FCC RADIO TEST REPORT

FCC ID	:	**B94SNPRC2150**
Equipment	:	**802.11b/g/n (2.4GHz) Wi-Fi + BT / BLE Radio Module**
Brand Name	:	
Model Name	:	**SNPRC-2150**
Applicant	:	**HP Singapore (Private) Limited** **1 Depot Close, Singapore 109841**
Manufacturer	:	**HP Inc.** **1501 Page Mill Road, Palo Alto 94304, U.S.A. 650-857-1501**
Standard	:	**FCC Part 15 Subpart C §15.247**

The product was received on Oct. 22, 2020 and testing was started from Oct. 22, 2020 and completed on Dec. 16, 2020. 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.

Neil Kao

Approved by: Neil Kao

Sporton International (USA) Inc.
1175 Montague Expressway, Milpitas, CA 95035
TEL : 408 9043300

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History of this test report

Report No.	Version	Description	Issued Date
FR200819001C	01	Initial issue of report	Feb. 08, 2021

Summary of WLAN 2.4GHz 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 0.50 dB at 2390.000 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 13.83 dB at 0.511 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

Product Feature	
Equipment	802.11b/g/n (2.4GHz) Wi-Fi + BT / BLE Radio Module
Brand Name	
Model Name	SNPRC-2150
FCC ID	B94SNPRC2150
EUT supports Radios application	WLAN 11b/g/n HT20 Bluetooth BR/EDR/LE
EUT Stage	Identical Prototype

Sample Information			
Sample	Sample 1	Sample 2	Sample 3
Labelled	0960-4992	0960-4991	0960-4977
Antenna	Main: PCB Antenna	Main: PCB Antenna	Main: PCB Antenna
	Aux.: PCB Antenna	Aux.: External Antenna with cable 300mm (or 200mm)	Aux.: PCB Antenna
Config	Miligrid / 12 pin header connector	Miliigrid / 12 pin header connector	FFC connector

Remark:

1. The EUT's information listed above is declared by manufacturer. Please refer to Comments and Explanations in report summary
2. There are two antenna cables of different lengths that can be equipped on Sample 2 (Labelled: 0960-4991), 300mm and 200mm. As per technical assessment, the cable of 200mm length equipped on Sample 2 is determined to be a worse case and tested as a representative in this report.

1.2 Product Specification of Equipment Under Test

<table>
<tr><th colspan="2">Product Specification subjective to this standard</th></tr>
<tr><td>Tx/Rx Frequency Range</td><td>2400 MHz ~ 2483.5 MHz
(Channel 01: 2412 MHz ~ Channel 11: 2462 MHz)</td></tr>
<tr><td>Maximum Average Output Power to antenna</td><td>
<table>
<tr><th colspan="5"><Main Antenna for Sample 1></th></tr>
<tr><td>802.11b</td><td>20.09</td><td>dBm</td><td>0.1021</td><td>W</td></tr>
<tr><td>802.11g</td><td>19.39</td><td>dBm</td><td>0.0869</td><td>W</td></tr>
<tr><td>802.11n HT20</td><td>19.49</td><td>dBm</td><td>0.0889</td><td>W</td></tr>
</table>
<table>
<tr><th colspan="5"><Aux. Antenna for Sample 1></th></tr>
<tr><td>802.11b</td><td>20.49</td><td>dBm</td><td>0.1119</td><td>W</td></tr>
<tr><td>802.11g</td><td>19.19</td><td>dBm</td><td>0.0830</td><td>W</td></tr>
<tr><td>802.11n HT20</td><td>19.29</td><td>dBm</td><td>0.0849</td><td>W</td></tr>
</table>
</td></tr>
<tr><td>99% Occupied Bandwidth</td><td>
<table>
<tr><th colspan="3"><Main Antenna for Sample 1></th></tr>
<tr><td>802.11b</td><td>14.09</td><td>MHz</td></tr>
<tr><td>802.11n HT20</td><td>17.78</td><td>MHz</td></tr>
</table>
<table>
<tr><th colspan="3"><Aux. Antenna for Sample 1></th></tr>
<tr><td>802.11b</td><td>14.24</td><td>MHz</td></tr>
<tr><td>802.11n HT20</td><td>18.08</td><td>MHz</td></tr>
</table>
</td></tr>
<tr><td>Antenna Gain</td><td>PCB Antenna: 4 dBi
External Antenna: 0.9 dBi</td></tr>
<tr><td>Type of Modulation</td><td>802.11b : DSSS (DBPSK / DQPSK / CCK)
802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)</td></tr>
<tr><td>Antenna Function Description</td><td>
<table>
<tr><td></td><td>Main Antenna</td><td>Aux. Antenna</td></tr>
<tr><td>802.11 b/g/n</td><td>V</td><td>V</td></tr>
</table>
</td></tr>
</table>

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

1.3 Modification of EUT

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

1.4 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
Test Engineer	Andy Kao	Ram Prashanth Vallam	Calvin Wu
Temperature	20.8~23.5°C	18~21℃	19~ 22℃
Relative Humidity	43.4~45.7%	30.6~34.8%	39 ~45%

1.5 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: 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 for Main Antenna; Y Plane for Aux. Antenna) 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.

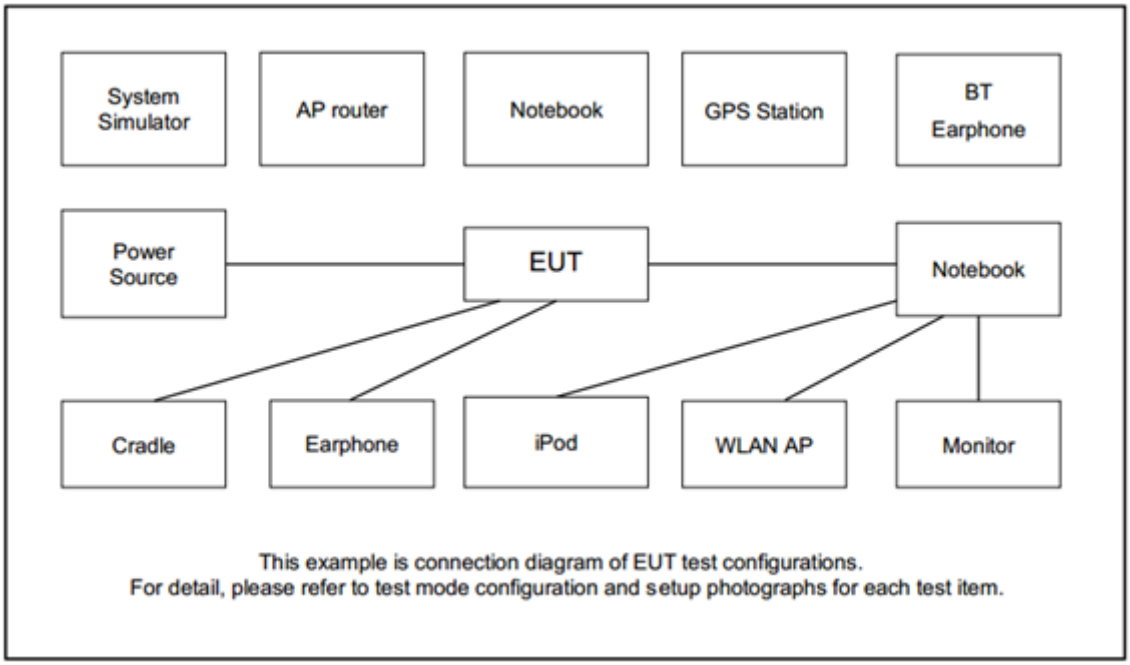
Summary table of Conducted Test Cases						
Modulation	**Mode**	**Channel**	**Frequency**	**Data Rate**	**Antenna**	**Sample**
802.11b	Tx	1	2412	1 Mbps	Main	1
	Tx	6	2437	1 Mbps	Main	1
	Tx	11	2462	1 Mbps	Main	1
	Tx	1	2412	1 Mbps	Aux.	1
	Tx	6	2437	1 Mbps	Aux.	1
	Tx	11	2462	1 Mbps	Aux.	1
802.11g	Tx	1	2412	6 Mbps	Main	1
	Tx	2	2417	6 Mbps	Main	1
	Tx	6	2437	6 Mbps	Main	1
	Tx	10	2457	6 Mbps	Main	1
	Tx	11	2462	6 Mbps	Main	1
	Tx	1	2412	6 Mbps	Aux.	1
	Tx	2	2417	6 Mbps	Aux.	1
	Tx	6	2437	6 Mbps	Aux.	1
	Tx	10	2457	6 Mbps	Aux.	1
	Tx	11	2462	6 Mbps	Aux.	1
802.11n HT20	Tx	1	2412	MCS0	Main	1
	Tx	2	2417	MCS0	Main	1
	Tx	6	2437	MCS0	Main	1
	Tx	10	2457	MCS0	Main	1
	Tx	11	2462	MCS0	Main	1
	Tx	1	2412	MCS0	Aux.	1
	Tx	2	2417	MCS0	Aux.	1
	Tx	6	2437	MCS0	Aux.	1
	Tx	10	2457	MCS0	Aux.	1
	Tx	11	2462	MCS0	Aux.	1
Remark: For 6dB Bandwidth, 99% Occupied Bandwidth, and Peak Power Spectral Density, the 802.11g Covered by HT20.						

Summary table of Radiated Test Cases						
Modulation	**Mode**	**Channel**	**Frequency**	**Data Rate**	**Antenna**	**Sample**
802.11b	Tx	1	2412	1 Mbps	Main	1
	Tx	6	2437	1 Mbps	Main	1
	Tx	11	2462	1 Mbps	Main	1
802.11n HT20	Tx	1	2412	MCS0	Main	1
	Tx	2	2417	MCS0	Main	1
	Tx	6	2437	MCS0	Main	1
	Tx	10	2457	MCS0	Main	1
	Tx	11	2462	MCS0	Main	1
802.11b	Tx	1	2412	1 Mbps	Aux.	1
	Tx	6	2437	1 Mbps	Aux.	1
	Tx	11	2462	1 Mbps	Aux.	1
802.11n HT20	Tx	1	2412	MCS0	Aux.	1
	Tx	6	2437	MCS0	Aux.	1
	Tx	11	2462	MCS0	Aux.	1
802.11b	Tx	1	2412	1 Mbps	Main	2
802.11n HT20	Tx	1	2412	MCS0	Main	2
802.11b	Tx	1	2412	1 Mbps	Aux.	2
	Tx	6	2437	1 Mbps	Aux.	2
	Tx	11	2462	1 Mbps	Aux.	2
802.11n HT20	Tx	1	2412	MCS0	Aux.	2
	Tx	2	2417	MCS0	Aux.	2
	Tx	6	2437	MCS0	Aux.	2
	Tx	10	2457	MCS0	Aux.	2
	Tx	11	2462	MCS0	Aux.	2

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

Summary table of AC Conducted Emission
Mode 1: WLAN (2.4GHz) Link + Bluetooth Idle for Sample 3
Mode 2: WLAN (2.4GHz) Idle + Bluetooth Link for Sample 3
Mode 3: WLAN (2.4GHz) Link + Bluetooth Idle for Sample 2
Remark: The worst case of conducted emission is mode 2; only the test data of it was reported.

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.	AP Router	NetGear	R6080	PY316400359	N/A	N/A
3.	Power Adapter	CanaKit	DCAR-052A5	N/A	N/A	Unshielded, 1..3 m with core
4.	Fixture	Raspberry Pi	N/A	N/A	N/A	N/A

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.

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.

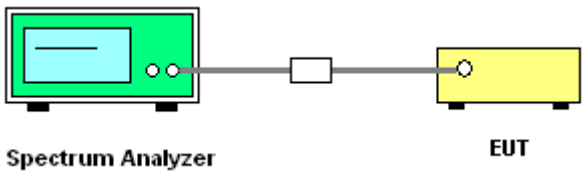
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

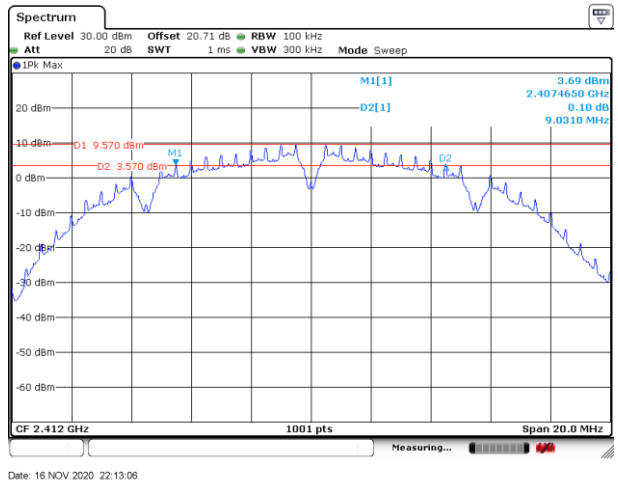
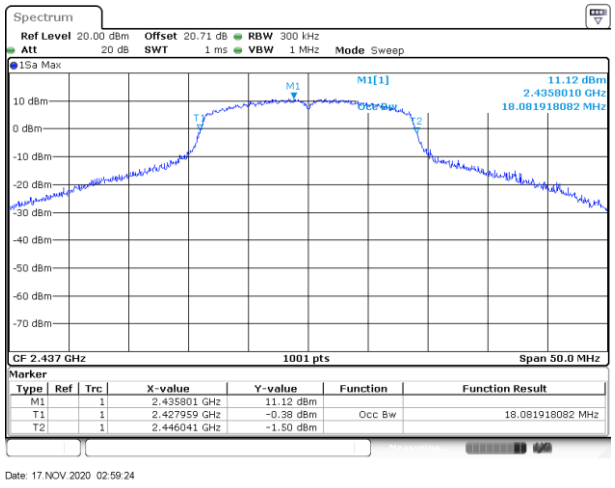
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit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

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
					Ant 1	Ant 2	Ant 1	Ant 2		
11b	1Mbps	1	1	2412	14.09	14.04	9.03	9.03	0.50	Pass
11b	1Mbps	1	6	2437	14.04	14.24	9.03	9.03	0.50	Pass
11b	1Mbps	1	11	2462	14.09	14.04	9.03	9.03	0.50	Pass
HT20	MCS0	1	1	2412	17.63	17.63	15.11	15.11	0.50	Pass
HT20	MCS0	1	6	2437	17.78	18.08	15.11	15.11	0.50	Pass
HT20	MCS0	1	11	2462	17.63	17.63	15.11	15.11	0.50	Pass

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	

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.

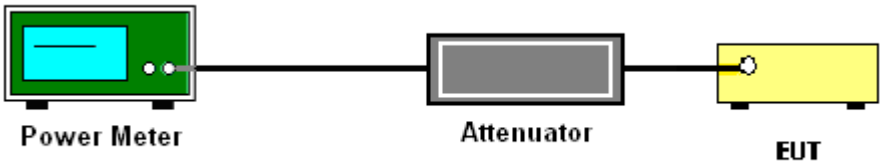
3.2.2 Measuring Instruments

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

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
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	1	1	2412	17.99	17.59		30.00	30.00	4.00	4.00	21.99	21.59	36.00	36.00	Pass
11b	1Mbps	1	6	2437	20.09	20.49		30.00	30.00	4.00	4.00	24.09	24.49	36.00	36.00	Pass
11b	1Mbps	1	11	2462	19.69	18.49		30.00	30.00	4.00	4.00	23.69	22.49	36.00	36.00	Pass
11g	6Mbps	1	1	2412	15.99	15.49		30.00	30.00	4.00	4.00	19.99	19.49	36.00	36.00	Pass
11g	6Mbps	1	2	2417	16.89	17.89		30.00	30.00	4.00	4.00	20.89	21.89	36.00	36.00	Pass
11g	6Mbps	1	6	2437	19.39	19.19		30.00	30.00	4.00	4.00	23.39	23.19	36.00	36.00	Pass
11g	6Mbps	1	10	2457	17.89	17.09	-	30.00	30.00	4.00	4.00	21.89	21.09	36.00	36.00	Pass
11g	6Mbps	1	11	2462	16.49	15.69		30.00	30.00	4.00	4.00	20.49	19.69	36.00	36.00	Pass
HT20	MCS0	1	1	2412	16.09	15.59		30.00	30.00	4.00	4.00	20.09	19.59	36.00	36.00	Pass
HT20	MCS0	1	2	2417	16.99	17.99		30.00	30.00	4.00	4.00	20.99	21.99	36.00	36.00	Pass
HT20	MCS0	1	6	2437	19.49	19.29		30.00	30.00	4.00	4.00	23.49	23.29	36.00	36.00	Pass
HT20	MCS0	1	10	2457	17.99	17.29		30.00	30.00	4.00	4.00	21.99	21.29	36.00	36.00	Pass
HT20	MCS0	1	11	2462	16.59	15.79		30.00	30.00	4.00	4.00	20.59	19.79	36.00	36.00	Pass
Note: Measured power (dBm) has offset with cable loss.																

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

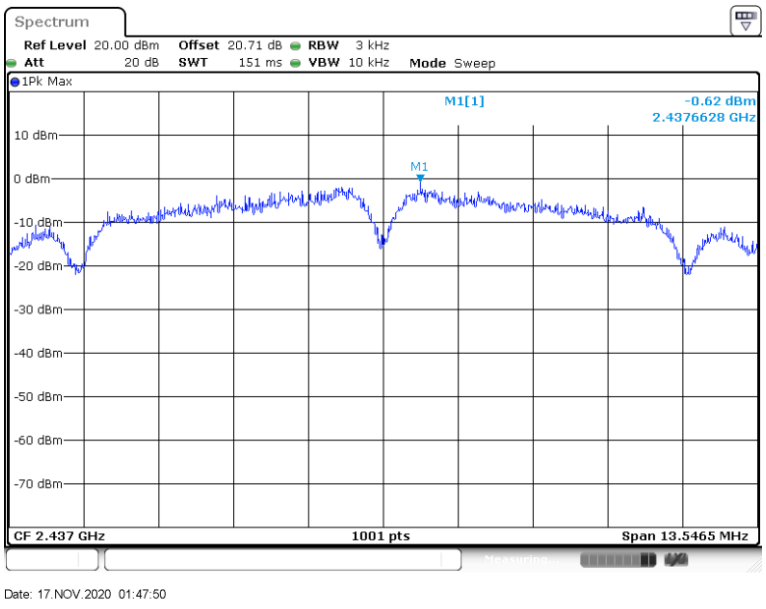
1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.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

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
					Ant 1	Ant 2	Worse + 3.01	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	1	1	2412	-4.29	-5.45		4.00	4.00	8.00	8.00	Pass
11b	1Mbps	1	6	2437	**-1.98**	**-0.62**		4.00	4.00	8.00	8.00	Pass
11b	1Mbps	1	11	2462	-3.18	-3.19		4.00	4.00	8.00	8.00	Pass
HT20	MCS0	1	1	2412	-8.50	-9.72		4.00	4.00	8.00	8.00	Pass
HT20	MCS0	1	2	2417	-8.43	-7.06	-	4.00	4.00	8.00	8.00	Pass
HT20	MCS0	1	6	2437	-5.58	-5.30		4.00	4.00	8.00	8.00	Pass
HT20	MCS0	1	10	2457	-7.70	-7.80		4.00	4.00	8.00	8.00	Pass
HT20	MCS0	1	11	2462	-7.76	-9.07		4.00	4.00	8.00	8.00	Pass
Note: Measured power density (dBm) has offset with cable loss.												

Worst Case Power Density (dBm/3kHz)



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

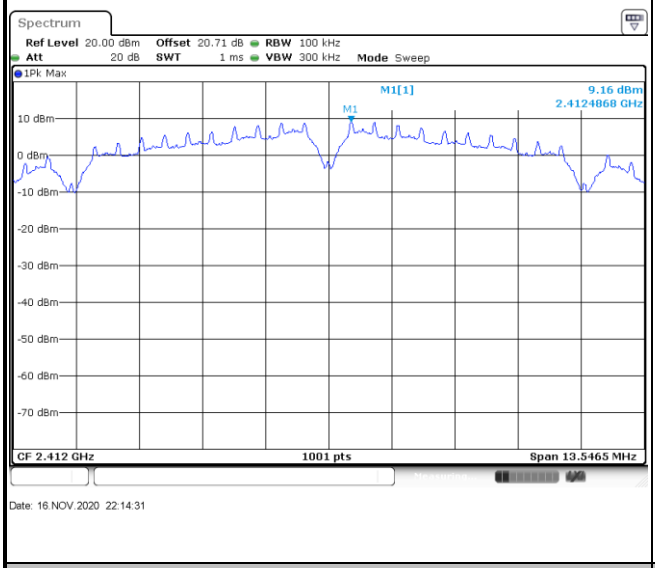
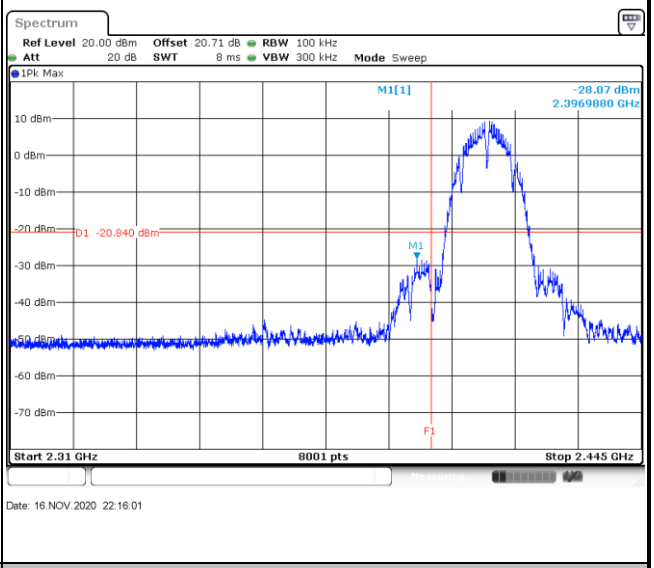
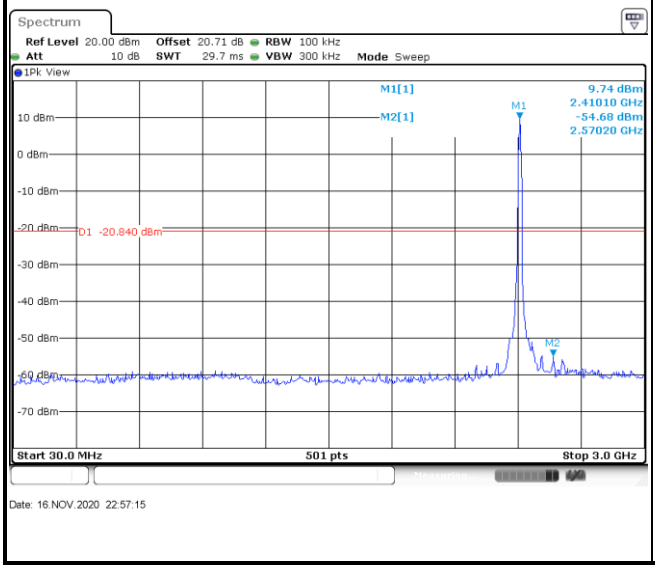
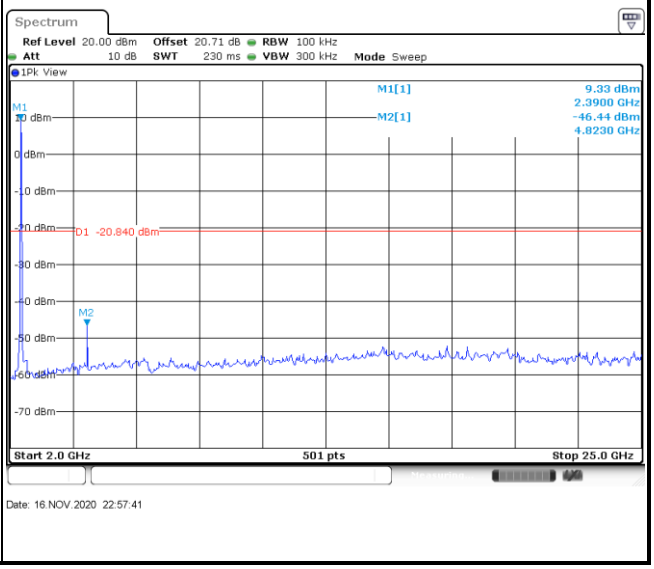
1. The testing follows the ANSI C63.10 Section 11.11.3 Emission level measurement.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit 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

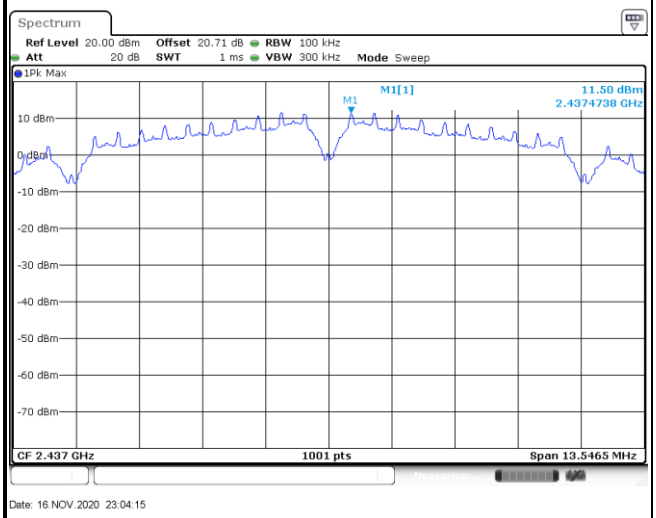
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

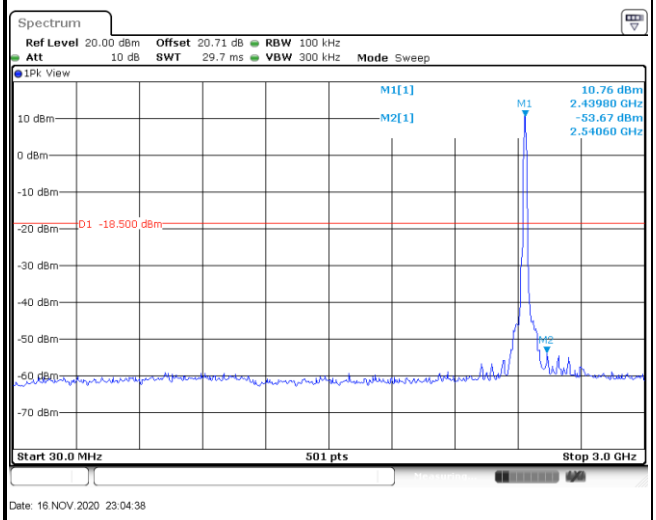
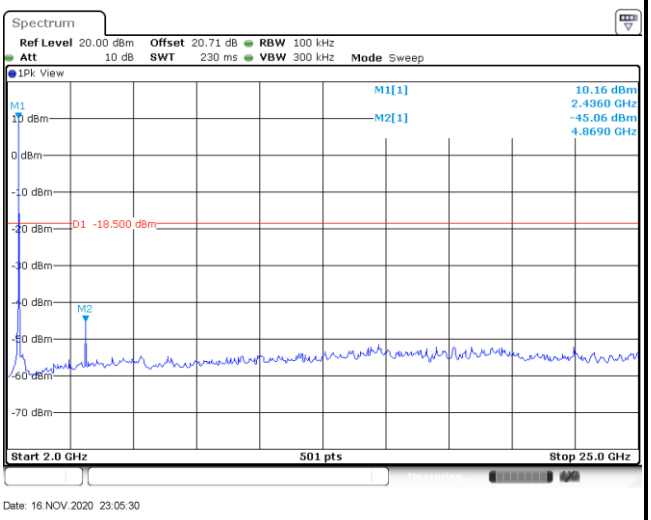
Number of TX = 1, Ant. 1 (Measured)

