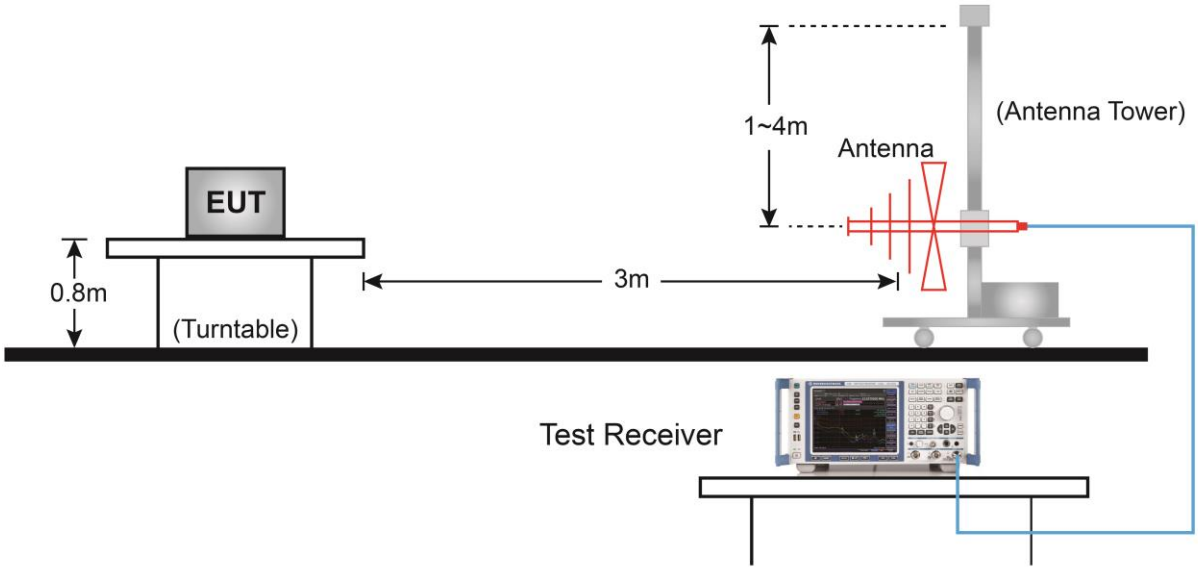
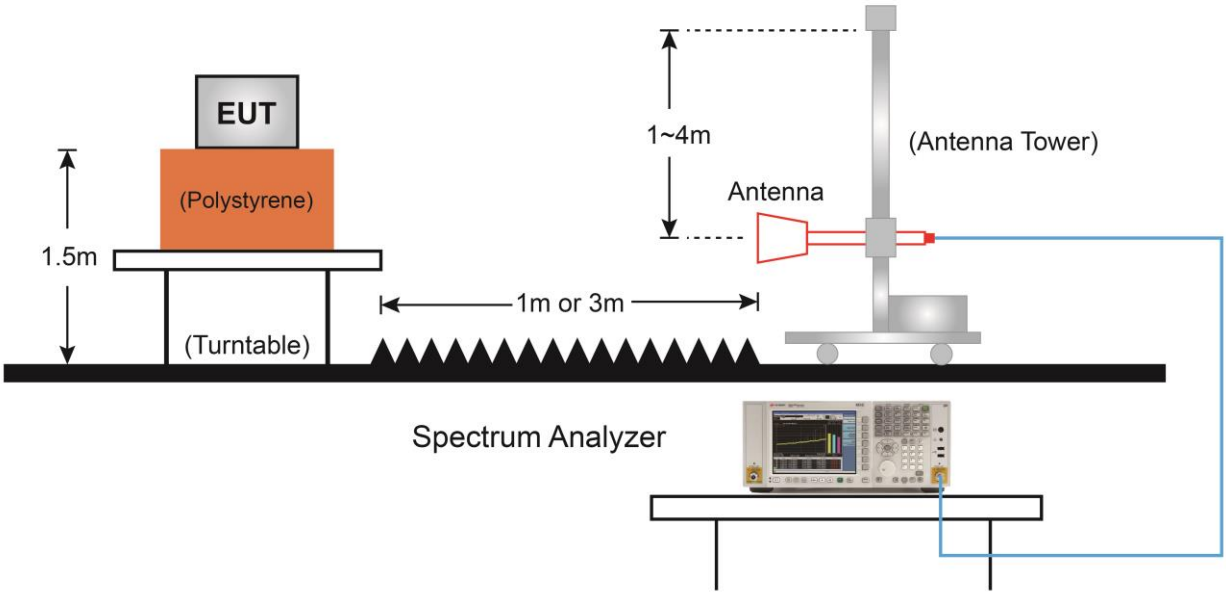
6.6.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.6.5.Test Result

Test Site	NS-AC1	Test Engineer	Antony Yang
Test Date	2021/03/31	Test Channel:	00
Test Mode:	BLE - 1Mbps		
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4808.0	47.2	3.0	50.2	74.0	-23.8	Peak	Horizontal
	7426.0	33.3	10.5	43.8	74.0	-30.2	Peak	Horizontal
	11123.5	34.9	16.2	51.1	74.0	-22.9	Peak	Horizontal
	4808.0	47.6	3.0	50.6	74.0	-23.4	Peak	Vertical
	7485.5	33.8	10.5	44.3	74.0	-29.7	Peak	Vertical
	11013.0	36.1	15.7	51.8	74.0	-22.2	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	NS-AC1	Test Engineer	Antony Yang
Test Date	2021/03/31	Test Channel:	19
Test Mode:	BLE - 1Mbps		
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	3992.0	42.0	0.0	42.0	74.0	-32.0	Peak	Horizontal
	4884.5	47.4	2.9	50.3	74.0	-23.7	Peak	Horizontal
	7349.5	36.3	10.5	46.8	74.0	-27.2	Peak	Horizontal
	4884.5	46.4	2.9	49.3	74.0	-24.7	Peak	Vertical
	7324.0	38.6	10.2	48.8	74.0	-25.2	Peak	Vertical
	11183.0	34.9	16.3	51.2	74.0	-22.8	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	NS-AC1	Test Engineer	Antony Yang
Test Date	2021/03/31	Test Channel:	39
Test Mode:	BLE - 1Mbps		
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4179.0	42.6	0.8	43.4	74.0	-30.6	Peak	Horizontal
	4357.5	42.1	1.4	43.5	74.0	-30.5	Peak	Horizontal
	4961.0	47.4	3.0	50.4	74.0	-23.6	Peak	Horizontal
	4961.0	46.8	3.0	49.8	74.0	-24.2	Peak	Vertical
	7443.0	37.6	10.5	48.1	74.0	-25.9	Peak	Vertical
	11123.5	34.0	16.2	50.2	74.0	-23.8	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	NS-AC1	Test Engineer	Antony Yang
Test Date	2021/03/31	Test Channel:	00
Test Mode:	BLE - 2Mbps		
Remark:	3. Average measurement was not performed if peak level lower than average limit. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4808.0	47.6	3.0	50.6	74.0	-23.4	Peak	Horizontal
	7468.5	33.9	10.4	44.4	74.0	-29.6	Peak	Horizontal
	11038.5	35.0	16.2	51.2	74.0	-22.8	Peak	Horizontal
	4808.0	46.2	3.0	49.2	74.0	-24.8	Peak	Vertical
	8089.0	36.5	11.1	47.7	74.0	-26.3	Peak	Vertical
	11123.5	34.4	16.2	50.6	74.0	-23.4	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	NS-AC1	Test Engineer	Antony Yang
Test Date	2021/03/31	Test Channel:	19
Test Mode:	BLE - 2Mbps		
Remark:	3. Average measurement was not performed if peak level lower than average limit. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4876.0	44.4	2.9	47.3	74.0	-26.7	Peak	Horizontal
	7358.0	35.6	10.6	46.1	74.0	-27.9	Peak	Horizontal
	11038.5	34.8	16.2	51.0	74.0	-23.0	Peak	Horizontal
	4884.5	45.6	2.9	48.5	74.0	-25.5	Peak	Vertical
	7315.5	39.6	10.3	49.9	74.0	-24.1	Peak	Vertical
	11021.5	33.8	16.0	49.8	74.0	-24.2	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	NS-AC1	Test Engineer	Antony Yang
Test Date	2021/03/31	Test Channel:	39
Test Mode:	BLE - 2Mbps		
Remark:	3. Average measurement was not performed if peak level lower than average limit. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

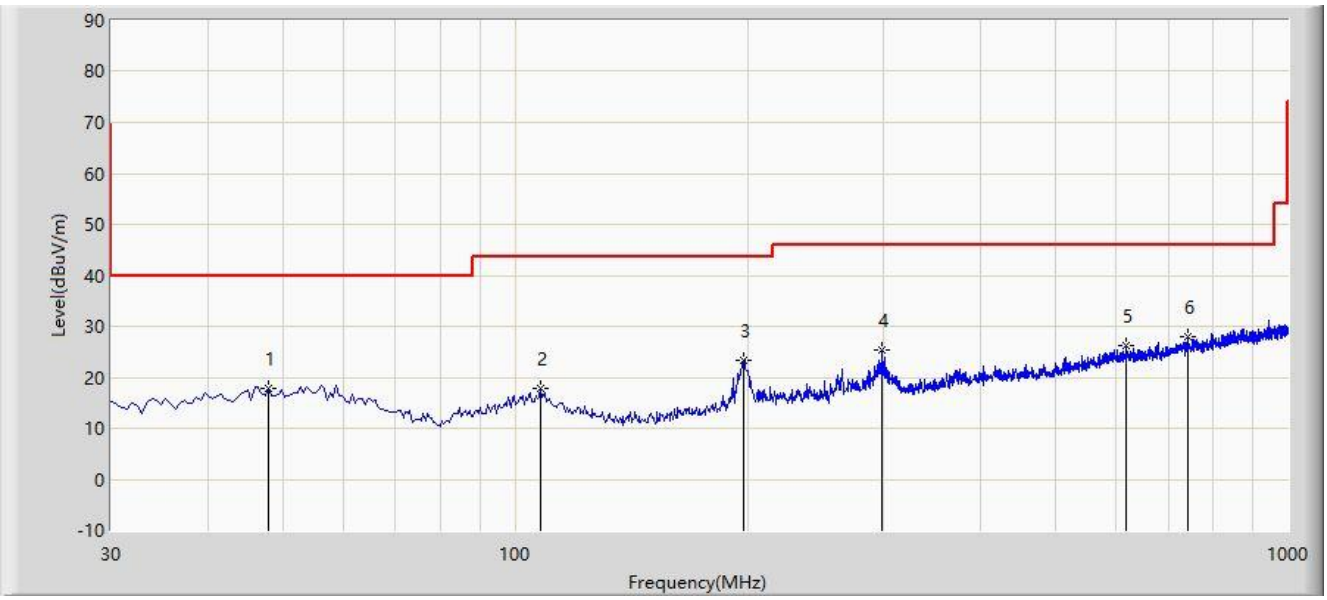
Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4961.0	44.7	3.0	47.7	74.0	-26.3	Peak	Horizontal
	8072.0	37.4	11.5	48.9	74.0	-25.1	Peak	Horizontal
	11123.5	35.4	16.2	51.6	74.0	-22.4	Peak	Horizontal
	4961.0	46.5	3.0	49.5	74.0	-24.5	Peak	Vertical
	7434.5	37.5	10.5	48.0	74.0	-26.0	Peak	Vertical
	10724.0	35.2	15.3	50.5	74.0	-23.5	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

