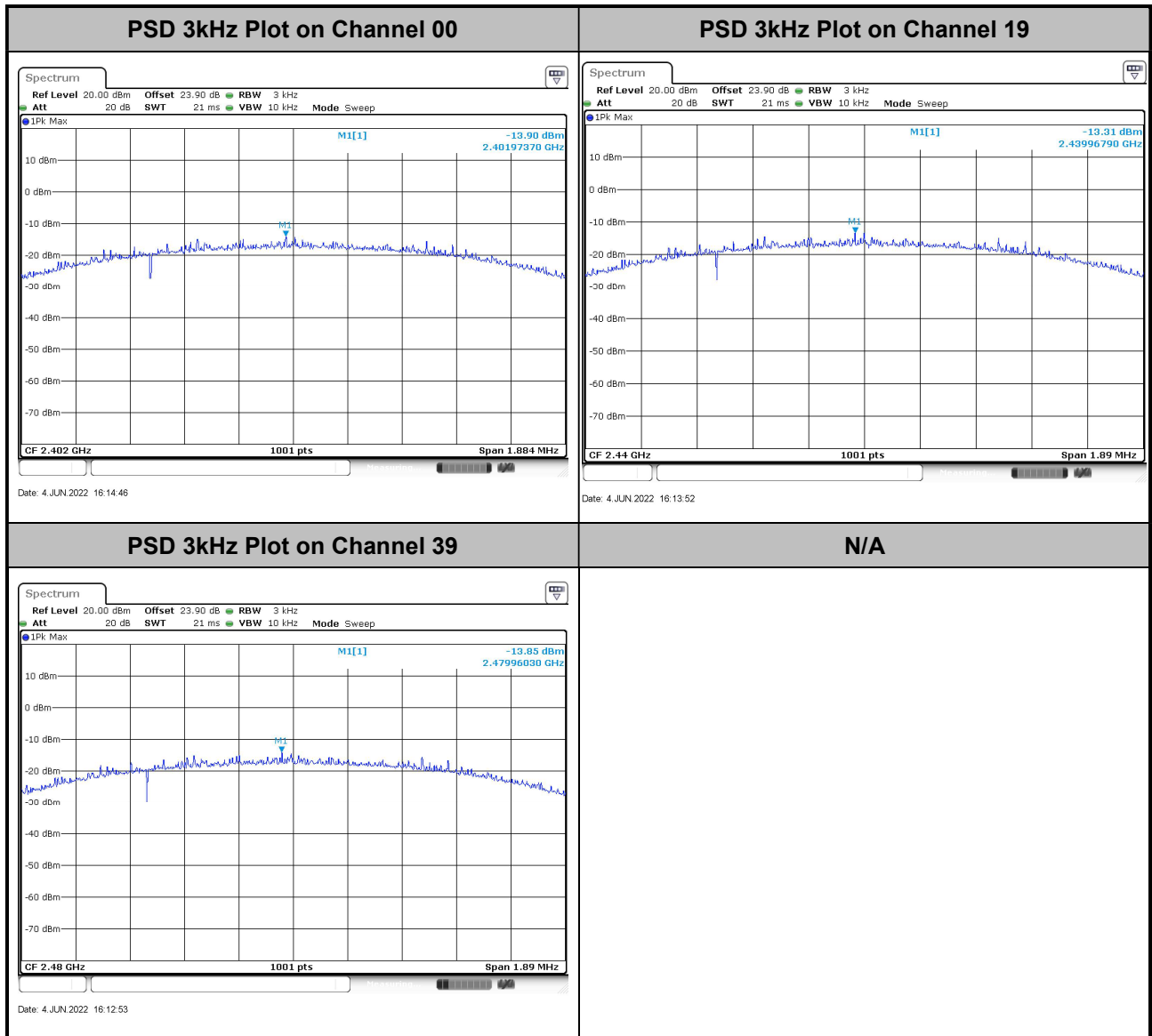




<2Mbps>



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

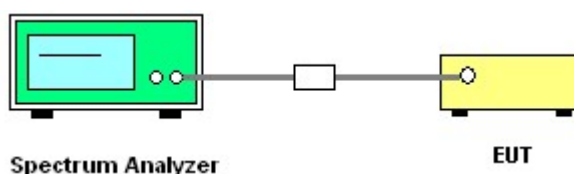
3.4.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.4.3 Test Procedure

1. The testing follows the ANSI C63.10 Section 11.11.3 Emission level measurement.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Set RBW = 100 kHz, VBW = 300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

