



FCC RADIO TEST REPORT

FCC ID : WAP-CYSBSYS-RP01
Equipment : Wifi 802.11b/g/n/ac + BT/BLE
Brand Name : Cypress
Model Name : CYSBSYS-RP01
Applicant : Cypress Semiconductor, Inc.
 198 Champion Court
 San Jose, CA 95134
Manufacturer : Cypress Semiconductor, Inc.
 198 Champion Court
 San Jose, CA 95134
Standard : FCC Part 15 Subpart C §15.247

The product was received on Dec. 08, 2020 and testing was started from Dec. 08, 2020 and completed on Feb. 10, 2021. 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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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)	Power Output Measurement	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges	Pass	-
		Conducted Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	Under limit 0.51 dB at 2483.520 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 12.53 dB at 0.396 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



1 General Description

1.1 Product Feature of Equipment Under Test

Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n/ac.

Product Specification subjective to this standard	
Antenna Type	WLAN: Chip Antenna Bluetooth: Chip Antenna

Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	0.8

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: 408 904-3300
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. 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

- 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, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		



2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

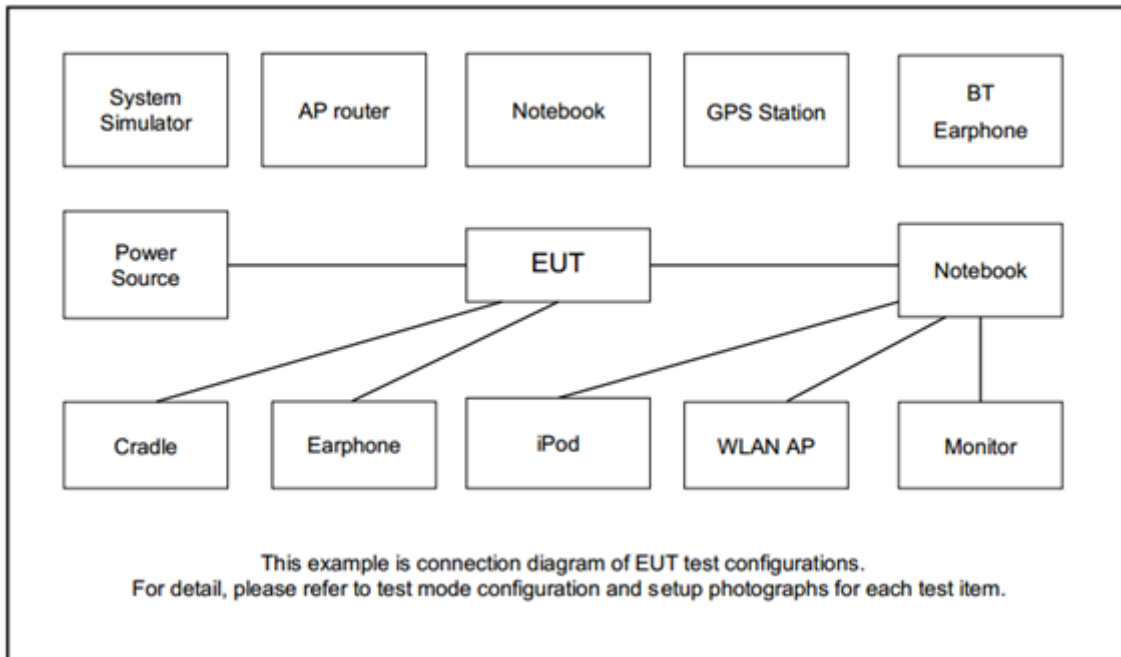
Modulation	Data Rate
802.11b	1 Mbps
802.11g (Covered by HT20)	6 Mbps
802.11n HT20	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : WLAN (2.4GHz) Link + Jig 1 (Fixture) + Jig 1-1 (Fixture) + Jig 1-1 Adapter
	Mode 2 WLAN (5GHz) Link + Jig 1 (Fixture) + Jig 1-1 (Fixture) + Jig 1-1 Adapter
	Mode 3 Bluetooth Link + Jig 1 (Fixture) + Jig 1-2 (Fixture) + Jig 1-2 Adapter
Remark: The worst case of conducted emission is mode 1; only the test data of it was reported.	

Ch. #	2400-2483.5 MHz	
	802.11b	802.11n HT20
Low	01	01
Middle	06	06
High	11	11

Remark: For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.

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	Altos PS548 Series	82600085033	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	WLAN AP	NetGear	R6080	PY316400359	N/A	N/A
3.	Jig 1 (Fixture)	Cypress	RP01	N/A	N/A	N/A
4.	Jig 1-1 (Fixture)	Cypress	CYW9SDIOAD_2	N/A	N/A	N/A
5.	Jig 1-1 Adapter	SCEPTRE POWER	ATS036T-A050	N/A	N/A	Unshielded 1.8m
6.	Jig 1-2 (Fixture)	GB-Bxi7-4500	1419631173	N/A	N/A	N/A
7.	Jig 1-2 Adapter	FSP	FSP065-REBN2	N/A	N/A	Unshielded, 1.8m



2.5 EUT Operation Test Setup

The RF test items, utility “PuTTY &Release 0.70” 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 10dB 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

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 to the maximum power setting and enable the EUT 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 6 dB 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.

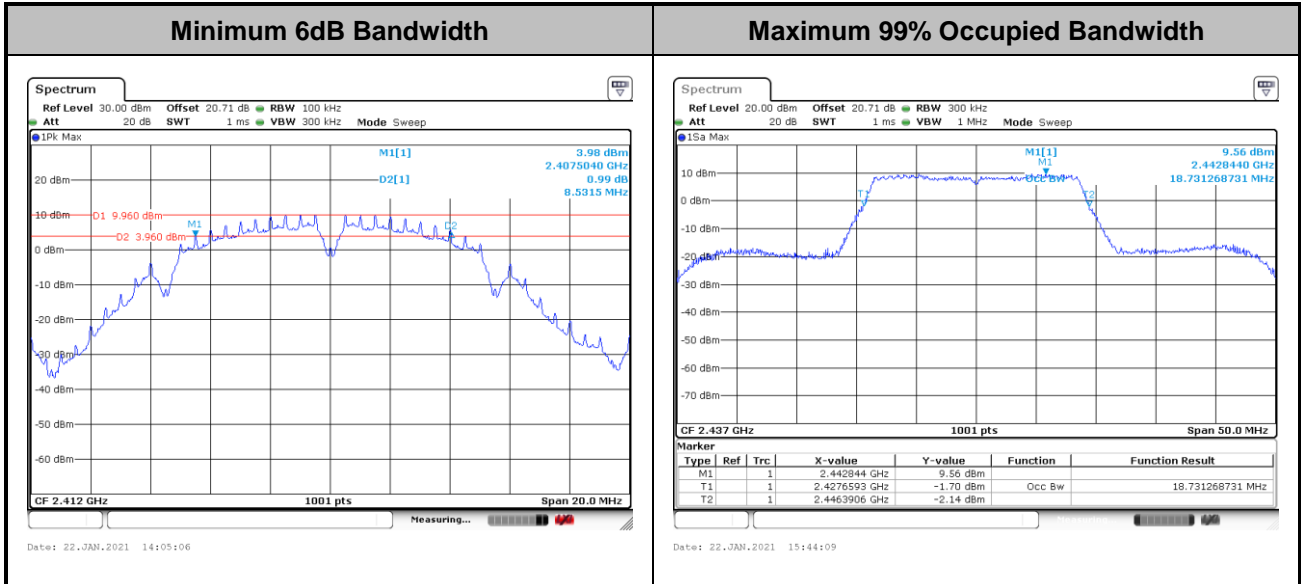
3.1.4 Test Setup





3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix 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 2400-2483.5MHz, the limit for output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi 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 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

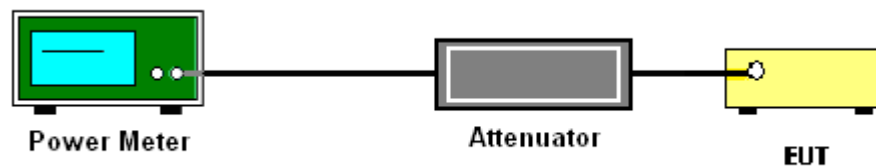
3.2.2 Measuring Instruments

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. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. 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 8dBm in any 3kHz band at any time interval of continuous transmission.

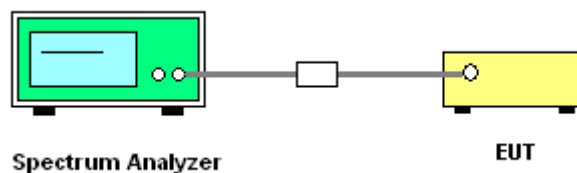
3.3.2 Measuring Instruments

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 to the maximum power setting and enable the EUT 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.

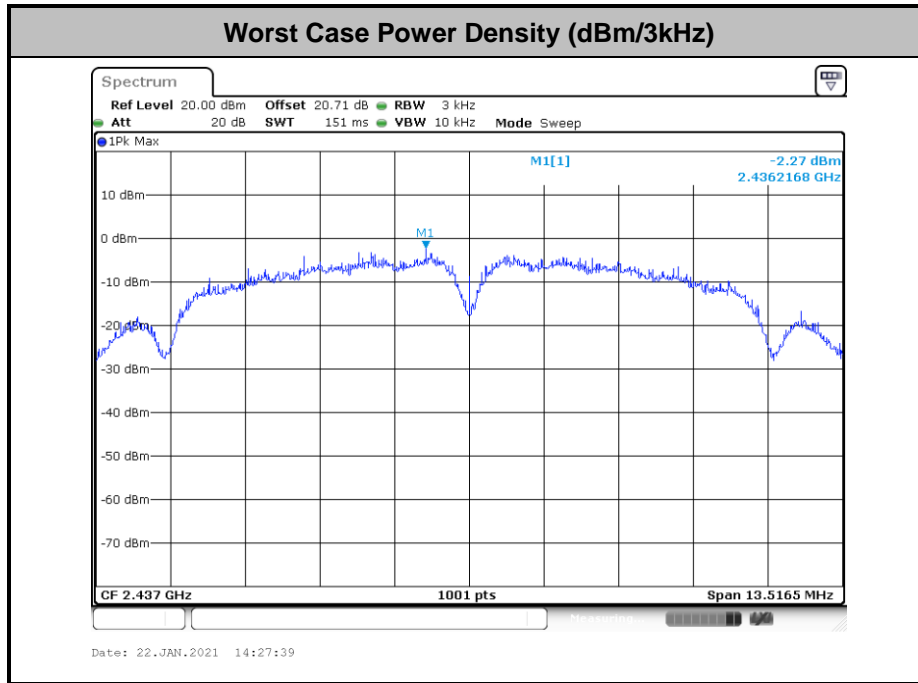
3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

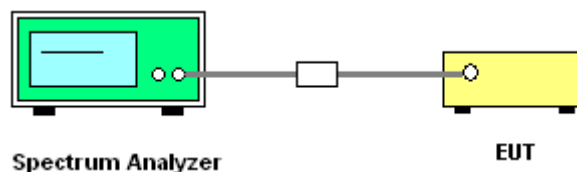
3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

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 to the maximum power setting and enable the EUT 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 per 15.247(d).
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



