FCC RADIO TEST REPORT

FCC ID	:	**A4RG8HHN**
Equipment	:	**Phone**
Model Name	:	**G8HHN**
Applicant	:	**Google LLC** **1600 Amphitheatre Parkway,** **Mountain View, California, 94043 USA**
Standard	:	**FCC Part 15 Subpart E §15.407**

The product was received on Jul. 12, 2023 and testing was performed from Jul. 17, 2023 to Dec. 01, 2023. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this 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
FR380306F	01	Initial issue of report	Nov. 13, 2023
FR380306F	02	1. Add Channel and Partial RU Power 2. Revise test date, Applicable Standards, Test Configuration of Equipment Under Test, section 2.2, and 3.1.3, appendix A, appendix C and appendix D This report is an updated version, replacing the report issued on Nov. 13, 2023.	Dec. 06, 2023

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.407(e)	6dB & 26dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.407(a)	Maximum E.I.R.P Output Power	Pass	-
3.3	15.407(a)	Power Spectral Density	Pass	-
3.4	15.407(b)	Unwanted Emissions	Pass	2.47 dB under the limit at 5900.00 MHz
3.5	15.207	AC Conducted Emission	Pass	18.61 dB under the limit at 0.44 MHz
3.6	15.203	Antenna Requirement	Pass	-

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”.

Disclaimer:

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

Reviewed by: William Chen

Report Producer: Rachel Hsieh

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature
General Specs GSM/WCDMA/LTE/5G NR, Bluetooth, BLE, BLE channel sounding, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, Wi-Fi 6GHz 802.11a/ax, NFC, WPC Rx and GNSS Rx. **Antenna Type** WLAN: **<Ant. 4>:** ILA Antenna **<Ant. 3>:** IFA Antenna

EUT Information List	
S/N	**Performed Test Item**
38011JEKB00248 36151JEKB10167	RF Conducted Measurement
36161JEKB08227 38031JEKB01519	Radiated Spurious Emission
38031JEKB01575	Conducted Emission

Antenna information		
5850 MHz ~ 5895 MHz	Peak Gain (dBi)	Ant. 4: -2.4 Ant. 3: -3.3

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

1.1.1Antenna Directional Gain

<For CDD Mode>

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

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

For power measurements on IEEE 802.11 devices,

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

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

For PSD measurements, the directional gain calculation.

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

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

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

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

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

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

UNII-4	Ant 4 (dBi)	Ant 3 (dBi)	DG for Power (dBi)	DG for PSD (dBi)
	-2.40	-3.30	-2.40	0.17

Calculation example:

If a device has two antenna, G_{ANT1}= -2.4dBi; G_{ANT2}= -3.3dBi

Directional gain of power measurement = max(-2.4, -3.3) + 0 = -2.4 dBi

Directional gain of PSD derived from formula which is

10 x log { { [10^ (-2.4 dBi / 20) + 10^ (-3.3 dBi / 20)] ^ 2 } / 2 }

= 0.17 dBi

1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 Testing Location

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	TH05-HY, CO07-HY, 03CH22-HY

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

FCC designation No.: 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.
- FCC KDB 291074 D02 EMC Measurement v01
- ANSI C63.10-2013

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

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

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

2.1 Carrier Frequency and Channel

Frequency Band	Bandwidth	Channel	Frequency (MHz)	Note
5850-5895 MHz (U-NII-4)	20 MHz	169	5845	Straddle
		173	5865	
		177	5885	
	40 MHz	167	5835	Straddle
		175	5875	
	80 MHz	171	5855	Straddle

Note: The channel noted with “straddle” spans 5.725-5.850 GHz and 5.850-5.895 GHz.

2.2 Test Mode

This device support 26/52/106/242/484/996-tone RU.

The PSD of partial RU is reduced to be smaller than full RU according to TCB workshop interim guidance Oct. 2022.

The 802.11ax mode is investigated among different tones, full resource units (RU), partial resource units. The partial RU has no higher power than full RU's, thus the full RU is chosen as main test configuration.

The partial RU modes in HE40/HE80 are covered by modes in HE20 because the power setting is identical

The 242-tone RU is covered by 20MHz channel, 484-tone RU is covered by 40MHz channel and 996-tone RU is covered by 80MHz channel.

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

Except for 802.11n HT20, the power for 802.11n and 802.11ac mode is smaller than 802.11ax mode, so all other conducted and radiated test is covered by 802.11ax mode.

The HE20 full RU RSE is covered by HT20 modes, where HT20 is with higher power and PSD level.

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	MCS0
802.11n HT40 (Covered by HE40)	MCS0
802.11ac VHT20 (Covered by HE20)	MCS0
802.11ac VHT40 (Covered by HE40)	MCS0
802.11ac VHT80 (Covered by HE80)	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	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: 5G NR n5 Link + WLAN (5GHz) Link + Bluetooth on + NFC on + USB Cable 3 (Charging from AC Adapter 2) + Handset mode ; Battery < 50%

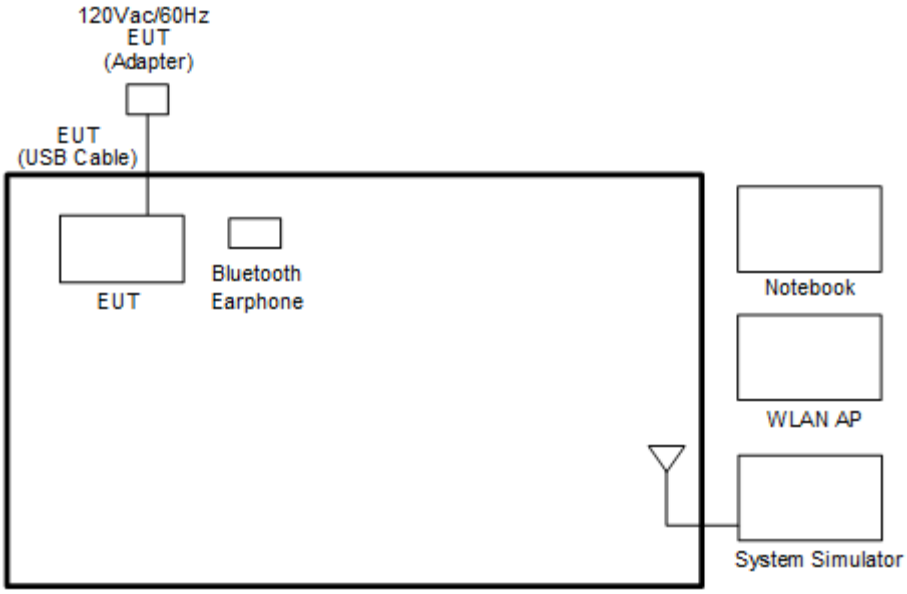
Remark:
1. For Radiated Test Cases, the tests were performed with Adapter 1 and USB Cable 3.
2. During the preliminary test, both charging modes (Adapter mode and WPC Rx mode) were verified. It is determined that the adaptor mode is the worst case for official test.

Ch. #		RF test channel of UNII-4 and UNII-3 &-4 span channels			
		802.11a	802.11n HT20	802.11ax HE40	802.11ax HE80
L	Low	169	169	167	-
M	Middle	173	173	-	171
H	High	177	177	175	-

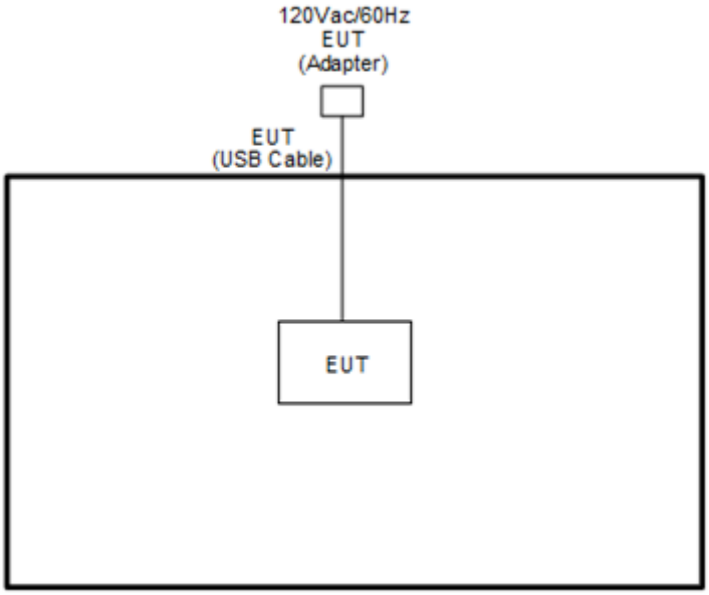
Remark: For radiation spurious emission, the modulation and the data rate picked for testing are determined by the Max. RF conducted power.

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode>



<WLAN Tx Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	WLAN AP	Netgear	RAXE500	PY320300508	N/A	Unshielded, 1.8 m
4.	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 “CMD v.10.0.18362.1256” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

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

Offset = RF cable loss + attenuator factor.

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

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

= 4.2 + 10 = 14.2 (dB)

3 Test Result

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

3.1.1Description 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.

3.1.2Measuring Instruments

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

3.1.3Test Procedures

The testing follows FCC KDB 291074 D02 EMC Measurement v01 Section 2.11 Minimum Emission bandwidth

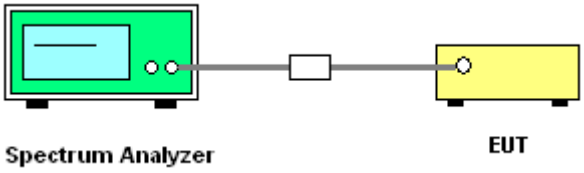
1. Set RBW = 100 kHz.
2. Set the VBW ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold
5. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
6. Measure and record the results in the test report.

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

Section C) Emission bandwidth

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
6. For 99% bandwidth measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) ≥ 3 * RBW.

3.1.4Test Setup

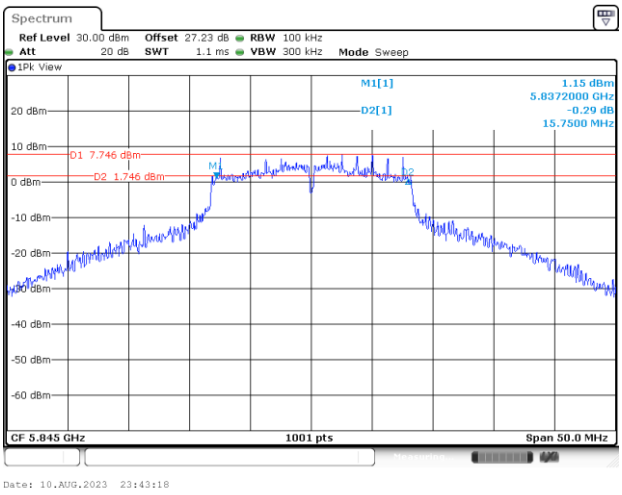
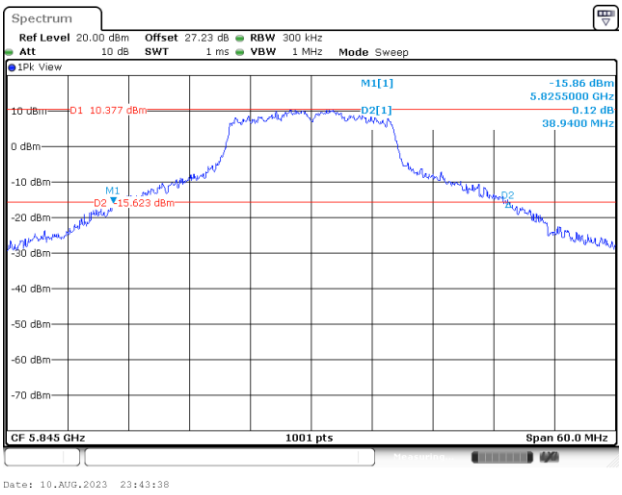


3.1.5Test Result of 6dB and 26dB and 99% Occupied Bandwidth

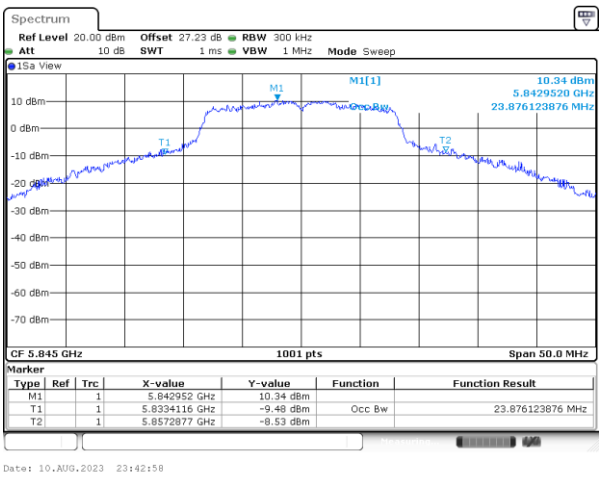
Please refer to Appendix A.

MIMO <Ant. 4+3>

<802.11a>

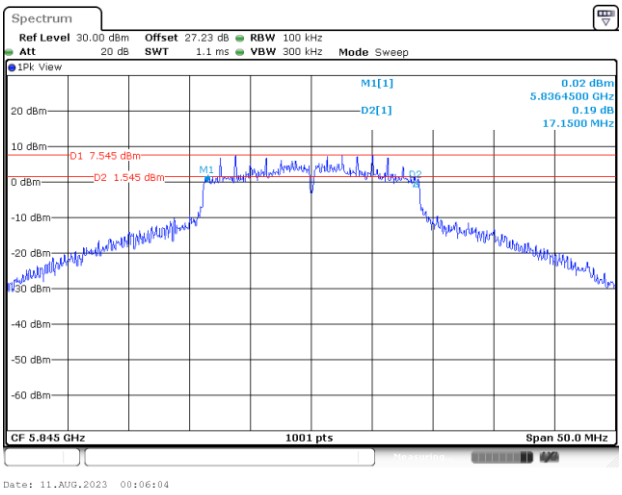
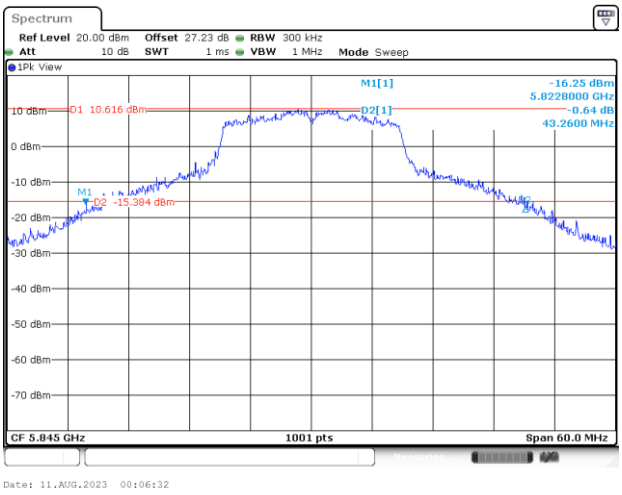
6dB Bandwidth	26dB Bandwidth
	

Occupied Bandwidth

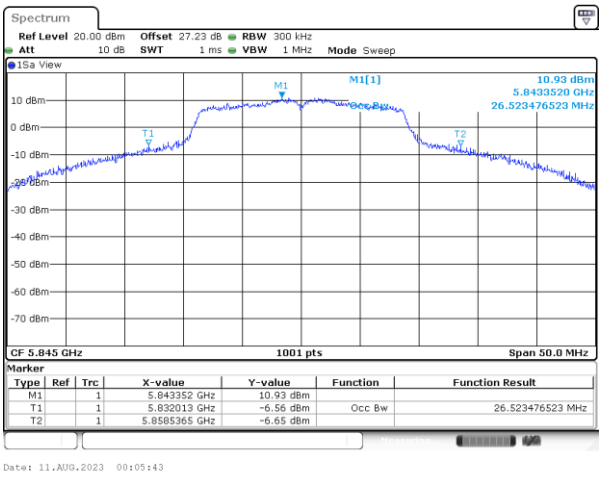


Note: The occupied channel bandwidth is maintained within the band of operation.

<802.11n HT20>

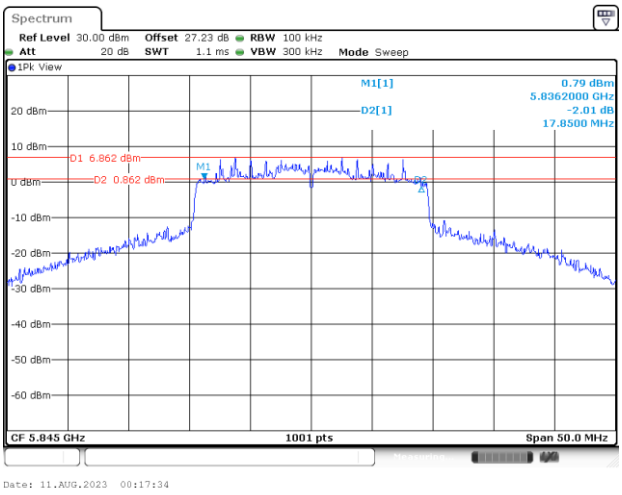
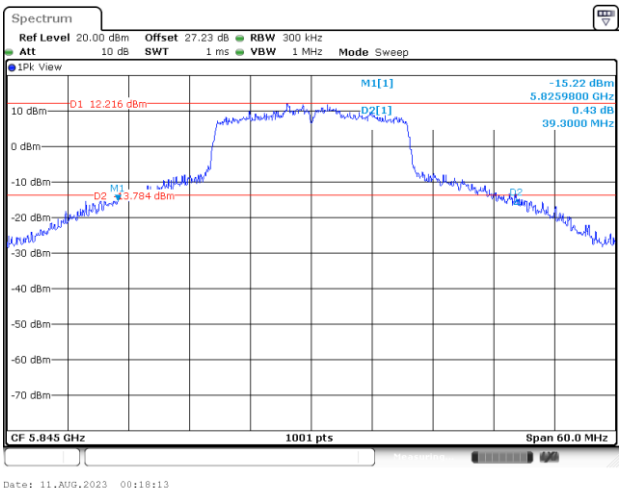
6dB Bandwidth	26dB Bandwidth
	

Occupied Bandwidth

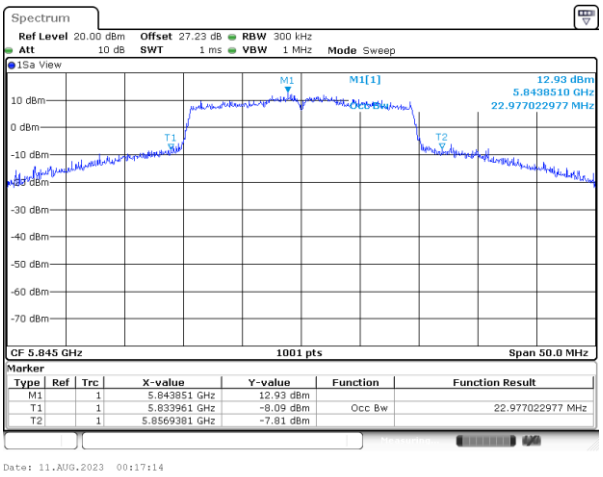


Note: The occupied channel bandwidth is maintained within the band of operation.

<802.11ax HE20>

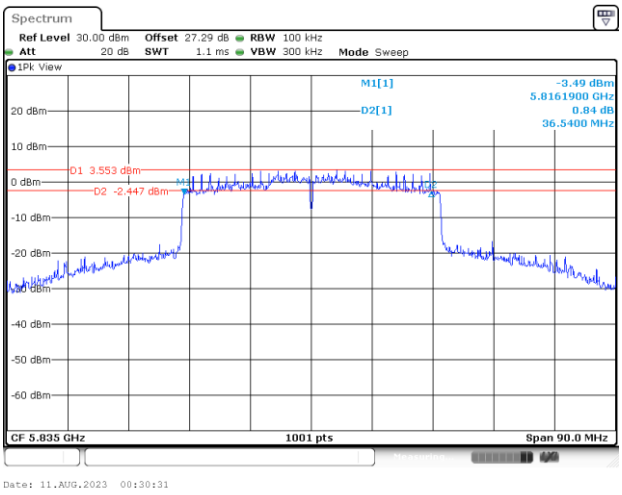
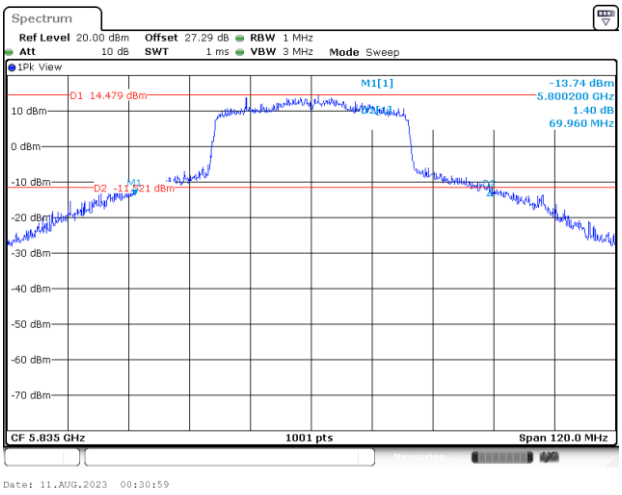
6dB Bandwidth	26dB Bandwidth
	

Occupied Bandwidth

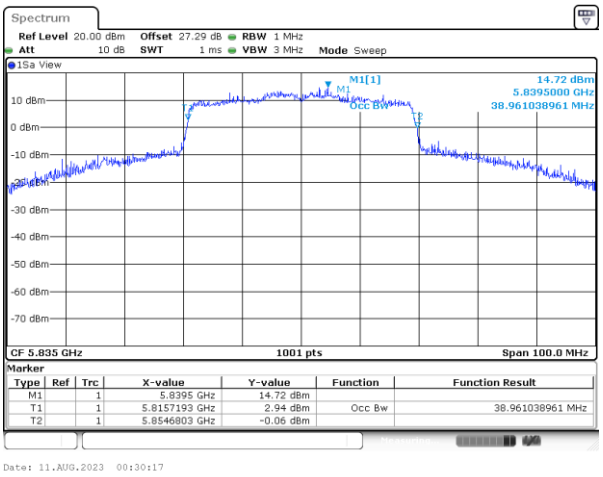


Note: The occupied channel bandwidth is maintained within the band of operation.

<802.11ax HE40>

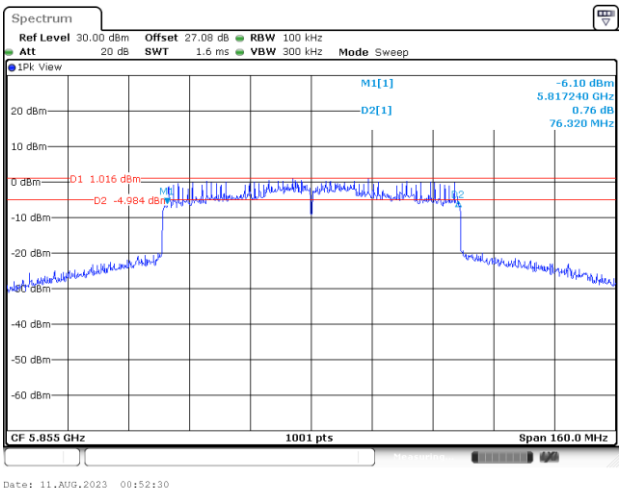
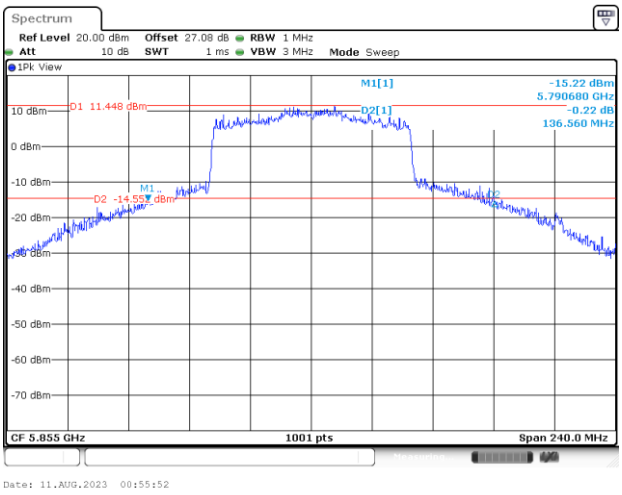
6dB Bandwidth	26dB Bandwidth
	

Occupied Bandwidth

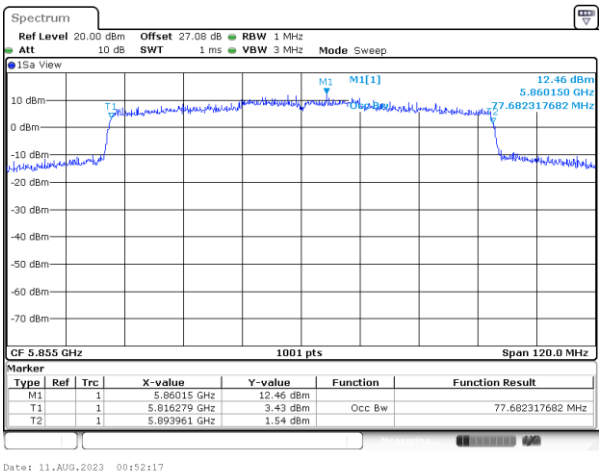


Note: The occupied channel bandwidth is maintained within the band of operation.

<802.11ax HE80>

6dB Bandwidth	26dB Bandwidth
	

Occupied Bandwidth



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

3.2 Maximum E.I.R.P Output Power Measurement

3.2.1Limit of Maximum E.I.R.P Output Power

For client devices operating under the control of an indoor access point in the 5.850-5.895 GHz band, the maximum power spectral density must not exceed 14 dBm e.i.r.p. in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm. Client devices operating on a channel that spans the 5.725-5.850 GHz and 5.850-5.895 GHz bands must not exceed an e.i.r.p. of 30 dBm.

3.2.2Measuring Instruments

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

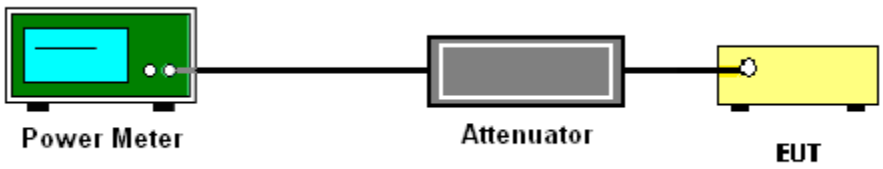
3.2.3Test Procedures

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.

3.2.4Test Setup



3.2.5Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1Limit of Power Spectral Density

1. For client devices operating under the control of an indoor access point in the 5.850-5.895 GHz band, the maximum power spectral density must not exceed 14 dBm e.i.r.p. in any 1-megahertz band.
2. For client devices operating on a channel that spans the 5.725-5.850 GHz and 5.850-5.895 GHz bands shall meet both 15.407(a)(3)(i) 30dBm/500kHz and 15.407(a)(3)(iii) 14dBm/MHz limit, where the stringent limit 14dBm/MHz is applied.
3. For an indoor access point operating on a channel that spans the 5.725-5.850 GHz and 5.850-5.895 GHz bands shall meet both 15.407(a)(3)(ii) 36dBm limit, where the stringent limit 20dBm/MHz is applied.

3.3.2Measuring Instruments

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

3.3.3Test Procedures

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

Section F) Maximum power spectral density.

 # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

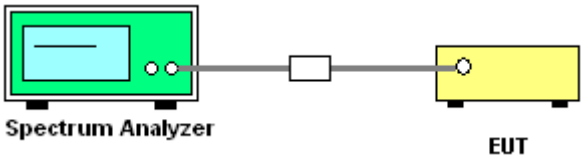
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW ≥ 3 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.

