

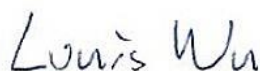


FCC RADIO TEST REPORT

FCC ID : MSQAI2201
Equipment : ASUS Phone(Mobile Phone)
Brand Name : ASUS
MODEL NAME : ASUS_AI2201_F
ASUS_AI2201_D
Applicant : ASUSTeK COMPUTER INC.
1F., NO. 15, LIDE RD., BEITOU DIST.,
TAIPEI CITY 112, TAIWAN
Manufacturer : ASUSTeK COMPUTER INC.
1F., NO. 15, LIDE RD., BEITOU DIST.,
TAIPEI CITY 112, TAIWAN
Standard : FCC Part 15 Subpart C §15.247

The product was received on Jan. 26, 2022 and testing was performed from Feb. 24, 2022 to Jun. 09, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.



Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issue Date
FR210404B	01	Initial issue of report	Jun. 30, 2022

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(2)	6dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.247(b)(3)	Output Power	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges and Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Spurious Emission	Pass	5.39 dB under the limit at 59.100 MHz
3.6	15.207	AC Conducted Emission	Pass	6.98 dB under the limit at 0.150 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Declaration of Conformity:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to this report "Uncertainty of Evaluation".

Comments and Explanations:

1. The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.
2. The differences between ASUS_AI2201_F and ASUS AI2201_D are back cover (F: LGF; D: Pmoled) and EE BOM.

Reviewed by: Avis Chuang

Report Producer: Vivian Hsu

1 General Description

1.1 Product Feature of Equipment Under Test

GSM/WCDMA/LTE/5G NR, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, Wi-Fi 6GHz 802.11a/n/ac/ax, NFC, and GNSS

Product Feature		
Sample 1	SKU 1	
Sample 2	SKU 2	
Antenna Type	WWAN: PIFA Antenna WLAN <Ant. 4>: PIFA Antenna <Ant. 5>: PIFA Antenna <Ant. 6>: PIFA Antenna Bluetooth <Ant. 4>: PIFA Antenna <Ant. 5>: PIFA Antenna <Ant. 6>: PIFA Antenna GPS/Glonass/BDS/Galileo/SBAS: PIFA Antenna NFC: Loop Antenna	
Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	Ant. 4: -3.44 Ant. 5: -1.67 Ant. 6: -3.90

Remark: The EUT's information above is declared by manufacturer. Please refer to Comments and Explanations in report summary.

Sample Information		
SKU	SKU 1	SKU 2
Build Stage	PR	
Config.	WW-High (with LGF)	WW-High (with PMOLED)
RF module board	WW-High(Entry)	WW-PRO
LCD + Touch front frame	AI2201 FRONT CASE ASSY WW	AI2201 FRONT CASE ASSY WW
DDR	16G (Samsung) LPDDR5 SAMSUNG/K3LK6K60BM-BGCP	18G(HYNIX) LPDDR5 HYNIX/H58GU6MK6HX042
UFS	512G (HYNIX) HYNIX HN8T25DEHKX077	512G (HYNIX) HYNIX HN8T25DEHKX077
MB	AI2201_MB	AI2201_MB
Battery	SCUD/C21P2101	SWD/C21P2101
Rear Camera 50+13M	PRIMAX/50-704JQASC8	TRIPLEWIN/CASAF-001A
Front Camera 12M	TSPRECISION/TNBF1166	LUXVISIONS/FRA-00000658
Rear Camera 5M	SHINE PHOTICS/BF515B	TSPRECISION/O5F9323 VERA1
PCB	COMPEQ	COMPEQ
CPU	QUALCOMM MPSP1518B / SM-8475-1 MPSP1518B ES	QUALCOMM MPSP1518B / SM-8475-1 MPSP1518B ES

1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 Testing Location

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No. TH05-HY, 03CH15-HY, CO07-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW3786

1.4 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01
- ♦ ANSI C63.10-2013

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	0	2402	21	2444
	1	2404	22	2446
	2	2406	23	2448
	3	2408	24	2450
	4	2410	25	2452
	5	2412	26	2454
	6	2414	27	2456
	7	2416	28	2458
	8	2418	29	2460
	9	2420	30	2462
	10	2422	31	2464
	11	2424	32	2466
	12	2426	33	2468
	13	2428	34	2470
	14	2430	35	2472
	15	2432	36	2474
	16	2434	37	2476
	17	2436	38	2478
	18	2438	39	2480
	19	2440	-	-
	20	2442	-	-

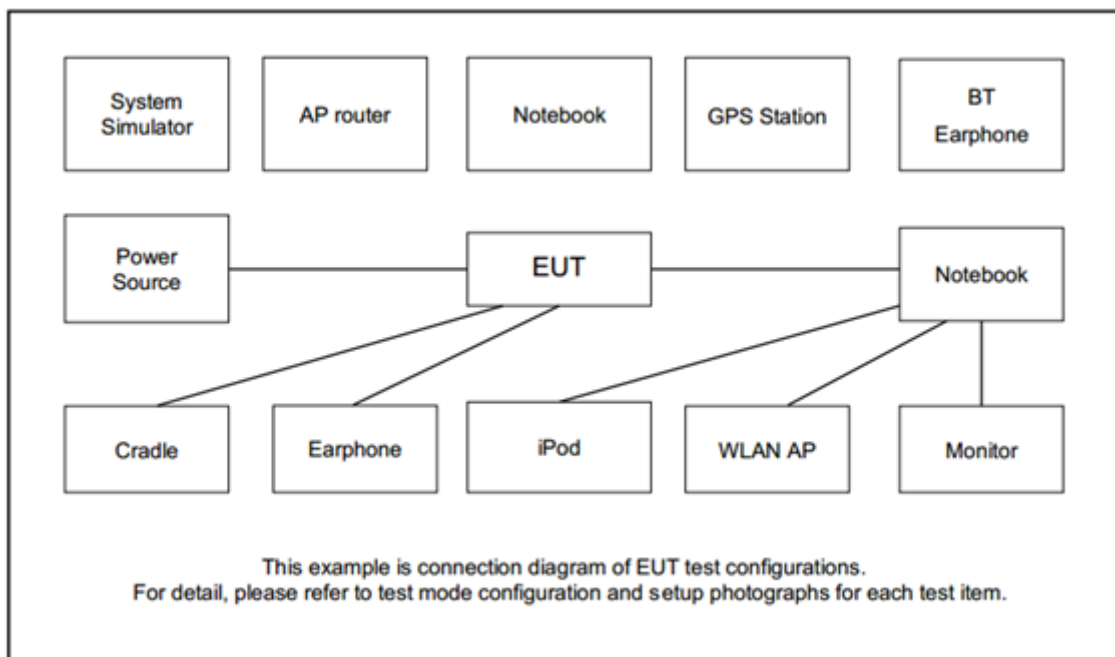
2.2 Test Mode

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find <Ant. 4>: X Plane for 1 Mbps and 2Mbps; <Ant. 5>: Z Plane for 1Mbps, X Plane for 2Mbps; <Ant. 6>: Z Plane for 1Mbps, X Plane for 2Mbps as worst plane.
- b. AC power line Conducted Emission was tested under maximum output power.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases	
Test Item	Data Rate / Modulation
Conducted Test Cases	Bluetooth – LE / GFSK
	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps
	Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps
	Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps
	Mode 4: Bluetooth Tx CH00_2402 MHz_2Mbps
	Mode 5: Bluetooth Tx CH19_2440 MHz_2Mbps
	Mode 6: Bluetooth Tx CH39_2480 MHz_2Mbps
Radiated Test Cases	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps
	Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps
	Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps
	Mode 4: Bluetooth Tx CH00_2402 MHz_2Mbps
	Mode 5: Bluetooth Tx CH19_2440 MHz_2Mbps
	Mode 6: Bluetooth Tx CH39_2480 MHz_2Mbps
AC Conducted Emission	Mode 1: GSM850 Idle + Bluetooth Link + WLAN (2.4GHz) Link + Camera (Front) + NFC On + USB Cable 1 (Bottom USB Port) (Charging from AC Adapter 1) + X Mode + Aura sync + SIM 1 for Sample 2
Remark: For Radiated Test Cases, the tests were performed with Adapter 1, USB Cable 1 and Sample 2	

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Sony	SBH20	PY7-RD0010	N/A	N/A
3.	WLAN AP	ASUS	RT-AC52A	N/A	N/A	Unshielded, 1.8m
4.	Notebook	DELL	Latitude E3340	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Notebook	DELL	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m



2.5 EUT Operation Test Setup

The RF test items, utility "QRCT.4.0.00195.0" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10 dB attenuator.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 4.2 + 10 = 14.2 \text{ (dB)}\end{aligned}$$

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

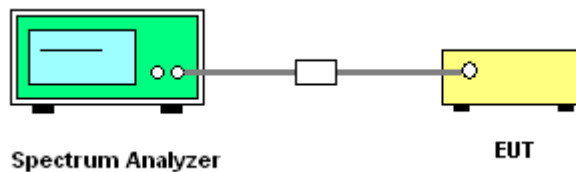
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
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. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) $\geq 3 * RBW$.
6. Measure and record the results in the test report.

3.1.4 Test Setup



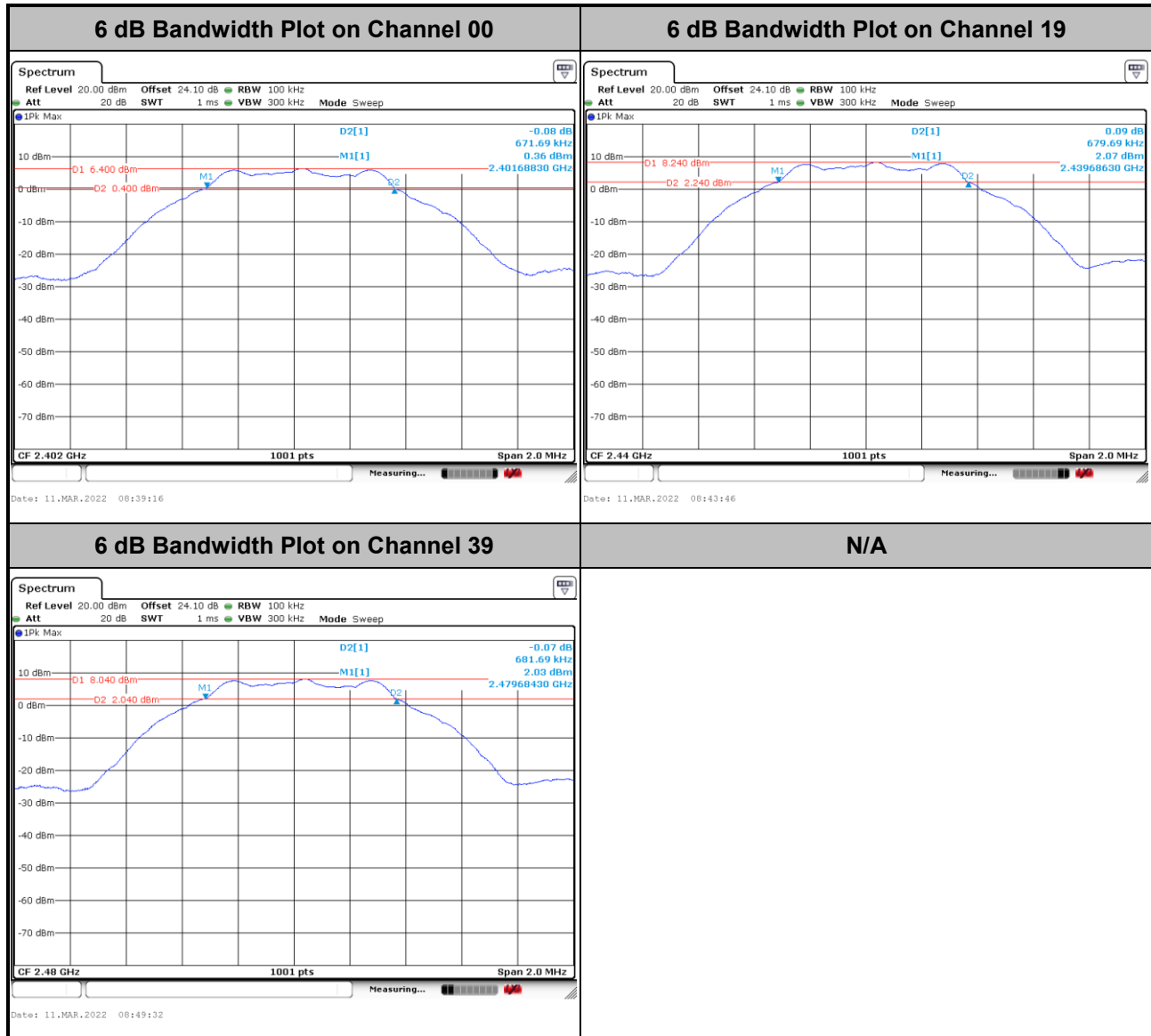


3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

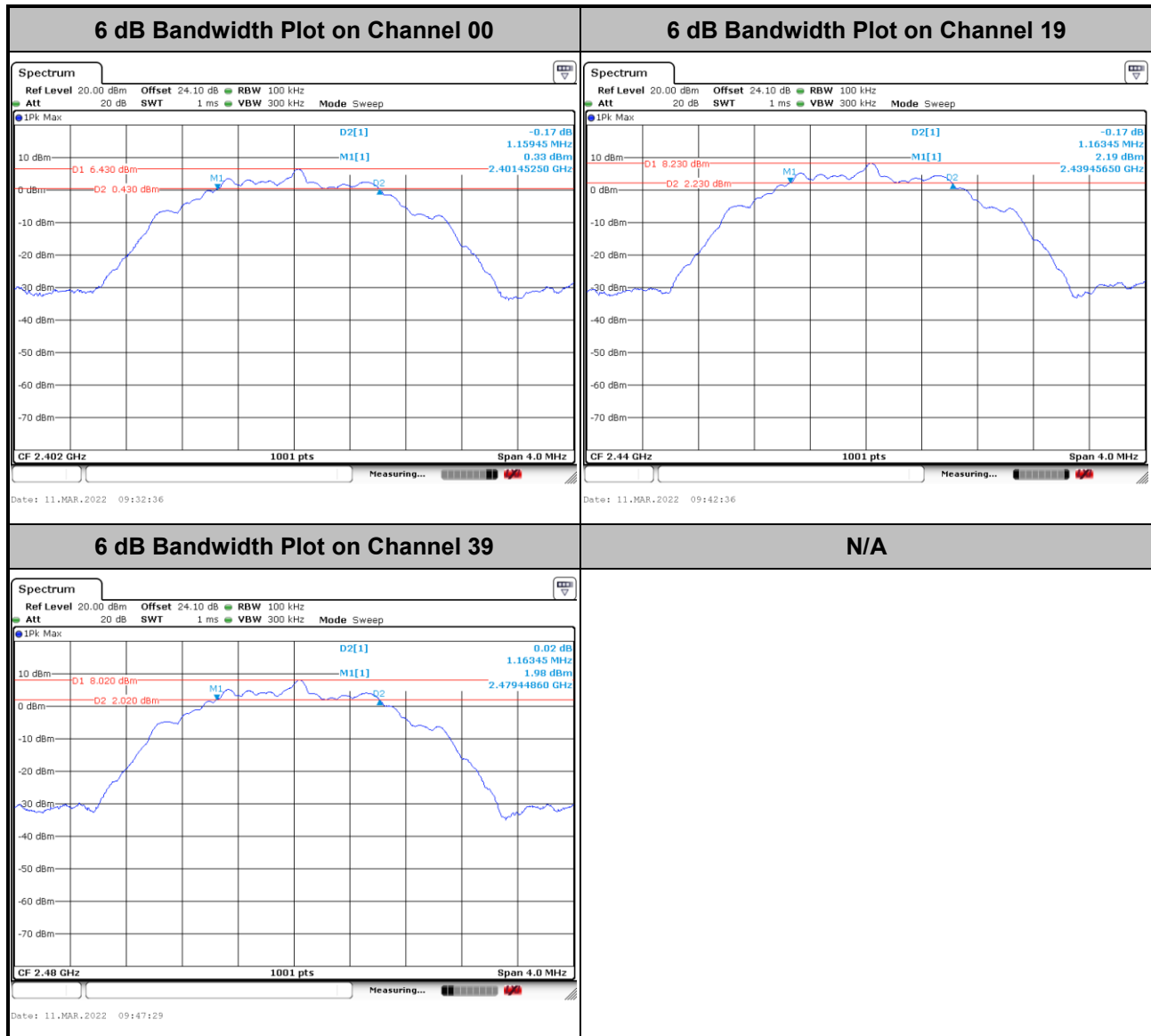
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<2Mbps>



