FCC RADIO TEST REPORT

FCC ID	:	**2AEUPBHAFL031**
Equipment	:	**Floodlight Cam Wired Pro**
Brand Name	:	**Ring**
Model Name	:	**5B28S4**
Applicant	:	**Ring LLC** **1523 26th St Santa Monica, CA 90404 USA**
Manufacturer	:	**Ring LLC** **1523 26th St Santa Monica, CA 90404 USA**
Standard	:	**FCC Part 15 Subpart E §15.407**

The product was received on Feb. 09, 2021 and testing was started from Feb. 25, 2021 and completed on Mar. 16, 2021. We, Sporton International Inc. EMC & Wireless Communications 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 of Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR120337D	01	Initial issue of report	Mar. 30, 2021

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.403(i)	6dB & 26dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.407(a)	Maximum Conducted Output Power	Pass	-
3.3	15.407(a)	Power Spectral Density	Pass	-
3.4	15.407(b)	Unwanted Emissions	Pass	Under limit 4.98 dB at 41.640 MHz
3.5	15.207	AC Conducted Emission	Pass	Under limit 9.11 dB at 0.825 MHz
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.

Reviewed by: Wii Chang

Report Producer: Vivian Hsu

1 General Description

1.1 Product Feature of Equipment Under Test

Bluetooth-LE, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n/ac, and LoRa.

Product Specification subjective to this standard	
Antenna Type	WLAN: <Ant. 1>: FPC Antenna <Ant. 2>: FPC Antenna Bluetooth-LE: FPC Antenna LoRa: PCB Antenna

Antenna information		
5725 MHz ~ 5850 MHz	Peak Gain (dBi)	Ant. 1: 5.16 Ant. 2: 3.87

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

1.2 Modification of EUT

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

1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	TH05-HY, CO05-HY, DFS02-HY

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

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH13-HY (TAF Code: 3786)
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory

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

FCC designation No.: TW1190 and TW0007

1.4 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:

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

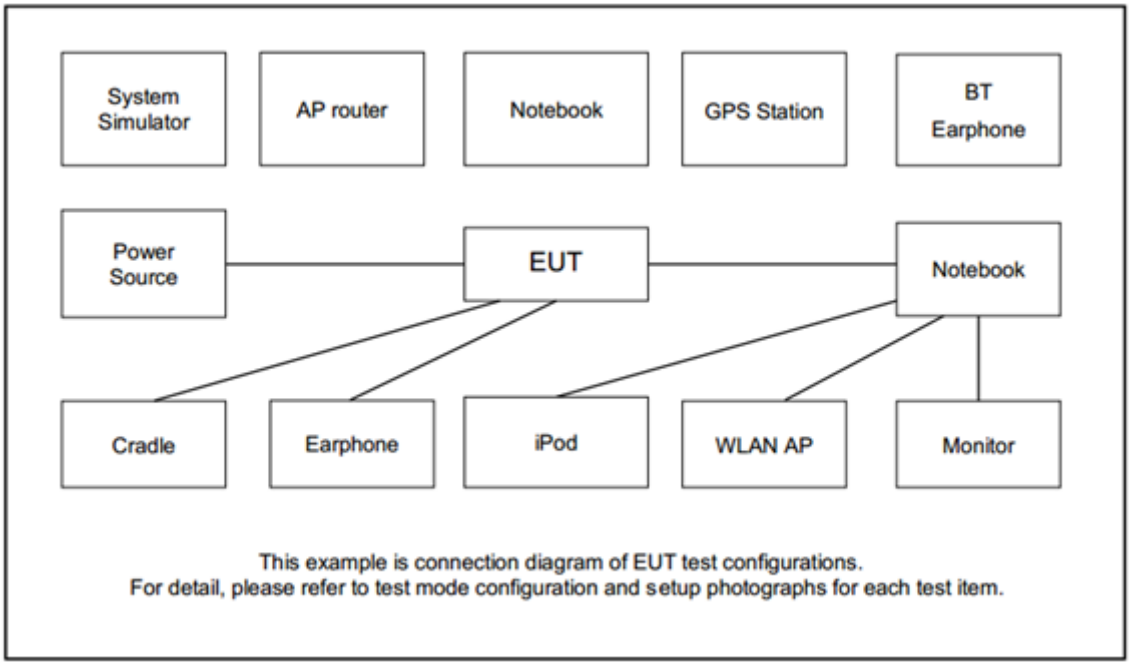
Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20 (Covered by HT20)	MCS0
802.11ac VHT40 (Covered by HT40)	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : WLAN (5GHz) Tx + Bluetooth Tx

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



2.4 EUT Operation Test Setup

The RF test items, utility "ComplianceTool V1.0.0.87" 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.

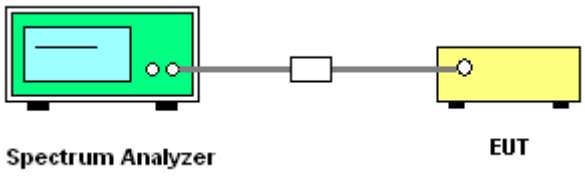
3.1.2 Measuring Instruments

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.

