FCC RADIO TEST REPORT

FCC ID	:	**2AVC9-7448**
Equipment	:	**Digital Media Receiver**
Model Name	:	**V5S83A**
Applicant	:	**BROOKLYN EAST LLC** **41 University Drive, Suite 400** **Newtown, PA 18940**
Standard	:	**FCC Part 15 Subpart E §15.407**

The product was received on Feb. 24, 2021 and testing was started from Feb. 24, 2021 and completed on Apr. 01, 2021. We, Sporton International (USA) Inc., 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 of Sporton International (USA) Inc., the test report shall not be reproduced except in full.

Neil Kao

Approved by: Neil Kao

Sporton International (USA) Inc.

1175 Montague Expressway, Milpitas, CA 95035

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History of this test report

Report No.	Version	Description	Issued Date
FR210302003E	01	Initial issue of report	Apr. 01, 2021

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)
3.1	15.403(i)	6dB & 26dB Bandwidth	Pass
3.1	2.1049	99% Occupied Bandwidth	Reporting only
3.2	15.407(a)	Maximum Conducted Output Power	Pass
3.3	15.407(a)	Power Spectral Density	Pass
3.4	15.407(b)	Unwanted Emissions	Pass
3.5	15.207	AC Conducted Emission	Pass
3.6	15.407(c)	Automatically Discontinue Transmission	Pass
3.7	15.203 15.407(a)	Antenna Requirement	Pass

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Feature of Equipment Under Test

Product Feature	
Equipment	Digital Media Receiver
Model Name	V5S83A
FCC ID	2AVC9-7448
EUT supports Radios application	WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE

Remark: The above EUT's information was declared by manufacturer.

1.2 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Frequency Range	5745 MHz ~ 5825 MHz
Maximum Average Output Power to antenna	**MIMO <Ant. 1+2>** 802.11a: 20.43 dBm / 0.1104 W 802.11n HT20: 20.29 dBm / 0.1069 W 802.11n HT40: 20.39 dBm / 0.1094 W 802.11ac VHT20: 20.03 dBm / 0.1007 W 802.11ac VHT40: 20.11 dBm / 0.1026 W 802.11ac VHT80: 19.97 dBm / 0.0993 W
99% Occupied Bandwidth	**MIMO <Ant. 1>** 802.11a: 17.43 MHz 802.11n HT20: 18.13 MHz 802.11n HT40: 37.96 MHz 802.11ac VHT80: 77.32 MHz **MIMO <Ant. 2>** 802.11a: 18.13 MHz 802.11n HT20: 18.43 MHz 802.11n HT40: 41.96 MHz 802.11ac VHT80: 77.20 MHz
Antenna Type	**<Ant. 1>:** PIFA Antenna **<Ant. 2>:** Dual Loop Antenna
Antenna Gain	**<Ant. 1>:** 5.8 dBi **<Ant. 2>:** 4.8 dBi
Antenna Function Description	
Type of Modulation	802.11a/n : OFDM (BPSK/QPSK/16QAM/64QAM) 802.11ac : OFDM (BPSK/QPSK/16QAM/64QAM/256QAM)

	Ant. 1	Ant. 2
802.11 a/n/ac MIMO	V	V

Remark:

1. MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.
2. The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.3 Modification of EUT

No modifications are made to the EUT during all test items.

1.4 Testing Location

Test Site	Sporton International (USA) Inc.
Test Site Location	1175 Montague Expressway Milpitas, CA 95035 TEL: 408-904-3300
Test Site No.	**Sporton Site No.**
	TH01-CA, CO01-CA, 03CH02-CA, DF01-CA

1.5 Applicable Standards

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

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

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

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, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

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

2.1 Carrier Frequency and Channel

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

Note:

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

2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

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

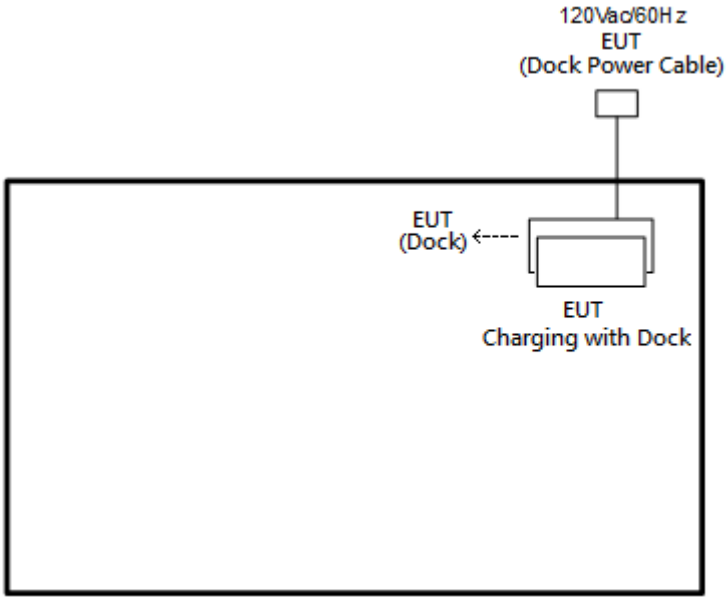
Test Cases	
AC Conducted Emission	Mode 1 : WLAN (5GHz) Tx + Bluetooth-LE Tx + Dock (Charging from Adapter)

Ch. #		Band IV：5725-5850 MHz			
		802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
L	Low	149	149	151	-
M	Middle	157	157	-	155
H	High	165	165	159	-

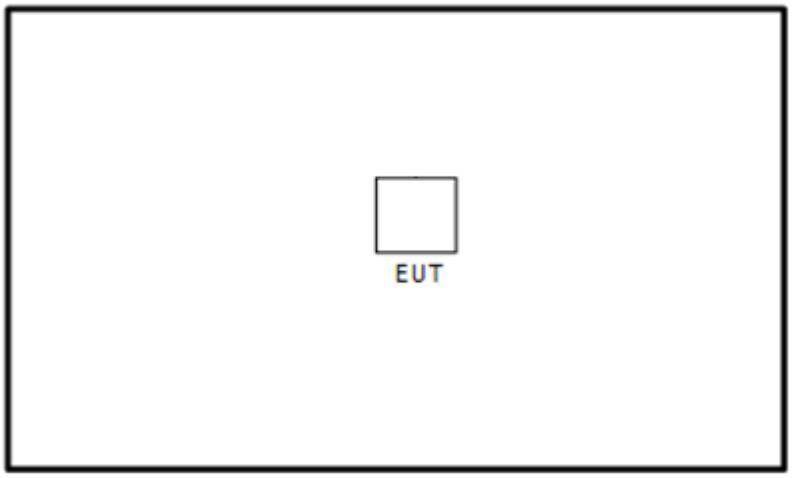
Remark: For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode>



<WLAN Tx Mode>



2.4 EUT Operation Test Setup

The RF test items, utility “Compliance WiFi-BT-Zigbee 1.0.0.97” 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.

2.5 Measurement Results Explanation Example

For all conducted test items:

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

Example :

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

Offset = RF cable loss + attenuator factor.

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

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

= 4.2 + 10 = 14.2 (dB)

3 Test Result

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

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

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

26dB and 99% Occupied bandwidth are reporting only.

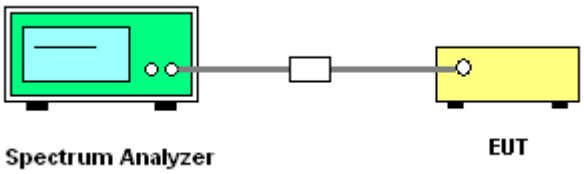
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

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

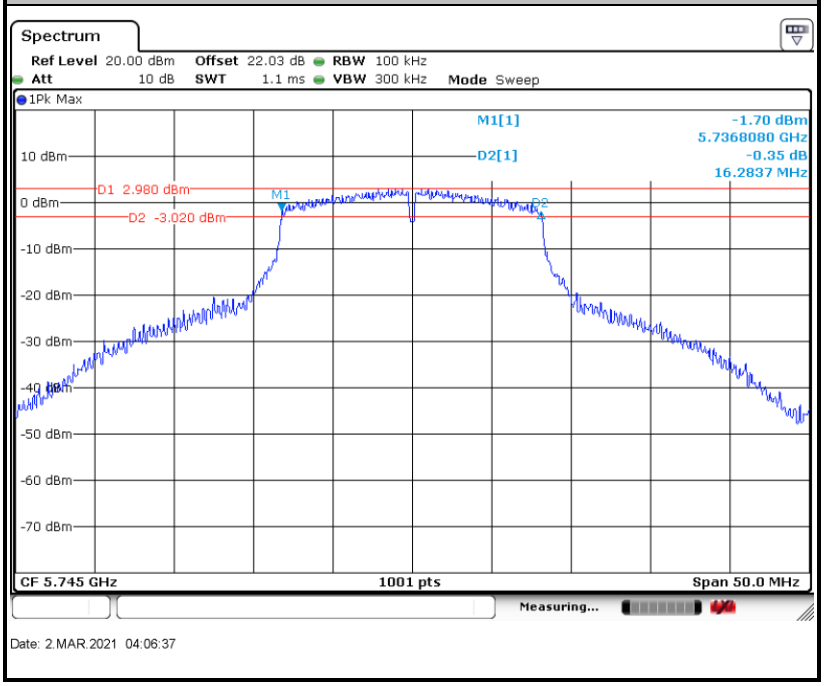
3.1.4 Test Setup



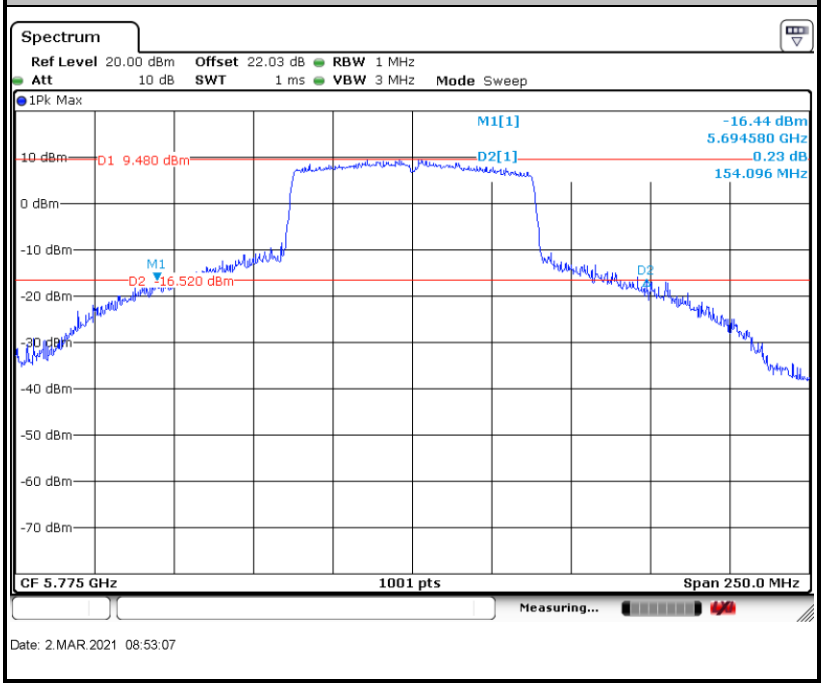
3.1.5 Test Result of 6dB and 26dB and 99% Occupied Bandwidth

Please refer to Appendix A.

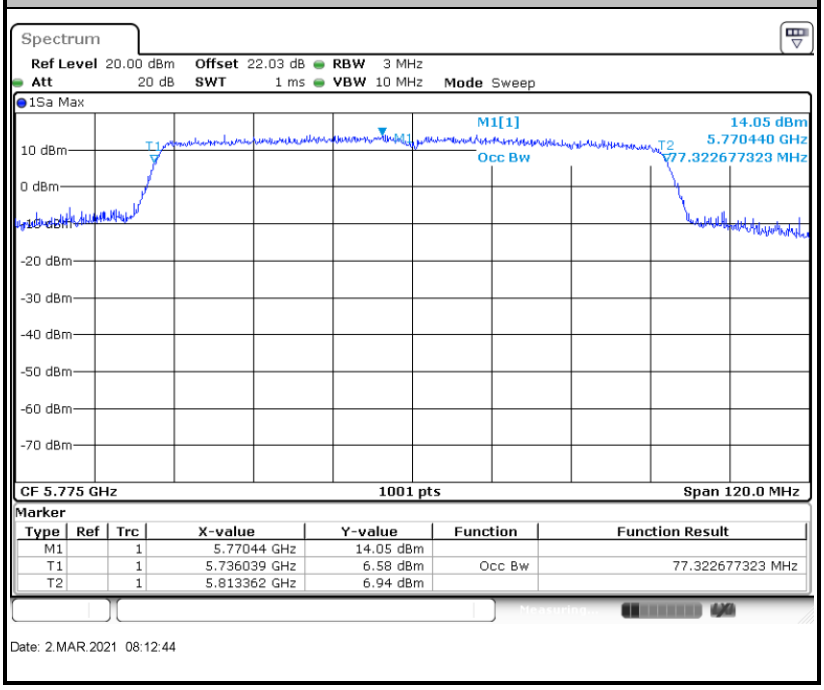
Minimum 6dB Bandwidth



Maximum 26dB Bandwidth



Maximum 99% Occupied Bandwidth



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

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

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

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

3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

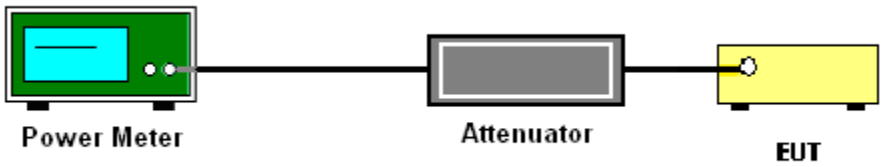
3.2.3 Test Procedures

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

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

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit at its maximum power control level.
3. Measure the average power of the transmitter.
4. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

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

3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

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

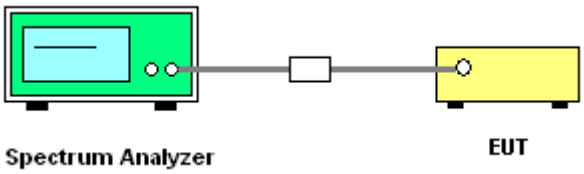
 # Method SA-3 #

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

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW ≥ 3 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time ≤ (number of points in sweep) × T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
  Detector = power averaging (rms).
- Trace mode = max hold.
- Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
   Method (c): Measure and add 10 log(N_{ANT}) dB.
   With this technique, spectrum measurements are performed at each output of the device, but rather than summing the spectra or the spectral peaks across the outputs, the quantity 10 log(N_{ANT}) dB is added to each spectrum value before comparing to the emission limit. The addition of 10 log(N_{ANT}) dB serves to apportion the emission limit among the N_{ANT} outputs so that each output is permitted to contribute no more than $1/N_{ANT}$ th of the PSD limit.