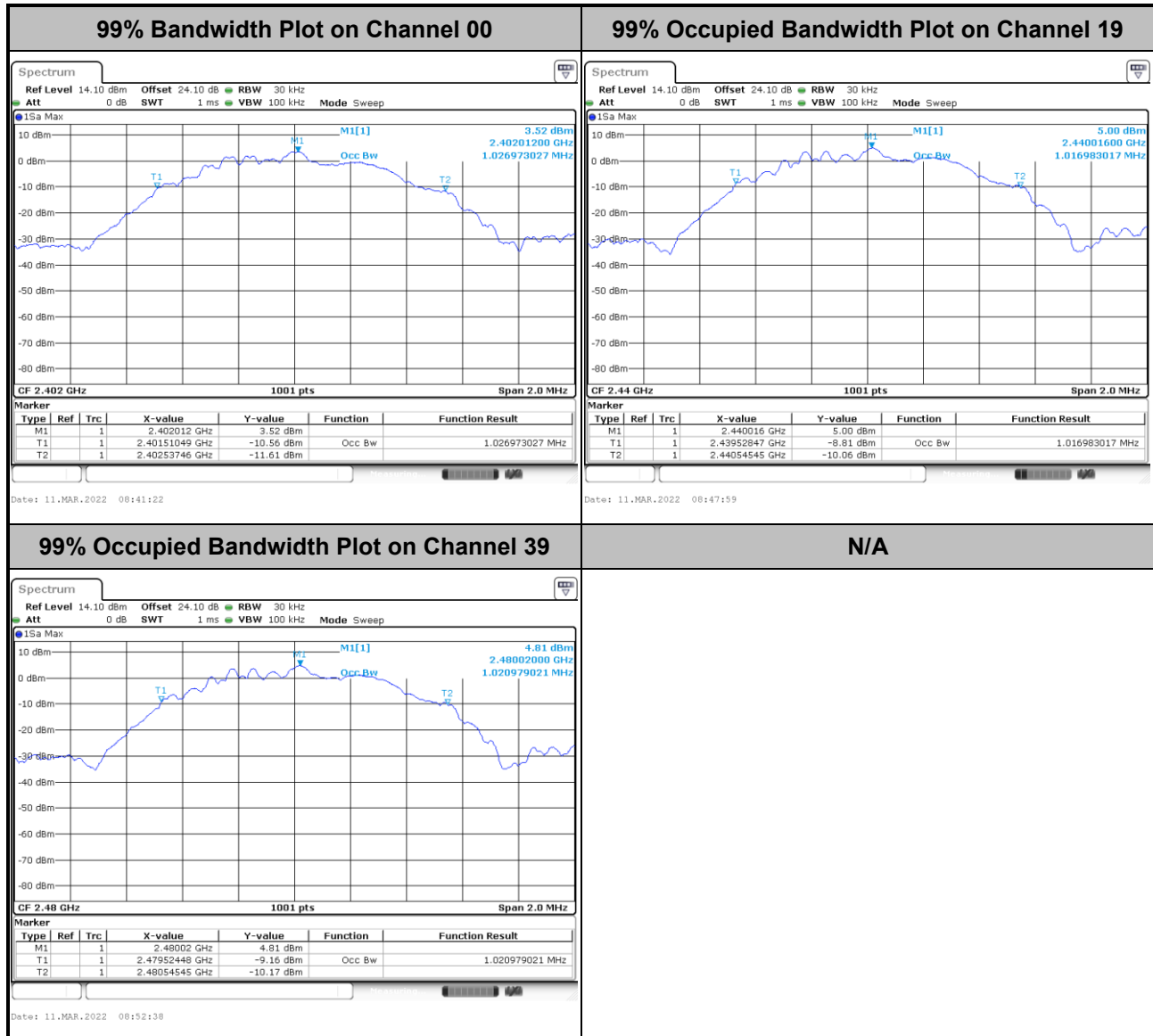


3.1.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

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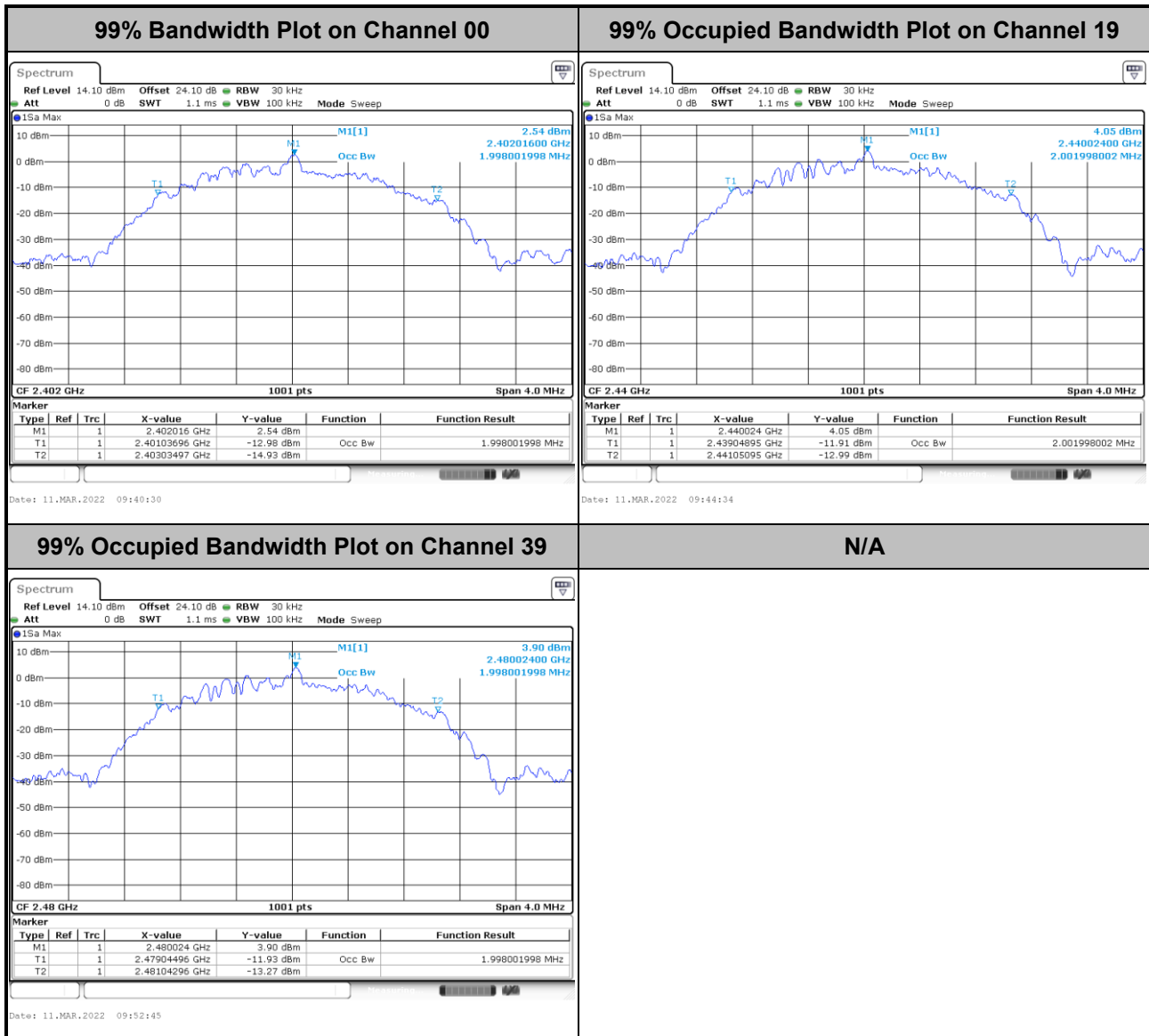
<1Mbps>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.



<2Mbps>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5 MHz, the limit for output power is 30 dBm. If transmitting antenna of directional gain greater than 6 dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

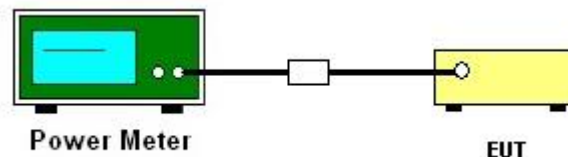
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G
2. The RF output of EUT is connected to the power meter by RF cable and attenuator.
3. The path loss is compensated to the results for each measurement.
4. Set the maximum power setting and enable the EUT to transmit continuously.
5. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Average Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8 dBm in any 3 kHz band at any time interval of continuous transmission.

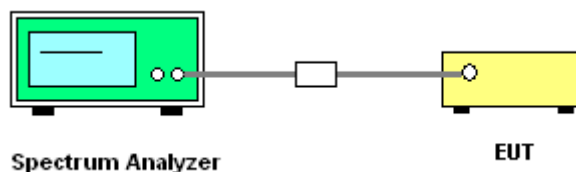
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
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. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth (VBW) = 10 kHz. In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6 dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. The Measured power density (dBm)/ 100 kHz is a reference level and is used as 20 dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

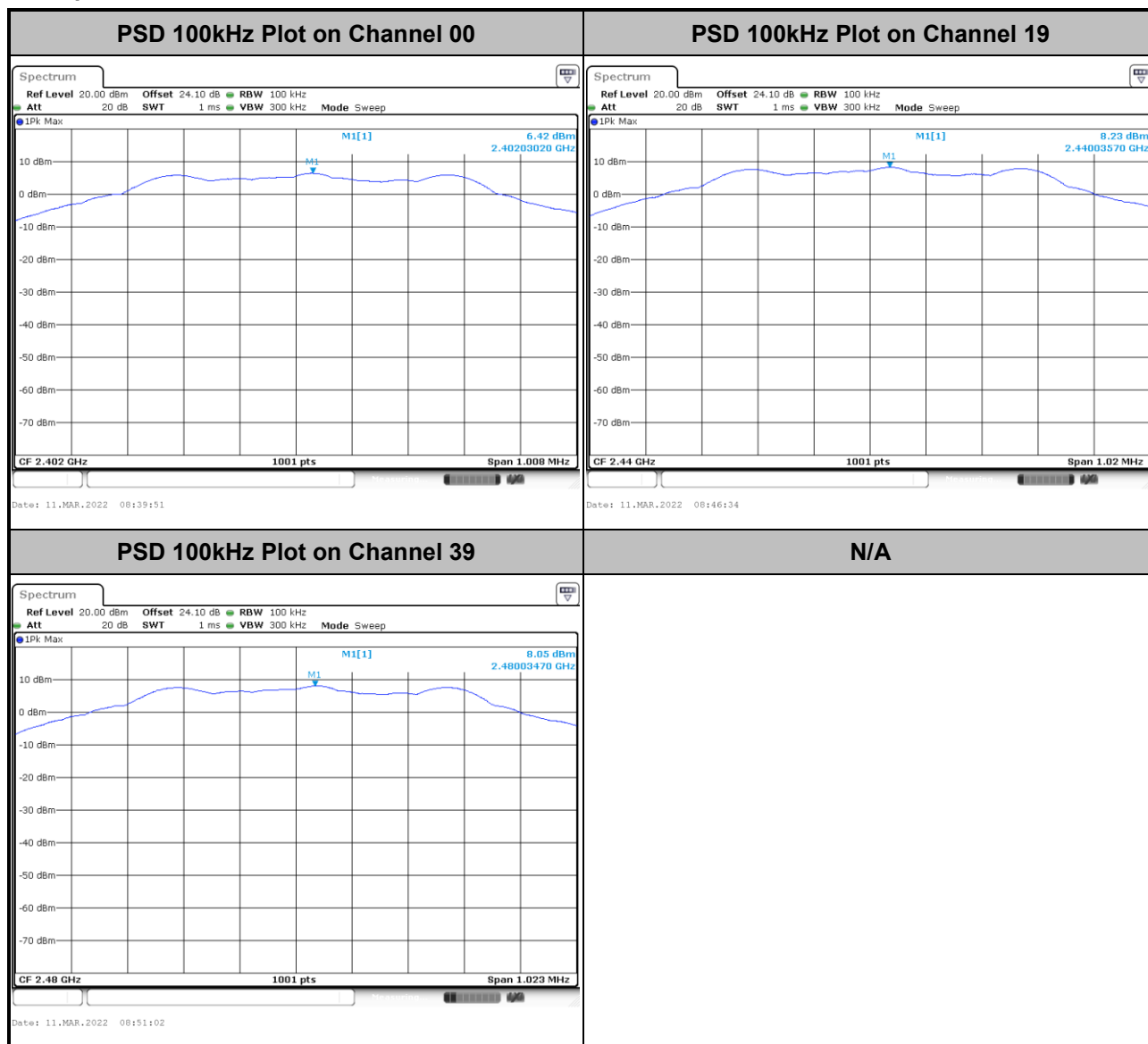
Please refer to Appendix A.



3.3.6 Test Result of Power Spectral Density Plots (100kHz)

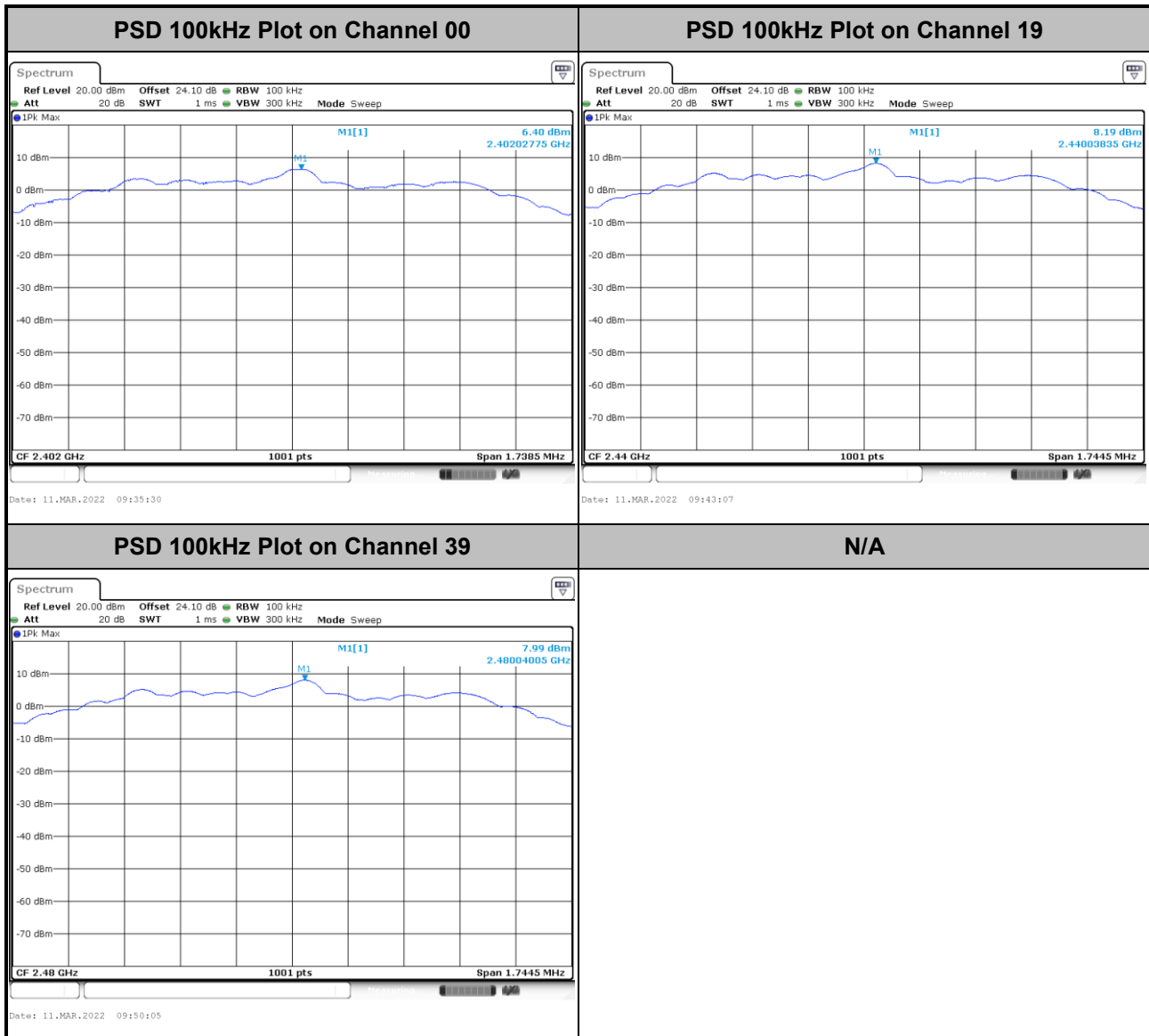
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<1Mbps>





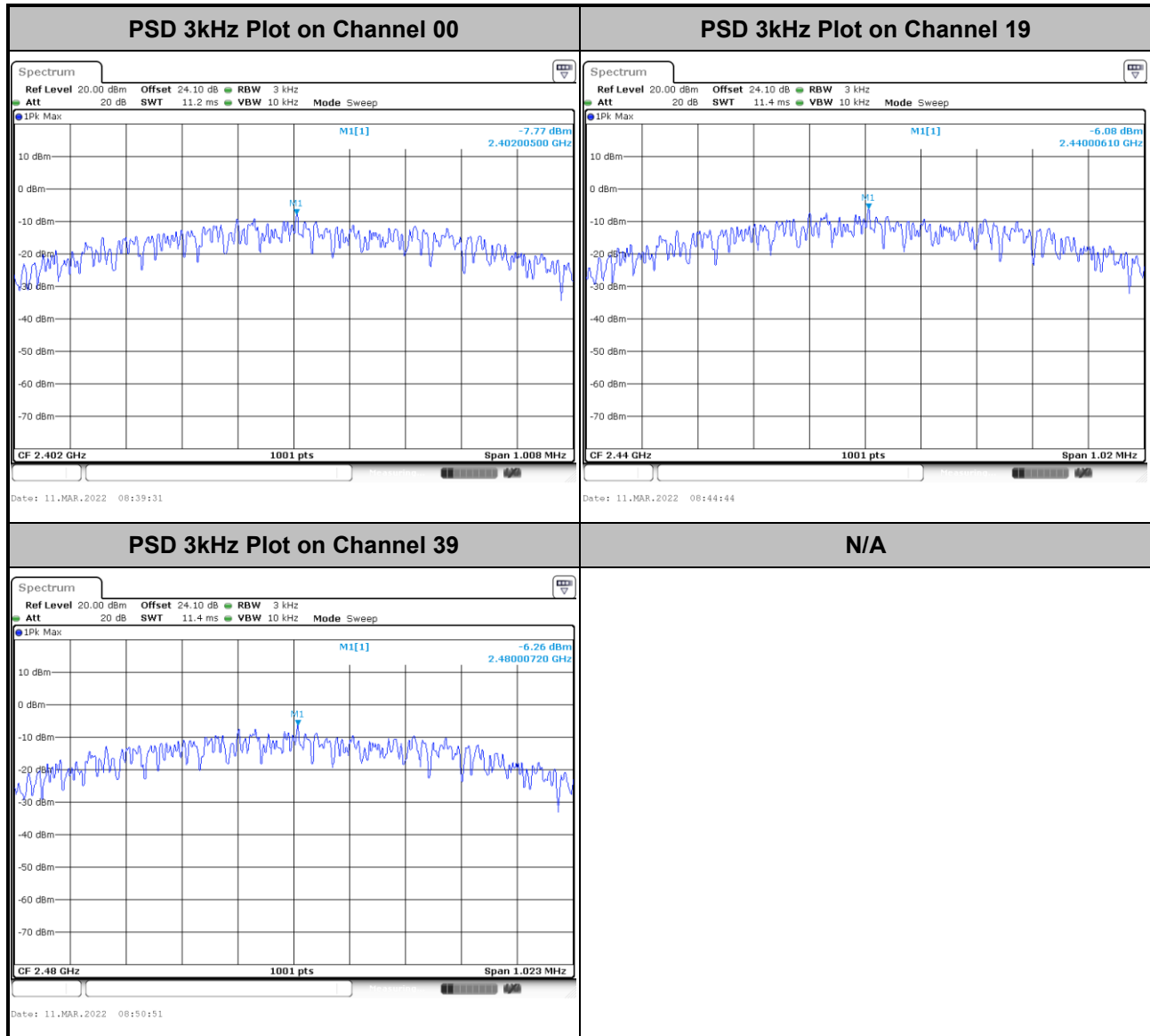
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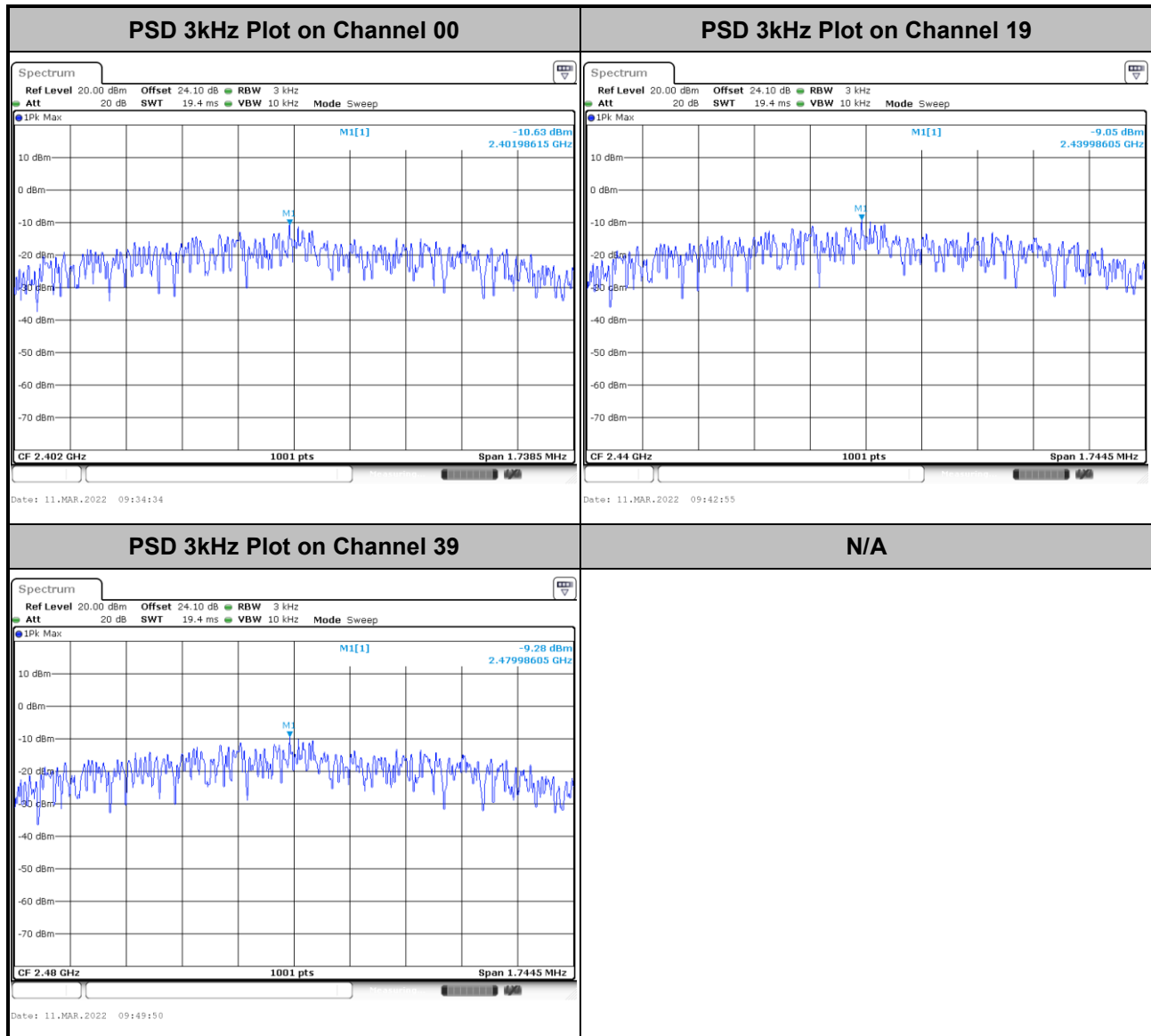
3.3.7 Test Result of Power Spectral Density Plots (3kHz)

<1Mbps>





<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 30 dB down from the highest emission level within the authorized band.

