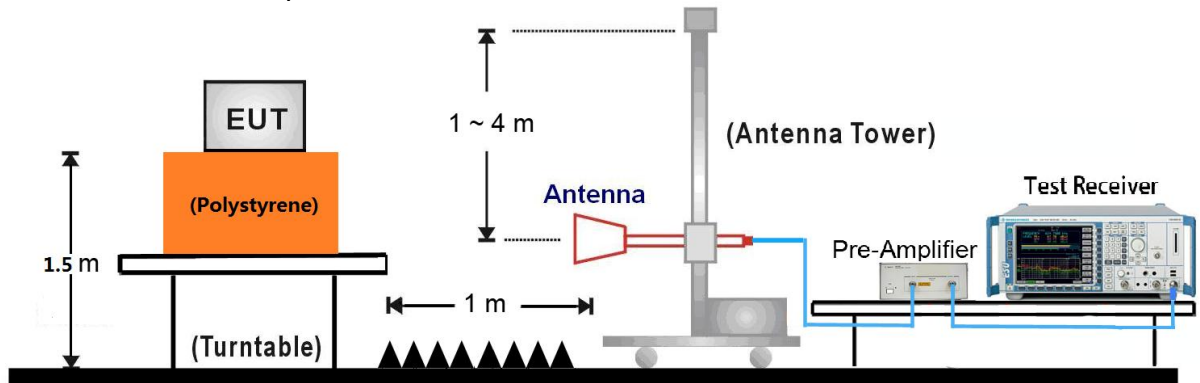
30MHz ~ 1GHz Test Setup:



1GHz ~ 18GHz Test Setup:



18GHz ~ 25GHz Test Setup:



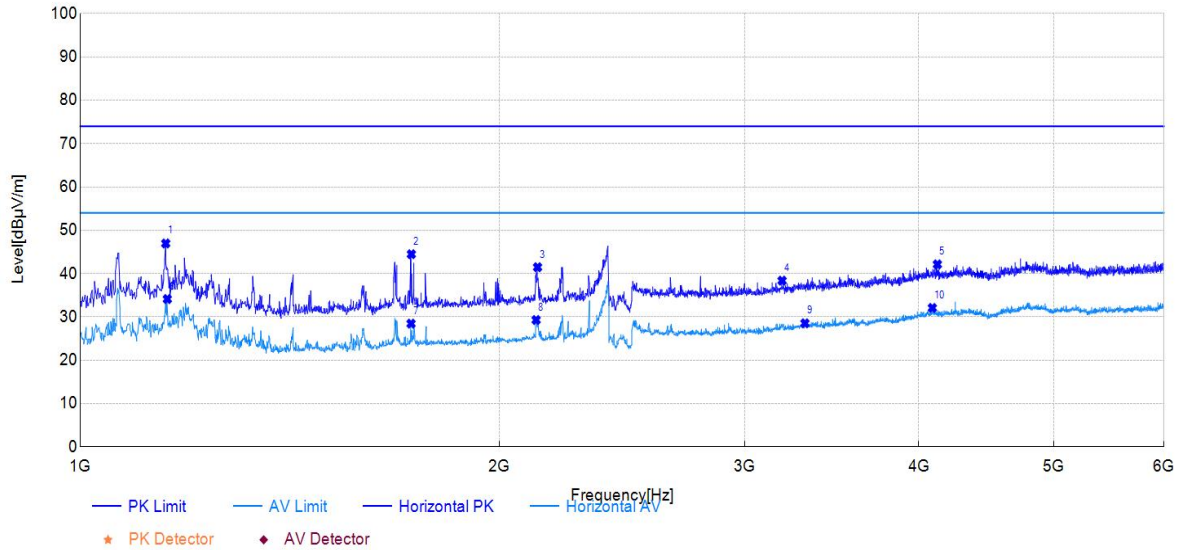
7.6.5. Test Result

The worst case of Radiated Emission above 1GHz:

1GHz – 6GHz Test Data

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 00	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



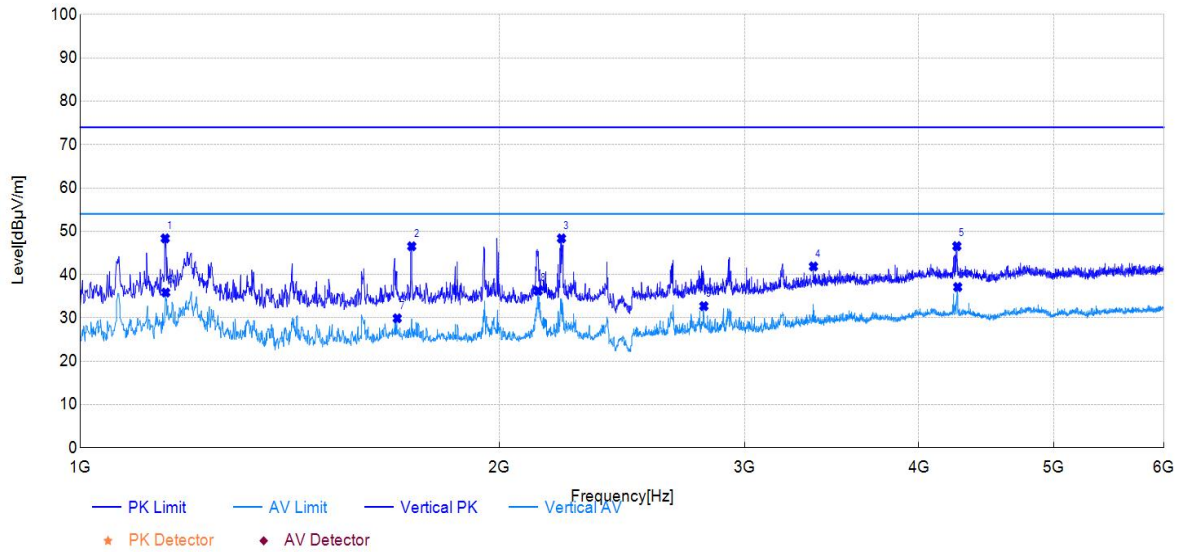
Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
1152.00	46.95	-23.64	74.00	27.05	PK	Horizontal
1729.00	44.47	-20.09	74.00	29.53	PK	Horizontal
2130.00	41.46	-17.52	74.00	32.54	PK	Horizontal
3191.00	38.36	-13.64	74.00	35.64	PK	Horizontal
4125.00	42.12	-8.06	74.00	31.88	PK	Horizontal
1155.00	34.12	-23.63	54.00	19.88	AV	Horizontal
1728.00	28.44	-20.09	54.00	25.56	AV	Horizontal
2125.00	29.28	-17.54	54.00	24.72	AV	Horizontal
3314.00	28.52	-13.08	54.00	25.48	AV	Horizontal
4091.00	32.07	-8.14	54.00	21.93	AV	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more

than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 00	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



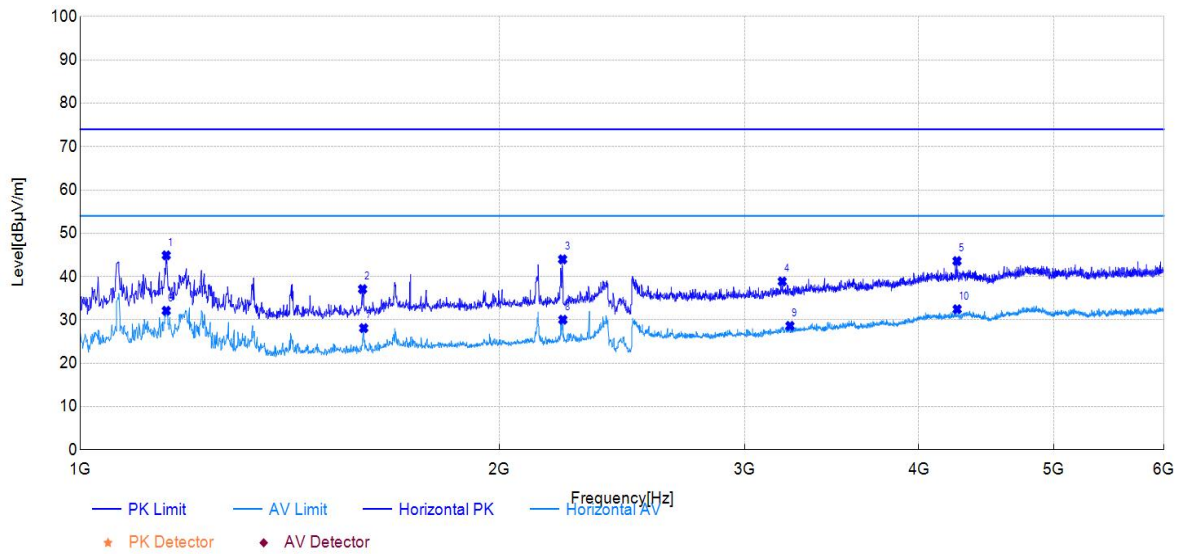
Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
1151.00	48.35	-22.64	74.00	25.65	PK	Vertical
1730.00	46.53	-19.46	74.00	27.47	PK	Vertical
2216.00	48.35	-17.05	74.00	25.65	PK	Vertical
3361.00	41.87	-12.28	74.00	32.13	PK	Vertical
4260.00	46.56	-7.77	74.00	27.44	PK	Vertical
1152.00	35.85	-22.63	54.00	18.15	AV	Vertical
1689.00	29.90	-19.77	54.00	24.10	AV	Vertical
2132.00	36.22	-17.30	54.00	17.78	AV	Vertical
2804.00	32.71	-15.15	54.00	21.29	AV	Vertical
4266.00	37.11	-7.76	54.00	16.89	AV	Vertical