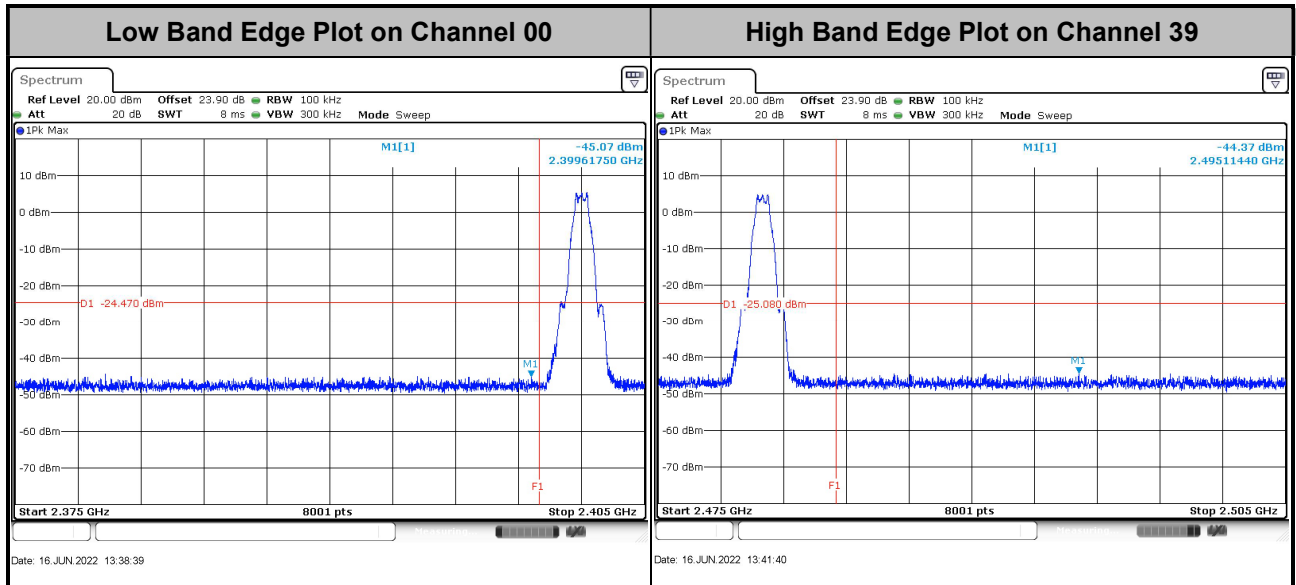
3.4.4 Test Setup



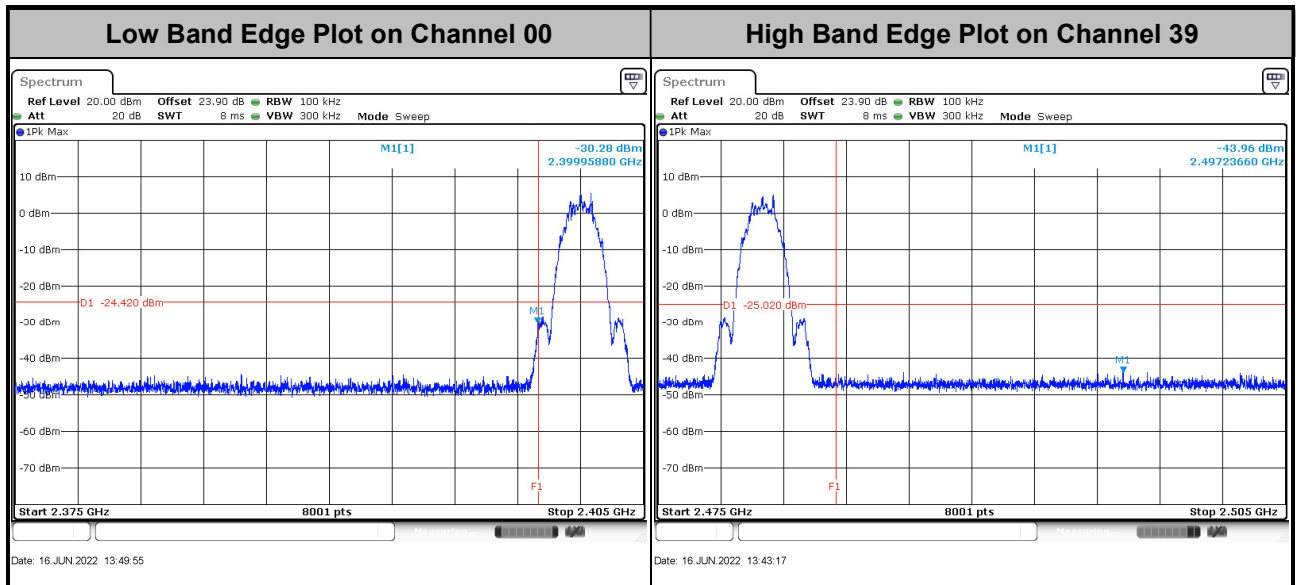


3.4.5 Test Result of Conducted Band Edges Plots

<1Mbps>

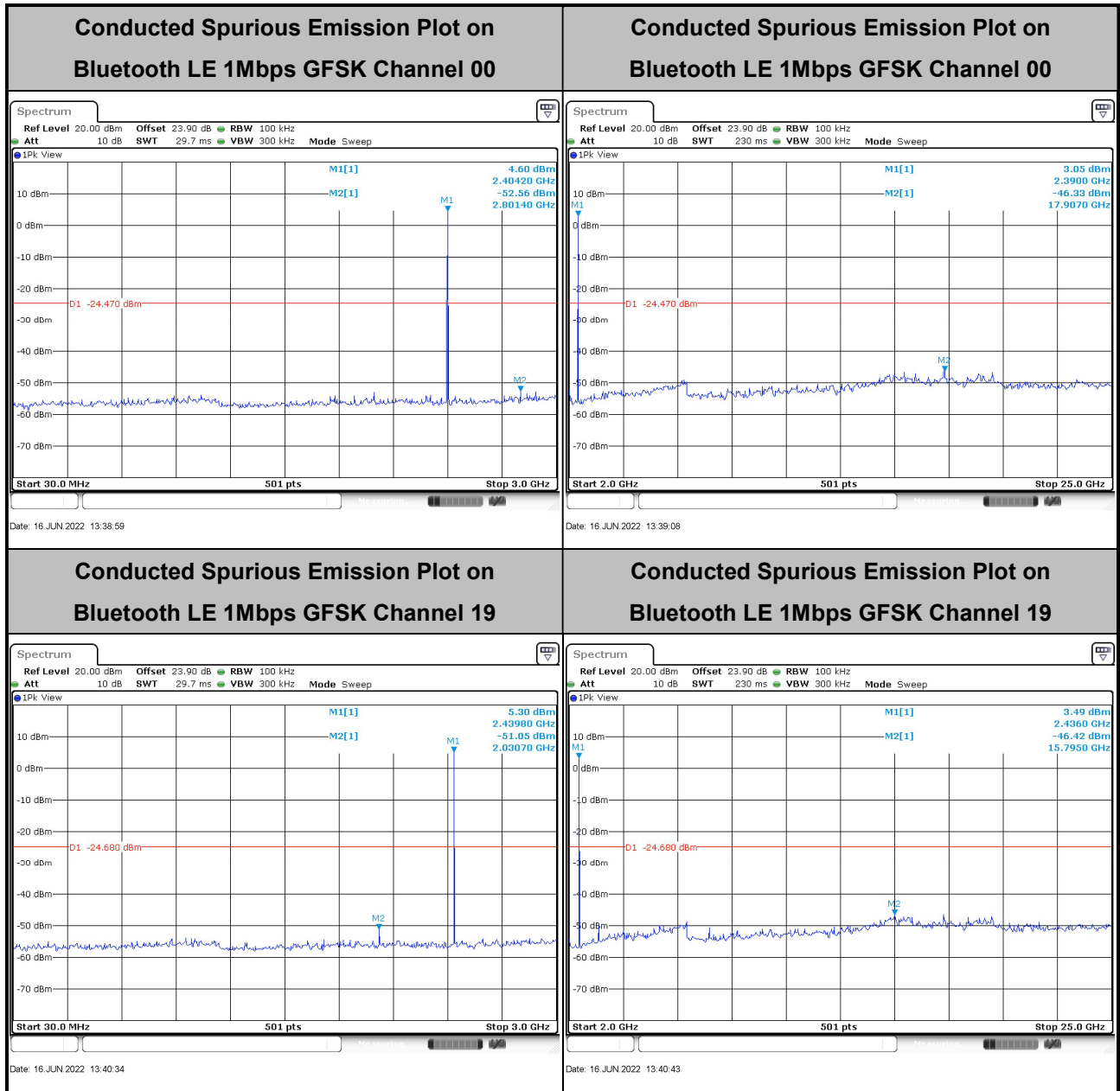


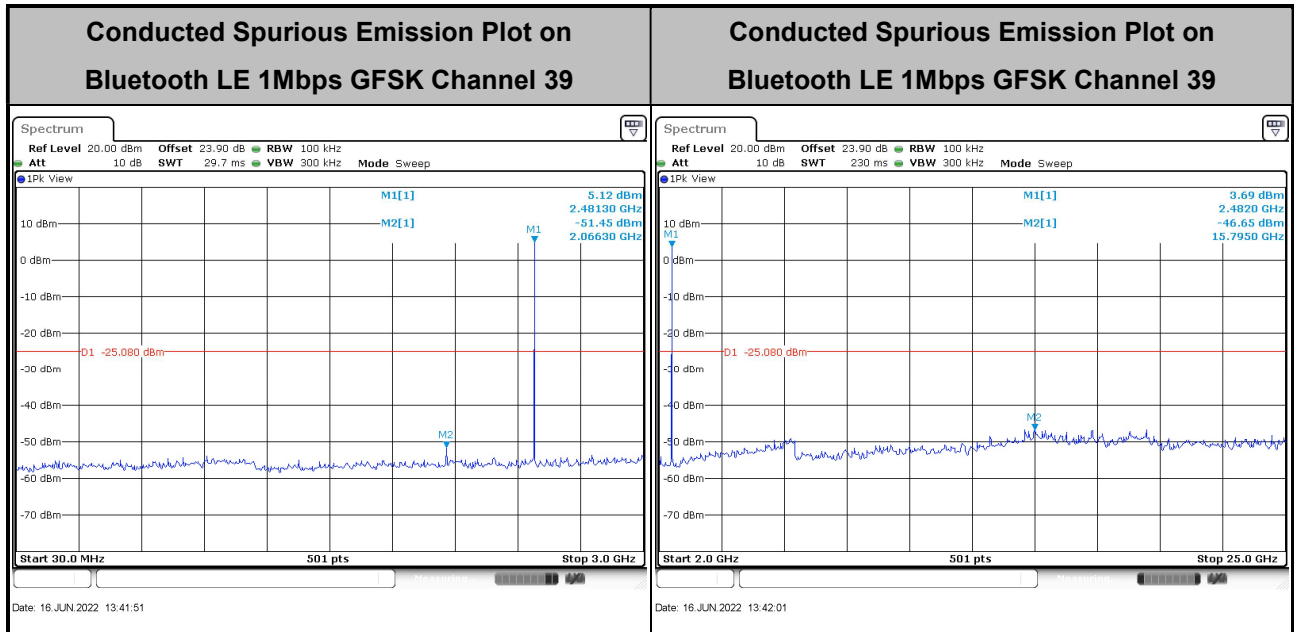
<2Mbps>



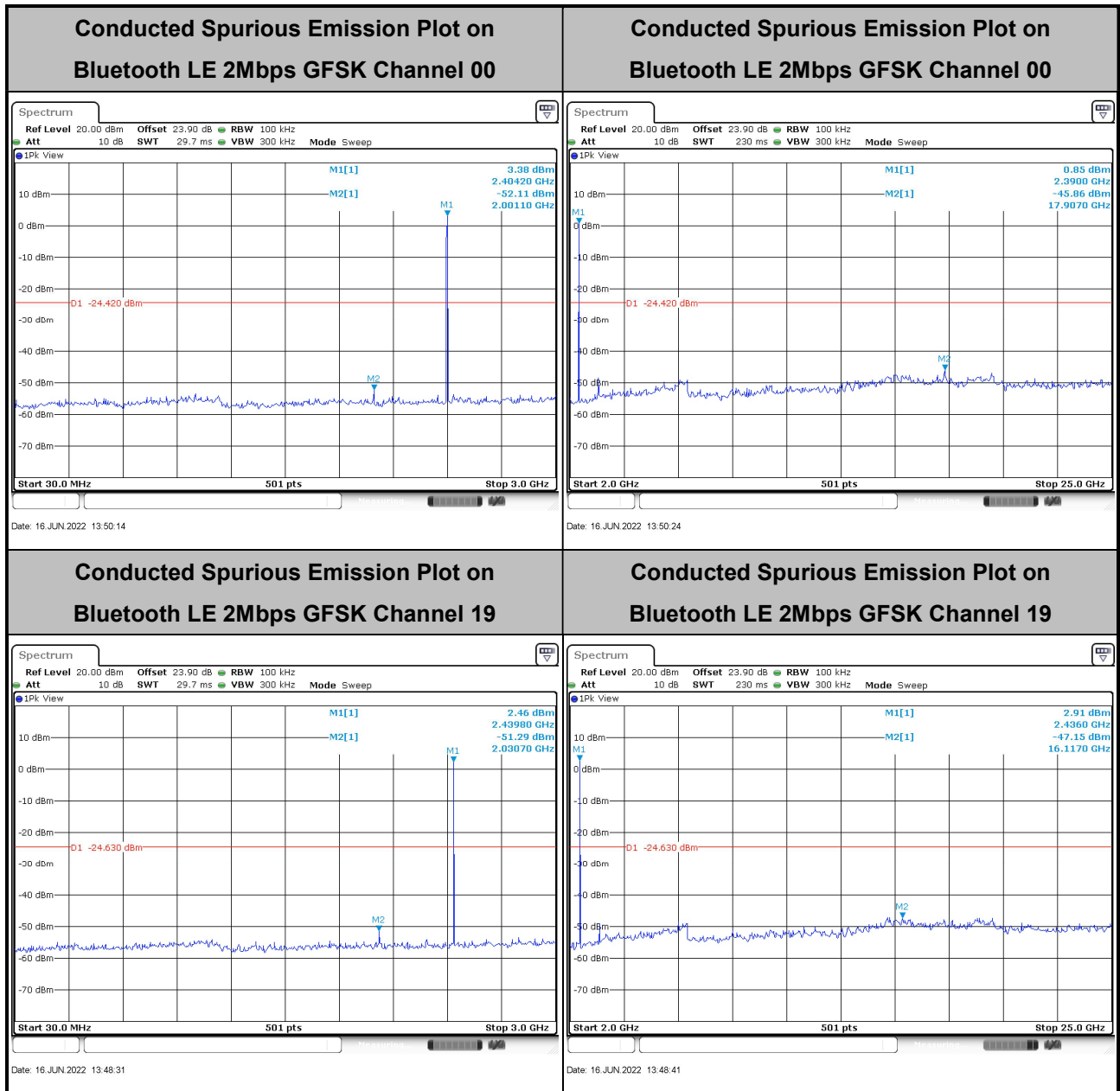
3.4.6 Test Result of Conducted Spurious Emission Plots

