



FCC RADIO TEST REPORT

FCC ID : U8G-P1MT01
Equipment : Peplink Pepwave Wireless Product
Brand Name :



PEPWAVE

Model Name : MAX BR1 Mini
MAX-BR1-MINI-LTE-US-T-PRM
MAX-BR1-MINI-LTEA-W-T-PRM
MAX-BR1-MINI-LTEA-US-T-PRM
MAX-BR1-MINI-LTE-US-DC-T-PRM
MAX-BR1-MINI-LTEA-W-DC-T-PRM
MAX-BR1-MINI-LTEA-US-DC-T-PRM
AP One Rugged
APO-AC-RUG

Applicant : PISMO LABS TECHNOLOGY LIMITED
A8, 5/F, HK Spinners Industrial Building,
Phase 6, 481 Castle Peak Road, Cheung Sha
Wan, Hong Kong

Manufacturer : PISMO LABS TECHNOLOGY LIMITED
A8, 5/F, HK Spinners Industrial Building,
Phase 6, 481 Castle Peak Road, Cheung Sha
Wan, Hong Kong

Standard : FCC Part 15 Subpart E §15.407

The product was received on Feb. 14, 2022 and testing was performed from May 25, 2022 to Oct. 08, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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



Louis Wu

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

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



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History of this test report

Report No.	Version	Description	Issue Date
FR250205C	01	Initial issue of report	Oct. 20, 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	6.91 dB under the limit at 5645.800 MHz
3.5	15.207	AC Conducted Emission	Pass	14.90 dB under the limit at 0.152 MHz
3.6	15.203	Antenna Requirement	Pass	-

Declaration of Conformity:

- 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.
- The measurement uncertainty please refer to report "Uncertainty of Evaluation".

Comments and Explanations:

- The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.
- The purpose of different model name is for marketing segmentation.

Reviewed by: Lewis Ho

Report Producer: Dewi Huang



1 General Description

1.1 Product Feature of Equipment Under Test

WCDMA/LTE, Wi-Fi 2.4GHz 802.11b/g/n, WiFi 5GHz 802.11a/n/ac, and GPS.

Product Feature	
Integrated WWAN Module 1	Brand Name: Sierra Model Name: EM7411 FCC ID: N7NEM74B
Integrated WWAN Module 2	Brand Name: Sierra Model Name: MC7455 FCC ID: N7NMC7455
Integrated WWAN Module 3	Brand Name: Telit Model Name: LE910C4-NF FCC ID: RI7LE910CXNF
Sample 1	EUT with WWAN Module 1 (EM7411) + GPS
Sample 2	EUT with WWAN Module 2 (MC7455) + GPS
Sample 3	EUT with WWAN Module 3 (LE910C4-NF) + GPS
Sample 4	EUT without WWAN Module + GPS
Antenna Type	WWAN <For EM7411>: Omni-directional Antenna <For MC7455>: Omni-directional Antenna <For LE910C4-NF >: Omni-directional Antenna WLAN: <Ant. 1>: Omni-directional Antenna <Ant. 2>: Omni-directional Antenna GPS: Directional Antenna

Antenna information		
5725 MHz ~ 5850 MHz	Peak Gain (dBi)	Ant. 1: 4.76 Ant. 2: 4.76

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

1.1.1 Antenna Gain

<For CDD Mode>

Follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01 F2)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.

Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

The directional gain "DG" is calculated as following table.

			DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
	Ant 1 (dBi)	Ant 2 (dBi)				
Band IV	4.76	4.76	4.76	7.77	0.00	1.77

Calculation example:

If a device has two antenna, $G_{ANT1} = 4.76\text{dBi}$; $G_{ANT2} = 4.76\text{dBi}$

Directional gain of power measurement = $\max(4.76, 4.76) + 0 = 4.76$ dBi

Directional gain of PSD derived from formula which is

$$10 \times \log \left\{ \left[10^{(4.76 \text{ dBi} / 20)} + 10^{(4.76 \text{ dBi} / 20)} \right]^2 \right\} / 2 \}$$

$$= 7.77 \text{ dBi}$$

Power limit reduction = Composite gain – 6dBi, (min = 0)

PSD limit reduction = Composite gain + PSD Array gain – 6dBi, (min = 0)

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 AC Conducted Emission test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory

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

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No. TH05-HY, 03CH12-HY

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

FCC designation No.: TW1190 and TW3786

1.4 Applicable Standards

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

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). 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 two antenna polarization (Horizontal and Vertical), 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

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 SISO mode conducted power is covered by MIMO mode per chain, so only the MIMO mode is tested.

The power for 802.11n mode is smaller than 802.11ac mode, so all other conducted and radiated test is covered by 802.11ac mode.

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

MIMO Mode

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

Remark: The conducted power level of each chain in MIMO mode is equal or higher than SISO mode.

Test Cases	
AC Conducted Emission	Mode 1 : WLAN (5GHz) Link + LAN Link + WAN Link + Adapter for Sample 1
	Mode 2 : WLAN (5GHz) Link + LAN Link + WAN Link + Adapter for Sample 2
	Mode 3 : WLAN (5GHz) Link + LAN Link + WAN Link + Adapter for Sample 3
	Mode 4 : WLAN (5GHz) Link + LAN Link + WAN Link + Adapter for Sample 4
	Remark: The worst case of Conducted Emission is mode 3; only the test data of it was reported.

<Sample 3>

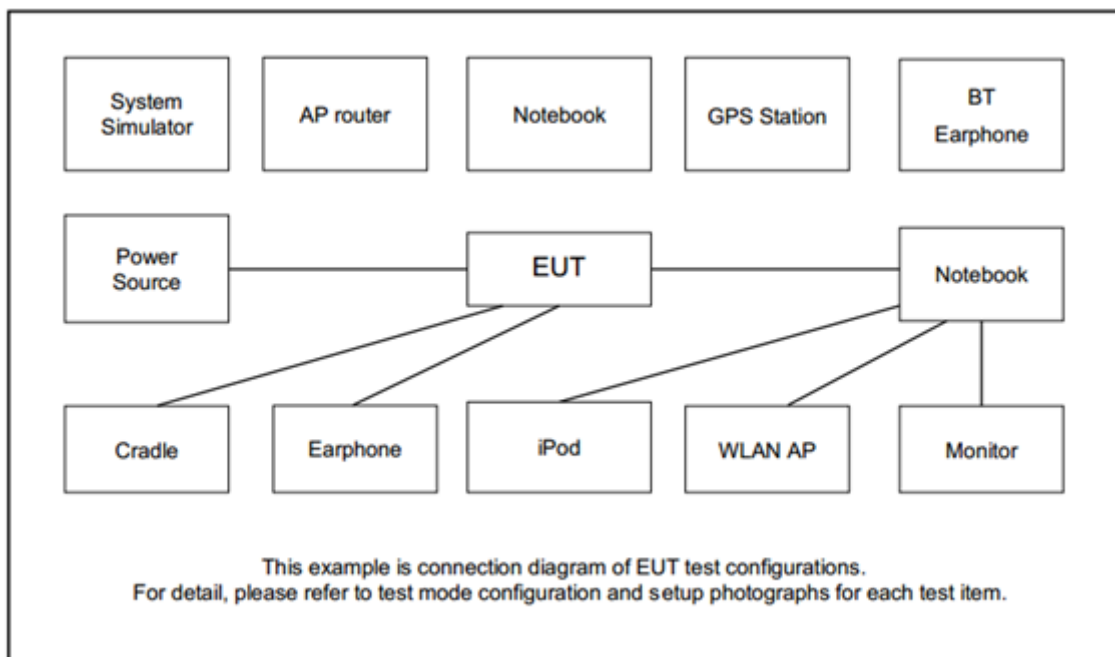
Ch. #		Band IV : 5725-5850 MHz			
		802.11a	802.11ac VHT20	802.11ac VHT40	802.11ac VHT80
L	Low	149	149	151	-
M	Middle	157	157	-	155
H	High	165	165	159	-

<Sample 4>

Ch. #		Band IV : 5725-5850 MHz			
		802.11ac VHT20			
L	Low	149			
M	Middle	-			
H	High	-			

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.	Notebook	Dell	Latitude 3400	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 "MT7615 QA 0.0.2.0" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.



2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10 dB attenuator.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 4.2 + 10 = 14.2 \text{ (dB)}\end{aligned}$$

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.

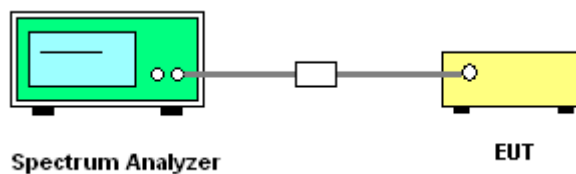
3.1.2 Measuring Instruments

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 $\geq 3 \times$ 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

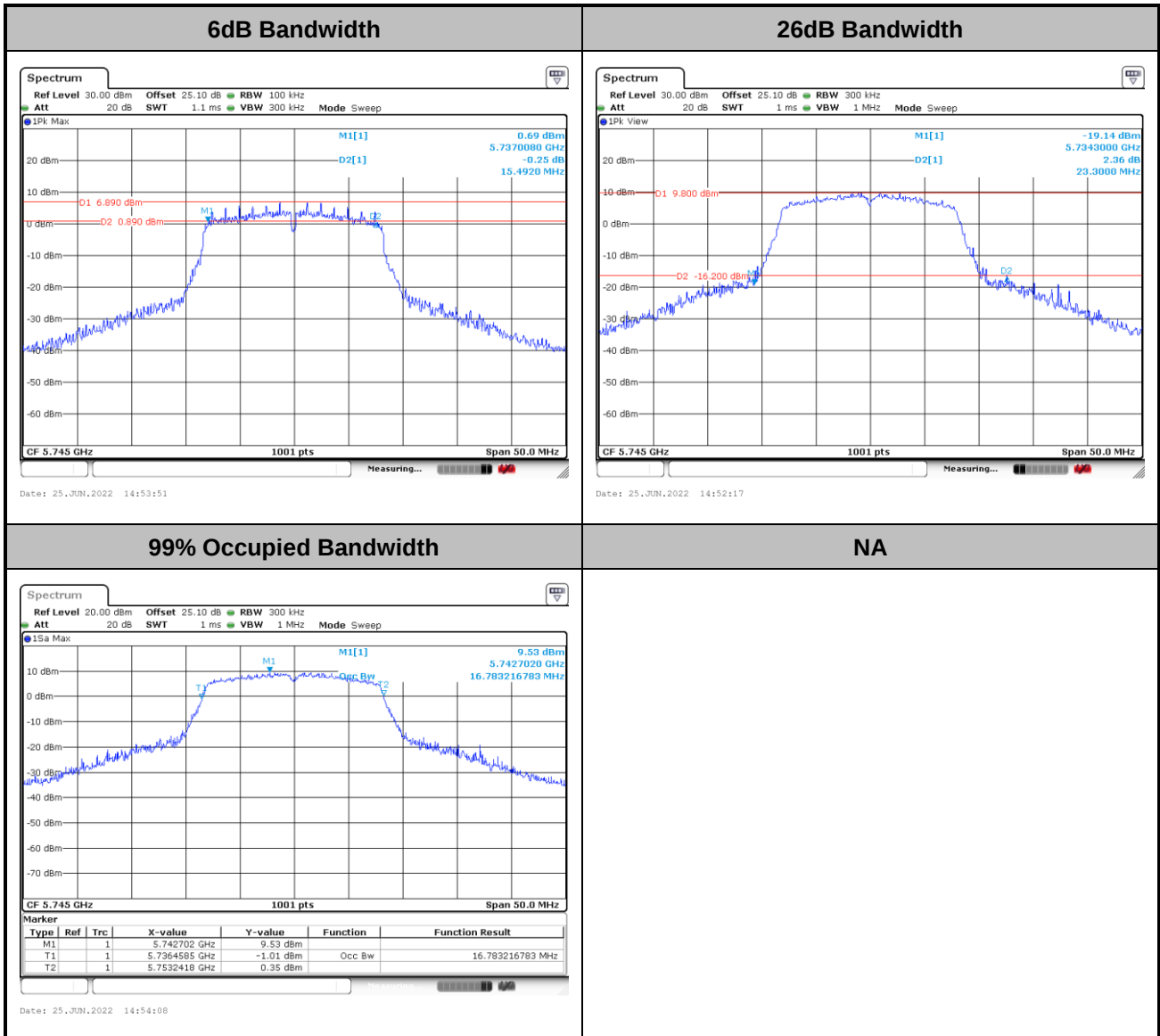


3.1.5 Test Result of 6dB and 26dB and 99% Occupied Bandwidth

Please refer to Appendix A.