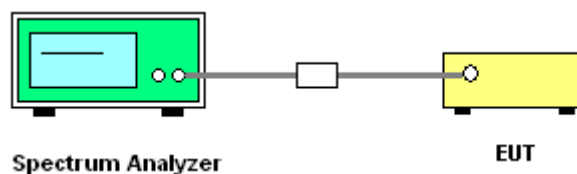
3.4.2 Measuring Instruments

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

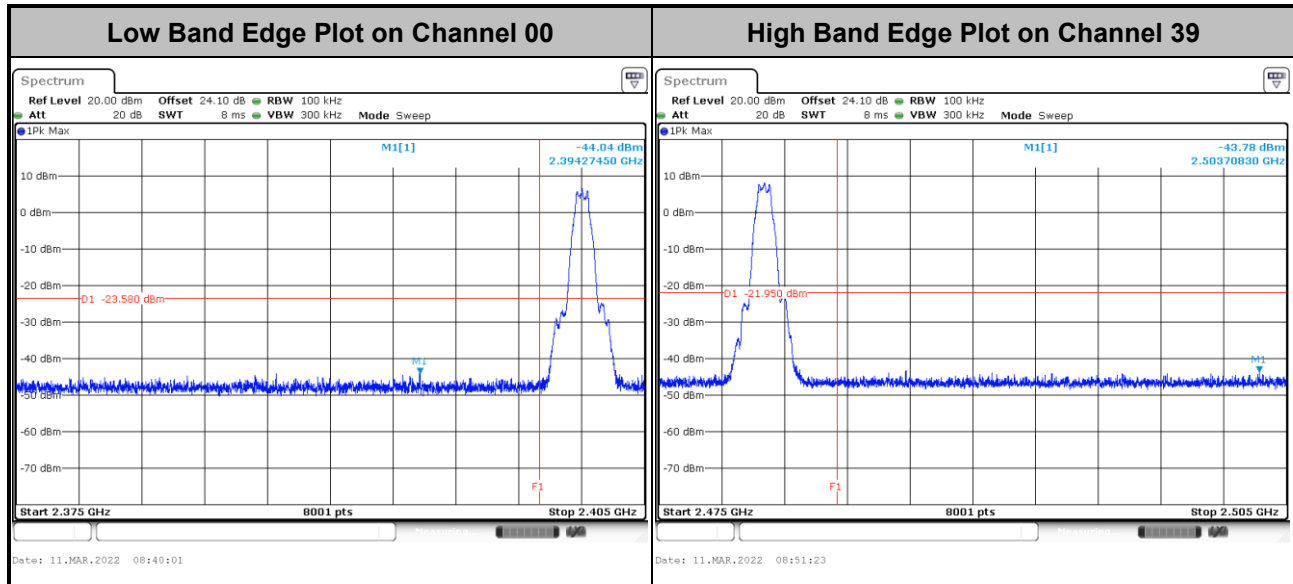




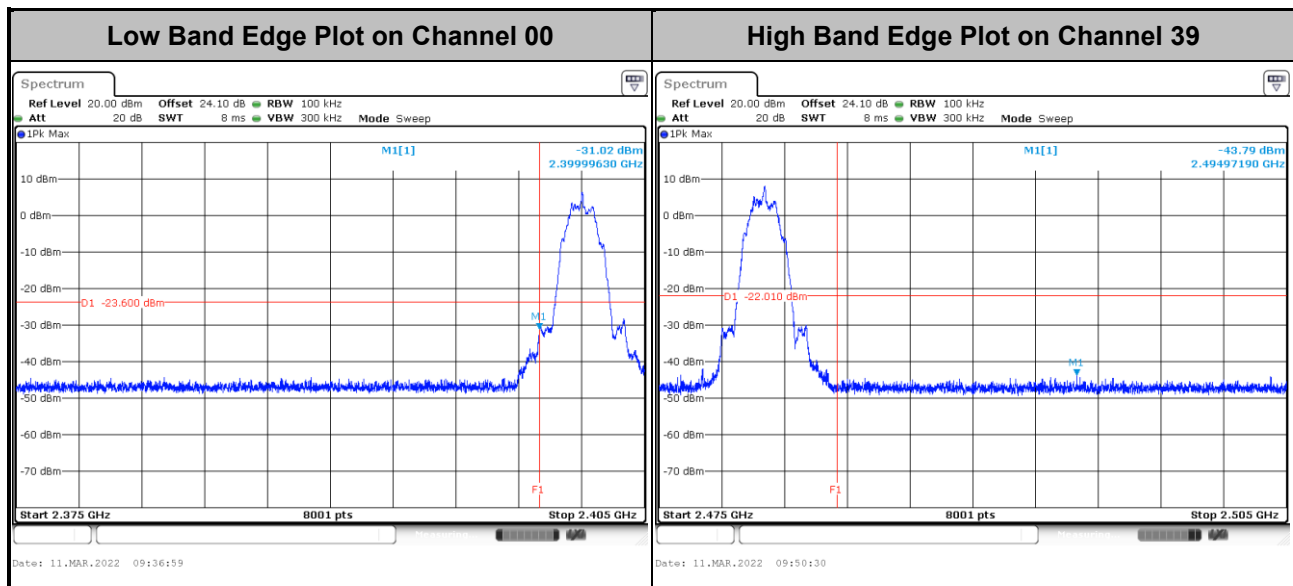
3.4.5 Test Result of Conducted Band Edges Plots

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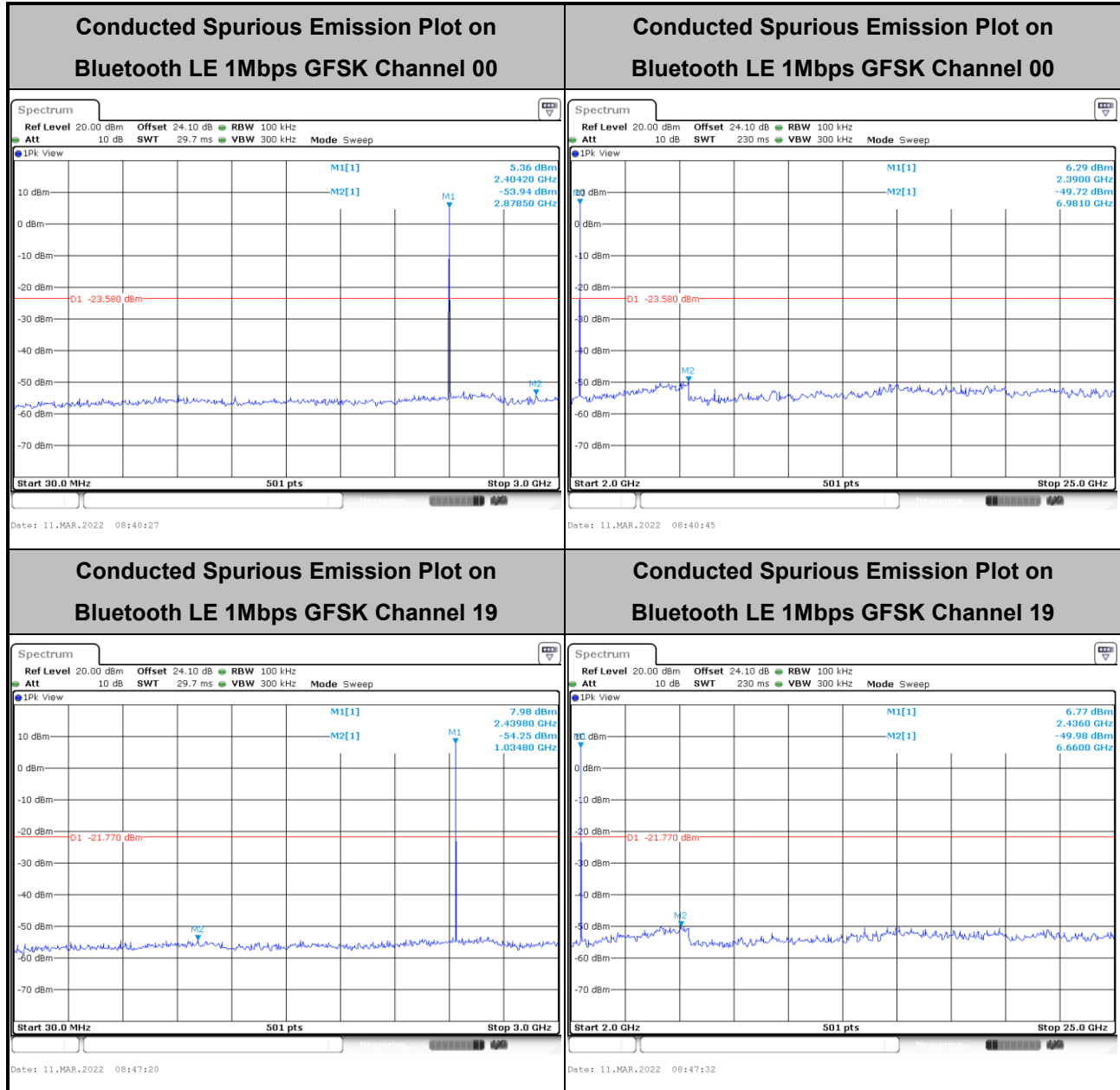




3.4.6 Test Result of Conducted Spurious Emission Plots

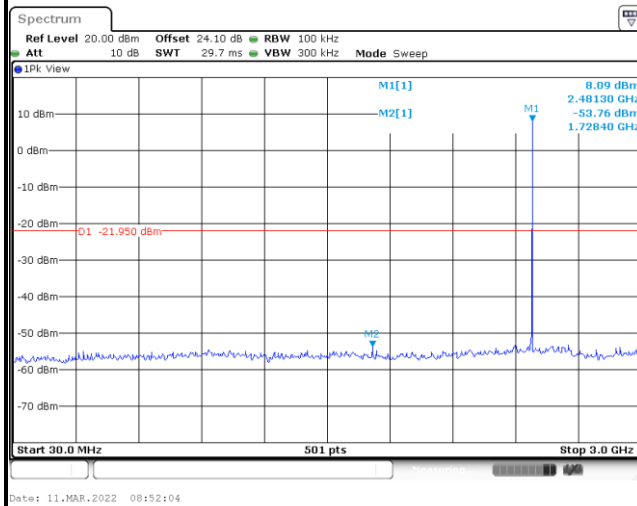
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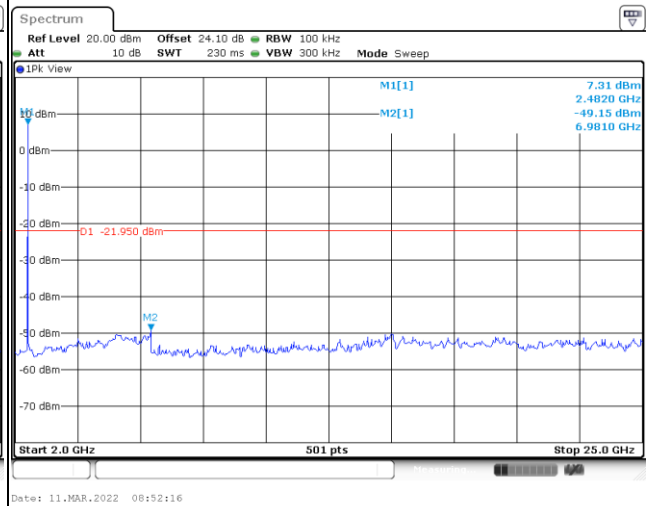




Conducted Spurious Emission Plot on
Bluetooth LE 1Mbps GFSK Channel 39

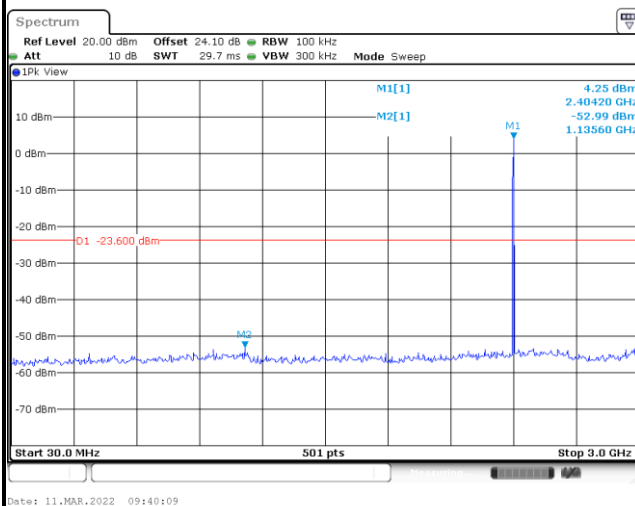
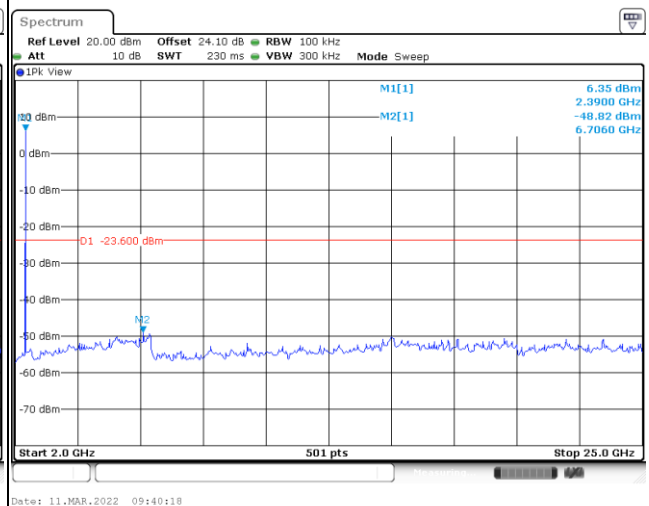
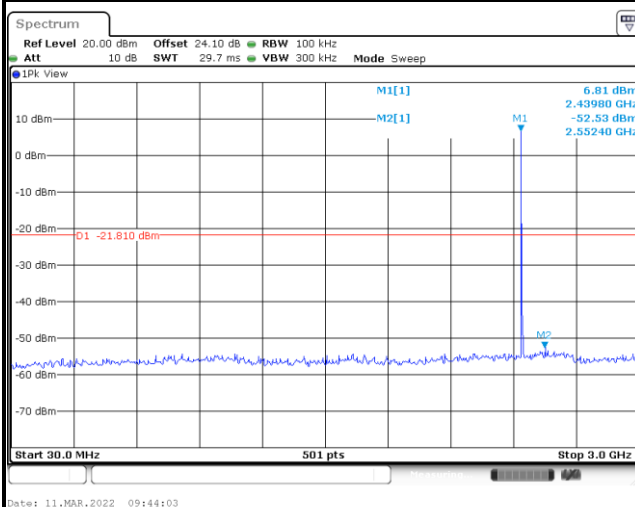
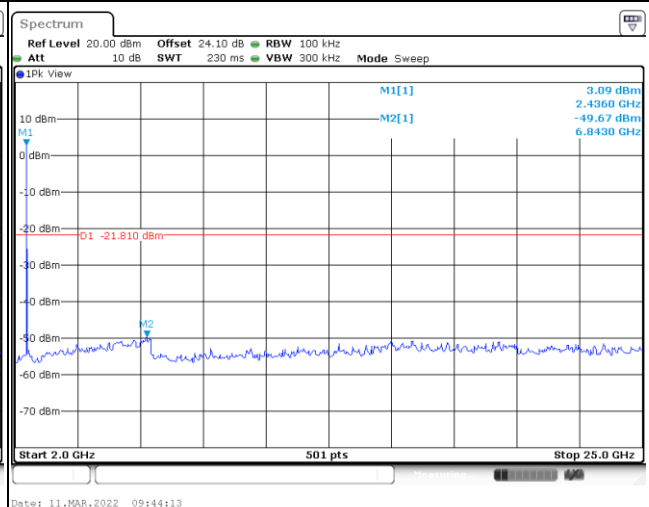


Conducted Spurious Emission Plot on
Bluetooth LE 1Mbps GFSK Channel 39



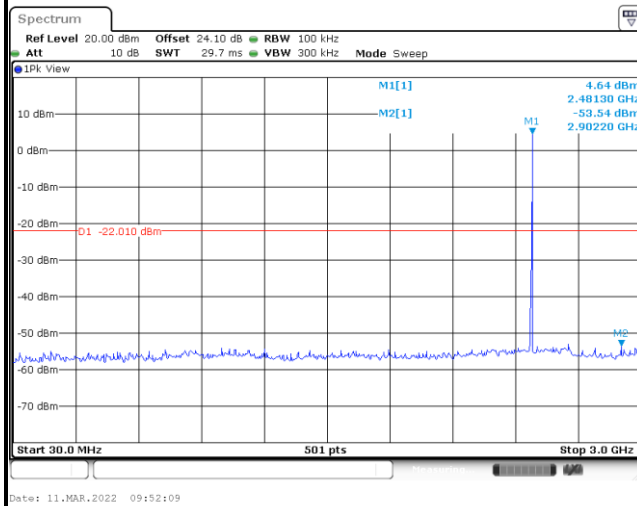


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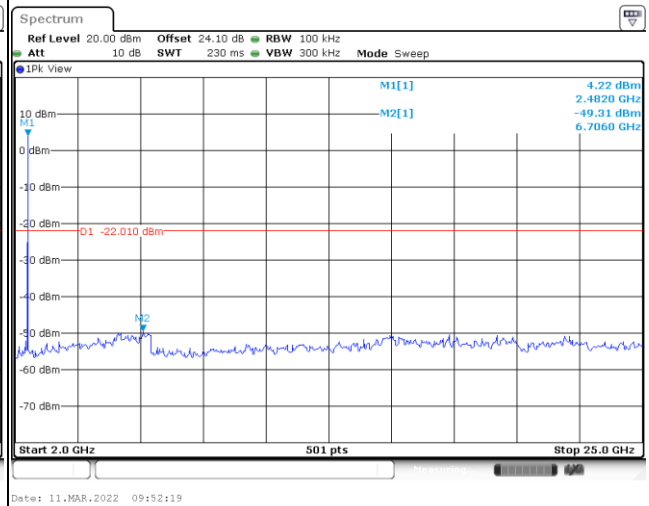
**Conducted Spurious Emission Plot on
Bluetooth LE 2Mbps GFSK Channel 00****Conducted Spurious Emission Plot on
Bluetooth LE 2Mbps GFSK Channel 00****Conducted Spurious Emission Plot on
Bluetooth LE 2Mbps GFSK Channel 19****Conducted Spurious Emission Plot on
Bluetooth LE 2Mbps GFSK Channel 19**



Conducted Spurious Emission Plot on
Bluetooth LE 2Mbps GFSK Channel 39



Conducted Spurious Emission Plot on
Bluetooth LE 2Mbps GFSK Channel 39





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.