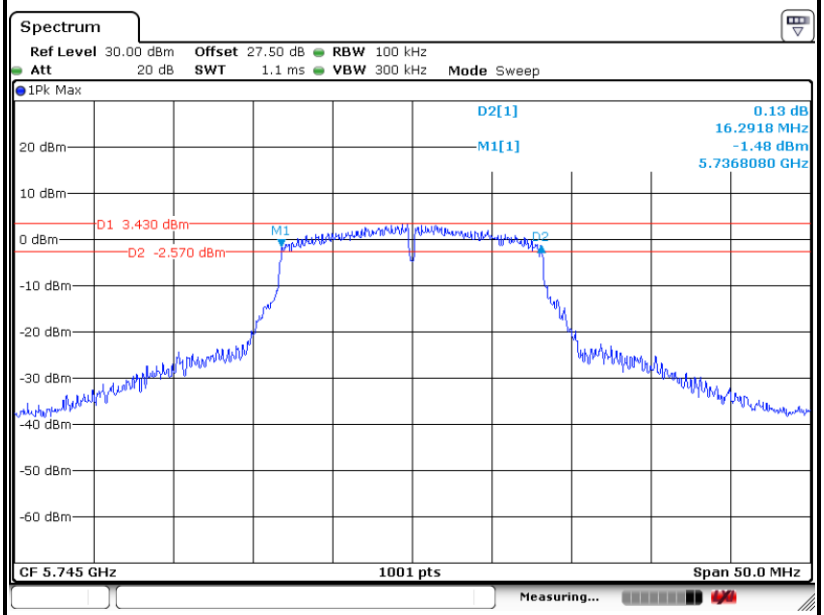
3.1.4 Test Setup



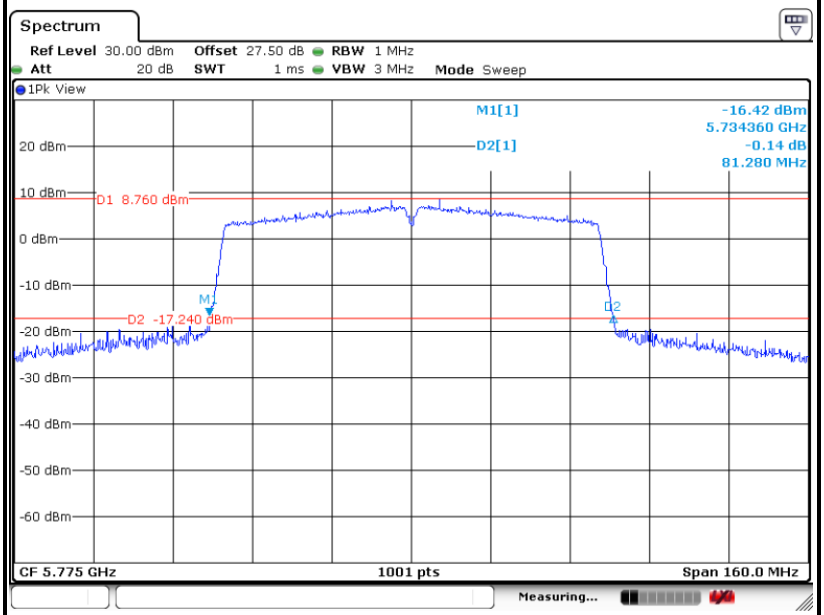
3.1.5 Test Result of 6dB and 26dB and 99% Occupied Bandwidth

Please refer to Appendix A.

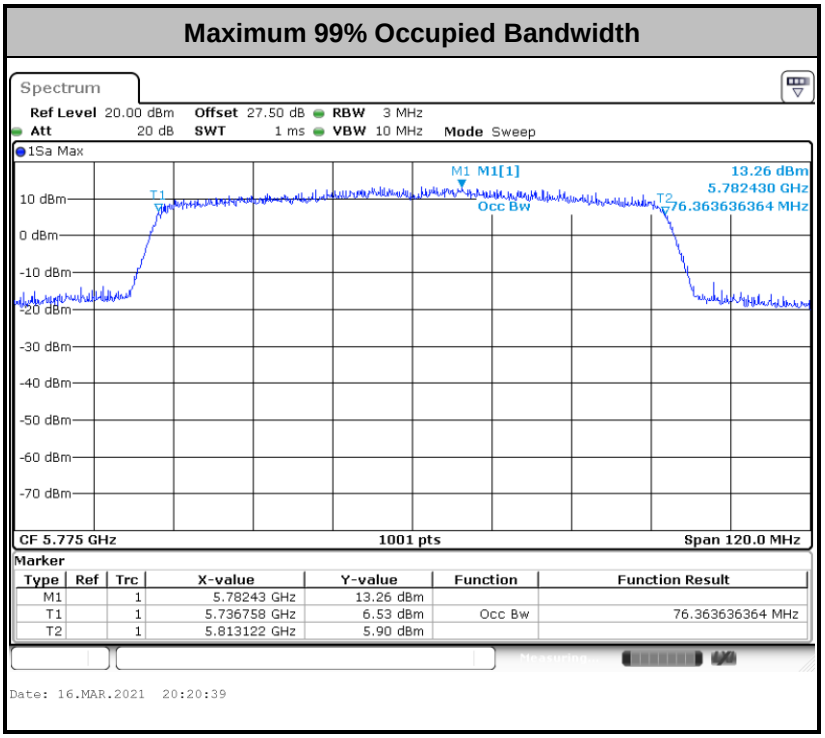
Minimum 6dB Bandwidth



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.

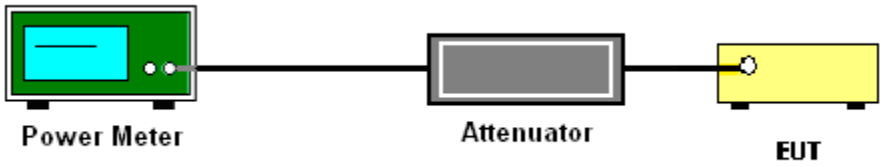
3.2.3 Test Procedures

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.

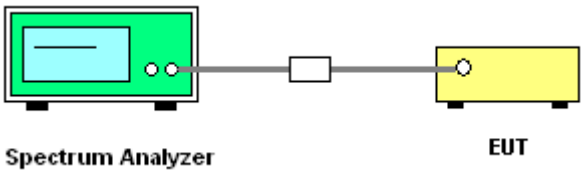
 # Method SA-3 #

(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.