Test Mode :	802.11b	Test Channel :	01

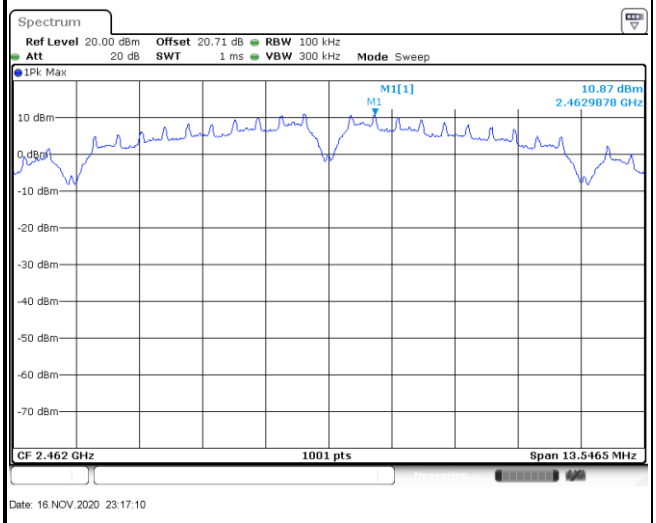
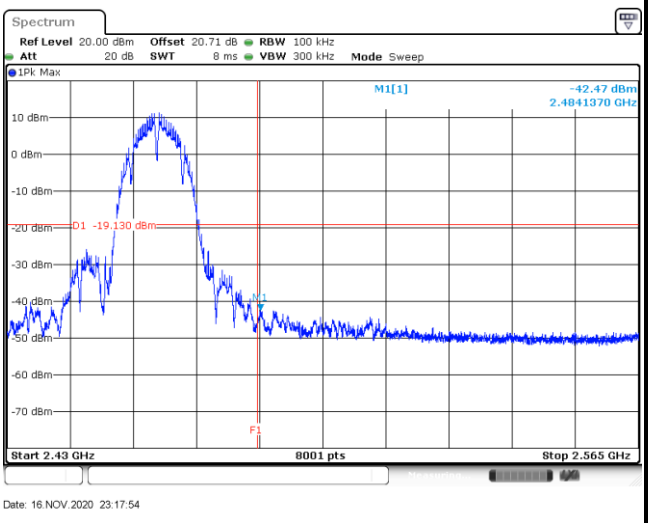
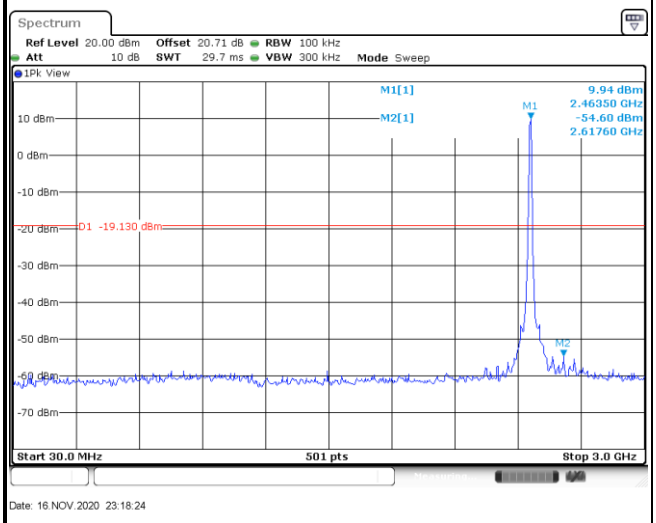
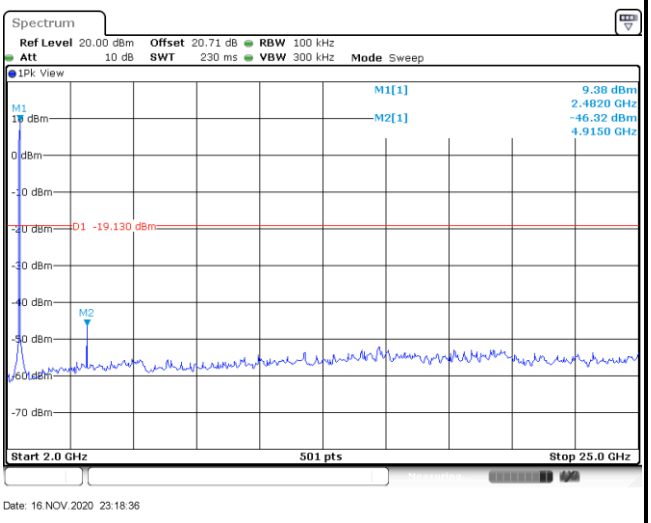
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11b	Test Channel :	06

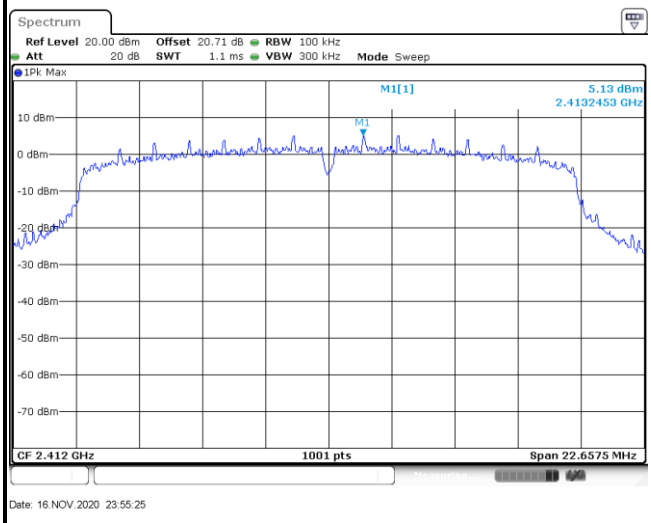
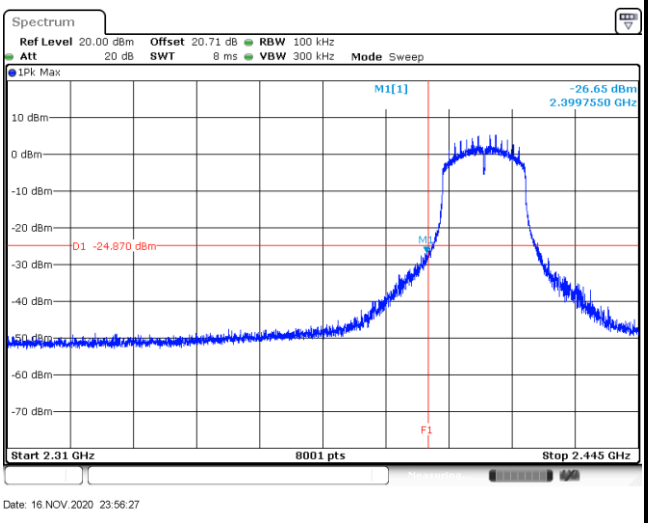
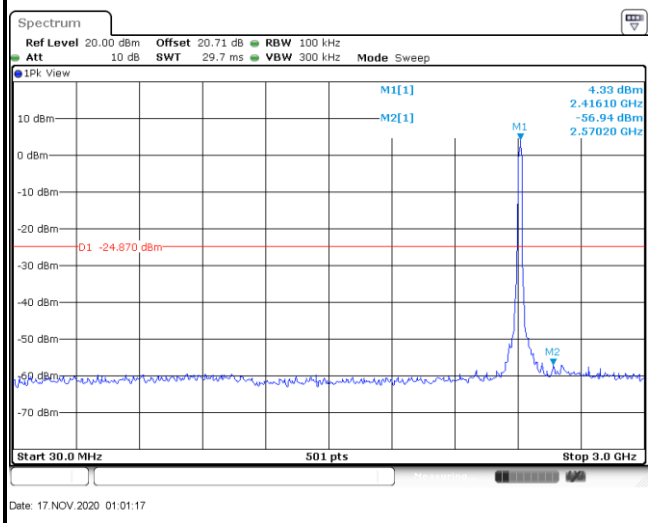
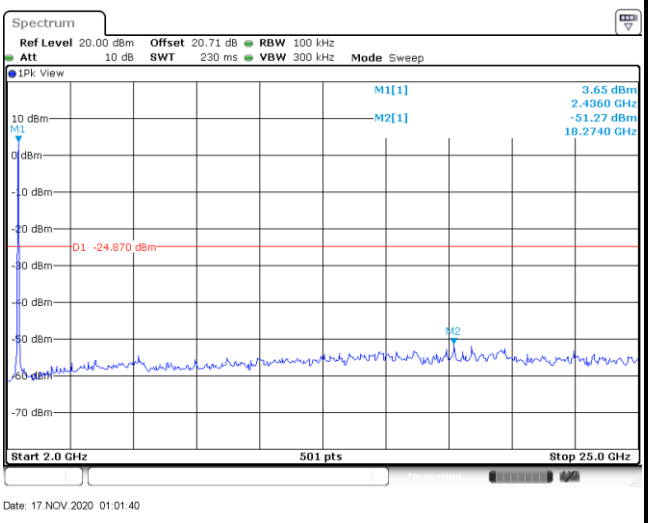
100kHz PSD reference Level	Mid Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

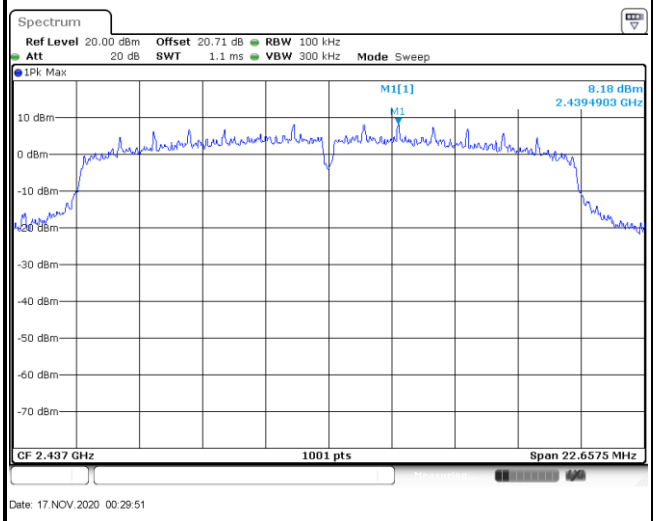
Test Mode :	802.11b	Test Channel :	11

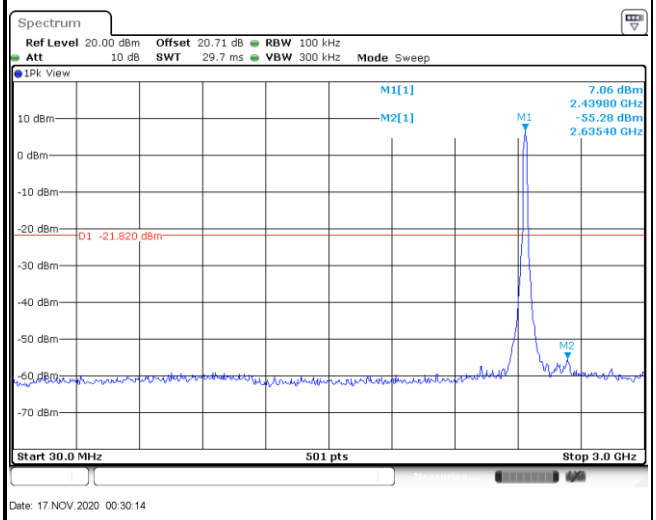
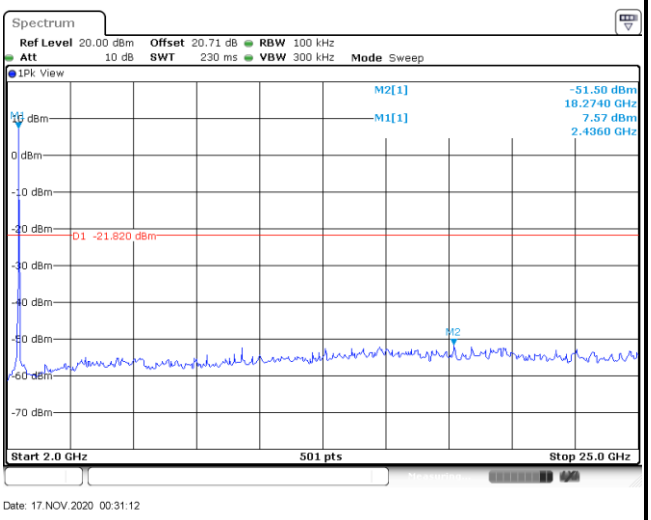
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	01

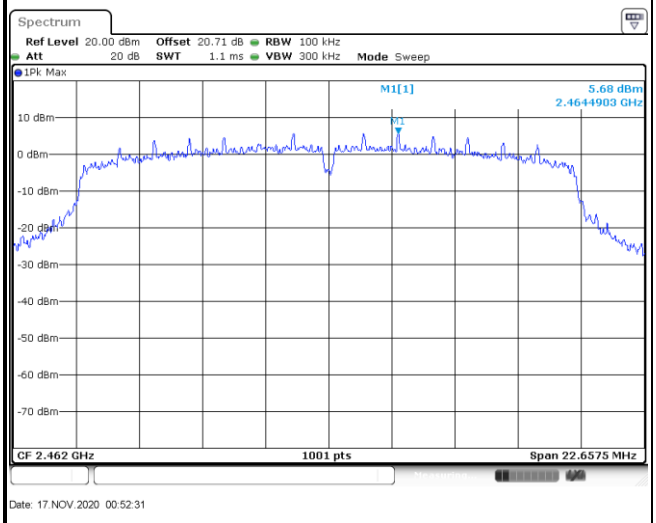
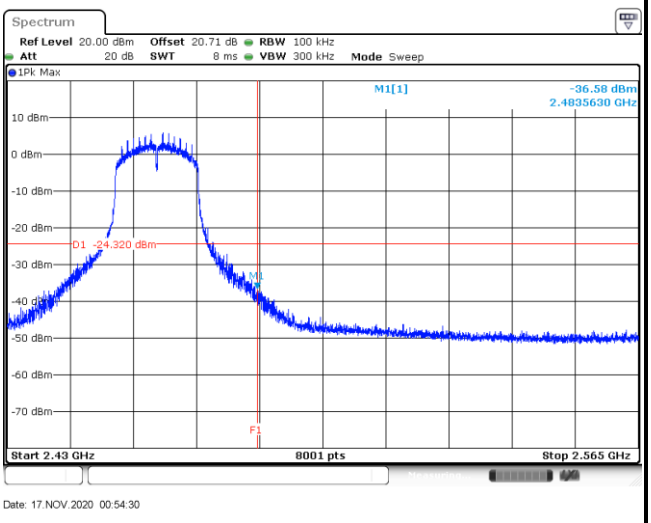
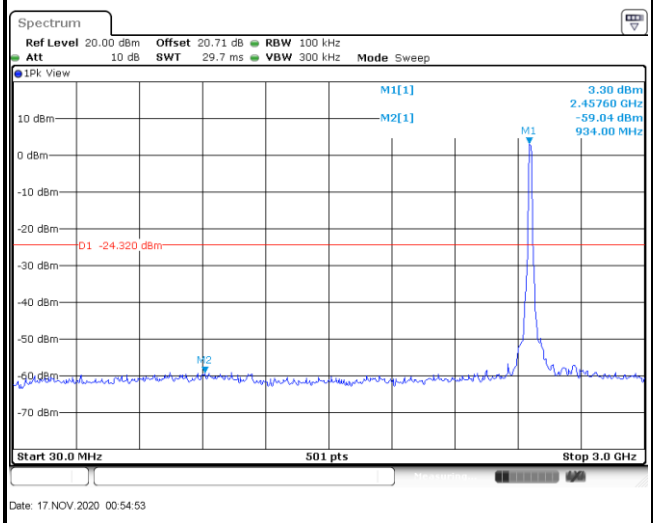
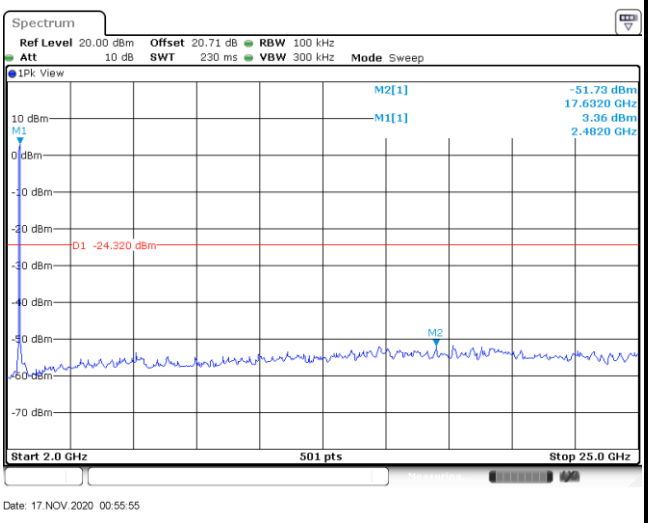
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	06

100kHz PSD reference Level	Mid Channel Plot
	

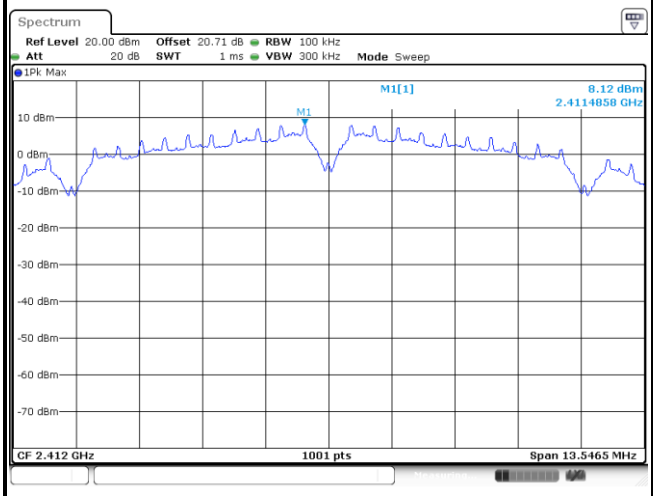
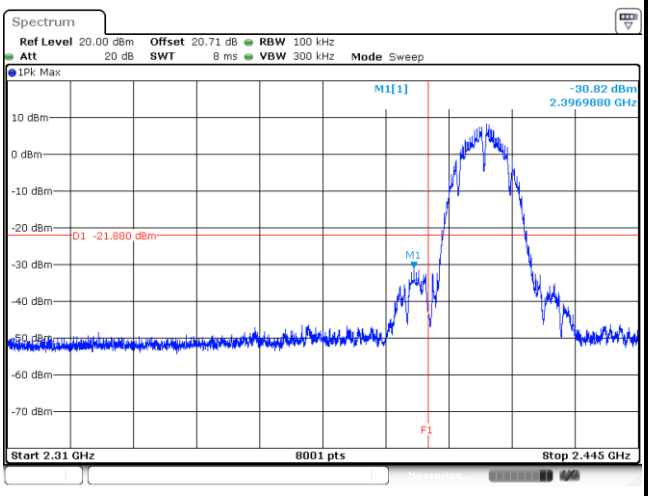
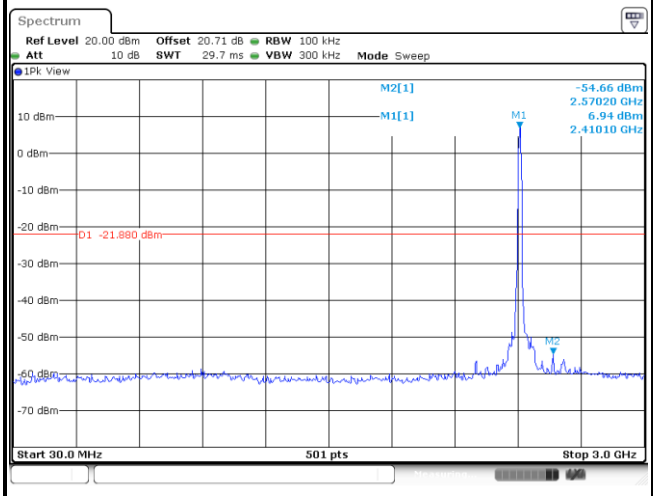
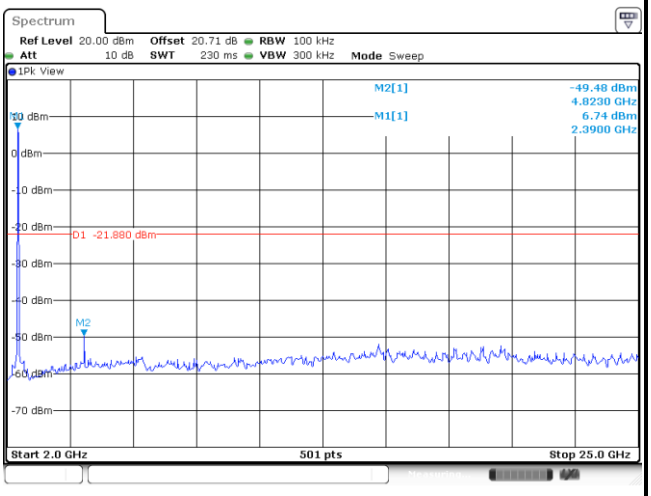
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Test Mode :	802.11n HT20	Test Channel :	11

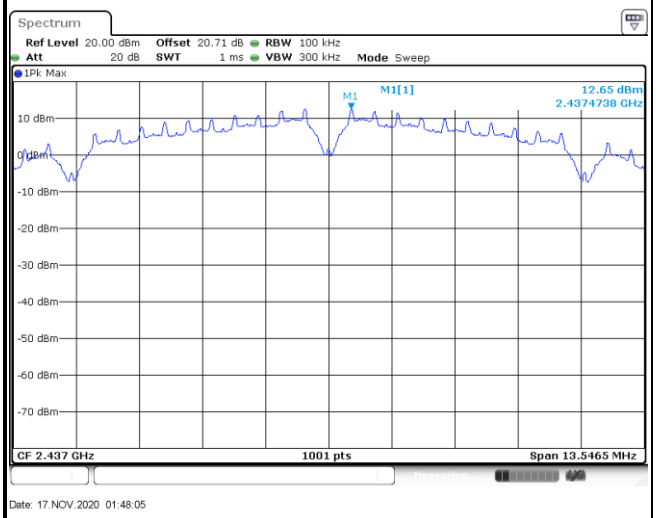
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

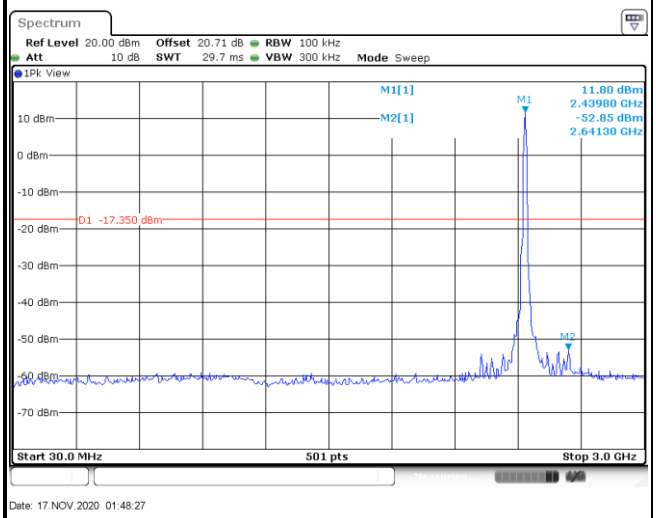
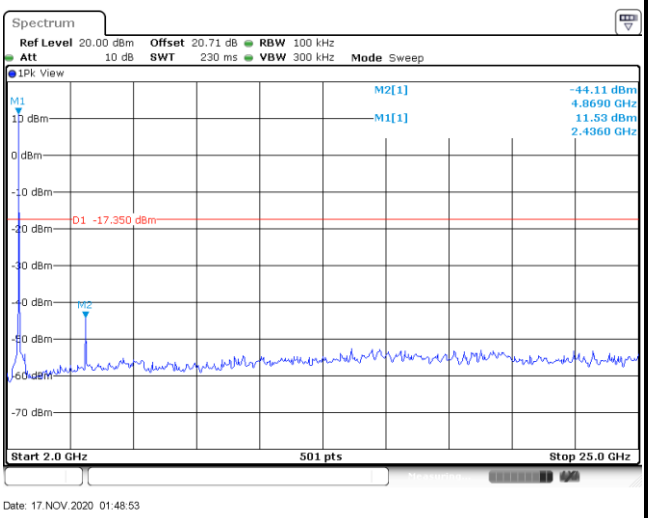
Number of TX = 1, Ant. 2 (Measured)