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

1GHz – 6GHz Test Data

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 19	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph

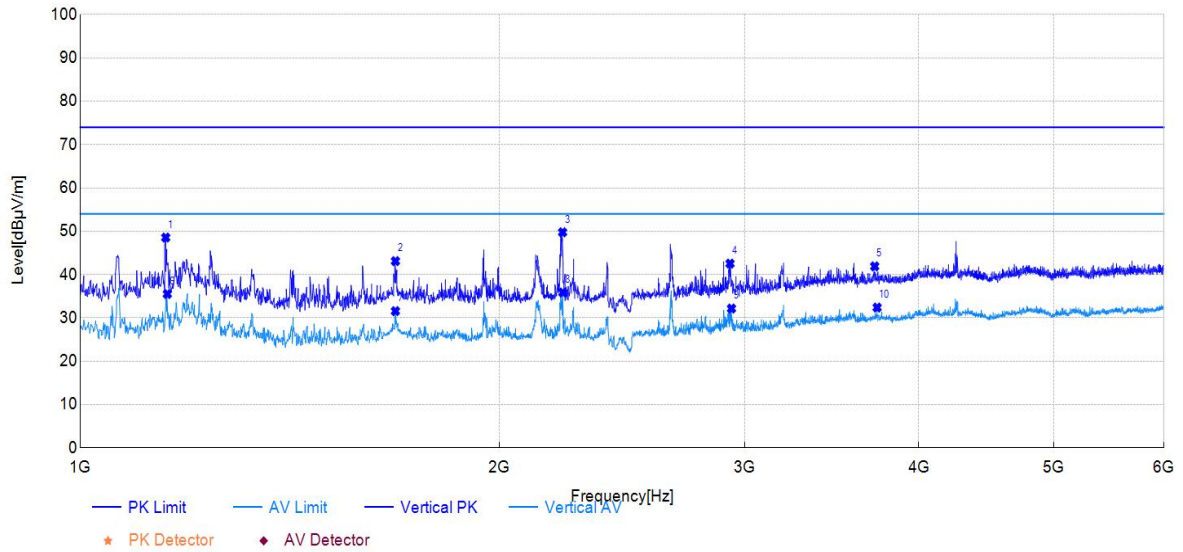


Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
1153.00	44.90	-23.64	74.00	29.10	PK	Horizontal
1595.00	37.10	-21.12	74.00	36.90	PK	Horizontal
2220.00	43.97	-17.13	74.00	30.03	PK	Horizontal
3192.00	38.87	-13.64	74.00	35.13	PK	Horizontal
4261.00	43.59	-7.76	74.00	30.41	PK	Horizontal
1153.00	32.11	-23.64	54.00	21.89	AV	Horizontal
1598.00	28.10	-21.10	54.00	25.90	AV	Horizontal
2221.00	30.03	-17.13	54.00	23.97	AV	Horizontal
3233.00	28.62	-13.44	54.00	25.38	AV	Horizontal
4262.00	32.46	-7.76	54.00	21.54	AV	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 19	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



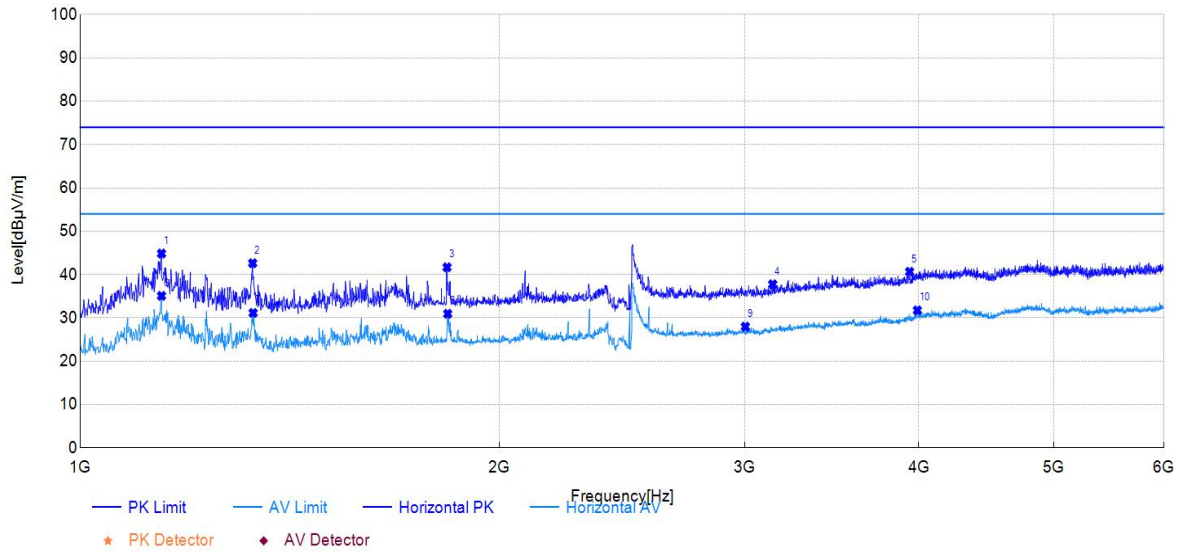
Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
1152.00	48.55	-22.63	74.00	25.45	PK	Vertical
1684.00	43.11	-19.80	74.00	30.89	PK	Vertical
2220.00	49.76	-17.04	74.00	24.24	PK	Vertical
2928.00	42.53	-14.57	74.00	31.47	PK	Vertical
3719.00	41.89	-10.30	74.00	32.11	PK	Vertical
1155.00	35.52	-22.62	54.00	18.48	AV	Vertical
1684.00	31.57	-19.80	54.00	22.43	AV	Vertical
2221.00	35.86	-17.04	54.00	18.14	AV	Vertical
2935.00	32.16	-14.54	54.00	21.84	AV	Vertical
3734.00	32.39	-10.19	54.00	21.61	AV	Vertical

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

1GHz – 6GHz Test Data

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 39	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph

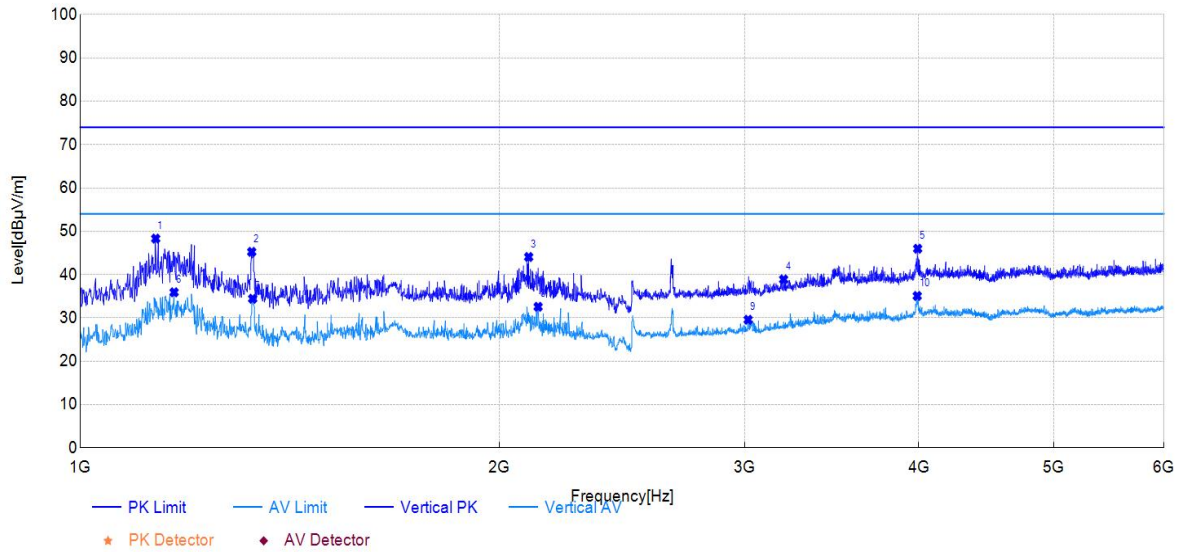


Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
1144.00	44.86	-23.67	74.00	29.14	PK	Horizontal
1330.00	42.61	-22.68	74.00	31.39	PK	Horizontal
1834.00	41.68	-19.33	74.00	32.32	PK	Horizontal
3142.00	37.76	-13.89	74.00	36.24	PK	Horizontal
3940.00	40.64	-8.99	74.00	33.36	PK	Horizontal
1144.00	35.09	-23.67	54.00	18.91	AV	Horizontal
1331.00	31.14	-22.68	54.00	22.86	AV	Horizontal
1836.00	30.95	-19.32	54.00	23.05	AV	Horizontal
3003.00	27.97	-14.53	54.00	26.03	AV	Horizontal
3991.00	31.74	-8.64	54.00	22.26	AV	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 39	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