The worst case of Radiated Emission below 1GHz:

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_VULB9162	Polarity: Horizontal
EUT: CERT 12	Power: AC 120V/60Hz
Worse Case Mode: Transmitter by BLE-1Mbps at channel 2440MHz	



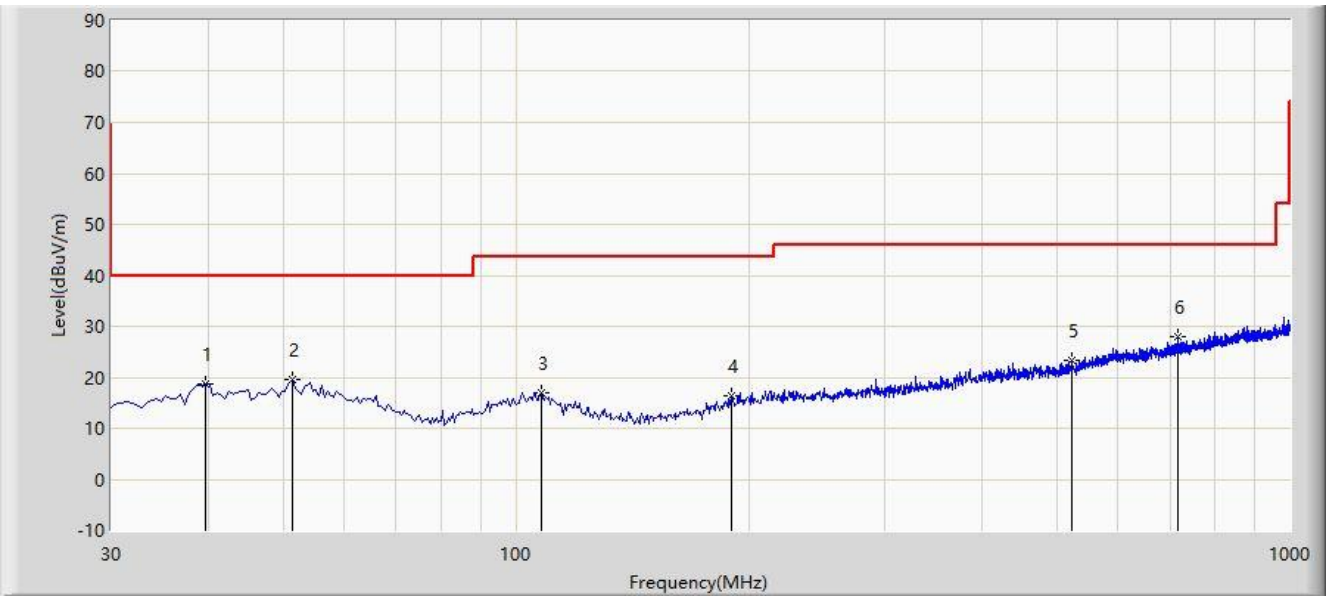
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			47.945	17.904	-1.314	-22.096	40.000	19.219	PK
2			108.085	17.800	-0.282	-25.700	43.500	18.081	PK
3			197.810	23.401	6.102	-20.099	43.500	17.299	PK
4			298.690	25.364	6.312	-20.636	46.000	19.052	PK
5			617.820	26.334	1.331	-19.666	46.000	25.003	PK
6		*	741.495	27.830	1.169	-18.170	46.000	26.661	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of radiated emissions (frequency range from 9kHz ~ 30MHz, 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_VULB9162	Polarity: Vertical
EUT: CERT 12	Power: AC 120V/60Hz
Worse Case Mode: Transmitter by BLE-1Mbps at channel 2440MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			39.700	18.742	0.449	-21.258	40.000	18.293	PK
2			51.340	19.609	0.088	-20.391	40.000	19.521	PK
3			108.085	17.074	-1.008	-26.426	43.500	18.081	PK
4			189.565	16.449	-0.421	-27.051	43.500	16.871	PK
5			522.275	23.230	0.226	-22.770	46.000	23.003	PK
6		*	716.760	27.960	1.775	-18.040	46.000	26.185	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of radiated emissions (frequency range from 9kHz ~ 30MHz, 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

6.7. Radiated Restricted Band Edge Measurement

6.7.1.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	8.025 - 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 - 156.52525	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 below table.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
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

6.7.2.Test Procedure Used

ANSI C63.10-2013 - Section 6.3 & 6.6 & 6.10

6.7.3.Test Setting

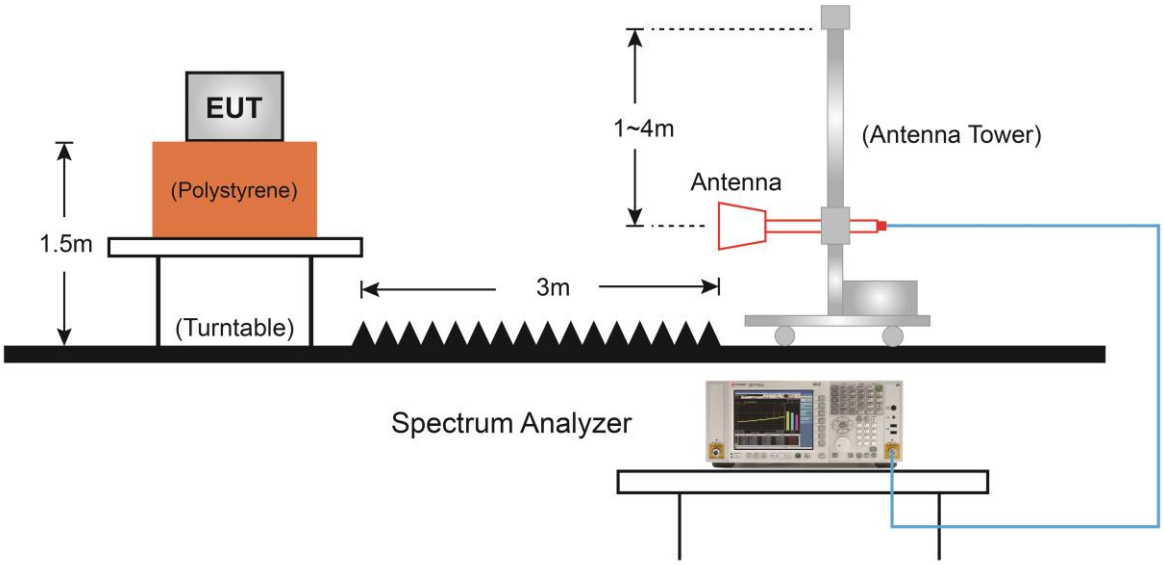
Peak Field Strength Measurements

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

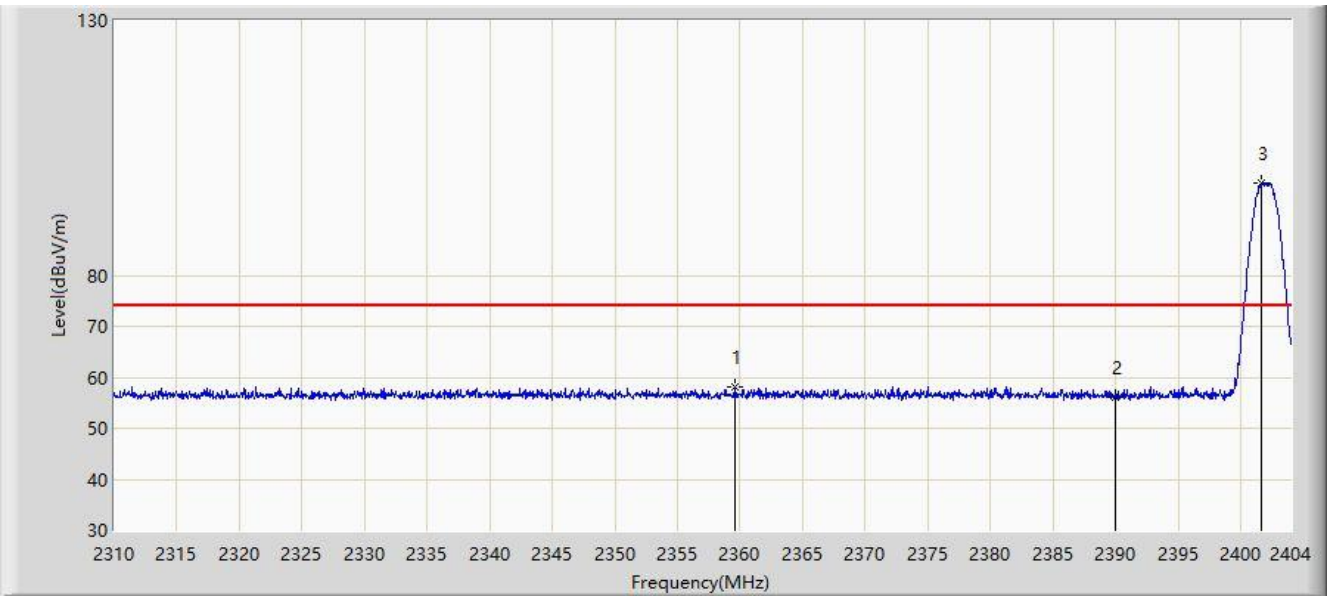
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10Hz
4. If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration
5. Detector = Peak
6. Sweep time = Auto
7. Trace mode = Max hold
8. Trace was allowed to stabilize

6.7.4.Test Setup



6.7.5.Test Result

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Horizontal
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 1Mbps at Channel 2402MHz	