Test Mode :	802.11b	Test Channel :	01

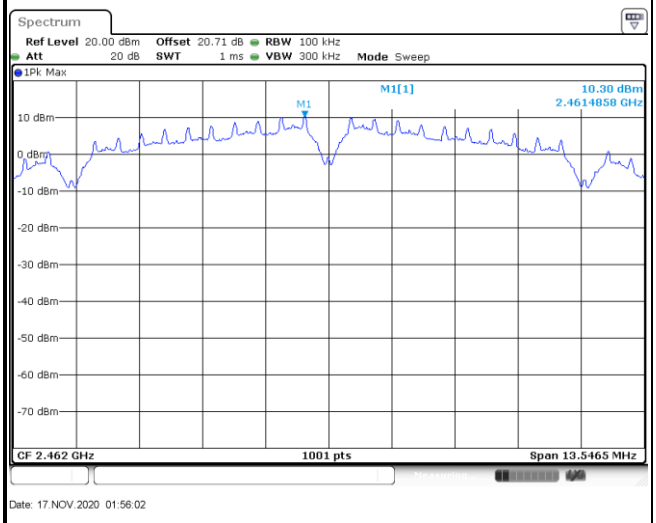
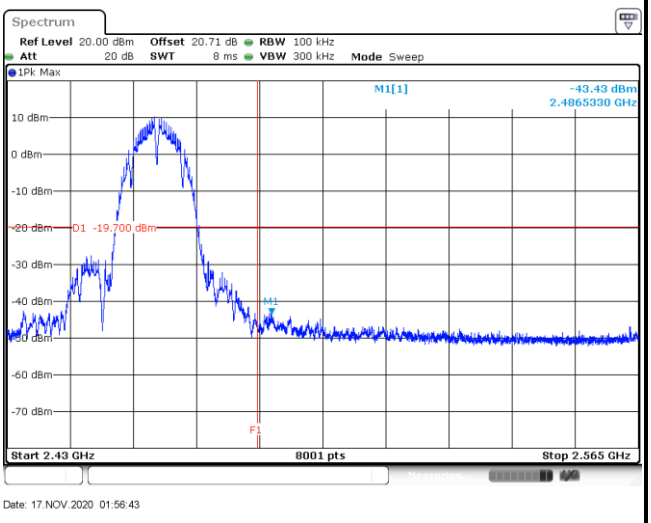
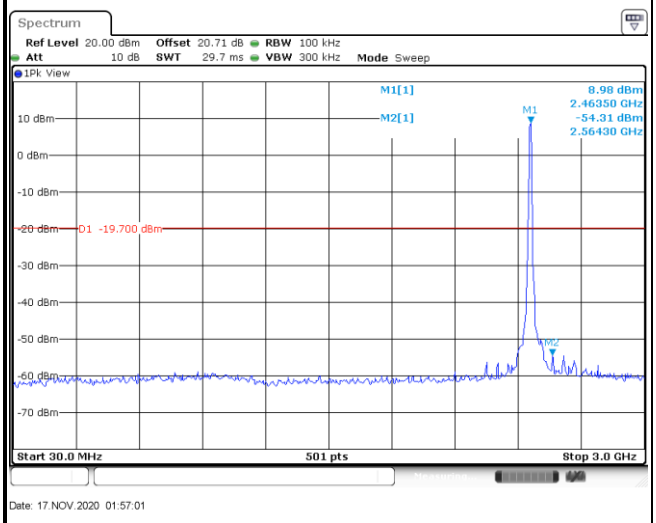
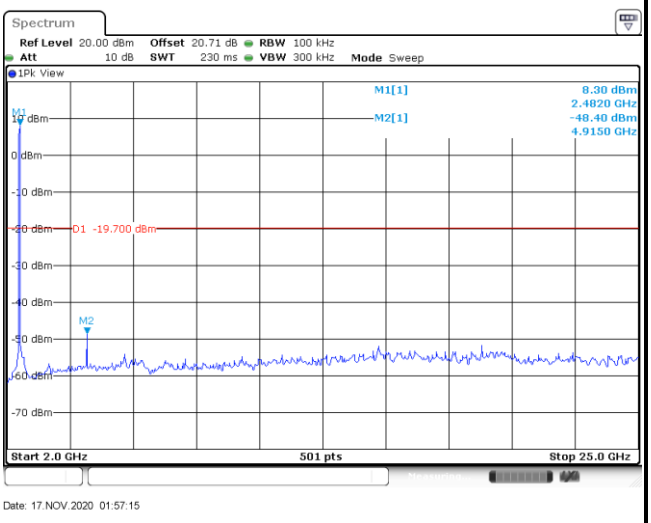
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11b	Test Channel :	06

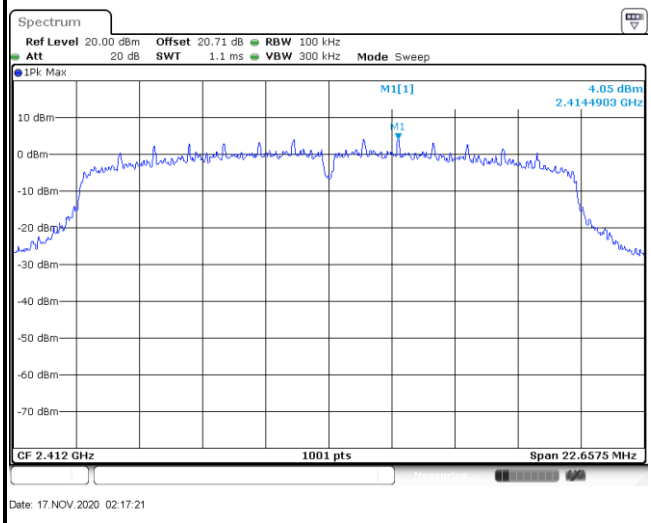
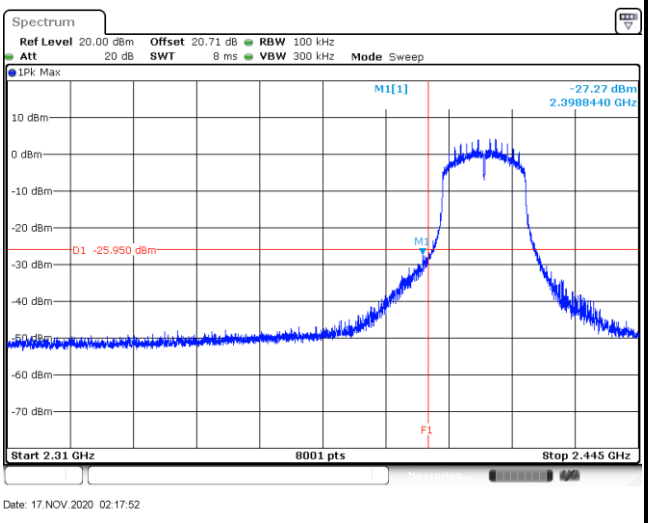
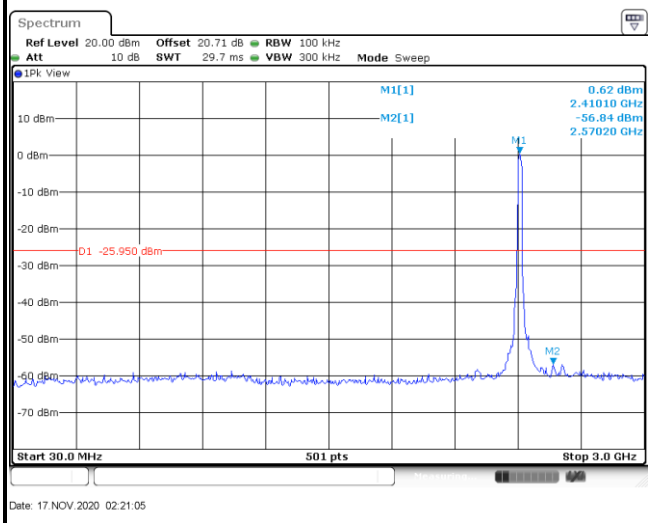
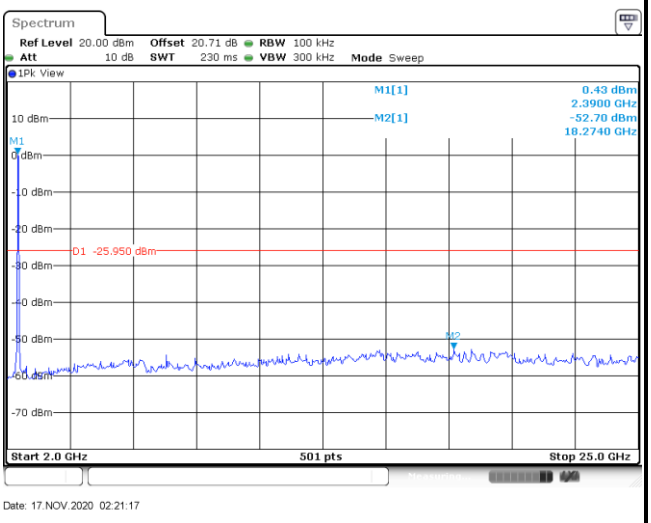
100kHz PSD reference Level	Mid Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

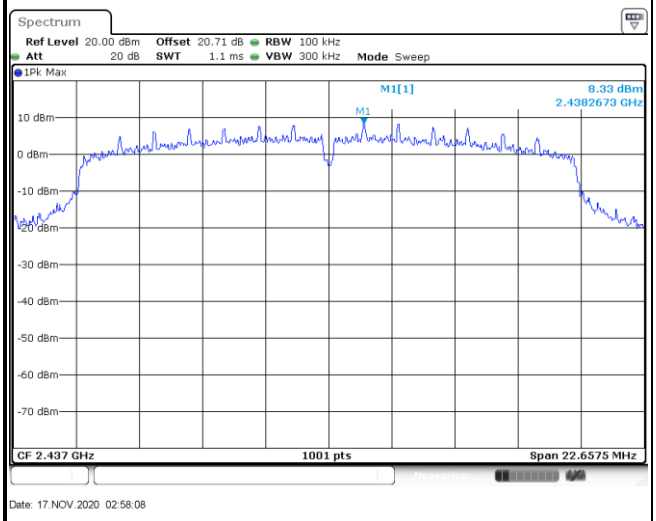
Test Mode :	802.11b	Test Channel :	11

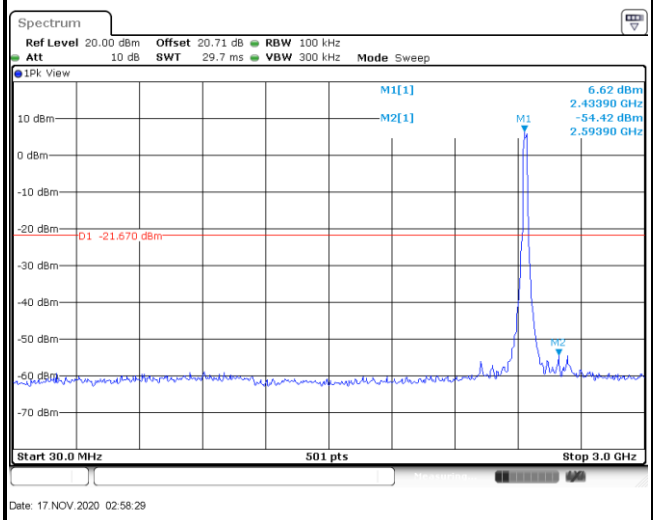
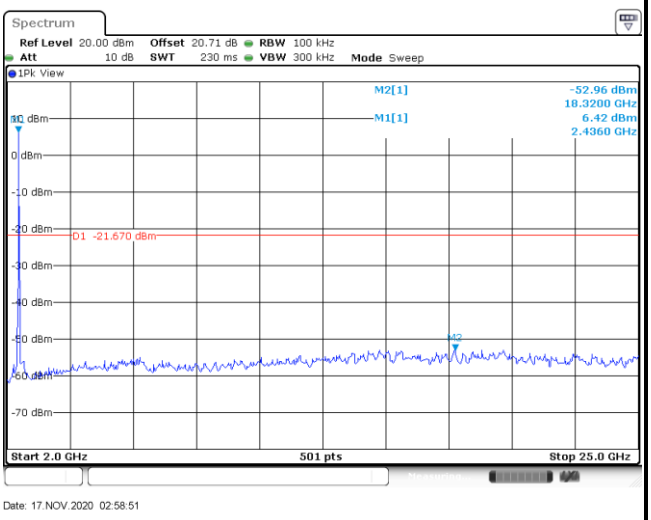
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	01

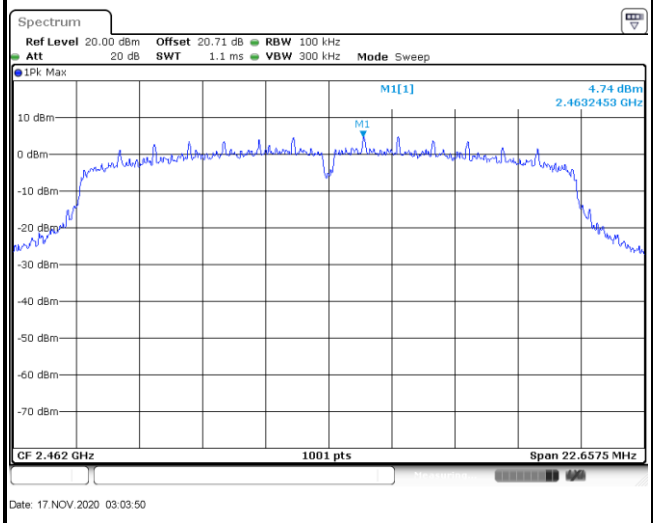
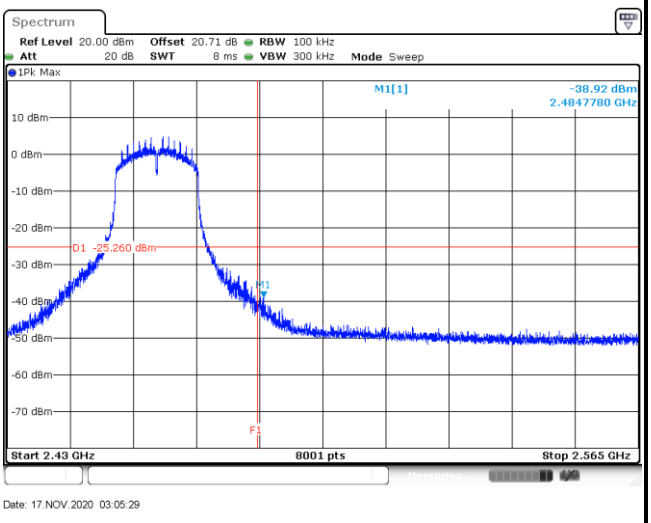
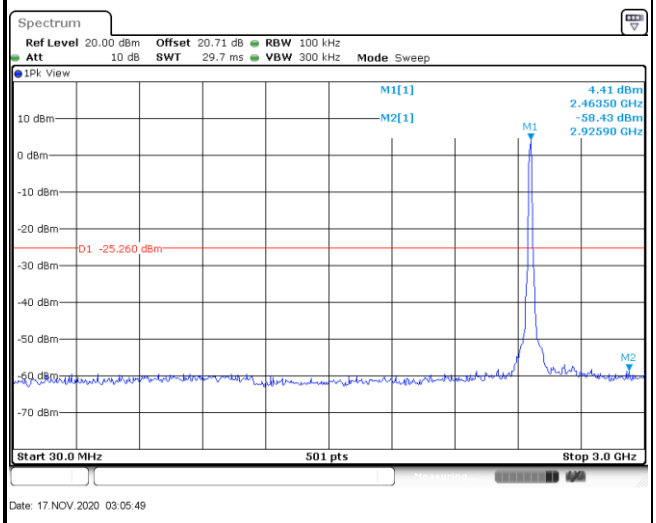
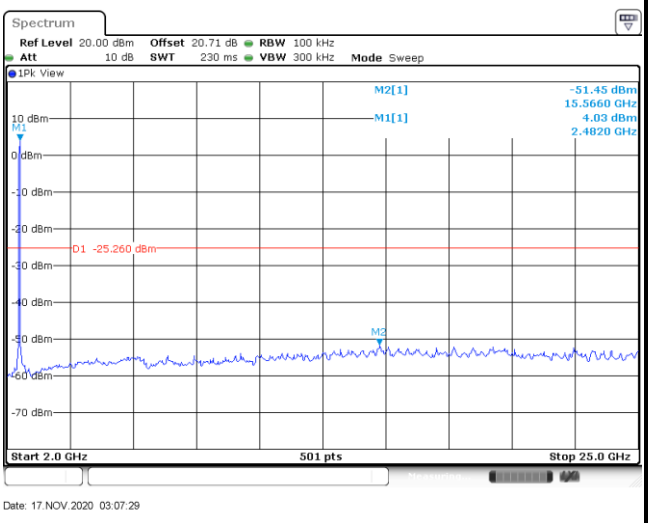
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	06

100kHz PSD reference Level	Mid Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Test Mode :	802.11n HT20	Test Channel :	11

100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

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

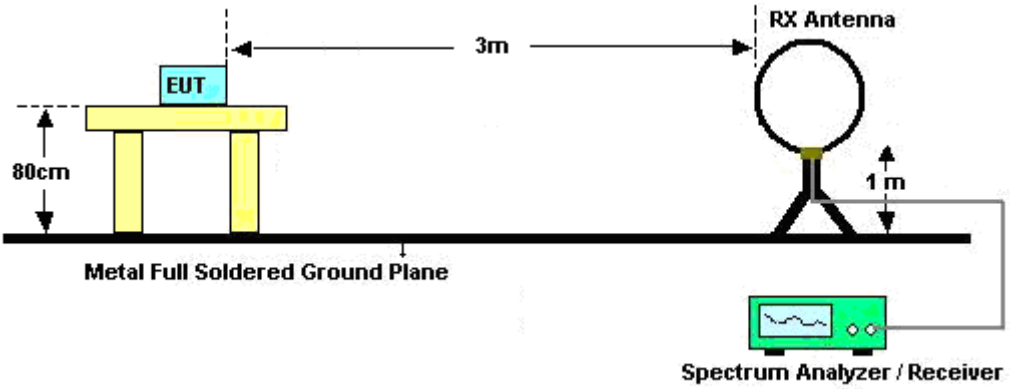
See list of measuring equipment of this test report.

3.5.3 Test Procedures

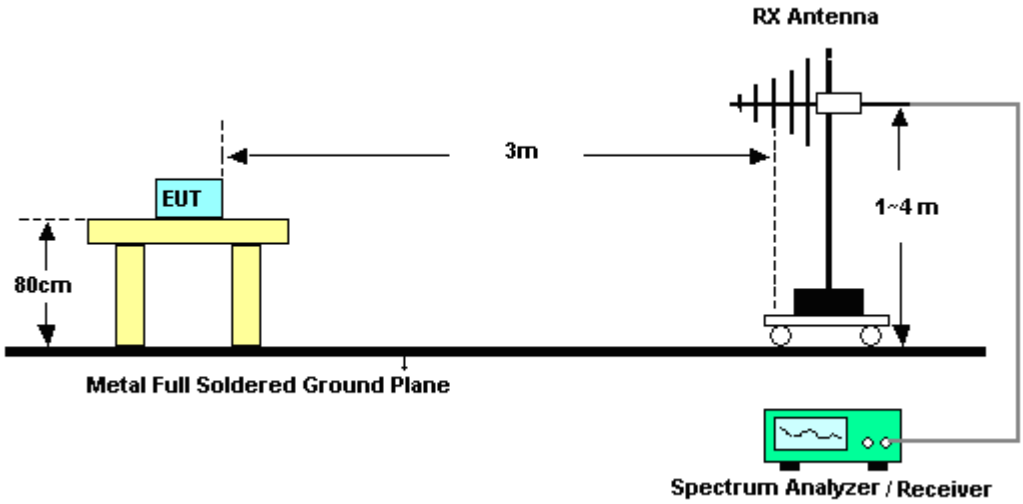
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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 ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

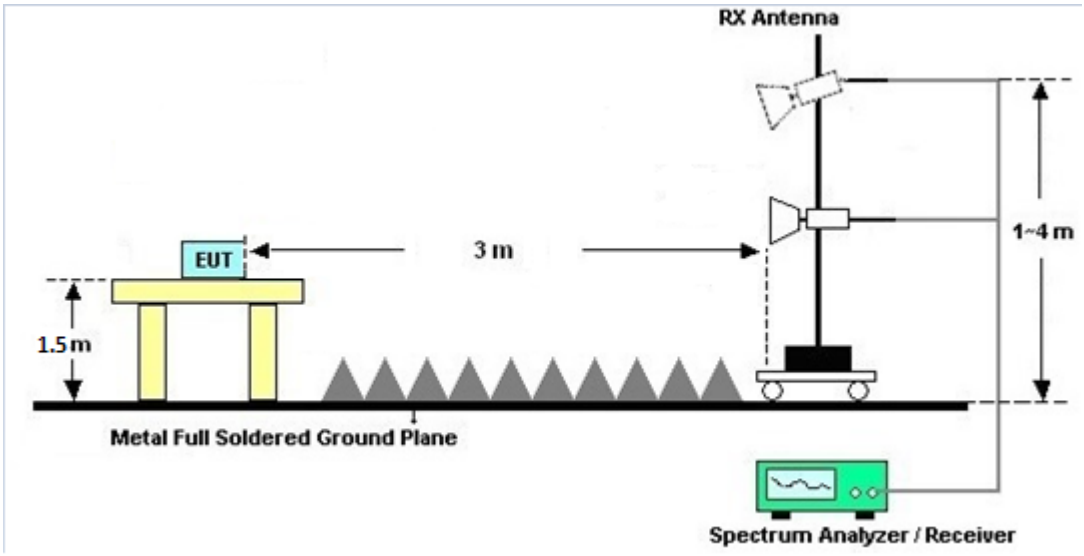
For radiated test below 30MHz



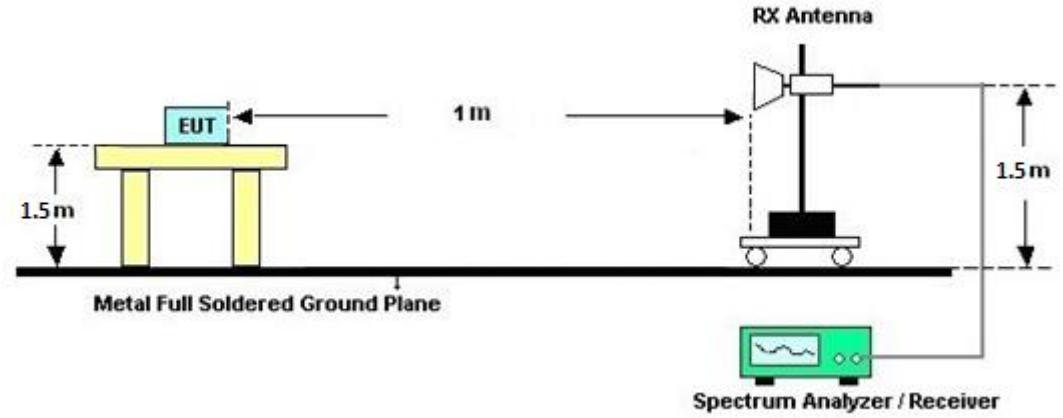
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



3.5.5 Test Results of Radiated Spurious Emissions (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 and Radiated Spurious Emission (30MHz ~ 10th Harmonic)

Radiated Spurious Emission

<Main Antenna for Sample 1>

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	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)
802.11b CH 01 2412MHz		2386.335	59.22	-14.78	74	45.55	27.64	17.4	31.37	172	184	P	H
		2386.545	52.9	-1.1	54	39.23	27.64	17.4	31.37	172	184	A	H
	*	2412	108.58	-	-	94.9	27.6	17.44	31.36	172	184	P	H
	*	2412	106.01	-	-	92.33	27.6	17.44	31.36	172	184	A	H
		2386.755	57.64	-16.36	74	43.97	27.64	17.4	31.37	100	154	P	V
		2386.545	50.52	-3.48	54	36.85	27.64	17.4	31.37	100	154	A	V
	*	2412	105.98	-	-	92.36	27.54	17.44	31.36	100	154	P	V
	*	2412	103.43	-	-	89.81	27.54	17.44	31.36	100	154	A	V
802.11b CH 06 2437MHz		2389.84	56.09	-17.91	74	42.43	27.63	17.4	31.37	355	176	P	H
		2386.96	47.06	-6.94	54	33.39	27.64	17.4	31.37	355	176	A	H
	*	2437	111.94	-	-	98.23	27.59	17.48	31.36	355	176	P	H
	*	2437	109.45	-	-	95.74	27.59	17.48	31.36	355	176	A	H
		2487.04	56.07	-17.93	74	42.3	27.56	17.56	31.35	355	176	P	H
		2486.72	45.8	-8.2	54	32.03	27.56	17.56	31.35	355	176	A	H
		2389.2	55.54	-18.46	74	41.88	27.63	17.4	31.37	100	151	P	V
		2386.96	45.53	-8.47	54	31.86	27.64	17.4	31.37	100	151	A	V
	*	2437	107.51	-	-	93.93	27.46	17.48	31.36	100	151	P	V
	*	2437	105.01	-	-	91.43	27.46	17.48	31.36	100	151	A	V
		2487.68	55.45	-18.55	74	41.83	27.39	17.57	31.34	100	151	P	V
		2487.04	45.31	-8.69	54	31.71	27.39	17.56	31.35	100	151	A	V
802.11b CH 11 2462MHz	*	2462	110.47	-	-	96.72	27.58	17.53	31.36	399	174	P	H
	*	2462	107.95	-	-	94.2	27.58	17.53	31.36	399	174	A	H
		2488.28	59.68	-14.32	74	45.89	27.56	17.57	31.34	399	174	P	H
		2488.48	52.15	-1.85	54	38.36	27.56	17.57	31.34	399	174	A	H
	*	2462	101.48	-	-	87.9	27.41	17.53	31.36	101	143	P	V
	*	2462	98.98	-	-	85.4	27.41	17.53	31.36	101	143	A	V
		2490.44	56.97	-17.03	74	43.35	27.39	17.57	31.34	101	143	P	V
		2488.64	46.81	-7.19	54	33.19	27.39	17.57	31.34	101	143	A	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	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)
802.11b CH 01 2412MHz		4824	41.48	-32.52	74	65.02	31.39	11.32	66.25	100	0	P	H
		4824	40.59	-33.41	74	64.12	31.4	11.32	66.25	100	0	P	V
802.11b CH 06 2437MHz		4874	44.94	-29.06	74	68.31	31.36	11.42	66.15	100	0	P	H
		7311	48.36	-25.64	74	64	36.35	13.87	65.86	100	0	P	H
		4874	40.99	-33.01	74	64.41	31.31	11.42	66.15	100	0	P	V
		7311	46.58	-27.42	74	62.18	36.39	13.87	65.86	100	0	P	V
802.11b CH 11 2462MHz		4924	41.64	-32.36	74	64.8	31.37	11.52	66.05	100	0	P	H
		7386	46.94	-27.06	74	62.36	36.47	13.99	65.88	100	0	P	H
		4924	41.33	-32.67	74	64.59	31.27	11.52	66.05	100	0	P	V
		7386	45.79	-28.21	74	61.12	36.56	13.99	65.88	100	0	P	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	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)
		2388.33	69.34	-4.66	74	55.68	27.63	17.4	31.37	303	179	P	H
		2390	53.31	-0.69	54	39.65	27.63	17.4	31.37	303	179	A	H
802.11n	*	2412	108.18	-	-	94.5	27.6	17.44	31.36	303	179	P	H
HT20	*	2412	100.76	-	-	87.08	27.6	17.44	31.36	303	179	A	H
CH 01		2390	64.79	-9.21	74	51.14	27.62	17.4	31.37	100	157	P	V
2412MHz		2390	50.24	-3.76	54	36.59	27.62	17.4	31.37	100	157	A	V
	*	2412	106.1	-	-	92.48	27.54	17.44	31.36	100	157	P	V
	*	2412	97.92	-	-	84.3	27.54	17.44	31.36	100	157	A	V
		2388.75	67.86	-6.14	74	54.2	27.63	17.4	31.37	100	179	P	H
		2390	52.1	-1.9	54	38.44	27.63	17.4	31.37	100	179	A	H
802.11n	*	2417	111.9	-	-	98.21	27.6	17.45	31.36	100	179	P	H
HT20	*	2417	103.67	-	-	89.98	27.6	17.45	31.36	100	179	A	H
CH 02		2389.38	63.71	-10.29	74	50.05	27.63	17.4	31.37	103	170	P	V
2417MHz		2390	48.83	-5.17	54	35.18	27.62	17.4	31.37	103	170	A	V
	*	2417	105.91	-	-	92.3	27.52	17.45	31.36	103	170	P	V
	*	2417	98.67	-	-	85.06	27.52	17.45	31.36	103	170	A	V
		2390	59.18	-14.82	74	45.52	27.63	17.4	31.37	400	171	P	H
		2390	45.89	-8.11	54	32.23	27.63	17.4	31.37	400	171	A	H
	*	2437	112.43	-	-	98.72	27.59	17.48	31.36	400	171	P	H
	*	2437	105.24	-	-	91.53	27.59	17.48	31.36	400	171	A	H
802.11n		2484.72	60.81	-13.19	74	47.04	27.56	17.56	31.35	400	171	P	H
HT20		2483.52	47.32	-6.68	54	33.54	27.57	17.56	31.35	400	171	A	H
CH 06		2388.88	59.26	-14.74	74	45.6	27.63	17.4	31.37	100	151	P	V
2437MHz		2390	45.86	-8.14	54	32.21	27.62	17.4	31.37	100	151	A	V
	*	2437	108.61	-	-	95.03	27.46	17.48	31.36	100	151	P	V
	*	2437	101.35	-	-	87.77	27.46	17.48	31.36	100	151	A	V
		2486.24	59.76	-14.24	74	46.16	27.39	17.56	31.35	100	151	P	V
		2483.52	45.68	-8.32	54	32.08	27.39	17.56	31.35	100	151	A	V

