



FCC RADIO TEST REPORT

FCC ID : QYLAX210NG
Equipment : WLAN Module
Brand Name : Getac
Model Name : AX210NGW
Applicant : Getac Technology Corporation.
5F., Building A, No. 209, Sec.1, Nangang Rd., Nangang
Dist., Taipei City 11568, Taiwan, R.O.C.
Standard : FCC Part 15 Subpart E §15.407

The product was received on Nov. 15, 2021 and testing was performed from Nov. 30, 2021 to Jan. 11, 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 partial 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.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Product Feature of Equipment Under Test.....	5
1.2 Modification of EUT	7
1.3 Testing Location	7
1.4 Applicable Standards.....	7
2 Test Configuration of Equipment Under Test	8
2.1 Carrier Frequency and Channel	8
2.2 Test Mode.....	10
2.3 Connection Diagram of Test System.....	12
2.4 Support Unit used in test configuration and system	12
2.5 EUT Operation Test Setup	12
3 Test Result	13
3.1 Maximum Conducted Output Power Measurement	13
3.2 Unwanted Emissions Measurement.....	15
3.3 AC Conducted Emission Measurement.....	20
3.4 Antenna Requirements.....	22
4 List of Measuring Equipment.....	23
5 Uncertainty of Evaluation	25
Appendix A. Conducted Test Results	
Appendix B. AC Conducted Emission Test Result	
Appendix C. Radiated Spurious Emission	
Appendix D. Radiated Spurious Emission Plots	
Appendix E. Duty Cycle Plots	
Appendix F. Setup Photographs	



History of this test report

Report No.	Version	Description	Issue Date
FR1O0537D	01	Initial issue of report	Jan. 27, 2022
FR1O0537D	02	Revise Summary, Appendix C, SKU list and test mode	Feb. 17, 2022

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	15.403(i)	26dB Bandwidth	-	See Note
-	2.1049	99% Occupied Bandwidth	-	See Note
3.1	15.407(a)	Maximum Conducted Output Power	Pass	-
-	15.407(a)	Power Spectral Density	-	See Note
3.2	15.407(b)	Unwanted Emissions	Pass	-
3.3	15.207	AC Conducted Emission	Pass	-
3.4	15.203 15.407(a)	Antenna Requirement	Pass	-

Note: The module (Model: AX210NGW) makes no difference after verifying output power, this report reuses test data from the module report.

Declaration of Conformity:

- The test results 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.
- The measurement uncertainty please refer to 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: Yun Huang

Report Producer: Celery Wei

1 General Description

1.1 Product Feature of Equipment Under Test

Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ax, Wi-Fi 5GHz 802.11a/n/ac/ax and Wi-Fi 6GHz 802.11a/n/ac/ax

Product Feature	
Sample 1	EUT with Host 1
Sample 2	EUT with Host 2
Sample 3	EUT with Host 3
Sample 4	EUT with Host 4
Sample 5	EUT with Host 5
Antenna Type	WLAN: <Main>: PIFA Antenna <Aux.>: PIFA Antenna Bluetooth: PIFA Antenna

Antenna information		
5150 MHz ~ 5250 MHz	Peak Gain (dBi)	Main: 2.18 Aux.: 3.13
5250 MHz ~ 5350 MHz	Peak Gain (dBi)	Main: 2.27 Aux.: 3.98
5470 MHz ~ 5725 MHz	Peak Gain (dBi)	Main: 2.73 Aux.: 3.90

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



The product was installed into Notebook (Brand Name: Getac, Model Name: X600, X600 Pro X600Y (Y= 10 characters, Y can be 0-9, a-z, A-Z, “-“, “_” or blank for marketing purpose and no impact safety related critical components and constructions.)) during test, which can be referred the following information:

Host Information	
Host 1	SKU A
Host 2	SKU B
Host 3	SKU C
Host 4	SKU D
Host 5	SKU E

SKU List					
DVT SKUs	SKU A (STD)	SKU B (STD)	SKU C (STD)	SKU D (Pro)	SKU E (Pro)
CPU	I5-11500H	I5-11500H	I5-11500H	I7-11850H	I7-11850H
Display	B156HTN03.8 , AUO	B156HTN03.8 , AUO	B156HTN03.8 , AUO	B156HTN03.8 , AUO	B156HTN03.8 , AUO
Camera	FO20FF-790H , FOXLINK	FO20FF-790H , FOXLINK	FO20FF-790H , FOXLINK	FN20FF-679H, FOXLINK	FN20FF-679H, FOXLINK
MXM	w/o MXM	Nvidia RTX3000	Nvidia GTX1650	Nvidia RTX3000	Nvidia GTX1650
Memory	16GB	16GB	16GB	32GB	32GB
Main storage	512GB	512GB	512GB	1TB	1TB
Second storage	512GB	512GB	512GB	1TB	1TB
Third storage	512GB	512GB	512GB	1TB	1TB
Touch pad	TP-PCT3854	TP-PCT3854	TP-PCT3854	TP-PCT3854	TP-PCT3854
Smart card	Yes	Yes	Yes	Yes	Yes
SD card	No	No	No	Yes	Yes
PCMCIA/EXPRESS card	PCMCIA	PCMCIA	PCMCIA	N/A	N/A
Wifi+BT	AX210NGW	AX210NGW	AX210NGW	AX210NGW	AX210NGW
WWAN	w/o WWAN	EM7511	EM7511	EM7511	EM7511
GPS/GNSS	Mc-1010-V2b	combo with WWAN	combo with WWAN	combo with WWAN	combo with WWAN
AC adapter	FSP150-ABBN3 THP0K15W4A5-1 G	FSP230-AJAN3 THP0K23W4A5-1 G	FSP230-AJAN3 THP0K23W4A5-1 G	FSP230-AJAN3 THP0K23W4A5-1 G	FSP230-AJAN3 THP0K23W4A5-1 G
FPR	ETU-811JG	ETU-811JG	ETU-811JG	N/A	ETU-811JG
RFID	NA	NA	NA	NA	NA
Main Battery	BP3S2P3450P-02	BP3S2P3450P-02	BP3S2P3450P-02	BP3S2P3450P-02	BP3S2P3450P-02
Optional IO	RS232	RS232	RS232	VGA	VGA
Pass through	No	No	No	Yes	Yes
Expansion	NA	NA	NA	RS232/RS422 x1 PCMCIA x1 + Express card x1	RS232/RS422 x1 PCMCIA x1 + Express card x1
ODD	NA	NA	NA	BDR-UD03ASW, PIONEER	BDR-UD03ASW, PIONEER
2nd Battery	NA	NA	NA	BP3S2P2100S-03	BP3S2P2100S-03
Connectivity module	NA	NA	NA	4 RJ45 module	4 RJ45 module



1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 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 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

1.4 Applicable Standards

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

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ 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).
- 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)
5150-5250 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42 [#]	5210		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5250-5350 MHz Band 2 (U-NII-2A)	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	58 [#]	5290		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3 (U-NII-2C)	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106 [#]	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700

Frequency Band	Channel	Freq. (MHz)
5150-5350 MHz	50 [@]	5250
5470-5725 MHz	114 [@]	5570



Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
TDWR Channel	118*	5590	124	5620
	120	5600	126*	5630
	122 [#]	5610	128	5640

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	138 [#]	5690	144	5720
	142*	5710		

Note:

1. The above Frequency and Channel with "*" are 802.11n HT40 and 802.11ac VHT40 and 802.11ax HE40.
2. The above Frequency and Channel with "[#]" are 802.11ac VHT80 and 802.11ax HE80.
3. The above Frequency and Channel with "@^o" are 802.11ac VHT160 and 802.11ax HE160.

2.2 Test Mode

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

Single Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT80	MCS0
802.11ac VHT160	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

MIMO Mode

Modulation	Data Rate
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT80	MCS0
802.11ac VHT160	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : WLAN (5GHz) Link + Bluetooth Link + H-Pattern + Earphone + Battery 1 + USB Cable (Charging from AC Adapter 1) for Sample 1 Mode 2 : LTE Band 7 Link + WLAN (5GHz) Link + Bluetooth Link + H-Pattern + Earphone + Battery 1 + USB Cable (Charging from AC Adapter 2) for Sample 2 Mode 3 : LTE Band 7 Link + WLAN (5GHz) Link + Bluetooth Link + H-Pattern + Earphone + Battery 1 + Battery 2 + USB Cable (Charging from AC Adapter 4) for Sample 4 Mode 4 : LTE Band 7 Link + WLAN (5GHz) Link + Bluetooth Link + H-Pattern + Earphone + Battery 1 + Battery 2 + USB Cable (Charging from AC Adapter 4) for Sample 5
Remark: - The worst case of Conducted Emission is mode 2; only the test data of it was reported. - For Radiated Test Cases, the tests were performed with Adapter 2, Battery 1 and Sample 2.	

<Ant. 1>

BW160	5150-5350 MHz
	802.11ac VHT160
Ch. #	50

<Ant. 2>

Ch. #		Band I : 5150-5250 MHz
		802.11ax HE20
L	Low	-
M	Middle	-
H	High	48

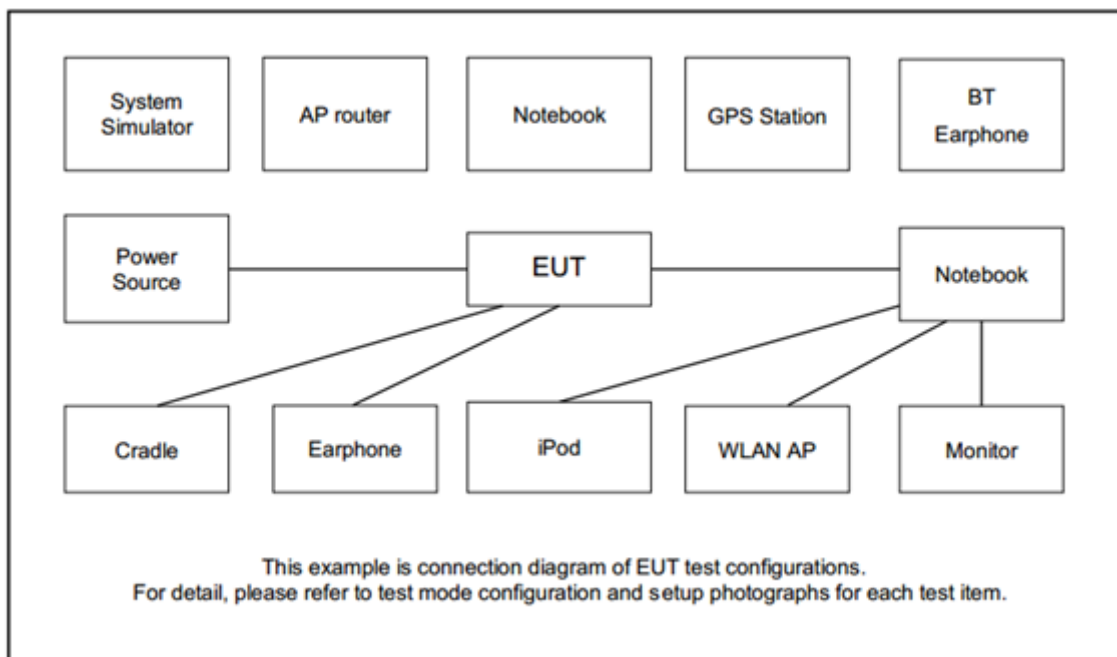
MIMO <Ant. 1+2>

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ax HE40	802.11ax HE80	802.11ax HE20
L	Low	38	-	-
M	Middle	-	120	58
H	High	-	-	-

Remark:

- For radiation spurious emission, the modulation and the data rate picked for testing are determined by the Max. RF conducted power.
- Ant. 1 means Chain A (Aux.) and Ant. 2 means Chain B (Main).

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	WLAN AP	ASUS	GT-AXE11000	MSQ-RTAXJF00	N/A	Unshielded, 1.8m
4.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A
5.	Notebook	Dell	Latitude 3400	FCC DoC	N/A	AC I/P : Unshielded, 1.2m DC O/P : Shielded, 1.8m

2.5 EUT Operation Test Setup

The RF test items, utility "DRTU Version 22.21070.0.0-OEM.DRTU12463" was installed in Host 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.

3 Test Result

3.1 Maximum Conducted Output Power Measurement

3.1.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

For the 5.15–5.25 GHz bands:

■ For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW. For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

For the 5.25–5.725 GHz bands:

■ The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz.

For Straddle Channel, according to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, if the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

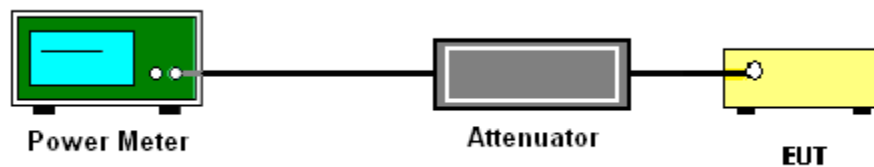
The testing follows Method PM-G of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM-G (Measurement using a gated RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit at its maximum power control level.
3. Measure the average power of the transmitter.
4. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For Straddle Channel, according to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, if the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

3.1.4 Test Setup



3.1.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.2 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

3.2.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

- (2) Unwanted spurious emissions falls in restricted bands shall comply with the general field strength limits as below table:

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

Note: The following formula is used to convert the EIRP to field strength.

$$E = \frac{1000000\sqrt{30P}}{3} \text{ } \mu\text{V/m, where P is the eirp (Watts)}$$

EIRP (dBm)	Field Strength at 3m (dB μ V/m)
- 27	68.3

(3) KDB789033 D02 v02r01 G)2)c)

(i) Sections 15.407(b)(1-3) specifies the unwanted emissions limit for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz.

(ii) Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are based on the use of a peak detector.

3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Section G) Unwanted emissions measurement.

(1) Procedure for Unwanted Emissions Measurements Below 1000 MHz

- RBW = 120 kHz
- VBW = 300 kHz
- Detector = Peak
- Trace mode = max hold

(2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

- RBW = 1 MHz
- VBW $\geq$ 3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

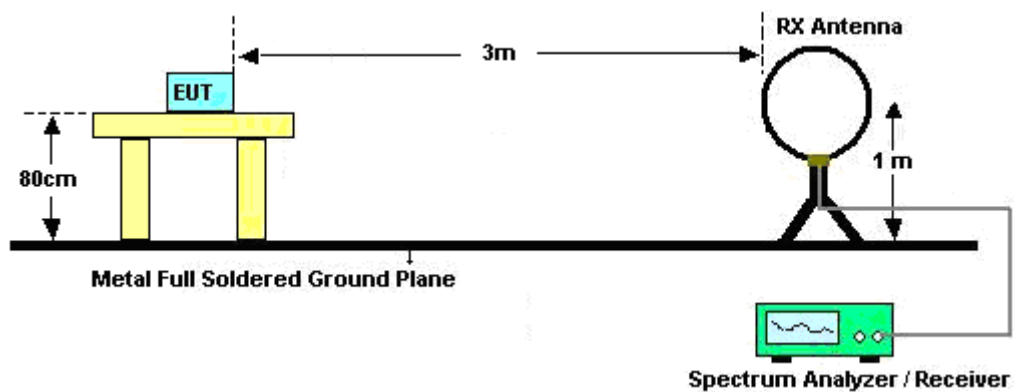
(3) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz

- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW $\geq$ $1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

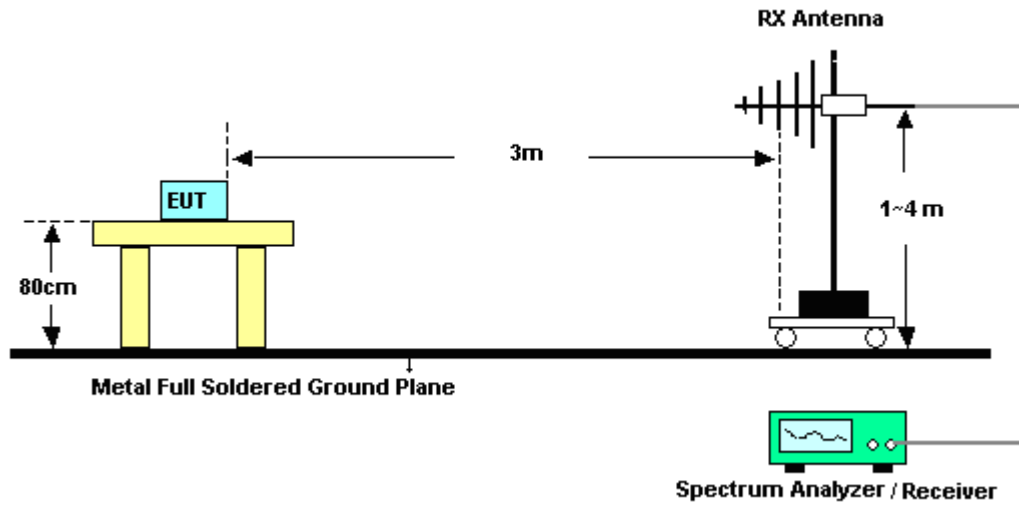
2. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
3. The EUT is set 3 meters away from the receiving antenna which is mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT is arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
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 “-”.

3.2.4 Test Setup

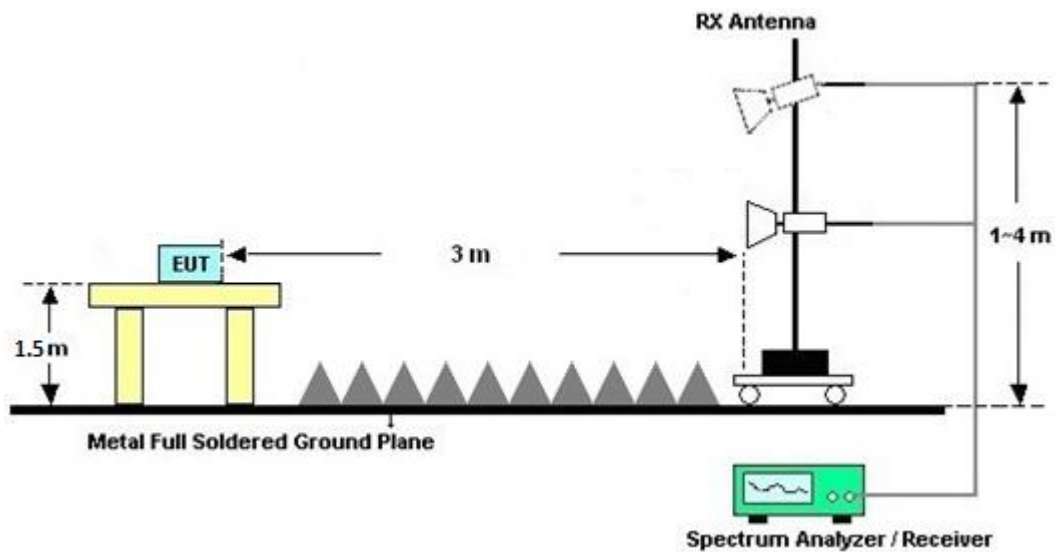
For radiated emissions below 30MHz



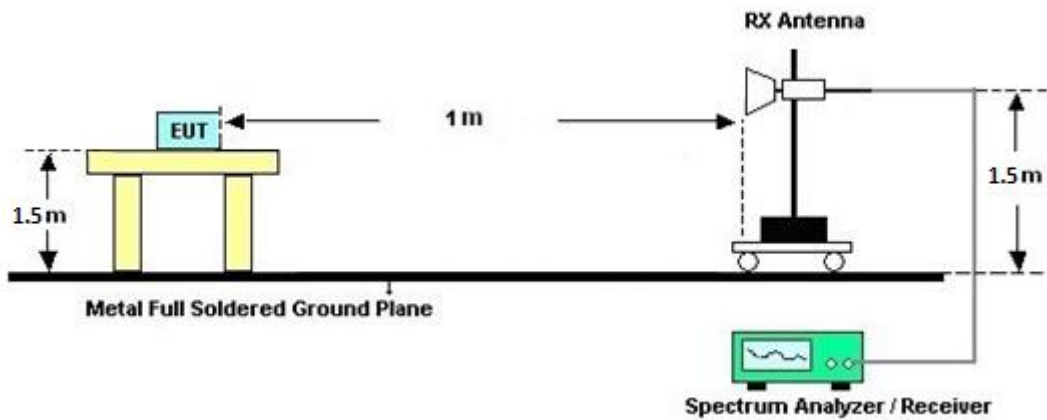
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



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

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

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

3.2.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.2.7 Duty Cycle

Please refer to Appendix E.

3.2.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

3.3 AC Conducted Emission Measurement

3.3.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

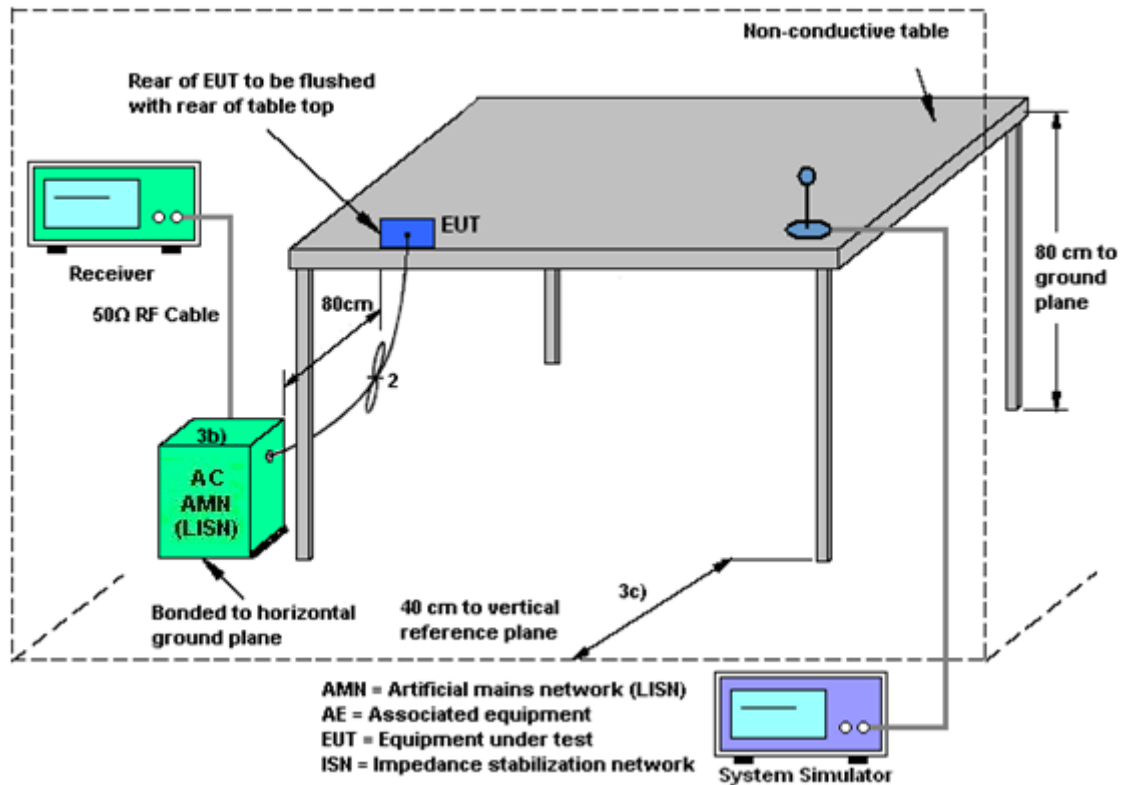
3.3.2 Measuring Instruments

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

3.3.3 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 with Maximum Hold Mode.

3.3.4 Test Setup



3.3.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.4 Antenna Requirements

3.4.1 Standard Applicable

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.4.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.4.3 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
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 09, 2021	Dec. 11, 2021~ Dec. 15, 2021	Oct. 08, 2022	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1326	1GHz~18GHz	Oct. 25, 2021	Dec. 11, 2021~ Dec. 15, 2021	Oct. 24, 2022	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP140325	N/A	Nov. 26, 2021	Dec. 11, 2021~ Dec. 15, 2021	Nov. 25, 2022	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP200880	QA-3-031	Sep. 30, 2021	Dec. 11, 2021~ Dec. 15, 2021	Sep. 29, 2022	Radiation (03CH11-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 07, 2021	Dec. 11, 2021~ Dec. 15, 2021	Sep. 06, 2022	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 10, 2021	Dec. 11, 2021~ Dec. 15, 2021	Nov. 09, 2022	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055007	1GHz~18GHz	Jun. 16, 2021	Dec. 11, 2021~ Dec. 15, 2021	Jun. 15, 2022	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 15, 2021	Dec. 11, 2021~ Dec. 15, 2021	Oct. 14, 2022	Radiation (03CH11-HY)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40SS	SN3	6.75GHz High Pass Filter	Sep. 13, 2021	Dec. 11, 2021~ Dec. 15, 2021	Sep. 12, 2022	Radiation (03CH11-HY)
Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN11	1.53GHz Low Pass Filter	Sep. 13, 2021	Dec. 11, 2021~ Dec. 15, 2021	Sep. 12, 2022	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 11, 2021	Dec. 11, 2021~ Dec. 15, 2021	Mar. 10, 2022	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY4274/2	30MHz~40GHz	Mar. 11, 2021	Dec. 11, 2021~ Dec. 15, 2021	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	Dec. 11, 2021~ Dec. 15, 2021	Nov. 14, 2022	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Dec. 11, 2021~ Dec. 15, 2021	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Dec. 11, 2021~ Dec. 15, 2021	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Dec. 11, 2021~ Dec. 15, 2021	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.09824_20191225	RK-000992	N/A	N/A	Dec. 11, 2021~ Dec. 15, 2021	N/A	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	363440	9kHz~1GHz	Dec. 28, 2020	Dec. 11, 2021~ Dec. 15, 2021	Dec. 27, 2021	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Nov. 30, 2021~ Dec. 02, 2021	Nov. 15, 2022	Conducted (TH05-HY)
Power Meter	DARE	RPR3006W	13I00030SNO31(NO:182)	10MHz~6GHz	Dec. 30, 2020	Nov. 30, 2021~ Dec. 02, 2021	Dec. 29, 2021	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Nov. 30, 2021~ Dec. 02, 2021	Aug. 29, 2022	Conducted (TH05-HY)
Switch Box & RF Cable	EM Electronics	EMSW18SE	SW191204 (BOX8)	N/A	Jan. 07, 2021	Nov. 30, 2021~ Dec. 02, 2021	Jan. 06, 2022	Conducted (TH05-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Dec. 12, 2021~ Jan. 11, 2022	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 01, 2021	Dec. 12, 2021~ Jan. 11, 2022	Nov. 30, 2022	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 17, 2021	Dec. 12, 2021~ Jan. 11, 2022	Nov. 16, 2022	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 03, 2021	Dec. 12, 2021~ Jan. 11, 2022	Dec. 02, 2022	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Dec. 12, 2021~ Jan. 11, 2022	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-FN	00691	N/A	Jul. 28, 2021	Dec. 12, 2021~ Jan. 11, 2022	Jul. 27, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 31, 2020	Dec. 12, 2021~ Dec. 29, 2021	Dec. 30, 2021	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 30, 2021	Dec. 30, 2021~ Jan. 11, 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. Test Result of Conducted Test Items

Test Engineer:	Junyu Jhou	Temperature:	21.3~25.5	°C
Test Date:	2021/11/30~2021/12/02	Relative Humidity:	52.1~55.5	%

Remark: For Conducted Test Items, Ant. 1 means Chain A (Aux.) and Ant. 2 means Chain B (Main).

TEST RESULTS DATA
Average Power Table

FCC Band I single antenna													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)			Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	36	5180	19.30	19.40		24.00	24.00	3.13	2.18		Pass
11a	6Mbps	1	48	5240	21.40	20.70		24.00	24.00	3.13	2.18		Pass
HT20	MCS0	1	36	5180	19.70	18.90		24.00	24.00	3.13	2.18		Pass
HT20	MCS0	1	48	5240	21.00	20.60		24.00	24.00	3.13	2.18		Pass
HT40	MCS0	1	38	5190	17.60	17.40		24.00	24.00	3.13	2.18		Pass
HT40	MCS0	1	46	5230	20.60	20.60		24.00	24.00	3.13	2.18		Pass
VHT80	MCS0	1	42	5210	18.90	18.70		24.00	24.00	3.13	2.18		Pass
VHT160	MCS0	1	50	5250	15.50	15.20		24.00	24.00	3.13	2.18		Pass

FCC Band I MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)			Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
HT20	MCS0	2	36	5180	17.60	17.70	20.66	24.00		3.13			Pass
HT20	MCS0	2	48	5240	18.60	18.50	21.56	24.00		3.13			Pass
HT40	MCS0	2	38	5190	16.00	15.60	18.81	24.00		3.13			Pass
HT40	MCS0	2	46	5230	19.90	19.90	22.91	24.00		3.13			Pass
VHT80	MCS0	2	42	5210	15.40	15.40	18.41	24.00		3.13			Pass
VHT160	MCS0	2	50	5250	13.10	13.40	16.26	24.00		3.13			Pass

TEST RESULTS DATA
Average Power Table

FCC Band II single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	52	5260	21.40	21.00		23.98	23.98	3.98	2.27	Pass
11a	6Mbps	1	64	5320	19.80	19.90		23.98	23.98	3.98	2.27	Pass
HT20	MCS0	1	52	5260	21.40	20.60		23.98	23.98	3.98	2.27	Pass
HT20	MCS0	1	64	5320	19.70	19.40		23.98	23.98	3.98	2.27	Pass
HT40	MCS0	1	54	5270	21.40	20.10		23.98	23.98	3.98	2.27	Pass
HT40	MCS0	1	62	5310	17.70	16.80		23.98	23.98	3.98	2.27	Pass
VHT80	MCS0	1	58	5290	18.10	17.90		23.98	23.98	3.98	2.27	Pass

FCC Band II MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
HT20	MCS0	2	52	5260	18.70	18.50	21.61	23.98		3.98		Pass
HT20	MCS0	2	64	5320	18.00	18.20	21.11	23.98		3.98		Pass
HT40	MCS0	2	54	5270	18.80	18.80	21.81	23.98		3.98		Pass
HT40	MCS0	2	62	5310	16.60	16.60	19.61	23.98		3.98		Pass
VHT80	MCS0	2	58	5290	16.30	16.30	19.31	23.98		3.98		Pass

TEST RESULTS DATA
Average Power Table

FCC Band III single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	100	5500	20.60	20.40		23.98	23.98	3.90	2.73	Pass
11a	6Mbps	1	120	5600	21.30	20.90		23.98	23.98	3.90	2.73	Pass
11a	6Mbps	1	140	5700	20.10	20.00		23.98	23.98	3.90	2.73	Pass
HT20	MCS0	1	100	5500	20.10	19.70		23.98	23.98	3.90	2.73	Pass
HT20	MCS0	1	120	5600	21.20	20.70		23.98	23.98	3.90	2.73	Pass
HT20	MCS0	1	140	5700	20.00	19.30		23.98	23.98	3.90	2.73	Pass
HT40	MCS0	1	102	5510	19.10	18.70		23.98	23.98	3.90	2.73	Pass
HT40	MCS0	1	118	5590	21.00	20.90		23.98	23.98	3.90	2.73	Pass
HT40	MCS0	1	134	5670	21.00	20.80		23.98	23.98	3.90	2.73	Pass
VHT80	MCS0	1	106	5530	19.70	18.60		23.98	23.98	3.90	2.73	Pass
VHT80	MCS0	1	122	5610	20.90	19.80		23.98	23.98	3.90	2.73	Pass
VHT160	MCS0	1	114	5570	16.20	15.30		23.98	23.98	3.90	2.73	Pass

FCC Band III MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
HT20	MCS0	2	100	5500	18.00	18.10	21.06	23.98		3.90		Pass
HT20	MCS0	2	120	5600	18.50	18.80	21.66	23.98		3.90		Pass
HT20	MCS0	2	140	5700	18.60	18.70	21.66	23.98		3.90		Pass
HT40	MCS0	2	102	5510	16.90	16.90	19.91	23.98		3.90		Pass
HT40	MCS0	2	118	5590	21.00	20.80	23.91	23.98		3.90		Pass
HT40	MCS0	2	134	5670	18.30	18.60	21.46	23.98		3.90		Pass
VHT80	MCS0	2	106	5530	17.20	17.10	20.16	23.98		3.90		Pass
VHT80	MCS0	2	122	5610	20.50	20.50	23.51	23.98		3.90		Pass
VHT160	MCS0	2	114	5570	14.90	15.00	17.96	23.98		3.90		Pass

TEST RESULTS DATA
Average Power Table

FCC Band I single antenna													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
HE20	MCS0	1	36	5180	Full	19.30	18.90		24.00	24.00	3.13	2.18	Pass
HE20	MCS0	1	48	5240	Full	21.10	20.60		24.00	24.00	3.13	2.18	Pass
HE40	MCS0	1	38	5190	Full	17.40	16.70		24.00	24.00	3.13	2.18	Pass
HE40	MCS0	1	46	5230	Full	20.90	20.40		24.00	24.00	3.13	2.18	Pass
HE80	MCS0	1	42	5210	Full	18.00	17.60		24.00	24.00	3.13	2.18	Pass
HE160	MCS0	1	50	5250	Full	15.40	15.00		24.00	24.00	3.13	2.18	Pass

FCC Band I MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
HE20	MCS0	2	36	5180	Full	17.80	17.80	20.81	24.00		3.13		Pass
HE20	MCS0	2	48	5240	Full	19.10	19.00	22.06	24.00		3.13		Pass
HE40	MCS0	2	38	5190	Full	15.80	15.60	18.71	24.00		3.13		Pass
HE40	MCS0	2	46	5230	Full	20.00	19.80	22.91	24.00		3.13		Pass
HE80	MCS0	2	42	5210	Full	16.30	16.30	19.31	24.00		3.13		Pass
HE160	MCS0	2	50	5250	Full	14.10	13.90	17.01	24.00		3.13		Pass

TEST RESULTS DATA
Average Power Table

FCC Band II single antenna													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
HE20	MCS0	1	52	5260	Full	21.60	21.10		23.98	23.98	3.98	2.27	Pass
HE20	MCS0	1	64	5320	Full	19.80	19.50		23.98	23.98	3.98	2.27	Pass
HE40	MCS0	1	54	5270	Full	21.60	21.40		23.98	23.98	3.98	2.27	Pass
HE40	MCS0	1	62	5310	Full	17.40	16.40		23.98	23.98	3.98	2.27	Pass
HE80	MCS0	1	58	5290	Full	17.40	17.10		23.98	23.98	3.98	2.27	Pass

FCC Band II MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
HE20	MCS0	2	52	5260	Full	18.80	18.50	21.66	23.98		3.98		Pass
HE20	MCS0	2	64	5320	Full	17.80	17.80	20.81	23.98		3.98		Pass
HE40	MCS0	2	54	5270	Full	18.90	18.50	21.71	23.98		3.98		Pass
HE40	MCS0	2	62	5310	Full	16.30	16.30	19.31	23.98		3.98		Pass
HE80	MCS0	2	58	5290	Full	14.20	14.30	17.26	23.98		3.98		Pass

TEST RESULTS DATA
Average Power Table

FCC Band III single antenna													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
HE20	MCS0	1	100	5500	Full	20.20	19.80		23.98	23.98	3.90	2.73	Pass
HE20	MCS0	1	120	5600	Full	20.60	20.80		23.98	23.98	3.90	2.73	Pass
HE20	MCS0	1	140	5700	Full	19.80	19.40		23.98	23.98	3.90	2.73	Pass
HE40	MCS0	1	102	5510	Full	18.90	18.40		23.98	23.98	3.90	2.73	Pass
HE40	MCS0	1	118	5590	Full	20.80	20.60		23.98	23.98	3.90	2.73	Pass
HE40	MCS0	1	134	5670	Full	20.30	20.10		23.98	23.98	3.90	2.73	Pass
HE80	MCS0	1	106	5530	Full	19.90	18.50		23.98	23.98	3.90	2.73	Pass
HE80	MCS0	1	122	5610	Full	20.70	20.40		23.98	23.98	3.90	2.73	Pass
HE160	MCS0	1	114	5570	Full	16.60	15.20		23.98	23.98	3.90	2.73	Pass

FCC Band III MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
HE20	MCS0	2	100	5500	Full	17.70	17.60	20.66	23.98		3.90		Pass
HE20	MCS0	2	120	5600	Full	19.10	19.20	22.16	23.98		3.90		Pass
HE20	MCS0	2	140	5700	Full	18.80	18.80	21.81	23.98		3.90		Pass
HE40	MCS0	2	102	5510	Full	16.50	16.40	19.46	23.98		3.90		Pass
HE40	MCS0	2	118	5590	Full	20.80	20.90	23.86	23.98		3.90		Pass
HE40	MCS0	2	134	5670	Full	20.00	20.10	23.06	23.98		3.90		Pass
HE80	MCS0	2	106	5530	Full	16.80	16.80	19.81	23.98		3.90		Pass
HE80	MCS0	2	122	5610	Full	20.20	20.40	23.31	23.98		3.90		Pass
HE160	MCS0	2	114	5570	Full	14.60	14.60	17.61	23.98		3.90		Pass



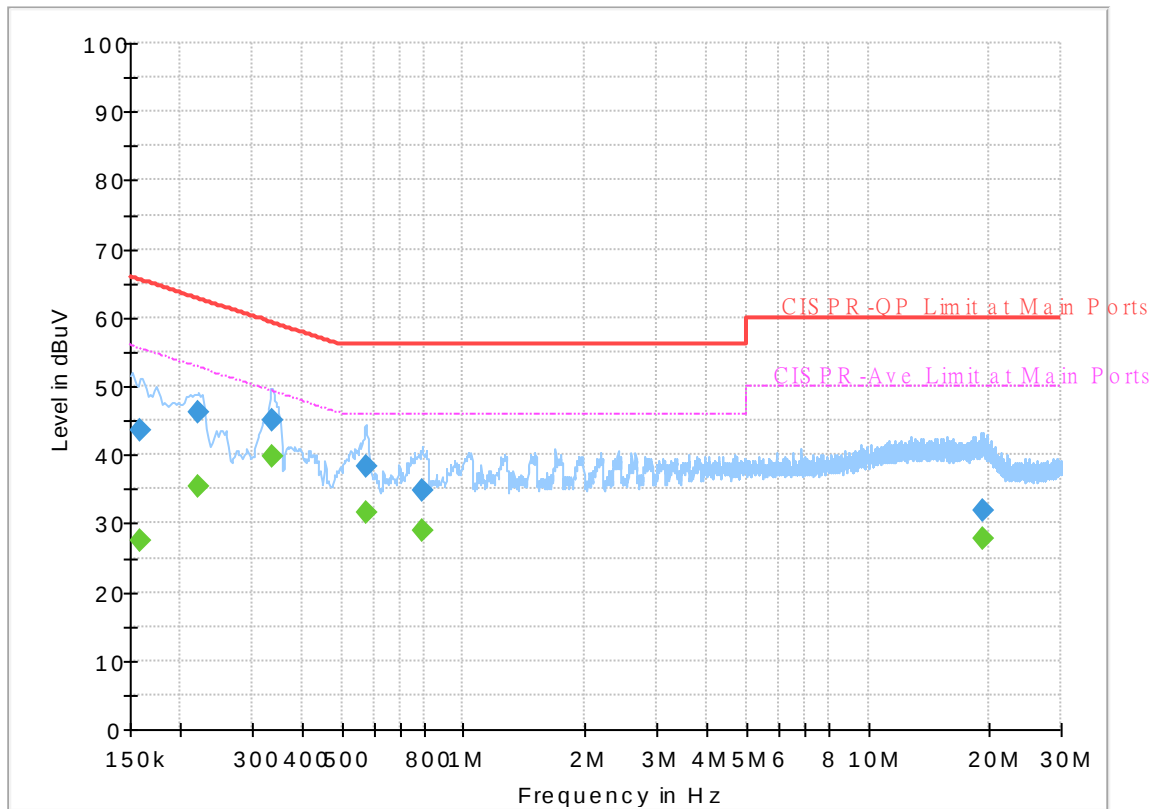
Appendix B. AC Conducted Emission Test Results

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

EUT Information

Report NO : 100537
Test Mode : Mode 2
Test Voltage : 120Vac/60Hz
Phase : Line

Full Spectrum



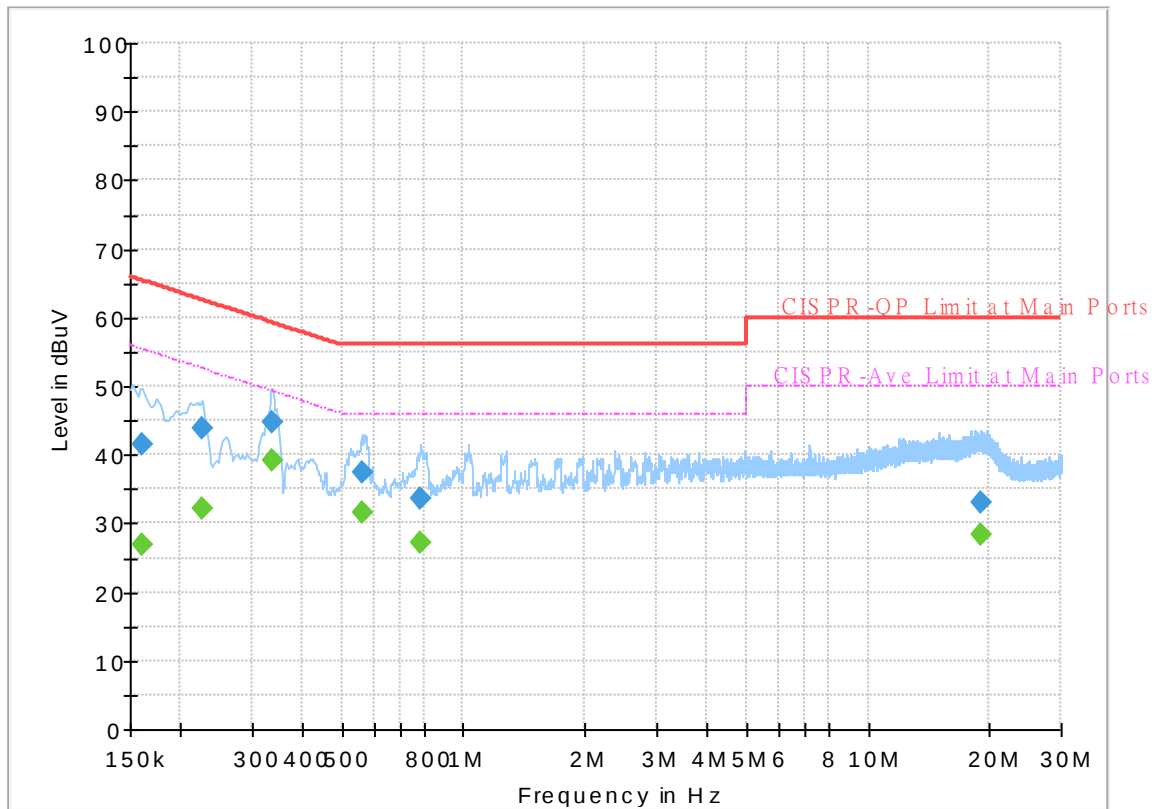
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.159000	---	27.55	55.52	27.97	L1	OFF	19.6
0.159000	43.50	---	65.52	22.02	L1	OFF	19.6
0.222000	---	35.46	52.74	17.28	L1	OFF	19.6
0.222000	46.34	---	62.74	16.40	L1	OFF	19.6
0.336750	---	39.68	49.28	9.60	L1	OFF	19.6
0.336750	45.08	---	59.28	14.20	L1	OFF	19.6
0.573000	---	31.70	46.00	14.30	L1	OFF	19.8
0.573000	38.30	---	56.00	17.70	L1	OFF	19.8
0.791250	---	28.84	46.00	17.16	L1	OFF	20.0
0.791250	34.71	---	56.00	21.29	L1	OFF	20.0
19.302000	---	27.89	50.00	22.11	L1	OFF	20.4
19.302000	31.88	---	60.00	28.12	L1	OFF	20.4

EUT Information

Report NO : 100537
Test Mode : Mode 2
Test Voltage : 120Vac/60Hz
Phase : Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.161250	---	26.97	55.40	28.43	N	OFF	19.6
0.161250	41.61	---	65.40	23.79	N	OFF	19.6
0.226500	---	32.07	52.58	20.51	N	OFF	19.6
0.226500	43.83	---	62.58	18.75	N	OFF	19.6
0.336750	---	39.06	49.28	10.22	N	OFF	19.6
0.336750	44.87	---	59.28	14.41	N	OFF	19.6
0.561750	---	31.68	46.00	14.32	N	OFF	19.8
0.561750	37.41	---	56.00	18.59	N	OFF	19.8
0.782250	---	27.23	46.00	18.77	N	OFF	20.0
0.782250	33.55	---	56.00	22.45	N	OFF	20.0
19.065750	---	28.38	50.00	21.62	N	OFF	20.5
19.065750	33.06	---	60.00	26.94	N	OFF	20.5



Appendix C. Radiated Spurious Emission

Test Engineer :	Daniel Lee, Hayden Wu, James Chiu and Troye Hsieh	Temperature :	20.1~21.4°C
		Relative Humidity :	55.2~67.3%

Remark: For Radiated Spurious Emission Test Items, Ant. 1 means Chain A (Aux.) and Ant. 2 means Chain B (Main).

Band 1 - 5150~5250MHz

WIFI 802.11ac VHT160 (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)
802.11ac VHT160 CH 50 5250MHz		5145.8	57.47	-16.53	74	48.43	32.1	10.37	33.43	208	70	P	H
		5150.12	47.86	-102.14	150	38.82	32.1	10.37	33.43	208	70	A	H
	*	5250	101.79	-	-	93.14	31.6	10.49	33.44	208	70	P	H
	*	5250	93.28	-	-	84.63	31.6	10.49	33.44	208	70	A	H
		5389.44	63.65	-10.35	74	54.82	31.64	10.64	33.45	208	70	P	H
		5360.64	52.72	-1.28	54	44.1	31.46	10.61	33.45	208	70	A	H
		5135.81	54.15	-19.85	74	45.13	32.1	10.35	33.43	400	154	P	V
		5137.97	43.85	-10.15	54	34.82	32.1	10.36	33.43	400	154	A	V
	*	5250	96.44	-	-	87.79	31.6	10.49	33.44	400	154	P	V
	*	5250	88.7	-	-	80.05	31.6	10.49	33.44	400	154	A	V
		5384.88	58.95	-15.05	74	50.16	31.61	10.63	33.45	400	154	P	V
		5403.36	48.24	-5.76	54	39.32	31.72	10.65	33.45	400	154	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11ac VHT160 (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)
802.11ac VHT160 CH 50 5250MHz		10500	44.16	-24.04	68.2	48.3	39.9	16.86	60.9	-	-	P	H
		15750	44.53	-29.47	74	47.89	37.8	20.94	62.1	-	-	P	H
		17989	52.72	-21.28	74	39.92	46.62	22.81	56.63	-	-	P	H
		17989	43.12	-10.88	54	30.32	46.62	22.81	56.63	-	-	A	H
													H
													H
		10498	46.8	-21.4	68.2	50.94	39.9	16.86	60.9	-	-	P	V
		15750	44.3	-29.7	74	47.66	37.8	20.94	62.1	-	-	P	V
		17967	52.87	-21.13	74	40.49	46.27	22.79	56.68	-	-	P	V
		17967	42.66	-11.34	54	30.28	46.27	22.79	56.68	-	-	A	V
													V
													V
Remark	- No other spurious found. - All results are PASS against Peak and Average limit line. - The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. - The emission level close to 18GHz is checked that the average emission level is noise floor only.												

Emission below 1GHz

5GHz WIFI 802.11ac VHT160 (LF @ 3m)

[illegible]



Band 1 - 5150~5250MHz

WIFI 802.11ax HE20 Full (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE20 Full CH 48 5240MHz		5074.1	49.73	-24.27	74	41	31.89	10.27	33.43	304	286	P	H
		5104	40.23	-13.77	54	31.25	32.1	10.31	33.43	304	286	A	H
	*	5240	109.12	-	-	100.42	31.66	10.48	33.44	304	286	P	H
	*	5240	100.59	-	-	91.89	31.66	10.48	33.44	304	286	A	H
		5382.48	49.63	-24.37	74	40.86	31.59	10.63	33.45	304	286	P	H
		5457.6	39.31	-14.69	54	30.11	32	10.66	33.46	304	286	A	H
		5048.88	51.52	-22.48	74	43	31.7	10.24	33.42	269	106	P	V
		5144.3	40.81	-13.19	54	31.78	32.1	10.36	33.43	269	106	A	V
	*	5240	114.32	-	-	105.62	31.66	10.48	33.44	269	106	P	V
	*	5240	104.21	-	-	95.51	31.66	10.48	33.44	269	106	A	V
		5403.84	49.59	-24.41	74	40.67	31.72	10.65	33.45	269	106	P	V
		5458.32	39.43	-14.57	54	30.23	32	10.66	33.46	269	106	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11ax HE20 Full (Harmonic @ 3m)

WIFI Ant. 2	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)
802.11ax HE20 Full CH 48 5240MHz		10480	44.68	-23.52	68.2	48.82	39.88	16.85	60.87	-	-	P	H
		15720	43.98	-30.02	74	47.37	37.86	20.92	62.17	-	-	P	H
		17978	52.51	-21.49	74	39.91	46.45	22.8	56.65	-	-	P	H
		17978	42.8	-11.2	54	30.2	46.45	22.8	56.65	-	-	A	H
													H
													H
		10480	45.42	-22.78	68.2	49.56	39.88	16.85	60.87	-	-	P	V
		15720	44.36	-29.64	74	47.75	37.86	20.92	62.17	-	-	P	V
		17967	53.01	-20.99	74	40.63	46.27	22.79	56.68	-	-	P	V
		17967	42.93	-11.07	54	30.55	46.27	22.79	56.68	-	-	A	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.												



Band 1 - 5150~5250MHz

WIFI 802.11ax HE40 Full (Band Edge @ 3m)

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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE40 Full CH 38 5190MHz		5146.64	55.71	-18.29	74	46.67	32.1	10.37	33.43	216	103	P	H
		5149.5	47.34	-6.66	54	38.3	32.1	10.37	33.43	216	103	A	H
	*	5190	110.16	-	-	101.23	31.94	10.43	33.44	216	103	P	H
	*	5190	100.49	-	-	91.56	31.94	10.43	33.44	216	103	A	H
		5409.6	48.84	-25.16	74	39.88	31.76	10.65	33.45	216	103	P	H
		5439.28	40.05	-13.95	54	30.91	31.94	10.66	33.46	216	103	A	H
		5146.12	53.65	-20.35	74	44.61	32.1	10.37	33.43	212	0	P	V
		5148.98	44.98	-9.02	54	35.94	32.1	10.37	33.43	212	0	A	V
	*	5190	107.27	-	-	98.34	31.94	10.43	33.44	212	0	P	V
	*	5190	98.34	-	-	89.41	31.94	10.43	33.44	212	0	A	V
		5447.96	49.09	-24.91	74	39.9	31.99	10.66	33.46	212	0	P	V
		5450.76	39.72	-14.28	54	30.52	32	10.66	33.46	212	0	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11ax HE40 Full (Harmonic @ 3m)

WIFI Ant. 1+2	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)
802.11ax HE40 Full CH 38 5190MHz		10377	46.26	-21.94	68.2	50.44	39.75	16.77	60.7	-	-	P	H
		15570	45.26	-28.74	74	48.45	38.48	20.86	62.53	-	-	P	H
		17956	52.41	-21.59	74	40.25	46.1	22.77	56.71	-	-	P	H
		17956	42.35	-11.65	54	30.19	46.1	22.77	56.71	-	-	A	H
													H
													H
		10380	45.25	-22.95	68.2	49.43	39.76	16.77	60.71	-	-	P	V
		15570	45.27	-28.73	74	48.46	38.48	20.86	62.53	-	-	P	V
		17956	52.17	-21.83	74	40.01	46.1	22.77	56.71	-	-	P	V
		17956	42.24	-11.76	54	30.08	46.1	22.77	56.71	-	-	A	V
													V
													V
Remark	- No other spurious found. - All results are PASS against Peak and Average limit line. - The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. - The emission level close to 18GHz is checked that the average emission level is noise floor only.												



Band 2 - 5250~5350MHz

WIFI 802.11ax HE80 Full (Band Edge @ 3m)

WIFI Ant. 1+2	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)
802.11ax HE80 Full CH 58 5290MHz		5080.7	50.54	-23.46	74	41.74	31.95	10.28	33.43	159	359	P	H
		5149.4	40.9	-13.1	54	31.86	32.1	10.37	33.43	159	359	A	H
	*	5290	105.19	-	-	96.58	31.52	10.53	33.44	159	359	P	H
	*	5290	94.92	-	-	86.31	31.52	10.53	33.44	159	359	A	H
		5350.08	53.32	-20.68	74	44.77	31.4	10.6	33.45	159	359	P	H
		5352.72	43.46	-10.54	54	34.89	31.42	10.6	33.45	159	359	A	H
		5029.1	51.11	-22.89	74	42.7	31.62	10.21	33.42	205	0	P	V
		5147.3	41.26	-12.74	54	32.22	32.1	10.37	33.43	205	0	A	V
	*	5290	105.85	-	-	97.24	31.52	10.53	33.44	205	0	P	V
	*	5290	96.53	-	-	87.92	31.52	10.53	33.44	205	0	A	V
		5386.32	51.6	-22.4	74	42.79	31.62	10.64	33.45	205	0	P	V
		5350.08	43.05	-10.95	54	34.5	31.4	10.6	33.45	205	0	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz

WIFI 802.11ax HE80 Full (Harmonic @ 3m)

WIFI Ant. 1+2	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)
802.11ax HE80 Full CH 58 5290MHz		10580	44.7	-23.5	68.2	48.94	39.82	16.94	61	-	-	P	H
		15870	44.18	-29.82	74	47.36	37.63	21	61.81	-	-	P	H
		17967	52.95	-21.05	74	40.57	46.27	22.79	56.68	-	-	P	H
		17967	42.57	-11.43	54	30.19	46.27	22.79	56.68	-	-	A	H
													H
													H
		10575	46.09	-22.11	68.2	50.32	39.83	16.93	60.99	-	-	P	V
		15870	44.68	-29.32	74	47.86	37.63	21	61.81	-	-	P	V
		18000	52.75	-21.25	74	39.73	46.8	22.82	56.6	-	-	P	V
		18000	43.63	-10.37	54	30.61	46.8	22.82	56.6	-	-	A	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.												



Band 3 - 5470~5725MHz

WIFI 802.11ax HE20 Full (Band Edge @ 3m)

WIFI Ant. 1+2	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)
802.11ax HE20 Full CH 120 5600MHz		5458	51.28	-22.72	74	42.08	32	10.66	33.46	192	360	P	H
		5462.32	49.84	-18.36	68.2	40.64	32	10.66	33.46	192	360	P	H
		5459.35	40.2	-13.8	54	31	32	10.66	33.46	192	360	A	H
	*	5600	115.69	-	-	106.5	32	10.68	33.49	192	360	P	H
	*	5600	106.8	-	-	97.61	32	10.68	33.49	192	360	A	H
		5731.61	52.27	-15.93	68.2	42.63	32.33	10.83	33.52	192	360	P	H
		5442.34	49.02	-24.98	74	39.87	31.95	10.66	33.46	272	171	P	V
		5467.18	48.64	-19.56	68.2	39.44	32	10.66	33.46	272	171	P	V
		5458.54	39.95	-14.05	54	30.75	32	10.66	33.46	272	171	A	V
	*	5600	114.24	-	-	105.05	32	10.68	33.49	272	171	P	V
	*	5600	104.02	-	-	94.83	32	10.68	33.49	272	171	A	V
		5756.18	50.23	-17.97	68.2	40.5	32.4	10.86	33.53	272	171	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 5470~5725MHz

WIFI 802.11ax HE20 (Harmonic @ 3m)

WIFI Ant. 1+2	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)
802.11ax HE20 Full CH 120 5600MHz		11200	45.83	-28.17	74	50.51	39.6	17.46	61.74	-	-	P	H
		16800	45.99	-22.21	68.2	44.01	40	21.64	59.66	-	-	P	H
		17989	52.78	-21.22	74	39.98	46.62	22.81	56.63	-	-	P	H
		17989	42.93	-11.07	54	30.13	46.62	22.81	56.63	-	-	A	H
													H
													H
		11200	47.9	-26.1	74	52.58	39.6	17.46	61.74	-	-	P	V
		16800	47.33	-20.87	68.2	45.35	40	21.64	59.66	-	-	P	V
		17978	53.43	-20.57	74	40.83	46.45	22.8	56.65	-	-	P	V
		17978	43.31	-10.69	54	30.71	46.45	22.8	56.65	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	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)
802.11a		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 36		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H
5180MHz													

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)
 = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
 = 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
 = 55.45 (dBμV/m)
2. Over Limit(dB)
 = Level(dBμV/m) – Limit Line(dBμV/m)
 = 55.45(dBμV/m) – 74(dBμV/m)
 = -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)
 = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
 = 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
 = 43.54 (dBμV/m)
2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)
 = 43.54(dBμV/m) – 54(dBμV/m)
 = -10.46(dB)

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



Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Daniel Lee, Hayden Wu, James Chiu and Troye Hsieh	Temperature :	20.1~21.4°C
		Relative Humidity :	55.2~67.3%

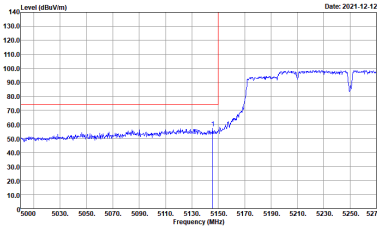
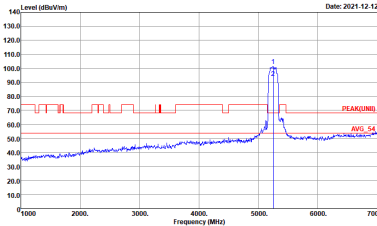
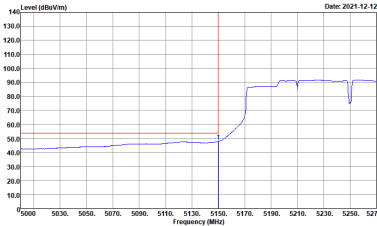
Remark: For Radiated Spurious Emission Test Items, Ant. 1 means Chain A (Aux.) and Ant. 2 means Chain B (Main).

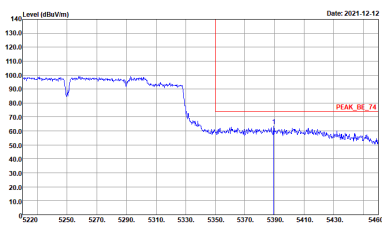
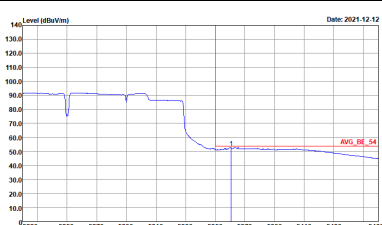
Note symbol

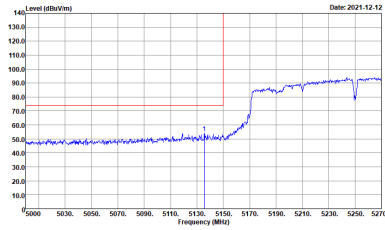
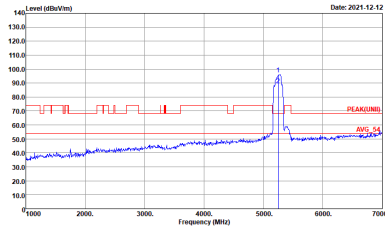
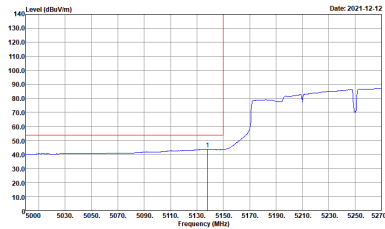
-L	Low channel location
-R	High channel location

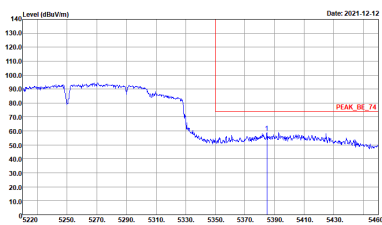
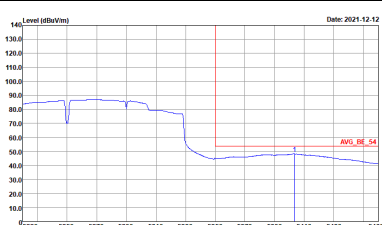


Band 1 - 5150~5250MHz
WIFI 802.11ac VHT160 (Band Edge @ 3m)

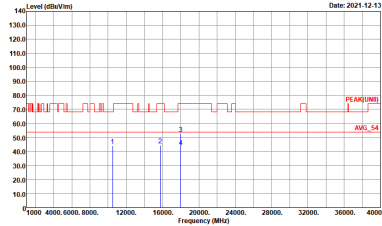
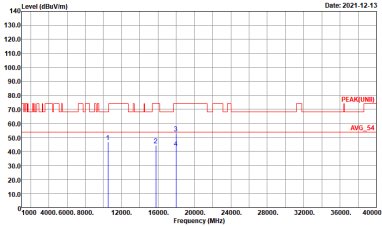
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ac VHT160 CH50 5250MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:3000.0000Hz SW1:Auto	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:3000.0000Hz SW1:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:0.0100Hz SW1:Auto	Left blank

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH42 5210MHz - R	
1	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:1010KHz SWT:Auto	Left blank

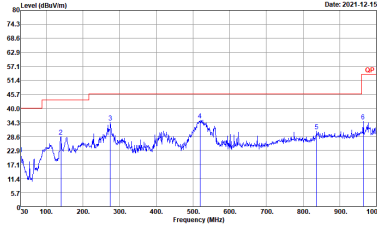
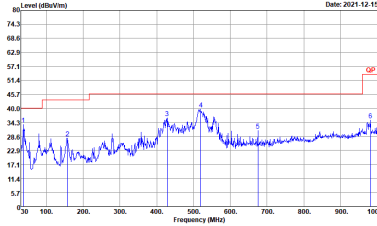
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ac VHT160 CH50 5250MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 VERTICAL RBW:1000.000kHz VBW:10100kHz SWT:Auto	Left blank

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ac VHT160 CH80 5250MHz - R	
1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:1010KHz SWT:Auto	Left blank

Band 1 - 5150~5250MHz
WIFI 802.11ac VHT160 (Harmonic @ 3m)

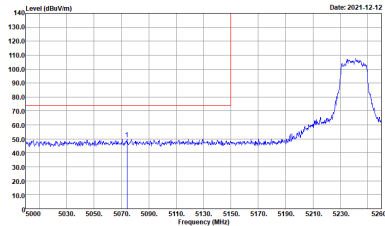
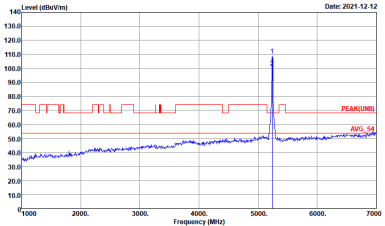
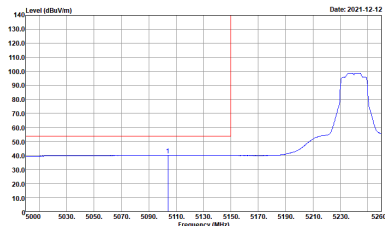
WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11ac VHT160 CH50 5250MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 VERTICAL

Emission below 1GHz
5GHz WIFI 802.11ac VHT160 (LF)

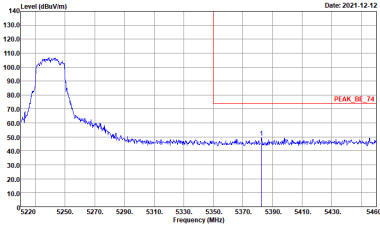
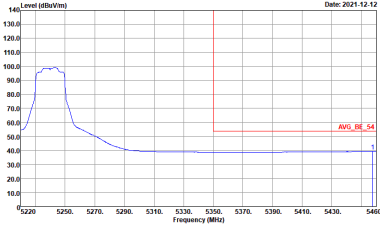
WIFI	5GHz WIFI	
ANT	802.11ac VHT160 LF	
1	Horizontal	Vertical
QP / Peak	 Site : 03CH11-HY Condition : QP 3m BE-LOG 35414-211009 HORIZONTAL	 Site : 03CH11-HY Condition : QP 3m BE-LOG 35414-211009 VERTICAL



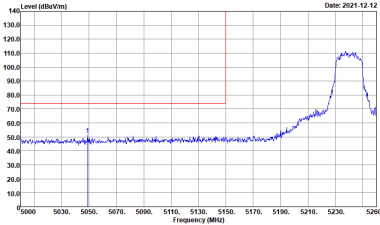
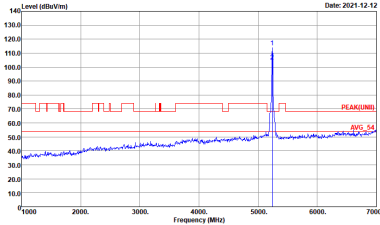
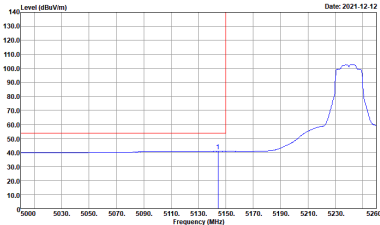
Band 1 - 5150~5250MHz
WIFI 802.11ax HE20 Full (Band Edge @ 3m)

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH48 5240MHz - L	
2	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000kHz VBW:3000.0000kHz SW1:Auto	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000kHz VBW:3000.0000kHz SW1:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000kHz VBW:0.0100kHz SW1:Auto	Left blank

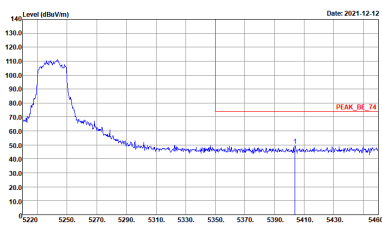
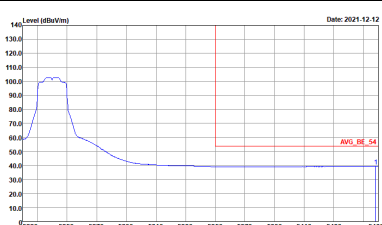


WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH48 5240MHz - R	
2	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



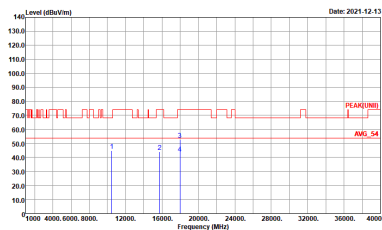
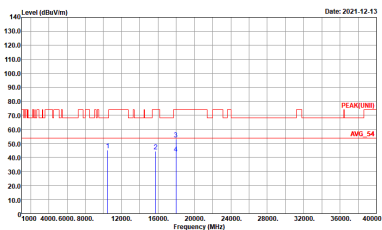
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH48 5240MHz - L	
2	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 VERTICAL RBW:1000.000kHz VBW:10100kHz SWT:Auto	Left blank



WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH48 5240MHz - R	
2	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:1000.000KHz SWT:Auto	Left blank

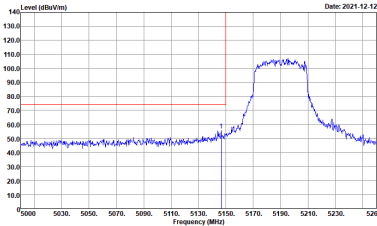
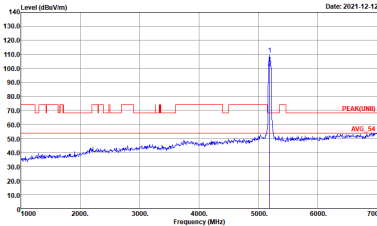
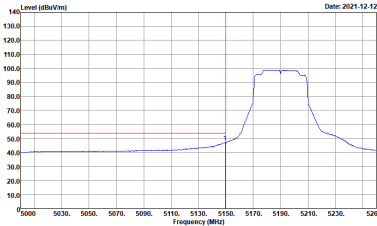


Band 1 - 5150~5250MHz
WIFI 802.11ax HE20 Full (Harmonic @ 3m)

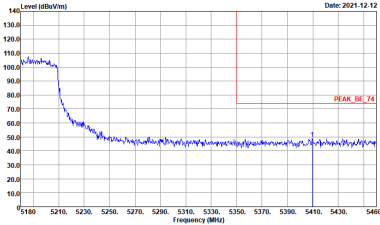
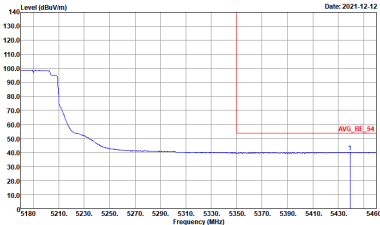
WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11ax HE20 Full CH48 5240MHz	
2	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 VERTICAL



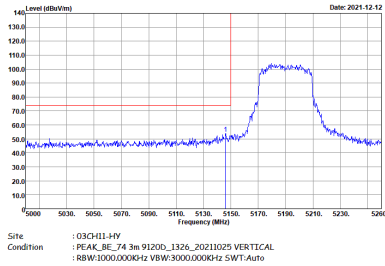
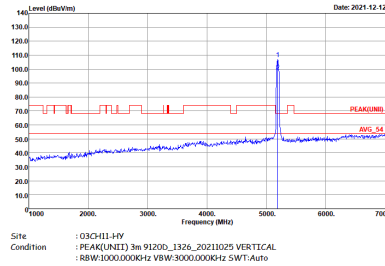
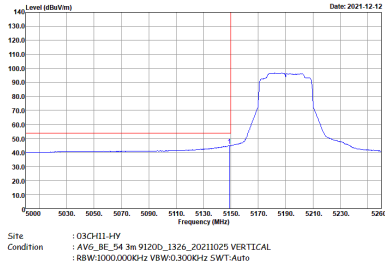
Band 1 - 5150~5250MHz
WIFI 802.11ax HE40 Full (Band Edge @ 3m)

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH38 5190MHz - L	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:3000.0000Hz SWT:Auto	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:3000.0000Hz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:0.3000Hz SWT:Auto	Left blank

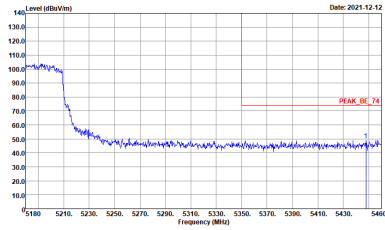
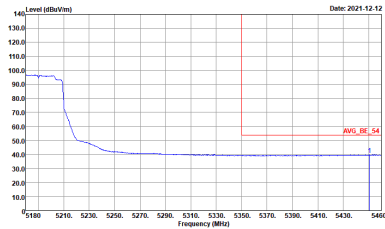


WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH38 5190MHz - R	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:1300KHz SWT:Auto	Left blank

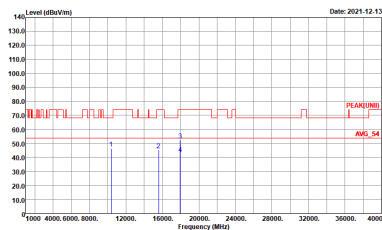
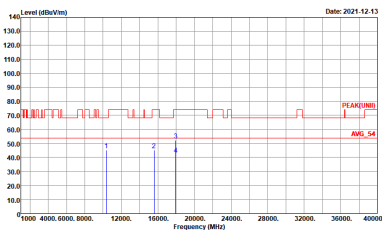


WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH38 5190MHz - L	
1+2	Vertical	Fundamental
Peak	 Site: 03CH11-HY Condition: : PEAK_BE_74 3m 91200_1326_20211025 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site: 03CH11-HY Condition: : PEAK(UNIT) 3m 91200_1326_20211025 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Avg.	 Site: 03CH11-HY Condition: : AVG_BE_54 3m 91200_1326_20211025 VERTICAL : RBW:1000.000kHz VBW:13000kHz SWT:Auto	Left blank



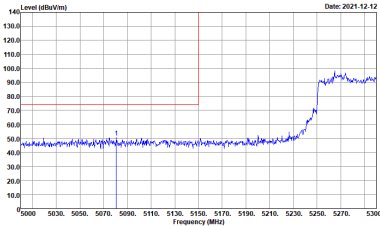
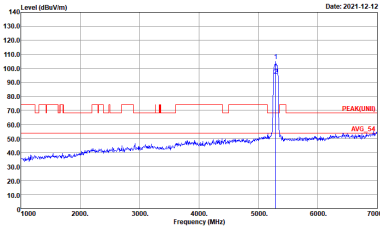
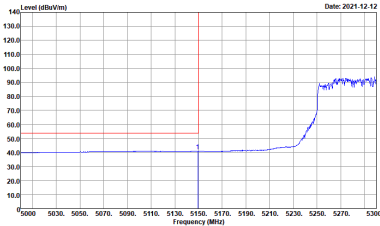
WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH38 5190MHz - R	
1+2	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 VERTICAL : RBW:1000.000KHz VBW:1300KHz SWT:Auto	Left blank

Band 1 - 5150~5250MHz
WIFI 802.11ax HE40 Full (Harmonic @ 3m)

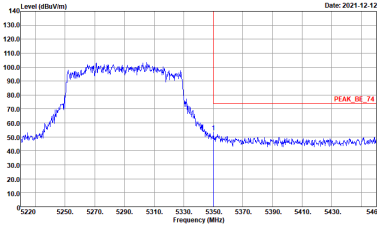
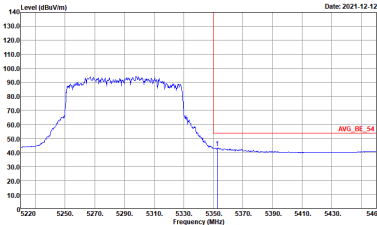
WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11ax HE40 Full CH38 5190MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 VERTICAL



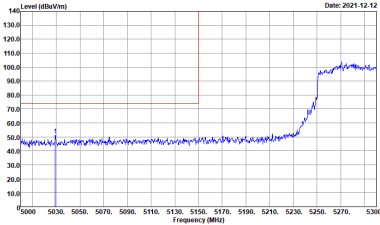
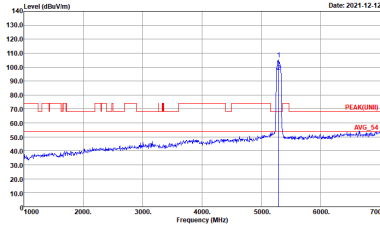
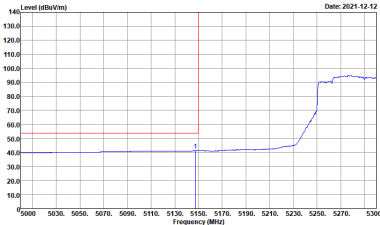
Band 2 - 5250~5350MHz
WIFI 802.11ax HE80 Full (Band Edge @ 3m)

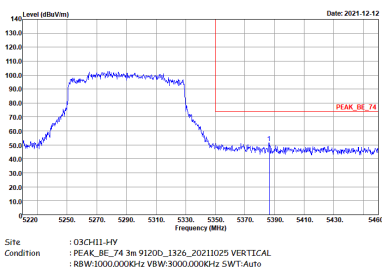
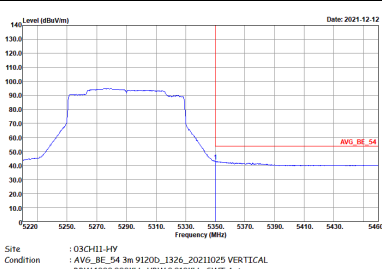
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - L	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:3000.0000Hz SW1:Auto	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:3000.0000Hz SW1:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:0.0100Hz SW1:Auto	Left blank



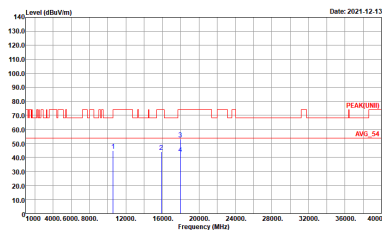
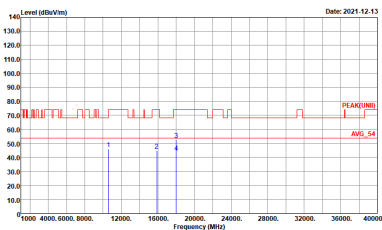
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - R	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.000KHz VBW:1010KHz SWT:Auto	Left blank



WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - L	
1+2	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE_74 3m 91200_1326_20211025 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 VERTICAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE_54 3m 91200_1326_20211025 VERTICAL RBW:1000.000kHz VBW:10100kHz SWT:Auto	Left blank

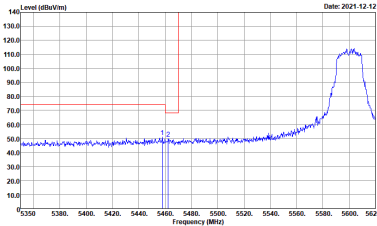
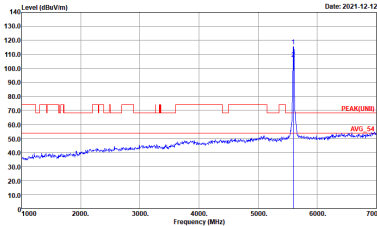
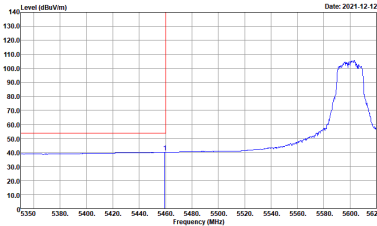
WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz - R	
1+2	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

Band 2 - 5250~5350MHz
IFI 802.11ax HE80 Full (Harmonic @ 3m)

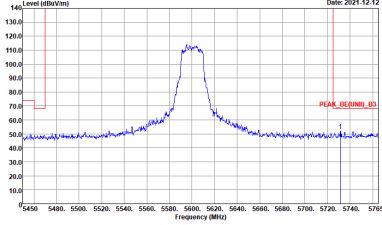
WIFI	Band 2 5250~5350MHz Harmonic @ 3m	
ANT	802.11ax HE80 Full CH58 5290MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 HORIZONTAL	 Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_1326_20211025 VERTICAL

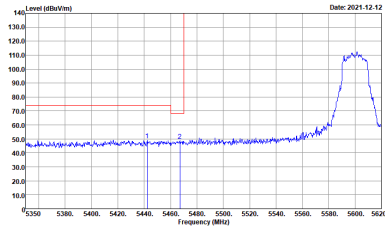
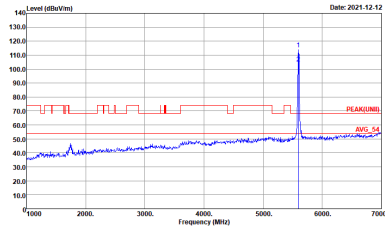
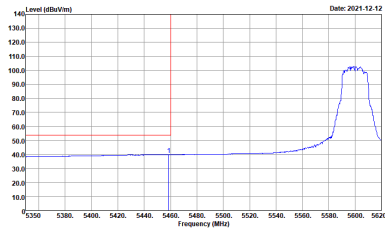


Band 3 - 5470~5725MHz
WIFI 802.11ax HE20 Full (Band Edge @ 3m)

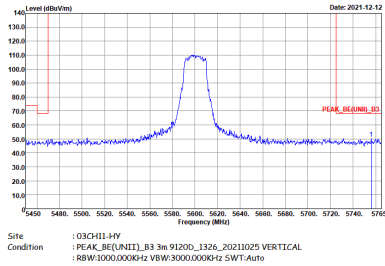
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH120 5600MHz - L	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH11-14V Condition : PEAK_BE(UNIT1)_B3 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:3000.0000Hz SWT:Auto	 Site : 03CH11-14V Condition : PEAK(UNIT1)_3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:3000.0000Hz SWT:Auto
Avg.	 Site : 03CH11-14V Condition : AVG_BE(UNIT1)_B3 3m 91200_1326_20211025 HORIZONTAL : RBW:1000.0000Hz VBW:0.0100Hz SWT:Auto	Left blank



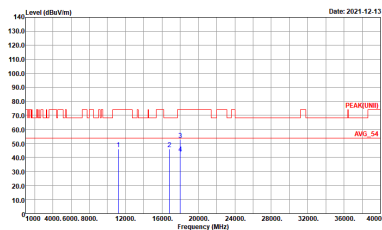
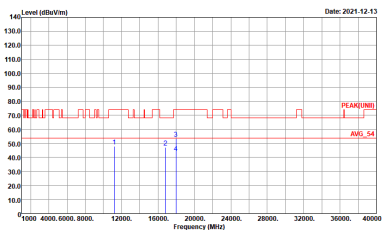
WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH120 5600MHz - R	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE(LN11)_B3 3m 91200_132e_20211025 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH120 5600MHz - L	
1+2	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE(UNIT1)_B3 3m 91200_1326_20211025 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK(UNIT1) 3m 91200_1326_20211025 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE(UNIT1)_B3 3m 91200_1326_20211025 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



WIFI	Band 3 5470~5725MHz Band Edge @ 3m	
ANT	802.11ax HE20 Full CH120 5600MHz - R	
1+2	Vertical	Fundamental
Peak		Left blank

Band 3 - 5470~5725MHz
WIFI 802.11ax HE20 Full (Harmonic @ 3m)

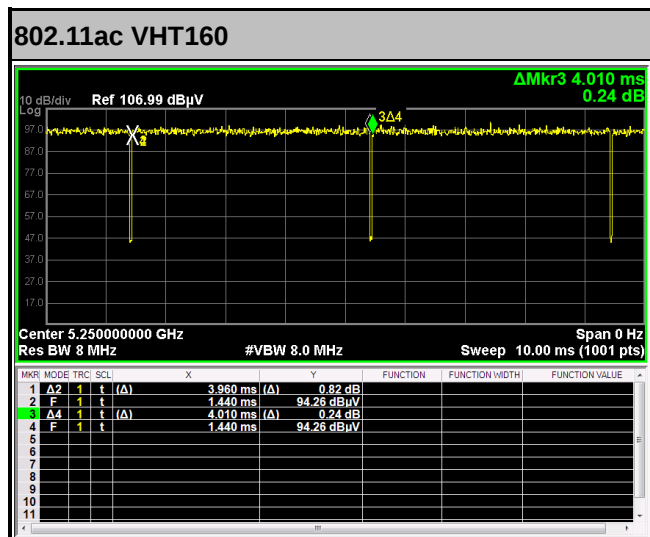
WIFI	Band 3 5470~5725MHz Harmonic @ 3m	
ANT	802.11ax HE20 Full CH120 5600MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site Condition : 03CH11-HY : PEAK(UNIT) 3m 91200_1326_20211025 HORIZONTAL	 Site Condition : 03CH11-HY : PEAK(UNIT) 3m 91200_1326_20211025 VERTICAL

Appendix E. Duty Cycle Plots

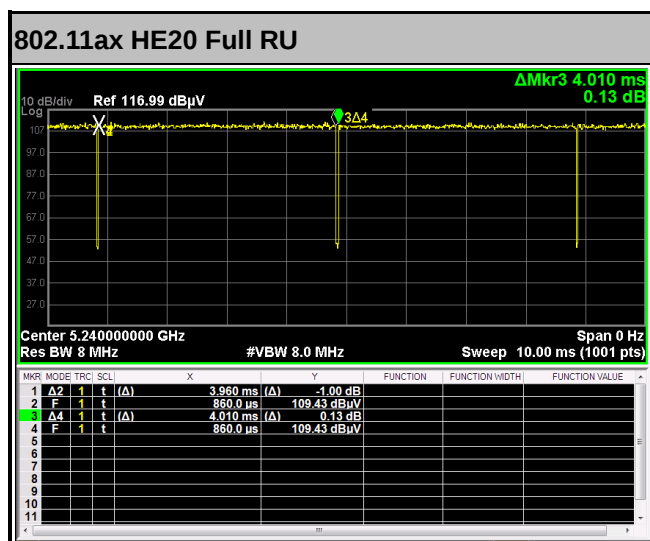
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1	5GHz 802.11ac VHT160	98.75	-	-	10Hz
2	5GHz 802.11ax HE20 Full RU	98.75	-	-	10Hz
1+2	5GHz 802.11ax HE20 Full RU	98.54	-	-	10Hz
1+2	5GHz 802.11ax HE40 Full RU	97.31	3912	0.26	300Hz
1+2	5GHz 802.11ax HE80 Full RU	99.13	-	-	10Hz

Remark: Ant. 1 means Chain A (Aux.) and Ant. 2 means Chain B (Main).

<Ant. 1>



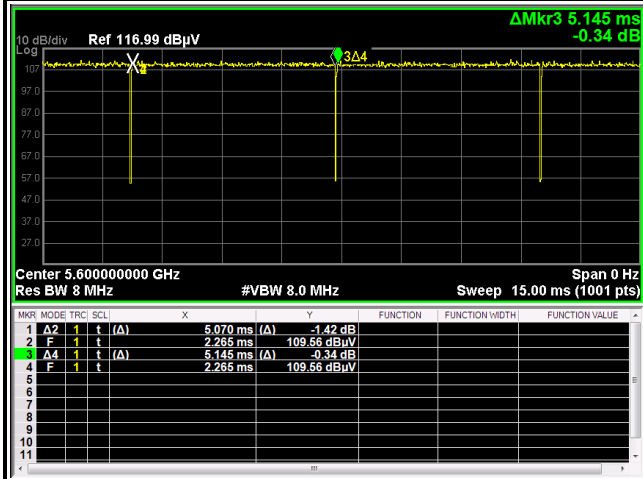
<Ant. 2>



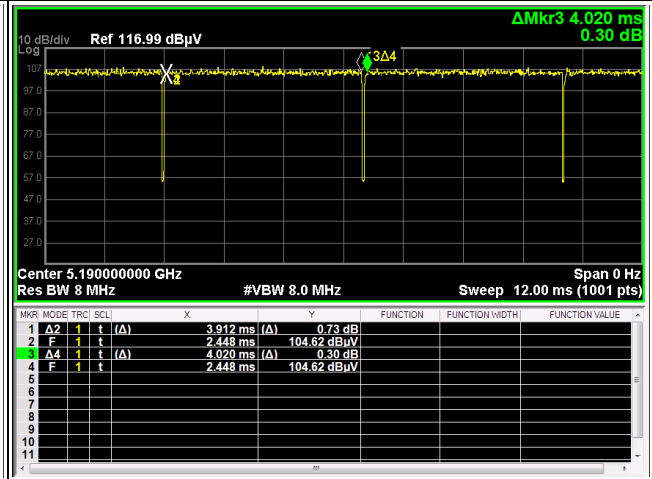


MIMO <Ant. 1+2>

802.11ax HE20 Full RU



802.11ax HE40 Full RU



802.11ax HE80 Full RU