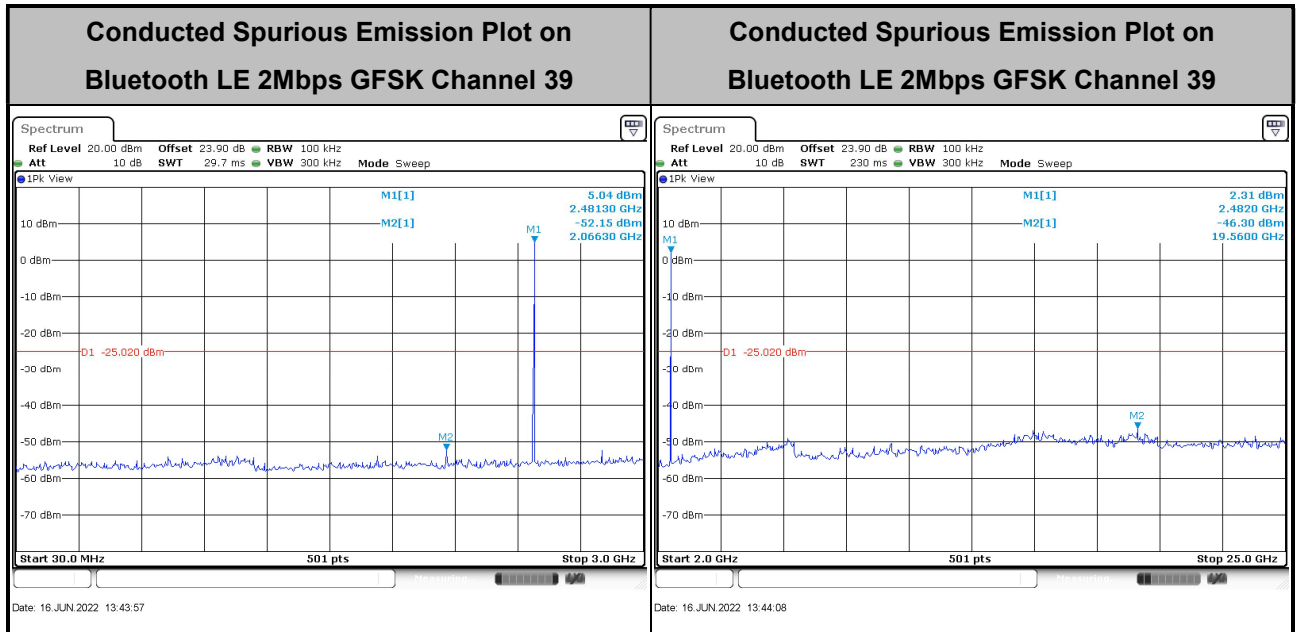
<1Mbps>





<2Mbps>





3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device is measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.5.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

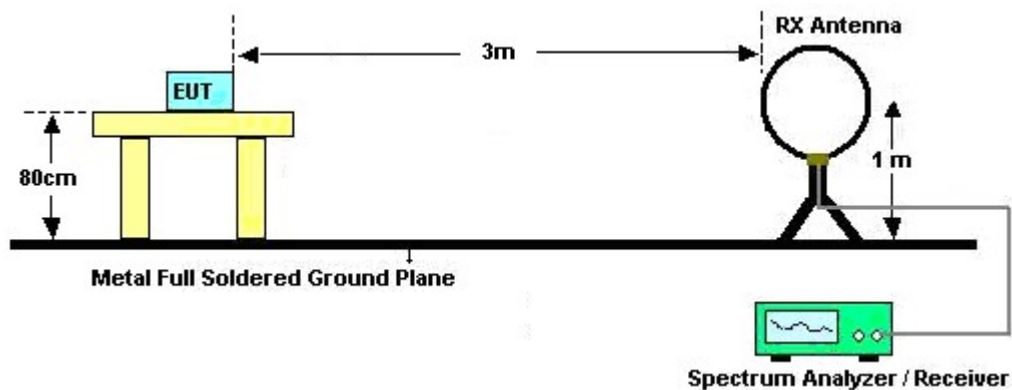


3.5.3 Test Procedures

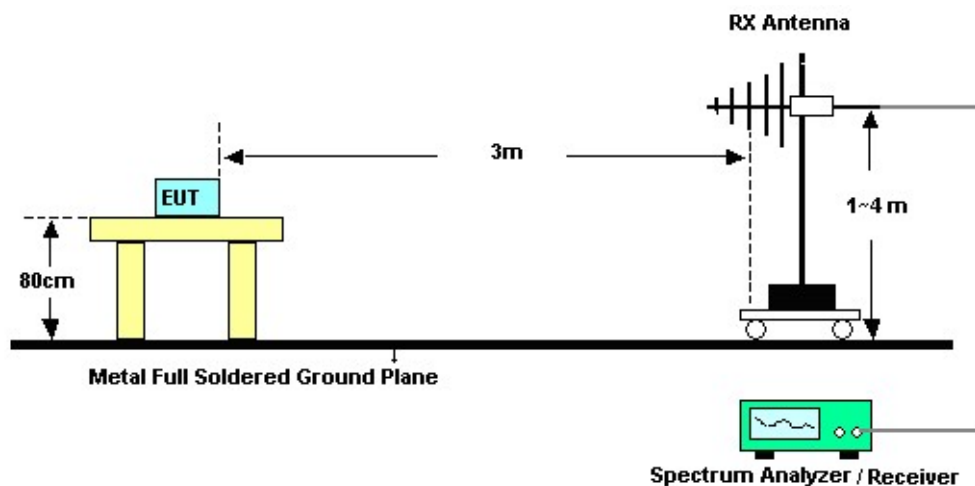
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
4. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-”.
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-”.
8. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW = 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW = 3 MHz for $f \geq 1$ GHz for peak measurement.
For average measurement:
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

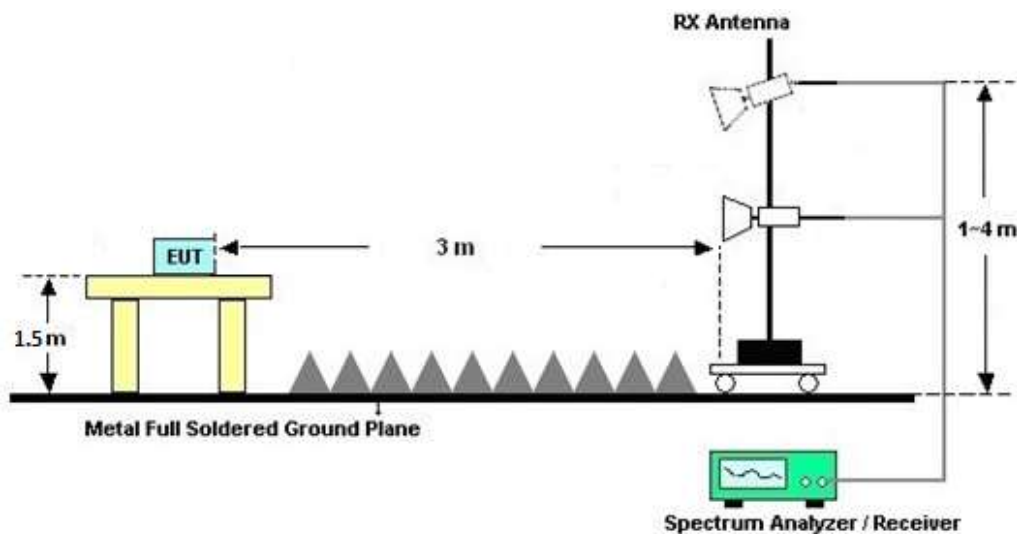
For radiated test below 30MHz



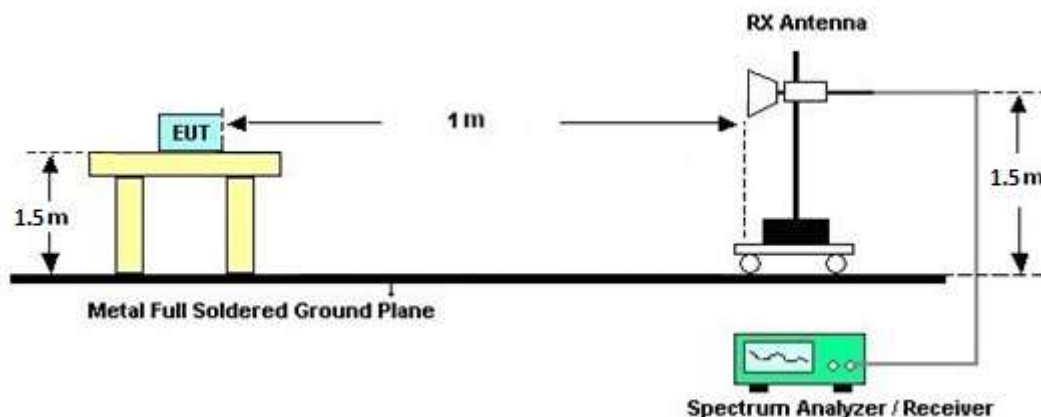
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



3.5.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result comes out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.5.7 Duty Cycle

Please refer to Appendix E.