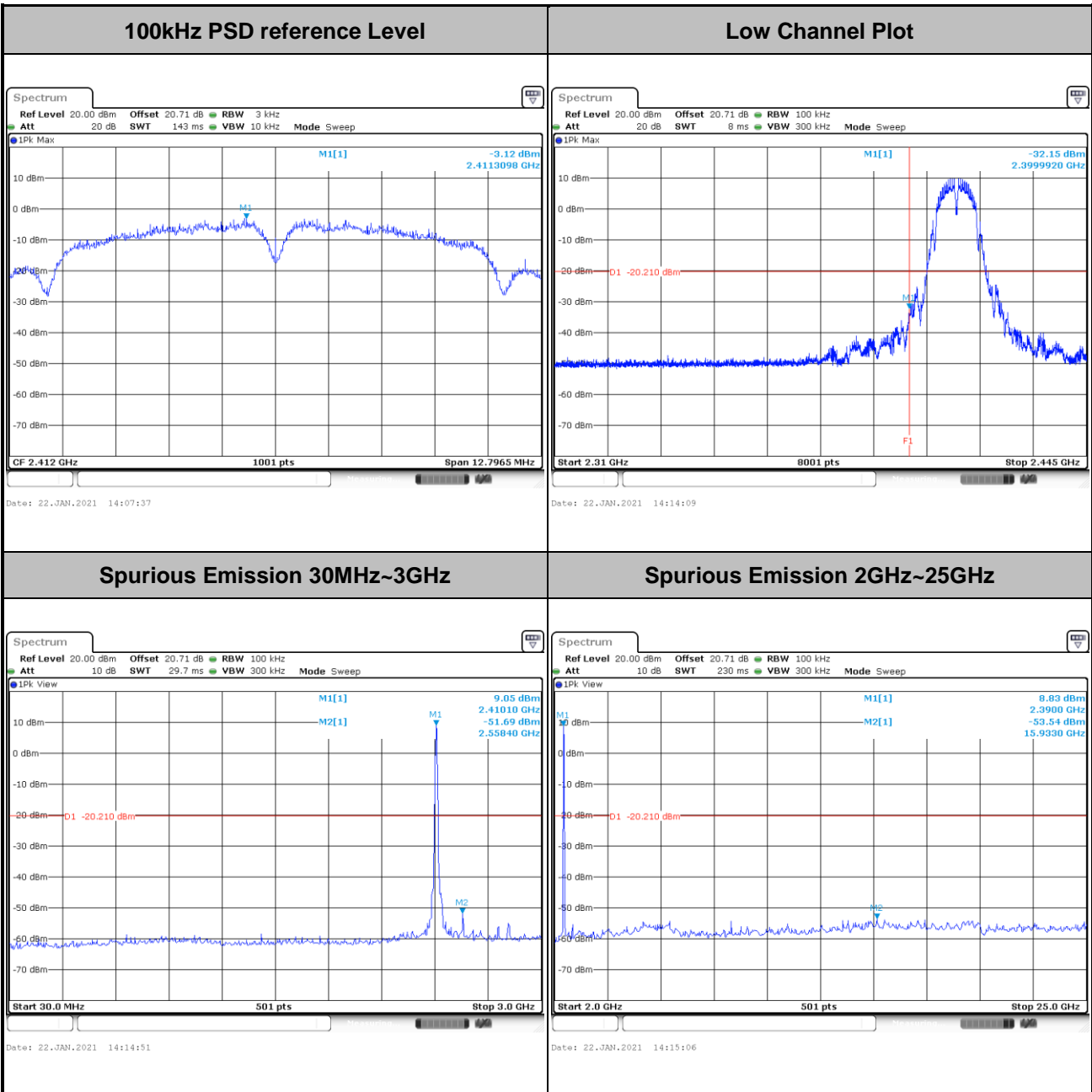


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Engineer : Andy Kao	Temperature :	15.1~19.4°C
	Relative Humidity :	33.2~54.3%

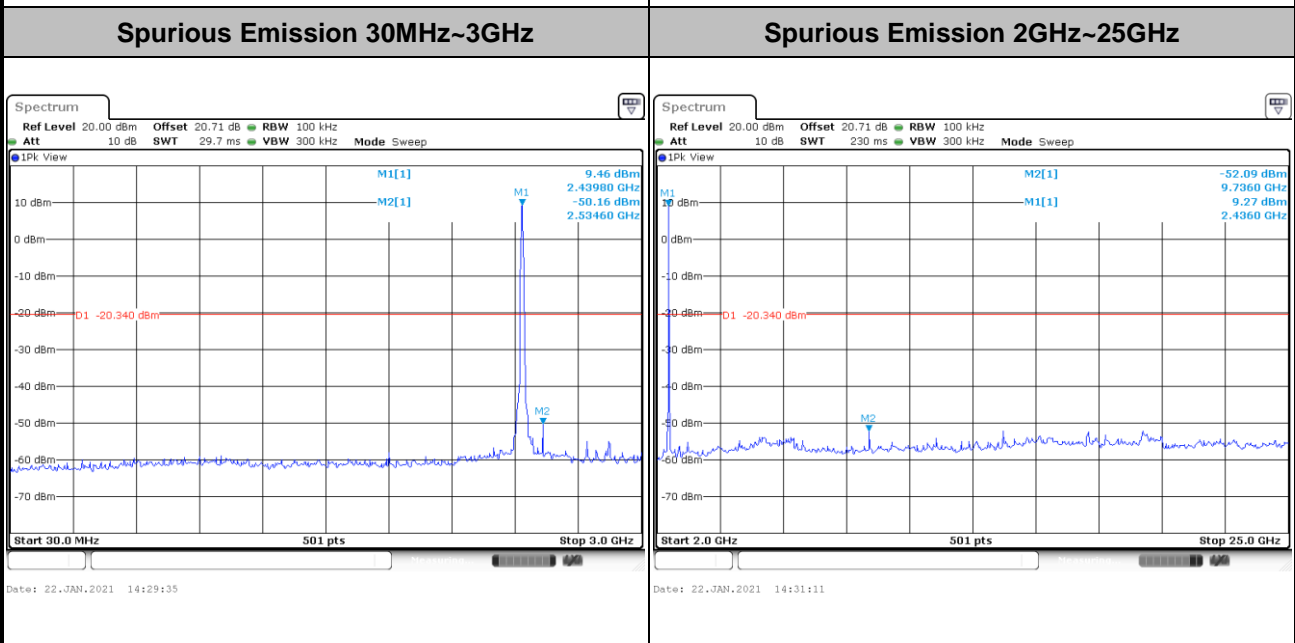
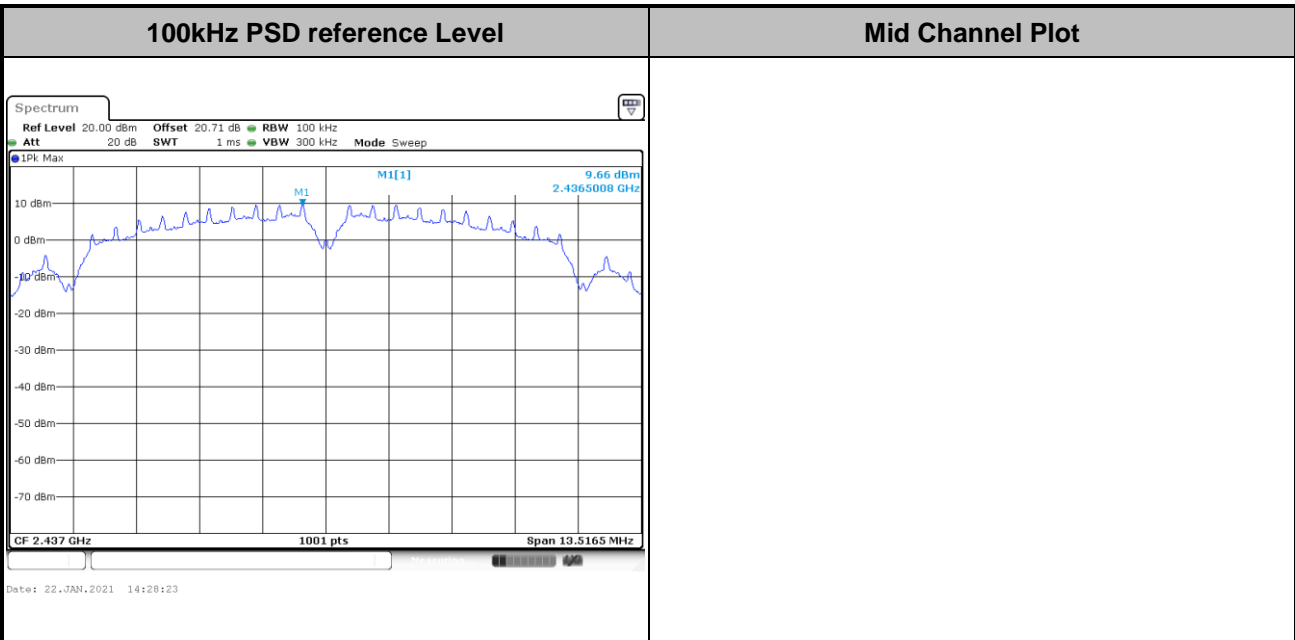
Number of TX = 1, Ant. 1 (Measured)

Test Mode :	802.11b	Test Channel :	01
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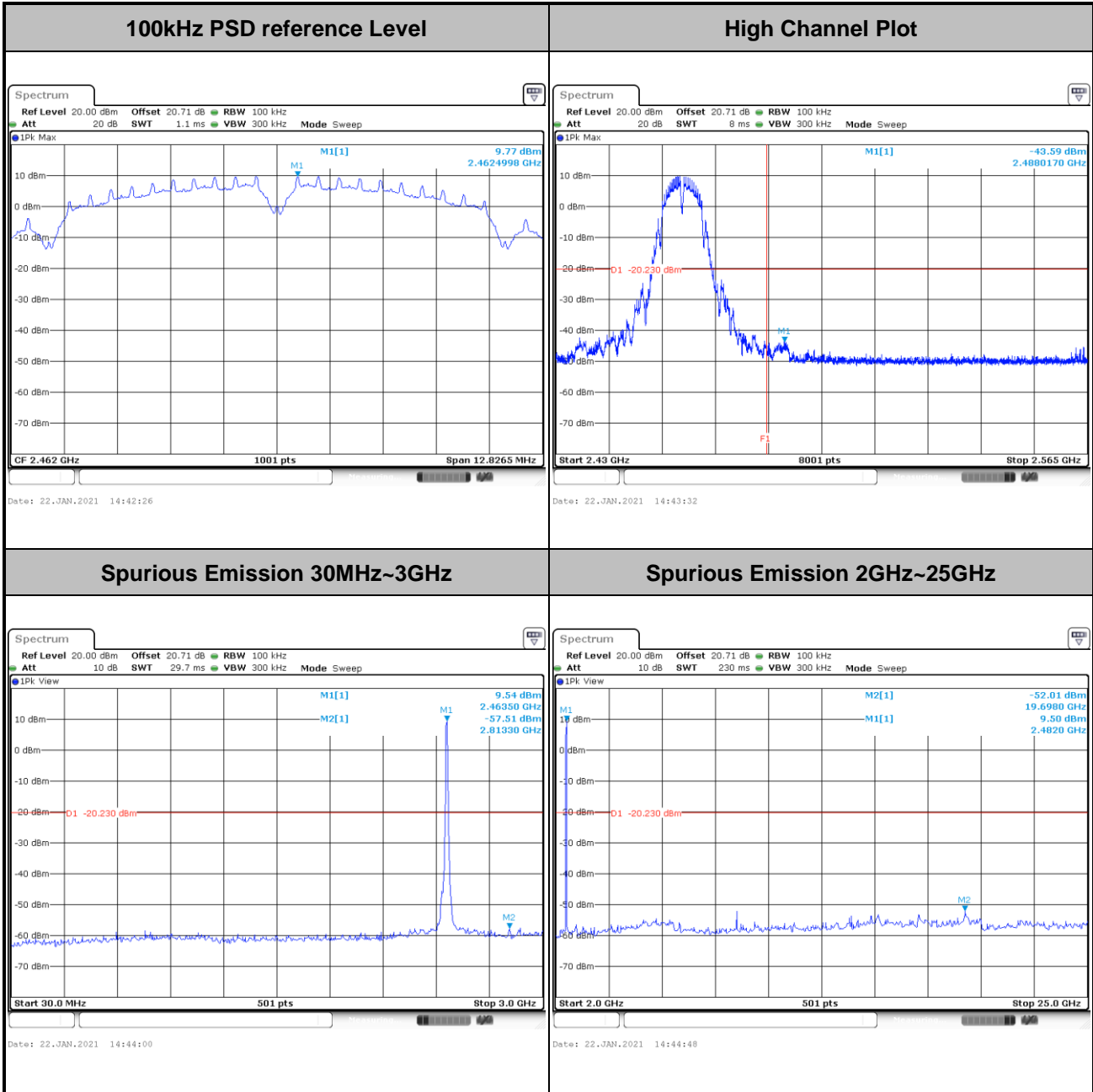