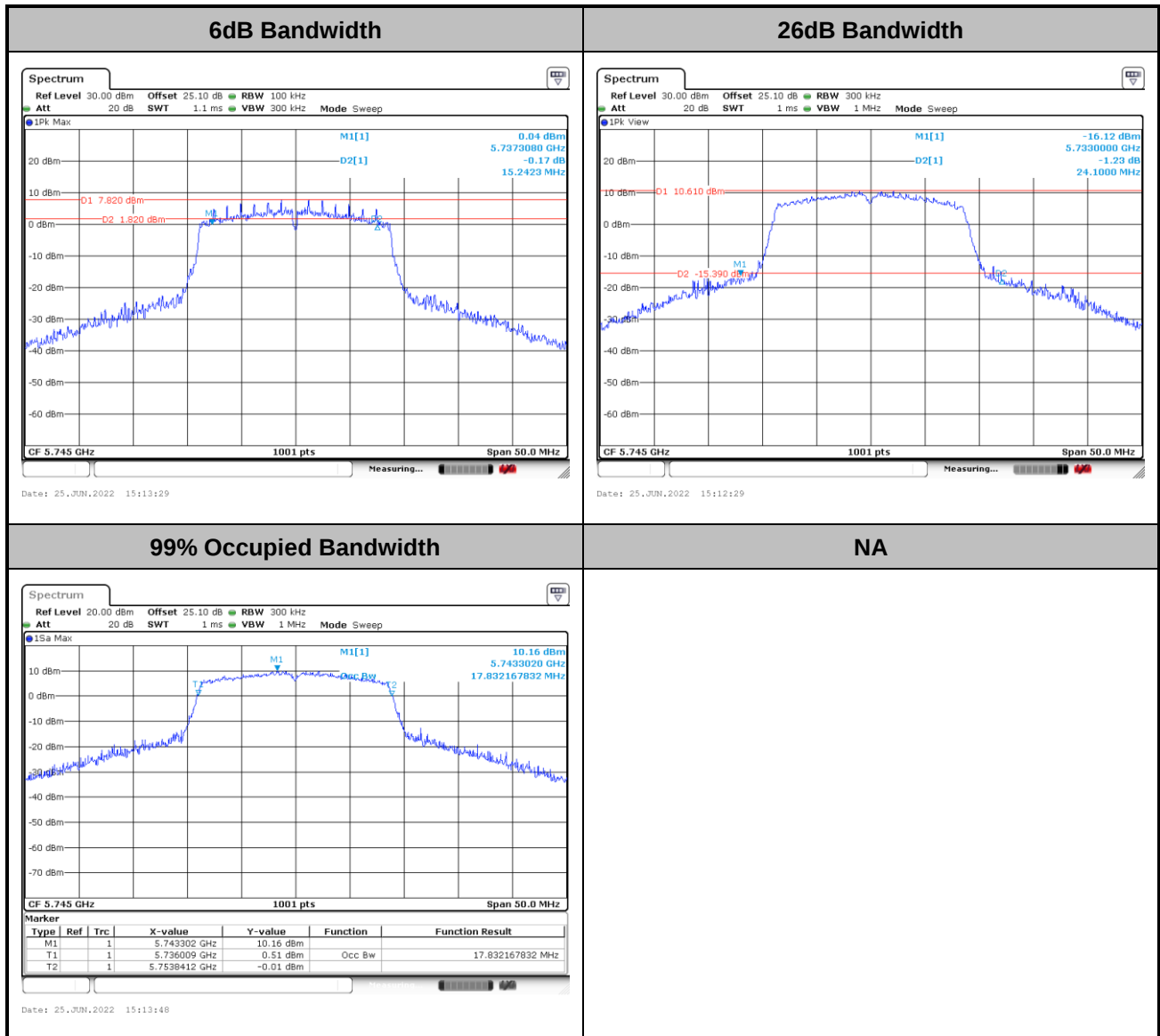
<802.11a>



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



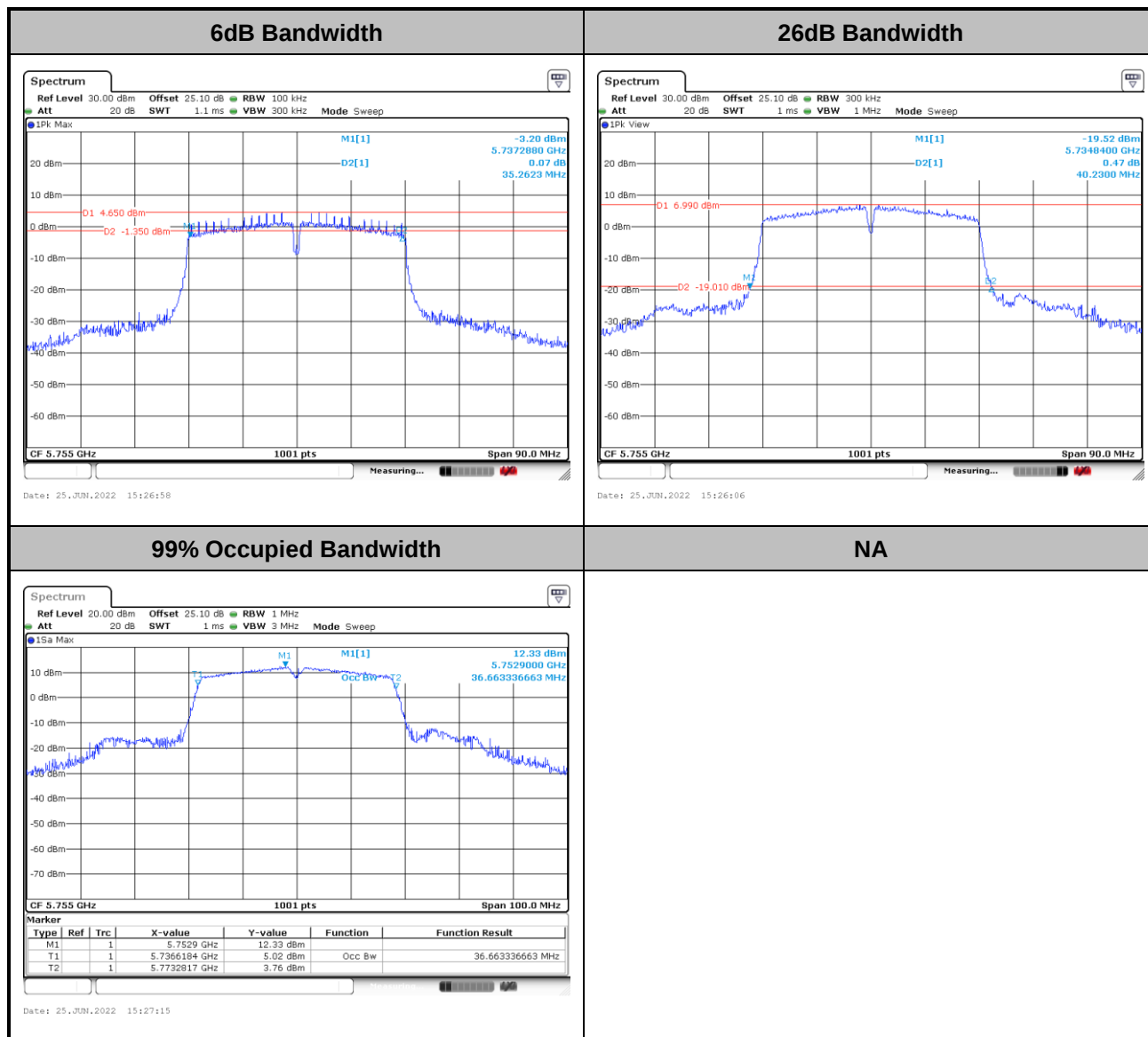
<802.11ac VHT20>



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



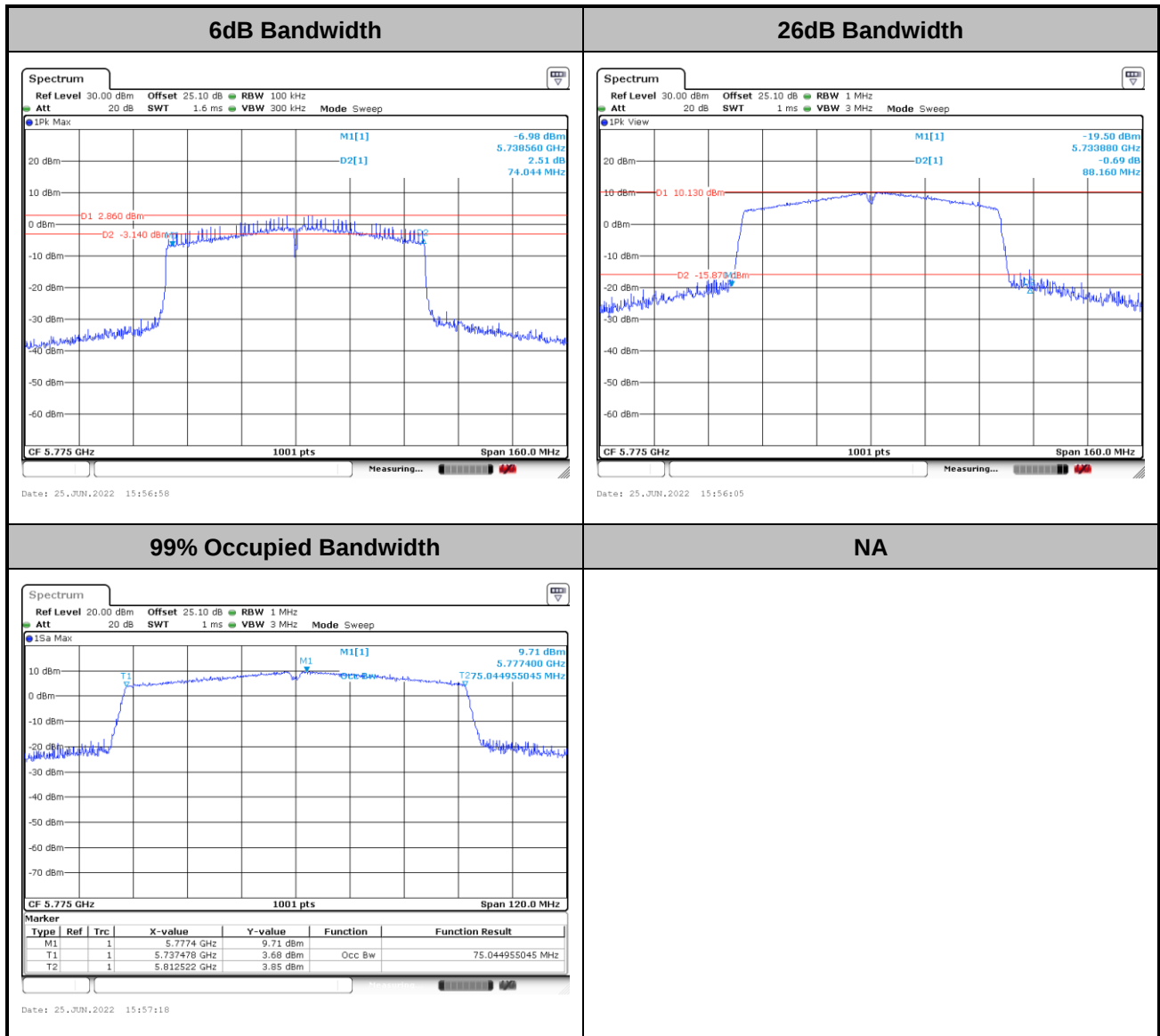
<802.11ac VHT40>



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



<802.11ac VHT80>



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.

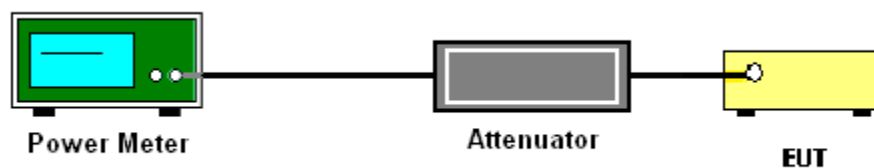
3.2.3 Test Procedures

The testing follows Method PM-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

3.2.4 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

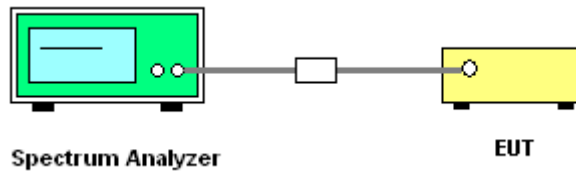
(power averaging (rms) detection with max hold):

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 300 kHz.
 - Set VBW $\geq$ 1 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Add $10 \log(500 \text{ kHz/RBW})$ to the measured result, whereas RBW ($< 500 \text{ kHz}$) is the reduced resolution bandwidth of the spectrum analyzer set during measurement
 - Sweep time $\leq$ (number of points in sweep) $\times$ 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. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (c): Measure and add $10 \log(N_{\text{ANT}})$ dB.

With this technique, spectrum measurements are performed at each output of the device, but rather than summing the spectra or the spectral peaks across the outputs, the quantity $10 \log(N_{\text{ANT}})$ dB is added to each spectrum value before comparing to the emission limit. The addition of $10 \log(N_{\text{ANT}})$ dB serves to apportion the emission limit among the N_{ANT} outputs so that each output is permitted to contribute no more than $1/N_{\text{ANT}}^{\text{th}}$ of the PSD limit.

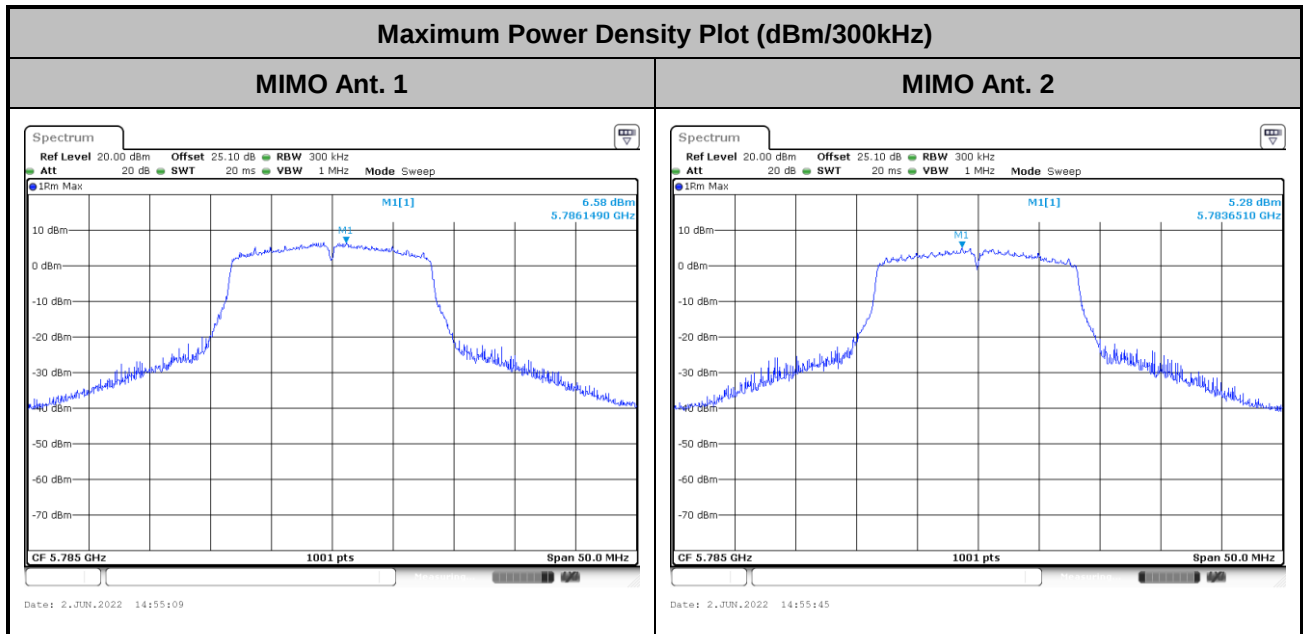
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

<802.11a>

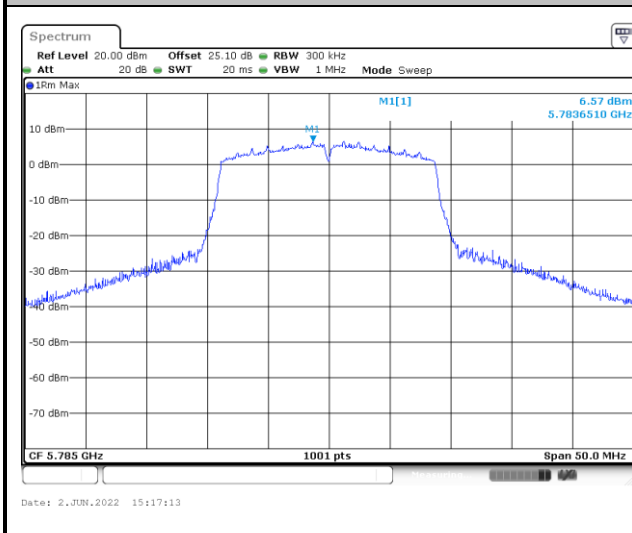




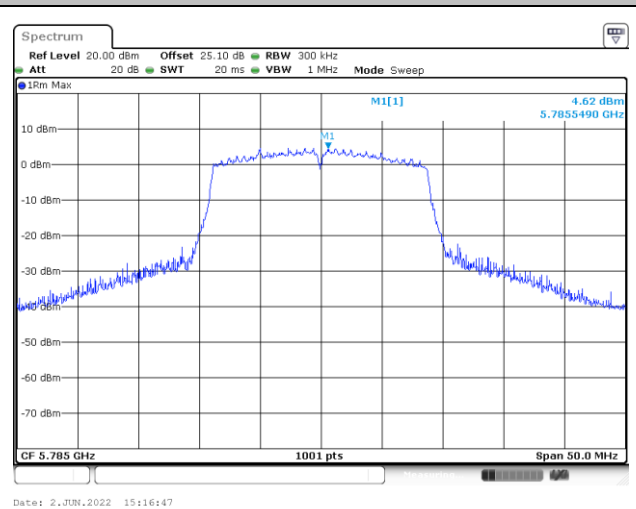
<802.11ac VHT20>

Maximum Power Density Plot (dBm/300kHz)

MIMO Ant. 1



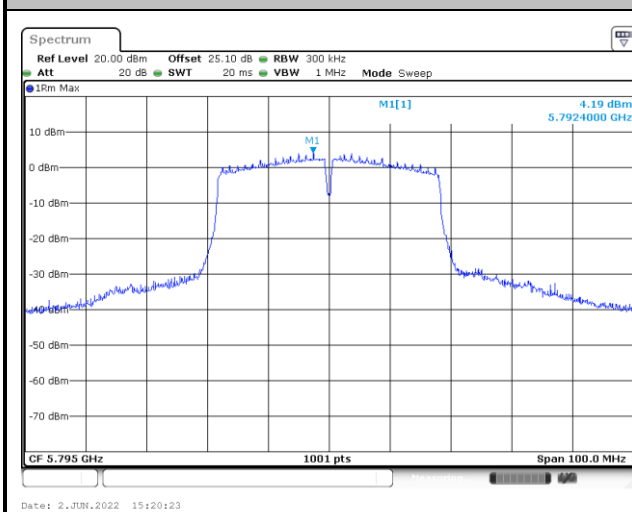
MIMO Ant. 2



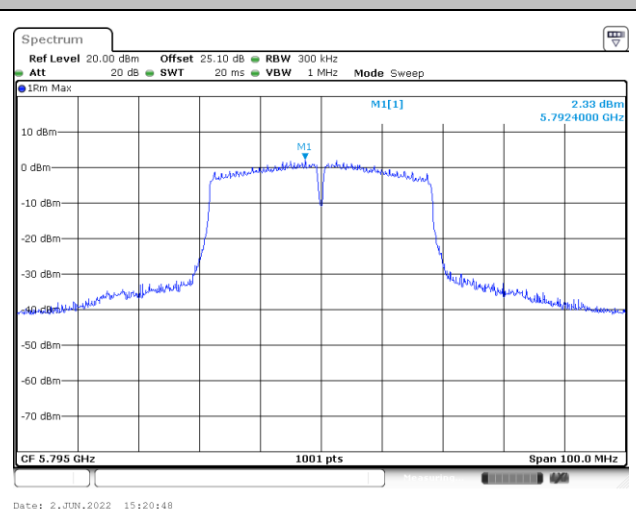
<802.11ac VHT40>

Maximum Power Density Plot (dBm/300kHz)

MIMO Ant. 1



MIMO Ant. 2

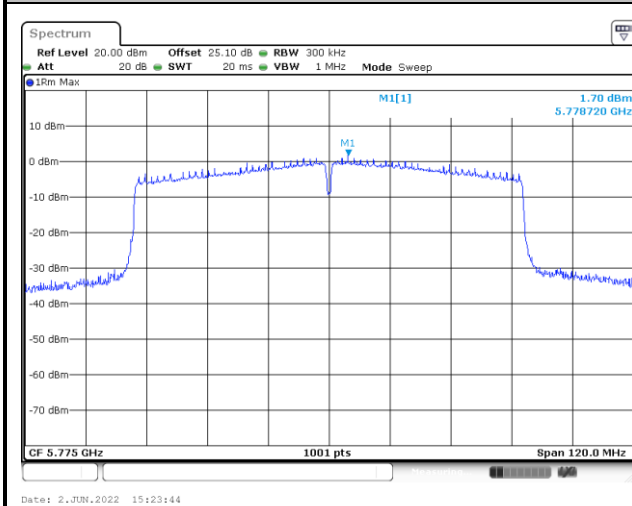




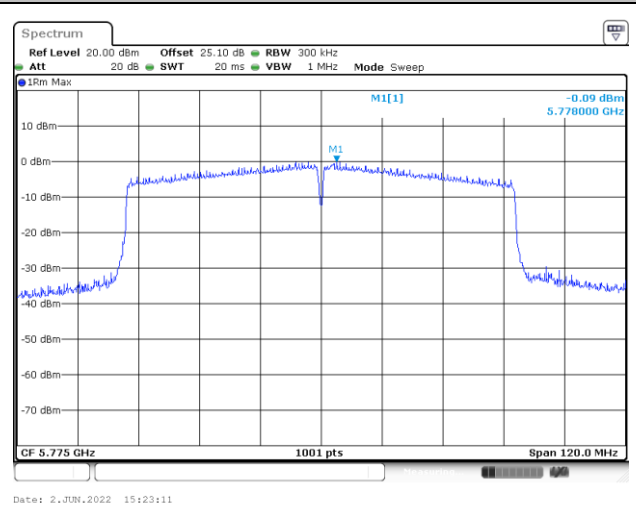
<802.11ac VHT80>

Maximum Power Density Plot (dBm/300kHz)

MIMO Ant. 1



MIMO Ant. 2



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.

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

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

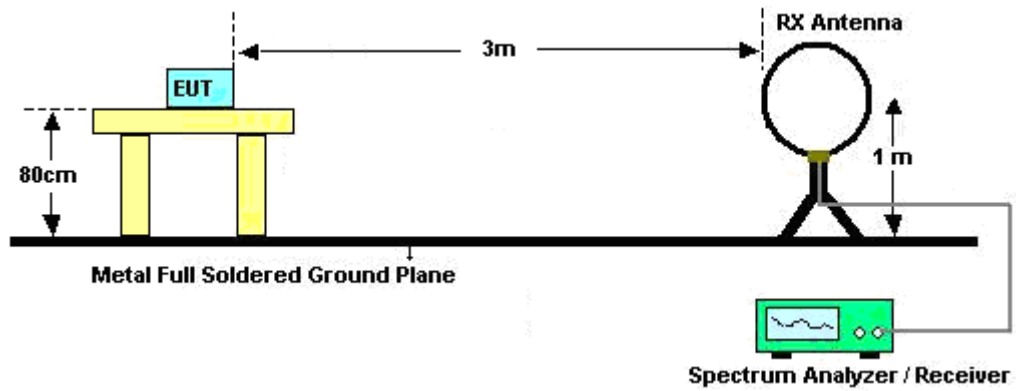
Please refer to the measuring equipment list in this test report.

3.4.3 Test Procedures

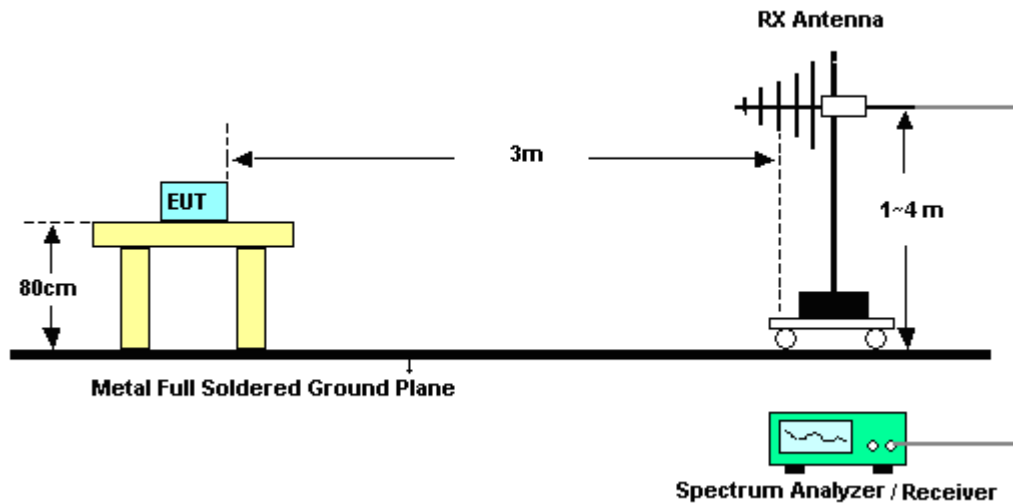
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Section G) Unwanted emissions measurement.
(1) Procedure for Unwanted Emissions Measurements Below 1000 MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold(2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold(3) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq$ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
3. The EUT is set 3 meters away from the receiving antenna which is mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT is arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-“.
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies.
When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-“.

3.4.4 Test Setup

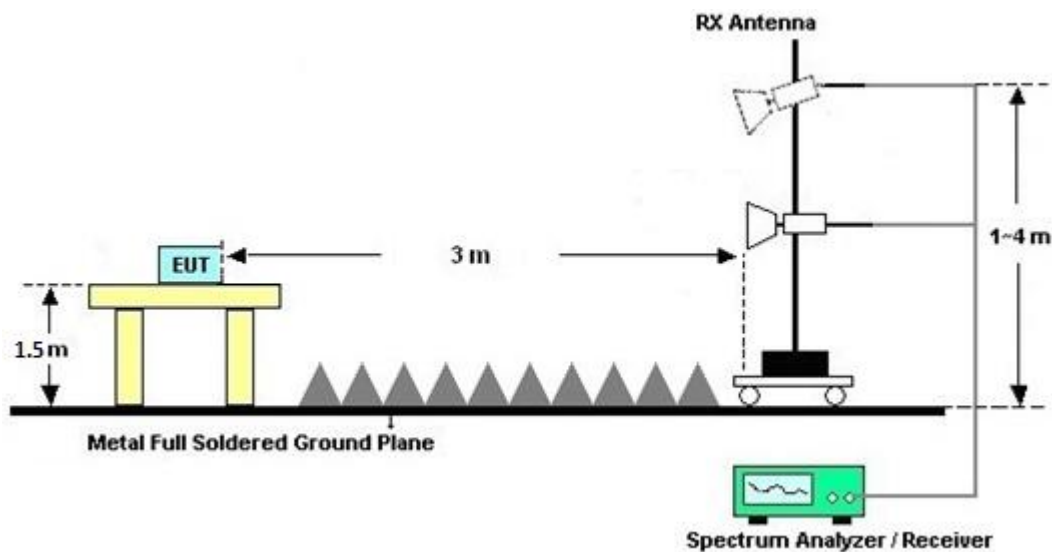
For radiated emissions below 30MHz



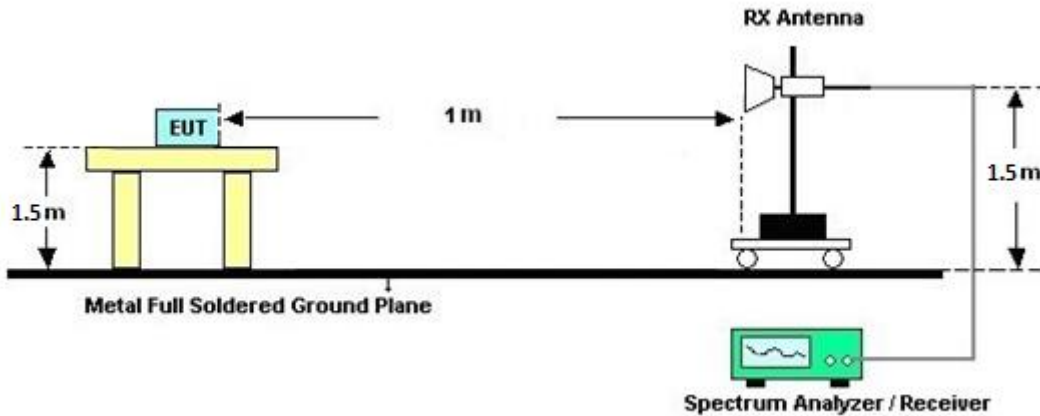
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



3.4.5 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.

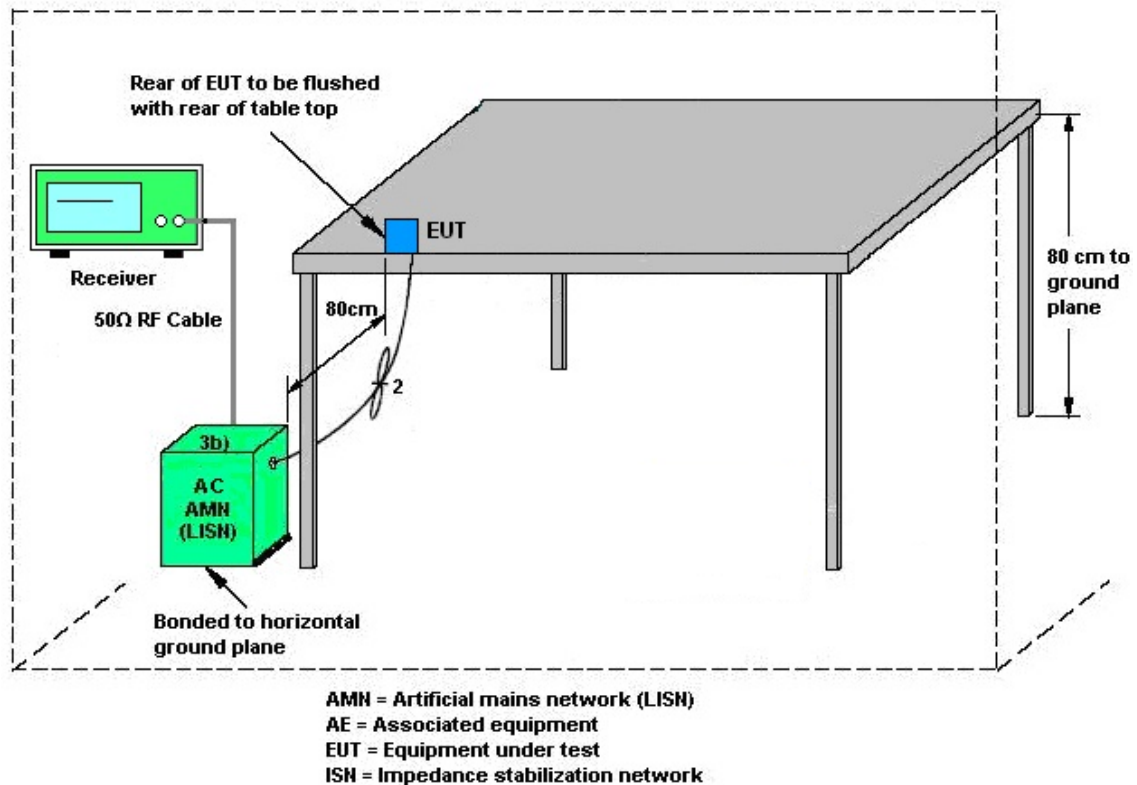
3.5.2 Measuring Instruments

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



3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.6 Antenna Requirements

3.6.1 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.

3.6.2 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
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	May 13, 2022	Jun. 16, 2022~ Oct. 08, 2022	May 12, 2023	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	40103 & 07	30MHz~1GHz	Apr. 24, 2022	Jun. 16, 2022~ Oct. 08, 2022	Apr. 23, 2023	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1328	1GHz~18GHz	Dec. 03, 2021	Jun. 16, 2022~ Oct. 08, 2022	Dec. 02, 2022	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	00993	18GHz~40GHz	Nov. 30, 2021	Jun. 16, 2022~ Oct. 08, 2022	Nov. 29, 2022	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 23, 2022	Jun. 16, 2022~ Oct. 08, 2022	Mar. 22, 2023	Radiation (03CH12-HY)
Preamplifier	Aglient	8449B	3008A02375	1GHz~26.5GHz	May 24, 2022	Jun. 16, 2022~ Oct. 08, 2022	May 23, 2023	Radiation (03CH12-HY)
Preamplifier	E-INSTRUME NT TECH LTD.	ERA-100M-18 G-56-01-A70	EC1900249	1GHz-18GHz	Dec. 22, 2021	Jun. 16, 2022~ Oct. 08, 2022	Dec. 21, 2022	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 24, 2021	Jun. 16, 2022~ Oct. 08, 2022	Dec. 23, 2022	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Jan. 12, 2022	Jun. 16, 2022~ Oct. 08, 2022	Jan. 11, 2023	Radiation (03CH12-HY)
Filter	Wainwright	WLKS1200-12 SS	SN2	1.2GHz Low Pass Filter	Mar. 15, 2022	Jun. 16, 2022~ Oct. 08, 2022	Mar. 14, 2023	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872. 5-6750-18000- 40ST	SN2	6.75GHz High Pass Filter	Mar. 15, 2022	Jun. 16, 2022~ Oct. 08, 2022	Mar. 14, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY9837/4PE	9kHz~30MHz	Mar. 10, 2022	Jun. 16, 2022~ Oct. 08, 2022	Mar. 09, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 10, 2021	Jun. 16, 2022~ Oct. 08, 2022	Dec. 09, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 21, 2022	Jun. 16, 2022~ Oct. 08, 2022	Feb. 20, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 21, 2022	Jun. 16, 2022~ Oct. 08, 2022	Feb. 20, 2023	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP200728	N/A	Mar. 22, 2022	Jun. 16, 2022~ Oct. 08, 2022	Mar. 21, 2023	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jun. 16, 2022~ Oct. 08, 2022	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jun. 16, 2022~ Oct. 08, 2022	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jun. 16, 2022~ Oct. 08, 2022	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Jun. 16, 2022~ Oct. 08, 2022	N/A	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	May 30, 2022~ Jun. 25, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO 12 (NO:113)	10MHz~6GHz	Dec. 16, 2021	May 30, 2022~ Jun. 25, 2022	Dec. 15, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	May 30, 2022~ Jun. 25, 2022	Aug. 29, 2022	Conducted (TH05-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	May 25, 2022~ Aug. 29, 2022	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 01, 2021	May 25, 2022~ Aug. 29, 2022	Nov. 30, 2022	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 17, 2021	May 25, 2022~ Aug. 29, 2022	Nov. 16, 2022	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 03, 2021	May 25, 2022~ Aug. 29, 2022	Dec. 02, 2022	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	May 25, 2022~ Aug. 29, 2022	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Jul. 28, 2021	May 25, 2022	Jul. 27, 2022	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Aug. 01, 2022	Aug. 29, 2022	Jul. 31, 2023	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 30, 2021	May 25, 2022~ Aug. 29, 2022	Dec. 29, 2022	Conduction (CO05-HY)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.1 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.8 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.4 dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.9 dB
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Sylvia Li	Temperature:	21~25	°C
Test Date:	2022/05/30~2022/06/25	Relative Humidity:	51~54	%

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

U-NII-3 MIMO												
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 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	149	5745	16.78	16.58	23.30	20.20	15.49	15.19	0.5	Pass
11a	6Mbps	2	157	5785	16.78	16.68	22.60	20.75	15.24	15.19	0.5	Pass
11a	6Mbps	2	165	5825	16.73	16.63	22.00	21.30	15.19	15.74	0.5	Pass
VHT20	MCS0	2	149	5745	17.83	17.63	24.10	23.05	15.24	16.39	0.5	Pass
VHT20	MCS0	2	157	5785	17.78	17.68	25.35	22.20	15.24	15.79	0.5	Pass
VHT20	MCS0	2	165	5825	17.73	17.63	24.45	22.60	15.19	15.79	0.5	Pass
VHT40	MCS0	2	151	5755	36.66	36.46	40.23	39.87	35.26	35.26	0.5	Pass
VHT40	MCS0	2	159	5795	36.56	36.56	40.32	40.14	35.26	35.26	0.5	Pass
VHT80	MCS0	2	155	5775	75.04	74.93	88.16	81.12	74.04	75.32	0.5	Pass

TEST RESULTS DATA
Average Power Table

U-NII-3 MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	18.60	18.20	21.41	30.00		4.76		Pass
11a	6Mbps	2	157	5785	19.40	17.80	21.68	30.00		4.76		Pass
11a	6Mbps	2	165	5825	18.90	18.00	21.48	30.00		4.76		Pass
HT20	MCS0	2	149	5745	18.50	17.80	21.17	30.00		4.76		Pass
HT20	MCS0	2	157	5785	19.20	17.40	21.40	30.00		4.76		Pass
HT20	MCS0	2	165	5825	18.70	17.90	21.33	30.00		4.76		Pass
HT40	MCS0	2	151	5755	18.50	17.60	21.08	30.00		4.76		Pass
HT40	MCS0	2	159	5795	19.20	17.20	21.32	30.00		4.76		Pass
VHT20	MCS0	2	149	5745	18.60	17.90	21.27	30.00		4.76		Pass
VHT20	MCS0	2	157	5785	19.30	17.50	21.50	30.00		4.76		Pass
VHT20	MCS0	2	165	5825	18.80	18.00	21.43	30.00		4.76		Pass
VHT40	MCS0	2	151	5755	18.60	17.70	21.18	30.00		4.76		Pass
VHT40	MCS0	2	159	5795	19.30	17.30	21.42	30.00		4.76		Pass
VHT80	MCS0	2	155	5775	19.10	17.80	21.51	30.00		4.76		Pass

TEST RESULTS DATA
Power Spectral Density

U-NII-3 MIMO														
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 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	2.22		8.13	7.59	11.14	28.23		7.77		Pass
11a	6Mbps	2	157	5785	2.22		8.80	7.50	11.81	28.23		7.77		Pass
11a	6Mbps	2	165	5825	2.22		8.22	7.50	11.23	28.23		7.77		Pass
VHT20	MCS0	2	149	5745	2.22		7.96	7.30	10.97	28.23		7.77		Pass
VHT20	MCS0	2	157	5785	2.22		8.79	6.84	11.80	28.23		7.77		Pass
VHT20	MCS0	2	165	5825	2.22		8.19	7.49	11.20	28.23		7.77		Pass
VHT40	MCS0	2	151	5755	2.22		5.47	4.91	8.48	28.23		7.77		Pass
VHT40	MCS0	2	159	5795	2.22		6.41	4.55	9.42	28.23		7.77		Pass
VHT80	MCS0	2	155	5775	2.22		3.92	2.13	6.93	28.23		7.77		Pass

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



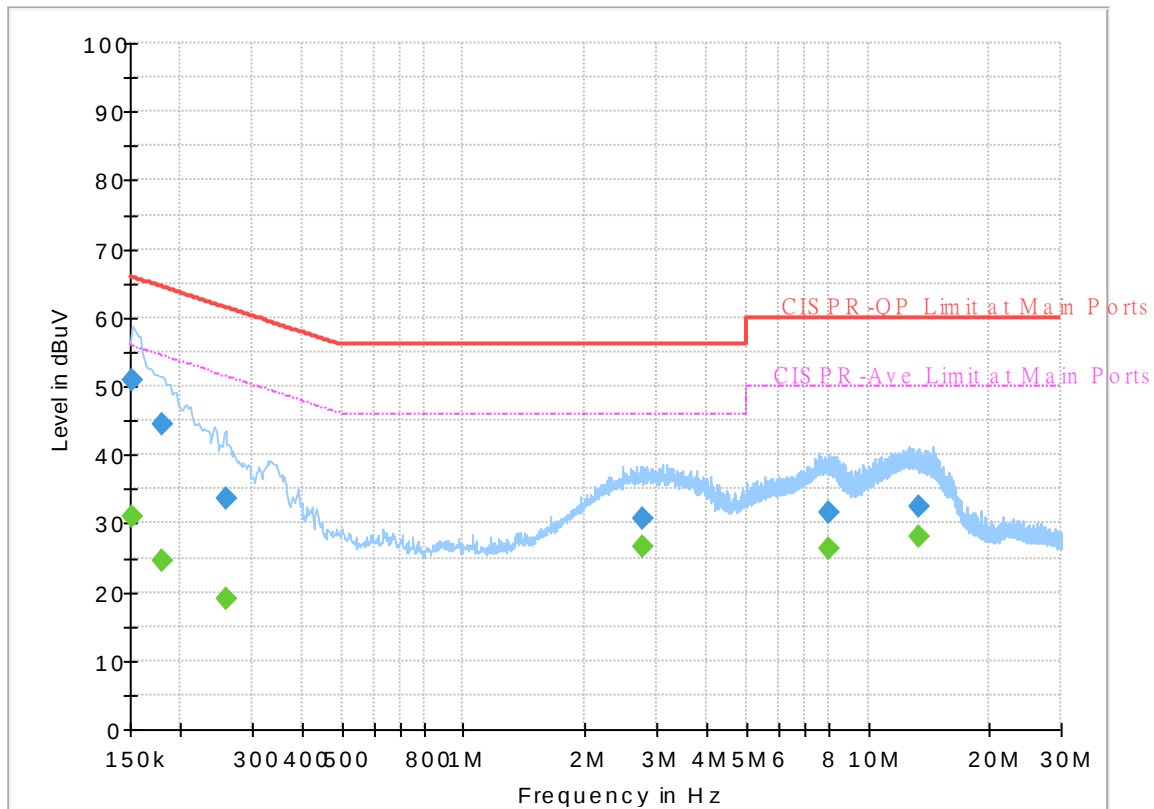
Appendix B. AC Conducted Emission Test Results

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

EUT Information

Report NO : 250205
Test Mode : Mode 3
Test Voltage : 120Vac/60Hz
Phase : Line

Full Spectrum



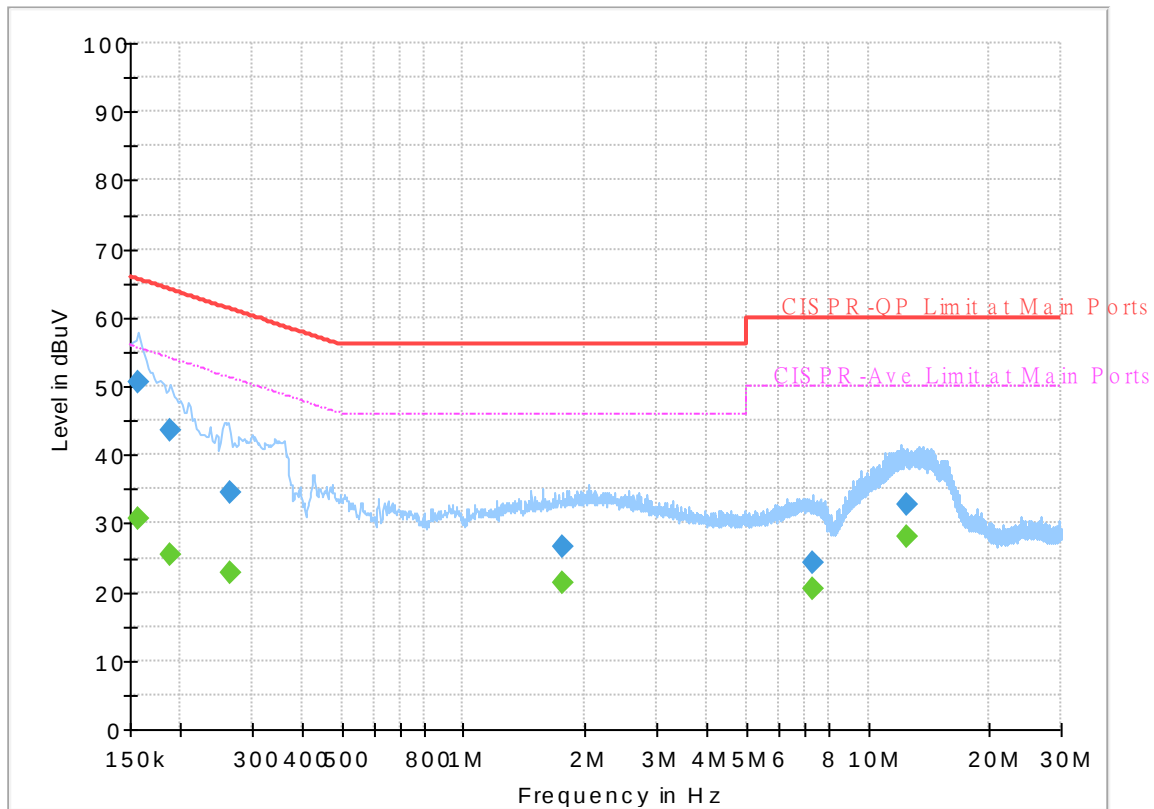
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	50.98	---	65.88	14.90	L1	OFF	19.6
0.152250	---	31.09	55.88	24.79	L1	OFF	19.6
0.179250	44.30	---	64.52	20.22	L1	OFF	19.6
0.179250	---	24.50	54.52	30.02	L1	OFF	19.6
0.258000	33.76	---	61.50	27.74	L1	OFF	19.6
0.258000	---	19.09	51.50	32.41	L1	OFF	19.6
2.771250	30.79	---	56.00	25.21	L1	OFF	19.6
2.771250	---	26.57	46.00	19.43	L1	OFF	19.6
7.973250	31.62	---	60.00	28.38	L1	OFF	19.7
7.973250	---	26.34	50.00	23.66	L1	OFF	19.7
13.337250	32.60	---	60.00	27.40	L1	OFF	19.8
13.337250	---	28.01	50.00	21.99	L1	OFF	19.8

EUT Information

Report NO : 250205
Test Mode : Mode 3
Test Voltage : 120Vac/60Hz
Phase : Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156750	50.51	---	65.63	15.12	N	OFF	19.6
0.156750	---	30.70	55.63	24.93	N	OFF	19.6
0.188250	43.54	---	64.11	20.57	N	OFF	19.6
0.188250	---	25.44	54.11	28.67	N	OFF	19.6
0.264750	34.43	---	61.28	26.85	N	OFF	19.6
0.264750	---	22.72	51.28	28.56	N	OFF	19.6
1.763250	26.52	---	56.00	29.48	N	OFF	19.6
1.763250	---	21.21	46.00	24.79	N	OFF	19.6
7.296000	24.34	---	60.00	35.66	N	OFF	19.7
7.296000	---	20.40	50.00	29.60	N	OFF	19.7
12.444000	32.80	---	60.00	27.20	N	OFF	19.8
12.444000	---	28.16	50.00	21.84	N	OFF	19.8



Appendix C. Radiated Spurious Emission

Test Engineer :	Jack Cheng, Tim Lee and Wilson Wu	Temperature :	20~25°C
		Relative Humidity :	50~60%

<Sample 3>

Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preampl Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		5617.6	51.59	-16.61	68.2	42.98	31.74	10.46	33.59	306	311	P	H
		5684.2	52.67	-40.87	93.54	43.87	31.87	10.53	33.6	306	311	P	H
		5711.4	53.88	-54.51	108.39	44.93	31.99	10.56	33.6	306	311	P	H
		5724.8	58.05	-63.69	121.74	48.98	32.1	10.57	33.6	306	311	P	H
	*	5745	103.93	-	-	94.68	32.26	10.59	33.6	306	311	P	H
	*	5745	97.74	-	-	88.49	32.26	10.59	33.6	306	311	A	H
													H
													H
		5639.8	56.32	-11.88	68.2	47.65	31.78	10.48	33.59	300	306	P	V
		5695.4	58.13	-43.68	101.81	49.3	31.89	10.54	33.6	300	306	P	V
		5703	61.39	-44.65	106.04	52.52	31.92	10.55	33.6	300	306	P	V
		5725	70.58	-51.62	122.2	61.51	32.1	10.57	33.6	300	306	P	V
	*	5745	112.7	-	-	103.45	32.26	10.59	33.6	300	306	P	V
	*	5745	109.35	-	-	100.1	32.26	10.59	33.6	300	306	A	V
													V
													V
													V
													V
													V
													V



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)
802.11a CH 157 5785MHz		5645.6	51.96	-16.24	68.2	43.27	31.79	10.49	33.59	100	125	P	H
		5698.4	51.23	-52.79	104.02	42.39	31.9	10.54	33.6	100	125	P	H
		5711.2	51.24	-57.1	108.34	42.29	31.99	10.56	33.6	100	125	P	H
		5720.6	51.16	-61.01	112.17	42.13	32.06	10.57	33.6	100	125	P	H
	*	5785	101.25	-	-	91.86	32.37	10.63	33.61	100	125	P	H
	*	5785	95.67	-	-	86.28	32.37	10.63	33.61	100	125	A	H
		5850	51.76	-70.44	122.2	42.09	32.6	10.69	33.62	100	125	P	H
		5859	52.22	-57.46	109.68	42.55	32.6	10.69	33.62	100	125	P	H
		5880.2	52.65	-48.69	101.34	42.96	32.6	10.71	33.62	100	125	P	H
		5942.8	51.93	-16.27	68.2	42.19	32.6	10.76	33.62	100	125	P	H
													H
													H
		5613.2	56.17	-12.03	68.2	47.58	31.73	10.45	33.59	323	232	P	V
		5686.6	58.58	-36.74	95.32	49.78	31.87	10.53	33.6	323	232	P	V
		5703.6	59.57	-46.64	106.21	50.69	31.93	10.55	33.6	323	232	P	V
		5723.6	58.42	-60.59	119.01	49.36	32.09	10.57	33.6	323	232	P	V
	*	5785	115.07	-	-	105.68	32.37	10.63	33.61	323	232	P	V
	*	5785	108.85	-	-	99.46	32.37	10.63	33.61	323	232	A	V
		5850	57.27	-64.93	122.2	47.6	32.6	10.69	33.62	323	232	P	V
		5866.4	59.93	-47.68	107.61	50.25	32.6	10.7	33.62	323	232	P	V
		5876.6	57.25	-46.76	104.01	47.56	32.6	10.71	33.62	323	232	P	V
		5934	55.68	-12.52	68.2	45.95	32.6	10.75	33.62	323	232	P	V
													V
													V



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)
802.11a CH 165 5825MHz	*	5825	102.05	-	-	92.49	32.5	10.67	33.61	119	140	P	H
	*	5825	94.88	-	-	85.32	32.5	10.67	33.61	119	140	A	H
		5850.8	52.71	-67.67	120.38	43.04	32.6	10.69	33.62	119	140	P	H
		5868	53.78	-53.38	107.16	44.1	32.6	10.7	33.62	119	140	P	H
		5897	53.75	-35.13	88.88	44.05	32.6	10.72	33.62	119	140	P	H
		5943.2	51.96	-16.24	68.2	42.22	32.6	10.76	33.62	119	140	P	H
													H
													H
	*	5825	118.16	-	-	108.6	32.5	10.67	33.61	234	62	P	V
	*	5825	110.51	-	-	100.95	32.5	10.67	33.61	234	62	A	V
		5852.2	64.63	-52.55	117.18	54.96	32.6	10.69	33.62	234	62	P	V
		5872.2	59.7	-46.28	105.98	50.02	32.6	10.7	33.62	234	62	P	V
		5904.6	60	-23.26	83.26	50.29	32.6	10.73	33.62	234	62	P	V
		5931	58.32	-9.88	68.2	48.59	32.6	10.75	33.62	234	62	P	V
													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. 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)
802.11a CH 149 5745MHz		10971	52.16	-21.84	74	61.45	40.46	17.09	66.84	-	-	P	H
		10971	41.73	-12.27	54	51.02	40.46	17.09	66.84	-	-	A	H
		11490	49.64	-24.36	74	58.55	40	17.48	66.39	200	294	P	H
		11490	39.51	-14.49	54	48.42	40	17.48	66.39	200	294	A	H
		14480	52.78	-21.22	74	57.53	41.64	19.79	66.18	-	-	P	H
		14480	42.51	-11.49	54	47.26	41.64	19.79	66.18	-	-	A	H
		17235	53	-15.2	68.2	57.94	40.84	21.47	67.25	-	-	P	H
		18000	62.72	-11.28	74	59.97	50	22.03	69.28	-	-	P	H
		18000	47.07	-6.93	54	44.32	50	22.03	69.28	-	-	A	H
													H
													H
													H
		11004	52.44	-21.56	74	61.75	40.38	17.12	66.81	-	-	P	V
		11004	42.44	-11.56	54	51.75	40.38	17.12	66.81	-	-	A	V
		11490	55.58	-18.42	74	64.49	40	17.48	66.39	100	128	P	V
		11490	45.73	-8.27	54	54.64	40	17.48	66.39	100	128	A	V
		14480	52.61	-21.39	74	57.36	41.64	19.79	66.18	-	-	P	V
		14480	42.57	-11.43	54	47.32	41.64	19.79	66.18	-	-	A	V
		17235	52.25	-15.95	68.2	57.19	40.84	21.47	67.25	-	-	P	V
		17956	62.79	-11.21	74	61.15	48.81	22	69.17	-	-	P	V
		17956	46.06	-7.94	54	44.42	48.81	22	69.17	-	-	A	V
													V
													V
													V



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)
802.11a CH 157 5785MHz		10883	51.55	-22.45	74	60.96	40.51	17.01	66.93	-	-	P	H
		10883	41.08	-12.92	54	50.49	40.51	17.01	66.93	-	-	A	H
		11570	49.86	-24.14	74	58.94	39.72	17.54	66.34	400	254	P	H
		11570	39.19	-14.81	54	48.27	39.72	17.54	66.34	400	254	A	H
		14480	52.95	-21.05	74	57.7	41.64	19.79	66.18	-	-	P	H
		14480	42.79	-11.21	54	47.54	41.64	19.79	66.18	-	-	A	H
		17355	55.8	-12.4	68.2	60.36	41.49	21.55	67.6	-	-	P	H
		17989	53.01	-20.99	74	50.54	49.7	22.02	69.25	-	-	P	H
		17989	49.59	-4.41	54	47.12	49.7	22.02	69.25	-	-	A	H
													H
													H
													H
		10960	51.53	-22.47	74	60.82	40.48	17.08	66.85	-	-	P	V
		10960	41.43	-12.57	54	50.72	40.48	17.08	66.85	-	-	A	V
		11570	50.35	-23.65	74	59.43	39.72	17.54	66.34	400	249	P	V
		11570	40.35	-13.65	54	49.43	39.72	17.54	66.34	400	249	A	V
		14491	53.46	-20.54	74	58.16	41.67	19.8	66.17	-	-	P	V
		14491	43.75	-10.25	54	48.45	41.67	19.8	66.17	-	-	A	V
		17355	53.29	-14.91	68.2	57.85	41.49	21.55	67.6	-	-	P	V
		17956	62.32	-11.68	74	60.68	48.81	22	69.17	-	-	P	V
		17956	47.5	-6.5	54	45.86	48.81	22	69.17	-	-	A	V
													V
													V
													V

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.		(MHz)	(dBμV/m)	(dB)	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2					(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 165 5825MHz		10982	52.03	-21.97	74	61.33	40.44	17.09	66.83	-	-	P	H
		10982	41.96	-12.04	54	51.26	40.44	17.09	66.83	-	-	A	H
		11650	51.18	-22.82	74	60.49	39.4	17.59	66.3	200	245	P	H
		11650	40.02	-13.98	54	49.33	39.4	17.59	66.3	200	245	A	H
		14491	53.47	-20.53	74	58.17	41.67	19.8	66.17	-	-	P	H
		14491	43.88	-10.12	54	48.58	41.67	19.8	66.17	-	-	A	H
		17475	55.13	-13.07	68.2	59.19	42.25	21.65	67.96	-	-	P	H
		18000	62.11	-11.89	74	59.36	50	22.03	69.28	-	-	P	H
		18000	45.97	-8.03	54	43.22	50	22.03	69.28	-	-	A	H
													H
													H
													H
		10993	51.32	-22.68	74	60.63	40.41	17.1	66.82	-	-	P	V
		10993	41.22	-12.78	54	50.53	40.41	17.1	66.82	-	-	A	V
		11650	49.76	-24.24	74	59.07	39.4	17.59	66.3	400	35	P	V
		11650	41.82	-12.18	54	51.13	39.4	17.59	66.3	400	35	A	V
		14491	53.56	-20.44	74	58.26	41.67	19.8	66.17	-	-	P	V
		14491	43.87	-10.13	54	48.57	41.67	19.8	66.17	-	-	A	V
		17475	54.51	-13.69	68.2	58.57	42.25	21.65	67.96	-	-	P	V
		18000	62.08	-11.92	74	59.33	50	22.03	69.28	-	-	P	V
		18000	47.08	-6.92	54	44.33	50	22.03	69.28	-	-	A	V
													V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												
	3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												
	4. The emission level close to 18GHz is checked that the average emission level is noise floor only.												



Band 4 5725~5850MHz

WIFI 802.11ac VHT20 (Band Edge @ 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)
802.11ac VHT20 CH 149 5745MHz		5633.6	51.14	-17.06	68.2	42.48	31.77	10.48	33.59	119	123	P	H
		5681.8	53.03	-38.74	91.77	44.24	31.86	10.53	33.6	119	123	P	H
		5718.6	51.73	-58.68	110.41	42.72	32.05	10.56	33.6	119	123	P	H
		5723.2	55.18	-62.92	118.1	46.12	32.09	10.57	33.6	119	123	P	H
	*	5745	102.28	-	-	93.03	32.26	10.59	33.6	119	123	P	H
	*	5745	94.53	-	-	85.28	32.26	10.59	33.6	119	123	A	H
													H
													H
		5645.8	61.29	-6.91	68.2	52.6	31.79	10.49	33.59	237	62	P	V
		5663.2	62.76	-15.24	78	54.02	31.83	10.51	33.6	237	62	P	V
		5718.2	63.26	-47.04	110.3	54.25	32.05	10.56	33.6	237	62	P	V
		5724.6	73.27	-48.02	121.29	64.2	32.1	10.57	33.6	237	62	P	V
	*	5745	119.25	-	-	110	32.26	10.59	33.6	237	62	P	V
	*	5745	110.74	-	-	101.49	32.26	10.59	33.6	237	62	A	V
													V
													V



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)
802.11ac VHT20 CH 157 5785MHz		5639	51.55	-16.65	68.2	42.88	31.78	10.48	33.59	100	123	P	H
		5652.6	52.13	-18	70.13	43.42	31.81	10.5	33.6	100	123	P	H
		5712.2	52.45	-56.17	108.62	43.49	32	10.56	33.6	100	123	P	H
		5722.2	53.05	-62.77	115.82	44	32.08	10.57	33.6	100	123	P	H
	*	5785	103.05	-	-	93.66	32.37	10.63	33.61	100	123	P	H
	*	5785	95.75	-	-	86.36	32.37	10.63	33.61	100	123	A	H
		5851.8	53.37	-64.73	118.1	43.7	32.6	10.69	33.62	100	123	P	H
		5857	53.97	-56.27	110.24	44.3	32.6	10.69	33.62	100	123	P	H
		5886.8	53.4	-43.04	96.44	43.7	32.6	10.72	33.62	100	123	P	H
		5925.6	51.92	-16.28	68.2	42.2	32.6	10.74	33.62	100	123	P	H
													H
													H
		5631	58.55	-9.65	68.2	49.91	31.76	10.47	33.59	231	63	P	V
		5679.6	60.51	-29.63	90.14	51.73	31.86	10.52	33.6	231	63	P	V
		5709	61.2	-46.52	107.72	52.28	31.97	10.55	33.6	231	63	P	V
		5722.6	58.55	-58.18	116.73	49.5	32.08	10.57	33.6	231	63	P	V
	*	5785	118.43	-	-	109.04	32.37	10.63	33.61	231	63	P	V
	*	5785	110.57	-	-	101.18	32.37	10.63	33.61	231	63	A	V
		5852.8	58.33	-57.49	115.82	48.66	32.6	10.69	33.62	231	63	P	V
		5863.8	62.03	-46.3	108.33	52.35	32.6	10.7	33.62	231	63	P	V
		5891.8	60.09	-32.64	92.73	50.39	32.6	10.72	33.62	231	63	P	V
		5930	56.63	-11.57	68.2	46.9	32.6	10.75	33.62	231	63	P	V
													V
													V



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)
802.11ac VHT20 CH 165 5825MHz	*	5825	103.03	-	-	93.47	32.5	10.67	33.61	119	121	P	H
	*	5825	95.45	-	-	85.89	32.5	10.67	33.61	119	121	A	H
		5850.6	52.1	-68.73	120.83	42.43	32.6	10.69	33.62	119	121	P	H
		5861.2	53.45	-55.61	109.06	43.77	32.6	10.7	33.62	119	121	P	H
		5905.8	53.61	-28.76	82.37	43.9	32.6	10.73	33.62	119	121	P	H
		5938.6	52.65	-15.55	68.2	42.92	32.6	10.75	33.62	119	121	P	H
													H
													H
	*	5825	117.99	-	-	108.43	32.5	10.67	33.61	234	60	P	V
	*	5825	110.19	-	-	100.63	32.5	10.67	33.61	234	60	A	V
		5852.8	65.45	-50.37	115.82	55.78	32.6	10.69	33.62	234	60	P	V
		5856.8	62.27	-48.03	110.3	52.6	32.6	10.69	33.62	234	60	P	V
		5894.2	60.3	-30.65	90.95	50.6	32.6	10.72	33.62	234	60	P	V
		5938.8	59.64	-8.56	68.2	49.91	32.6	10.75	33.62	234	60	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. 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)
802.11ac VHT20 CH 149 5745MHz		10916	52.22	-21.78	74	61.5	40.57	17.04	66.89	-	-	P	H
		10916	42.22	-11.78	54	51.5	40.57	17.04	66.89	-	-	A	H
		11490	50.96	-23.04	74	59.87	40	17.48	66.39	100	159	P	H
		11490	41.25	-12.75	54	50.16	40	17.48	66.39	100	159	A	H
		14491	52.69	-21.31	74	57.39	41.67	19.8	66.17	-	-	P	H
		14491	42.66	-11.34	54	47.36	41.67	19.8	66.17	-	-	A	H
		17235	53.68	-14.52	68.2	58.62	40.84	21.47	67.25	-	-	P	H
		17989	62.53	-11.47	74	60.06	49.7	22.02	69.25	-	-	P	H
		17989	47.49	-6.51	54	45.02	49.7	22.02	69.25	-	-	A	H
													H
													H
													H
		10949	52.03	-21.97	74	61.32	40.5	17.07	66.86	-	-	P	V
		10949	41.95	-12.05	54	51.24	40.5	17.07	66.86	-	-	A	V
		11490	50.14	-23.86	74	59.05	40	17.48	66.39	300	360	P	V
		11490	40.05	-13.95	54	48.96	40	17.48	66.39	300	360	A	V
		14491	52.52	-21.48	74	57.22	41.67	19.8	66.17	-	-	P	V
		14491	43	-11	54	47.7	41.67	19.8	66.17	-	-	A	V
		17235	53.29	-14.91	68.2	58.23	40.84	21.47	67.25	-	-	P	V
		17945	62.96	-11.04	74	61.6	48.51	21.99	69.14	-	-	P	V
		17945	47.65	-6.35	54	46.29	48.51	21.99	69.14	-	-	A	V
													V
													V
													V



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)
802.11ac VHT20 CH 157 5785MHz		10905	52.63	-21.37	74	61.91	40.59	17.03	66.9	-	-	P	H
		10905	42.67	-11.33	54	51.95	40.59	17.03	66.9	-	-	A	H
		11570	50.03	-23.97	74	59.11	39.72	17.54	66.34	200	313	P	H
		11570	40.54	-13.46	54	49.62	39.72	17.54	66.34	200	313	A	H
		14491	53.25	-20.75	74	57.95	41.67	19.8	66.17	-	-	P	H
		14491	43.15	-10.85	54	47.85	41.67	19.8	66.17	-	-	A	H
		17355	53.76	-14.44	68.2	58.32	41.49	21.55	67.6	-	-	P	H
		17967	62.53	-11.47	74	60.61	49.11	22.01	69.2	-	-	P	H
		17967	47.4	-6.6	54	45.48	49.11	22.01	69.2	-	-	A	H
													H
													H
													H
		10916	52.09	-21.91	74	61.37	40.57	17.04	66.89	-	-	P	V
		10916	42.25	-11.75	54	51.53	40.57	17.04	66.89	-	-	A	V
		11570	49.42	-24.58	74	58.5	39.72	17.54	66.34	400	201	P	V
		11570	39.69	-14.31	54	48.77	39.72	17.54	66.34	400	201	A	V
		14480	52.73	-21.27	74	57.48	41.64	19.79	66.18	-	-	P	V
		14480	42.69	-11.31	54	47.44	41.64	19.79	66.18	-	-	A	V
		17351	53.16	-15.04	68.2	57.74	41.46	21.55	67.59	-	-	P	V
		17989	61.97	-12.03	74	59.5	49.7	22.02	69.25	-	-	P	V
		17989	46.86	-7.14	54	44.39	49.7	22.02	69.25	-	-	A	V
													V
													V
													V



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)
802.11ac VHT20 CH 165 5825MHz		10949	51.93	-22.07	74	61.22	40.5	17.07	66.86	-	-	P	H
		10949	41.93	-12.07	54	51.22	40.5	17.07	66.86	-	-	A	H
		11650	50.42	-23.58	74	59.73	39.4	17.59	66.3	100	27	P	H
		11650	38.86	-15.14	54	48.17	39.4	17.59	66.3	100	27	A	H
		14491	53.06	-20.94	74	57.76	41.67	19.8	66.17	-	-	P	H
		14491	42.86	-11.14	54	47.56	41.67	19.8	66.17	-	-	A	H
		17475	54.08	-14.12	68.2	58.14	42.25	21.65	67.96	-	-	P	H
		18000	63.31	-10.69	74	60.56	50	22.03	69.28	-	-	P	H
		18000	48.19	-5.81	54	45.44	50	22.03	69.28	-	-	A	H
													H
													H
													H
		11466	51.67	-22.33	74	60.62	40	17.46	66.41	-	-	P	V
		11466	41.67	-12.33	54	50.62	40	17.46	66.41	-	-	A	V
		11650	49.45	-24.55	74	58.76	39.4	17.59	66.3	102	109	P	V
		11650	39.48	-14.52	54	48.79	39.4	17.59	66.3	102	109	A	V
		14480	52.53	-21.47	74	57.28	41.64	19.79	66.18	-	-	P	V
		14480	42.43	-11.57	54	47.18	41.64	19.79	66.18	-	-	A	V
		17475	54	-14.2	68.2	58.06	42.25	21.65	67.96	-	-	P	V
		17989	62.43	-11.57	74	59.96	49.7	22.02	69.25	-	-	P	V
		17989	47.3	-6.7	54	44.83	49.7	22.02	69.25	-	-	A	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. 4. The emission level close to 18GHz is checked that the average emission level is noise floor only.												



Band 4 5725~5850MHz

WIFI 802.11ac VHT40 (Band Edge @ 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)
802.11ac VHT40 CH 151 5755MHz		5635.4	51.26	-16.94	68.2	42.6	31.77	10.48	33.59	100	122	P	H
		5668.2	51.4	-30.31	81.71	42.65	31.84	10.51	33.6	100	122	P	H
		5717	60.43	-49.53	109.96	51.43	32.04	10.56	33.6	100	122	P	H
		5724	58.47	-61.45	119.92	49.41	32.09	10.57	33.6	100	122	P	H
	*	5755	100.67	-	-	91.37	32.31	10.6	33.61	100	122	P	H
	*	5755	92.36	-	-	83.06	32.31	10.6	33.61	100	122	A	H
		5850.6	52.34	-68.49	120.83	42.67	32.6	10.69	33.62	100	122	P	H
		5862.2	52.65	-56.13	108.78	42.97	32.6	10.7	33.62	100	122	P	H
		5908.6	52.67	-27.63	80.3	42.96	32.6	10.73	33.62	100	122	P	H
		5938.6	51.84	-16.36	68.2	42.11	32.6	10.75	33.62	100	122	P	H
													H
													H
		5640.2	58.76	-9.44	68.2	50.09	31.78	10.48	33.59	233	62	P	V
		5672.4	60.57	-24.25	84.82	51.81	31.84	10.52	33.6	233	62	P	V
		5719.2	73.45	-37.13	110.58	64.43	32.05	10.57	33.6	233	62	P	V
		5724.4	75.13	-45.7	120.83	66.06	32.1	10.57	33.6	233	62	P	V
	*	5755	116.28	-	-	106.98	32.31	10.6	33.61	233	62	P	V
	*	5755	107.53	-	-	98.23	32.31	10.6	33.61	233	62	A	V
		5851.6	59.49	-59.06	118.55	49.82	32.6	10.69	33.62	233	62	P	V
		5859.4	59.02	-50.55	109.57	49.35	32.6	10.69	33.62	233	62	P	V
		5902.8	58.35	-26.24	84.59	48.64	32.6	10.73	33.62	233	62	P	V
		5931.6	56.25	-11.95	68.2	46.52	32.6	10.75	33.62	233	62	P	V
													V
													V



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)
802.11ac VHT40 CH 159 5795MHz		5638	50.67	-17.53	68.2	42	31.78	10.48	33.59	112	122	P	H
		5699	51.52	-52.94	104.46	42.68	31.9	10.54	33.6	112	122	P	H
		5716.6	52.04	-57.81	109.85	43.05	32.03	10.56	33.6	112	122	P	H
		5723	50.28	-67.36	117.64	41.23	32.08	10.57	33.6	112	122	P	H
	*	5795	101.33	-	-	91.91	32.39	10.64	33.61	112	122	P	H
	*	5795	93.27	-	-	83.85	32.39	10.64	33.61	112	122	A	H
		5853	52.94	-62.42	115.36	43.27	32.6	10.69	33.62	112	122	P	H
		5863.8	53.15	-55.18	108.33	43.47	32.6	10.7	33.62	112	122	P	H
		5915.8	53.36	-21.62	74.98	43.64	32.6	10.74	33.62	112	122	P	H
		5941.6	53.46	-14.74	68.2	43.72	32.6	10.76	33.62	112	122	P	H
													H
													H
		5646	58.22	-9.98	68.2	49.53	31.79	10.49	33.59	233	65	P	V
		5681.6	60.1	-31.52	91.62	51.31	31.86	10.53	33.6	233	65	P	V
		5719.2	60.97	-49.61	110.58	51.95	32.05	10.57	33.6	233	65	P	V
		5720.6	63.02	-49.15	112.17	53.99	32.06	10.57	33.6	233	65	P	V
	*	5795	115.21	-	-	105.79	32.39	10.64	33.61	233	65	P	V
	*	5795	106.94	-	-	97.52	32.39	10.64	33.61	233	65	A	V
		5850.2	62.21	-59.53	121.74	52.54	32.6	10.69	33.62	233	65	P	V
		5867.6	61.01	-46.26	107.27	51.33	32.6	10.7	33.62	233	65	P	V
		5886.6	58.93	-37.66	96.59	49.24	32.6	10.71	33.62	233	65	P	V
		5932	57.89	-10.31	68.2	48.16	32.6	10.75	33.62	233	65	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. 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)
802.11ac VHT40 CH 151 5755MHz		10872	52.04	-21.96	74	61.52	40.46	17	66.94	-	-	P	H
		10872	41.98	-12.02	54	51.46	40.46	17	66.94	-	-	A	H
		11510	51.49	-22.51	74	60.41	39.96	17.49	66.37	400	306	P	H
		11510	41.5	-12.5	54	50.42	39.96	17.49	66.37	400	306	A	H
		14491	53.04	-20.96	74	57.74	41.67	19.8	66.17	-	-	P	H
		14491	42.99	-11.01	54	47.69	41.67	19.8	66.17	-	-	A	H
		17265	55.98	-12.22	68.2	60.87	40.96	21.49	67.34	-	-	P	H
		17989	61.97	-12.03	74	59.5	49.7	22.02	69.25	-	-	P	H
		17989	47	-7	54	44.53	49.7	22.02	69.25	-	-	A	H
													H
													H
													H
		10894	52.22	-21.78	74	61.55	40.57	17.02	66.92	-	-	P	V
		10894	42.19	-11.81	54	51.52	40.57	17.02	66.92	-	-	A	V
		11510	50.81	-23.19	74	59.73	39.96	17.49	66.37	301	266	P	V
		11510	41.66	-12.34	54	50.58	39.96	17.49	66.37	301	266	A	V
		14491	52.81	-21.19	74	57.51	41.67	19.8	66.17	-	-	P	V
		14491	42.86	-11.14	54	47.56	41.67	19.8	66.17	-	-	A	V
		17265	52.59	-15.61	68.2	57.48	40.96	21.49	67.34	-	-	P	V
		17967	62.09	-11.91	74	60.17	49.11	22.01	69.2	-	-	P	V
		17967	47	-7	54	45.08	49.11	22.01	69.2	-	-	A	V
													V
													V
													V

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)	
802.11ac VHT40 CH 159 5795MHz		10949	51.59	-22.41	74	60.88	40.5	17.07	66.86	-	-	P	H	
		10949	41.56	-12.44	54	50.85	40.5	17.07	66.86	-	-	A	H	
		11590	50.91	-23.09	74	60.05	39.64	17.55	66.33	389	303	P	H	
		11590	41.39	-12.61	54	50.53	39.64	17.55	66.33	389	303	A	H	
		14480	53.17	-20.83	74	57.92	41.64	19.79	66.18	-	-	P	H	
		14480	43.13	-10.87	54	47.88	41.64	19.79	66.18	-	-	A	H	
		17385	54.29	-13.91	68.2	58.7	41.69	21.59	67.69	-	-	P	H	
		18000	62.77	-11.23	74	60.02	50	22.03	69.28	-	-	P	H	
		18000	47.8	-6.2	54	45.05	50	22.03	69.28	-	-	A	H	
														H
														H
														H
		11444	51.81	-22.19	74	60.8	40	17.44	66.43	-	-	P	V	
		11444	41.77	-12.23	54	50.76	40	17.44	66.43	-	-	A	V	
		11590	49.38	-24.62	74	58.52	39.64	17.55	66.33	301	263	P	V	
		11590	40.59	-13.41	54	49.73	39.64	17.55	66.33	301	263	A	V	
		14480	52.35	-21.65	74	57.1	41.64	19.79	66.18	-	-	P	V	
		14480	42.3	-11.7	54	47.05	41.64	19.79	66.18	-	-	A	V	
		17385	53.19	-15.01	68.2	57.6	41.69	21.59	67.69	-	-	P	V	
		17978	61.91	-12.09	74	59.71	49.41	22.01	69.22	-	-	P	V	
		17978	46.87	-7.13	54	44.67	49.41	22.01	69.22	-	-	A	V	
														V
														V
													V	
Remark	1. No other spurious found.													
	2. All results are PASS against Peak and Average limit line.													
	3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.													
	4. The emission level close to 18GHz is checked that the average emission level is noise floor only.													



Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Band Edge @ 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)
802.11ac VHT80 CH 155 5775MHz		5645.2	50.29	-17.91	68.2	41.6	31.79	10.49	33.59	109	121	P	H
		5694.4	53.12	-47.95	101.07	44.29	31.89	10.54	33.6	109	121	P	H
		5705.6	57.11	-49.66	106.77	48.22	31.94	10.55	33.6	109	121	P	H
		5722	58.27	-57.09	115.36	49.22	32.08	10.57	33.6	109	121	P	H
	*	5775	98.38	-	-	89.02	32.35	10.62	33.61	109	121	P	H
	*	5775	91.24	-	-	81.88	32.35	10.62	33.61	109	121	A	H
		5851.6	58.97	-59.58	118.55	49.3	32.6	10.69	33.62	109	121	P	H
		5856.6	56.32	-54.03	110.35	46.65	32.6	10.69	33.62	109	121	P	H
		5888.2	52.92	-42.48	95.4	43.22	32.6	10.72	33.62	109	121	P	H
		5940.8	52.66	-15.54	68.2	42.92	32.6	10.76	33.62	109	121	P	H
													H
													H
		5649.4	60.8	-7.4	68.2	52.1	31.8	10.49	33.59	235	65	P	V
		5698.6	67.2	-36.97	104.17	58.36	31.9	10.54	33.6	235	65	P	V
		5719.6	75.6	-35.09	110.69	66.57	32.06	10.57	33.6	235	65	P	V
		5724.8	76.72	-45.02	121.74	67.65	32.1	10.57	33.6	235	65	P	V
	*	5775	113.59	-	-	104.23	32.35	10.62	33.61	235	65	P	V
	*	5775	106.44	-	-	97.08	32.35	10.62	33.61	235	65	A	V
		5850.8	68.96	-51.42	120.38	59.29	32.6	10.69	33.62	235	65	P	V
		5866	68.01	-39.71	107.72	58.33	32.6	10.7	33.62	235	65	P	V
		5883.6	61.52	-37.29	98.81	51.83	32.6	10.71	33.62	235	65	P	V
		5941.2	57.29	-10.91	68.2	47.55	32.6	10.76	33.62	235	65	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	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.		(MHz)	(dBμV/m)	(dB)	Line (dBμV/m)	Level (dBμV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(H/V)
i802.11ac VHT80 CH 155 5775MHz		10905	51.36	-22.64	74	60.64	40.59	17.03	66.9	-	-	P	H
		10905	41.38	-12.62	54	50.66	40.59	17.03	66.9	-	-	A	H
		11550	49.83	-24.17	74	58.86	39.8	17.52	66.35	396	304	P	H
		11550	42.19	-11.81	54	51.22	39.8	17.52	66.35	396	304	A	H
		14480	52.22	-21.78	74	56.97	41.64	19.79	66.18	-	-	P	H
		14480	42.1	-11.9	54	46.85	41.64	19.79	66.18	-	-	A	H
		17325	52.04	-16.16	68.2	56.76	41.27	21.53	67.52	-	-	P	H
		18000	61.46	-12.54	74	58.71	50	22.03	69.28	-	-	P	H
		18000	46.52	-7.48	54	43.77	50	22.03	69.28	-	-	A	H
													H
													H
													H
		10883	51.06	-22.94	74	60.47	40.51	17.01	66.93	-	-	P	V
		10883	41	-13	54	50.41	40.51	17.01	66.93	-	-	A	V
		11550	49.58	-24.42	74	58.61	39.8	17.52	66.35	312	266	P	V
		11550	41.95	-12.05	54	50.98	39.8	17.52	66.35	312	266	A	V
		14491	53.4	-20.6	74	58.1	41.67	19.8	66.17	-	-	P	V
		14491	43.35	-10.65	54	48.05	41.67	19.8	66.17	-	-	A	V
		17325	51.41	-16.79	68.2	56.13	41.27	21.53	67.52	-	-	P	V
		17978	61.77	-12.23	74	59.57	49.41	22.01	69.22	-	-	P	V
	17978	46.81	-7.19	54	44.61	49.41	22.01	69.22	-	-	A	V	
												V	
												V	
												V	
Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												
	3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												
	4. The emission level close to 18GHz is checked that the average emission level is noise floor only.												

Emission above 18GHz

5GHz WIFI 802.11ac VHT20 (SHF @ 1m)

[illegible]



Emission below 1GHz

5GHz WIFI 802.11ac VHT20 (LF @ 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)
5GHz 802.11ac VHT20 LF		65.89	24.77	-15.23	40	41.29	12.07	1.09	29.68	-	-	P	H
		134.76	26.39	-17.11	43.5	36.96	17.42	1.63	29.62	-	-	P	H
		245.34	29.19	-16.81	46	38.51	17.91	2.18	29.41	-	-	P	H
		561.56	30.2	-15.8	46	29.4	26.18	3.47	28.85	-	-	P	H
		854.5	34.31	-11.69	46	29.18	29.22	4.28	28.37	-	-	P	H
		983.51	36.05	-17.95	54	28.88	30.56	4.67	28.06	-	-	P	H
													H
													H
													H
													H
													H
													H
		75.59	25.55	-14.45	40	40.94	13.05	1.19	29.63	-	-	P	V
		126.03	22.68	-20.82	43.5	33.31	17.43	1.57	29.63	-	-	P	V
		255.04	26.14	-19.86	46	34.07	19.23	2.23	29.39	-	-	P	V
		637.22	30.08	-15.92	46	28.75	26.41	3.7	28.78	-	-	P	V
		741.98	34.59	-11.41	46	31.35	27.85	3.99	28.6	-	-	P	V
		989.33	36.95	-17.05	54	29.91	30.39	4.7	28.05	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												



<Sample 4>

Band 4 - 5725~5850MHz

WIFI 802.11ac VHT20 (Band Edge @ 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)
802.11ac VHT20 CH 149 5745MHz		5636.6	59.09	-9.11	68.2	50.43	31.77	10.48	33.59	100	204	P	H
		5679.8	60.21	-30.08	90.29	51.43	31.86	10.52	33.6	100	204	P	H
		5717	66.07	-43.89	109.96	57.07	32.04	10.56	33.6	100	204	P	H
		5723.2	75.76	-42.34	118.1	66.7	32.09	10.57	33.6	100	204	P	H
	*	5745	115.26	-	-	106.01	32.26	10.59	33.6	100	204	P	H
	*	5745	107.76	-	-	98.51	32.26	10.59	33.6	100	204	A	H
													H
													H
		5626.2	56.06	-12.14	68.2	47.43	31.75	10.47	33.59	400	256	P	V
		5651	55.32	-13.62	68.94	46.63	31.8	10.49	33.6	400	256	P	V
		5718.4	65.79	-44.56	110.35	56.78	32.05	10.56	33.6	400	256	P	V
		5724.4	69.32	-51.51	120.83	60.25	32.1	10.57	33.6	400	256	P	V
	*	5745	113.54	-	-	104.29	32.26	10.59	33.6	400	256	P	V
	*	5745	105.4	-	-	96.15	32.26	10.59	33.6	400	256	A	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. 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)
802.11ac VHT20 CH 149 5745MHz		10905	51.94	-22.06	74	61.22	40.59	17.03	66.9	-	-	P	H
		10905	41.9	-12.1	54	51.18	40.59	17.03	66.9	-	-	A	H
		11490	53.17	-20.83	74	62.08	40	17.48	66.39	100	154	P	H
		11490	43.65	-10.35	54	52.56	40	17.48	66.39	100	154	A	H
		14480	53.11	-20.89	74	57.86	41.64	19.79	66.18	-	-	P	H
		14480	43.18	-10.82	54	47.93	41.64	19.79	66.18	-	-	A	H
		17235	54.86	-13.34	68.2	59.8	40.84	21.47	67.25	-	-	P	H
		17978	62	-12	74	59.8	49.41	22.01	69.22	-	-	P	H
		17978	46.96	-7.04	54	44.76	49.41	22.01	69.22	-	-	A	H
													H
													H
													H
		10729	52.32	-21.68	74	62.56	39.96	16.88	67.08	-	-	P	V
		10729	42.22	-11.78	54	52.46	39.96	16.88	67.08	-	-	A	V
		11490	55.01	-18.99	74	63.92	40	17.48	66.39	100	35	P	V
		11490	44.75	-9.25	54	53.66	40	17.48	66.39	100	35	A	V
		14491	53.2	-20.8	74	57.9	41.67	19.8	66.17	-	-	P	V
		14491	43.22	-10.78	54	47.92	41.67	19.8	66.17	-	-	A	V
		17235	52.74	-15.46	68.2	57.68	40.84	21.47	67.25	-	-	P	V
		17978	62.14	-11.86	74	59.94	49.41	22.01	69.22	-	-	P	V
		17978	47.06	-6.94	54	44.86	49.41	22.01	69.22	-	-	A	V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												
	3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												
	4. The emission level close to 18GHz is checked that the average emission level is noise floor only.												

Emission above 18GHz

5GHz WIFI 802.11ac VHT20 (SHF @ 1m)

[illegible]

Emission below 1GHz

5GHz WIFI 802.11ac VHT20 (LF @ 3m)

[illegible]



Note symbol

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

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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a		5725	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 149		5725	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H
5745MHz													

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 @ 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. Margin(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. Margin(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

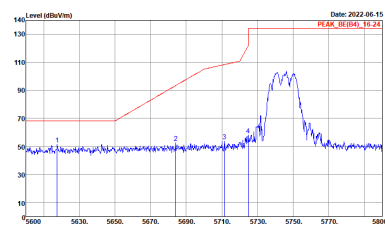
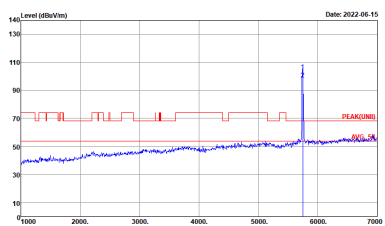
Test Engineer :	Jack Cheng, Tim Lee and Wilson Wu	Temperature :	20~25°C
		Relative Humidity :	50~60%

Note symbol

-L	Low channel location
-R	High channel location

<Sample 3>

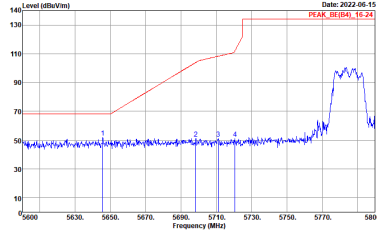
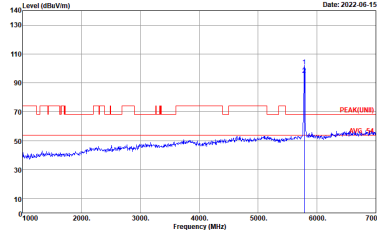
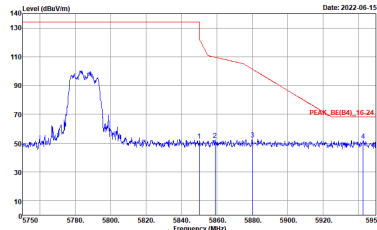
Band 4 - 5725~5850MHz
WIFI 802.11a (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak	 Site Condition : 03CH12-HV : PEAK_BE(B4)_16-24 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site Condition : 03CH12-HV : PEAK(UNIT) 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto

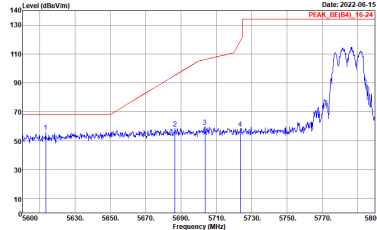
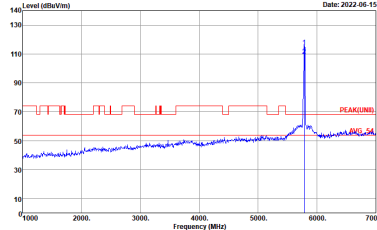
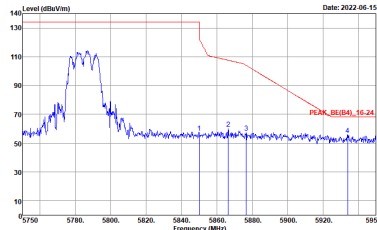


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Vertical	Fundamental
Peak	Level (dBm/100kHz) 140 130 110 90 70 50 30 10 5600 5630 5660 5690 5720 5750 5780 5800 Frequency (MHz) Date: 2022-06-15 PEAK_BE(04)_15.24 Site : 03CH12-14Y Condition : PEAK_BE(04)_16-24 3m HORN_9120D_1328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Level (dBm/100kHz) 140 130 110 90 70 50 30 10 1000 2000 3000 4000 5000 6000 7000 Frequency (MHz) Date: 2022-06-15 PEAK(UNII)_16.24 Site : 03CH12-14Y Condition : PEAK(UNII)_16-24 3m HORN_9120D_1328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(UNIT) 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(UNIT) 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



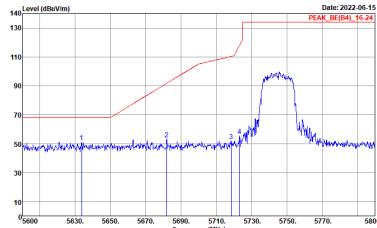
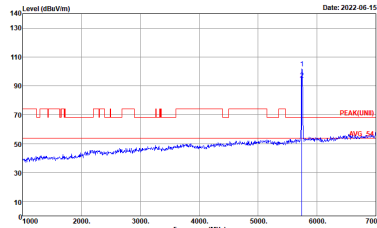
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak	Site : 03CH2-14Y Condition : PEAK_86(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH2-14Y Condition : PEAK_86(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



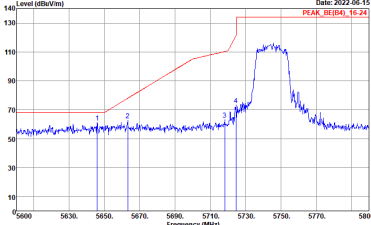
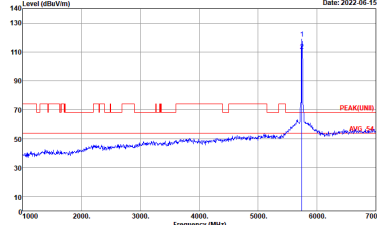
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Vertical	Fundamental
Peak	Site : 03CH2-14Y Condition : PEAK_85(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH2-14Y Condition : PEAK(UNIT) 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



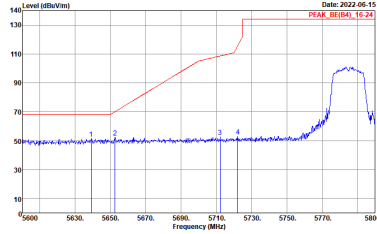
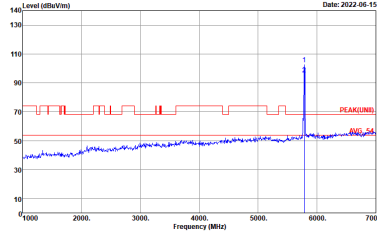
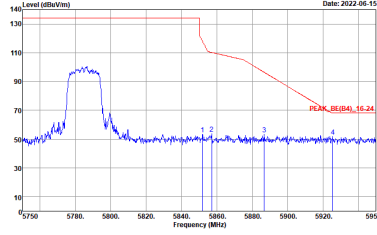
Band 4 5725~5850MHz
WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(84)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(UNIT) 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

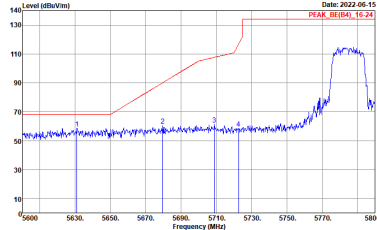
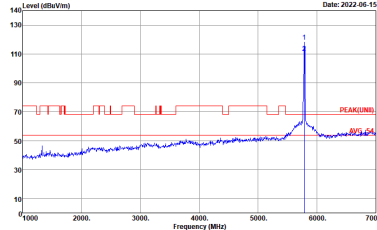
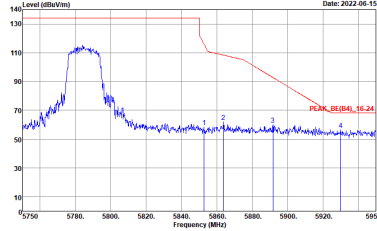


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
1+2	Vertical	Fundamental
Peak Avg.	 Site : 03CH2-14Y Condition : PEAK_85(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH2-14Y Condition : PEAK(UNIT)_3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

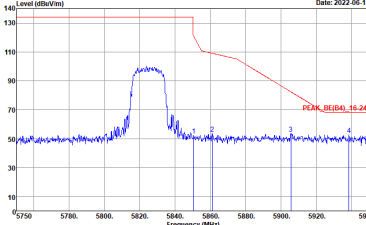
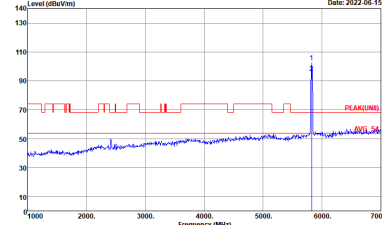


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(UNIT) 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

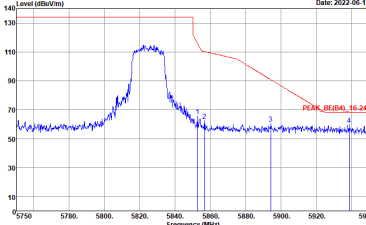
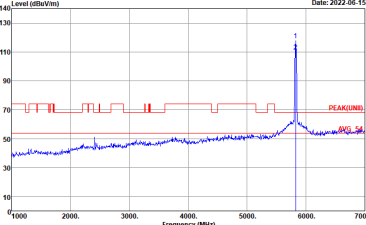


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(UNIT) 3m HORN_91200_1328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank



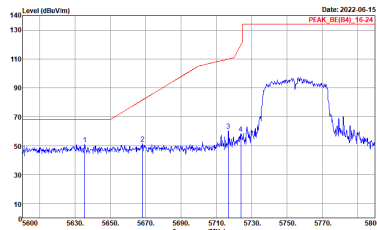
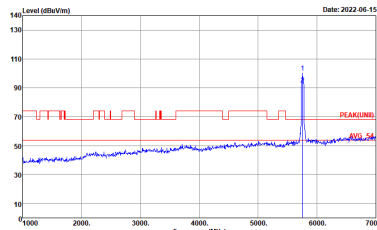
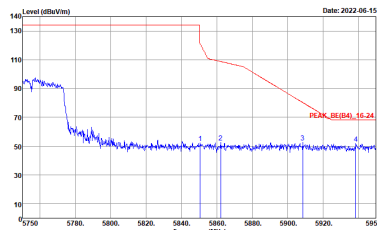
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH12-14Y Condition : PEAK_85(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH12-14Y Condition : PEAK(UNIT) 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

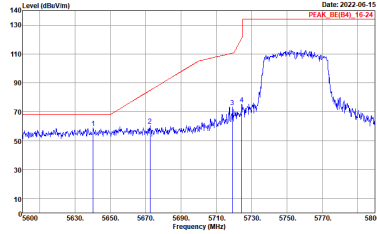
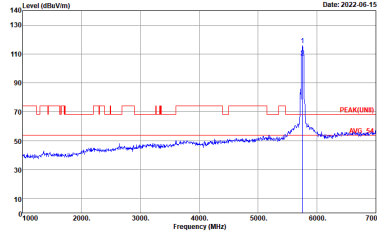
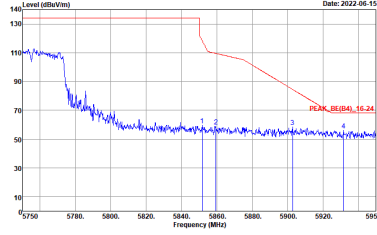


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
1+2	Vertical	Fundamental
Peak Avg.	 Site : 03CH12-14Y Condition : PEAK_8E(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH12-14Y Condition : PEAK_8E(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

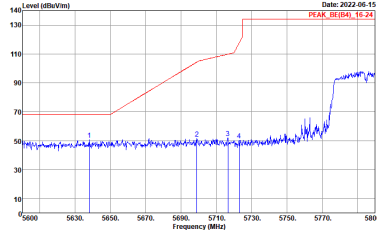
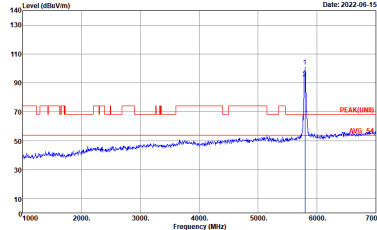
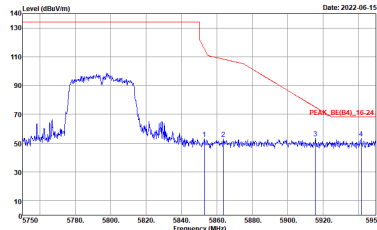


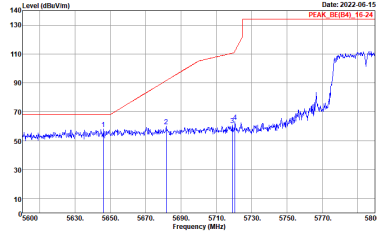
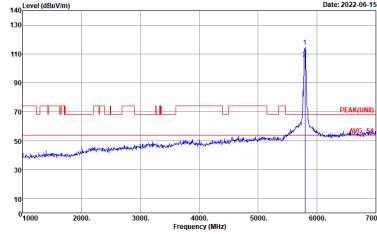
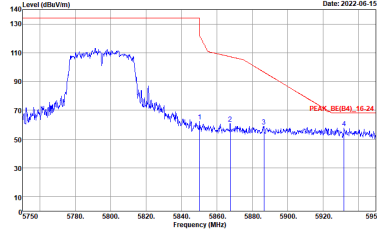
Band 4 5725~5850MHz
WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(UNIT) 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(UNIT) 3m HORN_91200_1328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	Left blank

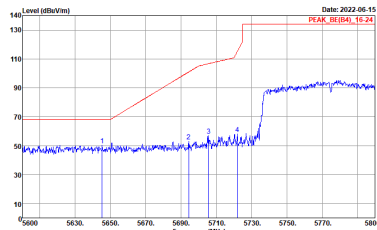
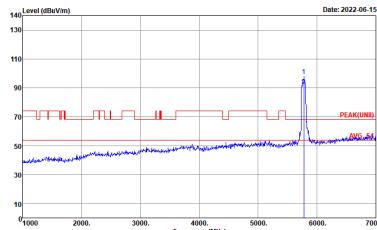
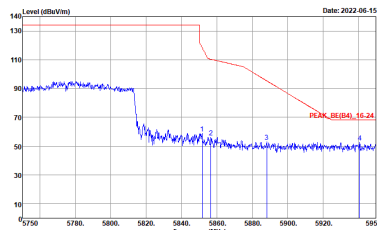


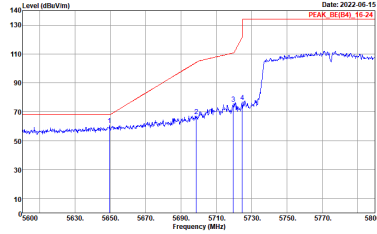
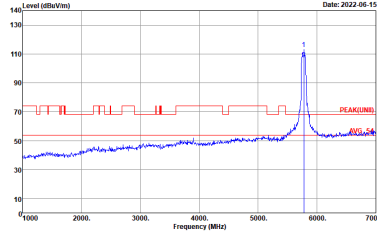
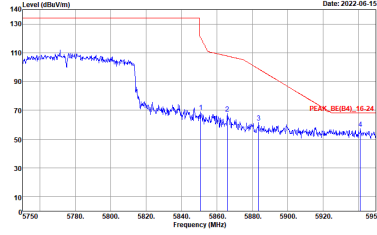
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(UNIT) 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 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	
1+2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



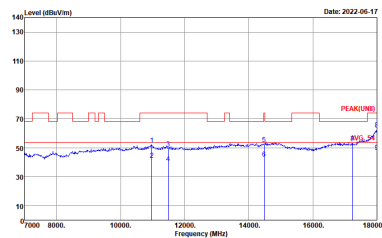
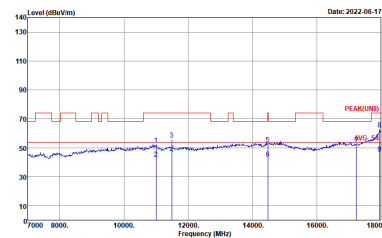
Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(UNIT) 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

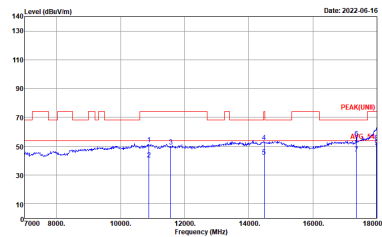
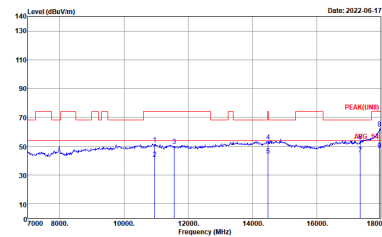
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(UNIT) 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



Band 4 - 5725~5850MHz
WIFI 802.11a (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : PEAK/INTT1 3m L4/DAI Q120N 1328 L4/DT7/INTAI	 Site : 03CH12-HY Condition : PEAK/INTT1 3m L4/DAI Q120N 1328 L4/DT7/DAI



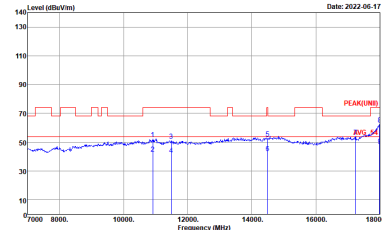
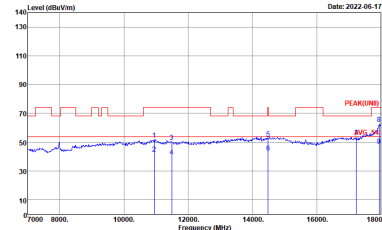
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.	Level (dBm/Hz) Date: 2022-05-16  Site : 03CH12-HY Condition : PEAK(MB) 3m 1470N 0120N 1328 1470T7(NUTAI)	Level (dBm/Hz) Date: 2022-05-17  Site : 03CH12-HY Condition : PEAK(MB) 3m 1470N 0120N 1328 1470T7(NUTAI)



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.	Level (dBm/Hz) Date: 2022-05-17 Site : 03CH12-HY Coordinate : PEAK(MB) 3m 1470N 120W 1328 1470E77(N)TAI	Level (dBm/Hz) Date: 2022-05-17 Site : 03CH12-HY Coordinate : PEAK(MB) 3m 1470N 120W 1328 1470E77(N)TAI



Band 4 5725~5850MHz
WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH2-HY Condition : DE&V(1)INTT3 3m L4/0N1 Q120N 112R L4/0T77/INTAI	 Site : 03CH2-HY Condition : DE&V(1)INTT3 3m L4/0N1 Q120N 112R VCDTT7/2AI



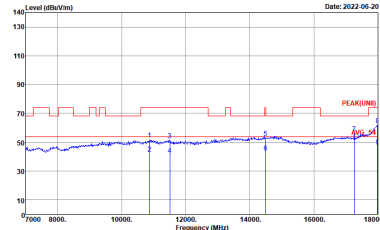
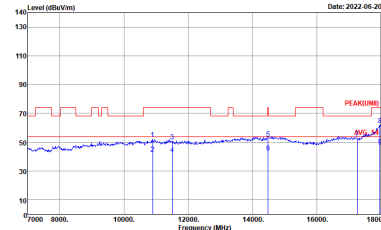
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.	Level (dBm/Hz) Date: 2022-05-17 Site : 03CH12-HY Condition : PEAK/AVG 3m 1470N 0120N 1328 1470T7/NTAI	Level (dBm/Hz) Date: 2022-05-17 Site : 03CH12-HY Condition : PEAK/AVG 3m 1470N 0120N 1328 1470T7/NTAI



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.	Level (dBm/Hz) Date: 2022-05-17 Site : 03CH12-HY Condition : PEAK/AVG 3m 14/20N 0120N 1328 14/20T7/10T4I	Level (dBm/Hz) Date: 2022-05-17 Site : 03CH12-HY Condition : PEAK/AVG 3m 14/20N 0120N 1328 14/20T7/10T4I



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

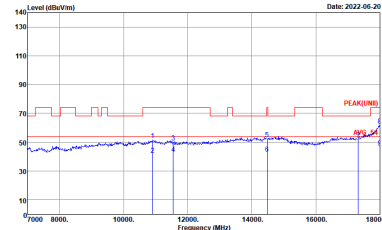
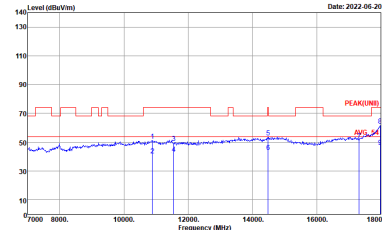
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : DE&V(I)INTT3 3m L4/DNA Q120N 112R L4/D177/INTAI	 Site : 03CH12-HY Condition : DE&V(I)INTT3 3m L4/DNA Q120N 112R VCDTT7/AI



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
1+2	Horizontal	Vertical
Peak Avg.	Level (dBm/Hz) Date: 2022-05-20 Site : 03CH12-HY Condition : PEAK(AV)T1 3m 14°00N 0120°E 1328 14°00'07"N132°01'07"E	Level (dBm/Hz) Date: 2022-05-20 Site : 03CH12-HY Condition : PEAK(AV)T1 3m 14°00N 0120°E 1328 14°00'07"N132°01'07"E

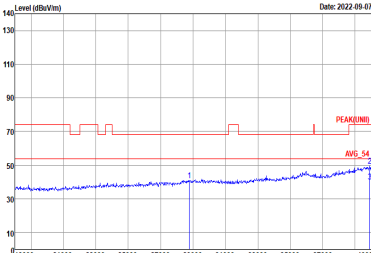
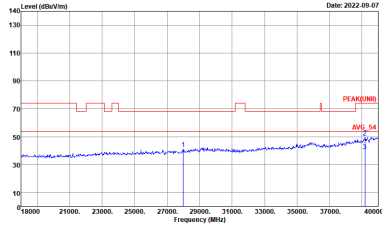


Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : DE&V(I)INTT3 3m L4/DNA Q120N 112R L4/D177/INTAI	 Site : 03CH12-HY Condition : DE&V(I)INTT3 3m L4/DNA Q120N 112R VCD177/2AI

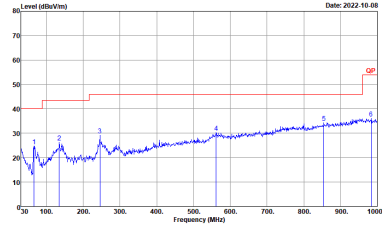
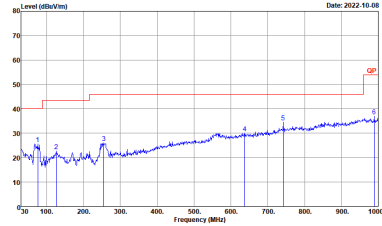


Emission above 18GHz
5GHz WIFI 802.11ac VHT20 (SHF @ 1m)

WIFI	5GHz WIFI	
ANT	802.11ac VHT20 SHF	
1+2	Horizontal	Vertical
Peak Avg.		 Site : 03CH12-HY Condition : PEAK(UNI) In SHF HORN 88H49170993 VERTICAL



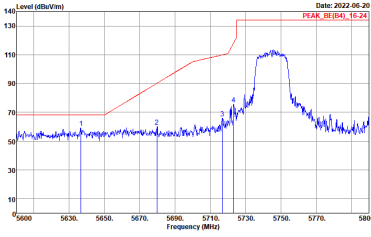
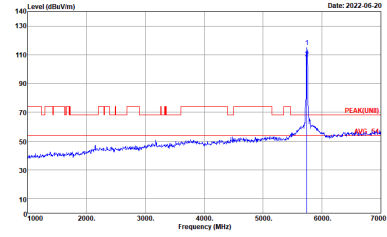
Emission below 1GHz
5GHz WIFI 802.11ac VHT20 (LF @ 3m)

WIFI	5GHz WIFI	
ANT	802.11ac VHT20 LF	
1+2	Horizontal	Vertical
QP / Peak	 Site : 03CH12-HY Condition : QP 3m 81LO6_6111D_40103 HORIZONTAL	 Site : 03CH12-HY Condition : QP 3m 81LO6_6111D_40103 VERTICAL

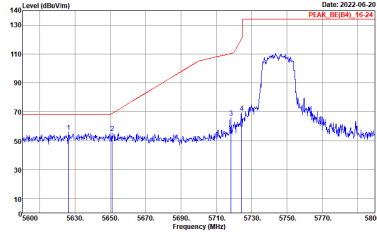
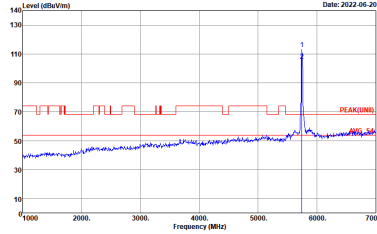


<Sample 4>

Band 4 - 5725~5850MHz
WIFI 802.11ac VHT20 (Band Edge @ 3m)

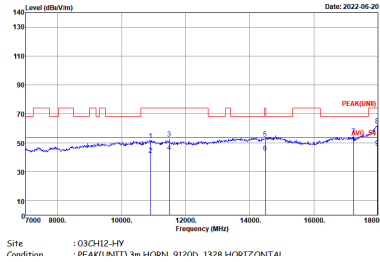
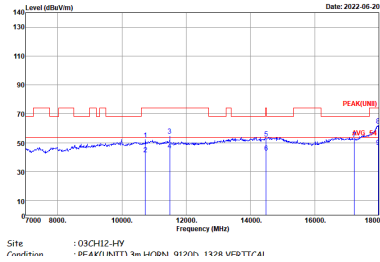
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : PEAK_RE(B4)_16-24 3m HORN_91200_1328 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto	 Site : 03CH12-HY Condition : PEAK(FUND) 3m HORN_91200_1328 HORIZONTAL RBW:1000.000kHz VBW:3000.000kHz SWT:Auto



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
1+2	Vertical	Fundamental
Peak Avg.	 Site : 03CH12-14Y Condition : PEAK_RE(B4)_16-24 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH12-14Y Condition : PEAK(UNIT) 3m HORN_91200_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

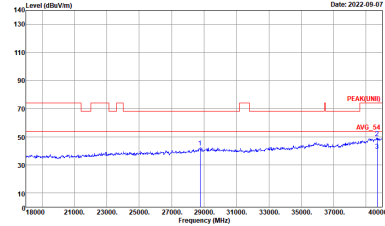
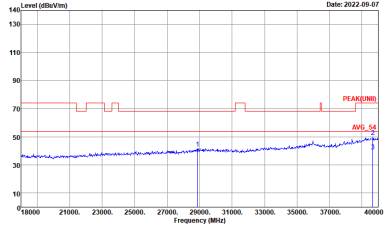


Band 4 - 5725~5850MHz
WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : DEAKN INTT1 3m L470A1 Q120N 1128 L470T7/INTAI	 Site : 03CH12-HY Condition : DEAKN INTT1 3m L470A1 Q120N 1128 L470T7/INTAI

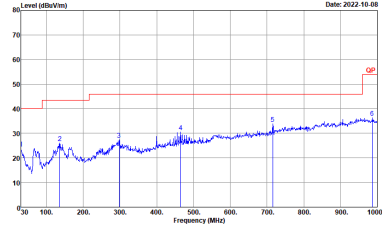
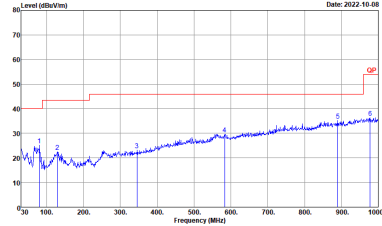


Emission above 18GHz
5GHz WIFI 802.11ac VHT20 (SHF @ 1m)

WIFI	5GHz WIFI	
ANT	802.11ac VHT20 SHF	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : PEAK(UNIT) In SHF HORN 88H49170993 HORIZONTAL	 Site : 03CH12-HY Condition : PEAK(UNIT) In SHF HORN 88H49170993 VERTICAL



Emission below 1GHz
5GHz WIFI 802.11ac VHT20 (LF @ 3m)

WIFI	5GHz WIFI	
ANT	802.11ac VHT20 LF	
1+2	Horizontal	Vertical
QP / Peak	 Site : 03CH12-HY Condition : QP 3m 81LO6_6111D_40103 HORIZONTAL	 Site : 03CH12-HY Condition : QP 3m 81LO6_6111D_40103 VERTICAL

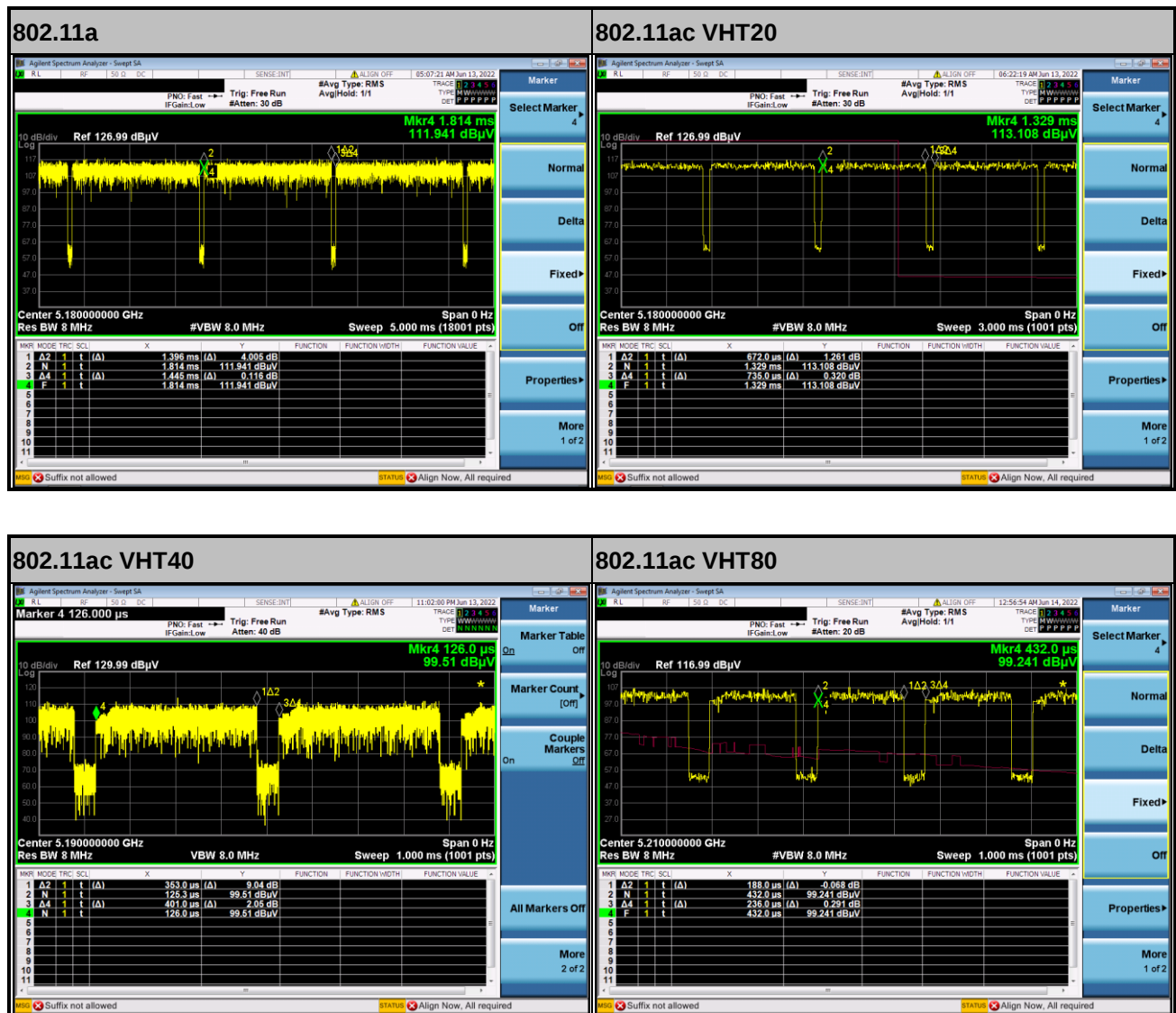


Appendix E. Duty Cycle Plots

<Sample 3>

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1+2	5GHz 802.11a	96.61	1396	0.72	1kHz
1+2	5GHz 802.11ac VHT20	91.43	672	1.49	3kHz
1+2	5GHz 802.11ac VHT40	88.03	353	2.83	3kHz
1+2	5GHz 802.11ac VHT80	79.66	188	5.32	10kHz

MIMO <Ant. 1+2>





<Sample 4>

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1+2	5GHz 802.11ac VHT20	93.04	682	1.47	3kHz

MIMO <Ant. 1+2>