WIFI	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)
802.11n HT20 CH 10 2457MHz	*	2457	111.48	-	-	97.74	27.58	17.52	31.36	397	170	P	H
	*	2457	103.55	-	-	89.81	27.58	17.52	31.36	397	170	A	H
		2483.76	67.95	-6.05	74	54.17	27.57	17.56	31.35	397	170	P	H
		2483.52	53	-1	54	39.22	27.57	17.56	31.35	397	170	A	H
	*	2457	104.74	-	-	91.17	27.41	17.52	31.36	101	137	P	V
	*	2457	97.4	-	-	83.83	27.41	17.52	31.36	101	137	A	V
		2484.64	62.8	-11.2	74	49.2	27.39	17.56	31.35	101	137	P	V
		2483.52	48.8	-5.2	54	35.2	27.39	17.56	31.35	101	137	A	V
802.11n HT20 CH 11 2462MHz	*	2462	109.5	-	-	95.75	27.58	17.53	31.36	400	174	P	H
	*	2462	102.45	-	-	88.7	27.58	17.53	31.36	400	174	A	H
		2483.72	68.81	-5.19	74	55.03	27.57	17.56	31.35	400	174	P	H
		2483.52	53.38	-0.62	54	39.6	27.57	17.56	31.35	400	174	A	H
	*	2462	105.45	-	-	91.87	27.41	17.53	31.36	110	138	P	V
	*	2462	98.12	-	-	84.54	27.41	17.53	31.36	110	138	A	V
		2483.76	67.4	-6.6	74	53.8	27.39	17.56	31.35	110	138	P	V
		2483.52	51.32	-2.68	54	37.72	27.39	17.56	31.35	110	138	A	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 (Harmonic @ 3m)

WIFI	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)
802.11n HT20 CH 01 2412MHz		4824	40.55	-33.45	74	64.09	31.39	11.32	66.25	100	0	P	H
		4824	40.95	-33.05	74	64.48	31.4	11.32	66.25	100	0	P	V
802.11n HT20 CH 06 2437MHz		4874	41.16	-32.84	74	64.53	31.36	11.42	66.15	100	0	P	H
		7311	45.27	-28.73	74	60.91	36.35	13.87	65.86	100	0	P	H
		4874	40.84	-33.16	74	64.26	31.31	11.42	66.15	100	0	P	V
		7311	44.64	-29.36	74	60.24	36.39	13.87	65.86	100	0	P	V
802.11n HT20 CH 11 2462MHz		4924	41.13	-32.87	74	64.29	31.37	11.52	66.05	100	0	P	H
		7386	46.27	-27.73	74	61.69	36.47	13.99	65.88	100	0	P	H
		4924	40.78	-33.22	74	64.04	31.27	11.52	66.05	100	0	P	V
		7386	44.89	-29.11	74	60.22	36.56	13.99	65.88	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI	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)
2.4GHz 802.11n HT20 LF		172.59	29.32	-14.18	43.5	44.05	15.54	2.14	32.41	-	-	P	H
		227.88	29.41	-16.59	46	43.37	15.99	2.46	32.41	-	-	P	H
		262.8	37.25	-8.75	46	46.64	20.38	2.64	32.41	100	0	P	H
		311.3	34.93	-11.07	46	45.1	19.4	2.87	32.44	-	-	P	H
		385.99	32.98	-13.02	46	40.8	21.3	3.37	32.49	-	-	P	H
		962.17	34.76	-19.24	54	29.65	31.04	5.21	31.14	-	-	P	H
		43.58	29.02	-10.98	40	42.51	17.85	1.1	32.44	-	-	P	V
		118.27	33.82	-9.68	43.5	47	17.5	1.73	32.41	100	0	P	V
		262.8	36.19	-9.81	46	45.58	20.38	2.64	32.41	-	-	P	V
		303.54	31.42	-14.58	46	41.73	19.3	2.82	32.43	-	-	P	V
		378.23	30.68	-15.32	46	38.86	21	3.3	32.48	-	-	P	V
		964.11	34.72	-19.28	54	29.54	31.08	5.22	31.12	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

<Aux. Antenna for Sample 1>

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	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)
802.11b CH 01 2412MHz		2382.87	58.52	-15.48	74	44.87	27.64	17.39	31.38	189	357	P	H
		2382.87	52.75	-1.25	54	39.1	27.64	17.39	31.38	189	357	A	H
	*	2412	104.21	-	-	90.53	27.6	17.44	31.36	189	357	P	H
	*	2412	101.56	-	-	87.88	27.6	17.44	31.36	189	357	A	H
		2382.87	57.26	-16.74	74	43.59	27.66	17.39	31.38	100	138	P	V
		2383.08	50.86	-3.14	54	37.19	27.66	17.39	31.38	100	138	A	V
	*	2412	103.48	-	-	89.86	27.54	17.44	31.36	100	138	P	V
	*	2412	100.95	-	-	87.33	27.54	17.44	31.36	100	138	A	V
802.11b CH 06 2437MHz		2334.75	55.83	-18.17	74	42.16	27.78	17.31	31.42	177	0	P	H
		2388.3	47.54	-6.46	54	33.88	27.63	17.4	31.37	177	0	A	H
	*	2437	104.85	-	-	91.14	27.59	17.48	31.36	177	0	P	H
	*	2437	102.48	-	-	88.77	27.59	17.48	31.36	177	0	A	H
		2492.48	55.59	-18.41	74	41.8	27.56	17.57	31.34	177	0	P	H
		2485.52	46.25	-7.75	54	32.48	27.56	17.56	31.35	177	0	A	H
		2388.45	55.62	-18.38	74	41.96	27.63	17.4	31.37	200	14	P	V
		2388.15	47.06	-6.94	54	33.4	27.63	17.4	31.37	200	14	A	V
	*	2437	105.63	-	-	92.05	27.46	17.48	31.36	200	14	P	V
	*	2437	103.18	-	-	89.6	27.46	17.48	31.36	200	14	A	V
		2485.04	55.94	-18.06	74	42.34	27.39	17.56	31.35	200	14	P	V
		2485.44	47.4	-6.6	54	33.8	27.39	17.56	31.35	200	14	A	V
802.11b CH 11 2462MHz	*	2462	105.25	-	-	91.5	27.58	17.53	31.36	106	341	P	H
	*	2462	102.72	-	-	88.97	27.58	17.53	31.36	106	341	A	H
		2487.84	58.54	-15.46	74	44.75	27.56	17.57	31.34	106	341	P	H
		2487.8	50.84	-3.16	54	37.05	27.56	17.57	31.34	106	341	A	H
	*	2462	107.51	-	-	93.93	27.41	17.53	31.36	207	6	P	V
	*	2462	104.91	-	-	91.33	27.41	17.53	31.36	207	6	A	V
		2488	59.63	-14.37	74	46.01	27.39	17.57	31.34	207	6	P	V
		2487.88	53.16	-0.84	54	39.54	27.39	17.57	31.34	207	6	A	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	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)
802.11b CH 01 2412MHz		4824	42.16	-31.84	74	65.7	31.39	11.32	66.25	100	0	P	H
		4824	43	-31	74	66.53	31.4	11.32	66.25	100	0	P	V
802.11b CH 06 2437MHz		4874	41	-33	74	64.37	31.36	11.42	66.15	100	0	P	H
		7311	47.91	-26.09	74	63.55	36.35	13.87	65.86	100	0	P	H
		4874	41.55	-32.45	74	64.97	31.31	11.42	66.15	100	0	P	V
		7311	48.2	-25.8	74	63.8	36.39	13.87	65.86	100	0	P	V
802.11b CH 11 2462MHz		4924	41.54	-32.46	74	64.7	31.37	11.52	66.05	100	0	P	H
		7386	47.06	-26.94	74	62.48	36.47	13.99	65.88	100	0	P	H
		4924	42.66	-31.34	74	65.92	31.27	11.52	66.05	100	0	P	V
		7386	47.81	-26.19	74	63.14	36.56	13.99	65.88	100	0	P	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	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)
		2388.645	65.9	-8.1	74	52.24	27.63	17.4	31.37	100	340	P	H
		2390	53.4	-0.6	54	39.74	27.63	17.4	31.37	100	340	A	H
802.11n	*	2412	105.36	-	-	91.68	27.6	17.44	31.36	100	340	P	H
HT20	*	2412	97.92	-	-	84.24	27.6	17.44	31.36	100	340	A	H
CH 01		2390	66.21	-7.79	74	52.56	27.62	17.4	31.37	100	132	P	V
2412MHz		2390	53.5	-0.5	54	39.85	27.62	17.4	31.37	100	132	A	V
	*	2412	104.33	-	-	90.71	27.54	17.44	31.36	100	132	P	V
	*	2412	96.86	-	-	83.24	27.54	17.44	31.36	100	132	A	V
		2387.76	57.7	-16.3	74	44.04	27.63	17.4	31.37	110	341	P	H
		2390	45.77	-8.23	54	32.11	27.63	17.4	31.37	110	341	A	H
	*	2437	107.28	-	-	93.57	27.59	17.48	31.36	110	341	P	H
	*	2437	99.91	-	-	86.2	27.59	17.48	31.36	110	341	A	H
802.11n		2486.64	56.71	-17.29	74	42.94	27.56	17.56	31.35	110	341	P	H
HT20		2483.68	45.21	-8.79	54	31.43	27.57	17.56	31.35	110	341	A	H
CH 06		2389.52	56.82	-17.18	74	43.16	27.63	17.4	31.37	185	8	P	V
2437MHz		2390	45.55	-8.45	54	31.9	27.62	17.4	31.37	185	8	A	V
	*	2437	108.81	-	-	95.23	27.46	17.48	31.36	185	8	P	V
	*	2437	101.1	-	-	87.52	27.46	17.48	31.36	185	8	A	V
		2487.12	58.54	-15.46	74	44.93	27.39	17.57	31.35	185	8	P	V
		2483.52	45.91	-8.09	54	32.31	27.39	17.56	31.35	185	8	A	V
	*	2462	104.49	-	-	90.74	27.58	17.53	31.36	104	344	P	H
	*	2462	96.54	-	-	82.79	27.58	17.53	31.36	104	344	A	H
802.11n		2484.64	65.66	-8.34	74	51.89	27.56	17.56	31.35	104	344	P	H
HT20		2483.52	50.36	-3.64	54	36.58	27.57	17.56	31.35	104	344	A	H
CH 11	*	2462	106.24	-	-	92.66	27.41	17.53	31.36	206	5	P	V
2462MHz	*	2462	98.71	-	-	85.13	27.41	17.53	31.36	206	5	A	V
		2484.48	68.65	-5.35	74	55.05	27.39	17.56	31.35	206	5	P	V
		2483.52	52.8	-1.2	54	39.2	27.39	17.56	31.35	206	5	A	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 (Harmonic @ 3m)

WIFI	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)
802.11n HT20 CH 01 2412MHz		4824	41.84	-32.16	74	65.38	31.39	11.32	66.25	100	0	P	H
		4824	42.25	-31.75	74	65.78	31.4	11.32	66.25	100	0	P	V
802.11n HT20 CH 06 2437MHz		4874	41.04	-32.96	74	64.41	31.36	11.42	66.15	100	0	P	H
		7311	46.22	-27.78	74	61.86	36.35	13.87	65.86	100	0	P	H
		4874	42.2	-31.8	74	65.62	31.31	11.42	66.15	100	0	P	V
		7311	46.29	-27.71	74	61.89	36.39	13.87	65.86	100	0	P	V
802.11n HT20 CH 11 2462MHz		4924	42.42	-31.58	74	65.58	31.37	11.52	66.05	100	0	P	H
		7386	46.05	-27.95	74	61.47	36.47	13.99	65.88	100	0	P	H
		4924	41.69	-32.31	74	64.95	31.27	11.52	66.05	100	0	P	V
		7386	46.67	-27.33	74	62	36.56	13.99	65.88	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI	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)
2.4GHz 802.11n HT20 LF		162.89	27.82	-15.68	43.5	41.85	16.31	2.07	32.41	-	-	P	H
		266.68	37.02	-8.98	46	46.92	19.86	2.65	32.41	100	0	P	H
		385.99	35.7	-10.3	46	43.52	21.3	3.37	32.49	-	-	P	H
		588.72	32.81	-13.19	46	35.71	25.8	3.94	32.64	-	-	P	H
		746.83	32.09	-13.91	46	31.93	28	4.6	32.44	-	-	P	H
		983.51	35.14	-18.86	54	30.07	30.73	5.28	30.94	-	-	P	H
		43.58	29.15	-10.85	40	42.64	17.85	1.1	32.44	-	-	P	V
		119.24	33.36	-10.14	43.5	46.52	17.52	1.73	32.41	100	0	P	V
		265.71	33	-13	46	42.7	20.06	2.65	32.41	-	-	P	V
		385.99	30.08	-15.92	46	37.9	21.3	3.37	32.49	-	-	P	V
		746.83	33.35	-12.65	46	33.19	28	4.6	32.44	-	-	P	V
		972.84	35.91	-18.09	54	30.79	30.9	5.25	31.03	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

<Main Antenna for Sample 2>

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	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)
802.11b CH 01 2412MHz		2384.97	57.96	-16.04	74	44.3	27.64	17.4	31.38	248	191	P	H
		2382.66	50.93	-3.07	54	37.28	27.64	17.39	31.38	248	191	A	H
	*	2412	109.8	-	-	96.12	27.6	17.44	31.36	248	191	P	H
	*	2412	107.2	-	-	93.52	27.6	17.44	31.36	248	191	A	H
		2363.235	55.69	-18.31	74	41.98	27.75	17.36	31.4	400	231	P	V
		2382.87	46.53	-7.47	54	32.86	27.66	17.39	31.38	400	231	A	V
	*	2412	100.7	-	-	87.08	27.54	17.44	31.36	400	231	P	V
	*	2412	98.14	-	-	84.52	27.54	17.44	31.36	400	231	A	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	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)
802.11b CH 01 2412MHz		4824	41.47	-32.53	74	65.01	31.39	11.32	66.25	100	0	P	H
		4824	41.54	-32.46	74	65.07	31.4	11.32	66.25	100	0	P	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	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)
802.11n HT20 CH 01 2412MHz		2389.38	71.46	-2.54	74	57.8	27.63	17.4	31.37	210	180	P	H
		2390	52.57	-1.43	54	38.91	27.63	17.4	31.37	210	180	A	H
	*	2412	111.11	-	-	97.43	27.6	17.44	31.36	210	180	P	H
	*	2412	101.55	-	-	87.87	27.6	17.44	31.36	210	180	A	H
		2389.38	68.47	-5.53	74	54.81	27.63	17.4	31.37	108	147	P	V
		2390	48.34	-5.66	54	34.69	27.62	17.4	31.37	108	147	A	V
	*	2412	101.34	-	-	87.72	27.54	17.44	31.36	108	147	P	V
	*	2412	94.18	-	-	80.56	27.54	17.44	31.36	108	147	A	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 (Harmonic @ 3m)

WIFI	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)
802.11n HT20 CH 01 2412MHz		4824	41.06	-32.94	74	64.6	31.39	11.32	66.25	100	0	P	H
		4824	41.04	-32.96	74	64.57	31.4	11.32	66.25	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

<Aux. Antenna for Sample 2>

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	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)
802.11b CH 01 2412MHz		2384.235	56.45	-17.55	74	42.8	27.64	17.39	31.38	138	190	P	H
		2383.815	46.38	-7.62	54	32.73	27.64	17.39	31.38	138	190	A	H
	*	2412	101.73	-	-	88.05	27.6	17.44	31.36	138	190	P	H
	*	2412	99.15	-	-	85.47	27.6	17.44	31.36	138	190	A	H
		2384.235	59.53	-14.47	74	45.87	27.65	17.39	31.38	100	34	P	V
		2383.815	51.17	-2.83	54	37.51	27.65	17.39	31.38	100	34	A	V
	*	2412	109.19	-	-	95.57	27.54	17.44	31.36	100	34	P	V
	*	2412	106.6	-	-	92.98	27.54	17.44	31.36	100	34	A	V
802.11b CH 06 2437MHz		2353.36	55.65	-18.35	74	42.01	27.71	17.34	31.41	202	10	P	H
		2389.84	45.39	-8.61	54	31.73	27.63	17.4	31.37	202	10	A	H
	*	2437	105.14	-	-	91.43	27.59	17.48	31.36	202	10	P	H
	*	2437	102.58	-	-	88.87	27.59	17.48	31.36	202	10	A	H
		2487.12	55.54	-18.46	74	41.76	27.56	17.57	31.35	202	10	P	H
		2484.08	45.66	-8.34	54	31.89	27.56	17.56	31.35	202	10	A	H
		2389.84	57.41	-16.59	74	43.76	27.62	17.4	31.37	100	36	P	V
		2389.68	48.71	-5.29	54	35.05	27.63	17.4	31.37	100	36	A	V
	*	2437	111.87	-	-	98.29	27.46	17.48	31.36	100	36	P	V
	*	2437	109.26	-	-	95.68	27.46	17.48	31.36	100	36	A	V
		2485.44	58.69	-15.31	74	45.09	27.39	17.56	31.35	100	36	P	V
		2484.24	50.03	-3.97	54	36.43	27.39	17.56	31.35	100	36	A	V
802.11b CH 11 2462MHz	*	2462	104.89	-	-	91.14	27.58	17.53	31.36	397	65	P	H
	*	2462	102.41	-	-	88.66	27.58	17.53	31.36	397	65	A	H
		2487	57.18	-16.82	74	43.41	27.56	17.56	31.35	397	65	P	H
		2487.32	48.47	-5.53	54	34.69	27.56	17.57	31.35	397	65	A	H
	*	2462	110.73	-	-	97.15	27.41	17.53	31.36	100	39	P	V
	*	2462	108.17	-	-	94.59	27.41	17.53	31.36	100	39	A	V
		2483.6	60.66	-13.34	74	47.06	27.39	17.56	31.35	100	39	P	V
		2487.32	53.34	-0.66	54	39.73	27.39	17.57	31.35	100	39	A	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	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)
802.11b CH 01 2412MHz		4824	44.3	-29.7	74	67.84	31.39	11.32	66.25	100	0	P	H
		4824	44.25	-29.75	74	67.78	31.4	11.32	66.25	100	0	P	V
802.11b CH 06 2437MHz		4824	43.51	-30.49	74	67.05	31.39	11.32	66.25	100	0	P	H
		7311	46.35	-27.65	74	61.99	36.35	13.87	65.86	100	0	P	H
		4824	42.11	-31.89	74	65.64	31.4	11.32	66.25	100	0	P	V
		7311	46.49	-27.51	74	62.09	36.39	13.87	65.86	100	0	P	V
802.11b CH 11 2462MHz		4924	41.87	-32.13	74	65.03	31.37	11.52	66.05	100	0	P	H
		7386	45.98	-28.02	74	61.4	36.47	13.99	65.88	100	0	P	H
		4924	43.76	-30.24	74	67.02	31.27	11.52	66.05	100	0	P	V
		7386	47.25	-26.75	74	62.58	36.56	13.99	65.88	100	0	P	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	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)
		2389.8	62.8	-11.2	74	49.14	27.63	17.4	31.37	288	55	P	H
		2390	49.75	-4.25	54	36.09	27.63	17.4	31.37	288	55	A	H
802.11n	*	2412	104.78	-	-	91.1	27.6	17.44	31.36	288	55	P	H
HT20	*	2412	97.33	-	-	83.65	27.6	17.44	31.36	288	55	A	H
CH 01		2389.8	66.94	-7.06	74	53.29	27.62	17.4	31.37	100	31	P	V
2412MHz		2390	52.83	-1.17	54	39.18	27.62	17.4	31.37	100	31	A	V
	*	2412	107.84	-	-	94.22	27.54	17.44	31.36	100	31	P	V
	*	2412	100.32	-	-	86.7	27.54	17.44	31.36	100	31	A	V
		2388.96	59.92	-14.08	74	46.26	27.63	17.4	31.37	373	118	P	H
		2390	46.69	-7.31	54	33.03	27.63	17.4	31.37	373	118	A	H
802.11n	*	2417	104.87	-	-	91.18	27.6	17.45	31.36	373	118	P	H
HT20	*	2417	97.59	-	-	83.9	27.6	17.45	31.36	373	118	A	H
CH 02		2388.12	67.68	-6.32	74	54.02	27.63	17.4	31.37	117	34	P	V
2417MHz		2390	53.42	-0.58	54	39.77	27.62	17.4	31.37	117	34	A	V
	*	2417	111.3	-	-	97.69	27.52	17.45	31.36	117	34	P	V
	*	2417	103.08	-	-	89.47	27.52	17.45	31.36	117	34	A	V
		2388.72	55.52	-18.48	74	41.86	27.63	17.4	31.37	202	11	P	H
		2390	45.21	-8.79	54	31.55	27.63	17.4	31.37	202	11	A	H
	*	2437	106.4	-	-	92.69	27.59	17.48	31.36	202	11	P	H
	*	2437	98.99	-	-	85.28	27.59	17.48	31.36	202	11	A	H
802.11n		2486.48	56.89	-17.11	74	43.12	27.56	17.56	31.35	202	11	P	H
HT20		2483.92	45.3	-8.7	54	31.53	27.56	17.56	31.35	202	11	A	H
CH 06		2382.96	59.06	-14.94	74	45.39	27.66	17.39	31.38	100	32	P	V
2437MHz		2390	47.15	-6.85	54	33.5	27.62	17.4	31.37	100	32	A	V
	*	2437	112.52	-	-	98.94	27.46	17.48	31.36	100	32	P	V
	*	2437	104.76	-	-	91.18	27.46	17.48	31.36	100	32	A	V
		2483.76	61.95	-12.05	74	48.35	27.39	17.56	31.35	100	32	P	V
		2483.68	48.03	-5.97	54	34.43	27.39	17.56	31.35	100	32	A	V

WIFI	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)
802.11n HT20 CH 10 2457MHz	*	2457	104.11	-	-	90.37	27.58	17.52	31.36	317	125	P	H
	*	2457	96.78	-	-	83.04	27.58	17.52	31.36	317	125	A	H
		2483.8	63.14	-10.86	74	49.37	27.56	17.56	31.35	317	125	P	H
		2483.52	47.45	-6.55	54	33.67	27.57	17.56	31.35	317	125	A	H
	*	2457	111.5	-	-	97.93	27.41	17.52	31.36	100	36	P	V
	*	2457	103.9	-	-	90.33	27.41	17.52	31.36	100	36	A	V
		2483.8	68.12	-5.88	74	54.52	27.39	17.56	31.35	100	36	P	V
		2483.52	53.08	-0.92	54	39.48	27.39	17.56	31.35	100	36	A	V
802.11n HT20 CH 11 2462MHz	*	2462	105.18	-	-	91.43	27.58	17.53	31.36	399	64	P	H
	*	2462	97.61	-	-	83.86	27.58	17.53	31.36	399	64	A	H
		2483.92	66.64	-7.36	74	52.87	27.56	17.56	31.35	399	64	P	H
		2483.52	48.27	-5.73	54	34.49	27.57	17.56	31.35	399	64	A	H
	*	2462	109.95	-	-	96.37	27.41	17.53	31.36	100	38	P	V
	*	2462	102.67	-	-	89.09	27.41	17.53	31.36	100	38	A	V
		2484.04	72.94	-1.06	74	59.34	27.39	17.56	31.35	100	38	P	V
		2483.52	52.99	-1.01	54	39.39	27.39	17.56	31.35	100	38	A	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 (Harmonic @ 3m)

WIFI	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)
802.11n HT20 CH 01 2412MHz		4824	42.49	-31.51	74	66.03	31.39	11.32	66.25	100	0	P	H
		4824	42.99	-31.01	74	66.52	31.4	11.32	66.25	100	0	P	V
802.11n HT20 CH 06 2437MHz		4874	41.1	-32.9	74	64.47	31.36	11.42	66.15	100	0	P	H
		7311	46.26	-27.74	74	61.9	36.35	13.87	65.86	100	0	P	H
		4874	41.29	-32.71	74	64.71	31.31	11.42	66.15	100	0	P	V
		7311	46.4	-27.6	74	62	36.39	13.87	65.86	100	0	P	V
802.11n HT20 CH 11 2462MHz		4924	41.69	-32.31	74	64.85	31.37	11.52	66.05	100	0	P	H
		7386	46.8	-27.2	74	62.22	36.47	13.99	65.88	100	0	P	H
		4924	41.95	-32.05	74	65.21	31.27	11.52	66.05	100	0	P	V
		7386	47.39	-26.61	74	62.72	36.56	13.99	65.88	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI	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)
2.4GHz 802.11n HT20 LF		213.33	35.76	-7.74	43.5	50.86	14.9	2.4	32.4	-	-	P	H
		256.98	37.9	-8.1	46	48.2	19.5	2.61	32.41	-	-	P	H
		299.66	38.6	-7.4	46	49.03	19.2	2.81	32.44	100	0	P	H
		370.47	37.45	-8.55	46	45.85	20.85	3.23	32.48	-	-	P	H
		746.83	33.01	-12.99	46	32.85	28	4.6	32.44	-	-	P	H
		952.47	34.77	-11.23	46	29.98	30.85	5.18	31.24	-	-	P	H
		43.58	29.68	-10.32	40	43.17	17.85	1.1	32.44	-	-	P	V
		118.27	33.59	-9.91	43.5	46.77	17.5	1.73	32.41	100	0	P	V
		256.98	34.64	-11.36	46	44.94	19.5	2.61	32.41	-	-	P	V
		303.54	29.85	-16.15	46	40.16	19.3	2.82	32.43	-	-	P	V
		587.75	31.79	-14.21	46	34.69	25.8	3.94	32.64	-	-	P	V
		947.62	34.7	-11.3	46	30.16	30.65	5.17	31.28	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

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

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

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBµV/m) =

Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBµV) - Preamp Factor(dB)

3. Over Limit(dB) = Level(dBµV/m) – Limit Line(dBµV/m)

For Peak Limit @ 2390MHz:

1. Level(dBµV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBµV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBµV) – 35.86 (dB)

= 55.45 (dBµV/m)

2. Over Limit(dB)

= Level(dBµV/m) – Limit Line(dBµV/m)

= 55.45(dBµV/m) – 74(dBµV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBµV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBµV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBµV) – 35.86 (dB)

= 43.54 (dBµV/m)

2. Over Limit(dB)

= Level(dBµV/m) – Limit Line(dBµV/m)