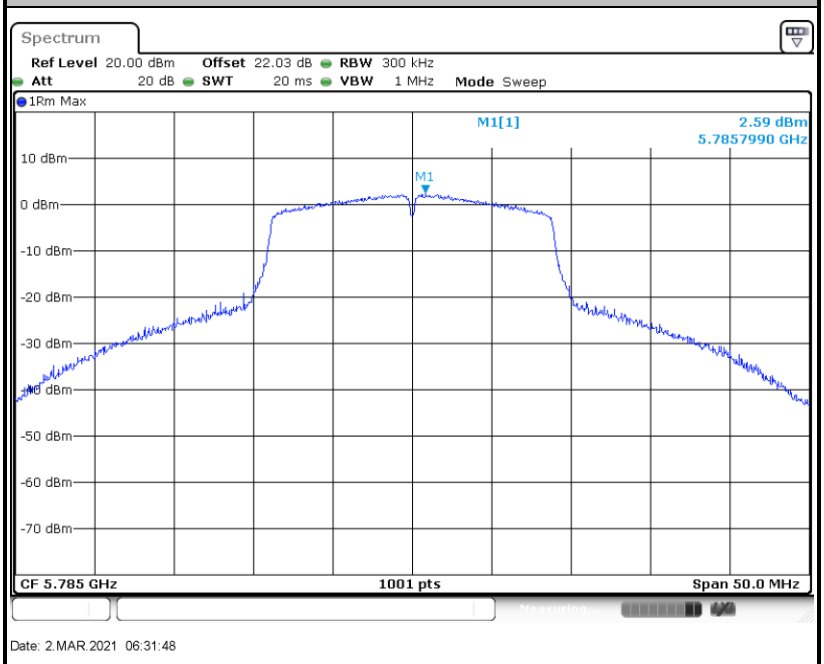
3.3.4 Test Setup



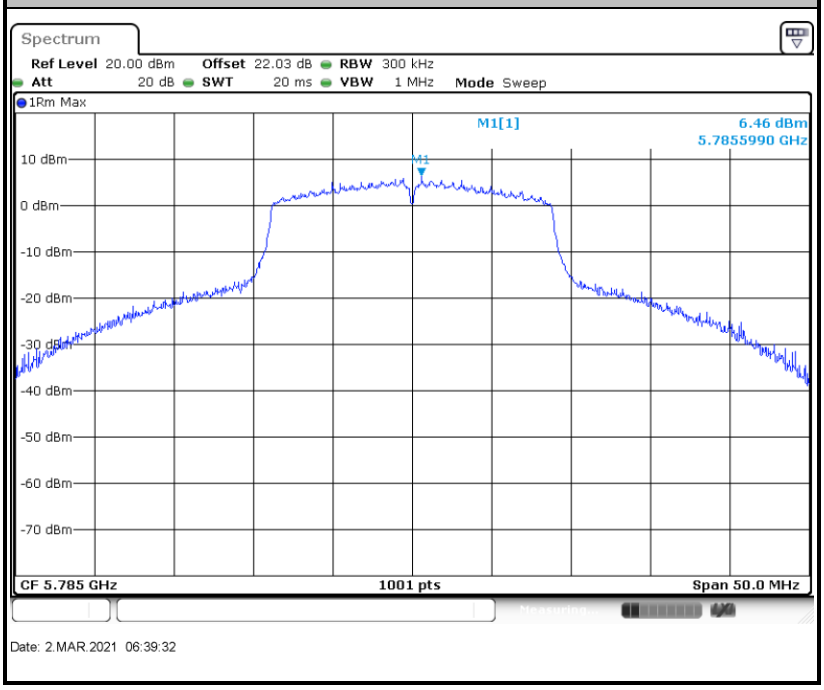
3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/MHz) for MIMO Ant. 1



Worst Case Power Density (dBm/MHz) for MIMO Ant. 2



3.4 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

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

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

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

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

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

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

EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27	68.3

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

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

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

3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

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

   (1) Procedure for Unwanted Emissions Measurements Below 1000 MHz
   - RBW = 120 kHz
   - VBW = 300 kHz
   - Detector = Peak
   - Trace mode = max hold

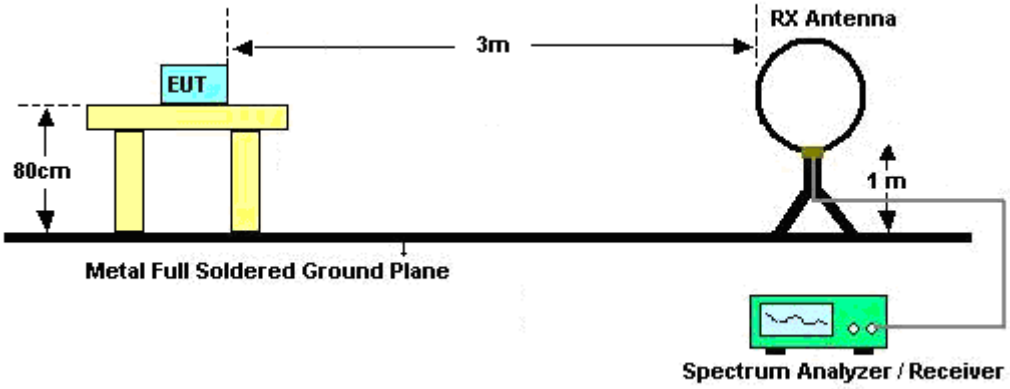
   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

   (3) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz
   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT 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 set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT 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. For testing below 1 GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.

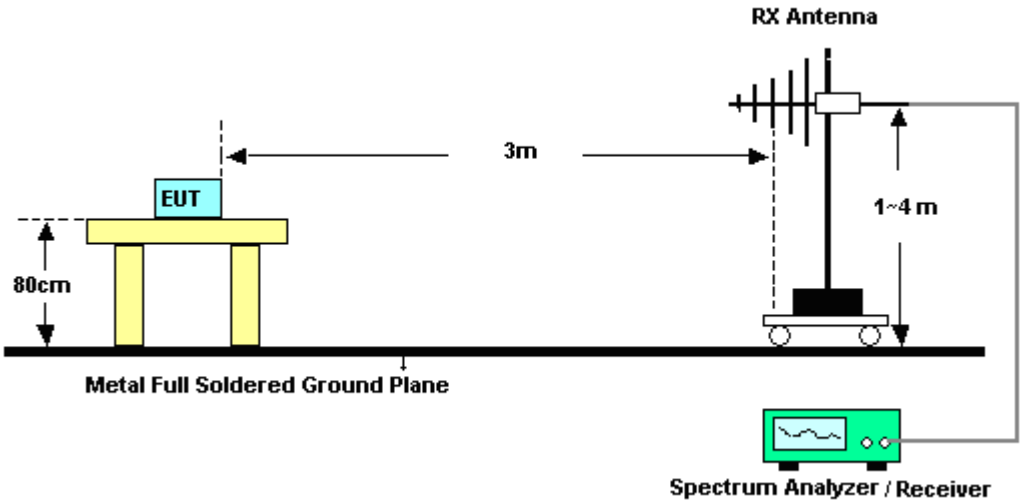
7. For testing above 1 GHz, the emission level of the EUT in peak mode was 20 dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

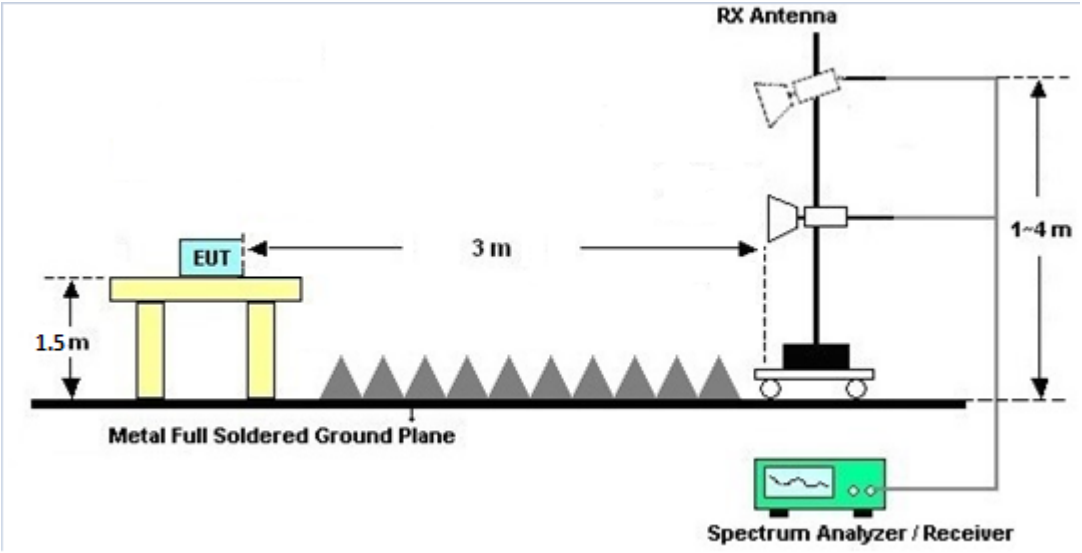
For radiated emissions below 30MHz



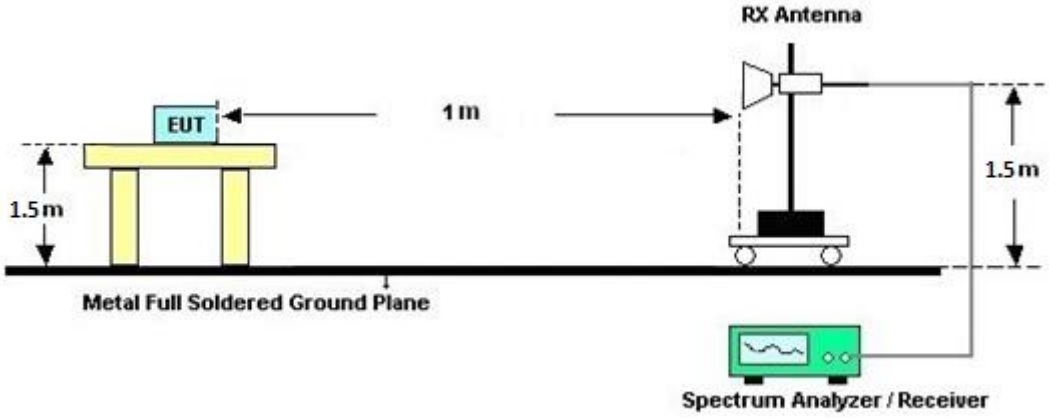
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



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

The low frequency, which 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 a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix C and D.

3.4.7 Duty Cycle

Please refer to Appendix E.

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

Please refer to Appendix C and D.

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

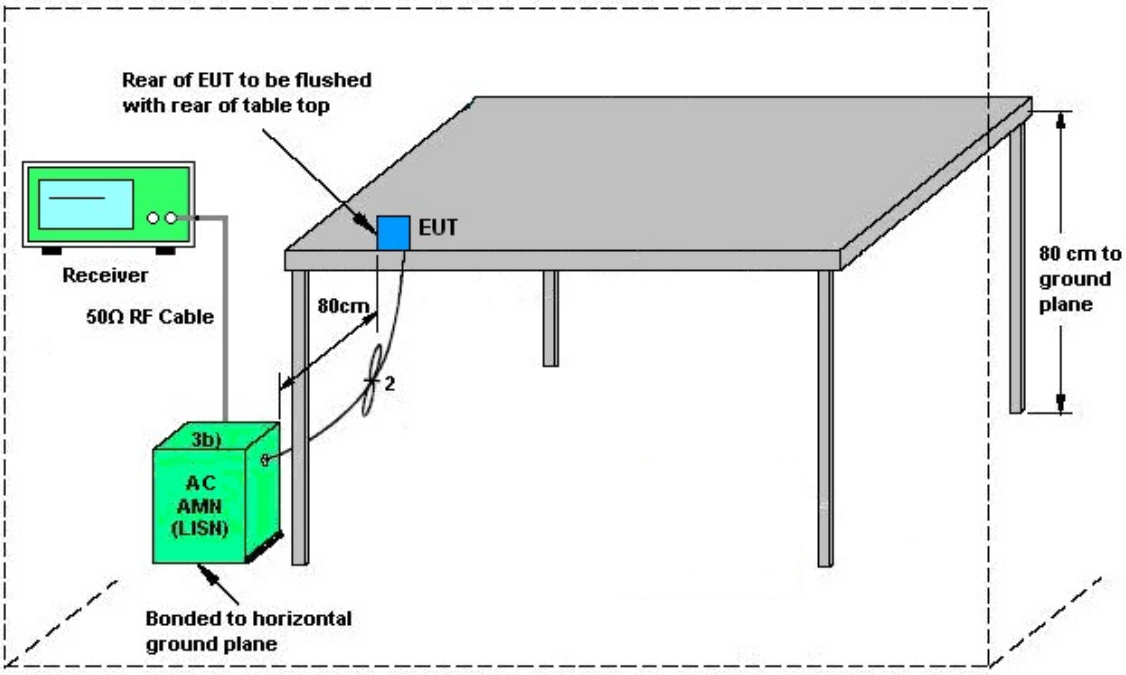
3.5.2 Measuring Instruments

See list of measuring equipment of this test report.