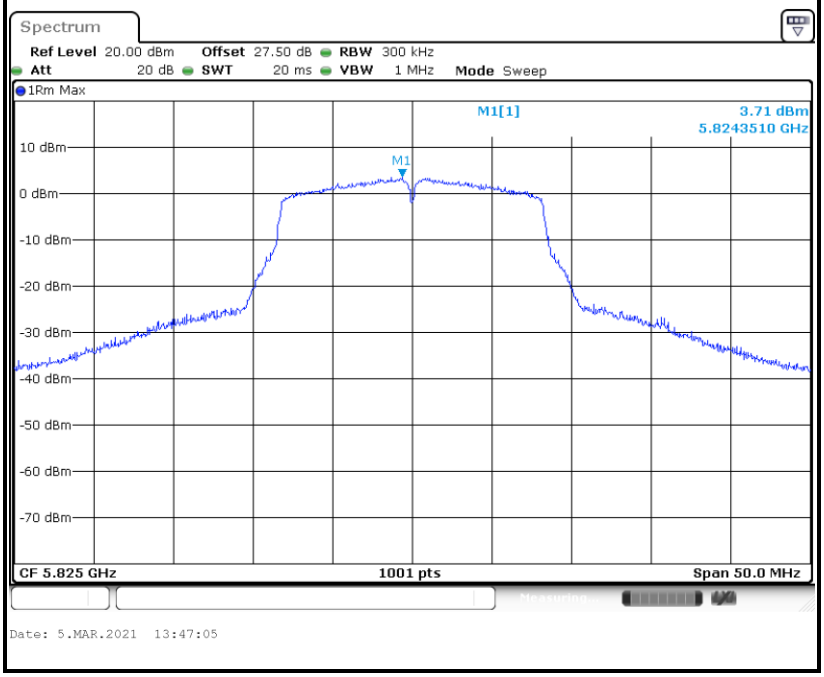
3.3.4 Test Setup



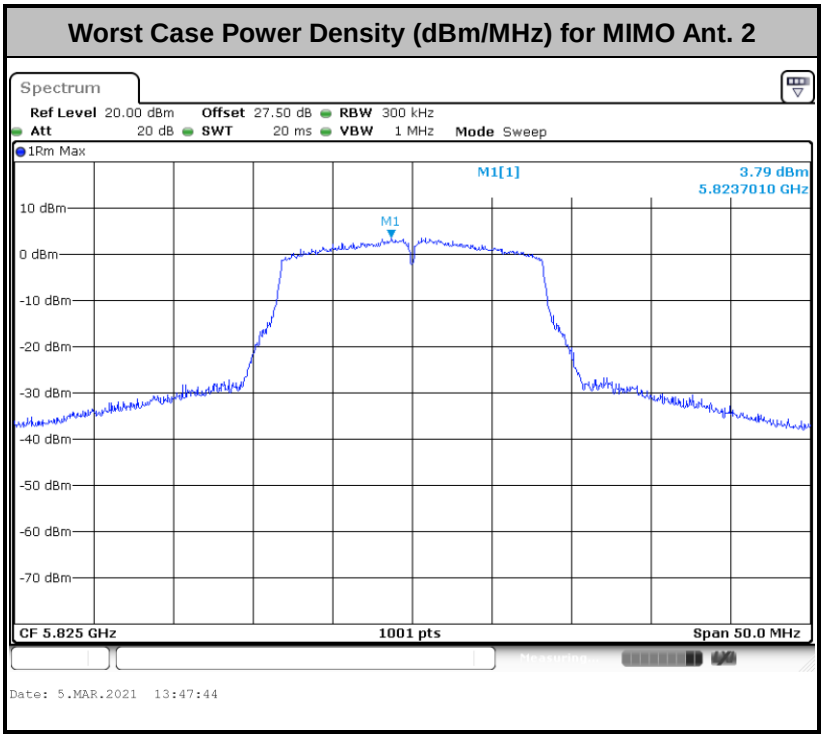
3.3.5 Test Result of Power Spectral Density

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

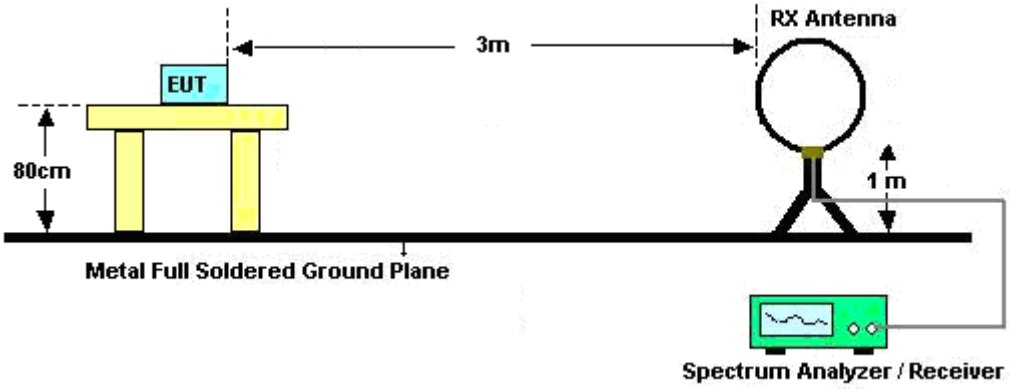
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz

   - 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.

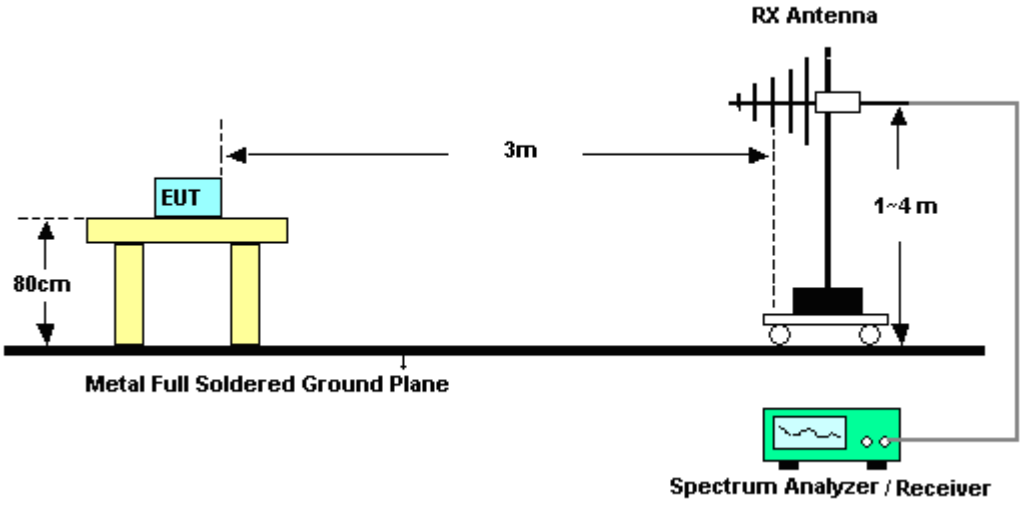
7. For testing above 1 GHz, the emission level of the EUT in peak mode was 20 dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again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