= 43.54(dBµV/m) – 54(dBµV/m)

= -10.46(dB)

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

Radiated Spurious Emission Plots

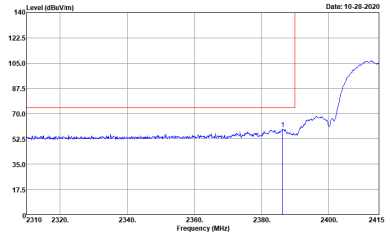
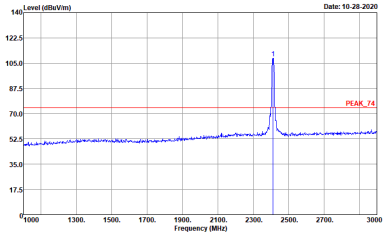
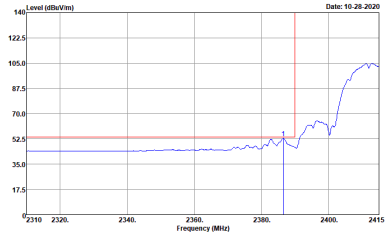
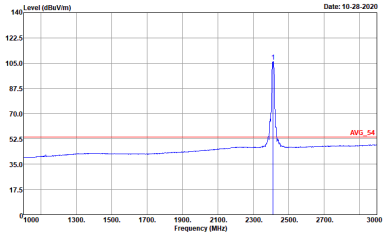
Note symbol

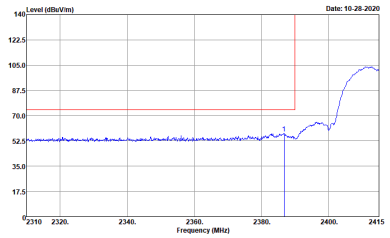
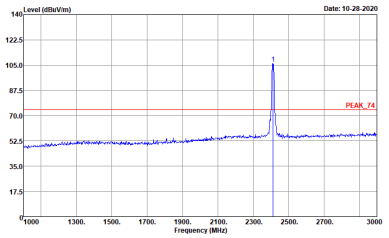
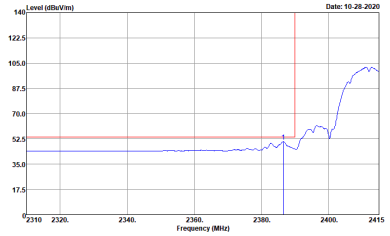
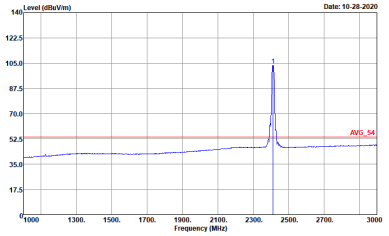
-L	**Low channel location**
-R	**High channel location**

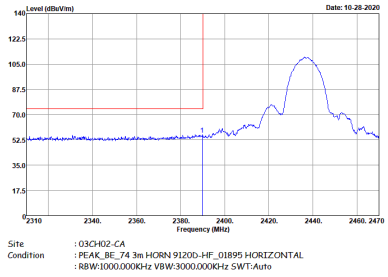
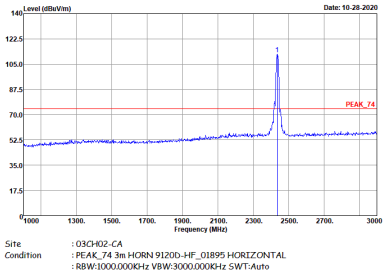
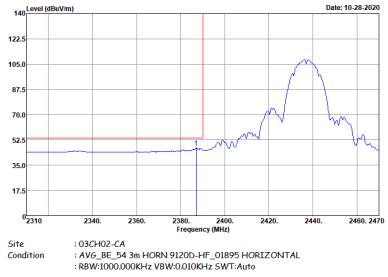
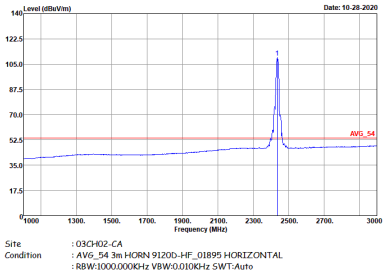
<Main Antenna for Sample 1>

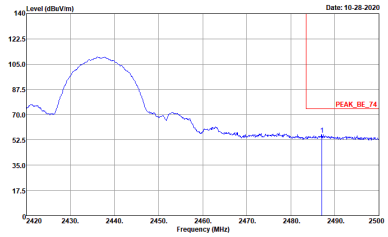
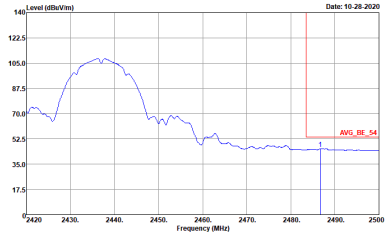
2.4GHz 2400~2483.5MHz

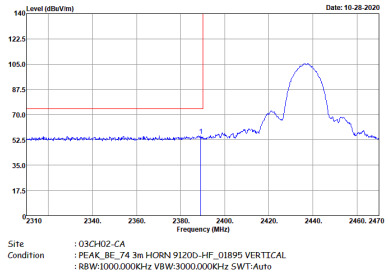
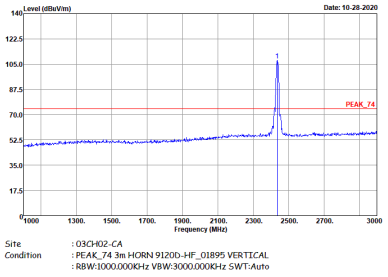
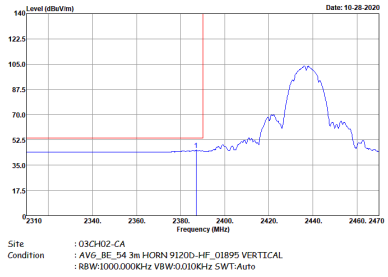
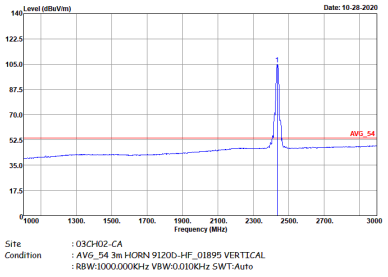
WIFI 802.11b (Band Edge @ 3m)

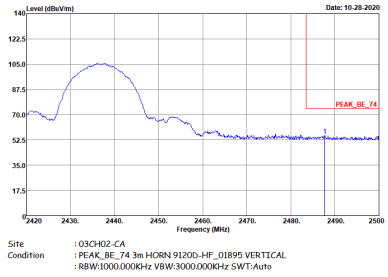
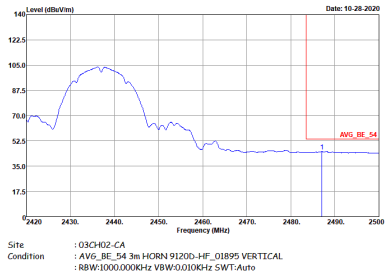
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

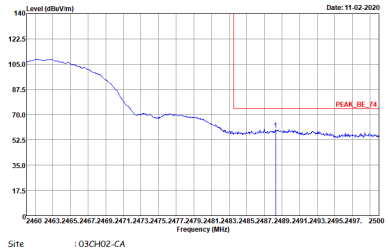
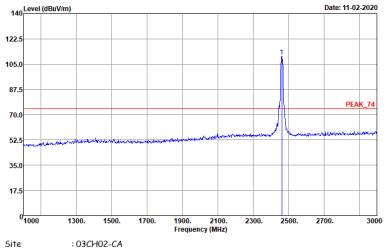
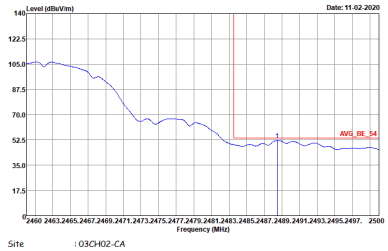
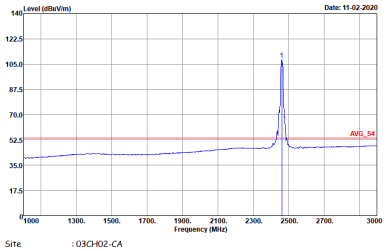
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH01 2412MHz	
	Vertical	Fundamental
Peak		
Avg.		

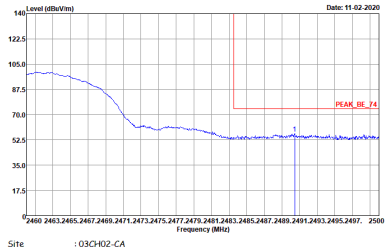
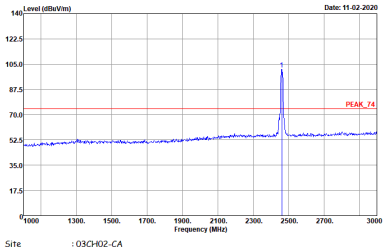
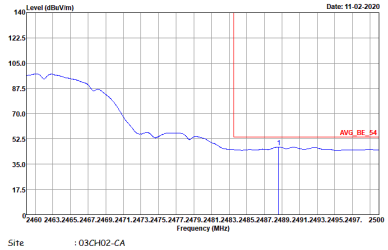
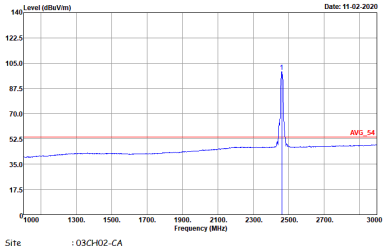
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

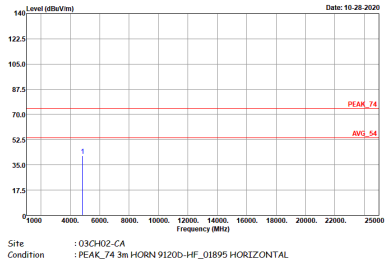
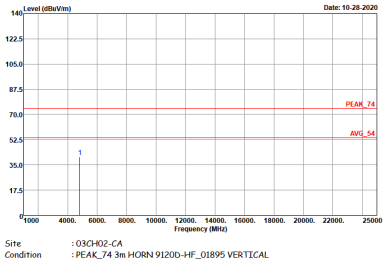
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

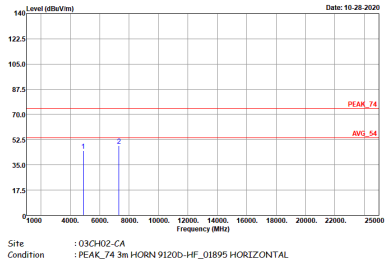
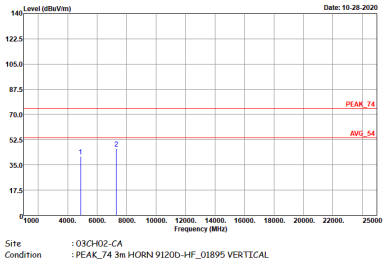
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - R	
	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

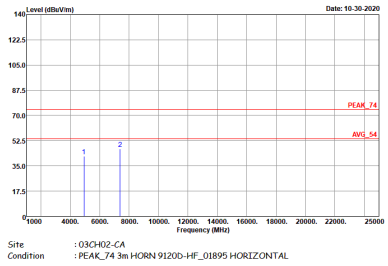
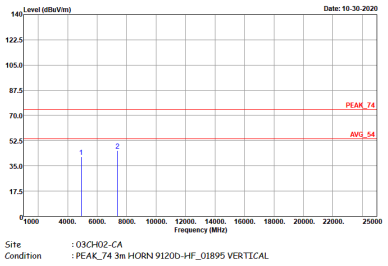
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH11 2462MHz	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH11 2462MHz	
	Vertical	Fundamental
Peak		
Avg.		

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

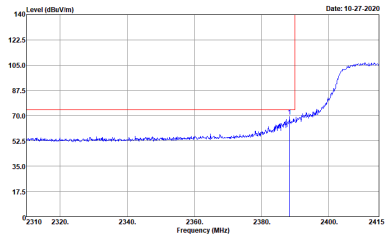
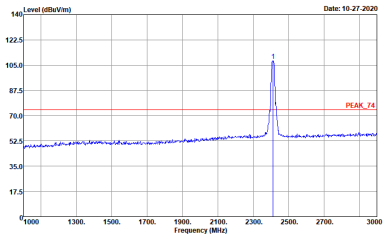
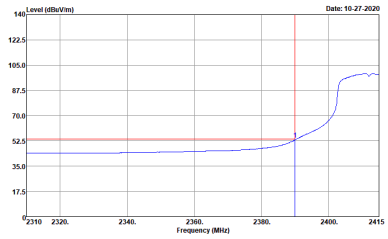
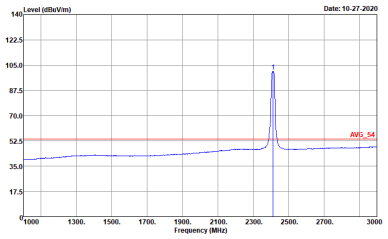
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

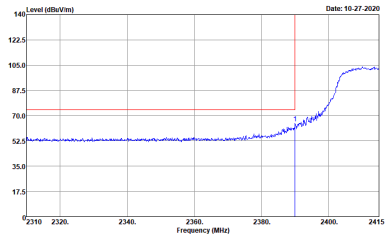
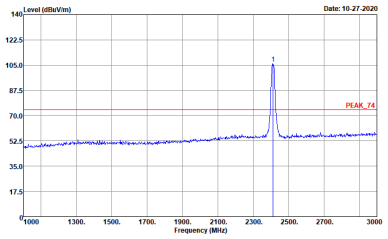
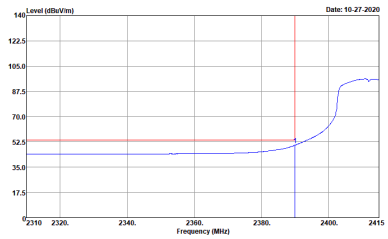
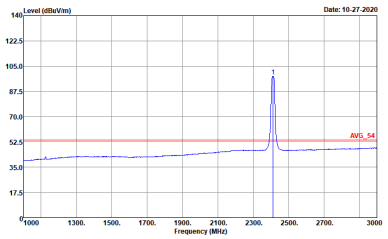
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH06 2437MHz	
	Horizontal	Vertical
Peak Avg.		

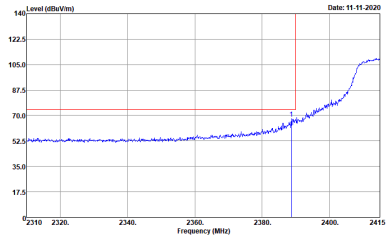
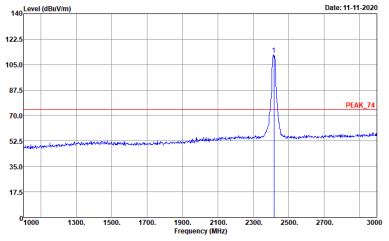
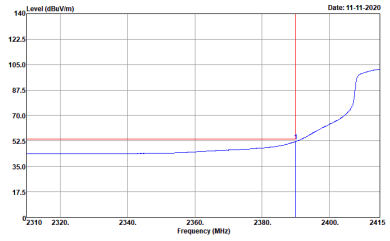
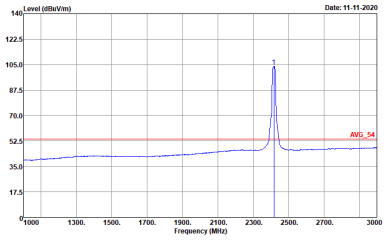
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH11 2462MHz	
	Horizontal	Vertical
Peak Avg.		

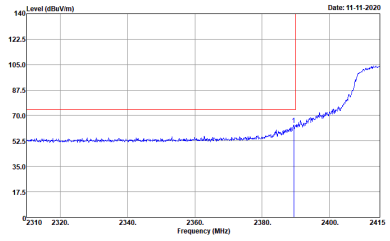
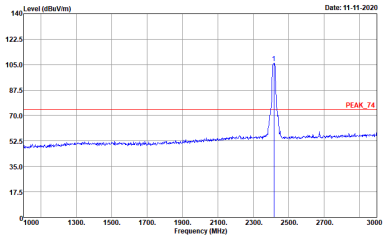
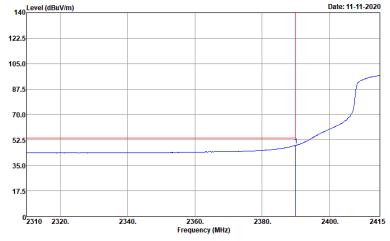
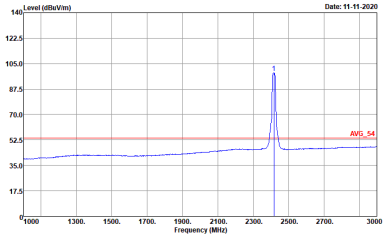
2.4GHz 2400~2483.5MHz

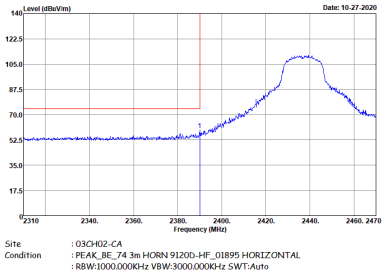
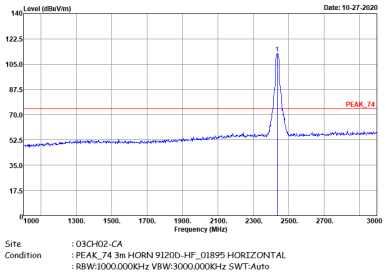
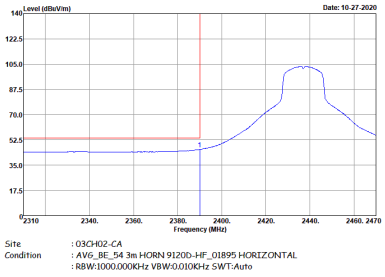
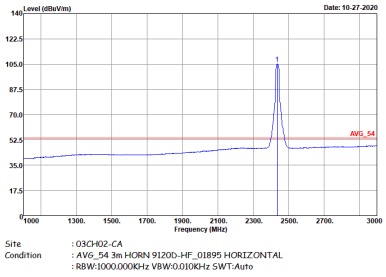
WIFI 802.11n HT20 (Band Edge @ 3m)

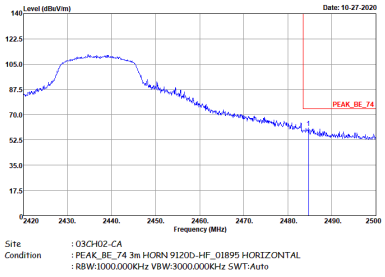
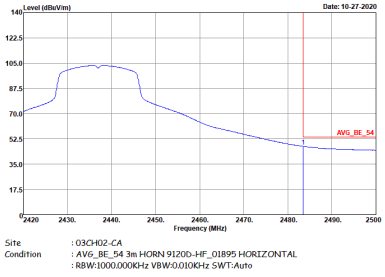
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

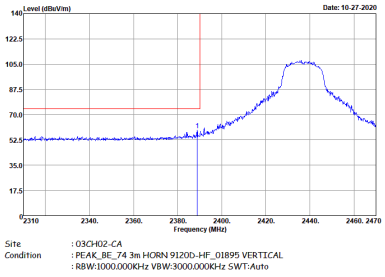
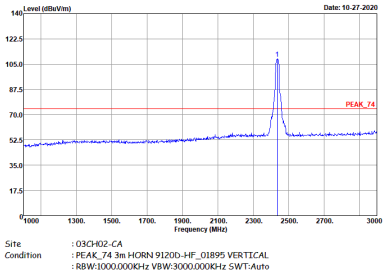
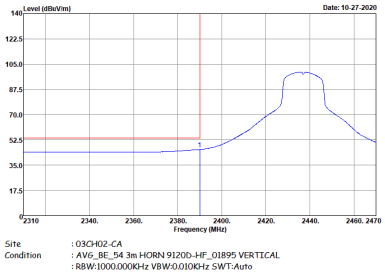
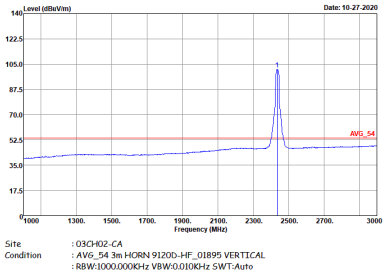
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH01 2412MHz	
	Vertical	Fundamental
Peak		
Avg.		

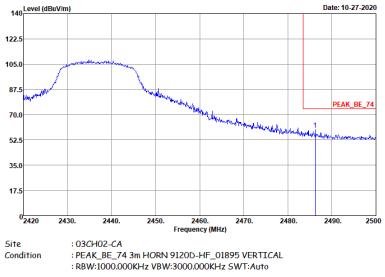
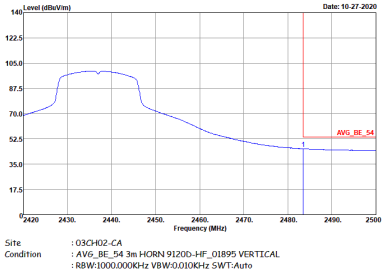
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH02 2417MHz	
	Horizontal	Fundamental
Peak		
Avg.		

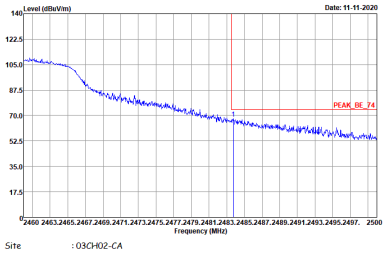
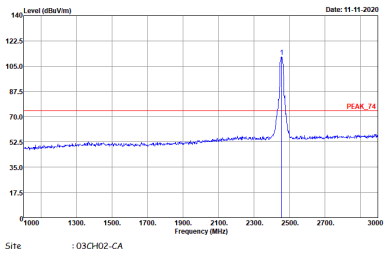
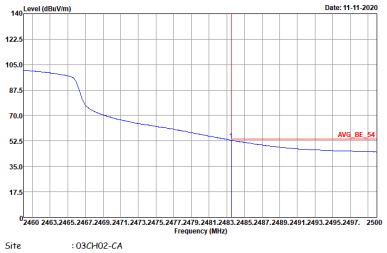
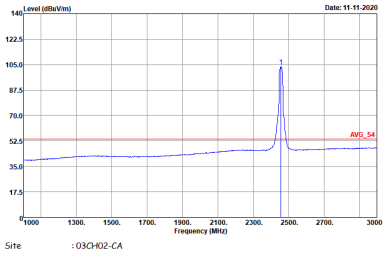
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH02 2417MHz	
	Vertical	Fundamental
Peak		
Avg.		

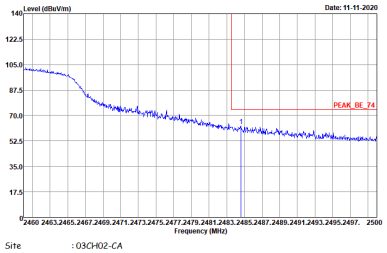
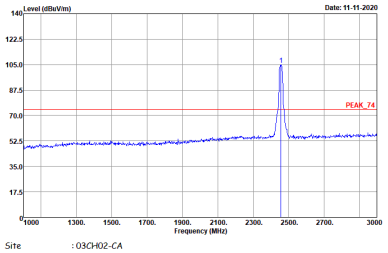
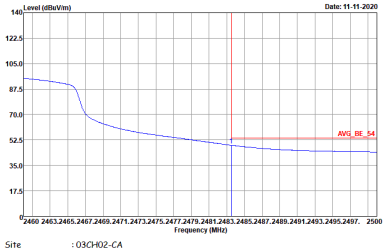
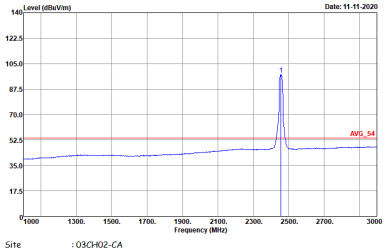
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

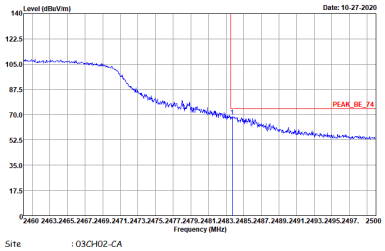
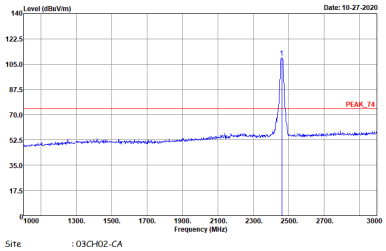
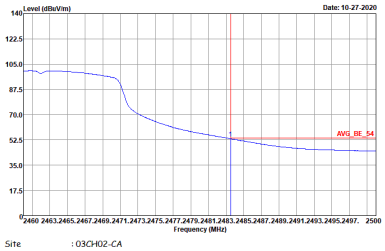
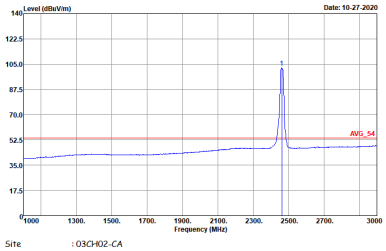
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

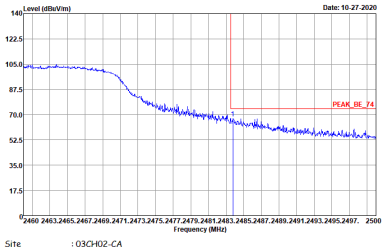
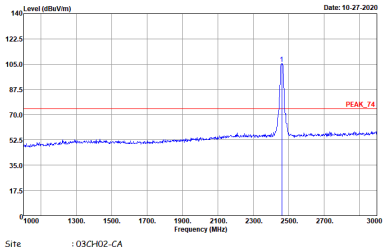
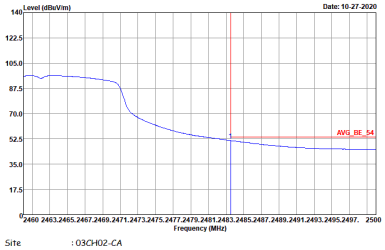
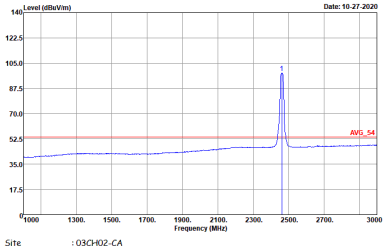
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - R	
	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH10 2457MHz	
	Horizontal	Fundamental
Peak		
Avg.		

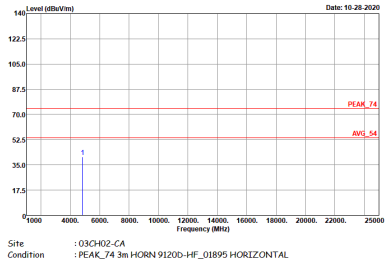
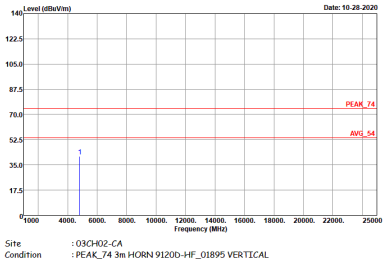
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
	802.11n HT20 CH10 2457MHz	
	Vertical	Fundamental
Peak		
Avg.		