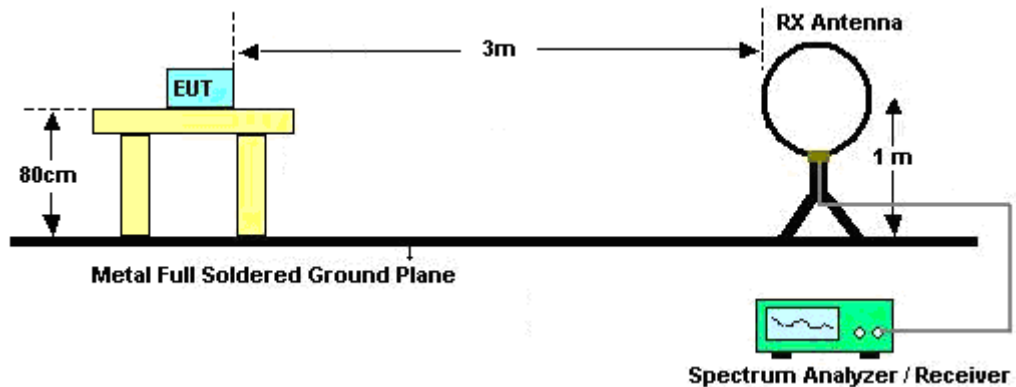


3.5.3 Test Procedures

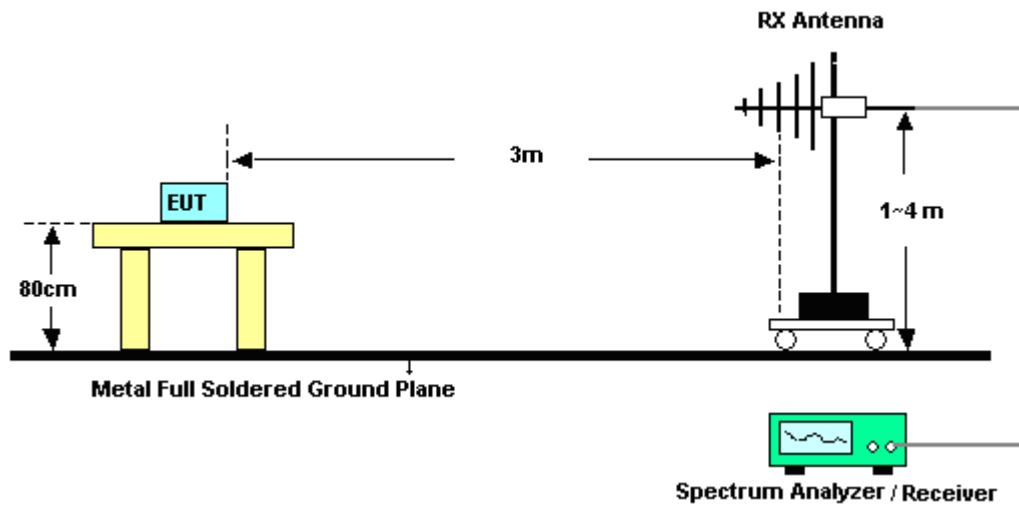
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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

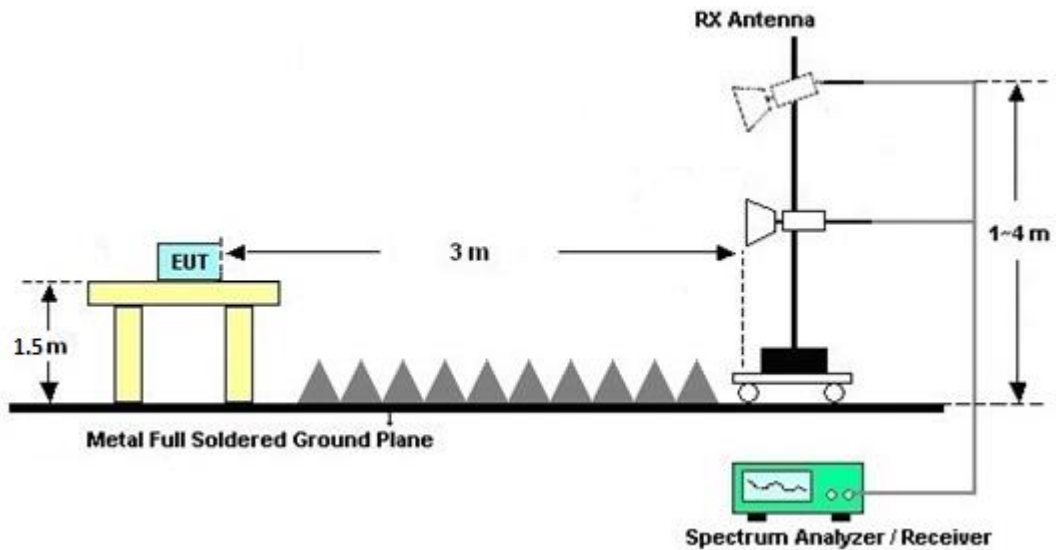
For radiated test below 30MHz



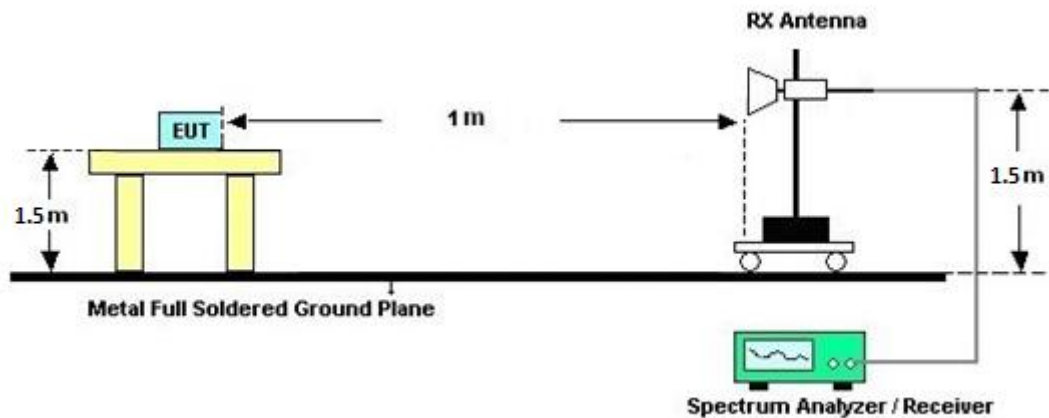
For radiated test from 30MHz to 1GHz



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.

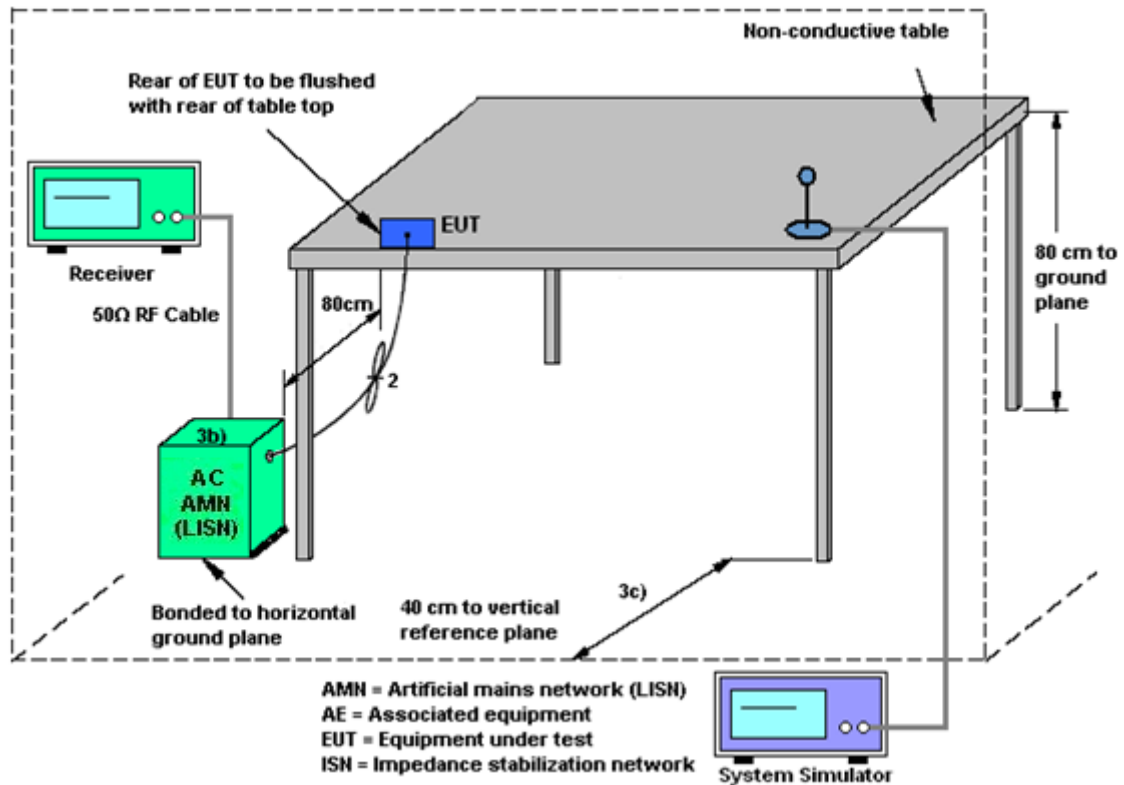
3.6.2 Measuring Instruments

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
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 09, 2021	Apr. 30, 2022~ Jun. 09, 2022	Sep. 08, 2022	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	41912 & 05	30MHz~1GHz	Feb. 06, 2022	Apr. 30, 2022~ Jun. 09, 2022	Feb. 05, 2023	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	363440	9kHz~1GHz	Dec. 27, 2021	Apr. 30, 2022~ Jun. 09, 2022	Dec. 26, 2022	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-02038	1GHz~18GHz	Aug. 04, 2021	Apr. 30, 2022~ Jun. 09, 2022	Aug. 03, 2022	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917025 1	18GHz~40GHz	Nov. 30, 2021	Apr. 30, 2022~ Jun. 09, 2022	Nov. 29, 2022	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-55-30 3	17100018000 55006	1GHz~18GHz	May 06, 2021	Apr. 30, 2022~ May 04, 2022	May 05, 2022	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-55-30 3	17100018000 55006	1GHz~18GHz	May 05, 2022	May 06, 2022~ Jun. 09, 2022	May 04, 2023	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-55-30 3	17100018000 55006	1GHz~18GHz	May 05, 2022	Apr. 30, 2022~ Jun. 09, 2022	May 04, 2023	Radiation (03CH15-HY)
Preamplifier	EM Electronics	EM01G18G	060803	1GHz-18GHz	Dec. 16, 2021	Apr. 30, 2022~ Jun. 09, 2022	Dec. 15, 2022	Radiation (03CH15-HY)
Preamplifier	EMEC	EM18G40G	060801	18-40GHz	Jun. 22, 2021	Apr. 30, 2022~ Jun. 09, 2022	Jun. 21, 2022	Radiation (03CH15-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20MHz~8.4GHz	Oct. 21, 2021	Apr. 30, 2022~ Jun. 09, 2022	Oct. 20, 2022	Radiation (03CH15-HY)
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	May. 07, 2021	Apr. 30, 2022~ May 05, 2022	May. 06, 2022	Radiation (03CH15-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz~44GHz	May. 07, 2022	May 06, 2022~ Jun. 09, 2022	May. 06, 2023	Radiation (03CH15-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz~44GHz	Mar. 07, 2022	Apr. 30, 2022~ Jun. 09, 2022	Mar. 06, 2023	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Apr. 30, 2022~ Jun. 09, 2022	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Apr. 30, 2022~ Jun. 09, 2022	N/A	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24(k5)	RK-000451	N/A	N/A	Apr. 30, 2022~ Jun. 09, 2022	N/A	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104, 102E	MY36980/4, MY9838/4PE, 508405/2E	30MHz~18G	Nov. 15, 2021	Apr. 30, 2022~ Jun. 09, 2022	Nov. 14, 2022	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2,804 012/2	30MHz-40GHz	Jan. 04, 2022	Apr. 30, 2022~ Jun. 09, 2022	Jan. 03, 2023	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 10, 2022	Apr. 30, 2022~ Jun. 09, 2022	Mar. 09, 2023	Radiation (03CH15-HY)
Filter	Wainwright	WLJ4-1000-15 30-6000-40ST	SN4	1.53GHz Low Pass Filter	Jul. 02, 2021	Apr. 30, 2022~ Jun. 09, 2022	Jul. 01, 2022	Radiation (03CH15-HY)
Filter	Wainwright	WHKX12-2700 -3000-18000-6 0ST	SN4	3GHz High Pass Filter	Sep. 15, 2021	Apr. 30, 2022~ Jun. 09, 2022	Sep. 14, 2022	Radiation (03CH15-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	May 11, 2022	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	May 11, 2022	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-FN	9561-FN00373	9kHz~200MHz	Oct. 29, 2021	May 11, 2022	Oct. 28, 2022	Conduction (CO07-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	Mar. 16, 2022	May 11, 2022	Mar. 15, 2023	Conduction (CO07-HY)
Two-Line V-Network	TESEQ	NNB 51	45051	N/A	Feb. 16, 2022	May 11, 2022	Feb. 15, 2023	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI7	100724	9kHz~7GHz	Feb. 24, 2022	May 11, 2022	Feb. 23, 2023	Conduction (CO07-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Feb. 24, 2022~Mar. 11, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO12 (NO:113)	10MHz~6GHz	Dec. 16, 2021	Feb. 24, 2022~Mar. 11, 2022	Dec. 15, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Feb. 24, 2022~Mar. 11, 2022	Aug. 29, 2022	Conducted (TH05-HY)
Switch Control Mainframe	E-IUSTRUMENT	ETF-1405-0	EC1900067 (BOX7)	N/A	Aug. 12, 2021	Feb. 24, 2022~Mar. 11, 2022	Aug. 11, 2022	Conducted (TH05-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.3 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.8 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3 dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.6 dB
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Eason Huang	Temperature:	21~25	°C
Test Date:	2022/2/24~03/11	Relative Humidity:	51~54	%

<Ant. 4>

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	4.50	30.00	-3.44	1.06	36.00	Pass
BLE	1Mbps	1	19	2440	5.40	30.00	-3.44	1.96	36.00	Pass
BLE	1Mbps	1	39	2480	6.60	30.00	-3.44	3.16	36.00	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	4.50	30.00	-3.44	1.06	36.00	Pass
BLE	2Mbps	1	19	2440	5.40	30.00	-3.44	1.96	36.00	Pass
BLE	2Mbps	1	39	2480	6.60	30.00	-3.44	3.16	36.00	Pass

<Ant. 5>

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	1.027	0.672	0.50	Pass
BLE	1Mbps	1	19	2440	1.017	0.680	0.50	Pass
BLE	1Mbps	1	39	2480	1.021	0.682	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	7.30	30.00	-1.67	5.63	36.00	Pass
BLE	1Mbps	1	19	2440	9.00	30.00	-1.67	7.33	36.00	Pass
BLE	1Mbps	1	39	2480	8.80	30.00	-1.67	7.13	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	6.42	-7.77	-1.67	8.00	Pass
BLE	1Mbps	1	19	2440	8.23	-6.08	-1.67	8.00	Pass
BLE	1Mbps	1	39	2480	8.05	-6.26	-1.67	8.00	Pass

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

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	1.998	1.159	0.50	Pass
BLE	2Mbps	1	19	2440	2.001	1.163	0.50	Pass
BLE	2Mbps	1	39	2480	1.998	1.163	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	7.30	30.00	-1.67	5.63	36.00	Pass
BLE	2Mbps	1	19	2440	9.00	30.00	-1.67	7.33	36.00	Pass
BLE	2Mbps	1	39	2480	8.80	30.00	-1.67	7.13	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	6.40	-10.63	-1.67	8.00	Pass
BLE	2Mbps	1	19	2440	8.19	-9.05	-1.67	8.00	Pass
BLE	2Mbps	1	39	2480	7.99	-9.28	-1.67	8.00	Pass

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

<Ant. 6>

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	7.20	30.00	-3.90	3.30	36.00	Pass
BLE	1Mbps	1	19	2440	8.40	30.00	-3.90	4.50	36.00	Pass
BLE	1Mbps	1	39	2480	6.50	30.00	-3.90	2.60	36.00	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
BLE5.0	2Mbps	1	0	2402	7.20	30.00	-3.90	3.30	36.00	Pass
BLE5.0	2Mbps	1	19	2440	8.40	30.00	-3.90	4.50	36.00	Pass
BLE5.0	2Mbps	1	39	2480	6.50	30.00	-3.90	2.60	36.00	Pass



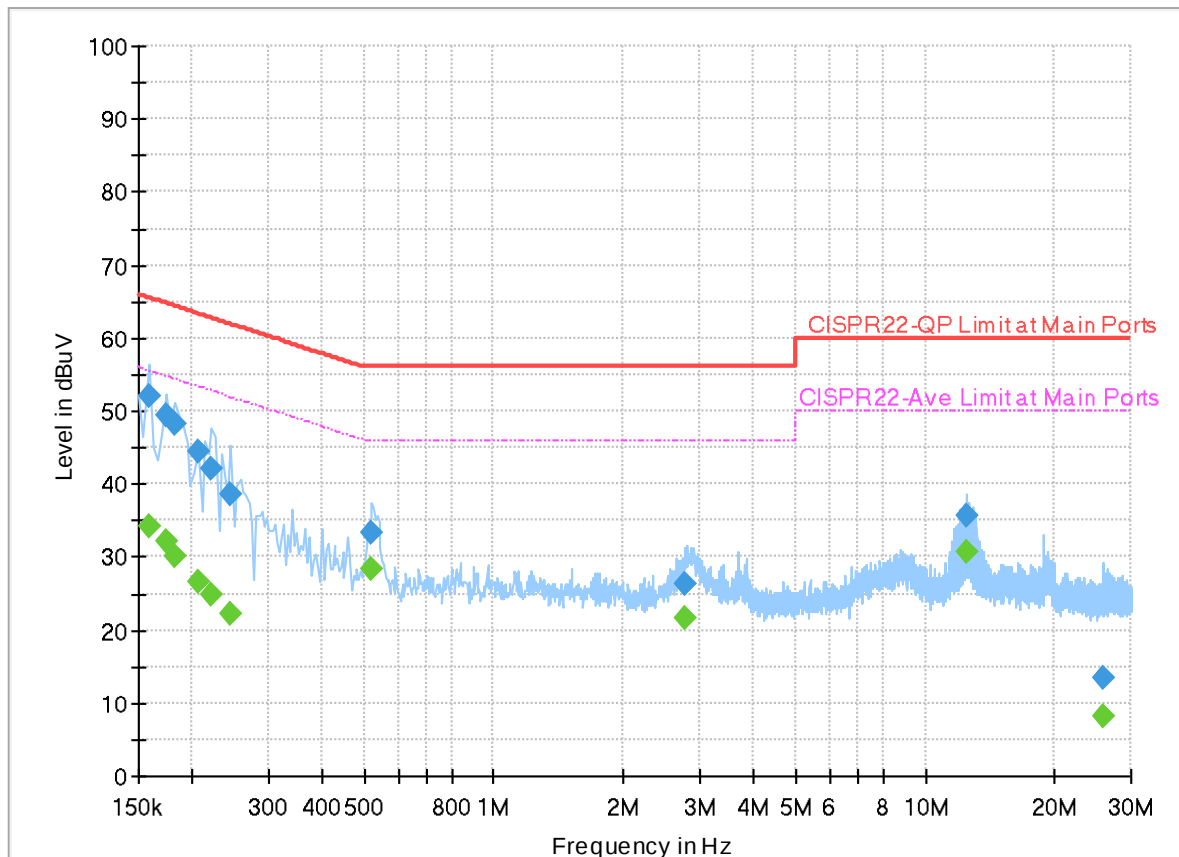
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	Temperature :	23.3~27.8℃
		Relative Humidity :	42.6~48.7%