3.4.4 Test Setup

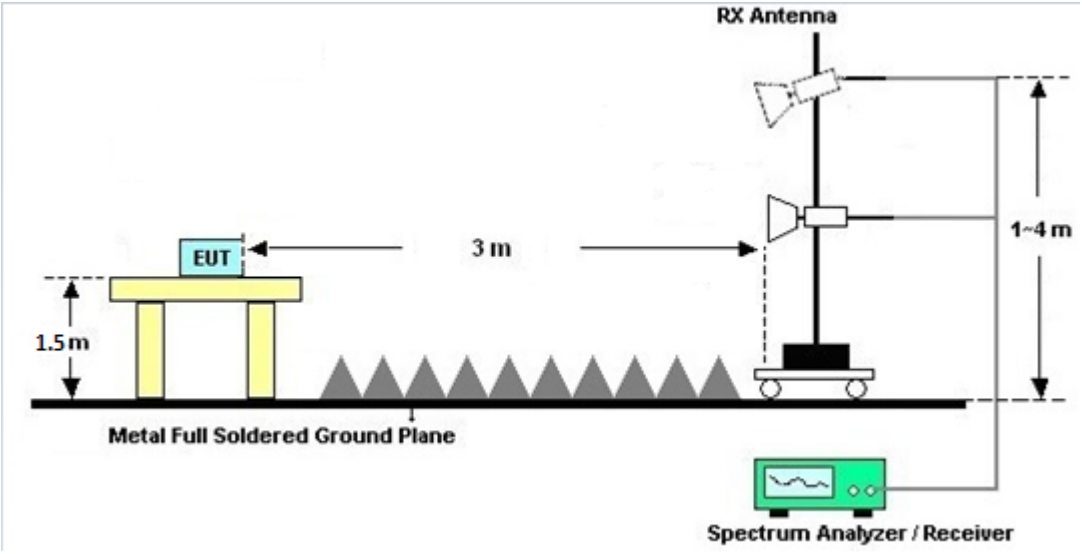
For radiated emissions below 30MHz



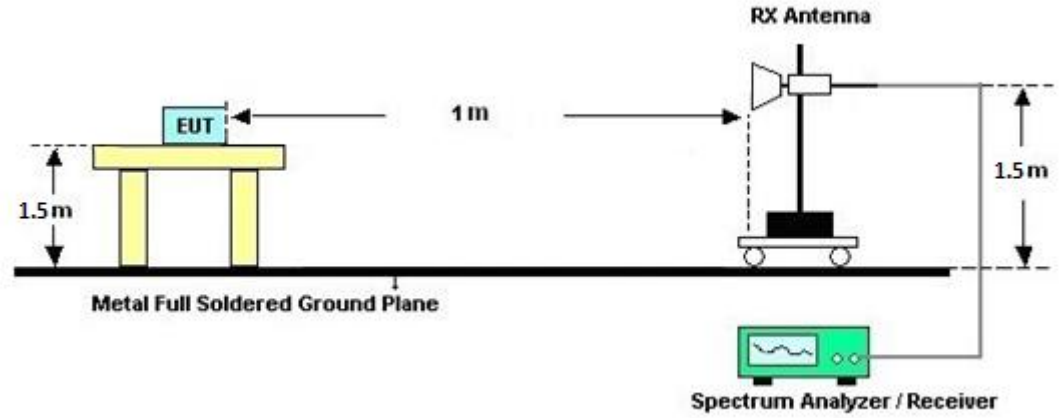
For radiated emissions from 30MHz to 1GHz



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.

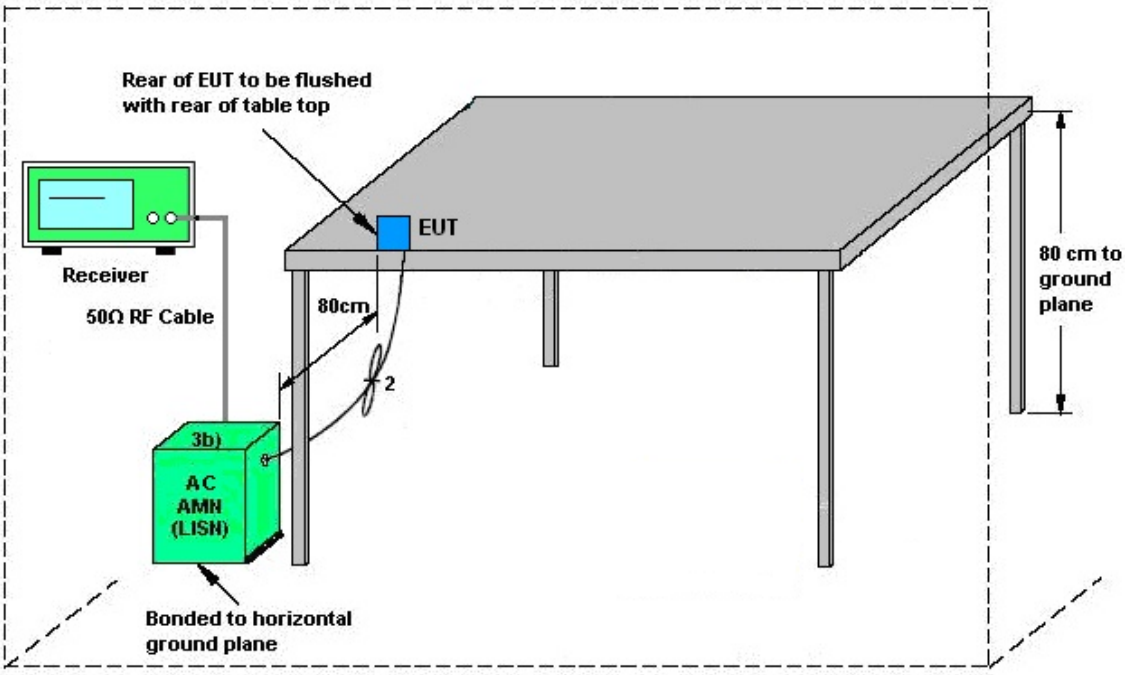
3.5.2 Measuring Instruments

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:

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

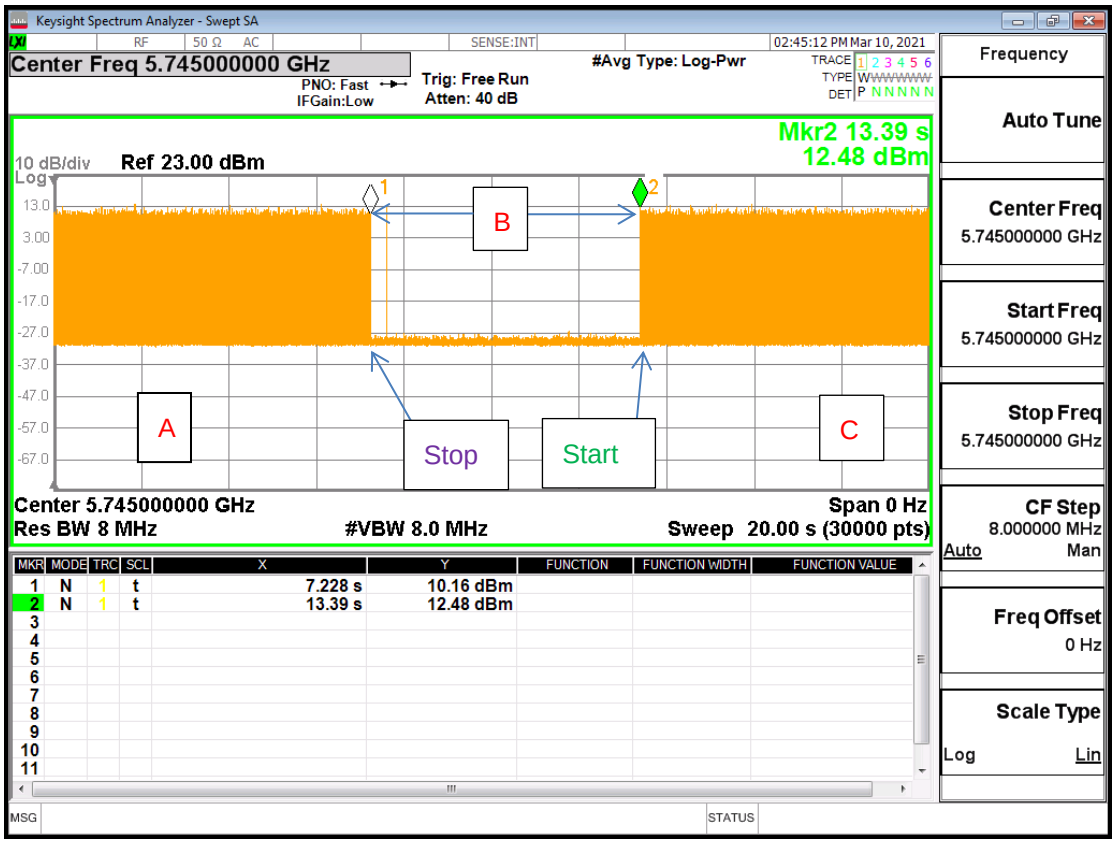
Information stop: stop supplying information to the access point.