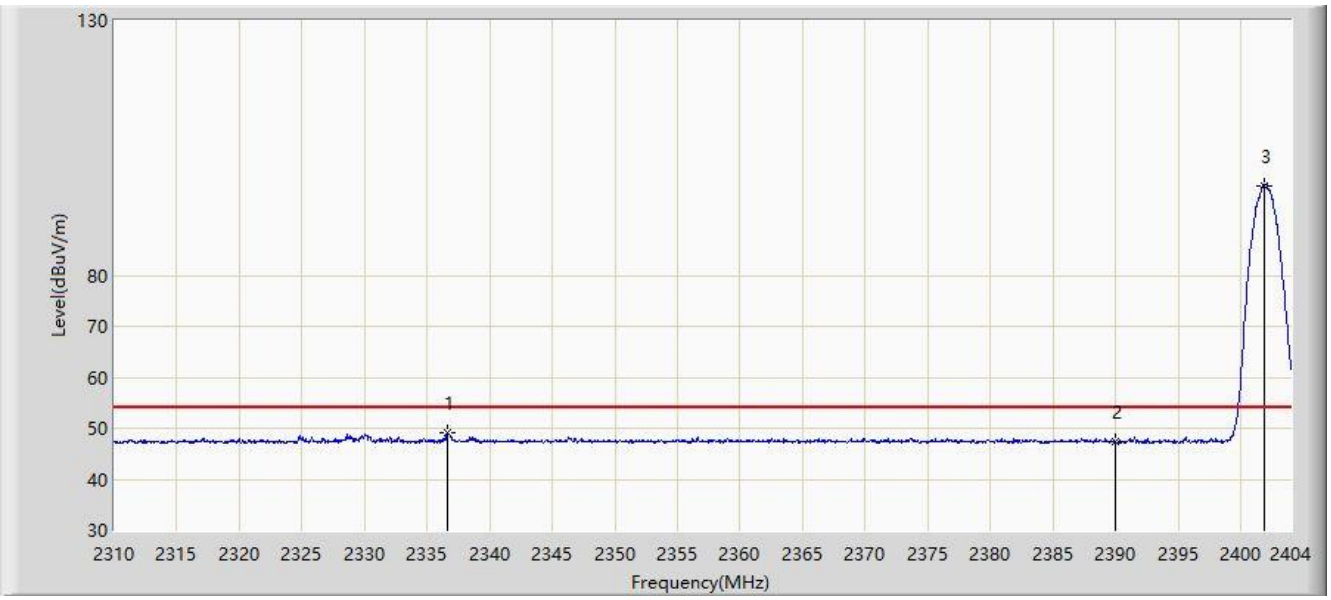


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2359.632	58.103	27.126	-15.897	74.000	30.977	PK
2			2390.000	55.948	25.042	-18.052	74.000	30.906	PK
3		*	2401.697	97.990	67.094	N/A	N/A	30.897	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Horizontal
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 1Mbps at Channel 2402MHz	

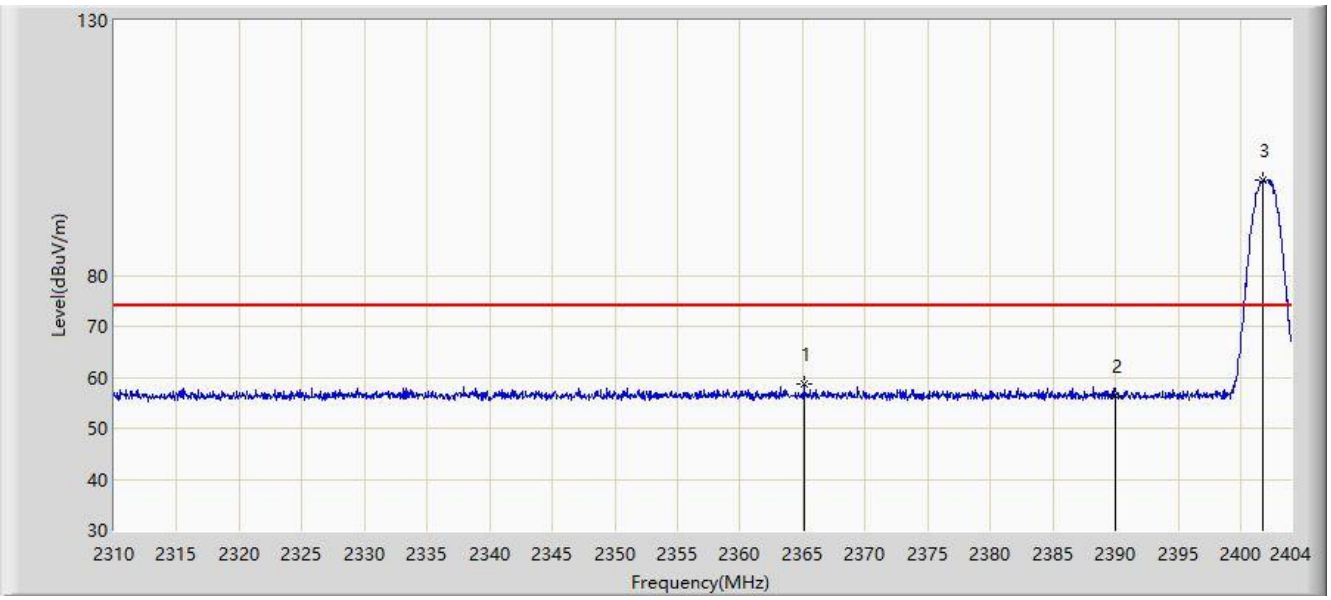


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2336.649	49.161	18.122	-4.839	54.000	31.038	AV
2			2390.000	47.312	16.406	-6.688	54.000	30.906	AV
3		*	2401.838	97.557	66.661	N/A	N/A	30.896	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Vertical
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 1Mbps at Channel 2402MHz	

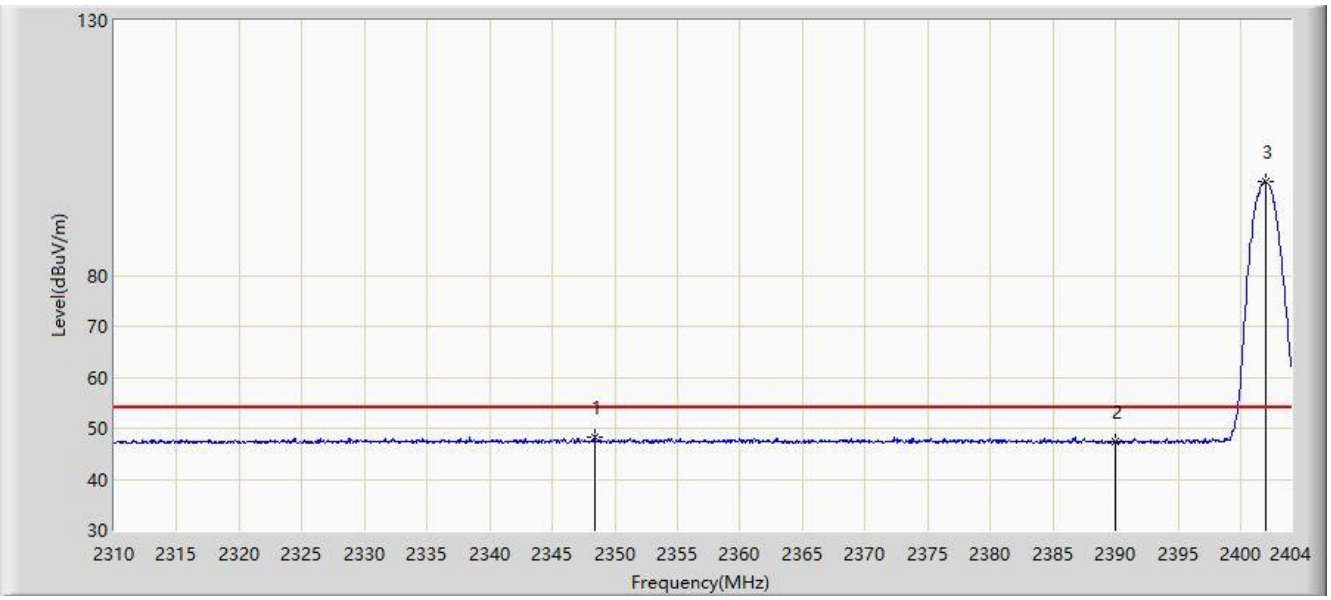


No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV/m)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV/m)	Factor (dB)	Type
1			2365.131	58.578	27.614	-15.422	74.000	30.964	PK
2			2390.000	56.501	25.595	-17.499	74.000	30.906	PK
3		*	2401.791	98.795	67.899	N/A	N/A	30.896	PK

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Vertical
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 1Mbps at Channel 2402MHz	

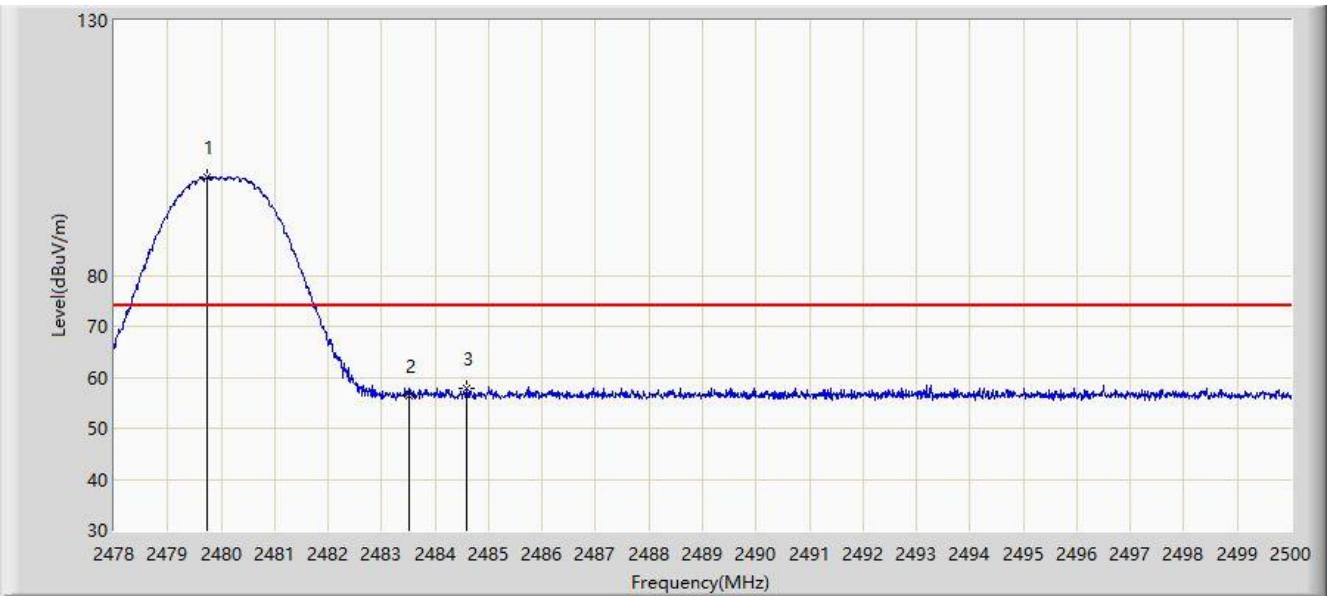


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2348.399	48.321	17.316	-5.679	54.000	31.005	AV
2			2390.000	47.287	16.381	-6.713	54.000	30.906	AV
3		*	2401.979	98.487	67.591	N/A	N/A	30.896	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Horizontal
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 1Mbps at Channel 2480MHz	