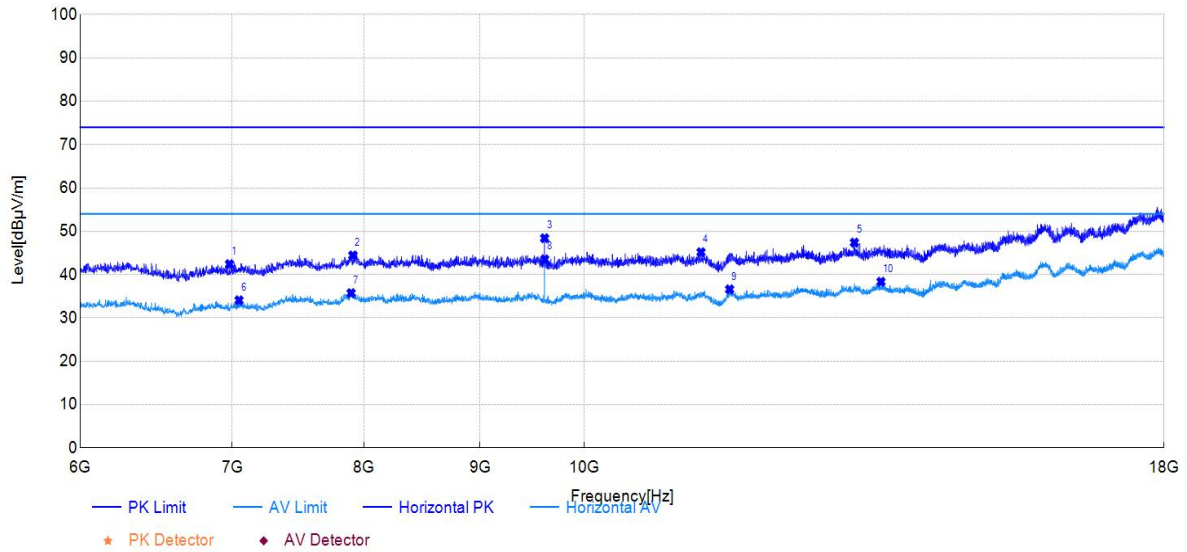
Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
1133.00	48.30	-22.69	74.00	25.70	PK	Vertical
1328.00	45.24	-21.79	74.00	28.76	PK	Vertical
2099.00	44.06	-17.39	74.00	29.94	PK	Vertical
3199.00	38.88	-13.16	74.00	35.12	PK	Vertical
3993.00	45.97	-8.32	74.00	28.03	PK	Vertical
1168.00	35.91	-22.58	54.00	18.09	AV	Vertical
1330.00	34.43	-21.78	54.00	19.57	AV	Vertical
2132.00	32.56	-17.30	54.00	21.44	AV	Vertical
3017.00	29.57	-14.25	54.00	24.43	AV	Vertical
3990.00	35.07	-8.34	54.00	18.93	AV	Vertical

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

6GHz – 18GHz Test Data

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 00	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph

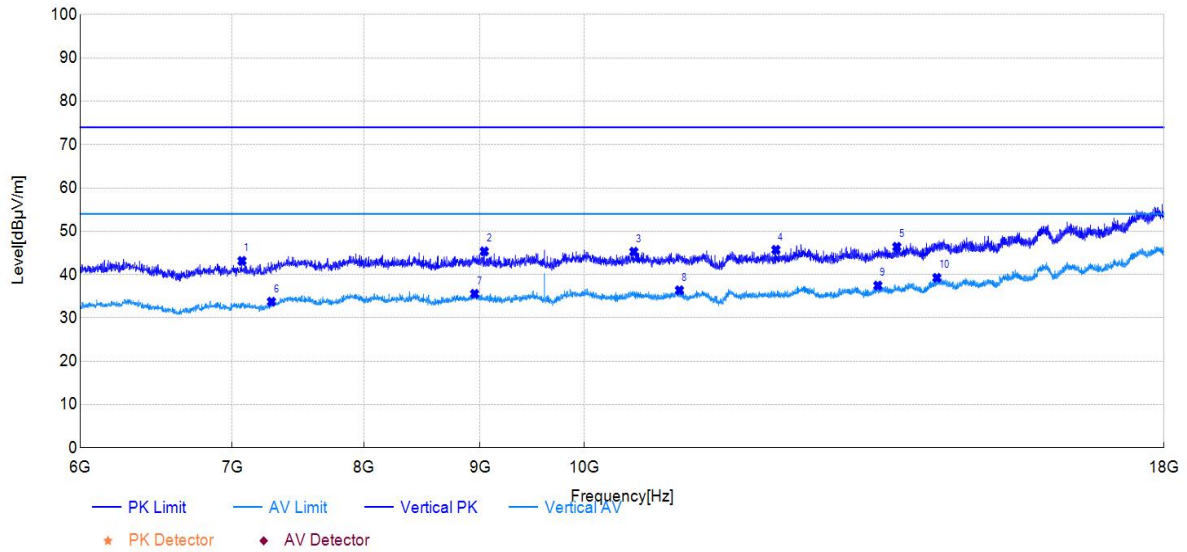


Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
6981.00	42.40	-4.77	74.00	31.60	PK	Horizontal
7909.50	44.42	-1.02	74.00	29.58	PK	Horizontal
9607.50	48.39	-0.28	74.00	25.61	PK	Horizontal
11257.50	45.16	0.82	74.00	28.84	PK	Horizontal
13152.00	47.38	3.17	74.00	26.62	PK	Horizontal
7048.50	34.06	-4.54	54.00	19.94	AV	Horizontal
7896.00	35.72	-1.04	54.00	18.28	AV	Horizontal
9609.00	43.52	-0.30	54.00	10.48	AV	Horizontal
11589.00	36.59	1.27	54.00	17.41	AV	Horizontal
13510.50	38.34	3.31	54.00	15.66	AV	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 00	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



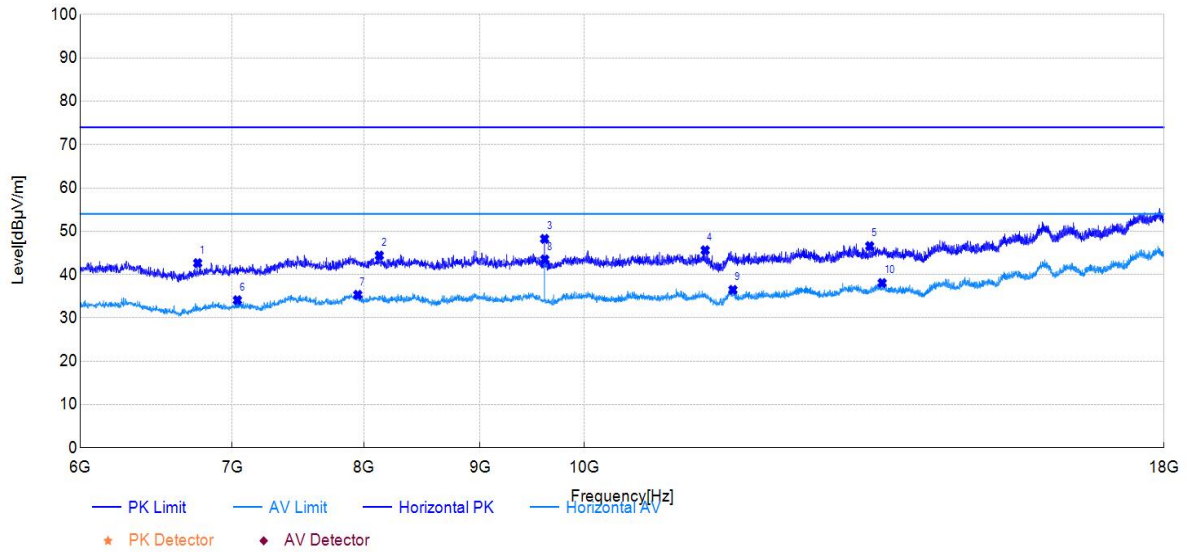
Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
7069.50	43.15	-4.41	74.00	30.85	PK	Vertical
9037.50	45.35	-0.77	74.00	28.65	PK	Vertical
10516.50	45.27	1.14	74.00	28.73	PK	Vertical
12145.50	45.71	1.64	74.00	28.29	PK	Vertical
13729.50	46.41	3.34	74.00	27.59	PK	Vertical
7284.00	33.73	-3.58	54.00	20.27	AV	Vertical
8949.00	35.55	-0.99	54.00	18.45	AV	Vertical
11014.50	36.37	1.33	54.00	17.63	AV	Vertical
13468.50	37.46	2.61	54.00	16.54	AV	Vertical
14298.00	39.24	5.30	54.00	14.76	AV	Vertical