3.5.8 Test Result of Radiated Spurious Emission (30 MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

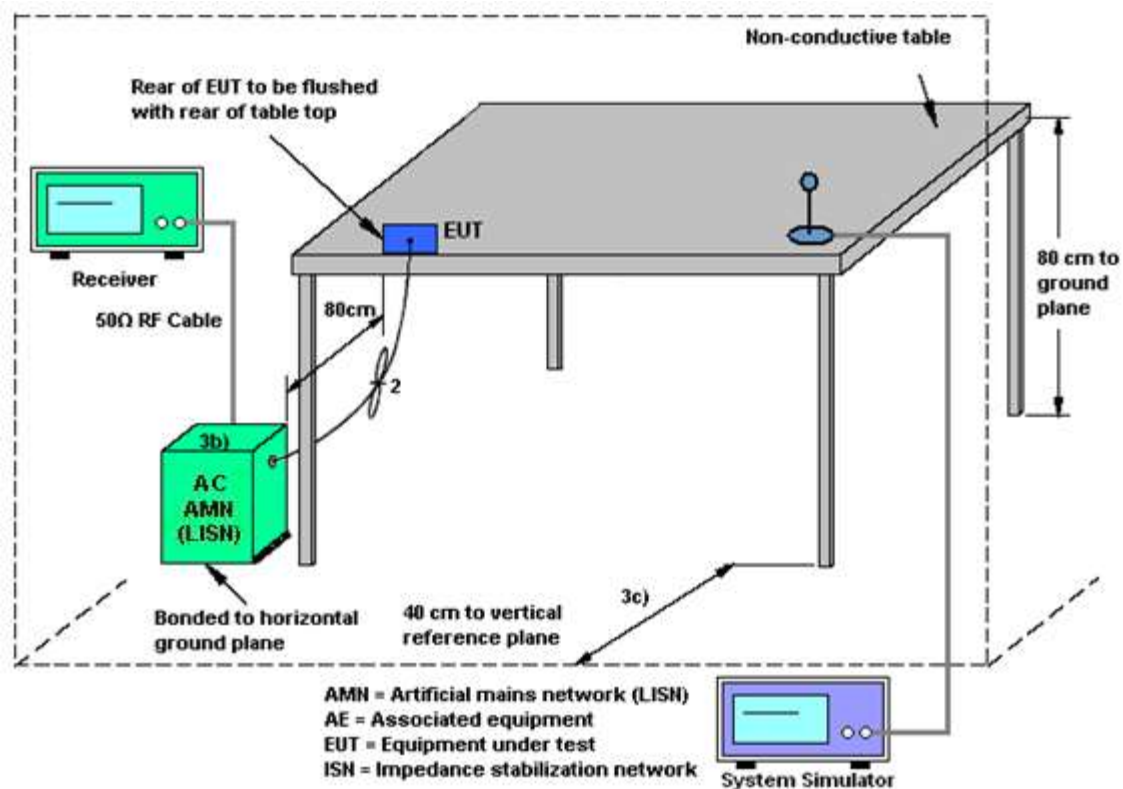
3.6.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.6.3 Test Procedures

1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN shall be used.
6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
7. The frequency range from 150 kHz to 30 MHz is scanned.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9 kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Jun. 04, 2022 Jun. 16, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO 12 (NO:113)	10MHz~6GHz	Dec. 16, 2021	Jun. 04, 2022 Jun. 16, 2022	Dec. 15, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Jun. 04, 2022 Jun. 16, 2022	Aug. 29, 2022	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jun. 07, 2022	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 01, 2021	Jun. 07, 2022	Nov. 30, 2022	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 17, 2021	Jun. 07, 2022	Nov. 16, 2022	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 03, 2021	Jun. 07, 2022	Dec. 02, 2022	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Jun. 07, 2022	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Jul. 28, 2021	Jun. 07, 2022	Jul. 27, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 30, 2021	Jun. 07, 2022	Dec. 29, 2022	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9kHz~30MHz	Sep. 07, 2021	May 30, 2022~ Jun. 22, 2022	Sep. 06, 2022	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	40103 & 07	30MHz~1GHz	Apr. 24, 2022	May 30, 2022~ Jun. 22, 2022	Apr. 23, 2023	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1241	1GHz~18GHz	Jul. 13, 2021	May 30, 2022~ Jun. 22, 2022	Jul. 12, 2022	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00994	18GHz~40GHz	Nov. 04, 2021	May 30, 2022~ Jun. 22, 2022	Nov. 03, 2022	Radiation (03CH13-HY)
Amplifier	Sonoma-Instrument	310 N	187282	9kHz~1GHz	Dec. 15, 2021	May 30, 2022~ Jun. 22, 2022	Dec. 14, 2022	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D- 00101800-30- 10P	1590074	1GHz~18GHz	May 17, 2022	May 30, 2022~ Jun. 22, 2022	May 16, 2023	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY53270147	1GHz~26.5GHz	Oct. 26, 2021	May 30, 2022~ Jun. 22, 2022	Oct. 25, 2022	Radiation (03CH13-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 24, 2021	May 30, 2022~ Jun. 22, 2022	Dec. 23, 2022	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	10Hz~44GHz	Mar. 18, 2022	May 30, 2022~ Jun. 22, 2022	Mar. 17, 2023	Radiation (03CH13-HY)
Hygrometer	TECPEL	DTM-303B	TP200889	N/A	Sep. 30, 2021	May 30, 2022~ Jun. 22, 2022	Sep. 29, 2022	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	May 30, 2022~ Jun. 22, 2022	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	May 30, 2022~ Jun. 22, 2022	N/A	Radiation (03CH13-HY)
Software	Audix	E3 6.2009-8- 24	RK-000992	N/A	N/A	May 30, 2022~ Jun. 22, 2022	N/A	Radiation (03CH13-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0030/126E	30MHz~18GHz	Feb. 09, 2022	May 30, 2022~ Jun. 22, 2022	Feb. 08, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	804793/4	30MHz~18GHz	Feb. 09, 2022	May 30, 2022~ Jun. 22, 2022	Feb. 08, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24961/4	30MHz~18GHz	Feb. 09, 2022	May 30, 2022~ Jun. 22, 2022	Feb. 08, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2, 804012/2	18GHz~40GHz	Jan. 04, 2022	May 30, 2022~ Jun. 22, 2022	Jan. 03, 2023	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 10, 2022	May 30, 2022~ Jun. 22, 2022	Mar. 09, 2023	Radiation (03CH13-HY)
Filter	Wainwright	WLK4-1000- 1530-8000- 40SS	SN12	1.53GHz Low Pass Filter	Sep. 14, 2021	May 30, 2022~ Jun. 22, 2022	Sep. 13, 2022	Radiation (03CH13-HY)
Filter	Wainwright	WHKX8- 5872.5-6750- 18000-40ST	SN5	6.75GHz High Pass Filter	Mar. 10, 2022	May 30, 2022~ Jun. 22, 2022	Mar. 09, 2023	Radiation (03CH13-HY)
Filter	Wainwright	WHKX12- 2700-3000- 18000-60SS	SN2	3GHz High Pass Filter	Jul. 12, 2021	May 30, 2022~ Jun. 22, 2022	Jul. 11, 2022	Radiation (03CH13-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	3.1 dB
---	--------

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	6.0 dB
---	--------

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.2 dB
---	--------

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.9 dB
---	--------

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Benny Ku	Temperature:	21~25	°C
Test Date:	2022/6/4~2022/6/16	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE	1Mbps	1	0	2402	1.043	0.672	0.50	Pass
BLE	1Mbps	1	19	2440	1.051	0.720	0.50	Pass
BLE	1Mbps	1	39	2480	1.041	0.726	0.50	Pass

TEST RESULTS DATA
Average Power Table

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE	1Mbps	1	0	2402	6.00	30.00	5.20	11.20	36.00	Pass
BLE	1Mbps	1	19	2440	6.40	30.00	5.20	11.60	36.00	Pass
BLE	1Mbps	1	39	2480	6.00	30.00	5.20	11.20	36.00	Pass

TEST RESULTS DATA
Peak Power Density

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE	1Mbps	1	0	2402	5.53	-9.75	5.20	8.00	Pass
BLE	1Mbps	1	19	2440	5.32	-9.52	5.20	8.00	Pass
BLE	1Mbps	1	39	2480	4.92	-9.90	5.20	8.00	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 30dBc limit.

Test Engineer:	Benny Ku	Temperature:	21~25	°C
Test Date:	2022/6/4~2022/6/16	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE	2Mbps	1	0	2402	2.054	1.256	0.50	Pass
BLE	2Mbps	1	19	2440	2.054	1.260	0.50	Pass
BLE	2Mbps	1	39	2480	2.054	1.260	0.50	Pass

TEST RESULTS DATA
Average Power Table

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE	2Mbps	1	0	2402	6.50	30.00	5.20	11.70	36.00	Pass
BLE	2Mbps	1	19	2440	6.80	30.00	5.20	12.00	36.00	Pass
BLE	2Mbps	1	39	2480	6.30	30.00	5.20	11.50	36.00	Pass

TEST RESULTS DATA
Peak Power Density

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE	2Mbps	1	0	2402	5.58	-13.90	5.20	8.00	Pass
BLE	2Mbps	1	19	2440	5.37	-13.31	5.20	8.00	Pass
BLE	2Mbps	1	39	2480	4.98	-13.85	5.20	8.00	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 30dBc limit.



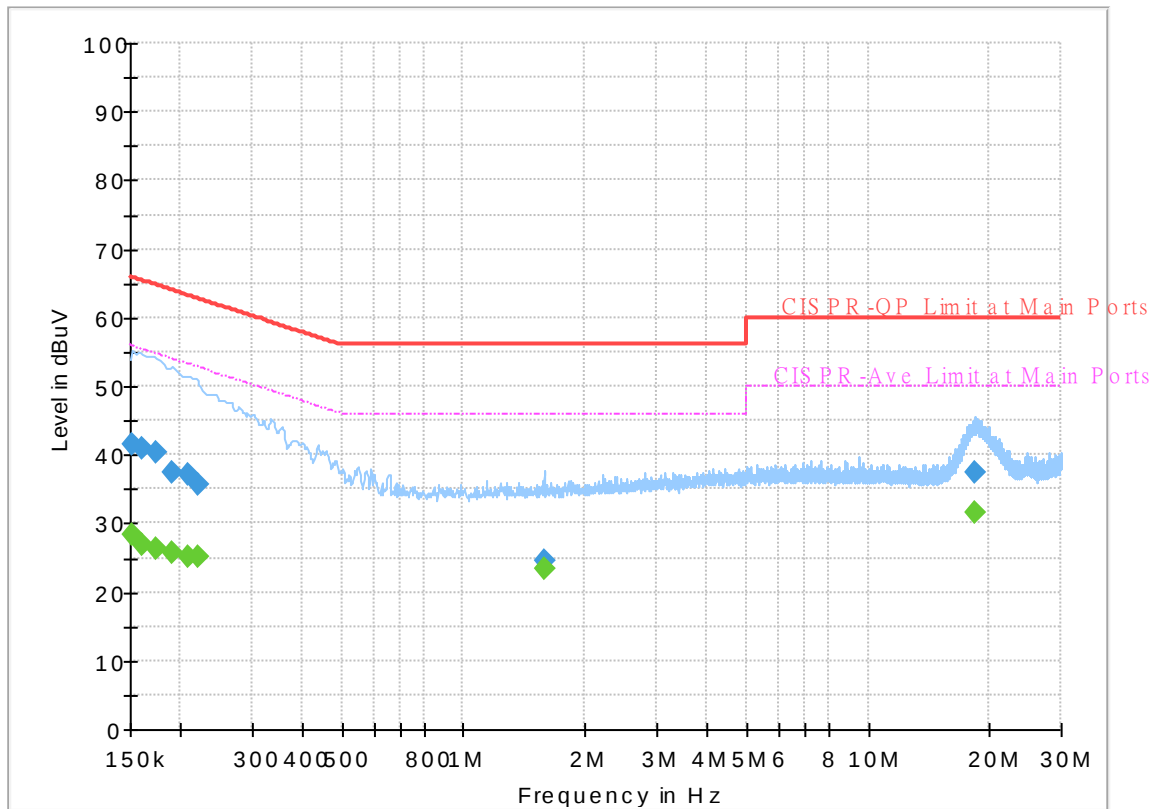
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Calvin Wang and Tom Lee	Temperature :	23~26°C
		Relative Humidity :	45~55%

