FCC RADIO TEST REPORT

FCC ID	:	**QYLAX211NG**
Equipment	:	**Wireless Module**
Brand Name	:	**Getac**
Model Name	:	**AX211NGW**
Applicant	:	**Getac Technology Corporation.** **5F., Building A, No. 209, Sec.1, Nangang Rd.,Nangang Dist., Taipei City 115018, Taiwan, R.O.C.**
Standard	:	**FCC Part 15 Subpart E §15.407**

The product was received on Aug. 10, 2023 and testing was performed from Aug. 29, 2023 to Sep. 16, 2023. 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.)

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History of this test report

Report No.	Version	Description	Issue Date
FR381701-02G	01	Initial issue of report	Nov. 03, 2023

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	15.407(a)(10)	26dB Emission Bandwidth	-	See Note
-	2.1049	99% Occupied Bandwidth	-	See Note
3.1	15.407(a)(8)	Fundamental Maximum EIRP	Pass	-
-	15.407(a)(8)	Fundamental Power Spectral Density	-	See Note
-	15.407(b)(6)	In-Band Emissions (Channel Mask)	-	See Note
-	15.407(d)(6)	Contention Based Protocol	-	See Note
3.2	15.407(b)	Unwanted Emissions	Pass	-
3.3	15.207	AC Conducted Emission	Pass	-
3.4	15.203	Antenna Requirement	Pass	-

Note:

1. For host device, Radiated Spurious Emission is verified and complies with the limit in this test report.
2. For host device, the Conducted Output Power is no difference after compared to module (Model: AX211NGW)

Conformity Assessment Condition:
1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”.
Disclaimer:
The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Yun Huang

Report Producer: Lucy Wu

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
General Specs	Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ax, Wi-Fi 5GHz 802.11a/n/ac/ax and Wi-Fi 6GHz 802.11ax
Sample 1	EUT with Host 1
Sample 2	EUT with Host 2
Sample 3	EUT with Host 3
Antenna Type	WLAN: <Main>: PIFA Antenna <Aux.>: PIFA Antenna Bluetooth: PIFA Antenna

The product was installed into Tablet PC (Brand Name: Getac, Model Name: F110, F110G7, F110-701, F110-711, F110-721, F110-Exc, F110Y (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, and the host information was recorded in the following table.

Host Information	
Host 1	Host with SKU A
Host 2	Host with SKU B
Host 3	Host with SKU C

Antenna Information for Host			
Antenna	**Manufacturer**	PULSE	
	Antenna Type	PIFA Antenna	PIFA Antenna
	Part number	422GA4500004	422GA4500009
	Peak gain (dBi)	Main Antenna :	Aux. Antenna :
		WLAN (6G B5): 2.99 WLAN (6G B6): 2.99 WLAN (6G B7): 2.76 WLAN (6G B8): 2.79	WLAN (6G B5): 1.48 WLAN (6G B6): 2.29 WLAN (6G B7): 2.29 WLAN (6G B8): 2.31

Sample Information for Host			
	SKU A	**SKU B**	**SKU C**
CPU	i5-1335U	i5-1335U	I7-1365U
DDR	Kingston 8GB	Kingston 16GB	Kingston 32GB
SSD	256GB	512GB	1TB
PANEL	Full FHD AUO	Full FHD AUO	Full FHD AUO
DIGITIZER	Not Support	EMRright Digitizer	EMRright Digitizer
OPTION BAY	MicroSD Card	Barcode Reader	LAN
Expansion Bay	N/A	HID RFID	SMART CARD
Right side option	RFID (SN-NSVG7-C01)	Not Support	Fringer Print
WLAN/BT	Intel AX211	Intel AX211	Intel AX211
WWAN(4G)	NA	LN920A12-WW	LN920A12-WW
GNSS	GPS/GNSS (MC-1010-V2B)	LN920A12-WW	LN920A12-WW
Rear 8M Camera	Support	Support	Support
Webcam FHD	Support	Not Support	Support
IR Webcam	Not Support	Support	Support
USB3.2 Gen2 x 1 Type-A	Support	Support	Support
Type-C (thunder bolt)	Support	Support	Support
Audio/MIC	Support	Support	Support
Fischer	Not Support	Not Support	Not Support

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

1.1.1 Antenna Directional Gain

Follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)f)ii)

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows:

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

G_{ANT} is set equal to the gain of the antenna having the highest gain.

For PSD measurements, the directional gain calculation.

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;
N_{SS} = the number of independent spatial streams of data;
N_{ANT} = the total number of antennas
$g_{j,k} = 10^{G_k / 20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;
G_k is the gain in dBi of the kth antenna.

As minimum N_{SS}=1 is supported by EUT, the formula can be simplified as:

Directional gain = $10*\log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ dBi

Where G1, G2….GN denote single antenna gain.

The directional gain “DG” is calculated as following table.

	Chain A (dBi)	Chain B (dBi)	DG for Power (dBi)	DG for PSD (dBi)
5925 MHz ~ 6425 MHz	1.48	2.99	2.99	5.28
6425 MHz ~ 6525 MHz	2.29	2.99	2.99	5.66
6525 MHz ~ 6875 MHz	2.29	2.76	2.76	5.54
6875 MHz ~ 7125 MHz	2.31	2.79	2.79	5.56

Calculation example:

If a device has two antenna, G_{ANT1}= 1.48dBi; G_{ANT2}=2.99dBi

Directional gain of power measurement = max(1.48, 2.99) + 0 = 2.99 dBi

Directional gain of PSD derived from formula which is

10 x log { { [10^ (1.48 dBi / 20) + 10^ (2.99 dBi / 20)] ^ 2 } / 2 }

= 5.28 dBi

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 987594 D02 U-NII 6 GHz EMC Measurement v01r01
- 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). 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 only the worst case emissions were reported in this report.

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

2.1 Carrier Frequency and Channel

BW 20M	**Channel**	1	5	9	13	17	21	25	29
	Freq. (MHz)	5955	5975	5995	6015	6035	6055	6075	6095
BW 40M	**Channel**	3		11		19		27	
	Freq. (MHz)	5965		6005		6045		6085	
BW 80M	**Channel**	7				23			
	Freq. (MHz)	5985				6065			
BW 160M	**Channel**	15							
	Freq. (MHz)	6025							

BW 20M	**Channel**	33	37	41	45	49	53	57	61
	Freq. (MHz)	6115	6135	6155	6175	6195	6215	6235	6255
BW 40M	**Channel**	35		43		51		59	
	Freq. (MHz)	6125		6165		6205		6245	
BW 80M	**Channel**	39				55			
	Freq. (MHz)	6145				6225			
BW 160M	**Channel**	47							
	Freq. (MHz)	6185							

BW 20M	Channel	65	69	73	77	81	85	89	93
	Freq. (MHz)	6275	6295	6315	6335	6355	6375	6395	6415
BW 40M	Channel	67		75		83		91	
	Freq. (MHz)	6285		6325		6365		6405	
BW 80M	Channel	71				87			
	Freq. (MHz)	6305				6385			
BW 160M	Channel	79							
	Freq. (MHz)	6345							

BW 20M	Channel	97	101	105	109	113	117	121	125
	Freq. (MHz)	6435	6455	6475	6495	6515	6535	6555	6575
BW 40M	Channel	99		107		115		123	
	Freq. (MHz)	6445		6485		6525		6565	
BW 80M	Channel	103				119			
	Freq. (MHz)	6465				6545			
BW 160M	Channel	111							
	Freq. (MHz)	6505							

BW 20M	Channel	129	133	137	141	145	149	153	157
	Freq. (MHz)	6595	6615	6635	6655	6675	6695	6715	6735
BW 40M	Channel	131		139		147		155	
	Freq. (MHz)	6605		6645		6685		6725	
BW 80M	Channel	135				151			
	Freq. (MHz)	6625				6705			
BW 160M	Channel	143							
	Freq. (MHz)	6665							

BW 20M	Channel	161	165	169	173	177	181	185	189
	Freq. (MHz)	6755	6775	6795	6815	6835	6855	6875	6895
BW 40M	Channel	163		171		179		187	
	Freq. (MHz)	6765		6805		6845		6885	
BW 80M	Channel	167				183			
	Freq. (MHz)	6785				6865			
BW 160M	Channel	175							
	Freq. (MHz)	6825							

BW 20M	Channel	193	197	201	205	209	213	217	221
	Freq. (MHz)	6915	6935	6955	6975	6995	7015	7035	7055
BW 40M	Channel	195		203		211		219	
	Freq. (MHz)	6925		6965		7005		7045	
BW 80M	Channel	199				215			
	Freq. (MHz)	6945				7025			
BW 160M	Channel	207							
	Freq. (MHz)	6985							

BW 20M	Channel	225	229
	Freq. (MHz)	7075	7095
BW 40M	Channel	227	
	Freq. (MHz)	7085	

BW 20M	Channel	233
	Freq. (MHz)	7115

2.2 Test Mode

The final test modes include the worst data rates for each modulation shown in the table below.

Single Mode

Modulation	Data Rate
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

MIMO Mode

Modulation	Data Rate
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN (6GHz) Link + H-Pattern + Earphone + Battery 2 + Adapter 3 for Sample 3
Remark: For Radiated Test Cases, the tests were performed with Adapter 3, Battery 2 and Sample 3.	

<Chain A>

Ch. #		UNII-8 (6875-7125 MHz)
		802.11ax HE40
L	Low	-
M	Middle	-
H	High	227
Straddle		-

<Chain B>

Ch. #		UNII-7 (6525-6875 MHz)
		802.11ax HE160
L	Low	143
M	Middle	
H	High	
Straddle		-

MIMO <Chain A+B>

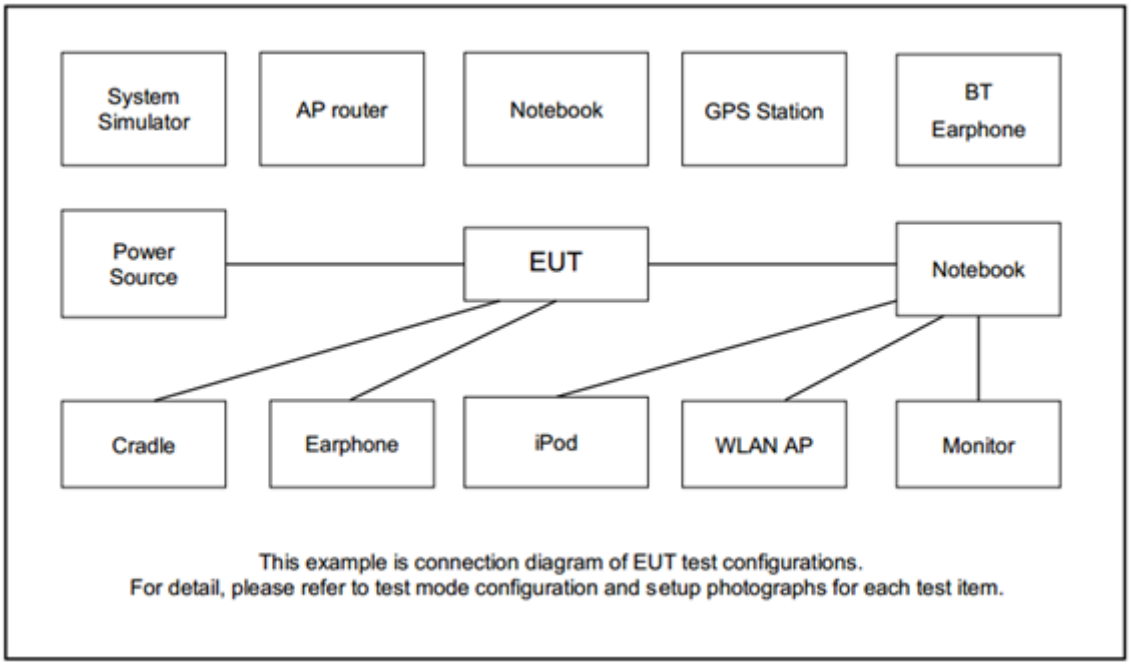
Ch. #		UNII-6 (6425-6525 MHz)
		802.11ax HE20
L	Low	97
M	Middle	-
H	High	-
Straddle		-

Ch. #		UNII-7 (6525-6875 MHz)
		802.11ax HE80
L	Low	-
M	Middle	-
H	High	167
Straddle		-

Ch. #		UNII-5 (5925-6425 MHz)
		802.11ax HE160
L	Low	15
M	Middle	-
H	High	-
Straddle		-

Remark: Based on ANSI C63.10 clause 5.6.2.2, b) Spurious emissions, measure the mode with the highest output power and the mode with highest output power spectral density for each modulation family.

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.	Bluetooth Earphone	Sony Ericsson	MW600	PY700A2029	N/A	N/A
2.	WLAN AP	ASUS	GT-AXE11000	FCC DoC	N/A	Unshielded, 1.8 m
3.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A
4.	Notebook	DELL	Latitude 3420	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

The RF test items, utility “DRTU.03544.22.200.0” 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 Fundamental Maximum EIRP Measurement

3.1.1 Limit of Fundamental Maximum EIRP

<FCC 14-30 CFR 15.407>

(a)(8) For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum e.i.r.p. over the frequency band of operation must not exceed 24 dBm.

3.1.2 Measuring Instruments

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

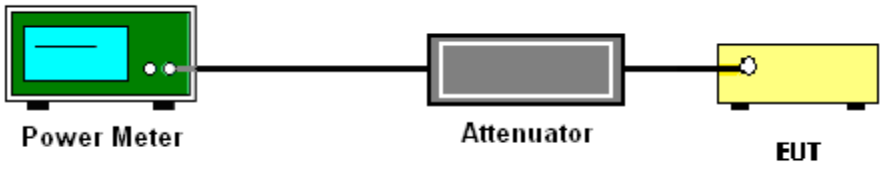
3.1.3 Test Procedures

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.

3.1.4 Test Setup



3.1.5 Test Result of Fundamental Maximum EIRP

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 within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of −27 dBm/MHz.

EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27 (RMS)	68.3
- 7 (Peak)	88.3

According 987594 D02 U-NII 6GHz EMC Measurement v01 section G:
Unwanted emissions outside of restricted bands are measured with a RMS detector.
In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit

(2) Unwanted spurious emissions fallen 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.

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

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 1000MHz

   - 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 ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

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

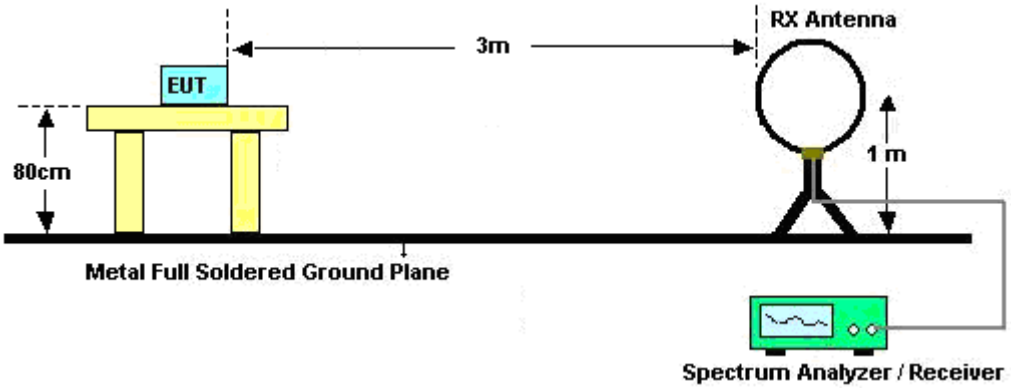
   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

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 "-".

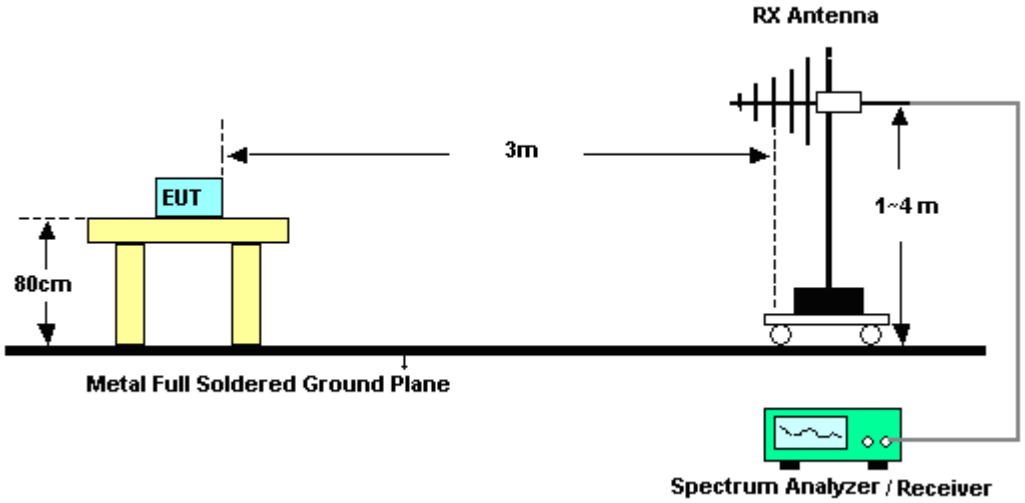
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as "-"..

3.2.4 Test Setup

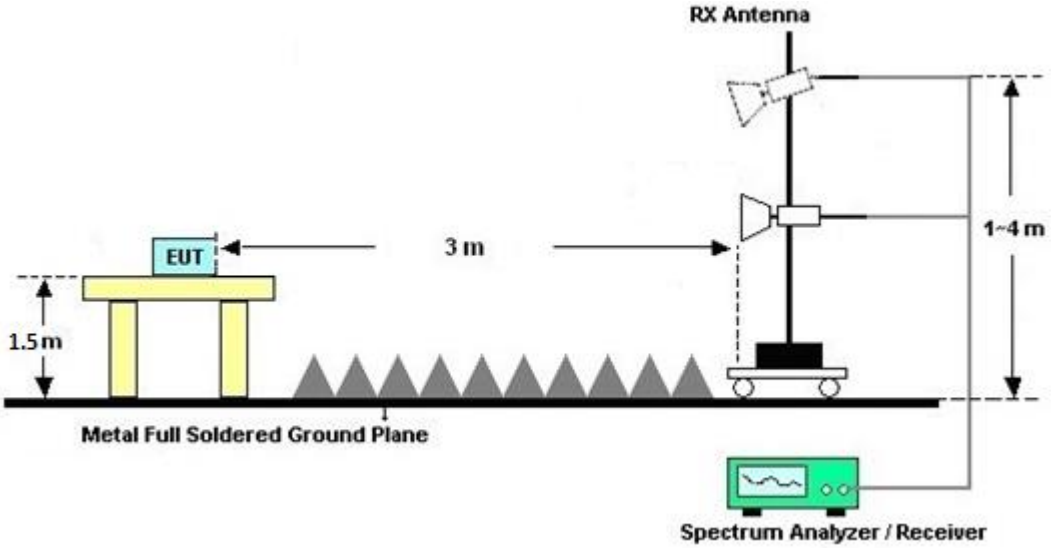
For radiated emissions below 30MHz



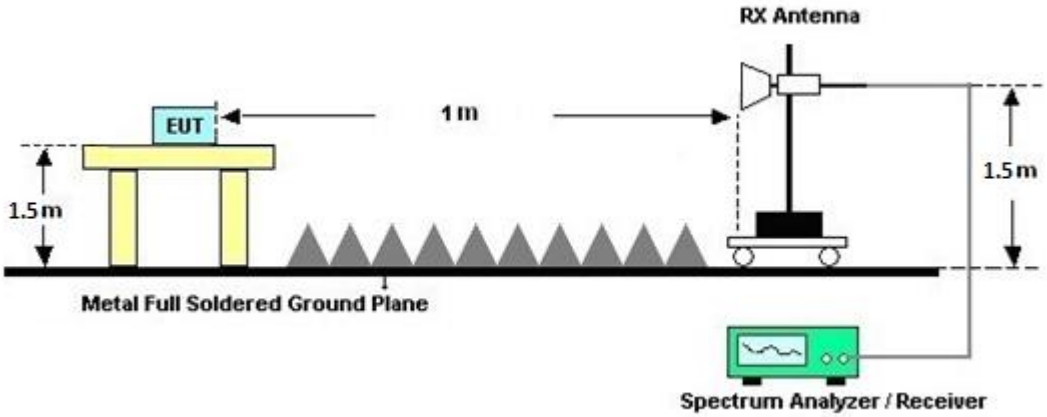
For radiated emissions from 30MHz to 1GHz



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 (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.

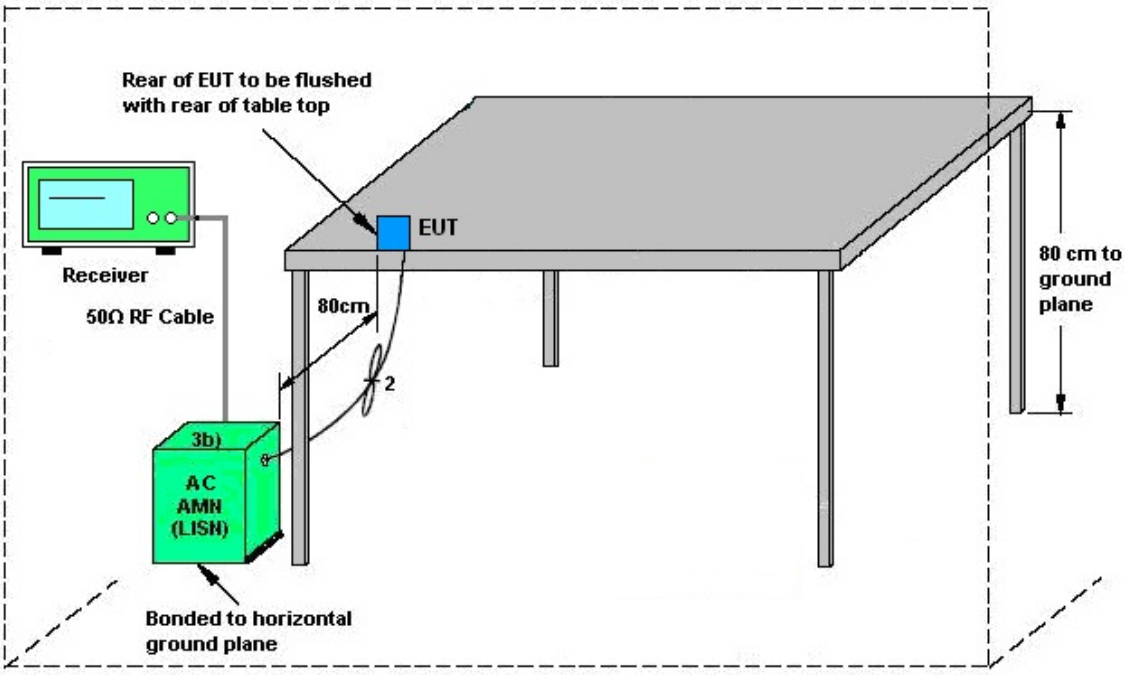
3.3.2 Measuring Instruments

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 should 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



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

3.3.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.4 Antenna Requirements

3.4.1 Standard Applicable

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.

3.4.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

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. 08, 2022	Sep. 11, 2023~ Sep. 16, 2023	Oct. 07, 2023	Radiation (03CH11-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Feb. 28, 2023	Sep. 11, 2023~ Sep. 16, 2023	Feb. 27, 2024	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	01620	1GHz~18GHz	Aug. 17, 2023	Sep. 11, 2023~ Sep. 16, 2023	Aug. 16, 2024	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00994	18GHz~40GHz	Nov. 04, 2022	Sep. 11, 2023~ Sep. 16, 2023	Nov. 03, 2023	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 09, 2022	Sep. 11, 2023~ Sep. 16, 2023	Dec. 08, 2023	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 09, 2022	Sep. 11, 2023~ Sep. 16, 2023	Nov. 08, 2023	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-303	17100018000 55007	1GHz~18GHz	Jun. 14, 2023	Sep. 11, 2023~ Sep. 16, 2023	Jun. 13, 2024	Radiation (03CH11-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 27, 2023	Sep. 11, 2023~ Sep. 16, 2023	Jun. 26, 2024	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 07, 2022	Sep. 11, 2023~ Sep. 16, 2023	Oct. 06, 2023	Radiation (03CH11-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20MHz~8.4GHz	Oct. 18, 2022	Sep. 11, 2023~ Sep. 16, 2023	Oct. 17, 2023	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Sep. 11, 2023~ Sep. 16, 2023	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Sep. 11, 2023~ Sep. 16, 2023	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Sep. 11, 2023~ Sep. 16, 2023	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Sep. 11, 2023~ Sep. 16, 2023	N/A	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz~40GHz	Mar. 07, 2023	Sep. 11, 2023~ Sep. 16, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801595/2	30MHz~40GHz	Mar. 07, 2023	Sep. 11, 2023~ Sep. 16, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 07, 2023	Sep. 11, 2023~ Sep. 16, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	30M~40G	Mar. 07, 2023	Sep. 11, 2023~ Sep. 16, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
Filter	Wainwright	WLK4-1000-1530 -8000-40SS	SN11	1.53G Low Pass	Sep. 11, 2023	Sep. 11, 2023~ Sep. 16, 2023	Sep. 10, 2024	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-2700-3 000-18000-60SS	SN3	3GHz High Pass Filter	Sep. 11, 2023	Sep. 11, 2023~ Sep. 16, 2023	Sep. 10, 2024	Radiation (03CH11-HY)
Filter	Wainwright	WHKX8-5872.5-6 750-18000-40SS	SN3	6.75GHz High Pass Filter	Sep. 11, 2023	Sep. 11, 2023~ Sep. 16, 2023	Sep. 10, 2024	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 17, 2022	Sep. 05, 2023	Nov. 16, 2023	Conducted (TH05-HY)
Power Sensor	DARE	RPR3008W	RPR8W-2301 001(NO:146)	10MHz~8GHz	Feb. 07, 2023	Sep. 05, 2023	Feb. 06, 2024	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101564	10Hz ~ 40GHz	Sep. 13, 2022	Sep. 05, 2023	Sep. 12, 2023	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	Aug. 29, 2023	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 01, 2022	Aug. 29, 2023	Nov. 30, 2023	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 17, 2022	Aug. 29, 2023	Nov. 16, 2023	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 17, 2022	Aug. 29, 2023	Nov. 16, 2023	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Aug. 29, 2023	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	9kHz-200MHz	Jul. 28, 2023	Aug. 29, 2023	Jul. 27, 2024	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 29, 2022	Aug. 29, 2023	Dec. 28, 2023	Conduction (CO05-HY)

5 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.5 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.3 dB**

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.4 dB**

Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.8 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.3 dB**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Ching Chen	Temperature:	21~25	°C
Test Date:	2023/9/5	Relative Humidity:	51~54	%

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

TEST RESULTS DATA
EIRP Power Table

U-NII-5 single antenna														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
HE20	MCS0	1	001	5955	Full	4.30	4.40		1.48	2.99	5.78	7.39	24.00	Pass
HE20	MCS0	1	049	6195	Full	3.80	4.20		1.48	2.99	5.28	7.19	24.00	Pass
HE20	MCS0	1	093	6415	Full	4.00	4.20		1.48	2.99	5.48	7.19	24.00	Pass
HE40	MCS0	1	003	5965	Full	7.30	8.00		1.48	2.99	8.78	10.99	24.00	Pass
HE40	MCS0	1	051	6205	Full	7.30	7.60		1.48	2.99	8.78	10.59	24.00	Pass
HE40	MCS0	1	091	6405	Full	7.50	7.60		1.48	2.99	8.98	10.59	24.00	Pass
HE80	MCS0	1	007	5985	Full	9.90	9.90		1.48	2.99	11.38	12.89	24.00	Pass
HE80	MCS0	1	055	6225	Full	9.90	9.90		1.48	2.99	11.38	12.89	24.00	Pass
HE80	MCS0	1	087	6385	Full	9.90	9.60		1.48	2.99	11.38	12.59	24.00	Pass
HE160	MCS0	1	015	6025	Full	12.50	12.50		1.48	2.99	13.98	15.49	24.00	Pass
HE160	MCS0	1	047	6185	Full	12.60	12.40		1.48	2.99	14.08	15.39	24.00	Pass
HE160	MCS0	1	079	6345	Full	12.40	12.30		1.48	2.99	13.88	15.29	24.00	Pass

U-NII-5 MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	SUM		
HE20	MCS0	2	001	5955	Full	-1.00	-1.50	1.77	2.99		4.76	24.00	Pass
HE20	MCS0	2	049	6195	Full	-1.20	-1.30	1.76	2.99		4.75	24.00	Pass
HE20	MCS0	2	093	6415	Full	-1.00	-0.30	2.37	2.99		5.36	24.00	Pass
HE40	MCS0	2	003	5965	Full	3.60	4.10	6.87	2.99		9.86	24.00	Pass
HE40	MCS0	2	051	6205	Full	3.50	3.90	6.71	2.99		9.70	24.00	Pass
HE40	MCS0	2	091	6405	Full	3.40	4.30	6.88	2.99		9.87	24.00	Pass
HE80	MCS0	2	007	5985	Full	6.40	6.70	9.56	2.99		12.55	24.00	Pass
HE80	MCS0	2	055	6225	Full	6.40	6.70	9.56	2.99		12.55	24.00	Pass
HE80	MCS0	2	087	6385	Full	6.20	6.80	9.52	2.99		12.51	24.00	Pass
HE160	MCS0	2	015	6025	Full	9.30	9.40	12.36	2.99		15.35	24.00	Pass
HE160	MCS0	2	047	6185	Full	9.40	9.40	12.41	2.99		15.40	24.00	Pass
HE160	MCS0	2	079	6345	Full	9.10	9.50	12.31	2.99		15.30	24.00	Pass

Report Number : FR381701-02G

TEST RESULTS DATA
EIRP Power Table

U-NII-6 single antenna														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
HE20	MCS0	1	097	6435	Full	4.50	4.70		2.29	2.99	6.79	7.69	24.00	Pass
HE20	MCS0	1	105	6475	Full	4.60	4.20		2.29	2.99	6.89	7.19	24.00	Pass
HE20	MCS0	1	113	6515	Full	4.70	4.60		2.29	2.99	6.99	7.59	24.00	Pass
HE40	MCS0	1	099	6445	Full	7.90	7.60		2.29	2.99	10.19	10.59	24.00	Pass
HE40	MCS0	1	107	6485	Full	7.70	8.00		2.29	2.99	9.99	10.99	24.00	Pass
HE80	MCS0	1	103	6465	Full	9.90	10.00		2.29	2.99	12.19	12.99	24.00	Pass

U-NII-6 MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	SUM		
HE20	MCS0	2	097	6435	Full	0.40	1.70	4.11	2.99		7.10	24.00	Pass
HE20	MCS0	2	105	6475	Full	0.50	1.80	4.21	2.99		7.20	24.00	Pass
HE20	MCS0	2	113	6515	Full	0.40	1.80	4.17	2.99		7.16	24.00	Pass
HE40	MCS0	2	099	6445	Full	3.50	4.50	7.04	2.99		10.03	24.00	Pass
HE40	MCS0	2	107	6485	Full	3.50	4.50	7.04	2.99		10.03	24.00	Pass
HE80	MCS0	2	103	6465	Full	6.90	7.10	10.01	2.99		13.00	24.00	Pass

U-NII-6 straddle channel single antenna														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
HE40	MCS0	1	115	6525	Full	7.90	7.90		2.29	2.99	10.19	10.89	24.00	Pass
HE80	MCS0	1	119	6545	Full	10.10	10.20		2.29	2.99	12.39	13.19	24.00	Pass
HE160	MCS0	1	111	6505	Full	12.70	12.80		2.29	2.99	14.99	15.79	24.00	Pass

U-NII-6 straddle channel MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	SUM		
HE40	MCS0	2	115	6525	Full	4.10	4.90	7.53	2.99		10.52	24.00	Pass
HE80	MCS0	2	119	6545	Full	7.00	7.10	10.06	2.99		13.05	24.00	Pass
HE160	MCS0	2	111	6505	Full	9.40	9.70	12.56	2.99		15.55	24.00	Pass

TEST RESULTS DATA
EIRP Power Table

U-NII-7 single antenna														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
HE20	MCS0	1	117	6535	Full	4.10	4.60		2.29	2.76	6.39	7.36	24.00	Pass
HE20	MCS0	1	149	6695	Full	4.80	4.40		2.29	2.76	7.09	7.16	24.00	Pass
HE20	MCS0	1	181	6855	Full	4.10	4.90		2.29	2.76	6.39	7.66	24.00	Pass
HE40	MCS0	1	123	6565	Full	7.70	7.90		2.29	2.76	9.99	10.66	24.00	Pass
HE40	MCS0	1	147	6685	Full	7.50	7.70		2.29	2.76	9.79	10.46	24.00	Pass
HE40	MCS0	1	179	6845	Full	7.00	7.60		2.29	2.76	9.29	10.36	24.00	Pass
HE80	MCS0	1	135	6625	Full	9.80	9.50		2.29	2.76	12.09	12.26	24.00	Pass
HE80	MCS0	1	151	6705	Full	9.70	10.00		2.29	2.76	11.99	12.76	24.00	Pass
HE80	MCS0	1	167	6785	Full	9.60	9.90		2.29	2.76	11.89	12.66	24.00	Pass
HE160	MCS0	1	143	6665	Full	12.30	12.70		2.29	2.76	14.59	15.46	24.00	Pass

U-NII-7 MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	SUM		
HE20	MCS0	2	117	6535	Full	-0.70	-0.20	2.57	2.76		5.33	24.00	Pass
HE20	MCS0	2	149	6695	Full	-0.70	-1.50	1.93	2.76		4.69	24.00	Pass
HE20	MCS0	2	181	6855	Full	0.60	1.10	3.87	2.76		6.63	24.00	Pass
HE40	MCS0	2	123	6565	Full	4.50	5.00	7.77	2.76		10.53	24.00	Pass
HE40	MCS0	2	147	6685	Full	3.70	4.10	6.91	2.76		9.67	24.00	Pass
HE40	MCS0	2	179	6845	Full	3.40	3.90	6.67	2.76		9.43	24.00	Pass
HE80	MCS0	2	135	6625	Full	6.20	6.60	9.41	2.76		12.17	24.00	Pass
HE80	MCS0	2	151	6705	Full	6.00	6.60	9.32	2.76		12.08	24.00	Pass
HE80	MCS0	2	167	6785	Full	6.10	6.50	9.31	2.76		12.07	24.00	Pass
HE160	MCS0	2	143	6665	Full	9.20	9.50	12.36	2.76		15.12	24.00	Pass

U-NII-7 straddle channel single antenna														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
HE20	MCS0	1	185	6875	Full	4.40	5.00		2.29	2.76	6.69	7.76	24.00	Pass
HE40	MCS0	1	187	6885	Full	7.40	7.80		2.29	2.76	9.69	10.56	24.00	Pass
HE80	MCS0	1	183	6865	Full	10.00	10.10		2.29	2.76	12.29	12.86	24.00	Pass
HE160	MCS0	1	175	6825	Full	12.50	12.70		2.29	2.76	14.79	15.46	24.00	Pass

U-NII-7 straddle channel MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	SUM		
HE20	MCS0	2	185	6875	Full	0.80	1.40	4.12	2.76		6.88	24.00	Pass
HE40	MCS0	2	187	6885	Full	4.20	4.30	7.26	2.76		10.02	24.00	Pass
HE80	MCS0	2	183	6865	Full	6.50	6.60	9.56	2.76		12.32	24.00	Pass
HE160	MCS0	2	175	6825	Full	9.40	9.60	12.51	2.76		15.27	24.00	Pass

TEST RESULTS DATA
EIRP Power Table

U-NII-8 single antenna														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
HE20	MCS0	1	189	6895	Full	4.50	5.00		2.31	2.79	6.81	7.79	24.00	Pass
HE20	MCS0	1	209	6995	Full	4.50	4.70		2.31	2.79	6.81	7.49	24.00	Pass
HE20	MCS0	1	233	7115	Full	0.40	0.70		2.31	2.79	2.71	3.49	24.00	Pass
HE40	MCS0	1	195	6925	Full	7.30	7.80		2.31	2.79	9.61	10.59	24.00	Pass
HE40	MCS0	1	211	7005	Full	7.70	8.10		2.31	2.79	10.01	10.89	24.00	Pass
HE40	MCS0	1	227	7085	Full	7.70	7.70		2.31	2.79	10.01	10.49	24.00	Pass
HE80	MCS0	1	199	6945	Full	10.20	10.20		2.31	2.79	12.51	12.99	24.00	Pass
HE80	MCS0	1	215	7025	Full	9.80	10.00		2.31	2.79	12.11	12.79	24.00	Pass
HE160	MCS0	1	207	6985	Full	12.80	12.50		2.31	2.79	15.11	15.29	24.00	Pass

U-NII-8 MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 1	Ant 2	SUM	Ant 1	Ant 2	SUM		
HE20	MCS0	2	189	6895	Full	0.70	1.40	4.07	2.79		6.86	24.00	Pass
HE20	MCS0	2	209	6995	Full	0.70	1.40	4.07	2.79		6.86	24.00	Pass
HE20	MCS0	2	233	7115	Full	-2.30	-5.20	-0.50	2.79		2.29	24.00	Pass
HE40	MCS0	2	195	6925	Full	4.20	4.30	7.26	2.79		10.05	24.00	Pass
HE40	MCS0	2	211	7005	Full	4.50	4.90	7.71	2.79		10.50	24.00	Pass
HE40	MCS0	2	227	7085	Full	4.50	4.70	7.61	2.79		10.40	24.00	Pass
HE80	MCS0	2	199	6945	Full	7.10	7.20	10.16	2.79		12.95	24.00	Pass
HE80	MCS0	2	215	7025	Full	6.80	7.10	9.96	2.79		12.75	24.00	Pass
HE160	MCS0	2	207	6985	Full	9.60	9.50	12.56	2.79		15.35	24.00	Pass

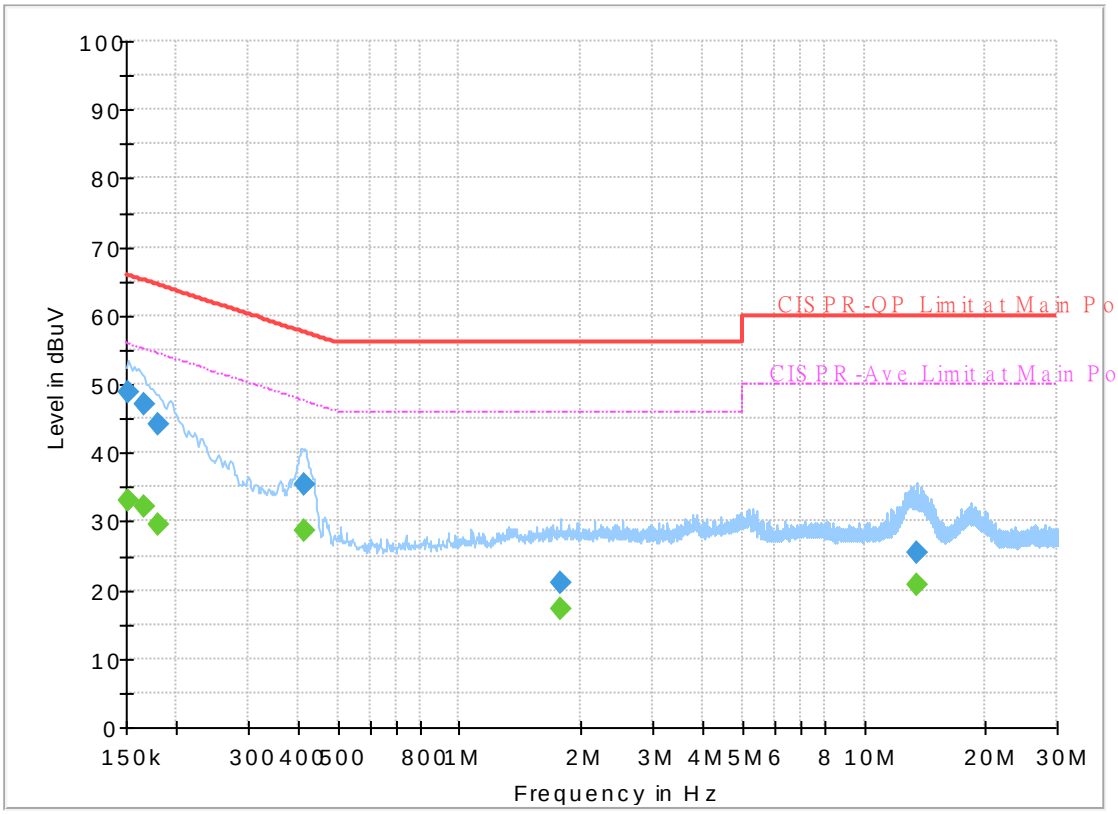
Appendix B. AC Conducted Emission Test Results

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

EUT Information

Report NO :	381701-02
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



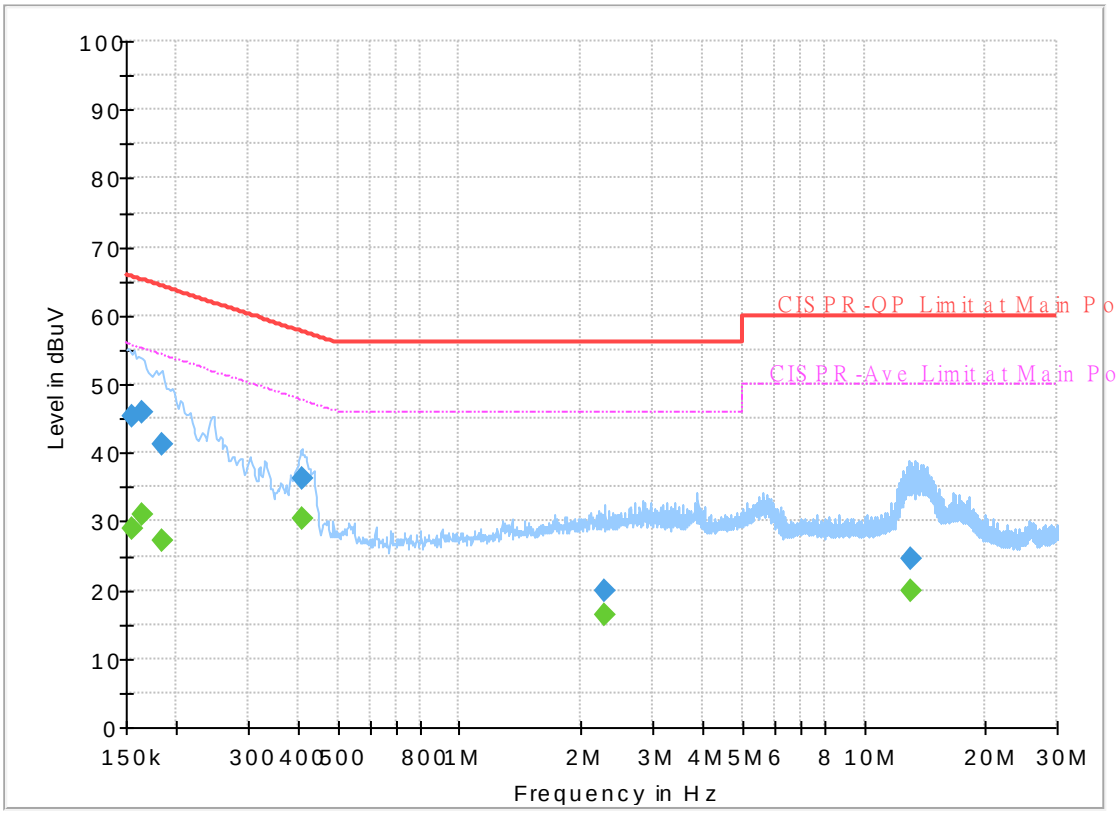
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	33.13	55.88	22.75	L1	OFF	19.8
0.152250	48.84	---	65.88	17.04	L1	OFF	19.8
0.165750	---	32.09	55.17	23.08	L1	OFF	19.8
0.165750	46.95	---	65.17	18.22	L1	OFF	19.8
0.179250	---	29.44	54.52	25.08	L1	OFF	19.8
0.179250	44.05	---	64.52	20.47	L1	OFF	19.8
0.415500	---	28.61	47.54	18.93	L1	OFF	19.8
0.415500	35.46	---	57.54	22.08	L1	OFF	19.8
1.781250	---	17.29	46.00	28.71	L1	OFF	19.9
1.781250	21.06	---	56.00	34.94	L1	OFF	19.9
13.510500	---	20.86	50.00	29.14	L1	OFF	19.9
13.510500	25.48	---	60.00	34.52	L1	OFF	19.9

EUT Information

Report NO :	381701-02
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154500	---	28.95	55.75	26.80	N	OFF	19.8
0.154500	45.42	---	65.75	20.33	N	OFF	19.8
0.163500	---	31.00	55.28	24.28	N	OFF	19.8
0.163500	45.98	---	65.28	19.30	N	OFF	19.8
0.183750	---	27.26	54.31	27.05	N	OFF	19.8
0.183750	41.35	---	64.31	22.96	N	OFF	19.8
0.408750	---	30.54	47.67	17.13	N	OFF	19.8
0.408750	36.23	---	57.67	21.44	N	OFF	19.8
2.292000	---	16.49	46.00	29.51	N	OFF	19.8
2.292000	20.00	---	56.00	36.00	N	OFF	19.8
13.128000	---	19.79	50.00	30.21	N	OFF	20.0
13.128000	24.55	---	60.00	35.45	N	OFF	20.0

Appendix C. Radiated Spurious Emission

Test Engineer :	Yuan Lee, Sam Chou and Troye Hsieh	Temperature :	19.8~22.1°C
		Relative Humidity :	55.1~65.6%

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

Band 8 - 6875~7125MHz

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

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Margin (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)
	*	7085	98.68	-	-	83.78	36.24	13.1	34.44	104	214	P	H
	*	7085	89.4	-	-	74.5	36.24	13.1	34.44	104	214	A	H
		7182.36	56.91	-31.29	88.2	41.66	36.73	13	34.48	104	214	P	H
		7127.46	45.99	-22.21	68.2	30.93	36.46	13.06	34.46	104	214	A	H
802.11ax													H
HE40 Full													H
CH 227	*	7085	97.65	-	-	82.75	36.24	13.1	34.44	291	269	P	V
7085MHz	*	7085	88.54	-	-	73.64	36.24	13.1	34.44	291	269	A	V
		7244.28	57.03	-31.17	88.2	41.71	36.89	12.93	34.5	291	269	P	V
		7184.88	45.9	-22.3	68.2	30.64	36.74	13	34.48	291	269	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 8 - 6875~7125MHz

WIFI 802.11ax HE40 Full (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Margin (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)
		14170	48.82	-39.38	88.2	50.1	40.7	21.04	63.02	-	-	P	H
		21255	36.88	-37.12	74	37.14	38.71	15.93	54.9	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE40 Full													H
CH 227		14170	49	-39.2	88.2	50.28	40.7	21.04	63.02	-	-	P	V
7085MHz		21255	37.33	-36.67	74	37.59	38.71	15.93	54.9	-	-	P	V
													V
													V
													V
													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.

Band 7 - 6525~6875MHz

WIFI 802.11ax HE160 Full (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					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)
		13330	48.07	-25.93	74	50.34	39.92	20.3	62.49	-	-	P	H
		19995	35.58	-38.42	74	37.63	37.9	15.05	55	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE160 Full													H
CH 143		13330	47.24	-26.76	74	49.51	39.92	20.3	62.49	-	-	P	V
6665MHz		19995	35.51	-38.49	74	37.56	37.9	15.05	55	-	-	P	V
													V
													V
													V
													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.

Band 5 - 5925~6425MHz

WIFI 802.11ax HE160 Full (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					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)
		5873.32	54.4	-33.8	88.2	42.64	34.09	11.32	33.65	250	151	P	H
		5917.16	42.95	-25.25	68.2	31.09	34.23	11.28	33.65	250	151	A	H
	*	6025	95.15	-	-	83.36	34.2	11.27	33.68	250	151	P	H
	*	6025	85.37	-	-	73.58	34.2	11.27	33.68	250	151	A	H
802.11ax													H
HE160 Full													H
CH 15		5916.2	53.59	-34.61	88.2	41.73	34.23	11.28	33.65	100	297	P	V
6025MHz		5906.28	43.74	-24.46	68.2	31.89	34.21	11.29	33.65	100	297	A	V
	*	6025	96.53	-	-	84.74	34.2	11.27	33.68	100	297	P	V
	*	6025	87.51	-	-	75.72	34.2	11.27	33.68	100	297	A	V
													V
													V

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

Band 5 5925~6425MHz

WIFI 802.11ax HE160 Full (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Margin (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)
		12050	45.91	-28.09	74	50.8	38.9	18.86	62.65	-	-	P	H
		18075	33.24	-40.76	74	38.12	37.59	13.49	55.96	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE160 Full													H
CH 15		12050	45.82	-28.18	74	50.71	38.9	18.86	62.65	-	-	P	V
6025MHz		18075	32.96	-41.04	74	37.84	37.59	13.49	55.96	-	-	P	V
													V
													V
													V
													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.

Band 6 - 6425~6525MHz

WIFI 802.11ax HE20 Full (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Margin (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)
		12870	46.97	-41.23	88.2	50.08	39.74	19.85	62.7	-	-	P	H
		19305	35.6	-38.4	74	38.25	38.18	14.45	55.28	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE20 Full													H
CH 97		12870	47.62	-40.58	88.2	50.73	39.74	19.85	62.7	-	-	P	V
6435MHz		19305	34.98	-39.02	74	37.63	38.18	14.45	55.28	-	-	P	V
													V
													V
													V
													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.

Band 7 - 6525~6875MHz

WIFI 802.11ax HE80 Full (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					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)
		13570	48.13	-40.07	88.2	49.75	40.46	20.52	62.6	-	-	P	H
		20355	35.63	-38.37	74	36.98	38.34	15.31	55	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE80 Full													H
CH 167		13570	47.96	-40.24	88.2	49.58	40.46	20.52	62.6	-	-	P	V
6785MHz		20355	36.76	-37.24	74	38.11	38.34	15.31	55	-	-	P	V
													V
													V
													V
													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.

Emission below 1GHz

WIFI 802.11ax HE160 Full (LF @ 3m)

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					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 HE160 Full LF		33.78	24.55	-15.45	40	33.55	22.29	0.9	32.19	-	-	P	H
		163.92	24.46	-19.04	43.5	38.65	15.85	2.04	32.08	-	-	P	H
		237.09	23.59	-22.41	46	36.63	16.61	2.39	32.04	-	-	P	H
		631.8	34.97	-11.03	46	37.08	26.07	3.84	32.02	-	-	P	H
		897.1	40.74	-5.26	46	39.11	28.5	4.39	31.26	150	278	QP	H
		904.1	36.93	-9.07	46	35.21	28.51	4.41	31.2	150	234	QP	H
													H
													H
													H
													H
													H
													H
		32.97	29.53	-10.47	40	38.22	22.6	0.89	32.18	100	99	QP	V
		166.62	25.49	-18.01	43.5	39.91	15.61	2.05	32.08	-	-	P	V
		257.88	22.61	-23.39	46	33.02	19.14	2.48	32.03	-	-	P	V
		631.8	37.82	-8.18	46	39.93	26.07	3.84	32.02	-	-	P	V
		899.2	37.92	-8.08	46	36.24	28.54	4.39	31.25	200	227	QP	V
		904.1	38.24	-7.76	46	36.52	28.51	4.41	31.2	200	53	QP	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 **Margin** 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	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					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 CH 01 5955MHz		5925	55.45	-32.75	88.2	54.51	32.22	4.58	35.86	103	308	P	H
		5925	43.54	-24.66	68.2	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. Margin(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 5925MHz:

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. Margin(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -32.75(dB)

For Average Limit @ 5925MHz:

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. Margin(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -24.66(dB)

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

Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Yuan Lee, Sam Chou and Troye Hsieh	**Temperature :**	19.8~22.1°C
		Relative Humidity :	55.1~65.6%

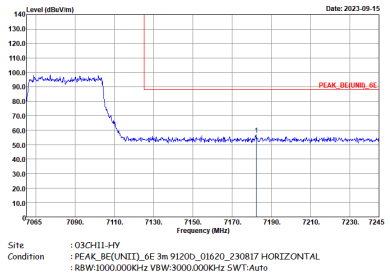
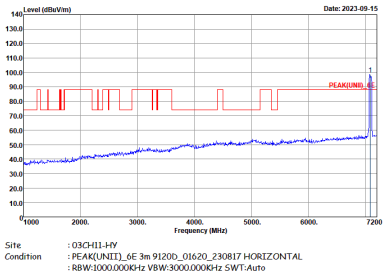
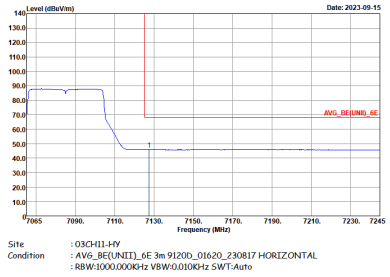
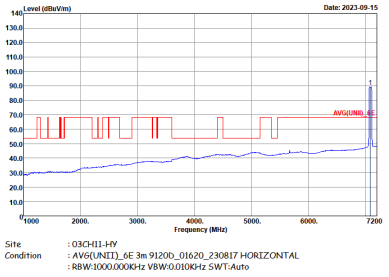
Remark: For Radiated Spurious Emission Test Items, Ant. 1 means Chain A (Aux.) and Ant. 2 means Chain B (Main).

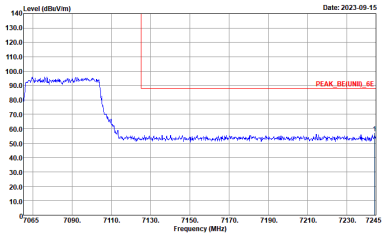
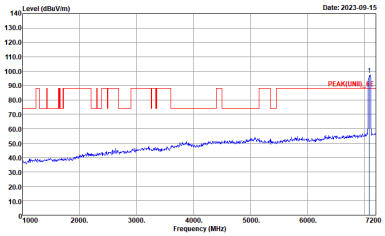
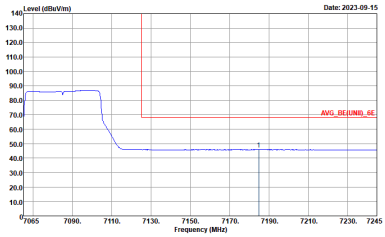
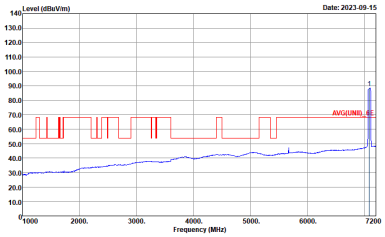
Note symbol

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

Band 8 - 6875~7125MHz

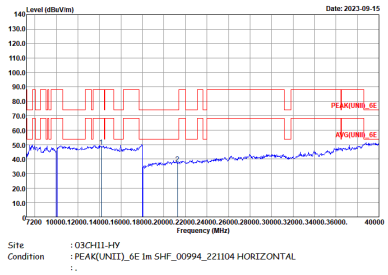
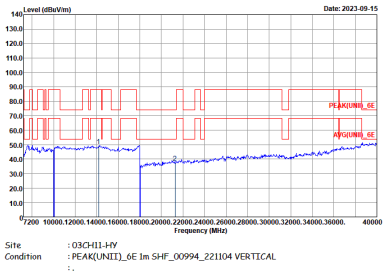
WIFI 802.11ax HE40 Full (Band Edge @ 3m)

WIFI	Band 8 6875~7125MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH227 7085MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

WIFI	Band 8 6875~7125MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH227 7085MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE(UNII)_6E 3m 9120D_01620_230817 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK(UNII)_6E 3m 9120D_01620_230817 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE(UNII)_6E 3m 9120D_01620_230817 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH11-HY Condition : AVG(UNII)_6E 3m 9120D_01620_230817 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

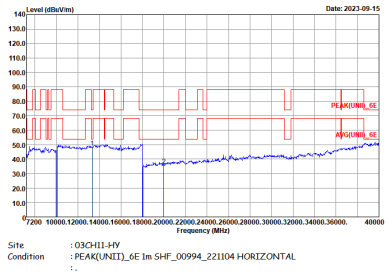
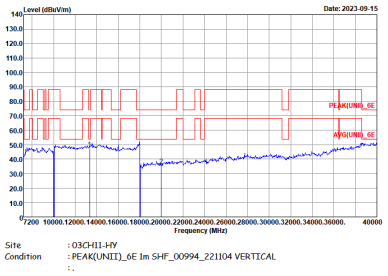
Band 8 - 6875~7125MHz

WIFI 802.11ax HE40 Full (Harmonic @ 3m)

WIFI	Band 8 6875~7125MHz Harmonic @ 3m	
ANT	802.11ax HE40 Full CH227 7085MHz	
1	Horizontal	Vertical
Peak Avg.		

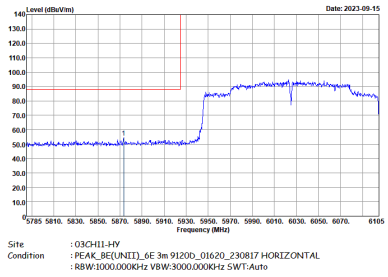
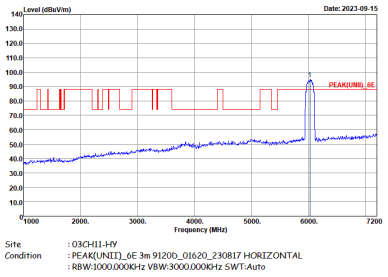
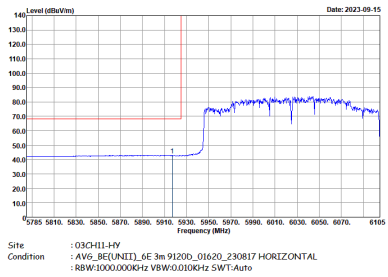
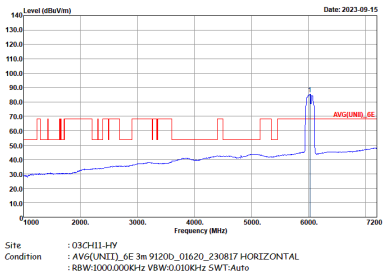
Band 7 - 6525~6875MHz

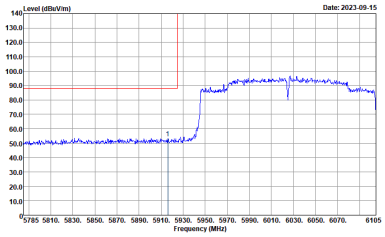
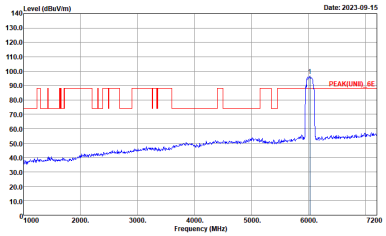
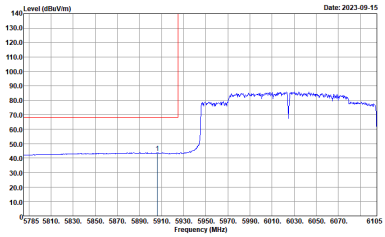
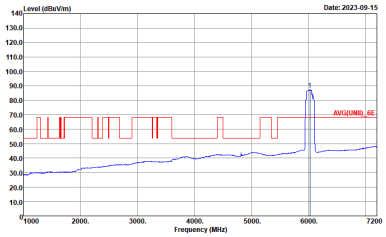
WIFI 802.11ax HE160 Full (Harmonic @ 3m)

WIFI	Band 7 6525~6875MHz Harmonic @ 3m	
ANT	802.11ax HE160 Full CH143 6665MHz	
2	Horizontal	Vertical
Peak Avg.		

Band 5 - 5925~6425MHz

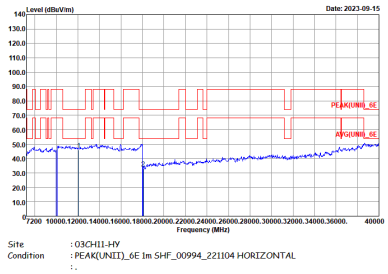
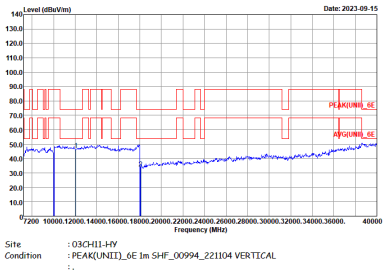
WIFI 802.11ax HE160 Full (Band Edge @ 3m)

WIFI	Band 5 5925~6425MHz Band Edge @ 3m	
ANT	802.11ax HE160 Full CH15 6025MHz	
1+2	Horizontal	Fundamental
Peak		
Avg.		

WIFI	Band 5 5925~6425MHz Band Edge @ 3m	
ANT	802.11ax HE160 Full CH15 6025MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH11-HY Condition : PEAK_BE(UNII)_6E 3m 9120D_01620_230817 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH11-HY Condition : PEAK(UNII)_6E 3m 9120D_01620_230817 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH11-HY Condition : AVG_BE(UNII)_6E 3m 9120D_01620_230817 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH11-HY Condition : AVG(UNII)_6E 3m 9120D_01620_230817 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

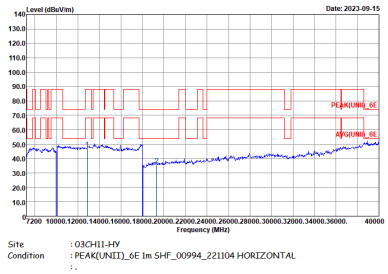
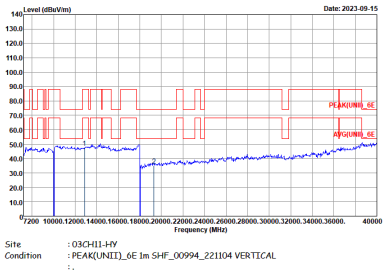
Band 5 - 5925~6425MHz

WIFI 802.11ax HE160 Full (Harmonic @ 3m)

WIFI	Band 5 5925~6425MHz Harmonic @ 3m	
ANT	802.11ax HE160 Full CH15 6025MHz	
1+2	Horizontal	Vertical
Peak Avg.		

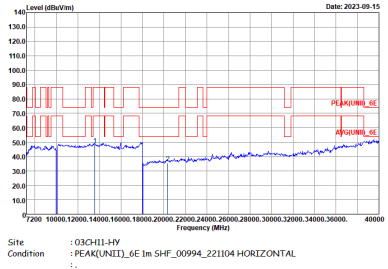
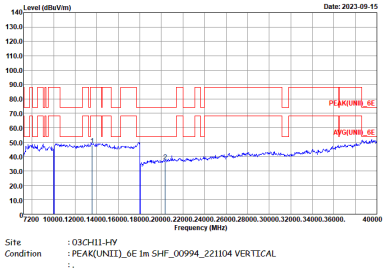
Band 6 - 6425~6525MHz

WIFI 802.11ax HE20 Full (Harmonic @ 3m)

WIFI	Band 6 6425~6525MHz Harmonic @ 3m	
ANT	802.11ax HE20 Full CH97 6435MHz	
1+2	Horizontal	Vertical
Peak Avg.		

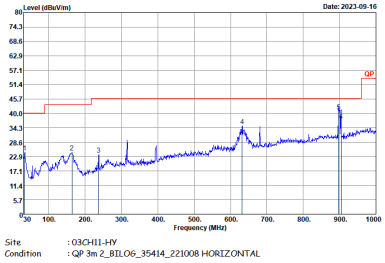
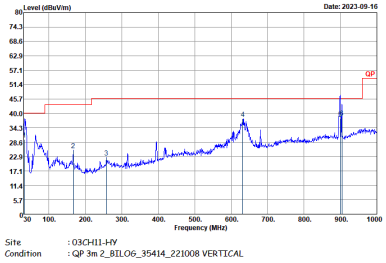
Band 7 - 6525~6875MHz

WIFI 802.11ax HE80 Full (Harmonic @ 3m)

WIFI	Band 7 6525~6875MHz Harmonic @ 3m	
ANT	802.11ax HE80 Full CH167 6785MHz	
1+2	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

6GHz WIFI 802.11ax HE160 Full (LF)

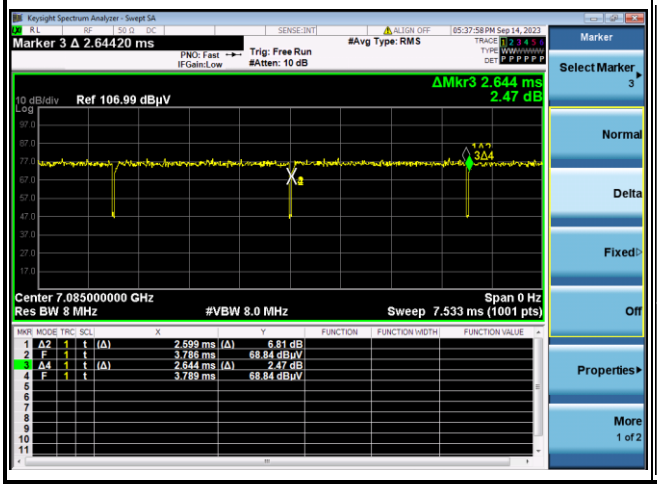
WIFI	6GHz WIFI	
ANT	802.11ax HE160 Full LF	
1+2	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

Chain	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
A	6GHz 802.11ax HE40 Full RU	98.30	-	-	10Hz
B	6GHz 802.11ax HE160 Full RU	98.76	-	-	10Hz
A+B	6GHz 802.11ax HE20 Full RU	99.13	-	-	10Hz
A+B	6GHz 802.11ax HE80 Full RU	99.13	-	-	10Hz
A+B	6GHz 802.11ax HE160 Full RU	99.01	-	-	10Hz

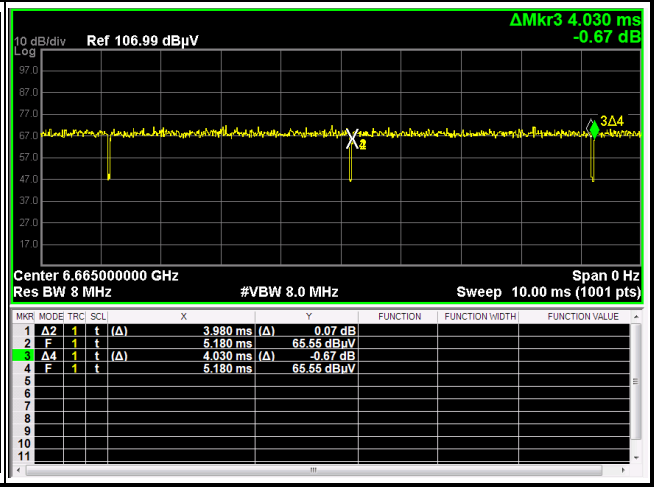
<Chain A>

6GHz 802.11ax HE40 Full RU

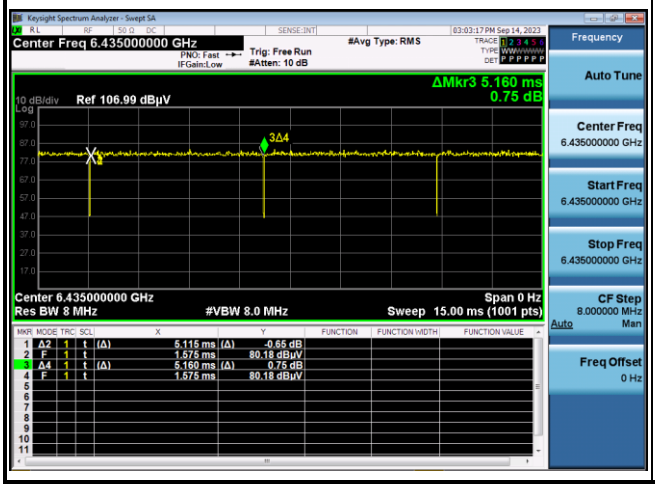
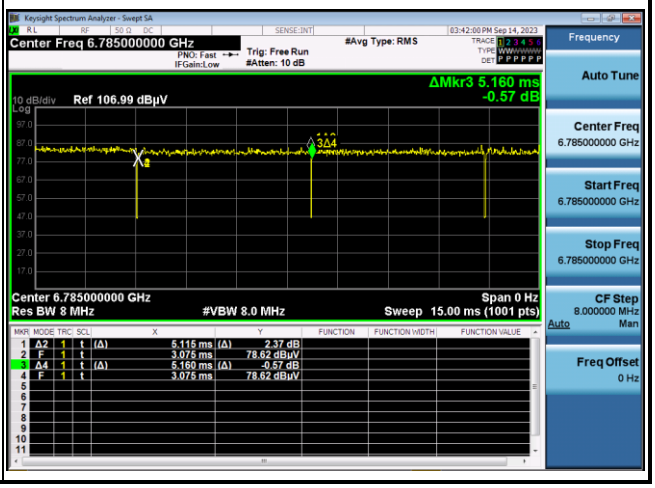


<Chain B>

6GHz 802.11ax HE160 Full RU



MIMO <Chain A+B>

6GHz 802.11ax HE20 Full RU	6GHz 802.11ax HE80 Full RU
	

6GHz 802.11ax HE160 Full RU