FCC RADIO TEST REPORT

FCC ID	:	**UZ7WS5001**
Equipment	:	**WS50 Wearable Computer**
Brand Name	:	**Zebra**
Model Name	:	**WS5001**
Applicant	:	**Zebra Technologies Corporation 1 Zebra Plaza, Holtsville, NY 11742**
Manufacturer	:	**Zebra Technologies Corporation 1 Zebra Plaza, Holtsville, NY 11742**
Standard	:	**FCC Part 15 Subpart C §15.247**

The product was received on Dec. 20, 2021 and testing was performed from Jan. 03, 2022 to Mar. 08, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Louis Wu

Approved by: Louis Wu

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

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History of this test report

Report No.	Version	Description	Issue Date
FR1O0707-02C	01	Initial issue of report	Mar. 18, 2022

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(2)	6dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.247(b)	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	1.98 dB under the limit at 2484.480 MHz
3.6	15.207	AC Conducted Emission	Pass	4.95 dB under the limit at 13.560 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Declaration of Conformity:

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

Comments and Explanations:

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

Reviewed by: Wei Chen

Report Producer: Clio Lo

1 General Description

1.1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	WS50 Wearable Computer
Brand Name	Zebra
Model Name	WS5001
FCC ID	UZ7WS5001
EUT supports Radios application	NFC WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 Bluetooth BR/EDR/LE
HW Version	EV2.2
SW Version	11-12-01.00-RN-U00-PRD-WTX-04
FW Version	FUSION_QA_3_1.0.0.007_R
MFD	SKU 1: 23NOV21 SKU 3-1: 14DEC21 SKU 3-2: 15DEC21 SKU 5: 23NOV21
EUT Stage	Identical Prototype

Remark: The EUT's information above is declared by manufacturer.

SKU List				
Helix SKU	**Scanner**	**Battery**	**Camera**	**Mounting**
SKU 1	SE4770	1.6x Battery	N/A	Finger Trigger
SKU 3-1	N/A	1x Battery	Yes	Wrist Strap
SKU 3-2	N/A	1x Battery	N/A	Wrist Strap
SKU 5	SE4770	1.6x Battery	N/A	BOH

Specification of Accessories				
Adaptor	**Brand Name**	Zebra	**Model Number**	PWR-WUA5V12W0US
Battery 1x	**Brand Name**	Zebra	**Model Number**	BT-000446
Battery 1.6x	**Brand Name**	Zebra	**Model Number**	BT-000446B
USB charging cable with cup	**Brand Name**	Zebra	**Model Number**	CBL-WS5X-USB1-01
USB C CABLE	**Brand Name**	Zebra	**Model Number**	CBL-TC2X-USBC-01

Supported Unit used in test configuration and system				
Converged Scanner Shell	**Brand Name**	Zebra	**Part Number**	SG-WS5X-SHLCS-01
Replacement Finger Trigger for Converged	**Brand Name**	Zebra	**Part Number**	SG-WS5X-TRGA-01
Wrist Shell	**Brand Name**	Zebra	**Part Number**	SG-WS5X-SHLWR-01
Wrist Strap	**Brand Name**	Zebra	**Part Number**	SG-WS5X-WSTRP-01
Wrist Mount (without strap)	**Brand Name**	Zebra	**Part Number**	SG-WS5X-WSTMT-01
Wrist Mount with strap	**Brand Name**	Zebra	**Part Number**	SG-WS5X-WPLTS-01
Back of Hand Mount for Converged	**Brand Name**	Zebra	**Part Number**	SG-WS5X-BHMT-01

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462 MHz
Maximum Output Power to Antenna	802.11b : 21.70 dBm / 0.1479 W 802.11g : 22.40 dBm / 0.1738 W 802.11n HT20 : 20.00 dBm / 0.1000 W 802.11n HT40 : 20.30 dBm / 0.1072 W 802.11ac VHT20: 19.90 dBm / 0.0977 W 802.11ac VHT40: 20.20 dBm / 0.1047 W
99% Occupied Bandwidth	802.11b : 13.49 MHz 802.11g : 20.18 MHz 802.11n HT20: 19.83 MHz 802.11n HT40: 36.96 MHz
Antenna Type / Gain	PIFA Antenna with gain 2.50 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)

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

1.3 Modification of EUT

No modifications made to the EUT during the testing.

1.4 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	CO05-HY (TAF Code: 1190)
Remark	The AC Conducted Emission test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory.

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

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	TH05-HY, 03CH11-HY

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

FCC designation No.: TW1190 and TW3786

1.5 Applicable Standards

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

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

Remark:

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

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find X plane as worst plane.

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

The final test modes consider the modulation and the worst data rates as shown in the table below.

Single Antenna

Modulation	Data Rate
802.11b	**1 Mbps**
802.11g	**6 Mbps**
802.11n HT20	**MCS0**
802.11n HT40	**MCS0**
802.11ac VHT20 (Covered by HT20)	**MCS0**
802.11ac VHT40 (Covered by HT40)	**MCS0**

Test Cases	
AC Conducted Emission	Mode 1 :Bluetooth Link + WLAN (2.4GHz) Link + NFC Link + Camera + Battery 1 (1x) + USB C CABLE (Data Link with Notebook) + Wrist Strap for SKU 3-1

Remark:
1. For Radiated Test Cases, the tests were performed with SKU 1.
2. Data Link with Notebook means data application transferred mode between EUT and Notebook.

Ch. #	2400-2483.5 MHz			
	802.11b	802.11g	802.11n HT20	802.11n HT40
Low	01	01	01	03
Middle	06	06	06	06
High	11	11	11	09

Remark: For radiation spurious emission, the modulation and the data rate picked for testing are determined by the Max. RF conducted power.

802.11b RF Avg Output Power (dBm)						
Power vs. Channel			Power vs Data Rate			
Channel	Frequency (MHz)	Data Rate (bps)	Channel	Data Rate (bps)		
		1M		2M	5.5M	11M
CH 01	2412	**21.70**	CH 01	21.60	21.40	21.30
CH 06	2437	20.80				
CH 11	2462	21.10				

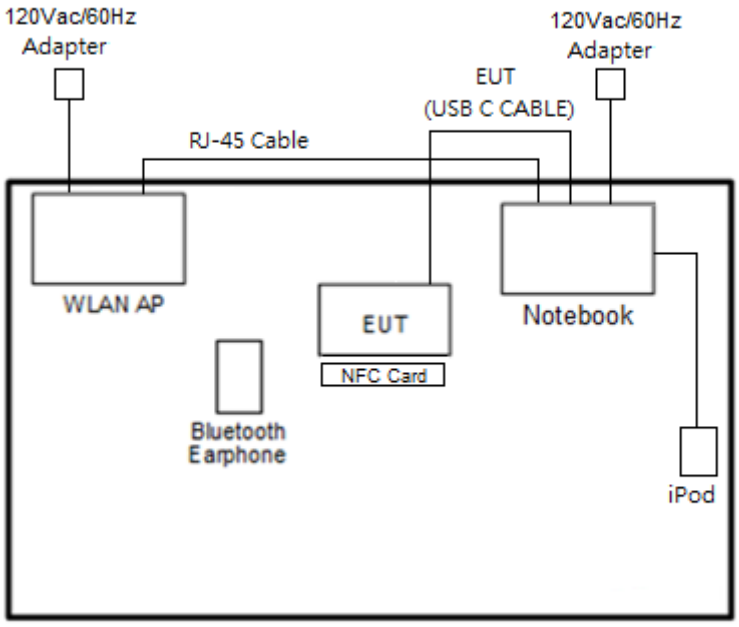
802.11g RF Avg Output Power (dBm)									
Power vs. Channel			Power vs Data Rate						
Channel	Frequency (MHz)	Data Rate (bps)	Channel	Data Rate (bps)					
		6M		9M	12M	18M	24M	36M	48M	54M
CH 01	2412	20.10	CH 06	20.00	20.00	19.90	19.80	19.80	19.80	19.70
CH 06	2437	**22.40**								
CH 11	2462	19.60								

802.11n HT20 RF Avg Output Power (dBm)									
Power vs. Channel			Power vs Data Rate						
Channel	Frequency (MHz)	Data Rate (bps)	Channel	Data Rate (bps)					
		MCS0		MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412	**20.00**	CH 01	19.90	19.90	19.80	19.70	19.70	19.70	19.60
CH 06	2437	19.90								
CH 11	2462	19.20								

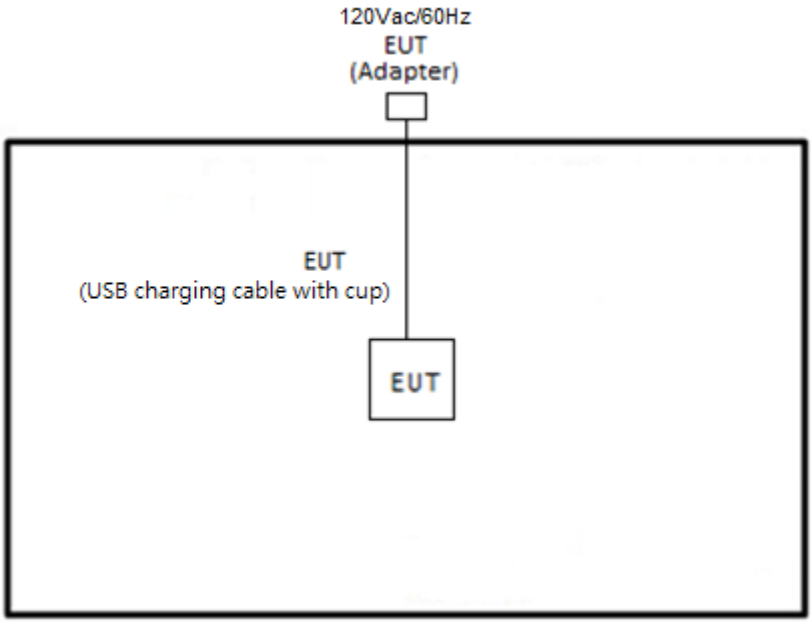
802.11n HT40 RF Avg Output Power (dBm)									
Power vs. Channel			Power vs Data Rate						
Channel	Frequency (MHz)	Data Rate (bps) MCS0	Channel	Data Rate (bps) MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 03	2422	18.70	CH 06	20.20	20.20	20.10	20.10	20.10	20.00	20.00
CH 06	2437	**20.30**								
CH 09	2452	17.60								

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode>



<WLAN Tx Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Sony Ericsson	MW600	PY700A2029	N/A	N/A
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded,1.8m
3.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0m	N/A
4.	Notebook	Dell	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	NFC Card	N/A	N/A	N/A	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “QRCT4.0.00158.0” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.
Following shows an offset computation example with cable loss 4.2 dB and 10 dB attenuator.

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.

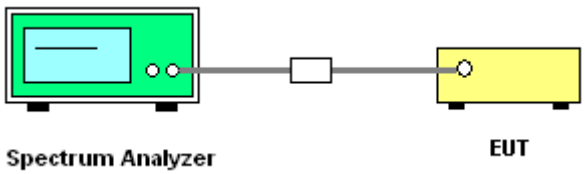
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 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



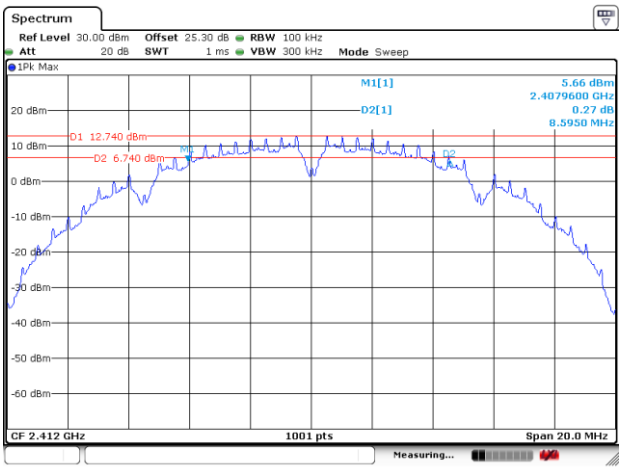
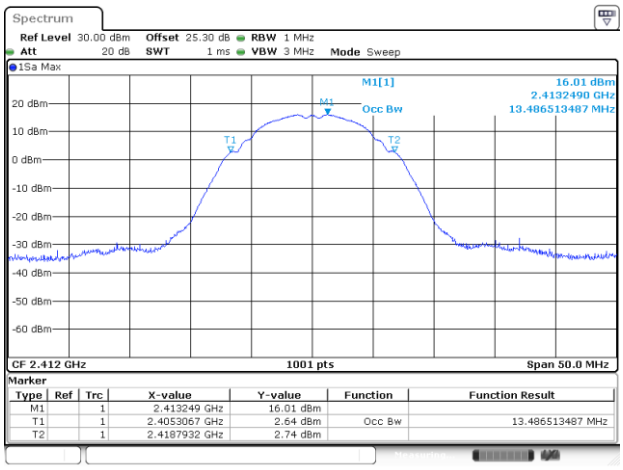
3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Test Engineer :	Mina Liu	Temperature :	21~25℃
		Relative Humidity :	51~54%

2.4GHz Band Single Antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant1	Ant2	Ant1	Ant2		
11b	1Mbps	1	1	2412	13.49	-	8.60	-	0.50	Pass
11b	1Mbps	1	6	2437	13.49	-	9.08	-	0.50	Pass
11b	1Mbps	1	11	2462	13.44	-	9.06	-	0.50	Pass
11g	6Mbps	1	1	2412	18.93	-	16.39	-	0.50	Pass
11g	6Mbps	1	6	2437	20.18	-	16.40	-	0.50	Pass
11g	6Mbps	1	11	2462	18.98	-	16.39	-	0.50	Pass

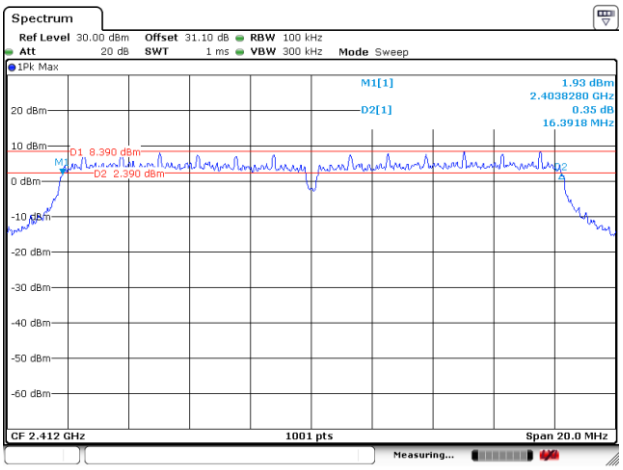
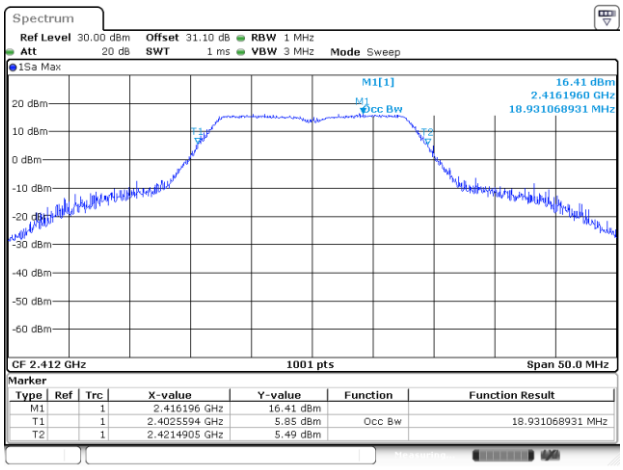
2.4GHz Band Single Antenna											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
						Ant1	Ant2	Ant1	Ant2		
HT20	MCS0	1	1	2412	Full	19.58	-	17.63	-	0.50	Pass
HT20	MCS0	1	6	2437	Full	19.83	-	17.64	-	0.50	Pass
HT20	MCS0	1	11	2462	Full	18.93	-	16.45	-	0.50	Pass
HT40	MCS0	1	3	2422	Full	36.76	-	35.54	-	0.50	Pass
HT40	MCS0	1	6	2437	Full	36.86	-	35.50	-	0.50	Pass
HT40	MCS0	1	9	2452	Full	36.96	-	35.49	-	0.50	Pass

<802.11b>

6dB Bandwidth	99% Occupied Bandwidth
	

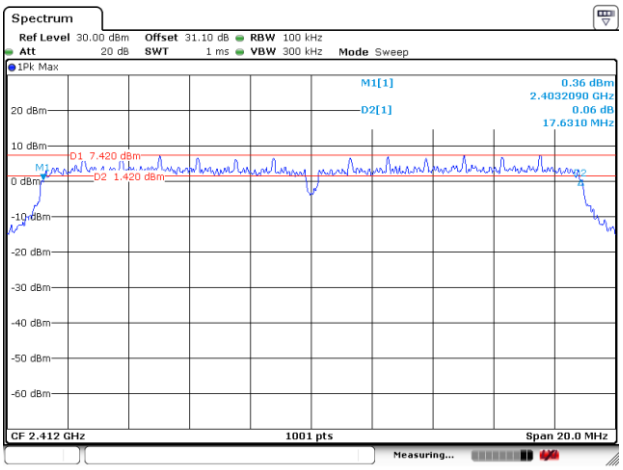
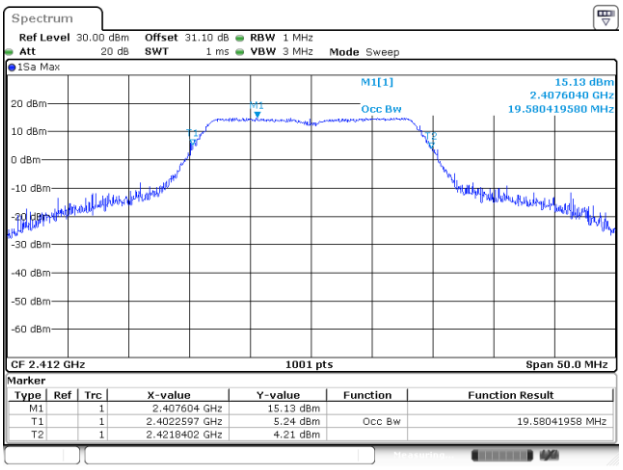
Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

<802.11g>

6dB Bandwidth	99% Occupied Bandwidth
	

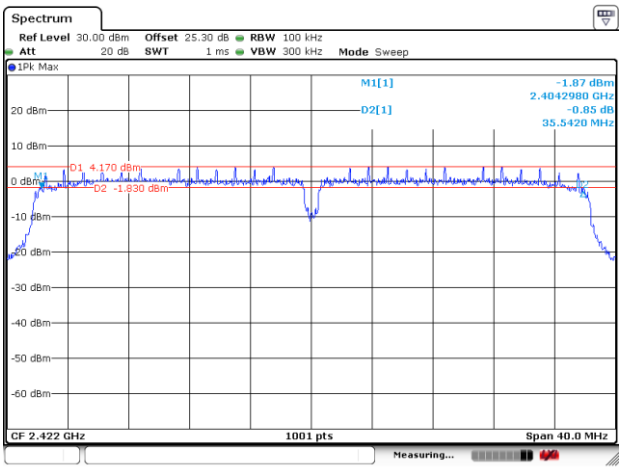
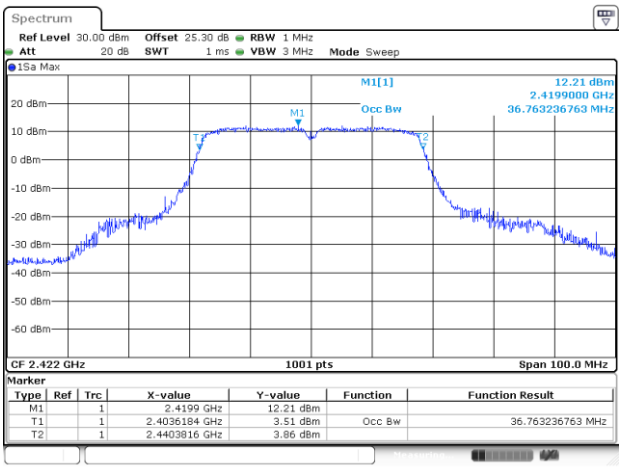
Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

<802.11n HT20>

6dB Bandwidth	99% Occupied Bandwidth
	

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

<802.11n HT40>

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

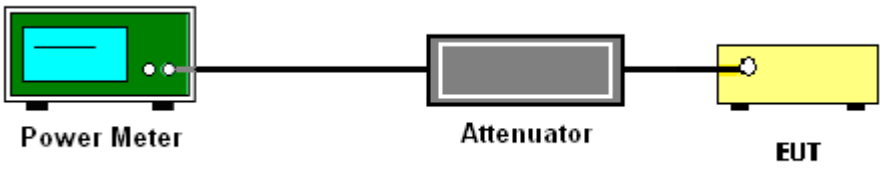
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

Test Engineer :	Mina Liu	Temperature :	21~25℃
		Relative Humidity :	51~54%

2.4GHz Band Single Antenna																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant1	Ant2	SUM	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	1	1	2412	**21.70**	-	-	30.00	-	2.50	-	24.20	-	36.00	-	Pass
11b	1Mbps	1	6	2437	20.80	-	-	30.00	-	2.50	-	23.30	-	36.00	-	Pass
11b	1Mbps	1	11	2462	21.10	-	-	30.00	-	2.50	-	23.60	-	36.00	-	Pass
11g	6Mbps	1	1	2412	20.10	-	-	30.00	-	2.50	-	22.60	-	36.00	-	Pass
11g	6Mbps	1	6	2437	**22.40**	-	-	30.00	-	2.50	-	24.90	-	36.00	-	Pass
11g	6Mbps	1	11	2462	19.60	-	-	30.00	-	2.50	-	22.10	-	36.00	-	Pass
HT20	MCS0	1	1	2412	**20.00**	-	-	30.00	-	2.50	-	22.50	-	36.00	-	Pass
HT20	MCS0	1	6	2437	19.90	-	-	30.00	-	2.50	-	22.40	-	36.00	-	Pass
HT20	MCS0	1	11	2462	19.20	-	-	30.00	-	2.50	-	21.70	-	36.00	-	Pass
HT40	MCS0	1	3	2422	18.70	-	-	30.00	-	2.50	-	21.20	-	36.00	-	Pass
HT40	MCS0	1	6	2437	**20.30**	-	-	30.00	-	2.50	-	22.80	-	36.00	-	Pass
HT40	MCS0	1	9	2452	17.60	-	-	30.00	-	2.50	-	20.10	-	36.00	-	Pass
VHT20	MCS0	1	1	2412	**19.90**	-	-	30.00	-	2.50	-	22.40	-	36.00	-	Pass
VHT20	MCS0	1	6	2437	19.80	-	-	30.00	-	2.50	-	22.30	-	36.00	-	Pass
VHT20	MCS0	1	11	2462	19.10	-	-	30.00	-	2.50	-	21.60	-	36.00	-	Pass
VHT40	MCS0	1	3	2422	18.60	-	-	30.00	-	2.50	-	21.10	-	36.00	-	Pass
VHT40	MCS0	1	6	2437	**20.20**	-	-	30.00	-	2.50	-	22.70	-	36.00	-	Pass
VHT40	MCS0	1	9	2452	17.50	-	-	30.00	-	2.50	-	20.00	-	36.00	-	Pass

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

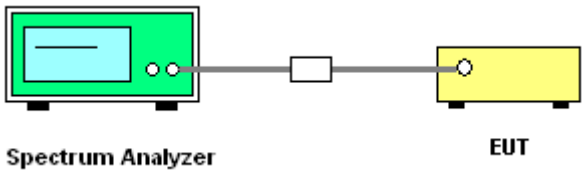
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (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