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 (a): Measure and sum the spectra across the outputs.

   The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points; the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

3.3.4Test Setup

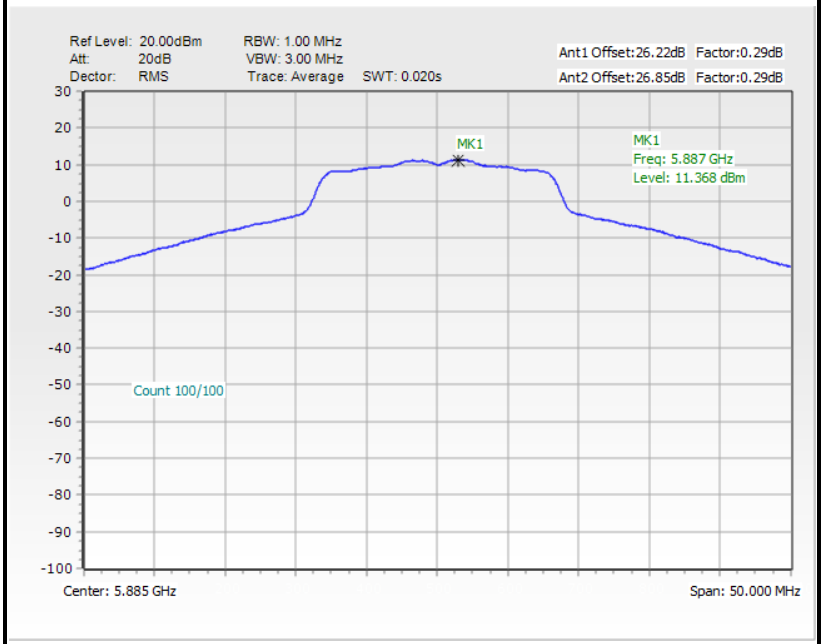


3.3.5Test Result of Power Spectral Density

Please refer to Appendix A.

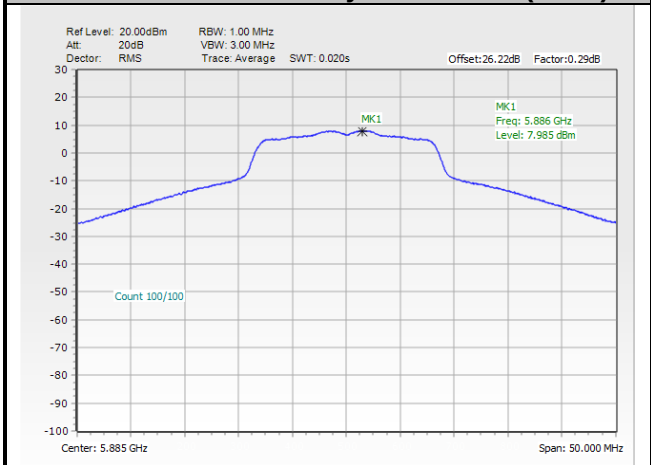
<802.11a>

Maximum Power Density Plot (dBm/MHz)

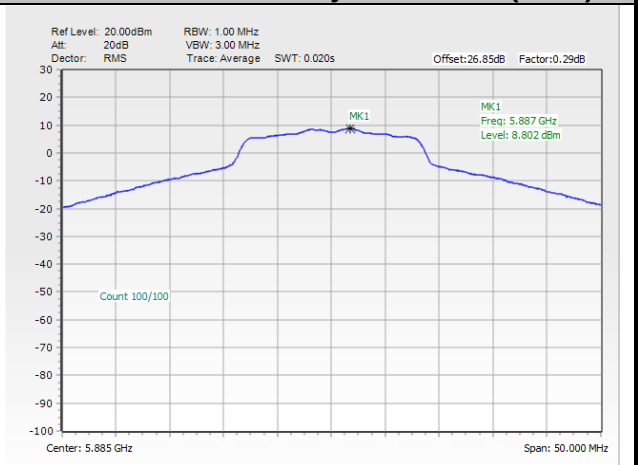


Remark: The test plot is showing a bin by bin combined result mathematically adds two traces.

Maximum Power Density Plot Trace 1 (Ant 4)

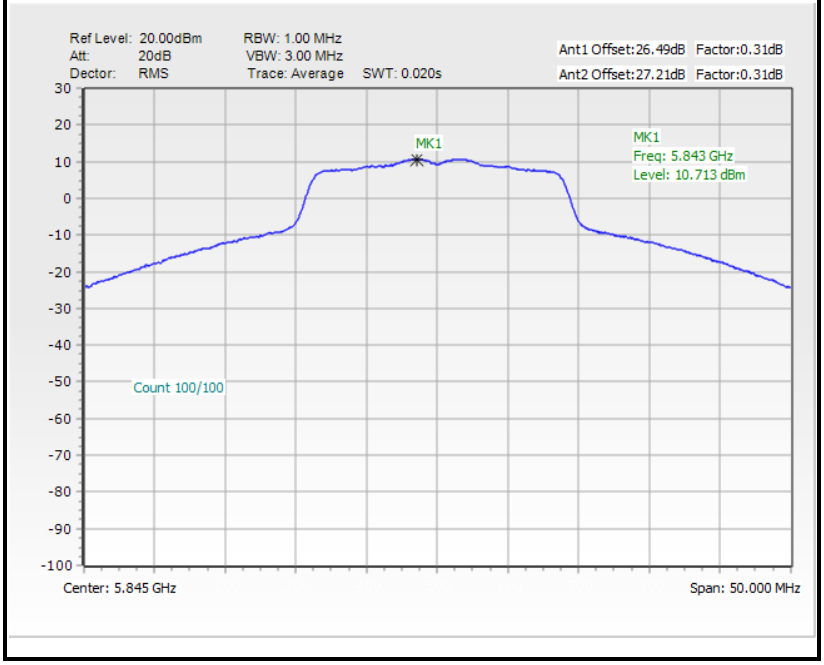


Maximum Power Density Plot Trace 2 (Ant 3)

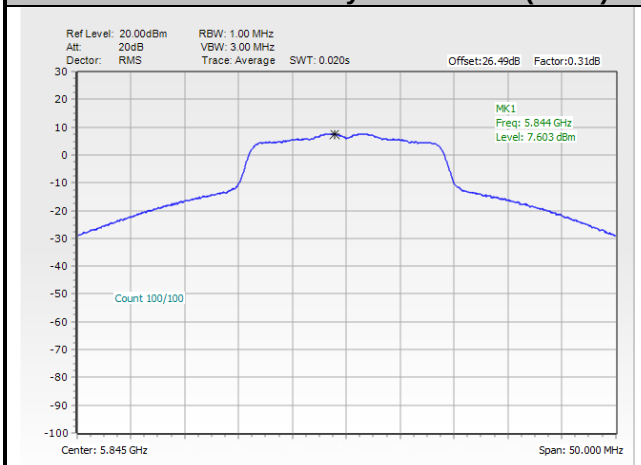
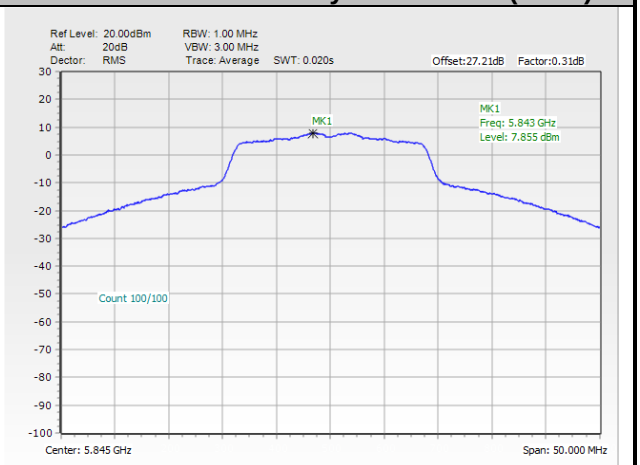


<802.11n HT20>

Maximum Power Density Plot (dBm/MHz)

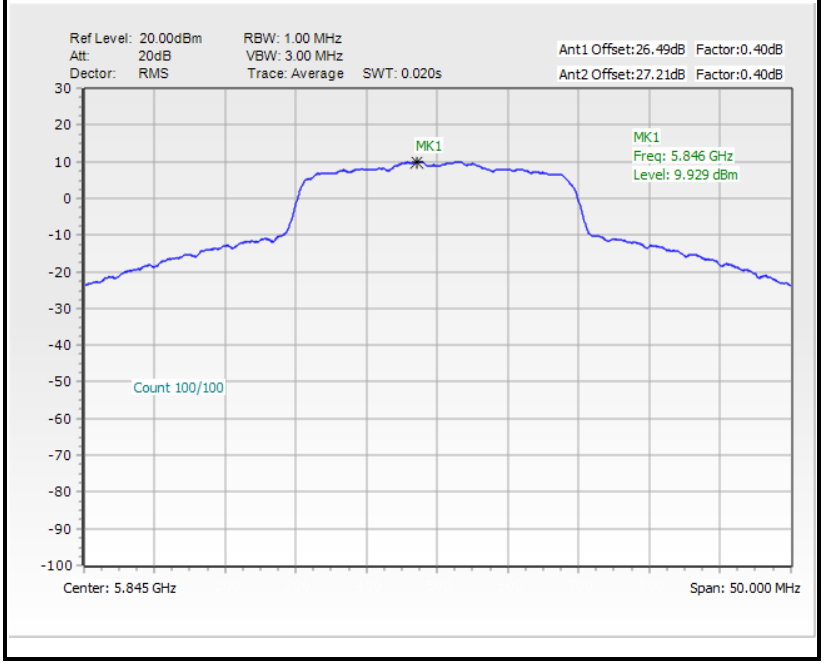


Remark: The test plot is showing a bin by bin combined result mathematically adds two traces.

Maximum Power Density Plot Trace 1 (Ant 4)	Maximum Power Density Plot Trace 2 (Ant 3)
	

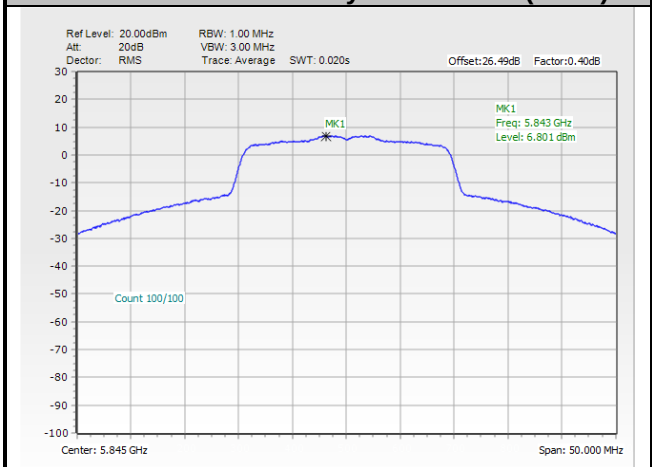
<802.11ax HE20>

Maximum Power Density Plot (dBm/MHz)

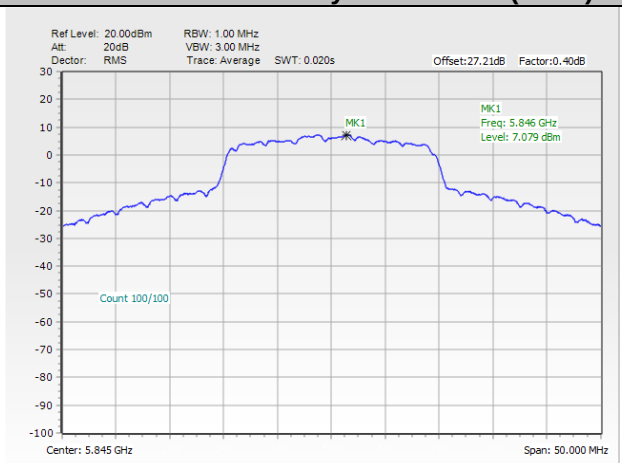


Remark: The test plot is showing a bin by bin combined result mathematically adds two traces.

Maximum Power Density Plot Trace 1 (Ant 4)

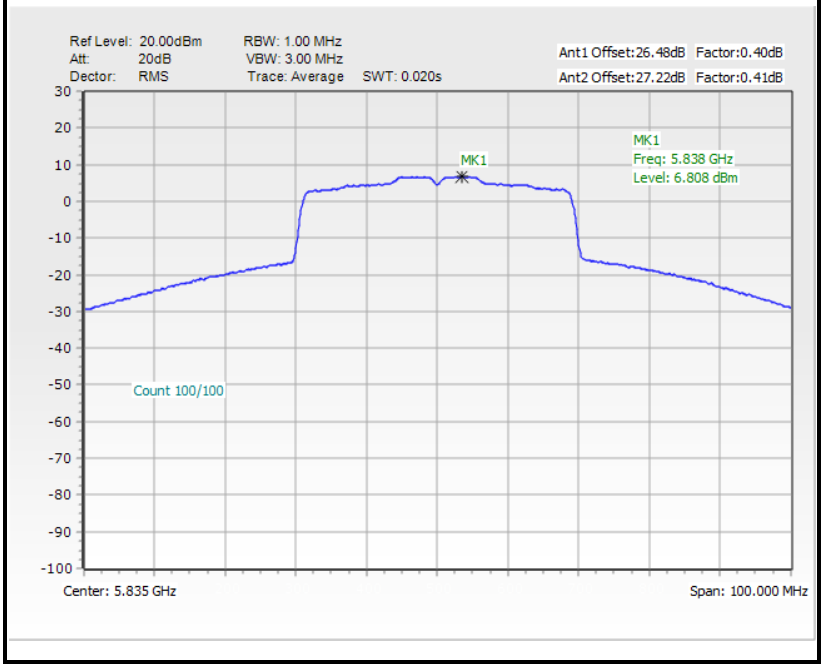


Maximum Power Density Plot Trace 2 (Ant 3)



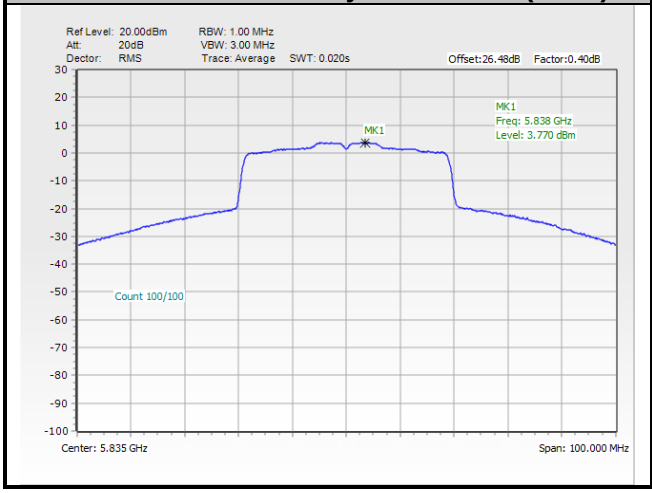
<802.11ax HE40>

Maximum Power Density Plot (dBm/MHz)

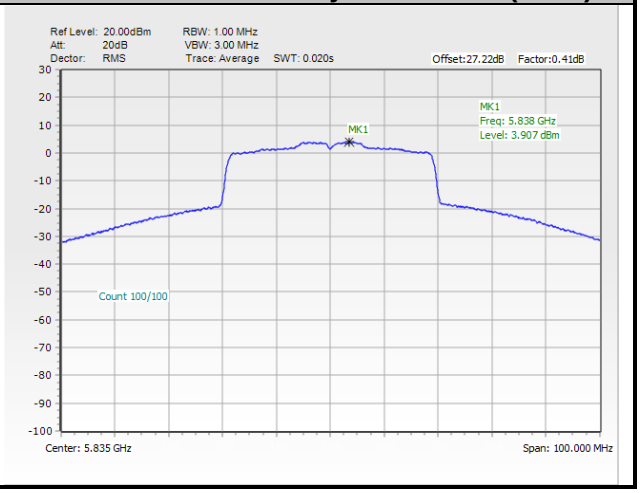


Remark: The test plot is showing a bin by bin combined result mathematically adds two traces.

Maximum Power Density Plot Trace 1 (Ant 4)

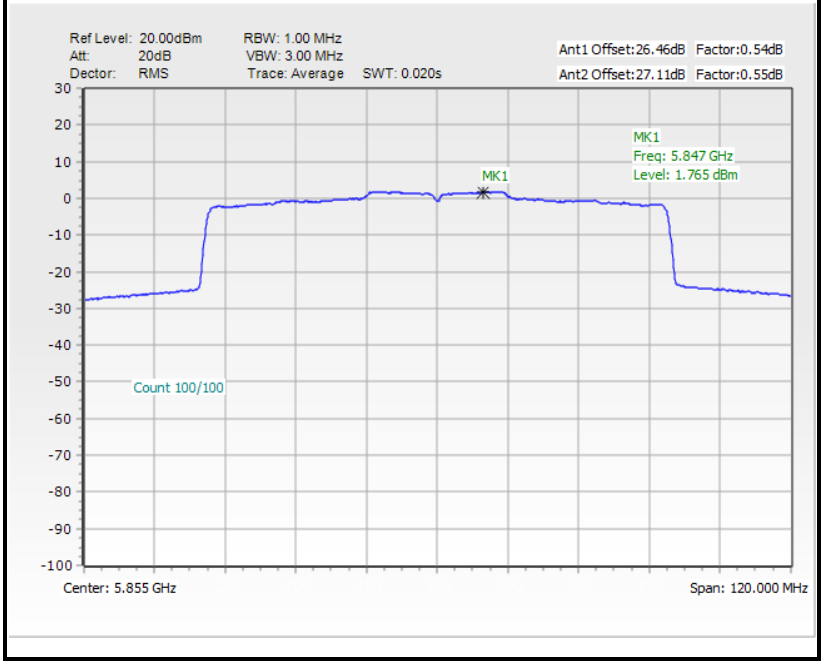


Maximum Power Density Plot Trace 2 (Ant 3)

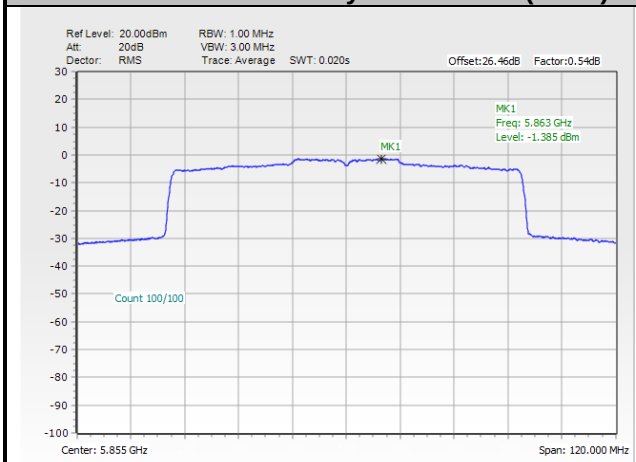
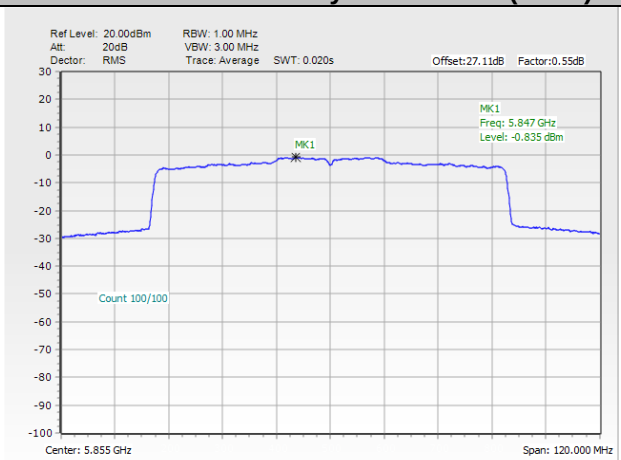


<802.11ax HE80>

Maximum Power Density Plot (dBm/MHz)



Remark: The test plot is showing a bin by bin combined result mathematically adds two traces.

Maximum Power Density Plot Trace 1 (Ant 4)	Maximum Power Density Plot Trace 2 (Ant 3)
	

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.

3.4.1Limit of Unwanted Emissions

(1) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as the following table:

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

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

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

(2) For transmitters operating solely in the 5.850-5.895 GHz band or operating on a channel that spans across 5.725-5.895 GHz:

15.407(b)(5)(ii), all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of −5 dBm/MHz and shall decrease linearly to an e.i.r.p. of −27 dBm/MHz at or above 5.925 GHz.

All emissions below 5.725 GHz shall not exceed an e.i.r.p. of −27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.

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

Use guidance in KDB Publication 789033 for all measurements. Unwanted emissions outside of restricted bands are measured with an RMS detector. In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit.

Unwanted band-edge emissions may be measured using the integration method as described in KDB Publication 789033 3. d) (ii). Emissions below 5725 MHz should be measured using peak-detection while emission above 5895 MHz should be measured using average.

Frequency(GHz)	EIRP (dBm)	Field Strength @3m distance (dBuV/m)	Note
Below 5.65	-27dBm/MHz	68.2	Peak
5.7	10dBm/MHz	105.2	Peak
5.72	15.6dBm/MHz	110.8	Peak
5.725	27dBm/MHz	122.2	Peak
5.895	-5dBm/MHz	90.2	Average
5.895	15dBm/MHz	110.2	Peak
Above 5.925	-27dBm/MHz	68.2	Average
Above 5.925	-7dBm/MHz	88.2	Peak

Note: Field strength at 3 m distance is converted to EIRP as the following equation:

EIRP[dBm] = E[dBμV/m]− 95.2

3.4.2Measuring Instruments

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

3.4.3Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.

   (1) Procedure for Unwanted Emissions Measurements Below 1000 MHz

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

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

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

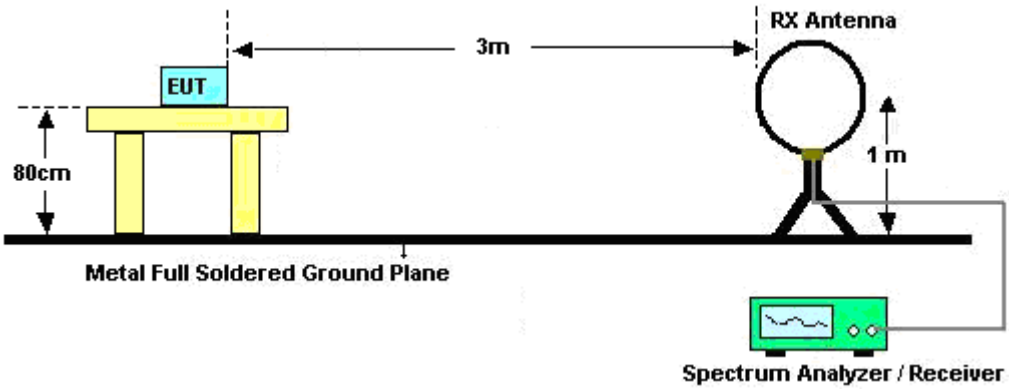
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz

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

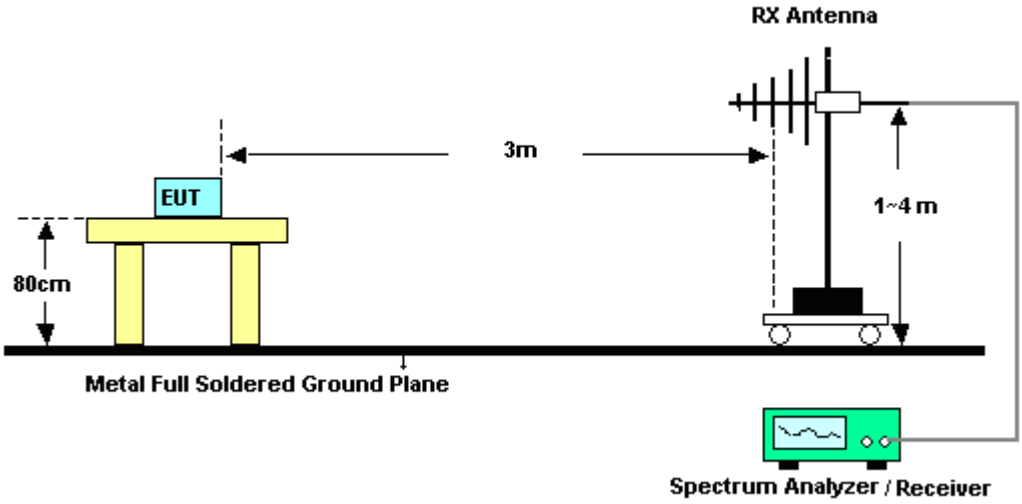
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.
3. The EUT was placed at distance 3 meter from measurement antenna which was mounted on the top of a variable height antenna tower.
4. The measurement antenna 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.
5. For each suspected emission, the EUT was 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 1GHz was performed by adjusting the antenna tower from 1m to 4m and by rotating the turn table from 0 degree to 360 degree to find the peak maximum hold reading.
   When there is no suspected emission found and the emission level is with at least 6dB margin against QP limit line, the position is marked as "-".
7. Radiated testing above 1GHz was performed by adjusting the antenna tower from 1m to 4m and by rotating the turn table from 0 degree to 360 degree 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 6dB margin against average limit line, the position is marked as "-".

3.4.4Test Setup

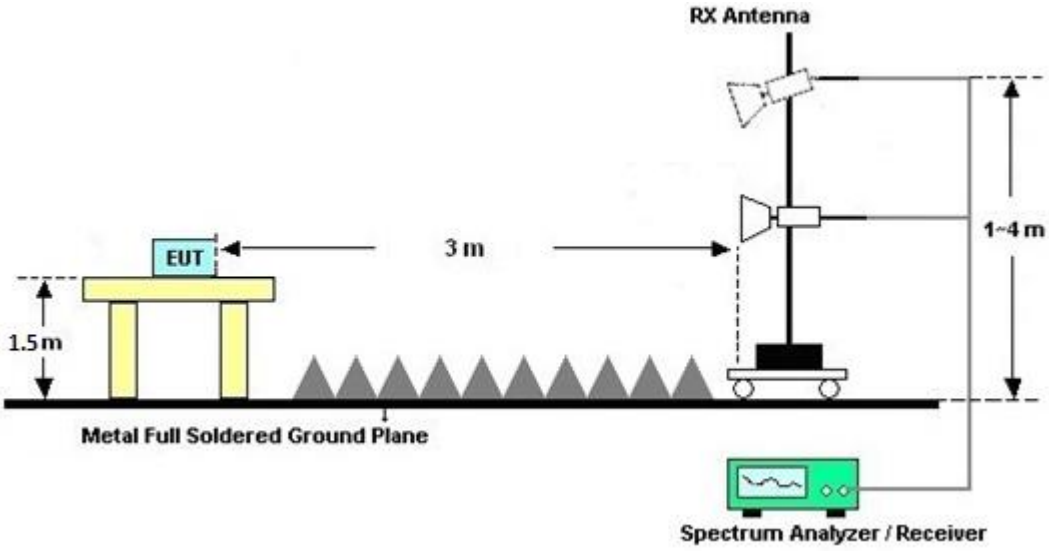
For radiated emissions below 30MHz



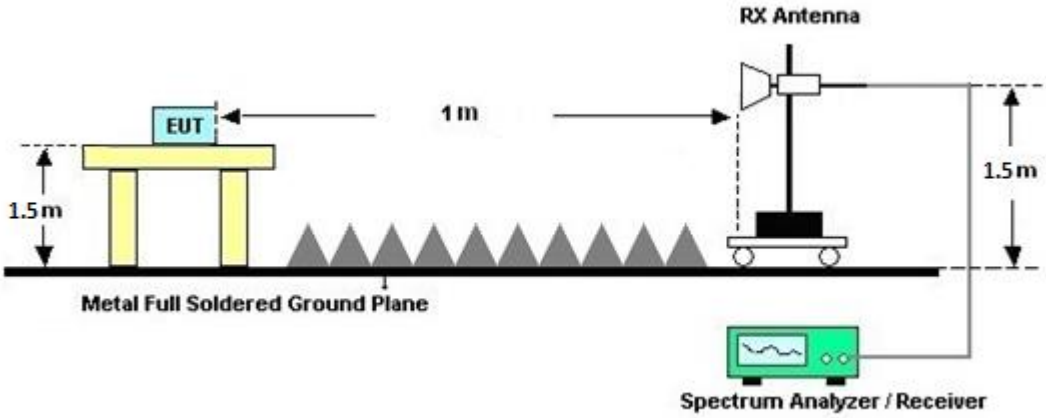
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



3.4.5Test Results of Radiated Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was 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.