Test Mode :	802.11b	Test Channel :	06
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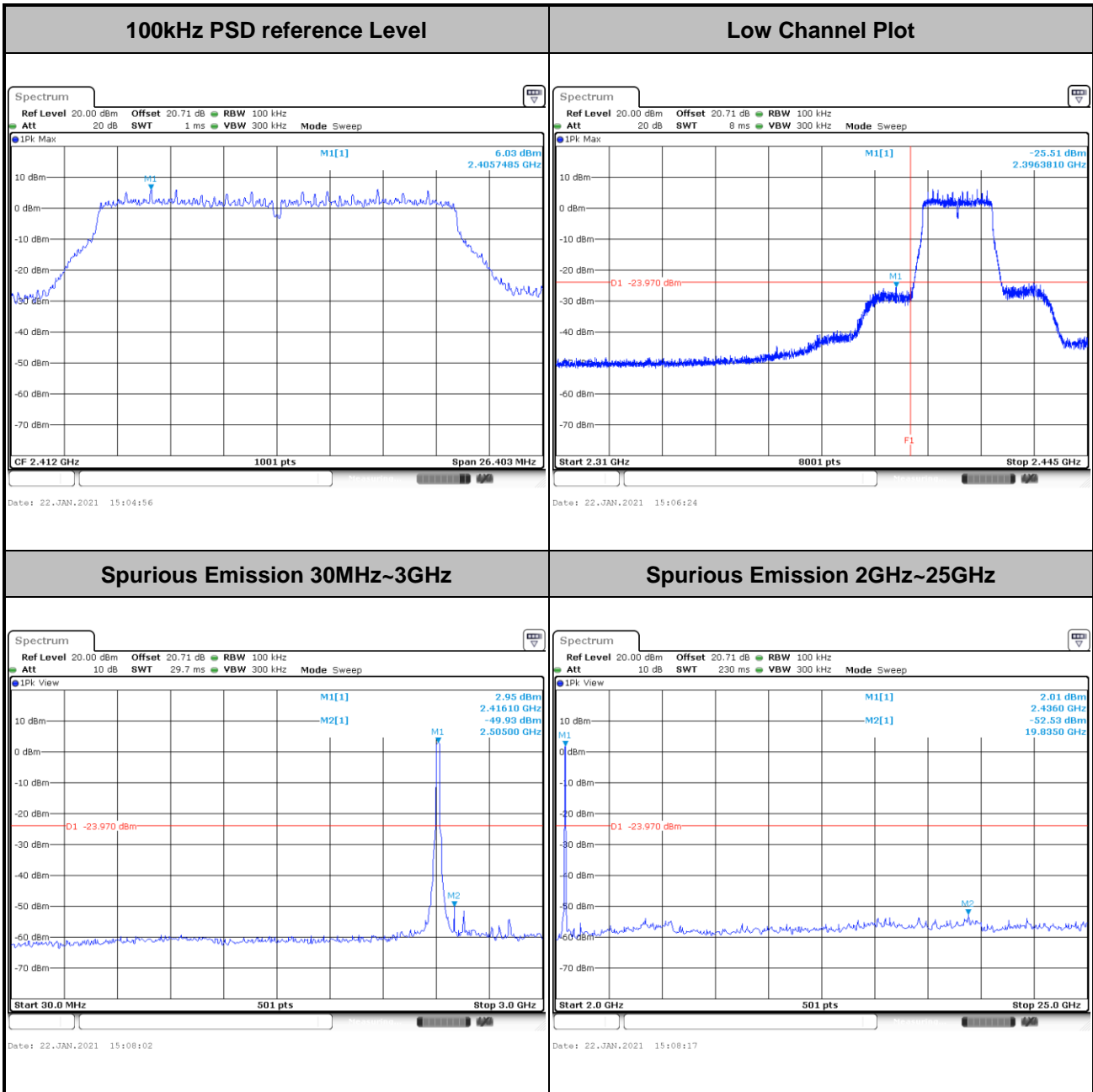


Test Mode :	802.11b	Test Channel :	11
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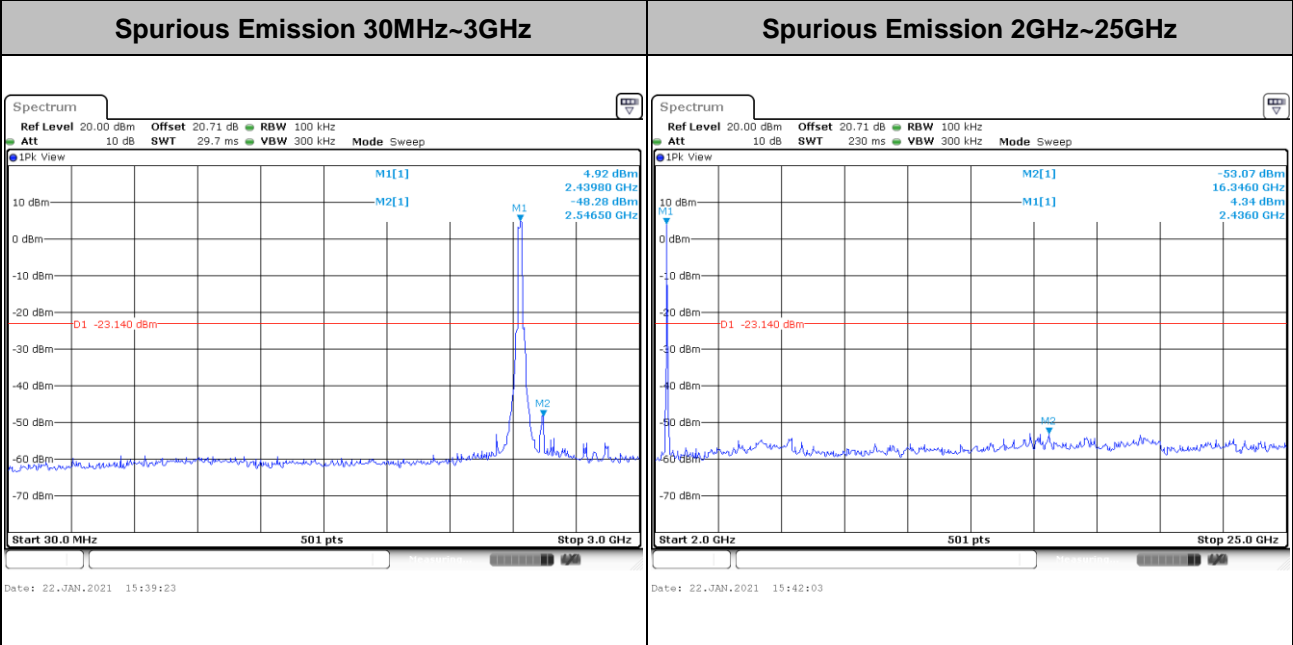
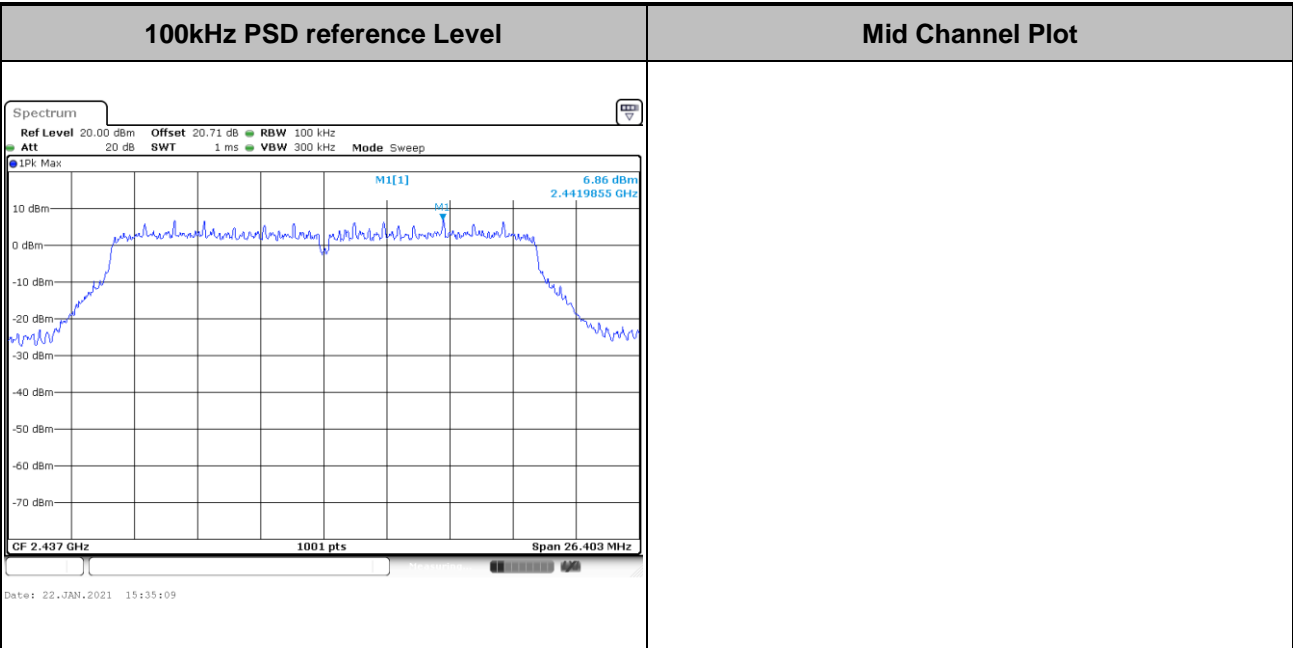