EUT Information

Report NO : 210404
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Line

Full Spectrum



Final_Result

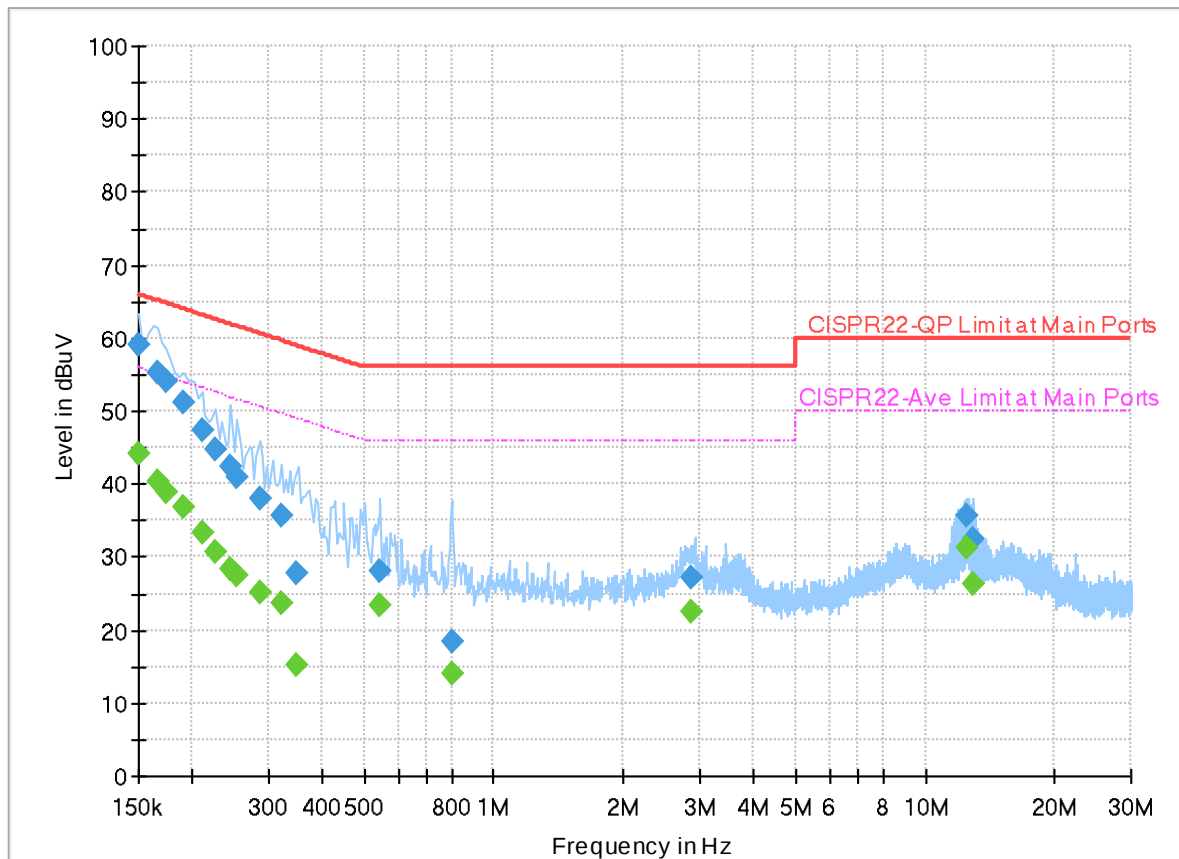
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.158000	---	34.26	55.57	21.31	L1	OFF	20.0
0.158000	51.97	---	65.57	13.60	L1	OFF	20.0
0.174000	---	32.05	54.77	22.72	L1	OFF	20.0
0.174000	49.40	---	64.77	15.37	L1	OFF	20.0
0.182000	---	30.23	54.39	24.16	L1	OFF	20.0
0.182000	48.25	---	64.39	16.14	L1	OFF	20.0
0.206000	---	26.51	53.37	26.86	L1	OFF	20.0
0.206000	44.32	---	63.37	19.05	L1	OFF	20.0
0.222000	---	24.93	52.74	27.81	L1	OFF	20.0
0.222000	42.10	---	62.74	20.64	L1	OFF	20.0
0.246000	---	22.23	51.89	29.66	L1	OFF	20.0
0.246000	38.63	---	61.89	23.26	L1	OFF	20.0
0.522000	---	28.42	46.00	17.58	L1	OFF	20.0
0.522000	33.35	---	56.00	22.65	L1	OFF	20.0
2.766000	---	21.64	46.00	24.36	L1	OFF	20.0
2.766000	26.38	---	56.00	29.62	L1	OFF	20.0
12.478000	---	30.67	50.00	19.33	L1	OFF	20.2
12.478000	35.77	---	60.00	24.23	L1	OFF	20.2
25.874000	---	8.18	50.00	41.82	L1	OFF	20.3

25.874000	13.37	---	60.00	46.63	L1	OFF	20.3
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EUT Information

Report NO : 210404
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)
0.150000	---	44.26	56.00	11.74	N	OFF	20.0
0.150000	59.02	---	66.00	6.98	N	OFF	20.0
0.166000	---	40.36	55.16	14.80	N	OFF	20.0
0.166000	55.29	---	65.16	9.87	N	OFF	20.0
0.174000	---	39.01	54.77	15.76	N	OFF	20.0
0.174000	54.17	---	64.77	10.60	N	OFF	20.0
0.190000	---	36.76	54.04	17.28	N	OFF	20.0
0.190000	51.10	---	64.04	12.94	N	OFF	20.0
0.210000	---	33.20	53.21	20.01	N	OFF	20.0
0.210000	47.43	---	63.21	15.78	N	OFF	20.0
0.226000	---	30.59	52.60	22.01	N	OFF	20.0
0.226000	44.66	---	62.60	17.94	N	OFF	20.0
0.246000	---	28.32	51.89	23.57	N	OFF	20.0
0.246000	42.47	---	61.89	19.42	N	OFF	20.0
0.254000	---	27.63	51.63	24.00	N	OFF	20.0
0.254000	41.06	---	61.63	20.57	N	OFF	20.0
0.286000	---	25.02	50.64	25.62	N	OFF	20.0
0.286000	37.91	---	60.64	22.73	N	OFF	20.0
0.322000	---	23.82	49.66	25.84	N	OFF	20.0

0.322000	35.68	---	59.66	23.98	N	OFF	20.0
0.350000	---	15.10	48.96	33.86	N	OFF	20.0
0.350000	27.84	---	58.96	31.12	N	OFF	20.0
0.546000	---	23.30	46.00	22.70	N	OFF	20.0
0.546000	28.11	---	56.00	27.89	N	OFF	20.0
0.798000	---	14.08	46.00	31.92	N	OFF	20.0
0.798000	18.54	---	56.00	37.46	N	OFF	20.0
2.858000	---	22.39	46.00	23.61	N	OFF	20.0
2.858000	27.06	---	56.00	28.94	N	OFF	20.0
12.474000	---	31.29	50.00	18.71	N	OFF	20.2
12.474000	35.60	---	60.00	24.40	N	OFF	20.2
12.946000	---	26.26	50.00	23.74	N	OFF	20.2
12.946000	32.52	---	60.00	27.48	N	OFF	20.2



Appendix C. Radiated Spurious Emission

Test Engineer :	Leo Lee, Mancy Chou and Bigshow Wang	Temperature :	22.1~23.1°C
		Relative Humidity :	55.0~60.0%

<1Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE ANT 4	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		2373.315	50.93	-23.07	74	43.94	27.29	16.54	36.84	137	10	P	H
		2380.35	41.82	-12.18	54	34.79	27.32	16.55	36.84	137	10	A	H
	*	2402	97.5	-	-	90.35	27.4	16.58	36.83	137	10	P	H
	*	2402	97.01	-	-	89.86	27.4	16.58	36.83	137	10	A	H
													H
		2335.515	51.81	-22.19	74	45.06	27.14	16.47	36.86	379	263	P	V
		2380.77	42.03	-11.97	54	34.99	27.32	16.55	36.83	379	263	A	V
	*	2402	94.44	-	-	87.29	27.4	16.58	36.83	379	263	P	V
	*	2402	92.84	-	-	85.69	27.4	16.58	36.83	379	263	A	V
													V
BLE CH 19 2440MHz		2323.12	51.15	-22.85	74	44.47	27.09	16.45	36.86	112	9	P	H
		2389.68	41.72	-12.28	54	34.63	27.36	16.56	36.83	112	9	A	H
	*	2440	100.73	-	-	93.42	27.48	16.64	36.81	112	9	P	H
	*	2440	100.19	-	-	92.88	27.48	16.64	36.81	112	9	A	H
		2497.39	51.39	-22.61	74	43.75	27.69	16.73	36.78	112	9	P	H
		2484.79	42.1	-11.9	54	34.54	27.64	16.71	36.79	112	9	A	H
		2366.96	50.74	-23.26	74	43.78	27.27	16.53	36.84	400	222	P	V
		2342.8	41.78	-12.22	54	34.97	27.17	16.49	36.85	400	222	A	V
	*	2440	97.48	-	-	90.17	27.48	16.64	36.81	400	222	P	V
	*	2440	96.99	-	-	89.68	27.48	16.64	36.81	400	222	A	V
		2495.5	50.77	-23.23	74	43.14	27.68	16.73	36.78	400	222	P	V
		2483.8	42.26	-11.74	54	34.7	27.64	16.71	36.79	400	222	A	V



BLE CH 39 2480MHz	*	2480	100.6	-	-	93.07	27.62	16.7	36.79	101	50	P	H
	*	2480	100.06	-	-	92.53	27.62	16.7	36.79	101	50	A	H
		2495.44	51.03	-22.97	74	43.4	27.68	16.73	36.78	101	50	P	H
		2499.04	42.41	-11.59	54	34.76	27.7	16.73	36.78	101	50	A	H
													H
													H
	*	2480	97.35	-	-	89.82	27.62	16.7	36.79	396	140	P	V
	*	2480	96.83	-	-	89.3	27.62	16.7	36.79	396	140	A	V
		2498.08	51.18	-22.82	74	43.54	27.69	16.73	36.78	396	140	P	V
		2492.64	42.42	-11.58	54	34.81	27.67	16.72	36.78	396	140	A	V
													V
													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 ANT 4	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	39.37	-34.63	74	55.47	32.31	10.13	58.54	-	-	P	H
		10000	45.14	-28.86	74	53	38.1	14.26	60.22	-	-	P	H
		14000	52.33	-21.67	74	58.04	40.6	16.63	62.94	-	-	P	H
		14000	42.06	-11.94	54	47.77	40.6	16.63	62.94	-	-	A	H
		17985	54.36	-19.64	74	49.64	42.97	18.94	57.19	-	-	P	H
		17985	44.13	-9.87	54	39.41	42.97	18.94	57.19	-	-	A	H
													H
													H
													H
													H
													H
													H
		4804	38.09	-35.91	74	55.12	31.38	10.13	58.54	-	-	P	V
		10000	46.69	-27.31	74	53.55	39.1	14.26	60.22	-	-	P	V
		14000	51.97	-22.03	74	57.58	40.7	16.63	62.94	-	-	P	V
		14000	41.56	-12.44	54	47.17	40.7	16.63	62.94	-	-	A	V
		18000	57.92	-16.08	74	47.74	48.4	18.95	57.17	-	-	P	V
		18000	47.44	-6.56	54	37.26	48.4	18.95	57.17	-	-	A	V
													V
													V
													V
													V
													V
													V



BLE ANT 4	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	39.77	-34.23	74	55.63	32.52	10.21	58.59	-	-	P	H
		7320	44.14	-29.86	74	53.26	36.52	12.43	58.07	-	-	P	H
		10000	45.58	-28.42	74	53.44	38.1	14.26	60.22	-	-	P	H
		14000	51.97	-22.03	74	57.68	40.6	16.63	62.94	-	-	P	H
		14000	41.63	-12.37	54	47.34	40.6	16.63	62.94	-	-	A	H
		17940	54.02	-19.98	74	49.8	42.56	18.91	57.25	-	-	P	H
		17940	43.75	-10.25	54	39.53	42.56	18.91	57.25	-	-	A	H
													H
													H
													H
													H
													H
		4880	40.45	-33.55	74	57.51	31.32	10.21	58.59	-	-	P	V
		7320	44.32	-29.68	74	53.62	36.34	12.43	58.07	-	-	P	V
		10000	46.91	-27.09	74	53.77	39.1	14.26	60.22	-	-	P	V
		14000	51.76	-22.24	74	57.37	40.7	16.63	62.94	-	-	P	V
		14000	41.39	-12.61	54	47	40.7	16.63	62.94	-	-	A	V
		18000	57.94	-16.06	74	47.76	48.4	18.95	57.17	-	-	P	V
		18000	47.47	-6.53	54	37.29	48.4	18.95	57.17	-	-	A	V
													V
													V
													V
													V
													V



BLE ANT 4	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	39.41	-34.59	74	54.93	32.84	10.28	58.64	-	-	P	H
		7440	43.2	-30.8	74	52.69	36.02	12.48	57.99	-	-	P	H
		10000	45.87	-28.13	74	53.73	38.1	14.26	60.22	-	-	P	H
		14000	50.99	-23.01	74	56.7	40.6	16.63	62.94	-	-	P	H
		14000	40.67	-13.33	54	46.38	40.6	16.63	62.94	-	-	A	H
		18000	54.25	-19.75	74	49.37	43.1	18.95	57.17	-	-	P	H
		18000	44.09	-9.91	54	39.21	43.1	18.95	57.17	-	-	A	H
													H
													H
													H
													H
													H
		4960	39.8	-34.2	74	56.72	31.44	10.28	58.64	-	-	P	V
		7440	42.97	-31.03	74	52.12	36.36	12.48	57.99	-	-	P	V
		10000	46.5	-27.5	74	53.36	39.1	14.26	60.22	-	-	P	V
		14000	51.07	-22.93	74	56.68	40.7	16.63	62.94	-	-	P	V
		14000	40.82	-13.18	54	46.43	40.7	16.63	62.94	-	-	A	V
		17985	58.15	-15.85	74	48.3	48.1	18.94	57.19	-	-	P	V
		17985	47.73	-6.27	54	37.88	48.1	18.94	57.19	-	-	A	V
													V
													V
													V
													V
													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.												



2.4GHz BLE (SHF)

TEL : 886-3-327-0868
FAX : 886-3-327-0855



2.4GHz BLE (LF)

TEL : 886-3-327-0868
FAX : 886-3-327-0855



2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
ANT					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
5		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2376.885	51.41	-22.59	74	44.4	27.31	16.54	36.84	312	341	P	H
		2386.755	41.81	-12.19	54	34.73	27.35	16.56	36.83	312	341	A	H
	*	2402	94.98	-	-	87.83	27.4	16.58	36.83	312	341	P	H
	*	2402	94.55	-	-	87.4	27.4	16.58	36.83	312	341	A	H
													H
													H
		2329.635	50.56	-23.44	74	43.84	27.12	16.46	36.86	323	114	P	V
		2357.25	41.78	-12.22	54	34.89	27.23	16.51	36.85	323	114	A	V
	*	2402	93.1	-	-	85.95	27.4	16.58	36.83	323	114	P	V
	*	2402	92.62	-	-	85.47	27.4	16.58	36.83	323	114	A	V
													V
													V
BLE CH 19 2440MHz		2362.16	51.21	-22.79	74	44.28	27.25	16.52	36.84	317	346	P	H
		2381.04	42.05	-11.95	54	35.01	27.32	16.55	36.83	317	346	A	H
	*	2440	99.63	-	-	92.32	27.48	16.64	36.81	317	346	P	H
	*	2440	99.2	-	-	91.89	27.48	16.64	36.81	317	346	A	H
		2491.45	50.87	-23.13	74	43.26	27.67	16.72	36.78	317	346	P	H
		2490.73	42.28	-11.72	54	34.68	27.66	16.72	36.78	317	346	A	H
		2326.48	50.79	-23.21	74	44.08	27.11	16.46	36.86	298	84	P	V
		2338.48	41.72	-12.28	54	34.94	27.15	16.48	36.85	298	84	A	V
	*	2440	95.51	-	-	88.2	27.48	16.64	36.81	298	84	P	V
	*	2440	95.01	-	-	87.7	27.48	16.64	36.81	298	84	A	V
		2485.69	51.57	-22.43	74	44.01	27.64	16.71	36.79	298	84	P	V
		2494.6	42.18	-11.82	54	34.55	27.68	16.73	36.78	298	84	A	V



BLE CH 39 2480MHz	*	2480	98.49	-	-	90.96	27.62	16.7	36.79	282	344	P	H
	*	2480	97.77	-	-	90.24	27.62	16.7	36.79	282	344	A	H
		2494.12	53.28	-20.72	74	45.65	27.68	16.73	36.78	282	344	P	H
		2489.08	42.24	-11.76	54	34.65	27.66	16.72	36.79	282	344	A	H
													H
													H
	*	2480	96.84	-	-	89.31	27.62	16.7	36.79	299	103	P	V
	*	2480	96.38	-	-	88.85	27.62	16.7	36.79	299	103	A	V
		2494.6	51.45	-22.55	74	43.82	27.68	16.73	36.78	299	103	P	V
		2496.8	42.2	-11.8	54	34.56	27.69	16.73	36.78	299	103	A	V
													V
													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 ANT 5	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	39.86	-34.14	74	55.96	32.31	10.13	58.54	-	-	P	H
		10000	46.45	-27.55	74	54.31	38.1	14.26	60.22	-	-	P	H
		14000	51.64	-22.36	74	57.35	40.6	16.63	62.94	-	-	P	H
		14000	41.42	-12.58	54	47.13	40.6	16.63	62.94	-	-	A	H
		18000	54.76	-19.24	74	49.88	43.1	18.95	57.17	-	-	P	H
		18000	44.52	-9.48	54	39.64	43.1	18.95	57.17	-	-	A	H
													H
													H
													H
													H
													H
													H
		4804	38.24	-35.76	74	55.27	31.38	10.13	58.54	-	-	P	V
		10000	47.03	-26.97	74	53.89	39.1	14.26	60.22	-	-	P	V
		14000	52.14	-21.86	74	57.75	40.7	16.63	62.94	-	-	P	V
		14000	42.77	-11.23	54	48.38	40.7	16.63	62.94	-	-	A	V
		18000	57.24	-16.76	74	47.06	48.4	18.95	57.17	-	-	P	V
		18000	47.38	-6.62	54	37.2	48.4	18.95	57.17	-	-	A	V
													V
													V
													V
													V
													V
													V
													V



BLE ANT 5	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	39.49	-34.51	74	55.35	32.52	10.21	58.59	-	-	P	H
		7320	44.27	-29.73	74	53.39	36.52	12.43	58.07	-	-	P	H
		10000	45.53	-28.47	74	53.39	38.1	14.26	60.22	-	-	P	H
		14000	52.6	-21.4	74	58.31	40.6	16.63	62.94	-	-	P	H
		14000	42.38	-11.62	54	48.09	40.6	16.63	62.94	-	-	A	H
		17985	54.21	-19.79	74	49.49	42.97	18.94	57.19	-	-	P	H
		17985	44.19	-9.81	54	39.47	42.97	18.94	57.19	-	-	A	H
													H
													H
													H
													H
													H
		4880	37.8	-36.2	74	54.86	31.32	10.21	58.59	-	-	P	V
		7320	43.76	-30.24	74	53.06	36.34	12.43	58.07	-	-	P	V
		10000	45.94	-28.06	74	52.8	39.1	14.26	60.22	-	-	P	V
		14000	50.89	-23.11	74	56.5	40.7	16.63	62.94	-	-	P	V
		14000	40.54	-13.46	54	46.15	40.7	16.63	62.94	-	-	A	V
		17970	57	-17	74	47.48	47.8	18.93	57.21	-	-	P	V
		17970	47.87	-6.13	54	38.35	47.8	18.93	57.21	-	-	A	V
													V
													V
													V
													V
													V



BLE ANT 5	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	39.54	-34.46	74	55.06	32.84	10.28	58.64	-	-	P	H
		7440	43.37	-30.63	74	52.86	36.02	12.48	57.99	-	-	P	H
		10000	45.3	-28.7	74	53.16	38.1	14.26	60.22	-	-	P	H
		14000	51.82	-22.18	74	57.53	40.6	16.63	62.94	-	-	P	H
		14000	41.63	-12.37	54	47.34	40.6	16.63	62.94	-	-	A	H
		18000	54.21	-19.79	74	49.33	43.1	18.95	57.17	-	-	P	H
		18000	43.79	-10.21	54	38.91	43.1	18.95	57.17	-	-	A	H
													H
													H
													H
													H
													H
		4960	38.08	-35.92	74	55	31.44	10.28	58.64	-	-	P	V
		7440	43.11	-30.89	74	52.26	36.36	12.48	57.99	-	-	P	V
		10000	47.32	-26.68	74	54.18	39.1	14.26	60.22	-	-	P	V
		14000	52.52	-21.48	74	58.13	40.7	16.63	62.94	-	-	P	V
		14000	42.31	-11.69	54	47.92	40.7	16.63	62.94	-	-	A	V
		18000	58.1	-15.9	74	47.92	48.4	18.95	57.17	-	-	P	V
		18000	47.76	-6.24	54	37.58	48.4	18.95	57.17	-	-	A	V
													V
													V
													V
													V
													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.												