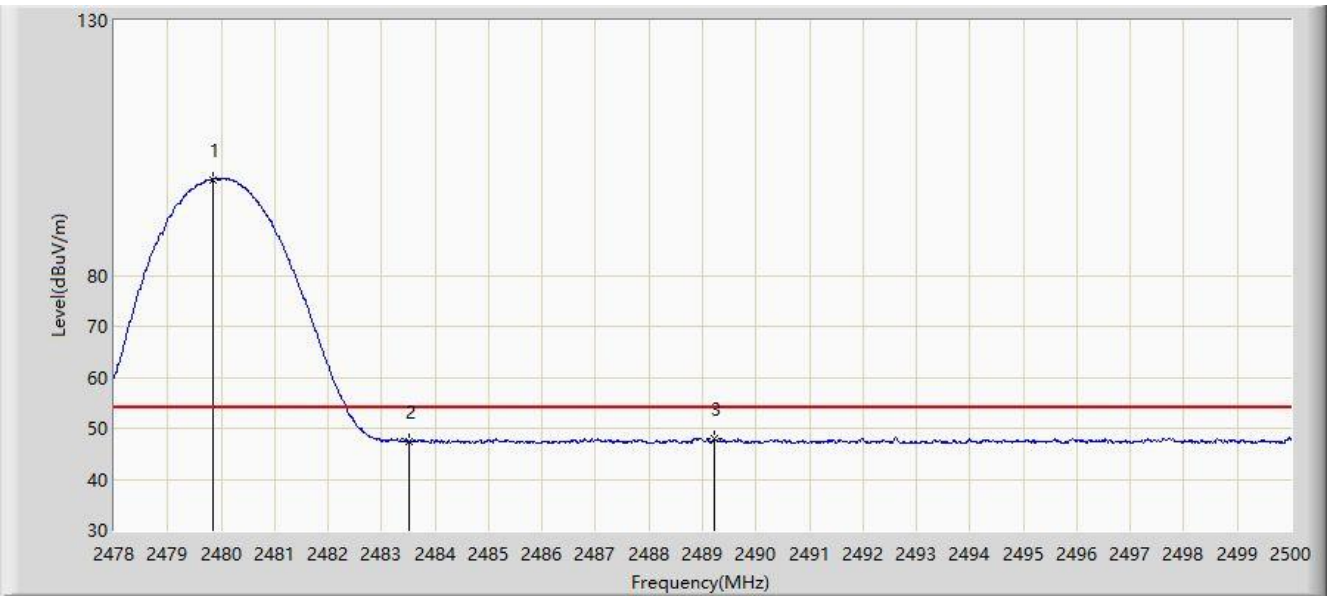


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.727	99.176	68.285	N/A	N/A	30.891	PK
2			2483.500	56.282	25.394	-17.718	74.000	30.888	PK
3			2484.578	57.945	27.058	-16.055	74.000	30.887	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Horizontal
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 1Mbps at Channel 2480MHz	

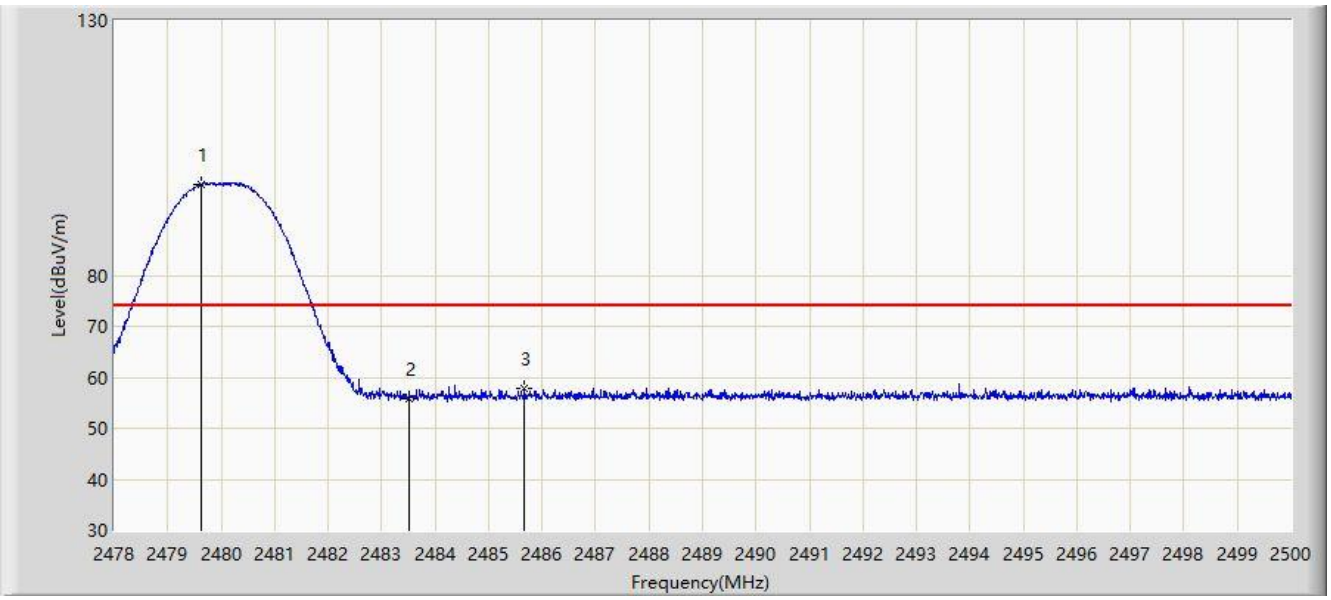


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.837	98.802	67.911	N/A	N/A	30.891	AV
2			2483.500	47.376	16.488	-6.624	54.000	30.888	AV
3			2489.209	47.962	17.078	-6.038	54.000	30.884	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Vertical
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 1Mbps at Channel 2480MHz	

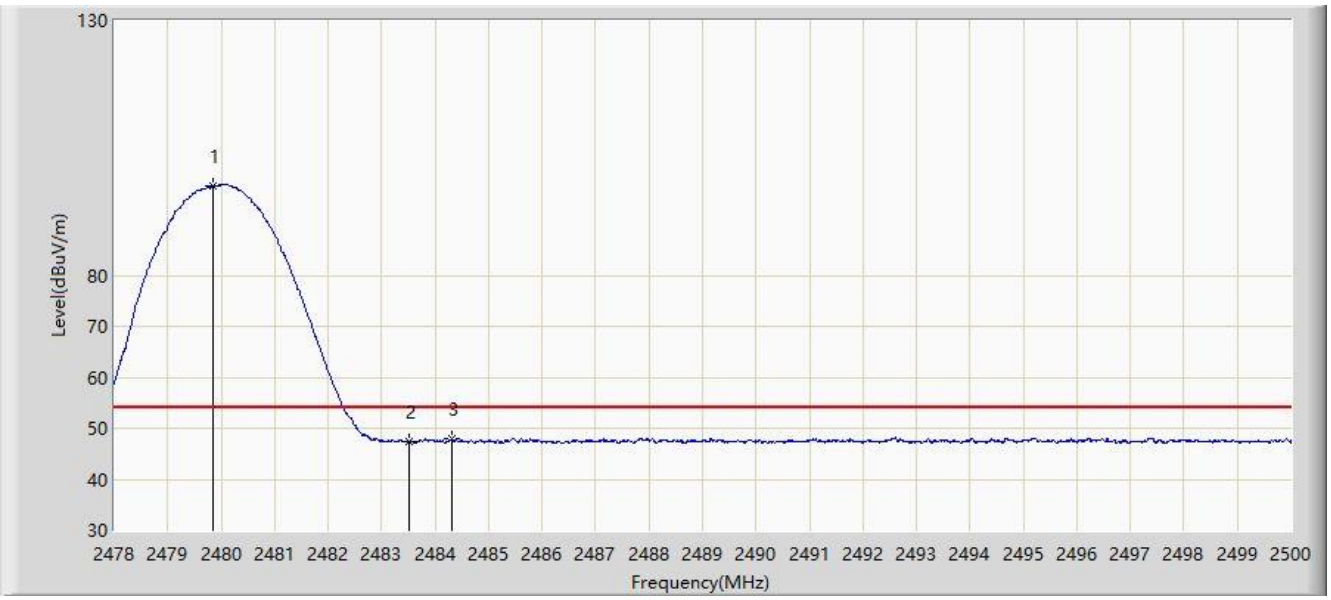


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.639	97.874	66.983	N/A	N/A	30.891	PK
2			2483.500	55.748	24.860	-18.252	74.000	30.888	PK
3			2485.667	57.927	27.040	-16.073	74.000	30.887	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Vertical
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 1Mbps at Channel 2480MHz	

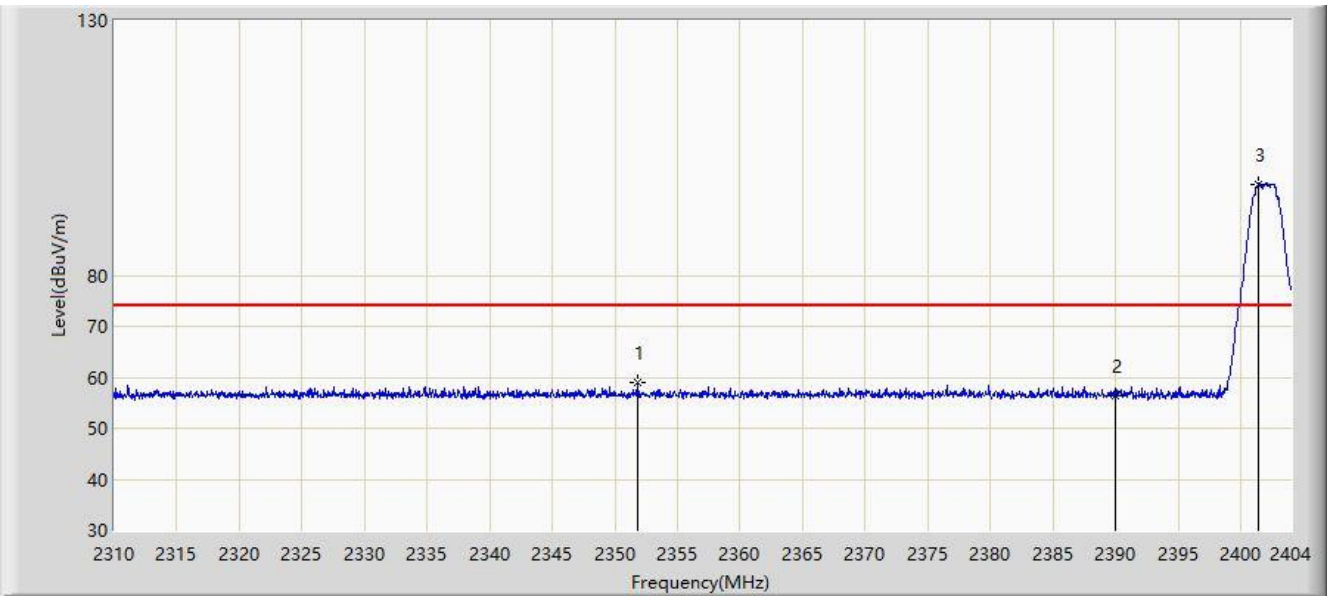


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.859	97.558	66.667	N/A	N/A	30.891	AV
2			2483.500	47.340	16.452	-6.660	54.000	30.888	AV
3			2484.303	47.876	16.988	-6.124	54.000	30.888	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Horizontal
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 2Mbps at Channel 2402MHz	