3.5.3 Test 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.

3.5.4 Test Setup



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

3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Automatically Discontinue Transmission

3.6.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Result of Automatically Discontinue Transmission

EUT is verified this characteristic during the function check of normal sample associated with an access point:

A. Information start: make EUT supply information to the access point.

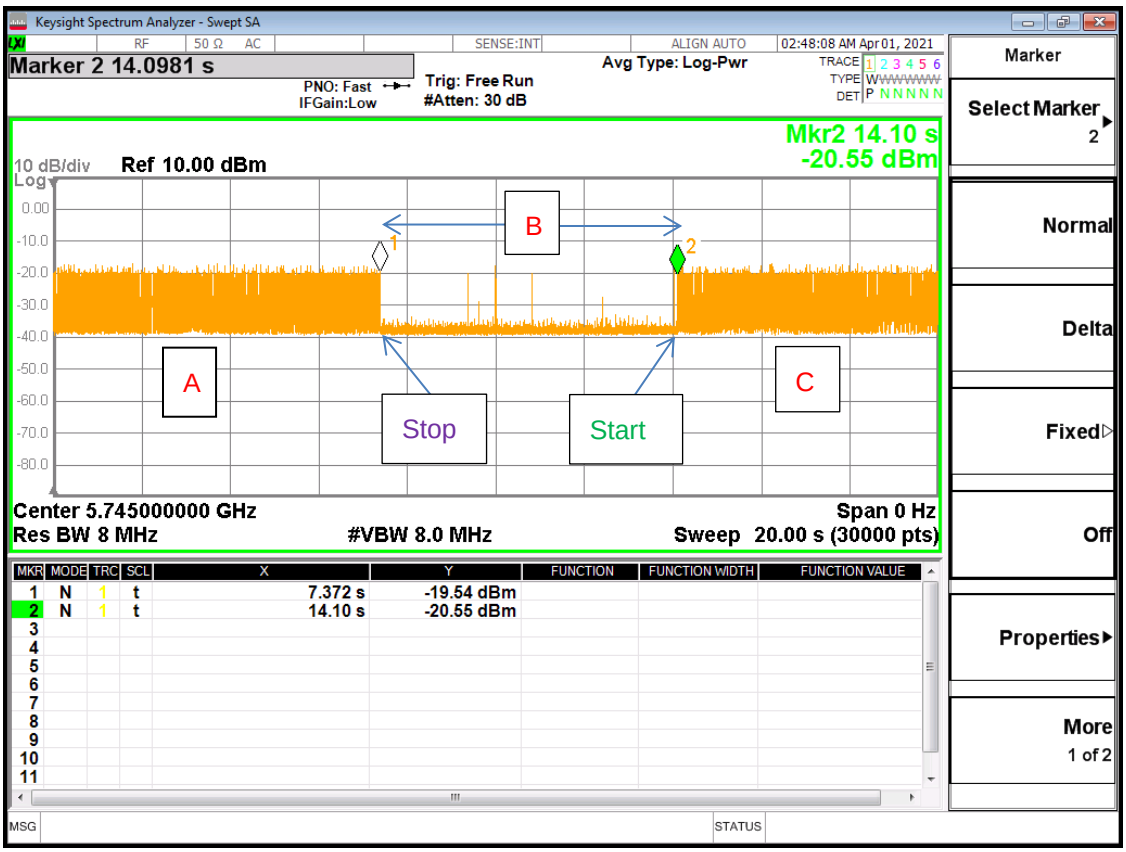
B. Information stop: stop supplying information to the access point.

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving.

C. Information start: make EUT supply information to the access point again.

The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

5745MHz



Note : The control / signalling information during the period B is precluded.

3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = GANT + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(NANT/NSS=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with GANT set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

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

<CDD Modes>

	Ant. 1 (dBi)	Ant. 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
Band IV	5.80	4.80	5.80	8.32	0.00	2.32

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	R&S	HFH2-Z2E	100840	9kHz~30MHz	Jun. 16, 2020	Feb. 24, 2021~ Mar. 26, 2021	Jun. 15, 2021	Radiation (03CH02-CA)
Bilog Antenna	TESEQ	6111D	50392	30MHz~1GHz	Jul. 29, 2020	Feb. 24, 2021~ Mar. 26, 2021	Jul. 28, 2021	Radiation (03CH02-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	01895	1GHz~18GHz	Aug. 28, 2020	Feb. 24, 2021~ Mar. 26, 2021	Aug. 27, 2021	Radiation (03CH02-CA)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00842	18GHz~40GHz	Jul. 27, 2020	Feb. 24, 2021~ Mar. 26, 2021	Jul. 26, 2021	Radiation (03CH02-CA)
Amplifier	SONOMA	310N	372240	N/A	Aug. 12, 2020	Feb. 24, 2021~ Mar. 26, 2021	Aug. 11, 2021	Radiation (03CH02-CA)
Preamplifier	Keysight	83017A	MY53270321	1GHz~26.5GHz	Jul. 28, 2020	Feb. 24, 2021~ Mar. 26, 2021	Jul. 27, 2021	Radiation (03CH02-CA)
Preamplifier	EMEC	EMC18G40G	060725	18G-40G	Aug. 07, 2020	Feb. 24, 2021~ Mar. 26, 2021	Aug. 06, 2021	Radiation (03CH02-CA)
Preamplifier	E-instrument	ERA-100M-18G-56-01-A70	EC1900251	1GHz~18GHz	Nov. 26, 2019	Feb. 24, 2021~ Mar. 26, 2021	Nov. 25, 2021	Radiation (03CH02-CA)
EMI Test Receiver	Rohde & Schwarz	ESR7	102177	9kHz~7GHz	Jul. 16, 2020	Feb. 24, 2021~ Mar. 26, 2021	Jul. 15, 2021	Radiation (03CH02-CA)
Spectrum Analyzer	Keysight	N9010A	MY57420221	10Hz~44GHz	Sep. 11, 2020	Feb. 24, 2021~ Mar. 26, 2021	Sep. 10, 2021	Radiation (03CH02-CA)
Filter	Wainwright	Whkx8-5872.5-6750-18000-40ST	SN8	6.75G Highpass	Jul. 24, 2020	Feb. 24, 2021~ Mar. 26, 2021	Jul. 23, 2021	Radiation (03CH02-CA)
Filter	Wainwright	WHKX12-2700-3000-18000-60ST	SN10	3G Highpass	Jul. 24, 2020	Feb. 24, 2021~ Mar. 26, 2021	Jul. 23, 2021	Radiation (03CH02-CA)
Filter	Wainwright	WLK12-1200-1272-11000-40SS	SN2	1.2G Low Pass	Jul. 24, 2020	Feb. 24, 2021~ Mar. 26, 2021	Jul. 23, 2021	Radiation (03CH02-CA)
Hygrometer	TESEO	608-H1	45142602	N/A	Aug. 05, 2020	Feb. 24, 2021~ Mar. 26, 2021	Aug. 04, 2021	Radiation (03CH02-CA)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Feb. 24, 2021~ Mar. 26, 2021	N/A	Radiation (03CH02-CA)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Feb. 24, 2021~ Mar. 26, 2021	N/A	Radiation (03CH02-CA)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Feb. 24, 2021~ Mar. 26, 2021	N/A	Radiation (03CH02-CA)
Software	Audix	E3	N/A	N/A	N/A	Feb. 24, 2021~ Mar. 26, 2021	N/A	Radiation (03CH02-CA)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	Testo	608-H1	45142595	N/A	Aug. 05, 2020	Mar. 01, 2021~ Mar. 10, 2021	Aug. 04, 2021	Conducted (TH01-CA)
Power Sensor	DARE!!	RPR3006W	RPR6W-1 901026	10MHz-6GHz	Jun. 24, 2020	Mar. 01, 2021~ Mar. 10, 2021	Jun. 23, 2021	Conducted (TH01-CA)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101089	10Hz-40GHz	Sep. 14, 2020	Mar. 01, 2021~ Mar. 10, 2021	Sep. 13, 2021	Conducted (TH01-CA)
Switch Box & RF Cable	EM Electronics	EMSW26	1090304	N/A	Dec. 30, 2020	Mar. 01, 2021~ Mar. 10, 2021	Dec. 29, 2021	Conducted (TH01-CA)
LISN	TESEQ	NNB51	47407	N/A	Jul. 06, 2020	Mar. 12, 2021	Jul. 05, 2021	Conduction (CO01-CA)
EMI Test Receiver	R&S	ESR7	102177	9KHz~7GHz	Jul. 16, 2020	Mar. 12, 2021	Jul. 15, 2021	Conduction (CO01-CA)
Pulse limiter with 10dB attenuation	R&S	VTSD 9561-F N	9561-F-N00412	N/A	Jul. 08, 2020	Mar. 12, 2021	Jul. 07, 2021	Conduction (CO01-CA)
Test Software	R&S	EMC32 V10.30.0	N/A	N/A	N/A	Mar. 12, 2021	N/A	Conduction (CO01-CA)
EXA Signal Analyzer	Keysight	N9010A	MY560704 12	10Hz~7GHz	Aug. 27, 2020	Apr. 01, 2021	Aug. 26, 2021	Conducted (DF01-CA)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.2

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.5

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	6.1

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	6.5

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Andy Kao/Kaying Xiong	Temperature:	17~22.2	°C
Test Date:	2021/3/1~2021/3/10	Relative Humidity:	31~47.5	%

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

Band IV MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	149	5745	16.98	16.73	32.97	27.67	16.28	16.28	0.5	Pass
11a	6Mbps	2	157	5785	17.33	18.13	35.17	36.76	16.33	16.33	0.5	Pass
11a	6Mbps	2	165	5825	17.43	16.93	34.32	28.02	16.33	16.33	0.5	Pass
HT20	MCS0	2	149	5745	18.08	17.78	32.17	31.27	17.58	17.58	0.5	Pass
HT20	MCS0	2	157	5785	18.08	18.43	38.61	36.61	17.53	17.53	0.5	Pass
HT20	MCS0	2	165	5825	18.13	17.83	38.11	30.92	17.58	17.53	0.5	Pass
HT40	MCS0	2	151	5755	37.56	36.86	75.41	60.78	36.32	36.32	0.5	Pass
HT40	MCS0	2	159	5795	37.96	41.96	76.96	87.03	36.32	36.32	0.5	Pass
VHT80	MCS0	2	155	5775	77.32	77.20	150.60	154.10	76.40	76.40	0.5	Pass

TEST RESULTS DATA
Average Power Table

Band IV MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	16.29	17.59	20.00	30.00		5.80		Pass
11a	6Mbps	2	157	5785	16.49	18.19	20.43	30.00		5.80		Pass
11a	6Mbps	2	165	5825	16.09	17.29	19.74	30.00		5.80		Pass
HT20	MCS0	2	149	5745	16.59	17.59	20.13	30.00		5.80		Pass
HT20	MCS0	2	157	5785	16.29	18.09	20.29	30.00		5.80		Pass
HT20	MCS0	2	165	5825	15.79	17.09	19.50	30.00		5.80		Pass
HT40	MCS0	2	151	5755	16.39	18.09	20.33	30.00		5.80		Pass
HT40	MCS0	2	159	5795	16.39	18.19	20.39	30.00		5.80		Pass
VHT20	MCS0	2	149	5745	16.49	17.49	20.03	30.00		5.80		Pass
VHT20	MCS0	2	157	5785	16.09	17.59	19.91	30.00		5.80		Pass
VHT20	MCS0	2	165	5825	15.69	16.99	19.40	30.00		5.80		Pass
VHT40	MCS0	2	151	5755	16.29	17.79	20.11	30.00		5.80		Pass
VHT40	MCS0	2	159	5795	16.09	17.69	19.97	30.00		5.80		Pass
VHT80	MCS0	2	155	5775	16.09	17.69	19.97	30.00		5.80		Pass

TEST RESULTS DATA
Power Spectral Density

Band IV MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	10log (500kHz /RBW) Factor (dB)		Average Power Density (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	2.22		4.85	5.79	8.80	27.68		8.32		Pass
11a	6Mbps	2	157	5785	2.22		5.54	8.02	11.03	27.68		8.32		Pass
11a	6Mbps	2	165	5825	2.22		5.22	6.05	9.06	27.68		8.32		Pass
HT20	MCS0	2	149	5745	2.22		4.73	5.90	8.91	27.68		8.32		Pass
HT20	MCS0	2	157	5785	2.22		4.81	8.68	11.69	27.68		8.32		Pass
HT20	MCS0	2	165	5825	2.22		4.48	6.48	9.49	27.68		8.32		Pass
HT40	MCS0	2	151	5755	2.22		1.31	2.48	5.49	27.68		8.32		Pass
HT40	MCS0	2	159	5795	2.22		1.82	5.26	8.27	27.68		8.32		Pass
VHT80	MCS0	2	155	5775	2.22		-1.90	-0.64	2.37	27.68		8.32		Pass