3.4.6Test Results of Radiated Spurious Emissions (above 18 GHz)

For frequency above 18GHz, the pre-scanned result is 20dB lower than the limit line is not reported.

3.4.7Test Result of Radiated Band Edges

Please refer to Appendix C and D.

3.4.8Duty Cycle

Please refer to Appendix E.

3.4.9Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

3.5 AC Conducted Emission Measurement

3.5.1Limit 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.

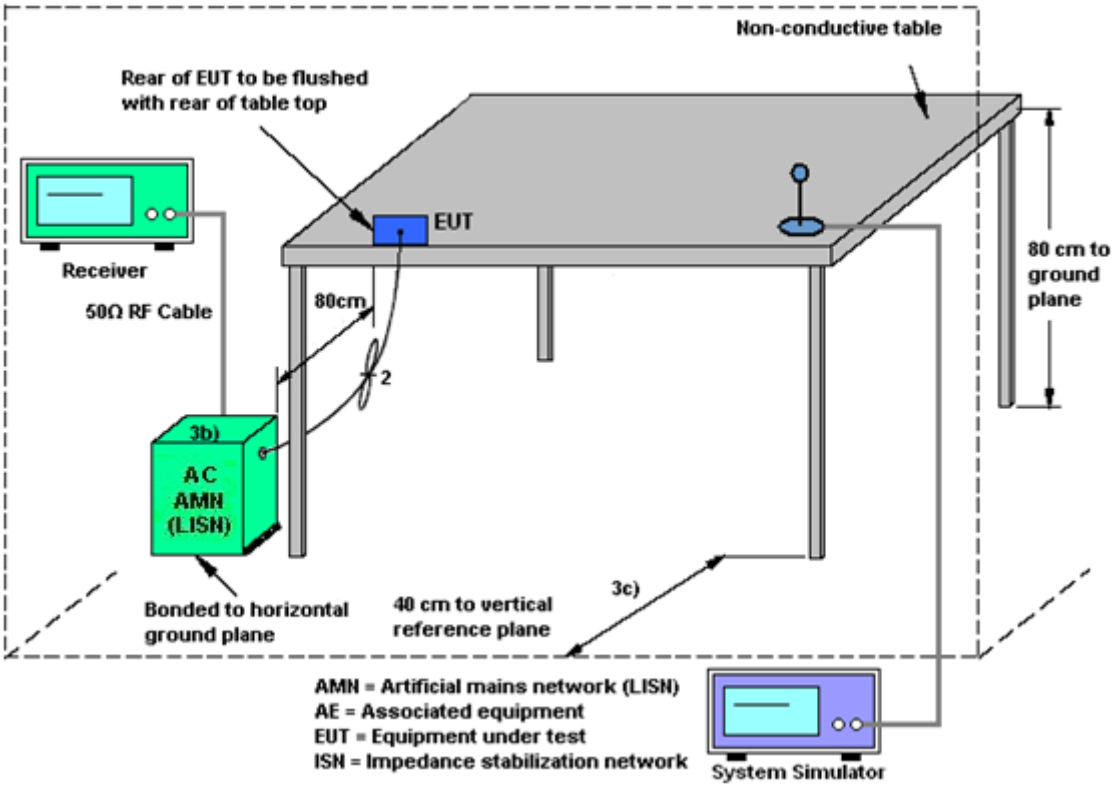
3.5.2Measuring Instruments

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

3.5.3Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was 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 sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.5.4Test Setup



3.5.5Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1Standard 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.

3.6.2Antenna 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	100315	9kHz~30MHz	Feb. 28, 2023	Jul. 26, 2023~ Dec. 01, 2023	Feb. 27, 2024	Radiation (03CH22-HY)
Bilog Antenna with 6dB	TESEQ & WOKEN	CBL 6111D & 00802N1D-06	63304 & 002	30MHz~1GHz	Oct. 04, 2022	Jul. 26, 2023~ Oct. 02, 2023	Oct. 03, 2023	Radiation (03CH22-HY)
Bilog Antenna with 6dB	TESEQ & WOKEN	CBL 6111D & 00800N1D01N -06	41912 & 05	30MHz~1GHz	Feb. 05, 2023	Oct. 03, 2023~ Dec. 01, 2023	Feb. 04, 2024	Radiation (03CH22-HY)
Amplifier	SONOMA	310N	421581	N/A	Jul. 15, 2023	Jul. 26, 2023~ Dec. 01, 2023	Jul. 14, 2024	Radiation (03CH22-HY)
Double Ridged Guide Horn Antenna	RFSPIN	DRH18-E	LE2C04A18E N	1GHz~18GHz	Jul. 12, 2023	Jul. 26, 2023~ Dec. 01, 2023	Jul. 11, 2024	Radiation (03CH22-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	1223	18GHz-40GHz	Jul. 10, 2023	Jul. 26, 2023~ Dec. 01, 2023	Jul. 09, 2024	Radiation (03CH22-HY)
Amplifier	EMEC	EM01G18GA	060877	N/A	Sep. 29, 2022	Jul. 26, 2023~ Sep. 27, 2023	Sep. 28, 2023	Radiation (03CH22-HY)
Amplifier	EMEC	EM01G18GA	060877	N/A	Sep. 28, 2023	Sep. 28, 2023~ Dec. 01, 2023	Sep. 27, 2024	Radiation (03CH22-HY)
Preamplifier	EMEC	EM18G40G	060801	18-40GHz	Jun. 27, 2023	Jul. 26, 2023~ Dec. 01, 2023	Jun. 26, 2024	Radiation (03CH22-HY)
Signal Analyzer	Keysight	N9010B	MY60241058	10Hz~44GHz	Jul. 06, 2023	Jul. 26, 2023~ Dec. 01, 2023	Jul. 05, 2024	Radiation (03CH22-HY)
Hygrometer	TECPEL	DTM-303A	TP211559	N/A	Nov. 17, 2022	Jul. 26, 2023~ Nov. 15, 2023	Nov. 16, 2023	Radiation (03CH22-HY)
Hygrometer	TECPEL	DTM-303A	TP211568	N/A	Oct. 30, 2023	Nov. 16, 2023~ Dec. 01, 2023	Oct. 29, 2024	Radiation (03CH22-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jul. 26, 2023~ Dec. 01, 2023	N/A	Radiation (03CH22-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jul. 26, 2023~ Dec. 01, 2023	N/A	Radiation (03CH22-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jul. 26, 2023~ Dec. 01, 2023	N/A	Radiation (03CH22-HY)
Software	Audix	E3 6.09824_2019 122	RK-002347	N/A	N/A	Jul. 26, 2023~ Dec. 01, 2023	N/A	Radiation (03CH22-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9kHz~30MHz	Mar. 07, 2023	Jul. 26, 2023~ Dec. 01, 2023	Mar. 06, 2024	Radiation (03CH22-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804390/2,804 611/2,804615/ 2	N/A	Oct. 25, 2022	Jul. 26, 2023~ Oct. 23, 2023	Oct. 24, 2023	Radiation (03CH22-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804390/2,804 611/2,804615/ 2	N/A	Oct. 24, 2023	Oct. 24, 2023~ Dec. 01, 2023	Oct. 23, 2024	Radiation (03CH22-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 17, 2022	Jul. 17, 2023~ Sep. 12, 2023	Nov. 16, 2023	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO12 (NO:113)	10MHz~6GHz	Dec. 13, 2022	Jul. 17, 2023~ Sep. 12, 2023	Dec. 12, 2023	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101565	10Hz ~ 40GHz	Dec. 26, 2022	Jul. 17, 2023~ Sep. 12, 2023	Dec. 25, 2023	Conducted (TH05-HY)
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	Sep. 28, 2023	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Sep. 28, 2023	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	9561-F N00373	9kHz-200MHz	Nov. 01, 2022	Sep. 28, 2023	Oct. 31, 2023	Conduction (CO07-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	Mar. 15, 2023	Sep. 28, 2023	Mar. 14, 2024	Conduction (CO07-HY)
Two-Line V-Network	TESEQ	NNB 51	45051	N/A	Mar. 05, 2023	Sep. 28, 2023	Mar. 04, 2024	Conduction (CO07-HY)
Four-Line V-Network	TESEQ	NNB 52	36122	N/A	Mar. 13, 2023	Sep. 28, 2023	Mar. 12, 2024	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI7	100724	9kHz~7GHz	Feb. 24, 2023	Sep. 28, 2023	Feb. 23, 2024	Conduction (CO07-HY)

5 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.46 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.92 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.42 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.40 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.38 dB

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Mina liu and Willy Chang	Temperature:	21~25	°C
Test Date:	2023/7/17~2023/9/12	Relative Humidity:	51~54	%

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

UNII-4 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 4	Ant 3	Ant 4	Ant 3	Ant 4	Ant 3		
11a	6Mbps	2	169	5845	23.88	27.22	38.94	43.86	15.75	15.55	0.5	Pass
11a	6Mbps	2	173	5865	23.98	27.57	39.06	43.56	16.40	15.55	0.5	Pass
11a	6Mbps	2	177	5885	24.88	27.87	39.48	43.44	16.15	16.35	0.5	Pass
HT20	MCS0	2	169	5845	26.52	29.32	43.26	45.06	17.15	17.05	0.5	Pass
HT20	MCS0	2	173	5865	24.83	28.62	41.58	44.52	15.50	17.30	0.5	Pass
HT20	MCS0	2	177	5885	26.87	29.67	42.60	44.70	16.05	16.65	0.5	Pass

Report Number : FR380306F

TEST RESULTS DATA
Average Power Table

UNII-4 MIMO										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			DG (dBi)	E.I.R.P Power (dBm)	E.I.R.P Limit (dBm)
					Ant 4	Ant 3	SUM	Ant 4 + Ant 3	Ant 4 + Ant 3	Ant 4 + Ant 3
11a	6Mbps	2	169	5845	19.30	19.20	22.26	-2.40	19.86	30
11a	6Mbps	2	173	5865	19.20	19.30	22.26	-2.40	19.86	30
11a	6Mbps	2	177	5885	18.70	18.80	21.76	-2.40	19.36	30
HT20	MCS0	2	169	5845	19.30	18.90	22.11	-2.40	19.71	30
HT20	MCS0	2	173	5865	19.40	18.70	22.07	-2.40	19.67	30
HT20	MCS0	2	177	5885	19.00	18.70	21.86	-2.40	19.46	30
HT40	MCS0	2	167	5835	17.90	17.50	20.71	-2.40	18.31	30
HT40	MCS0	2	175	5875	17.80	17.30	20.57	-2.40	18.17	30
VHT20	MCS0	2	169	5845	19.00	18.40	21.72	-2.40	19.32	30
VHT20	MCS0	2	173	5865	18.90	18.30	21.62	-2.40	19.22	30
VHT20	MCS0	2	177	5885	19.00	18.30	21.67	-2.40	19.27	30
VHT40	MCS0	2	167	5835	17.90	17.50	20.71	-2.40	18.31	30
VHT40	MCS0	2	175	5875	17.80	17.30	20.57	-2.40	18.17	30
VHT80	MCS0	2	171	5855	16.20	15.60	18.92	-2.40	16.52	30

Report Number : FR380306F

TEST RESULTS DATA
Power Spectral Density

UNII-4 MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density with Duty Factor (dBm/MHz)			DG (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4 + Ant 3	Ant 4 + Ant 3	Ant 4 + Ant 3	
11a	6Mbps	2	169	5845	0.29	0.29			11.17	0.17	11.34	14.00	Pass
11a	6Mbps	2	173	5865	0.29	0.29			11.07	0.17	11.24	14.00	Pass
11a	6Mbps	2	177	5885	0.29	0.29			11.37	0.17	11.54	14.00	Pass
HT20	MCS0	2	169	5845	0.31	0.31			10.71	0.17	10.88	14.00	Pass
HT20	MCS0	2	173	5865	0.31	0.31			10.59	0.17	10.76	14.00	Pass
HT20	MCS0	2	177	5885	0.31	0.31			10.54	0.17	10.71	14.00	Pass

Report Number : FR380306F

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

UNII-4 MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)	Pass/Fail
						Ant 4	Ant 3	Ant 4	Ant 3	Ant 4	Ant 3		
HE20	MCS0	2	169	5845	Full	22.98	26.77	39.30	45.36	17.85	16.40	0.5	Pass
HE20	MCS0	2	173	5865	Full	22.48	26.92	40.20	44.22	16.80	17.75	0.5	Pass
HE20	MCS0	2	177	5885	Full	23.78	27.17	41.88	43.50	18.30	17.50	0.5	Pass
HE40	MCS0	2	167	5835	Full	38.96	40.66	69.96	74.64	36.54	37.71	0.5	Pass
HE40	MCS0	2	175	5875	Full	38.76	40.06	76.44	80.76	36.99	37.62	0.5	Pass
HE80	MCS0	2	171	5855	Full	77.68	77.68	136.56	135.84	76.32	75.52	0.5	Pass

TEST RESULTS DATA
Average Power Table

UNII-4 MIMO											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Average Conducted Power (dBm)			DG (dBi)	E.I.R.P Power (dBm)	E.I.R.P Limit (dBm)
						Ant 4	Ant 3	SUM	Ant 4 + Ant 3	Ant 4 + Ant 3	Ant 4 + Ant 3
HE20	MCS0	2	169	5845	Full	19.00	18.50	21.77	-2.40	19.37	30
HE20	MCS0	2	169	5845	26/0	11.90	10.60	14.31	-2.40	11.91	30
HE20	MCS0	2	169	5845	52/37	14.40	14.00	17.21	-2.40	14.81	30
HE20	MCS0	2	169	5845	106/53	17.20	16.70	19.97	-2.40	17.57	30
HE20	MCS0	2	173	5865	Full	19.00	18.40	21.72	-2.40	19.32	30
HE20	MCS0	2	173	5865	26/4	12.70	11.70	15.24	-2.40	12.84	30
HE20	MCS0	2	173	5865	52/38	14.40	13.70	17.07	-2.40	14.67	30
HE20	MCS0	2	173	5865	106/53	16.90	16.10	19.53	-2.40	17.13	30
HE20	MCS0	2	177	5885	Full	19.00	18.40	21.72	-2.40	19.32	30
HE20	MCS0	2	177	5885	26/8	11.30	10.00	13.71	-2.40	11.31	30
HE20	MCS0	2	177	5885	52/40	13.90	13.20	16.57	-2.40	14.17	30
HE20	MCS0	2	177	5885	106/54	16.70	16.10	19.42	-2.40	17.02	30
HE40	MCS0	2	167	5835	Full	18.00	17.60	20.81	-2.40	18.41	30
HE40	MCS0	2	175	5875	Full	17.90	17.40	20.67	-2.40	18.27	30
HE80	MCS0	2	171	5855	Full	16.30	15.70	19.02	-2.40	16.62	30

Report Number : FR380306F

TEST RESULTS DATA
Power Spectral Density

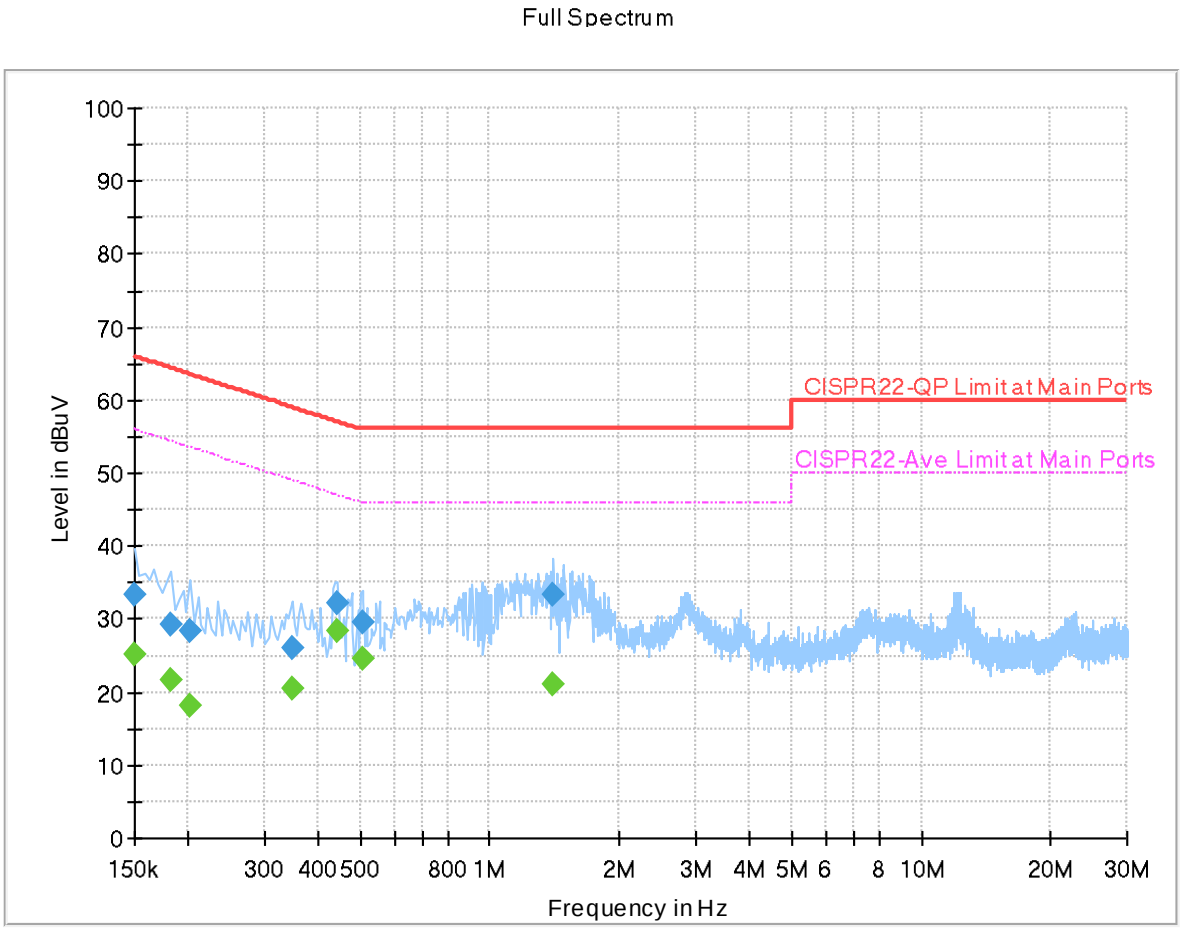
UNII-4 MIMO														
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Average Power Density with Duty Factor (dBm/MHz)			DG (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4 + Ant 3	Ant 4 + Ant 3	Ant 4 + Ant 3	
HE20	MCS0	2	169	5845	Full	0.40	0.40			9.93	0.17	10.10	14.00	Pass
HE20	MCS0	2	169	5845	26/0	0.48	0.46			9.43	0.17	9.60	14.00	Pass
HE20	MCS0	2	169	5845	52/37	0.52	0.53			9.84	0.17	10.01	14.00	Pass
HE20	MCS0	2	169	5845	106/53	0.59	0.59			9.57	0.17	9.74	14.00	Pass
HE20	MCS0	2	173	5865	Full	0.40	0.40			9.61	0.17	9.78	14.00	Pass
HE20	MCS0	2	173	5865	26/4	0.48	0.46			9.52	0.17	9.69	14.00	Pass
HE20	MCS0	2	173	5865	52/38	0.52	0.53			9.43	0.17	9.60	14.00	Pass
HE20	MCS0	2	173	5865	106/53	0.59	0.59			9.58	0.17	9.75	14.00	Pass
HE20	MCS0	2	177	5885	Full	0.40	0.40			9.53	0.17	9.70	14.00	Pass
HE20	MCS0	2	177	5885	26/8	0.48	0.46			9.01	0.17	9.18	14.00	Pass
HE20	MCS0	2	177	5885	52/40	0.52	0.53			9.44	0.17	9.61	14.00	Pass
HE20	MCS0	2	177	5885	106/54	0.59	0.59			9.29	0.17	9.46	14.00	Pass
HE40	MCS0	2	167	5835	Full	0.40	0.41			6.81	0.17	6.98	14.00	Pass
HE40	MCS0	2	175	5875	Full	0.40	0.41			6.48	0.17	6.65	14.00	Pass
HE80	MCS0	2	171	5855	Full	0.54	0.55			1.77	0.17	1.94	14.00	Pass

Appendix B. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	**Temperature :**	23.4~26.7℃
		Relative Humidity :	62.3~67.1%

EUT Information

Report NO :	380306
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

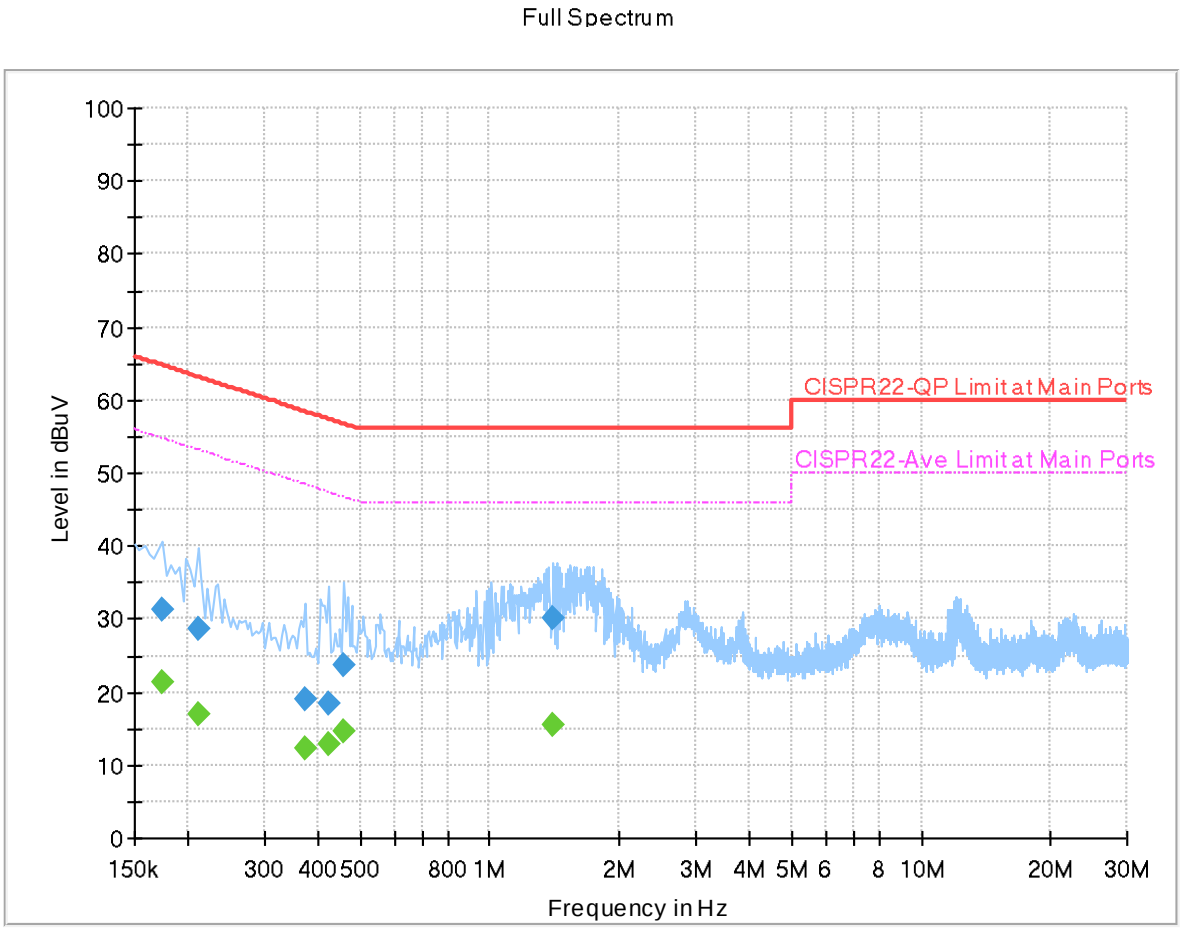


Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	---	25.24	56.00	30.76	L1	OFF	19.9
0.150000	33.19	---	66.00	32.81	L1	OFF	19.9
0.182000	---	21.64	54.39	32.75	L1	OFF	19.9
0.182000	29.30	---	64.39	35.09	L1	OFF	19.9
0.202000	---	17.99	53.53	35.54	L1	OFF	19.9
0.202000	28.30	---	63.53	35.23	L1	OFF	19.9
0.350000	---	20.34	48.96	28.62	L1	OFF	19.9
0.350000	25.97	---	58.96	32.99	L1	OFF	19.9
0.442000	---	28.41	47.02	18.61	L1	OFF	20.0
0.442000	32.22	---	57.02	24.80	L1	OFF	20.0
0.506000	---	24.67	46.00	21.33	L1	OFF	20.0
0.506000	29.39	---	56.00	26.61	L1	OFF	20.0
1.406000	---	20.96	46.00	25.04	L1	OFF	20.0
1.406000	33.41	---	56.00	22.59	L1	OFF	20.0

EUT Information

Report NO :	380306
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.174000	---	21.39	54.77	33.38	N	OFF	19.9
0.174000	31.18	---	64.77	33.59	N	OFF	19.9
0.210000	---	17.01	53.21	36.20	N	OFF	19.9
0.210000	28.66	---	63.21	34.55	N	OFF	19.9
0.374000	---	12.38	48.41	36.03	N	OFF	19.9
0.374000	19.07	---	58.41	39.34	N	OFF	19.9
0.422000	---	12.92	47.41	34.49	N	OFF	20.0
0.422000	18.32	---	57.41	39.09	N	OFF	20.0
0.458000	---	14.73	46.73	32.00	N	OFF	20.0
0.458000	23.65	---	56.73	33.08	N	OFF	20.0
1.406000	---	15.39	46.00	30.61	N	OFF	20.0
1.406000	30.08	---	56.00	25.92	N	OFF	20.0

Appendix C. Radiated Spurious Emission

Test Engineer :	Bank Lin and LU WEN-KAI	Temperature :	20~25°C
		Relative Humidity :	55~65%

UNII 4 - 5835~5885MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant. 4+3	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 169 5845MHz		5638.645	51.81	-16.39	68.2	38.53	33.43	14.32	34.47	200	229	P	H
		5699.415	50.39	-54.38	104.77	36.87	33.7	14.36	34.54	200	229	P	H
		5717.705	51.67	-58.49	110.16	38.05	33.81	14.37	34.56	200	229	P	H
		5723.605	53.58	-65.44	119.02	39.92	33.84	14.38	34.56	200	229	P	H
	*	5845	111.01	-	-	97.32	33.91	14.48	34.7	200	229	P	H
	*	5845	103.92	-	-	90.23	33.91	14.48	34.7	200	229	A	H
		5900.5	65.12	-41.04	106.16	51.34	34	14.55	34.77	200	229	P	H
		5926	55.55	-32.65	88.2	41.78	34	14.57	34.8	200	229	P	H
		5900	54.3	-32.23	86.53	40.52	34	14.55	34.77	200	229	A	H
		5926	46.68	-21.52	68.2	32.91	34	14.57	34.8	200	229	A	H
		5612.095	50.22	-17.98	68.2	37.09	33.27	14.3	34.44	140	360	P	V
		5679.06	50.66	-39.08	89.74	37.2	33.62	14.35	34.51	140	360	P	V
		5719.475	50.54	-60.11	110.65	36.91	33.82	14.37	34.56	140	360	P	V
		5722.425	50.78	-65.55	116.33	37.13	33.83	14.38	34.56	140	360	P	V
	*	5845	111.17	-	-	97.48	33.91	14.48	34.7	140	360	P	V
	*	5845	104.1	-	-	90.41	33.91	14.48	34.7	140	360	A	V
		5900	58.64	-47.89	106.53	44.86	34	14.55	34.77	140	360	P	V
		5925	51.8	-36.4	88.2	38.02	34	14.57	34.79	140	360	P	V
		5900	48.82	-37.71	86.53	35.04	34	14.55	34.77	140	360	A	V
		5928.25	43.13	-25.07	68.2	29.35	34	14.58	34.8	140	360	A	V

WIFI Ant. 4+3	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)
		5643.365	50.88	-17.32	68.2	37.57	33.46	14.32	34.47	188	228	P	H
		5681.42	51.38	-40.11	91.49	37.92	33.63	14.35	34.52	188	228	P	H
		5707.38	51.12	-56.15	107.27	37.56	33.74	14.37	34.55	188	228	P	H
		5720.95	50.43	-62.54	112.97	36.79	33.83	14.37	34.56	188	228	P	H
	*	5865	111.82	-	-	98.12	33.93	14.5	34.73	188	228	P	H
	*	5865	104.56	-	-	90.86	33.93	14.5	34.73	188	228	A	H
		5901.5	72.78	-32.64	105.42	59	34	14.55	34.77	188	228	P	H
		5928.75	62.81	-25.39	88.2	49.03	34	14.58	34.8	188	228	P	H
		5900	64.29	-22.24	86.53	50.51	34	14.55	34.77	188	228	A	H
		5925	51.42	-16.78	68.2	37.64	34	14.57	34.79	188	228	A	H
802.11a CH 173 5865MHz													
		5649.265	51.19	-17.01	68.2	37.85	33.5	14.32	34.48	156	358	P	V
		5671.685	50.33	-33.96	84.29	36.91	33.59	14.34	34.51	156	358	P	V
		5711.51	51.42	-57.01	108.43	37.83	33.77	14.37	34.55	156	358	P	V
		5724.49	50.84	-70.2	121.04	37.18	33.85	14.38	34.57	156	358	P	V
	*	5865	110.2	-	-	96.5	33.93	14.5	34.73	156	358	P	V
	*	5865	104.01	-	-	90.31	33.93	14.5	34.73	156	358	A	V
		5901	69.36	-36.43	105.79	55.58	34	14.55	34.77	156	358	P	V
		5925.25	56.73	-31.47	88.2	42.95	34	14.57	34.79	156	358	P	V
		5900	58.94	-27.59	86.53	45.16	34	14.55	34.77	156	358	A	V
		5925	46.62	-21.58	68.2	32.84	34	14.57	34.79	156	358	A	V

WIFI Ant. 4+3	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 177 5885MHz		5633.63	50.77	-17.43	68.2	37.52	33.4	14.31	34.46	250	118	P	H
		5660.475	50.11	-25.87	75.98	36.73	33.54	14.33	34.49	250	118	P	H
		5715.64	49.91	-59.67	109.58	36.31	33.79	14.37	34.56	250	118	P	H
		5721.245	48.45	-65.19	113.64	34.81	33.83	14.37	34.56	250	118	P	H
	*	5885	112.46	-	-	98.71	33.97	14.53	34.75	250	118	P	H
	*	5885	105.73	-	-	91.98	33.97	14.53	34.75	250	118	A	H
		5900	94.14	-12.39	106.53	80.36	34	14.55	34.77	250	118	P	H
		5925.25	70.79	-17.41	88.2	57.01	34	14.57	34.79	250	118	P	H
		5900	84.06	-2.47	86.53	70.28	34	14.55	34.77	250	118	A	H
		5925.25	61.14	-7.06	68.2	47.36	34	14.57	34.79	250	118	A	H
		5611.21	51.25	-16.95	68.2	38.12	33.27	14.3	34.44	137	85	P	V
		5682.01	50.44	-41.48	91.92	36.98	33.63	14.35	34.52	137	85	P	V
		5715.05	50.19	-59.23	109.42	36.59	33.79	14.37	34.56	137	85	P	V
		5720.95	49.23	-63.74	112.97	35.59	33.83	14.37	34.56	137	85	P	V
	*	5885	110.68	-	-	96.93	33.97	14.53	34.75	137	85	P	V
	*	5885	103.67	-	-	89.92	33.97	14.53	34.75	137	85	A	V
		5903.75	87.68	-16.09	103.77	73.9	34	14.55	34.77	137	85	P	V
		5925	65.29	-22.91	88.2	51.51	34	14.57	34.79	137	85	P	V
		5900	81.29	-5.24	86.53	67.51	34	14.55	34.77	137	85	A	V
		5925	58.95	-9.25	68.2	45.17	34	14.57	34.79	137	85	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

UNII 4 5835~5885MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 4+3	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 169 5845MHz		11690	51.82	-22.18	74	32.37	39.08	20.69	40.32	-	-	P	H
		17535	54.62	-13.58	68.2	34.67	40.6	25.82	46.47	-	-	P	H
		17535	44.75	-9.25	54	24.8	40.6	25.82	46.47	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
		11690	51.22	-22.78	74	31.77	39.08	20.69	40.32	-	-	P	V
		17535	54.17	-14.03	68.2	34.22	40.6	25.82	46.47	-	-	P	V
		17535	44.87	-9.13	54	24.92	40.6	25.82	46.47	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

WIFI Ant. 4+3	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 173 5865MHz		11730	51.01	-22.99	74	31.59	39.1	20.67	40.35	-	-	P	H
		17595	53.94	-14.26	68.2	33.64	40.78	25.88	46.36	-	-	P	H
		17595	45.03	-8.97	54	24.73	40.78	25.88	46.36	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
		11730	51.52	-22.48	74	32.1	39.1	20.67	40.35	-	-	P	V
		17595	53.82	-14.38	68.2	33.52	40.78	25.88	46.36	-	-	P	V
		17595	45	-9	54	24.7	40.78	25.88	46.36	-	-	A	V
													V
													V
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WIFI Ant. 4+3	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 177 5885MHz		11770	50.88	-23.12	74	31.48	39.14	20.65	40.39	-	-	P	H
		17655	54.4	-13.8	68.2	34.01	40.71	25.93	46.25	-	-	P	H
		17655	45.12	-8.88	54	24.73	40.71	25.93	46.25	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		11770	50.73	-23.27	74	31.33	39.14	20.65	40.39	-	-	P	V
		17655	54.49	-13.71	68.2	34.1	40.71	25.93	46.25	-	-	P	V
		17655	45.05	-8.95	54	24.66	40.71	25.93	46.25	-	-	A	V
													V
													V
													V
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													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.												

UNII 4 5835~5885MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 4+3	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)
802.11n HT20 CH 169 5845MHz		5637.76	51.6	-16.6	68.2	38.32	33.43	14.32	34.47	189	226	P	H
		5663.13	50.35	-27.6	77.95	36.97	33.55	14.33	34.5	189	226	P	H
		5705.02	50.68	-55.93	106.61	37.13	33.73	14.36	34.54	189	226	P	H
		5722.425	49.77	-66.56	116.33	36.12	33.83	14.38	34.56	189	226	P	H
	*	5845	110.3	-	-	96.61	33.91	14.48	34.7	189	226	P	H
	*	5845	103.11	-	-	89.42	33.91	14.48	34.7	189	226	A	H
		5902.25	62.84	-42.03	104.87	49.06	34	14.55	34.77	189	226	P	H
		5929	54.69	-33.51	88.2	40.91	34	14.58	34.8	189	226	P	H
		5900	50.83	-35.7	86.53	37.05	34	14.55	34.77	189	226	A	H
		5925.5	44.61	-23.59	68.2	30.84	34	14.57	34.8	189	226	A	H
		5637.465	51.52	-16.68	68.2	38.25	33.42	14.32	34.47	144	358	P	V
		5674.045	50.78	-35.25	86.03	37.35	33.6	14.34	34.51	144	358	P	V
		5704.135	50.18	-56.18	106.36	36.64	33.72	14.36	34.54	144	358	P	V
		5721.245	50	-63.64	113.64	36.36	33.83	14.37	34.56	144	358	P	V
	*	5845	109.55	-	-	95.86	33.91	14.48	34.7	144	358	P	V
	*	5845	103.2	-	-	89.51	33.91	14.48	34.7	144	358	A	V
		5903.5	55.76	-48.2	103.96	41.98	34	14.55	34.77	144	358	P	V
		5944	51.67	-36.53	88.2	37.89	34	14.6	34.82	144	358	P	V
		5901	46.19	-39.6	85.79	32.41	34	14.55	34.77	144	358	A	V
		5925.75	42.9	-25.3	68.2	29.13	34	14.57	34.8	144	358	A	V

WIFI Ant. 4+3	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)
		5628.615	51.4	-16.8	68.2	38.18	33.37	14.31	34.46	184	228	P	H
		5678.47	51.29	-38.02	89.31	37.85	33.61	14.34	34.51	184	228	P	H
		5709.74	50.3	-57.63	107.93	36.72	33.76	14.37	34.55	184	228	P	H
		5720.95	49.47	-63.5	112.97	35.83	33.83	14.37	34.56	184	228	P	H
	*	5865	109.61	-	-	95.91	33.93	14.5	34.73	184	228	P	H
	*	5865	102.87	-	-	89.17	33.93	14.5	34.73	184	228	A	H
		5901.5	71.19	-34.23	105.42	57.41	34	14.55	34.77	184	228	P	H
		5927.25	58.44	-29.76	88.2	44.66	34	14.58	34.8	184	228	P	H
		5900	61.35	-25.18	86.53	47.57	34	14.55	34.77	184	228	A	H
		5925	48.22	-19.98	68.2	34.44	34	14.57	34.79	184	228	A	H
802.11n													
HT20													
CH 173		5600	50.57	-17.63	68.2	37.5	33.2	14.29	34.42	154	356	P	V
5865MHz		5676.405	50.45	-37.33	87.78	37.01	33.61	14.34	34.51	154	356	P	V
		5706.2	50.93	-56.01	106.94	37.38	33.74	14.36	34.55	154	356	P	V
		5722.425	49.9	-66.43	116.33	36.25	33.83	14.38	34.56	154	356	P	V
	*	5865	109.5	-	-	95.8	33.93	14.5	34.73	154	356	P	V
	*	5865	102.51	-	-	88.81	33.93	14.5	34.73	154	356	A	V
		5900.25	65.45	-40.89	106.34	51.67	34	14.55	34.77	154	356	P	V
		5927.5	54.51	-33.69	88.2	40.73	34	14.58	34.8	154	356	P	V
		5900	57.61	-28.92	86.53	43.83	34	14.55	34.77	154	356	A	V
		5925	44.94	-23.26	68.2	31.16	34	14.57	34.79	154	356	A	V

WIFI Ant. 4+3	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)
802.11n HT20 CH 177 5885MHz		5611.8	51.37	-16.83	68.2	38.24	33.27	14.3	34.44	171	227	P	H
		5685.845	50.61	-44.15	94.76	37.14	33.64	14.35	34.52	171	227	P	H
		5718.295	50.42	-59.9	110.32	36.8	33.81	14.37	34.56	171	227	P	H
		5723.015	49.73	-67.95	117.68	36.07	33.84	14.38	34.56	171	227	P	H
	*	5885	109.43	-	-	95.68	33.97	14.53	34.75	171	227	P	H
	*	5885	102.38	-	-	88.63	33.97	14.53	34.75	171	227	A	H
		5902	88.7	-16.36	105.06	74.92	34	14.55	34.77	171	227	P	H
		5927.75	66.69	-21.51	88.2	52.91	34	14.58	34.8	171	227	P	H
		5900	81.08	-5.45	86.53	67.3	34	14.55	34.77	171	227	A	H
		5925	56.71	-11.49	68.2	42.93	34	14.57	34.79	171	227	A	H
		5627.73	51.04	-17.16	68.2	37.82	33.37	14.31	34.46	150	357	P	V
		5670.505	51.26	-32.15	83.41	37.84	33.58	14.34	34.5	150	357	P	V
		5708.855	50.5	-57.18	107.68	36.93	33.75	14.37	34.55	150	357	P	V
		5721.245	49.35	-64.29	113.64	35.71	33.83	14.37	34.56	150	357	P	V
	*	5885	108.51	-	-	94.76	33.97	14.53	34.75	150	357	P	V
	*	5885	102.05	-	-	88.3	33.97	14.53	34.75	150	357	A	V
		5900	88.15	-18.38	106.53	74.37	34	14.55	34.77	150	357	P	V
		5927	63.01	-25.19	88.2	49.23	34	14.58	34.8	150	357	P	V
		5900	77.79	-8.74	86.53	64.01	34	14.55	34.77	150	357	A	V
		5925	53.22	-14.98	68.2	39.44	34	14.57	34.79	150	357	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

UNII 4 5835~5885MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 4+3	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)
		11690	51.9	-22.1	74	32.45	39.08	20.69	40.32	-	-	P	H
		17535	55.56	-12.64	68.2	35.61	40.6	25.82	46.47	-	-	P	H
		17535	44.49	-9.51	54	24.54	40.6	25.82	46.47	-	-	A	H
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													H
													H
													H
													H
													H
802.11n													H
HT20													H
CH 169		11690	53.03	-20.97	74	33.58	39.08	20.69	40.32	-	-	P	V
5845MHz		17535	54.93	-13.27	68.2	34.98	40.6	25.82	46.47	-	-	P	V
		17535	44.41	-9.59	54	24.46	40.6	25.82	46.47	-	-	A	V
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WIFI Ant. 4+3	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)
		11730	52.38	-21.62	74	32.96	39.1	20.67	40.35	-	-	P	H
		17595	54.85	-13.35	68.2	34.55	40.78	25.88	46.36	-	-	P	H
		17595	45.26	-8.74	54	24.96	40.78	25.88	46.36	-	-	A	H
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													H
													H
													H
													H
													H
													H
802.11n													H
HT20													H
CH 173		11730	52.04	-21.96	74	32.62	39.1	20.67	40.35	-	-	P	V
5865MHz		17595	54.45	-13.75	68.2	34.15	40.78	25.88	46.36	-	-	P	V
		17595	45.23	-8.77	54	24.93	40.78	25.88	46.36	-	-	A	V
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WIFI Ant. 4+3	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)
		11770	51.53	-22.47	74	32.13	39.14	20.65	40.39	-	-	P	H
		17655	54.14	-14.06	68.2	33.75	40.71	25.93	46.25	-	-	P	H
		17655	45.4	-8.6	54	25.01	40.71	25.93	46.25	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
802.11n													H
HT20													H
CH 177		11770	52.3	-21.7	74	32.9	39.14	20.65	40.39	-	-	P	V
5885MHz		17655	53.96	-14.24	68.2	33.57	40.71	25.93	46.25	-	-	P	V
		17655	45.36	-8.64	54	24.97	40.71	25.93	46.25	-	-	A	V
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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.

UNII 4 5835~5885MHz

WIFI 802.11ax HE20_Partial 26 (Band Edge @ 3m)

WIFI Ant. 4+3	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)
802.11ax HE20 Partial 26/0 CH 169 5845MHz		5623.6	49.84	-18.36	68.2	37.42	33.34	13.41	34.33	110	119	P	H
		5657.23	49.68	-23.89	73.57	37.05	33.53	13.46	34.36	110	119	P	H
		5710.33	49.45	-58.64	108.09	36.55	33.76	13.54	34.4	110	119	P	H
		5723.015	48.88	-68.8	117.68	35.9	33.84	13.55	34.41	110	119	P	H
	*	5845	111.46	43.26	68.2	98.35	33.91	13.7	34.5	110	119	P	H
	*	5845	104.91	50.91	54	91.8	33.91	13.7	34.5	110	119	A	H
		5897	50.84	-57.89	108.73	37.65	33.99	13.74	34.54	110	119	P	H
		5934.25	51.38	-36.82	88.2	38.19	34	13.76	34.57	110	119	P	H
		5916	42.79	-32	74.79	29.6	34	13.75	34.56	110	119	A	H
		5930	42.43	-25.77	68.2	29.24	34	13.76	34.57	110	119	A	H
		5626.255	49.33	-18.87	68.2	36.9	33.36	13.41	34.34	316	69	P	V
		5668.44	50.07	-31.81	81.88	37.4	33.57	13.47	34.37	316	69	P	V
		5719.475	49.67	-60.98	110.65	36.71	33.82	13.55	34.41	316	69	P	V
		5721.54	48.71	-65.6	114.31	35.74	33.83	13.55	34.41	316	69	P	V
	*	5845	112.59	44.39	68.2	99.48	33.91	13.7	34.5	316	69	P	V
	*	5845	105.33	51.33	54	92.22	33.91	13.7	34.5	316	69	A	V
		5899.75	51.68	-55.03	106.71	38.48	34	13.74	34.54	316	69	P	V
		5980.75	51.27	-36.93	88.2	37.96	34.12	13.8	34.61	316	69	P	V
		5896.5	42.65	-46.45	89.1	29.46	33.99	13.74	34.54	316	69	A	V
		5946.5	42.38	-25.82	68.2	29.19	34	13.77	34.58	316	69	A	V

WIFI Ant. 4+3	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)
802.11ax HE20 Partial 26/8 CH 177 5885MHz		5615.045	50.13	-18.07	68.2	37.78	33.29	13.39	34.33	100	118	P	H
		5657.82	51.21	-22.8	74.01	38.58	33.53	13.46	34.36	100	118	P	H
		5709.445	49.87	-57.98	107.85	36.98	33.76	13.53	34.4	100	118	P	H
		5725.08	48.43	-85.77	134.2	35.43	33.85	13.56	34.41	100	118	P	H
	*	5885	112.73	44.53	68.2	99.56	33.97	13.73	34.53	100	118	P	H
	*	5885	105.94	51.94	54	92.77	33.97	13.73	34.53	100	118	A	H
		5895	87.86	-22.34	110.2	74.67	33.99	13.74	34.54	100	118	P	H
		5926	55.65	-32.55	88.2	42.45	34	13.76	34.56	100	118	P	H
		5895	74.61	-15.59	90.2	61.42	33.99	13.74	34.54	100	118	A	H
		5927.75	43.61	-24.59	68.2	30.42	34	13.76	34.57	100	118	A	H
		5647.79	50.09	-18.11	68.2	37.51	33.49	13.44	34.35	295	70	P	V
		5691.155	50.48	-48.2	98.68	37.7	33.66	13.51	34.39	295	70	P	V
		5704.725	49.63	-56.89	106.52	36.77	33.73	13.53	34.4	295	70	P	V
		5724.195	48.85	-71.51	120.36	35.85	33.85	13.56	34.41	295	70	P	V
	*	5885	111.71	43.51	68.2	98.54	33.97	13.73	34.53	295	70	P	V
	*	5885	105.42	51.42	54	92.25	33.97	13.73	34.53	295	70	A	V
		5895	87.53	-22.67	110.2	74.34	33.99	13.74	34.54	295	70	P	V
		5927	54.25	-33.95	88.2	41.05	34	13.76	34.56	295	70	P	V
		5895	73.98	-16.22	90.2	60.79	33.99	13.74	34.54	295	70	A	V
		5925	42.97	-25.23	68.2	29.77	34	13.76	34.56	295	70	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

UNII 4 5835~5885MHz

WIFI 802.11ax HE20_Partial 52 (Band Edge @ 3m)

WIFI Ant. 4+3	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)
802.11ax HE20 Partial 52/37 CH 169 5845MHz		5621.535	50.57	-17.63	68.2	38.17	33.33	13.4	34.33	130	118	P	H
		5694.99	49.84	-51.67	101.51	37.04	33.68	13.51	34.39	130	118	P	H
		5704.135	49.28	-57.08	106.36	36.43	33.72	13.53	34.4	130	118	P	H
		5724.49	49.78	-71.26	121.04	36.78	33.85	13.56	34.41	130	118	P	H
	*	5845	112.61	44.41	68.2	99.5	33.91	13.7	34.5	130	118	P	H
	*	5845	105.01	51.01	54	91.9	33.91	13.7	34.5	130	118	A	H
		5901.25	54.75	-50.86	105.61	41.55	34	13.74	34.54	130	118	P	H
		5937.5	51.76	-36.44	88.2	38.56	34	13.77	34.57	130	118	P	H
		5896.75	44.53	-44.38	88.91	31.34	33.99	13.74	34.54	130	118	A	H
		5932.5	42.77	-25.43	68.2	29.58	34	13.76	34.57	130	118	A	H
		5646.02	50.08	-18.12	68.2	37.51	33.48	13.44	34.35	329	71	P	V
		5650.445	49.98	-18.55	68.53	37.38	33.5	13.45	34.35	329	71	P	V
		5720.065	50.8	-60.15	110.95	37.84	33.82	13.55	34.41	329	71	P	V
		5723.015	50.29	-67.39	117.68	37.31	33.84	13.55	34.41	329	71	P	V
	*	5845	113	44.8	68.2	99.89	33.91	13.7	34.5	329	71	P	V
	*	5845	105.52	51.52	54	92.41	33.91	13.7	34.5	329	71	A	V
		5900.75	54.59	-51.38	105.97	41.39	34	13.74	34.54	329	71	P	V
		5967	51.87	-36.33	88.2	38.6	34.07	13.79	34.59	329	71	P	V
		5897.25	44.29	-44.26	88.55	31.1	33.99	13.74	34.54	329	71	A	V
		5926.5	42.73	-25.47	68.2	29.53	34	13.76	34.56	329	71	A	V

WIFI Ant. 4+3	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)
802.11ax HE20 Partial 52/40 CH 177 5885MHz		5628.91	49.85	-18.35	68.2	37.41	33.37	13.41	34.34	100	118	P	H
		5668.145	49.56	-32.11	81.67	36.89	33.57	13.47	34.37	100	118	P	H
		5717.705	50.41	-59.75	110.16	37.46	33.81	13.55	34.41	100	118	P	H
		5725.08	50.39	-83.81	134.2	37.39	33.85	13.56	34.41	100	118	P	H
	*	5885	112.56	44.36	68.2	99.39	33.97	13.73	34.53	100	118	P	H
	*	5885	105.35	51.35	54	92.18	33.97	13.73	34.53	100	118	A	H
		5895	87.5	-22.7	110.2	74.31	33.99	13.74	34.54	100	118	P	H
		5925.5	58.05	-30.15	88.2	44.85	34	13.76	34.56	100	118	P	H
		5895	75.62	-14.58	90.2	62.43	33.99	13.74	34.54	100	118	A	H
		5925.5	45.17	-23.03	68.2	31.97	34	13.76	34.56	100	118	A	H
		5615.045	50.24	-17.96	68.2	37.89	33.29	13.39	34.33	328	70	P	V
		5688.205	50.5	-46	96.5	37.73	33.65	13.5	34.38	328	70	P	V
		5718	49.9	-60.34	110.24	36.95	33.81	13.55	34.41	328	70	P	V
		5724.49	50.3	-70.74	121.04	37.3	33.85	13.56	34.41	328	70	P	V
	*	5885	111.5	43.3	68.2	98.33	33.97	13.73	34.53	328	70	P	V
	*	5885	105.11	51.11	54	91.94	33.97	13.73	34.53	328	70	A	V
		5895	85.95	-24.25	110.2	72.76	33.99	13.74	34.54	328	70	P	V
		5927.5	52.66	-35.54	88.2	39.46	34	13.76	34.56	328	70	P	V
		5895	75.07	-15.13	90.2	61.88	33.99	13.74	34.54	328	70	A	V
		5925.75	43.94	-24.26	68.2	30.74	34	13.76	34.56	328	70	A	V

Remark

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

UNII 4 5835~5885MHz

WIFI 802.11ax HE20_Partial 106 (Band Edge @ 3m)

WIFI Ant. 4+3	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)
802.11ax HE20 Partial 106/53 CH 169 5845MHz		5614.16	50.21	-17.99	68.2	37.87	33.28	13.39	34.33	121	118	P	H
		5662.245	50.06	-27.23	77.29	37.41	33.55	13.46	34.36	121	118	P	H
		5717.115	50.14	-59.85	109.99	37.2	33.8	13.55	34.41	121	118	P	H
		5722.425	48.55	-67.78	116.33	35.58	33.83	13.55	34.41	121	118	P	H
	*	5845	112.21	44.01	68.2	99.1	33.91	13.7	34.5	121	118	P	H
	*	5845	104.93	50.93	54	91.82	33.91	13.7	34.5	121	118	A	H
		5898	59.37	-48.62	107.99	46.17	34	13.74	34.54	121	118	P	H
		5938.25	51.79	-36.41	88.2	38.59	34	13.77	34.57	121	118	P	H
		5895.25	46.26	-43.76	90.02	33.07	33.99	13.74	34.54	121	118	A	H
		5927	43.37	-24.83	68.2	30.17	34	13.76	34.56	121	118	A	H
		5626.55	51.35	-16.85	68.2	38.92	33.36	13.41	34.34	328	70	P	V
		5679.06	49.23	-40.51	89.74	36.5	33.62	13.49	34.38	328	70	P	V
		5705.02	49.93	-56.68	106.61	37.07	33.73	13.53	34.4	328	70	P	V
		5720.36	50.34	-61.28	111.62	37.38	33.82	13.55	34.41	328	70	P	V
	*	5845	112.11	43.91	68.2	99	33.91	13.7	34.5	328	70	P	V
	*	5845	105.1	51.1	54	91.99	33.91	13.7	34.5	328	70	A	V
		5895.25	60.04	-49.98	110.02	46.85	33.99	13.74	34.54	328	70	P	V
		5927.5	51.91	-36.29	88.2	38.71	34	13.76	34.56	328	70	P	V
		5895.25	46.15	-43.87	90.02	32.96	33.99	13.74	34.54	328	70	A	V
		5926.75	43.14	-25.06	68.2	29.94	34	13.76	34.56	328	70	A	V

WIFI Ant. 4+3	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)
802.11ax HE20 Partial 106/54 CH 177 5885MHz		5639.53	50.07	-18.13	68.2	37.55	33.44	13.43	34.35	100	119	P	H
		5685.845	51.28	-43.48	94.76	38.52	33.64	13.5	34.38	100	119	P	H
		5710.92	49.99	-58.27	108.26	37.08	33.77	13.54	34.4	100	119	P	H
		5724.195	49.55	-70.81	120.36	36.55	33.85	13.56	34.41	100	119	P	H
	*	5885	111.74	43.54	68.2	98.57	33.97	13.73	34.53	100	119	P	H
	*	5885	104.34	50.34	54	91.17	33.97	13.73	34.53	100	119	A	H
		5895	88.5	-21.7	110.2	75.31	33.99	13.74	34.54	100	119	P	H
		5926.25	63.08	-25.12	88.2	49.88	34	13.76	34.56	100	119	P	H
		5895	78.13	-12.07	90.2	64.94	33.99	13.74	34.54	100	119	A	H
		5925	47.98	-20.22	68.2	34.78	34	13.76	34.56	100	119	A	H
		5643.365	49.88	-18.32	68.2	37.33	33.46	13.44	34.35	328	75	P	V
		5687.91	49.85	-46.43	96.28	37.08	33.65	13.5	34.38	328	75	P	V
		5718.295	50.2	-60.12	110.32	37.25	33.81	13.55	34.41	328	75	P	V
		5723.605	49.18	-69.84	119.02	36.19	33.84	13.56	34.41	328	75	P	V
	*	5885	111.93	43.73	68.2	98.76	33.97	13.73	34.53	328	75	P	V
	*	5885	103.7	49.7	54	90.53	33.97	13.73	34.53	328	75	A	V
		5895	86.53	-23.67	110.2	73.34	33.99	13.74	34.54	328	75	P	V
		5928	57.56	-30.64	88.2	44.37	34	13.76	34.57	328	75	P	V
		5895	76.95	-13.25	90.2	63.76	33.99	13.74	34.54	328	75	A	V
		5925.25	46.85	-21.35	68.2	33.65	34	13.76	34.56	328	75	A	V

Remark

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

UNII 4 5835~5885MHz

WIFI 802.11ax HE40_Full (Band Edge @ 3m)

WIFI Ant. 4+3	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)
		5646.315	51.57	-16.63	68.2	38.25	33.48	14.32	34.48	198	231	P	H
		5691.45	51.95	-46.95	98.9	38.46	33.67	14.35	34.53	198	231	P	H
		5719.18	55.43	-55.14	110.57	41.8	33.82	14.37	34.56	198	231	P	H
		5723.9	54.14	-65.55	119.69	40.49	33.84	14.38	34.57	198	231	P	H
	*	5835	107.1	-	-	93.39	33.93	14.47	34.69	198	231	P	H
	*	5835	99.59	-	-	85.88	33.93	14.47	34.69	198	231	A	H
		5900	63.13	-43.4	106.53	49.35	34	14.55	34.77	198	231	P	H
		5927.25	58.77	-29.43	88.2	44.99	34	14.58	34.8	198	231	P	H
		5900	54.35	-32.18	86.53	40.57	34	14.55	34.77	198	231	A	H
		5925	47.1	-21.1	68.2	33.32	34	14.57	34.79	198	231	A	H
802.11ax													
HE40 Full													
CH 167		5603.835	50.7	-17.5	68.2	37.62	33.22	14.29	34.43	154	355	P	V
5835MHz		5664.605	52.66	-26.38	79.04	39.26	33.56	14.34	34.5	154	355	P	V
		5717.705	57.01	-53.15	110.16	43.39	33.81	14.37	34.56	154	355	P	V
		5721.835	56.53	-58.45	114.98	42.88	33.83	14.38	34.56	154	355	P	V
	*	5835	107.27	-	-	93.56	33.93	14.47	34.69	154	355	P	V
	*	5835	100.12	-	-	86.41	33.93	14.47	34.69	154	355	A	V
		5904.75	60.47	-42.57	103.04	46.69	34	14.55	34.77	154	355	P	V
		5932	53.69	-34.51	88.2	39.91	34	14.58	34.8	154	355	P	V
		5900	51.98	-34.55	86.53	38.2	34	14.55	34.77	154	355	A	V
		5925	45.18	-23.02	68.2	31.4	34	14.57	34.79	154	355	A	V

WIFI Ant. 4+3	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)
		5638.94	50.64	-17.56	68.2	37.36	33.43	14.32	34.47	181	229	P	H
		5672.865	51.25	-33.91	85.16	37.83	33.59	14.34	34.51	181	229	P	H
		5707.38	51.36	-55.91	107.27	37.8	33.74	14.37	34.55	181	229	P	H
		5723.015	50.88	-66.8	117.68	37.22	33.84	14.38	34.56	181	229	P	H
	*	5875	106.6	-	-	92.87	33.95	14.52	34.74	181	229	P	H
	*	5875	98.68	-	-	84.95	33.95	14.52	34.74	181	229	A	H
		5901.25	82.16	-23.45	105.61	68.38	34	14.55	34.77	181	229	P	H
		5926.25	70.69	-17.51	88.2	56.91	34	14.58	34.8	181	229	P	H
		5901.75	75.11	-10.13	85.24	61.33	34	14.55	34.77	181	229	A	H
		5925	61.82	-6.38	68.2	48.04	34	14.57	34.79	181	229	A	H
802.11ax													
HE40 Full													
CH 175		5640.71	51.32	-16.88	68.2	38.03	33.44	14.32	34.47	150	358	P	V
5875MHz		5686.14	52.2	-42.78	94.98	38.73	33.64	14.35	34.52	150	358	P	V
		5707.085	52.03	-55.16	107.19	38.48	33.74	14.36	34.55	150	358	P	V
		5723.605	52.64	-66.38	119.02	38.98	33.84	14.38	34.56	150	358	P	V
	*	5875	106.46	-	-	92.73	33.95	14.52	34.74	150	358	P	V
	*	5875	98.41	-	-	84.68	33.95	14.52	34.74	150	358	A	V
		5901	83.09	-22.7	105.79	69.31	34	14.55	34.77	150	358	P	V
		5926	69.2	-19	88.2	55.43	34	14.57	34.8	150	358	P	V
		5901.25	73.14	-12.47	85.61	59.36	34	14.55	34.77	150	358	A	V
		5926	58.85	-9.35	68.2	45.08	34	14.57	34.8	150	358	A	V

Remark

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

UNII 4 5835~5885MHz

WIFI 802.11ax HE40_Full (Harmonic @ 3m)

WIFI Ant. 4+3	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)
		11670	52.14	-21.86	74	32.7	39.04	20.7	40.3	-	-	P	H
		11670	42.45	-11.55	54	23.01	39.04	20.7	40.3	-	-	A	H
		17505	54.58	-13.62	68.2	34.71	40.6	25.79	46.52	-	-	P	H
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													H
													H
													H
													H
													H
													H
802.11ax													H
HE40 Full													H
CH 167		11670	52.39	-21.61	74	32.95	39.04	20.7	40.3	-	-	P	V
5835MHz		11670	42.46	-11.54	54	23.02	39.04	20.7	40.3	-	-	A	V
		17505	54.24	-13.96	68.2	34.37	40.6	25.79	46.52	-	-	P	V
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WIFI Ant. 4+3	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)
		11750	52.36	-21.64	74	32.97	39.1	20.66	40.37	-	-	P	H
		11750	42.28	-11.72	54	22.89	39.1	20.66	40.37	-	-	A	H
		17625	55.15	-13.05	68.2	34.8	40.75	25.91	46.31	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE40 Full													H
CH 175		11750	52.66	-21.34	74	33.27	39.1	20.66	40.37	-	-	P	V
5875MHz		11750	42.51	-11.49	54	23.12	39.1	20.66	40.37	-	-	A	V
		17625	54.75	-13.45	68.2	34.4	40.75	25.91	46.31	-	-	P	V
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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.

UNII 4 5835~5885MHz

WIFI 802.11ax HE80_Full (Band Edge @ 3m)

WIFI Ant. 4+3	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)
		5641.3	52.6	-15.6	68.2	39.3	33.45	14.32	34.47	111	359	P	H
		5697.055	56.56	-46.47	103.03	43.04	33.69	14.36	34.53	111	359	P	H
		5711.805	60.94	-47.57	108.51	47.35	33.77	14.37	34.55	111	359	P	H
		5724.785	61.46	-60.25	121.71	47.8	33.85	14.38	34.57	111	359	P	H
	*	5855	106.56	-	-	92.87	33.91	14.49	34.71	111	359	P	H
	*	5855	96.51	-	-	82.82	33.91	14.49	34.71	111	359	A	H
		5901.75	79.83	-25.41	105.24	66.05	34	14.55	34.77	111	359	P	H
		5934.5	74.99	-13.21	88.2	61.22	34	14.58	34.81	111	359	P	H
		5901.75	69.4	-15.84	85.24	55.62	34	14.55	34.77	111	359	A	H
		5927.5	65.12	-3.08	68.2	51.34	34	14.58	34.8	111	359	A	H
802.11ax													
HE80 Full													
CH 171		5629.795	51.21	-16.99	68.2	37.98	33.38	14.31	34.46	120	85	P	V
5855MHz		5694.4	53.73	-47.34	101.07	40.22	33.68	14.36	34.53	120	85	P	V
		5712.985	59.73	-49.11	108.84	46.13	33.78	14.37	34.55	120	85	P	V
		5725.08	57.96	-76.24	134.2	44.3	33.85	14.38	34.57	120	85	P	V
	*	5855	101.6	-	-	87.91	33.91	14.49	34.71	120	85	P	V
	*	5855	93.93	-	-	80.24	33.91	14.49	34.71	120	85	A	V
		5900	75.33	-31.2	106.53	61.55	34	14.55	34.77	120	85	P	V
		5931.75	71.42	-16.78	88.2	57.64	34	14.58	34.8	120	85	P	V
		5900	67.42	-19.11	86.53	53.64	34	14.55	34.77	120	85	A	V
		5926.75	63.03	-5.17	68.2	49.25	34	14.58	34.8	120	85	A	V

Remark

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

UNII 4 5835~5885MHz

WIFI 802.11ax HE80_Full (Harmonic @ 3m)

WIFI Ant. 4+3	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)
		11710	53.54	-20.46	74	34.09	39.1	20.68	40.33	-	-	P	H
		11710	42.64	-11.36	54	23.19	39.1	20.68	40.33	-	-	A	H
		17565	54.27	-13.93	68.2	34.17	40.66	25.85	46.41	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
802.11ax													H
HE80 Full													H
CH 171		11710	52.12	-21.88	74	32.67	39.1	20.68	40.33	-	-	P	V
5855MHz		11710	42.73	-11.27	54	23.28	39.1	20.68	40.33	-	-	A	V
		17565	54.52	-13.68	68.2	34.42	40.66	25.85	46.41	-	-	P	V
													V
													V
													V
													V
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													V
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													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												

Emission above 18GHz

5GHz WIFI 802.11ax HE80 Full (SHF @ 1m)

WIFI Ant. 4+3	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)
802.11ax HE80 Full SHF		24896.61	45	-23.2	68.2	42.34	39.61	22.74	59.69	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		25176.96	46.07	-22.13	68.2	43.54	39.5	22.74	59.71	-	-	P	V
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													V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												

Emission below 1GHz

5GHz WIFI 802.11ax HE80 Full (LF @ 3m)

WIFI Ant. 4+3	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)
802.11ax HE80 Full LF		57.16	22.94	-17.06	40	41.87	12.05	1.75	32.73	-	-	P	H
		135.73	29.51	-13.99	43.5	42.28	17.43	2.5	32.7	-	-	P	H
		166.77	21.38	-22.12	43.5	35.46	15.82	2.8	32.7	-	-	P	H
		676.99	29.18	-16.82	46	30.48	26.36	5.14	32.8	-	-	P	H
		797.27	32.54	-13.46	46	31.48	27.91	5.65	32.5	-	-	P	H
		969.93	35.7	-18.3	54	29.58	31.1	6.21	31.19	-	-	P	H
													H
													H
													H
													H
													H
													H
		32.91	27.71	-12.29	40	36.05	23.35	1.06	32.75	-	-	P	V
		56.19	33.34	-6.66	40	52.16	12.18	1.73	32.73	-	-	P	V
		79.47	29.38	-10.62	40	46.81	13.29	2	32.72	-	-	P	V
		127	26.69	-16.81	43.5	39.36	17.6	2.44	32.71	-	-	P	V
		826.37	34.59	-11.41	46	33.19	27.98	5.76	32.34	-	-	P	V
		972.84	36.08	-17.92	54	30.03	30.99	6.22	31.16	-	-	P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line. 3. The emission position marked as "-" means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.												

Note symbol

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

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

WIFI Ant. 4+3	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		5650	55.45	-12.75	68.2	54.51	32.22	4.58	35.86	103	308	P	H

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

For Peak Limit @ 5650MHz:

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) – 68.2(dBμV/m)

= -12.75 (dB)

Peak measured complies with the limit line, so test result is “PASS”.

Appendix D. Radiated Spurious Emission Plots

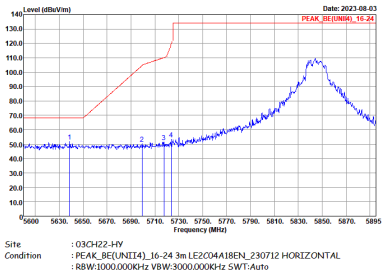
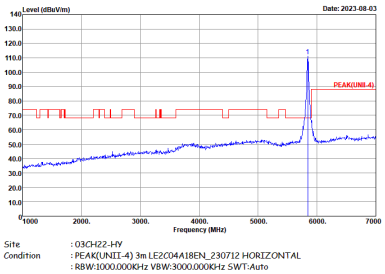
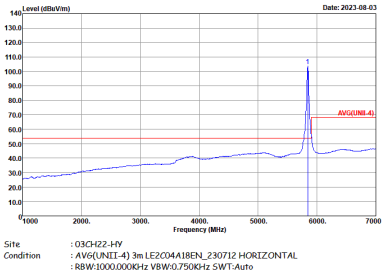
Test Engineer :	Bank Lin and LU WEN-KAI	**Temperature :**	20~25°C
		Relative Humidity :	55~65%

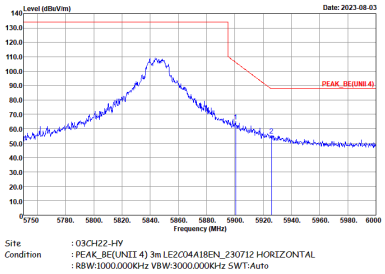
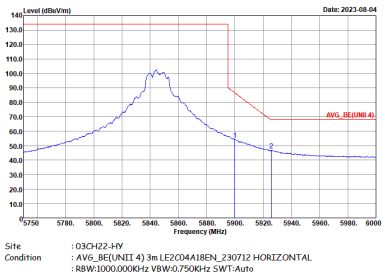
Note symbol

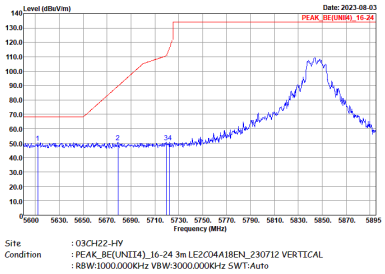
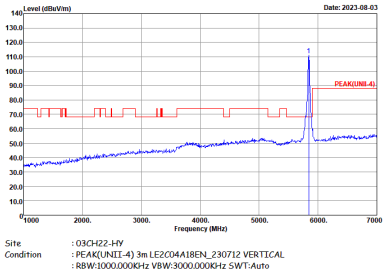
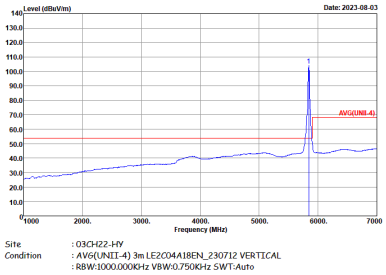
-L	**Low channel location**
-R	**High channel location**

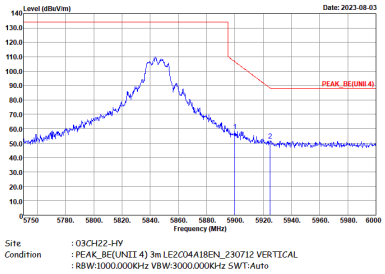
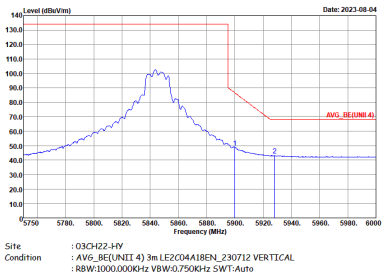
UNII 4 - 5835~5885MHz

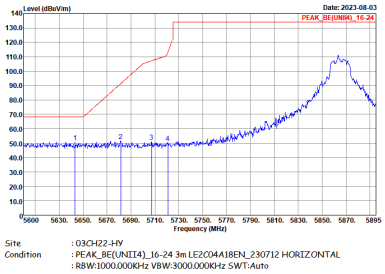
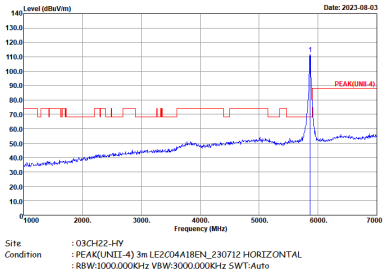
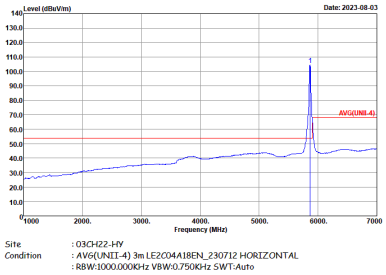
WIFI 802.11a (Band Edge @ 3m)

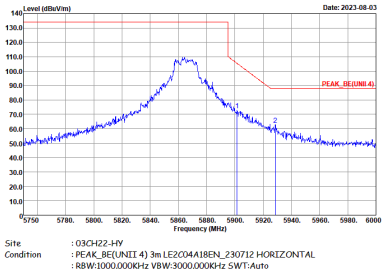
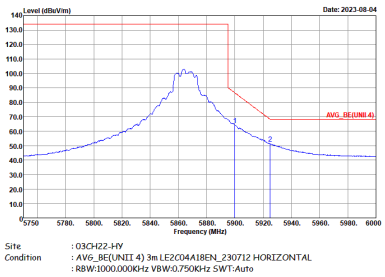
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH169 5845MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

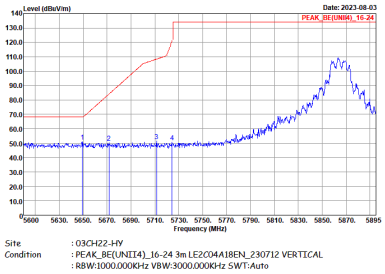
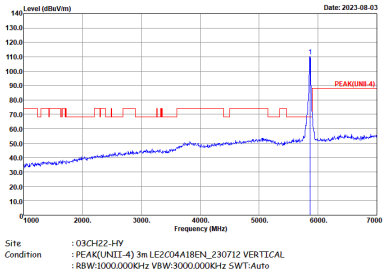
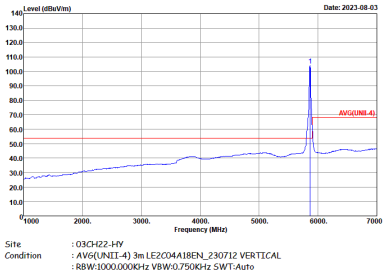
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH169 5845MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg		Left blank

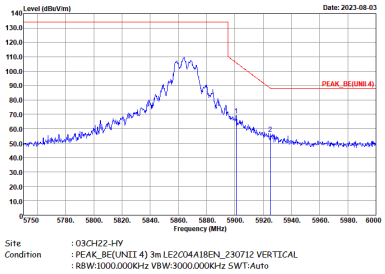
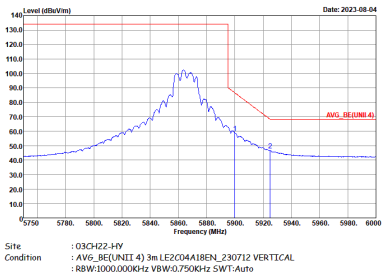
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH169 5845MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg	Left blank	

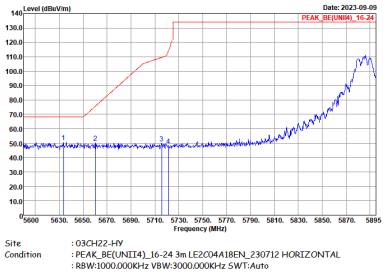
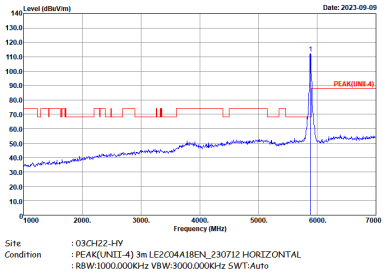
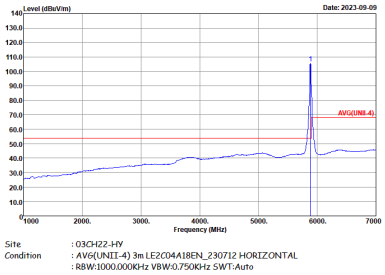
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH169 5845MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

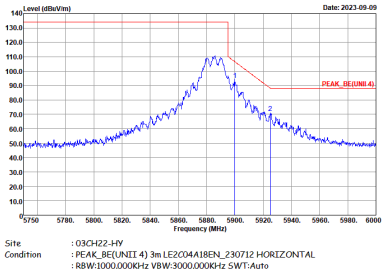
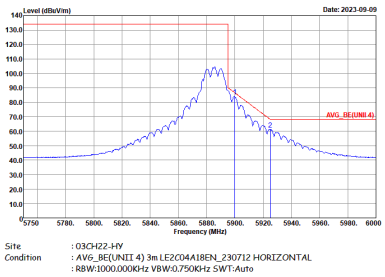
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH173 5865MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

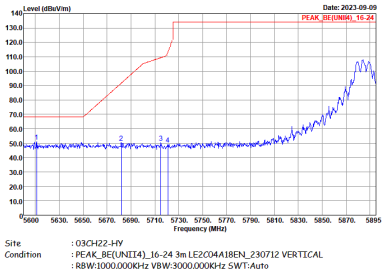
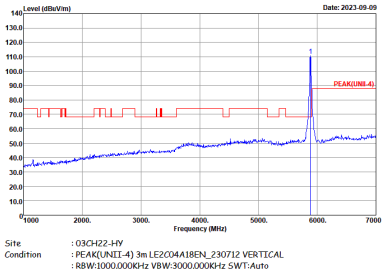
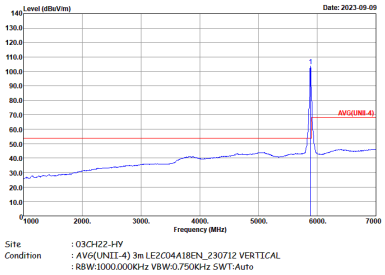
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH173 5865MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg		Left blank

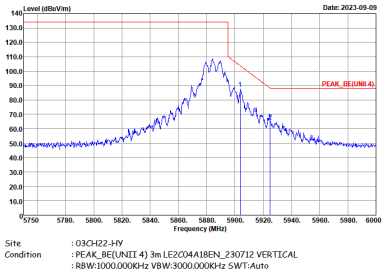
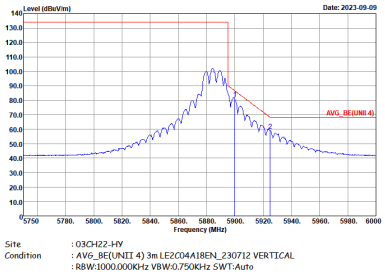
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH173 5865MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg	Left blank	

WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH173 5865MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH177 5885MHz -L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

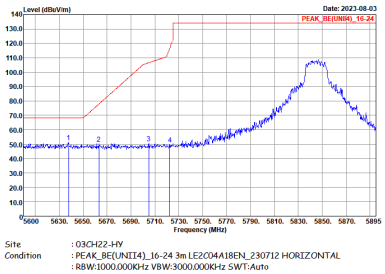
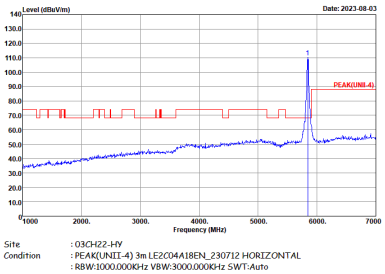
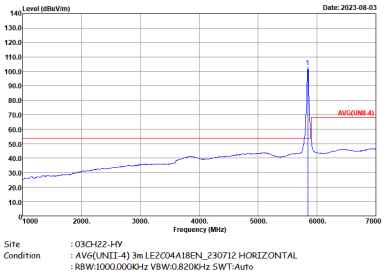
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH177 5885MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg		Left blank

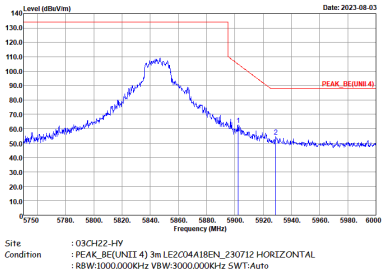
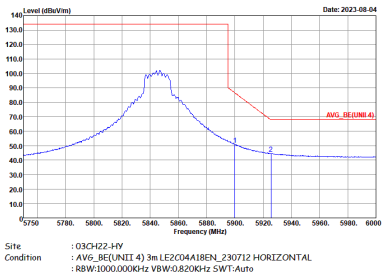
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH177 5885MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg	Left blank	

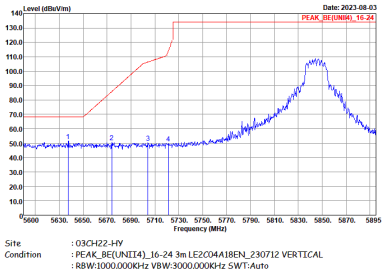
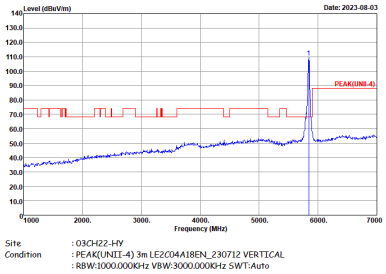
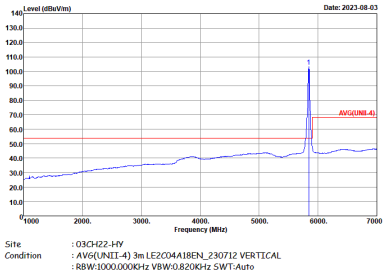
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11a CH177 5885MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

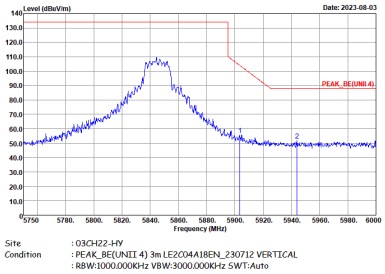
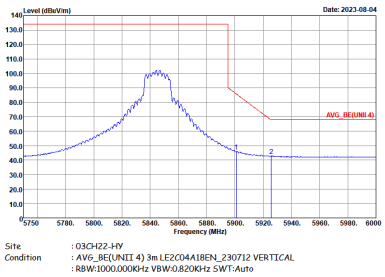
UNII 4 5835~5885MHz

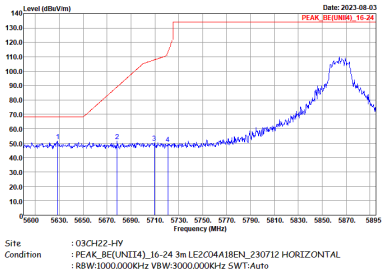
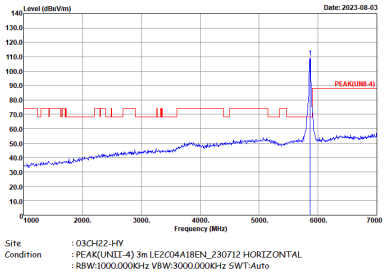
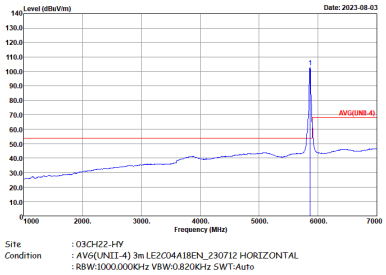
WIFI 802.11n HT20 (Band Edge @ 3m)

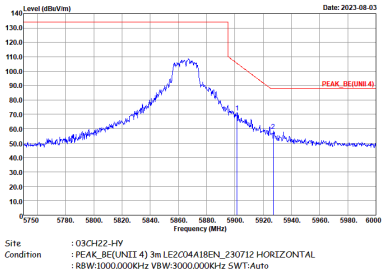
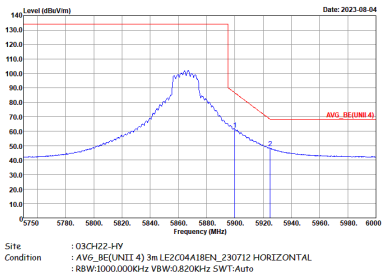
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH169 5845MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

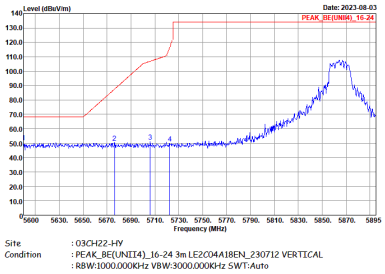
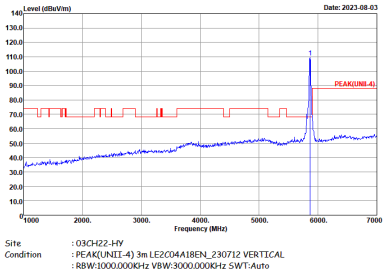
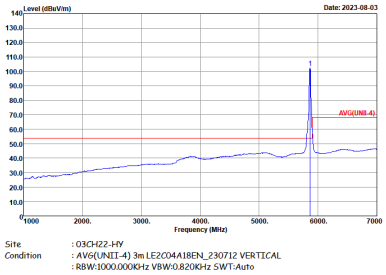
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH169 5845MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg		Left blank

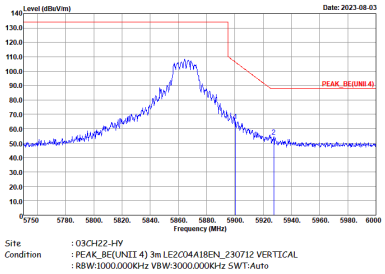
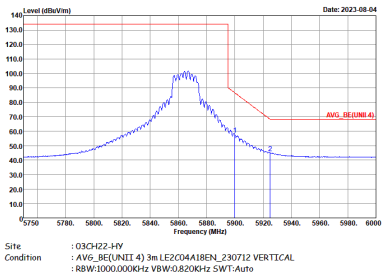
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH169 5845MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg	Left blank	

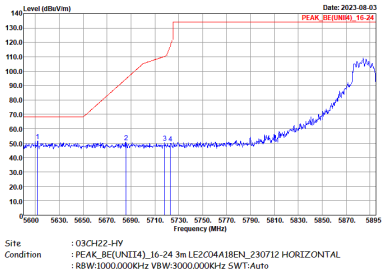
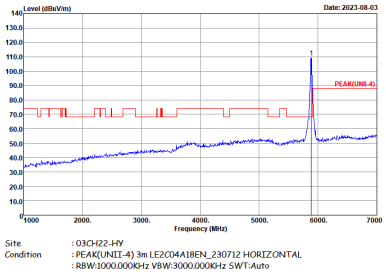
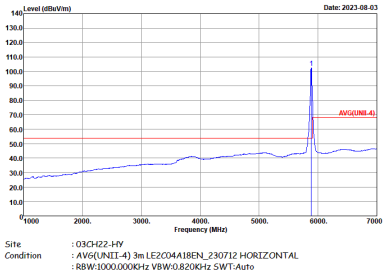
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH169 5845MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

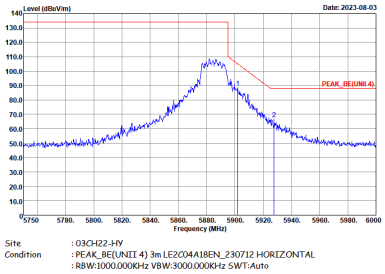
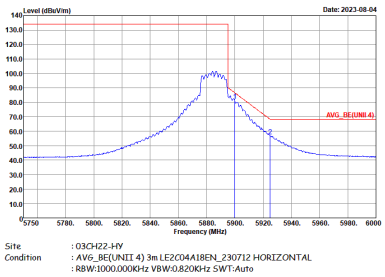
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH173 5865MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

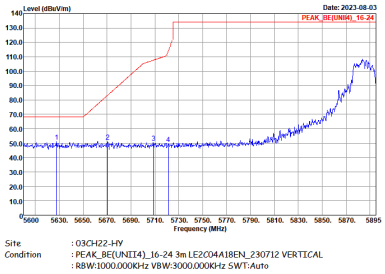
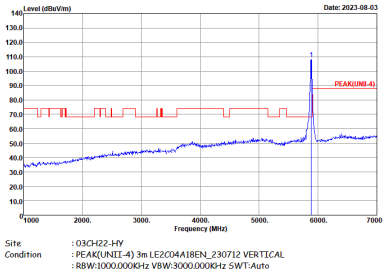
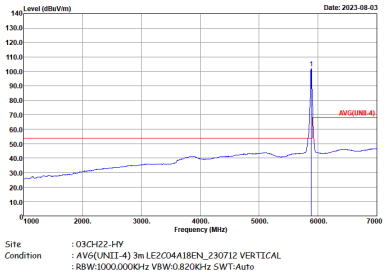
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH173 5865MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg		Left blank

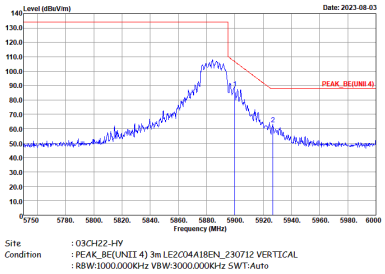
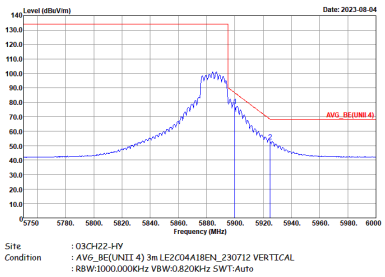
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH173 5865MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg	Left blank	

WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH173 5865MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH177 5885MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

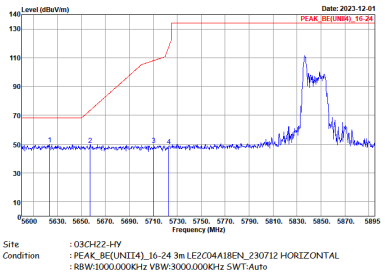
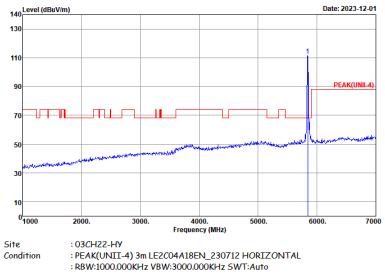
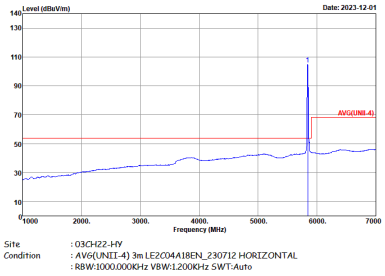
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH177 5885MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg		Left blank

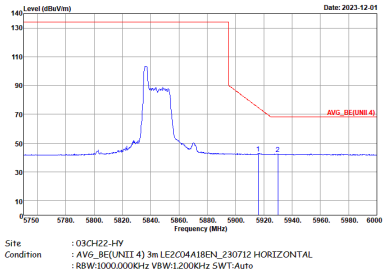
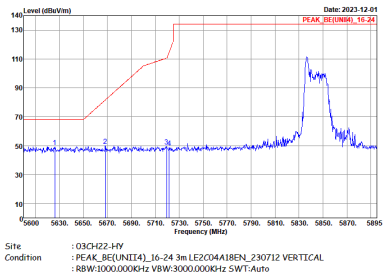
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH177 5885MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg	Left blank	

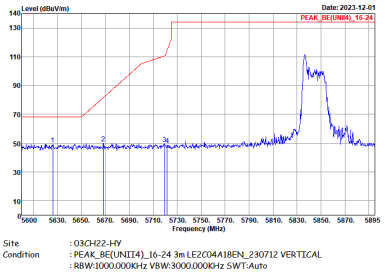
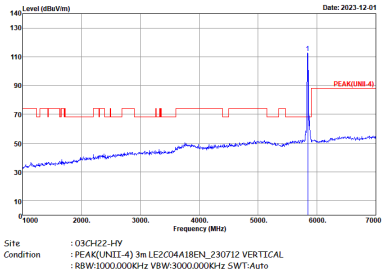
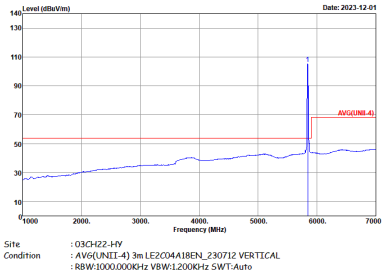
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11n HT20 CH177 5865MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

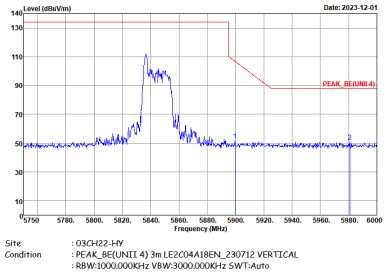
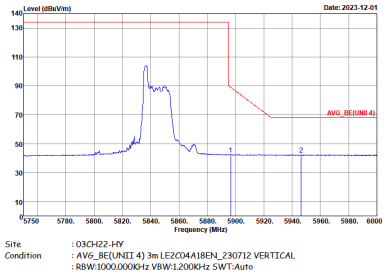
UNII 4 5835~5885MHz

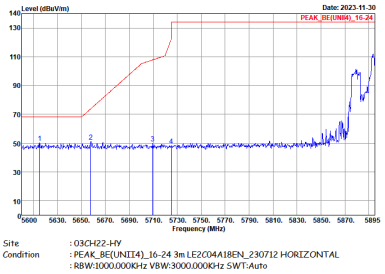
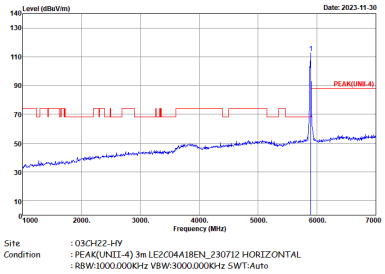
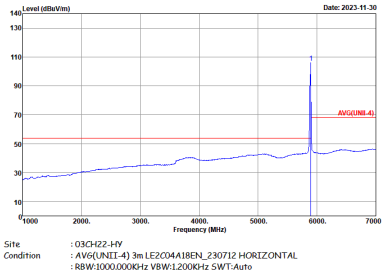
WIFI 802.11ax HE20 Partial 26 (Band Edge @ 3m)

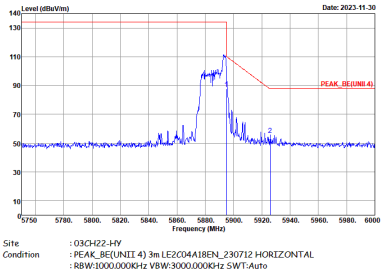
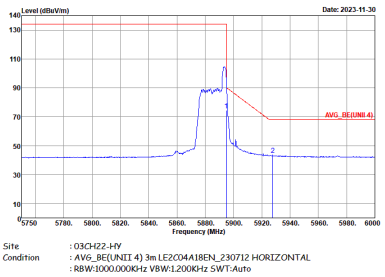
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 26/0 CH169 5845MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

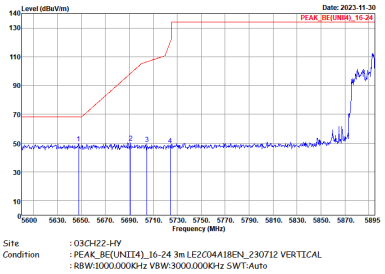
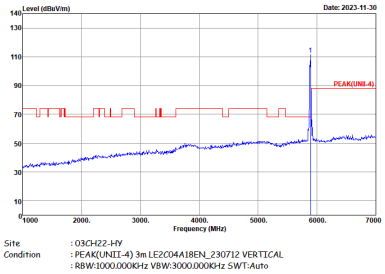
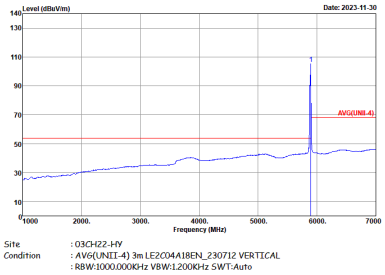
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 26/0 CH169 5845MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

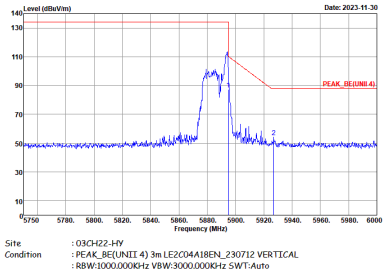
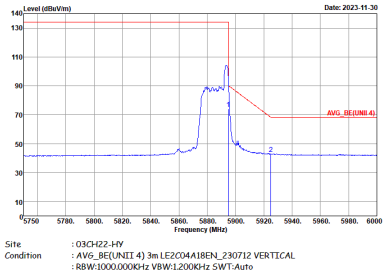
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 26/0 CH169 5845MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 26/0 CH169 5845MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 26/8 CH177 5885MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

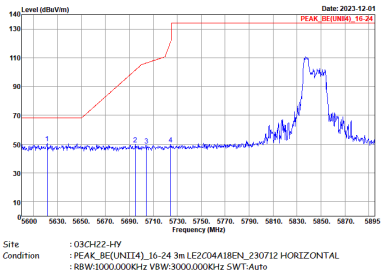
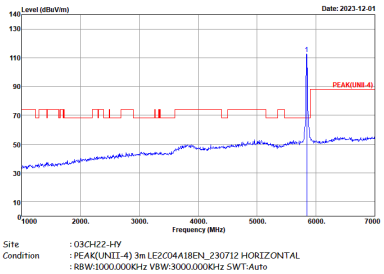
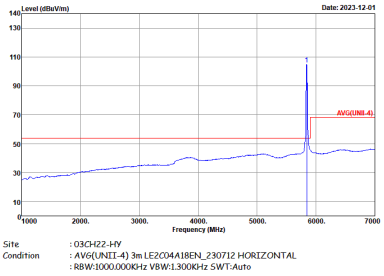
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 26/8 CH177 5885MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

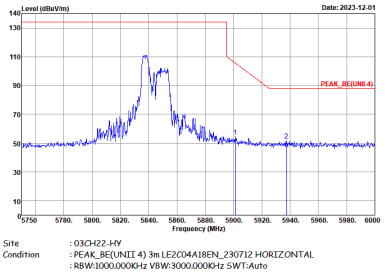
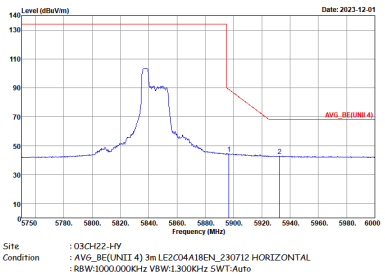
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 26/8 CH177 5885MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

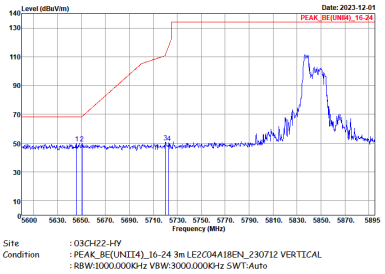
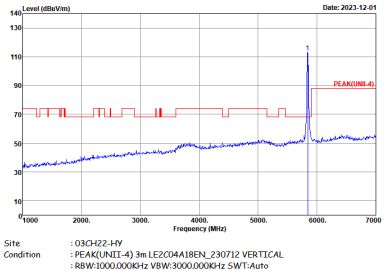
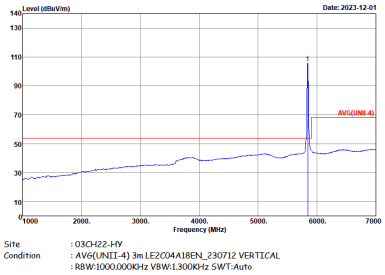
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 26/8 CH177 5885MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

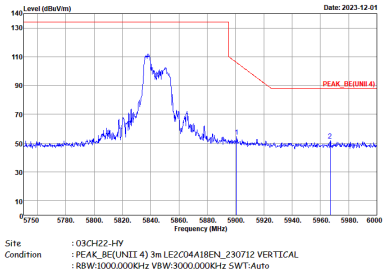
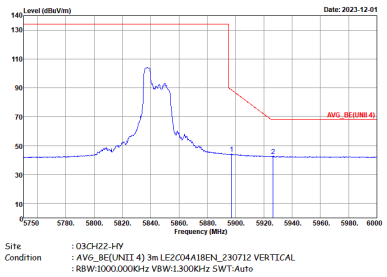
UNII 4 5835~5885MHz

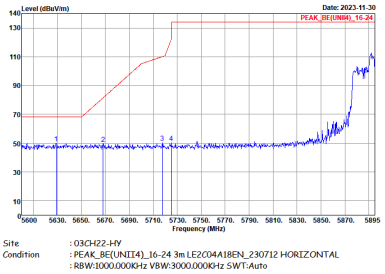
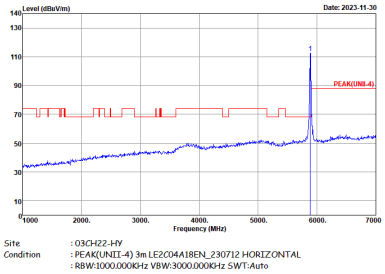
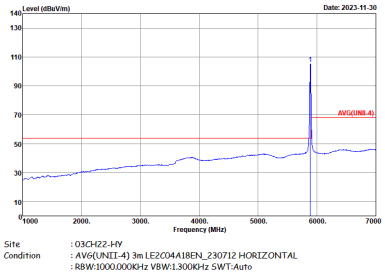
WIFI 802.11ax HE20 Partial 52 (Band Edge @ 3m)

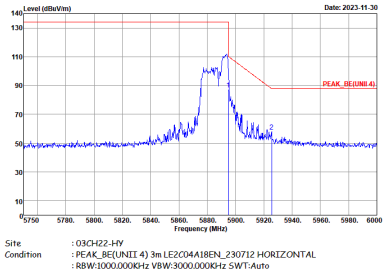
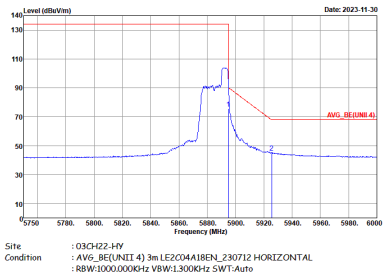
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 52/37 CH169 5845MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

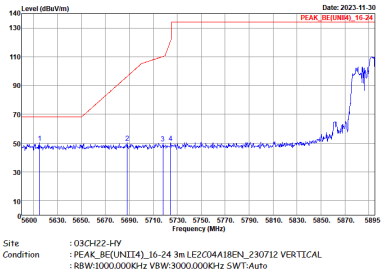
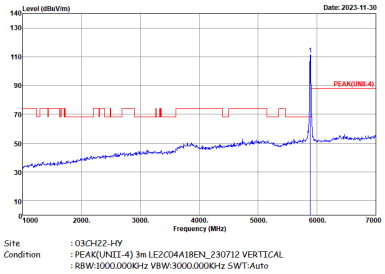
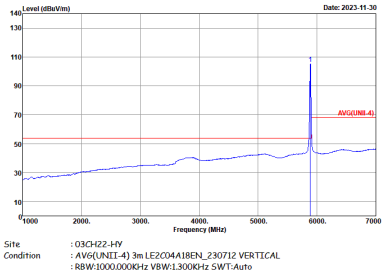
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 52/37 CH169 5845MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

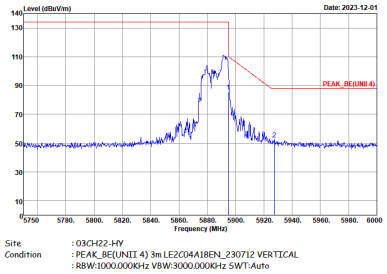
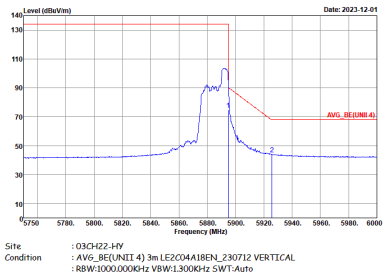
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 52/37 CH169 5845MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 52/37 CH169 5845MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 52/40 CH177 5885MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

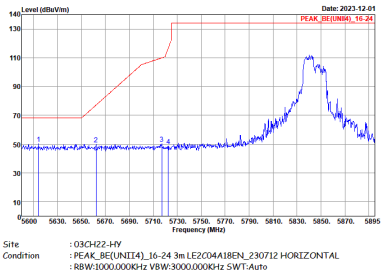
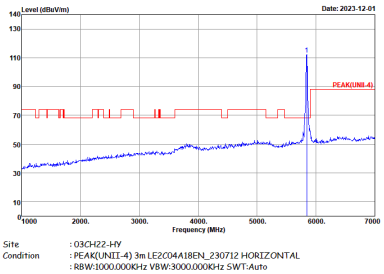
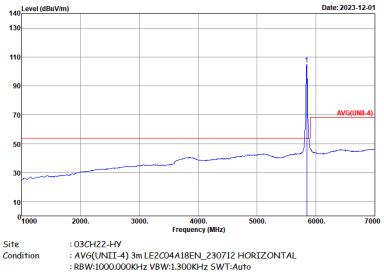
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 52/40 CH177 5885MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

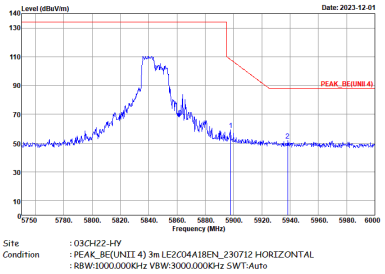
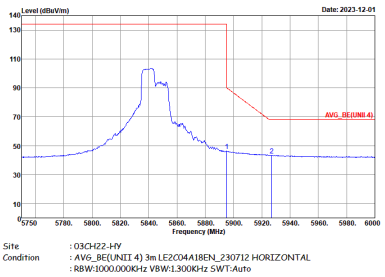
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 52/40 CH177 5885MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

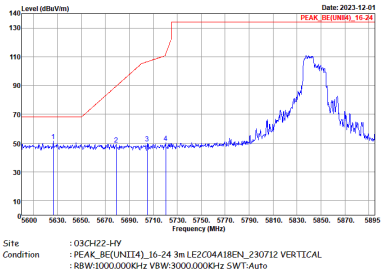
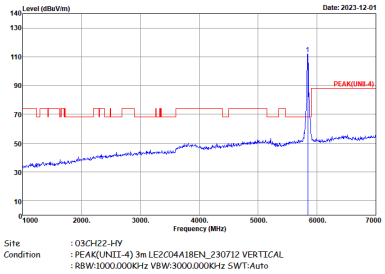
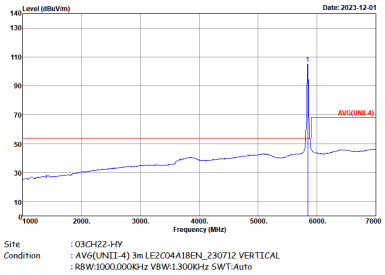
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 52/40 CH177 5885MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

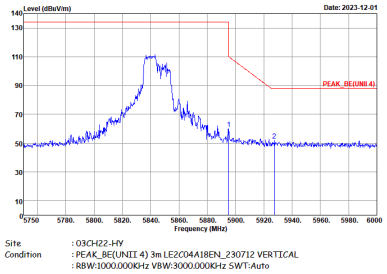
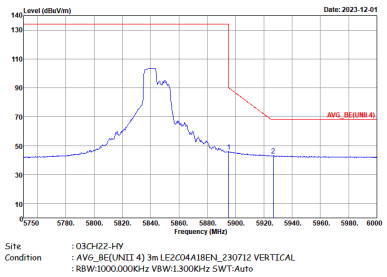
UNII 4 5835~5885MHz

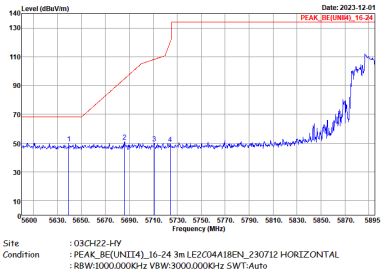
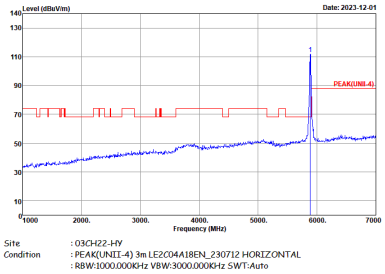
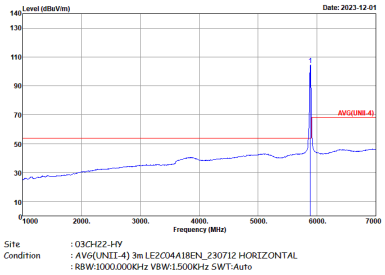
WIFI 802.11ax HE20 Partial 106 (Band Edge @ 3m)

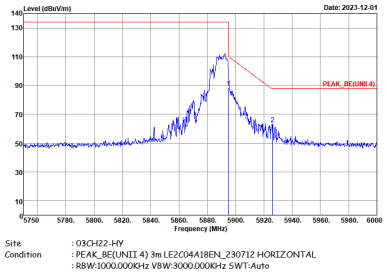
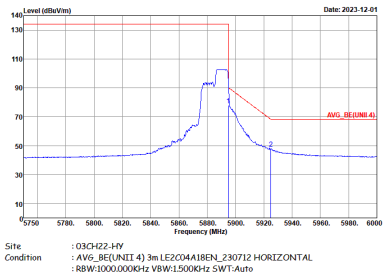
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/53 CH169 5845MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

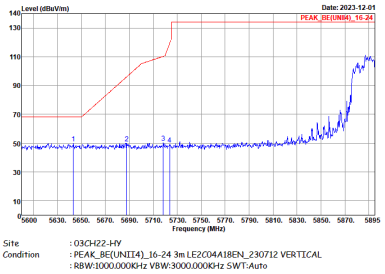
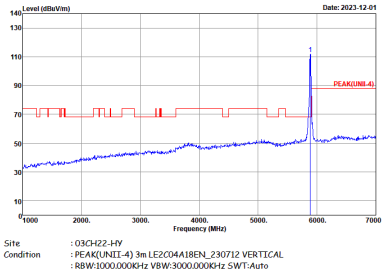
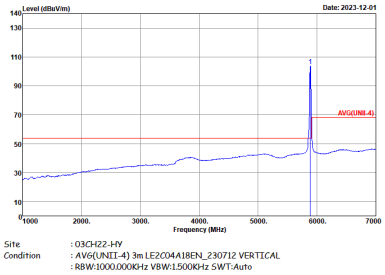
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/53 CH169 5845MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

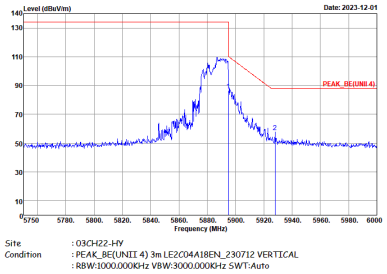
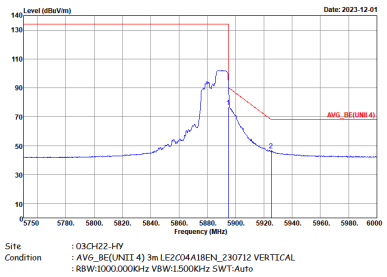
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/53 CH169 5845MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/53 CH169 5845MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/54 CH177 5885MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

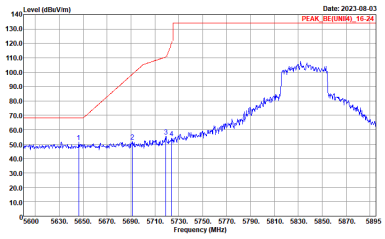
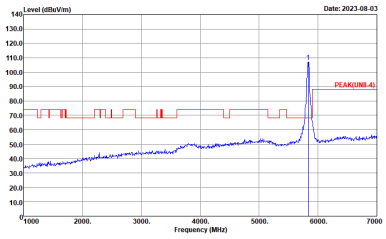
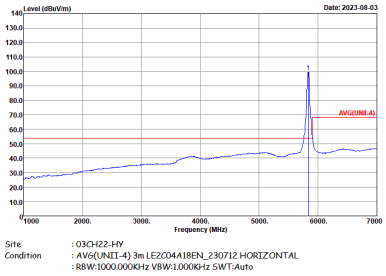
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/54 CH177 5885MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

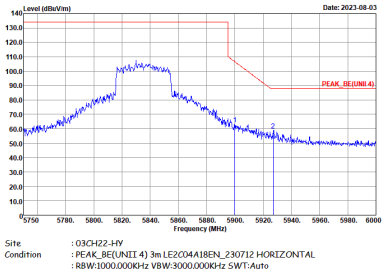
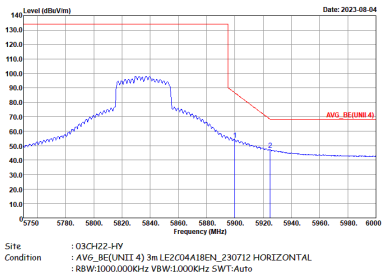
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/54 CH177 5885MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

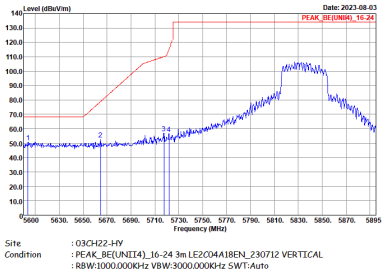
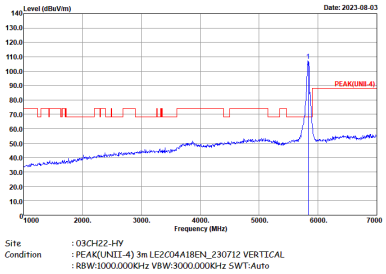
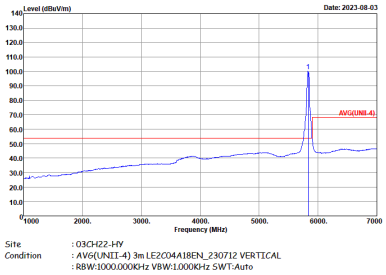
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ax HE20 Partial 106/54 CH177 5885MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

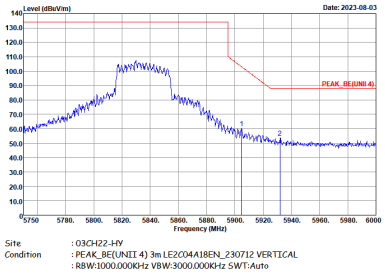
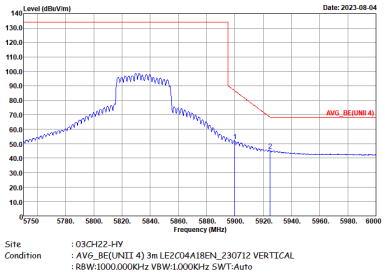
UNII 4 5835~5885MHz

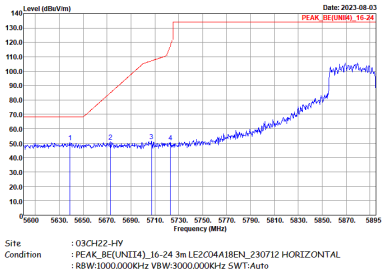
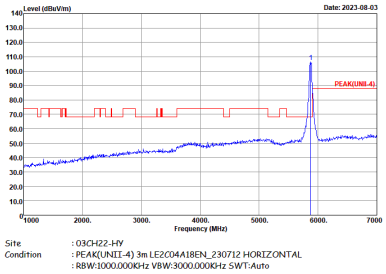
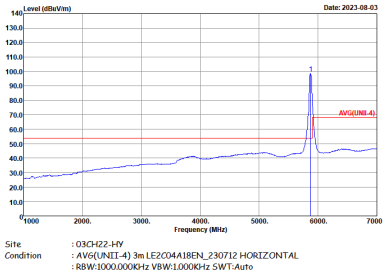
WIFI 802.11ax HE40 Full (Band Edge @ 3m)

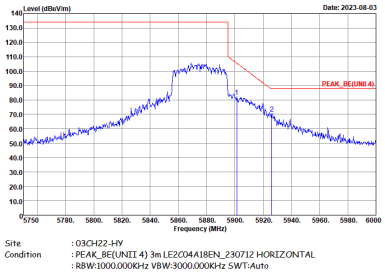
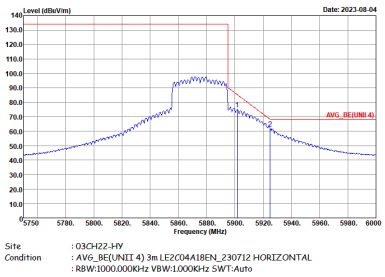
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH167 5838MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

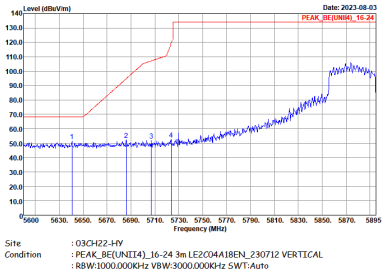
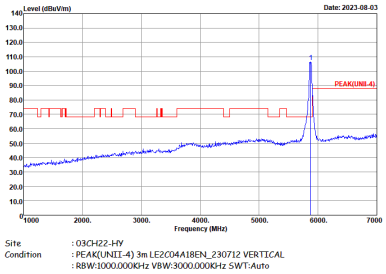
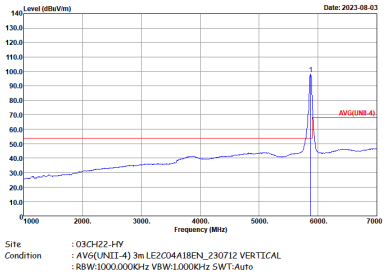
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH167 5838MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
		Left blank

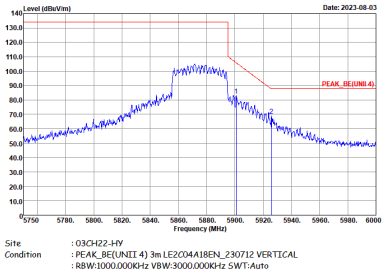
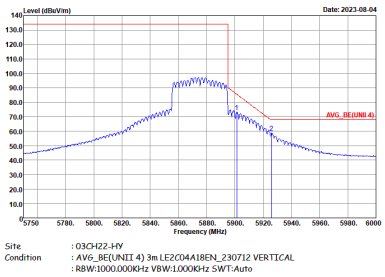
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH167 5838MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg	Left blank	

WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH167 5838MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH175 5875MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

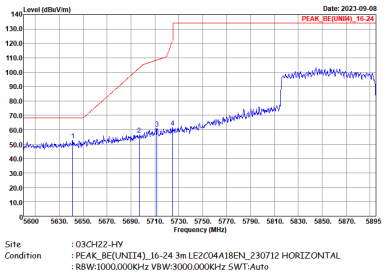
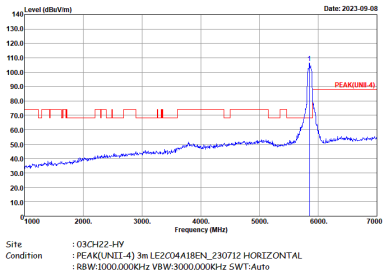
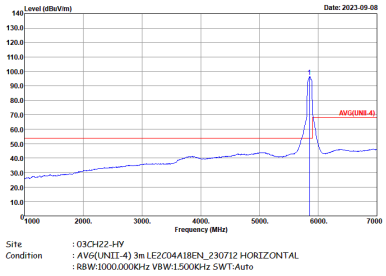
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH175 5875MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg		Left blank

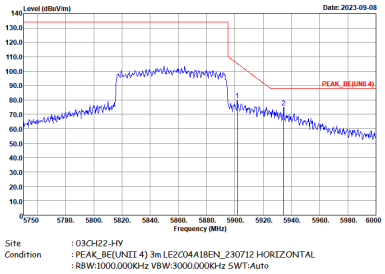
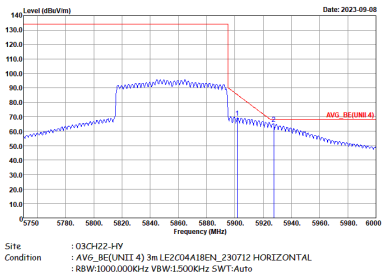
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH175 5875MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg	Left blank	

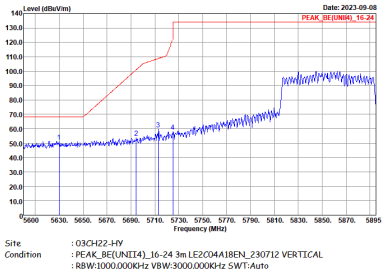
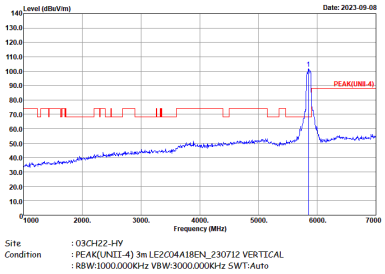
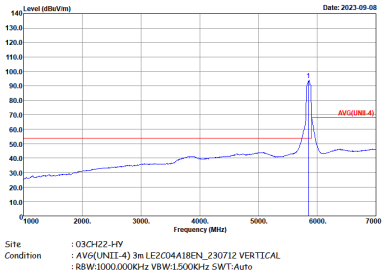
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE40 Full CH175 5875MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

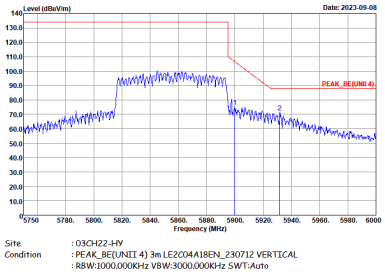
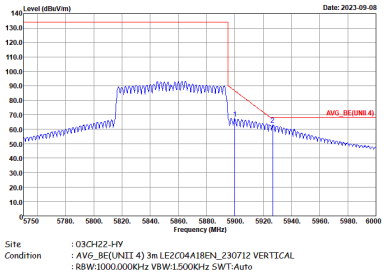
UNII 4 5835~5885MHz

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

WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH171 5855MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg	Left blank	

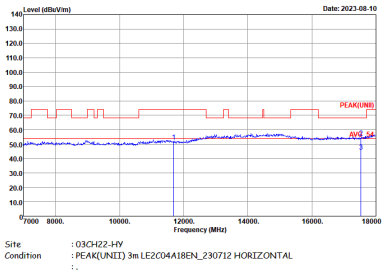
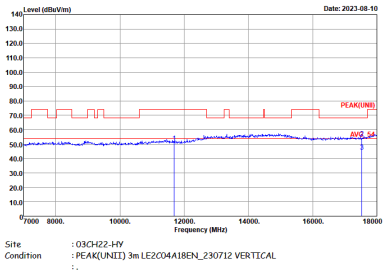
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH171 5855MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg		Left blank

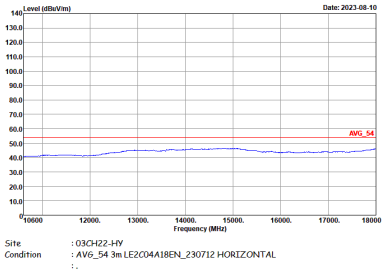
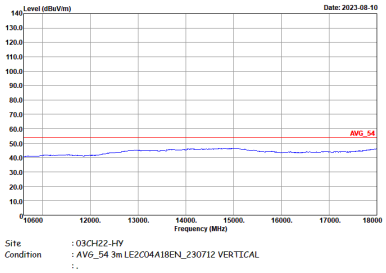
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH171 5855MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg	Left blank	

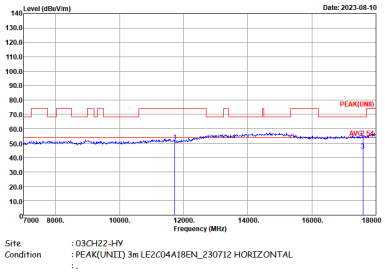
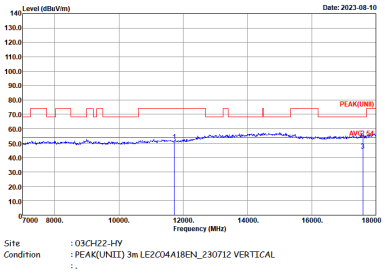
WIFI	UNII 4 5835~5885MHz Band Edge @ 3m	
ANT	802.11ax HE80 Full CH171 5855MHz - R	
4+3	Vertical	Fundamental
Peak		Left blank
Avg		Left blank

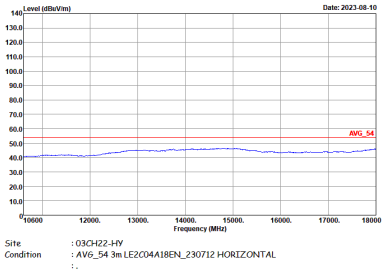
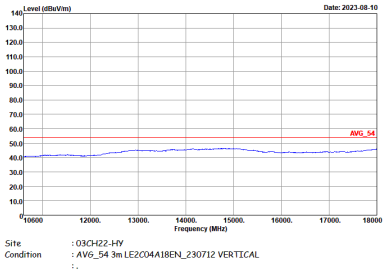
UNII 4 - 5835~5885MHz

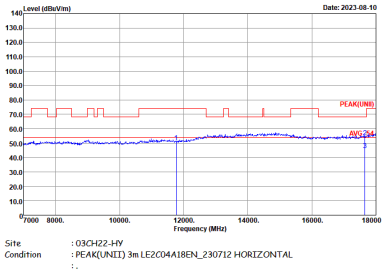
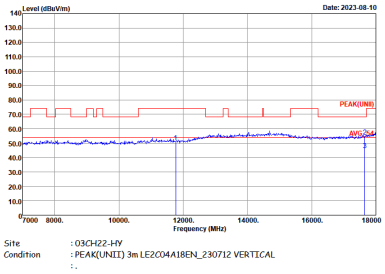
WIFI 802.11a (Harmonic @ 3m)

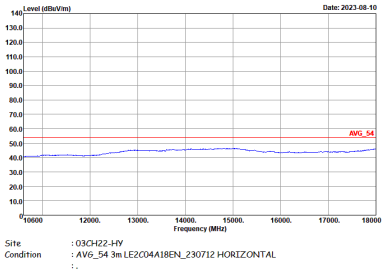
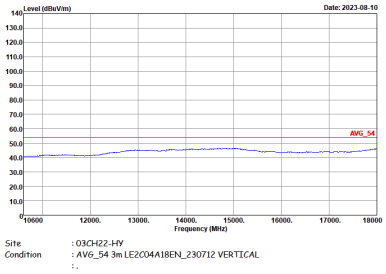
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11a CH169 5845MHz	
4+3	Horizontal	Vertical
Peak Avg.		

WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11a CH169 5845MHz	
4+3	Horizontal	Vertical
10.6G ~18G Avg.		

WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11a CH173 5865MHz	
4+3	Horizontal	Vertical
Peak Avg.		

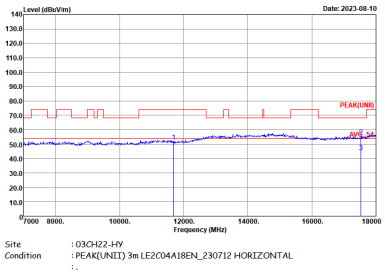
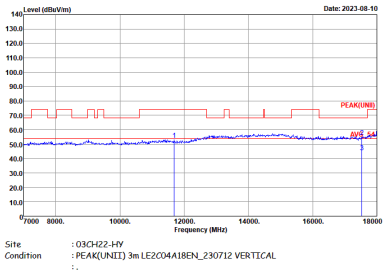
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11a CH173 5865MHz	
4+3	Horizontal	Vertical
10.6G ~18G Avg.		

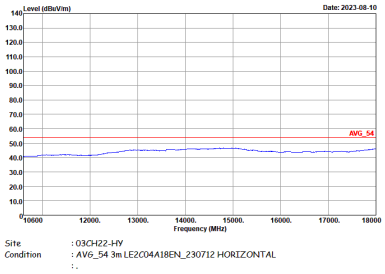
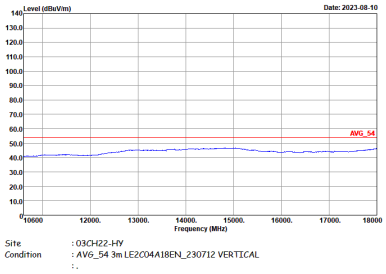
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11a CH177 5885MHz	
4+3	Horizontal	Vertical
Peak Avg.		

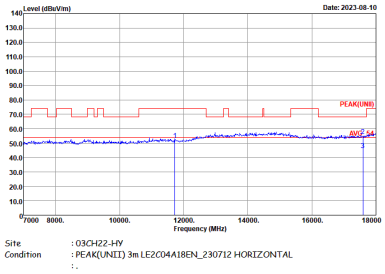
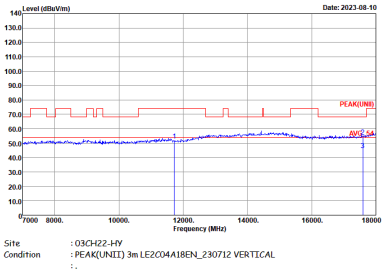
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11a CH177 5885MHz	
4+3	Horizontal	Vertical
10.6G ~18G Avg.		

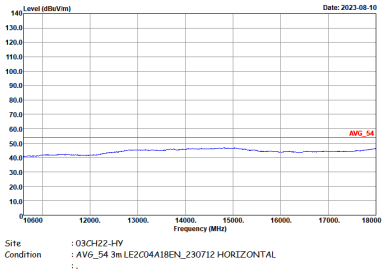
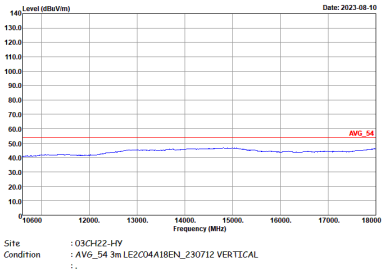
UNII 4 5835~5885MHz

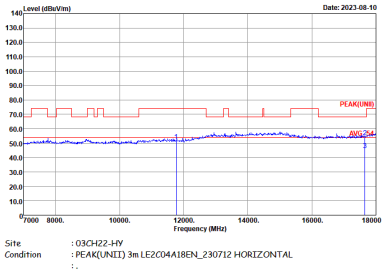
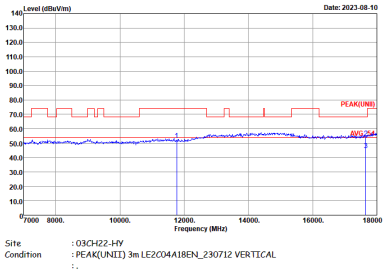
WIFI 802.11n HT20 (Harmonic @ 3m)

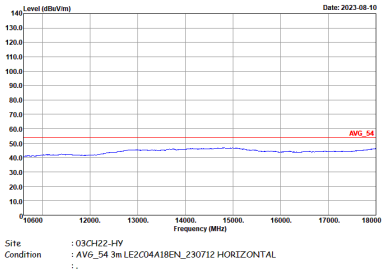
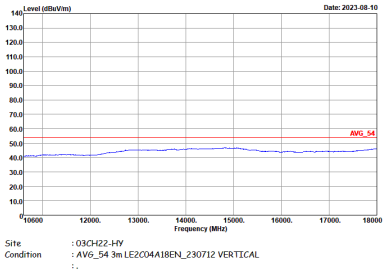
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11n HT20 CH169 5845MHz	
4+3	Horizontal	Vertical
Peak Avg.		

WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11n HT20 CH169 5845MHz	
4+3	Horizontal	Vertical
10.6G ~18G Avg.		

WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11n HT20 CH173 5865MHz	
4+3	Horizontal	Vertical
Peak Avg.		

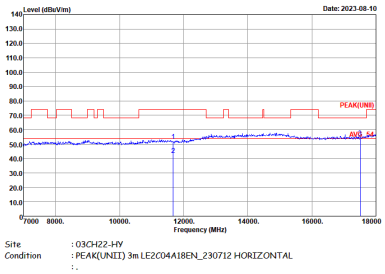
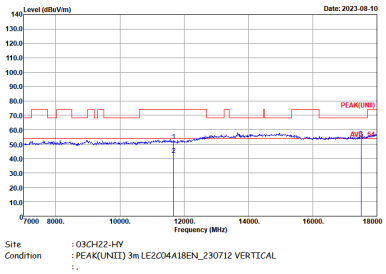
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11n HT20 CH173 5865MHz	
4+3	Horizontal	Vertical
10.6G ~18G Avg.		

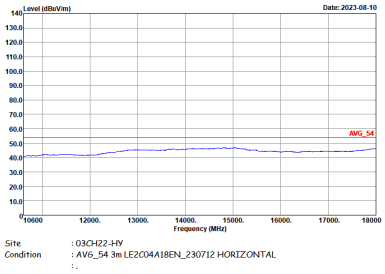
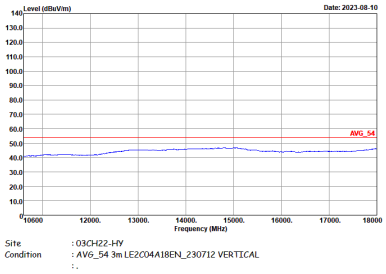
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11n HT20 CH177 5885MHz	
4+3	Horizontal	Vertical
Peak Avg.		

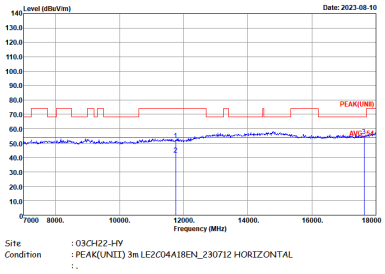
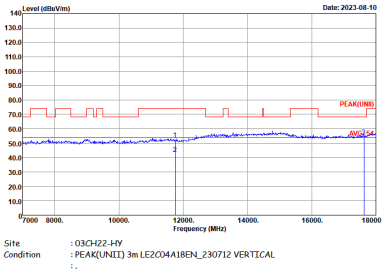
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11n HT20 CH177 5885MHz	
4+3	Horizontal	Vertical
10.6G ~18G Avg.		

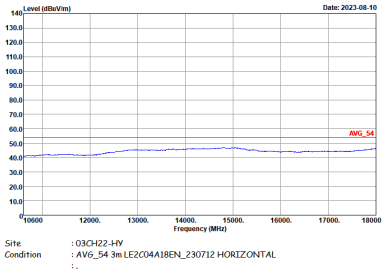
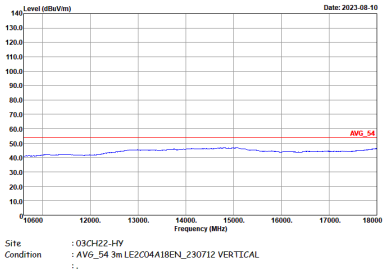
UNII 4 5835~5885MHz

WIFI 802.11ax HE40 Full (Harmonic @ 3m)

WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11ax HE40 Full CH167 5835MHz	
4+3	Horizontal	Vertical
Peak Avg.		

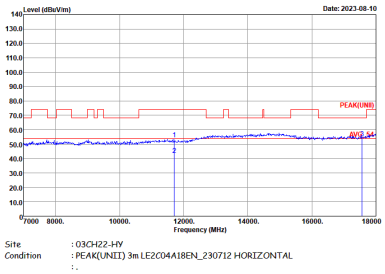
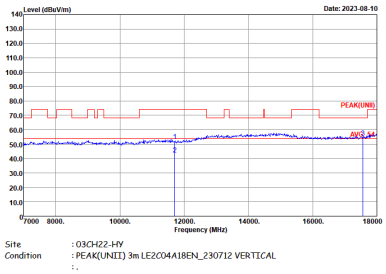
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11ax HE40 Full CH167 5835MHz	
4+3	Horizontal	Vertical
10.6G ~18G Avg.		

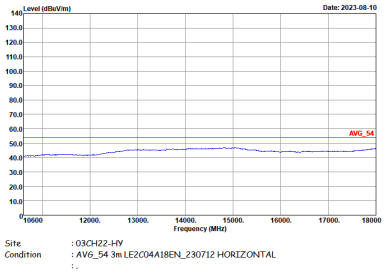
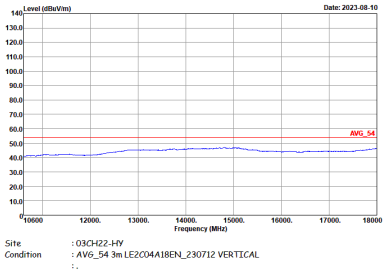
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11ax HE40 Full CH175 5875MHz	
4+3	Horizontal	Vertical
Peak Avg.		

WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11ax HE40 Full CH175 5875MHz	
4+3	Horizontal	Vertical
10.6G ~18G Avg.		

UNII 4 5835~5885MHz

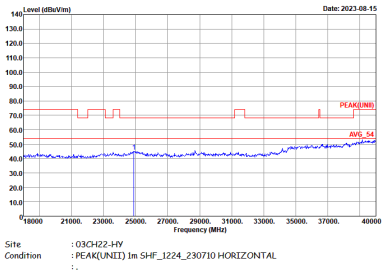
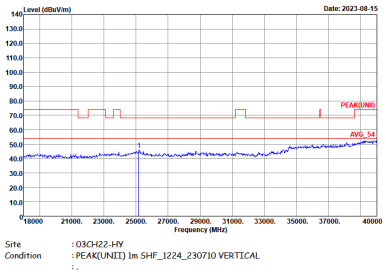
WIFI 802.11ax HE80 Full (Harmonic @ 3m)

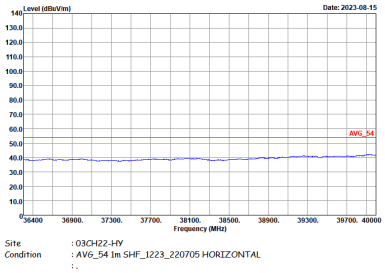
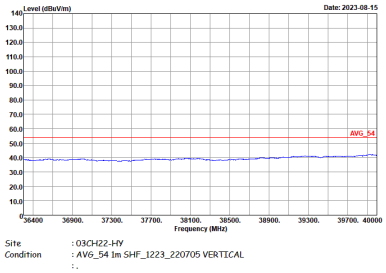
WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11ax HE80 Full CH171 5855MHz	
4+3	Horizontal	Vertical
Peak Avg.		