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

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>

			DG for Power	DG for PSD	Power Limit Reduction	PSD Limit Reduction
	Ant. 1 (dBi)	Ant. 2 (dBi)	(dBi)	(dBi)	(dB)	(dB)
Band IV	5.16	3.87	5.16	7.55	0.00	1.55

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
Amplifier	Sonoma-Instrument	310 N	187282	9KHz~1GHz	Dec. 16, 2020	Feb. 25, 2021~ Mar. 08, 2021	Dec. 15, 2021	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	40103&07	30MHz to 1GHz	Apr. 29, 2020	Feb. 25, 2021~ Mar. 08, 2021	Apr. 28, 2021	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1212	1GHz ~ 18GHz	May 20, 2020	Feb. 25, 2021~ Mar. 08, 2021	May 19, 2021	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1590074	1GHz~18GHz	May 19, 2020	Feb. 25, 2021~ Mar. 08, 2021	May 18, 2021	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY53270147	1GHz~26.5GHz	Oct. 28, 2020	Feb. 25, 2021~ Mar. 08, 2021	Oct. 27, 2021	Radiation (03CH13-HY)
Signal Generator	Anritsu	MG3694C	163401	0.1Hz~40GHz	Jan. 31, 2021	Feb. 25, 2021~ Mar. 08, 2021	Jan. 30, 2022	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	10Hz~44GHz	Mar. 20, 2020	Feb. 25, 2021~ Mar. 08, 2021	Mar. 19, 2021	Radiation (03CH13-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Feb. 25, 2021~ Mar. 08, 2021	N/A	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Feb. 25, 2021~ Mar. 08, 2021	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Feb. 25, 2021~ Mar. 08, 2021	N/A	Radiation (03CH13-HY)
Software	Audix	E3 6.2009-8-24	RK-000992	N/A	N/A	Feb. 25, 2021~ Mar. 08, 2021	N/A	Radiation (03CH13-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 11, 2020	Feb. 25, 2021~ Mar. 08, 2021	Dec. 10, 2021	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0030/126E	30M-18G	Feb. 10, 2021	Feb. 25, 2021~ Mar. 08, 2021	Feb. 09, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	804793/4	30M-18G	Feb. 10, 2021	Feb. 25, 2021~ Mar. 08, 2021	Feb. 09, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30M~40GHz	Feb. 22, 2021	Feb. 25, 2021~ Mar. 08, 2021	Feb. 21, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY4274/2	30M~40GHz	Mar. 12, 2020	Feb. 25, 2021~ Mar. 08, 2021	Mar. 11, 2021	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24961/4	30M-18G	Feb. 10, 2021	Feb. 25, 2021~ Mar. 08, 2021	Feb. 09, 2022	Radiation (03CH13-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4 PE	9kHz~30MHz	Mar. 12, 2020	Feb. 25, 2021~ Mar. 08, 2021	Mar. 11, 2021	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Dec. 11, 2020	Feb. 25, 2021~ Mar. 08, 2021	Dec. 10, 2021	Radiation (03CH13-HY)
Filter	Wainwright	WHKX12-1080-1200-15000-60SS	SN3	1.2GHz High Pass Filter	Jul. 02, 2020	Feb. 25, 2021~ Mar. 08, 2021	Jul. 01, 2021	Radiation (03CH13-HY)
Hygrometer	TECPEL	DTM-303A	TP190075	N/A	Apr. 23, 2020	Feb. 25, 2021~ Mar. 08, 2021	Apr. 22, 2021	Radiation (03CH13-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Mar. 10, 2021	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 30, 2020	Mar. 10, 2021	Nov. 29, 2021	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 18, 2020	Mar. 10, 2021	Nov. 17, 2021	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 16, 2020	Mar. 10, 2021	Nov. 15, 2021	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Mar. 10, 2021	N/A	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Feb. 25, 2021	Mar. 10, 2021	Feb. 24, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	N/A	Mar. 10, 2021	N/A	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 03, 2021	Mar. 04, 2021~ Mar. 16, 2021	Mar. 02, 2022	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO10	10MHz~6GHz	Dec. 16, 2020	Mar. 04, 2021~ Mar. 16, 2021	Dec. 15, 2021	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz ~ 40GHz	Jul. 22, 2020	Mar. 04, 2021~ Mar. 16, 2021	Jul. 21, 2021	Conducted (TH05-HY)
Switch Box & RF Cable	Burgeon	ETF-058	EC1208382	N/A	Aug. 15, 2020	Mar. 04, 2021~ Mar. 16, 2021	Aug. 14, 2021	Conducted (TH05-HY)
Spectrum Analyzer	Keysight	N9010A	MY56070412	10Hz~7GHz	Aug. 27, 2020	Mar. 10, 2021	Aug. 26, 2021	Conducted (DFS02-HY)

5 Uncertainty of Evaluation

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

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

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.1**

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

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

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Eason Huang	Temperature:	21~25	°C
Test Date:	2021/3/4~2021/3/16	Relative Humidity:	51~54	%

Report Number : FR120337D

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	16.93	16.73	26.70	21.20	16.29	16.34	0.5	Pass
11a	6Mbps	2	157	5785	16.88	16.78	27.05	20.95	16.34	16.29	0.5	Pass
11a	6Mbps	2	165	5825	16.98	16.78	28.10	22.75	16.29	16.29	0.5	Pass
HT20	MCS0	2	149	5745	17.88	17.68	28.75	21.40	17.59	17.59	0.5	Pass
HT20	MCS0	2	157	5785	17.88	17.68	25.40	21.25	17.59	17.59	0.5	Pass
HT20	MCS0	2	165	5825	17.78	17.68	21.55	21.15	17.59	17.59	0.5	Pass
HT40	MCS0	2	151	5755	36.66	36.46	42.57	41.40	36.25	35.98	0.5	Pass
HT40	MCS0	2	159	5795	36.66	36.46	41.76	41.49	35.98	36.25	0.5	Pass
VHT80	MCS0	2	155	5775	76.36	76.12	81.28	80.32	76.28	76.28	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	17.60	17.50	20.56	30.00		5.16		Pass
11a	6Mbps	2	157	5785	17.30	17.70	20.51	30.00		5.16		Pass
11a	6Mbps	2	165	5825	17.40	17.60	20.51	30.00		5.16		Pass
HT20	MCS0	2	149	5745	16.40	16.50	19.46	30.00		5.16		Pass
HT20	MCS0	2	157	5785	16.20	16.70	19.47	30.00		5.16		Pass
HT20	MCS0	2	165	5825	16.40	16.70	19.56	30.00		5.16		Pass
HT40	MCS0	2	151	5755	16.70	16.70	19.71	30.00		5.16		Pass
HT40	MCS0	2	159	5795	16.50	16.60	19.56	30.00		5.16		Pass
VHT20	MCS0	2	149	5745	16.30	16.40	19.36	30.00		5.16		Pass
VHT20	MCS0	2	157	5785	16.10	16.60	19.37	30.00		5.16		Pass
VHT20	MCS0	2	165	5825	16.30	16.60	19.46	30.00		5.16		Pass
VHT40	MCS0	2	151	5755	16.60	16.60	19.61	30.00		5.16		Pass
VHT40	MCS0	2	159	5795	16.40	16.50	19.46	30.00		5.16		Pass
VHT80	MCS0	2	155	5775	16.20	16.30	19.26	30.00		5.16		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		5.90	5.98	8.99	28.45		7.55		Pass
11a	6Mbps	2	157	5785	2.22		5.68	5.96	8.97	28.45		7.55		Pass
11a	6Mbps	2	165	5825	2.22		5.93	6.01	9.02	28.45		7.55		Pass
HT20	MCS0	2	149	5745	2.22		4.58	4.99	8.00	28.45		7.55		Pass
HT20	MCS0	2	157	5785	2.22		4.40	5.09	8.10	28.45		7.55		Pass
HT20	MCS0	2	165	5825	2.22		4.29	5.00	8.01	28.45		7.55		Pass
HT40	MCS0	2	151	5755	2.22		1.49	1.88	4.89	28.45		7.55		Pass
HT40	MCS0	2	159	5795	2.22		1.40	1.52	4.53	28.45		7.55		Pass
VHT80	MCS0	2	155	5775	2.22		-2.18	-1.87	1.14	28.45		7.55		Pass