EUT Information

Report NO : 1D2427-01
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Line

Full Spectrum



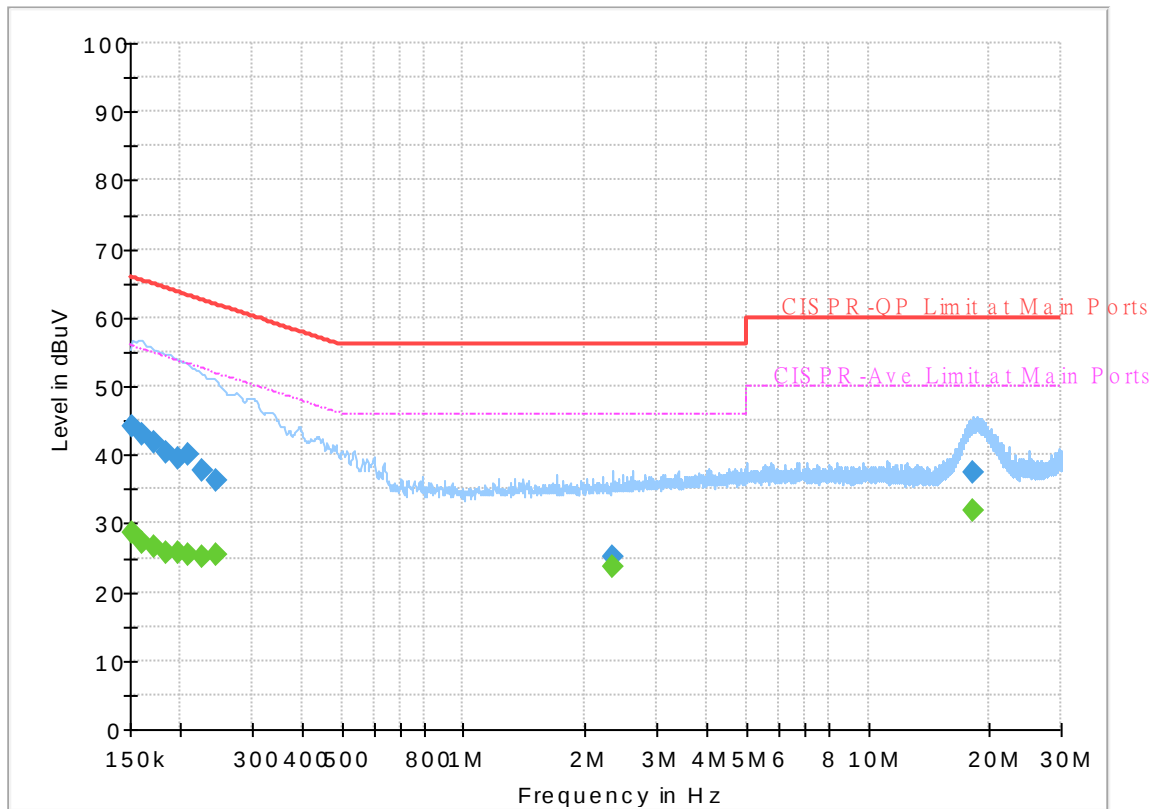
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	41.47	---	65.88	24.41	L1	OFF	19.6
0.152250	---	28.50	55.88	27.38	L1	OFF	19.6
0.161250	40.85	---	65.40	24.55	L1	OFF	19.6
0.161250	---	26.79	55.40	28.61	L1	OFF	19.6
0.174750	40.34	---	64.73	24.39	L1	OFF	19.6
0.174750	---	26.34	54.73	28.39	L1	OFF	19.6
0.190500	37.34	---	64.02	26.68	L1	OFF	19.6
0.190500	---	25.59	54.02	28.43	L1	OFF	19.6
0.208500	37.16	---	63.27	26.11	L1	OFF	19.6
0.208500	---	25.23	53.27	28.04	L1	OFF	19.6
0.219750	35.67	---	62.83	27.16	L1	OFF	19.6
0.219750	---	25.24	52.83	27.59	L1	OFF	19.6
1.581000	24.65	---	56.00	31.35	L1	OFF	19.7
1.581000	---	23.30	46.00	22.70	L1	OFF	19.7
18.411000	37.34	---	60.00	22.66	L1	OFF	20.4
18.411000	---	31.70	50.00	18.30	L1	OFF	20.4

EUT Information

Report NO : 1D2427-01
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	28.72	55.88	27.16	N	OFF	19.6
0.152250	44.02	---	65.88	21.86	N	OFF	19.6
0.161250	---	27.32	55.40	28.08	N	OFF	19.6
0.161250	42.86	---	65.40	22.54	N	OFF	19.6
0.172500	---	26.53	54.84	28.31	N	OFF	19.6
0.172500	41.77	---	64.84	23.07	N	OFF	19.6
0.183750	---	25.79	54.31	28.52	N	OFF	19.6
0.183750	40.48	---	64.31	23.83	N	OFF	19.6
0.197250	---	25.81	53.73	27.92	N	OFF	19.6
0.197250	39.42	---	63.73	24.31	N	OFF	19.6
0.208500	---	25.39	53.27	27.88	N	OFF	19.6
0.208500	40.10	---	63.27	23.17	N	OFF	19.6
0.226500	---	25.08	52.58	27.50	N	OFF	19.6
0.226500	37.79	---	62.58	24.79	N	OFF	19.6
0.244500	---	25.53	51.94	26.41	N	OFF	19.6
0.244500	36.14	---	61.94	25.80	N	OFF	19.6
2.332500	---	23.74	46.00	22.26	N	OFF	19.7
2.332500	25.22	---	56.00	30.78	N	OFF	19.7
18.264750	---	31.87	50.00	18.13	N	OFF	20.4
18.264750	37.56	---	60.00	22.44	N	OFF	20.4



Appendix C. Radiated Spurious Emission

Test Engineer :	Rain Lee and Jacky Hong	Temperature :	20~25°C
		Relative Humidity :	50~60%

<1Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 00 2402MHz		2362.5	55.55	-18.45	74	40.81	27.77	14.04	27.07	234	30	P	H
		2342.34	46.18	-7.82	54	31.38	27.86	14.02	27.08	234	30	A	H
	*	2402	101.08	-	-	86.37	27.7	14.07	27.06	234	30	P	H
	*	2402	100.22	-	-	85.51	27.7	14.07	27.06	234	30	A	H
		2361.45	56.19	-17.81	74	41.44	27.78	14.04	27.07	100	82	P	V
		2314.515	46.28	-7.72	54	31.3	28.08	13.99	27.09	100	82	A	V
	*	2402	101.66	-	-	86.95	27.7	14.07	27.06	100	82	P	V
	*	2402	100.93	-	-	86.22	27.7	14.07	27.06	100	82	A	V
BLE CH 19 2440MHz		2375.94	55.27	-18.73	74	40.54	27.75	14.05	27.07	365	33	P	H
		2311.54	46.01	-7.99	54	31	28.11	13.99	27.09	365	33	A	H
	*	2440	101.39	-	-	86.71	27.62	14.11	27.05	365	33	P	H
	*	2440	100.76	-	-	86.08	27.62	14.11	27.05	365	33	A	H
		2496.85	55.81	-18.19	74	40.99	27.69	14.16	27.03	365	33	P	H
		2489.64	46.21	-7.79	54	31.41	27.68	14.15	27.03	365	33	A	H
		2321.2	55.18	-18.82	74	40.24	28.03	14	27.09	122	113	P	V
		2327.78	45.99	-8.01	54	31.09	27.98	14.01	27.09	122	113	A	V
	*	2440	101.29	-	-	86.61	27.62	14.11	27.05	122	113	P	V
	*	2440	100.73	-	-	86.05	27.62	14.11	27.05	122	113	A	V
		2486	54.96	-19.04	74	40.17	27.67	14.15	27.03	122	113	P	V
		2486.35	46.26	-7.74	54	31.47	27.67	14.15	27.03	122	113	A	V



BLE	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 39 2480MHz	*	2480	102.13	-	-	87.37	27.66	14.14	27.04	320	36	P	H
	*	2480	101.61	-	-	86.85	27.66	14.14	27.04	320	36	A	H
		2490.2	55.21	-18.79	74	40.41	27.68	14.15	27.03	320	36	P	H
		2488.16	46.01	-7.99	54	31.21	27.68	14.15	27.03	320	36	A	H
	*	2480	102.22	-	-	87.46	27.66	14.14	27.04	100	112	P	V
	*	2480	100.06	-	-	85.3	27.66	14.14	27.04	100	112	A	V
		2495.36	55.3	-18.7	74	40.48	27.69	14.16	27.03	100	112	P	V
		2490.56	46.14	-7.86	54	31.34	27.68	14.15	27.03	100	112	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**2.4GHz 2400~2483.5MHz****BLE (Harmonic @ 3m)**