Test Mode :	802.11n HT20	Test Channel :	01
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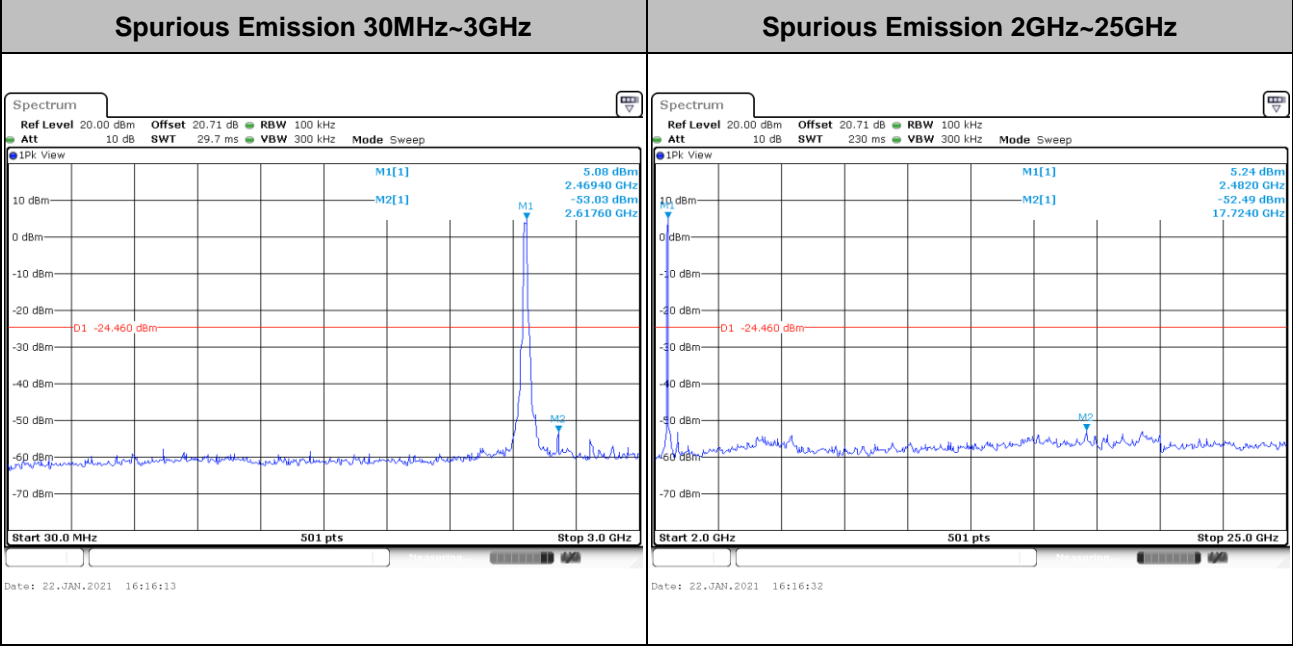
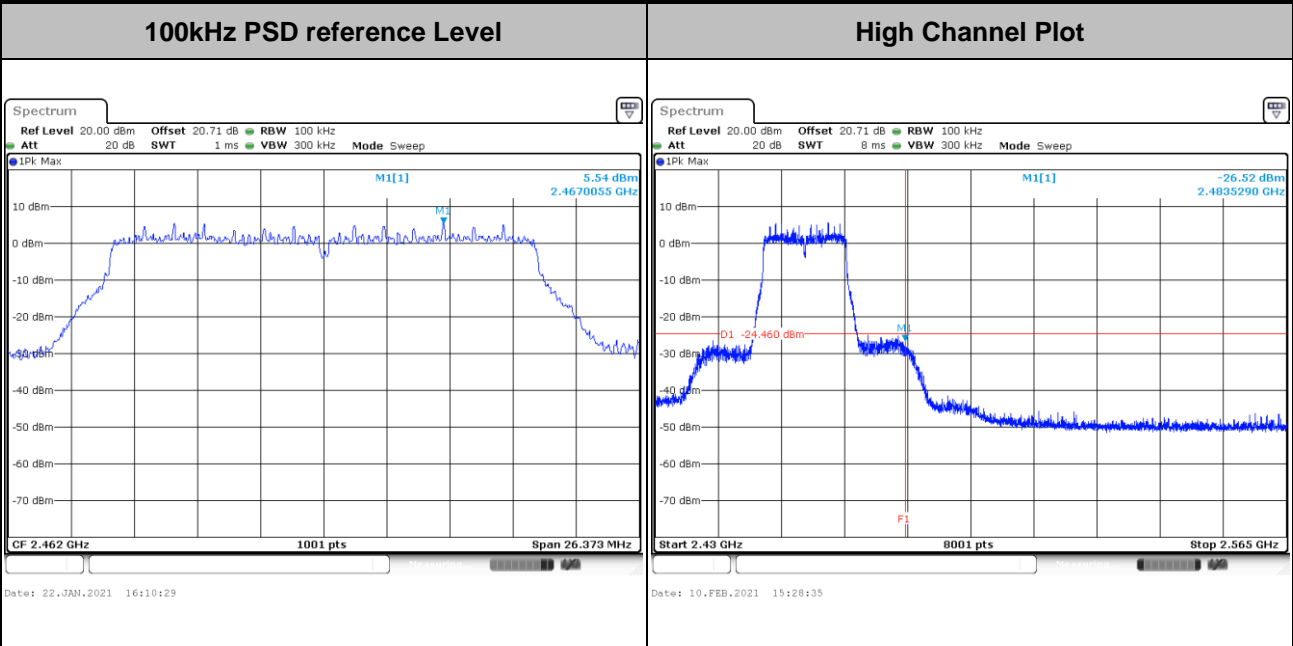


Test Mode :	802.11n HT20	Test Channel :	06
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Test Mode :	802.11n HT20	Test Channel :	11
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3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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.

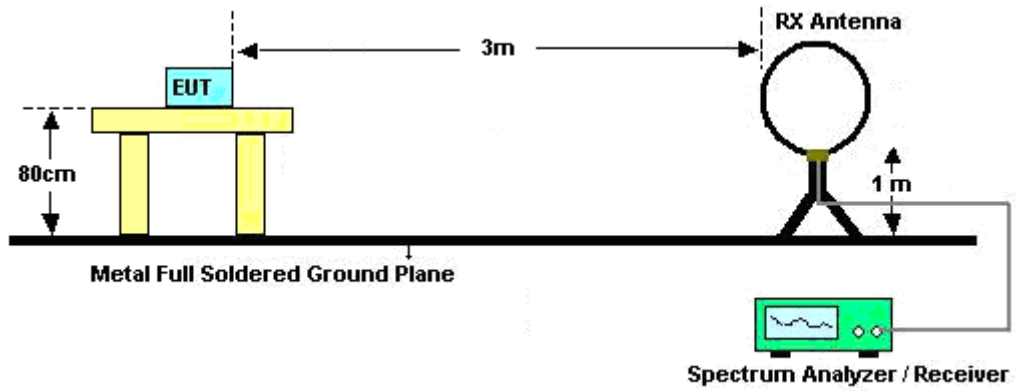


3.5.3 Test Procedures

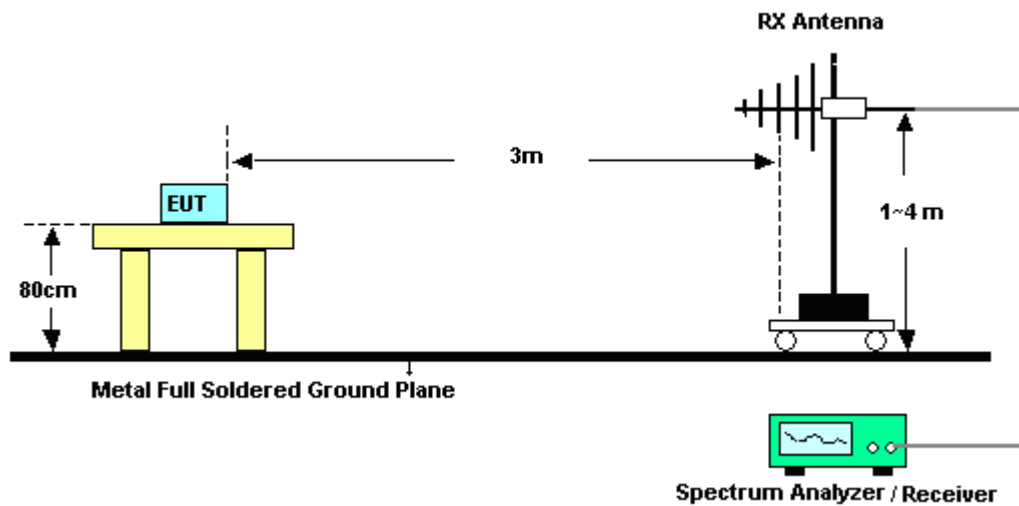
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz 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 testing below 1GHz, 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 reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB 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 reported.
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= 3MHz 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

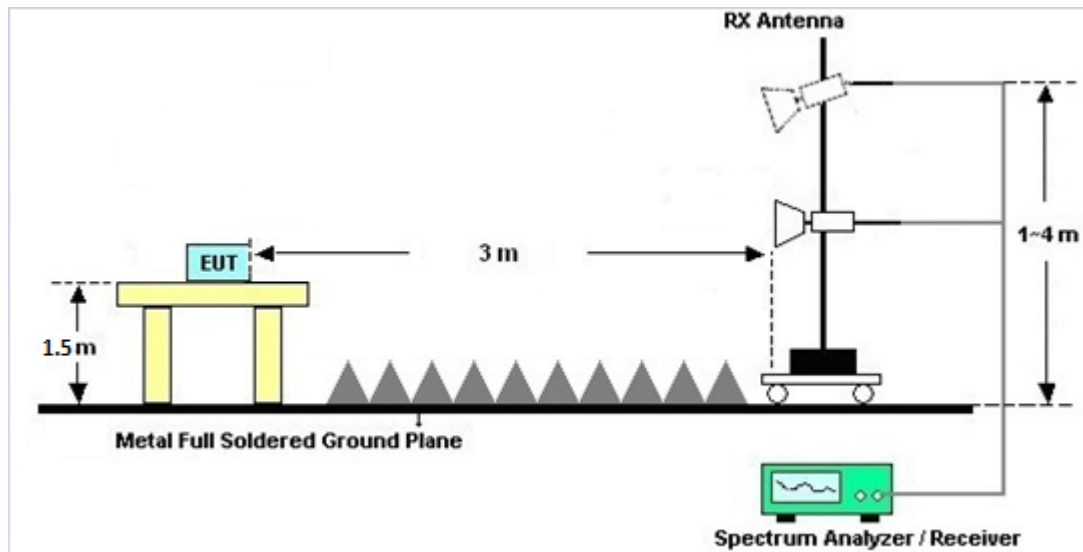
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated test above 1GHz



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

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 a comparison data 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 (30MHz ~ 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.