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

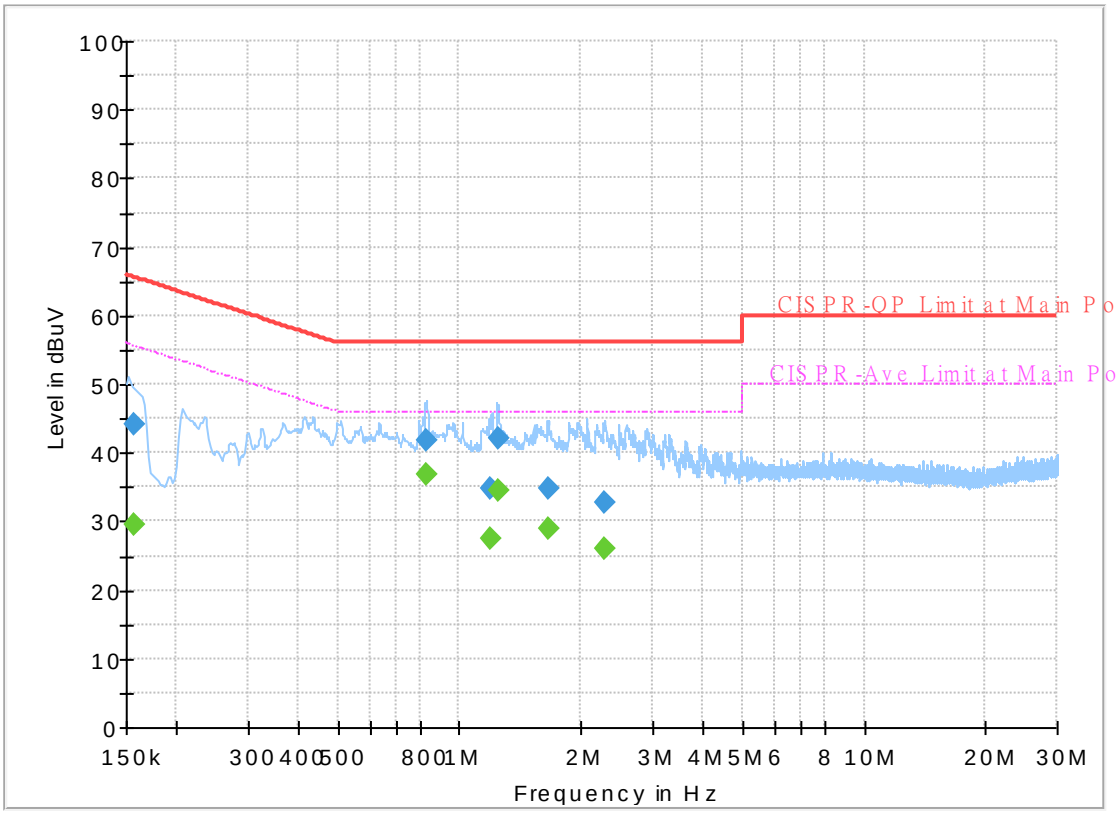
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Howard Huang	**Temperature :**	23~26℃
		Relative Humidity :	40~50%

EUT Information

Report NO :	120337
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



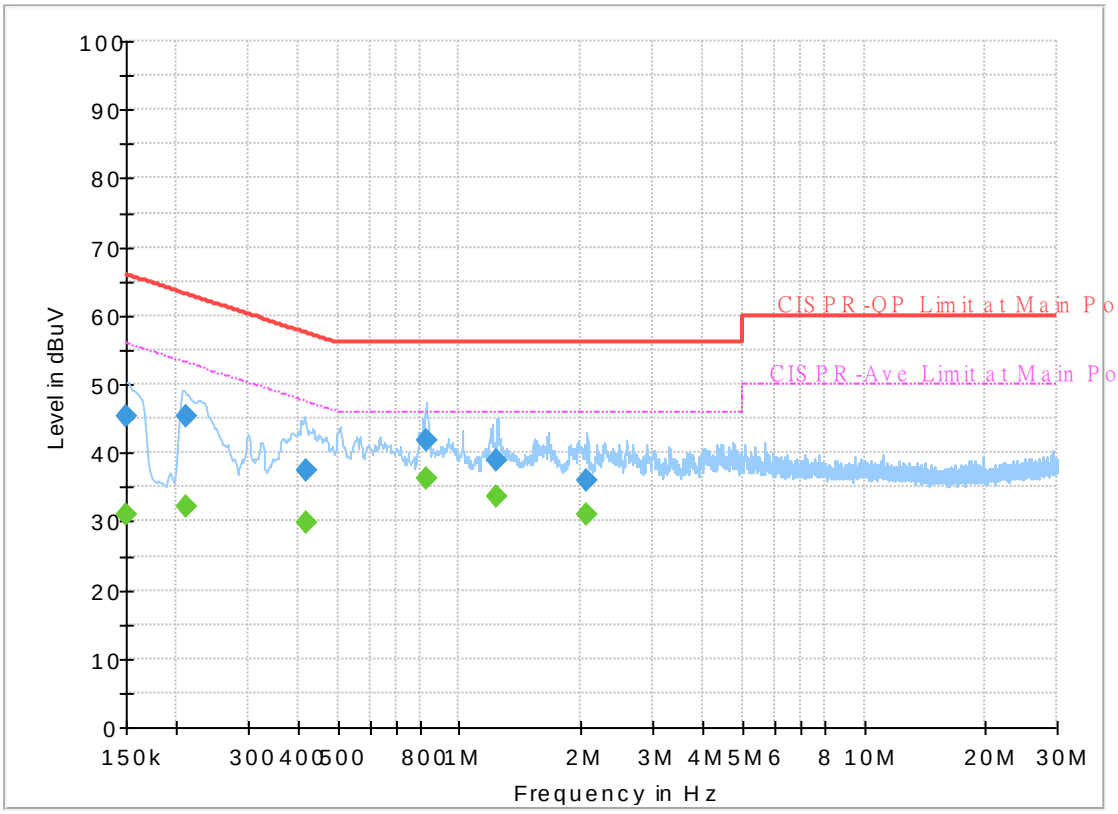
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156750	---	29.65	55.63	25.98	L1	OFF	19.7
0.156750	44.01	---	65.63	21.62	L1	OFF	19.7
0.825000	---	36.89	46.00	9.11	L1	OFF	20.2
0.825000	41.74	---	56.00	14.26	L1	OFF	20.2
1.196250	---	27.50	46.00	18.50	L1	OFF	20.3
1.196250	34.78	---	56.00	21.22	L1	OFF	20.3
1.241880	---	34.59	46.00	11.41	L1	OFF	20.3
1.241880	42.02	---	56.00	13.98	L1	OFF	20.3
1.653000	---	28.92	46.00	17.08	L1	OFF	20.2
1.653000	34.71	---	56.00	21.29	L1	OFF	20.2
2.274000	---	26.12	46.00	19.88	L1	OFF	20.2
2.274000	32.83	---	56.00	23.17	L1	OFF	20.2