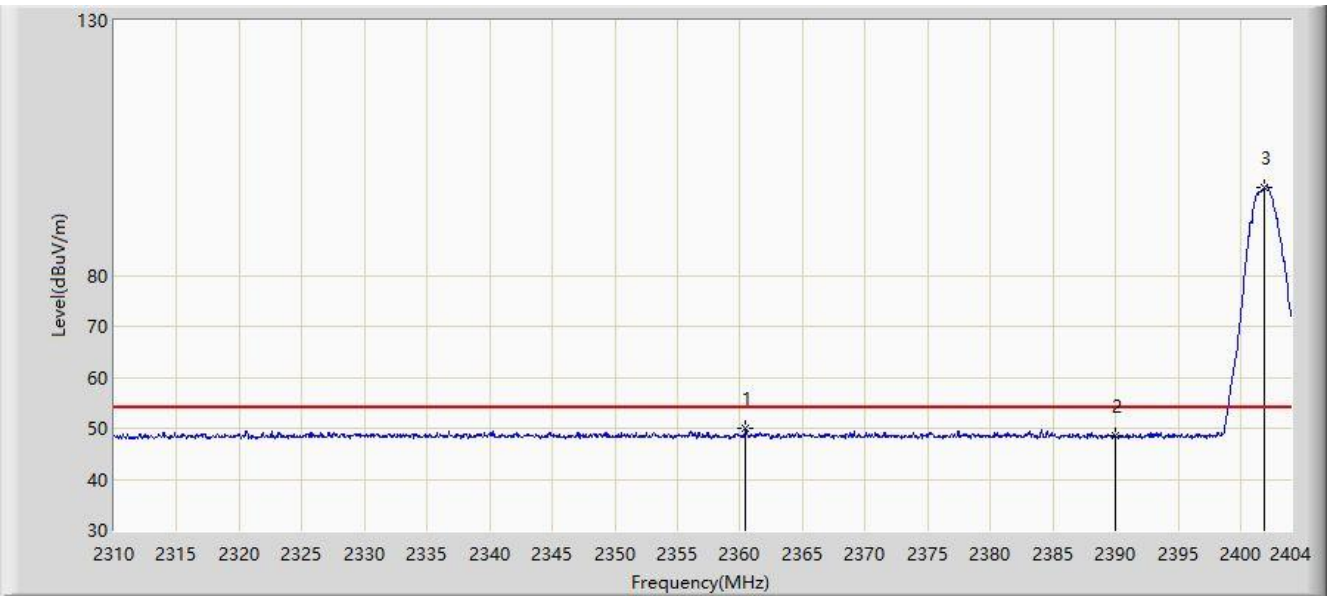


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2351.830	58.855	27.859	-15.145	74.000	30.997	PK
2			2390.000	56.337	25.431	-17.663	74.000	30.906	PK
3		*	2401.415	97.956	67.060	N/A	N/A	30.896	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Horizontal
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 2Mbps at Channel 2402MHz	

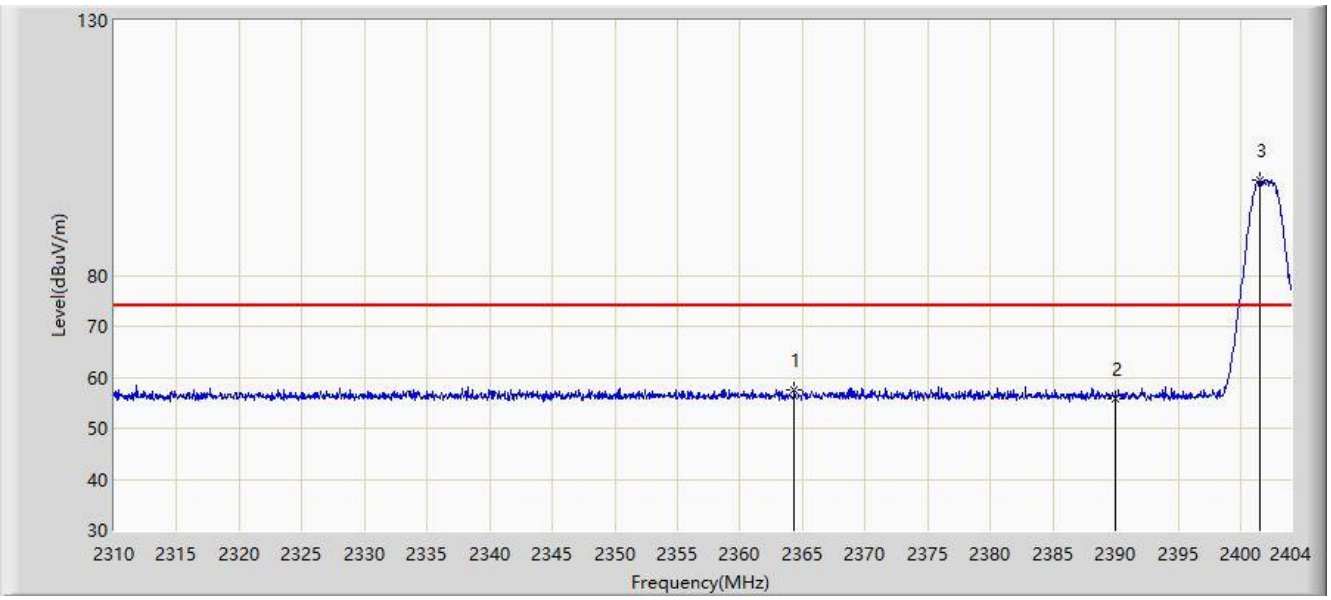


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2360.431	50.008	19.033	-3.992	54.000	30.975	AV
2			2390.000	48.411	17.505	-5.589	54.000	30.906	AV
3		*	2401.932	97.382	66.486	N/A	N/A	30.896	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Vertical
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 2Mbps at Channel 2402MHz	

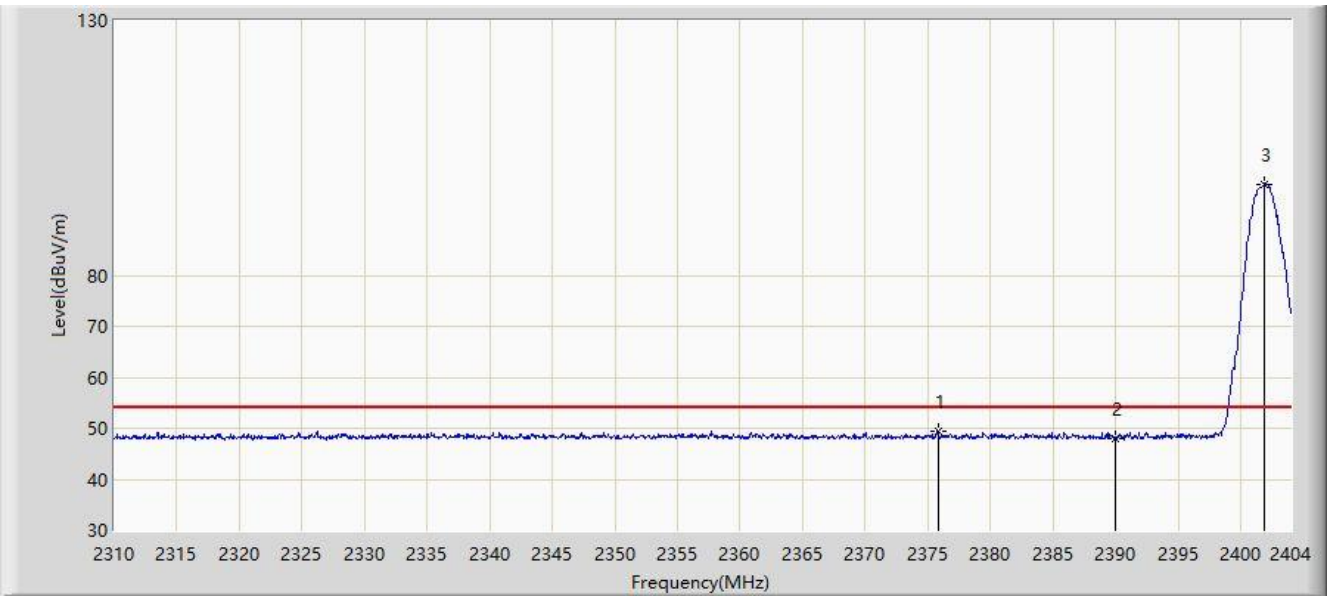


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2364.332	57.504	26.538	-16.496	74.000	30.966	PK
2			2390.000	55.660	24.754	-18.340	74.000	30.906	PK
3		*	2401.509	98.765	67.869	N/A	N/A	30.896	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Vertical
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 2Mbps at Channel 2402MHz	

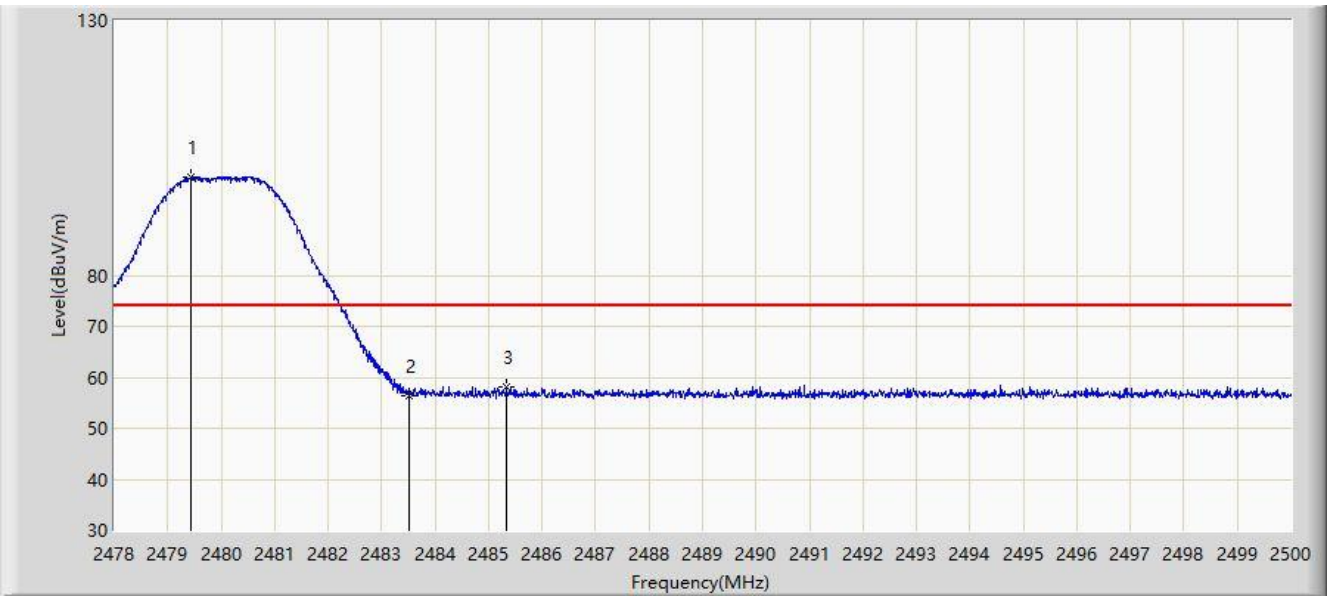


No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV/m)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV/m)	Factor (dB)	Type
1			2375.800	49.437	18.498	-4.563	54.000	30.939	AV
2			2390.000	47.981	17.075	-6.019	54.000	30.906	AV
3		*	2401.885	97.868	66.972	N/A	N/A	30.896	AV