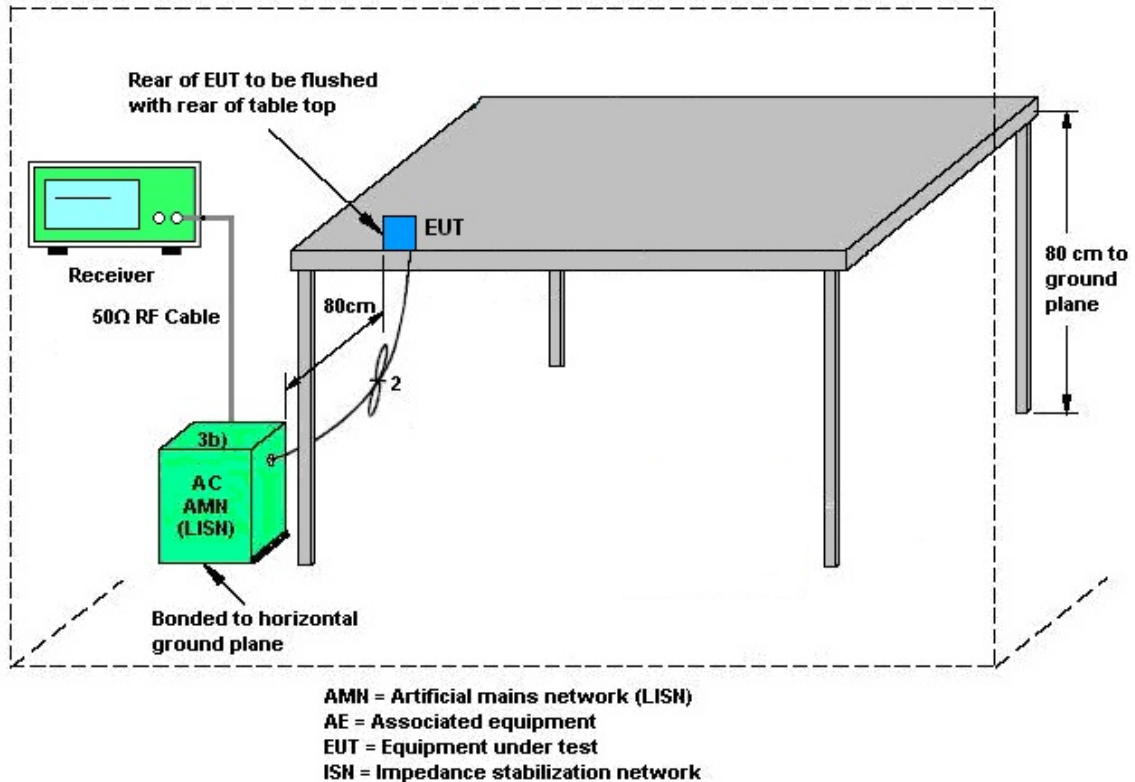
3.6.2 Measuring Instruments

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, and it 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 should 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.

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

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

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



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	Testo	608-H1	45142595	N/A	Aug. 05, 2020	Dec. 24, 2020~ Feb. 10, 2021	Aug. 04, 2021	Conducted (TH01-CA)
Power Sensor	DARE!!	RPR3006W	RPR6W-1 901026	10MHz-6GHz	Jun. 24, 2020	Dec. 24, 2020~ Feb. 10, 2021	Jun. 23, 2021	Conducted (TH01-CA)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101089	10Hz-40GHz	Sep. 14, 2020	Dec. 24, 2020~ Feb. 10, 2021	Sep. 13, 2021	Conducted (TH01-CA)
Switch Box & RF Cable	EM Electronics	EMSW26	1090304	N/A	Dec. 30, 2019	Dec. 24, 2020~ Dec. 28, 2020	Dec. 29, 2020	Conducted (TH01-CA)
Switch Box & RF Cable	EM Electronics	EMSW26	1090304	N/A	Dec. 30, 2020	Jan. 01, 2021~ Feb. 10, 2021	Dec. 29, 2021	Conducted (TH01-CA)
LISN	TESEQ	NNB51	47407	N/A	Jul. 06, 2020	Jan. 09, 2021	Jul. 05, 2021	Conduction (CO01-CA)
EMI Test Receiver	R&S	ESR7	102177	9KHz~7GHz	Jul. 16, 2020	Jan. 09, 2021	Jul. 15, 2021	Conduction (CO01-CA)
Pulse limiter with 10dB attenuation	R&S	VTSD 9561-F N	9561-F- N00412	N/A	Jul. 08, 2020	Jan. 09, 2021	Jul. 07, 2021	Conduction (CO01-CA)
Test Software	R&S	EMC32 V10.30.0	N/A	N/A	N/A	Jan. 09, 2021	N/A	Conduction (CO01-CA)
Bilog Antenna	TESEQ	6111D	50392	30MHz~1GHz	Jul. 29, 2020	Dec. 08, 2020~ Feb. 03, 2021	Jul. 28, 2021	Radiation (03CH02-CA)
Horn Antenna	SCHWARZBE CK	BBHA 9120D	01895	1GHz~18GHz	Aug. 28, 2020	Dec. 08, 2020~ Feb. 03, 2021	Aug. 27, 2021	Radiation (03CH02-CA)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	00842	18GHz~40GHz	Jul. 27, 2020	Dec. 08, 2020~ Feb. 03, 2021	Jul. 26, 2021	Radiation (03CH02-CA)
Amplifier	SONOMA	310N	372240	N/A	Aug. 12, 2020	Dec. 08, 2020~ Feb. 03, 2021	Aug. 11, 2021	Radiation (03CH02-CA)
Preamplifier	Keysight	83017A	MY532703 21	1GHz~26.5GHz	Jul. 28, 2020	Dec. 08, 2020~ Feb. 03, 2021	Jul. 27, 2021	Radiation (03CH02-CA)
Preamplifier	EMEC	EMC18G40G	060725	18G-40G	Aug. 07, 2020	Dec. 08, 2020~ Feb. 03, 2021	Aug. 06, 2021	Radiation (03CH02-CA)
Preamplifier	E-instrument	ERA-100M-18 G-56-01-A70	EC190025 1	1GHz~18GHz	Nov. 26, 2019	Dec. 08, 2020~ Feb. 03, 2021	Nov. 25, 2021	Radiation (03CH02-CA)
EMI Test Receiver	Rohde & Schwarz	ESU26	100049	20Hz~26.5GHz	Aug. 11, 2020	Dec. 08, 2020~ Feb. 03, 2021	Aug. 10, 2021	Radiation (03CH02-CA)
Spectrum Analyzer	Keysight	N9010A	MY574202 21	10Hz~44GHz	Sep. 11, 2020	Dec. 08, 2020~ Feb. 03, 2021	Sep. 10, 2021	Radiation (03CH02-CA)
Filter	Wainwright	Whkx8-5872. 5-6750-18000 -40ST	SN8	6.75G Highpass	Jul. 24, 2020	Dec. 08, 2020~ Feb. 03, 2021	Jul. 23, 2021	Radiation (03CH02-CA)
Filter	Wainwright	WHKX12-270 0-3000-18000 -60ST	SN10	3G Highpass	Jul. 24, 2020	Dec. 08, 2020~ Feb. 03, 2021	Jul. 23, 2021	Radiation (03CH02-CA)
Filter	Wainwright	WLK12-1200- 1272-11000-4 0SS	SN2	1.2G Low Pass	Jul. 24, 2020	Dec. 08, 2020~ Feb. 03, 2021	Jul. 23, 2021	Radiation (03CH02-CA)
Hygrometer	TESEO	608-H1	45142602	N/A	Aug. 05, 2020	Dec. 08, 2020~ Feb. 03, 2021	Aug. 04, 2021	Radiation (03CH02-CA)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Dec. 08, 2020~ Feb. 03, 2021	N/A	Radiation (03CH02-CA)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Dec. 08, 2020~ Feb. 03, 2021	N/A	Radiation (03CH02-CA)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Dec. 08, 2020~ Feb. 03, 2021	N/A	Radiation (03CH02-CA)
Software	Audix	E3	N/A	N/A	N/A	Dec. 08, 2020~ Feb. 03, 2021	N/A	Radiation (03CH02-CA)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.2
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.5
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.1
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.5
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Andy Kao	Temperature:	15.1~19.4	°C
Test Date:	2020/12/24~2021/02/10	Relative Humidity:	33.2~54.3	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band Single Antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant1	Ant2	Ant1	Ant2		
11b	1Mbps	1	1	2412	11.39	-	8.53	-	0.50	Pass
11b	1Mbps	1	6	2437	11.44	-	9.01	-	0.50	Pass
11b	1Mbps	1	11	2462	11.64	-	8.55	-	0.50	Pass
HT20	MCS0	1	1	2412	18.48	-	17.60	-	0.50	Pass
HT20	MCS0	1	6	2437	18.73	-	17.60	-	0.50	Pass
HT20	MCS0	1	11	2462	18.48	-	17.58	-	0.50	Pass

TEST RESULTS DATA
Average Output Power

2.4GHz Band Single Antenna																
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
					Ant1	Ant2	SUM	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	1	1	2412	18.99	-		30.00	-	0.80	-	19.79	-	36.00	-	Pass
11b	1Mbps	1	6	2437	18.69	-		30.00	-	0.80	-	19.49	-	36.00	-	Pass
11b	1Mbps	1	11	2462	18.79	-		30.00	-	0.80	-	19.59	-	36.00	-	Pass
11g	6Mbps	1	1	2412	17.59	-		30.00	-	0.80	-	18.39	-	36.00	-	Pass
11g	6Mbps	1	6	2437	17.89	-		30.00	-	0.80	-	18.69	-	36.00	-	Pass
11g	6Mbps	1	11	2462	16.69	-		30.00	-	0.80	-	17.49	-	36.00	-	Pass
HT20	MCS0	1	1	2412	17.69	-		30.00	-	0.80	-	18.49	-	36.00	-	Pass
HT20	MCS0	1	6	2437	17.99	-		30.00	-	0.80	-	18.79	-	36.00	-	Pass
HT20	MCS0	1	11	2462	16.89	-		30.00	-	0.80	-	17.69	-	36.00	-	Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band Single Antenna											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)		DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	1	1	2412	-3.12	-	0.80	-	8.00	-	Pass
11b	1Mbps	1	6	2437	-2.27	-	0.80	-	8.00	-	Pass
11b	1Mbps	1	11	2462	-3.07	-	0.80	-	8.00	-	Pass
HT20	MCS0	1	1	2412	-7.09	-	0.80	-	8.00	-	Pass
HT20	MCS0	1	6	2437	-7.11	-	0.80	-	8.00	-	Pass
HT20	MCS0	1	11	2462	-6.66	-	0.80	-	8.00	-	Pass

Note: Measured power density (dBm) has offset with cable loss.



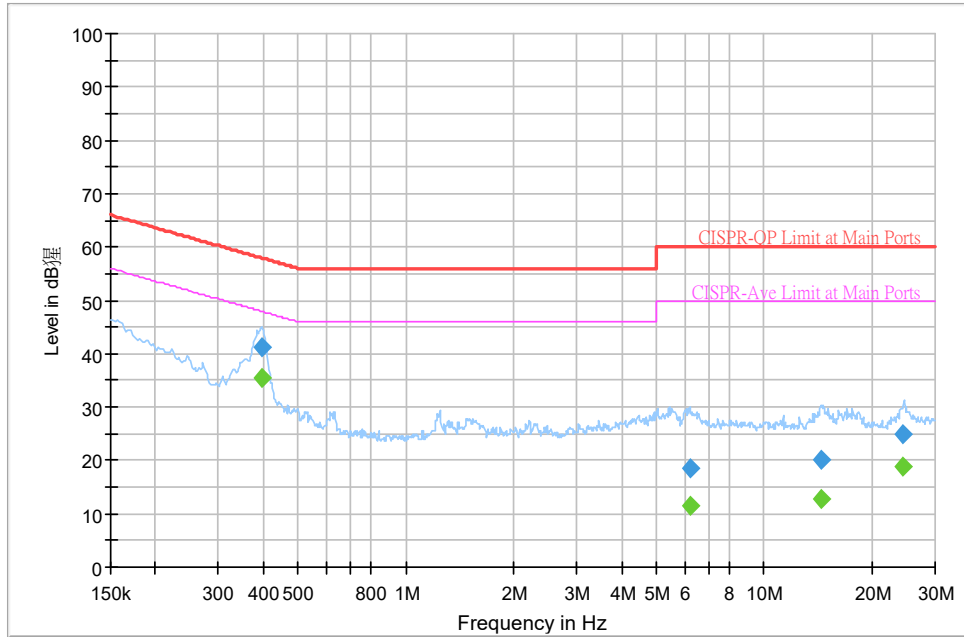
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Janssen Wongso	Temperature :	18~21°C
		Relative Humidity :	30.6~34.8%