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

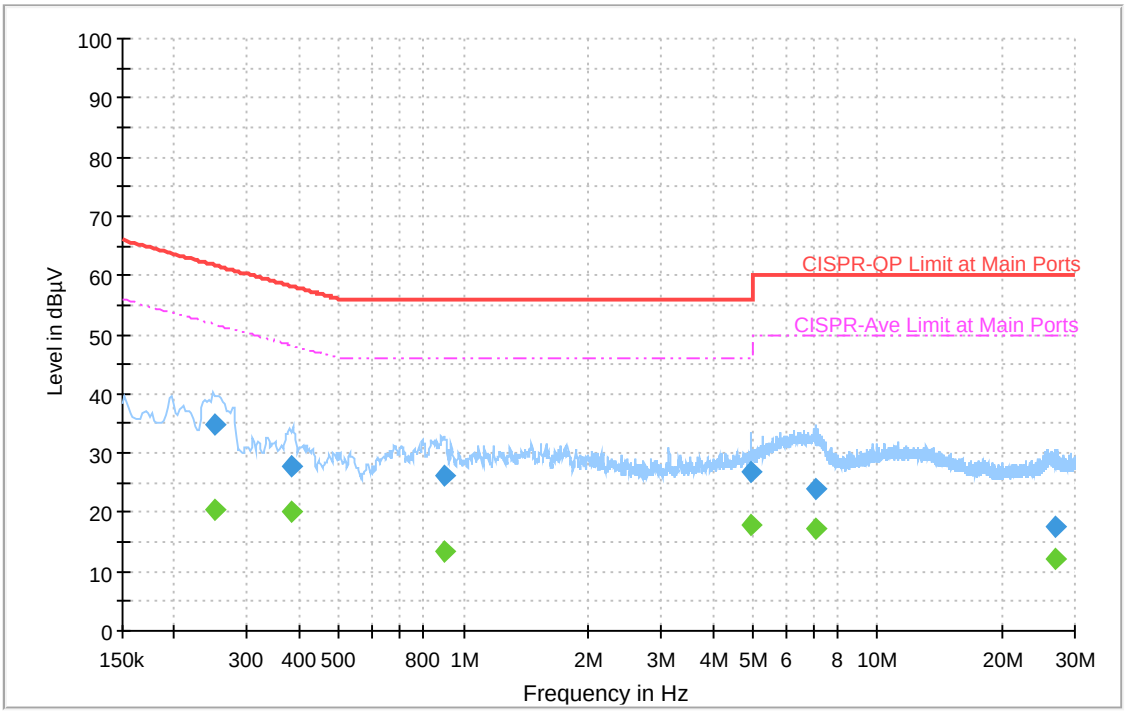
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Janssen Wongso	**Temperature :**	18~21℃
		Relative Humidity :	40.6~44.8%

EUT Information

Site:	CO01-CA
Pretest:	#A211017
Power:	120Vac/60Hz
Model:	Vesta
Mode:	2
SN:	G5U0SX1304730094
	WLAN 5GHz Tx + BLE Tx + Adapter

Full Spectrum



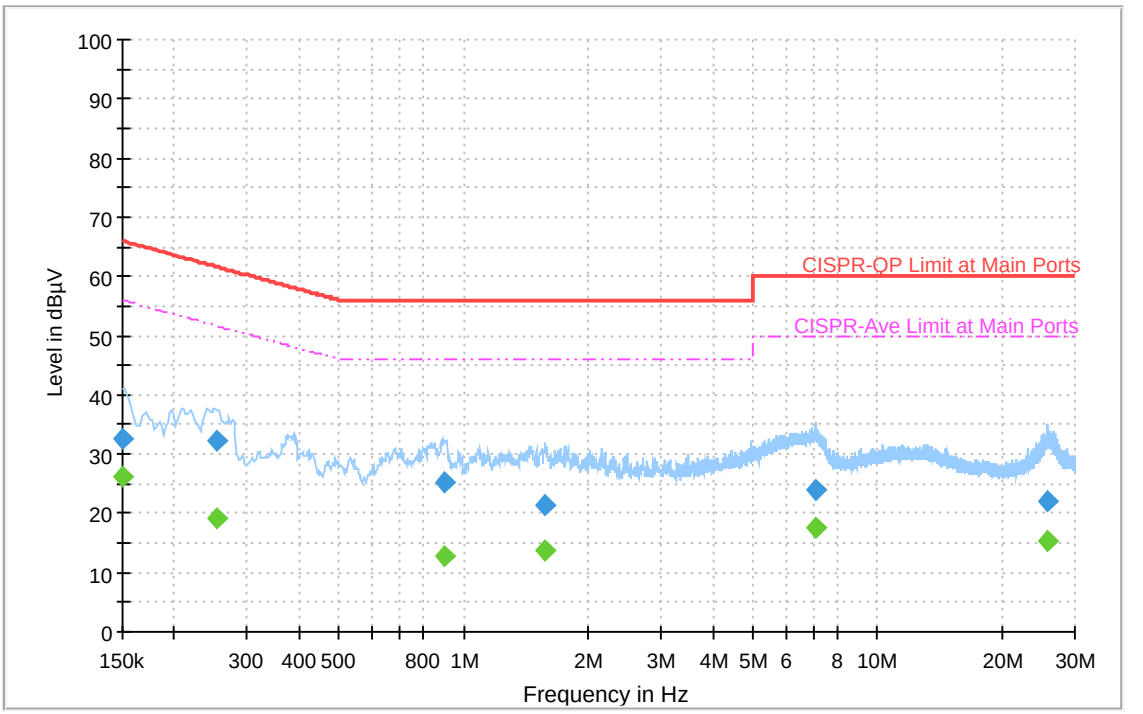
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.251250	---	20.37	51.72	31.35	L1	OFF	20.0
0.251250	34.67	---	61.72	27.05	L1	OFF	20.0
0.383550	---	20.20	48.20	28.00	L1	OFF	20.0
0.383550	27.66	---	58.20	30.54	L1	OFF	20.0
0.902940	---	13.28	46.00	32.72	L1	OFF	20.0
0.902940	26.14	---	56.00	29.86	L1	OFF	20.0
4.933230	---	17.77	46.00	28.23	L1	OFF	20.1
4.933230	26.92	---	56.00	29.08	L1	OFF	20.1
7.066680	---	17.33	50.00	32.67	L1	OFF	20.1
7.066680	23.81	---	60.00	36.19	L1	OFF	20.1
26.832750	---	11.99	50.00	38.01	L1	OFF	20.6
26.832750	17.68	---	60.00	42.32	L1	OFF	20.6

EUT Information

Site:	CO01-CA
Pretest:	#A211017
Power:	120Vac/60Hz
Model:	Vesta
Mode:	2
SN:	G5U0SX1304730094
	WLAN 5GHz Tx + BLE Tx + Adapter

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	---	26.07	56.00	29.93	N	OFF	20.0
0.150000	32.53	---	66.00	33.47	N	OFF	20.0
0.253500	---	19.22	51.64	32.42	N	OFF	20.0
0.253500	32.14	---	61.64	29.50	N	OFF	20.0
0.901500	---	12.87	46.00	33.13	N	OFF	20.0
0.901500	25.26	---	56.00	30.74	N	OFF	20.0
1.572000	---	13.66	46.00	32.34	N	OFF	20.0
1.572000	21.56	---	56.00	34.44	N	OFF	20.0
7.102500	---	17.47	50.00	32.53	N	OFF	20.1
7.102500	23.97	---	60.00	36.03	N	OFF	20.1
25.845000	---	15.44	50.00	34.56	N	OFF	20.6
25.845000	21.92	---	60.00	38.08	N	OFF	20.6

Appendix C. Radiated Spurious Emission

Test Engineer :	Calvin Wu, Michael Bui	Temperature :	19 – 24°C
		Relative Humidity :	40 - 46%

Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		5611.8	53.49	-14.71	68.2	40.26	31.87	11.54	30.18	199	80	P	H
		5686.6	53.18	-42.14	95.32	39.84	31.91	11.63	30.2	199	80	P	H
		5712.8	57.57	-51.22	108.79	44.14	31.98	11.66	30.21	199	80	P	H
		5724.8	69.36	-52.38	121.74	55.86	32.04	11.67	30.21	199	80	P	H
	*	5745	106.09	-	-	92.48	32.13	11.7	30.22	199	80	P	H
	*	5745	98.84	-	-	85.23	32.13	11.7	30.22	199	80	A	H
		5615.8	55.36	-12.84	68.2	42.2	31.79	11.55	30.18	375	235	P	V
		5696.4	55.97	-46.58	102.55	42.57	31.96	11.64	30.2	375	235	P	V
		5719	64.25	-46.27	110.52	50.76	32.03	11.67	30.21	375	235	P	V
		5724.2	77.08	-43.3	120.38	63.57	32.05	11.67	30.21	375	235	P	V
	*	5745	113.52	-	-	99.92	32.12	11.7	30.22	375	235	P	V
	*	5745	106.38	-	-	92.78	32.12	11.7	30.22	375	235	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 157 5785MHz		5608.8	53.03	-15.17	68.2	39.8	31.87	11.54	30.18	220	229	P	H
		5691	53.41	-45.15	98.56	40.06	31.92	11.63	30.2	220	229	P	H
		5711.4	53.65	-54.74	108.39	40.21	31.98	11.66	30.2	220	229	P	H
		5724.2	53.62	-66.76	120.38	40.12	32.04	11.67	30.21	220	229	P	H
	*	5785	107.8	-	-	94.01	32.28	11.74	30.23	220	229	P	H
	*	5785	100.64	-	-	86.85	32.28	11.74	30.23	220	229	A	H
		5852.8	55.5	-60.32	115.82	41.62	32.32	11.82	30.26	220	229	P	H
		5861.8	54.04	-54.85	108.89	40.15	32.33	11.83	30.27	220	229	P	H
		5919.6	53.75	-18.43	72.18	39.73	32.42	11.9	30.3	220	229	P	H
		5938.6	53.6	-14.6	68.2	39.53	32.46	11.92	30.31	220	229	P	H
		5600.4	55.48	-12.72	68.2	42.33	31.79	11.53	30.17	370	235	P	V
		5667.6	55.74	-25.52	81.26	42.46	31.87	11.61	30.2	370	235	P	V
		5719.8	55.67	-55.07	110.74	42.17	32.04	11.67	30.21	370	235	P	V
		5721.6	55.59	-58.86	114.45	42.09	32.04	11.67	30.21	370	235	P	V
	*	5785	113.62	-	-	99.92	32.19	11.74	30.23	370	235	P	V
	*	5785	106.46	-	-	92.76	32.19	11.74	30.23	370	235	A	V
		5852.4	55.49	-61.24	116.73	41.62	32.31	11.82	30.26	370	235	P	V
		5866.6	55.29	-52.26	107.55	41.34	32.38	11.84	30.27	370	235	P	V
		5890.8	55	-38.47	93.47	40.93	32.49	11.86	30.28	370	235	P	V
		5948.8	54.64	-13.56	68.2	40.52	32.5	11.93	30.31	370	235	P	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 165 5825MHz	*	5825	106.75	-	-	92.87	32.33	11.79	30.24	212	230	P	H
	*	5825	99.85	-	-	85.97	32.33	11.79	30.24	212	230	A	H
		5851	56.62	-63.3	119.92	42.74	32.32	11.82	30.26	212	230	P	H
		5859.2	55.87	-53.75	109.62	41.98	32.33	11.83	30.27	212	230	P	H
		5879	53.3	-48.93	102.23	39.38	32.35	11.85	30.28	212	230	P	H
		5930.2	52.76	-15.44	68.2	38.71	32.44	11.91	30.3	212	230	P	H
	*	5825	112.29	-	-	98.48	32.26	11.79	30.24	104	241	P	V
	*	5825	104.74	-	-	90.93	32.26	11.79	30.24	104	241	A	V
		5851	61.72	-58.2	119.92	47.86	32.3	11.82	30.26	104	241	P	V
		5856.2	59.16	-51.3	110.46	45.27	32.33	11.82	30.26	104	241	P	V
		5878.4	55.34	-47.33	102.67	41.34	32.43	11.85	30.28	104	241	P	V
		5942.8	54.44	-13.76	68.2	40.33	32.5	11.92	30.31	104	241	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 149 5745MHz		11490	54.35	-19.65	74	63.17	40.32	17.56	66.7	195	308	P	H
		11490	45.15	-8.85	54	53.97	40.32	17.56	66.7	195	308	A	H
		11760	57.69	-16.31	74	67.24	39.35	17.8	66.7	199	15	P	H
		11760	48.32	-5.68	54	57.87	39.35	17.8	66.7	199	15	A	H
		17235	51.59	-16.61	68.2	56.67	40.52	21.78	67.38	100	0	P	H
		18000	64.06	-9.94	74	61.1	48.43	22.33	67.8	312	299	P	H
		18000	50.95	-3.05	54	47.99	48.43	22.33	67.8	312	299	A	H
		11490	56.87	-17.13	74	65.67	40.34	17.56	66.7	302	303	P	V
		11490	46.16	-7.84	54	54.96	40.34	17.56	66.7	302	303	A	V
		11760	57.77	-16.23	74	67.28	39.39	17.8	66.7	231	81	P	V
		11760	48.4	-5.6	54	57.91	39.39	17.8	66.7	231	81	A	V
		17235	51.66	-16.54	68.2	56.7	40.56	21.78	67.38	100	0	P	V
		18000	64.01	-9.99	74	61	48.48	22.33	67.8	162	223	P	V
		18000	50.99	-3.01	54	47.98	48.48	22.33	67.8	162	223	A	V
802.11a CH 157 5785MHz		11570	51.82	-22.18	74	60.66	40.23	17.63	66.7	205	317	P	H
		11570	41.55	-12.45	54	50.39	40.23	17.63	66.7	205	317	A	H
		11760	55.59	-18.41	74	65.14	39.35	17.8	66.7	211	15	P	H
		11760	46.44	-7.56	54	55.99	39.35	17.8	66.7	211	15	A	H
		17355	53.15	-15.05	68.2	57.49	41.37	21.86	67.57	100	0	P	H
		18000	63.97	-10.03	74	61.01	48.43	22.33	67.8	214	96	P	H
		18000	51.13	-2.87	54	48.17	48.43	22.33	67.8	214	96	A	H
		11570	54.69	-19.31	74	63.47	40.29	17.63	66.7	300	294	P	V
		11570	44.41	-9.59	54	53.19	40.29	17.63	66.7	300	294	A	V
		11760	55.3	-18.7	74	64.81	39.39	17.8	66.7	198	18	P	V
		11760	45.35	-8.65	54	54.86	39.39	17.8	66.7	198	18	A	V
		17355	53.57	-14.63	68.2	57.95	41.33	21.86	67.57	100	0	P	V
		18000	64.02	-9.98	74	61.01	48.48	22.33	67.8	118	253	P	V
		18000	51.08	-2.92	54	48.07	48.48	22.33	67.8	118	253	A	V