BLE	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 00 2402MHz		4804	39.42	-34.58	74	58.56	31.41	6.79	57.34	-	-	P	H
		10860	48.64	-25.36	74	54.25	40.82	9.98	56.41	-	-	P	H
		10860	38.67	-15.33	54	44.28	40.82	9.98	56.41	-	-	A	H
		14490	50.14	-23.86	74	53.32	41.86	11.77	56.81	-	-	P	H
		14490	40.09	-13.91	54	43.27	41.86	11.77	56.81	-	-	A	H
		18000	55.93	-18.07	74	50.91	48.5	13.55	57.03	-	-	P	H
		18000	48.31	-5.69	54	43.29	48.5	13.55	57.03	-	-	A	H
		4804	38.93	-35.07	74	58.07	31.41	6.79	57.34	-	-	P	V
		10860	49.51	-24.49	74	55.12	40.82	9.98	56.41	-	-	P	V
		10860	38.49	-15.51	54	44.1	40.82	9.98	56.41	-	-	A	V
		14475	50.1	-23.9	74	53.38	41.8	11.76	56.84	-	-	P	V
		14475	40.58	-13.42	54	43.86	41.8	11.76	56.84	-	-	A	V
		17985	56.24	-17.76	74	51.63	48.1	13.54	57.03	-	-	P	V
		17985	47.92	-6.08	54	43.31	48.1	13.54	57.03	-	-	A	V



BLE	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 19 2440MHz		4880	39.78	-34.22	74	58.74	31.44	6.82	57.22	-	-	P	H
		7320	43.68	-30.32	74	55.5	37.06	8.46	57.34	-	-	P	H
		10860	49.76	-24.24	74	55.37	40.82	9.98	56.41	-	-	P	H
		10860	38.28	-15.72	54	43.89	40.82	9.98	56.41	-	-	A	H
		14490	50.13	-23.87	74	53.31	41.86	11.77	56.81	-	-	P	H
		14490	40.04	-13.96	54	43.22	41.86	11.77	56.81	-	-	A	H
		17985	56.79	-17.21	74	52.18	48.1	13.54	57.03	-	-	P	H
		17985	47.18	-6.82	54	42.57	48.1	13.54	57.03	-	-	A	H
		4880	39.08	-34.92	74	58.04	31.44	6.82	57.22	-	-	P	V
		7320	44.63	-29.37	74	56.45	37.06	8.46	57.34	-	-	P	V
		10950	48.63	-25.37	74	54.21	40.8	10.03	56.41	-	-	P	V
		10950	38.01	-15.99	54	43.59	40.8	10.03	56.41	-	-	A	V
		14490	50.68	-23.32	74	53.86	41.86	11.77	56.81	-	-	P	V
		14490	40.1	-13.9	54	43.28	41.86	11.77	56.81	-	-	A	V
		18000	55.95	-18.05	74	50.93	48.5	13.55	57.03	-	-	P	V
		18000	46.91	-7.09	54	41.89	48.5	13.55	57.03	-	-	A	V



BLE	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 39 2480MHz		4960	40.58	-33.42	74	59.1	31.72	6.86	57.1	-	-	P	H
		7440	44.72	-29.28	74	56.69	37.02	8.53	57.52	-	-	P	H
		10710	49.02	-24.98	74	55	40.52	9.9	56.4	-	-	P	H
		10710	37.29	-16.71	54	43.27	40.52	9.9	56.4	-	-	A	H
		14475	50.43	-23.57	74	53.71	41.8	11.76	56.84	-	-	P	H
		14475	40.38	-13.62	54	43.66	41.8	11.76	56.84	-	-	A	H
		17970	56.29	-17.71	74	52.11	47.69	13.52	57.03	-	-	P	H
		17970	46.93	-7.07	54	42.75	47.69	13.52	57.03	-	-	A	H
		4960	40.18	-33.82	74	58.7	31.72	6.86	57.1	-	-	P	V
		7440	44.28	-29.72	74	56.25	37.02	8.53	57.52	-	-	P	V
		10845	49.71	-24.29	74	55.36	40.79	9.97	56.41	-	-	P	V
		10845	38.36	-15.64	54	44.01	40.79	9.97	56.41	-	-	A	V
		14490	49.97	-24.03	74	53.15	41.86	11.77	56.81	-	-	P	V
		14490	40.57	-13.43	54	43.75	41.86	11.77	56.81	-	-	A	V
		17955	56.18	-17.82	74	52.42	47.28	13.51	57.03	-	-	P	V
		17955	46.77	-7.23	54	43.01	47.28	13.51	57.03	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. 4. The emission level close to 18GHz is checked that the average emission level is noise floor only.												

**Emission after 18GHz****2.4GHz BLE (SHF)**

BLE	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BLE SHF		21424	38.47	-35.53	74	56.45	37.95	-2.63	53.3	-	-	P	H
		20064	37.29	-36.71	74	56.29	37.58	-3.01	53.57	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



Emission below 1GHz

2.4GHz BLE (LF)

BLE	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BLE LF		30	21.57	-18.43	40	28.66	24.53	0.72	32.34	-	-	P	H
		128.94	21.22	-22.28	43.5	34.91	17.46	1.15	32.3	-	-	P	H
		219.15	25.58	-20.42	46	41.32	15.11	1.4	32.25	-	-	P	H
		315.18	20.98	-25.02	46	31.91	19.6	1.63	32.16	-	-	P	H
		635.28	27.8	-18.2	46	31.39	26.4	2.24	32.23	-	-	P	H
		896.21	34.45	-11.55	46	34.49	28.97	2.54	31.55	-	-	P	H
		31.94	21.81	-18.19	40	29.69	23.75	0.73	32.36	-	-	P	V
		113.42	21.6	-21.9	43.5	35.7	17.1	1.11	32.31	-	-	P	V
		223.03	23.24	-22.76	46	38.68	15.4	1.41	32.25	-	-	P	V
		433.52	24.04	-21.96	46	31.26	23.04	1.92	32.18	-	-	P	V
		597.45	26.53	-19.47	46	31.05	25.59	2.16	32.27	-	-	P	V
		898.15	36.94	-9.06	46	36.9	29.04	2.54	31.54	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



<2Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2365.755	55.51	-18.49	74	40.77	27.77	14.04	27.07	292	137	P	H
		2365.755	45.45	-8.55	54	30.71	27.77	14.04	27.07	292	137	A	H
	*	2402	102.37	-	-	87.66	27.7	14.07	27.06	292	137	P	H
	*	2402	100.4	-	-	85.69	27.7	14.07	27.06	292	137	A	H
		2356.83	55.87	-18.13	74	41.13	27.79	14.03	27.08	100	66	P	V
		2313.57	45.4	-8.6	54	30.41	28.09	13.99	27.09	100	66	A	V
	*	2402	102.56	-	-	87.85	27.7	14.07	27.06	100	66	P	V
	*	2402	97.87	-	-	83.16	27.7	14.07	27.06	100	66	A	V
BLE CH 19 2440MHz		2340.24	56.24	-17.76	74	41.42	27.88	14.02	27.08	254	132	P	H
		2389.1	45.38	-8.62	54	30.67	27.72	14.06	27.07	254	132	A	H
	*	2440	102.34	-	-	87.66	27.62	14.11	27.05	254	132	P	H
	*	2440	100.35	-	-	85.67	27.62	14.11	27.05	254	132	A	H
		2489.57	55.65	-18.35	74	40.85	27.68	14.15	27.03	254	132	P	H
		2491.32	45.51	-8.49	54	30.71	27.68	14.15	27.03	254	132	A	H
		2312.94	56.03	-17.97	74	41.03	28.1	13.99	27.09	100	122	P	V
		2312.1	45.42	-8.58	54	30.42	28.1	13.99	27.09	100	122	A	V
	*	2440	101.37	-	-	86.69	27.62	14.11	27.05	100	122	P	V
	*	2440	99.44	-	-	84.76	27.62	14.11	27.05	100	122	A	V
		2496.43	55.73	-18.27	74	40.91	27.69	14.16	27.03	100	122	P	V
		2492.16	45.36	-8.64	54	30.56	27.68	14.15	27.03	100	122	A	V



BLE	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 39 2480MHz	*	2480	101.63	-	-	86.87	27.66	14.14	27.04	348	134	P	H
	*	2480	99.7	-	-	84.94	27.66	14.14	27.04	348	134	A	H
		2499.04	55.96	-18.04	74	41.13	27.7	14.16	27.03	348	134	P	H
		2493.04	45.51	-8.49	54	30.7	27.69	14.15	27.03	348	134	A	H
	*	2480	102.72	-	-	87.96	27.66	14.14	27.04	100	65	P	V
	*	2480	100.76	-	-	86	27.66	14.14	27.04	100	65	A	V
		2488.08	55.53	-18.47	74	40.73	27.68	14.15	27.03	100	65	P	V
		2483.56	45.51	-8.49	54	30.73	27.67	14.15	27.04	100	65	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**2.4GHz 2400~2483.5MHz****BLE (Harmonic @ 3m)**