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

6GHz – 18GHz Test Data

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 19	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph

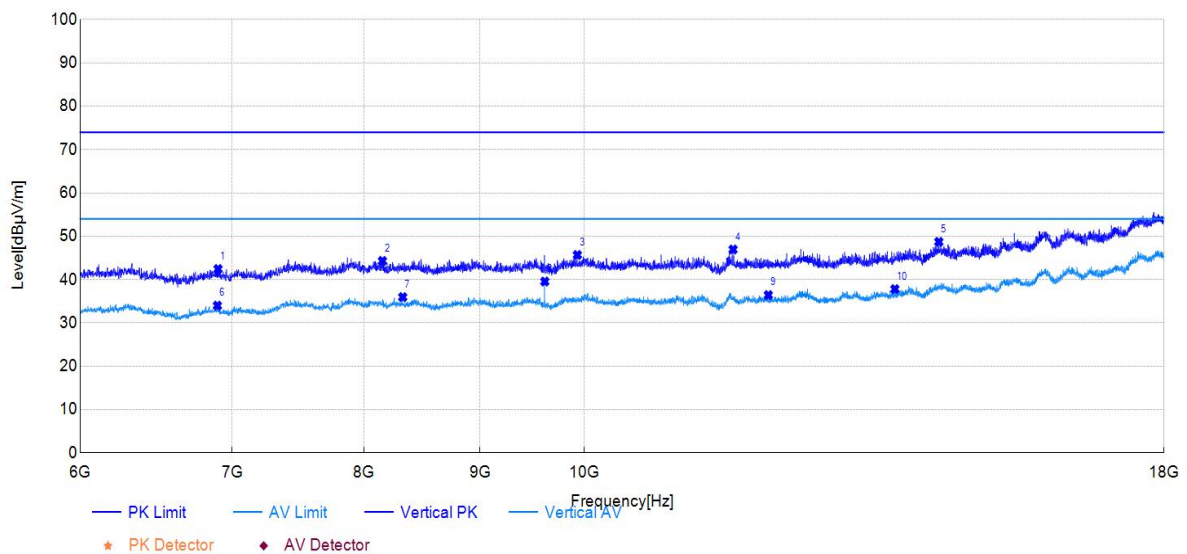


Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
6759.00	42.64	-5.27	74.00	31.36	PK	Horizontal
8125.50	44.39	-1.13	74.00	29.61	PK	Horizontal
9607.50	48.24	-0.28	74.00	25.76	PK	Horizontal
11305.50	45.61	0.81	74.00	28.39	PK	Horizontal
13357.50	46.57	2.78	74.00	27.43	PK	Horizontal
7036.50	34.08	-4.62	54.00	19.92	AV	Horizontal
7950.00	35.33	-1.24	54.00	18.67	AV	Horizontal
9609.00	43.49	-0.30	54.00	10.51	AV	Horizontal
11628.00	36.47	1.22	54.00	17.53	AV	Horizontal
13527.00	38.05	3.27	54.00	15.95	AV	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 19	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



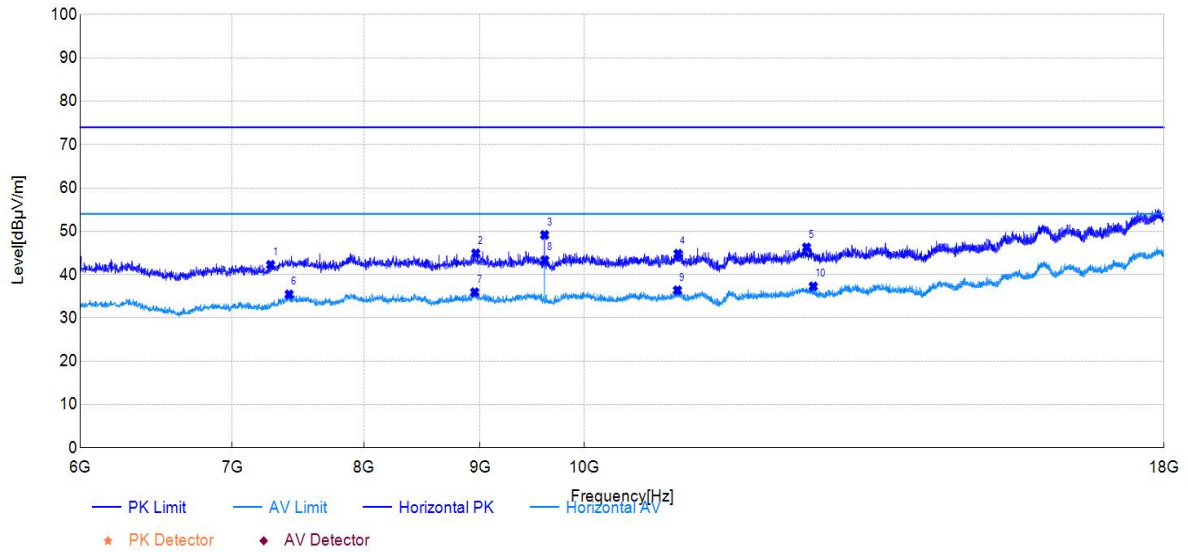
Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
6900.00	42.43	-4.33	74.00	31.57	PK	Vertical
8151.00	44.30	-1.25	74.00	29.70	PK	Vertical
9931.50	45.68	0.13	74.00	28.32	PK	Vertical
11629.50	46.94	1.51	74.00	27.06	PK	Vertical
14326.50	48.70	5.40	74.00	25.30	PK	Vertical
6895.50	33.98	-4.35	54.00	20.02	AV	Vertical
8320.50	35.94	-1.13	54.00	18.06	AV	Vertical
9609.00	39.55	-0.19	54.00	14.45	AV	Vertical
12052.50	36.42	1.52	54.00	17.58	AV	Vertical
13702.50	37.79	3.27	54.00	16.21	AV	Vertical

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

6GHz – 18GHz Test Data

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 39	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph

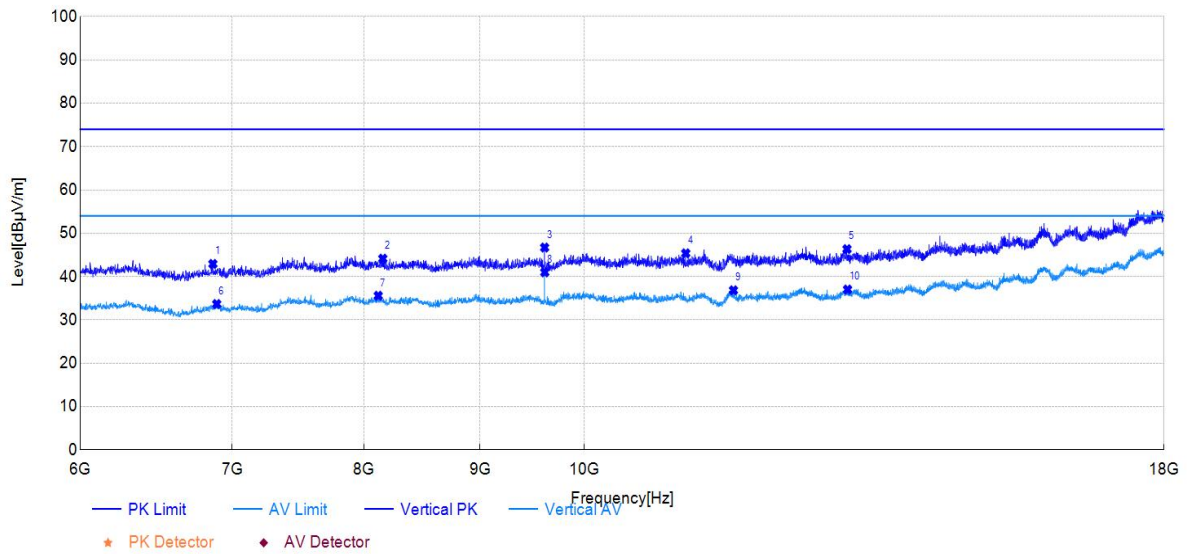


Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
7278.00	42.24	-3.62	74.00	31.76	PK	Horizontal
8959.50	44.88	-0.94	74.00	29.12	PK	Horizontal
9607.50	49.15	-0.28	74.00	24.85	PK	Horizontal
10999.50	44.80	1.31	74.00	29.20	PK	Horizontal
12529.50	46.26	2.39	74.00	27.74	PK	Horizontal
7416.00	35.42	-2.78	54.00	18.58	AV	Horizontal
8950.50	35.90	-0.98	54.00	18.10	AV	Horizontal
9609.00	43.30	-0.30	54.00	10.70	AV	Horizontal
10992.00	36.36	1.29	54.00	17.64	AV	Horizontal
12615.00	37.26	2.14	54.00	16.74	AV	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	S/N:	/
Mode:	Transmit at BLE_1M Channel 39	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