2.4GHz BLE (SHF)

TEL : 886-3-327-0868
FAX : 886-3-327-0855



2.4GHz BLE (LF)

TEL : 886-3-327-0868
FAX : 886-3-327-0855



2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
ANT					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
6		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2323.44	51.32	-22.68	74	44.64	27.09	16.45	36.86	315	39	P	H
		2386.755	41.97	-12.03	54	34.89	27.35	16.56	36.83	315	39	A	H
	*	2402	99.86	-	-	92.71	27.4	16.58	36.83	315	39	P	H
	*	2402	99.39	-	-	92.24	27.4	16.58	36.83	315	39	A	H
													H
													H
		2388.855	50.82	-23.18	74	43.73	27.36	16.56	36.83	300	108	P	V
		2386.23	42.1	-11.9	54	35.03	27.34	16.56	36.83	300	108	A	V
	*	2402	97.57	-	-	90.42	27.4	16.58	36.83	300	108	P	V
	*	2402	97.11	-	-	89.96	27.4	16.58	36.83	300	108	A	V
													V
													V
BLE CH 19 2440MHz		2327.76	51.09	-22.91	74	44.38	27.11	16.46	36.86	298	39	P	H
		2336.56	42.15	-11.85	54	35.38	27.15	16.48	36.86	298	39	A	H
	*	2440	103.98	-	-	96.67	27.48	16.64	36.81	298	39	P	H
	*	2440	103.44	-	-	96.13	27.48	16.64	36.81	298	39	A	H
		2488.03	51.99	-22.01	74	44.41	27.65	16.72	36.79	298	39	P	H
		2499.82	42.56	-11.44	54	34.91	27.7	16.73	36.78	298	39	A	H
		2361.84	51.25	-22.75	74	44.32	27.25	16.52	36.84	300	104	P	V
		2368.4	41.98	-12.02	54	35.02	27.27	16.53	36.84	300	104	A	V
	*	2440	101.71	-	-	94.4	27.48	16.64	36.81	300	104	P	V
	*	2440	101.11	-	-	93.8	27.48	16.64	36.81	300	104	A	V
		2483.62	51.51	-22.49	74	43.96	27.63	16.71	36.79	300	104	P	V
		2484.52	42.43	-11.57	54	34.87	27.64	16.71	36.79	300	104	A	V



BLE CH 39 2480MHz	*	2480	98.46	-	-	90.93	27.62	16.7	36.79	334	54	P	H
	*	2480	97.91	-	-	90.38	27.62	16.7	36.79	334	54	A	H
		2492.92	51.55	-22.45	74	43.94	27.67	16.72	36.78	334	54	P	H
		2488.6	42.39	-11.61	54	34.81	27.65	16.72	36.79	334	54	A	H
													H
													H
	*	2480	95.21	-	-	87.68	27.62	16.7	36.79	100	58	P	V
	*	2480	94.75	-	-	87.22	27.62	16.7	36.79	100	58	A	V
		2492.28	53.02	-20.98	74	45.41	27.67	16.72	36.78	100	58	P	V
		2496.32	42.43	-11.57	54	34.79	27.69	16.73	36.78	100	58	A	V
													V
													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 ANT 6	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	39.63	-34.37	74	55.73	32.31	10.13	58.54	-	-	P	H
		10000	45.55	-28.45	74	53.41	38.1	14.26	60.22	-	-	P	H
		14000	51.14	-22.86	74	56.85	40.6	16.63	62.94	-	-	P	H
		14000	40.85	-13.15	54	46.56	40.6	16.63	62.94	-	-	A	H
		18000	54.26	-19.74	74	49.38	43.1	18.95	57.17	-	-	P	H
		18000	44.04	-9.96	54	39.16	43.1	18.95	57.17	-	-	A	H
													H
													H
													H
													H
													H
													H
		4804	38.8	-35.2	74	55.83	31.38	10.13	58.54	-	-	P	V
		10000	47.33	-26.67	74	54.19	39.1	14.26	60.22	-	-	P	V
		14000	51.19	-22.81	74	56.8	40.7	16.63	62.94	-	-	P	V
		14000	40.82	-13.18	54	46.43	40.7	16.63	62.94	-	-	A	V
		17985	58.13	-15.87	74	48.28	48.1	18.94	57.19	-	-	P	V
		17985	47.57	-6.43	54	37.72	48.1	18.94	57.19	-	-	A	V
													V
													V
													V
													V
													V
													V



BLE ANT 6	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	40.16	-33.84	74	56.02	32.52	10.21	58.59	-	-	P	H
		7320	43.99	-30.01	74	53.11	36.52	12.43	58.07	-	-	P	H
		10000	45.97	-28.03	74	53.83	38.1	14.26	60.22	-	-	P	H
		14000	51.31	-22.69	74	57.02	40.6	16.63	62.94	-	-	P	H
		14000	40.68	-13.32	54	46.39	40.6	16.63	62.94	-	-	A	H
		18000	54.1	-19.9	74	49.22	43.1	18.95	57.17	-	-	P	H
		18000	43.38	-10.62	54	38.5	43.1	18.95	57.17	-	-	A	H
													H
													H
													H
													H
													H
		4880	38.25	-35.75	74	55.31	31.32	10.21	58.59	-	-	P	V
		7320	44.12	-29.88	74	53.42	36.34	12.43	58.07	-	-	P	V
		10000	46.66	-27.34	74	53.52	39.1	14.26	60.22	-	-	P	V
		14000	51.37	-22.63	74	56.98	40.7	16.63	62.94	-	-	P	V
		14000	41.19	-12.81	54	46.8	40.7	16.63	62.94	-	-	A	V
		18000	58.06	-15.94	74	47.88	48.4	18.95	57.17	-	-	P	V
		18000	47.47	-6.53	54	37.29	48.4	18.95	57.17	-	-	A	V
													V
													V
													V
													V
													V

BLE ANT 6	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	40.53	-33.47	74	56.05	32.84	10.28	58.64	-	-	P	H
		7440	44.12	-29.88	74	53.61	36.02	12.48	57.99	-	-	P	H
		10000	46.18	-27.82	74	54.04	38.1	14.26	60.22	-	-	P	H
		14000	51	-23	74	56.71	40.6	16.63	62.94	-	-	P	H
		14000	40.29	-13.71	54	46	40.6	16.63	62.94	-	-	A	H
		17985	54.9	-19.1	74	50.18	42.97	18.94	57.19	-	-	P	H
		17985	44.47	-9.53	54	39.75	42.97	18.94	57.19	-	-	A	H
													H
													H
													H
													H
													H
		4960	38.57	-35.43	74	55.49	31.44	10.28	58.64	-	-	P	V
		7440	44.3	-29.7	74	53.45	36.36	12.48	57.99	-	-	P	V
		10000	46.76	-27.24	74	53.62	39.1	14.26	60.22	-	-	P	V
		14000	52.17	-21.83	74	57.78	40.7	16.63	62.94	-	-	P	V
		14000	41.68	-12.32	54	47.29	40.7	16.63	62.94	-	-	A	V
		18000	58.06	-15.94	74	47.88	48.4	18.95	57.17	-	-	P	V
		18000	47.45	-6.55	54	37.27	48.4	18.95	57.17	-	-	A	V
													V
													V
													V
													V
													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.												



2.4GHz BLE (SHF)

TEL : 886-3-327-0868
FAX : 886-3-327-0855

Emission below 1GHz

2.4GHz BLE (LF)

BLE	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
ANT					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
6		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BLE LF		68.8	29.03	-10.97	40	48.29	12.19	1.06	32.51	-	-	P	H
		98.87	37.2	-6.3	43.5	52.76	15.69	1.22	32.47	-	-	P	H
		158.04	35.77	-7.73	43.5	49.95	16.58	1.69	32.45	-	-	P	H
		244.37	27.47	-18.53	46	40.25	17.61	2.07	32.46	-	-	P	H
		557.68	26.7	-19.3	46	30.39	25.83	2.98	32.5	-	-	P	H
		719.67	36.01	-9.99	46	38.23	26.78	3.35	32.35	-	-	P	H
													H
													H
													H
													H
													H
													H
		34.85	32.38	-7.62	40	42.11	22.08	0.7	32.51	100	320	Q	V
		59.1	34.61	-5.39	40	54.44	11.73	0.99	32.55	200	147	Q	V
		98.87	30.13	-13.37	43.5	45.69	15.69	1.22	32.47	-	-	P	V
		158.04	31.16	-12.34	43.5	45.34	16.58	1.69	32.45	-	-	P	V
		729.37	35.46	-10.54	46	37.13	27.29	3.37	32.33	-	-	P	V
		927.25	33.07	-12.93	46	31.17	29.37	3.88	31.35	-	-	P	V
													V
													V
												V	
												V	
												V	
												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 ANT	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
4		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2368.065	51.08	-22.92	74	44.12	27.27	16.53	36.84	100	157	P	H
		2346.33	43.31	-10.69	54	36.48	27.19	16.49	36.85	100	157	A	H
	*	2402	98.24	-	-	91.09	27.4	16.58	36.83	100	157	P	H
	*	2402	96.85	-	-	89.7	27.4	16.58	36.83	100	157	A	H
													H
													H
		2353.05	51.87	-22.13	74	45.01	27.21	16.5	36.85	338	227	P	V
		2331.735	43.31	-10.69	54	36.57	27.13	16.47	36.86	338	227	A	V
	*	2402	97.37	-	-	90.22	27.4	16.58	36.83	338	227	P	V
	*	2402	96.24	-	-	89.09	27.4	16.58	36.83	338	227	A	V
													V
													V
BLE CH 19 2440MHz		2374.26	51.58	-22.42	74	44.58	27.3	16.54	36.84	100	160	P	H
		2380.42	43.38	-10.62	54	36.35	27.32	16.55	36.84	100	160	A	H
	*	2440	98.1	-	-	90.79	27.48	16.64	36.81	100	160	P	H
	*	2440	96.84	-	-	89.53	27.48	16.64	36.81	100	160	A	H
		2499.51	51.75	-22.25	74	44.1	27.7	16.73	36.78	100	160	P	H
		2488.73	43.81	-10.19	54	36.23	27.65	16.72	36.79	100	160	A	H
		2372.16	51	-23	74	44.02	27.29	16.53	36.84	373	227	P	V
		2343.46	43.28	-10.72	54	36.47	27.17	16.49	36.85	373	227	A	V
	*	2440	98.05	-	-	90.74	27.48	16.64	36.81	373	227	P	V
	*	2440	96.71	-	-	89.4	27.48	16.64	36.81	373	227	A	V
		2486.14	51.24	-22.76	74	43.68	27.64	16.71	36.79	373	227	P	V
		2487.47	43.59	-10.41	54	36.01	27.65	16.72	36.79	373	227	A	V



BLE CH 39 2480MHz	*	2480	100.05	-	-	92.52	27.62	16.7	36.79	100	161	P	H
	*	2480	98.34	-	-	90.81	27.62	16.7	36.79	100	161	A	H
		2493.12	51.78	-22.22	74	44.17	27.67	16.72	36.78	100	161	P	H
		2483.52	44.01	-9.99	54	36.46	27.63	16.71	36.79	100	161	A	H
													H
													H
	*	2480	98.85	-	-	91.32	27.62	16.7	36.79	360	230	P	V
	*	2480	97.46	-	-	89.93	27.62	16.7	36.79	360	230	A	V
		2483.96	52.01	-21.99	74	44.45	27.64	16.71	36.79	360	230	P	V
		2497.68	43.98	-10.02	54	36.34	27.69	16.73	36.78	360	230	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
ANT					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
5		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2329.32	51.18	-22.82	74	44.46	27.12	16.46	36.86	118	28	P	H
		2350.215	43.5	-10.5	54	36.65	27.2	16.5	36.85	118	28	A	H
	*	2402	99.06	-	-	91.91	27.4	16.58	36.83	118	28	P	H
	*	2402	97.83	-	-	90.68	27.4	16.58	36.83	118	28	A	H
													H
													H
		2346.435	50.79	-23.21	74	43.96	27.19	16.49	36.85	372	126	P	V
		2387.28	43.4	-10.6	54	36.32	27.35	16.56	36.83	372	126	A	V
	*	2402	94.27	-	-	87.12	27.4	16.58	36.83	372	126	P	V
	*	2402	92.93	-	-	85.78	27.4	16.58	36.83	372	126	A	V
													V
													V
BLE CH 19 2440MHz		2335.62	50.95	-23.05	74	44.2	27.14	16.47	36.86	147	58	P	H
		2389.24	43.57	-10.43	54	36.48	27.36	16.56	36.83	147	58	A	H
	*	2440	99.95	-	-	92.64	27.48	16.64	36.81	147	58	P	H
	*	2440	98.63	-	-	91.32	27.48	16.64	36.81	147	58	A	H
		2495.73	50.97	-23.03	74	43.34	27.68	16.73	36.78	147	58	P	H
		2496.29	43.88	-10.12	54	36.24	27.69	16.73	36.78	147	58	A	H
		2384.2	50.9	-23.1	74	43.84	27.34	16.55	36.83	359	124	P	V
		2350.18	43.43	-10.57	54	36.58	27.2	16.5	36.85	359	124	A	V
	*	2440	98.35	-	-	91.04	27.48	16.64	36.81	359	124	P	V
	*	2440	97.07	-	-	89.76	27.48	16.64	36.81	359	124	A	V
		2495.17	51.66	-22.34	74	44.03	27.68	16.73	36.78	359	124	P	V
		2486.63	43.71	-10.29	54	36.14	27.65	16.71	36.79	359	124	A	V



BLE CH 39 2480MHz	*	2480	102.11	-	-	94.58	27.62	16.7	36.79	100	44	P	H
	*	2480	101.12	-	-	93.59	27.62	16.7	36.79	100	44	A	H
		2483.6	52.72	-21.28	74	45.17	27.63	16.71	36.79	100	44	P	H
		2483.52	46.74	-7.26	54	39.19	27.63	16.71	36.79	100	44	A	H
													H
													H
	*	2480	97.44	-	-	89.91	27.62	16.7	36.79	399	130	P	V
	*	2480	96.18	-	-	88.65	27.62	16.7	36.79	399	130	A	V
		2490	51.59	-22.41	74	43.99	27.66	16.72	36.78	399	130	P	V
		2483.52	44.56	-9.44	54	37.01	27.63	16.71	36.79	399	130	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
ANT					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
6		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2362.5	50.7	-23.3	74	43.77	27.25	16.52	36.84	100	339	P	H
		2383.71	43.55	-10.45	54	36.5	27.33	16.55	36.83	100	339	A	H
	*	2402	98.45	-	-	91.3	27.4	16.58	36.83	100	339	P	H
	*	2402	97.18	-	-	90.03	27.4	16.58	36.83	100	339	A	H
													H
													H
		2313.885	51.29	-22.71	74	44.66	27.06	16.44	36.87	400	87	P	V
		2317.98	43.55	-10.45	54	36.9	27.07	16.44	36.86	400	87	A	V
	*	2402	90.83	-	-	83.68	27.4	16.58	36.83	400	87	P	V
	*	2402	89.52	-	-	82.37	27.4	16.58	36.83	400	87	A	V
													V
													V
BLE CH 19 2440MHz		2343.6	50.94	-23.06	74	44.13	27.17	16.49	36.85	100	338	P	H
		2368.38	43.41	-10.59	54	36.45	27.27	16.53	36.84	100	338	A	H
	*	2440	103.53	-	-	96.22	27.48	16.64	36.81	100	338	P	H
	*	2440	102.2	-	-	94.89	27.48	16.64	36.81	100	338	A	H
		2498.46	51.92	-22.08	74	44.28	27.69	16.73	36.78	100	338	P	H
		2491.46	43.76	-10.24	54	36.15	27.67	16.72	36.78	100	338	A	H
		2338	51.66	-22.34	74	44.88	27.15	16.48	36.85	400	100	P	V
		2387.28	43.99	-10.01	54	36.91	27.35	16.56	36.83	400	100	A	V
	*	2440	97.49	-	-	90.18	27.48	16.64	36.81	400	100	P	V
	*	2440	96.23	-	-	88.92	27.48	16.64	36.81	400	100	A	V
		2498.81	51.43	-22.57	74	43.78	27.7	16.73	36.78	400	100	P	V
		2492.51	43.84	-10.16	54	36.23	27.67	16.72	36.78	400	100	A	V



BLE CH 39 2480MHz	*	2480	102.2	-	-	94.67	27.62	16.7	36.79	270	338	P	H
	*	2480	101	-	-	93.47	27.62	16.7	36.79	270	338	A	H
		2483.52	51.63	-22.37	74	44.08	27.63	16.71	36.79	270	338	P	H
		2483.52	46.54	-7.46	54	38.99	27.63	16.71	36.79	270	338	A	H
													H
													H
	*	2480	98.09	-	-	90.56	27.62	16.7	36.79	400	93	P	V
	*	2480	96.79	-	-	89.26	27.62	16.7	36.79	400	93	A	V
		2488.88	52.13	-21.87	74	44.54	27.66	16.72	36.79	400	93	P	V
		2483.56	44.23	-9.77	54	36.68	27.63	16.71	36.79	400	93	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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	P eak or A verage
H/V	H orizontal or V ertical

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 :	Leo Lee, Mancy Chou and Bigshow Wang	Temperature :	22.1~23.1°C
		Relative Humidity :	55.0~60.0%

Note symbol

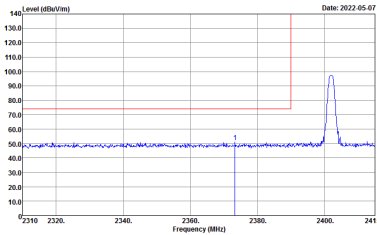
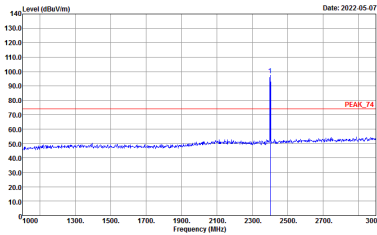
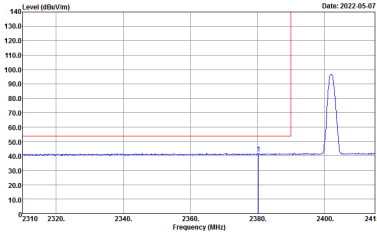
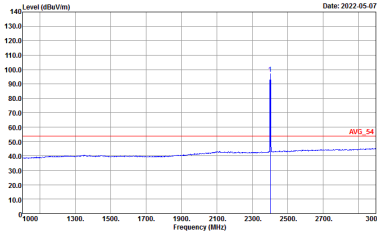
-L	Low channel location
-R	High channel location



<1Mbps>

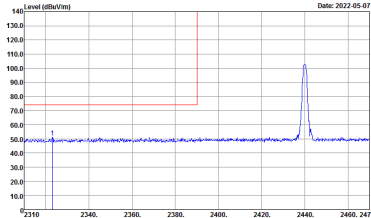
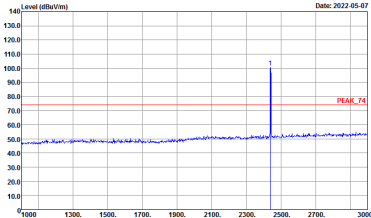
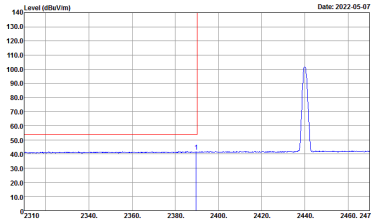
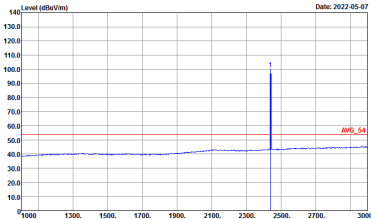
2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

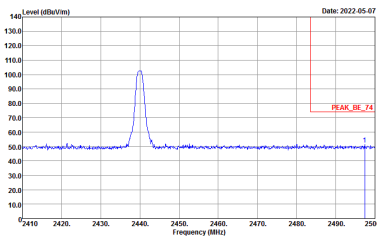
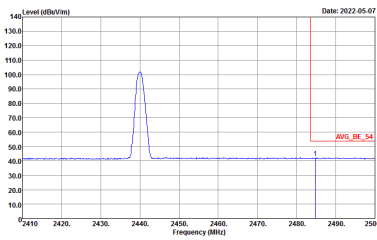
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH00 2402MHz	
4	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH00 2402MHz	
4	Vertical	Fundamental
Peak	Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - L	
4	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto
Avg.		