BLE	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 00 2402MHz		4804	40.05	-33.95	74	59.19	31.41	6.79	57.34	-	-	P	H
		10890	49.39	-24.61	74	54.93	40.88	9.99	56.41	-	-	P	H
		10890	38.05	-15.95	54	43.59	40.88	9.99	56.41	-	-	A	H
		14475	49.7	-24.3	74	52.98	41.8	11.76	56.84	-	-	P	H
		14475	40.45	-13.55	54	43.73	41.8	11.76	56.84	-	-	A	H
		17985	56.61	-17.39	74	52	48.1	13.54	57.03	-	-	P	H
		17985	46.79	-7.21	54	42.18	48.1	13.54	57.03	-	-	A	H
		4804	39.49	-34.51	74	58.63	31.41	6.79	57.34	-	-	P	V
		11025	48.43	-25.57	74	54.17	40.58	10.07	56.39	-	-	P	V
		11025	38.04	-15.96	54	43.78	40.58	10.07	56.39	-	-	A	V
		14490	49.87	-24.13	74	53.05	41.86	11.77	56.81	-	-	P	V
		14490	40.73	-13.27	54	43.91	41.86	11.77	56.81	-	-	A	V
		17985	56.38	-17.62	74	51.77	48.1	13.54	57.03	-	-	P	V
		17985	46.77	-7.23	54	42.16	48.1	13.54	57.03	-	-	A	V



BLE	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 19 2440MHz		4880	38.69	-35.31	74	57.65	31.44	6.82	57.22	-	-	P	H
		7320	44.23	-29.77	74	56.05	37.06	8.46	57.34	-	-	P	H
		10695	49.35	-24.65	74	55.37	40.49	9.89	56.4	-	-	P	H
		10695	37.79	-16.21	54	43.81	40.49	9.89	56.4	-	-	A	H
		14490	49.93	-24.07	74	53.11	41.86	11.77	56.81	-	-	P	H
		14490	40.61	-13.39	54	43.79	41.86	11.77	56.81	-	-	A	H
		17985	56.43	-17.57	74	51.82	48.1	13.54	57.03	-	-	P	H
		17985	46.45	-7.55	54	41.84	48.1	13.54	57.03	-	-	A	H
		4880	40.45	-33.55	74	59.41	31.44	6.82	57.22	-	-	P	V
		7320	44.87	-29.13	74	56.69	37.06	8.46	57.34	-	-	P	V
		10725	49.13	-24.87	74	55.08	40.55	9.9	56.4	-	-	P	V
		10725	37.9	-16.1	54	43.85	40.55	9.9	56.4	-	-	A	V
		14490	49.97	-24.03	74	53.15	41.86	11.77	56.81	-	-	P	V
		14490	39.74	-14.26	54	42.92	41.86	11.77	56.81	-	-	A	V
		17985	56.29	-17.71	74	51.68	48.1	13.54	57.03	-	-	P	V
		17985	46.71	-7.29	54	42.1	48.1	13.54	57.03	-	-	A	V



BLE	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 39 2480MHz		4960	41.15	-32.85	74	59.67	31.72	6.86	57.1	-	-	P	H
		7440	44.79	-29.21	74	56.76	37.02	8.53	57.52	-	-	P	H
		10950	48.82	-25.18	74	54.4	40.8	10.03	56.41	-	-	P	H
		10950	38	-16	54	43.58	40.8	10.03	56.41	-	-	A	H
		14475	49.58	-24.42	74	52.86	41.8	11.76	56.84	-	-	P	H
		14475	40.01	-13.99	54	43.29	41.8	11.76	56.84	-	-	A	H
		18000	55.82	-18.18	74	50.8	48.5	13.55	57.03	-	-	P	H
		18000	46.89	-7.11	54	41.87	48.5	13.55	57.03	-	-	A	H
		4960	40.04	-33.96	74	58.56	31.72	6.86	57.1	-	-	P	V
		7440	44.95	-29.05	74	56.92	37.02	8.53	57.52	-	-	P	V
		10890	48.64	-25.36	74	54.18	40.88	9.99	56.41	-	-	P	V
		10890	37.75	-16.25	54	43.29	40.88	9.99	56.41	-	-	A	V
		14490	50.18	-23.82	74	53.36	41.86	11.77	56.81	-	-	P	V
		14490	39.59	-14.41	54	42.77	41.86	11.77	56.81	-	-	A	V
		18000	56.73	-17.27	74	51.71	48.5	13.55	57.03	-	-	P	V
		18000	47.58	-6.42	54	42.56	48.5	13.55	57.03	-	-	A	V
Remark	- No other spurious found. - All results are PASS against Peak and Average limit line. - The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. - The emission level close to 18GHz is checked that the average emission level is noise floor only.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =
Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
= 55.45 (dBμV/m)
2. Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
= 43.54 (dBμV/m)
2. Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 43.54(dBμV/m) – 54(dBμV/m)
= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Rain Lee and Jacky Hong	Temperature :	20~25°C
		Relative Humidity :	50~60%

Note symbol

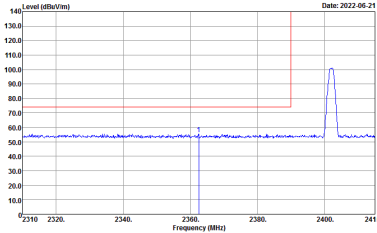
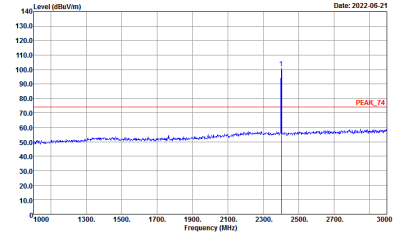
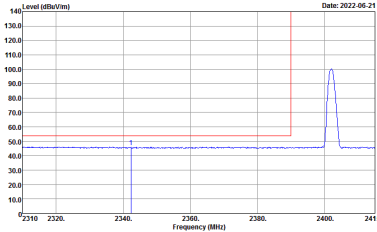
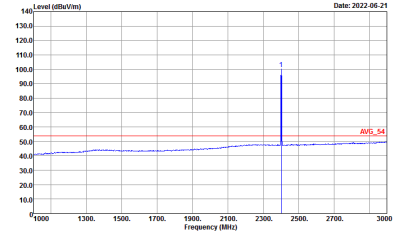
-L	Low channel location
-R	High channel location



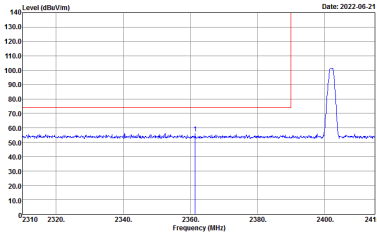
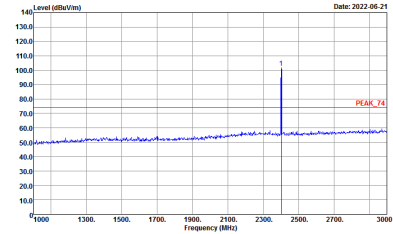
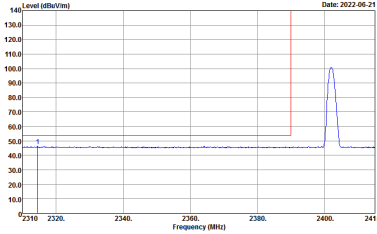
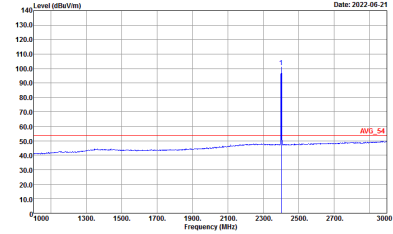
<1Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto

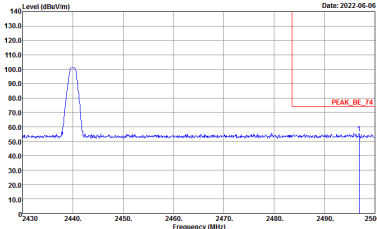
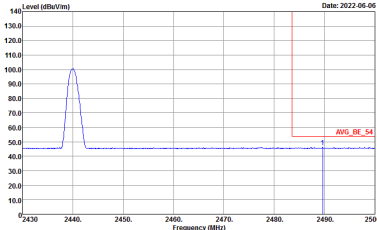


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto

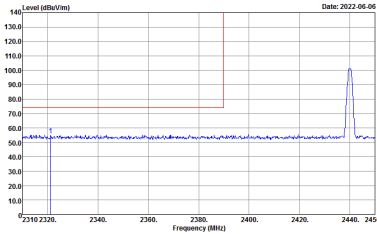
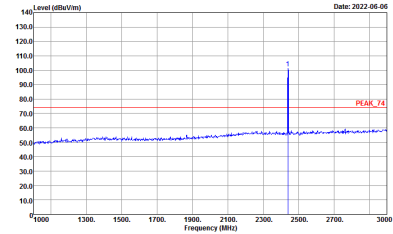
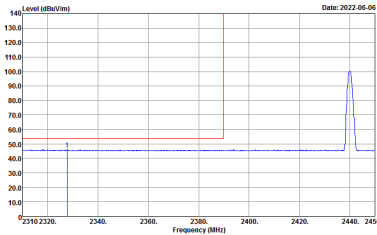
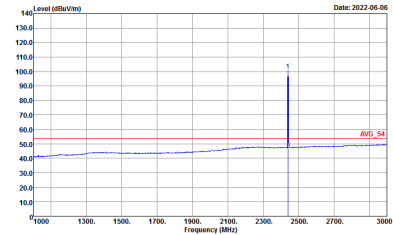


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Horizontal	Fundamental
Peak	Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto

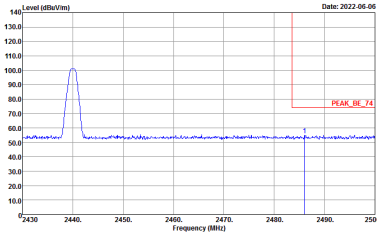
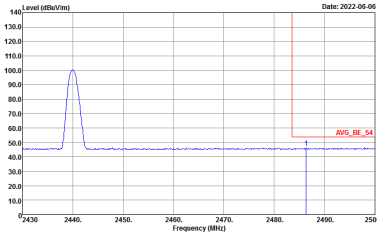