Frequency (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
6864.00	42.92	-4.50	74.00	31.08	PK	Vertical
8154.00	44.14	-1.26	74.00	29.86	PK	Vertical
9607.50	46.70	-0.17	74.00	27.30	PK	Vertical
11085.00	45.37	0.91	74.00	28.63	PK	Vertical
13053.00	46.34	2.39	74.00	27.66	PK	Vertical
6891.00	33.66	-4.37	54.00	20.34	AV	Vertical
8116.50	35.58	-1.09	54.00	18.42	AV	Vertical
9609.00	40.98	-0.19	54.00	13.02	AV	Vertical
11634.00	36.83	1.47	54.00	17.17	AV	Vertical
13060.50	37.01	2.40	54.00	16.99	AV	Vertical

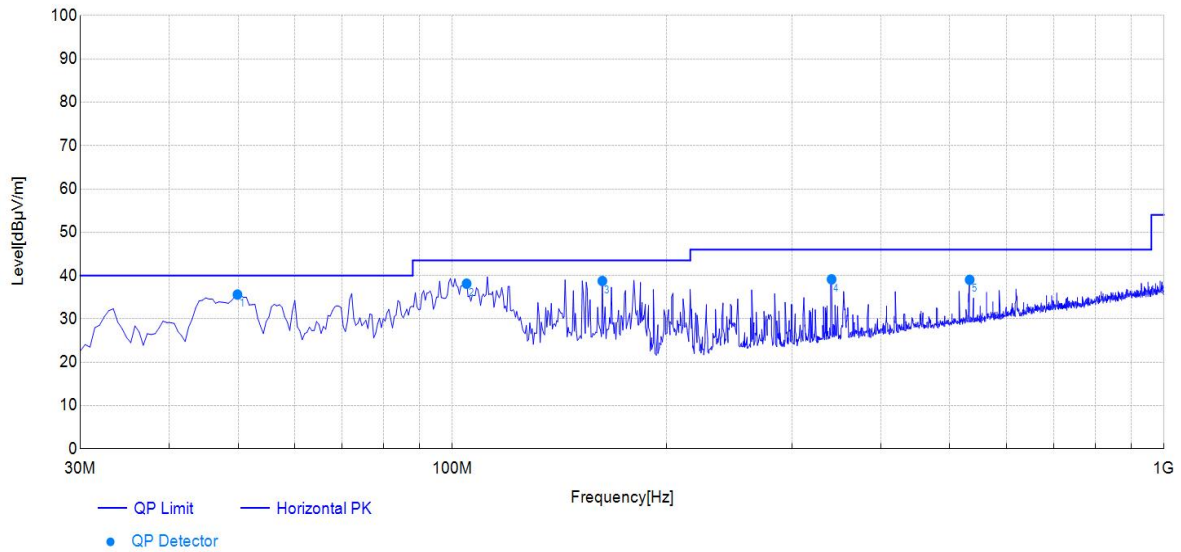
Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 26.5GHz), therefore no data appear in the report.

The worst case of Radiated Emission below 1GHz:

30MHz – 1GHz Test Data

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	SN:	N/A
Mode:	Transmit at BLE_1M Channel 00	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



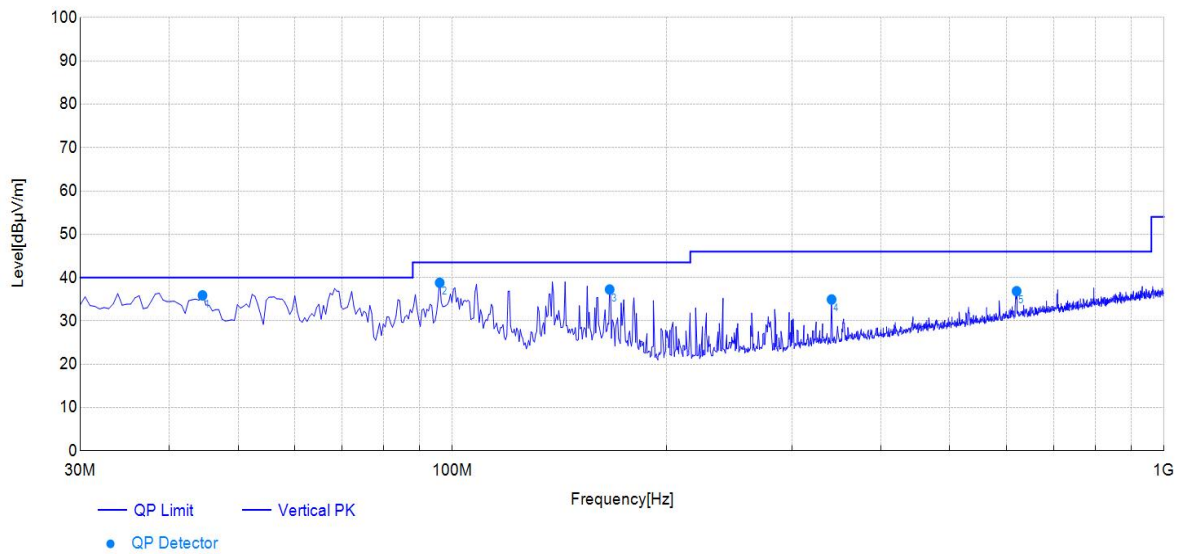
Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	49.89	14.53	35.62	40.00	4.38	100	33	Horizontal
2	104.73	12.05	38.13	43.50	5.37	150	99	Horizontal
3	162.47	15.55	38.75	43.50	4.75	150	225	Horizontal
4	341.04	16.16	39.13	46.00	6.87	150	190	Horizontal
5	533.20	20.25	39.03	46.00	6.97	150	117	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

EUT:	matter controller	Polarity:	Vertical
Model:	LITE MT	SN:	N/A
Mode:	Transmit at BLE_1M Channel 00	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



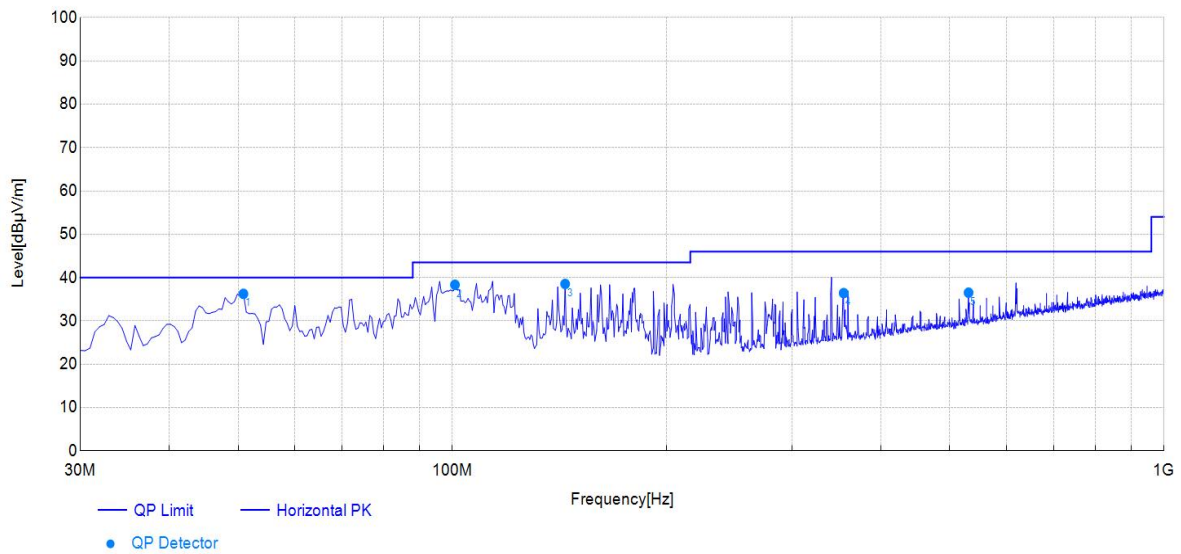
Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	44.56	14.61	35.90	40.00	4.10	100	324	Vertical
2	95.99	11.20	38.80	43.50	4.70	150	144	Vertical
3	166.35	15.10	37.25	43.50	6.25	150	223	Vertical
4	341.04	16.16	34.95	46.00	11.05	100	140	Vertical
5	620.54	21.96	36.86	46.00	9.14	150	87	Vertical