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Horizontal
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 2Mbps at Channel 2480MHz	

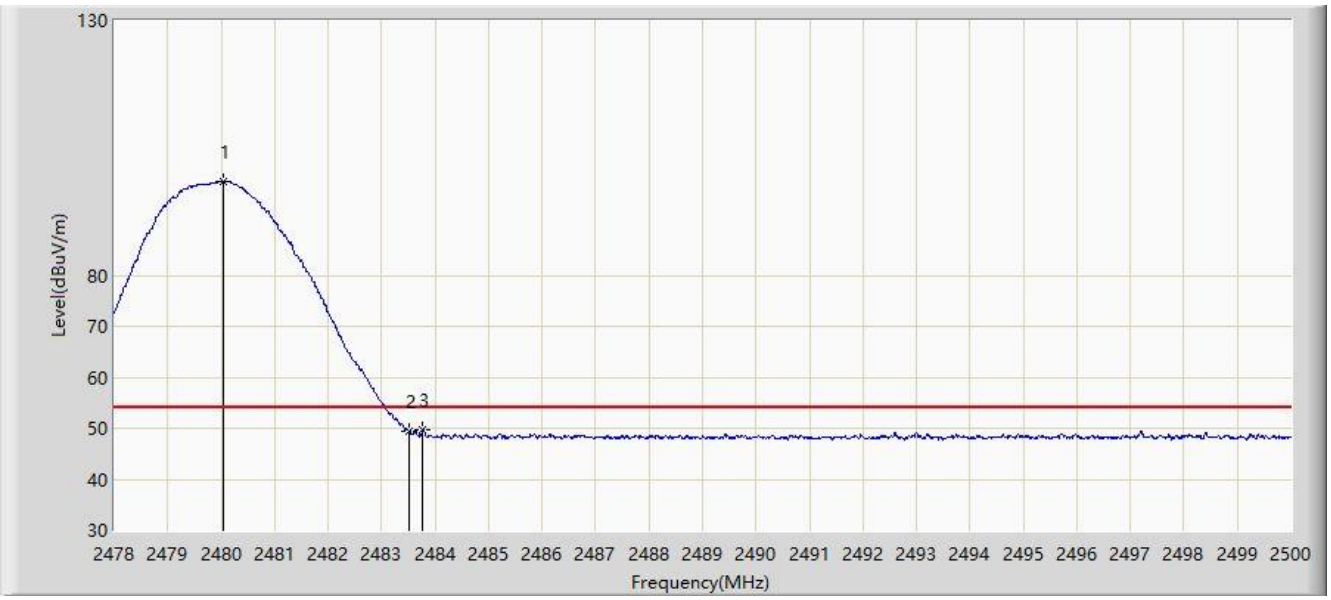


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.430	99.151	68.260	N/A	N/A	30.891	PK
2			2483.500	56.373	25.485	-17.627	74.000	30.888	PK
3			2485.337	58.037	27.150	-15.963	74.000	30.887	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Horizontal
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 2Mbps at Channel 2480MHz	

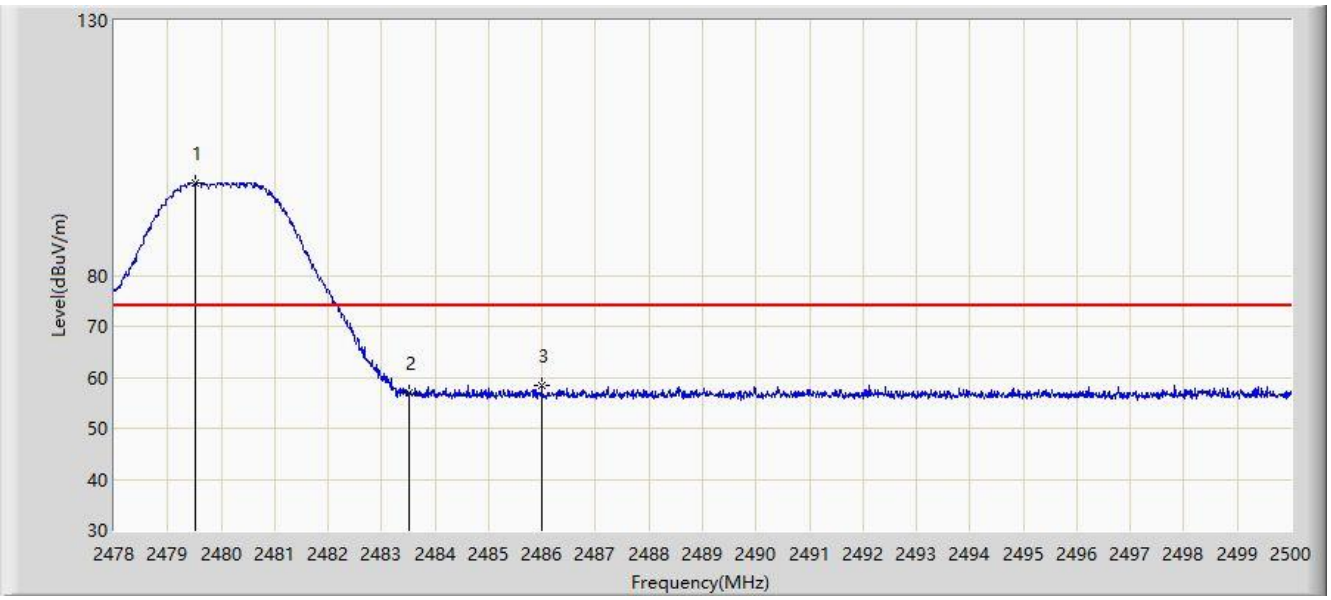


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2480.035	98.480	67.589	N/A	N/A	30.891	AV
2			2483.500	49.472	18.584	-4.528	54.000	30.888	AV
3			2483.775	49.654	18.766	-4.346	54.000	30.888	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Vertical
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 2Mbps at Channel 2480MHz	

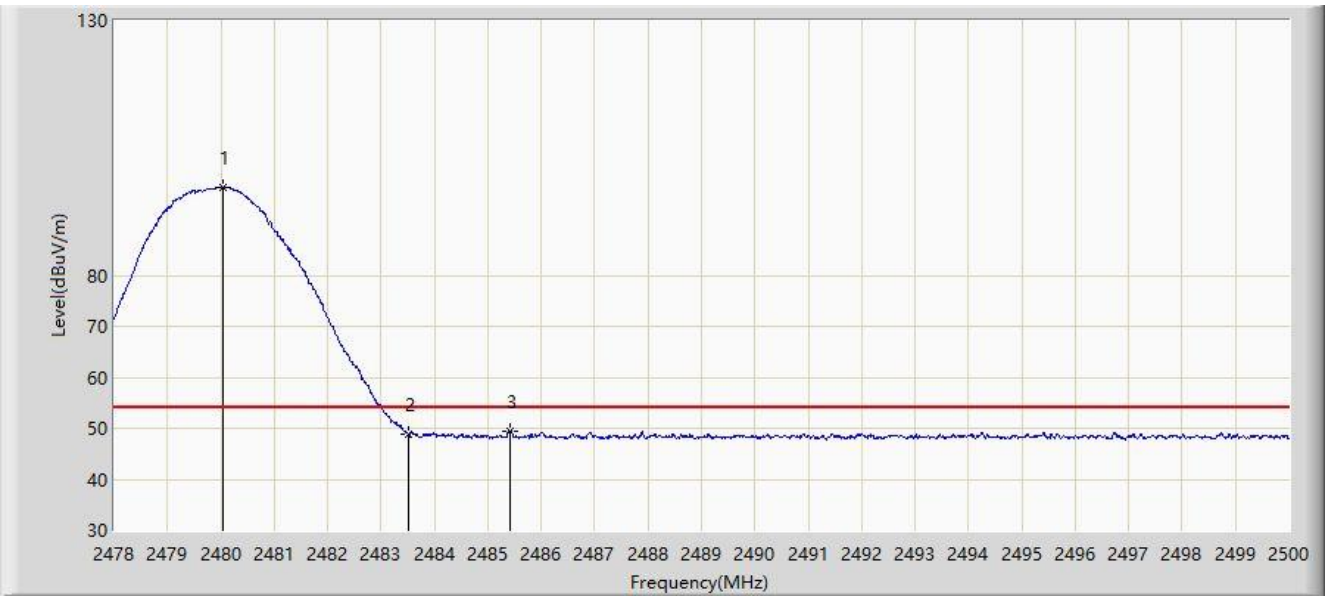


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.518	98.209	67.318	N/A	N/A	30.891	PK
2			2483.500	56.861	25.973	-17.139	74.000	30.888	PK
3			2485.997	58.329	27.443	-15.671	74.000	30.886	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: NS-AC1	Test Date: 2021/03/31
Limit: FCC_Part15_15.209_RE(3m)	Engineer: Antony Yang
Probe: NS-AC1_BBHA9120D_2111	Polarity: Vertical
EUT: CERT 12	Power: By Battery
Test Mode: Transmit by BLE 2Mbps at Channel 2480MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2480.046	97.248	66.357	N/A	N/A	30.891	AV
2			2483.500	48.977	18.089	-5.023	54.000	30.888	AV
3			2485.414	49.470	18.583	-4.530	54.000	30.887	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

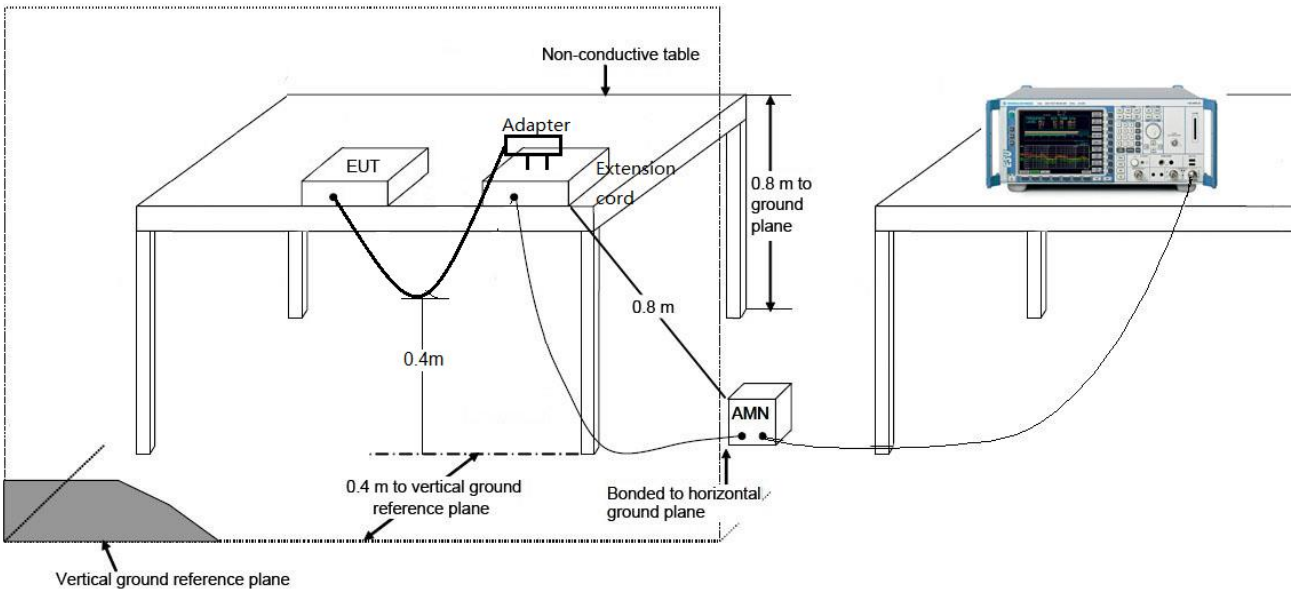
Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