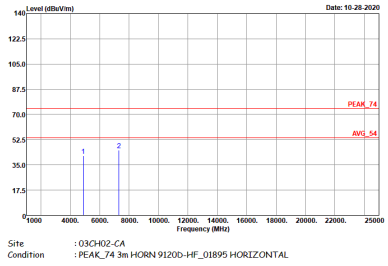
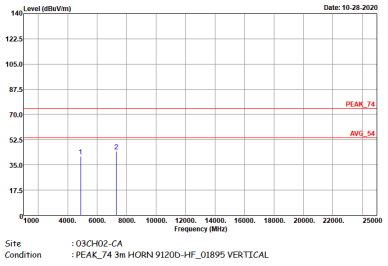
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH11 2462MHz	
	Horizontal	Fundamental
Peak		
Avg.		

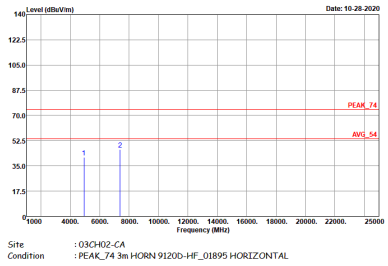
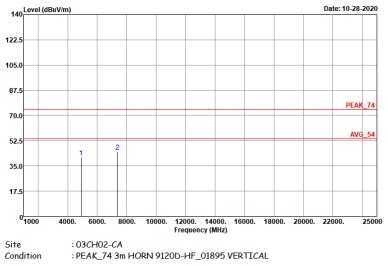
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
	802.11n HT20 CH11 2462MHz	
	Vertical	Fundamental
Peak		
Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

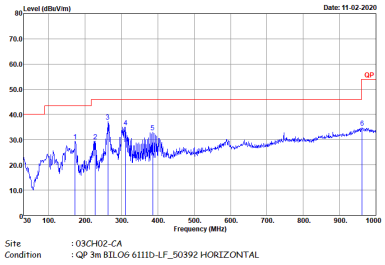
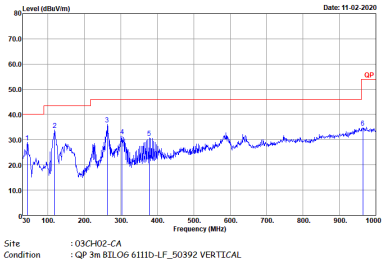
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH06 2437MHz	
	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH11 2462MHz	
	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

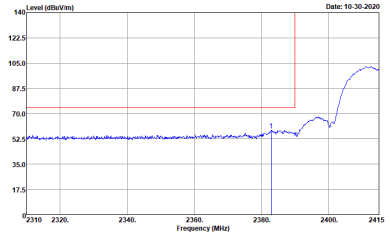
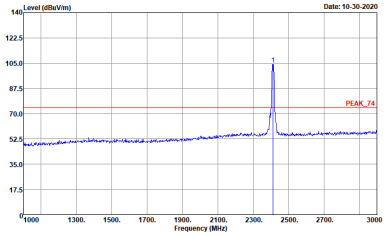
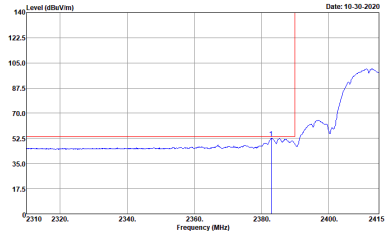
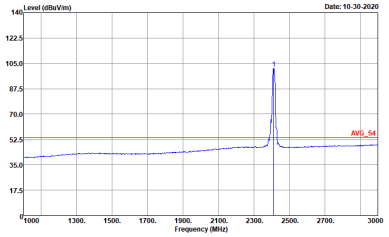
2.4GHz WIFI 802.11n HT20 (LF)

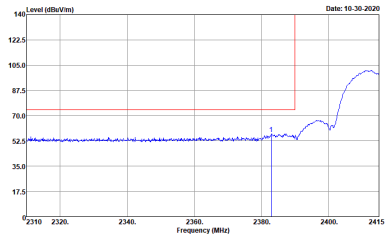
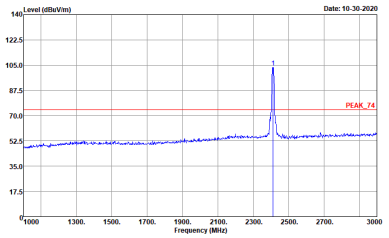
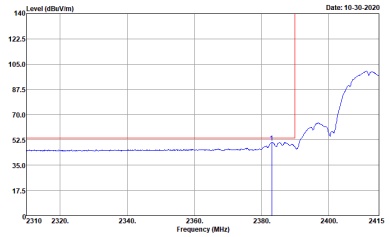
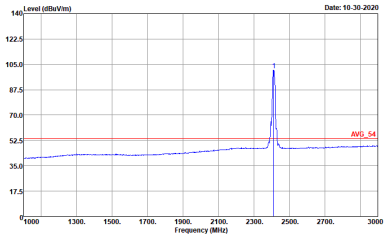
WIFI	2.4GHz 2400~2483.5MHz	
	802.11n HT20 LF	
	Horizontal	Vertical
QP / Peak		

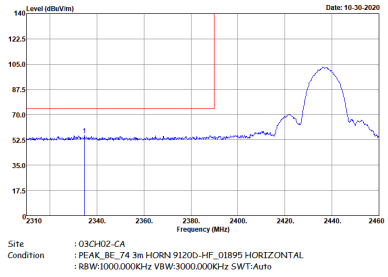
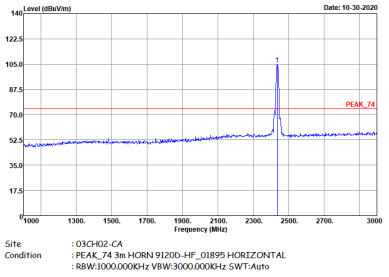
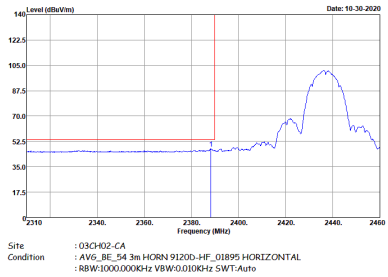
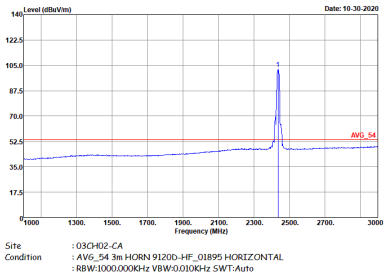
<Aux. Antenna for Sample 1>

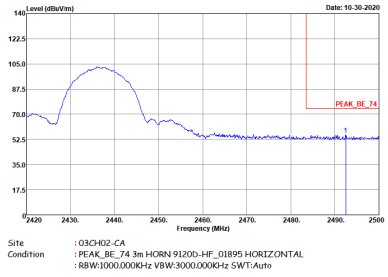
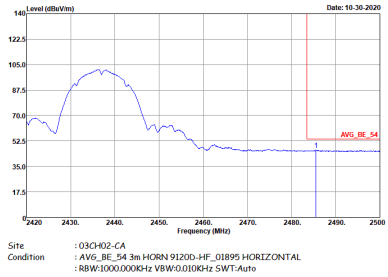
2.4GHz 2400~2483.5MHz

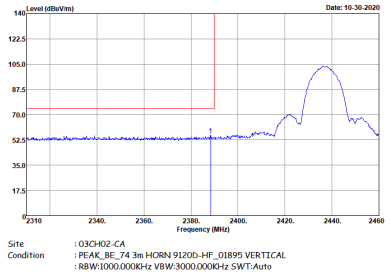
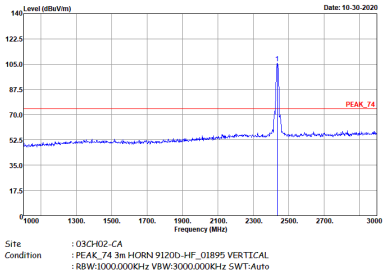
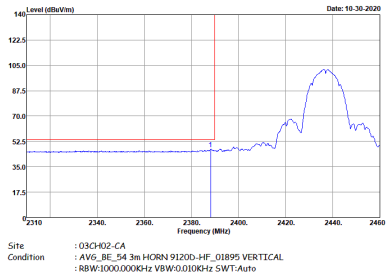
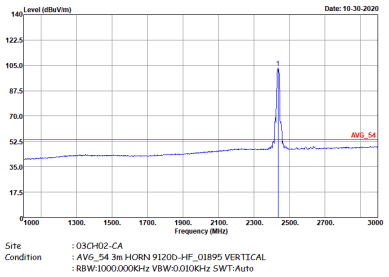
WIFI 802.11b (Band Edge @ 3m)

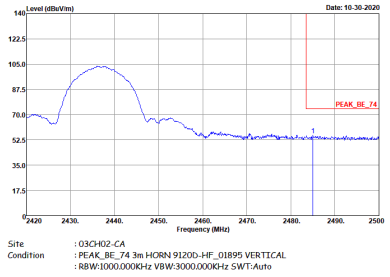
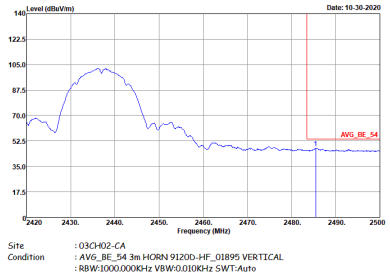
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

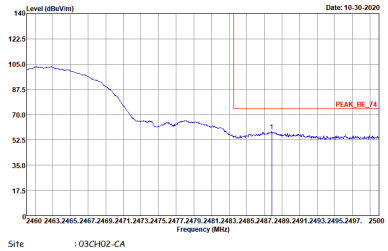
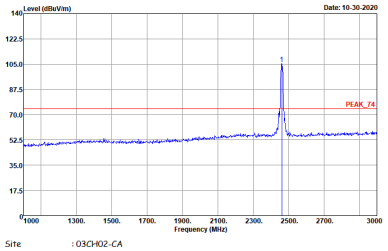
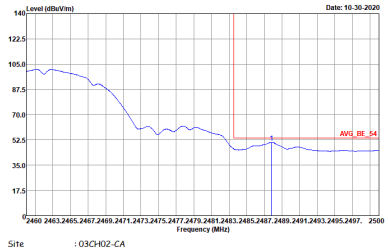
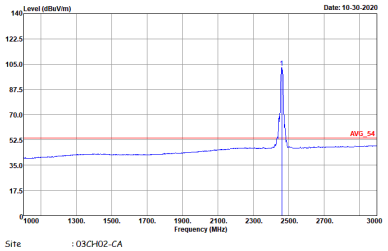
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH01 2412MHz	
	Vertical	Fundamental
Peak		
Avg.		

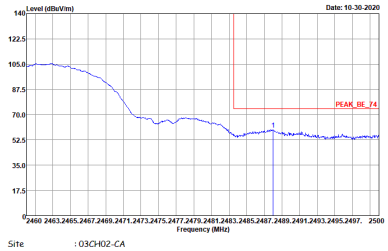
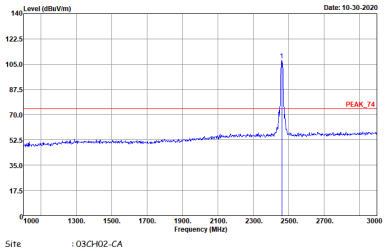
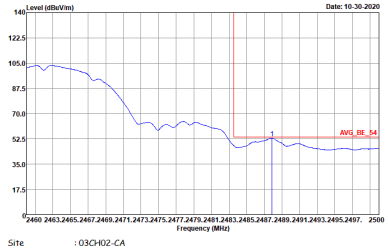
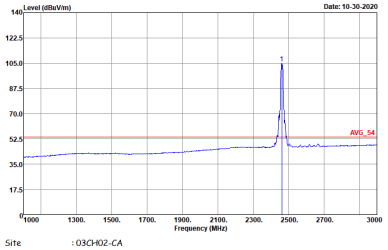
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

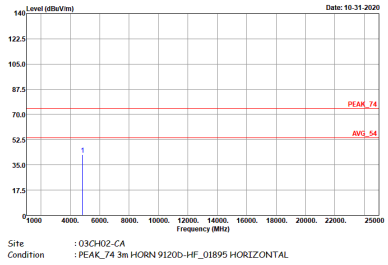
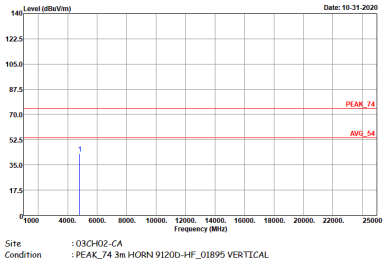
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

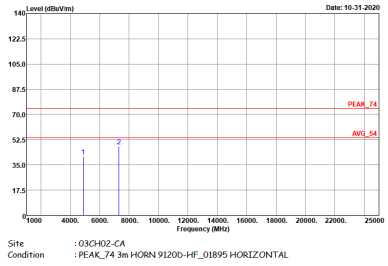
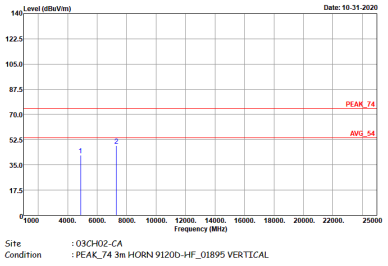
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - R	
	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

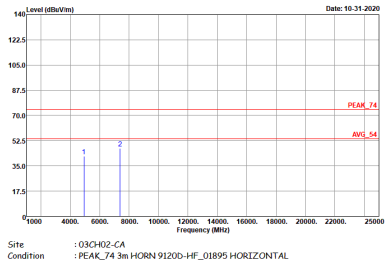
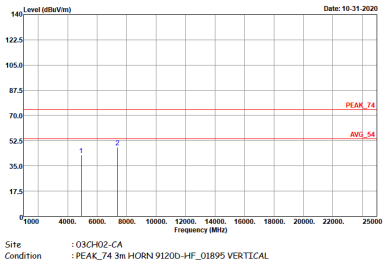
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH11 2462MHz	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH11 2462MHz	
	Vertical	Fundamental
Peak		
Avg.		

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

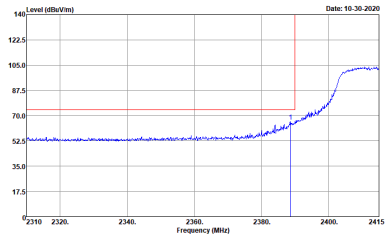
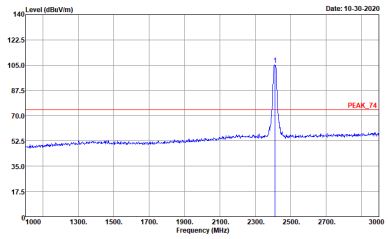
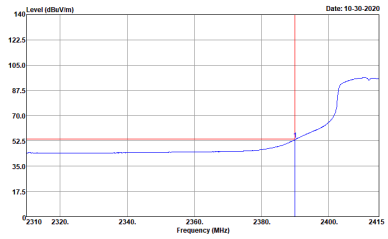
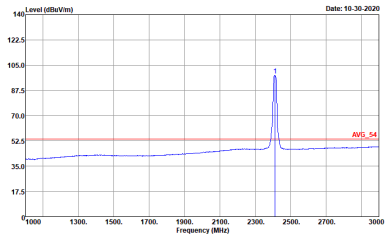
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

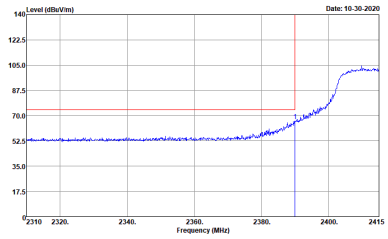
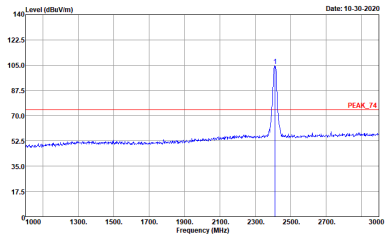
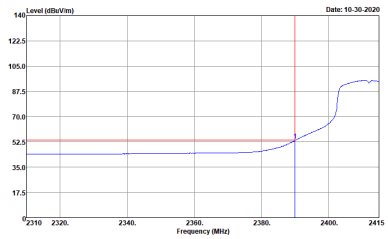
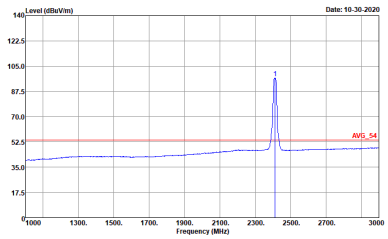
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH06 2437MHz	
	Horizontal	Vertical
Peak Avg.		

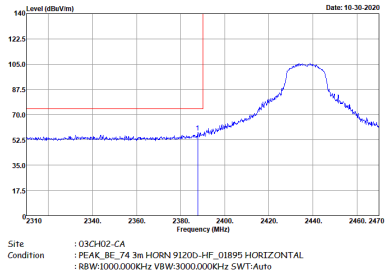
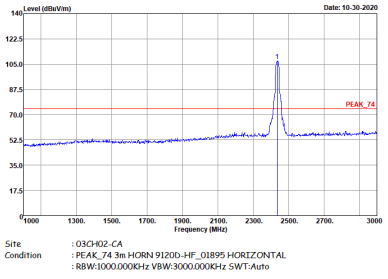
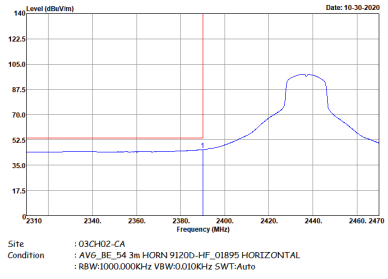
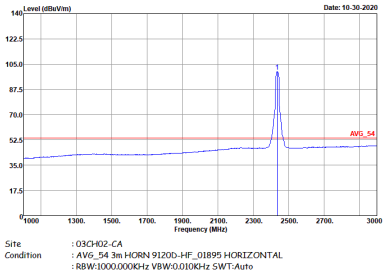
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH11 2462MHz	
	Horizontal	Vertical
Peak Avg.		

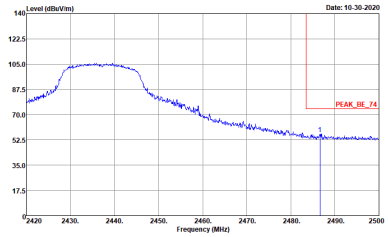
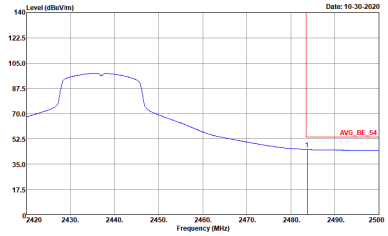
2.4GHz 2400~2483.5MHz

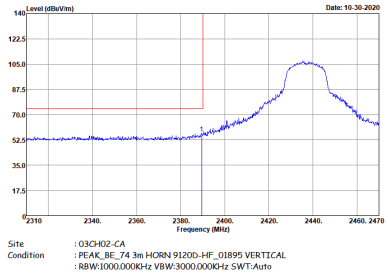
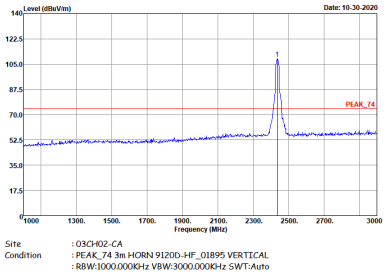
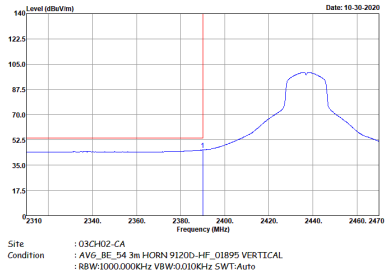
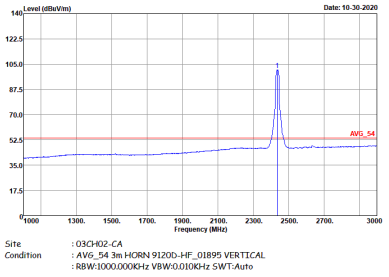
WIFI 802.11n HT20 (Band Edge @ 3m)

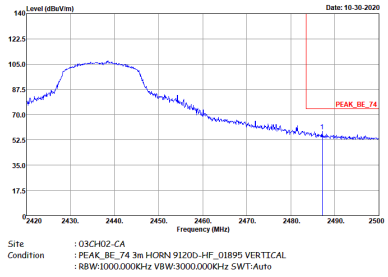
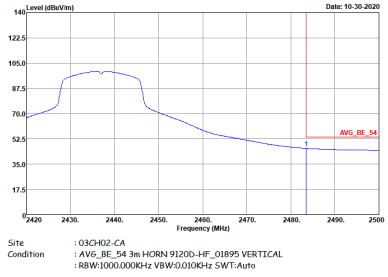
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

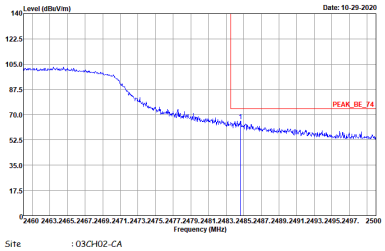
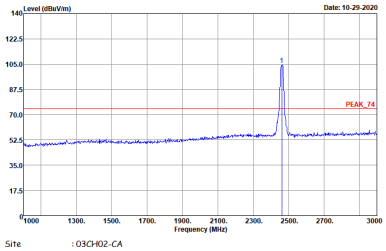
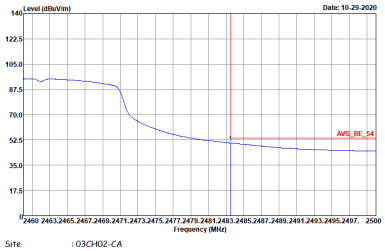
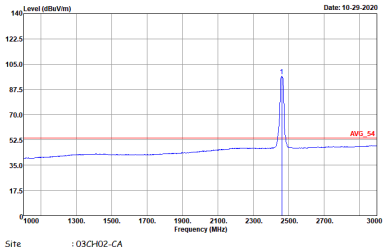
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH01 2412MHz	
	Vertical	Fundamental
Peak		
Avg.		

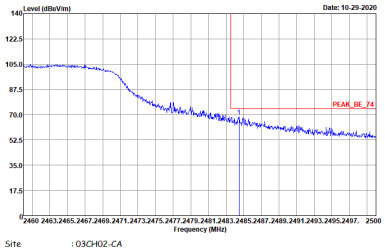
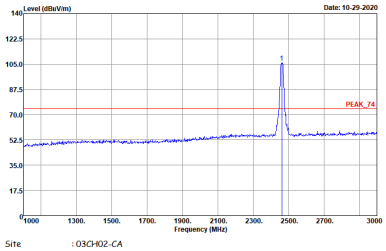
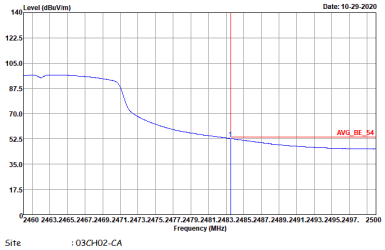
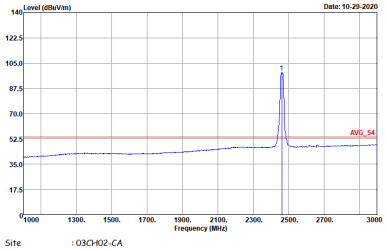
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

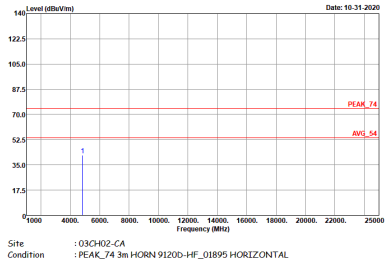
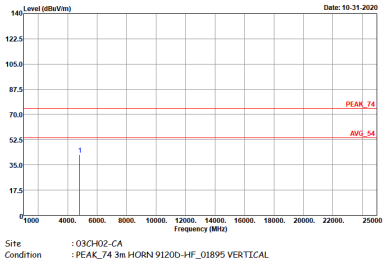
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - R	
	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

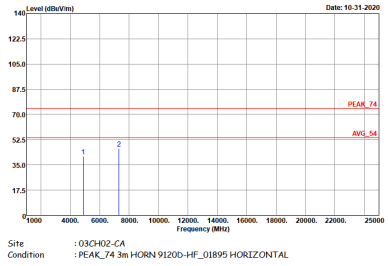
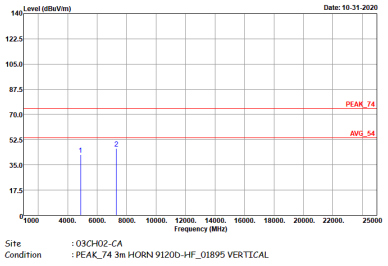
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH11 2462MHz	
	Horizontal	Fundamental
Peak		
Avg.		