30MHz – 1GHz Test Data

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	SN:	N/A
Mode:	Transmit at BLE_1M Channel 19	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



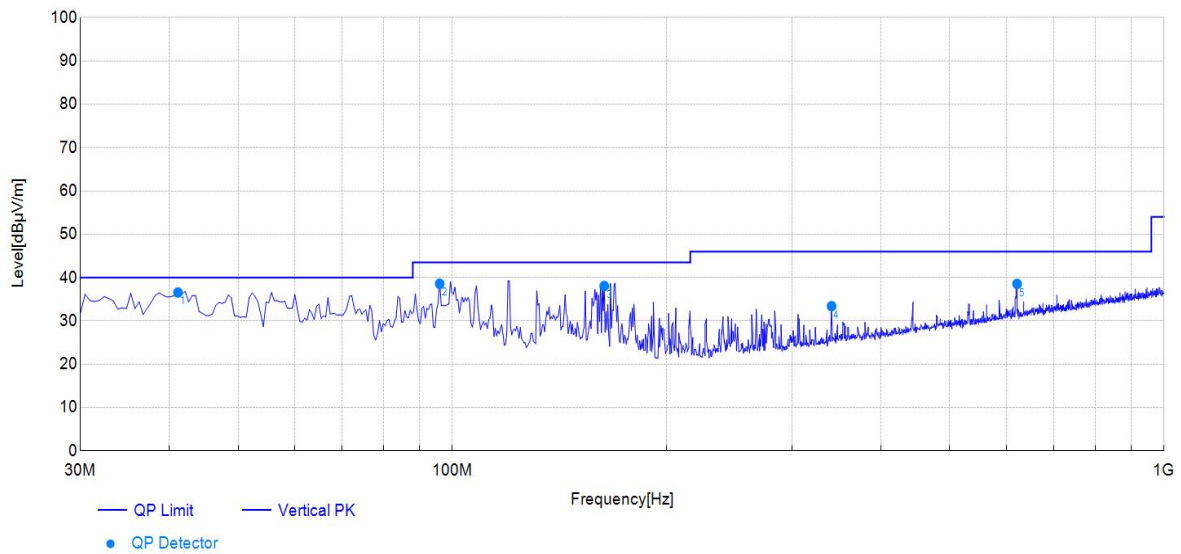
Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	50.87	14.47	36.25	40.00	3.75	150	48	Horizontal
2	100.85	11.60	38.35	43.50	5.15	150	80	Horizontal
3	144.03	15.30	38.54	43.50	4.96	150	183	Horizontal
4	354.63	16.43	36.42	46.00	9.58	100	85	Horizontal
5	531.26	20.22	36.52	46.00	9.48	100	121	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

EUT:	matter controller	Polarity:	Vertical
Model:	LITE MT	SN:	N/A
Mode:	Transmit at BLE_1M Channel 19	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



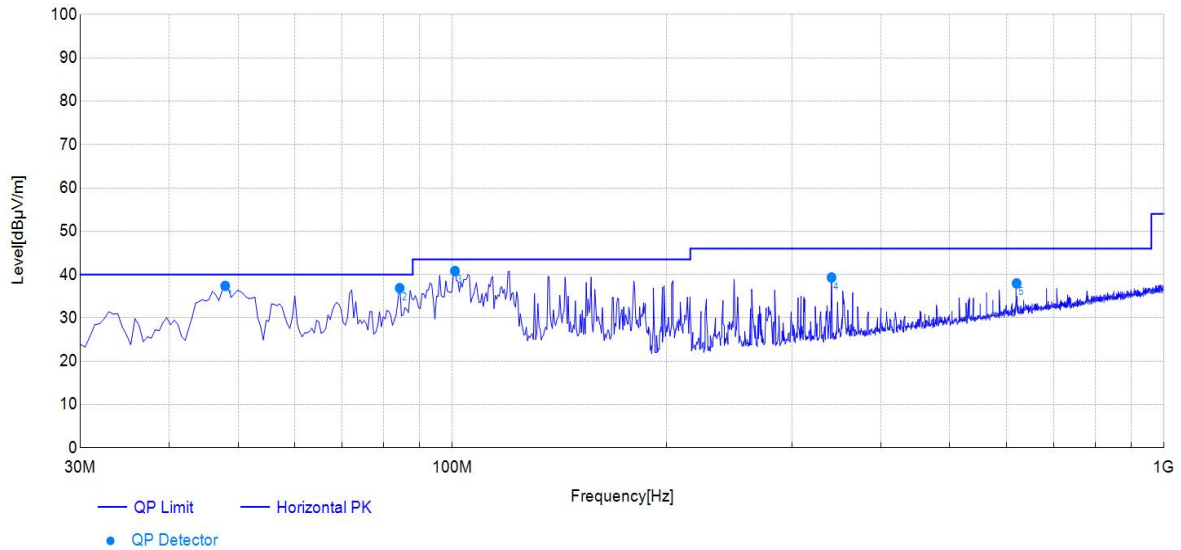
Final Data List								
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	41.16	14.85	36.56	40.00	3.44	100	328	Vertical
2	95.99	11.20	38.58	43.50	4.92	100	124	Vertical
3	163.44	15.44	38.05	43.50	5.45	100	153	Vertical
4	341.04	16.16	33.41	46.00	12.59	100	238	Vertical
5	621.51	21.97	38.55	46.00	7.45	150	71	Vertical

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

30MHz – 1GHz Test Data

EUT:	matter controller	Polarity:	Horizontal
Model:	LITE MT	SN:	N/A
Mode:	Transmit at BLE_1M Channel 39	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



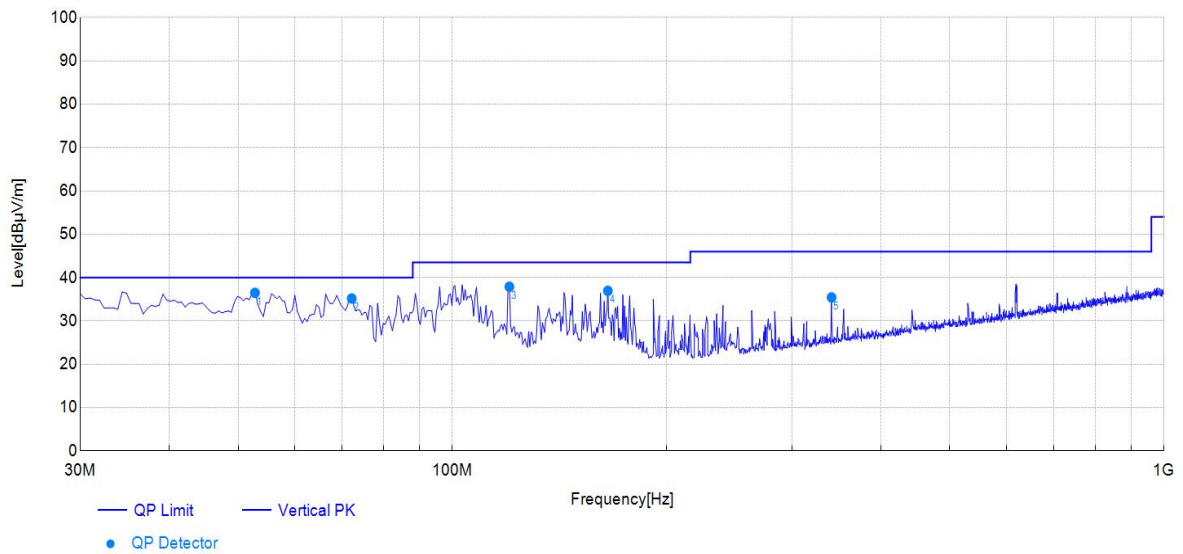
Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	47.95	14.55	37.39	40.00	2.61	150	31	Horizontal
2	84.35	10.61	36.87	40.00	3.13	150	58	Horizontal
3	100.85	11.60	40.83	43.50	2.67	150	87	Horizontal
4	341.04	16.16	39.33	46.00	6.67	100	57	Horizontal
5	620.54	21.96	37.97	46.00	8.03	100	50	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

EUT:	matter controller	Polarity:	Vertical
Model:	LITE MT	SN:	N/A
Mode:	Transmit at BLE_1M Channel 39	Voltage:	DC 24V
Environment:	Temp: 18.5°C; Humi:49%	Engineer:	Chuang Li

Test Graph



Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	52.81	14.34	36.48	40.00	3.52	100	298	Vertical
2	72.22	11.73	35.18	40.00	4.82	150	72	Vertical
3	120.26	13.77	37.89	43.50	5.61	150	82	Vertical
4	165.38	15.21	36.94	43.50	6.56	150	186	Vertical
5	341.04	16.16	35.43	46.00	10.57	100	180	Vertical

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

7.7. Restricted Band Edge Measurement

7.7.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.25 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41	--	--	--

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

For RSS-Gen Section 8.10 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 8.10 of RSS-Gen, must also comply with the radiated emission limits specified in Section 8.9.

Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.009 - 0.110	240 - 285	9.0 - 9.2
2.1735 - 2.1905	322 - 335.4	9.3 - 9.5
3.020 - 3.026	399.9 - 410	10.6 - 12.7
4.125 - 4.128	608 - 614	13.25 - 13.4
4.17725 - 4.17775	960 - 1427	14.47 - 14.5
4.20725 - 4.20775	1435 - 1626.5	15.35 - 16.2
5.677 - 5.683	1645.5 - 1646.5	17.7 - 21.4
6.215 - 6.218	1660 - 1710	22.01 - 23.12
6.26775 - 6.26825	1718.8 -1722.2	23.6 - 24.0
6.31175 - 6.31225	2200 - 2300	31.2 - 31.8
8.291 - 8.294	2310 -2390	36.43 - 36.5
8.362 - 8.366	2655 - 2900	Above 38.6
8.37625 - 8.38675	3260 - 3267	--
8.41425 - 8.41475	3332 -3339	
12.29 - 12.293	334.5 - 3358	
12.51975 - 12.52025	3500 - 4400	
12.57675 - 12.57725	4500 - 5150	
13.36 -13.41	5350 - 5460	
16.42 - 16.423	7250 - 7750	
16.69475 - 16.69525	8025 - 8500	
16.80425 - 16.80475	--	
25.5 - 25.67		
37.5 - 38.25		
73 - 74.6		
74.8 - 75.2		
108 - 138		
156.52475 - 156.525225		
156.7 - 156.9		

All out of band emissions appearing in a restricted band as specified in Section 8.10 of the RSS-Gen

must not exceed the limits shown in Table per Section 8.9.

RSS-Gen Section 8.9		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.7.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.7.3. Test Setting

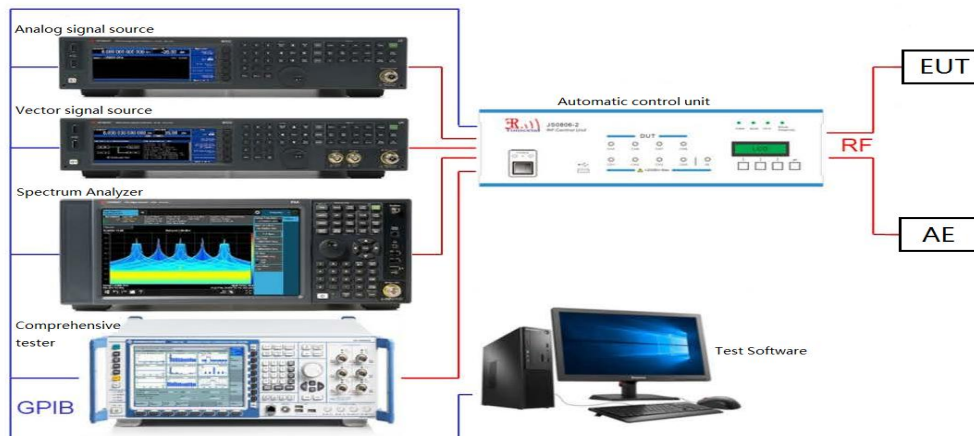
Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Power Average (RMS)
5. Number of sweep point = 2001 (Number of sweep points must be $\geq 2 \times \text{span} / \text{RBW}$)
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces.

7.7.4. Test Setup

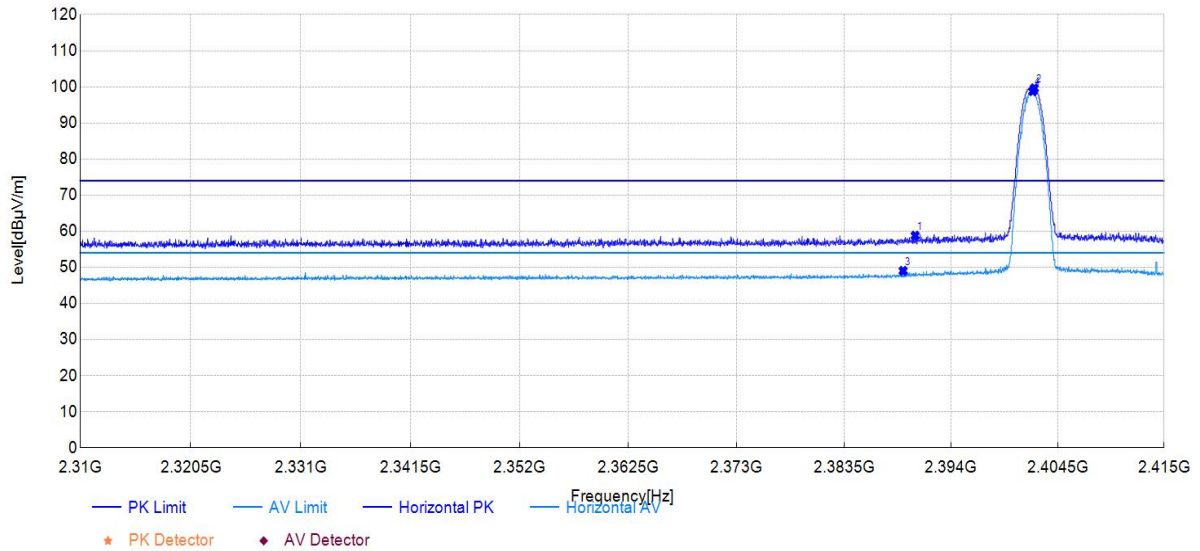


7.7.5. Test Result

BLE_1M

Test Mode:	BLE_1M	Test Date:	2024-11-11
Test Channel:	2402	Test Engineer:	Chuang Li
Remark:	The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.		

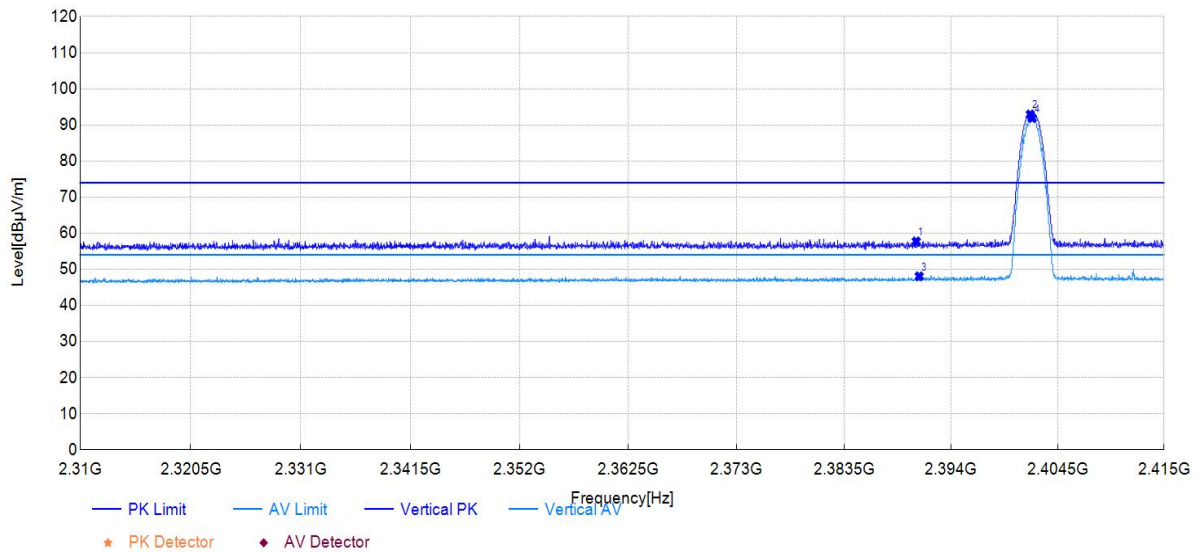
Test Graph



Freq. [MHz]	Level [dBuV/m]	Factor [dB]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
2390.48	58.79	36.10	74.00	15.21	150	129	Peak	Horizontal
2402.19	99.60	36.16	74.00	-25.60	150	124	Peak	Horizontal
2389.29	49.03	36.09	54.00	4.97	150	263	Average	Horizontal
2402.03	98.78	36.15	54.00	-44.78	150	124	Average	Horizontal

Test Mode:	BLE_1M	Test Date:	2024-11-11
Test Channel:	2402	Test Engineer:	Chuang Li
Remark:	The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.		