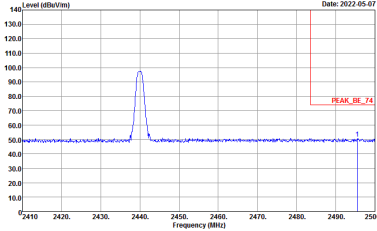
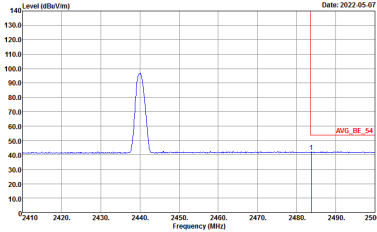


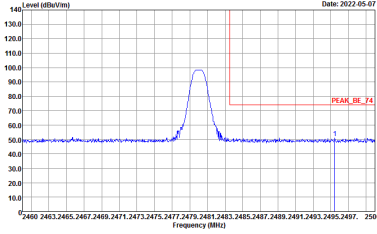
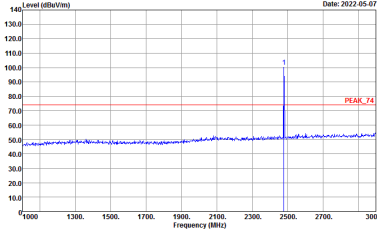
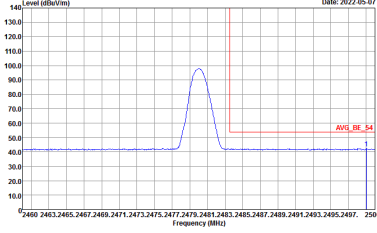
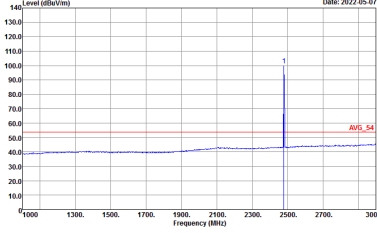
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - R	
4	Horizontal	Fundamental
Peak	 Site : 03CH15-HV Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH15-HV Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	Left blank



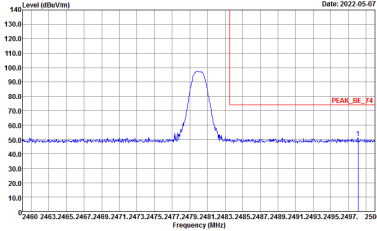
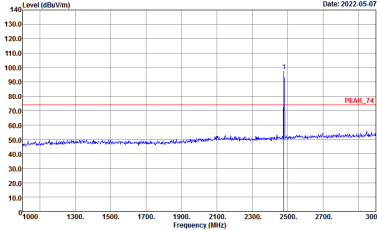
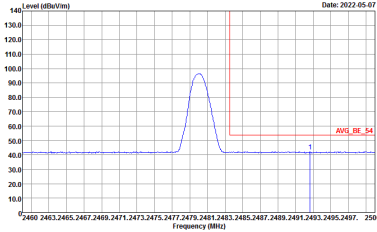
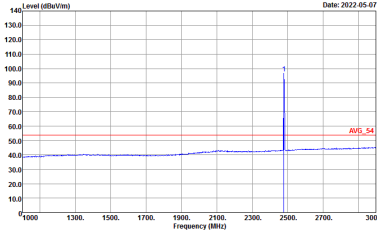
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - L	
4	Vertical	Fundamental
Peak	Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - R	
4	Vertical	Fundamental
Peak	 Site : 03CH15-HV Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH15-HV Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH39 2480MHz	
4	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto
Avg.		

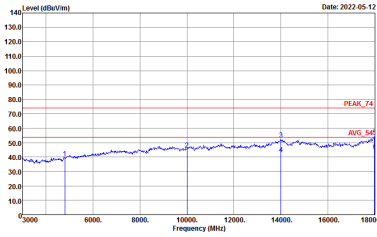
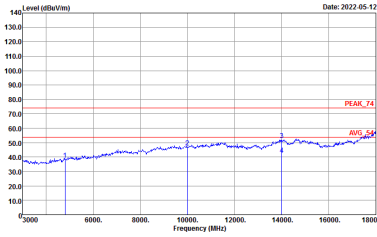


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH39 2480MHz	
4	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 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	
ANT	BLE CH00 2402MHz	
4	Horizontal	Vertical
Peak Avg.	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_1620_20211025 VERTICAL

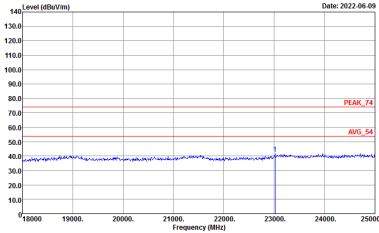
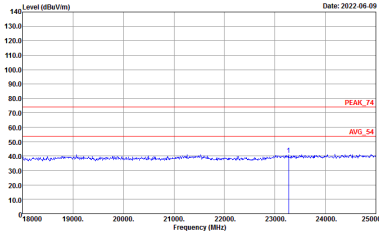


BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH19 2440MHz	
4	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-05-12 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL	Level (dBuV/m) Date: 2022-05-12 Site : 03CH15-HY Condition : PEAK_74 3m 91200_1620_20211025 VERTICAL

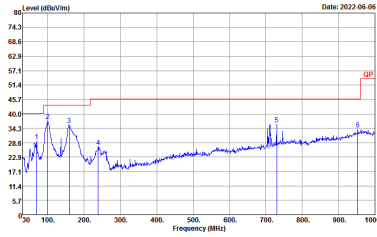
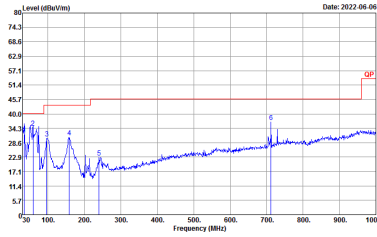


BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH39 2480MHz	
4	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-05-12 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL	Level (dBuV/m) Date: 2022-05-12 Site : 03CH15-HY Condition : PEAK_74 3m 91200_1620_20211025 VERTICAL

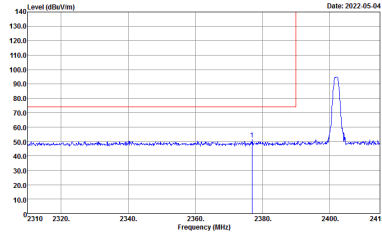
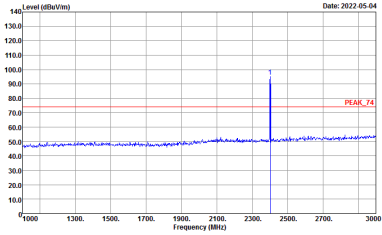
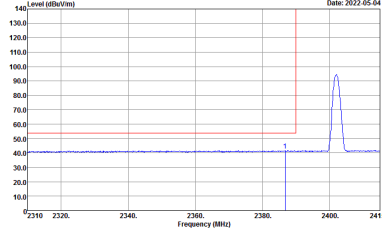
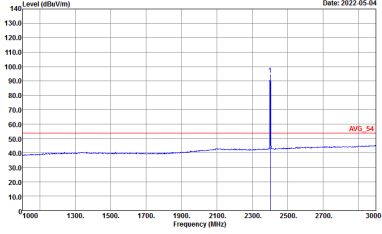
**Emission above 18GHz
2.4GHz BLE (SHF)**

BLE	2.4GHz 2400~2483.5MHz	
ANT	BLE SHF	
4	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 1m SHF ANT_9170_00993 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 1m SHF ANT_9170_00993 VERTICAL

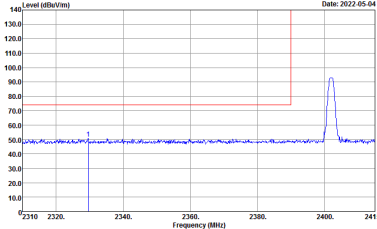
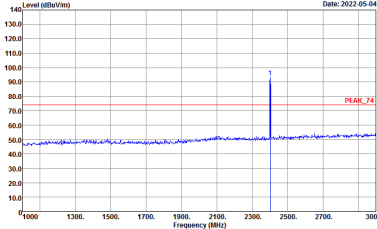
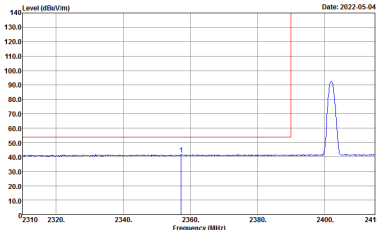
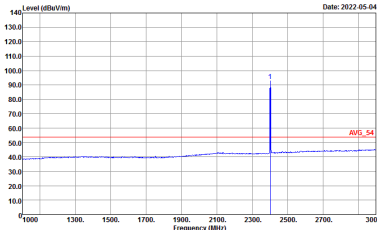
Emission below 1GHz
2.4GHz BLE (LF)

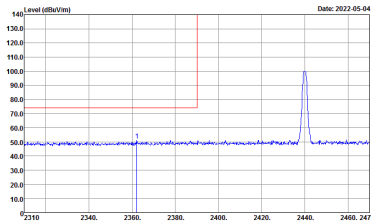
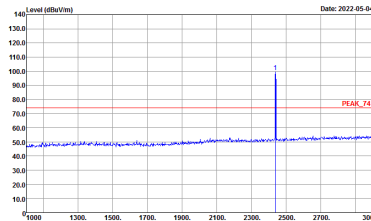
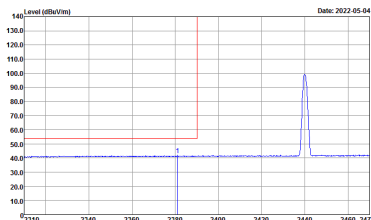
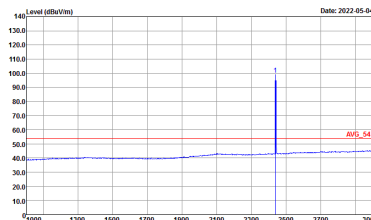
BLE	2.4GHz 2400~2483.5MHz	
ANT	BLE LF	
4	Horizontal	Vertical
QP / Peak	 Site : 03CH15-HY Condition : QP 3m B1LO6_41912_20220206 HORIZONTAL	 Site : 03CH15-HY Condition : QP 3m B1LO6_41912_20220206 VERTICAL

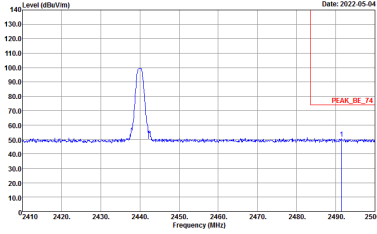
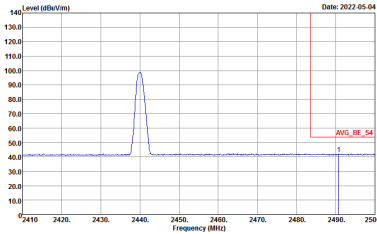
2.4GHz 2400~2483.5MHz
BLE (Band Edge @ 3m)

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH00 2402MHz	
5	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

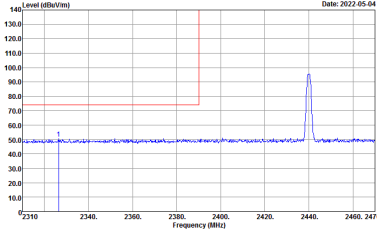
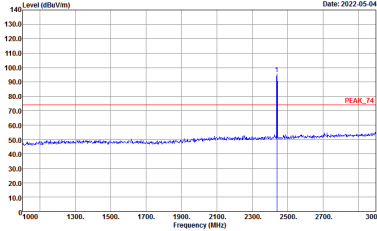
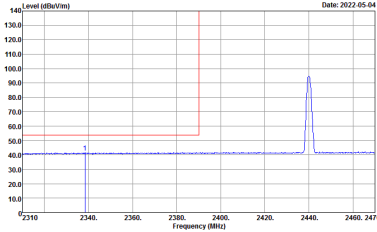
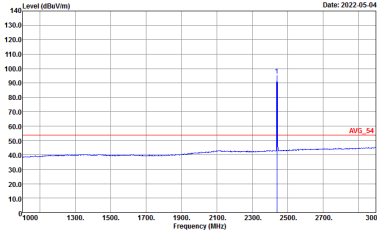


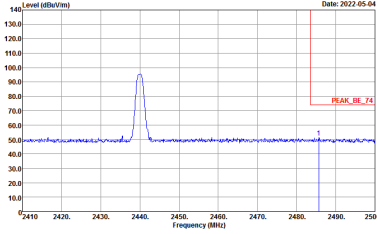
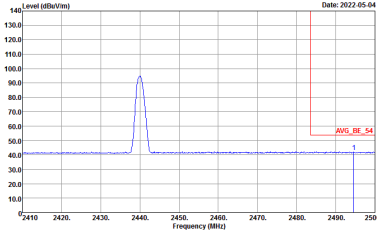
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH00 2402MHz	
5	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_F4 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_F4 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg		

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - L	
5	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.		

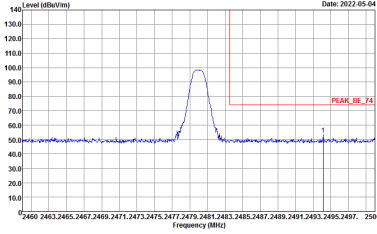
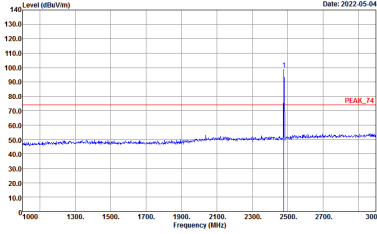
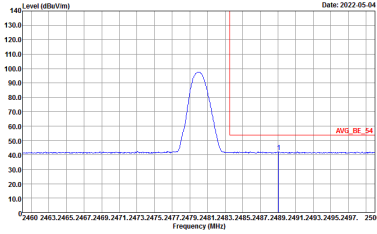
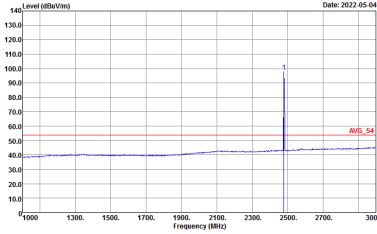
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - R	
5	Horizontal	Fundamental
Peak	 Site : 03CH15-HV Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH15-HV Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



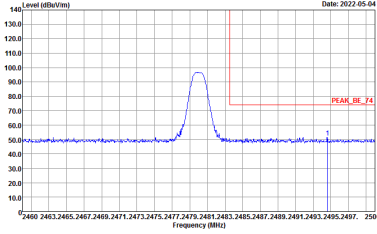
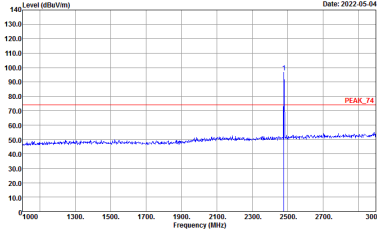
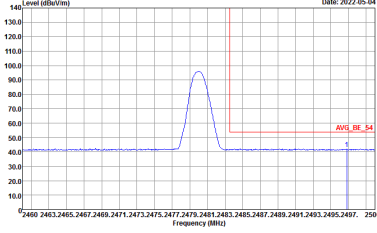
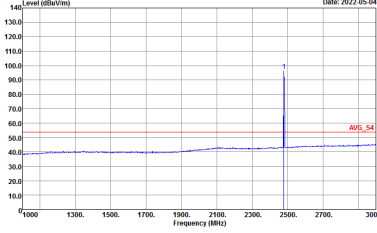
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - L	
5	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - R	
5	Vertical	Fundamental
Peak	 Site : 03CH15-HV Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH15-HV Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH39 2480MHz	
5	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto

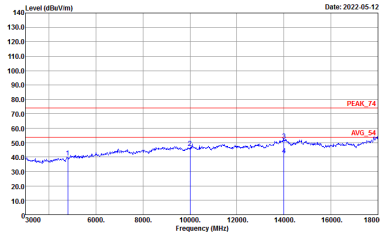
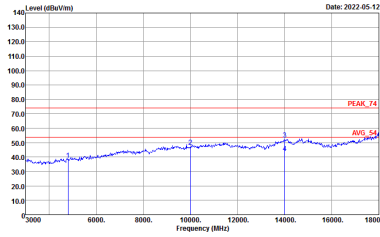


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH39 2480MHz	
5	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 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	
ANT	BLE CH00 2402MHz	
5	Horizontal	Vertical
Peak Avg.	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_1620_20211025 VERTICAL



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH19 2440MHz	
5	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-05-12 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL	Level (dBuV/m) Date: 2022-05-12 Site : 03CH15-HY Condition : PEAK_74 3m 91200_1620_20211025 VERTICAL

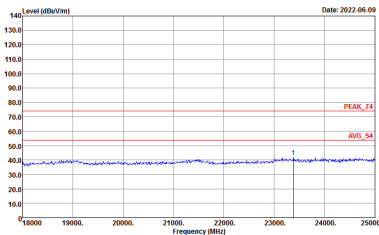
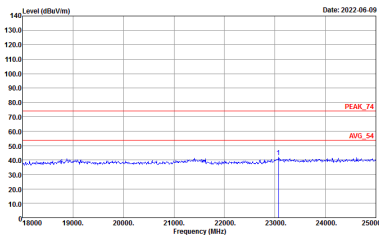


BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH39 2480MHz	
5	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-05-12 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL	Level (dBuV/m) Date: 2022-05-12 Site : 03CH15-HY Condition : PEAK_74 3m 91200_1620_20211025 VERTICAL

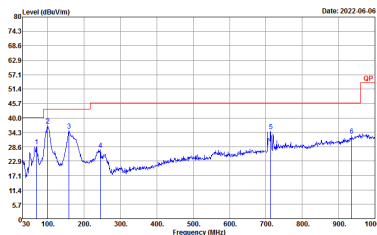
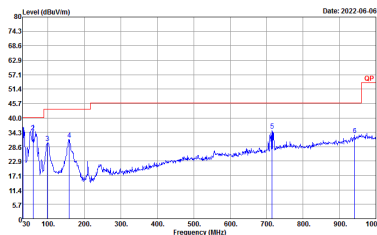


Emission above 18GHz

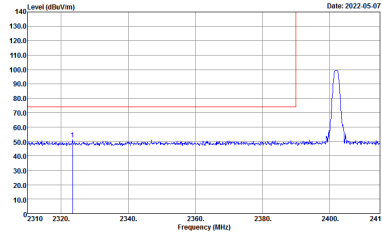
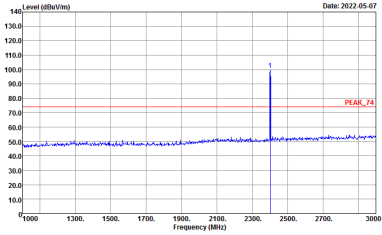
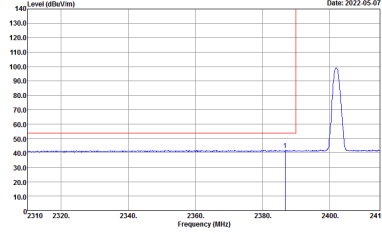
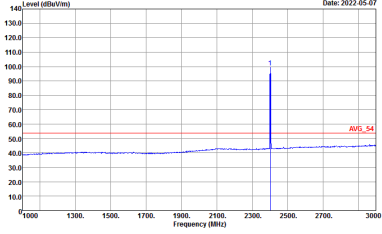
2.4GHz BLE (SHF)