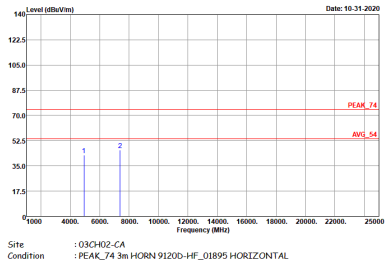
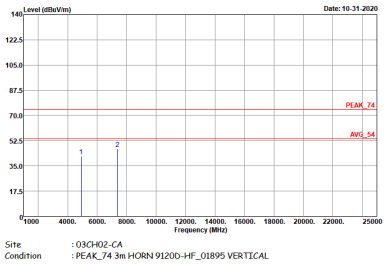
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
	802.11n HT20 CH11 2462MHz	
	Vertical	Fundamental
Peak		
Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

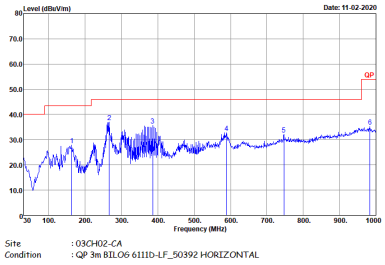
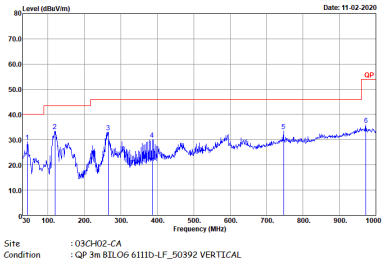
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH06 2437MHz	
	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH11 2462MHz	
	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

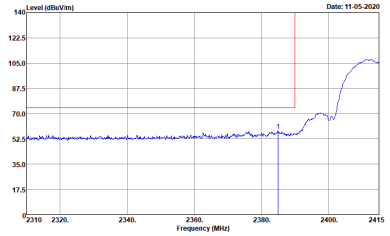
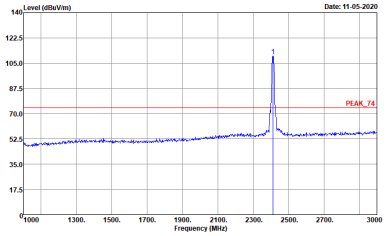
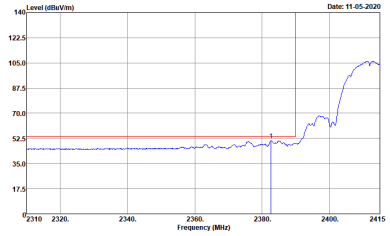
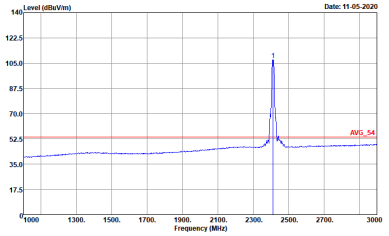
2.4GHz WIFI 802.11n HT20 (LF)

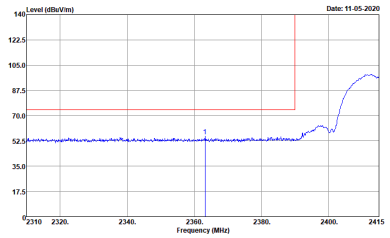
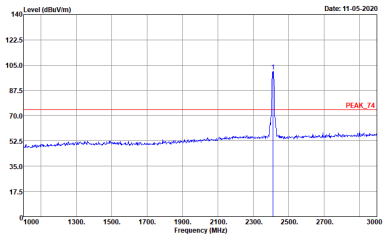
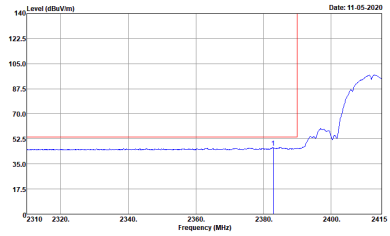
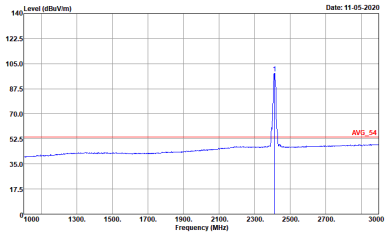
WIFI	2.4GHz 2400~2483.5MHz	
	802.11n HT20 LF	
	Horizontal	Vertical
QP / Peak		

<Main Antenna for Sample 2>

2.4GHz 2400~2483.5MHz

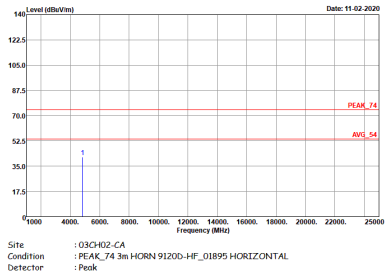
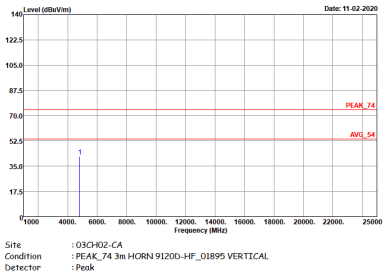
WIFI 802.11b (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH01 2412MHz	
	Vertical	Fundamental
Peak		
Avg.		

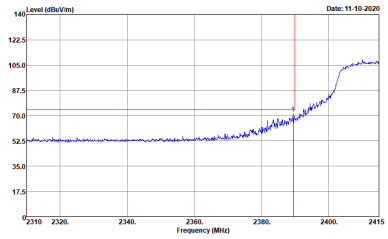
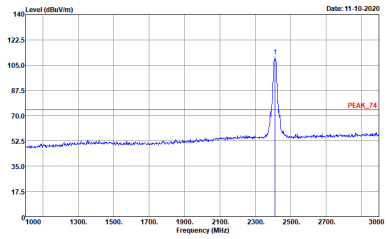
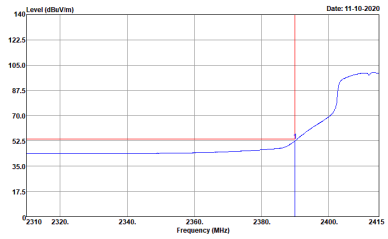
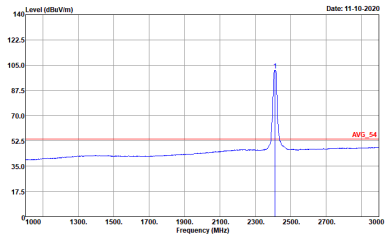
2.4GHz 2400~2483.5MHz

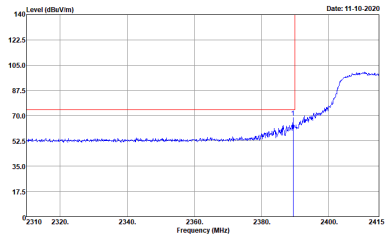
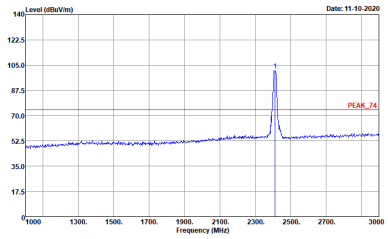
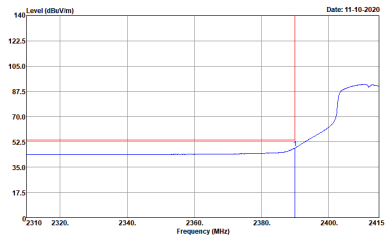
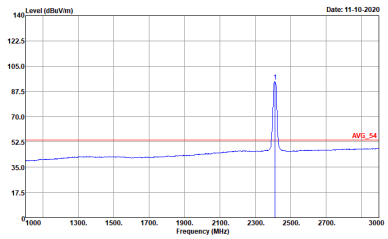
WIFI 802.11b (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

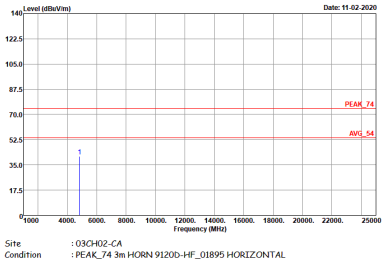
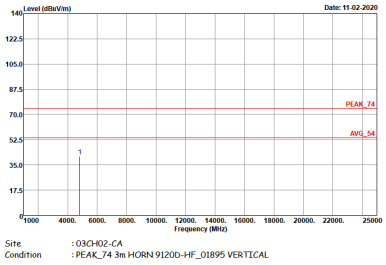
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH01 2412MHz	
	Vertical	Fundamental
Peak		
Avg.		

2.4GHz 2400~2483.5MHz

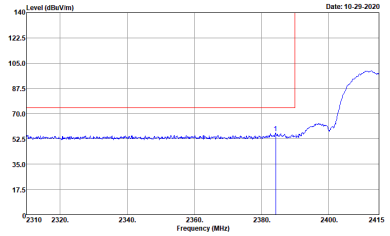
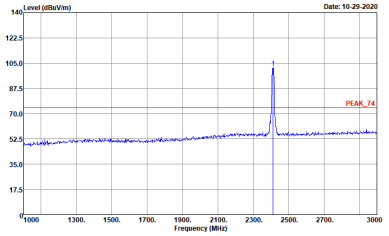
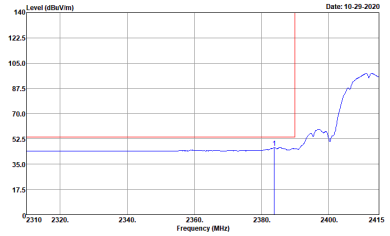
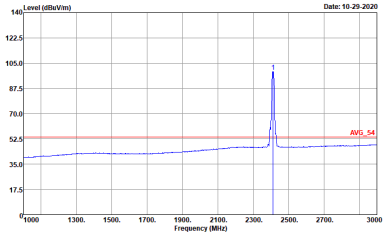
WIFI 802.11n HT20 (Harmonic @ 3m)

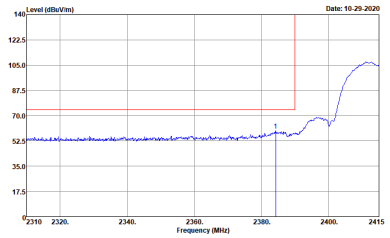
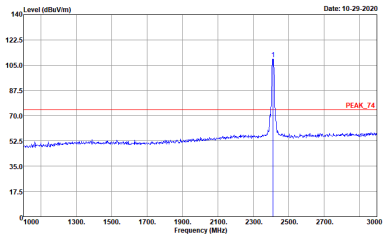
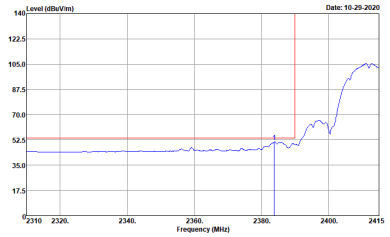
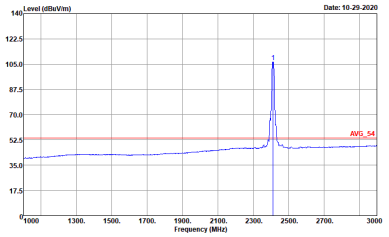
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

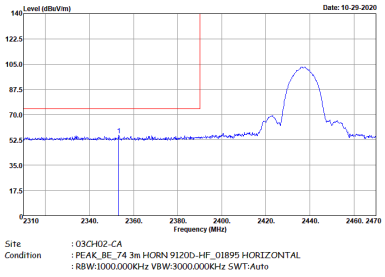
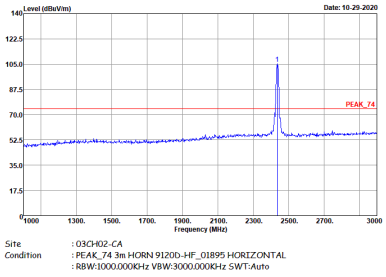
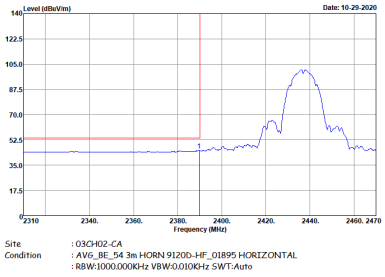
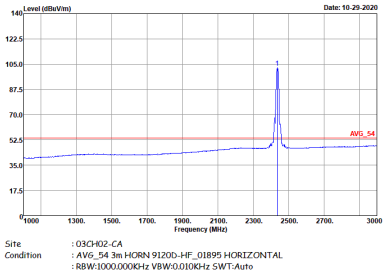
<Aux. Antenna for Sample 2>

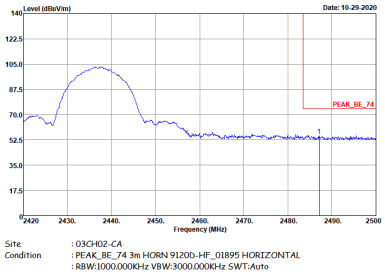
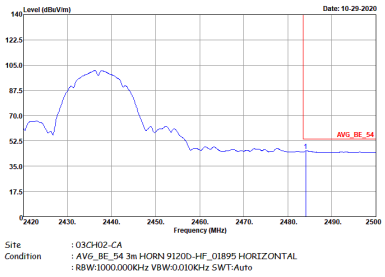
2.4GHz 2400~2483.5MHz

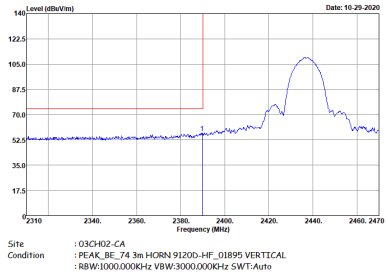
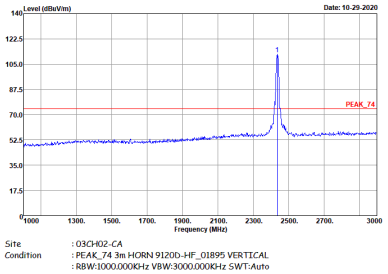
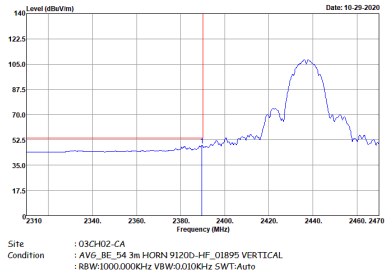
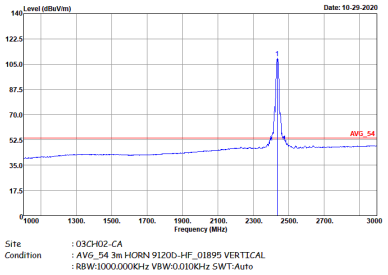
WIFI 802.11b (Band Edge @ 3m)

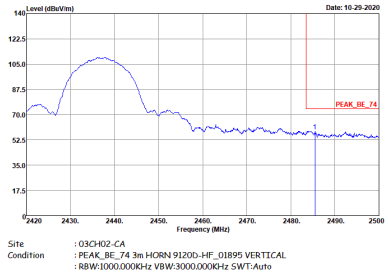
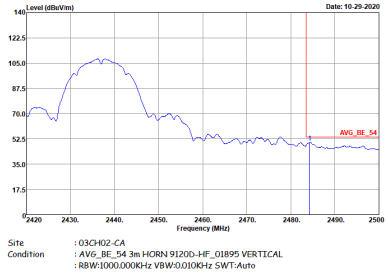
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

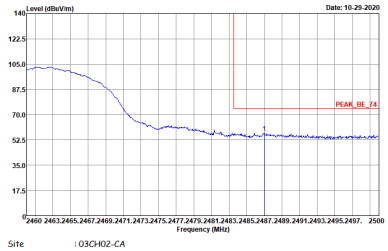
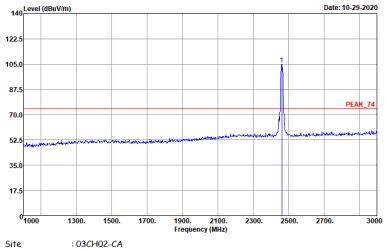
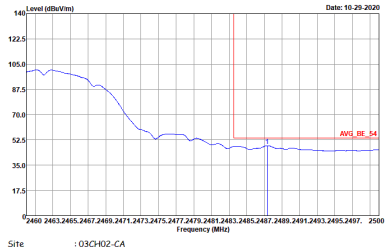
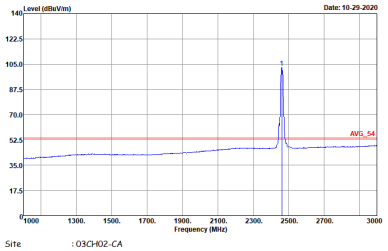
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH01 2412MHz	
	Vertical	Fundamental
Peak		
Avg.		

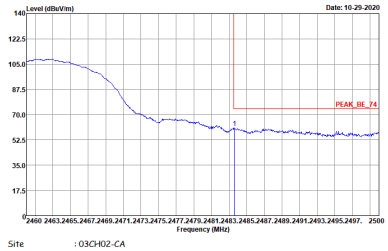
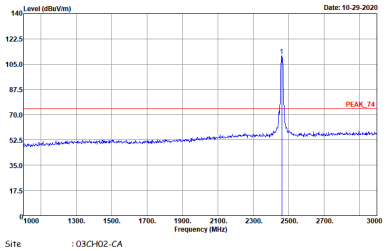
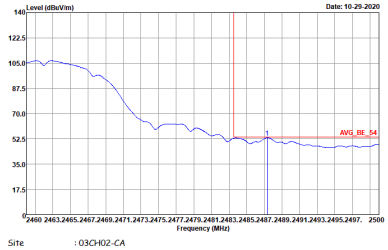
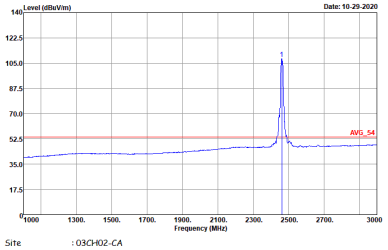
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

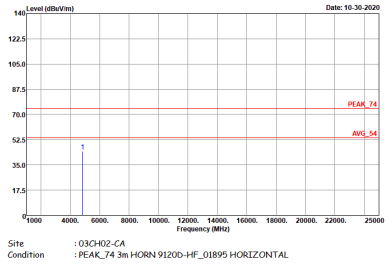
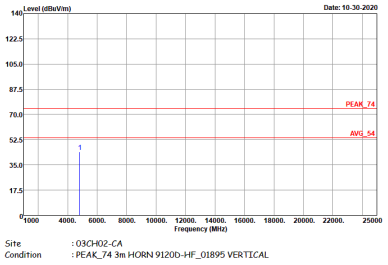
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

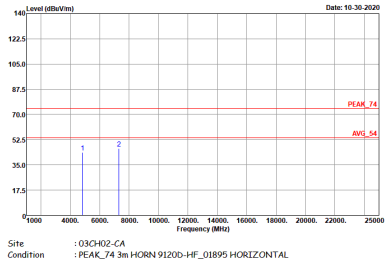
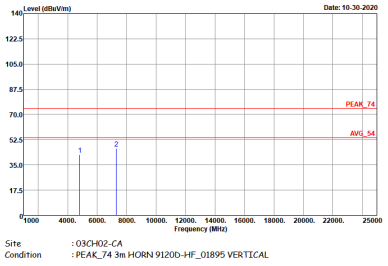
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH06 2437MHz - R	
	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

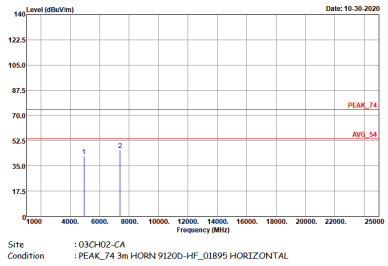
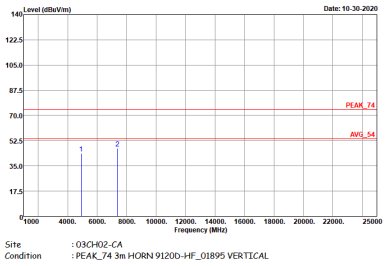
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH11 2462MHz	
	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11b CH11 2462MHz	
	Vertical	Fundamental
Peak		
Avg.		

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

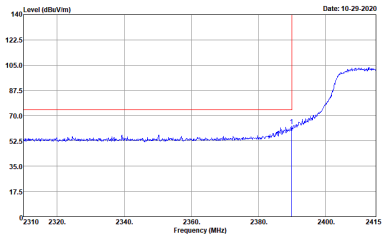
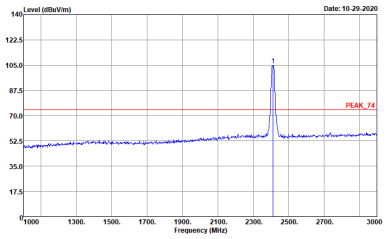
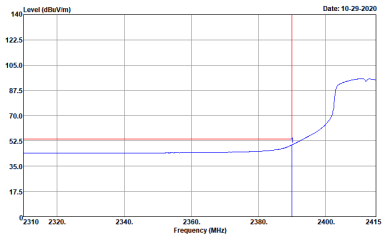
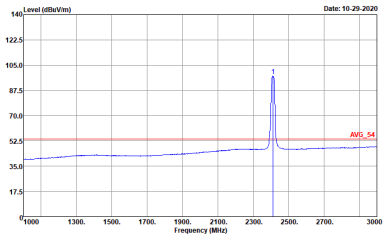
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

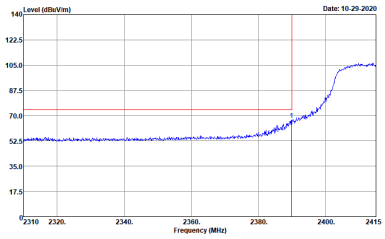
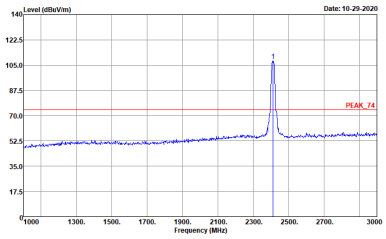
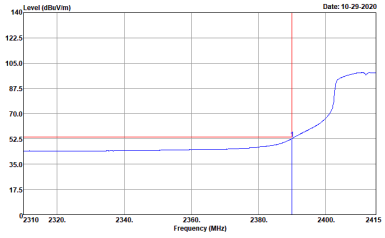
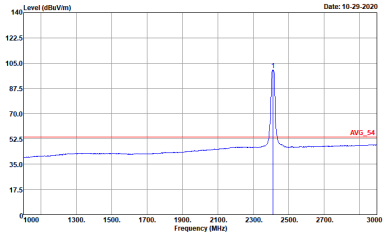
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH06 2437MHz	
	Horizontal	Vertical
Peak Avg.		

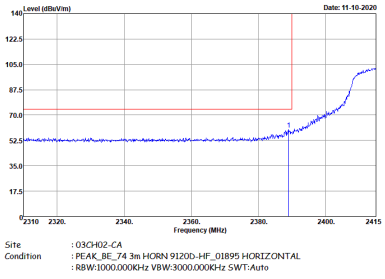
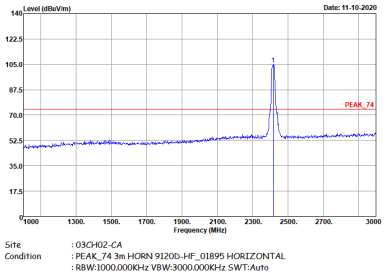
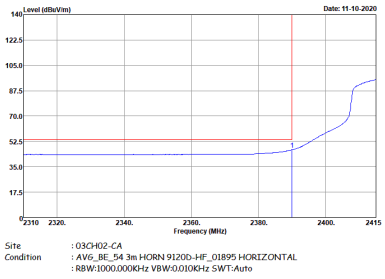
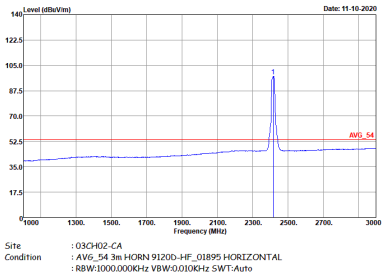
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11b CH11 2462MHz	
	Horizontal	Vertical
Peak Avg.		

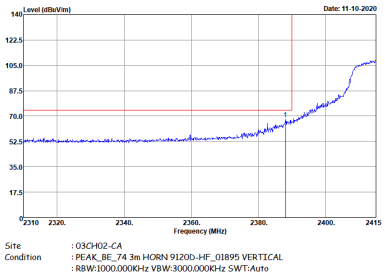
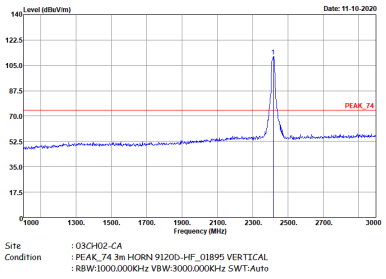
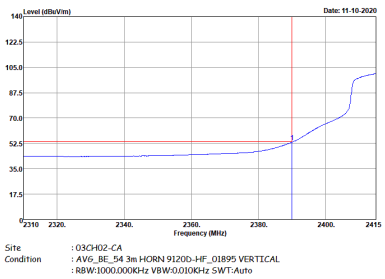
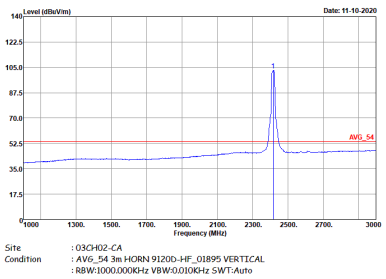
2.4GHz 2400~2483.5MHz

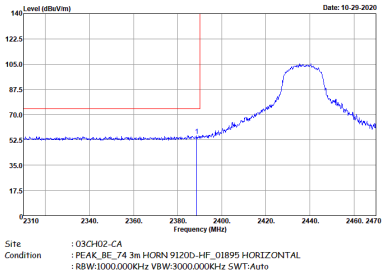
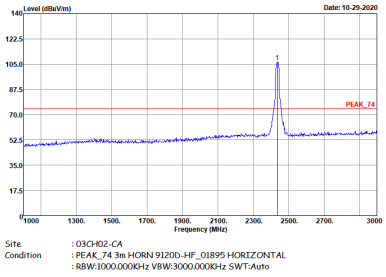
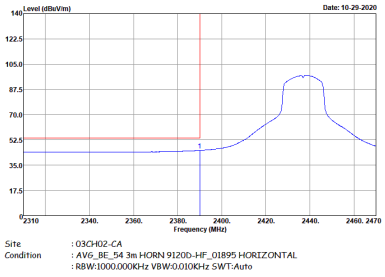
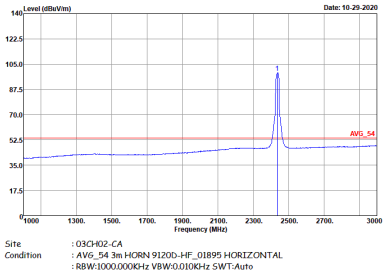
WIFI 802.11n HT20 (Band Edge @ 3m)

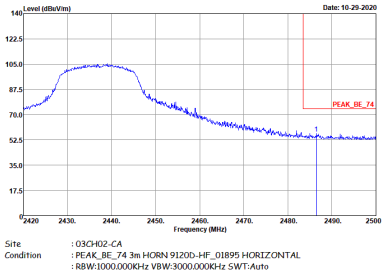
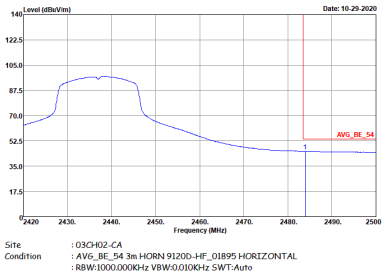
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH01 2412MHz	
	Horizontal	Fundamental
Peak		
Avg.		

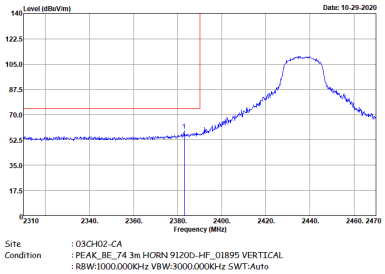
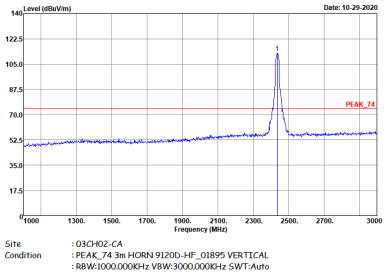
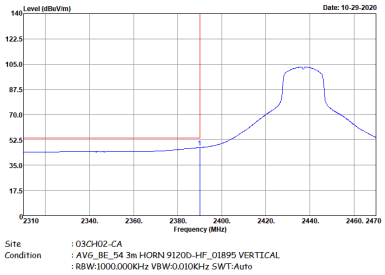
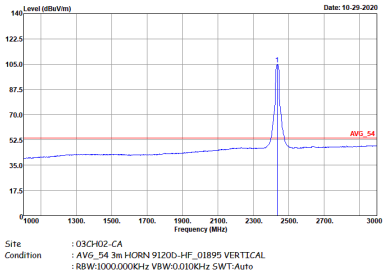
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH01 2412MHz	
	Vertical	Fundamental
Peak		
Avg.		