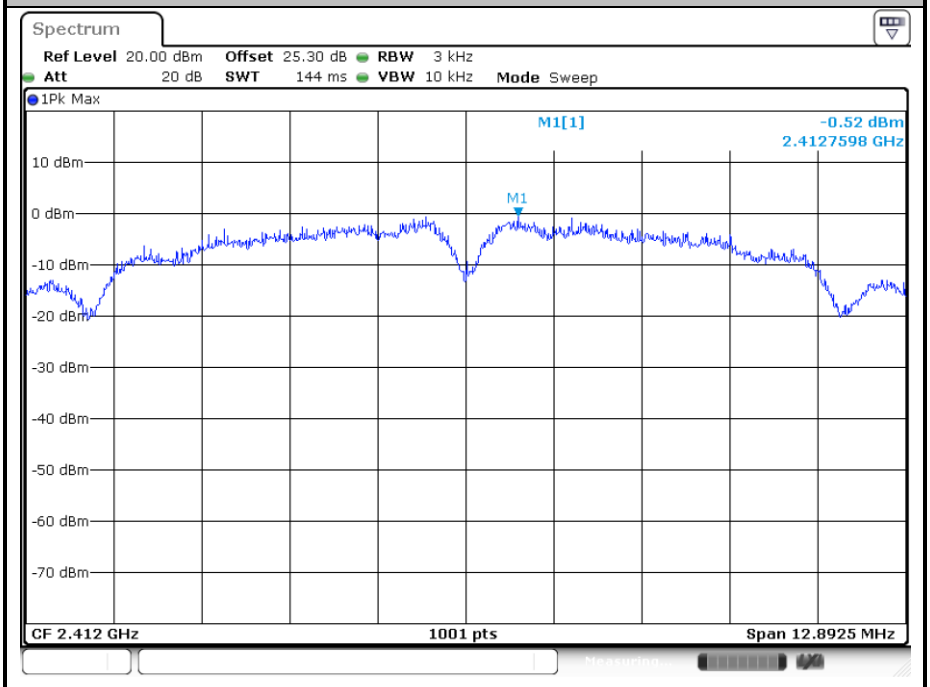
3.3.5 Test Result of Power Spectral Density

Test Engineer :	Mina Liu	Temperature :	21~25℃
		Relative Humidity :	51~54%

2.4GHz Band Single Antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant1	Ant2	Worse + 3.01	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	1	1	2412	-0.52	-	-	2.50		8.00		Pass
11b	1Mbps	1	6	2437	-1.36	-	-	2.50		8.00		Pass
11b	1Mbps	1	11	2462	-1.23	-	-	2.50		8.00		Pass
11g	6Mbps	1	1	2412	-4.85	-	-	2.50		8.00		Pass
11g	6Mbps	1	6	2437	-3.33	-	-	2.50		8.00		Pass
11g	6Mbps	1	11	2462	-7.04	-	-	2.50		8.00		Pass
HT20	MCS0	1	1	2412	-5.26	-	-	2.50		8.00		Pass
HT20	MCS0	1	6	2437	-5.70	-	-	2.50		8.00		Pass
HT20	MCS0	1	11	2462	-6.23	-	-	2.50		8.00		Pass
HT40	MCS0	1	3	2422	-9.52	-	-	2.50		8.00		Pass
HT40	MCS0	1	6	2437	-7.74	-	-	2.50		8.00		Pass
HT40	MCS0	1	9	2452	-10.34	-	-	2.50		8.00		Pass

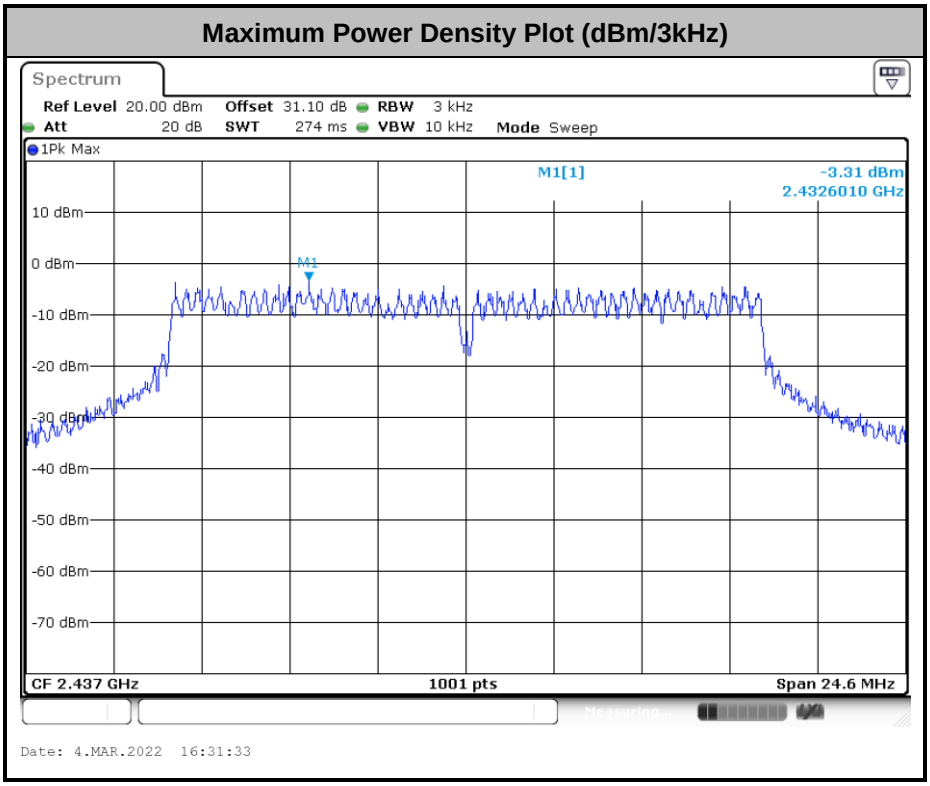
<802.11b>

Maximum Power Density Plot (dBm/3kHz)

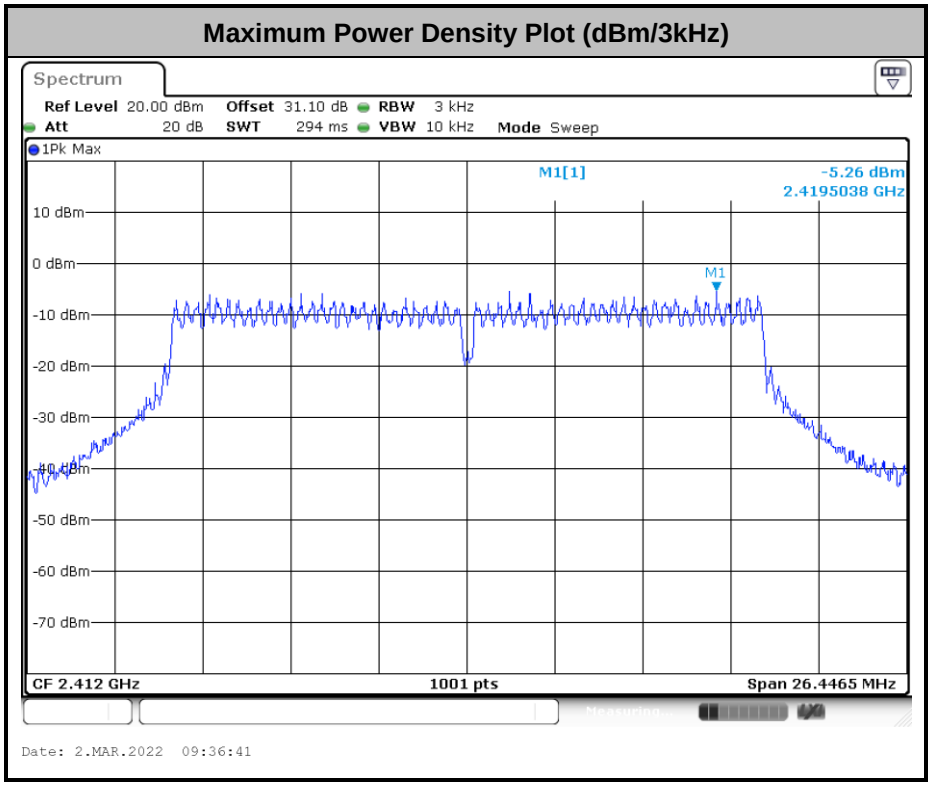


<802.11g>

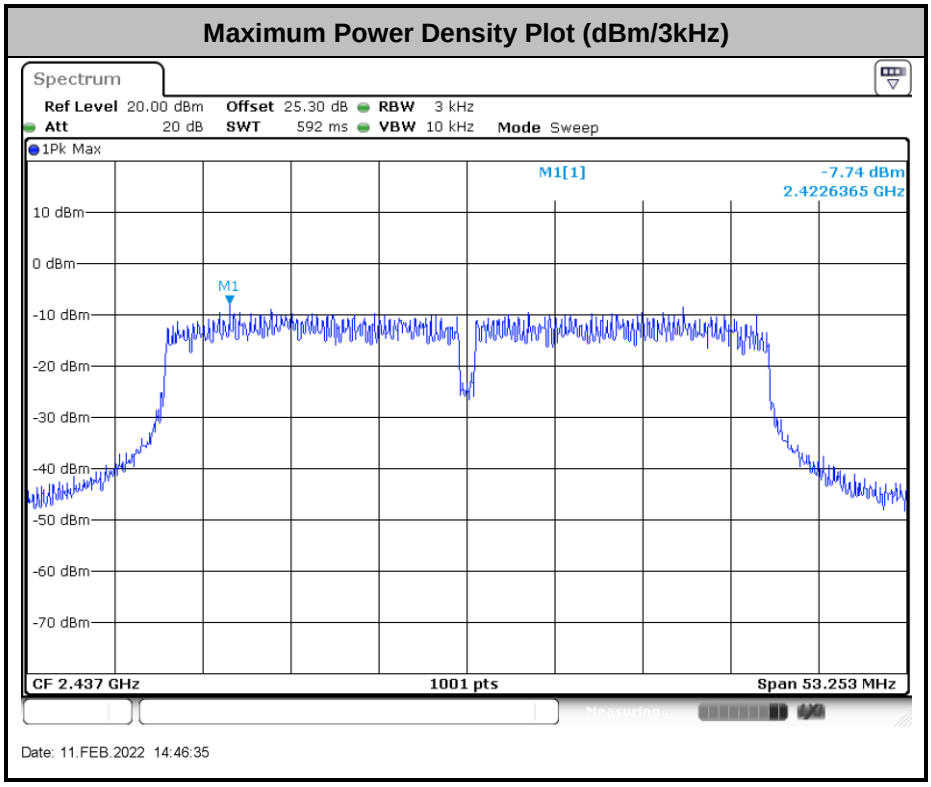
Maximum Power Density Plot (dBm/3kHz)



<802.11n HT20>



<802.11n HT40>



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.

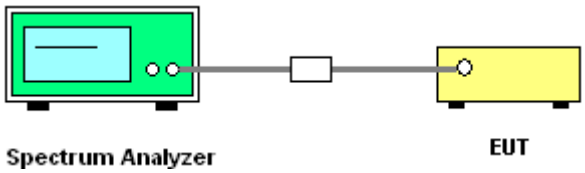
3.4.2 Measuring Instruments

Please refer to the measuring equipment list in 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 is connected to the spectrum analyzer by RF cable and attenuator. The path loss is compensated to the results for each measurement.
3. Set the maximum power setting and enable the EUT to transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB 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.

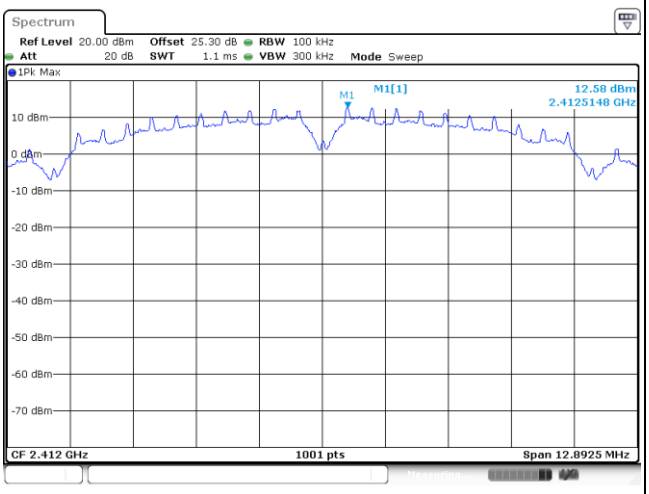
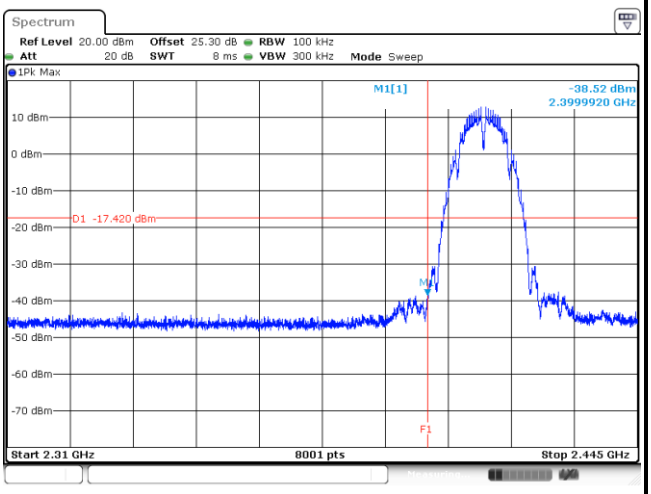
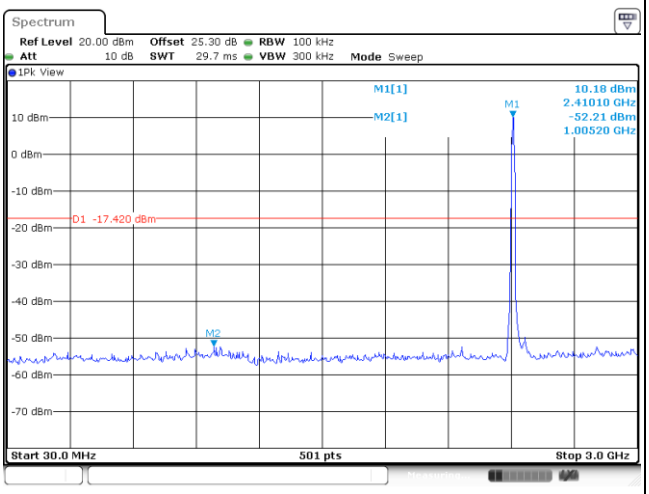
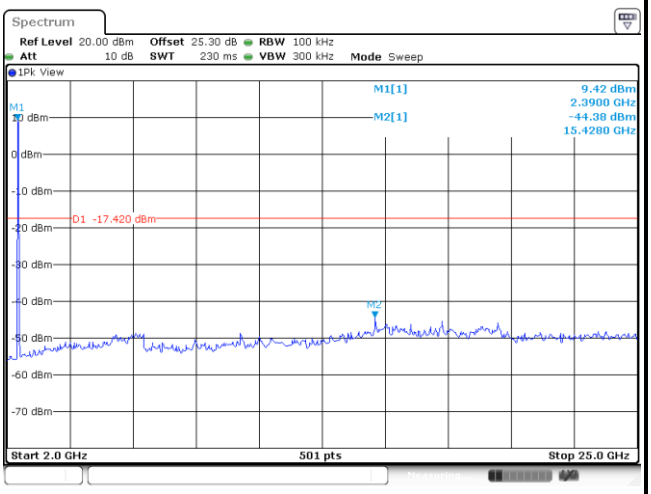
3.4.4 Test Setup



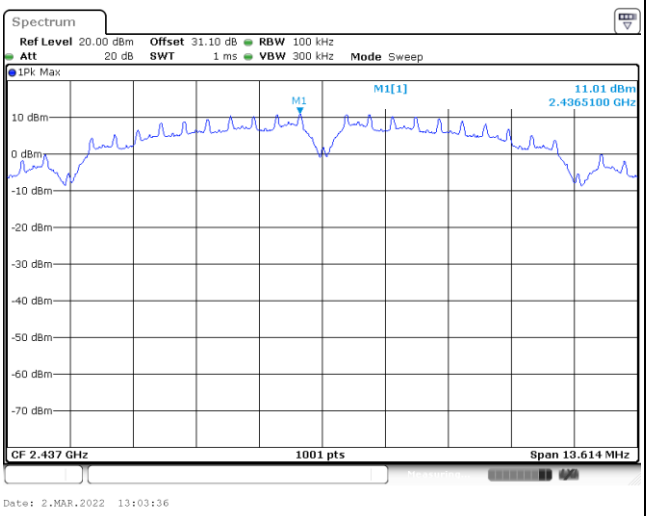
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

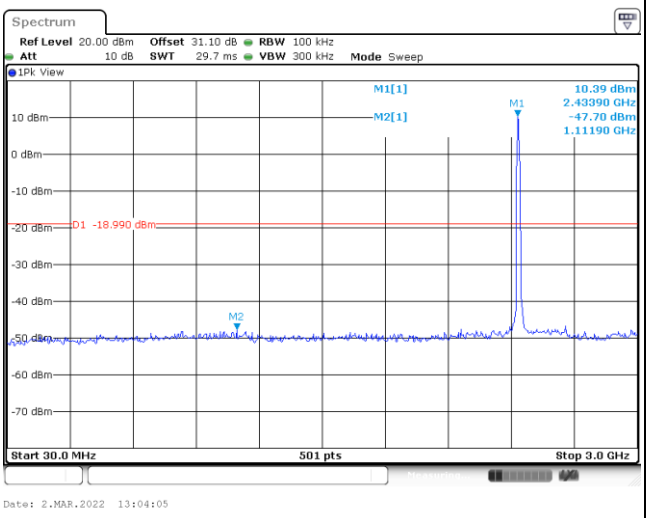
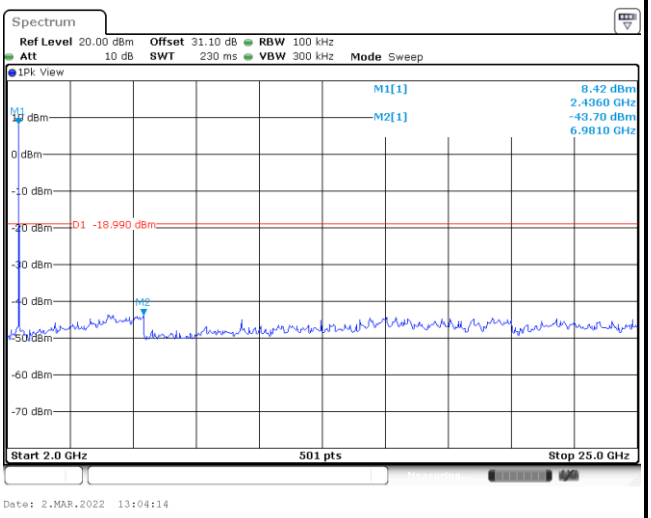
Number of TX = 1, Ant. 1 (Measured)

Test Mode :	802.11b	Test Channel :	01

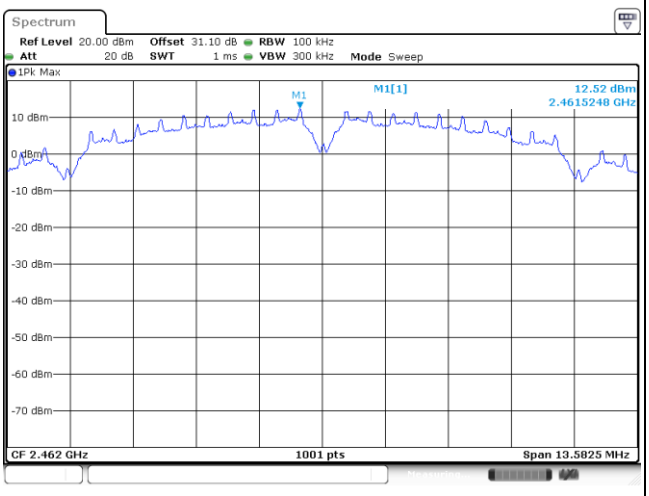
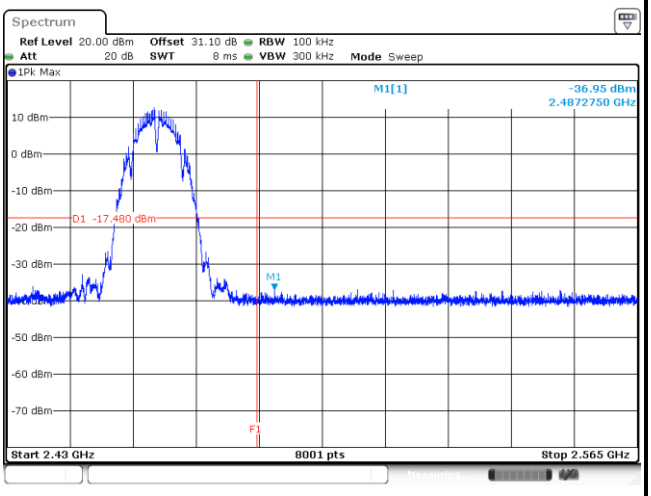
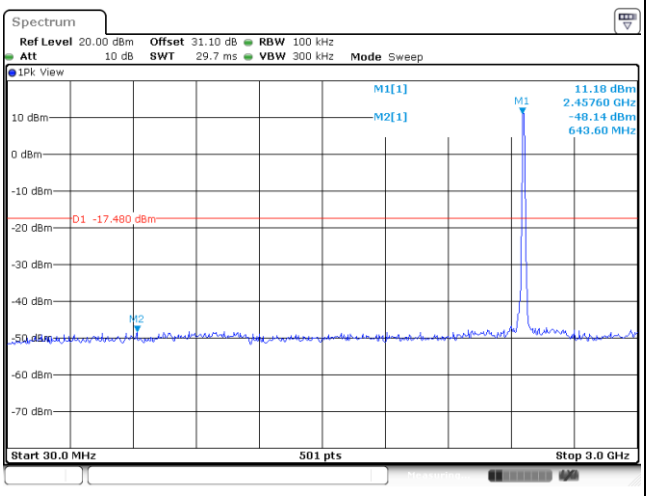
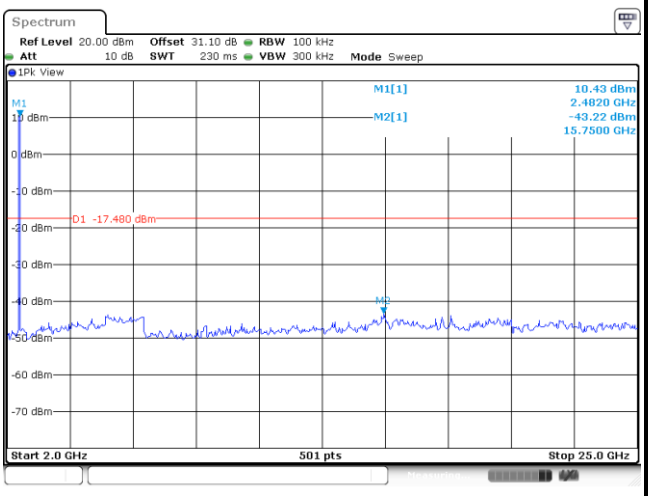
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11b	Test Channel :	06

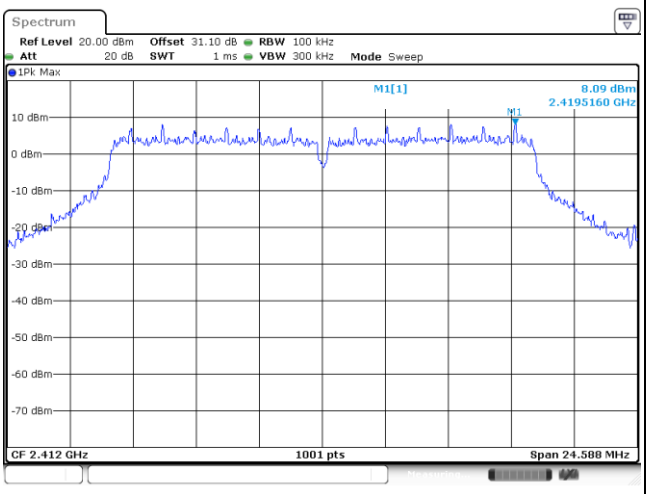
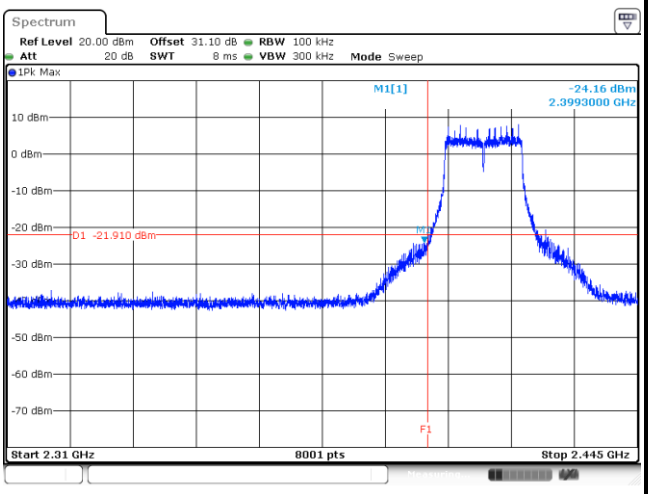
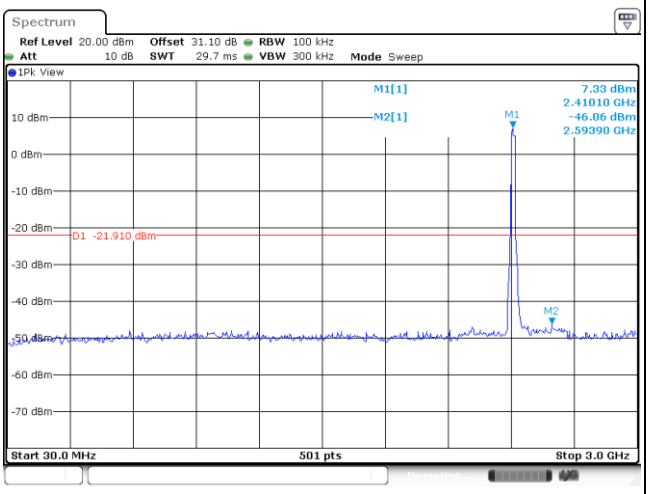
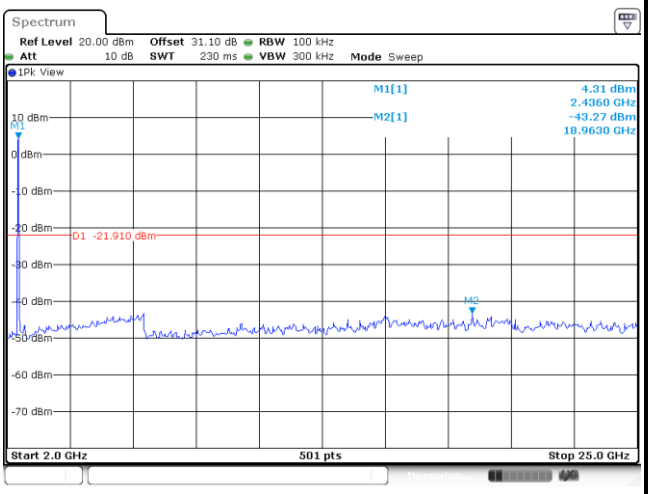
100kHz PSD reference Level	Channel Plot
	

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

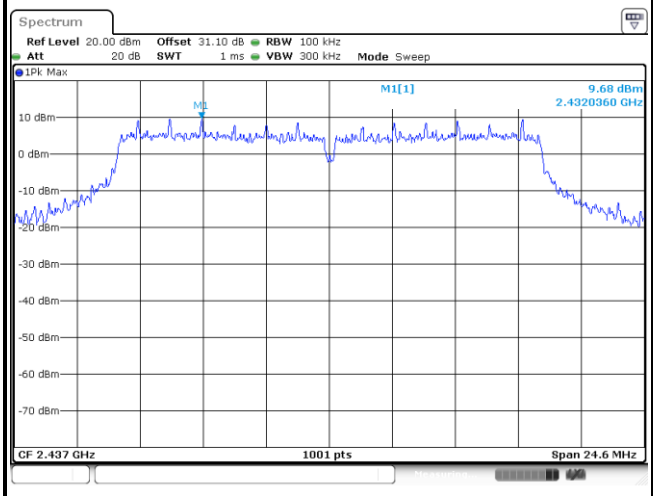
Test Mode :	802.11b	Test Channel :	11

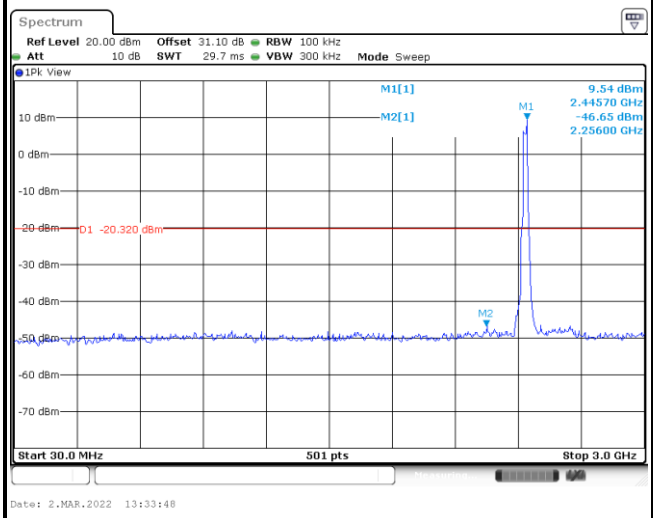
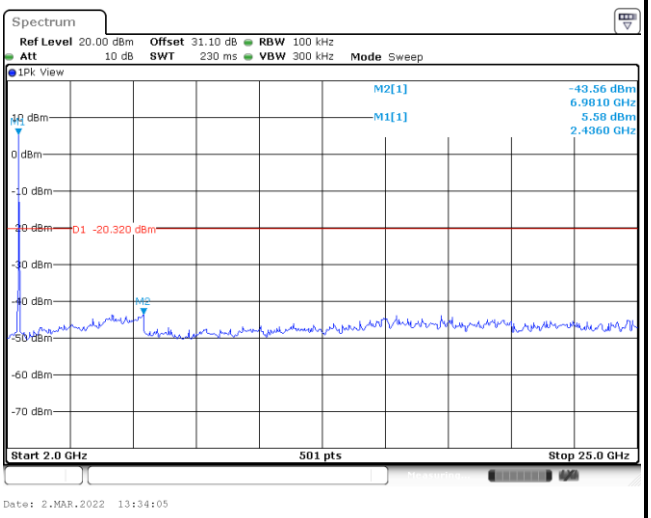
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	01

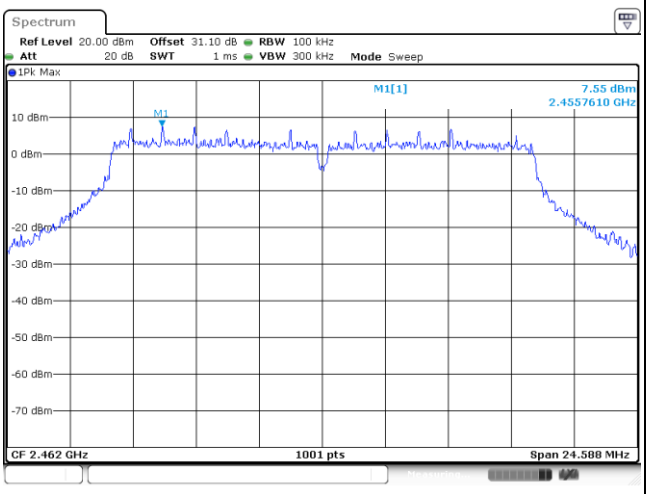
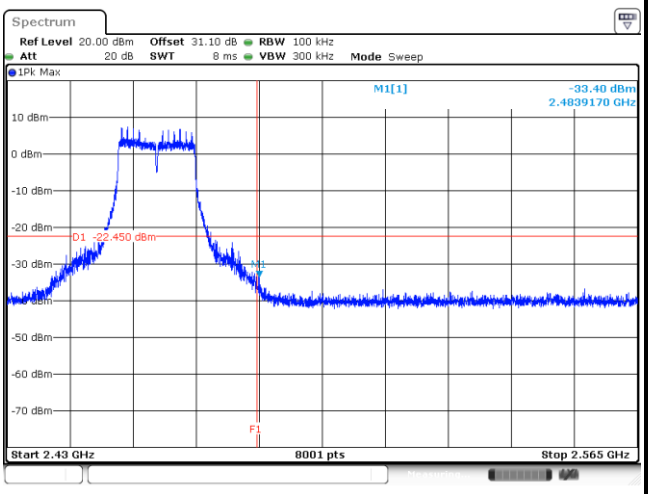
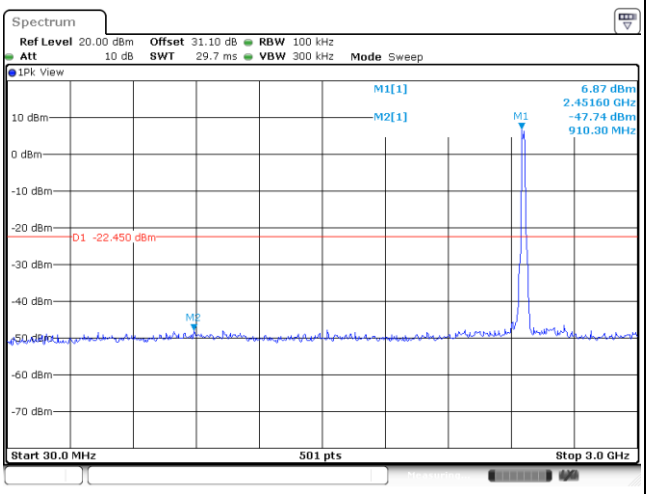
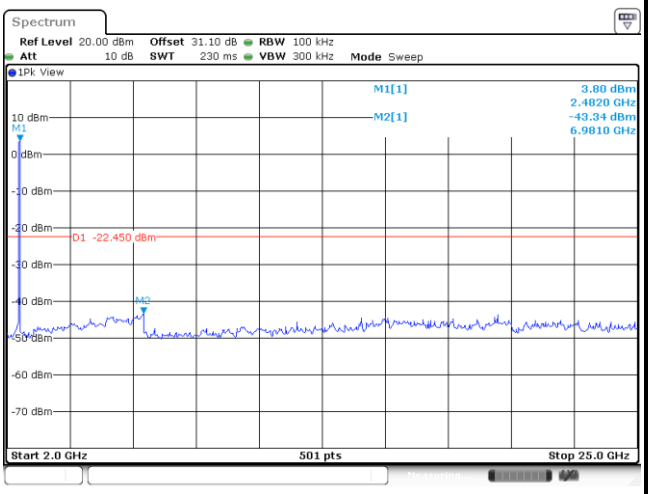
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	06

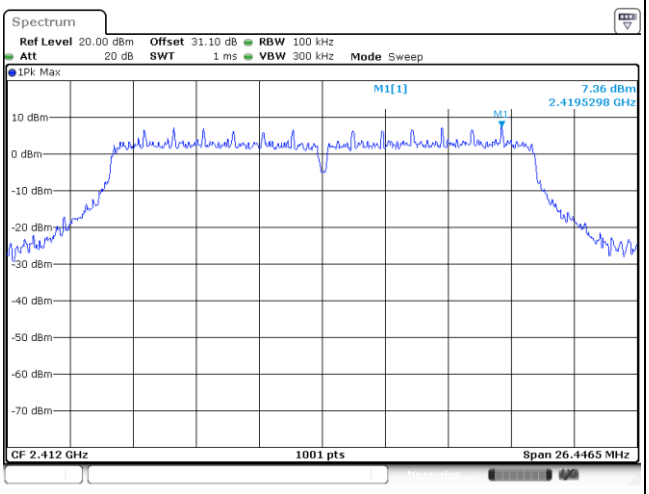
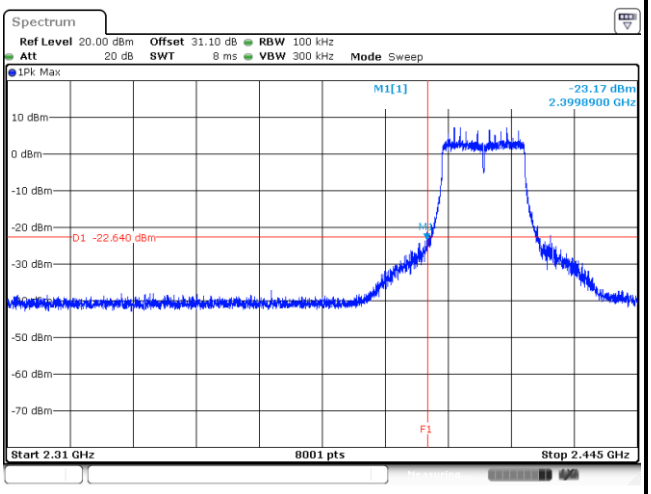
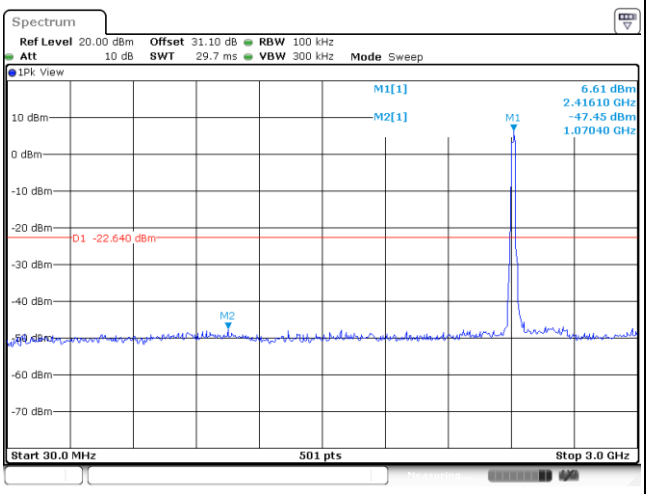
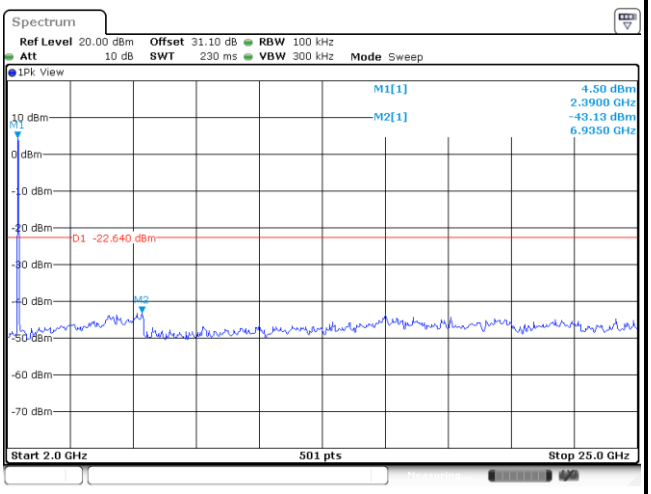
100kHz PSD reference Level	Channel Plot
	

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

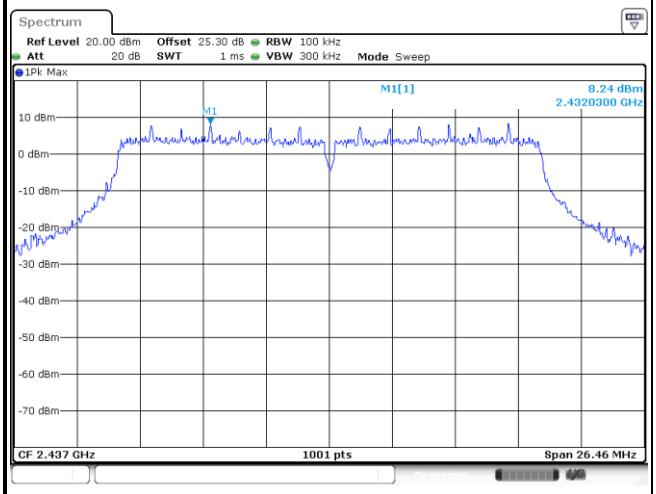
Test Mode :	802.11g	Test Channel :	11

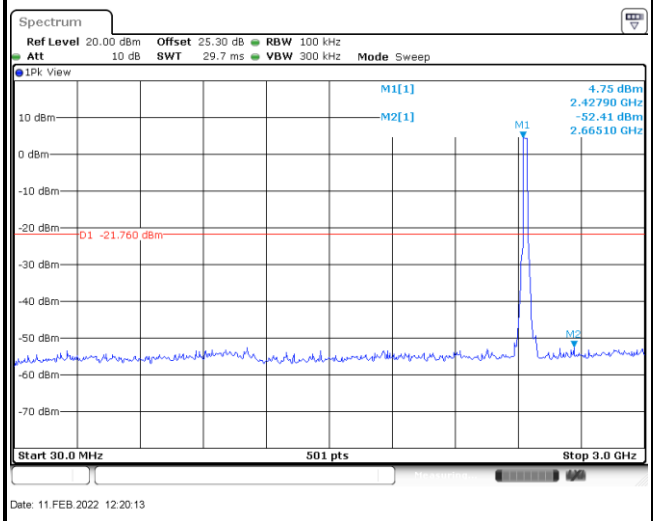
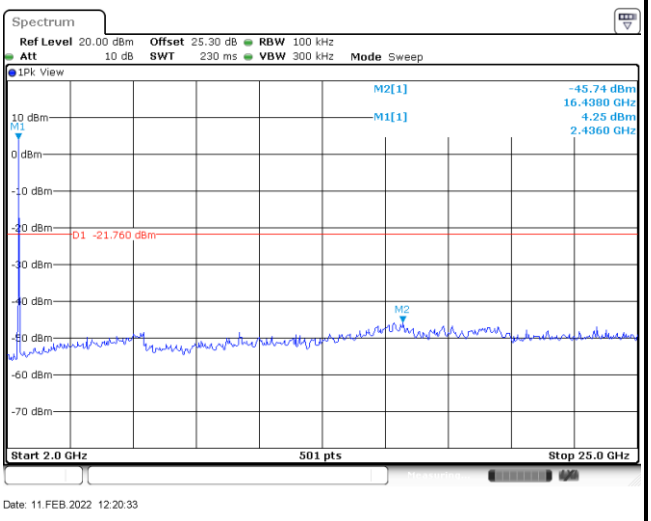
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	01

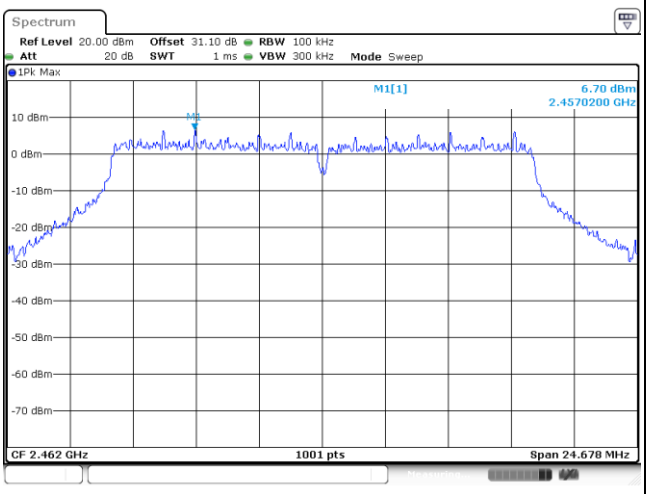
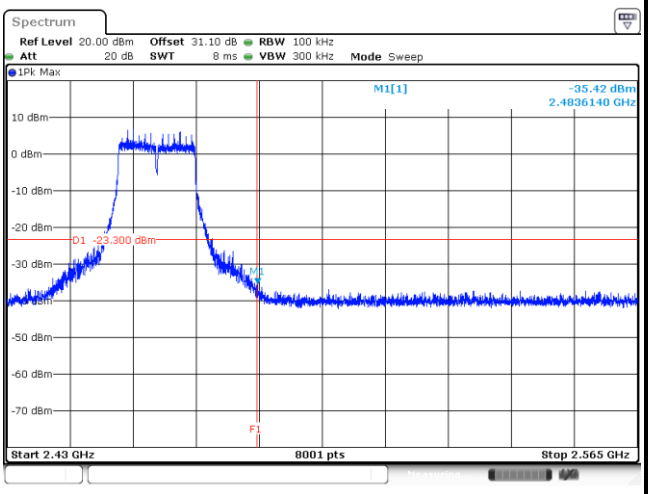
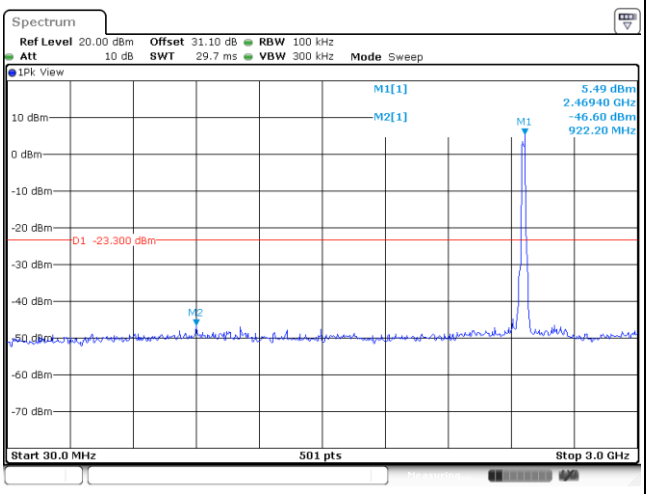
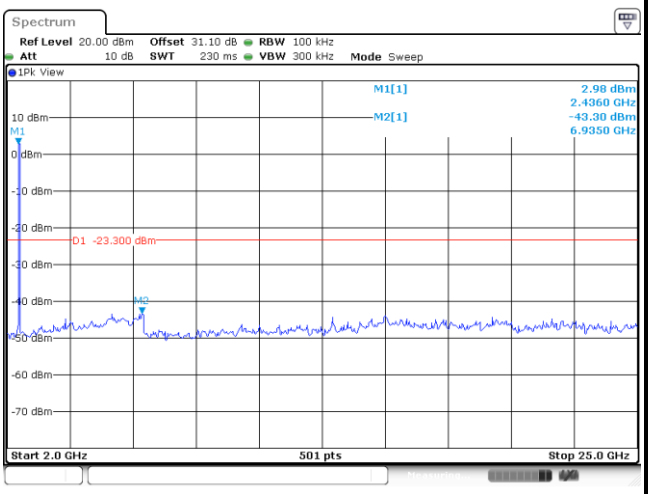
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	06

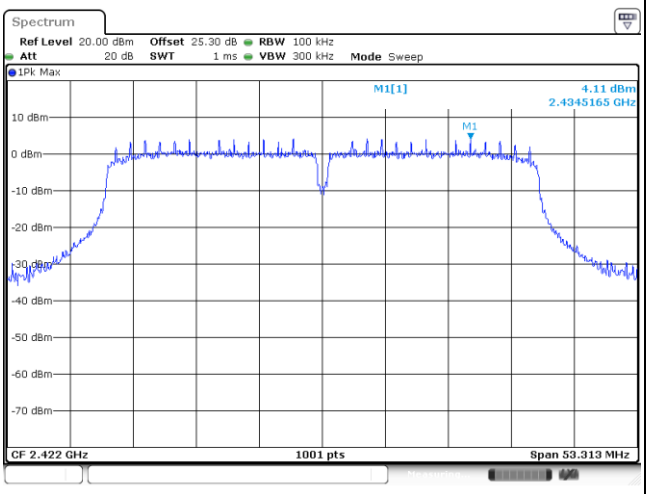
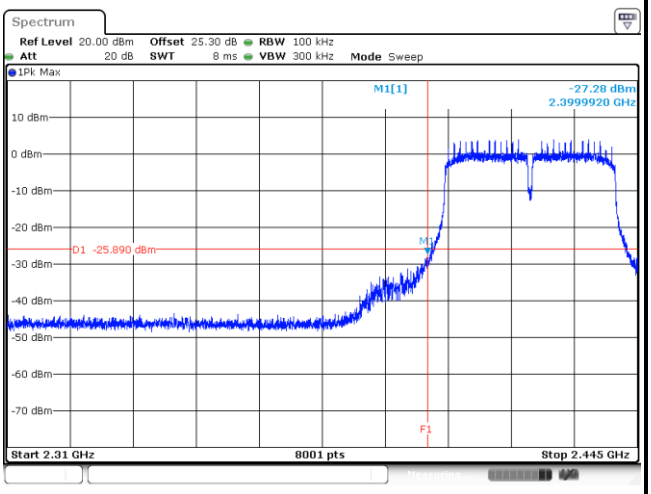
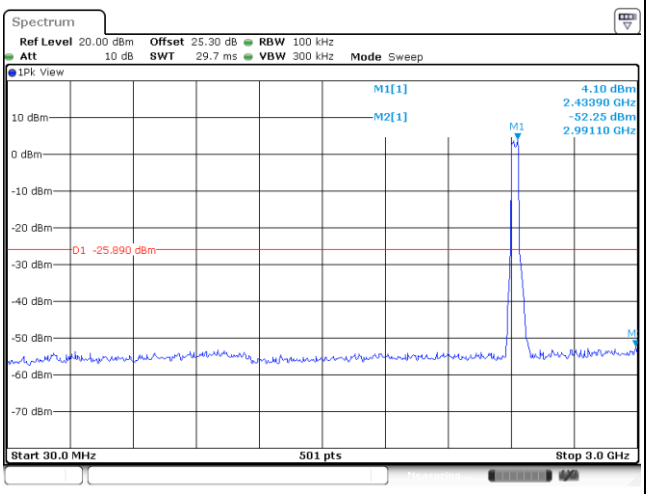
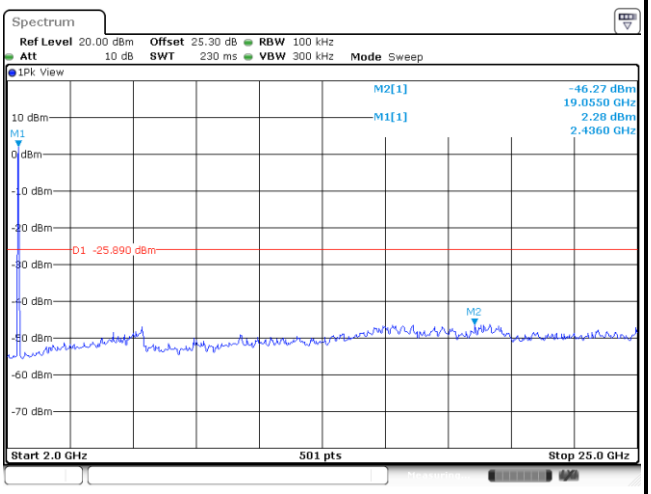
100kHz PSD reference Level	Channel Plot
	

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

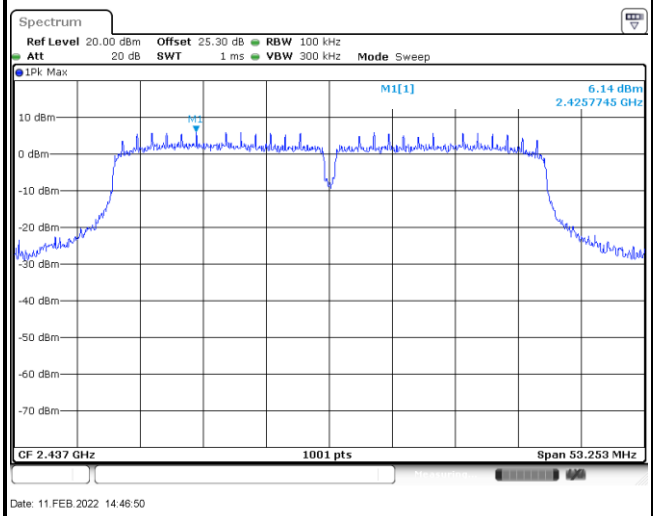
Test Mode :	802.11n HT20	Test Channel :	11

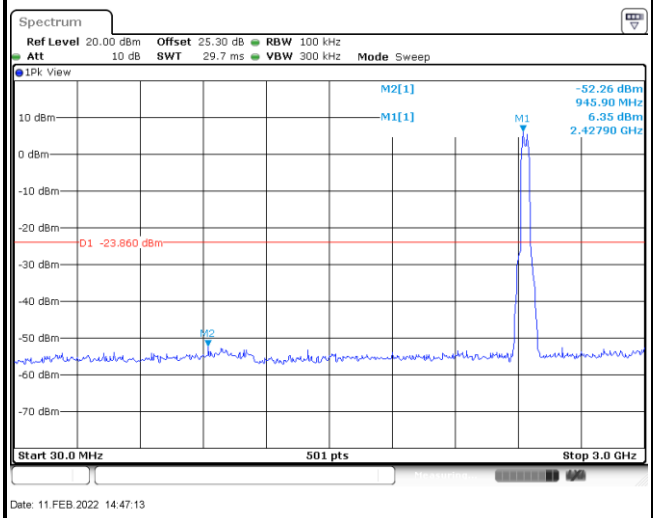
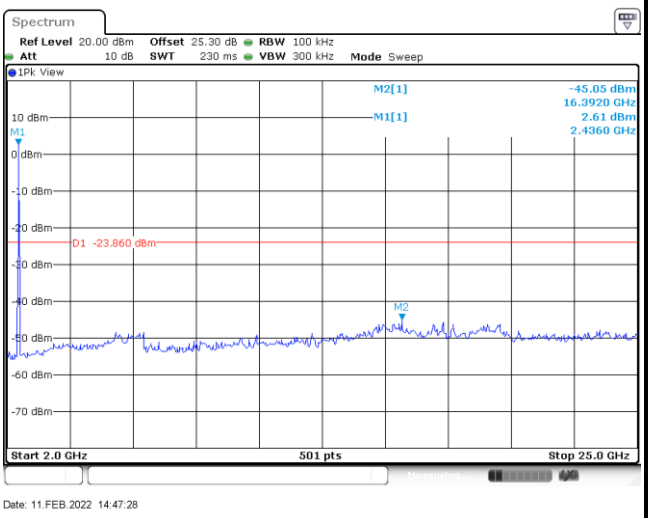
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	03

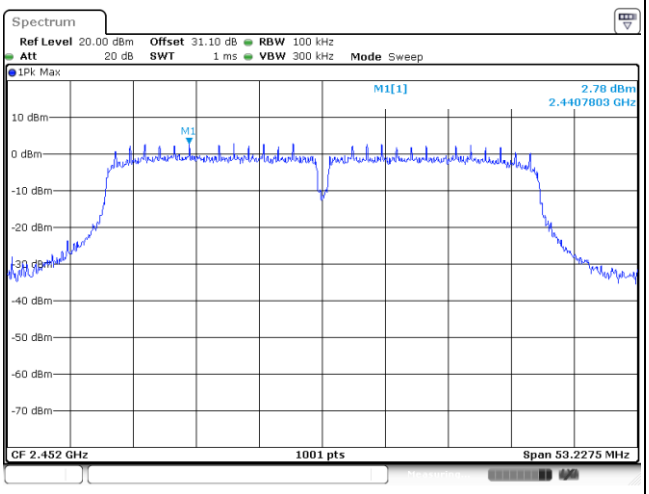
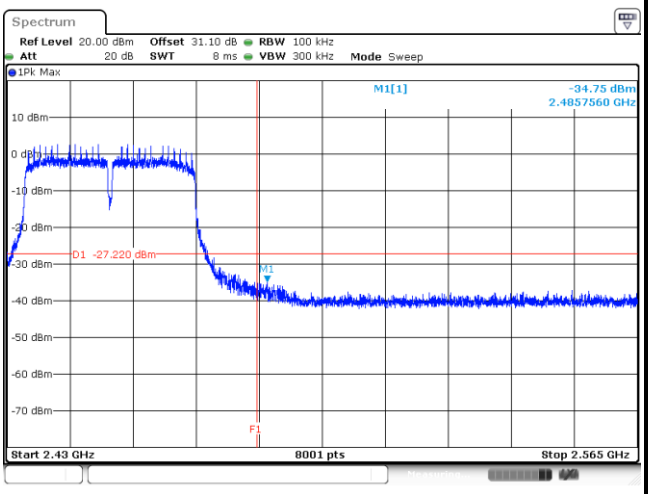
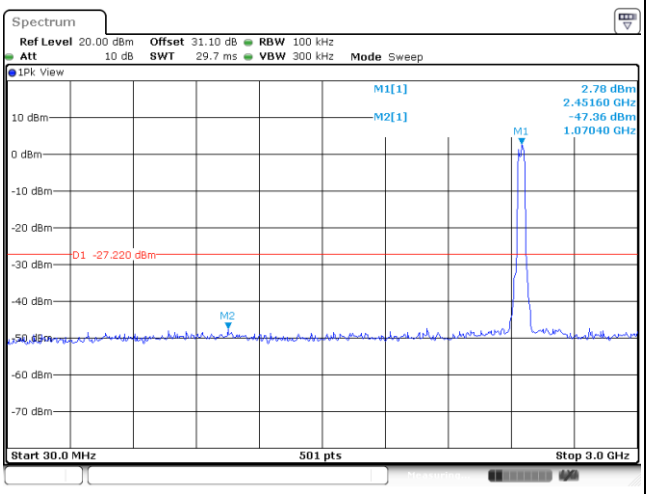
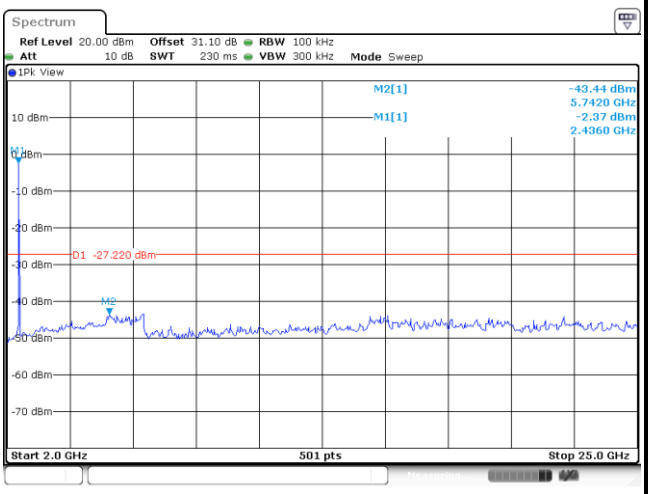
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	06

100kHz PSD reference Level	Channel Plot
	

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

Test Mode :	802.11n HT40	Test Channel :	09

100kHz PSD reference Level	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 is measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

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

3.5.2 Measuring Instruments

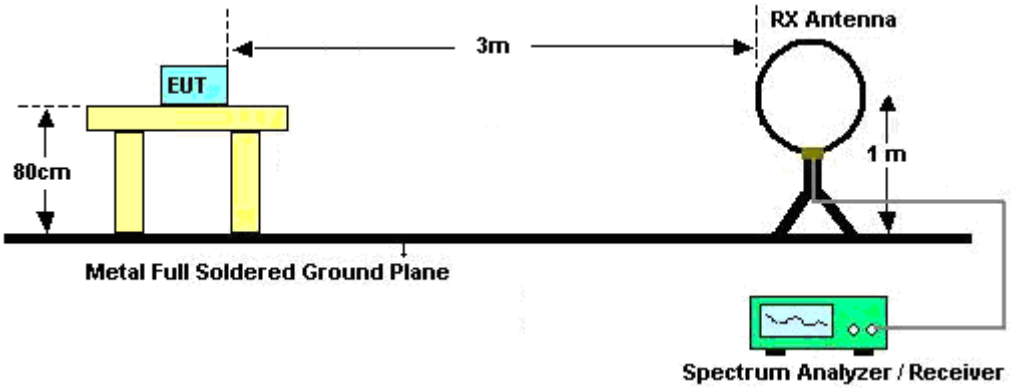
Please refer to the measuring equipment list in this test report.

3.5.3 Test Procedures

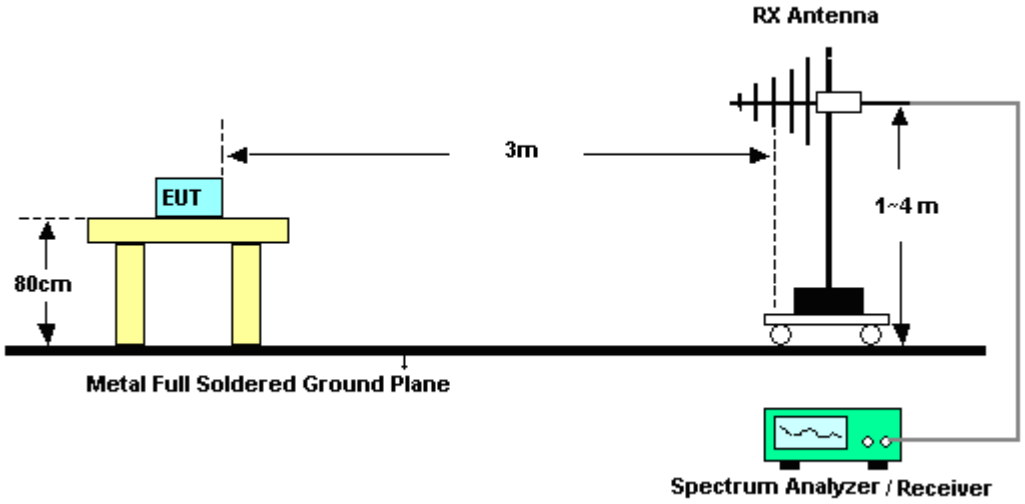
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the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

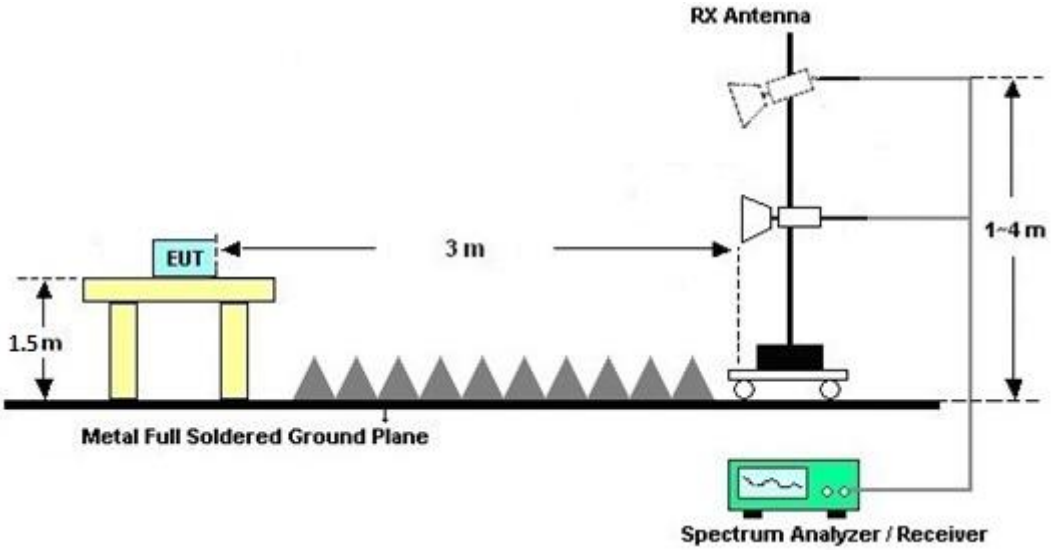
For radiated emissions below 30MHz



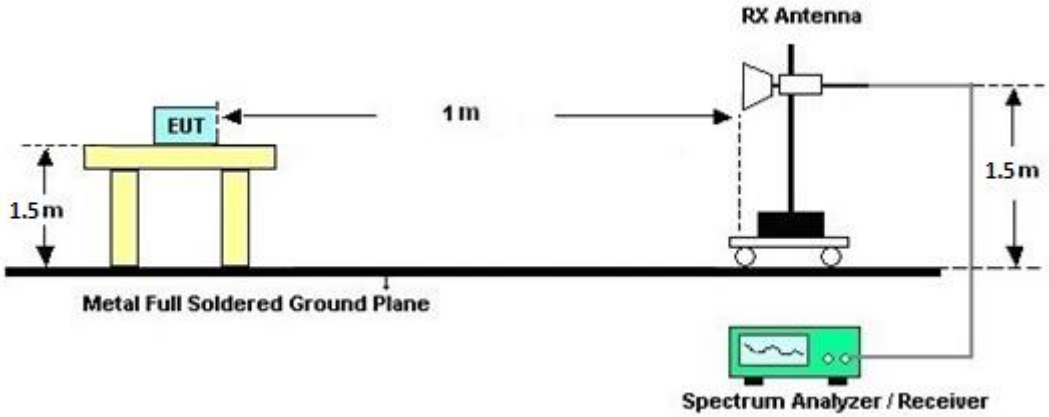
For radiated emissions from 30MHz to 1GHz



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

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

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B and C.

3.5.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix B and C.

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.

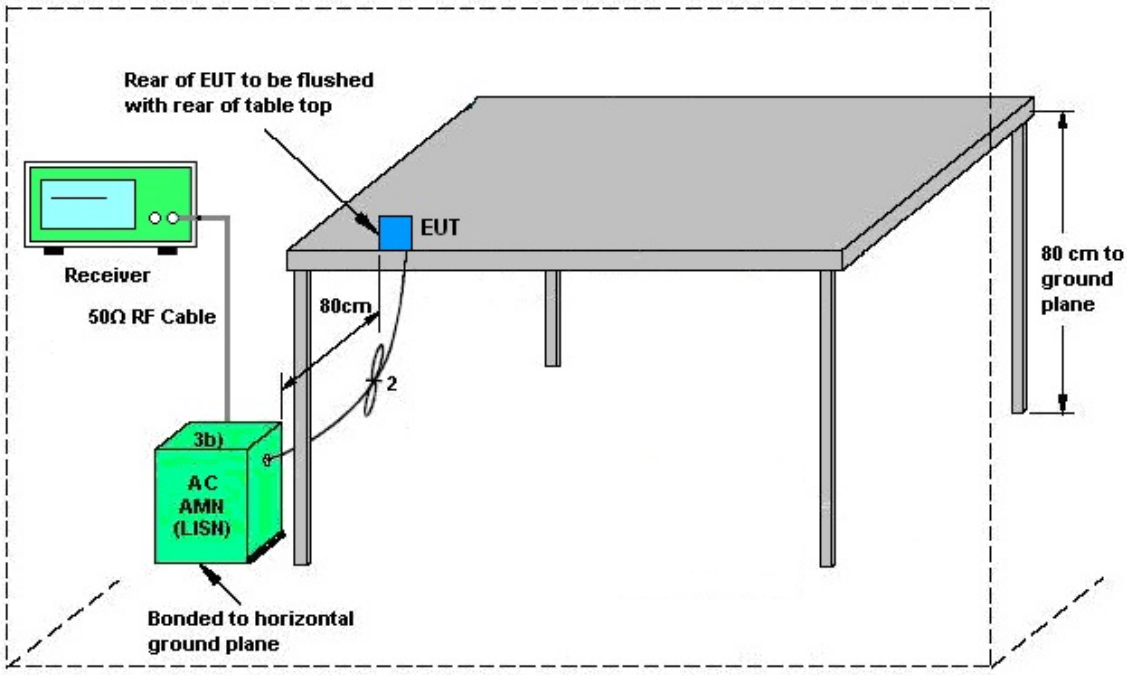
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

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

Please refer to Appendix A.

3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~50 MHz	Jan. 07, 2022	Jan. 09, 2022~ Mar. 08, 2022	Jan. 06, 2023	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 09, 2021	Jan. 09, 2022~ Mar. 08, 2022	Oct. 08, 2022	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1326	1GHz ~ 18GHz	Oct. 25, 2021	Jan. 09, 2022~ Mar. 08, 2022	Oct. 24, 2022	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00993	18GHz~40GHz	Nov. 30, 2021	Jan. 09, 2022~ Mar. 08, 2022	Nov. 29, 2022	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 10, 2021	Jan. 09, 2022~ Mar. 08, 2022	Dec. 09, 2022	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 10, 2021	Jan. 09, 2022~ Mar. 08, 2022	Nov. 09, 2022	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055007	1GHz~18GHz	Jun. 16, 2021	Jan. 09, 2022~ Mar. 08, 2022	Jun. 15, 2022	Radiation (03CH11-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Jan. 09, 2022~ Mar. 08, 2022	Jun. 21, 2022	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 15, 2021	Jan. 09, 2022~ Mar. 08, 2022	Oct. 14, 2022	Radiation (03CH11-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY55420170	20MHz~8.4GHz	Jul. 15, 2021	Jan. 09, 2022~ Mar. 08, 2022	Jul. 14, 2022	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Jan. 09, 2022~ Mar. 08, 2022	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Jan. 09, 2022~ Mar. 08, 2022	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Jan. 09, 2022~ Mar. 08, 2022	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Jan. 09, 2022~ Mar. 08, 2022	N/A	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz-40GHz	Mar. 11, 2021	Jan. 09, 2022~ Mar. 08, 2022	Mar. 10, 2022	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz-30MHz	Mar. 11, 2021	Jan. 09, 2022~ Mar. 08, 2022	Mar. 10, 2022	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	30M-18G	Mar. 11, 2021	Jan. 09, 2022~ Mar. 08, 2022	Mar. 10, 2022	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102，SUCOFLEX 104	811852/4,MY2859/2,MY9837/4PE	30MHz-18GHz	Nov. 15, 2021	Jan. 09, 2022~ Mar. 08, 2022	Nov. 14, 2022	Radiation (03CH11-HY)
Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN11	1.53G Low Pass	Sep. 13, 2021	Jan. 09, 2022~ Mar. 08, 2022	Sep. 12, 2022	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60SS	SN3	3GHz High Pass Filter	Sep. 13, 2021	Jan. 09, 2022~ Mar. 08, 2022	Sep. 12, 2022	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP140325	N/A	Nov. 26, 2021	Jan. 09, 2022~ Mar. 08, 2022	Nov. 25, 2022	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP200880	N/A	Sep. 30, 2021	Jan. 09, 2022~ Mar. 08, 2022	Sep. 29, 2022	Radiation (03CH11-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Jan. 03, 2022~ Mar. 04, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Power Meter	DARE	RPR3006W	16I00054SNO 12 (NO:113)	10MHz~6GHz	Dec. 16, 2021	Jan. 03, 2022~ Mar. 04, 2022	Dec. 15, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Jan. 03, 2022~ Mar. 04, 2022	Aug. 29, 2022	Conducted (TH05-HY)
Switch Control Manframe	E-IUSTRUME NT	ETF-1405-0	EC1900067 (BOX7)	N/A	Aug. 12, 2021	Jan. 03, 2022~ Mar. 04, 2022	Aug. 11, 2022	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Feb. 17, 2022	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 01, 2021	Feb. 17, 2022	Nov. 30, 2022	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 17, 2021	Feb. 17, 2022	Nov. 16, 2022	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 03, 2021	Feb. 17, 2022	Dec. 02, 2022	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 16, 2021	Feb. 17, 2022	Nov. 15, 2022	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Feb. 17, 2022	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBE CK	VTSD 9561-F N	00691	N/A	Jul. 28, 2021	Feb. 17, 2022	Jul. 27, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 30, 2021	Feb. 17, 2022	Dec. 29, 2022	Conduction (CO05-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.1 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.8 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.4 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.9 dB**

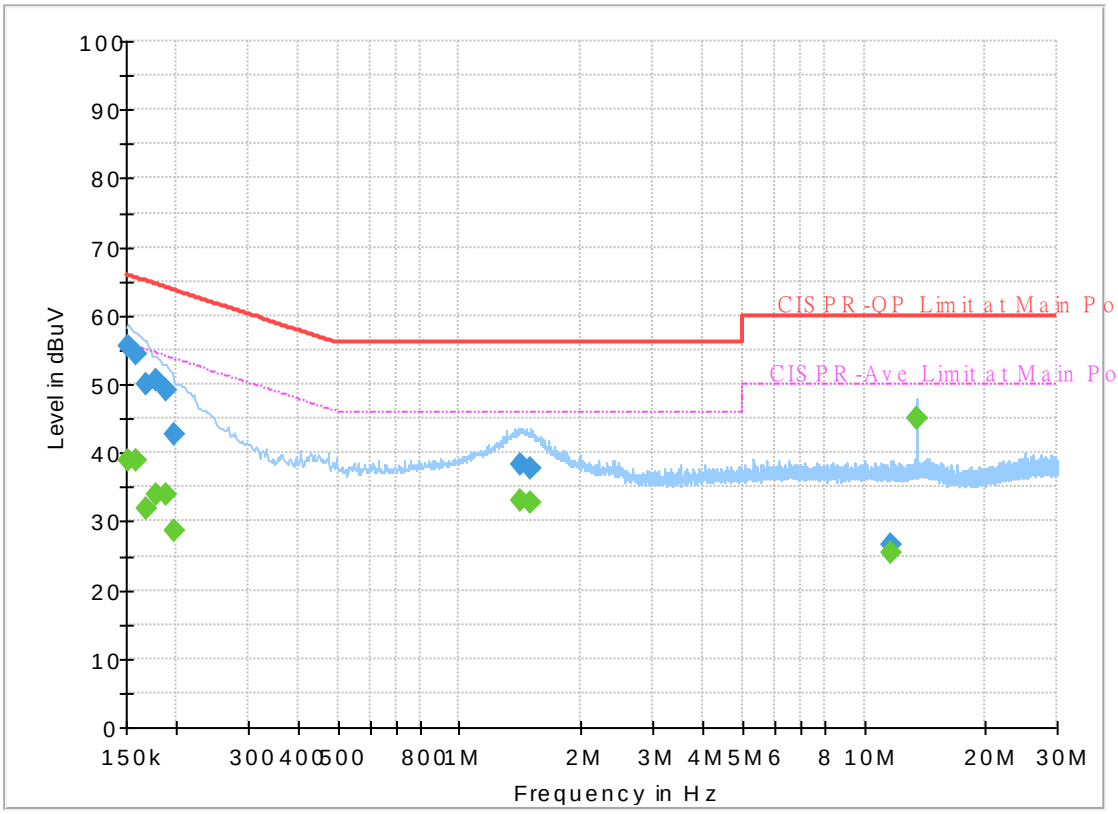
Appendix A. AC Conducted Emission Test Results

Test Engineer :	Calvin Wang	**Temperature :**	23~26℃
		Relative Humidity :	45~55%

EUT Information

Report NO :	1O0707-02
Test Mode :	Mode 1
Test Voltage :	Power From System
Phase :	Line

Full Spectrum



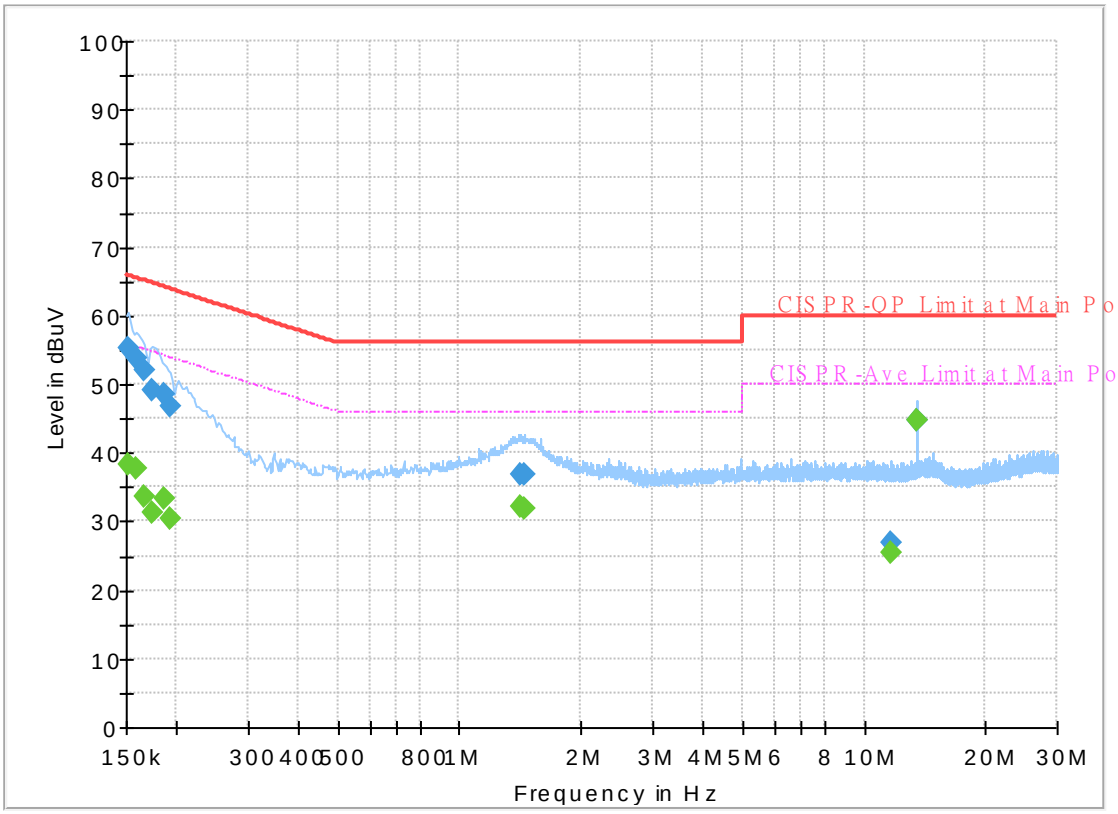
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	38.77	55.88	17.11	L1	OFF	19.6
0.152250	55.62	---	65.88	10.26	L1	OFF	19.6
0.159000	---	38.97	55.52	16.55	L1	OFF	19.6
0.159000	54.34	---	65.52	11.18	L1	OFF	19.6
0.168000	---	31.76	55.06	23.30	L1	OFF	19.6
0.168000	50.02	---	65.06	15.04	L1	OFF	19.6
0.177000	---	33.81	54.63	20.82	L1	OFF	19.6
0.177000	50.66	---	64.63	13.97	L1	OFF	19.6
0.188250	---	33.98	54.11	20.13	L1	OFF	19.6
0.188250	49.17	---	64.11	14.94	L1	OFF	19.6
0.197250	---	28.55	53.73	25.18	L1	OFF	19.6
0.197250	42.73	---	63.73	21.00	L1	OFF	19.6
1.419000	---	33.02	46.00	12.98	L1	OFF	19.6
1.419000	38.31	---	56.00	17.69	L1	OFF	19.6
1.495500	---	32.77	46.00	13.23	L1	OFF	19.6
1.495500	37.81	---	56.00	18.19	L1	OFF	19.6
11.697000	---	25.37	50.00	24.63	L1	OFF	20.1
11.697000	26.71	---	60.00	33.29	L1	OFF	20.1
13.560000	---	45.05	50.00	4.95	L1	OFF	20.1
13.560000	45.10	---	60.00	14.90	L1	OFF	20.1

EUT Information

Report NO :	1O0707-02
Test Mode :	Mode 1
Test Voltage :	Power From System
Phase :	Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	38.24	55.88	17.64	N	OFF	19.6
0.152250	55.38	---	65.88	10.50	N	OFF	19.6
0.159000	---	37.78	55.52	17.74	N	OFF	19.6
0.159000	53.68	---	65.52	11.84	N	OFF	19.6
0.165750	---	33.60	55.17	21.57	N	OFF	19.6
0.165750	52.10	---	65.17	13.07	N	OFF	19.6
0.174750	---	31.39	54.73	23.34	N	OFF	19.6
0.174750	49.11	---	64.73	15.62	N	OFF	19.6
0.186000	---	33.36	54.21	20.85	N	OFF	19.6
0.186000	48.54	---	64.21	15.67	N	OFF	19.6
0.192750	---	30.33	53.92	23.59	N	OFF	19.6
0.192750	46.83	---	63.92	17.09	N	OFF	19.6
1.410000	---	32.20	46.00	13.80	N	OFF	19.6
1.410000	36.96	---	56.00	19.04	N	OFF	19.6
1.446000	---	31.89	46.00	14.11	N	OFF	19.6
1.446000	36.87	---	56.00	19.13	N	OFF	19.6
11.604750	---	25.46	50.00	24.54	N	OFF	20.1
11.604750	26.76	---	60.00	33.24	N	OFF	20.1
13.560000	---	44.60	50.00	5.40	N	OFF	20.2
13.560000	44.67	---	60.00	15.33	N	OFF	20.2

Appendix B. Radiated Spurious Emission

Test Engineer :	Daniel Lee, Hayden Wu, James Chiu and Fu Chen	Temperature :	19.5~22.5°C
		Relative Humidity :	54.6~68.3%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2386.23	52.31	-21.69	74	41.57	27.63	17.06	33.95	337	197	P	H
		2387.91	42.43	-11.57	54	31.7	27.62	17.06	33.95	337	197	A	H
	*	2412	109.75	-	-	99.02	27.58	17.09	33.94	337	197	P	H
	*	2412	106.01	-	-	95.28	27.58	17.09	33.94	337	197	A	H
													H
													H
		2349.06	52.03	-21.97	74	41.27	27.7	17.02	33.96	361	139	P	V
		2387.7	41.56	-12.44	54	30.83	27.62	17.06	33.95	361	139	A	V
	*	2412	106.5	-	-	95.77	27.58	17.09	33.94	361	139	P	V
	*	2412	103.92	-	-	93.19	27.58	17.09	33.94	361	139	A	V
													V
													V
802.11b CH 06 2437MHz		2380.56	52.27	-21.73	74	41.53	27.64	17.05	33.95	334	200	P	H
		2389.52	41.25	-12.75	54	30.52	27.62	17.06	33.95	334	200	A	H
	*	2437	109.04	-	-	98.32	27.53	17.13	33.94	334	200	P	H
	*	2437	105.51	-	-	94.79	27.53	17.13	33.94	334	200	A	H
		2483.52	52.25	-21.75	74	41.54	27.43	17.2	33.92	334	200	P	H
		2483.68	41.33	-12.67	54	30.62	27.43	17.2	33.92	334	200	A	H
		2389.84	51.98	-22.02	74	41.25	27.62	17.06	33.95	365	135	P	V
		2389.84	40.84	-13.16	54	30.11	27.62	17.06	33.95	365	135	A	V
	*	2437	106.21	-	-	95.49	27.53	17.13	33.94	365	135	P	V
	*	2437	102.7	-	-	91.98	27.53	17.13	33.94	365	135	A	V
		2487.12	51.36	-22.64	74	40.64	27.43	17.21	33.92	365	135	P	V
		2483.52	40.93	-13.07	54	30.22	27.43	17.2	33.92	365	135	A	V

802.11b CH 11 2462MHz	*	2462	108.71	-	-	97.99	27.48	17.17	33.93	327	198	P	H
	*	2462	105.23	-	-	94.51	27.48	17.17	33.93	327	198	A	H
		2486.88	52.49	-21.51	74	41.78	27.43	17.2	33.92	327	198	P	H
		2484.36	46.06	-7.94	54	35.35	27.43	17.2	33.92	327	198	A	H
													H
													H
	*	2462	106.03	-	-	95.31	27.48	17.17	33.93	311	132	P	V
	*	2462	102.51	-	-	91.79	27.48	17.17	33.93	311	132	A	V
		2485.96	52.17	-21.83	74	41.46	27.43	17.2	33.92	311	132	P	V
		2483.88	41.22	-12.78	54	30.51	27.43	17.2	33.92	311	132	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	38.86	-35.14	74	54	31.25	12.07	58.46	-	-	P	H
		10785	47.74	-26.26	74	51.6	40.16	17.22	61.24	-	-	P	H
		14475	49.18	-24.82	74	50.85	41.3	20.06	63.03	-	-	P	H
		14475	38.91	-15.09	54	40.58	41.3	20.06	63.03	-	-	A	H
		17985	54.09	-19.91	74	41.09	46.56	23.08	56.64	-	-	P	H
		17985	44.23	-9.77	54	31.23	46.56	23.08	56.64	-	-	A	H
													H
													H
													H
													H
													H
													H
		4824	38.84	-35.16	74	53.98	31.25	12.07	58.46	-	-	P	V
		11010	47.68	-26.32	74	51.54	40.26	17.39	61.51	-	-	P	V
		14475	49.08	-24.92	74	50.75	41.3	20.06	63.03	-	-	P	V
		14475	39.01	-14.99	54	40.68	41.3	20.06	63.03	-	-	A	V
		18000	54.04	-19.96	74	40.74	46.8	23.1	56.6	-	-	P	V
		18000	43.99	-10.01	54	30.69	46.8	23.1	56.6	-	-	A	V
													V
													V
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													V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4874	39.28	-34.72	74	54.39	31.25	12.11	58.47	-	-	P	H
		7311	53.18	-20.82	74	61.2	36.6	14.56	59.18	328	277	P	H
		7311	49.1	-4.9	54	57.12	36.6	14.56	59.18	328	277	A	H
		11010	48.38	-25.62	74	52.24	40.26	17.39	61.51	-	-	P	H
		11010	38.25	-15.75	54	42.11	40.26	17.39	61.51	-	-	A	H
		14490	48.85	-25.15	74	50.48	41.3	20.08	63.01	-	-	P	H
		14490	38.88	-15.12	54	40.51	41.3	20.08	63.01	-	-	A	H
		18000	55.27	-18.73	74	41.97	46.8	23.1	56.6	-	-	P	H
		18000	44.59	-9.41	54	31.29	46.8	23.1	56.6	-	-	A	H
													H
													H
802.11b													H
CH 06		4874	39.64	-34.36	74	54.75	31.25	12.11	58.47	-	-	P	V
2437MHz		7311	46.71	-27.29	74	54.73	36.6	14.56	59.18	-	-	P	V
		11025	48.15	-25.85	74	52.08	40.2	17.4	61.53	-	-	P	V
		11025	37.96	-16.04	54	41.89	40.2	17.4	61.53	-	-	A	V
		14505	48.3	-25.7	74	49.9	41.3	20.1	63	-	-	P	V
		14505	38.34	-15.66	54	39.94	41.3	20.1	63	-	-	A	V
		18000	54.07	-19.93	74	40.77	46.8	23.1	56.6	-	-	P	V
		18000	43.85	-10.15	54	30.55	46.8	23.1	56.6	-	-	A	V
													V
													V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4924	40.84	-33.16	74	55.78	31.4	12.14	58.48	-	-	P	H
		7386	51.42	-22.58	74	59.39	36.6	14.58	59.15	215	285	P	H
		7386	47.01	-6.99	54	54.98	36.6	14.58	59.15	215	285	A	H
		10950	48.11	-25.89	74	51.95	40.25	17.35	61.44	-	-	P	H
		10950	37.82	-16.18	54	41.66	40.25	17.35	61.44	-	-	A	H
		14490	47.69	-26.31	74	49.32	41.3	20.08	63.01	-	-	P	H
		18000	53.92	-20.08	74	40.62	46.8	23.1	56.6	-	-	P	H
		18000	43.99	-10.01	54	30.69	46.8	23.1	56.6	-	-	A	H
													H
													H
													H
802.11b													H
CH 11		4924	40.05	-33.95	74	54.99	31.4	12.14	58.48	-	-	P	V
2462MHz		7386	46.18	-27.82	74	54.15	36.6	14.58	59.15	-	-	P	V
		10890	47.43	-26.57	74	51.3	40.2	17.3	61.37	-	-	P	V
		14505	48.45	-25.55	74	50.05	41.3	20.1	63	-	-	P	V
		14505	38.75	-15.25	54	40.35	41.3	20.1	63	-	-	A	V
		18000	54.31	-19.69	74	41.01	46.8	23.1	56.6	-	-	P	V
		18000	44.41	-9.59	54	31.11	46.8	23.1	56.6	-	-	A	V
													V
													V
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													V

Remark

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

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2389.8	65.44	-8.56	74	54.71	27.62	17.06	33.95	185	9	P	H
		2390	51.53	-2.47	54	40.8	27.62	17.06	33.95	185	9	A	H
	*	2412	109.39	-	-	98.66	27.58	17.09	33.94	185	9	P	H
	*	2412	101.73	-	-	91	27.58	17.09	33.94	185	9	A	H
													H
													H
		2389.485	59.06	-14.94	74	48.33	27.62	17.06	33.95	392	296	P	V
		2390	46.67	-7.33	54	35.94	27.62	17.06	33.95	392	296	A	V
	*	2412	104.81	-	-	94.08	27.58	17.09	33.94	392	296	P	V
	*	2412	96.68	-	-	85.95	27.58	17.09	33.94	392	296	A	V
													V
													V
802.11g CH 06 2437MHz		2390	52.74	-21.26	74	42.01	27.62	17.06	33.95	241	6	P	H
		2385.04	43.24	-10.76	54	32.5	27.63	17.06	33.95	241	6	A	H
	*	2437	112.04	-	-	101.32	27.53	17.13	33.94	241	6	P	H
	*	2437	103.87	-	-	93.15	27.53	17.13	33.94	241	6	A	H
		2490.08	55.02	-18.98	74	44.31	27.42	17.21	33.92	241	6	P	H
		2489.2	46.09	-7.91	54	35.38	27.42	17.21	33.92	241	6	A	H
		2315.76	51.8	-22.2	74	40.94	27.84	16.99	33.97	394	311	P	V
		2385.2	41.94	-12.06	54	31.2	27.63	17.06	33.95	394	311	A	V
	*	2437	106.95	-	-	96.23	27.53	17.13	33.94	394	311	P	V
	*	2437	99.12	-	-	88.4	27.53	17.13	33.94	394	311	A	V
		2494.56	51.98	-22.02	74	41.27	27.41	17.22	33.92	394	311	P	V
		2489.2	42.42	-11.58	54	31.71	27.42	17.21	33.92	394	311	A	V

802.11g CH 11 2462MHz	*	2462	109.39	-	-	98.67	27.48	17.17	33.93	245	9	P	H
	*	2462	101.6	-	-	90.88	27.48	17.17	33.93	245	9	A	H
		2484.1	66.36	-7.64	74	55.65	27.43	17.2	33.92	245	9	P	H
		2483.75	50.88	-3.12	54	40.17	27.43	17.2	33.92	245	9	A	H
													H
													H
	*	2462	102.88	-	-	92.16	27.48	17.17	33.93	209	0	P	V
	*	2462	95.04	-	-	84.32	27.48	17.17	33.93	209	0	A	V
		2484.15	62.36	-11.64	74	51.65	27.43	17.2	33.92	209	0	P	V
		2483.5	45.66	-8.34	54	34.95	27.43	17.2	33.92	209	0	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	35.71	-38.29	74	50.85	31.25	12.07	58.46	-	-	P	H
		11055	48.41	-25.59	74	52.47	40.08	17.43	61.57	-	-	P	H
		14475	47.64	-26.36	74	49.31	41.3	20.06	63.03	-	-	P	H
		18000	53.39	-20.61	74	40.09	46.8	23.1	56.6	-	-	P	H
		18000	44.27	-9.73	54	30.97	46.8	23.1	56.6	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
		4824	36.14	-37.86	74	51.28	31.25	12.07	58.46	-	-	P	V
		10920	47.06	-26.94	74	50.91	40.22	17.33	61.4	-	-	P	V
		14490	47.15	-26.85	74	48.78	41.3	20.08	63.01	-	-	P	V
		18000	52.39	-21.61	74	39.09	46.8	23.1	56.6	-	-	P	V
		18000	44.29	-9.71	54	30.99	46.8	23.1	56.6	-	-	A	V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4874	37.63	-36.37	74	52.74	31.25	12.11	58.47	-	-	P	H
		7311	63.7	-10.3	74	71.72	36.6	14.56	59.18	247	99	P	H
		7311	50.77	-3.23	54	58.79	36.6	14.56	59.18	247	99	A	H
		10995	47.08	-26.92	74	50.89	40.29	17.39	61.49	-	-	P	H
		14499	47.41	-26.59	74	49.02	41.3	20.09	63	-	-	P	H
		18000	53.14	-20.86	74	39.84	46.8	23.1	56.6	-	-	P	H
													H
													H
													H
													H
													H
802.11g CH 06 2437MHz													H
		4874	36.15	-37.85	74	51.26	31.25	12.11	58.47	-	-	P	V
		7311	59.19	-14.81	74	67.21	36.6	14.56	59.18	210	358	P	V
		7311	46.85	-7.15	54	54.87	36.6	14.56	59.18	210	358	A	V
		11460	47.94	-26.06	74	52.27	39.9	17.82	62.05	-	-	P	V
		14475	47.18	-26.82	74	48.85	41.3	20.06	63.03	-	-	P	V
		17985	52.89	-21.11	74	39.89	46.56	23.08	56.64	-	-	P	V
													V
													V
													V
													V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4924	36.44	-37.56	74	51.38	31.4	12.14	58.48	-	-	P	H
		7386	55.24	-18.76	74	63.21	36.6	14.58	59.15	251	102	P	H
		7386	42.35	-11.65	54	50.32	36.6	14.58	59.15	251	102	A	H
		10965	47.37	-26.63	74	51.21	40.26	17.36	61.46	-	-	P	H
		14475	46.53	-27.47	74	48.2	41.3	20.06	63.03	-	-	P	H
		18000	51.68	-22.32	74	38.38	46.8	23.1	56.6	-	-	P	H
		18000	43.96	-10.04	54	30.66	46.8	23.1	56.6	-	-	A	H
		4924	36.44	-37.56	74	51.38	31.4	12.14	58.48	-	-	P	H
													H
													H
													H
802.11g CH 11 2462MHz													H
		4924	36.77	-37.23	74	51.71	31.4	12.14	58.48	-	-	P	V
		7386	47.27	-26.73	74	55.24	36.6	14.58	59.15	-	-	P	V
		11010	46.79	-27.21	74	50.65	40.26	17.39	61.51	-	-	P	V
		14490	47.17	-26.83	74	48.8	41.3	20.08	63.01	-	-	P	V
		18000	52.32	-21.68	74	39.02	46.8	23.1	56.6	-	-	P	V
		18000	44.09	-9.91	54	30.79	46.8	23.1	56.6	-	-	A	V
													V
													V
													V
													V
													V
													V

Remark

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

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		2390	67.58	-6.42	74	56.85	27.62	17.06	33.95	183	9	P	H
		2389.695	51.58	-2.42	54	40.85	27.62	17.06	33.95	183	9	A	H
	*	2412	108.66	-	-	97.93	27.58	17.09	33.94	183	9	P	H
	*	2412	101.06	-	-	90.33	27.58	17.09	33.94	183	9	A	H
802.11n													H
HT20													H
CH 01		2389.065	60.15	-13.85	74	49.42	27.62	17.06	33.95	392	296	P	V
2412MHz		2390	46.9	-7.1	54	36.17	27.62	17.06	33.95	392	296	A	V
	*	2412	104.46	-	-	93.73	27.58	17.09	33.94	392	296	P	V
	*	2412	96.21	-	-	85.48	27.58	17.09	33.94	392	296	A	V
													V
													V
		2385.68	52.66	-21.34	74	41.92	27.63	17.06	33.95	250	10	P	H
		2385.52	42.92	-11.08	54	32.18	27.63	17.06	33.95	250	10	A	H
	*	2437	110.13	-	-	99.41	27.53	17.13	33.94	250	10	P	H
	*	2437	102.38	-	-	91.66	27.53	17.13	33.94	250	10	A	H
802.11n		2489.04	53.98	-20.02	74	43.27	27.42	17.21	33.92	250	10	P	H
HT20		2488.64	44.6	-9.4	54	33.89	27.42	17.21	33.92	250	10	A	H
CH 06		2385.68	51.54	-22.46	74	40.8	27.63	17.06	33.95	400	296	P	V
2437MHz		2385.52	41.13	-12.87	54	30.39	27.63	17.06	33.95	400	296	A	V
	*	2437	104.36	-	-	93.64	27.53	17.13	33.94	400	296	P	V
	*	2437	96.83	-	-	86.11	27.53	17.13	33.94	400	296	A	V
		2488.48	52.03	-21.97	74	41.32	27.42	17.21	33.92	400	296	P	V
		2488.64	41.59	-12.41	54	30.88	27.42	17.21	33.92	400	296	A	V

	*	2462	109.26	-	-	98.54	27.48	17.17	33.93	241	10	P	H
	*	2462	101.46	-	-	90.74	27.48	17.17	33.93	241	10	A	H
		2483.85	67.86	-6.14	74	57.15	27.43	17.2	33.92	241	10	P	H
		2483.9	51.04	-2.96	54	40.33	27.43	17.2	33.92	241	10	A	H
802.11n													H
HT20													H
CH 11	*	2462	102.68	-	-	91.96	27.48	17.17	33.93	209	2	P	V
2462MHz	*	2462	94.86	-	-	84.14	27.48	17.17	33.93	209	2	A	V
		2483.8	62.68	-11.32	74	51.97	27.43	17.2	33.92	209	2	P	V
		2483.6	45.59	-8.41	54	34.88	27.43	17.2	33.92	209	2	A	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4824	36.15	-37.85	74	51.29	31.25	12.07	58.46	-	-	P	H
		10890	47.16	-26.84	74	51.03	40.2	17.3	61.37	-	-	P	H
		14490	46.53	-27.47	74	48.16	41.3	20.08	63.01	-	-	P	H
		18000	52.39	-21.61	74	39.09	46.8	23.1	56.6	-	-	P	H
802.11n		18000	43.52	-10.48	54	30.22	46.8	23.1	56.6	-	-	A	H
HT20													H
CH 01		4824	36.23	-37.77	74	51.37	31.25	12.07	58.46	-	-	P	V
2412MHz		10875	47.24	-26.76	74	51.1	40.2	17.29	61.35	-	-	P	V
		14490	46.46	-27.54	74	48.09	41.3	20.08	63.01	-	-	P	V
		18000	52.12	-21.88	74	38.82	46.8	23.1	56.6	-	-	P	V
		18000	43.85	-10.15	54	30.55	46.8	23.1	56.6	-	-	A	V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4874	36	-38	74	51.11	31.25	12.11	58.47	-	-	P	H
		7311	57.14	-16.86	74	65.16	36.6	14.56	59.18	200	110	P	H
		7311	46.11	-7.89	54	54.13	36.6	14.56	59.18	200	110	A	H
		10785	47.46	-26.54	74	51.32	40.16	17.22	61.24	-	-	P	H
		14490	46.68	-27.32	74	48.31	41.3	20.08	63.01	-	-	P	H
		17970	52.4	-21.6	74	39.68	46.32	23.07	56.67	-	-	P	H
		17970	43.25	-10.75	54	30.53	46.32	23.07	56.67	-	-	A	H
													H
													H
													H
802.11n													H
HT20													H
CH 06		4874	36.69	-37.31	74	51.8	31.25	12.11	58.47	-	-	P	V
2437MHz		7311	52.92	-21.08	74	60.94	36.6	14.56	59.18	189	303	P	V
		7311	50.18	-3.82	54	58.2	36.6	14.56	59.18	189	303	A	V
		10905	47.56	-26.44	74	51.43	40.21	17.31	61.39	-	-	P	V
		14490	46.93	-27.07	74	48.56	41.3	20.08	63.01	-	-	P	V
		17985	51.66	-22.34	74	38.66	46.56	23.08	56.64	-	-	P	V
		17985	44.07	-9.93	54	31.07	46.56	23.08	56.64	-	-	A	V
													V
													V
													V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4924	36.11	-37.89	74	51.05	31.4	12.14	58.48	-	-	P	H
		7386	48.74	-25.26	74	56.71	36.6	14.58	59.15	-	-	P	H
		10920	46.9	-27.1	74	50.75	40.22	17.33	61.4	-	-	P	H
		14490	46.33	-27.67	74	47.96	41.3	20.08	63.01	-	-	P	H
		17985	52.27	-21.73	74	39.27	46.56	23.08	56.64	-	-	P	H
		17985	43.58	-10.42	54	30.58	46.56	23.08	56.64	-	-	A	H
													H
													H
													H
													H
802.11n													H
HT20													H
CH 11		4924	36.69	-37.31	74	51.63	31.4	12.14	58.48	-	-	P	V
2462MHz		7386	45.72	-28.28	74	53.69	36.6	14.58	59.15	-	-	P	V
		11055	47.55	-26.45	74	51.61	40.08	17.43	61.57	-	-	P	V
		14475	47.02	-26.98	74	48.69	41.3	20.06	63.03	-	-	P	V
		17985	51.54	-22.46	74	38.54	46.56	23.08	56.64	-	-	P	V
		17985	44.03	-9.97	54	31.03	46.56	23.08	56.64	-	-	A	V
													V
													V
													V
													V
													V
													V

Remark

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

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		2389.84	65.09	-8.91	74	54.36	27.62	17.06	33.95	183	8	P	H
		2389.68	51.22	-2.78	54	40.49	27.62	17.06	33.95	183	8	A	H
	*	2422	105.49	-	-	94.77	27.56	17.1	33.94	183	8	P	H
	*	2422	98.12	-	-	87.4	27.56	17.1	33.94	183	8	A	H
802.11n		2485.44	53.75	-20.25	74	43.04	27.43	17.2	33.92	183	8	P	H
HT40		2485.52	43.21	-10.79	54	32.5	27.43	17.2	33.92	183	8	A	H
CH 03		2390	59.45	-14.55	74	48.72	27.62	17.06	33.95	395	309	P	V
2422MHz		2389.68	46.35	-7.65	54	35.62	27.62	17.06	33.95	395	309	A	V
	*	2422	101.29	-	-	90.57	27.56	17.1	33.94	395	309	P	V
	*	2422	93.49	-	-	82.77	27.56	17.1	33.94	395	309	A	V
		2487.04	52.66	-21.34	74	41.95	27.43	17.2	33.92	395	309	P	V
		2495.92	42.51	-11.49	54	31.8	27.41	17.22	33.92	395	309	A	V
		2389.84	62.03	-11.97	74	51.3	27.62	17.06	33.95	245	7	P	H
		2390	48.97	-5.03	54	38.24	27.62	17.06	33.95	245	7	A	H
	*	2437	107.93	-	-	97.21	27.53	17.13	33.94	245	7	P	H
	*	2437	100.2	-	-	89.48	27.53	17.13	33.94	245	7	A	H
802.11n		2484.48	64.71	-9.29	74	54	27.43	17.2	33.92	245	7	P	H
HT40		2483.68	50.49	-3.51	54	39.78	27.43	17.2	33.92	245	7	A	H
CH 06		2389.68	55.35	-18.65	74	44.62	27.62	17.06	33.95	394	310	P	V
2437MHz		2389.84	44.76	-9.24	54	34.03	27.62	17.06	33.95	394	310	A	V
	*	2437	103.97	-	-	93.25	27.53	17.13	33.94	394	310	P	V
	*	2437	95.86	-	-	85.14	27.53	17.13	33.94	394	310	A	V
		2484.32	56.52	-17.48	74	45.81	27.43	17.2	33.92	394	310	P	V
		2483.68	45.14	-8.86	54	34.43	27.43	17.2	33.92	394	310	A	V

		2321.36	51.77	-22.23	74	40.93	27.81	17	33.97	241	10	P	H
		2390	42.57	-11.43	54	31.84	27.62	17.06	33.95	241	10	A	H
	*	2452	106.13	-	-	95.41	27.5	17.15	33.93	241	10	P	H
	*	2452	97.81	-	-	87.09	27.5	17.15	33.93	241	10	A	H
802.11n		2485.2	66.11	-7.89	74	55.4	27.43	17.2	33.92	241	10	P	H
HT40		2484.48	52.02	-1.98	54	41.31	27.43	17.2	33.92	241	10	A	H
CH 09		2318.48	52.55	-21.45	74	41.69	27.83	17	33.97	387	286	P	V
2452MHz		2352.4	42.59	-11.41	54	31.82	27.7	17.03	33.96	387	286	A	V
	*	2452	100.56	-	-	89.84	27.5	17.15	33.93	387	286	P	V
	*	2452	92.85	-	-	82.13	27.5	17.15	33.93	387	286	A	V
		2484.08	58.97	-15.03	74	48.26	27.43	17.2	33.92	387	286	P	V
		2485.28	45.91	-8.09	54	35.2	27.43	17.2	33.92	387	286	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 HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4844	36.97	-37.03	74	52.14	31.21	12.09	58.47	-	-	P	H
		7266	46.81	-27.19	74	54.87	36.6	14.53	59.19	-	-	P	H
		11025	47.28	-26.72	74	51.21	40.2	17.4	61.53	-	-	P	H
		14475	46.24	-27.76	74	47.91	41.3	20.06	63.03	-	-	P	H
802.11n		17985	51.63	-22.37	74	38.63	46.56	23.08	56.64	-	-	P	H
HT40		17985	43.58	-10.42	54	30.58	46.56	23.08	56.64	-	-	A	H
CH 03		4844	36.46	-37.54	74	51.63	31.21	12.09	58.47	-	-	P	V
2422MHz		7266	45.43	-28.57	74	53.49	36.6	14.53	59.19	-	-	P	V
		11595	47.03	-26.97	74	51.64	39.71	17.95	62.27	-	-	P	V
		14490	46.31	-27.69	74	47.94	41.3	20.08	63.01	-	-	P	V
		17985	51.6	-22.4	74	38.6	46.56	23.08	56.64	-	-	P	V
		17985	44.04	-9.96	54	31.04	46.56	23.08	56.64	-	-	A	V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4874	35.9	-38.1	74	51.01	31.25	12.11	58.47	-	-	P	H
		7311	51.41	-22.59	74	59.43	36.6	14.56	59.18	198	98	P	H
		7311	41.56	-12.44	54	49.58	36.6	14.56	59.18	198	98	A	H
		10950	47.41	-26.59	74	51.25	40.25	17.35	61.44	-	-	P	H
		14505	46.05	-27.95	74	47.65	41.3	20.1	63	-	-	P	H
		17985	52.28	-21.72	74	39.28	46.56	23.08	56.64	-	-	P	H
		17985	43.6	-10.4	54	30.6	46.56	23.08	56.64	-	-	A	H
													H
													H
													H
802.11n													H
HT40													H
CH 06		4874	36.59	-37.41	74	51.7	31.25	12.11	58.47	-	-	P	V
2437MHz		7311	45.65	-28.35	74	53.67	36.6	14.56	59.18	-	-	P	V
		10980	47.06	-26.94	74	50.89	40.28	17.37	61.48	-	-	P	V
		14490	46.39	-27.61	74	48.02	41.3	20.08	63.01	-	-	P	V
		17970	52.34	-21.66	74	39.62	46.32	23.07	56.67	-	-	P	V
		17970	43.77	-30.23	74	31.05	46.32	23.07	56.67	-	-	P	V
													V
													V
													V
													V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4904	36.8	-37.2	74	51.84	31.32	12.12	58.48	-	-	P	H
		7356	45.13	-28.87	74	53.12	36.6	14.57	59.16	-	-	P	H
		10980	46.83	-27.17	74	50.66	40.28	17.37	61.48	-	-	P	H
		14505	46.42	-27.58	74	48.02	41.3	20.1	63	-	-	P	H
		17985	51.52	-22.48	74	38.52	46.56	23.08	56.64	-	-	P	H
		17985	43.57	-10.43	54	30.57	46.56	23.08	56.64	-	-	A	H
													H
													H
													H
													H
802.11n													H
HT40													H
CH 09		4904	36.92	-37.08	74	51.96	31.32	12.12	58.48	-	-	P	V
2452MHz		7356	41.46	-32.54	74	49.45	36.6	14.57	59.16	-	-	P	V
		12255	46.93	-27.07	74	52.69	39.09	18.51	63.36	-	-	P	V
		14505	47.5	-26.5	74	49.1	41.3	20.1	63	-	-	P	V
		17985	51.82	-22.18	74	38.82	46.56	23.08	56.64	-	-	P	V
		17985	44.05	-9.95	54	31.05	46.56	23.08	56.64	-	-	A	V
													V
													V
													V
													V
													V
													V

Remark

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

Emission above 18GHz

2.4GHz WIFI 802.11n HT40 (SHF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		23831	37.6	-36.4	74	54.81	38.8	-2.21	53.8	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT40		23978	38.63	-35.37	74	55.7	38.8	-2.16	53.71	-	-	P	V
SHF													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against limit line.
3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.

Emission below 1GHz

2.4GHz WIFI 802.11n HT40 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		63.95	22.08	-17.92	40	41.52	11.81	1.21	32.46	-	-	P	H
		131.85	22.07	-21.43	43.5	35.32	17.44	1.74	32.43	-	-	P	H
		168.71	21.69	-21.81	43.5	36.7	15.51	1.96	32.48	-	-	P	H
		851.59	28.29	-17.71	46	26.31	29.06	4.4	31.48	-	-	P	H
		878.75	29.53	-16.47	46	27.41	28.97	4.49	31.34	-	-	P	H
		937.92	29.95	-16.05	46	26.54	29.75	4.64	30.98	-	-	P	H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT40		39.7	31.26	-8.74	40	43.36	19.35	0.97	32.42	100	343	Q	V
LF		64.92	30.86	-9.14	40	50.29	11.81	1.22	32.46	-	-	P	V
		87.23	25.91	-14.09	40	43.02	13.9	1.4	32.41	-	-	P	V
		846.74	28.82	-17.18	46	26.96	28.98	4.39	31.51	-	-	P	V
		890.39	29.36	-16.64	46	27.27	28.85	4.52	31.28	-	-	P	V
		959.26	30.48	-15.52	46	25.74	30.87	4.7	30.83	-	-	P	V
													V
													V
													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against limit line.
3. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.

Note symbol

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

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(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”.

Appendix C. Radiated Spurious Emission Plots

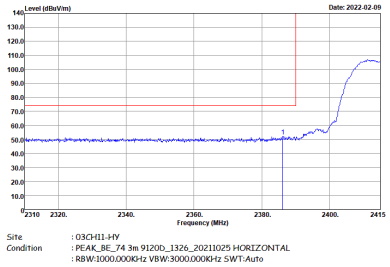
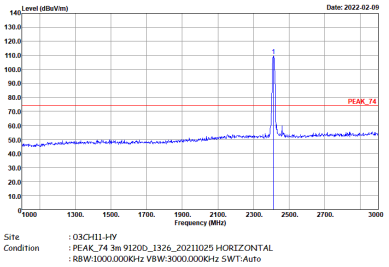
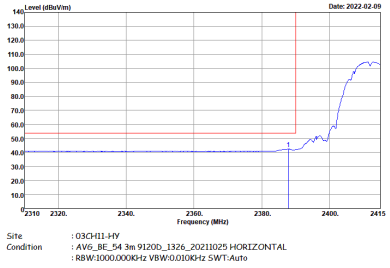
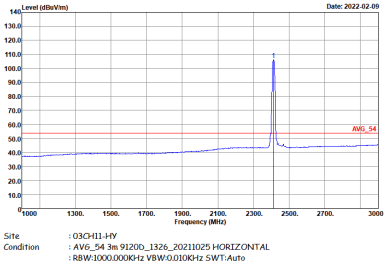
Test Engineer :	Daniel Lee, Hayden Wu, James Chiu and Fu Chen	**Temperature :**	19.5~22.5°C
		Relative Humidity :	54.6~68.3%

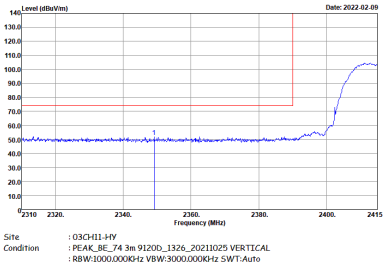
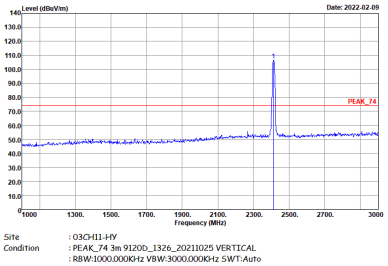
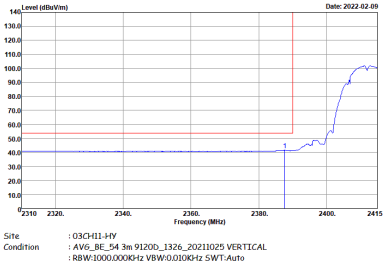
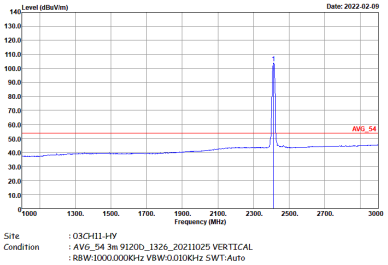
Note symbol

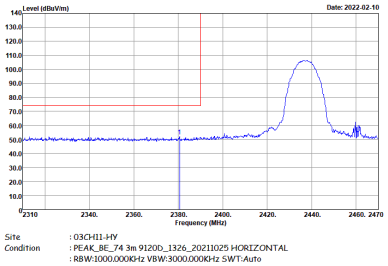
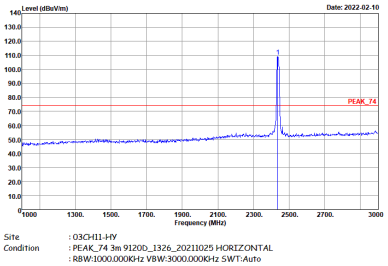
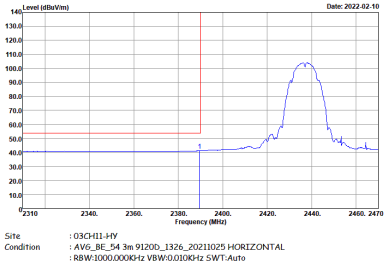
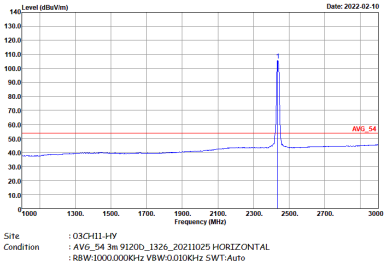
-L	**Low channel location**
-R	**High channel location**

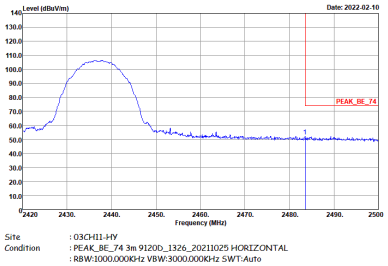
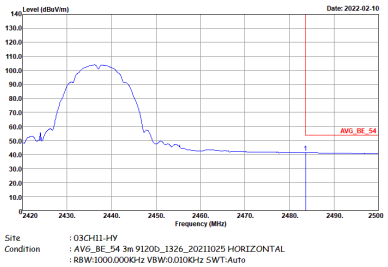
2.4GHz 2400~2483.5MHz

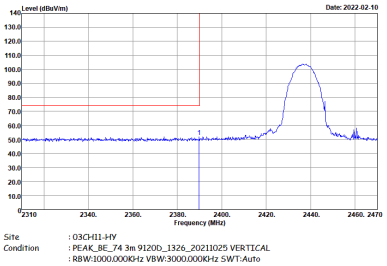
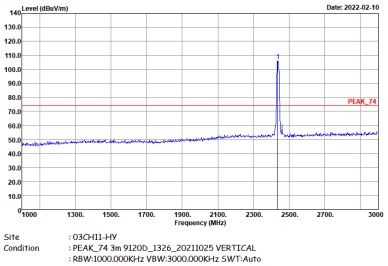
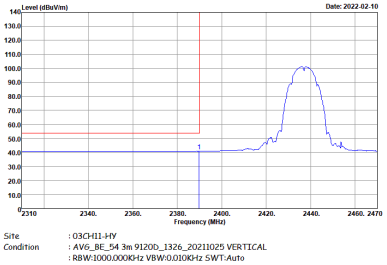
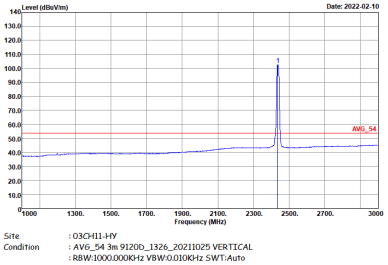
WIFI 802.11b (Band Edge @ 3m)

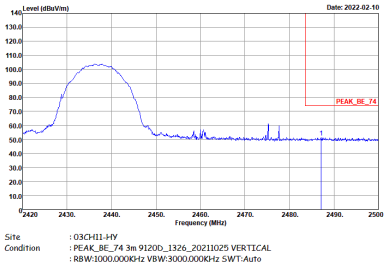
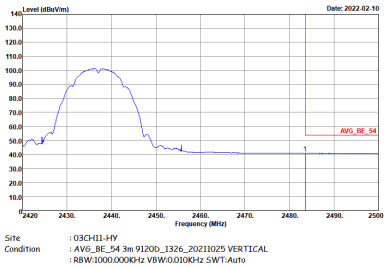
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

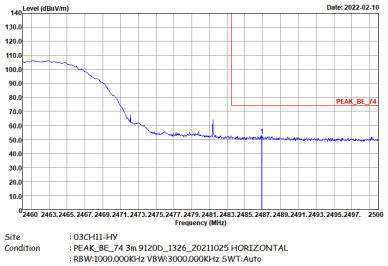
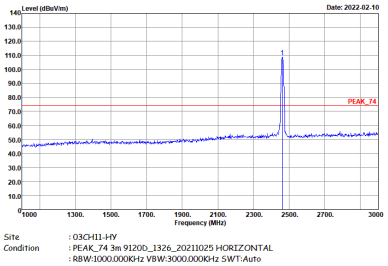
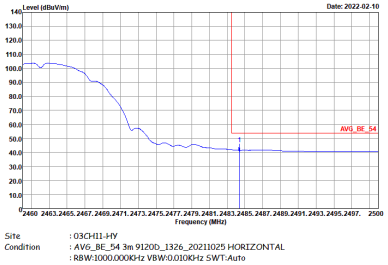
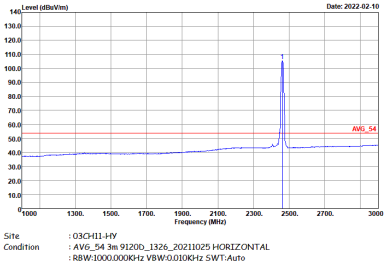
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

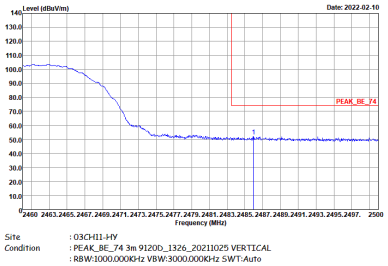
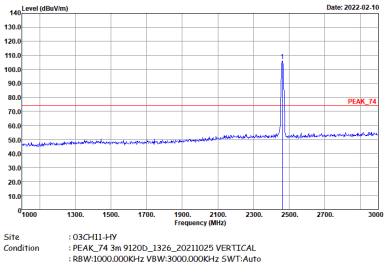
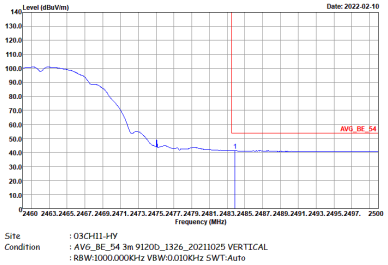
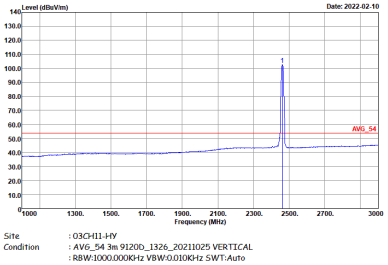
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

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

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

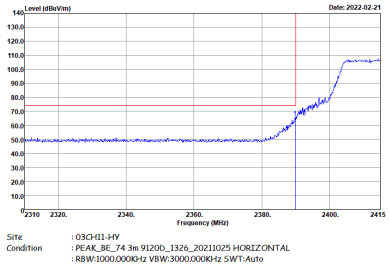
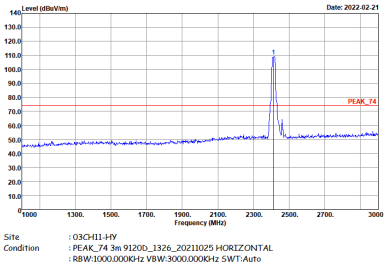
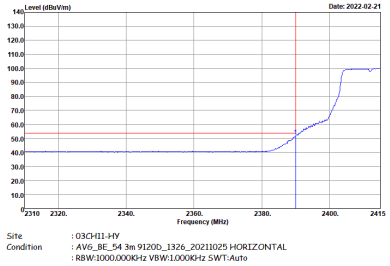
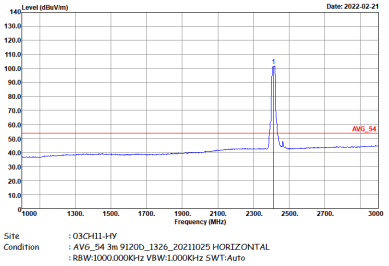
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

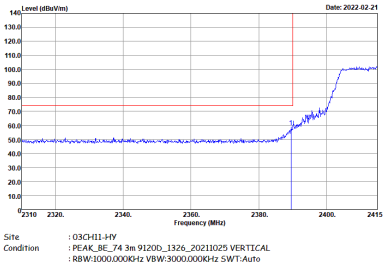
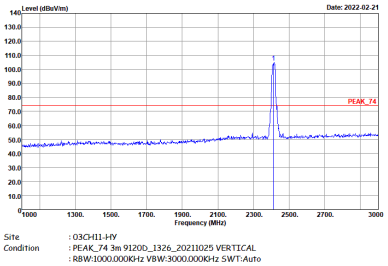
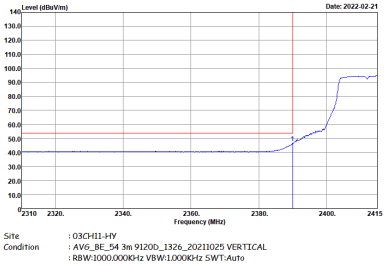
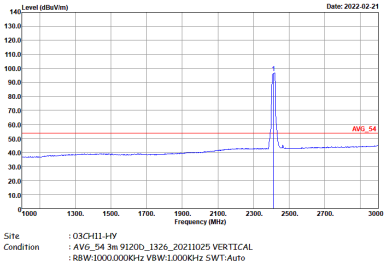
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

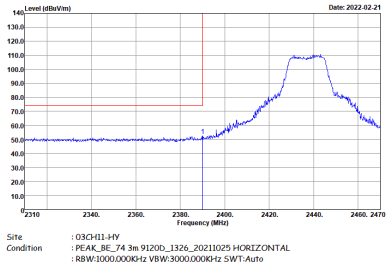
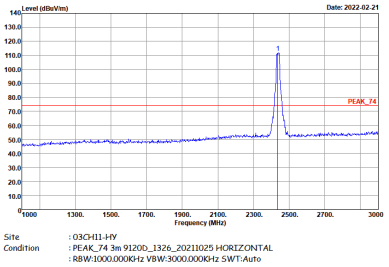
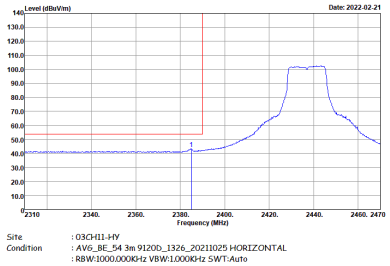
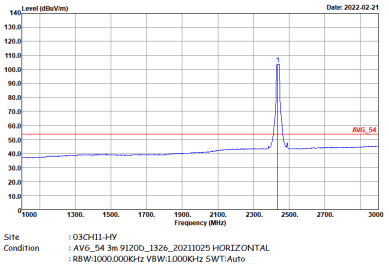
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

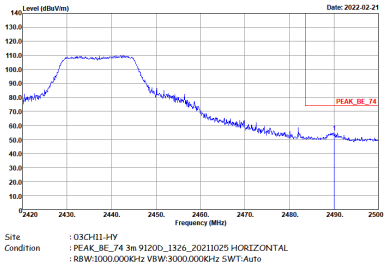
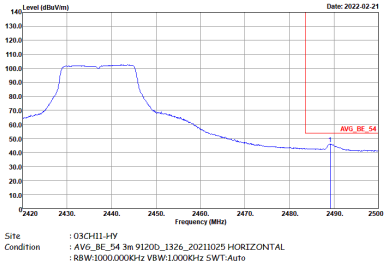
2.4GHz 2400~2483.5MHz

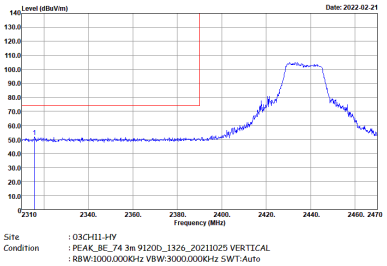
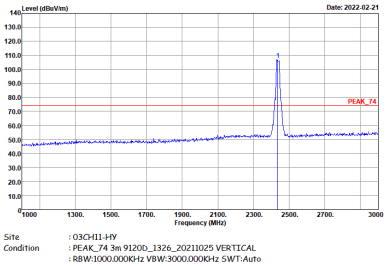
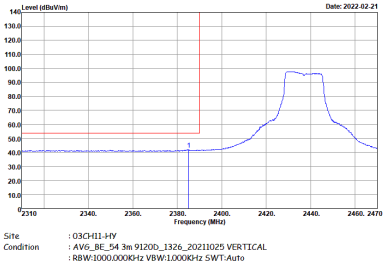
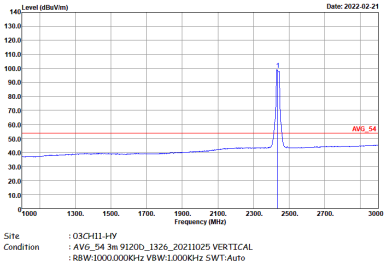
WIFI 802.11g (Band Edge @ 3m)

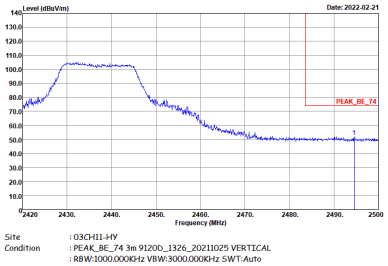
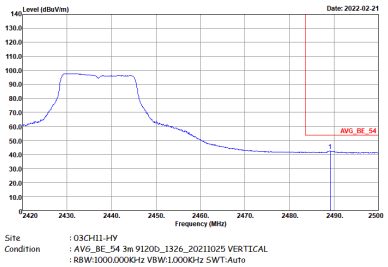
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

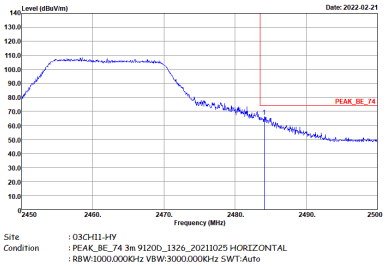
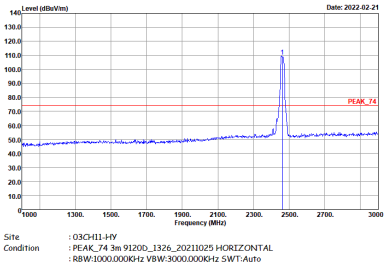
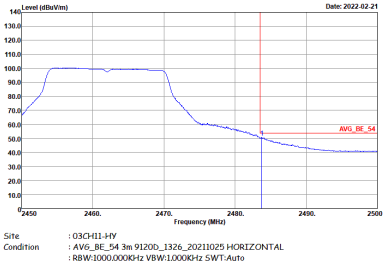
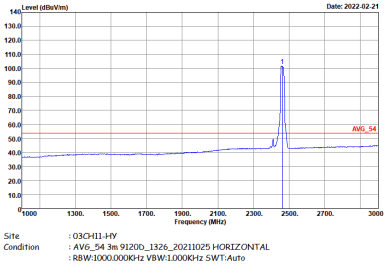
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

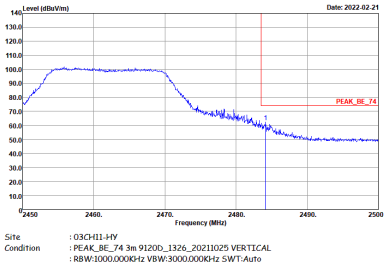
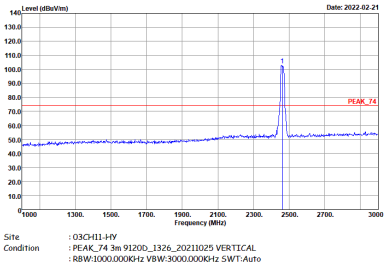
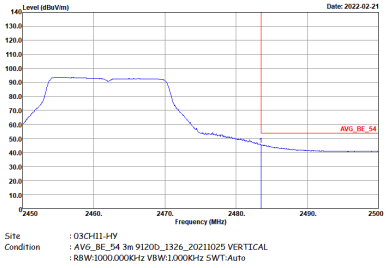
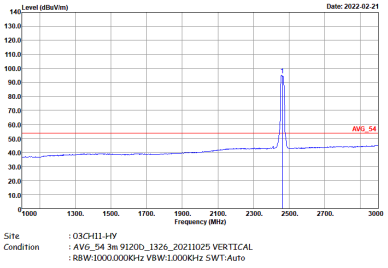
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

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

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

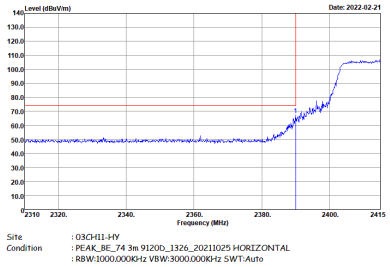
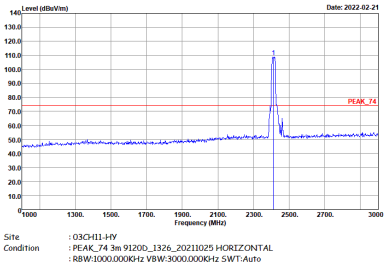
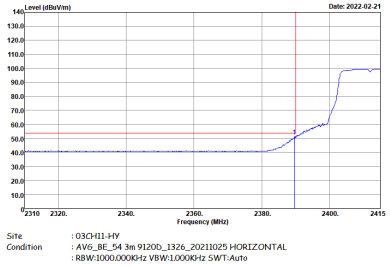
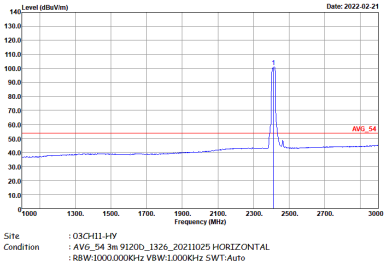
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

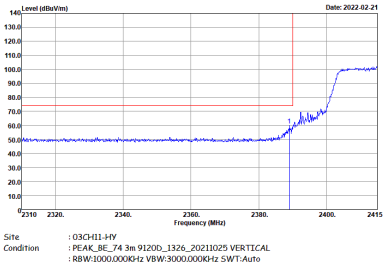
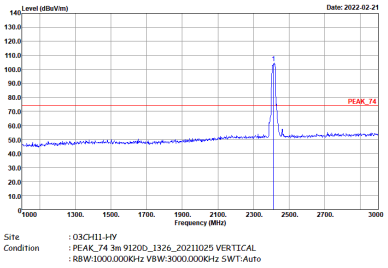
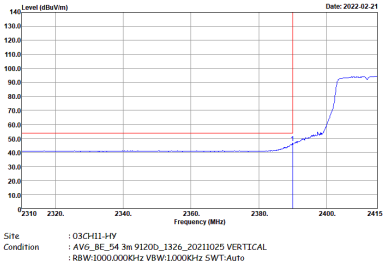
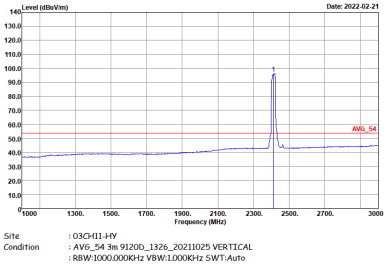
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

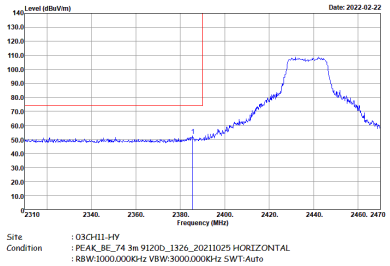
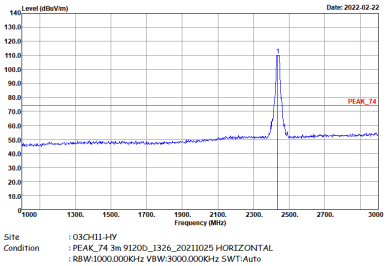
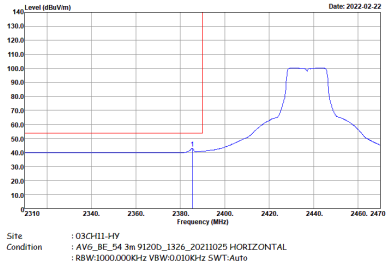
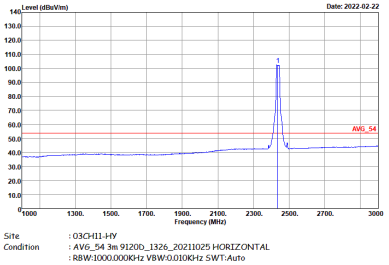
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

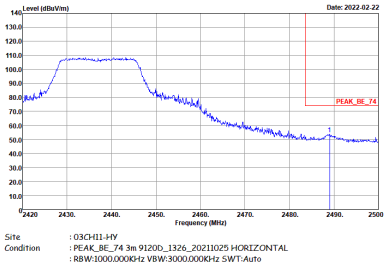
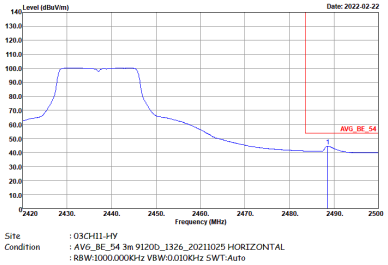
2.4GHz 2400~2483.5MHz

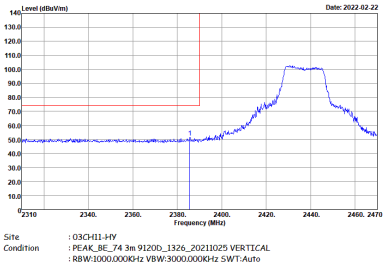
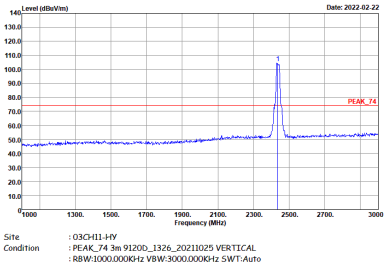
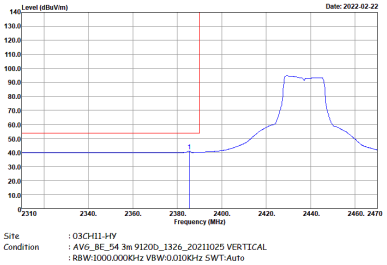
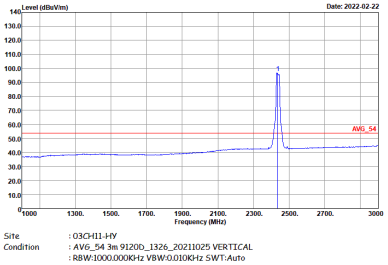
WIFI 802.11n HT20 (Band Edge @ 3m)

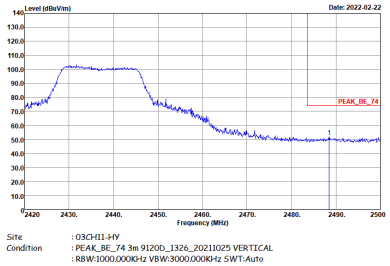
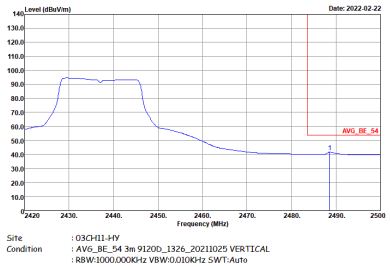
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

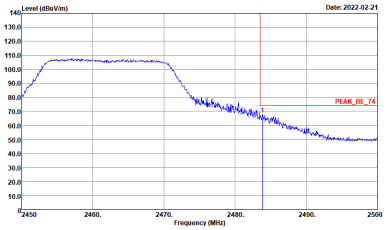
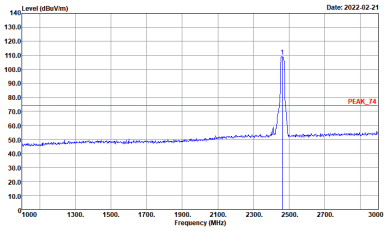
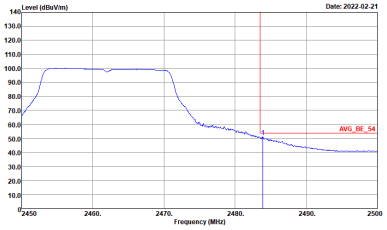
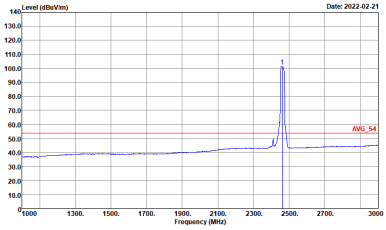
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

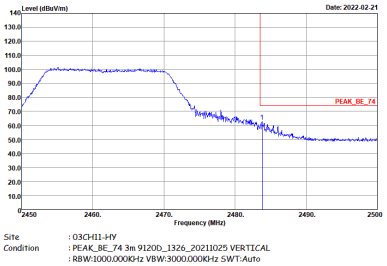
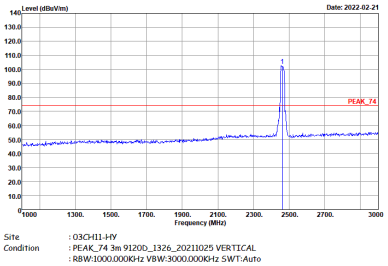
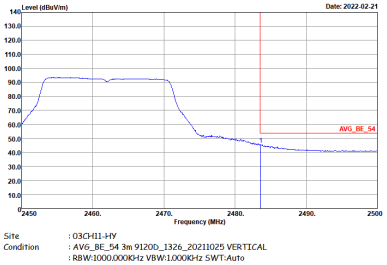
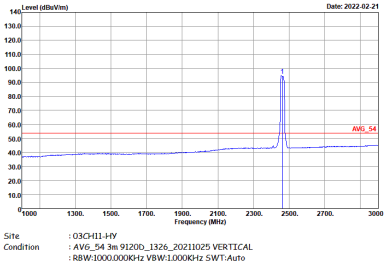
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

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

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

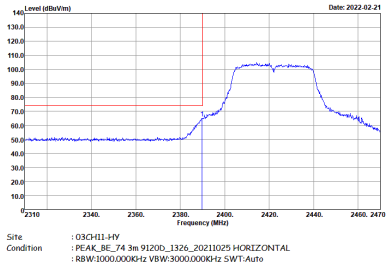
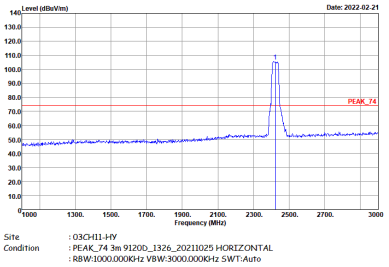
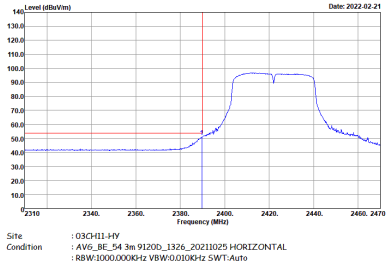
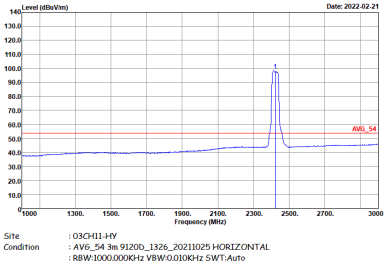
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

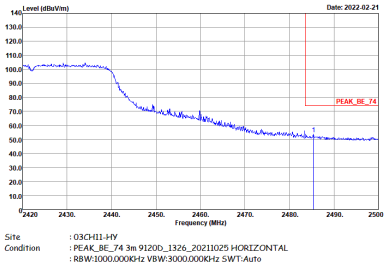
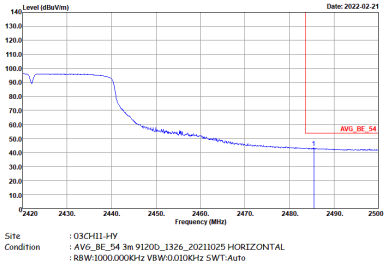
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

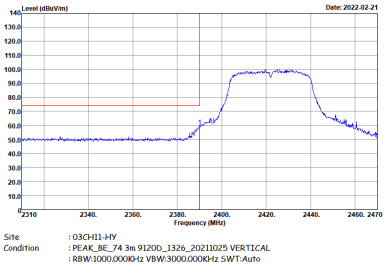
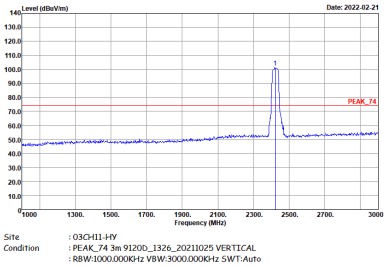
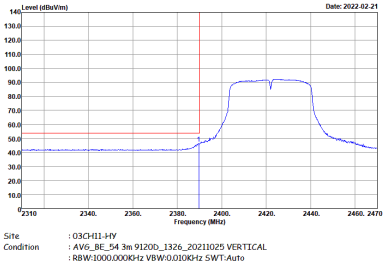
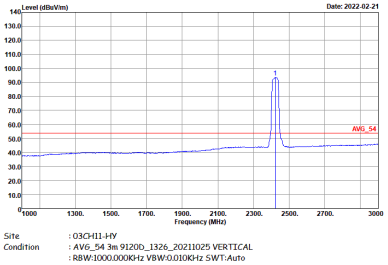
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

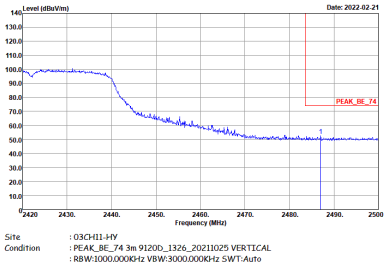
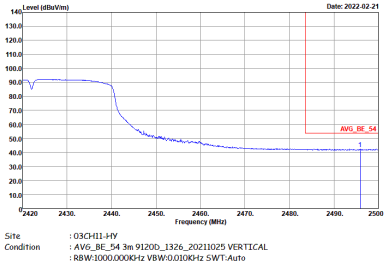
2.4GHz 2400~2483.5MHz

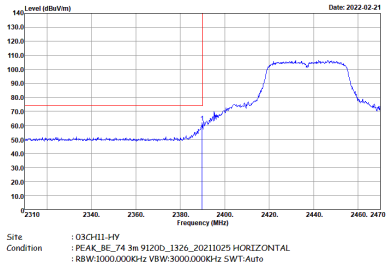
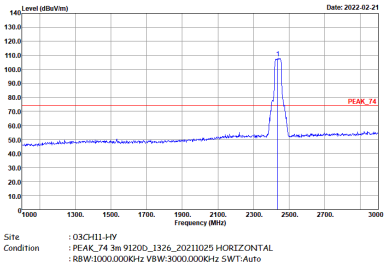
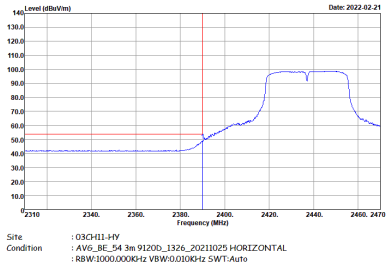
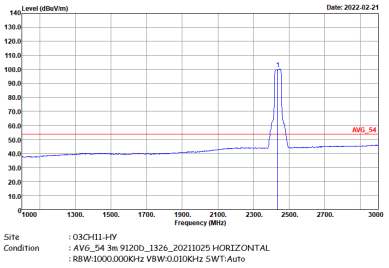
WIFI 802.11n HT40 (Band Edge @ 3m)

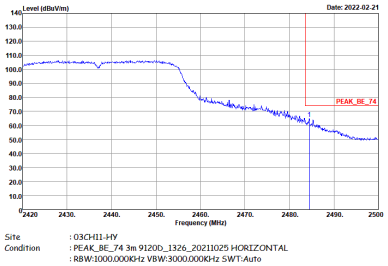
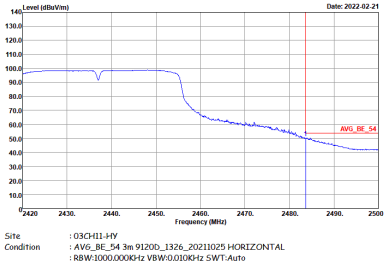
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

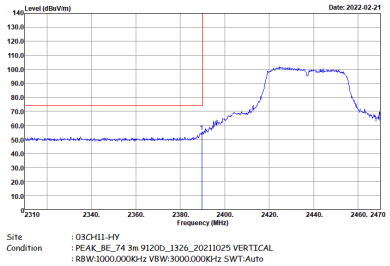
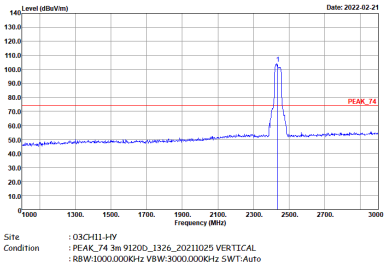
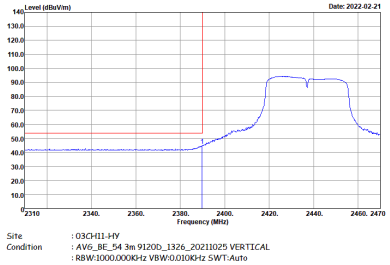
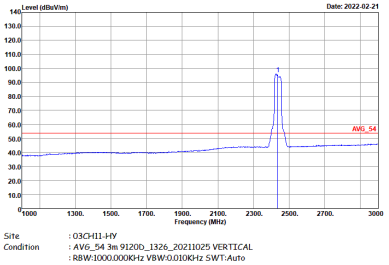
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Horizontal	Fundamental
Peak		Left Blank
Avg.		Left Blank

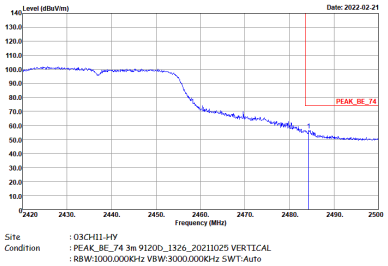
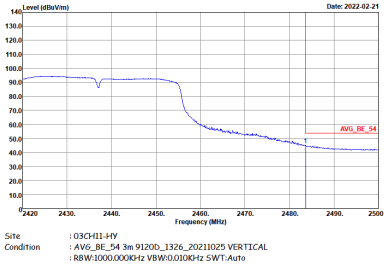
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

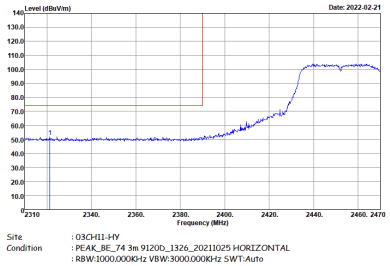
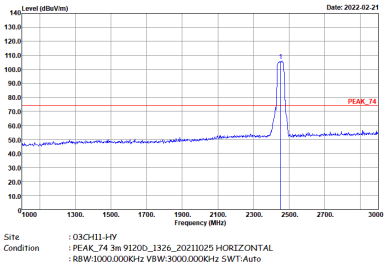
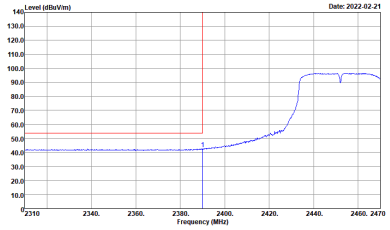
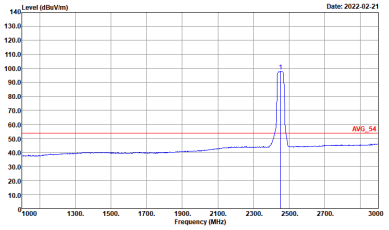
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

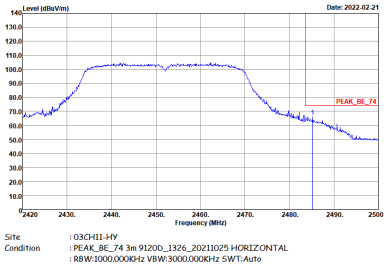
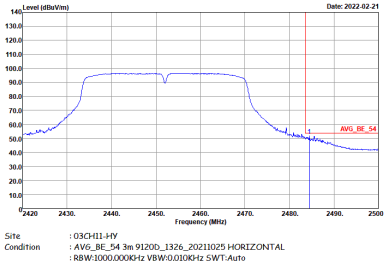
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

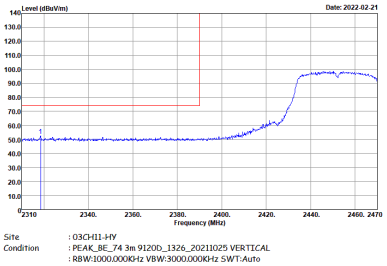
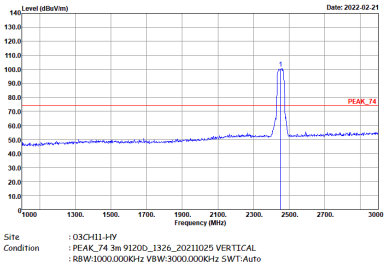
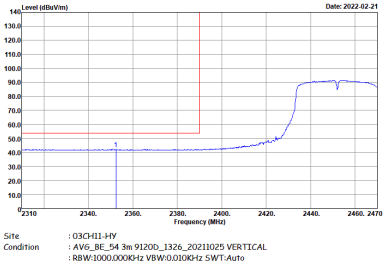
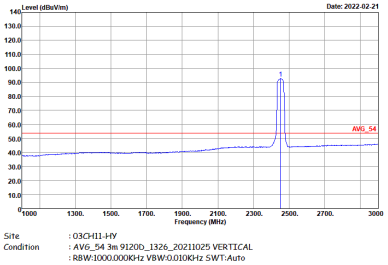
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

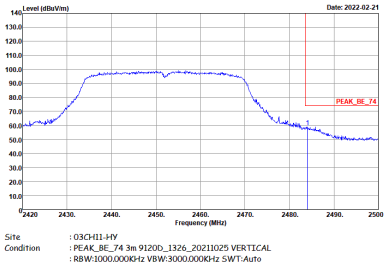
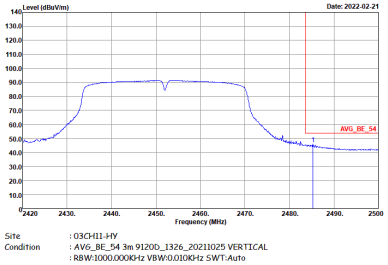
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

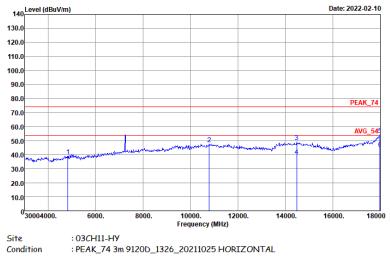
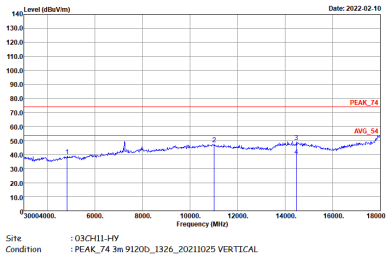
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

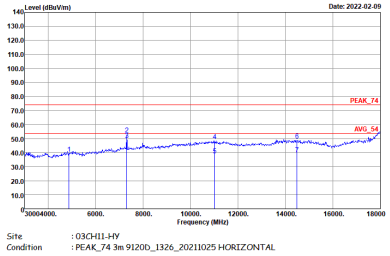
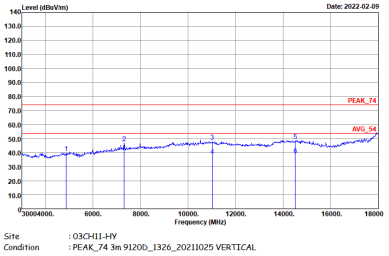
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK_74 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AV6_BE_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH11-HY Condition : AV6_54 3m 9120D_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

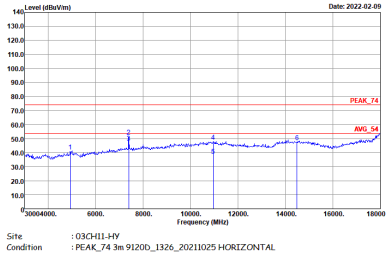
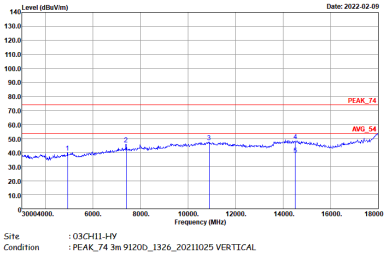
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

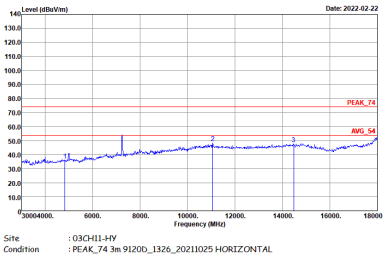
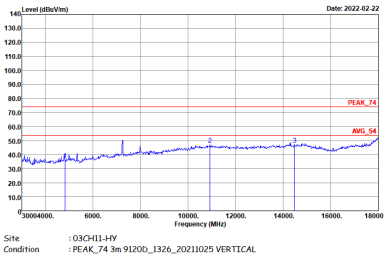
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

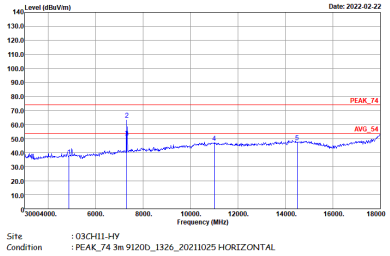
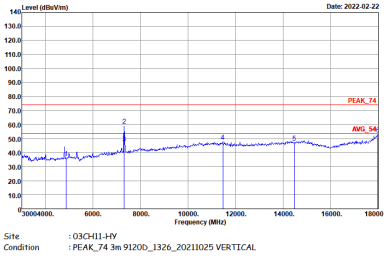
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

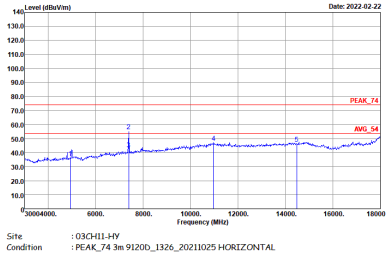
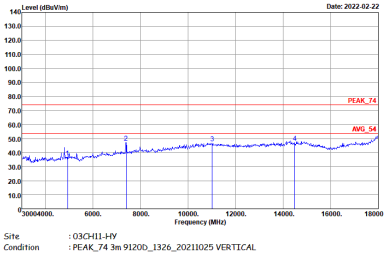
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

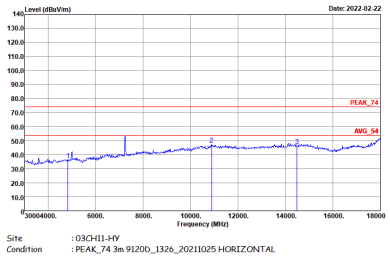
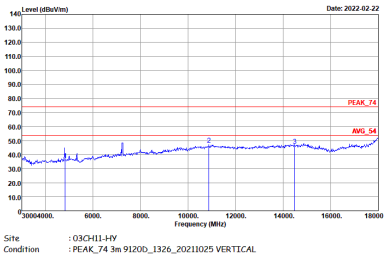
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

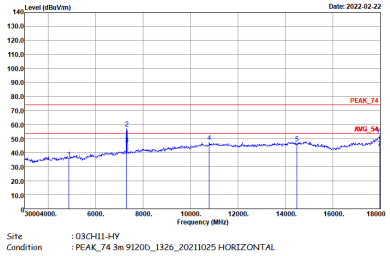
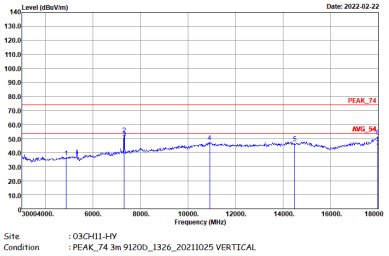
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

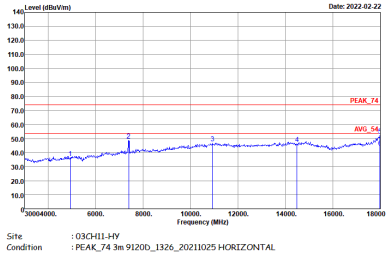
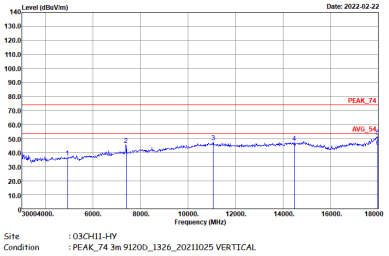
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

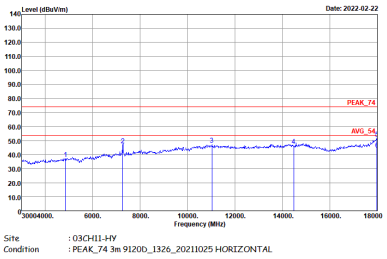
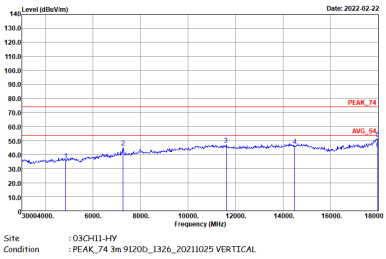
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.		

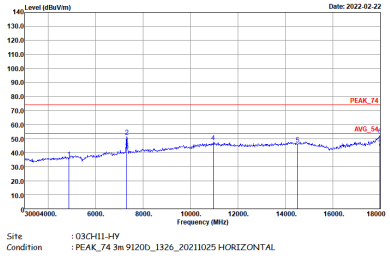
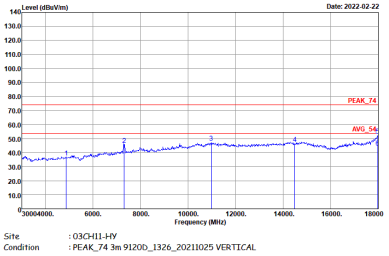
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

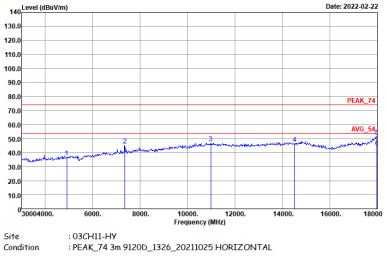
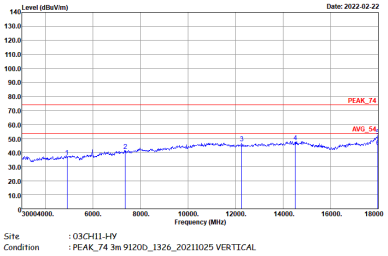
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

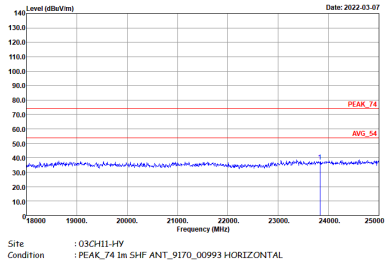
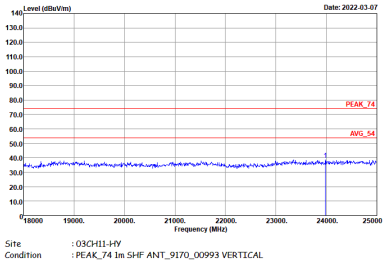
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH03 2422MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH09 2452MHz	
1	Horizontal	Vertical
Peak Avg.		

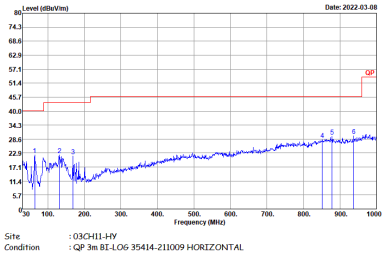
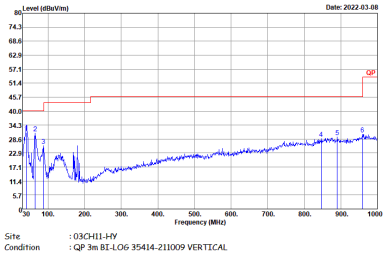
Emission above 18GHz

2.4GHz WIFI 802.11n HT40 (SHF @ 1m)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT40 SHF	
1	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

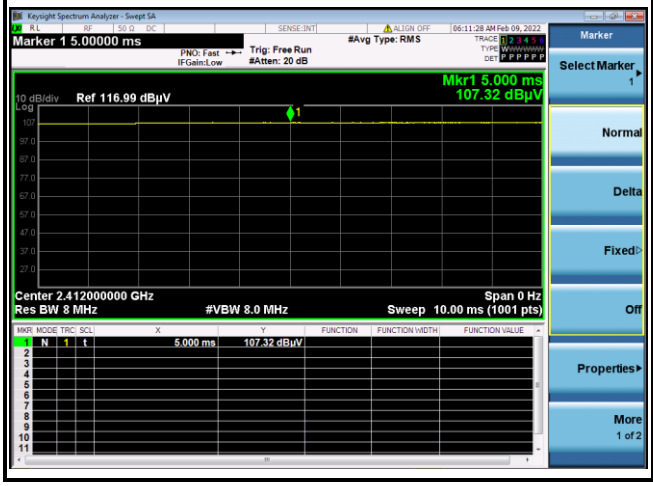
2.4GHz WIFI 802.11n HT40 (LF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT40 LF	
1	Horizontal	Vertical
QP / Peak		

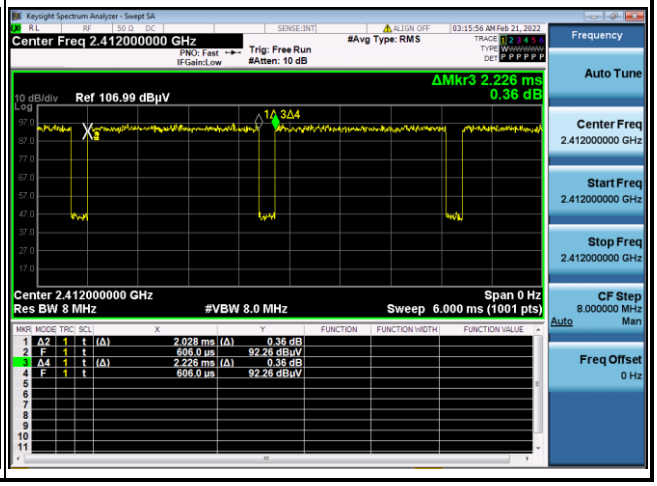
Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11b	100.00	-	-	10Hz
802.11g	91.11	2028	0.49	1kHz
2.4GHz 802.11n HT20	90.41	1885	0.53	1kHz
2.4GHz 802.11n HT40	99.04	-	-	10Hz

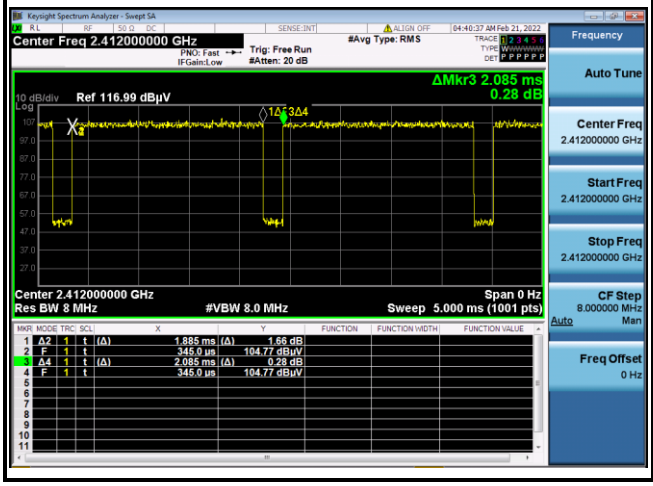
802.11b



802.11g



802.11n HT20



802.11n HT40