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto

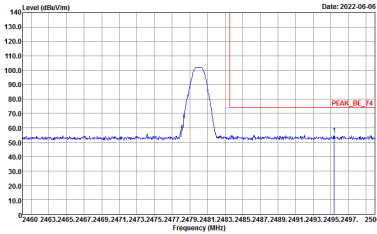
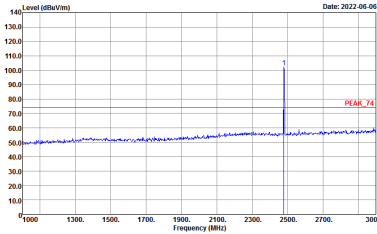
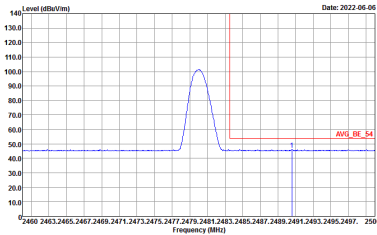
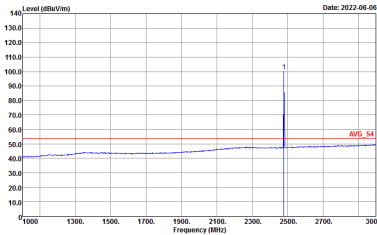


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Fundamental
Peak	Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto

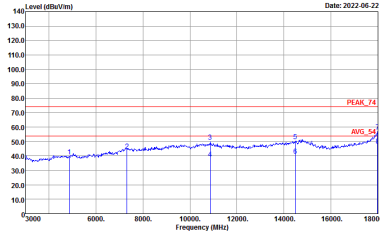
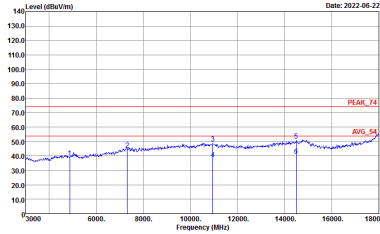


2.4GHz 2400~2483.5MHz

BLE (Harmonic @ 3m)

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-06-22 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL	Level (dBuV/m) Date: 2022-06-22 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH19 2440MHz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-06-22 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL	Level (dBuV/m) Date: 2022-06-22 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL



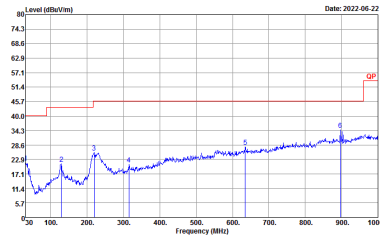
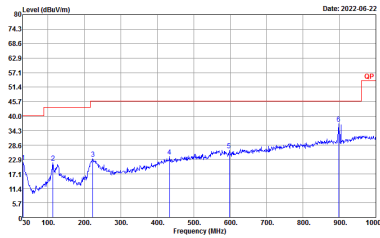
Emission after 18GHz
2.4GHz BLE (SHF @ 1m)

BLE	2.4GHz 2400~2483.5MHz	
	BLE SHF	
	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-06-22 Site : 03CH13-HY Condition : PEAK_74_1M 1m SHF ANT_9170_00993 HORIZONTAL	Level (dBuV/m) Date: 2022-06-22 Site : 03CH13-HY Condition : PEAK_74_1M 1m SHF ANT_9170_00993 VERTICAL



Emission below 1GHz

2.4GHz BLE (LF)

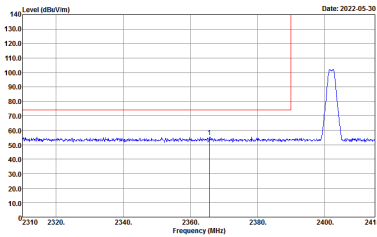
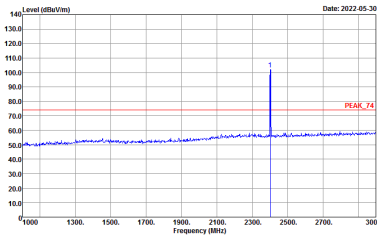
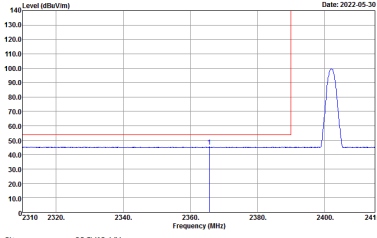
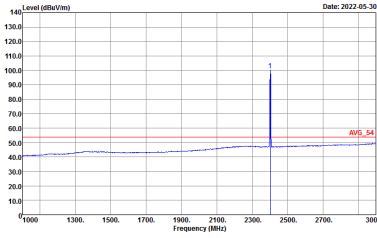
BLE	2.4GHz 2400~2483.5MHz	
	BLE LF	
	Horizontal	Vertical
QP / Peak	 Site : 03CH13-HY Condition : QP 3m BILOG_40103 HORIZONTAL	 Site : 03CH13-HY Condition : QP 3m BILOG_40103 VERTICAL



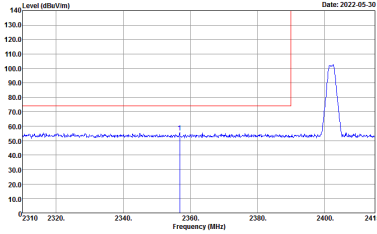
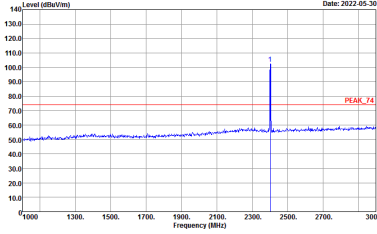
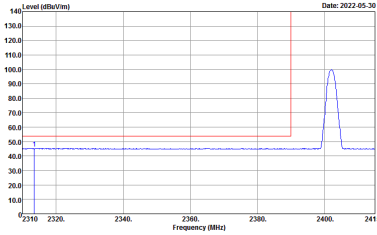
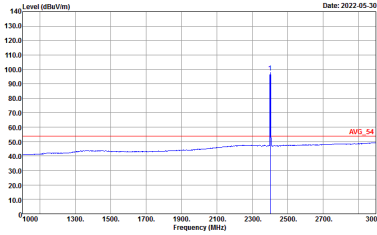
<2Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000kHz VBW:10000kHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000kHz VBW:10000kHz SWT:Auto

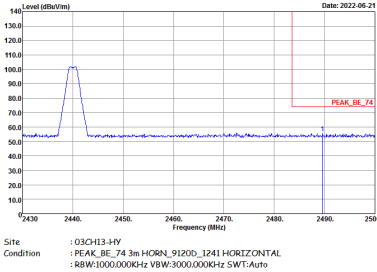
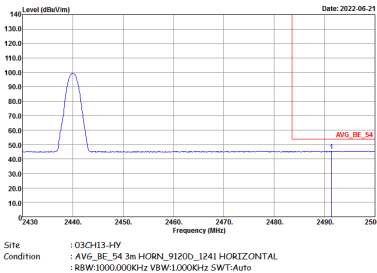


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:1000KHz SWT:Auto



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Horizontal	Fundamental
Peak	Site : 03CH13-HV Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH13-HV Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	Site : 03CH13-HV Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	Site : 03CH13-HV Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

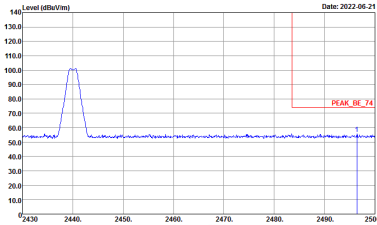
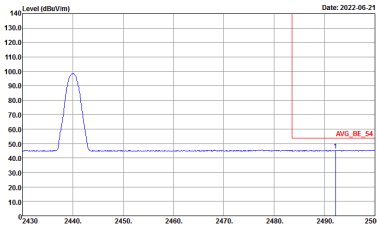


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Vertical	Fundamental
Peak	Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

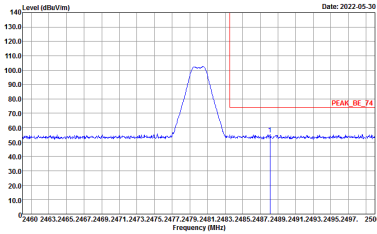
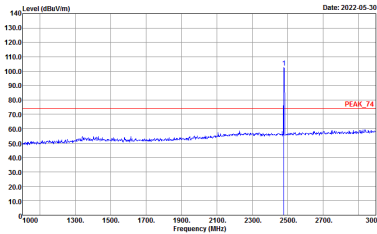
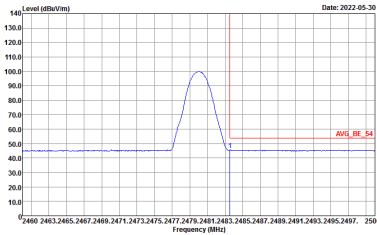
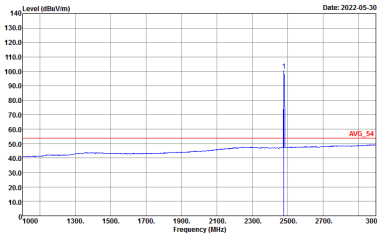


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Fundamental
Peak	Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Avg.	Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000kHz VBW:1000kHz SWT:Auto	Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 HORIZONTAL RBW:1000.000kHz VBW:1000kHz SWT:Auto

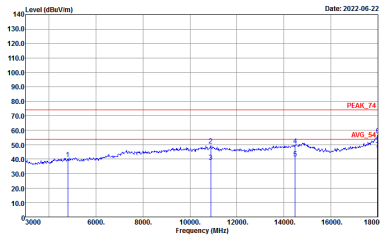
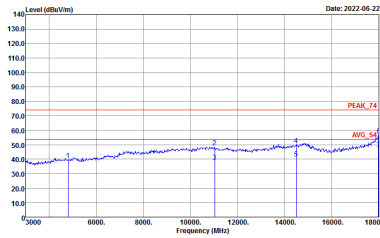


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Vertical	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH13-HY Condition : AVG_54 3m HORN_91200_1241 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto



2.4GHz 2400~2483.5MHz

BLE (Harmonic @ 3m)

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL	 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH19 2440MHz	
	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-06-22 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL	Level (dBuV/m) Date: 2022-06-22 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-06-22 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 HORIZONTAL	Level (dBuV/m) Date: 2022-06-22 Site : 03CH13-HY Condition : PEAK_74 3m HORN_91200_1241 VERTICAL