BLE	2.4GHz 2400~2483.5MHz	
ANT	BLE SHF	
5	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 1m SHF ANT_9170_00993 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 1m SHF ANT_9170_00993 VERTICAL

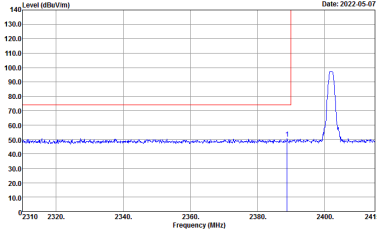
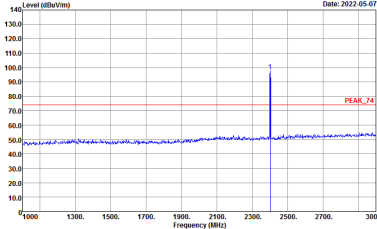
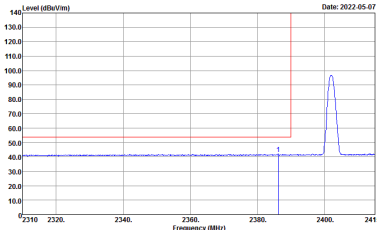
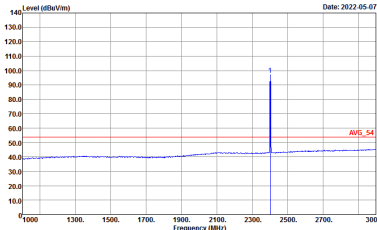
Emission below 1GHz
2.4GHz BLE (LF)

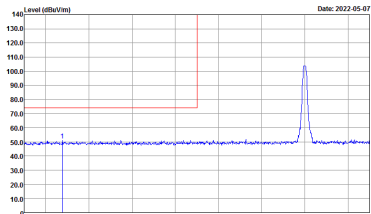
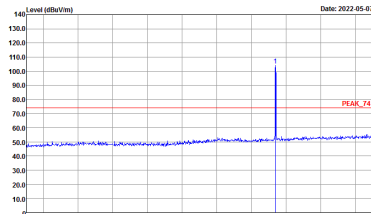
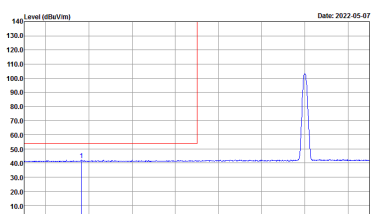
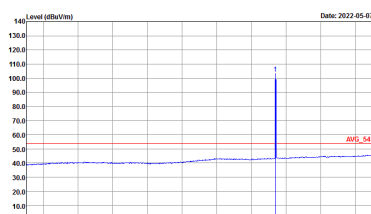
BLE	2.4GHz 2400~2483.5MHz	
ANT	BLE LF	
5	Horizontal	Vertical
QP / Peak	 Site : 03CH15-HY Condition : QP 3m B1LO6_41912_20220206 HORIZONTAL	 Site : 03CH15-HY Condition : QP 3m B1LO6_41912_20220206 VERTICAL

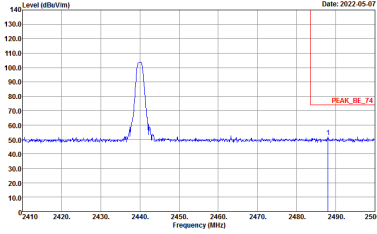
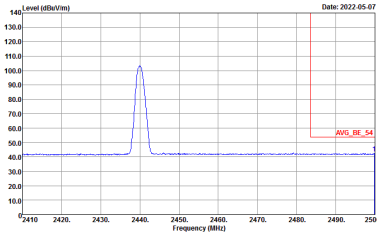
2.4GHz 2400~2483.5MHz
BLE (Band Edge @ 3m)

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH00 2402MHz	
6	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

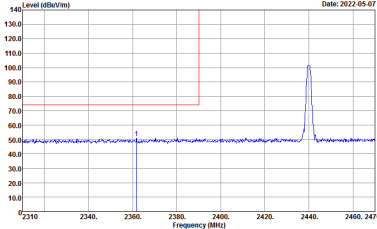
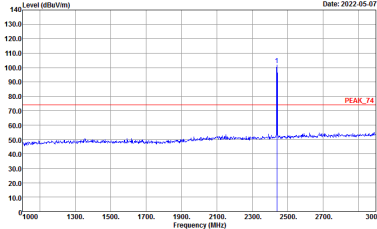
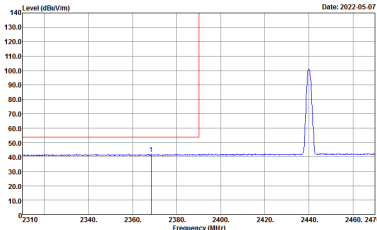
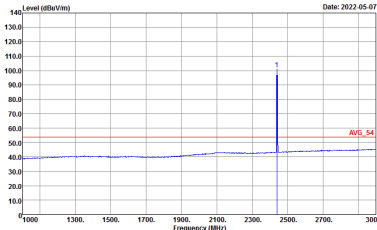


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH00 2402MHz	
6	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg		

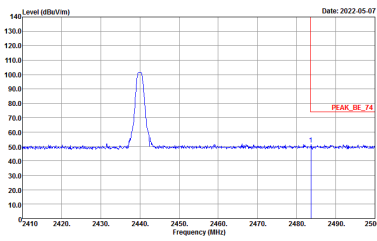
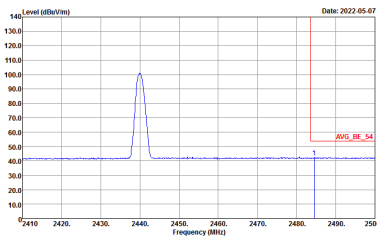
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - L	
6	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto
Avg.		

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - R	
6	Horizontal	Fundamental
Peak	 Site : 03CH15-HV Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH15-HV Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	Left blank

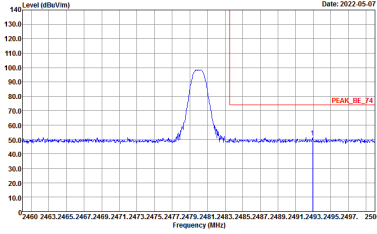
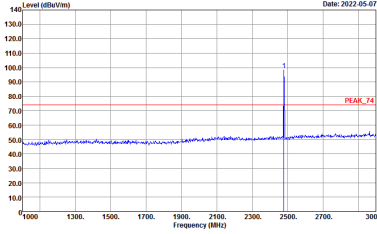
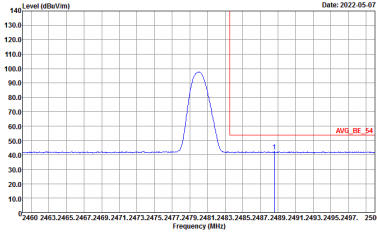
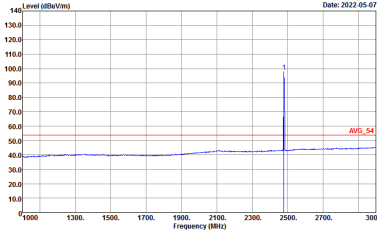


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - L	
6	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

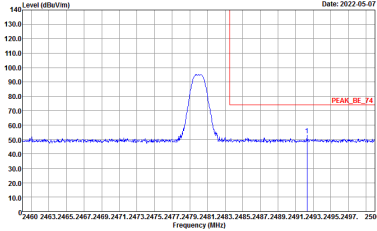
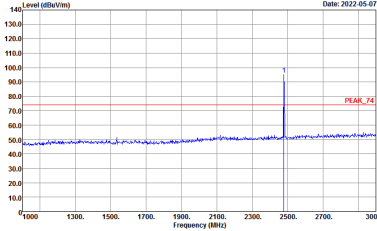
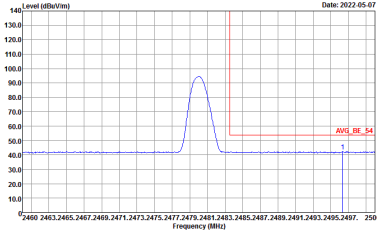
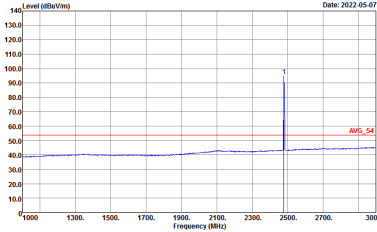


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - R	
6	Vertical	Fundamental
Peak	 Site : 03CH15-HV Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH15-HV Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH39 2480MHz	
6	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto

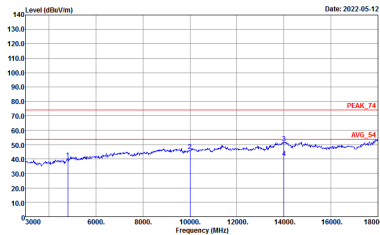
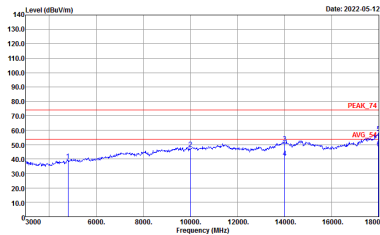


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH39 2480MHz	
6	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 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	
ANT	BLE CH00 2402MHz	
6	Horizontal	Vertical
Peak Avg.	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_1620_20211025 VERTICAL

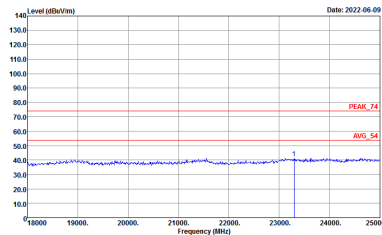
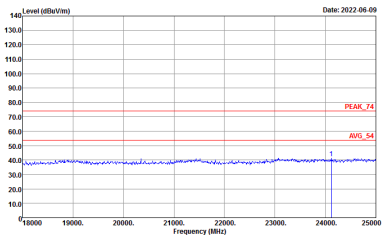


BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH19 2440MHz	
6	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2022-05-12 PEAK_74 AVG_54 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL	Level (dBuV/m) Date: 2022-05-12 PEAK_74 AVG_54 Site : 03CH15-HY Condition : PEAK_74 3m 91200_1620_20211025 VERTICAL



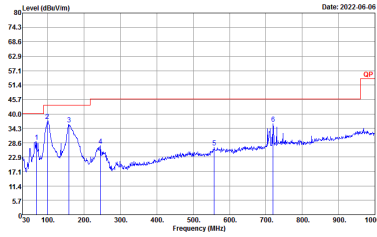
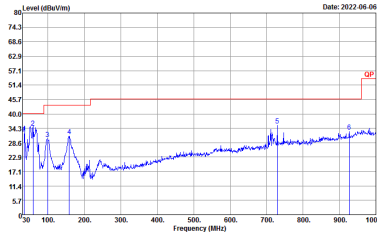
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH39 2480MHz	
6	Horizontal	Vertical
Peak	Level (dBuV/m) Date: 2022-05-12 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL	Level (dBuV/m) Date: 2022-05-12 Site : 03CH15-HY Condition : PEAK_74 3m 91200_1620_20211025 VERTICAL

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

BLE	2.4GHz 2400~2483.5MHz	
ANT	BLE SHF	
6	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK_74 1m SHF ANT_9170_00993 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK_74 1m SHF ANT_9170_00993 VERTICAL

Emission below 1GHz

2.4GHz BLE (LF)

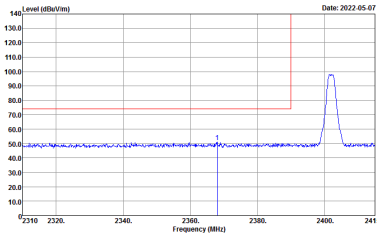
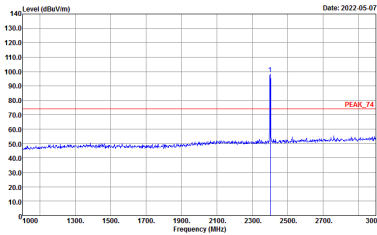
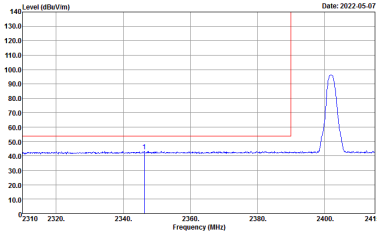
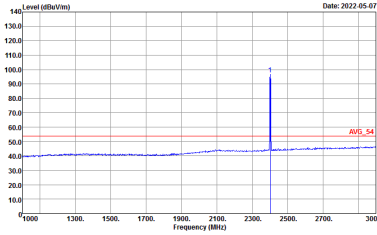
BLE	2.4GHz 2400~2483.5MHz	
ANT	BLE LF	
6	Horizontal	Vertical
QP / Peak	 Site : 03CH15-HY Condition : QP 3m B1LO6_41912_20220206 HORIZONTAL	 Site : 03CH15-HY Condition : QP 3m B1LO6_41912_20220206 VERTICAL



<2Mbps>

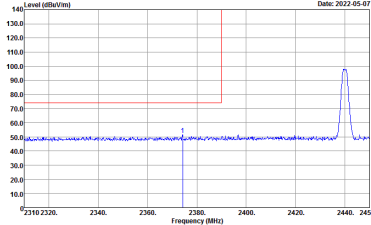
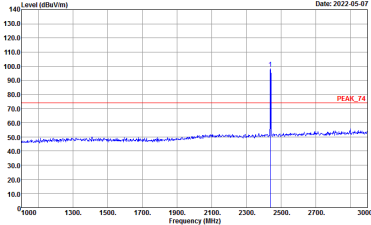
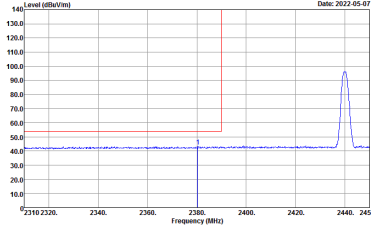
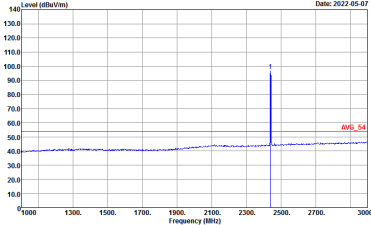
2.4GHz 2400~2483.5MHz

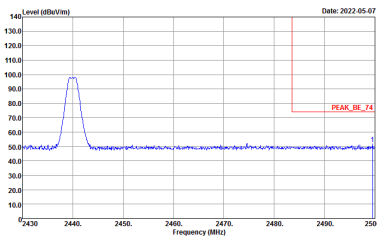
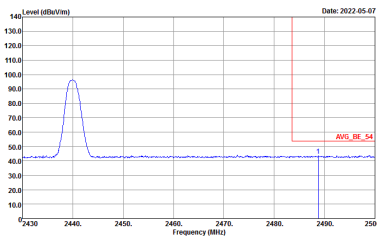
BLE (Band Edge @ 3m)

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH00 2402MHz	
4	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto

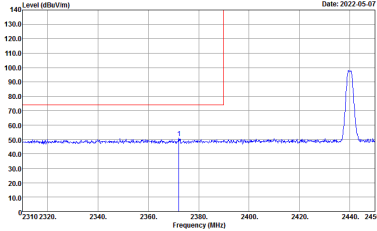
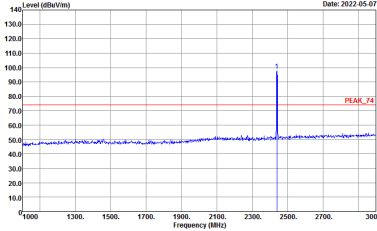
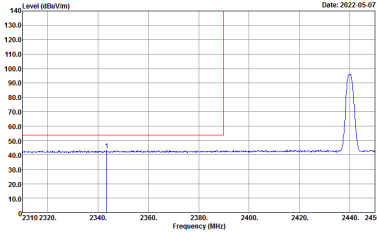
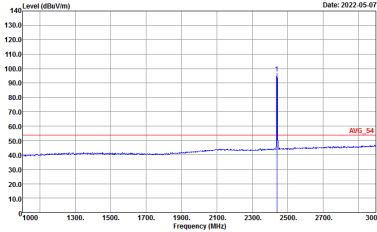


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH00 2402MHz	
4	Vertical	Fundamental
Peak	Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto	Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto

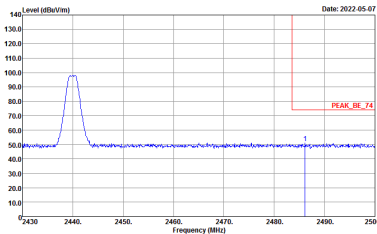
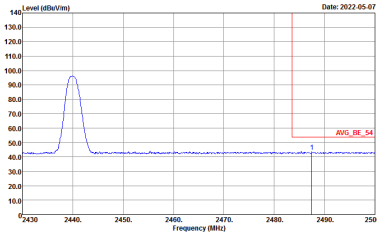
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - L	
4	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH15-HY Condition : AVG_BE_54 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 9D120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto
Avg.		

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - R	
4	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto	Left blank

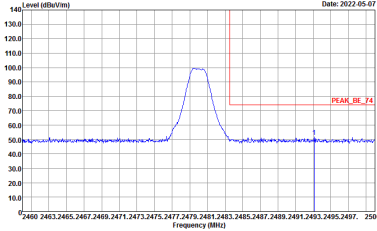
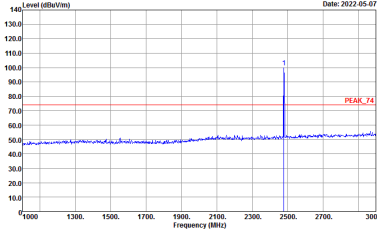
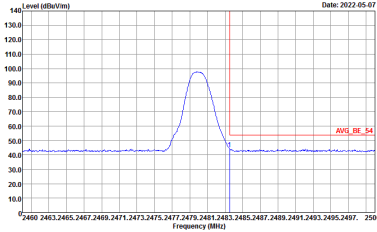
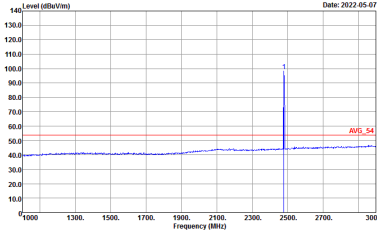


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - L	
4	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto

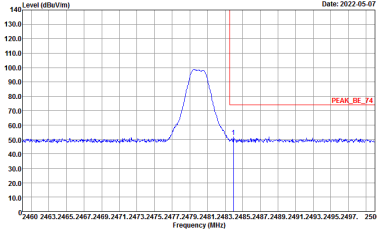
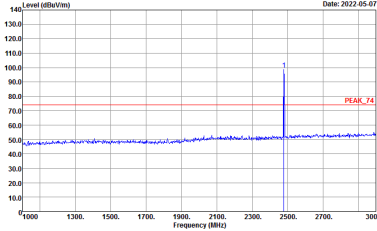
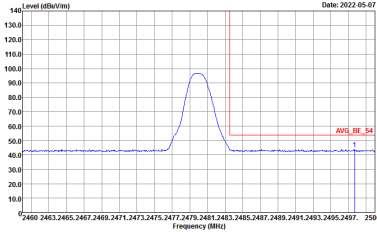
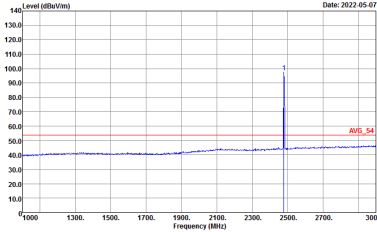


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH19 2440MHz - R	
4	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto	Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH39 2480MHz	
4	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH39 2480MHz	
4	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m 90120_02038_20210804 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto