FCC RADIO TEST REPORT

FCC ID	:	**W22-APE5**
Equipment	:	**Access Point AP5**
Brand Name	:	**Store Intelligence Inc.**
Model Name	:	**APE5**
Marketing Name	:	**APE5**
Applicant	:	**Store Intelligence** **6700 Koll Center Parkway, Suite 109, Pleasanton, CA, 94566, USA**
Manufacturer	:	**Team Precision Public Company Limited** **198 Moo 13 Suwansorn Rd. , Dong-Khee-Lek, Muang Prachinburi 25000, Thailand**
Standard	:	**FCC Part 15 Subpart C §15.247**

The product was received on Mar. 08, 2022 and testing was started from Apr. 25, 2022 and completed on May 20, 2022. We, Sporton International (USA) Inc., 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 of Sporton International (USA) Inc., the test report shall not be reproduced except in full.

Approved by: Neil Kao

Sporton International (USA) Inc.
1175 Montague Expressway, Milpitas, CA 95035

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History of this test report

Report No.	Version	Description	Issued Date
FR211101001	01	Initial issue of report	Jun. 10, 2022
FR211101001	02	1. Revise Appendix C 2. Revise Appendix D 3. Revise Appendix E 4. Revise Test Result of Conducted Band Edges Plots 5. Revise Radiated Band Edges and Spurious Emission Measurement	Jun. 22, 2022
FR211101001	03	1. Revise Test Mode 2. Revise Appendix C 3. Revise Appendix D 4. Revise Appendix E	Jun. 23, 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	6.01 dB under the limit at 44.550 MHz
3.6	15.207	AC Conducted Emission	Pass	3.92 dB under the limit at 8.881 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. Please refer to the section ”Uncertainty of Evaluation” for measurement uncertainty.

Comments and Explanations:

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

1 General Description

1.1 Product Feature of Equipment Under Test

Proprietary in 2.4GHz band

Product Specification subjective to this standard	
Antenna Type	Monopole Antenna

Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	6

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

1.2 Modification of EUT

No modifications are made to the EUT during all test items.

1.3 Testing Location

Test Site	Sporton International (USA) Inc.
Test Site Location	1175 Montague Expressway, Milpitas, CA 95035 TEL : 408 9043300
Test Site No.	**Sporton Site No.**
	TH01-CA, CO01-CA, 03CH02-CA

1.4 Applicable Standards

According to the specifications of 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 test items were verified and recorded according to the standards and without any deviation during the test.
2. The A2LA 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	2403	16	2451
	1	2406	17	2454
	2	2409	18	2457
	3	2412	19	2460
	4	2415	20	2463
	5	2418	21	2466
	6	2421	22	2469
	7	2424	-	-
	8	2427	-	-
	9	2430	-	-
	10	2433	-	-
	11	2436	-	-
	12	2439	-	-
	13	2442	-	-
	14	2445	-	-
	15	2448	-	-

2.2 Test Mode

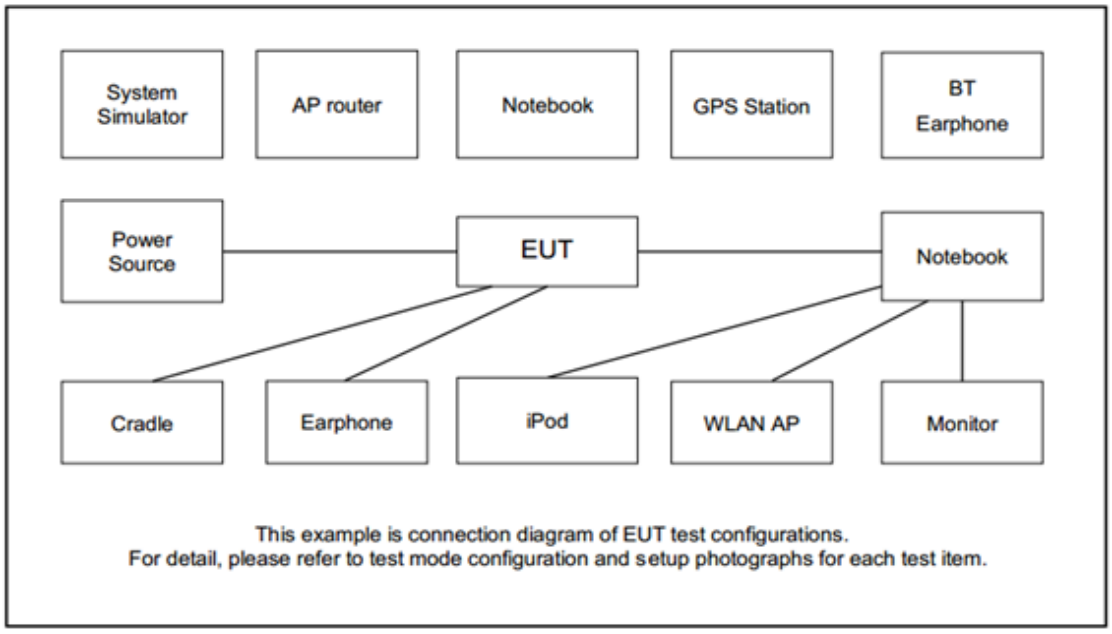
a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

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	**2.4GHz Proprietary Radio**
	Mode 1: 2.4GHz Proprietary Radio Tx CH00_2403 MHz Mode 2: 2.4GHz Proprietary Radio Tx CH11_2436 MHz Mode 3: 2.4GHz Proprietary Radio Tx CH22_2469 MHz
Radiated Test Cases	Mode 1: 2.4GHz Proprietary Radio Tx CH00_2403 MHz Mode 2: 2.4GHz Proprietary Radio Tx CH11_2436 MHz Mode 3: 2.4GHz Proprietary Radio Tx CH22_2469 MHz
AC Conducted Emission	Mode 1 : RF (2.4GHz) Link + LAN 1 Link + LAN 2 Link (Charging from Adapter) Mode 2 : RF (2.4GHz) Link + LAN 1 Link + LAN 2 Link (Charging from PoE Adapter) Mode 3 : RF (2.4GHz) Idle + LAN 1 Link + LAN 2 Link (Charging from PoE Adapter)
Remark: 1. The worst case of conducted emission is mode 3; only the test data of it was reported. 2. The PoE test configurations are designated by the manufacturer.	

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.	Notebook	Lenovo	T440S	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	Notebook	Acer	N18Q13	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Notebook	Acer	Altos PS548-G1	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Switch	Netgear	GS108PEv3	FCC DoC	Unshielded, 1.2m	Shielded, 1.8m
5.	WLAN AP	ASUS	GT-AXE11000	MSQ-RTAXJF00	N/A	Unshielded, 1.8 m

2.5 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.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).
= 4.2 + 10 = 14.2 (dB)

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.

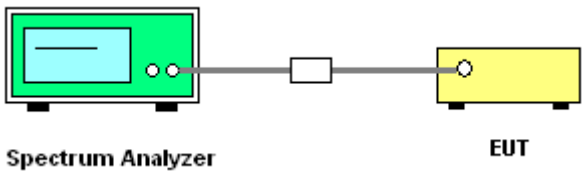
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

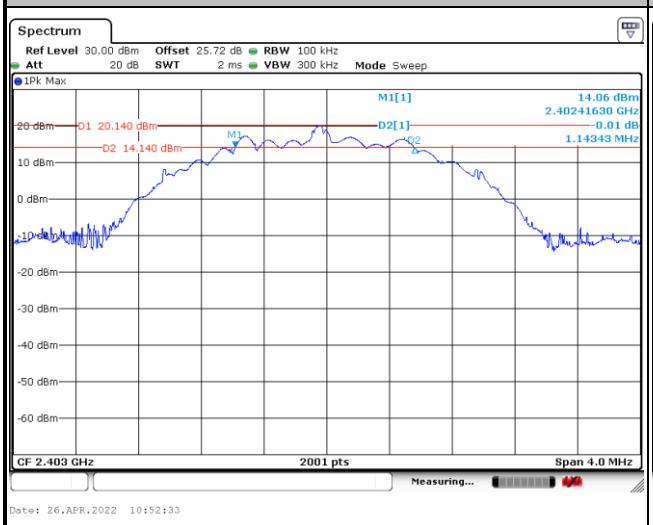
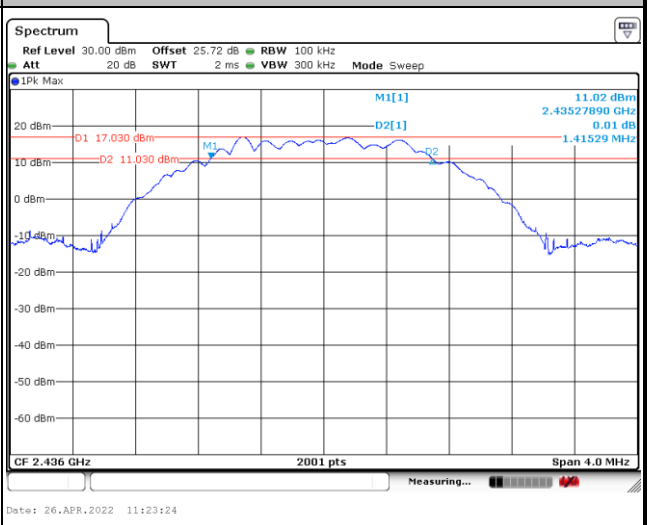
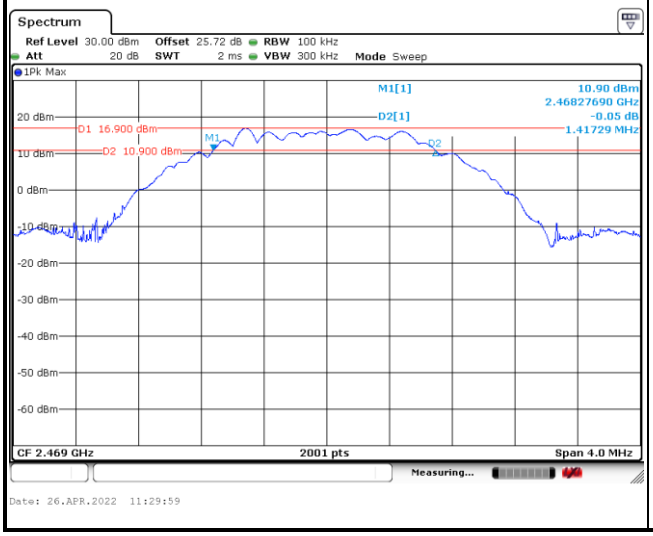
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit 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) ≥ 3 * RBW.
6. Measure and record the results in the test report.

3.1.4 Test Setup



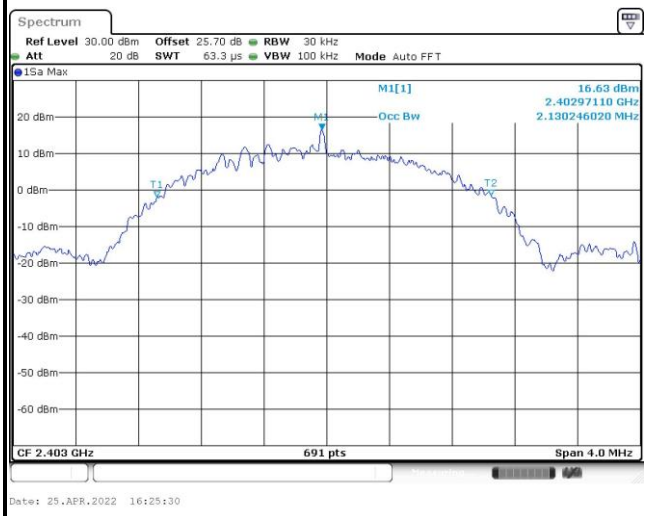
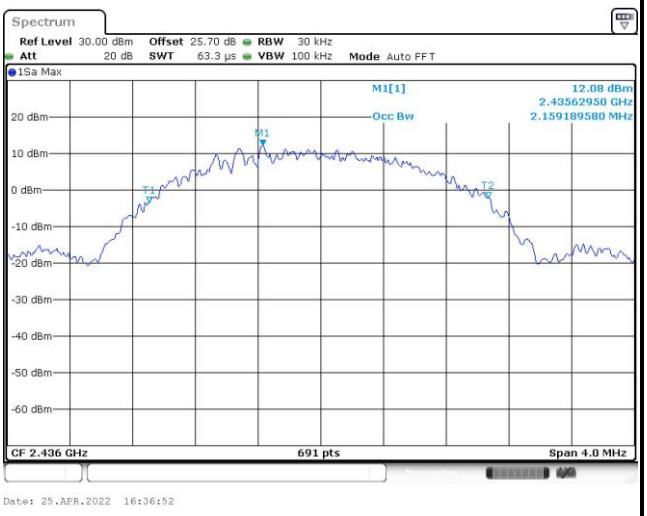
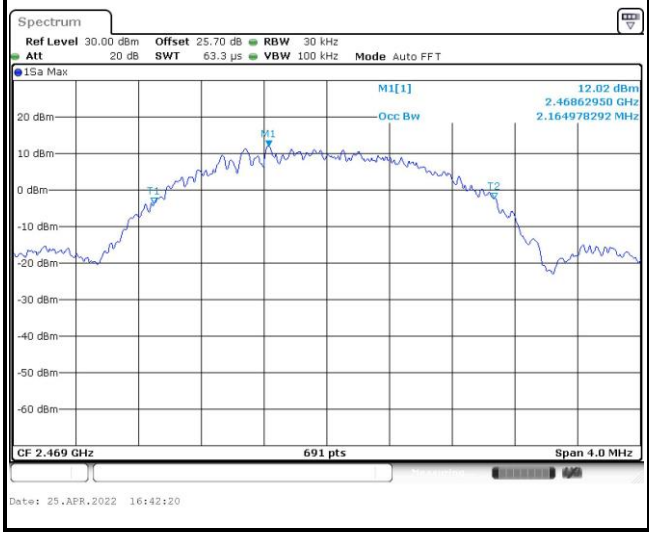
3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

6 dB Bandwidth Plot on Channel 00	6 dB Bandwidth Plot on Channel 11
	
6 dB Bandwidth Plot on Channel 22	**N/A**
	

3.1.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

99% Bandwidth Plot on Channel 00	99% Occupied Bandwidth Plot on Channel 11
	
99% Occupied Bandwidth Plot on Channel 22	**N/A**
	

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 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.

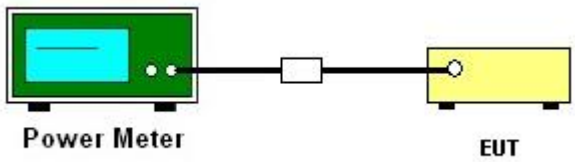
3.2.2 Measuring Instruments

See list of measuring equipment of 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 was connected to the power meter by RF cable and attenuator.
3. The path loss was 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

See list of measuring equipment of this test report.

3.3.3 Test Procedures

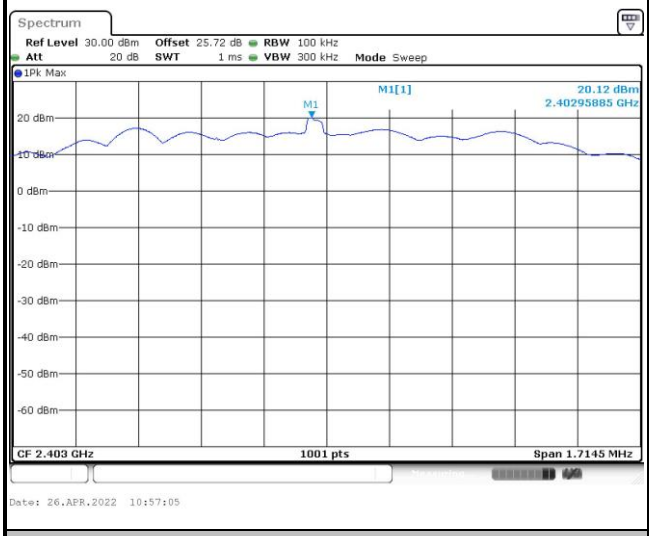
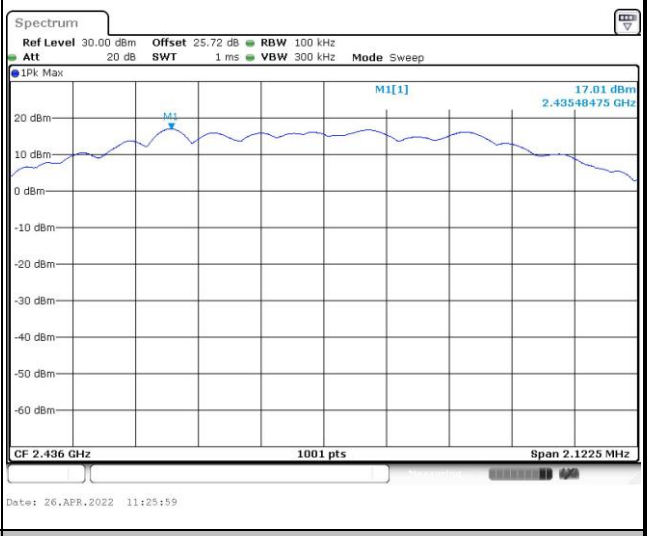
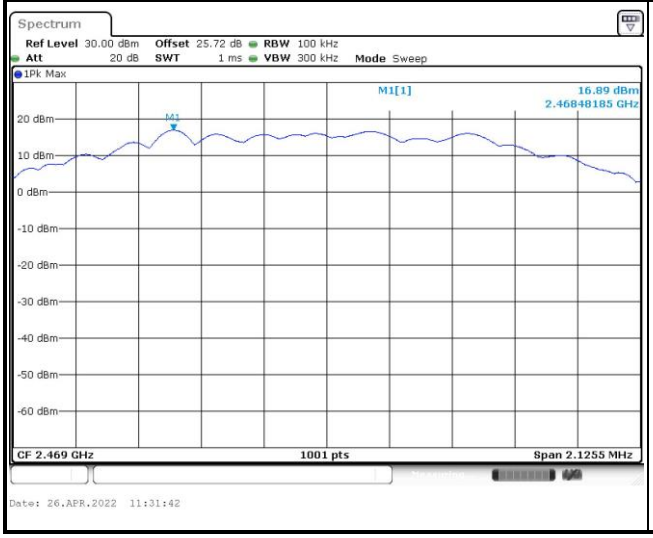
1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
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. (6dB 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

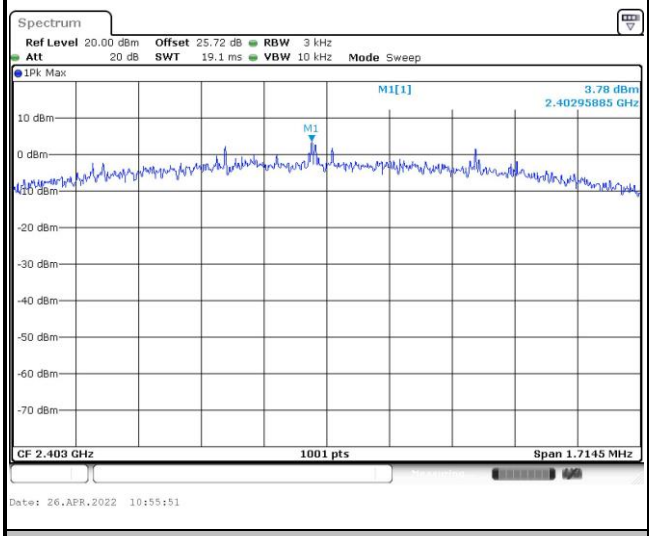
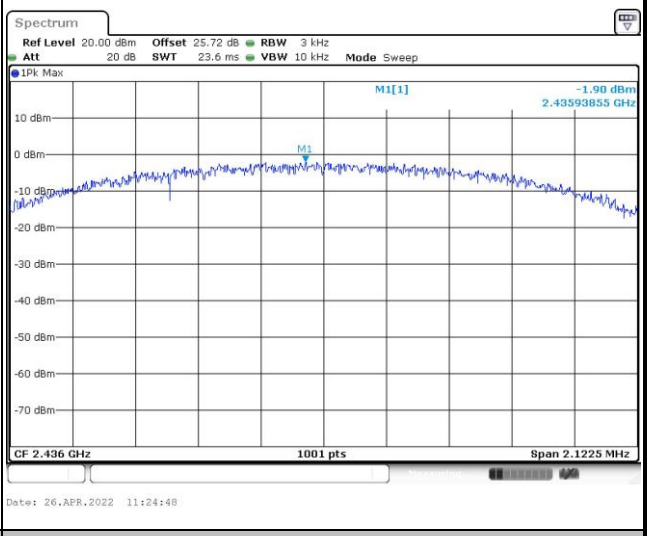
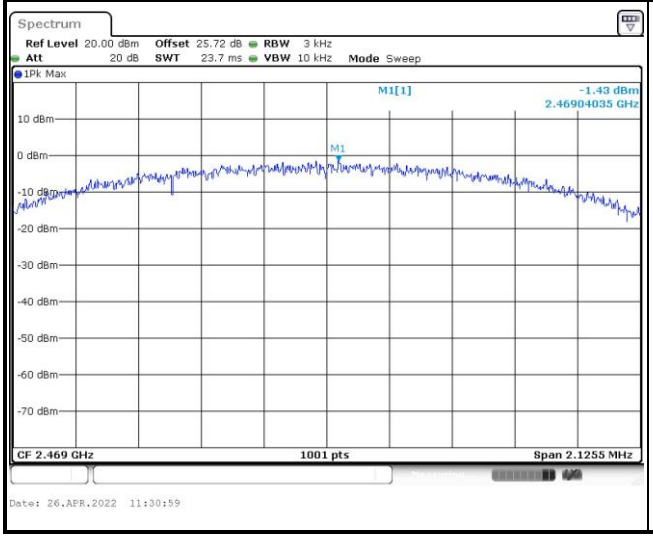
3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

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

PSD 100kHz Plot on Channel 00	PSD 100kHz Plot on Channel 11
	
PSD 100kHz Plot on Channel 22	**N/A**
	

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

PSD 3kHz Plot on Channel 00	PSD 3kHz Plot on Channel 11
	
PSD 3kHz Plot on Channel 22	**N/A**
	

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission

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

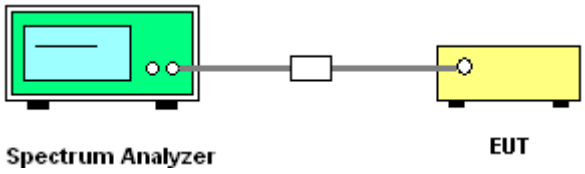
3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

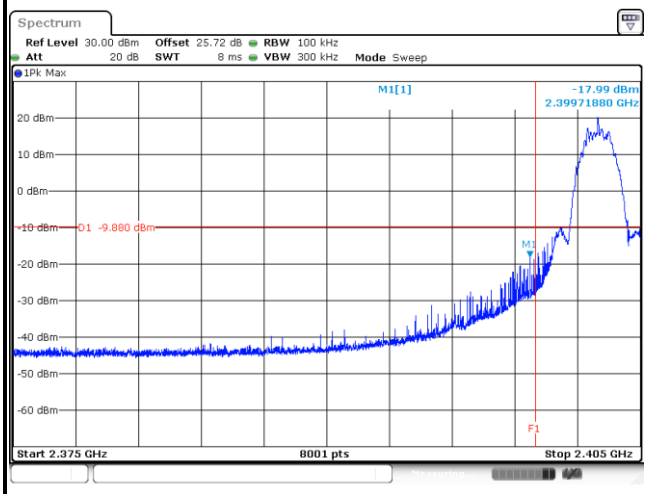
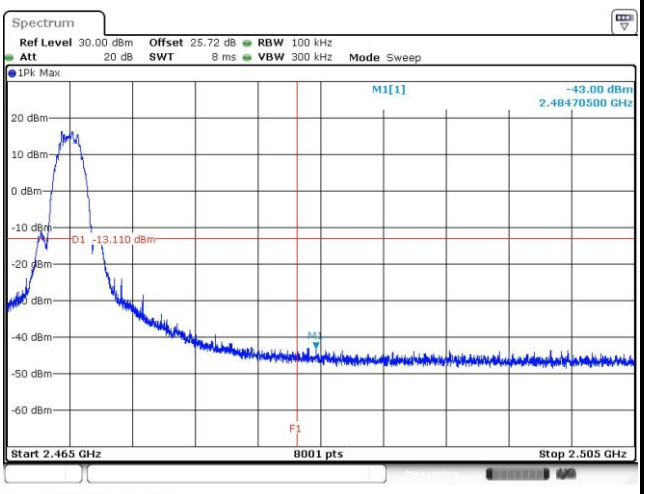
3.4.3 Test Procedure

1. The testing follows the ANSI C63.10 Section 11.11.3 Emission level measurement.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was 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.

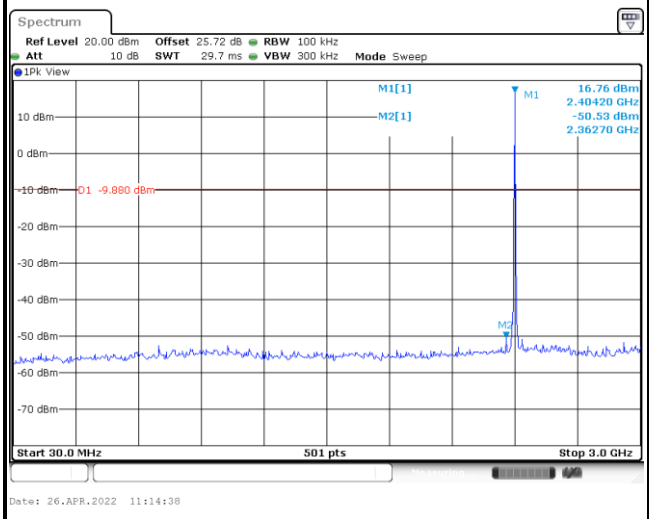
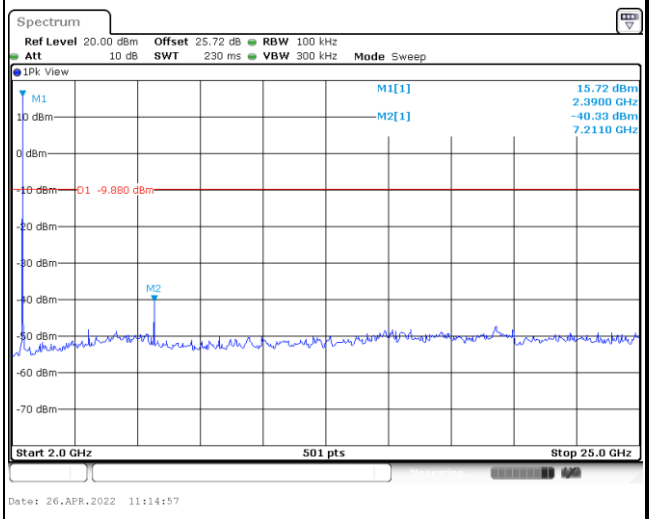
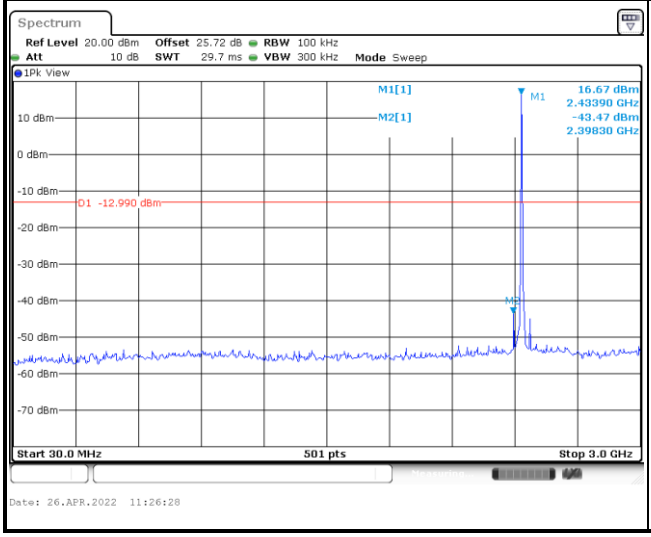
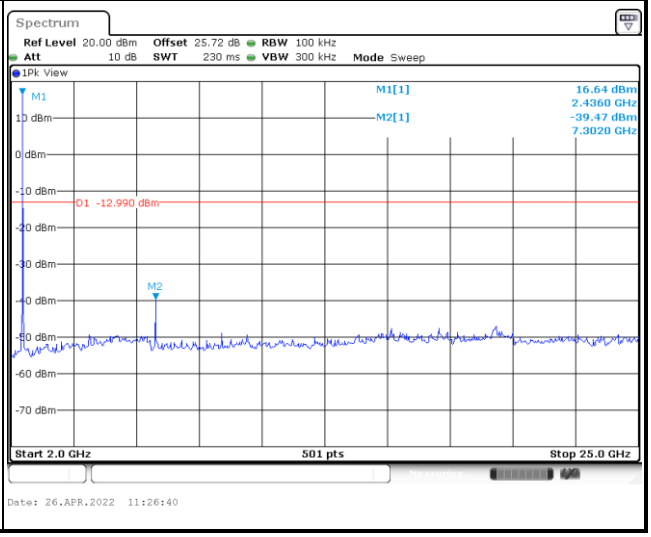
3.4.4 Test Setup

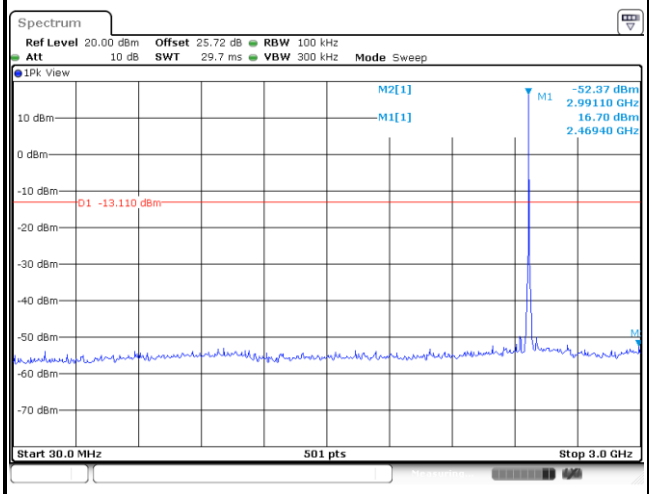
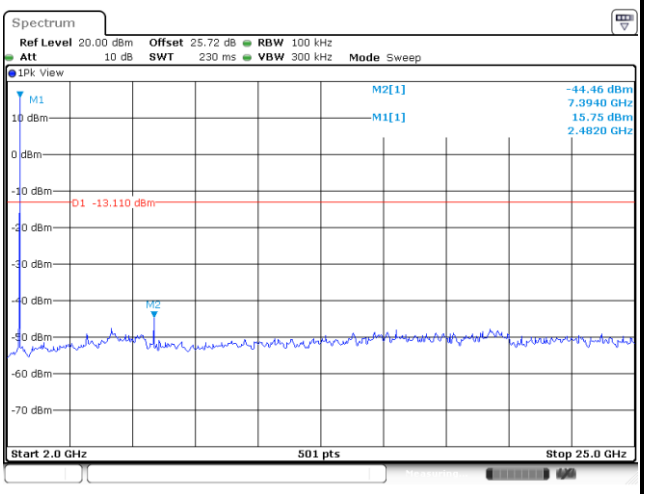


3.4.5 Test Result of Conducted Band Edges Plots

Low Band Edge Plot on Channel 00	High Band Edge Plot on Channel 22
	

3.4.6 Test Result of Conducted Spurious Emission Plots

Conducted Spurious Emission Plot on 2.4GHz Proprietary Radio Channel 00	Conducted Spurious Emission Plot on 2.4GHz Proprietary Radio Channel 00
	
Conducted Spurious Emission Plot on 2.4GHz Proprietary Radio Channel 11	**Conducted Spurious Emission Plot on 2.4GHz Proprietary Radio Channel 11**
	

Conducted Spurious Emission Plot on 2.4GHz Proprietary Radio Channel 22	Conducted Spurious Emission Plot on 2.4GHz Proprietary Radio Channel 22
	

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 was 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

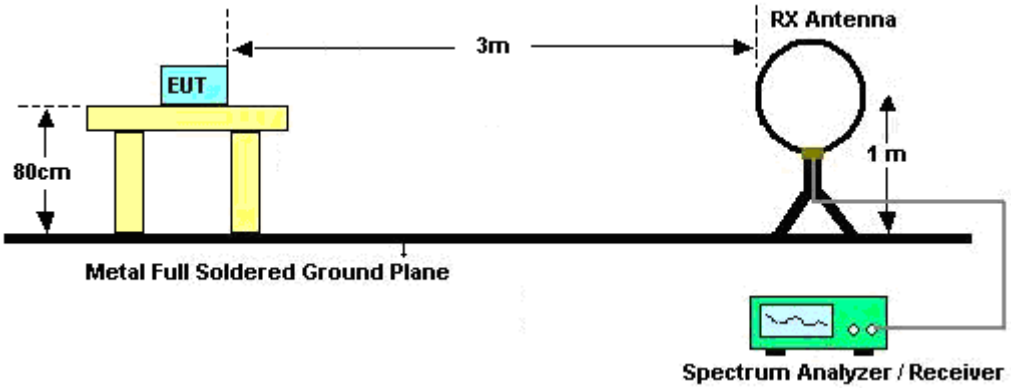
See list of measuring equipment of this test report.

3.5.3 Test Procedures

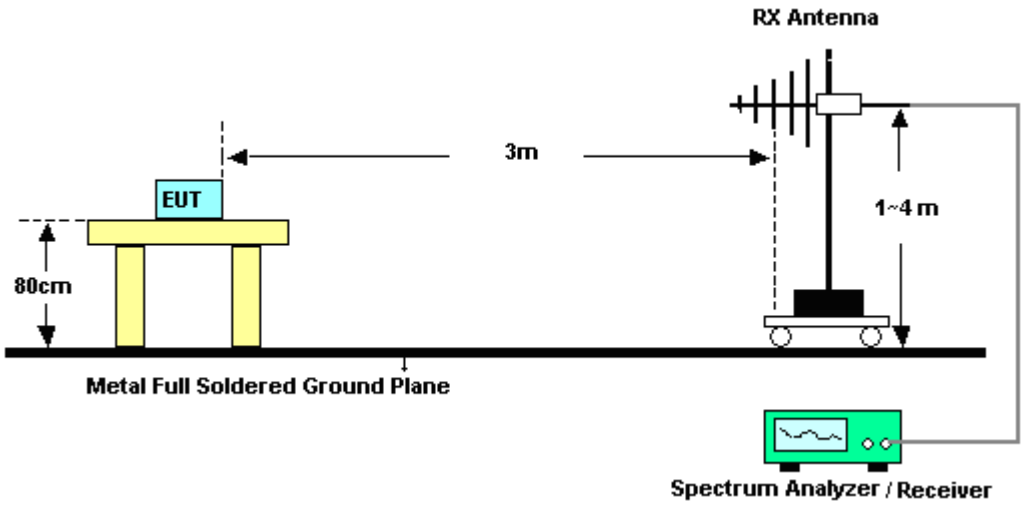
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was 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 was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For average measurement of fundamental signal and harmonic: use duty cycle correction factor method per 15.35(c).
   Duty cycle = On time/100 milliseconds
   On time = N1*L1+N2*L2+...+Nn-1*LNn-1+Nn*Ln
   Where N1 is number of type 1 pulses, L1 is length of type 1 pulses, etc.
   Average Emission Level = Peak Emission Level + 20*log(Duty cycle)
7. For average measurement (Background noise): VBW = 10 Hz, Reduce the video bandwidth until no significant variations in the displayed signal are observed in subsequent traces, provided the video bandwidth is no less than 1 Hz.
8. For testing below 1 GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and be reported.
9. For testing above 1 GHz, the emission level of the EUT in peak mode was 20 dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and be reported.

3.5.4 Test Setup

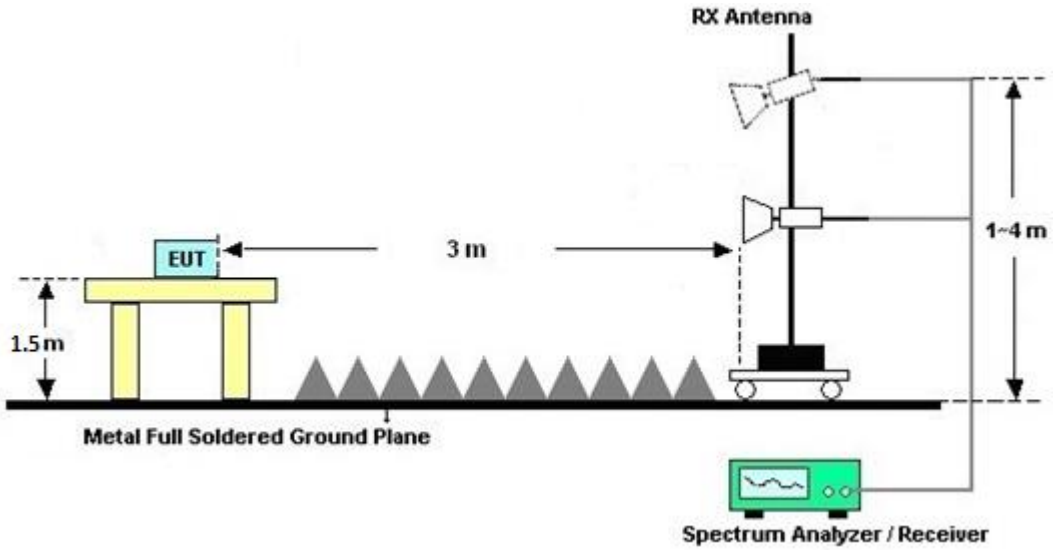
For radiated test below 30MHz



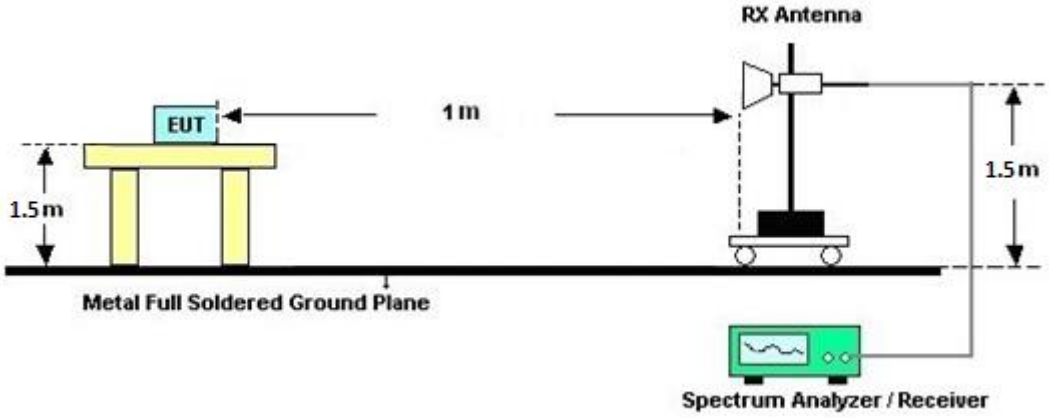
For radiated test from 30MHz to 1GHz



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 started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was 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 came 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 (dBμV)	
	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.

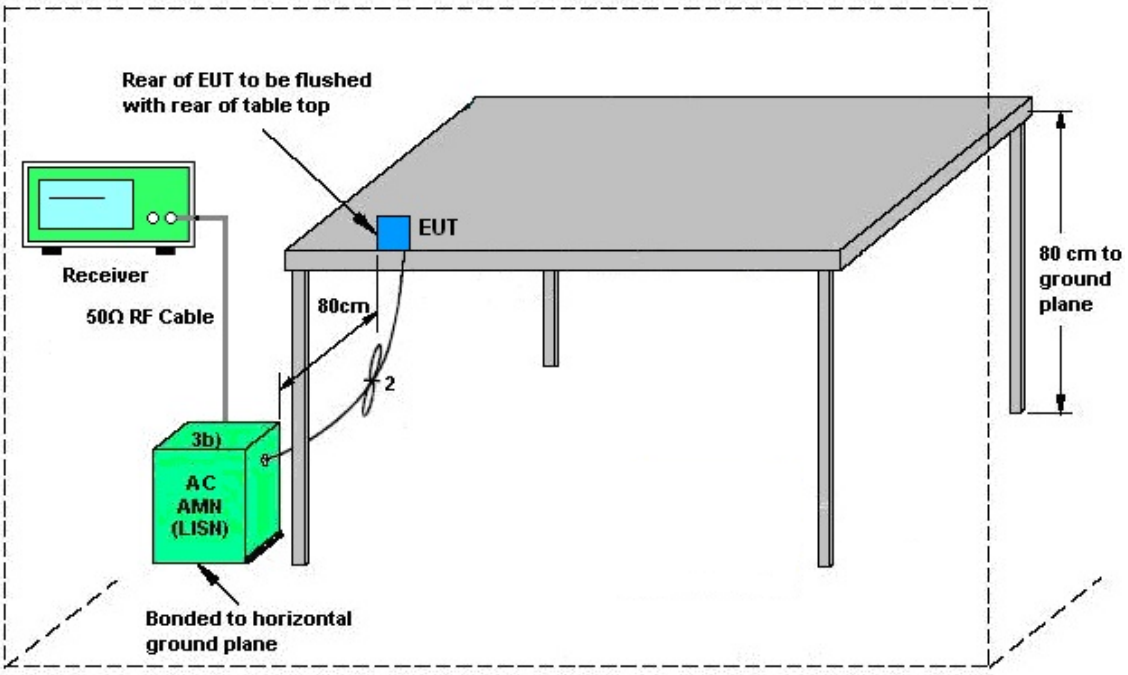
3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was 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 sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.6.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

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
LISN	TESEQ	NNB51	47407	N/A	Jul. 21, 2021	May 04, 2022~ May 05, 2022	Jul. 20, 2022	Conduction (CO01-CA)
LISN	TESEQ	NNB51	47415	N/A	Jun. 30, 2021	May 04, 2022~ May 05, 2022	Jun. 29, 2022	Conduction (CO01-CA)
Pulse limiter with 10dB attenuation	SCHWARZBECK	VTSD 9561-F N	9561-F-N00412	N/A	Jul. 06, 2021	May 04, 2022~ May 05, 2022	Jul. 05, 2022	Conduction (CO01-CA)
EMI Test Receiver	R&S	ESR7	102177	7GHz	Jun. 02, 2021	May 04, 2022~ May 05, 2022	Jun. 01, 2022	Conduction (CO01-CA)
Hygrometer	Testo	608-H1	45141354	N/A	Jul. 30. 2021	Apr. 25, 2022~ Apr. 27, 2022	Jul. 29, 2022	Conducted (TH01-CA)
Power Sensor	DARE!!	RPR3006W	RPR6W-1 901024	10MHz-6GHz	Jul. 13, 2021	Apr. 25, 2022~ Apr. 27, 2022	Jul. 12, 2022	Conducted (TH01-CA)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101545	10Hz-40GHz	Jun. 01, 2021	Apr. 25, 2022~ Apr. 27, 2022	May 31, 2022	Conducted (TH01-CA)
Switch	EM Electronics	EMSW18	SW107090 2	10Hz-40GHz	Aug. 03, 2021	Apr. 25, 2022~ Apr. 27, 2022	Aug. 02, 2022	Conducted (TH01-CA)
Loop Antenna	R&S	HFH2-Z2E	100840	9kHz~30MHz	Jun. 21, 2021	May 17, 2022~ May 20, 2022	Jun. 20, 2022	Radiation (03CH02-CA)
Bilog Antenna	TESEQ	6111D	54683	30MHz~1GHz	Oct. 15, 2021	May 17, 2022~ May 20, 2022	Oct. 15, 2022	Radiation (03CH02-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	01895	1GHz~18GHz	Aug. 25, 2021	May 17, 2022~ May 20, 2022	Aug. 24, 2022	Radiation (03CH02-CA)
Horn Antenna	SCHWARZBECK	BBHA 9170D	00842	18GHz~40GHz	Jul. 20, 2021	May 17, 2022~ May 20, 2022	Jul. 19, 2022	Radiation (03CH02-CA)
Amplifier	SONOMA	310N	372240	N/A	Aug. 09, 2021	May 17, 2022~ May 20, 2022	Aug. 08, 2022	Radiation (03CH02-CA)
Preamplifier	Keysight	83017A	MY532703 23	1GHz~26.5GHz	Jul. 27, 2021	May 17, 2022~ May 20, 2022	Jul. 26, 2022	Radiation (03CH02-CA)
Preamplifier	E-instrument	ERA-100M-18 G-56-01-A70	EC190025 1	1GHz~18GHz	May 10, 2022	May 17, 2022~ May 20, 2022	May 09, 2023	Radiation (03CH02-CA)
Preamplifier	EMEC	EMC18G40G	060725	18GHz-40GHz	Jul. 21, 2021	May 17, 2022~ May 20, 2022	Jul. 20, 2022	Radiation (03CH02-CA)
Spectrum Analyzer	Keysight	N9010A	MY574202 21	10Hz~44GHz	Sep. 22, 2021	May 17, 2022~ May 20, 2022	Sep. 21, 2022	Radiation (03CH02-CA)
Filter	Wainwright	WHKX12-270 0-3000-18000 -60ST	SN10	3G Highpass	Jul. 23, 2021	May 17, 2022~ May 20, 2022	Jul. 22, 2022	Radiation (03CH02-CA)
Filter	Wainwright	WLK12-1200- 1272-11000-4 0SS	SN1	1.2G Low Pass	Jul. 23, 2021	May 17, 2022~ May 20, 2022	Jul. 22, 2022	Radiation (03CH02-CA)
Hygrometer	TESEO	608-H1	45142602	N/A	Aug. 04, 2021	May 17, 2022~ May 20, 2022	Aug. 03, 2022	Radiation (03CH02-CA)
Controller	ChainTek	EM-1000	060876	NA	N/A	May 17, 2022~ May 20, 2022	N/A	Radiation (03CH02-CA)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	May 17, 2022~ May 20, 2022	N/A	Radiation (03CH02-CA)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	May 17, 2022~ May 20, 2022	N/A	Radiation (03CH02-CA)
Software	Audix	E3	N/A	N/A	N/A	May 17, 2022~ May 20, 2022	N/A	Radiation (03CH02-CA)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.0 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.7 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.2 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.4 dB**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Steve Chen	Temperature:	20~24	°C
Test Date:	2022/04/25 ~ 2022/04/27	Relative Humidity:	35~45	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	NTx	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
Proprietary	1	0	2403	2.130	1.143	0.50	Pass
Proprietary	1	11	2436	2.159	1.415	0.50	Pass
Proprietary	1	22	2469	2.165	1.417	0.50	Pass

TEST RESULTS DATA
Average Power Table

Mod.	NTx	CH.	Freq. (MHz)	Average Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
Proprietary	1	0	2403	20.23	30.00	6.00	26.23	36.00	Pass
Proprietary	1	11	2436	20.03	30.00	6.00	26.03	36.00	Pass
Proprietary	1	22	2469	19.93	30.00	6.00	25.93	36.00	Pass

TEST RESULTS DATA
Peak Power Density

Mod.	NTx	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
Proprietary	1	0	2403	20.12	3.78	6.00	8.00	Pass
Proprietary	1	11	2436	17.01	-1.90	6.00	8.00	Pass
Proprietary	1	22	2469	16.89	-1.43	6.00	8.00	Pass

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

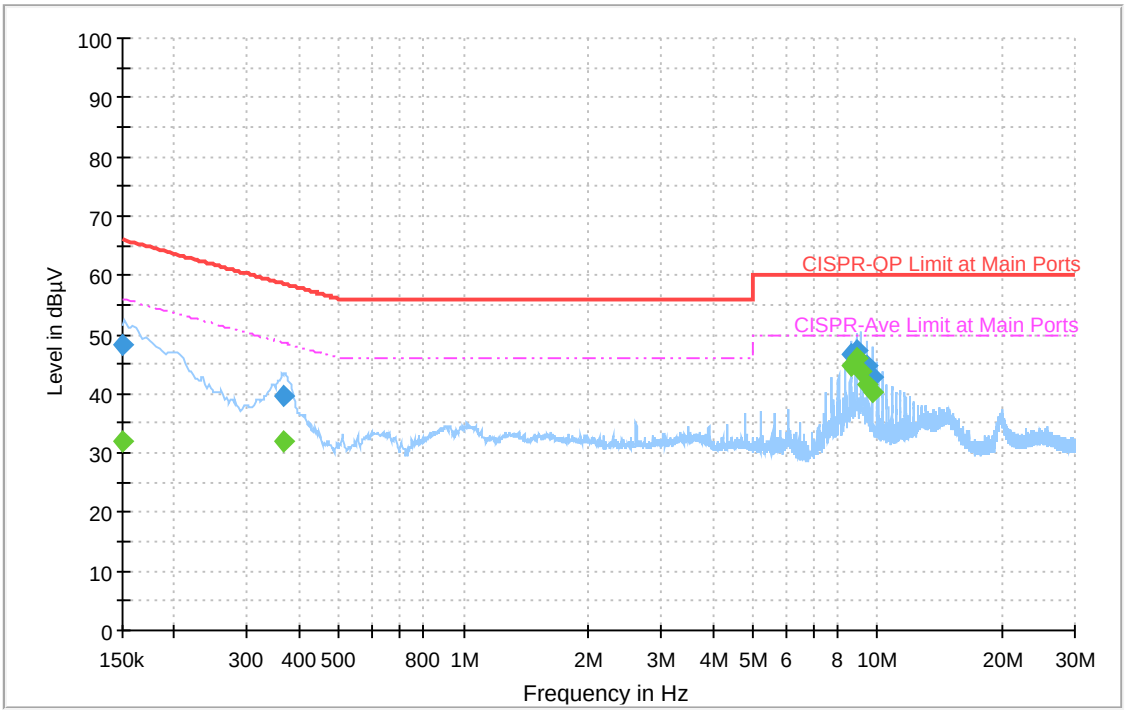
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Daniel Lee	**Temperature :**	19~21℃
		Relative Humidity :	36~39%

EUT Information

Site:	CO01-CA
Power:	120Vac/60Hz
Project	211101001
Mode	3

Full Spectrum



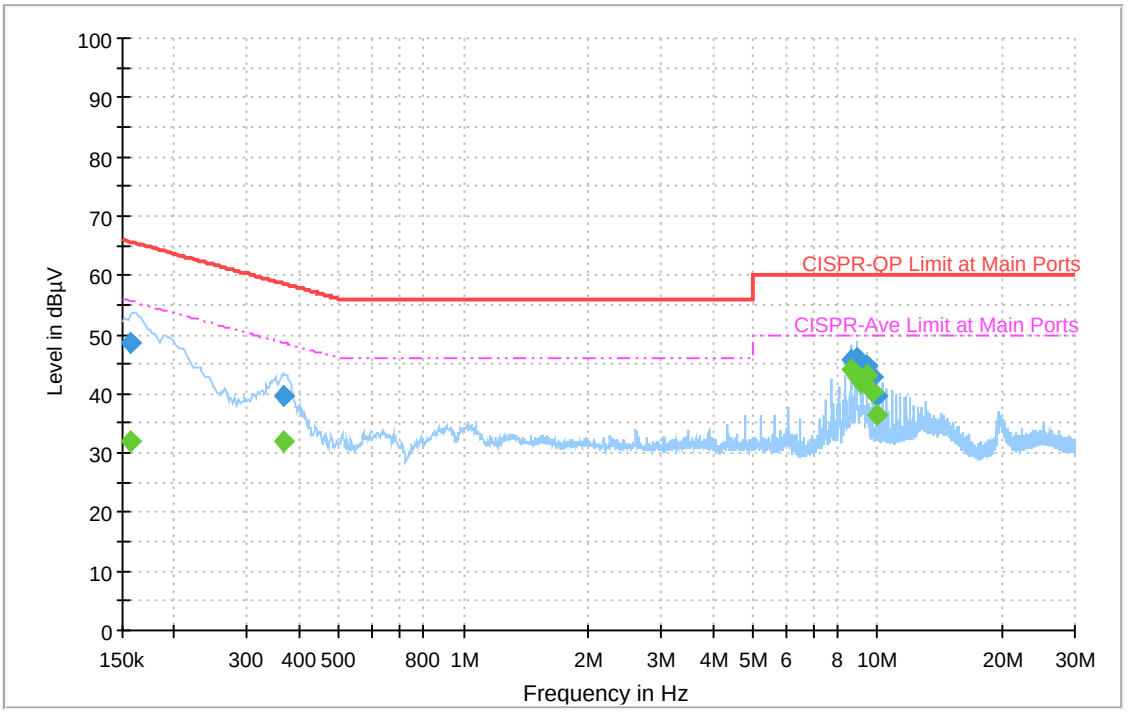
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150108	---	31.83	55.99	24.16	L1	OFF	20.3
0.150108	48.10	---	65.99	17.89	L1	OFF	20.3
0.367800	---	32.10	48.55	16.45	L1	OFF	20.3
0.367800	39.58	---	58.55	18.97	L1	OFF	20.3
8.603061	---	44.70	50.00	5.30	L1	OFF	20.5
8.603061	46.51	---	60.00	13.49	L1	OFF	20.5
8.881323	---	46.08	50.00	3.92	L1	OFF	20.5
8.881323	47.39	---	60.00	12.61	L1	OFF	20.5
9.158883	---	43.67	50.00	6.33	L1	OFF	20.5
9.158883	45.48	---	60.00	14.52	L1	OFF	20.5
9.434607	---	41.66	50.00	8.34	L1	OFF	20.5
9.434607	44.83	---	60.00	15.17	L1	OFF	20.5
9.711330	---	40.40	50.00	9.60	L1	OFF	20.5
9.711330	42.71	---	60.00	17.29	L1	OFF	20.5

EUT Information

Site:	CO01-CA
Power:	120Vac/60Hz
Project	211101001
Mode	3

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156894	---	31.87	55.63	23.76	N	OFF	20.2
0.156894	48.42	---	65.63	17.21	N	OFF	20.2
0.367503	---	31.86	48.56	16.70	N	OFF	20.3
0.367503	39.47	---	58.56	19.09	N	OFF	20.3
8.604321	---	44.15	50.00	5.85	N	OFF	20.4
8.604321	45.83	---	60.00	14.17	N	OFF	20.4
8.878812	---	42.97	50.00	7.03	N	OFF	20.4
8.878812	45.85	---	60.00	14.15	N	OFF	20.4
9.162528	---	41.82	50.00	8.18	N	OFF	20.4
9.162528	43.79	---	60.00	16.21	N	OFF	20.4
9.435948	---	43.03	50.00	6.97	N	OFF	20.4
9.435948	44.74	---	60.00	15.26	N	OFF	20.4
9.713643	---	40.37	50.00	9.63	N	OFF	20.4
9.713643	42.89	---	60.00	17.11	N	OFF	20.4
9.997233	---	36.38	50.00	13.62	N	OFF	20.4
9.997233	39.77	---	60.00	20.23	N	OFF	20.4

Appendix C. Radiated Spurious Emission

Test Engineer :	Michael Bui, Yuan Lee	Temperature :	20~24°C
		Relative Humidity :	42~48%

2.4GHz 2400~2483.5MHz

Proprietary 2.4G (Band Edge @ 3m)

2.4GHz	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
Proprietary 2.4G 2403MHz		2389.59	67.16	-6.84	74	53.55	27.68	17.43	31.5	392	165	P	H
		2389.59	28.52	-25.48	54	-	-	-	-	-	-	A	H
	*	2403	117.87	43.87	74	104.25	27.66	17.45	31.49	392	165	P	H
	*	2403	79.23	25.23	54	-	-	-	-	-	-	A	H
		2389.905	56.85	-17.15	74	43.14	27.78	17.43	31.5	400	61	P	V
		2389.905	18.21	-35.79	54	-	-	-	-	-	-	A	V
	*	2403	115.1	41.1	74	101.4	27.74	17.45	31.49	400	61	P	V
	*	2403	76.46	22.46	54	-	-	-	-	-	-	A	V
Proprietary 2.4G 2436MHz		2376.56	56.52	-17.48	74	42.92	27.71	17.41	31.52	382	160	P	H
		2376.56	17.88	-36.12	54	-	-	-	-	-	-	A	H
	*	2436	117.89	43.89	74	104.21	27.66	17.5	31.48	382	160	P	H
	*	2436	79.25	25.25	54	-	-	-	-	-	-	A	H
		2484.8	54.72	-19.28	74	40.98	27.62	17.58	31.46	382	160	P	H
		2484.8	16.08	-37.92	54	-	-	-	-	-	-	A	H
		2348.88	55.51	-18.49	74	41.77	27.91	17.35	17.35	355	57	P	V
		2348.88	16.87	-37.13	54	-	-	-	-	-	-	A	V
	*	2436	113.51	39.51	74	99.88	27.61	17.5	31.48	355	57	P	V
	*	2436	74.87	20.87	54	-	-	-	-	-	-	A	V
		2486.4	55.38	-18.62	74	41.76	27.5	17.58	31.46	355	57	P	V
		2486.4	16.74	-37.26	54	-	-	-	-	-	-	A	V

Proprietary 2.4G 2469MHz	*	2469	117.2	43.2	74	103.47	27.64	17.56	31.47	366	160	P	H
	*	2469	78.56	24.56	54	-	-	-	-	-	-	A	H
		2484.11	59.04	-14.96	74	45.3	27.62	17.58	31.46	366	160	P	H
		2484.11	20.4	-33.6	54	-	-	-	-	-	-	A	H
	*	2469	114.41	40.41	74	100.79	27.53	17.56	31.47	388	60	P	V
	*	2469	75.77	21.77	54	-	-	-	-	-	-	A	V
		2483.83	57.09	-16.91	74	43.46	27.51	17.58	31.46	388	60	P	V
		2483.83	18.45	-35.55	54	-	-	-	-	-	-	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

Proprietary (Harmonic @ 3m)

2.4GHz	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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)
Proprietary 2.4G 2403MHz		4806	45.03	-28.97	74	70.22	31.5	11.19	67.88	-	-	P	H
		4806	6.39	-47.61	54	-	-	-	-	-	-	A	H
		7209	53.22	-34.65	87.87	69.45	36.2	13.67	66.1	-	-	P	H
		9612	55.52	-32.35	87.87	70.54	38.34	15.69	69.05	-	-	P	H
		12015	53.63	-20.37	74	64.43	39.19	17.69	67.68	301	46	P	H
		12015	14.99	-39.01	54	-	-	-	-	-	-	A	H
		14490	51.07	-22.93	74	57.51	41.94	19.6	67.98	-	-	P	H
		14490	40.95	-13.05	54	47.39	41.94	19.6	67.98	-	-	A	H
		16821	58.21	-29.66	87.87	64.93	40.41	21.37	68.5	-	-	P	H
		18000	59.23	-14.77	74	57.69	48.82	22.44	69.72	-	-	P	H
		18000	49.32	-4.68	54	47.78	48.82	22.44	69.72	-	-	A	H
													H
		4806	46.77	-27.23	74	71.96	31.54	11.19	67.92	-	-	P	V
		4806	8.13	-45.87	54	-	-	-	-	-	-	A	V
		7209	58.04	-29.83	87.87	73.98	36.17	13.67	65.78	-	-	P	V
		9612	57.51	-30.36	87.87	72.5	38.31	15.69	68.99	-	-	P	V
		12015	52.53	-21.47	74	63.4	39.16	17.69	67.72	312	17	P	V
		12015	13.89	-40.11	54	-	-	-	-	-	-	A	V
		14490	51.35	-22.65	74	57.55	41.94	19.6	67.74	-	-	P	V
		14490	41.2	-12.8	54	47.4	41.94	19.6	67.74	-	-	A	V
		16821	61.44	-26.43	87.87	67.91	40.55	21.37	68.39	-	-	P	V
		17985	59.84	-14.16	74	58.3	48.7	22.43	69.59	-	-	P	V
		17985	49.39	-4.61	54	47.85	48.7	22.43	69.59	-	-	A	V
													V

2.4GHz	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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)
Proprietary 2.4G 2436MHz		4872	46.07	-27.93	74	71.2	31.45	11.33	67.91	-	-	P	H
		4872	7.43	-46.57	54	-	-	-	-	-	-	P	H
		7308	56.75	-17.25	74	73.62	36.33	13.77	66.97	234	60	P	H
		7308	18.11	-35.89	54	-	-	-	-	-	-	A	H
		9744	50.27	-37.62	87.89	64.92	38.75	15.79	69.19	-	-	P	H
		12180	54.72	-19.28	74	64.68	39.26	17.82	67.04	295	45	P	H
		12180	16.08	-37.92	54	-	-	-	-	-	-	A	H
		14490	50.69	-23.31	74	57.13	41.94	19.6	67.98	-	-	P	H
		14490	40.49	-13.51	54	46.93	41.94	19.6	67.98	-	-	A	H
		17052	57.15	-30.74	87.89	63.93	40.4	21.57	68.75	-	-	P	H
		18000	59.62	-14.38	74	58.08	48.82	22.44	69.72	-	-	P	H
		18000	48.84	-5.16	54	47.3	48.82	22.44	69.72	-	-	A	H
		4872	48.82	-25.18	74	73.97	31.42	11.33	67.9	100	277	P	V
		4872	10.18	-43.82	54	-	-	-	-	-	-	A	V
		7308	60.46	-13.54	74	77.02	36.36	13.77	66.69	272	345	P	V
		7308	21.82	-32.18	54	-	-	-	-	-	-	A	V
		9744	55.5	-32.39	87.89	70.07	38.81	15.81	69.19	-	-	P	V
		12180	52.68	-21.32	74	62.61	39.28	17.82	67.03	209	273	P	V
		12180	14.04	-39.96	54	-	-	-	-	-	-	A	V
		14490	50.34	-23.66	74	56.54	41.94	19.6	67.74	-	-	P	V
		14490	40.72	-13.28	54	46.92	41.94	19.6	67.74	-	-	A	V
		17052	56.97	-30.92	87.89	63.69	40.52	21.57	68.81	-	-	P	V
		18000	59.31	-14.69	74	57.25	49.04	22.44	69.42	-	-	P	V
		18000	49.35	-4.65	54	47.29	49.04	22.44	69.42	-	-	A	V

2.4GHz	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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)
Proprietary 2.4G 2469MHz		4938	47.43	-26.57	74	72.52	31.46	11.47	68.02	-	-	P	H
		4938	8.79	-45.21	54	-	-	-	-	-	-	A	H
		7407	58.75	-15.25	74	75.81	36.44	13.87	67.37	288	47	P	H
		7407	20.11	-33.89	54	-	-	-	-	-	-	A	H
		9876	50.43	-36.77	87.2	64.82	38.92	15.91	69.22	-	-	P	H
		12345	55.42	-18.58	74	66.21	38.79	17.95	67.53	288	50	P	H
		12345	16.78	-37.22	54	-	-	-	-	-	-	A	H
		14490	50.62	-23.38	74	57.06	41.94	19.6	67.98	-	-	P	H
		14490	40.49	-13.51	54	46.93	41.94	19.6	67.98	-	-	A	H
		17283	57.91	-29.29	87.2	63.89	41.06	21.79	68.83	-	-	P	H
		17985	58.47	-15.53	74	57.51	48.43	22.43	69.9	-	-	P	H
		17985	48.36	-5.64	54	47.4	48.43	22.43	69.9	-	-	A	H
		4938	45.72	-28.28	74	70.88	31.36	11.47	67.99	-	-	P	V
		4938	7.08	-46.92	54	-	-	-	-	-	-	A	V
		7407	61.09	-12.91	74	78.13	36.48	13.87	67.39	276	355	P	V
		7407	22.45	-31.55	54	-	-	-	-	-	-	A	V
		9876	53.62	-33.58	87.2	67.98	38.92	15.9	69.18	-	-	P	V
		12345	54.84	-19.16	74	65.49	38.79	17.95	67.39	311	4	P	V
		12345	16.2	-37.8	54	-	-	-	-	-	-	A	V
		14490	50.84	-23.16	74	57.04	41.94	19.6	67.74	-	-	P	V
		14490	40.72	-13.28	54	46.92	41.94	19.6	67.74	-	-	A	V
		17283	59.6	-27.6	87.2	65.33	41.25	21.79	68.77	-	-	P	V
		17985	59.4	-14.6	74	57.86	48.7	22.43	69.59	-	-	P	V
		17985	48.94	-5.06	54	47.4	48.7	22.43	69.59	-	-	A	V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.
3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.
4. The emission level close to 14.49GHz and 18GHz is checked that the average emission level is noise floor only.

Emission above 18GHz

Proprietary 2.4G (SHF)

2.4GHz	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)
Proprietary 2.4G SHF		19224	59.55	-14.45	74	61.97	37.66	12.87	52.95	-	-	P	H
		19224	20.91	-33.09	54	-	-	-	-	-	-	A	H
		21627	47.86	-40.01	87.87	47.55	38.25	14.53	52.47	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
		19224	62.13	-11.87	74	64.52	37.69	12.87	52.95	-	-	P	V
		19224	23.49	-30.51	54	-	-	-	-	-	-	A	V
		21627	52.21	-35.66	87.87	52.04	38.13	14.52	52.48	-	-	P	V
													V
													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 with sufficient margin against limit line or noise floor only.

Emission below 1GHz

Proprietary 2.4G (LF)

2.4GHz	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (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)
		30.97	24.91	-15.09	40	31.7	24.71	0.93	32.43	-	-	P	H
		43.58	25.52	-14.48	40	39.32	17.55	1.09	32.44	-	-	P	H
		90.14	26.76	-16.74	43.5	42.9	14.71	1.57	32.42	-	-	P	H
		641.1	28.12	-17.88	46	30.12	26.6	4	32.6	-	-	P	H
		746.83	37.89	-8.11	46	37.79	28.1	4.41	32.41	-	-	P	H
		956.35	34.54	-11.46	46	29.24	31.43	5.03	31.16	-	-	P	H
													H
													H
													H
													H
													H
Proprietary													H
2.4G LF		31.94	28.01	-11.99	40	35.27	24.23	0.94	32.43	-	-	P	V
		44.55	33.99	-6.01	40	48.31	17.02	1.1	32.44	-	-	P	V
		94.02	24.43	-19.07	43.5	40.01	15.2	1.63	32.41	-	-	P	V
		629.46	28.33	-17.67	46	30.77	26.18	3.98	32.6	-	-	P	V
		746.83	33.96	-12.04	46	33.86	28.1	4.41	32.41	-	-	P	V
		944.71	33.8	-12.2	46	29.1	30.98	4.98	31.26	-	-	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.

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:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				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)
Proprietary 2.4G		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	16.81	-37.19	54	-	-	-	-	-	-	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)

= Peak level(dBμV/m) + Duty cycle correction factor (dB)

= 55.45(dBμV/m) – 38.64(dB)

= 16.81(dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 16.81(dBμV/m) – 54(dBμV/m)

= -37.19(dB)

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

Appendix D. Radiated Spurious Emission Plots

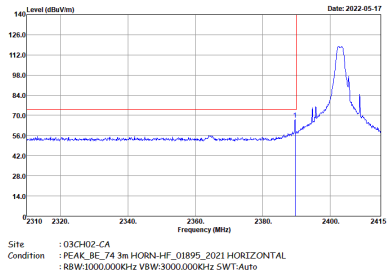
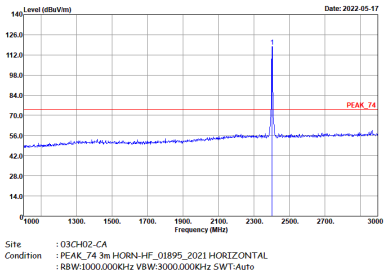
Test Engineer :	Michael Bui, Yuan Lee	**Temperature :**	20~24°C
		Relative Humidity :	42~48%

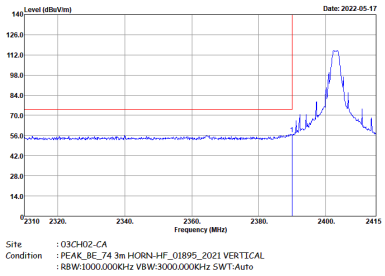
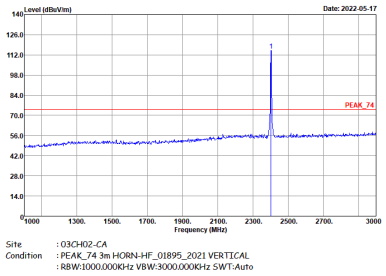
Note symbol

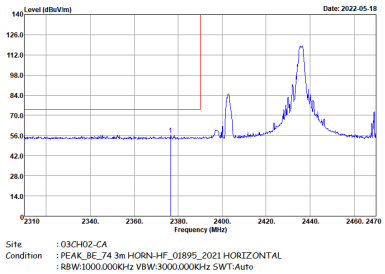
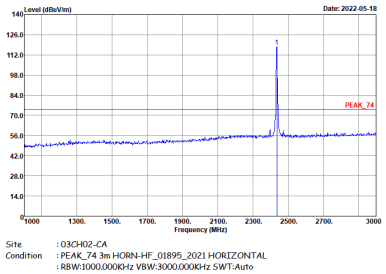
-L	**Low channel location**
-R	**High channel location**

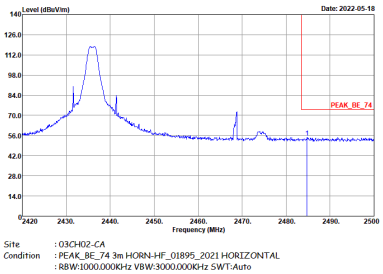
2.4GHz 2400~2483.5MHz

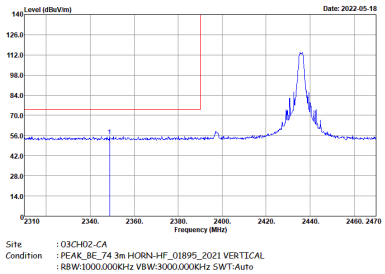
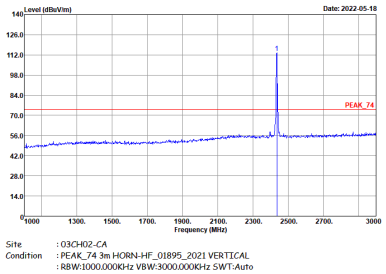
Proprietary 2.4G (Band Edge @ 3m)

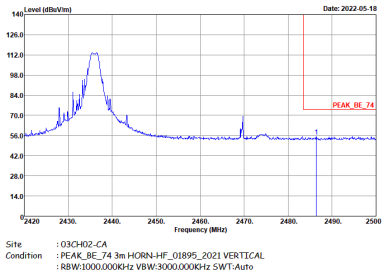
2.4GHz	**2.4GHz 2400~2483.5MHz Band Edge @ 3m**	
	Proprietary 2.4G 2403MHz	
	Horizontal	**Fundamental**
Peak		

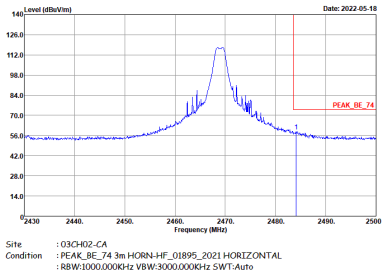
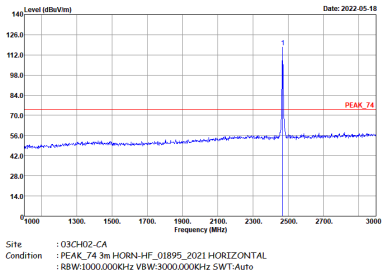
2.4GHz	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	Proprietary 2.4G 2403MHz	
	Vertical	Fundamental
Peak		

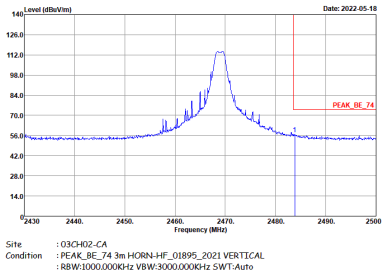
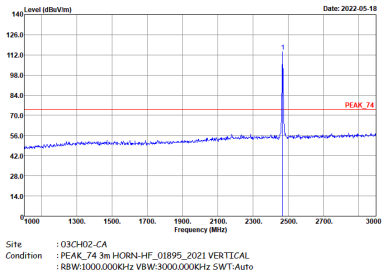
2.4GHz	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	Proprietary 2.4G 2436MHz - L	
	Horizontal	Fundamental
Peak		

