FCC RADIO TEST REPORT

FCC ID	:	**2AFZZ1219NY**
Equipment	:	**Mobile Phone**
Brand Name	:	**Redmi**
Model Name	:	**22041219NY**
Applicant	:	**Xiaomi Communications Co., Ltd.** **#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085**
Manufacturer	:	**Xiaomi Communications Co., Ltd.** **#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085**
Standard	:	**FCC Part 15 Subpart E §15.407**

The product was received on Feb. 15, 2022 and testing was performed from Feb. 19, 2022 to Mar. 08, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Louis Wu

Approved by: Louis Wu

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

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 5
1.3 Testing Location 6
1.4 Applicable Standards 6
2 Test Configuration of Equipment Under Test **7**
2.1 Carrier Frequency and Channel 7
2.2 Test Mode 8
2.3 Connection Diagram of Test System 9
2.4 Support Unit used in test configuration and system 9
2.5 EUT Operation Test Setup 10
2.6 Measurement Results Explanation Example 10
3 Test Result **11**
3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement 11
3.2 Maximum Conducted Output Power Measurement 16
3.3 Power Spectral Density Measurement 17
3.4 Unwanted Emissions Measurement 21
3.5 AC Conducted Emission Measurement 25
3.6 Antenna Requirements 27
4 List of Measuring Equipment **28**
5 Uncertainty of Evaluation **29**
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
FR212127F	01	Initial issue of report	Mar. 09, 2022

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.403(i)	6dB & 26dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.407(a)	Maximum Conducted Output Power	Pass	-
3.3	15.407(a)	Power Spectral Density	Pass	-
3.4	15.407(b)	Unwanted Emissions	Pass	6.70 dB under the limit at 899.120 MHz
3.5	15.207	AC Conducted Emission	Pass	6.88 dB under the limit at 1.475 MHz
3.6	15.203 15.407(a)	Antenna Requirement	Pass	-

Declaration of Conformity:
1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results. 2. The measurement uncertainty please refer to this report "Uncertainty of Evaluation".
Comments and Explanations:
The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Lewis Ho

Report Producer: Cindy Liu

1 General Description

1.1 Product Feature of Equipment Under Test

GSM/WCDMA/LTE/5G NR, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n/ac, FM Receiver, NFC, and GNSS.

Product Feature	
Sample 1	4+64G with battery 1
Sample 2	6+128G with battery 2
Sample 3	4+128G with battery 1
Antenna Type	WWAN: PIFA Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna GPS / Glonass / BDS / Galileo: PIFA Antenna NFC: Coil Antenna FM Receiver: Using earphone as Antenna

Antenna information		
5725 MHz ~ 5850 MHz	Peak Gain (dBi)	-1.64

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

1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 Testing Location

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 TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	TH05-HY, 03CH16-HY, CO07-HY

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

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.
- 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.

2 Test Configuration of Equipment Under Test

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

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

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4 (U-NII-3)	149	5745	157	5785
	151*	5755	159*	5795
	153	5765	161	5805
	155#	5775	165	5825

Note:

1. The above Frequency and Channel with "*" are 802.11n HT40 and 802.11ac VHT40.
2. The above Frequency and Channel with "#" are 802.11ac VHT80.

2.2 Test Mode

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

Single Antenna

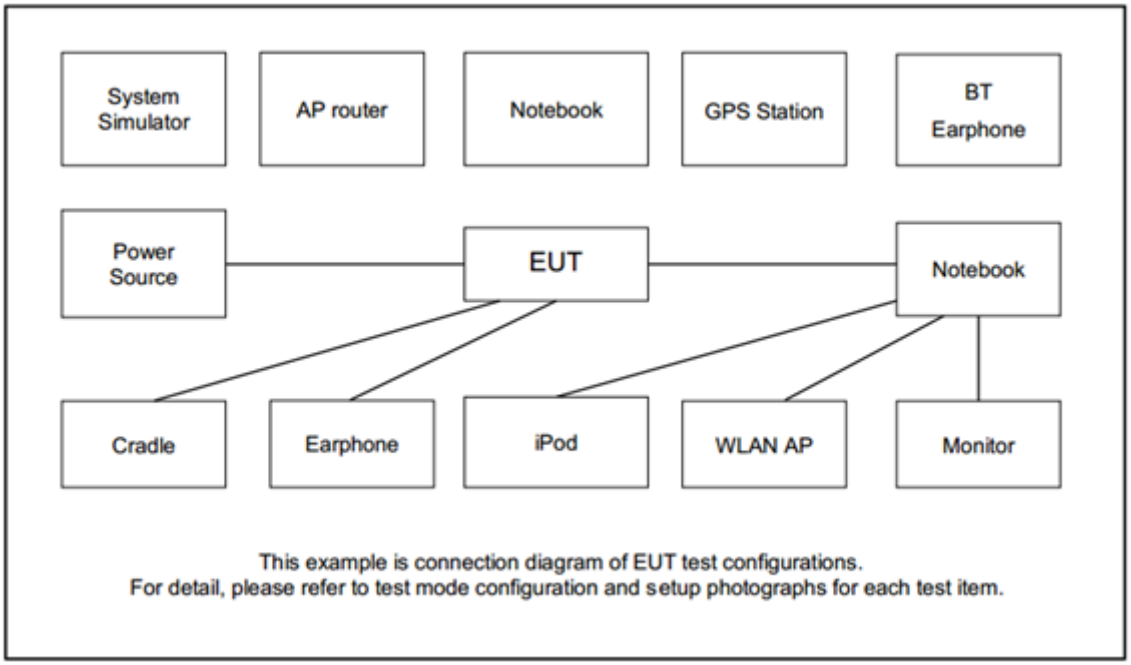
Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20 (Covered by VHT20)	MCS0
802.11n HT40 (Covered by VHT40)	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN (5GHz) Link + MPEG4 + Earphone + USB Cable 1 (Charging from Adapter) for Sample 2
Remark: For Radiated Test Cases, the tests were performed with USB Cable 1 and Sample 2.	

Ch. #		Band IV：5725-5850 MHz			
		802.11a	802.11ac VHT20	802.11ac VHT40	802.11ac VHT80
L	Low	149	149	151	-
M	Middle	157	157	-	155
H	High	165	165	159	-

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

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Sony	SBH20	PY7-RD0010	N/A	N/A
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Earphone	MI	EM023	N/A	Unshielded, 1.25m	N/A

2.5 EUT Operation Test Setup

The RF test items, make the EUT (SW: MIUI 13 Global 22.1.21 Beat) get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

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

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

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).
= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

3.1.1 Description of 6dB and 26dB and 99% Occupied Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

26dB and 99% Occupied bandwidth are reporting only.

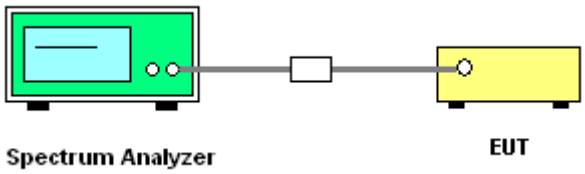
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth for the band 5.725-5.85 GHz
2. Set RBW = 100 kHz.
3. Set the VBW ≥ 3 x RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

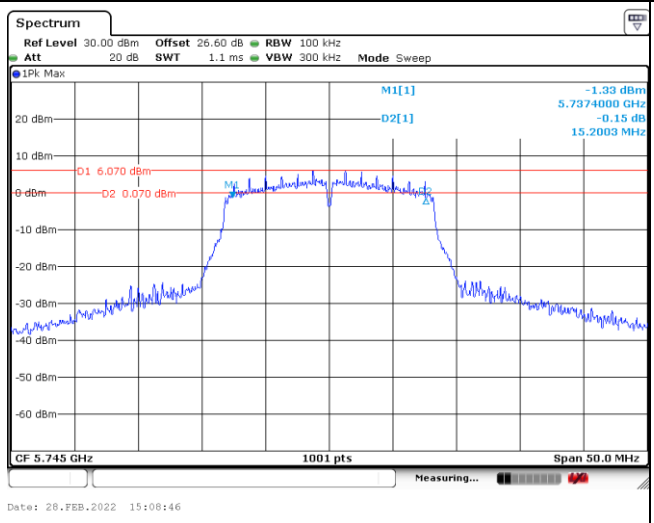
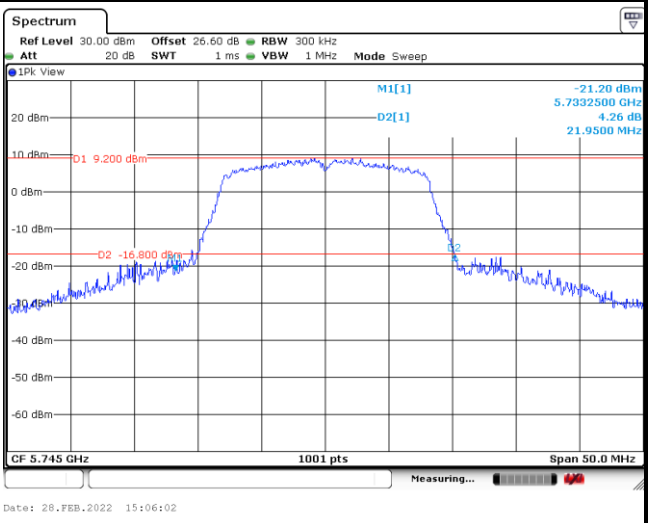
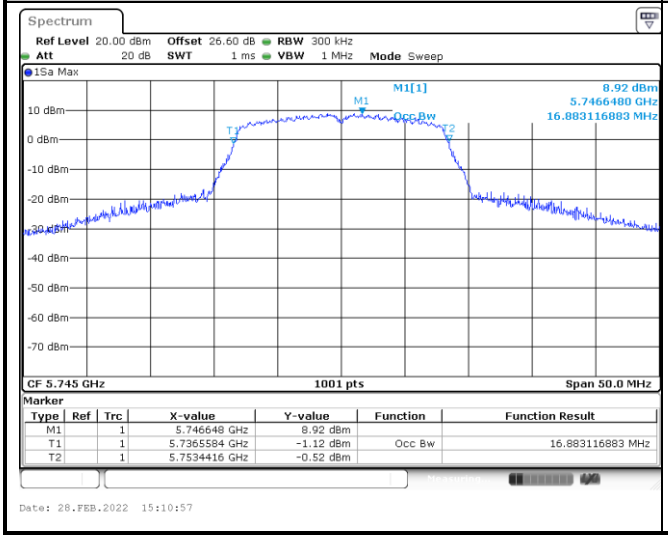
3.1.4 Test Setup



3.1.5 Test Result of 6dB and 26dB and 99% Occupied Bandwidth

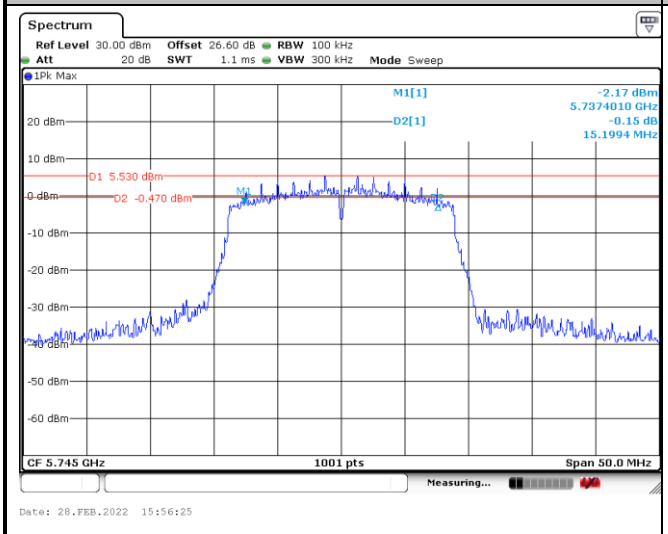
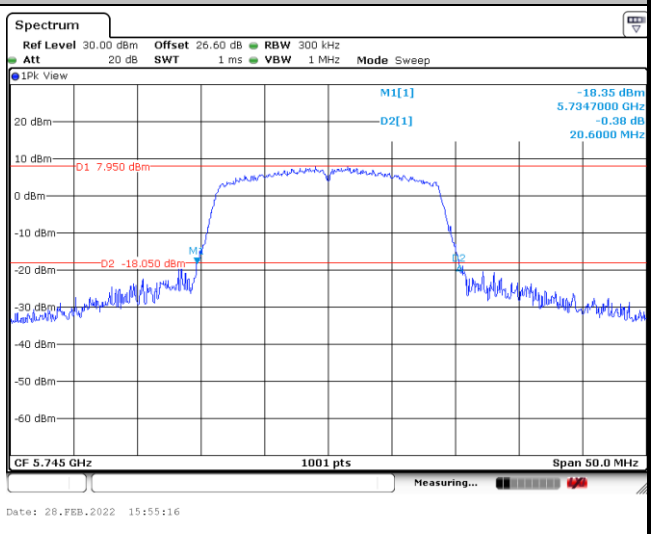
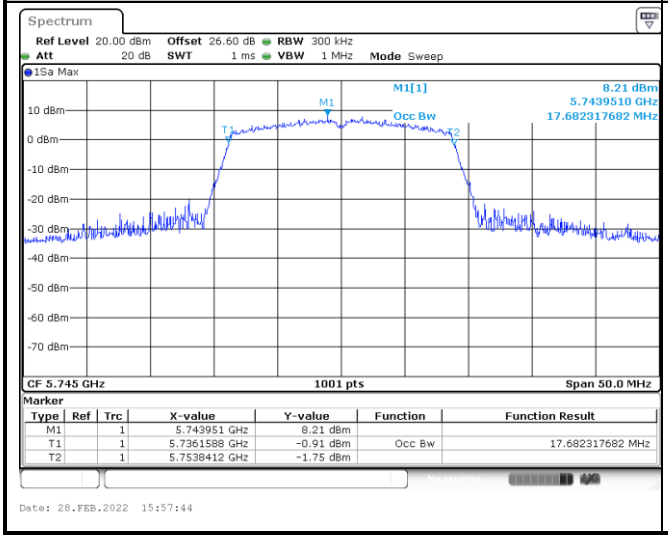
Please refer to Appendix A.

<802.11a>

6dB Bandwidth	26dB Bandwidth
	
99% Occupied Bandwidth	**NA**
	

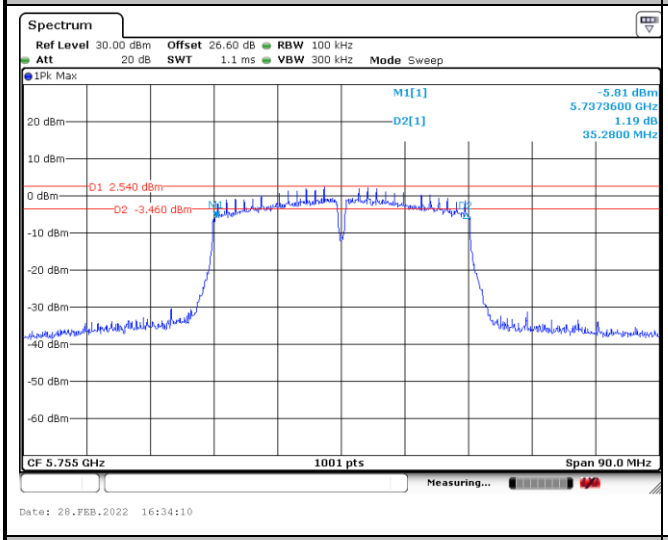
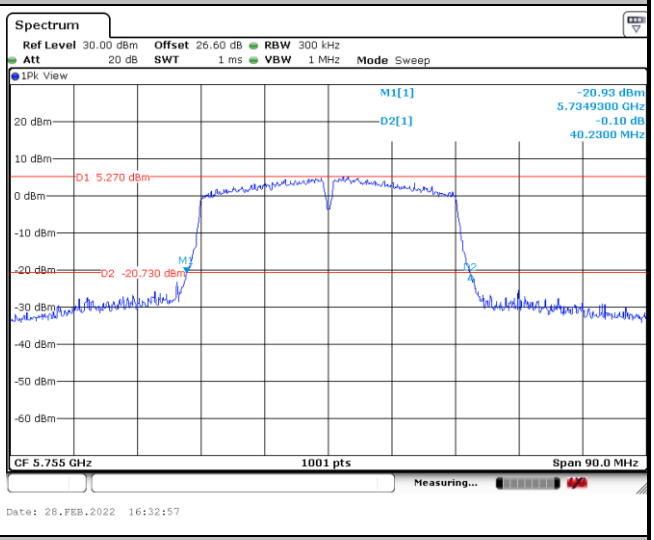
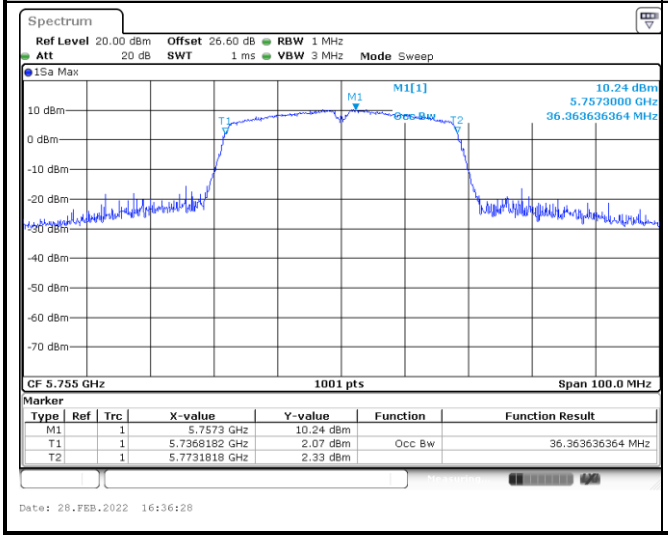
Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

<802.11ac VHT20>

6dB Bandwidth	26dB Bandwidth
	
99% Occupied Bandwidth	**NA**
	

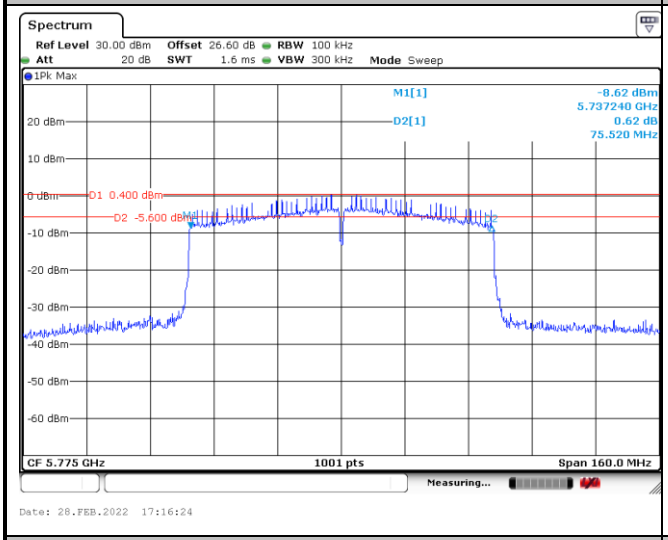
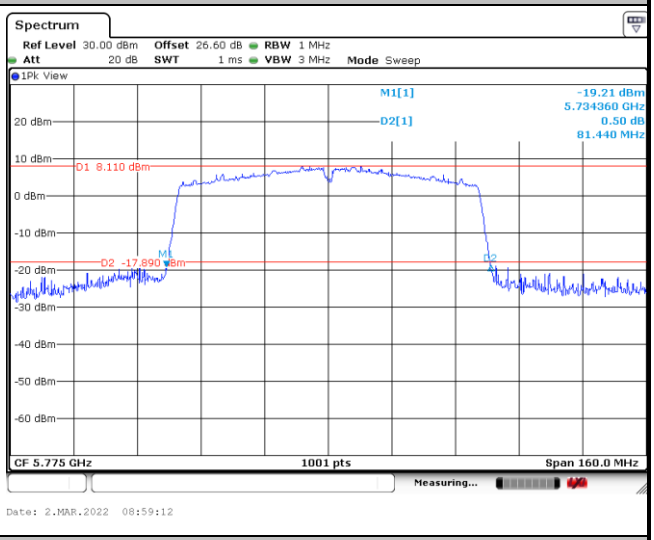
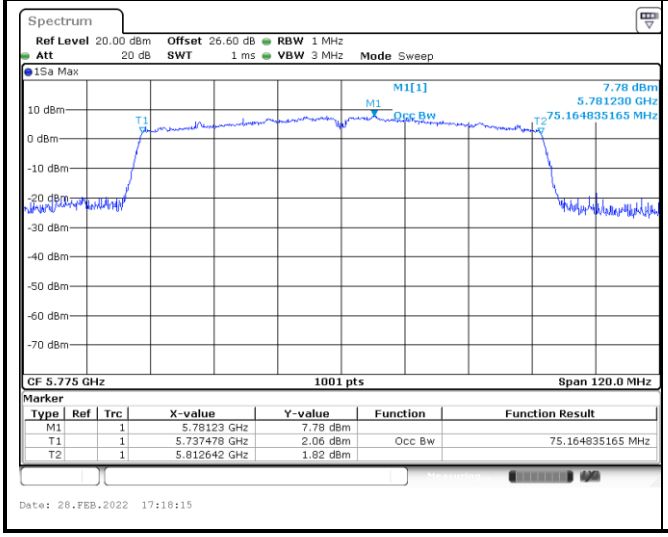
Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

<802.11ac VHT40>

6dB Bandwidth	26dB Bandwidth
	
99% Occupied Bandwidth	**NA**
	

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

<802.11ac VHT80>

6dB Bandwidth	26dB Bandwidth
	
99% Occupied Bandwidth	**NA**
	

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

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

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.

3.2.2 Measuring Instruments

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

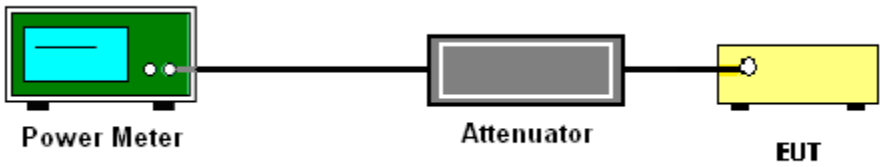
3.2.3 Test Procedures

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

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

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.

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section F) Maximum power spectral density.

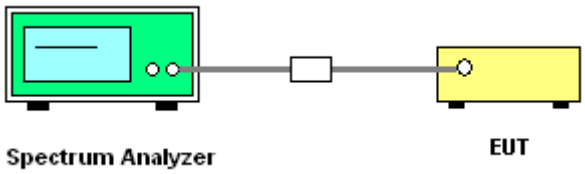
 # Method SA-3 #

(power averaging (rms) detection with max hold):

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz.
- Set VBW ≥ 1 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Add 10 log (500 kHz/RBW) to the measured result, whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement
- Sweep time ≤ (number of points in sweep) × 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.
  Detector = power averaging (rms).
- Trace mode = max hold.
- Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

1. The RF output of EUT is connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

3.3.4 Test Setup

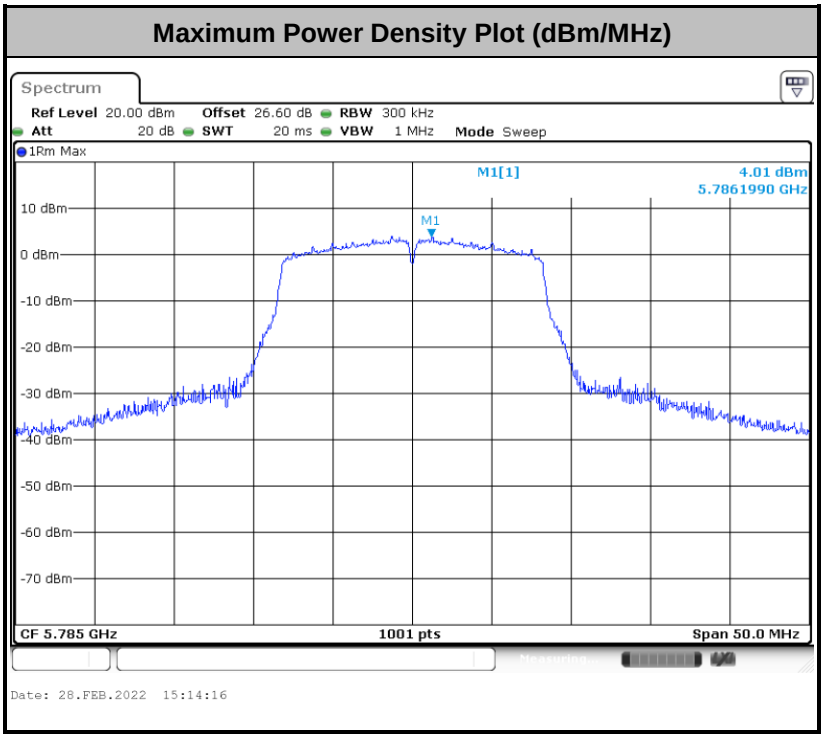


3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

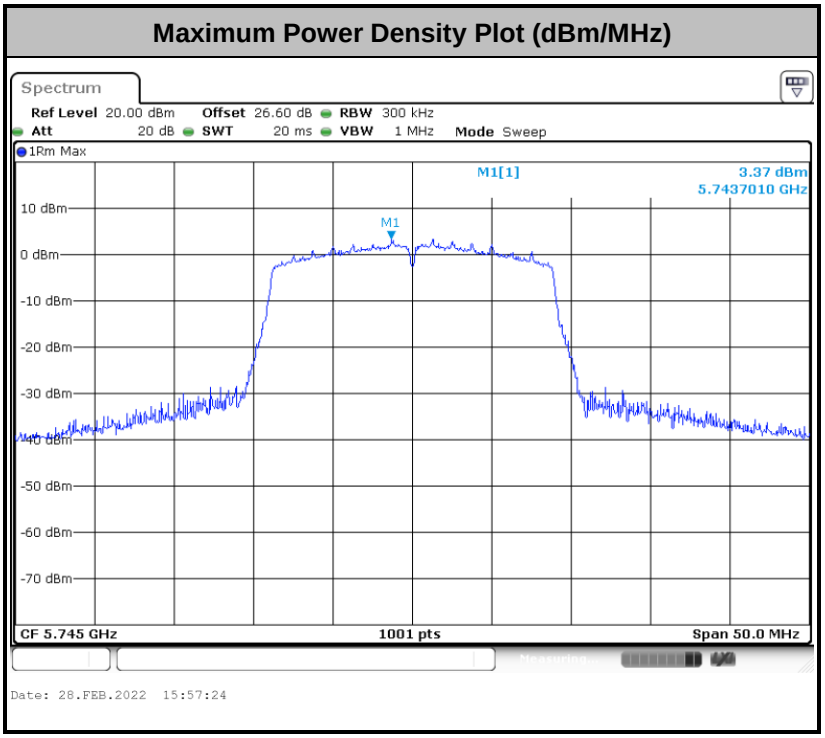
<802.11a>

Maximum Power Density Plot (dBm/MHz)



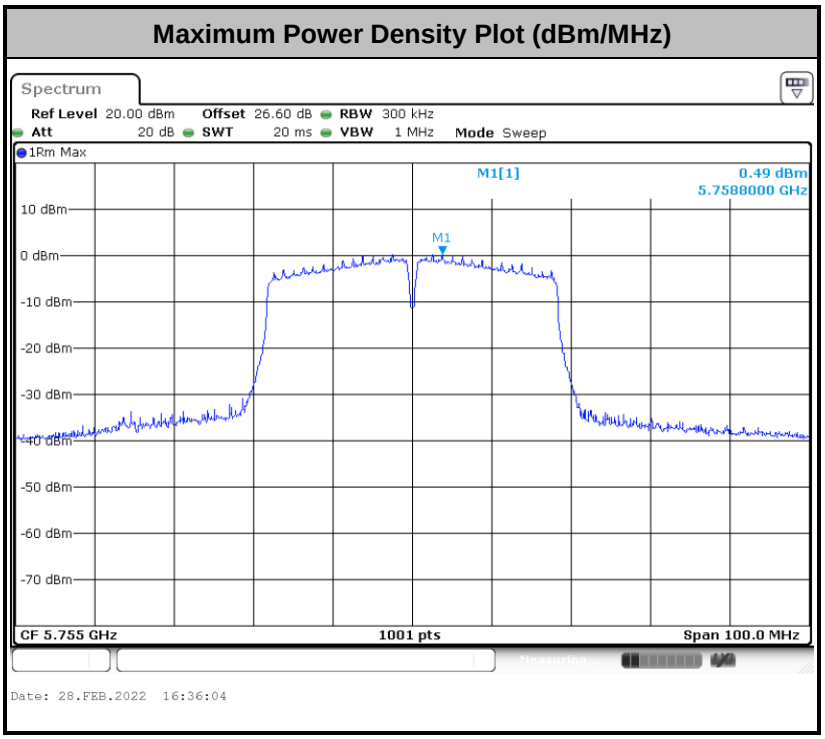
<802.11ac VHT20>

Maximum Power Density Plot (dBm/MHz)



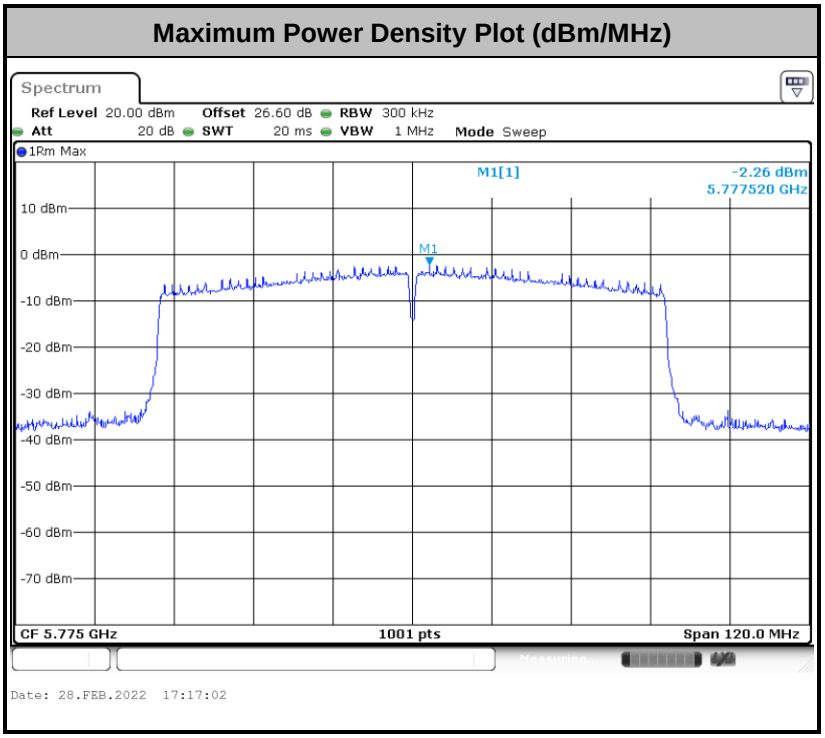
<802.11ac VHT40>

Maximum Power Density Plot (dBm/MHz)



<802.11ac VHT80>

Maximum Power Density Plot (dBm/MHz)



3.4 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5.725-5.85 GHz band:

15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(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.

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

EIRP (dBm)	Field Strength at 3m (dBμV/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.

3.4.2 Measuring Instruments

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

3.4.3 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 ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

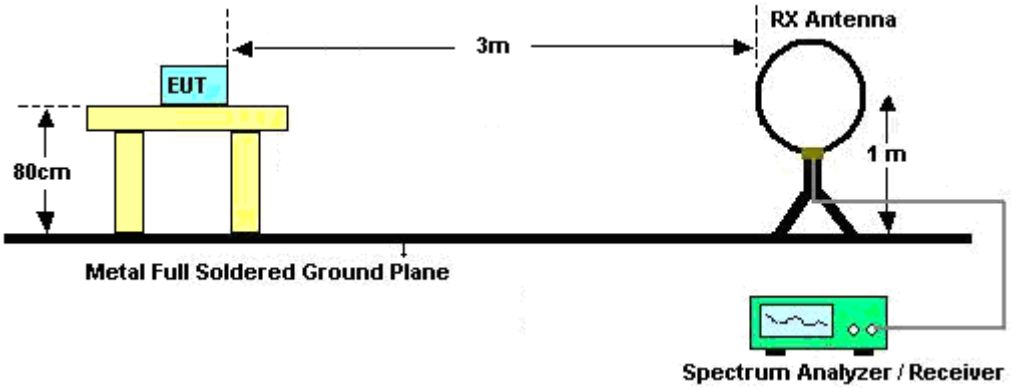
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz

   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 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.

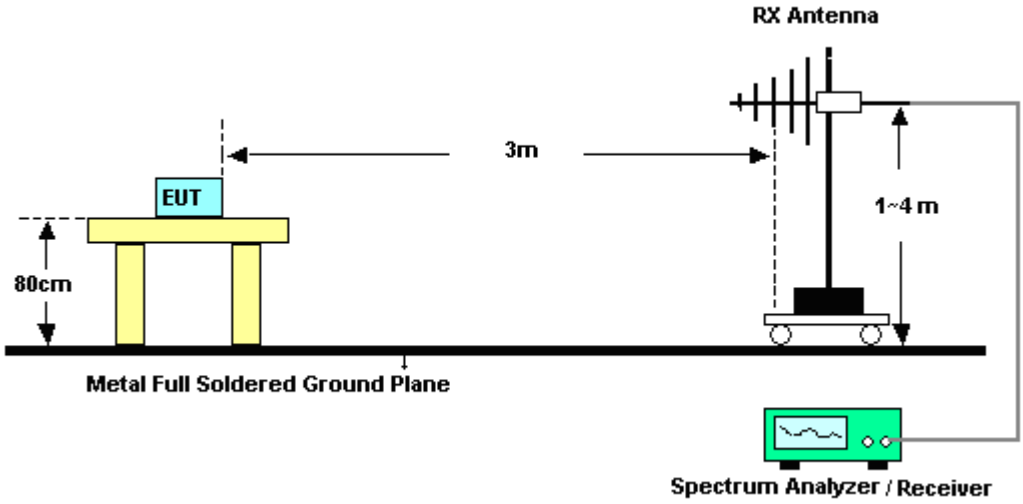
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit 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 "-".

3.4.4 Test Setup

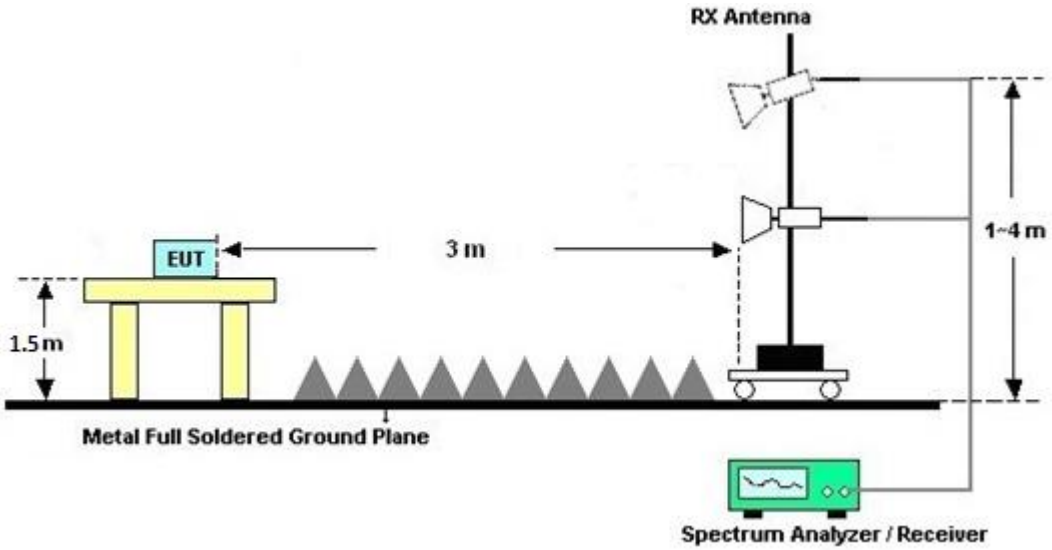
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated test above 1GHz



3.4.5 Test Results of Radiated 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.

3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix C and D.

3.4.7 Duty Cycle

Please refer to Appendix E.

3.4.8 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

3.5 AC Conducted Emission Measurement

3.5.1 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.

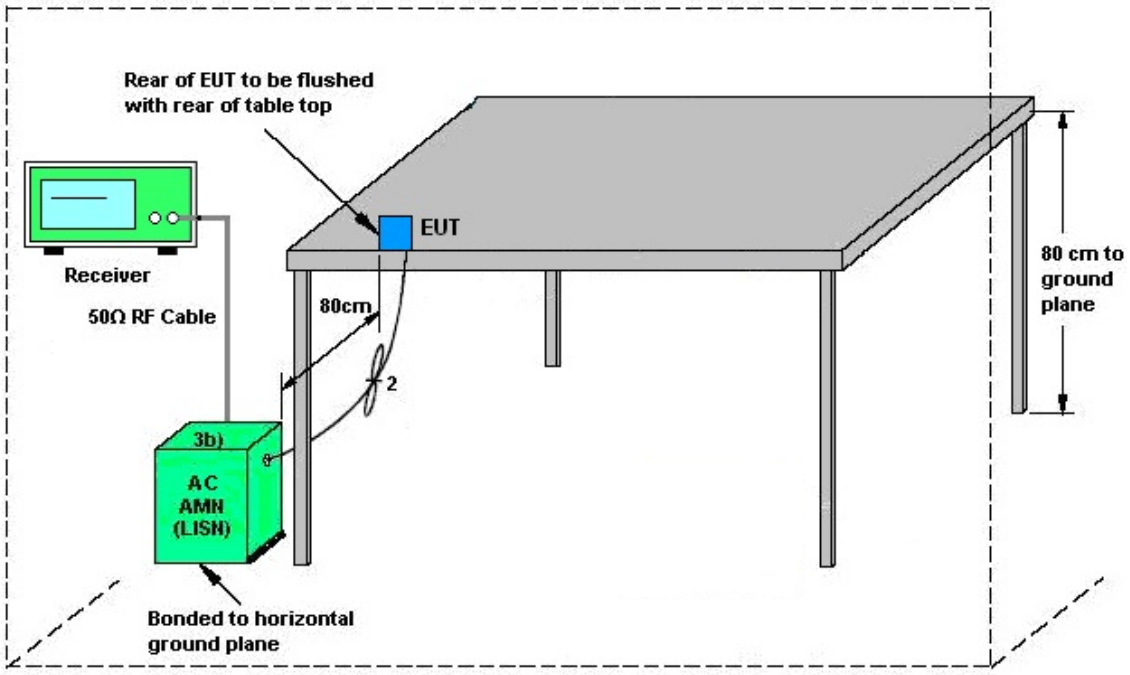
3.5.2 Measuring Instruments

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

3.5.3 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.

3.5.4 Test Setup



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

3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1 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.

3.6.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.6.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 07, 2021	Feb. 19, 2022~ Mar. 02, 2022	Sep. 06, 2022	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N -06	47020 & 06	30MHz to 1GHz	Oct. 09, 2021	Feb. 19, 2022~ Mar. 02, 2022	Oct. 08, 2022	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1G~18GHz	Aug. 04, 2021	Feb. 19, 2022~ Mar. 02, 2022	Aug. 03, 2022	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Oct. 12, 2021	Feb. 19, 2022~ Mar. 02, 2022	Oct. 11, 2022	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00993	18GHz ~40GHz	Nov. 30, 2021	Feb. 19, 2022~ Mar. 02, 2022	Nov. 29, 2022	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1G	Jul. 05, 2021	Feb. 19, 2022~ Mar. 02, 2022	Jul. 04, 2022	Radiation (03CH16-HY)
Amplifier	EMCI	EMC051845SE	980729	1-18GHz	Jul. 09, 2021	Feb. 19, 2022~ Mar. 02, 2022	Jul. 08, 2022	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Feb. 19, 2022~ Mar. 02, 2022	Jun. 21, 2022	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 09, 2021	Feb. 19, 2022~ Mar. 02, 2022	Dec. 08, 2022	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A	MY59053012	3Hz~26.5GHz	Nov. 18, 2021	Feb. 19, 2022~ Mar. 02, 2022	Nov. 17, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11680/4PE	NA	Aug. 28, 2021	Feb. 19, 2022~ Mar. 02, 2022	Aug. 27, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11688/4PE	NA	Aug. 28, 2021	Feb. 19, 2022~ Mar. 02, 2022	Aug. 27, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300-5757	NA	Aug. 28, 2021	Feb. 19, 2022~ Mar. 02, 2022	Aug. 27, 2022	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Feb. 19, 2022~ Mar. 02, 2022	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Feb. 19, 2022~ Mar. 02, 2022	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Feb. 19, 2022~ Mar. 02, 2022	N/A	Radiation (03CH16-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Feb. 19, 2022~ Mar. 02, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Power Meter	DARE	RPR3006W	15I00041SNO10 (NO:248)	10MHz~6GHz	Dec. 29, 2021	Feb. 19, 2022~ Mar. 02, 2022	Dec. 28, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Feb. 19, 2022~ Mar. 02, 2022	Aug. 29, 2022	Conducted (TH05-HY)
Switch Control Manframe	E-IUSTRUMENT	ETF-1405-0	EC1900067 (BOX7)	N/A	Aug. 12, 2021	Feb. 19, 2022~ Mar. 02, 2022	Aug. 11, 2022	Conducted (TH05-HY)
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	Mar. 08, 2022	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Mar. 08, 2022	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	9561-F N00373	9kHz-200MHz	Oct. 29, 2021	Mar. 08, 2022	Oct. 28, 2022	Conduction (CO07-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	N/A	Mar. 08, 2022	N/A	Conduction (CO07-HY)
Two-Line V-Network	TESEQ	NNB 51	45051	N/A	Feb. 16, 2022	Mar. 08, 2022	Feb. 15, 2023	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102317	9kHz~3.6GHz	Oct. 21, 2021	Mar. 08, 2022	Oct. 20, 2022	Conduction (CO07-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.3 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))	**5.2 dB**

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

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

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Jacob Yu/Ching Chen	Temperature:	21~25	°C
Test Date:	2022/2/19-2022/3/2	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 26dB EBW and 99% OBW

Band IV single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Ant 7	Ant 2	Ant 7	Ant 2	Ant 7	Ant 2		
11a	6Mbps	1	149	5745	16.88	-	21.95	-	15.20	-	0.5	Pass
11a	6Mbps	1	157	5785	16.78	-	22.35	-	15.20	-	0.5	Pass
11a	6Mbps	1	165	5825	16.78	-	21.95	-	15.20	-	0.5	Pass
VHT20	MCS0	1	149	5745	17.68	-	20.60	-	15.20	-	0.5	Pass
VHT20	MCS0	1	157	5785	17.78	-	20.65	-	15.20	-	0.5	Pass
VHT20	MCS0	1	165	5825	17.68	-	20.50	-	15.20	-	0.5	Pass
VHT40	MCS0	1	151	5755	36.36	-	40.23	-	35.28	-	0.5	Pass
VHT40	MCS0	1	159	5795	36.66	-	40.14	-	35.28	-	0.5	Pass
VHT80	MCS0	1	155	5775	75.17	-	81.44	-	75.52	-	0.5	Pass

TEST RESULTS DATA
Average Power Table

Band IV single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 7	Ant 2	SUM	Ant 7	Ant 2	Ant 7	Ant 2	
11a	6Mbps	1	149	5745	17.50	-		30.00	-	-1.64	-	Pass
11a	6Mbps	1	157	5785	17.40	-		30.00	-	-1.64	-	Pass
11a	6Mbps	1	165	5825	17.50	-		30.00	-	-1.64	-	Pass
HT20	MCS0	1	149	5745	16.20	-		30.00	-	-1.64	-	Pass
HT20	MCS0	1	157	5785	16.20	-		30.00	-	-1.64	-	Pass
HT20	MCS0	1	165	5825	16.10	-		30.00	-	-1.64	-	Pass
HT40	MCS0	1	151	5755	16.20	-		30.00	-	-1.64	-	Pass
HT40	MCS0	1	159	5795	16.30	-		30.00	-	-1.64	-	Pass
VHT20	MCS0	1	149	5745	16.30	-		30.00	-	-1.64	-	Pass
VHT20	MCS0	1	157	5785	16.30	-		30.00	-	-1.64	-	Pass
VHT20	MCS0	1	165	5825	16.20	-		30.00	-	-1.64	-	Pass
VHT40	MCS0	1	151	5755	16.30	-		30.00	-	-1.64	-	Pass
VHT40	MCS0	1	159	5795	16.40	-		30.00	-	-1.64	-	Pass
VHT80	MCS0	1	155	5775	16.20	-		30.00	-	-1.64	-	Pass

Report Number : FR212127F

TEST RESULTS DATA
Power Spectral Density

Band IV single antenna														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	10log (500kHz /RBW) Factor (dB)		Average Power Density (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 7	Ant 2	Ant 7	Ant 2	SUM	Ant 7	Ant 2	Ant 7	Ant 2	
11a	6Mbps	1	149	5745	2.22	-	6.03	-		30.00	-	-1.64	-	Pass
11a	6Mbps	1	157	5785	2.22	-	6.23	-		30.00	-	-1.64	-	Pass
11a	6Mbps	1	165	5825	2.22	-	6.22	-		30.00	-	-1.64	-	Pass
VHT20	MCS0	1	149	5745	2.22	-	5.59	-		30.00	-	-1.64	-	Pass
VHT20	MCS0	1	157	5785	2.22	-	5.25	-		30.00	-	-1.64	-	Pass
VHT20	MCS0	1	165	5825	2.22	-	5.19	-		30.00	-	-1.64	-	Pass
VHT40	MCS0	1	151	5755	2.22	-	2.71	-		30.00	-	-1.64	-	Pass
VHT40	MCS0	1	159	5795	2.22	-	2.50	-		30.00	-	-1.64	-	Pass
VHT80	MCS0	1	155	5775	2.22	-	-0.04	-		30.00	-	-1.64	-	Pass

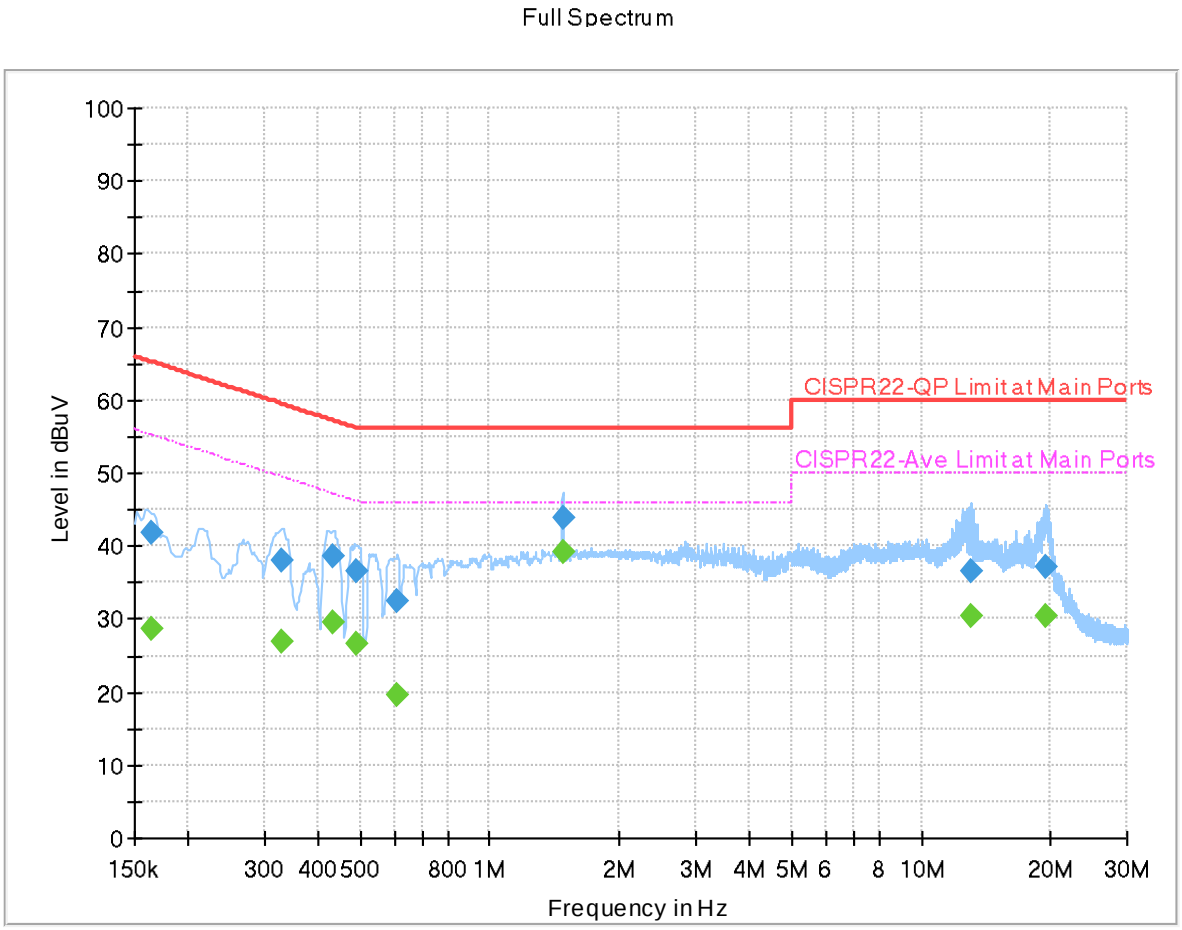
Note: PSD Sum = Max PSD(Ant. 1, Ant. 2) + 10 log (n)

Appendix B. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	**Temperature :**	23.3~24.8℃
		Relative Humidity :	45.2~48.9%

EUT Information

Report NO :	212127
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

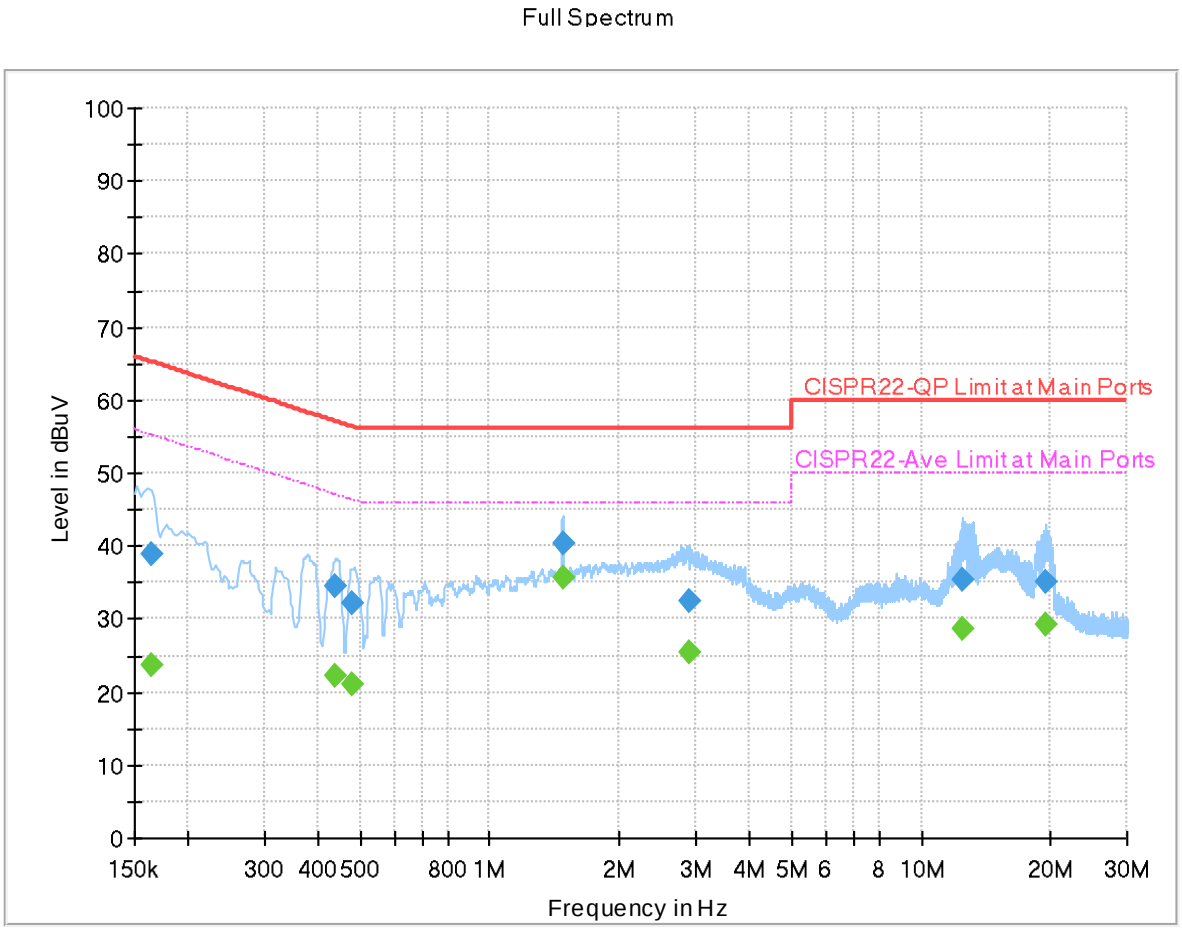


Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.163500	---	28.61	55.28	26.67	L1	OFF	19.7
0.163500	41.88	---	65.28	23.40	L1	OFF	19.7
0.327840	---	26.75	49.51	22.76	L1	OFF	19.7
0.327840	38.09	---	59.51	21.42	L1	OFF	19.7
0.432510	---	29.49	47.20	17.71	L1	OFF	19.7
0.432510	38.60	---	57.20	18.60	L1	OFF	19.7
0.490560	---	26.71	46.16	19.45	L1	OFF	19.7
0.490560	36.44	---	56.16	19.72	L1	OFF	19.7
0.607650	---	19.49	46.00	26.51	L1	OFF	19.7
0.607650	32.44	---	56.00	23.56	L1	OFF	19.7
1.475250	---	39.12	46.00	6.88	L1	OFF	19.7
1.475250	43.80	---	56.00	12.20	L1	OFF	19.7
13.059600	---	30.40	50.00	19.60	L1	OFF	19.9
13.059600	36.49	---	60.00	23.51	L1	OFF	19.9
19.484250	---	30.33	50.00	19.67	L1	OFF	20.0
19.484250	37.16	---	60.00	22.84	L1	OFF	20.0

EUT Information

Report NO :	212127
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.164670	---	23.77	55.23	31.46	N	OFF	19.7
0.164670	39.03	---	65.23	26.20	N	OFF	19.7
0.440250	---	22.15	47.06	24.91	N	OFF	19.7
0.440250	34.63	---	57.06	22.43	N	OFF	19.7
0.480660	---	20.99	46.33	25.34	N	OFF	19.7
0.480660	32.05	---	56.33	24.28	N	OFF	19.7
1.474890	---	35.75	46.00	10.25	N	OFF	19.7
1.474890	40.46	---	56.00	15.54	N	OFF	19.7
2.889150	---	25.55	46.00	20.45	N	OFF	19.7
2.889150	32.49	---	56.00	23.51	N	OFF	19.7
12.490620	---	28.52	50.00	21.48	N	OFF	19.9
12.490620	35.45	---	60.00	24.55	N	OFF	19.9
19.495230	---	29.34	50.00	20.66	N	OFF	19.9
19.495230	35.02	---	60.00	24.98	N	OFF	19.9

Appendix C. Radiated Spurious Emission

Test Engineer :	Andy Yang, Karl Hou and Wilson Wu	Temperature :	20~25°C
		Relative Humidity :	50~60%

Band 4 - 5725~5850MHz

WIFI 802.11a (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.	
7		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		5632.2	55.26	-12.94	68.2	38.69	33.26	12.9	29.59	100	117	P	H
		5696	57.77	-44.48	102.25	41.15	33.3	12.93	29.61	100	117	P	H
		5719	64.18	-46.34	110.52	47.43	33.41	12.95	29.61	100	117	P	H
		5724.8	71.27	-50.47	121.74	54.48	33.45	12.95	29.61	100	117	P	H
	*	5745	109.99	-	-	93.07	33.57	12.96	29.61	100	117	P	H
	*	5745	102.24	-	-	85.32	33.57	12.96	29.61	100	117	A	H
													H
802.11a													H
CH 149		5645.2	55.11	-13.09	68.2	38.52	33.29	12.9	29.6	388	83	P	V
5745MHz		5681.4	54.1	-37.37	91.47	37.48	33.3	12.92	29.6	388	83	P	V
		5719.6	62.8	-47.89	110.69	46.04	33.42	12.95	29.61	388	83	P	V
		5724.8	68.26	-53.48	121.74	51.47	33.45	12.95	29.61	388	83	P	V
	*	5745	107.99	-	-	91.07	33.57	12.96	29.61	388	83	P	V
	*	5745	100.88	-	-	83.96	33.57	12.96	29.61	388	83	A	V
													V
													V

WIFI Ant. 7	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)
		5624.2	55.31	-12.89	68.2	38.76	33.25	12.89	29.59	100	117	P	H
		5672	55.57	-28.95	84.52	38.95	33.3	12.92	29.6	100	117	P	H
		5703.8	55.15	-51.12	106.27	38.5	33.32	12.94	29.61	100	117	P	H
		5724	54.58	-65.34	119.92	37.8	33.44	12.95	29.61	100	117	P	H
	*	5785	110.48	-	-	93.45	33.67	12.98	29.62	100	117	P	H
	*	5785	102.9	-	-	85.87	33.67	12.98	29.62	100	117	A	H
		5854	54.87	-58.21	113.08	37.69	34	12.81	29.63	100	117	P	H
		5858.8	56.24	-53.49	109.73	39.07	34	12.8	29.63	100	117	P	H
		5888.6	55.38	-39.72	95.1	38.32	34	12.7	29.64	100	117	P	H
		5930.4	55.68	-12.52	68.2	38.7	34.06	12.57	29.65	100	117	P	H
													H
802.11a CH 157 5785MHz													H
		5608.6	54.17	-14.03	68.2	37.66	33.22	12.88	29.59	362	83	P	V
		5689.2	55.17	-42.07	97.24	38.54	33.3	12.93	29.6	362	83	P	V
		5719.6	54.74	-55.95	110.69	37.98	33.42	12.95	29.61	362	83	P	V
		5724.2	54.99	-65.39	120.38	38.2	33.45	12.95	29.61	362	83	P	V
	*	5785	107.92	-	-	90.89	33.67	12.98	29.62	362	83	P	V
	*	5785	100.74	-	-	83.71	33.67	12.98	29.62	362	83	A	V
		5851.8	55.05	-63.05	118.1	37.86	34	12.82	29.63	362	83	P	V
		5870.6	54.56	-51.87	106.43	37.44	34	12.76	29.64	362	83	P	V
		5902	55.18	-30	85.18	38.16	34	12.66	29.64	362	83	P	V
		5941	54.5	-13.7	68.2	37.54	34.08	12.53	29.65	362	83	P	V
													V
													V

WIFI Ant. 7	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)
	*	5825	110.61	-	-	93.48	33.85	12.91	29.63	100	117	P	H
	*	5825	103.2	-	-	86.07	33.85	12.91	29.63	100	117	A	H
		5851.6	69.74	-48.81	118.55	52.55	34	12.82	29.63	100	117	P	H
		5855.4	61.1	-49.59	110.69	43.92	34	12.81	29.63	100	117	P	H
		5875.6	57.26	-47.49	104.75	40.16	34	12.74	29.64	100	117	P	H
		5948.6	55.08	-13.12	68.2	38.12	34.1	12.51	29.65	100	117	P	H
													H
802.11a													H
CH 165	*	5825	108.65	-	-	91.52	33.85	12.91	29.63	322	79	P	V
5825MHz	*	5825	100.76	-	-	83.63	33.85	12.91	29.63	322	79	A	V
		5850.2	66.02	-55.72	121.74	48.82	34	12.83	29.63	322	79	P	V
		5855.2	62.39	-48.35	110.74	45.21	34	12.81	29.63	322	79	P	V
		5910	56.1	-23.17	79.27	39.09	34.02	12.63	29.64	322	79	P	V
		5947	55.4	-12.8	68.2	38.45	34.09	12.51	29.65	322	79	P	V
													V
													V
													V

Remark

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

Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 7	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)
		11490	47.91	-26.09	74	44.85	38.84	19.23	55.01	-	-	P	H
		17235	48.57	-19.63	68.2	41.34	37.81	25.11	55.69	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
802.11a CH 149 5745MHz													H
		11490	47.43	-26.57	74	44.37	38.84	19.23	55.01	-	-	P	V
		17235	47.46	-20.74	68.2	40.23	37.81	25.11	55.69	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7	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)
		11570	47.4	-26.6	74	44.31	38.8	19.27	54.98	-	-	P	H
		17355	48.21	-19.99	68.2	40.83	38.17	25.16	55.95	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
802.11a CH 157 5785MHz													H
		11570	46.98	-27.02	74	43.89	38.8	19.27	54.98	-	-	P	V
		17355	48.23	-19.97	68.2	40.85	38.17	25.16	55.95	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7	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)
802.11a CH 165 5825MHz		11650	46.25	-27.75	74	43.2	38.7	19.3	54.95	-	-	P	H
		17475	46.26	-21.94	68.2	38.8	38.45	25.22	56.21	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		11650	46.68	-27.32	74	43.63	38.7	19.3	54.95	-	-	P	V
		17475	48.4	-19.8	68.2	40.94	38.45	25.22	56.21	-	-	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 4 5725~5850MHz

WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI Ant. 7	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)
		5632.8	54.51	-13.69	68.2	37.93	33.27	12.9	29.59	100	117	P	H
		5693.2	55.84	-44.35	100.19	39.21	33.3	12.93	29.6	100	117	P	H
		5719.8	59.93	-50.81	110.74	43.17	33.42	12.95	29.61	100	117	P	H
		5725	63.51	-58.69	122.2	46.72	33.45	12.95	29.61	100	117	P	H
	*	5745	108.38	-	-	91.46	33.57	12.96	29.61	100	117	P	H
	*	5745	100.91	-	-	83.99	33.57	12.96	29.61	100	117	A	H
802.11ac													H
VHT20													H
CH 149		5628	54.83	-13.37	68.2	38.26	33.26	12.9	29.59	332	80	P	V
5745MHz		5699.4	54.73	-50.03	104.76	38.11	33.3	12.93	29.61	332	80	P	V
		5720	57.03	-53.77	110.8	40.27	33.42	12.95	29.61	332	80	P	V
		5724.2	65.56	-54.82	120.38	48.77	33.45	12.95	29.61	332	80	P	V
	*	5745	107.44	-	-	90.52	33.57	12.96	29.61	332	80	P	V
	*	5745	99.97	-	-	83.05	33.57	12.96	29.61	332	80	A	V
													V
													V

WIFI Ant. 7	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)
		5625	56.25	-11.95	68.2	39.7	33.25	12.89	29.59	100	116	P	H
		5676.2	54.67	-32.96	87.63	38.05	33.3	12.92	29.6	100	116	P	H
		5717.2	55	-55.02	110.02	38.27	33.4	12.94	29.61	100	116	P	H
		5722.6	54.23	-62.5	116.73	37.45	33.44	12.95	29.61	100	116	P	H
	*	5785	108.77	-	-	91.74	33.67	12.98	29.62	100	116	P	H
	*	5785	101.46	-	-	84.43	33.67	12.98	29.62	100	116	A	H
		5851.2	56.34	-63.12	119.46	39.15	34	12.82	29.63	100	116	P	H
		5862	55.61	-53.23	108.84	38.46	34	12.79	29.64	100	116	P	H
		5879	56.36	-45.87	102.23	39.27	34	12.73	29.64	100	116	P	H
		5941	54.83	-13.37	68.2	37.87	34.08	12.53	29.65	100	116	P	H
802.11ac													H
VHT20													H
CH 157		5641	55.51	-12.69	68.2	38.93	33.28	12.9	29.6	328	80	P	V
5785MHz		5670.4	54.68	-28.66	83.34	38.06	33.3	12.92	29.6	328	80	P	V
		5704.2	54.54	-51.84	106.38	37.88	33.33	12.94	29.61	328	80	P	V
		5724.2	54.66	-65.72	120.38	37.87	33.45	12.95	29.61	328	80	P	V
	*	5785	106.92	-	-	89.89	33.67	12.98	29.62	328	80	P	V
	*	5785	99.63	-	-	82.6	33.67	12.98	29.62	328	80	A	V
		5852.4	54.21	-62.52	116.73	37.02	34	12.82	29.63	328	80	P	V
		5870	55.28	-51.32	106.6	38.16	34	12.76	29.64	328	80	P	V
		5902.8	55.34	-29.25	84.59	38.31	34.01	12.66	29.64	328	80	P	V
		5940.8	55.48	-12.72	68.2	38.52	34.08	12.53	29.65	328	80	P	V
													V
													V

WIFI Ant. 7	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)
	*	5825	109.45	-	-	92.32	33.85	12.91	29.63	100	116	P	H
	*	5825	101.74	-	-	84.61	33.85	12.91	29.63	100	116	A	H
		5850	63.35	-58.85	122.2	46.15	34	12.83	29.63	100	116	P	H
		5859.8	61.44	-48.01	109.45	44.27	34	12.8	29.63	100	116	P	H
		5894.4	57.41	-33.4	90.81	40.37	34	12.68	29.64	100	116	P	H
		5947.2	55.73	-12.47	68.2	38.78	34.09	12.51	29.65	100	116	P	H
802.11ac													H
VHT20													H
CH 165	*	5825	106.85	-	-	89.72	33.85	12.91	29.63	339	79	P	V
5825MHz	*	5825	99.28	-	-	82.15	33.85	12.91	29.63	339	79	A	V
		5852.8	61.72	-54.1	115.82	44.53	34	12.82	29.63	339	79	P	V
		5867.4	56.89	-50.44	107.33	39.76	34	12.77	29.64	339	79	P	V
		5910.4	55.18	-23.79	78.97	38.17	34.02	12.63	29.64	339	79	P	V
		5925.6	56.3	-11.9	68.2	39.32	34.05	12.58	29.65	339	79	P	V
													V
													V

Remark

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

Band 4 5725~5850MHz

WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI Ant. 7	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)
		11490	47.08	-26.92	74	44.02	38.84	19.23	55.01	-	-	P	H
		17235	46.53	-21.67	68.2	39.3	37.81	25.11	55.69	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ac													H
VHT20													H
CH 149		11490	46.87	-27.13	74	43.81	38.84	19.23	55.01	-	-	P	V
5745MHz		17235	46.16	-22.04	68.2	38.93	37.81	25.11	55.69	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7	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)
		11570	47.71	-26.29	74	44.62	38.8	19.27	54.98	-	-	P	H
		17355	48.47	-19.73	68.2	41.09	38.17	25.16	55.95	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ac													H
VHT20													H
CH 157		11570	47.18	-26.82	74	44.09	38.8	19.27	54.98	-	-	P	V
5785MHz		17355	48.31	-19.89	68.2	40.93	38.17	25.16	55.95	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7	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)
		11650	46.62	-27.38	74	43.57	38.7	19.3	54.95	-	-	P	H
		17475	47.32	-20.88	68.2	39.86	38.45	25.22	56.21	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ac													H
VHT20													H
CH 165		11650	46.31	-27.69	74	43.26	38.7	19.3	54.95	-	-	P	V
5825MHz		17475	46.13	-22.07	68.2	38.67	38.45	25.22	56.21	-	-	P	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 4 5725~5850MHz

WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI Ant. 7	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)
		5622.8	54.81	-13.39	68.2	38.26	33.25	12.89	29.59	100	117	P	H
		5697.2	55.65	-47.49	103.14	39.03	33.3	12.93	29.61	100	117	P	H
		5713	64.57	-44.27	108.84	47.86	33.38	12.94	29.61	100	117	P	H
		5722.6	65.6	-51.13	116.73	48.82	33.44	12.95	29.61	100	117	P	H
	*	5755	106.09	-	-	89.13	33.61	12.97	29.62	100	117	P	H
	*	5755	97.88	-	-	80.92	33.61	12.97	29.62	100	117	A	H
		5850	56.58	-65.62	122.2	39.38	34	12.83	29.63	100	117	P	H
		5869.4	55.63	-51.14	106.77	38.51	34	12.76	29.64	100	117	P	H
		5876.8	56.14	-47.72	103.86	39.04	34	12.74	29.64	100	117	P	H
		5941.8	56.12	-12.08	68.2	39.16	34.08	12.53	29.65	100	117	P	H
802.11ac													H
VHT40													H
CH 151		5630.4	55.41	-12.79	68.2	38.84	33.26	12.9	29.59	368	74	P	V
5755MHz		5692	54.79	-44.51	99.3	38.16	33.3	12.93	29.6	368	74	P	V
		5717.8	62.7	-47.48	110.18	45.96	33.41	12.94	29.61	368	74	P	V
		5724.4	62.02	-58.81	120.83	45.23	33.45	12.95	29.61	368	74	P	V
	*	5755	103.95	-	-	86.99	33.61	12.97	29.62	368	74	P	V
	*	5755	95.68	-	-	78.72	33.61	12.97	29.62	368	74	A	V
		5851.2	54.01	-65.45	119.46	36.82	34	12.82	29.63	368	74	P	V
		5858.8	55.13	-54.6	109.73	37.96	34	12.8	29.63	368	74	P	V
		5899.4	54.32	-32.78	87.1	37.29	34	12.67	29.64	368	74	P	V
		5950	55.01	-13.19	68.2	38.06	34.1	12.5	29.65	368	74	P	V
													V
													V

WIFI Ant. 7	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)
		5643.6	54.67	-13.53	68.2	38.08	33.29	12.9	29.6	100	117	P	H
		5697.6	54.73	-48.7	103.43	38.11	33.3	12.93	29.61	100	117	P	H
		5710.2	55.02	-53.04	108.06	38.33	33.36	12.94	29.61	100	117	P	H
		5723.8	54.87	-64.59	119.46	38.09	33.44	12.95	29.61	100	117	P	H
	*	5795	106.12	-	-	89.06	33.69	12.99	29.62	100	117	P	H
	*	5795	98.59	-	-	81.53	33.69	12.99	29.62	100	117	A	H
		5852	61.09	-56.55	117.64	43.9	34	12.82	29.63	100	117	P	H
		5872.6	58.23	-47.64	105.87	41.12	34	12.75	29.64	100	117	P	H
		5898.2	56.01	-31.98	87.99	38.98	34	12.67	29.64	100	117	P	H
		5947.4	55.86	-12.34	68.2	38.91	34.09	12.51	29.65	100	117	P	H
802.11ac													H
VHT40													H
CH 159		5626.4	54.33	-13.87	68.2	37.78	33.25	12.89	29.59	363	75	P	V
5795MHz		5665.8	54.74	-25.19	79.93	38.12	33.3	12.92	29.6	363	75	P	V
		5700.4	54.6	-50.71	105.31	37.97	33.3	12.94	29.61	363	75	P	V
		5722.8	54.6	-62.58	117.18	37.82	33.44	12.95	29.61	363	75	P	V
	*	5795	103.98	-	-	86.92	33.69	12.99	29.62	363	75	P	V
	*	5795	96.02	-	-	78.96	33.69	12.99	29.62	363	75	A	V
		5850.4	54.03	-67.26	121.29	36.83	34	12.83	29.63	363	75	P	V
		5864.8	55.65	-52.4	108.05	38.51	34	12.78	29.64	363	75	P	V
		5922.8	54.92	-14.9	69.82	37.93	34.05	12.59	29.65	363	75	P	V
		5926.8	55.66	-12.54	68.2	38.68	34.05	12.58	29.65	363	75	P	V
													V
													V

Remark

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

Band 4 5725~5850MHz

WIFI 802.11ac VHT40 (Harmonic @ 3m)

WIFI Ant. 7	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)
		11510	46.84	-27.16	74	43.8	38.8	19.24	55	-	-	P	H
		17265	47.73	-20.47	68.2	40.47	37.9	25.11	55.75	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ac													H
VHT40													H
CH 151		11510	47.34	-26.66	74	44.3	38.8	19.24	55	-	-	P	V
5755MHz		17265	47.02	-21.18	68.2	39.76	37.9	25.11	55.75	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 7	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)
		11590	46.17	-27.83	74	43.06	38.8	19.28	54.97	-	-	P	H
		17385	46.84	-21.36	68.2	39.42	38.26	25.17	56.01	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
802.11ac													H
VHT40													H
CH 159		11590	46.5	-27.5	74	43.39	38.8	19.28	54.97	-	-	P	V
5795MHz		17385	47.4	-20.8	68.2	39.98	38.26	25.17	56.01	-	-	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 4 5725~5850MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 7	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)
		5637.6	54.73	-13.47	68.2	38.14	33.28	12.9	29.59	102	117	P	H
		5699.6	62.5	-42.41	104.91	45.88	33.3	12.93	29.61	102	117	P	H
		5719.2	68.44	-42.14	110.58	51.68	33.42	12.95	29.61	102	117	P	H
		5725	66.37	-55.83	122.2	49.58	33.45	12.95	29.61	102	117	P	H
	*	5775	103.31	-	-	86.3	33.65	12.98	29.62	102	117	P	H
	*	5775	95.06	-	-	78.05	33.65	12.98	29.62	102	117	A	H
		5850.2	65.76	-55.98	121.74	48.56	34	12.83	29.63	102	117	P	H
		5858.4	64.49	-45.36	109.85	47.32	34	12.8	29.63	102	117	P	H
		5876	62.17	-42.29	104.46	45.07	34	12.74	29.64	102	117	P	H
		5929	55.28	-12.92	68.2	38.3	34.06	12.57	29.65	102	117	P	H
802.11ac													H
VHT80													H
CH 155		5638.8	54.45	-13.75	68.2	37.86	33.28	12.9	29.59	363	75	P	V
5775MHz		5688.2	58.35	-38.15	96.5	41.72	33.3	12.93	29.6	363	75	P	V
		5713.8	61.5	-47.57	109.07	44.79	33.38	12.94	29.61	363	75	P	V
		5722.4	63.56	-52.71	116.27	46.79	33.43	12.95	29.61	363	75	P	V
	*	5775	100.93	-	-	83.92	33.65	12.98	29.62	363	75	P	V
	*	5775	92.99	-	-	75.98	33.65	12.98	29.62	363	75	A	V
		5850.6	58.05	-62.78	120.83	40.85	34	12.83	29.63	363	75	P	V
		5857	57.78	-52.46	110.24	40.61	34	12.8	29.63	363	75	P	V
		5880.2	59.45	-41.89	101.34	42.36	34	12.73	29.64	363	75	P	V
		5949.8	56.31	-11.89	68.2	39.36	34.1	12.5	29.65	363	75	P	V
													V
													V

Remark

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

Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 7	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)
		11550	46.46	-27.54	74	43.39	38.8	19.25	54.98	-	-	P	H
		17325	49.26	-18.94	68.2	41.92	38.08	25.14	55.88	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
i802.11ac													H
VHT80													H
CH 155		11550	47.8	-26.2	74	44.73	38.8	19.25	54.98	-	-	P	V
5775MHz		17325	47.7	-20.5	68.2	40.36	38.08	25.14	55.88	-	-	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

5GHz WIFI 802.11ac VHT80 (LF @ 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.	
7		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		74.62	23.49	-16.51	40	41.4	12.84	1.56	32.31	-	-	P	H
		204.6	25.7	-17.8	43.5	40.29	15.09	2.58	32.26	-	-	P	H
		317.12	32.16	-13.84	46	41.73	19.55	3.15	32.27	-	-	P	H
		889.42	38.54	-7.46	46	36.05	28.87	5.25	31.63	-	-	P	H
		897.18	37.93	-8.07	46	35.27	28.95	5.27	31.56	-	-	P	H
		955.38	34.92	-11.08	46	29.9	30.7	5.47	31.15	-	-	P	H
													H
													H
													H
													H
5GHz													H
802.11ac													H
VHT80		64.92	29.61	-10.39	40	48.44	12	1.44	32.27	-	-	P	V
LF		74.62	28.9	-11.1	40	46.81	12.84	1.56	32.31	-	-	P	V
		120.21	29.74	-13.76	43.5	42.53	17.53	1.95	32.27	-	-	P	V
		177.44	24.39	-19.11	43.5	38.96	15.23	2.42	32.22	-	-	P	V
		890.39	38.96	-7.04	46	36.45	28.87	5.26	31.62	-	-	P	V
		899.12	39.3	-6.7	46	36.58	28.99	5.28	31.55	-	-	P	V
													V
													V
													V
													V
													V
													V

Remark

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

Note symbol

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

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

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 43.54 (dBμV/m)

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

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

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

Appendix D. Radiated Spurious Emission Plots

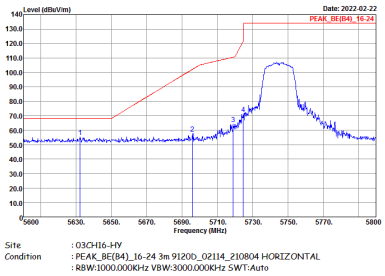
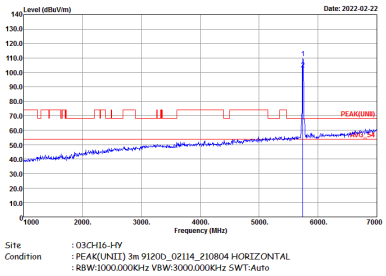
Test Engineer :	Andy Yang, Karl Hou and Wilson Wu	**Temperature :**	20~25°C
		Relative Humidity :	50~60%

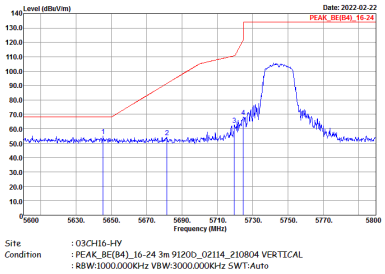
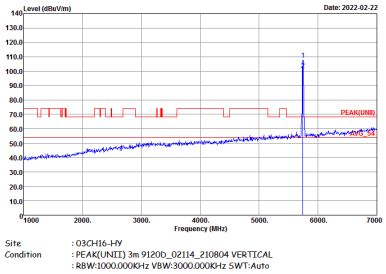
Note symbol

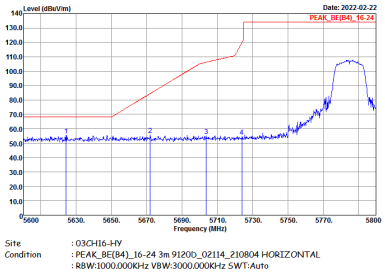
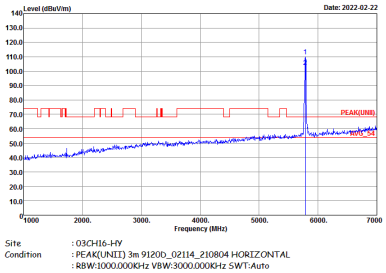
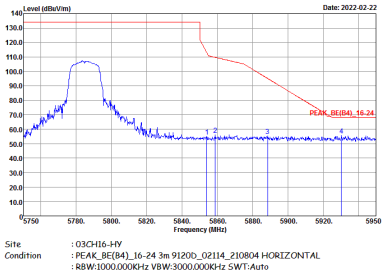
-L	**Low channel location**
-R	**High channel location**

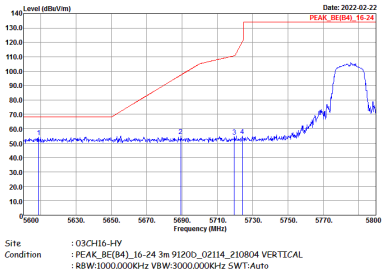
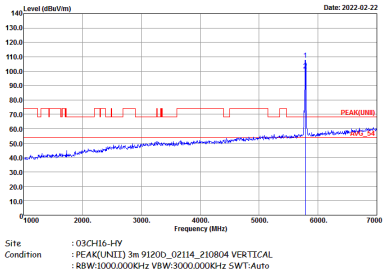
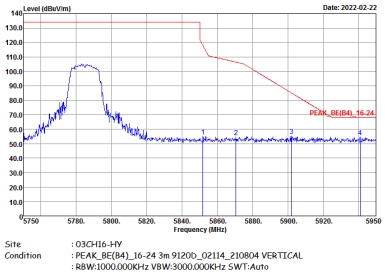
Band 4 - 5725~5850MHz

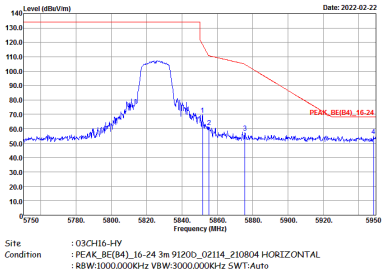
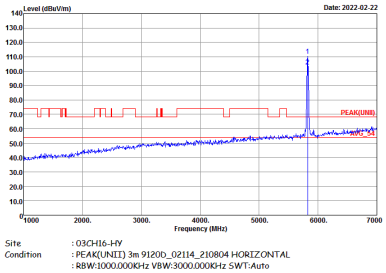
WIFI 802.11a (Band Edge @ 3m)

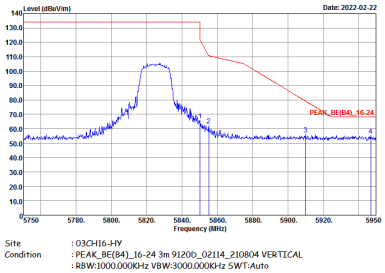
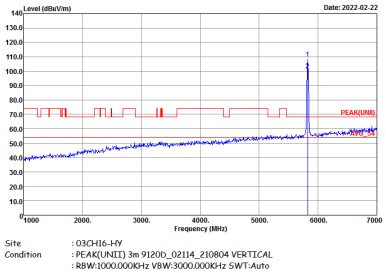
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
7	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
7	Vertical	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
7	Horizontal	Fundamental
Peak		
Peak		Left blank

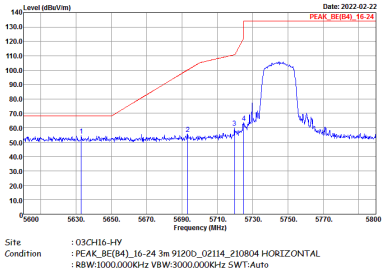
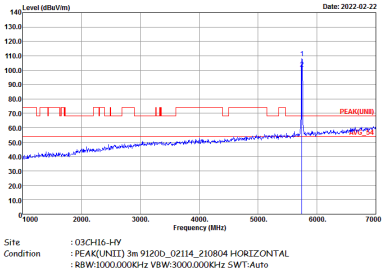
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
7	Vertical	Fundamental
Peak		
Peak		Left blank

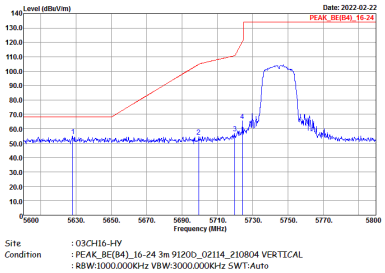
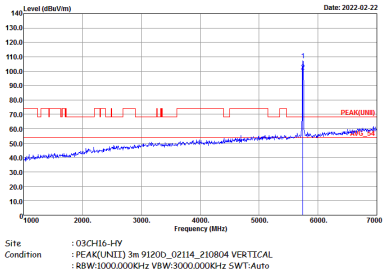
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
7	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 9120D_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HY Condition : PEAK(UNII) 3m 9120D_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

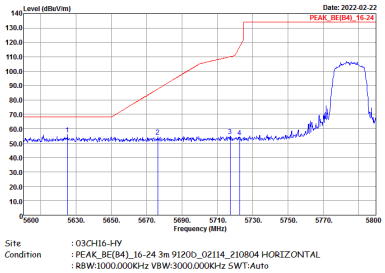
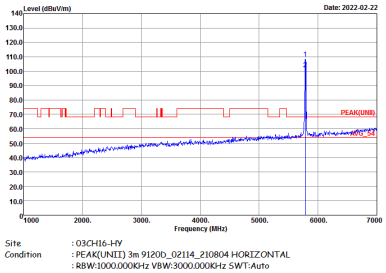
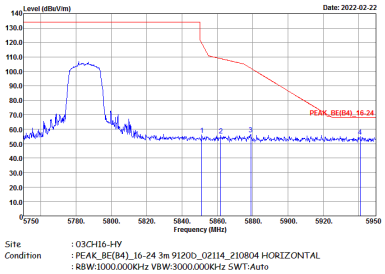
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
7	Vertical	Fundamental
Peak		

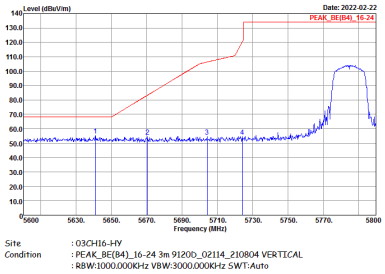
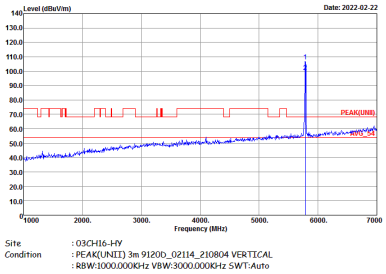
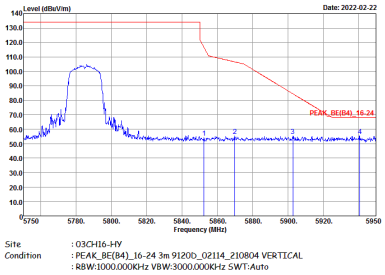
Band 4 5725~5850MHz

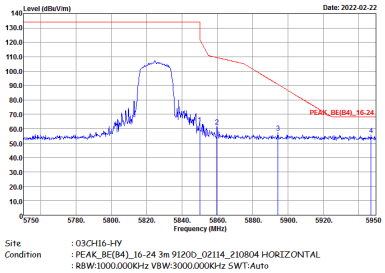
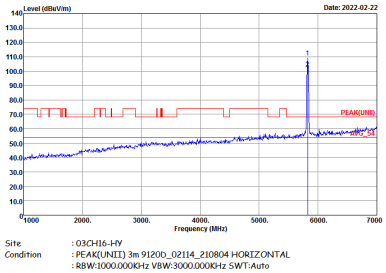
WIFI 802.11ac VHT20 (Band Edge @ 3m)

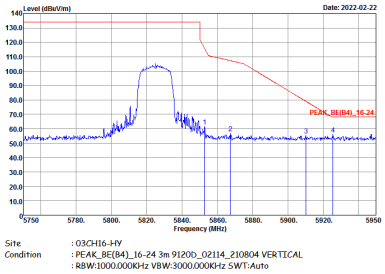
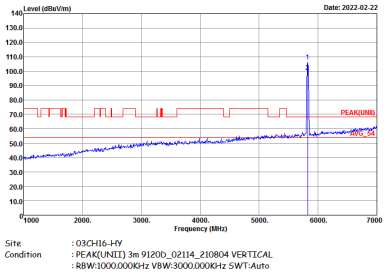
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
7	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
7	Vertical	Fundamental
Peak		

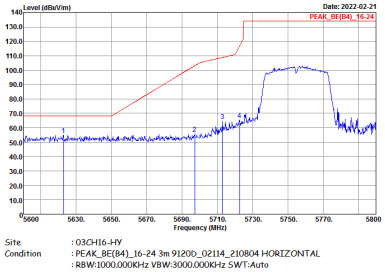
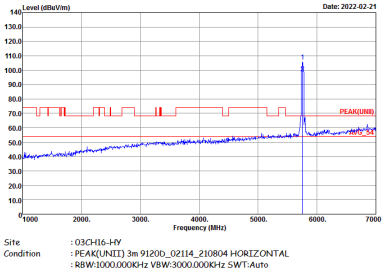
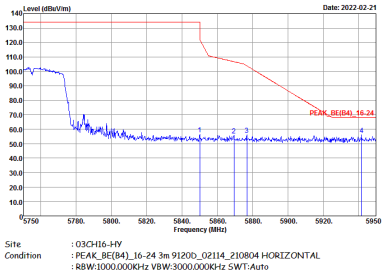
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
7	Horizontal	Fundamental
Peak		
Peak		Left blank

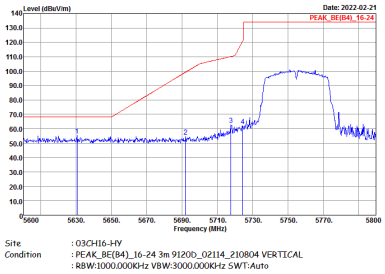
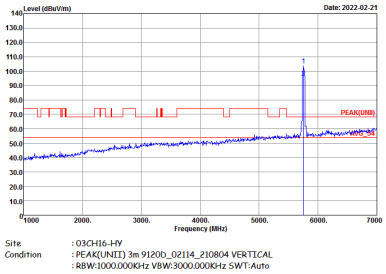
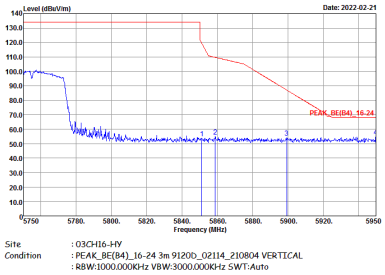
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
7	Vertical	Fundamental
Peak		
Peak		Left blank

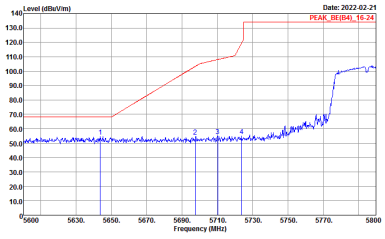
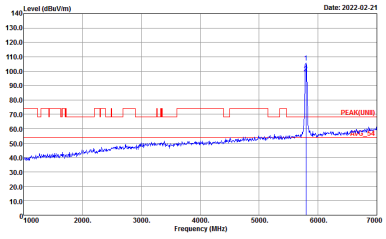
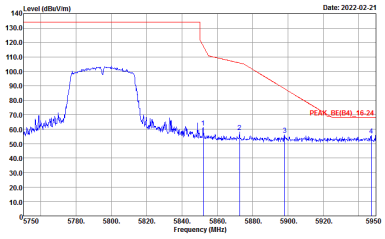
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
7	Horizontal	Fundamental
Peak		

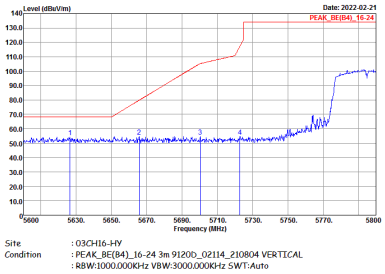
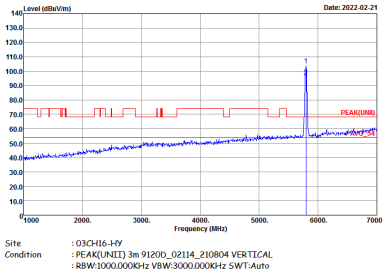
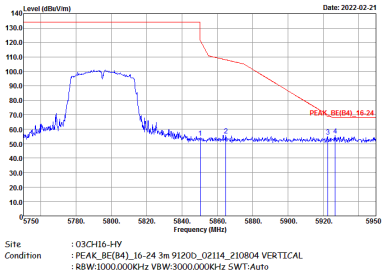
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
7	Vertical	Fundamental
Peak		

Band 4 5725~5850MHz
WIFI 802.11ac VHT40 (Band Edge @ 3m)

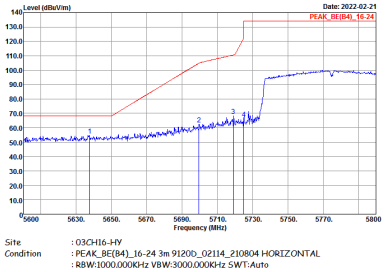
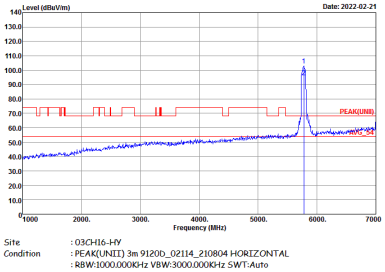
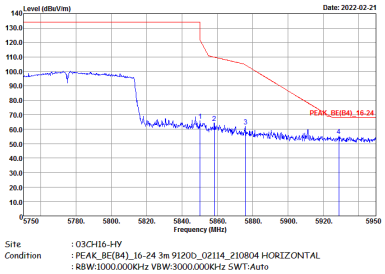
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
7	Horizontal	Fundamental
Peak		
Peak		Left blank

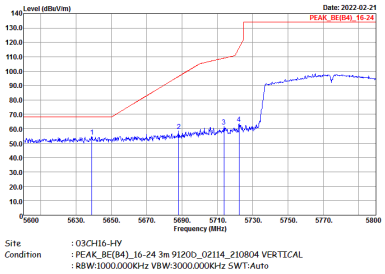
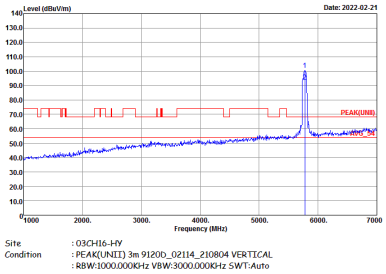
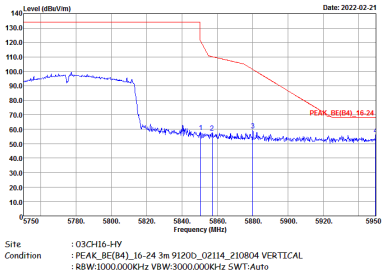
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
7	Vertical	Fundamental
Peak		
Peak		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
7	Horizontal	Fundamental
Peak	 Site : 03CH16-HV Condition : PEAK_BE(B4)_16-24 3m 9120D_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH16-HV Condition : PEAK(UNII) 3m 9120D_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH16-HV Condition : PEAK_BE(B4)_16-24 3m 9120D_02114_210804 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
7	Vertical	Fundamental
Peak		
Peak		Left blank

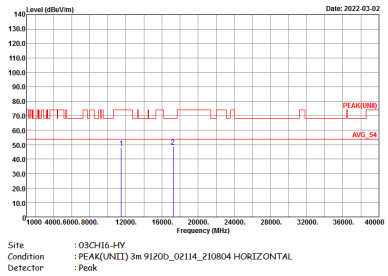
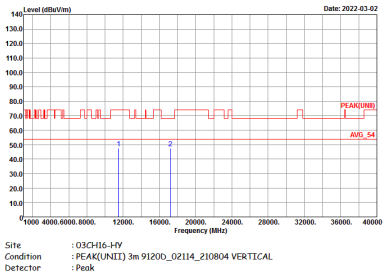
Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

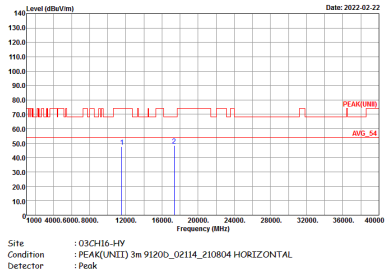
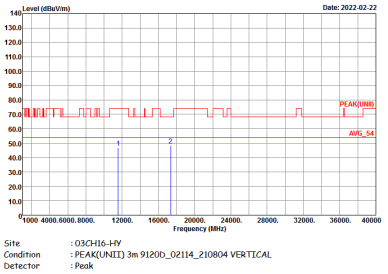
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
7	Horizontal	Fundamental
Peak		
Peak		Left blank

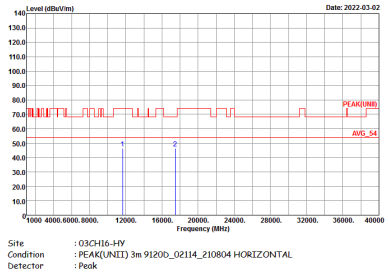
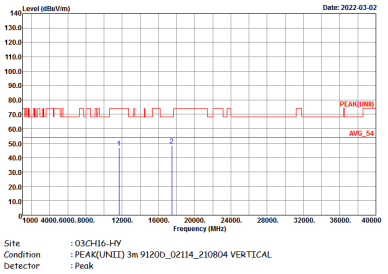
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
7	Vertical	Fundamental
Peak		
Peak		Left blank

Band 4 - 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

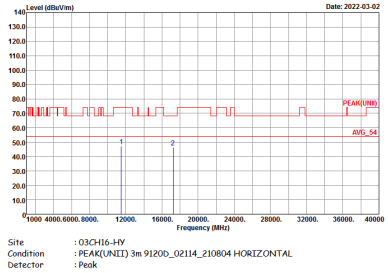
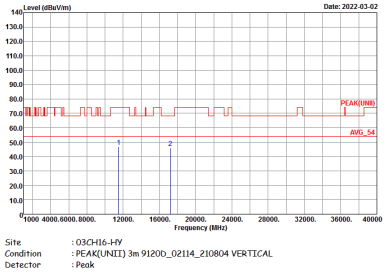
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
7	Horizontal	Vertical
Peak Avg.		

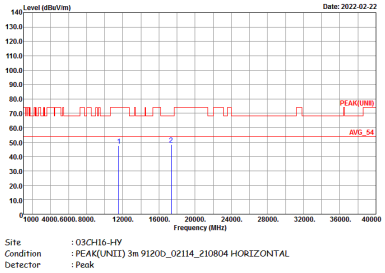
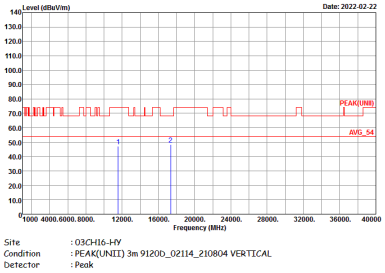
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
7	Horizontal	Vertical
Peak Avg.		

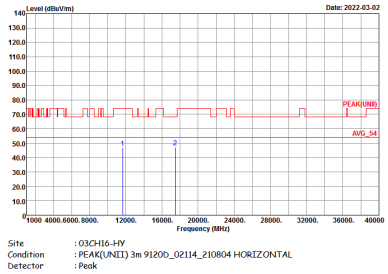
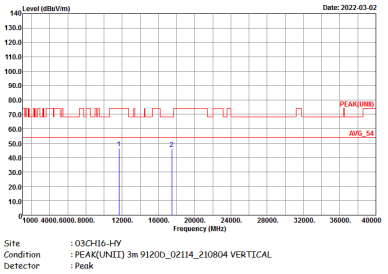
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
7	Horizontal	Vertical
Peak Avg.		

Band 4 5725~5850MHz

WIFI 802.11ac VHT20 (Harmonic @ 3m)

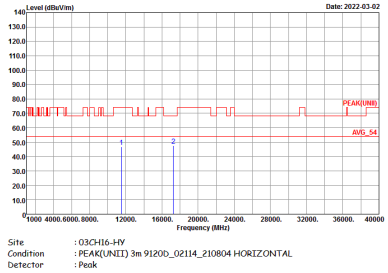
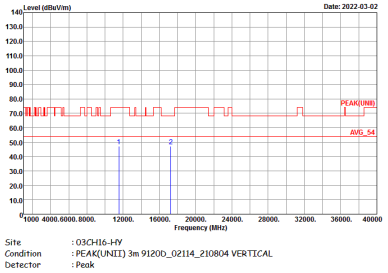
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
7	Horizontal	Vertical
Peak Avg.		

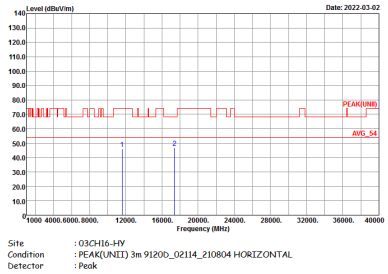
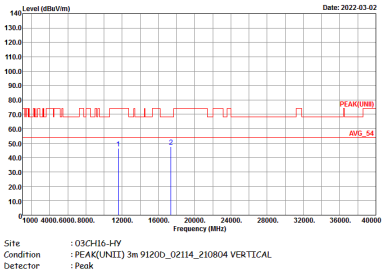
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
7	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
7	Horizontal	Vertical
Peak Avg.		

Band 4 5725~5850MHz

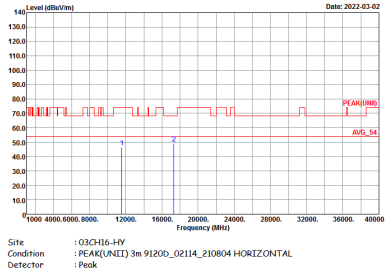
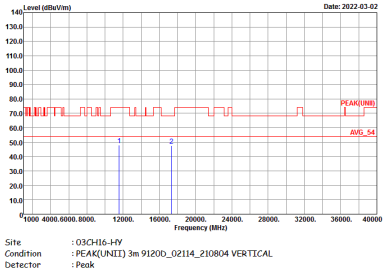
WIFI 802.11ac VHT40 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
7	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
7	Horizontal	Vertical
Peak Avg.		

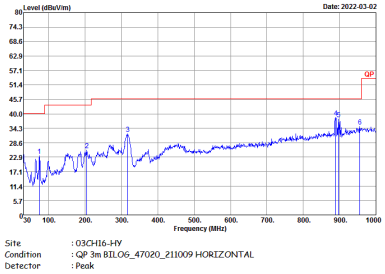
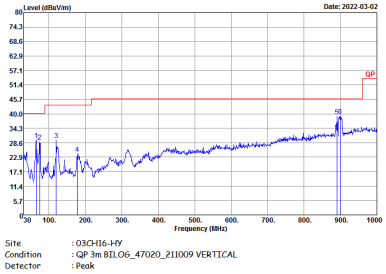
Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
7	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

5GHz WIFI 802.11ac VHT80 (LF @ 3m)

WIFI	5GHz WIFI	
ANT	802.11ac VHT80 LF	
7	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

Antenna	Band	Duty Cycle (%)	T(us)	1/T(kHz)	VBW Setting
7	802.11a	97.54	1390	0.72	1kHz
7	5GHz 802.11ac VHT20	97.41	1315	0.76	1kHz
7	5GHz 802.11ac VHT40	94.76	651	1.54	3kHz
7	5GHz 802.11ac VHT80	90.50	324	3.09	10kHz

802.11a

5GHz 802.11ac VHT20

5GHz 802.11ac VHT40

5GHz 802.11ac VHT80