6.8. AC Conducted Emissions Measurement

6.8.1.Test Limit

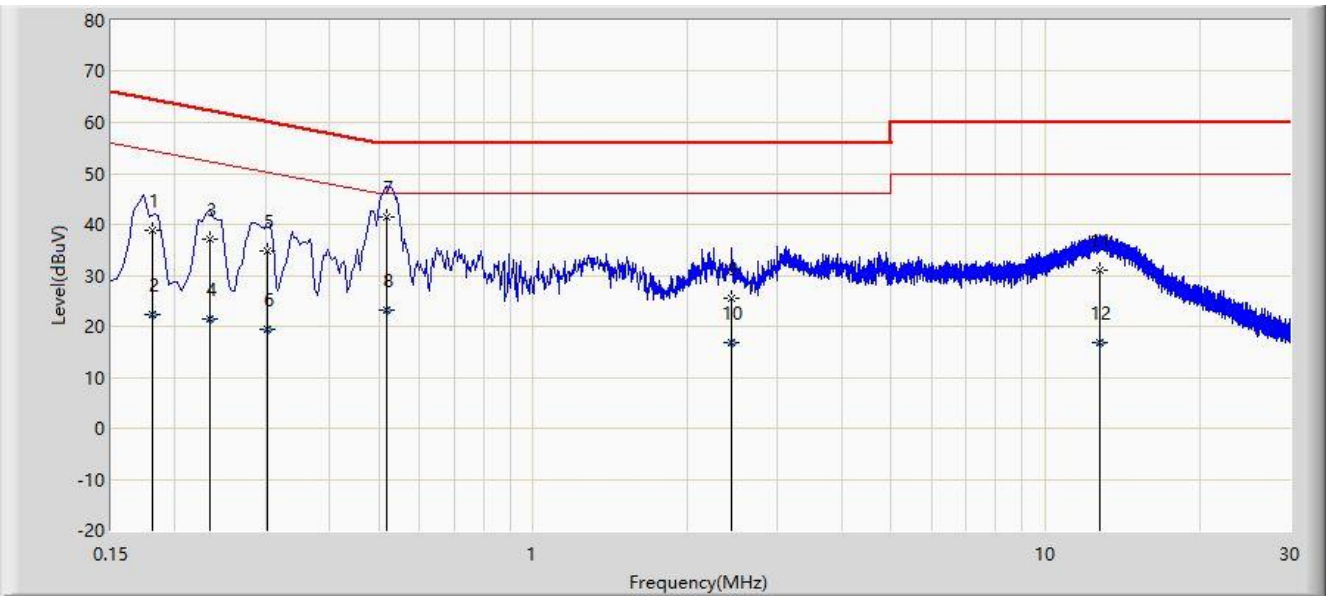
FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBμV)	Average (dBμV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

6.8.2.Test Setup



6.8.3.Test Result

Site: NS-SR2	Time: 2021/03/31
Limit: FCC_Part15.207_CE_AC Power	Engineer: Flag Yang
Probe: ENV216_102493_Filter Off_0.15~30MHz	Polarity: Line
EUT: View Pollution	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at Channel 2440MHz	

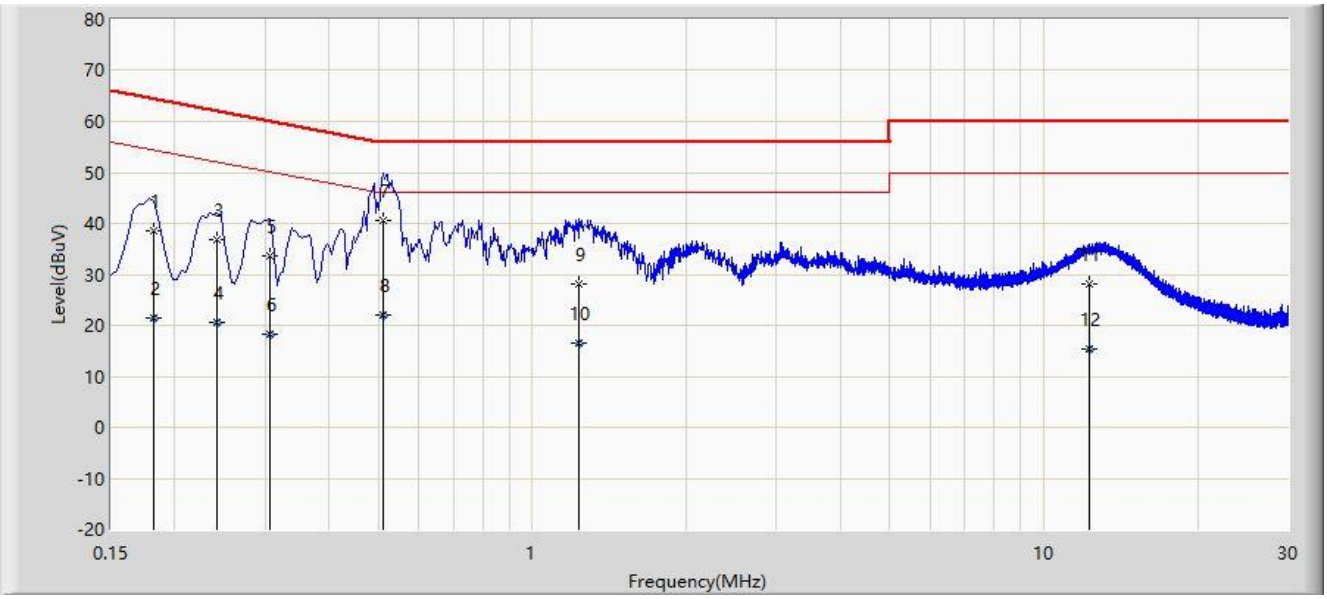


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV)	Factor (dB)	Type
1			0.180	38.910	29.368	-25.589	64.499	9.542	QP
2			0.180	22.180	12.638	-32.319	54.499	9.542	AV
3			0.234	37.169	27.626	-25.138	62.307	9.542	QP
4			0.234	21.433	11.890	-30.874	52.307	9.542	AV
5			0.302	34.898	25.353	-25.290	60.188	9.545	QP
6		*	0.302	19.337	9.792	-30.851	50.188	9.545	AV
7			0.518	41.544	31.980	-14.456	56.000	9.564	QP
8			0.518	23.279	13.715	-22.721	46.000	9.564	AV
9			2.434	25.468	15.823	-30.532	56.000	9.646	QP
10			2.434	16.729	7.083	-29.271	46.000	9.646	AV
11			12.754	31.153	21.325	-28.847	60.000	9.828	QP
12			12.754	16.783	6.954	-33.217	50.000	9.828	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: NS-SR2	Time: 2021/03/31
Limit: FCC_Part15.207_CE_AC Power	Engineer: Flag Yang
Probe: ENV216_102493_Filter Off_0.15~30MHz	Polarity: Neutral
EUT: View Pollution	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at Channel 2440MHz	



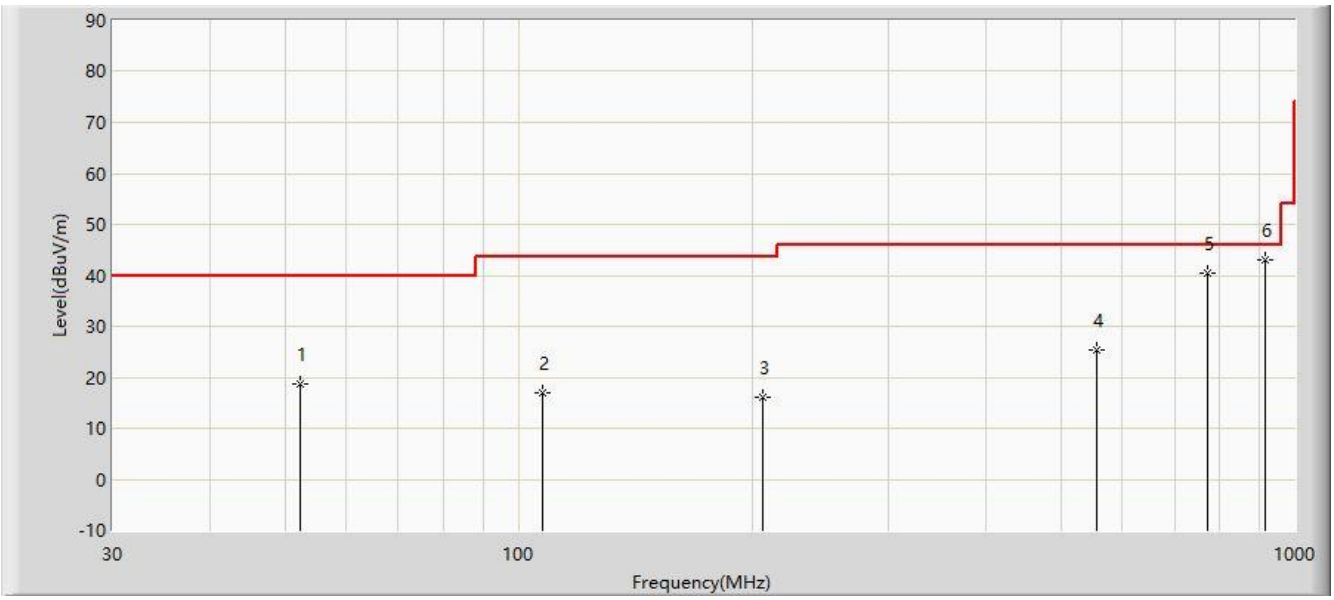
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV)	Factor (dB)	Type
1			0.182	38.452	28.910	-25.942	64.394	9.542	QP
2			0.182	21.583	12.041	-32.811	54.394	9.542	AV
3			0.242	36.725	27.181	-25.302	62.027	9.544	QP
4			0.242	20.647	11.103	-31.380	52.027	9.544	AV
5			0.306	33.731	24.176	-26.347	60.078	9.555	QP
6			0.306	18.381	8.826	-31.697	50.078	9.555	AV
7			0.510	40.534	30.960	-15.466	56.000	9.574	QP
8		*	0.510	21.994	12.420	-24.006	46.000	9.574	AV
9			1.234	27.992	18.385	-28.008	56.000	9.607	QP
10			1.234	16.654	7.047	-29.346	46.000	9.607	AV
11			12.274	28.175	18.320	-31.825	60.000	9.855	QP
12			12.274	15.448	5.593	-34.552	50.000	9.855	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