802.11a CH 165 5825MHz		11650	48.02	-25.98	74	57.08	39.93	17.71	66.7	100	0	P	H
		11760	57.68	-16.32	74	67.23	39.35	17.8	66.7	205	17	P	H
		11760	48.2	-5.8	54	57.75	39.35	17.8	66.7	205	17	A	H
		17475	54.08	-14.12	68.2	57.5	42.38	21.96	67.76	100	0	P	H
		18000	63.43	-10.57	74	60.47	48.43	22.33	67.8	230	104	P	H
		18000	51.16	-2.84	54	48.2	48.43	22.33	67.8	230	104	A	H
		11650	49.49	-24.51	74	58.62	39.86	17.71	66.7	100	0	P	V
		11760	56.71	-17.29	74	66.22	39.39	17.8	66.7	314	336	P	V
		11760	47.73	-6.27	54	57.24	39.39	17.8	66.7	314	336	A	V
		17475	53.81	-14.39	68.2	57.22	42.39	21.96	67.76	100	0	P	V
		18000	63.42	-10.58	74	60.41	48.48	22.33	67.8	274	329	P	V
		18000	51.29	-2.71	54	48.28	48.48	22.33	67.8	274	329	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 149 5745MHz		5606.4	53.7	-14.5	68.2	40.46	31.87	11.54	30.17	200	228	P	H
		5687.8	53.75	-42.45	96.2	40.41	31.91	11.63	30.2	200	228	P	H
		5719.8	60.57	-50.17	110.74	47.09	32.02	11.67	30.21	200	228	P	H
		5723.6	68.69	-50.32	119.01	55.2	32.03	11.67	30.21	200	228	P	H
	*	5745	107.63	-	-	94.02	32.13	11.7	30.22	200	228	P	H
	*	5745	98.73	-	-	85.12	32.13	11.7	30.22	200	228	A	H
		5613.6	56.6	-11.6	68.2	43.44	31.79	11.55	30.18	390	240	P	V
		5696.4	57.29	-45.26	102.55	43.89	31.96	11.64	30.2	390	240	P	V
		5718	67.73	-42.51	110.24	54.24	32.03	11.67	30.21	390	240	P	V
		5725	75.54	-46.66	122.2	62.03	32.05	11.67	30.21	390	240	P	V
	*	5745	114.85	-	-	101.25	32.12	11.7	30.22	390	240	P	V
	*	5745	104.79	-	-	91.19	32.12	11.7	30.22	390	240	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 157 5785MHz		5606.2	52.91	-15.29	68.2	39.67	31.87	11.54	30.17	218	231	P	H
		5695	53.23	-48.28	101.51	39.87	31.92	11.64	30.2	218	231	P	H
		5711	54.62	-53.66	108.28	41.18	31.98	11.66	30.2	218	231	P	H
		5725	53.08	-69.12	122.2	39.58	32.04	11.67	30.21	218	231	P	H
	*	5785	107.49	-	-	93.7	32.28	11.74	30.23	218	231	P	H
	*	5785	99.19	-	-	85.4	32.28	11.74	30.23	218	231	A	H
		5852.4	53.52	-63.21	116.73	39.64	32.32	11.82	30.26	218	231	P	H
		5867.4	54.15	-53.18	107.33	40.24	32.34	11.84	30.27	218	231	P	H
		5894.2	53.78	-37.17	90.95	39.83	32.37	11.87	30.29	218	231	P	H
		5926.2	52.83	-15.37	68.2	38.79	32.43	11.91	30.3	218	231	P	H
		5619.4	54.56	-13.64	68.2	41.39	31.8	11.55	30.18	369	235	P	V
		5696.6	55.43	-47.26	102.69	42.03	31.96	11.64	30.2	369	235	P	V
		5707.4	56.09	-51.18	107.27	42.64	32	11.65	30.2	369	235	P	V
		5724.8	55.95	-65.79	121.74	42.44	32.05	11.67	30.21	369	235	P	V
	*	5785	114.37	-	-	100.67	32.19	11.74	30.23	369	235	P	V
	*	5785	105.32	-	-	91.62	32.19	11.74	30.23	369	235	A	V
		5851.4	54.67	-64.34	119.01	40.81	32.3	11.82	30.26	369	235	P	V
		5863.4	54.83	-53.62	108.45	40.91	32.36	11.83	30.27	369	235	P	V
		5875.8	54.65	-49.96	104.61	40.66	32.42	11.85	30.28	369	235	P	V
		5943.8	53.13	-15.07	68.2	39.01	32.5	11.93	30.31	369	235	P	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 165 5825MHz	*	5825	105.75	-	-	91.87	32.33	11.79	30.24	204	224	P	H
	*	5825	97.47	-	-	83.59	32.33	11.79	30.24	204	224	A	H
		5850	57.07	-65.13	122.2	43.19	32.32	11.82	30.26	204	224	P	H
		5855	54.45	-56.35	110.8	40.57	32.32	11.82	30.26	204	224	P	H
		5876.2	55	-49.31	104.31	41.08	32.35	11.85	30.28	204	224	P	H
		5950	53.67	-14.53	68.2	39.56	32.49	11.93	30.31	204	224	P	H
	*	5825	112.83	-	-	99.02	32.26	11.79	30.24	389	231	P	V
	*	5825	103.48	-	-	89.67	32.26	11.79	30.24	389	231	A	V
		5850.2	61.89	-59.85	121.74	48.03	32.3	11.82	30.26	389	231	P	V
		5855	59.3	-51.5	110.8	45.42	32.32	11.82	30.26	389	231	P	V
		5892	55.51	-37.07	92.58	41.43	32.5	11.87	30.29	389	231	P	V
		5945.2	54.59	-13.61	68.2	40.47	32.5	11.93	30.31	389	231	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 149 5745MHz		11490	54.19	-19.81	74	63.01	40.32	17.56	66.7	176	283	P	H
		11490	44.24	-9.76	54	53.06	40.32	17.56	66.7	176	283	A	H
		11760	57.56	-16.44	74	67.11	39.35	17.8	66.7	205	16	P	H
		11760	48.21	-5.79	54	57.76	39.35	17.8	66.7	205	16	A	H
		17235	52.07	-16.13	68.2	57.15	40.52	21.78	67.38	100	0	P	H
		18000	63.89	-10.11	74	60.93	48.43	22.33	67.8	201	285	P	H
		18000	50.44	-3.56	54	47.48	48.43	22.33	67.8	201	285	A	H
		11490	55.25	-18.75	74	64.05	40.34	17.56	66.7	299	286	P	V
		11490	45.66	-8.34	54	54.46	40.34	17.56	66.7	299	286	A	V
		11760	57.09	-16.91	74	66.6	39.39	17.8	66.7	321	339	P	V
		11760	48.06	-5.94	54	57.57	39.39	17.8	66.7	321	339	A	V
		17235	51.5	-16.7	68.2	56.54	40.56	21.78	67.38	100	0	P	V
		18000	63.96	-10.04	74	60.95	48.48	22.33	67.8	310	293	P	V
		18000	50.49	-3.51	54	47.48	48.48	22.33	67.8	310	293	A	V
802.11n HT20 CH 157 5785MHz		11570	54.73	-19.27	74	63.57	40.23	17.63	66.7	195	320	P	H
		11570	44.15	-9.85	54	52.99	40.23	17.63	66.7	195	320	A	H
		11760	57.74	-16.26	74	67.29	39.35	17.8	66.7	202	17	P	H
		11760	48.18	-5.82	54	57.73	39.35	17.8	66.7	202	17	A	H
		17355	52.63	-15.57	68.2	56.97	41.37	21.86	67.57	100	0	P	H
		18000	64.03	-9.97	74	61.07	48.43	22.33	67.8	373	174	P	H
		18000	51.2	-2.8	54	48.24	48.43	22.33	67.8	373	174	A	H
		11570	57.96	-16.04	74	66.74	40.29	17.63	66.7	300	295	P	V
		11570	47.01	-6.99	54	55.79	40.29	17.63	66.7	300	295	A	V
		11760	56.1	-17.9	74	65.61	39.39	17.8	66.7	100	353	P	V
		11760	47.11	-6.89	54	56.62	39.39	17.8	66.7	100	353	A	V
		17355	53.54	-14.66	68.2	57.92	41.33	21.86	67.57	100	0	P	V
		18000	63.68	-10.32	74	60.67	48.48	22.33	67.8	322	280	P	V
		18000	51.13	-2.87	54	48.12	48.48	22.33	67.8	322	280	A	V

802.11n HT20 CH 165 5825MHz		11650	58.68	-15.32	74	67.74	39.93	17.71	66.7	293	327	P	H
		11650	47.04	-6.96	54	56.1	39.93	17.71	66.7	293	327	A	H
		11760	57.31	-16.69	74	66.86	39.35	17.8	66.7	204	16	P	H
		11760	48.05	-5.95	54	57.6	39.35	17.8	66.7	204	16	A	H
		17475	53.5	-14.7	68.2	56.92	42.38	21.96	67.76	100	0	P	H
		18000	63.87	-10.13	74	60.91	48.43	22.33	67.8	292	16	P	H
		18000	51.09	-2.91	54	48.13	48.43	22.33	67.8	292	16	A	H
		11650	53.02	-20.98	74	62.15	39.86	17.71	66.7	324	281	P	V
		11650	42.95	-11.05	54	52.08	39.86	17.71	66.7	324	281	A	V
		11760	56.26	-17.74	74	65.77	39.39	17.8	66.7	292	339	P	V
		11760	47.46	-6.54	54	56.97	39.39	17.8	66.7	292	339	A	V
		17475	54.18	-14.02	68.2	57.59	42.39	21.96	67.76	100	0	P	V
		18000	63.41	-10.59	74	60.4	48.48	22.33	67.8	322	216	P	V
		18000	51.22	-2.78	54	48.21	48.48	22.33	67.8	322	216	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 151 5755MHz		5607.2	53.06	-15.14	68.2	39.82	31.87	11.54	30.17	305	183	P	H
		5698.8	56.58	-47.74	104.32	43.21	31.93	11.64	30.2	305	183	P	H
		5719	69.98	-40.54	110.52	56.51	32.01	11.67	30.21	305	183	P	H
		5723.8	72.4	-47.06	119.46	58.91	32.03	11.67	30.21	305	183	P	H
	*	5755	104.21	-	-	90.55	32.17	11.71	30.22	305	183	P	H
	*	5755	95.2	-	-	81.54	32.17	11.71	30.22	305	183	A	H
		5852.4	52.62	-64.11	116.73	38.74	32.32	11.82	30.26	305	183	P	H
		5861.4	53.16	-55.85	109.01	39.27	32.33	11.83	30.27	305	183	P	H
		5883.2	53.22	-45.89	99.11	39.28	32.36	11.86	30.28	305	183	P	H
		5944.4	53.47	-14.73	68.2	39.38	32.47	11.93	30.31	305	183	P	H
		5611.2	57.33	-10.87	68.2	44.18	31.79	11.54	30.18	350	243	P	V
		5697.2	64.32	-38.82	103.14	50.92	31.96	11.64	30.2	350	243	P	V
		5719.8	83.05	-27.69	110.74	69.55	32.04	11.67	30.21	350	243	P	V
		5724.8	81.83	-39.91	121.74	68.32	32.05	11.67	30.21	350	243	P	V
	*	5755	112.85	-	-	99.22	32.14	11.71	30.22	350	243	P	V
	*	5755	103.19	-	-	89.56	32.14	11.71	30.22	350	243	A	V
		5851.2	53.84	-65.62	119.46	39.98	32.3	11.82	30.26	350	243	P	V
		5858.8	54.47	-55.26	109.73	40.57	32.34	11.83	30.27	350	243	P	V
		5875	53.95	-51.25	105.2	39.96	32.42	11.85	30.28	350	243	P	V
		5941.8	53.89	-14.31	68.2	39.78	32.5	11.92	30.31	350	243	P	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 159 5795MHz		5647.8	53.06	-15.14	68.2	39.81	31.87	11.58	30.2	220	227	P	H
		5688.2	53.54	-42.96	96.5	40.2	31.91	11.63	30.2	220	227	P	H
		5707.6	55.36	-51.97	107.33	41.95	31.96	11.65	30.2	220	227	P	H
		5720.2	56.08	-55.18	111.26	42.6	32.02	11.67	30.21	220	227	P	H
	*	5795	105.72	-	-	91.89	32.31	11.75	30.23	220	227	P	H
	*	5795	96.08	-	-	82.25	32.31	11.75	30.23	220	227	A	H
		5853.8	59.09	-54.45	113.54	45.21	32.32	11.82	30.26	220	227	P	H
		5863	55.15	-53.41	108.56	41.26	32.33	11.83	30.27	220	227	P	H
		5902.8	52.95	-31.64	84.59	38.98	32.38	11.88	30.29	220	227	P	H
		5942	53.63	-14.57	68.2	39.55	32.47	11.92	30.31	220	227	P	H
		5630.8	53.98	-14.22	68.2	40.8	31.8	11.57	30.19	385	234	P	V
		5699.8	55.9	-49.15	105.05	42.49	31.97	11.64	30.2	385	234	P	V
		5718.6	59.1	-51.31	110.41	45.61	32.03	11.67	30.21	385	234	P	V
		5724	58.84	-61.08	119.92	45.33	32.05	11.67	30.21	385	234	P	V
	*	5795	111	-	-	97.27	32.21	11.75	30.23	385	234	P	V
	*	5795	101.76	-	-	88.03	32.21	11.75	30.23	385	234	A	V
		5852	60.99	-56.65	117.64	47.12	32.31	11.82	30.26	385	234	P	V
		5860.6	57.47	-51.76	109.23	43.56	32.35	11.83	30.27	385	234	P	V
		5879	54.73	-47.5	102.23	40.72	32.44	11.85	30.28	385	234	P	V
		5937.4	53.72	-14.48	68.2	39.59	32.51	11.92	30.3	385	234	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 151 5755MHz		11510	53.2	-20.8	74	61.99	40.33	17.58	66.7	151	295	P	H
		11510	42.87	-11.13	54	51.66	40.33	17.58	66.7	151	295	A	H
		11760	57.15	-16.85	74	66.7	39.35	17.8	66.7	204	16	P	H
		11760	46.73	-7.27	54	56.28	39.35	17.8	66.7	204	16	A	H
		17265	50.74	-17.46	68.2	55.66	40.7	21.8	67.42	100	0	P	H
		18000	63.99	-10.01	74	61.03	48.43	22.33	67.8	148	49	P	H
		18000	50.96	-3.04	54	48	48.43	22.33	67.8	148	49	A	H
		11510	55.09	-18.91	74	63.86	40.35	17.58	66.7	156	317	P	V
		11510	44.86	-9.14	54	53.63	40.35	17.58	66.7	156	317	A	V
		11760	56.14	-17.86	74	65.65	39.39	17.8	66.7	180	78	P	V
		11760	46.07	-7.93	54	55.58	39.39	17.8	66.7	180	78	A	V
		17265	52.27	-15.93	68.2	57.16	40.73	21.8	67.42	100	0	P	V
		18000	63.57	-10.43	74	60.56	48.48	22.33	67.8	151	155	P	V
		18000	50.92	-3.08	54	47.91	48.48	22.33	67.8	151	155	A	V
802.11n HT40 CH 159 5795MHz		11590	49.1	-24.9	74	58.02	40.13	18.27	66.7	100	0	P	H
		11760	56.49	-17.51	74	66.04	39.35	18.43	66.7	189	8	P	H
		11760	45.66	-8.34	54	55.21	39.35	18.43	66.7	189	8	A	H
		17385	52.67	-15.53	68.2	56.74	41.66	22.76	67.62	100	0	P	H
		18000	63.47	-10.53	74	60.51	48.43	23.31	67.8	325	225	P	H
		18000	51.28	-2.72	54	48.32	48.43	23.31	67.8	325	225	A	H
		11590	49.91	-24.09	74	58.75	40.21	17.65	66.7	100	0	P	V
		11760	56.57	-17.43	74	66.08	39.39	17.8	66.7	228	81	P	V
		11760	46.46	-7.54	54	55.97	39.39	17.8	66.7	228	81	A	V
		17385	52.97	-15.23	68.2	57.06	41.64	21.89	67.62	100	0	P	V
		18000	63.1	-10.9	74	60.09	48.48	22.33	67.8	275	79	P	V
		18000	51.16	-2.84	54	48.15	48.48	22.33	67.8	275	79	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 155 5775MHz		5648.8	56.59	-11.61	68.2	43.33	31.87	11.59	30.2	211	230	P	H
		5695.2	73.18	-28.48	101.66	59.82	31.92	11.64	30.2	211	230	P	H
		5717.2	75.84	-34.18	110.02	62.39	32	11.66	30.21	211	230	P	H
		5722.2	76.63	-39.19	115.82	63.14	32.03	11.67	30.21	211	230	P	H
	*	5775	104.01	-	-	90.26	32.24	11.73	30.22	211	230	P	H
	*	5775	95.41	-	-	81.66	32.24	11.73	30.22	211	230	A	H
		5852.6	70.98	-45.29	116.27	57.1	32.32	11.82	30.26	211	230	P	H
		5857.8	68.63	-41.38	110.01	54.73	32.33	11.83	30.26	211	230	P	H
		5881.2	59.66	-40.93	100.59	45.74	32.35	11.85	30.28	211	230	P	H
		5930.4	54.12	-14.08	68.2	40.07	32.44	11.91	30.3	211	230	P	H
		5640.4	63.3	-4.9	68.2	50.1	31.81	11.58	30.19	333	244	P	V
		5695.6	77.58	-24.38	101.96	64.18	31.96	11.64	30.2	333	244	P	V
		5714.4	83.22	-26.01	109.23	69.75	32.02	11.66	30.21	333	244	P	V
		5723	83.09	-34.55	117.64	69.58	32.05	11.67	30.21	333	244	P	V
	*	5775	111.23	-	-	97.55	32.17	11.73	30.22	333	244	P	V
	*	5775	101.62	-	-	87.94	32.17	11.73	30.22	333	244	A	V
		5853.2	75.54	-39.36	114.9	61.67	32.31	11.82	30.26	333	244	P	V
		5856.2	72.97	-37.49	110.46	59.08	32.33	11.82	30.26	333	244	P	V
		5875.4	64.28	-40.62	104.9	50.29	32.42	11.85	30.28	333	244	P	V
		5932.8	55.36	-12.84	68.2	41.24	32.51	11.91	30.3	333	244	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 155 5775MHz		11550	48.97	-25.03	74	57.73	40.33	17.61	66.7	100	0	P	H
		11760	56.66	-17.34	74	66.21	39.35	17.8	66.7	199	16	P	H
		11760	46.47	-7.53	54	56.02	39.35	17.8	66.7	199	16	A	H
		17325	52.16	-16.04	68.2	56.67	41.16	21.85	67.52	100	0	P	H
		18000	63.2	-10.8	74	60.24	48.43	22.33	67.8	112	150	P	H
		18000	50.33	-3.67	54	47.37	48.43	22.33	67.8	112	150	A	H
		11550	49.34	-24.66	74	58.07	40.36	17.61	66.7	100	0	P	V
		11760	56.46	-17.54	74	65.97	39.39	17.8	66.7	322	341	P	V
		11760	46.36	-7.64	54	55.87	39.39	17.8	66.7	322	341	A	V
		17325	52.52	-15.68	68.2	57.05	41.14	21.85	67.52	100	0	P	V
		18000	63.5	-10.5	74	60.49	48.48	22.33	67.8	308	315	P	V
		18000	50.27	-3.73	54	47.26	48.48	22.33	67.8	308	315	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission above 18GHz

5GHz WIFI 802.11ac VHT80 (SHF)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
5GHz 802.11ac VHT80 SHF		26184	41.82	-26.38	68.2	37.43	39.47	16.67	51.75	150	0	P	H
		38394	50.98	-17.22	68.2	38.58	44.29	23.04	54.93	150	0	P	H
		31068	42.18	-26.02	68.2	36.62	40.47	19.23	54.14	150	0	P	V
		39318	51.1	-22.9	74	37.66	44.39	23.33	54.28	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Emission below 1GHz

5GHz WIFI 802.11ac VHT80 (LF)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
5GHz 802.11ac VHT80 LF		30	21.13	-18.87	40	27.8	24.9	0.87	32.44	-	-	P	H
		120.21	36.59	-6.91	43.5	49.67	17.6	1.73	32.41	100	0	P	H
		136.7	34.63	-8.87	43.5	47.52	17.6	1.92	32.41	-	-	P	H
		167.74	36.37	-7.13	43.5	50.75	15.93	2.1	32.41	-	-	P	H
		359.8	30.84	-15.16	46	39.47	20.7	3.14	32.47	-	-	P	H
		623.64	36.67	-9.33	46	39.08	26.15	4.06	32.62	-	-	P	H
		30.97	21.55	-18.45	40	28.38	24.71	0.9	32.44	-	-	P	V
		94.02	29.08	-14.42	43.5	44.42	15.4	1.68	32.42	-	-	P	V
		120.21	33.75	-9.75	43.5	46.83	17.6	1.73	32.41	100	0	P	V
		136.7	31.58	-11.92	43.5	44.47	17.6	1.92	32.41	-	-	P	V
		586.78	32	-14	46	34.89	25.8	3.94	32.63	-	-	P	V
		857.41	32.96	-13.04	46	30.98	29.1	4.82	31.94	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

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

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 43.54 (dBμV/m)

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

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

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

Appendix D. Radiated Spurious Emission Plots

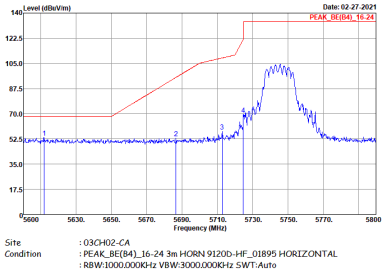
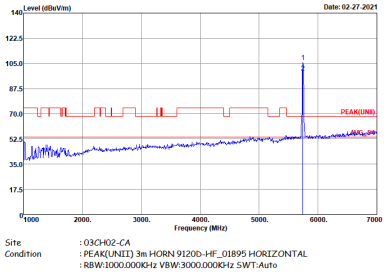
Test Engineer :	Calvin Wu, Michael Bui	**Temperature :**	19 – 24°C
		Relative Humidity :	40 - 46%

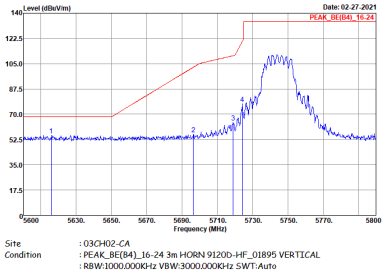
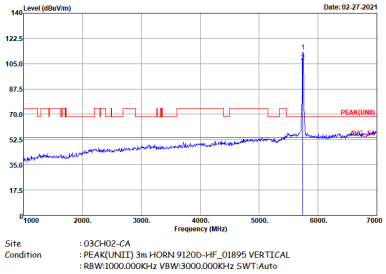
Note symbol

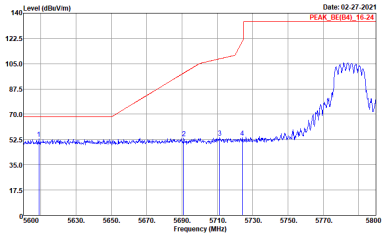
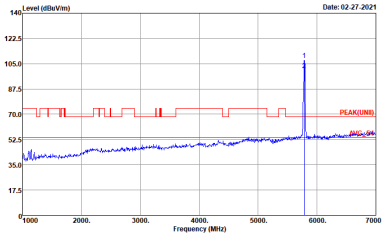
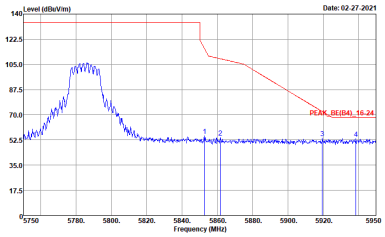
-L	**Low channel location**
-R	**High channel location**

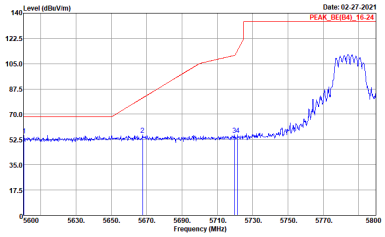
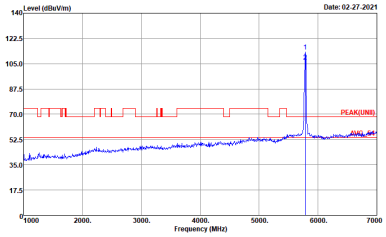
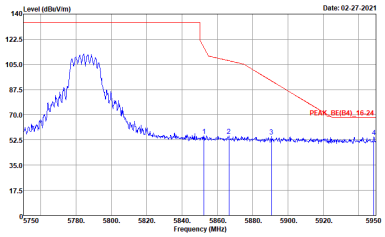
Band 4 - 5725~5850MHz

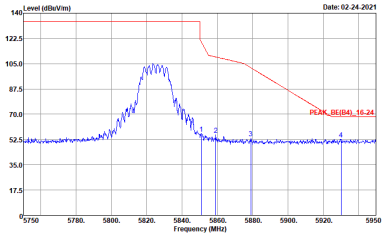
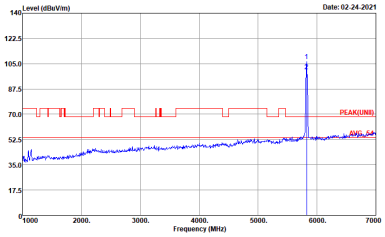
WIFI 802.11a (Band Edge @ 3m)

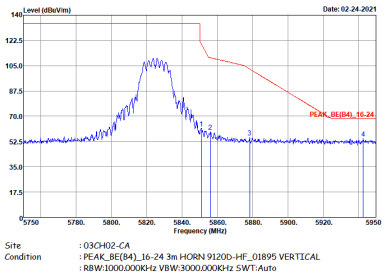
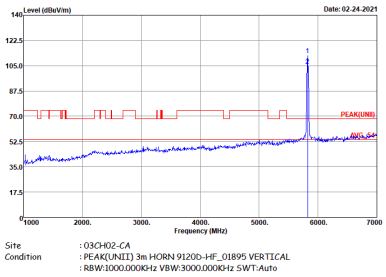
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Vertical	Fundamental
Peak		

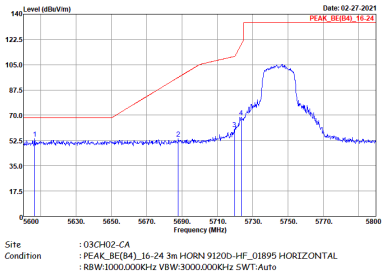
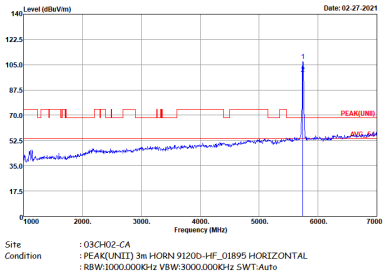
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH02-CA Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH02-CA Condition : PEAK(UNII) 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH02-CA Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

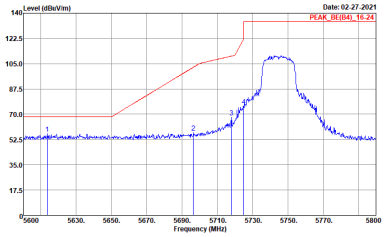
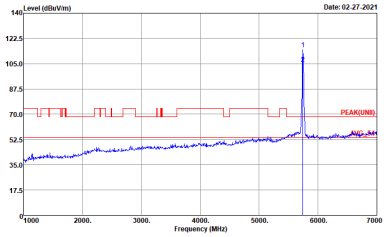
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH02-CA Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH02-CA Condition : PEAK(UNII) 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH02-CA Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

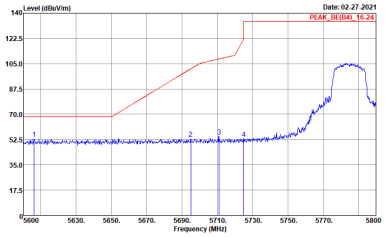
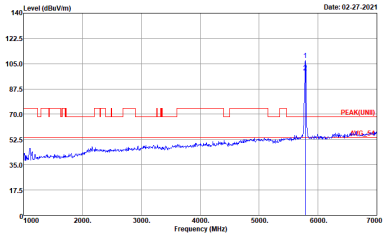
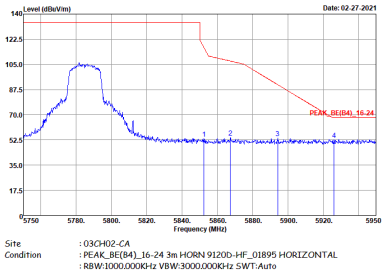
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH02-CA Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH02-CA Condition : PEAK(UNII) 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

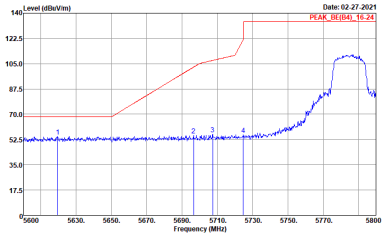
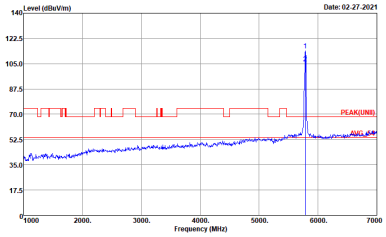
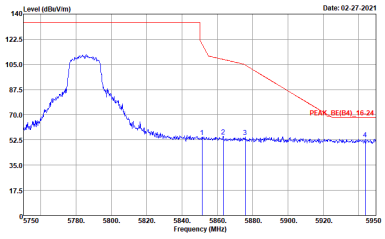
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Vertical	Fundamental
Peak		

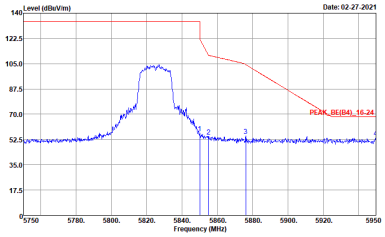
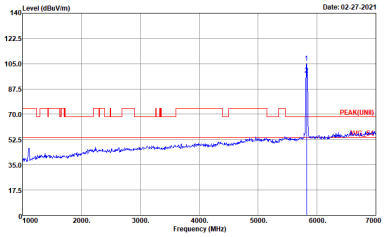
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

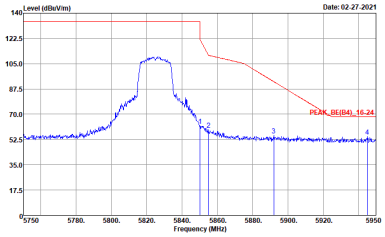
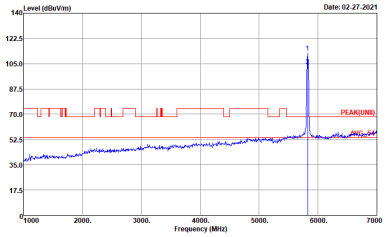
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Vertical	Fundamental
Peak		

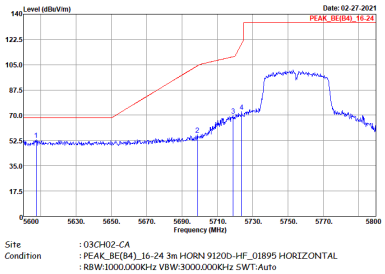
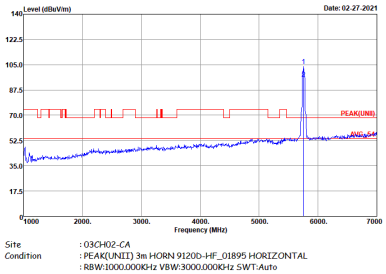
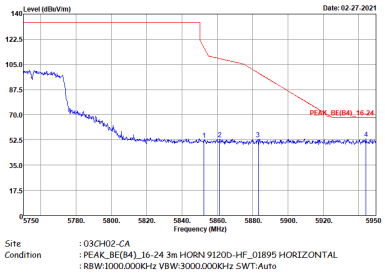
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Horizontal	Fundamental
Peak		
Peak		Left blank

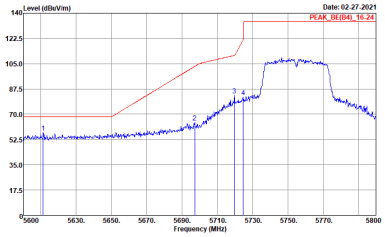
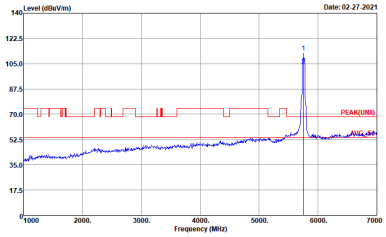
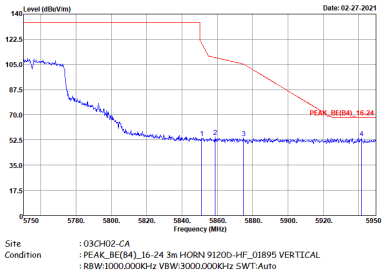
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH02-CA Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH02-CA Condition : PEAK(UNII) 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH02-CA Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF_01895 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

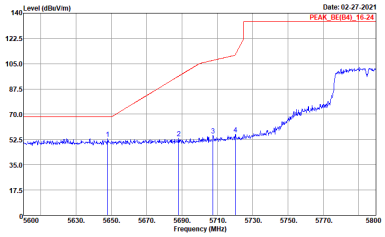
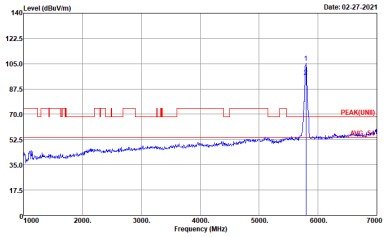
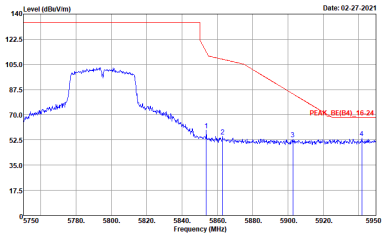
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH02-CA Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH02-CA Condition : PEAK(UNII) 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

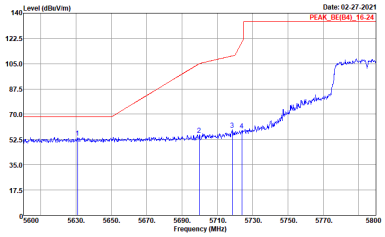
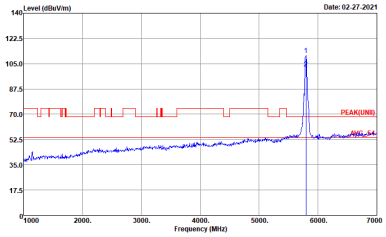
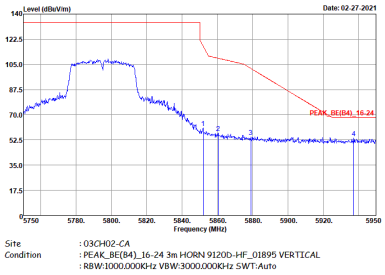
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Vertical	Fundamental
Peak		

Band 4 5725~5850MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

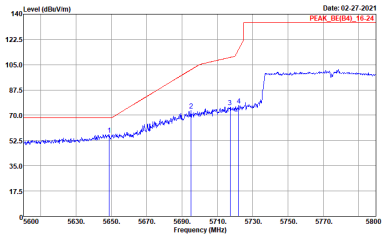
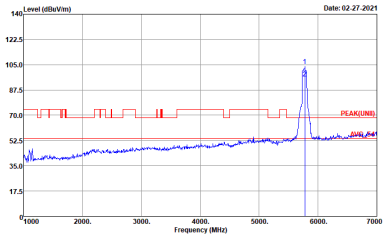
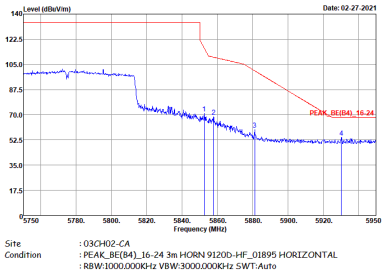
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Horizontal	Fundamental
Peak		
Peak		Left blank

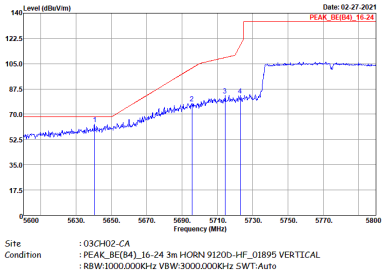
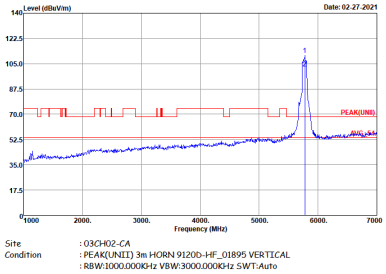
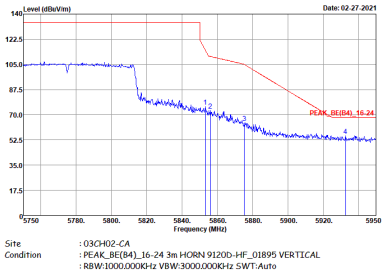
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH02-CA Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH02-CA Condition : PEAK(UNII) 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH02-CA Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF_01895 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

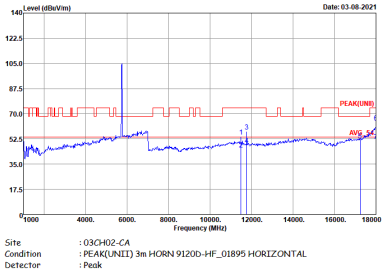
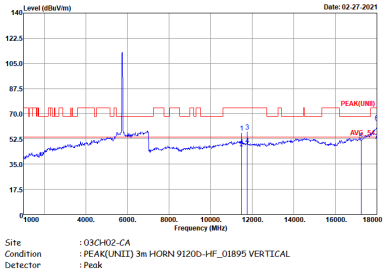
Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

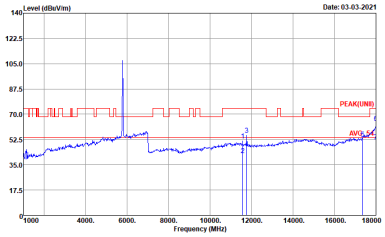
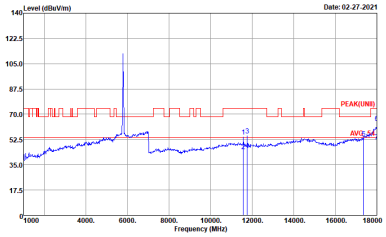
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Horizontal	Fundamental
Peak		
Peak		Left blank

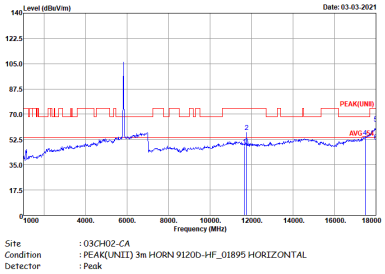
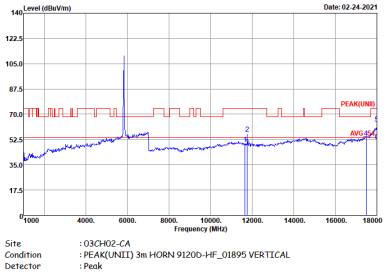
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

Band 4 - 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

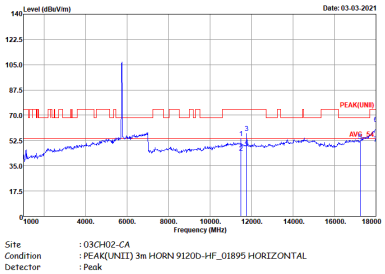
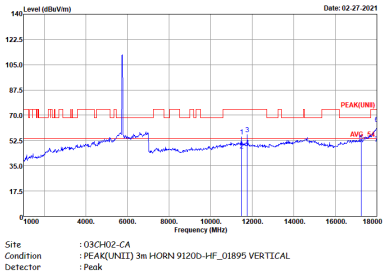
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.		

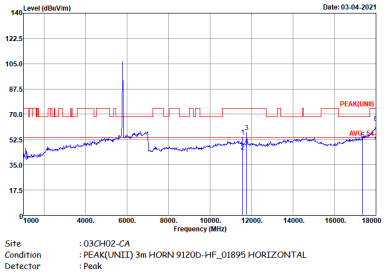
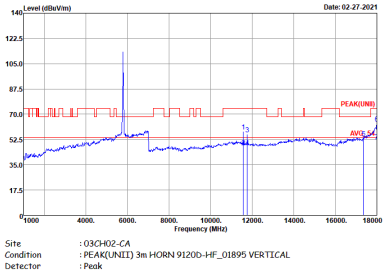
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.		

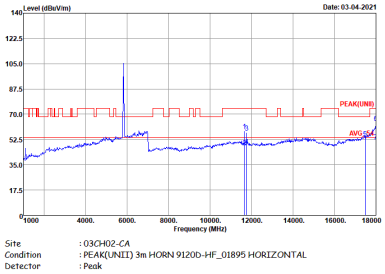
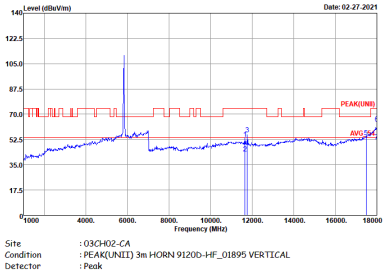
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.		

Band 4 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

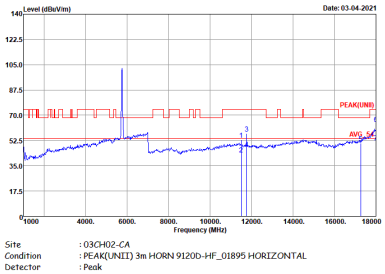
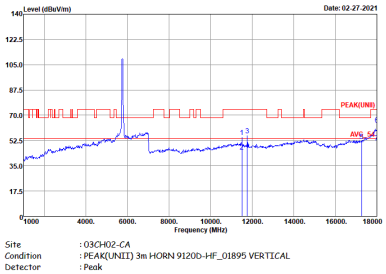
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.		

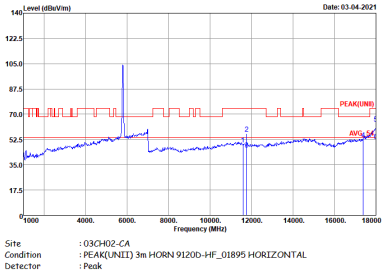
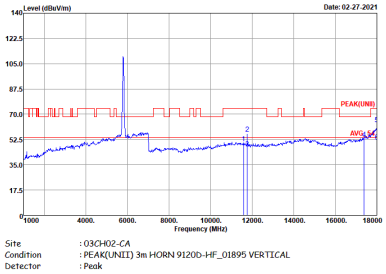
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.		

Band 4 5725~5850MHz

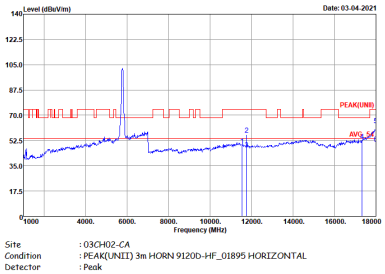
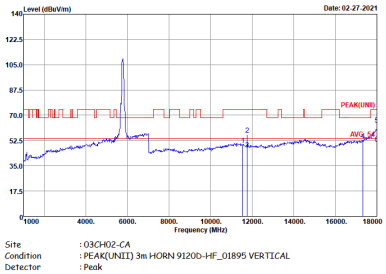
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1+2	Horizontal	Vertical
Peak Avg.		

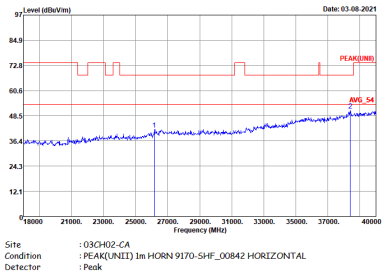
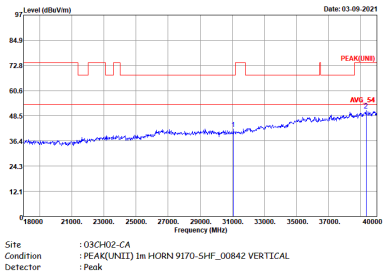
Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Horizontal	Vertical
Peak Avg.		

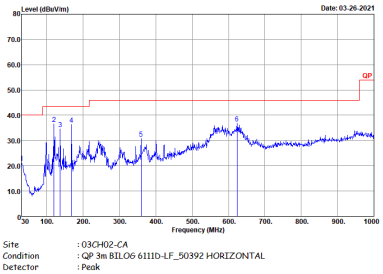
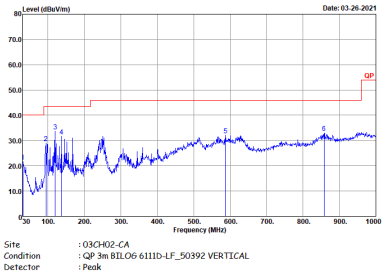
Emission above 18GHz

5GHz WIFI 802.11ac VHT80 (SHF)

WIFI	5GHz WIFI	
ANT	802.11ac VHT80 SHF	
1+2	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

5GHz WIFI 802.11ac VHT80 (LF)

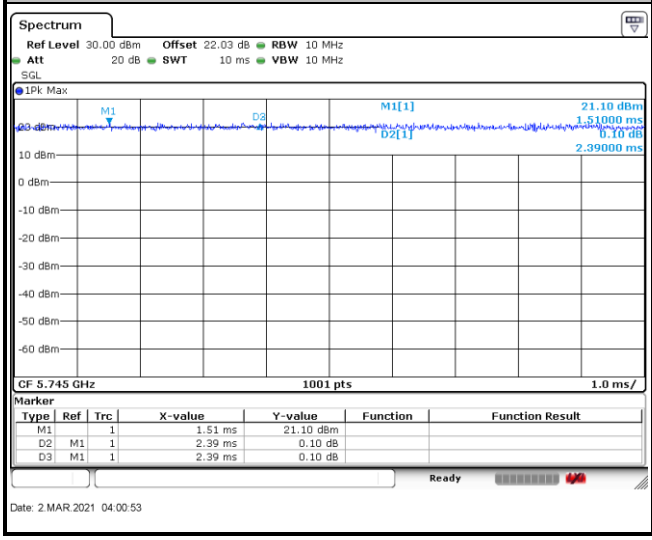
WIFI	5GHz WIFI	
ANT	802.11ac VHT80 LF	
1+2	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

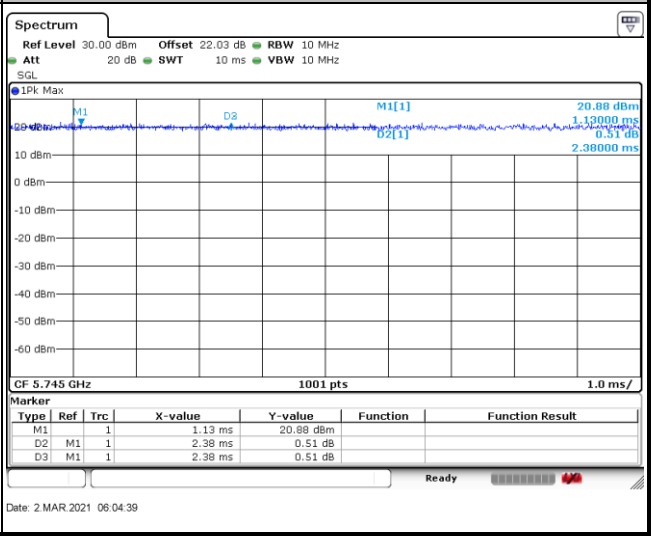
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
1+2	802.11a for Ant. 1	100.00	-	-	10Hz	0.00
1+2	802.11a for Ant. 2	100.00	-	-	10Hz	0.00
1+2	5GHz 802.11n HT20 for Ant. 1	100.00	-	-	10Hz	0.00
1+2	5GHz 802.11n HT20 for Ant. 2	100.00	-	-	10Hz	0.00
1+2	5GHz 802.11n HT40 for Ant. 1	100.00	-	-	10Hz	0.00
1+2	5GHz 802.11n HT40 for Ant. 2	100.00	-	-	10Hz	0.00
1+2	5GHz 802.11ac VHT80 for Ant. 1	100.00	-	-	10Hz	0.00
1+2	5GHz 802.11ac VHT80 for Ant. 2	100.00	-	-	10Hz	0.00

MIMO <Ant. 1>

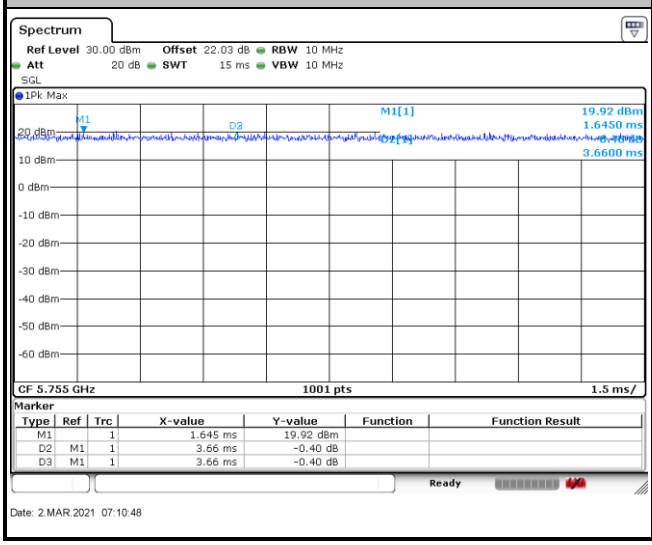
802.11a



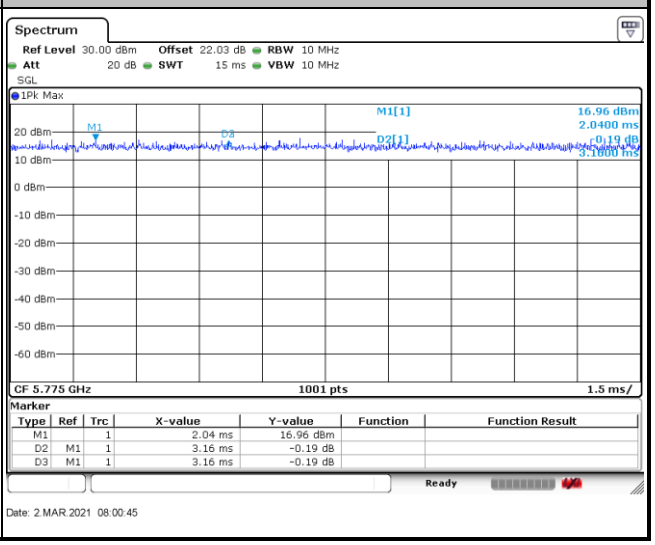
802.11n HT20



802.11n HT40

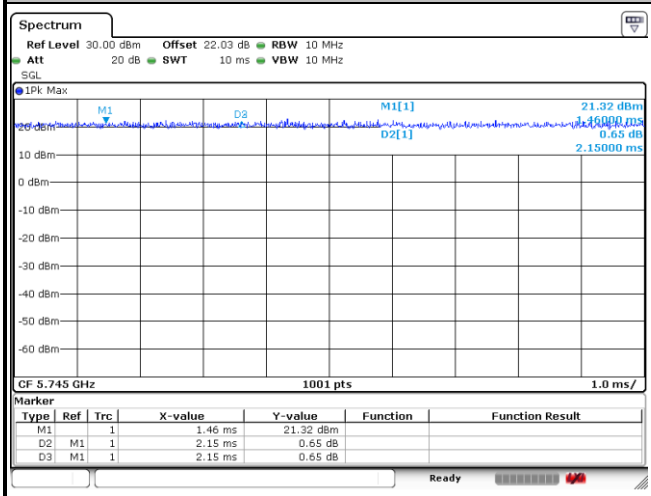


802.11ac VHT80

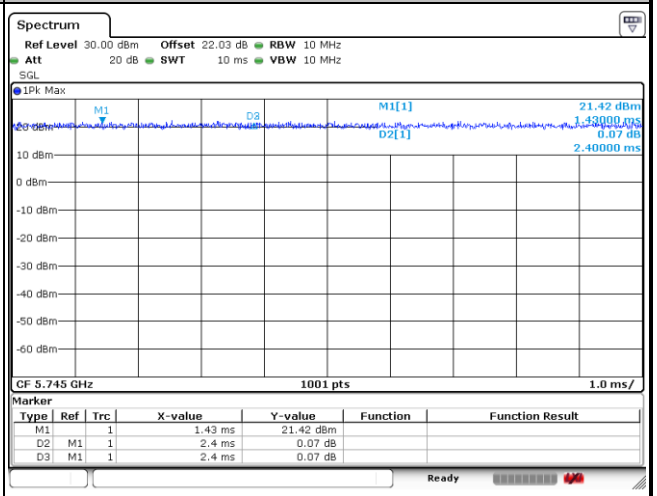


MIMO <Ant. 2>

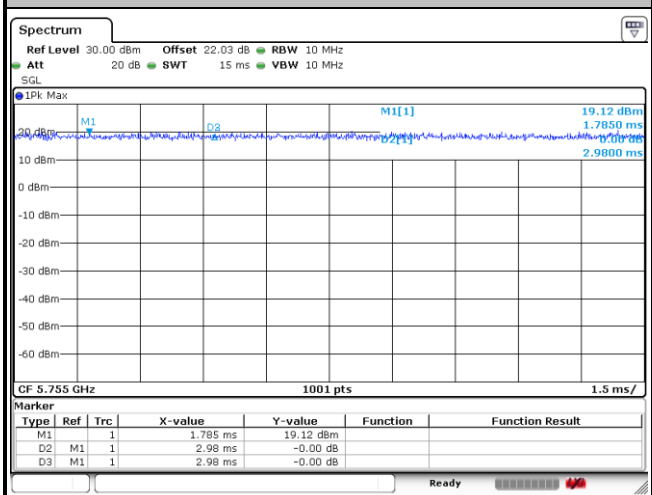
802.11a



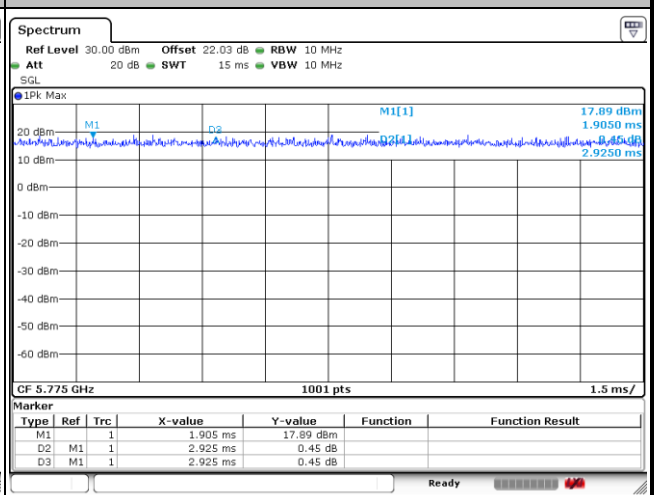
802.11n HT20



802.11n HT40



802.11ac VHT80



——THE END——