EUT Information

Test Site : CO01-CA
 Mode : 1
 Test Voltage : 120Vac/60Hz
 Project : Cypress CYSBSYS
 Line

Full Spectrum



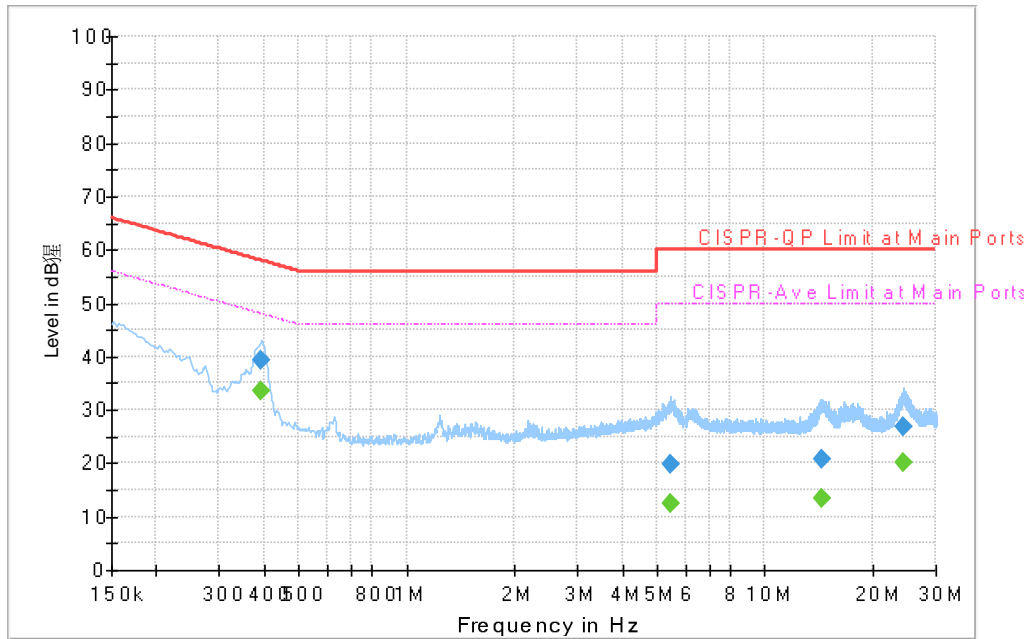
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.395610	---	35.42	47.95	12.53	L1	OFF	20.0
0.395610	41.09	---	57.95	16.86	L1	OFF	20.0
6.209250	---	11.64	50.00	38.36	L1	OFF	20.1
6.209250	18.49	---	60.00	41.51	L1	OFF	20.1
14.469000	---	12.91	50.00	37.09	L1	OFF	20.3
14.469000	20.17	---	60.00	39.83	L1	OFF	20.3
24.349560	---	18.92	50.00	31.08	L1	OFF	20.6
24.349560	24.91	---	60.00	35.09	L1	OFF	20.6

EUT Information

Test Site : CO01-CA
 Mode : 1
 Test Voltage : 120Vac/60Hz
 Project : Cypress CYSBSYS
 Neutral

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.393990	---	33.46	47.98	14.52	N	OFF	20.0
0.393990	39.20	---	57.98	18.78	N	OFF	20.0
5.444250	---	12.35	50.00	37.65	N	OFF	20.1
5.444250	19.94	---	60.00	40.06	N	OFF	20.1
14.482500	---	13.27	50.00	36.73	N	OFF	20.3
14.482500	20.65	---	60.00	39.35	N	OFF	20.3
24.349290	---	20.00	50.00	30.00	N	OFF	20.6
24.349290	26.78	---	60.00	33.22	N	OFF	20.6



Appendix C. Radiated Spurious Emission

Test Engineer :	Calvin Wu	Temperature :	18~22°C
		Relative Humidity :	46~52%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamplifier Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11b CH 01 2412MHz		2389.485	60.86	-13.14	74	47.2	27.63	17.4	31.37	113	89	P	H	
		2387.175	48.1	-5.9	54	34.43	27.64	17.4	31.37	113	89	A	H	
	*	2414	106.54	-	-	92.86	27.6	17.44	31.36	113	89	P	H	
	*	2412	103.9	-	-	90.22	27.6	17.44	31.36	113	89	A	H	
													H	
			2389.8	56.28	-17.72	74	42.63	27.62	17.4	31.37	371	35	P	V
			2387.175	45.54	-8.46	54	31.87	27.64	17.4	31.37	371	35	A	V
	*		2412	101.91	-	-	88.29	27.54	17.44	31.36	371	35	P	V
	*		2412	99.33	-	-	85.71	27.54	17.44	31.36	371	35	A	V
														V
802.11b CH 06 2437MHz		2377.52	55.27	-18.73	74	41.61	27.66	17.38	31.38	107	86	P	H	
		2326.48	44.01	-9.99	54	30.32	27.82	17.29	31.42	107	86	A	H	
	*	2437	106.12	-	-	92.41	27.59	17.48	31.36	107	86	P	H	
	*	2437	103.48	-	-	89.77	27.59	17.48	31.36	107	86	A	H	
			2493.04	56.57	-17.43	74	42.78	27.56	17.57	31.34	107	86	P	H
			2496.32	44.06	-9.94	54	30.26	27.56	17.58	31.34	107	86	A	H
			2312.4	54.5	-19.5	74	40.82	27.84	17.27	31.43	400	49	P	V
			2340.24	43.79	-10.21	54	30.07	27.82	17.31	31.41	400	49	A	V
	*		2437	102.41	-	-	88.83	27.46	17.48	31.36	400	49	P	V
	*		2437	99.78	-	-	86.2	27.46	17.48	31.36	400	49	A	V
			2494.32	54.82	-19.18	74	41.19	27.39	17.58	31.34	400	49	P	V
			2496.48	43.74	-10.26	54	30.11	27.39	17.58	31.34	400	49	A	V



802.11b CH 11 2462MHz	*	2462	106.41	-	-	92.66	27.58	17.53	31.36	400	46	P	H
	*	2462	103.76	-	-	90.01	27.58	17.53	31.36	400	46	A	H
		2484.16	65.46	-8.54	74	51.69	27.56	17.56	31.35	400	46	P	H
		2483.52	49.7	-4.3	54	35.92	27.57	17.56	31.35	400	46	A	H
													H
													H
	*	2462	103.38	-	-	89.8	27.41	17.53	31.36	400	330	P	V
	*	2462	100.73	-	-	87.15	27.41	17.53	31.36	400	330	A	V
		2484.84	61.25	-12.75	74	47.65	27.39	17.56	31.35	400	330	P	V
		2483.52	46.94	-7.06	54	33.34	27.39	17.56	31.35	400	330	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
WIFI 802.11b (Harmonic @ 3m)**

WIFI Ant. 1	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)	
802.11b CH 01 2412MHz		4824	45.01	-28.99	74	68.55	31.39	11.32	66.25	100	0	P	H	
													H	
													H	
													H	
			4824	45.05	-28.95	74	68.58	31.4	11.32	66.25	100	0	P	V
														V
														V
802.11b CH 06 2437MHz		4874	45.72	-28.28	74	69.09	31.36	11.42	66.15	400	0	P	H	
		7311	44.47	-29.53	74	60.11	36.35	13.87	65.86	400	0	P	H	
													H	
													H	
			4874	46.36	-27.64	74	69.78	31.31	11.42	66.15	100	0	P	V
			7311	45.28	-28.72	74	60.88	36.39	13.87	65.86	100	0	P	V
														V
802.11b CH 11 2462MHz		4924	43.85	-30.15	74	67.01	31.37	11.52	66.05	100	0	P	H	
		7386	45.34	-28.66	74	60.76	36.47	13.99	65.88	100	0	P	H	
													H	
													H	
			4924	44.72	-29.28	74	67.98	31.27	11.52	66.05	100	0	P	V
			7386	45.38	-28.62	74	60.71	36.56	13.99	65.88	100	0	P	V
														V
Remark	1. No other spurious found.													
	2. All results are PASS against Peak and Average limit line.													



**2.4GHz 2400~2483.5MHz
WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI Ant. 1	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)	
802.11n HT20 CH 01 2412MHz		2389.38	68.1	-5.9	74	54.44	27.63	17.4	31.37	125	27	P	H	
		2390	50.72	-3.28	54	37.06	27.63	17.4	31.37	125	27	A	H	
	*	2412	107.09	-	-	93.41	27.6	17.44	31.36	125	27	P	H	
	*	2412	99.56	-	-	85.88	27.6	17.44	31.36	125	27	A	H	
													H	
													H	
			2390	68.06	-5.94	74	54.41	27.62	17.4	31.37	379	256	P	V
			2390	49.78	-4.22	54	36.13	27.62	17.4	31.37	379	256	A	V
		*	2412	104.88	-	-	91.26	27.54	17.44	31.36	379	256	P	V
		*	2412	97.35	-	-	83.73	27.54	17.44	31.36	379	256	A	V
													V	
													V	
802.11n HT20 CH 06 2437MHz		2389.84	61.97	-12.03	74	48.31	27.63	17.4	31.37	113	27	P	H	
		2390	45.81	-8.19	54	32.15	27.63	17.4	31.37	113	27	A	H	
	*	2437	108.7	-	-	94.99	27.59	17.48	31.36	113	27	P	H	
	*	2437	100.55	-	-	86.84	27.59	17.48	31.36	113	27	A	H	
			2483.6	61.99	-12.01	74	48.21	27.57	17.56	31.35	113	27	P	H
			2483.68	46.44	-7.56	54	32.66	27.57	17.56	31.35	113	27	A	H
			2356.72	54.86	-19.14	74	41.14	27.78	17.34	31.4	400	173	P	V
			2345.04	43.71	-10.29	54	29.99	27.81	17.32	31.41	400	173	A	V
		*	2437	104.2	-	-	90.62	27.46	17.48	31.36	400	173	P	V
		*	2437	96.79	-	-	83.21	27.46	17.48	31.36	400	173	A	V
		2484.08	59.31	-14.69	74	45.71	27.39	17.56	31.35	400	173	P	V	
		2483.52	45.32	-8.68	54	31.72	27.39	17.56	31.35	400	173	A	V	



802.11n HT20 CH 11 2462MHz	*	2462	106.45	-	-	92.7	27.58	17.53	31.36	400	81	P	H
	*	2462	99.06	-	-	85.31	27.58	17.53	31.36	400	81	A	H
		2483.52	72.38	-1.62	74	58.6	27.57	17.56	31.35	400	81	P	H
		2483.52	53.49	-0.51	54	39.71	27.57	17.56	31.35	400	81	A	H
													H
													H
	*	2462	103.55	-	-	89.97	27.41	17.53	31.36	400	329	P	V
	*	2462	95.76	-	-	82.18	27.41	17.53	31.36	400	329	A	V
		2484.56	64.57	-9.43	74	50.97	27.39	17.56	31.35	400	329	P	V
		2483.52	49.6	-4.4	54	36	27.39	17.56	31.35	400	329	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	Peak or Average
H/V	Horizontal or Vertical



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.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		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 :	Calvin Wu	Temperature :	18~22°C
		Relative Humidity :	46~52%