WIFI	UNII 4 5835~5885MHz Harmonic @ 3m	
ANT	802.11ax HE80 Full CH171 5855MHz	
4+3	Horizontal	Vertical
10.6G ~18G Avg.		

Emission above 18GHz

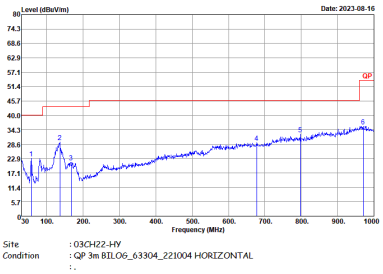
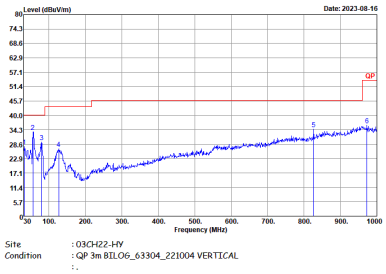
5GHz WIFI 802.11ax HE80 Full (SHF @ 1m)

WIFI	5GHz WIFI	
ANT	802.11ax HE80 Full SHF	
4+3	Horizontal	Vertical
Peak Avg.		

WIFI	5GHz WIFI	
ANT	802.11ax HE80 Full SHF	
4+3	Horizontal	Vertical
36.4G ~40G Avg.		

Emission below 1GHz

5GHz WIFI 802.11ax HE80 Full (LF @ 3m)

WIFI	5GHz WIFI	
ANT	802.11ax HE80 Full LF	
4+3	Horizontal	Vertical
QP / Peak		

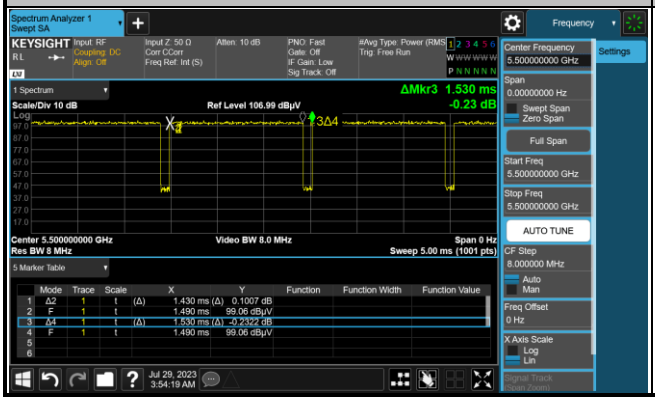
Appendix E. Duty Cycle Plots

<For Radiated Spurious Emission test>

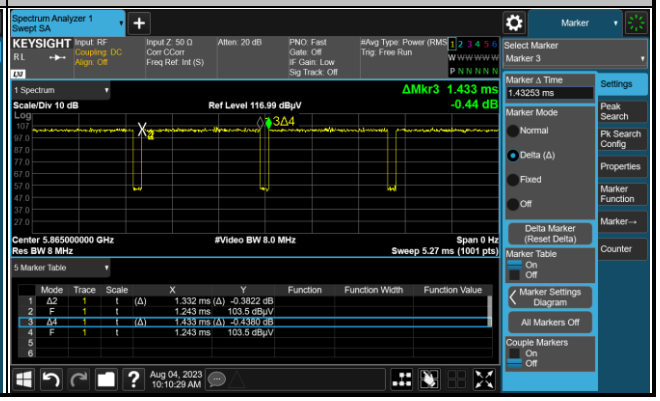
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
4+3	802.11a	93.46	1430	0.70	750Hz
4+3	5G 802.11n HT20	92.95	1332	0.75	820Hz
4+3	5GHz 802.11ax HE40 Full RU	90.96	1026	0.97	1kHz
4+3	5GHz 802.11ax HE80 Full RU	88.34	750	1.33	1.5kHz

MIMO <Ant. 4+3>

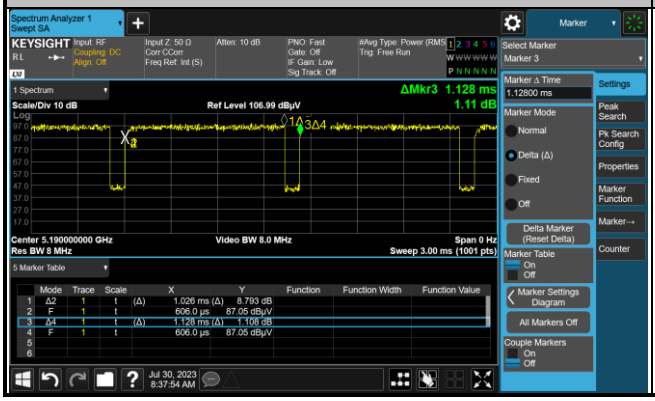
802.11a



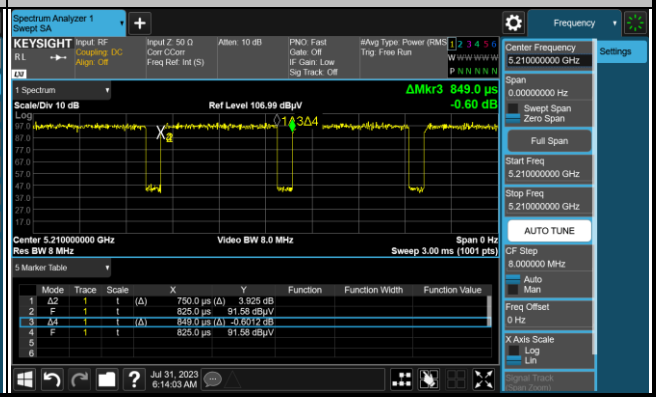
5G 802.11n HT20



5GHz 802.11ax HE40 Full RU



5GHz 802.11ax HE80 Full RU

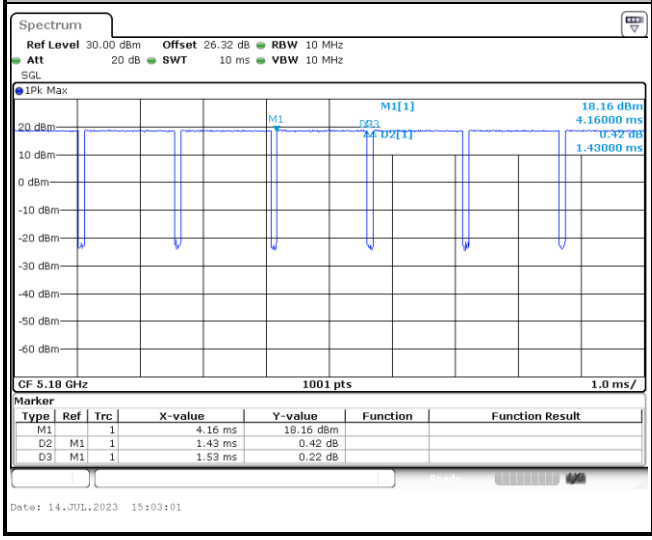


<For Conducted test>

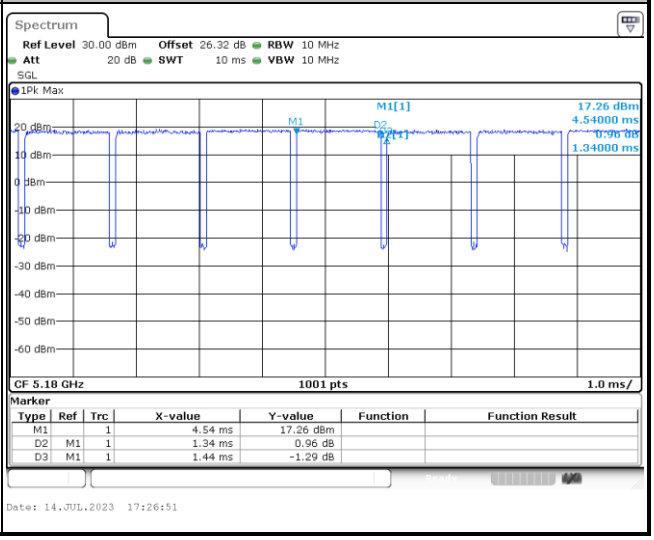
Antenna	Band	Duty Cycle(%)	T(us)	Duty Factor(dB)
4+3	802.11a for Ant 4	93.46	1430	0.29
4+3	802.11a for Ant 3	93.46	1430	0.29
4+3	5GHz 802.11n HT20 for Ant 4	93.05	1340	0.31
4+3	5GHz 802.11n HT20 for Ant 3	93.01	1330	0.31
4+3	5GHz 802.11n HT40 for Ant 4	92.70	1270	0.33
4+3	5GHz 802.11n HT40 for Ant 3	92.70	1270	0.33
4+3	5GHz 802.11ac VHT20 for Ant 4	93.75	1350	0.28
4+3	5GHz 802.11ac VHT20 for Ant 3	93.10	1350	0.31
4+3	5GHz 802.11ac VHT40 for Ant 4	92.80	1280	0.32
4+3	5GHz 802.11ac VHT40 for Ant 3	92.75	1280	0.33
4+3	5GHz 802.11ac VHT80 for Ant 1	89.90	890	0.46
4+3	5GHz 802.11ac VHT80 for Ant 2	89.90	890	0.46
4+3	5GHz 802.11ax HE20 Full RU for Ant 4	91.30	1050	0.40
4+3	5GHz 802.11ax HE20 Full RU for Ant 3	91.23	1040	0.40
4+3	5GHz 802.11ax HE40 Full RU for Ant 4	91.15	1030	0.40
4+3	5GHz 802.11ax HE40 Full RU for Ant 3	91.07	1020	0.41
4+3	5GHz 802.11ax HE80 Full RU for Ant 4	88.24	750	0.54
4+3	5GHz 802.11ax HE80 Full RU for Ant 3	88.10	740	0.55

MIMO <Ant. 4>

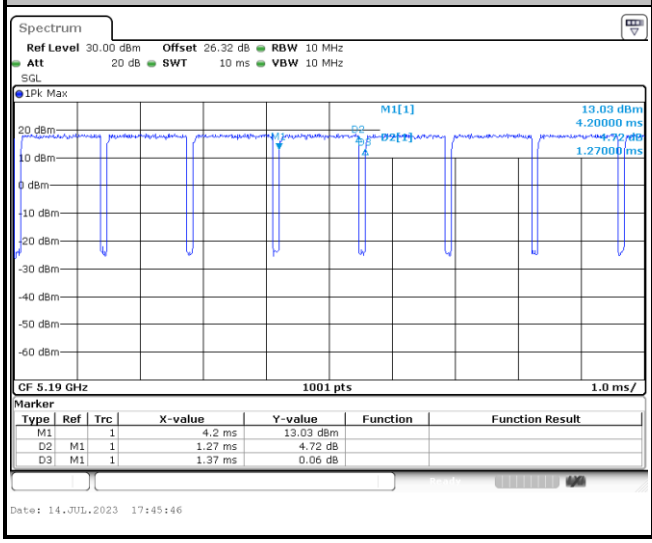
802.11a



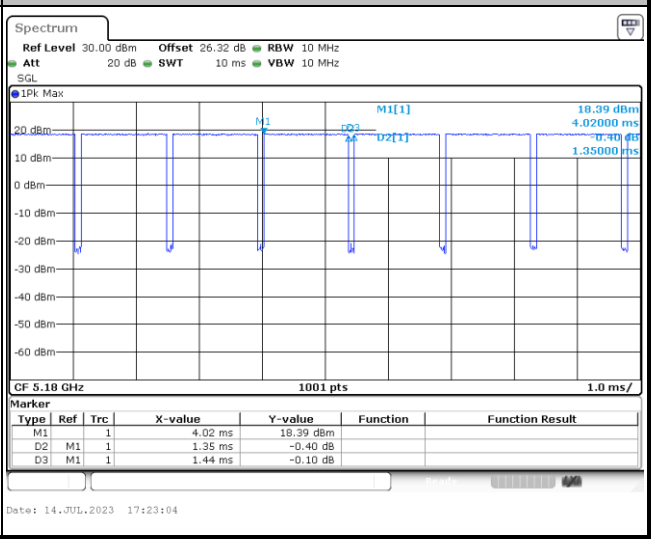
5GHz 802.11n HT20



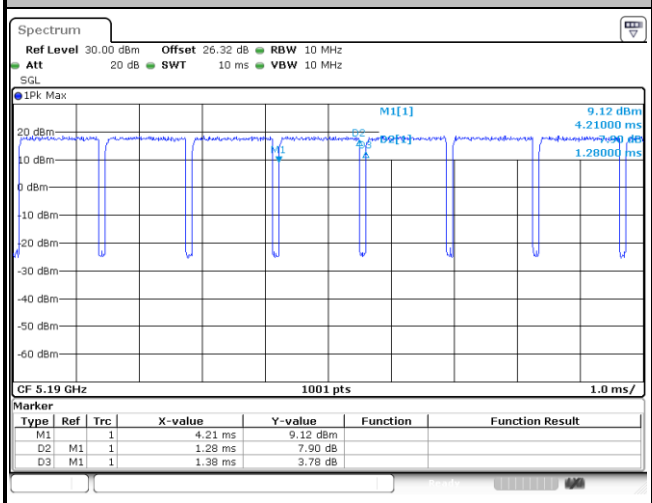
5GHz 802.11n HT40



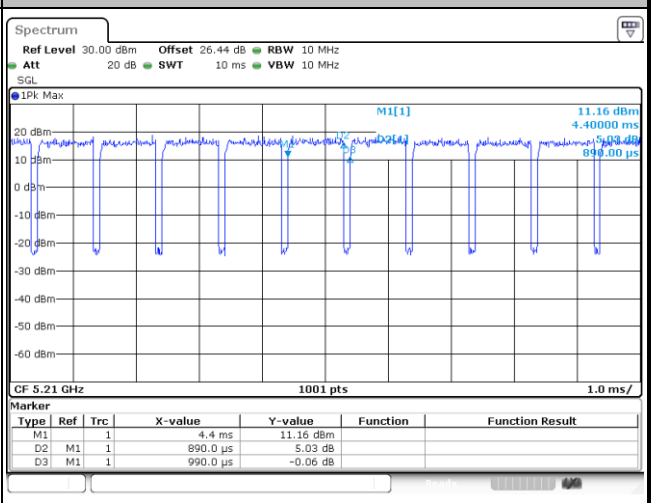
5GHz 802.11ac VHT20



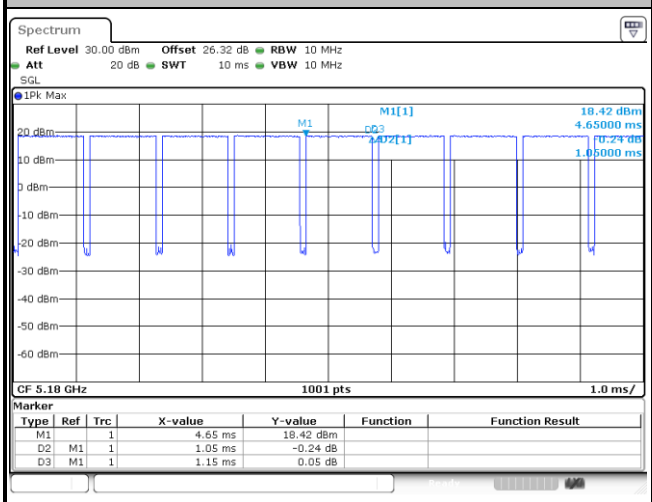
5GHz 802.11ac VHT40



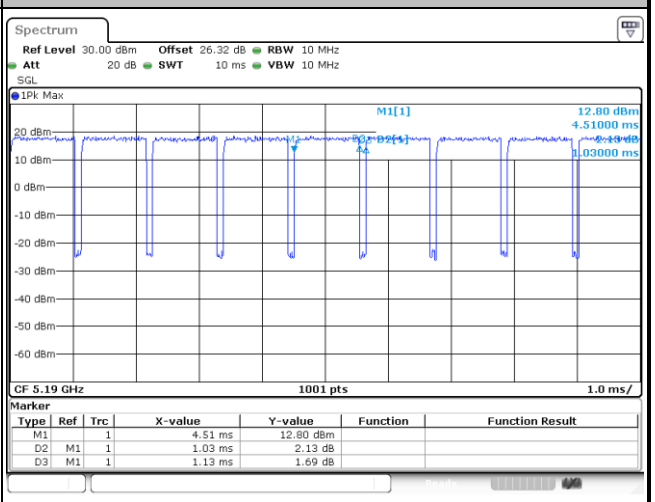
5GHz 802.11ac VHT80



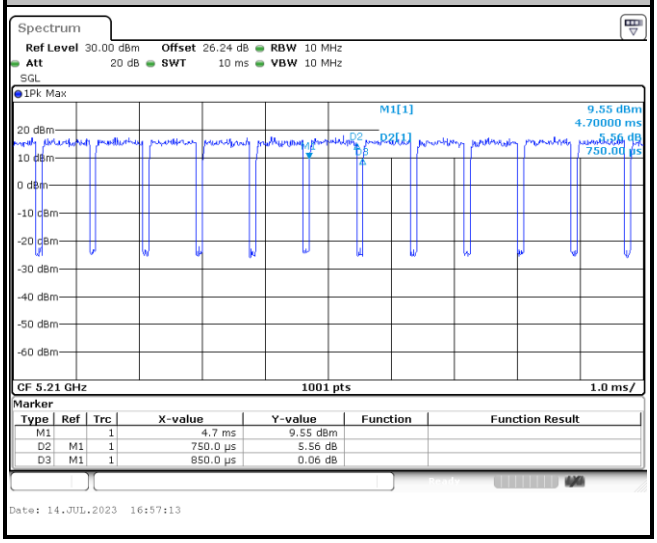
5GHz 802.11ax HE20



5GHz 802.11ax HE40

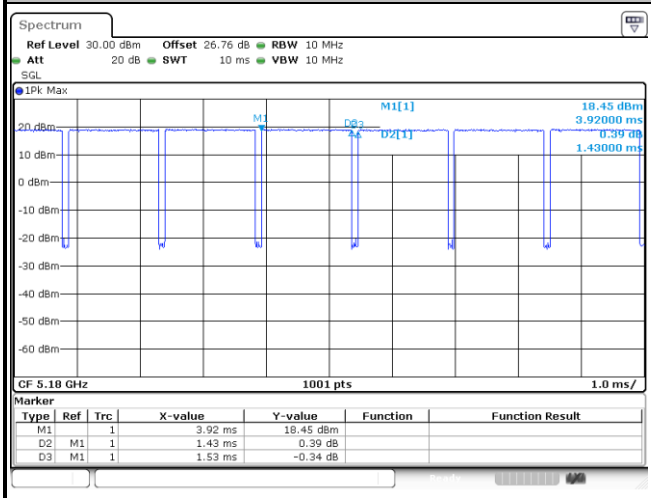


5GHz 802.11ax HE80

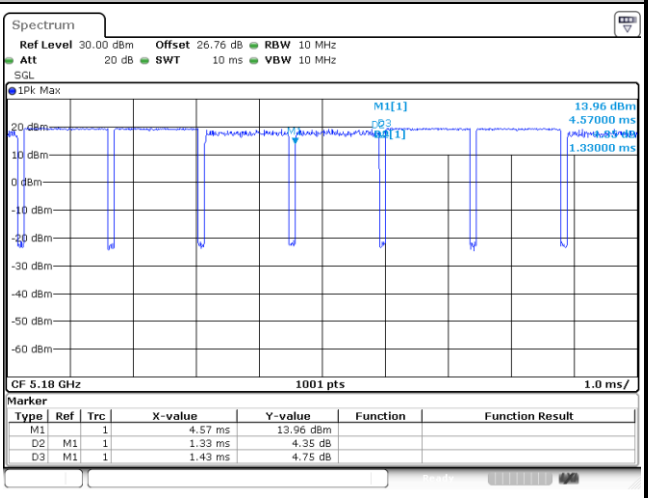


MIMO <Ant. 3>

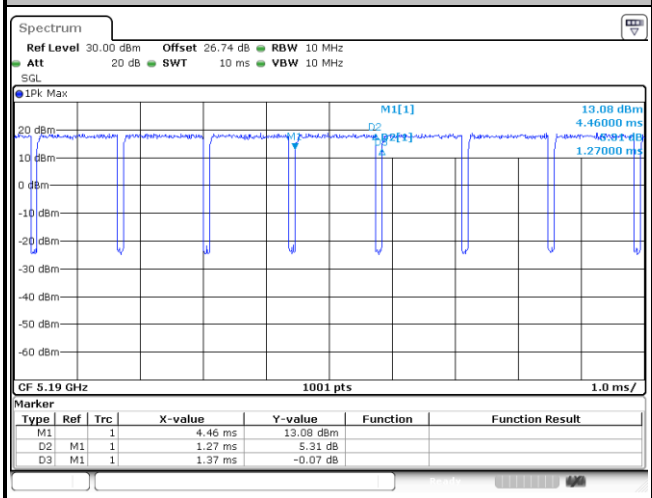
802.11a



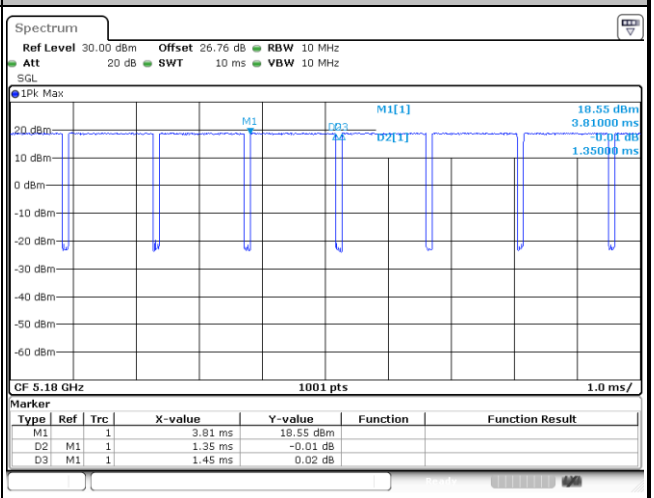
5GHz 802.11n HT20



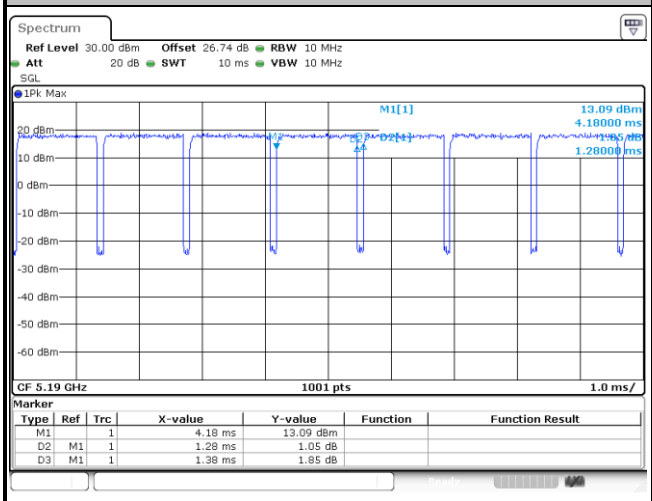
5GHz 802.11n HT40



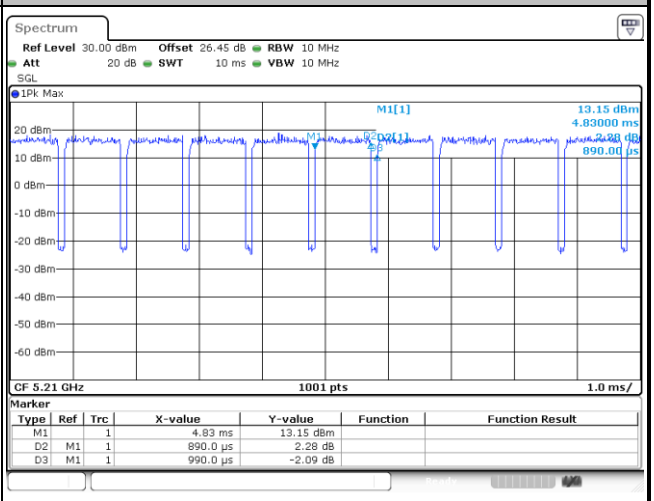
5GHz 802.11ac VHT20



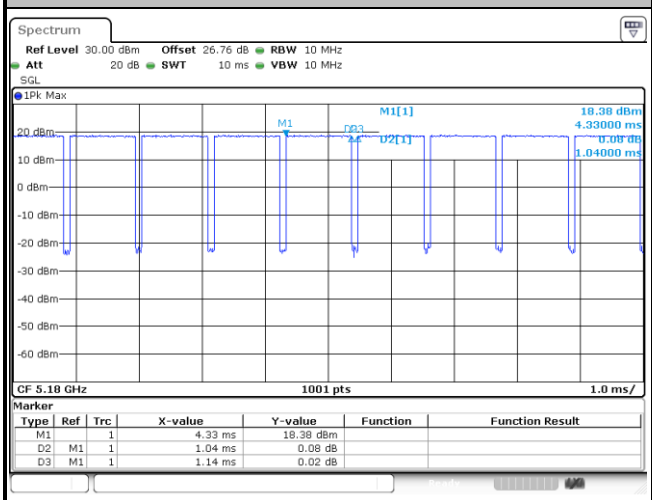
5GHz 802.11ac VHT40



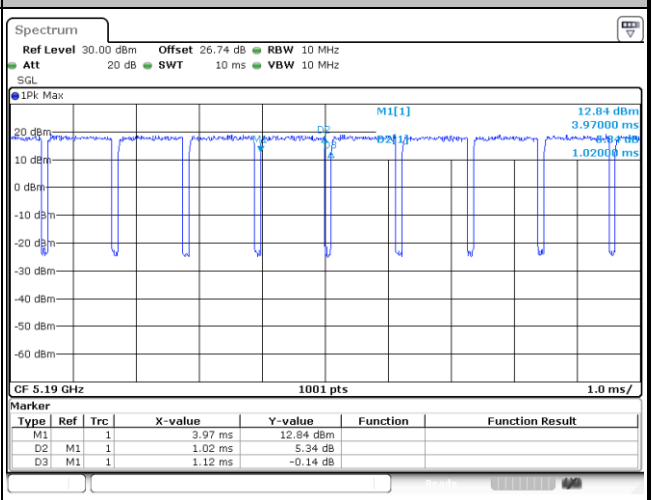
5GHz 802.11ac VHT80



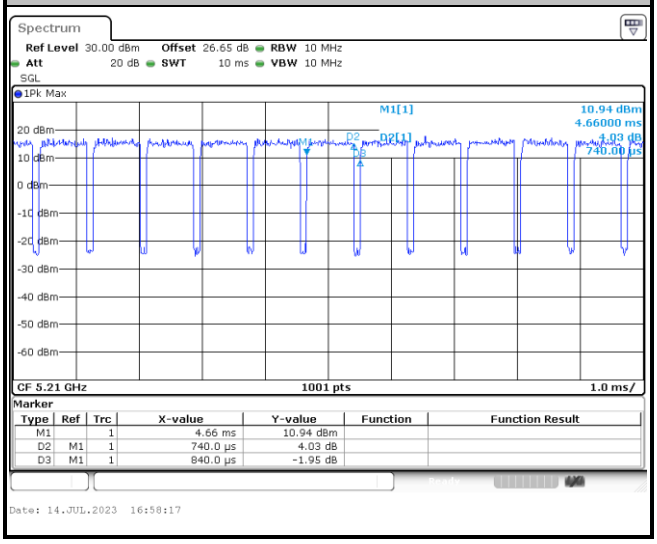
5GHz 802.11ax HE20



5GHz 802.11ax HE40



5GHz 802.11ax HE80



——THE END——