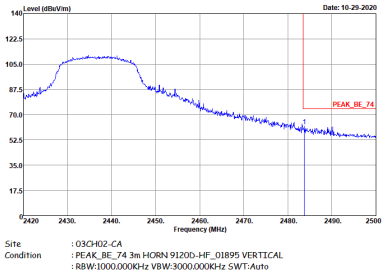
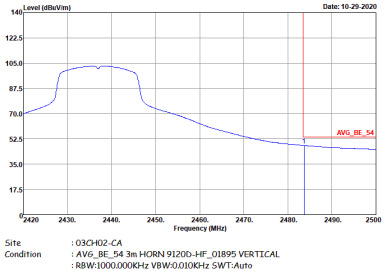
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH02 2417MHz	
	Horizontal	Fundamental
Peak		
Avg.		

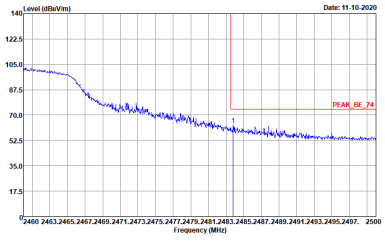
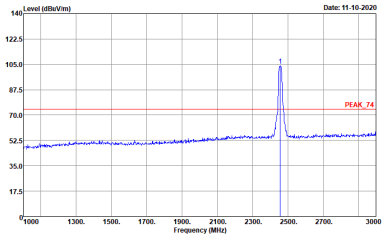
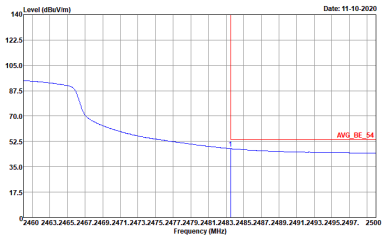
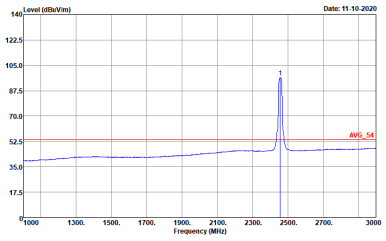
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH02 2417MHz	
	Vertical	Fundamental
Peak		
Avg.		

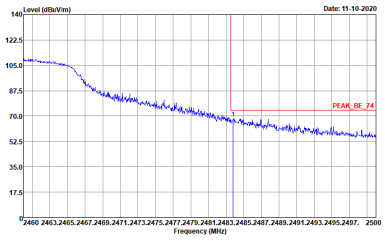
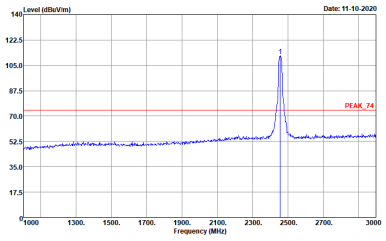
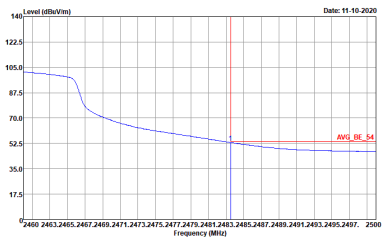
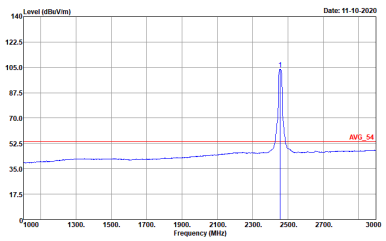
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - L	
	Horizontal	Fundamental
Peak		
Avg.		

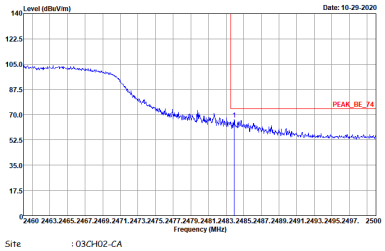
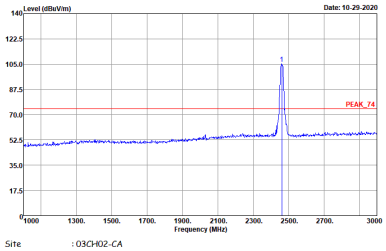
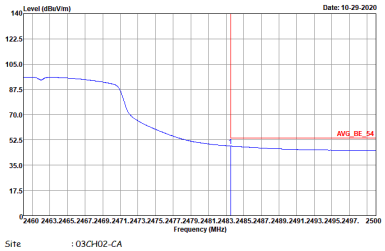
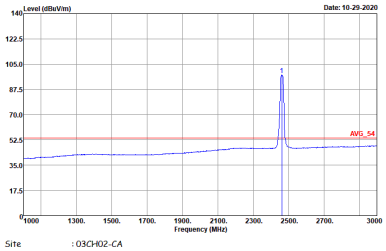
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - R	
	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

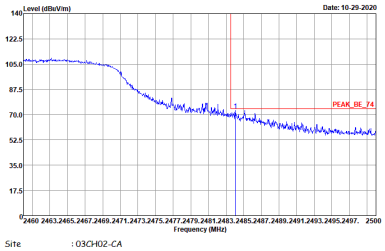
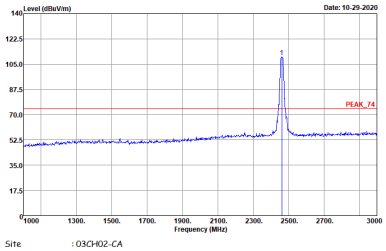
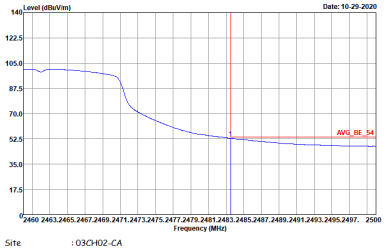
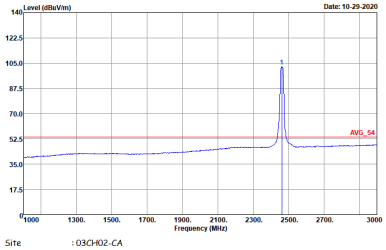
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - L	
	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH06 2437MHz - R	
	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH10 2457MHz	
	Horizontal	Fundamental
Peak	 Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH02-CA Condition : AVG_54 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

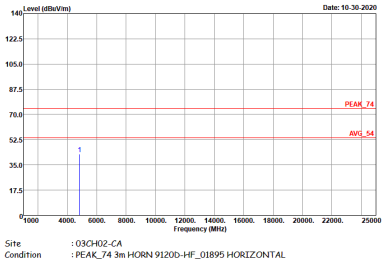
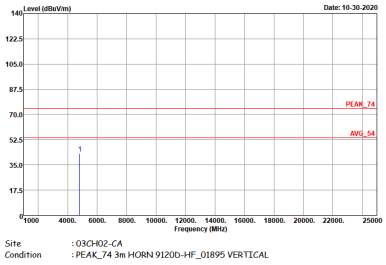
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
	802.11n HT20 CH10 2457MHz	
	Vertical	Fundamental
Peak	 Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH02-CA Condition : PEAK_74 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH02-CA Condition : AVG_54 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

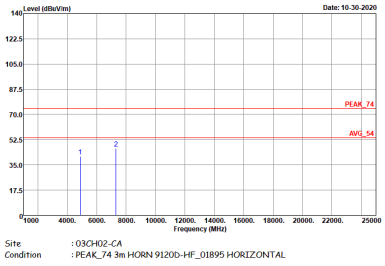
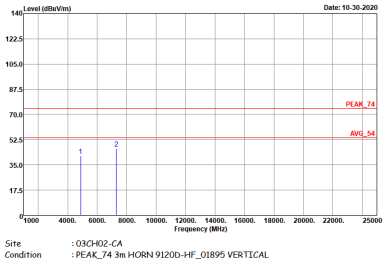
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	802.11n HT20 CH11 2462MHz	
	Horizontal	Fundamental
Peak		
Avg.		

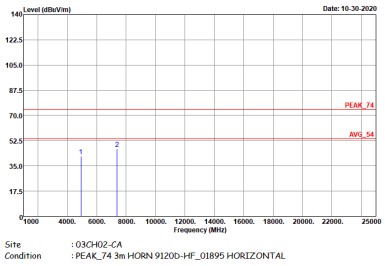
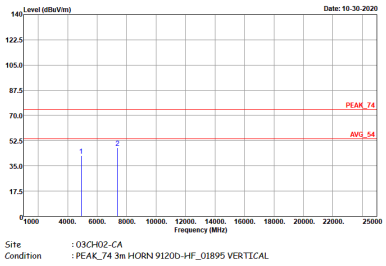
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
	802.11n HT20 CH11 2462MHz	
	Vertical	Fundamental
Peak		
Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

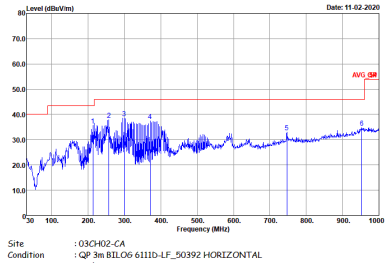
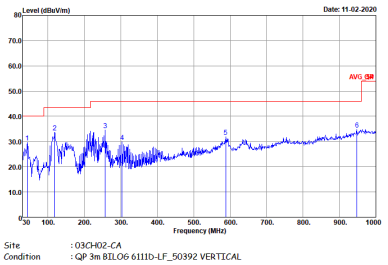
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH01 2412MHz	
	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH06 2437MHz	
	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	802.11n HT20 CH11 2462MHz	
	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

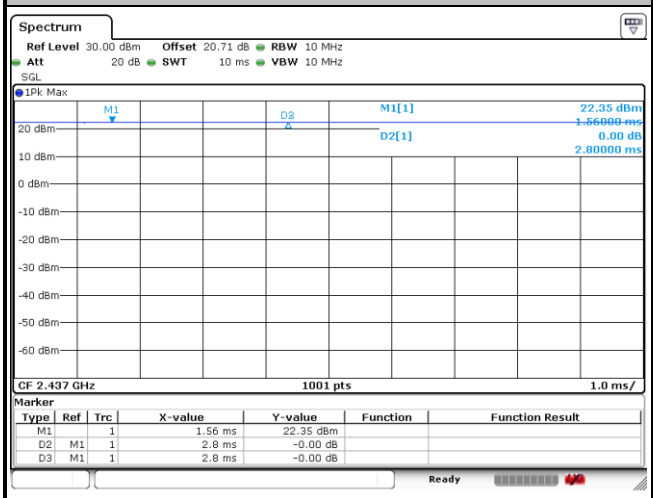
WIFI	2.4GHz 2400~2483.5MHz	
	802.11n HT20 LF	
	Horizontal	Vertical
QP / Peak		

3.5.7 Duty Cycle

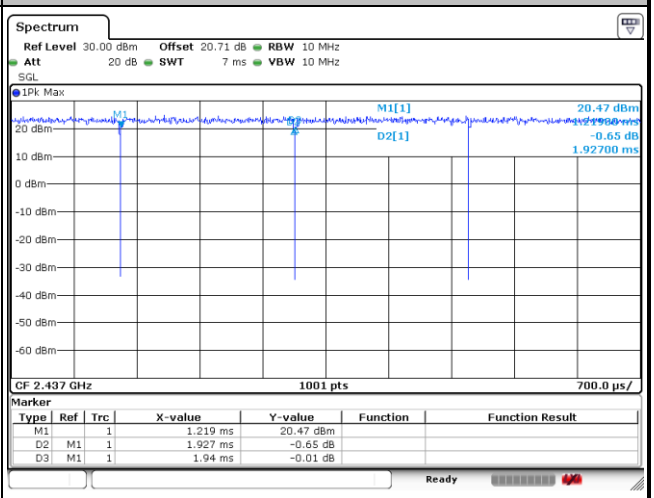
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
Main Antenna	802.11b	100.00	-	-	10Hz	0.00
	2.4GHz 802.11n HT20	98.97	-	-	10Hz	0.04
Aux. Antenna	802.11b	100.00	-	-	10Hz	0.00
	2.4GHz 802.11n HT20	98.97	-	-	10Hz	0.04

<Main Antenna>

802.11b

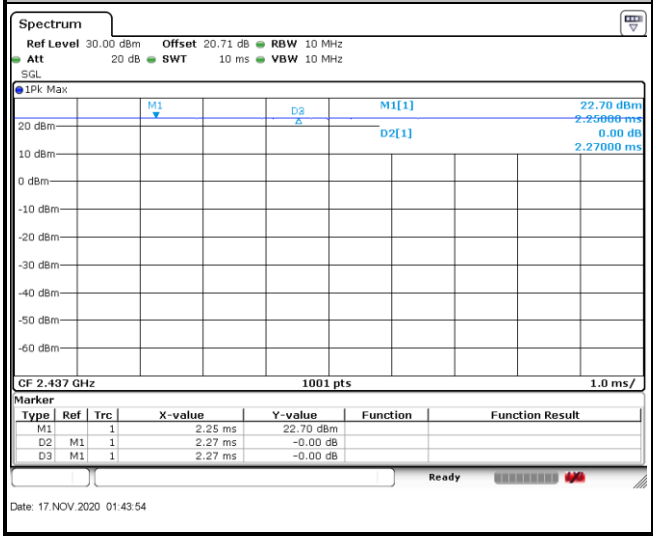


802.11n HT20

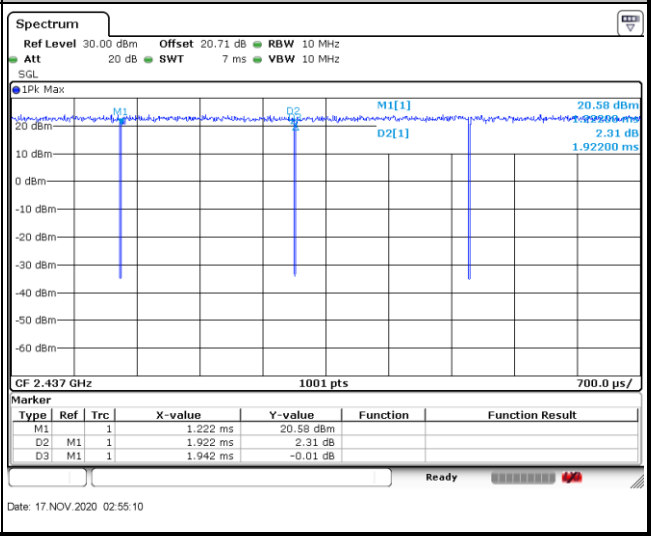


<Aux. Antenna>

802.11b



802.11n HT20



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.

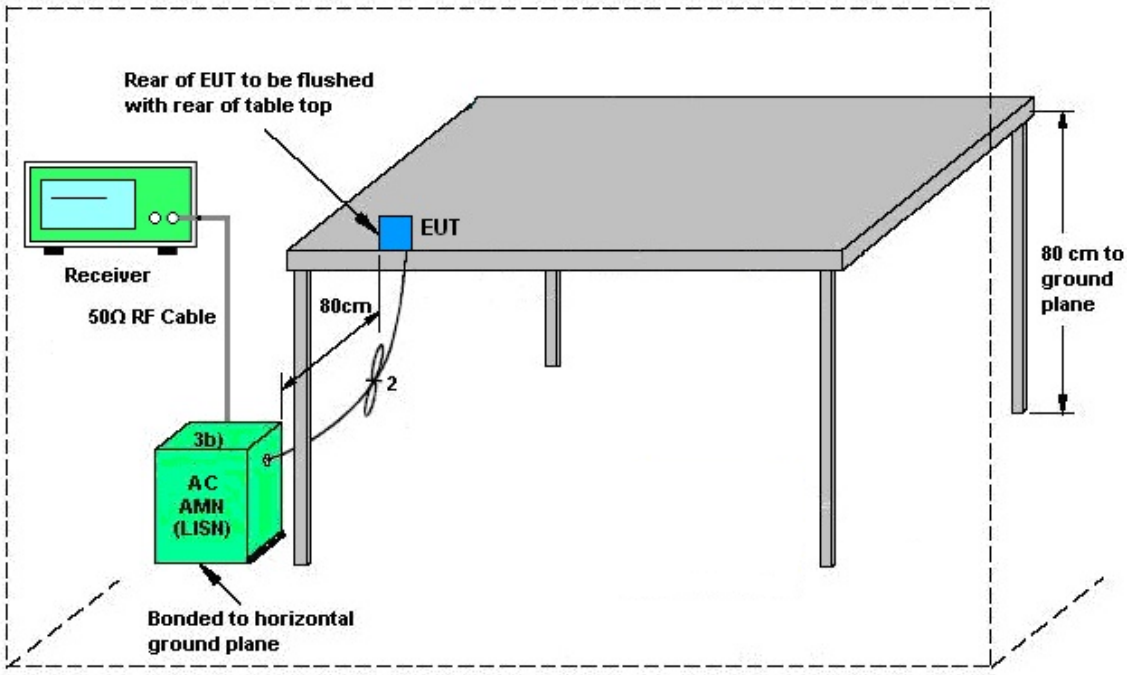
3.6.2 Measuring Instruments

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



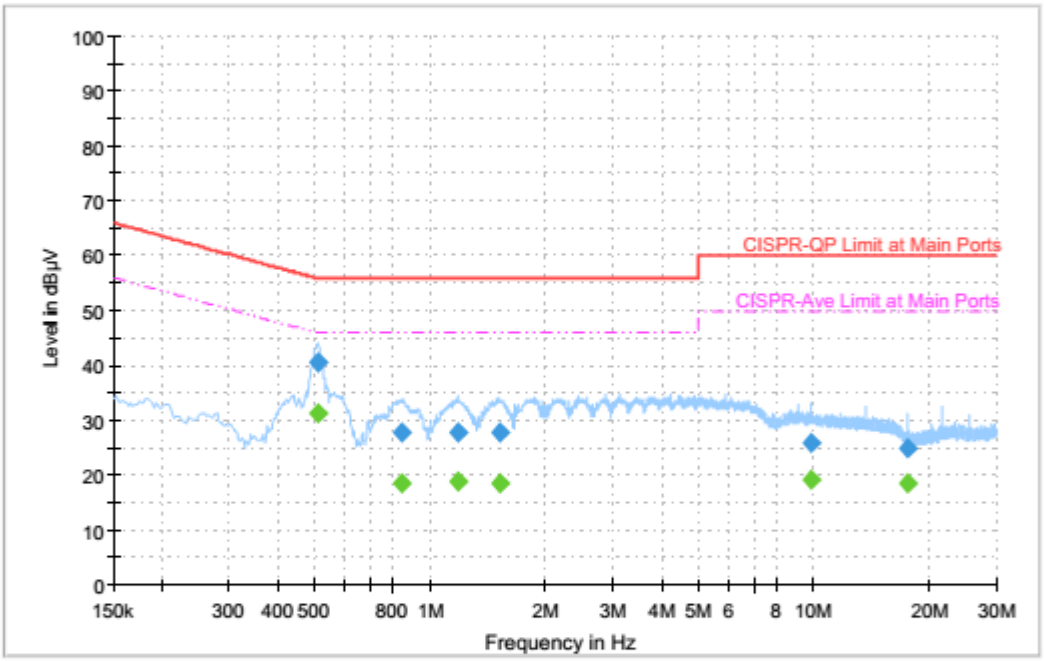
AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

EUT Information

Test Site :	CO01-CA
Mode	2
Test Voltage:	120Vac/60Hz
Project	Cypress
	Line
	200819001
Config	3
	WIFI idle + BT link

Full Spectrum



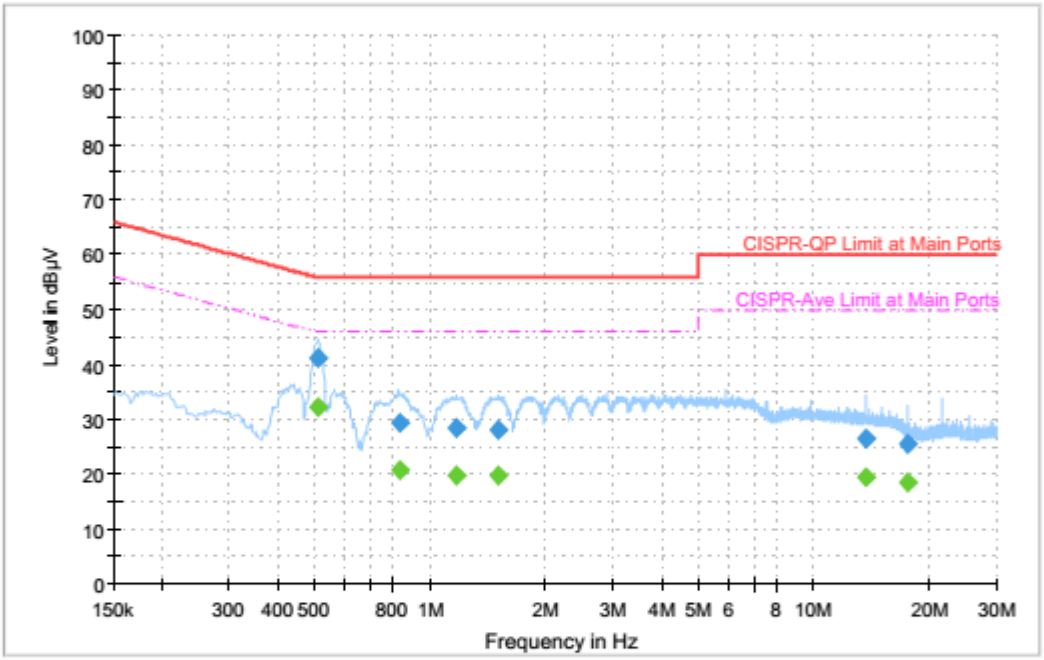
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.510450	---	31.33	46.00	14.67	L1	OFF	20.0
0.510450	40.72	---	56.00	15.28	L1	OFF	20.0
0.843000	---	18.52	46.00	27.48	L1	OFF	20.0
0.843000	27.74	---	56.00	28.26	L1	OFF	20.0
1.178250	---	18.87	46.00	27.13	L1	OFF	20.0
1.178250	27.78	---	56.00	28.22	L1	OFF	20.0
1.518000	---	18.66	46.00	27.34	L1	OFF	20.0
1.518000	27.80	---	56.00	28.20	L1	OFF	20.0
9.804030	---	19.19	50.00	30.81	L1	OFF	20.2
9.804030	25.90	---	60.00	34.10	L1	OFF	20.2
17.647170	---	18.47	50.00	31.53	L1	OFF	20.4
17.647170	24.96	---	60.00	35.04	L1	OFF	20.4

EUT Information

Test Voltage:	120Vac/60Hz
Config	3
Project	Cypress
Phase:	Neutral
Project#	200819001
Mode	2
	WIFI Idle +BT Link

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.510540	---	32.17	46.00	13.83	N	OFF	20.0
0.510540	41.34	---	56.00	14.66	N	OFF	20.0
0.831750	---	20.63	46.00	25.37	N	OFF	20.0
0.831750	29.40	---	56.00	26.60	N	OFF	20.0
1.174380	---	19.95	46.00	26.05	N	OFF	20.0
1.174380	28.44	---	56.00	27.56	N	OFF	20.0
1.501080	---	19.80	46.00	26.20	N	OFF	20.0
1.501080	28.20	---	56.00	27.80	N	OFF	20.0
13.725600	---	19.41	50.00	30.59	N	OFF	20.3
13.725600	26.36	---	60.00	33.64	N	OFF	20.3
17.647170	---	18.64	50.00	31.36	N	OFF	20.4
17.647170	25.52	---	60.00	34.48	N	OFF	20.4

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	Oct. 22, 2020~ Dec. 16, 2020	Aug. 04, 2021	Conducted (TH01-CA)
Power Sensor	DARE!!	RPR3006W	RPR6W-1 901026	10MHz-6GHz	Jun. 24, 2020	Oct. 22, 2020~ Dec. 16, 2020	Jun. 23, 2021	Conducted (TH01-CA)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101089	10Hz-40GHz	Sep. 14, 2020	Oct. 22, 2020~ Dec. 16, 2020	Sep. 13, 2021	Conducted (TH01-CA)
Switch Box & RF Cable	EM Electronics	EMSW26	1090304	N/A	Dec. 30, 2019	Oct. 22, 2020~ Dec. 16, 2020	Dec. 29, 2020	Conducted (TH01-CA)
LISN	TESEQ	NNB51	47407	N/A	Jul. 06, 2020	Nov. 12, 2020	Jul. 05, 2021	Conduction (CO01-CA)
EMI Test Receiver	R&S	ESR7	102177	9KHz~7GHz	Jul. 16, 2020	Nov. 12, 2020	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	Nov. 12, 2020	Jul. 07, 2021	Conduction (CO01-CA)
Test Software	R&S	EMC32 V10.30.0	N/A	N/A	N/A	Nov. 12, 2020	N/A	Conduction (CO01-CA)
Bilog Antenna	TESEQ	6111D	50392	30MHz~1GHz	Jul. 29, 2020	Oct. 28, 2020~ Dec. 08, 2020	Jul. 28, 2021	Radiation (03CH02-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	01895	1GHz~18GHz	Aug. 28, 2020	Oct. 28, 2020~ Dec. 08, 2020	Aug. 27, 2021	Radiation (03CH02-CA)
Amplifier	SONOMA	310N	372240	N/A	Aug. 12, 2020	Oct. 28, 2020~ Dec. 08, 2020	Aug. 11, 2021	Radiation (03CH02-CA)
Preamplifier	Keysight	83017A	MY532703 21	1GHz~26.5GHz	Jul. 28, 2020	Oct. 28, 2020~ Dec. 08, 2020	Jul. 27, 2021	Radiation (03CH02-CA)
Preamplifier	E-instrument	ERA-100M-18 G-56-01-A70	EC190025 1	1GHz~18GHz	Nov. 26, 2019	Oct. 28, 2020~ Dec. 08, 2020	Nov. 25, 2021	Radiation (03CH02-CA)
Spectrum Analyzer	Keysight	N9010A	MY574202 21	10Hz~44GHz	Sep. 11, 2020	Oct. 28, 2020~ Dec. 08, 2020	Sep. 10, 2021	Radiation (03CH02-CA)
Filter	Wainwright	WLK12-1200-1272-11000-4 0SS	SN2	1.2G Low Pass	Jul. 24, 2020	Oct. 28, 2020~ Dec. 08, 2020	Jul. 23, 2021	Radiation (03CH02-CA)
Filter	Wainwright	WHKX12-270 0-3000-18000 -60ST	SN10	3G Highpass	Jul. 24, 2020	Oct. 28, 2020~ Dec. 08, 2020	Jul. 23, 2021	Radiation (03CH02-CA)
Hygrometer	TESEO	608-H1	45142602	N/A	Aug. 05, 2020	Oct. 28, 2020~ Dec. 08, 2020	Aug. 04, 2021	Radiation (03CH02-CA)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Oct. 28, 2020~ Dec. 08, 2020	N/A	Radiation (03CH02-CA)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Oct. 28, 2020~ Dec. 08, 2020	N/A	Radiation (03CH02-CA)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Oct. 28, 2020~ Dec. 08, 2020	N/A	Radiation (03CH02-CA)
Software	Audix	E3	N/A	N/A	N/A	Oct. 28, 2020~ Dec. 08, 2020	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**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.5**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.1**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.5**

————THE END————