Note symbol

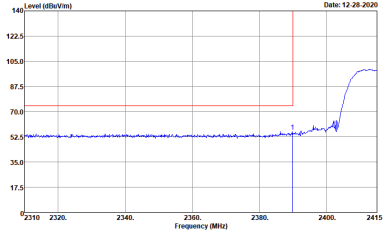
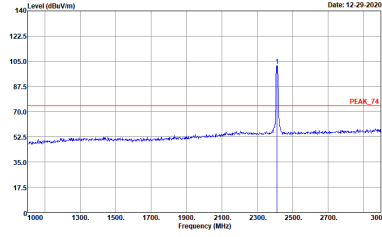
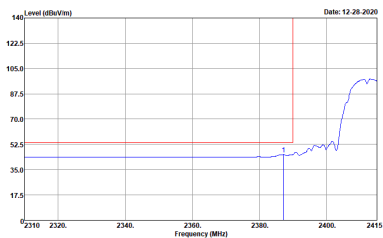
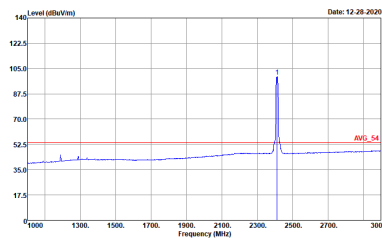
-L	Low channel location
-R	High channel location



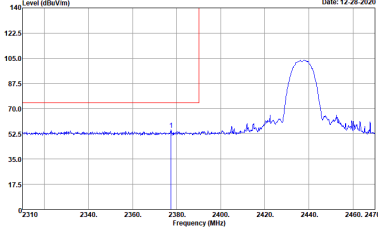
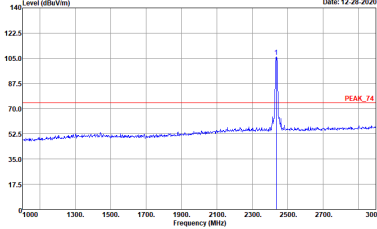
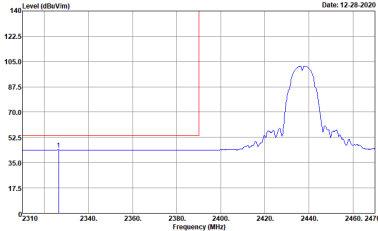
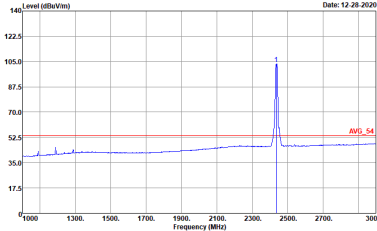
2.4GHz 2400~2483.5MHz
WIFI 802.11b (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Fundamental
Peak	<p>Site : 03CH02-CA Condition : PEAK_SE_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Site : 03CH02-CA Condition : AV6_BE_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	<p>Site : 03CH02-CA Condition : AV6_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>

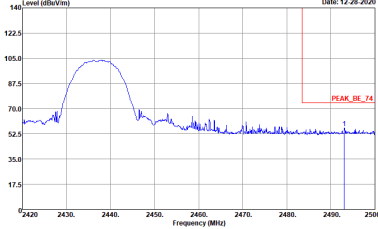
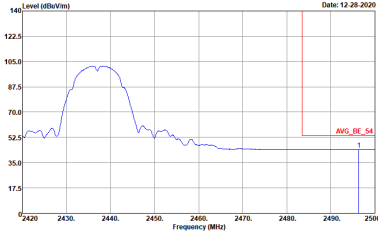


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak	 <p>Level (dBm/1m) vs Frequency (MHz) plot for Vertical Peak. The plot shows a sharp peak at approximately 2412 MHz. The y-axis ranges from 0 to 140 dBm/1m, and the x-axis ranges from 2310 to 2415 MHz. A red vertical line marks the peak at 2412 MHz.</p> <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Level (dBm/1m) vs Frequency (MHz) plot for Fundamental Peak. The plot shows a sharp peak at approximately 2412 MHz. The y-axis ranges from 0 to 140 dBm/1m, and the x-axis ranges from 1900 to 3000 MHz. A red vertical line marks the peak at 2412 MHz.</p> <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Level (dBm/1m) vs Frequency (MHz) plot for Vertical Avg. The plot shows the average spectrum for the vertical polarization. The y-axis ranges from 0 to 140 dBm/1m, and the x-axis ranges from 2310 to 2415 MHz. A red vertical line marks the peak at 2412 MHz.</p> <p>Site : 03CH02-CA Condition : AV6_BE_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Level (dBm/1m) vs Frequency (MHz) plot for Fundamental Avg. The plot shows the average spectrum for the fundamental polarization. The y-axis ranges from 0 to 140 dBm/1m, and the x-axis ranges from 1900 to 3000 MHz. A red vertical line marks the peak at 2412 MHz.</p> <p>Site : 03CH02-CA Condition : AV6_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>

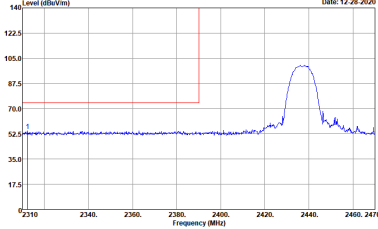
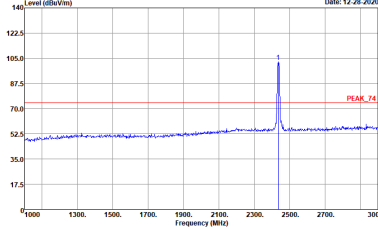
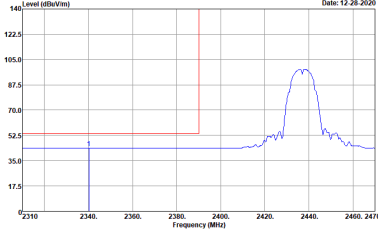
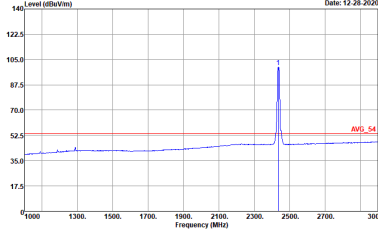


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH02-CA Condition : AV6_BE_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : AV6_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>

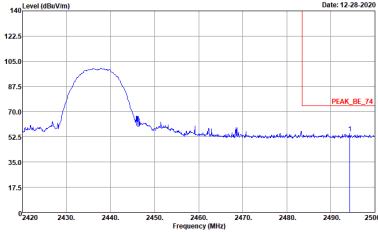
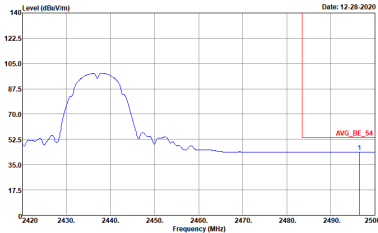


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 91200-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank
Avg.	 <p>Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 91200-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	Left blank

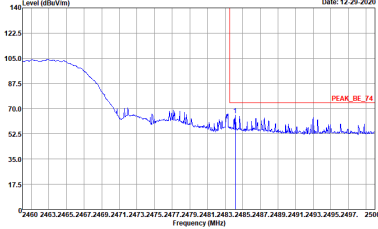
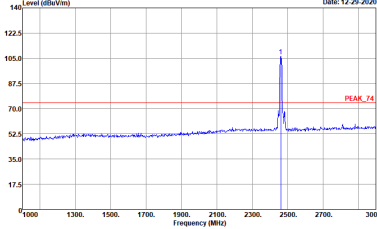
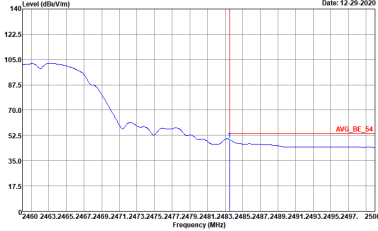
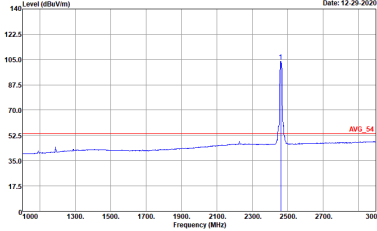


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH02-CA Condition : AV6_BE_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : AV6_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>

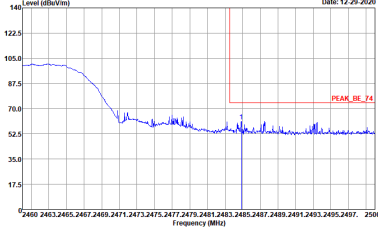
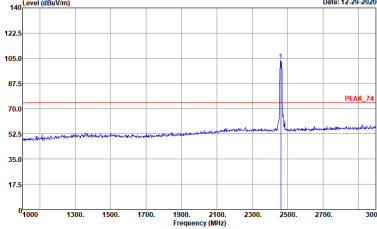
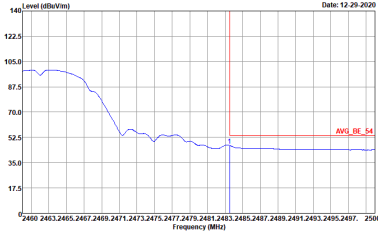
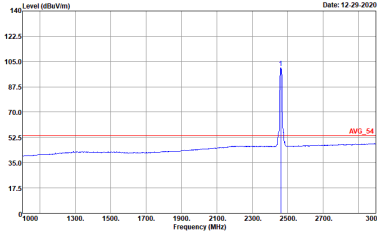


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 91200-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank
Avg.	 <p>Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 91200-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	Left blank



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH02-CA Condition : AV6_BE_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : AV6_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>



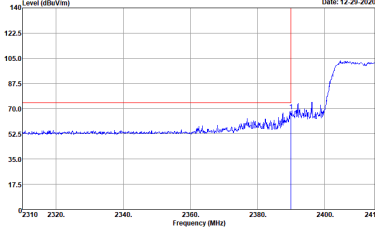
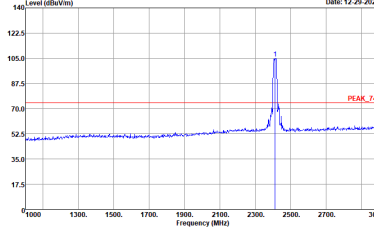
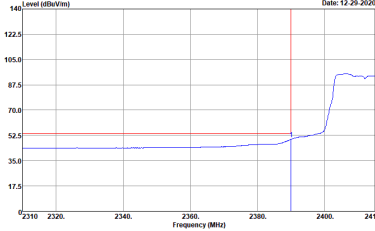
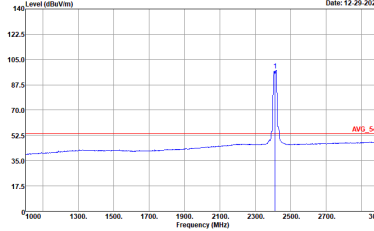
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Vertical	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : AVG_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>