6.9. Test Result of Radiated Emissions for Co-location

Site: NS-AC1	Time: 2021/04/30
Limit: FCC_Part 15.109_RE(3m)_ClassB	Engineer: Dillon Diao
Probe: NS-AC1_VULB9162	Polarity: Horizontal
EUT: View	Power: By Battery
Note: Co-location	



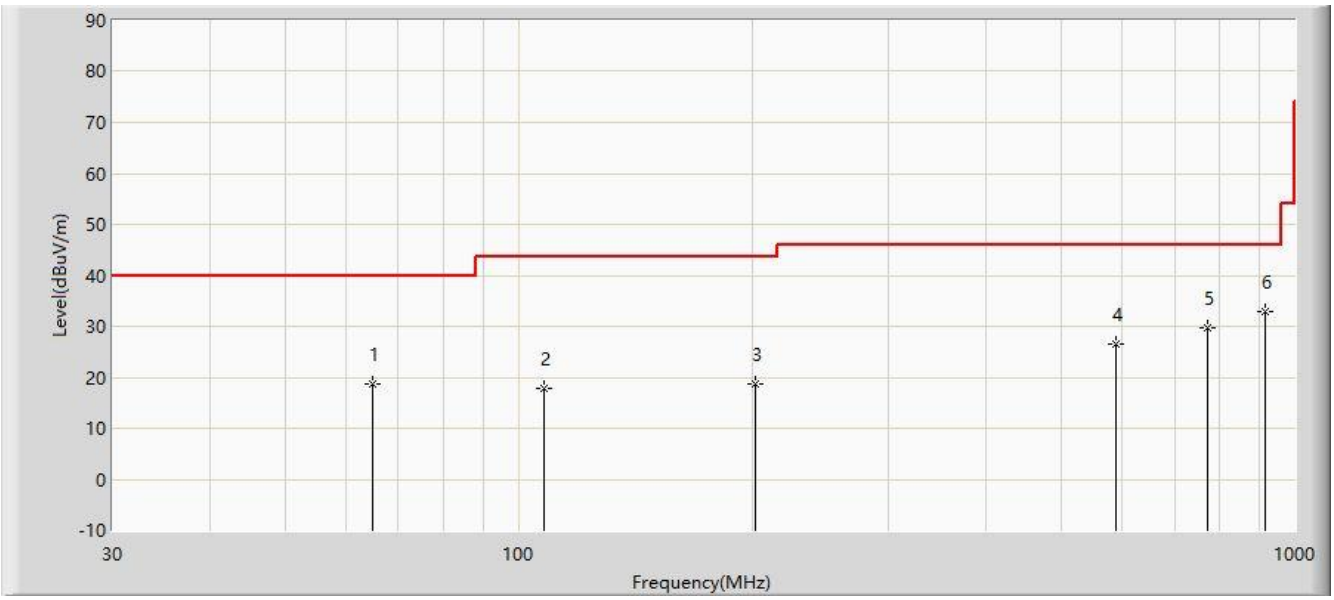
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			52.310	18.675	-0.911	-21.325	40.000	19.586	PK
2			107.600	16.938	-1.152	-26.562	43.500	18.090	PK
3			206.540	15.992	-1.555	-27.508	43.500	17.547	PK
4			556.710	25.471	1.558	-20.529	46.000	23.913	PK
5			772.050	40.541	13.510	-5.459	46.000	27.031	PK
6		*	916.095	42.935	14.164	-3.065	46.000	28.771	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Site: NS-AC1	Time: 2021/04/30
Limit: FCC_Part 15.109_RE(3m)_ClassB	Engineer: Dillon Diao
Probe: NS-AC1_VULB9162	Polarity: Vertical
EUT: View	Power: By Battery
Note: Co-location	



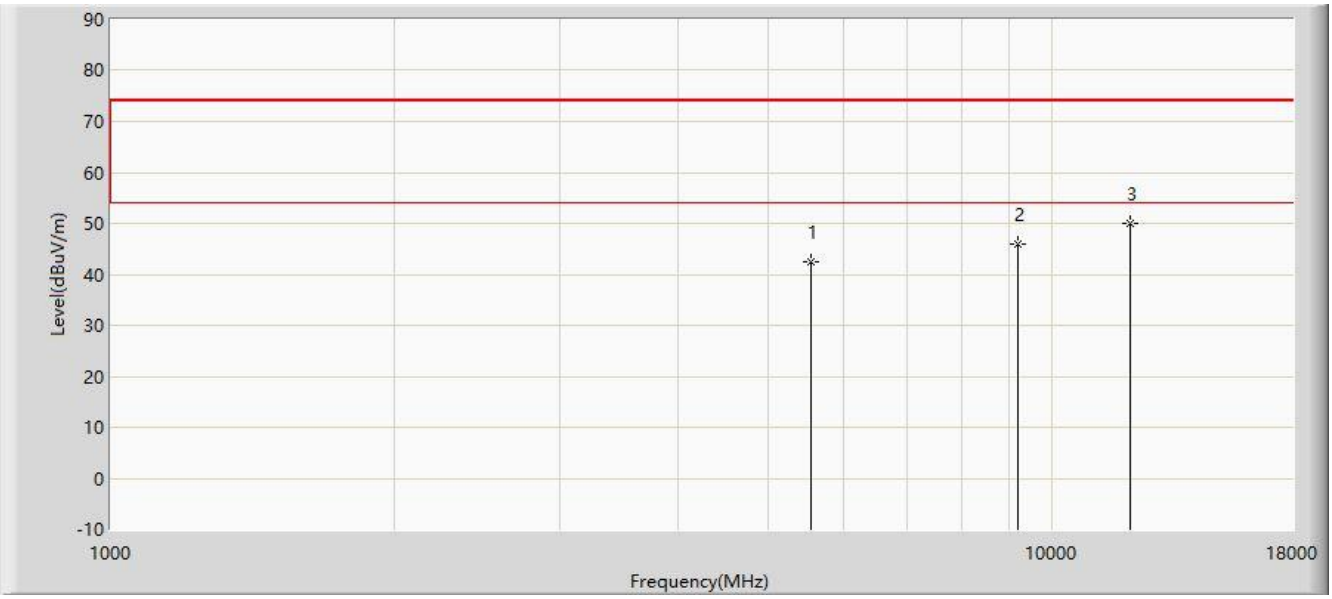
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			64.920	18.778	1.170	-21.222	40.000	17.608	PK
2			108.085	17.752	-0.330	-25.748	43.500	18.081	PK
3			201.690	18.590	1.095	-24.910	43.500	17.495	PK
4			589.205	26.414	1.806	-19.586	46.000	24.608	PK
5			773.020	29.634	2.597	-16.366	46.000	27.037	PK
6		*	917.065	32.891	4.115	-13.109	46.000	28.776	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Site: NS-AC1	Time: 2021/04/30
Limit: FCC_Part 15.109_RE(3m)_ClassB	Engineer: Dillon Diao
Probe: NS-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: View	Power: By Battery
Note: Co-location	

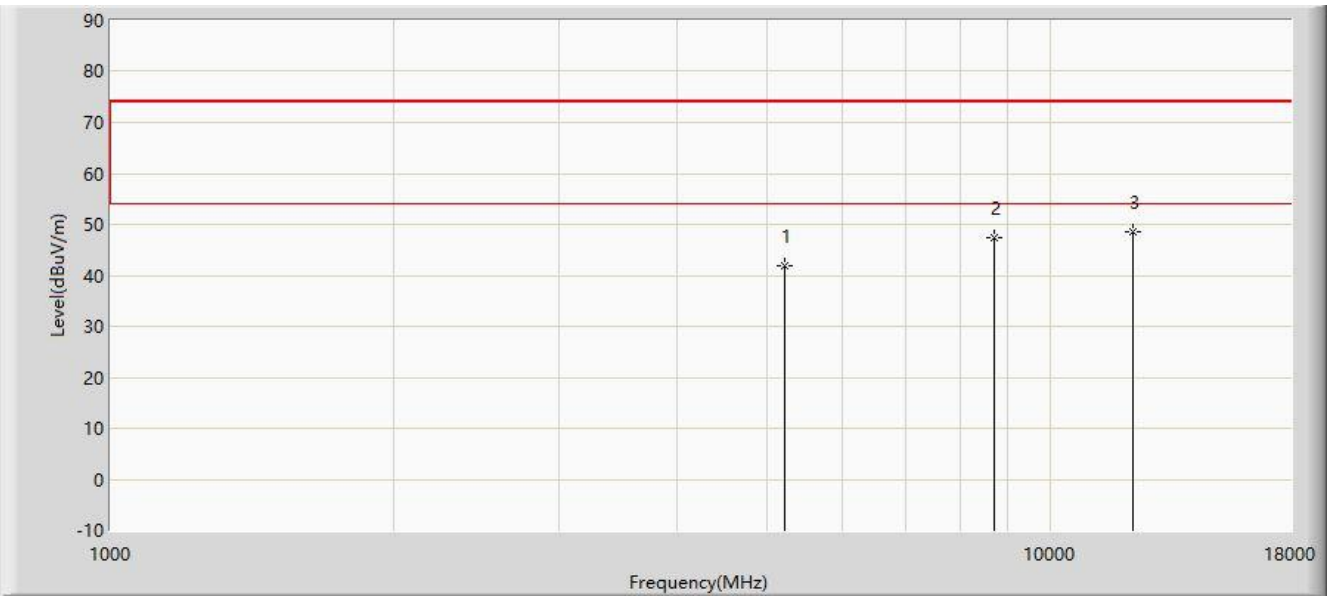


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			5547.500	42.377	38.375	-31.623	74.000	4.003	PK
2			9177.000	45.806	33.469	-28.194	74.000	12.337	PK
3		*	12109.500	49.915	34.076	-24.085	74.000	15.839	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: NS-AC1	Time: 2021/04/30
Limit: FCC_Part 15.109_RE(3m)_ClassB	Engineer: Dillon Diao
Probe: NS-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: View	Power: By Battery
Note: Co-location	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			5207.500	41.753	38.242	-32.247	74.000	3.511	PK
2			8718.000	47.481	35.626	-26.519	74.000	11.855	PK
3		*	12228.500	48.588	33.193	-25.412	74.000	15.395	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

7. CONCLUSION

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

The End

Appendix A - Test Setup Photograph

Refer to “2103RSU015-UT” file.

Appendix B - EUT Photograph

Refer to “2103RSU015-UE” file.