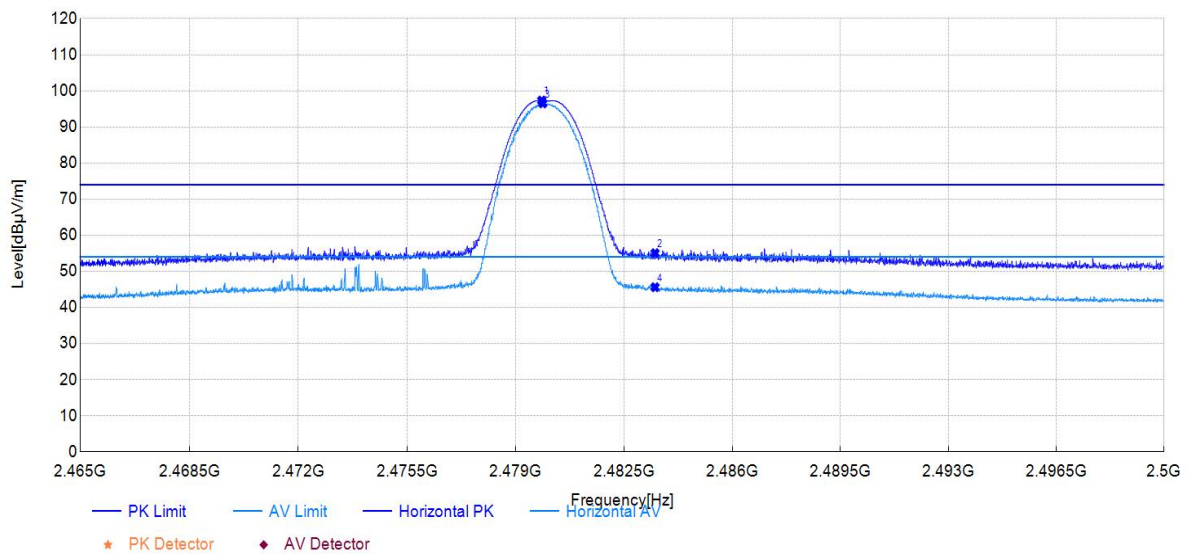
Test Graph



Freq. [MHz]	Level [dBuV/m]	Factor [dB]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
2390.58	57.73	35.95	74.00	16.27	150	4	Peak	Vertical
2401.79	92.91	35.99	74.00	-18.91	150	33	Peak	Vertical
2390.87	48.07	35.96	54.00	5.93	150	33	Average	Vertical
2401.98	91.92	35.99	54.00	-37.92	150	29	Average	Vertical

Test Mode:	BLE_1M	Test Date:	2024-11-11
Test Channel:	2480	Test Engineer:	Chuang Li
Remark:	The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.		

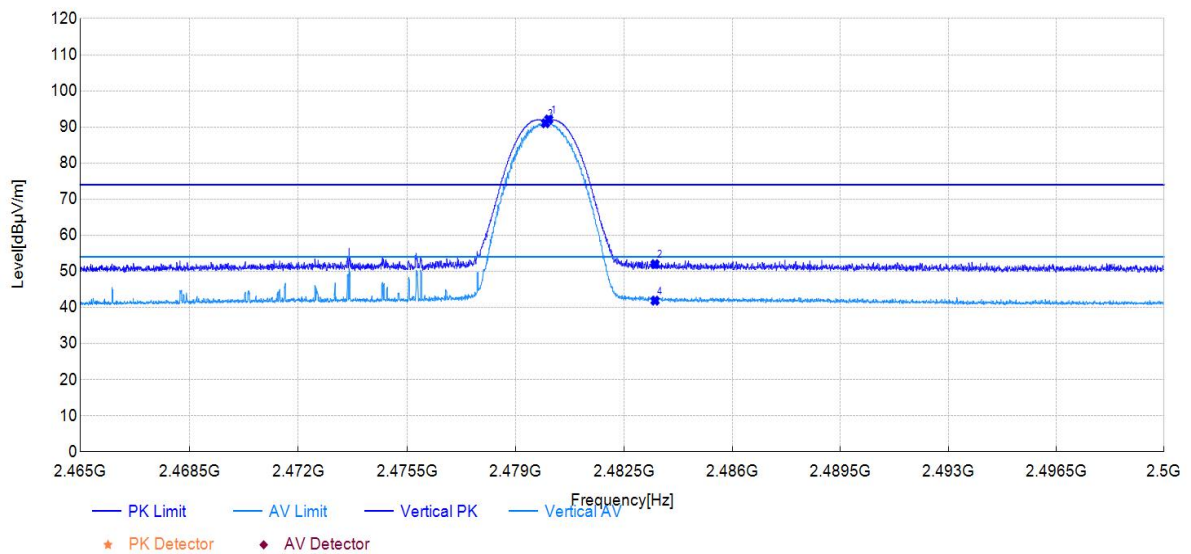
Test Graph



Freq. [MHz]	Level [dBuV/m]	Factor [dB]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
2479.84	97.32	36.35	74.00	-23.32	150	123	Peak	Horizontal
2483.50	55.03	36.36	74.00	18.97	150	128	Peak	Horizontal
2479.88	96.53	36.35	54.00	-42.53	150	128	Average	Horizontal
2483.50	45.60	36.36	54.00	8.40	150	128	Average	Horizontal

Test Mode:	BLE_1M	Test Date:	2024-11-11
Test Channel:	2480	Test Engineer:	Chuang Li
Remark:	The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.		

Test Graph



Freq. [MHz]	Level [dBuV/m]	Factor [dB]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
2480.07	92.06	36.08	74.00	-18.06	150	28	Peak	Vertical
2483.50	51.99	36.08	74.00	22.01	150	28	Peak	Vertical
2479.97	91.02	36.08	54.00	-37.02	150	24	Average	Vertical
2483.50	41.88	36.08	54.00	12.12	150	224	Average	Vertical

7.8. AC Conducted Emissions Measurement

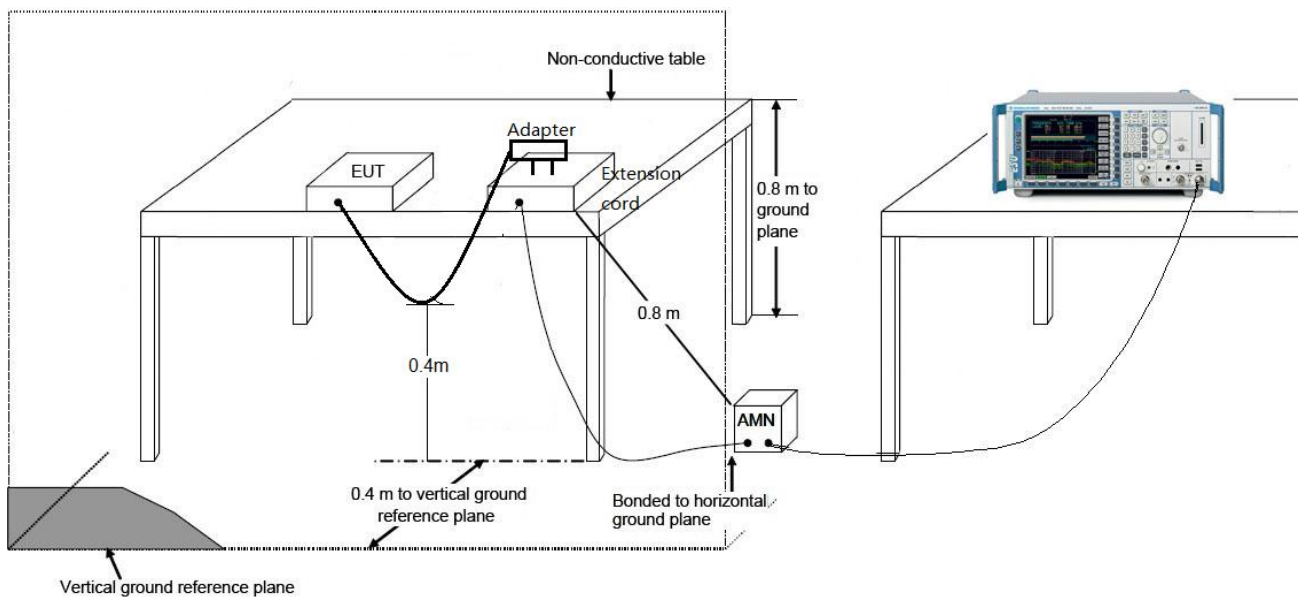
7.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 – 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.8.2. Test Setup



7.8.3. Test Result

Not Applicable. The device is only powered by DC 24V.

8. CONCLUSION

The data collected relate only the item(s) tested and show that the **matter controller** is in compliance with Part 15C of the FCC Rules.

_____ The End _____