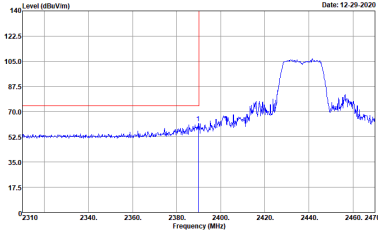
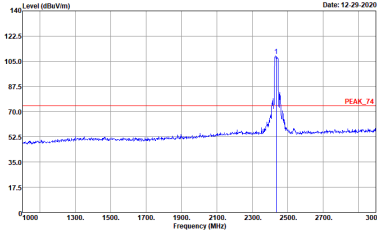
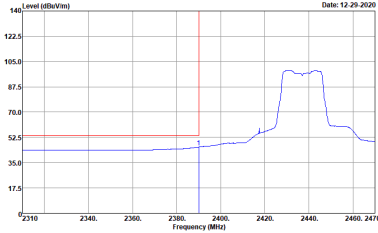
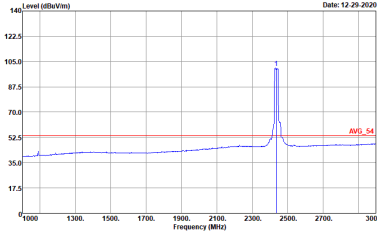
2.4GHz 2400~2483.5MHz
 WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Fundamental
Peak	<p>Site : 03CH02-CA Condition : PEAK_S4_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Site : 03CH02-CA Condition : AV6_BE_S4 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	<p>Site : 03CH02-CA Condition : AV6_S4 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>

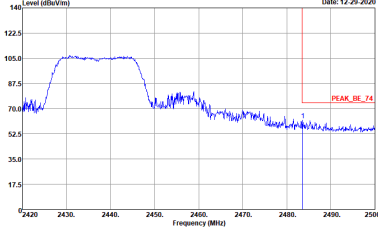
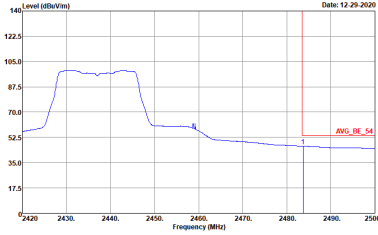


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Vertical	Fundamental
Peak	 <p>Level (dBm/1m) vs Frequency (MHz) plot showing a peak at approximately 2412 MHz. The y-axis ranges from 17.5 to 140 dBm/1m, and the x-axis ranges from 2310 to 2415 MHz. A red vertical line marks the peak frequency. Below the plot, the following text is present: Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Level (dBm/1m) vs Frequency (MHz) plot showing a peak at approximately 2412 MHz. The y-axis ranges from 17.5 to 140 dBm/1m, and the x-axis ranges from 1900 to 3000 MHz. A red vertical line marks the peak frequency. Below the plot, the following text is present: Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Level (dBm/1m) vs Frequency (MHz) plot showing the average spectrum. The y-axis ranges from 17.5 to 140 dBm/1m, and the x-axis ranges from 2310 to 2415 MHz. A red vertical line marks the peak frequency. Below the plot, the following text is present: Site : 03CH02-CA Condition : AV6_BE_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Level (dBm/1m) vs Frequency (MHz) plot showing the average spectrum. The y-axis ranges from 17.5 to 140 dBm/1m, and the x-axis ranges from 1900 to 3000 MHz. A red vertical line marks the peak frequency. Below the plot, the following text is present: Site : 03CH02-CA Condition : AV6_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>

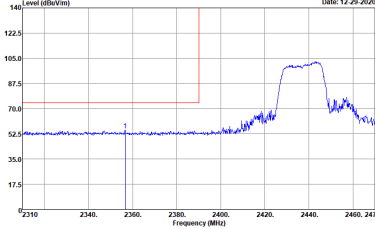
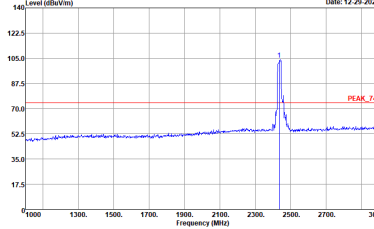
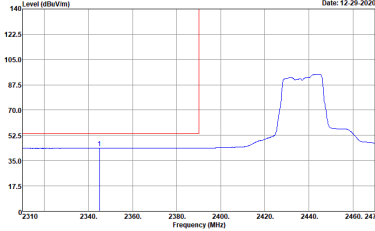
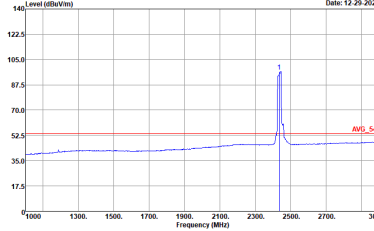


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH02-CA Condition : AV6_BE_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : AV6_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>

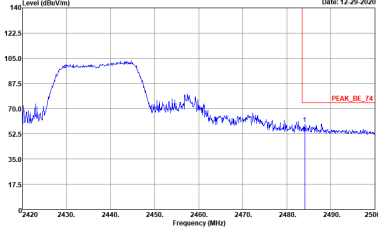
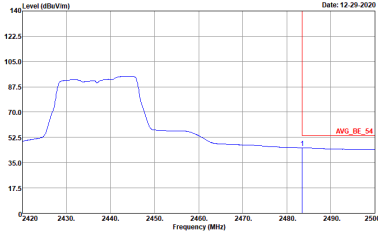


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 91200-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank
Avg.	 <p>Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 91200-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.0100KHz SWT:Auto</p>	Left blank

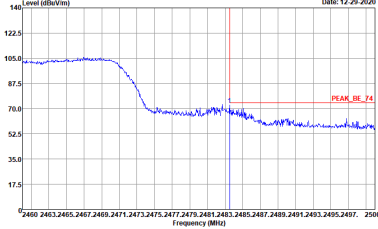
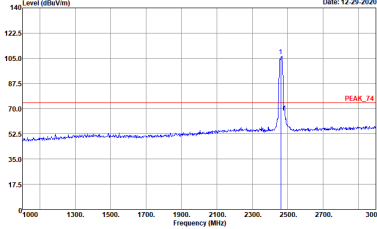
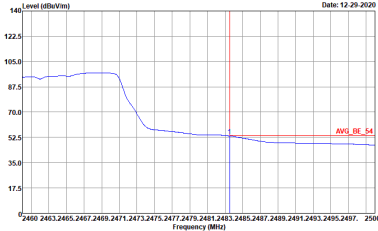
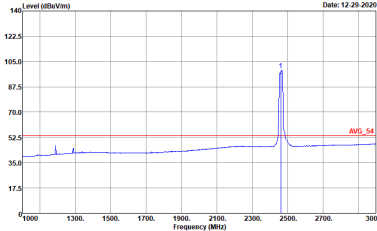


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 <p>Level (dBm/1m) vs Frequency (MHz) plot showing a peak at approximately 2437 MHz. The y-axis ranges from 0 to 140 dBm/1m, and the x-axis ranges from 2310 to 2470 MHz. A red vertical line marks the peak at 2437 MHz.</p> <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Level (dBm/1m) vs Frequency (MHz) plot showing a peak at approximately 2437 MHz. The y-axis ranges from 0 to 140 dBm/1m, and the x-axis ranges from 1900 to 3000 MHz. A red vertical line marks the peak at 2437 MHz.</p> <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Level (dBm/1m) vs Frequency (MHz) plot showing the average spectrum. The y-axis ranges from 0 to 140 dBm/1m, and the x-axis ranges from 2310 to 2470 MHz. A red vertical line marks the peak at 2437 MHz.</p> <p>Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Level (dBm/1m) vs Frequency (MHz) plot showing the average spectrum. The y-axis ranges from 0 to 140 dBm/1m, and the x-axis ranges from 1900 to 3000 MHz. A red vertical line marks the peak at 2437 MHz.</p> <p>Site : 03CH02-CA Condition : AVG_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>

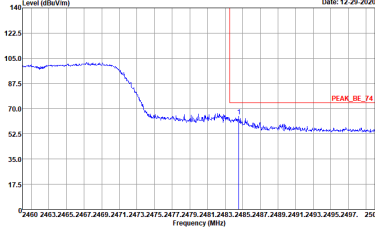
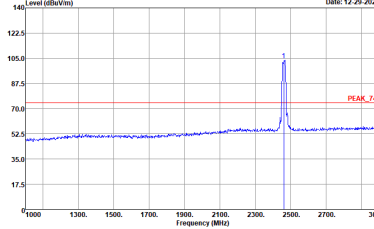
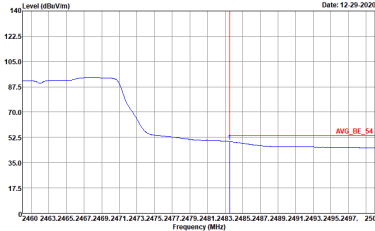
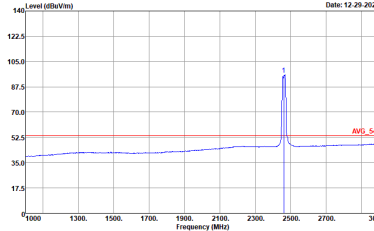


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Vertical	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 91200-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left Blank
Avg.	 <p>Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 91200-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	Left Blank



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Site : 03CH02-CA Condition : AVG_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>



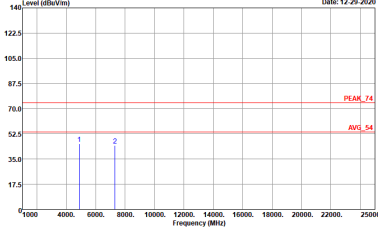
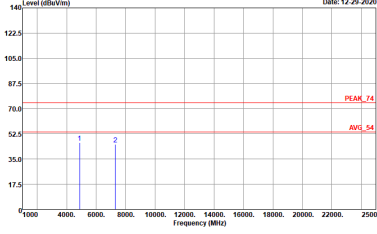
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak	 <p>Level (dBm/100Hz) vs Frequency (MHz) plot showing a peak at 2462 MHz. The y-axis ranges from 0 to 140 dBm/100Hz, and the x-axis ranges from 2400 to 2500 MHz. A red vertical line marks the peak at 2462 MHz, labeled 'PEAK_BE_74'.</p> <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Level (dBm/100Hz) vs Frequency (MHz) plot showing a peak at 2462 MHz. The y-axis ranges from 0 to 140 dBm/100Hz, and the x-axis ranges from 1900 to 3000 MHz. A red vertical line marks the peak at 2462 MHz, labeled 'PEAK_74'.</p> <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Level (dBm/100Hz) vs Frequency (MHz) plot showing the average level. The y-axis ranges from 0 to 140 dBm/100Hz, and the x-axis ranges from 2400 to 2500 MHz. A red vertical line marks the peak at 2462 MHz, labeled 'AVG_BE_54'.</p> <p>Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>	 <p>Level (dBm/100Hz) vs Frequency (MHz) plot showing the average level. The y-axis ranges from 0 to 140 dBm/100Hz, and the x-axis ranges from 1900 to 3000 MHz. A red vertical line marks the peak at 2462 MHz, labeled 'AVG_54'.</p> <p>Site : 03CH02-CA Condition : AVG_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>



2.4GHz 2400~2483.5MHz
WIFI 802.11b (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 91200-HF_01895 HORIZONTAL Detector : Peak</p>	<p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 91200-HF_01895 VERTICAL Detector : Peak</p>



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 91200-1HF_01895 HORIZONTAL Detector : Peak</p>	 <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 91200-1HF_01895 VERTICAL Detector : Peak</p>



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 91200-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 91200-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



**Emission below 1GHz
2.4GHz WIFI 802.11n HT20 (LF)**

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT20 LF	
1	Horizontal	Vertical
QP / Peak	<p>Site : 03CH02-CA Condition : QP 3m BIL06 6111D-LF_50392 HORIZONTAL Detector : Peak</p>	<p>Site : 03CH02-CA Condition : QP 3m BIL06 6111D-LF_50392 VERTICAL Detector : Peak</p>



Appendix E. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
802.11b	100.00	-	-	10Hz	0.00
2.4GHz 802.11n HT20	98.47	-	-	10Hz	0.07