2.4GHz	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	Proprietary 2.4G 2436MHz - R	
	Horizontal	Fundamental
Peak	 Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN-HF_01895_2021 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

2.4GHz	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	Proprietary 2.4G 2436MHz - L	
	Vertical	Fundamental
Peak		

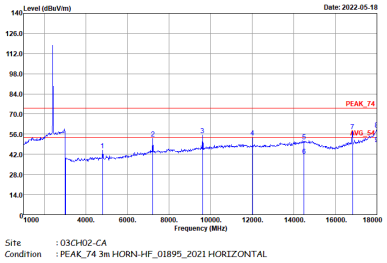
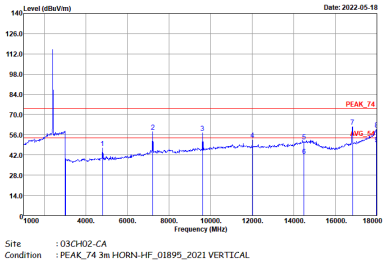
2.4GHz	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	Proprietary 2.4G 2436MHz - R	
	Vertical	Fundamental
Peak		Left blank

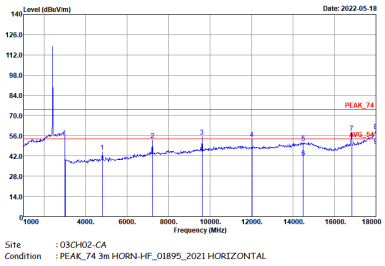
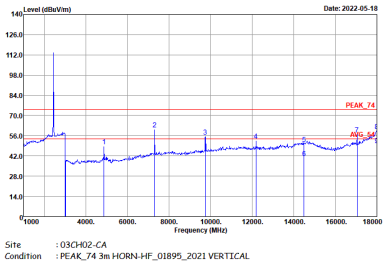
2.4GHz	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	Proprietary 2.4G 2469MHz	
	Horizontal	Fundamental
Peak		

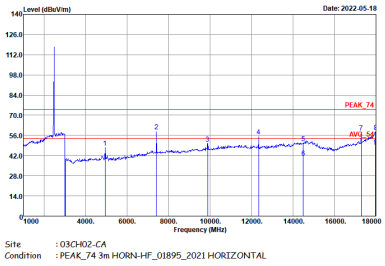
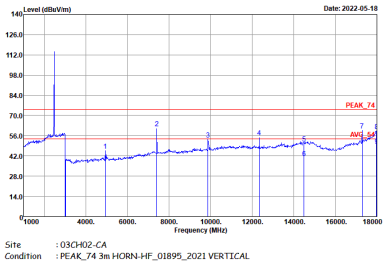
2.4GHz	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	Proprietary 2.4G 2469MHz	
	Vertical	Fundamental
Peak		

2.4GHz 2400~2483.5MHz

Proprietary 2.4G (Harmonic @ 3m)

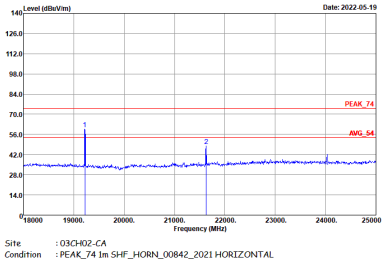
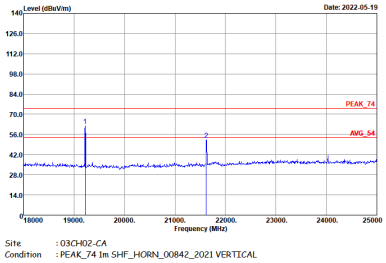
2.4GHz	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	Proprietary 2.4G 2403MHz	
	Horizontal	Vertical
Peak		

2.4GHz	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	Proprietary 2.4G 2436MHz	
	Horizontal	Vertical
Peak		

2.4GHz	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	Proprietary 2.4G 2469MHz	
	Horizontal	Vertical
Peak		

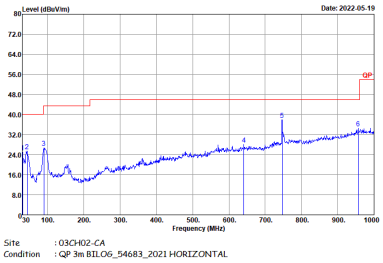
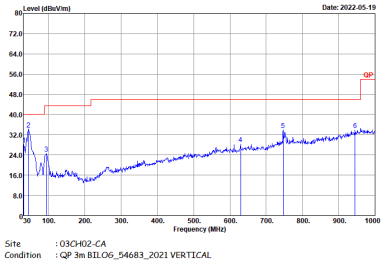
Emission above 18GHz

Proprietary 2.4G (SHF @ 1m)

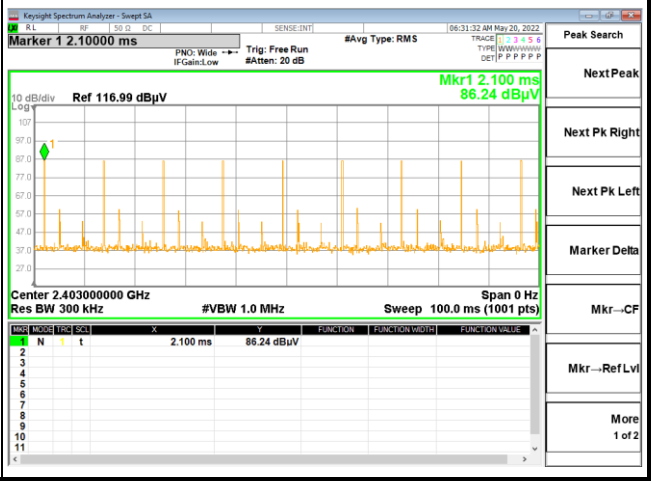
2.4GHz	2.4GHz 2400~2483.5MHz	
	Proprietary 2.4G 2403MHz SHF	
	Horizontal	Vertical
Peak		

Emission below 1GHz

Proprietary 2.4G (LF)

2.4GHz	2.4GHz 2400~2483.5MHz	
	Proprietary 2.4G 2403MHz LF	
	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

on time (One Pulse) Plot on Channel 00	Number of pulses on 100 ms on Channel 00
	

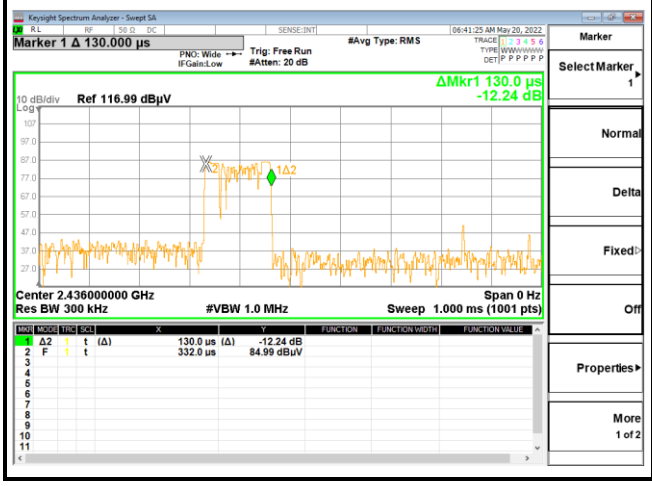
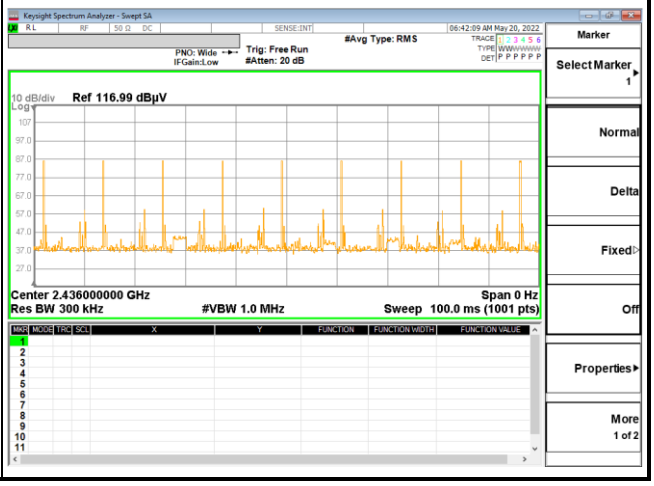
Note:

1. On time of one pulse = 0.13 millisecond
2. Number of pulses found in any 100 millisecond in worst case = 9
3. Worst case Duty cycle = total on time/100 milliseconds = 9 * 0.13 / 100 = 1.17 %
4. The worst case duty cycle correction factor = 20*log(Duty cycle) = -38.64 dB and this correction is applied to all emissions that demonstrate the same pulse timing characteristics as the fundamental emission (Clause 7.5 of ANSI C63.10 2013)

Duty Cycle Correction Factor Consideration

The device is operating in low-duty-cycle in its normal use condition.

In worst case, the device will have 9 pulses on certain channel in any 100 miliseconds.

on time (One Pulse) Plot on Channel 11	Number of pulses on 100 ms on Channel 11
	

Note:

1. On time of one pulse = 0.13 millisecond
2. Number of pulses found in any 100 millisecond in worst case = 9
3. Worst case Duty cycle = total on time/100 milliseconds = 9 * 0.13 / 100 = 1.17 %
4. The worst case duty cycle correction factor = 20*log(Duty cycle) = -38.64 dB and this correction is applied to all emissions that demonstrate the same pulse timing characteristics as the fundamental emission (Clause 7.5 of ANSI C63.10 2013)

Duty Cycle Correction Factor Consideration

The device is operating in low-duty-cycle in its normal use condition.

In worst case, the device will have 9 pulses on certain channel in any 100 miliseconds.

on time (One Pulse) Plot on Channel 22	Number of pulses on 100 ms on Channel 22
	

Note:

1. On time of one pulse = 0.13 millisecond
2. Number of pulses found in any 100 millisecond in worst case = 9
3. Worst case Duty cycle = total on time/100 milliseconds = 9 * 0.13 / 100 = 1.17 %
4. The worst case duty cycle correction factor = 20*log(Duty cycle) = -38.64 dB and this correction is applied to all emissions that demonstrate the same pulse timing characteristics as the fundamental emission (Clause 7.5 of ANSI C63.10 2013)

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