EUT Information

Report NO :	120337
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	---	30.93	56.00	25.07	N	OFF	19.7
0.150000	45.22	---	66.00	20.78	N	OFF	19.7
0.210750	---	32.04	53.18	21.14	N	OFF	19.7
0.210750	45.36	---	63.18	17.82	N	OFF	19.7
0.420000	---	29.75	47.45	17.70	N	OFF	19.8
0.420000	37.29	---	57.45	20.16	N	OFF	19.8
0.829950	---	36.20	46.00	9.80	N	OFF	20.2
0.829950	41.87	---	56.00	14.13	N	OFF	20.2
1.241250	---	33.56	46.00	12.44	N	OFF	20.3
1.241250	38.99	---	56.00	17.01	N	OFF	20.3
2.068170	---	31.02	46.00	14.98	N	OFF	20.2
2.068170	36.07	---	56.00	19.93	N	OFF	20.2

Appendix C. Radiated Spurious Emission

Test Engineer :	Daniel Lee, Jacky Hong and Wilson Wu	Temperature :	20~25°C
		Relative Humidity :	50~60%

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		5639.8	52.85	-15.35	68.2	42.01	31.82	6.44	27.42	230	212	P	H
		5695.4	55.51	-46.3	101.81	44.57	31.98	6.42	27.46	230	212	P	H
		5719.8	67.31	-43.43	110.74	56.34	32.04	6.41	27.48	230	212	P	H
		5722.8	74.27	-42.91	117.18	63.29	32.05	6.41	27.48	230	212	P	H
	*	5745	114.63	-	-	103.63	32.09	6.41	27.5	230	212	P	H
	*	5745	106.67	-	-	95.67	32.09	6.41	27.5	230	212	A	H
													H
		5637.4	53.96	-14.24	68.2	43.11	31.83	6.44	27.42	206	143	P	V
		5699.8	62	-43.05	105.05	51.04	32	6.42	27.46	206	143	P	V
		5719.6	70.13	-40.56	110.69	59.16	32.04	6.41	27.48	206	143	P	V
		5724.8	77.54	-44.2	121.74	66.56	32.05	6.41	27.48	206	143	P	V
	*	5745	117.13	-	-	106.13	32.09	6.41	27.5	206	143	P	V
	*	5745	109.09	-	-	98.09	32.09	6.41	27.5	206	143	A	V
													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)
		5616.2	52.33	-15.87	68.2	41.41	31.87	6.45	27.4	311	206	P	H
		5688.8	53.7	-43.24	96.94	42.78	31.96	6.42	27.46	311	206	P	H
		5704.4	53.17	-53.26	106.43	42.21	32.01	6.42	27.47	311	206	P	H
		5721.8	52.3	-62.6	114.9	41.33	32.04	6.41	27.48	311	206	P	H
	*	5785	116.67	-	-	105.71	32.1	6.39	27.53	311	206	P	H
	*	5785	109.12	-	-	98.16	32.1	6.39	27.53	311	206	A	H
		5851	52.03	-67.89	119.92	40.87	32.3	6.43	27.57	311	206	P	H
		5865	53.08	-54.92	108	41.85	32.36	6.45	27.58	311	206	P	H
		5911.4	52.63	-25.6	78.23	41.22	32.55	6.48	27.62	311	206	P	H
		5929.6	52.83	-15.37	68.2	41.34	32.62	6.5	27.63	311	206	P	H
													H
802.11a CH 157 5785MHz													H
		5622.8	53.33	-14.87	68.2	42.45	31.85	6.44	27.41	222	151	P	V
		5699.8	53.21	-51.84	105.05	42.25	32	6.42	27.46	222	151	P	V
		5711.6	54.14	-54.31	108.45	43.17	32.02	6.42	27.47	222	151	P	V
		5723.6	53.61	-65.4	119.01	42.63	32.05	6.41	27.48	222	151	P	V
	*	5785	116.57	-	-	105.61	32.1	6.39	27.53	222	151	P	V
	*	5785	109.06	-	-	98.1	32.1	6.39	27.53	222	151	A	V
		5851.8	52.32	-65.78	118.1	41.15	32.31	6.43	27.57	222	151	P	V
		5861.8	52.8	-56.09	108.89	41.59	32.35	6.44	27.58	222	151	P	V
		5894	52.64	-38.46	91.1	41.29	32.48	6.47	27.6	222	151	P	V
		5927.6	53.53	-14.67	68.2	42.05	32.61	6.5	27.63	222	151	P	V
													V
													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)
	*	5825	116.29	-	-	105.23	32.2	6.41	27.55	314	204	P	H
	*	5825	108.83	-	-	97.77	32.2	6.41	27.55	314	204	A	H
		5852	66.84	-50.8	117.64	55.67	32.31	6.43	27.57	314	204	P	H
		5860.2	61.97	-47.37	109.34	50.77	32.34	6.44	27.58	314	204	P	H
		5879.4	53.09	-48.84	101.93	41.8	32.42	6.46	27.59	314	204	P	H
		5945.6	52.36	-15.84	68.2	40.81	32.68	6.51	27.64	314	204	P	H
													H
802.11a													H
CH 165	*	5825	115.63	-	-	104.57	32.2	6.41	27.55	221	151	P	V
5825MHz	*	5825	108.05	-	-	96.99	32.2	6.41	27.55	221	151	A	V
		5850	66.64	-55.56	122.2	55.48	32.3	6.43	27.57	221	151	P	V
		5855.8	62.53	-48.05	110.58	51.35	32.32	6.44	27.58	221	151	P	V
		5875.2	53.96	-51.09	105.05	42.7	32.4	6.45	27.59	221	151	P	V
		5929.2	52.16	-16.04	68.2	40.67	32.62	6.5	27.63	221	151	P	V
													V
													V
													V

Remark

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

Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 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	48.04	-25.96	74	53.21	40.07	10.56	55.8	100	0	P	H
		17235	47.55	-20.65	68.2	51.27	40.01	12.58	56.31	100	0	P	H
		17978	55.62	-18.38	74	51.67	47.48	12.96	56.49	178	211	P	H
		17978	47.43	-6.57	54	43.48	47.48	12.96	56.49	178	211	A	H
		11490	47.23	-26.77	74	52.4	40.07	10.56	55.8	100	0	P	V
		17235	46.9	-21.3	68.2	50.62	40.01	12.58	56.31	100	0	P	V
		17978	54.23	-19.77	74	50.28	47.48	12.96	56.49	108	156	P	V
		17978	47.24	-6.76	54	43.29	47.48	12.96	56.49	108	156	A	V
802.11a CH 157 5785MHz		11570	47.5	-26.5	74	52.85	39.89	10.59	55.83	100	0	P	H
		17355	47.71	-20.49	68.2	51.14	40.48	12.64	56.55	100	0	P	H
		17989	55.64	-18.36	74	51.37	47.79	12.96	56.48	175	208	P	H
		17989	45.81	-8.19	54	41.54	47.79	12.96	56.48	175	208	A	H
		11570	47.74	-26.26	74	53.09	39.89	10.59	55.83	100	0	P	V
		17355	48.38	-19.82	68.2	51.81	40.48	12.64	56.55	100	0	P	V
		17978	55.3	-18.7	74	51.35	47.48	12.96	56.49	110	149	P	V
		17978	45.39	-8.61	54	41.44	47.48	12.96	56.49	110	149	A	V
802.11a CH 165 5825MHz		11650	46.29	-27.71	74	52	39.55	10.62	55.88	100	0	P	H
		17475	48.71	-19.49	68.2	51.89	40.92	12.7	56.8	100	0	P	H
		17978	55.81	-18.19	74	51.86	47.48	12.96	56.49	172	209	P	H
		17978	45.51	-8.49	54	41.56	47.48	12.96	56.49	172	209	A	H
		11650	46.33	-27.67	74	52.04	39.55	10.62	55.88	100	0	P	V
		17475	48.69	-19.51	68.2	51.87	40.92	12.7	56.8	100	0	P	V
		17989	55.53	-18.47	74	51.26	47.79	12.96	56.48	105	150	P	V
		17989	45.3	-8.7	54	41.03	47.79	12.96	56.48	105	150	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)
		5642.8	54.42	-13.78	68.2	43.59	31.81	6.44	27.42	234	207	P	H
		5697.4	56.93	-46.35	103.28	45.98	31.99	6.42	27.46	234	207	P	H
		5716.4	66.09	-43.7	109.79	55.12	32.03	6.42	27.48	234	207	P	H
		5722.6	75.32	-41.41	116.73	64.34	32.05	6.41	27.48	234	207	P	H
	*	5745	116.03	-	-	105.03	32.09	6.41	27.5	234	207	P	H
	*	5745	108.61	-	-	97.61	32.09	6.41	27.5	234	207	A	H
802.11n													H
HT20													H
CH 149		5641.4	53.35	-14.85	68.2	42.51	31.82	6.44	27.42	213	154	P	V
5745MHz		5699.6	57.45	-47.46	104.91	46.49	32	6.42	27.46	213	154	P	V
		5713.4	66.83	-42.12	108.95	55.85	32.03	6.42	27.47	213	154	P	V
		5724.8	78.71	-43.03	121.74	67.73	32.05	6.41	27.48	213	154	P	V
	*	5745	115.26	-	-	104.26	32.09	6.41	27.5	213	154	P	V
	*	5745	108.23	-	-	97.23	32.09	6.41	27.5	213	154	A	V
													V
													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)
		5624.2	54.2	-14	68.2	43.32	31.85	6.44	27.41	238	208	P	H
		5696.2	53.8	-48.6	102.4	42.86	31.98	6.42	27.46	238	208	P	H
		5719.6	54.31	-56.38	110.69	43.34	32.04	6.41	27.48	238	208	P	H
		5722.2	54.16	-61.66	115.82	43.19	32.04	6.41	27.48	238	208	P	H
	*	5785	115.31	-	-	104.35	32.1	6.39	27.53	238	208	P	H
	*	5785	107.77	-	-	96.81	32.1	6.39	27.53	238	208	A	H
		5850.8	52.11	-68.27	120.38	40.95	32.3	6.43	27.57	238	208	P	H
		5862.8	53.5	-55.11	108.61	42.29	32.35	6.44	27.58	238	208	P	H
		5907.8	53.52	-27.37	80.89	42.12	32.53	6.48	27.61	238	208	P	H
		5947.8	51.23	-16.97	68.2	39.66	32.69	6.52	27.64	238	208	P	H
802.11n													H
HT20													H
CH 157		5625.2	52.22	-15.98	68.2	41.34	31.85	6.44	27.41	213	148	P	V
5785MHz		5657	53.32	-20.08	73.4	42.49	31.83	6.43	27.43	213	148	P	V
		5709.6	54.78	-53.11	107.89	43.81	32.02	6.42	27.47	213	148	P	V
		5723	54.64	-63	117.64	43.66	32.05	6.41	27.48	213	148	P	V
	*	5785	114.68	-	-	103.72	32.1	6.39	27.53	213	148	P	V
	*	5785	107.41	-	-	96.45	32.1	6.39	27.53	213	148	A	V
		5850	54.78	-67.42	122.2	43.62	32.3	6.43	27.57	213	148	P	V
		5855.2	53.04	-57.7	110.74	41.86	32.32	6.44	27.58	213	148	P	V
		5882.4	52.62	-47.08	99.7	41.33	32.43	6.46	27.6	213	148	P	V
		5934.6	51.93	-16.27	68.2	40.42	32.64	6.5	27.63	213	148	P	V
													V
													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)
	*	5825	114.48	-	-	103.42	32.2	6.41	27.55	240	208	P	H
	*	5825	107.04	-	-	95.98	32.2	6.41	27.55	240	208	A	H
		5850.2	62.86	-58.88	121.74	51.7	32.3	6.43	27.57	240	208	P	H
		5858.8	59.55	-50.18	109.73	48.35	32.34	6.44	27.58	240	208	P	H
		5875.4	52.88	-52.02	104.9	41.62	32.4	6.45	27.59	240	208	P	H
		5930.8	51.93	-16.27	68.2	40.44	32.62	6.5	27.63	240	208	P	H
802.11n													H
HT20													H
CH 165	*	5825	114.6	-	-	103.54	32.2	6.41	27.55	226	175	P	V
5825MHz	*	5825	106.76	-	-	95.7	32.2	6.41	27.55	226	175	A	V
		5852.4	64.35	-52.38	116.73	53.18	32.31	6.43	27.57	226	175	P	V
		5857.2	60.84	-49.34	110.18	49.65	32.33	6.44	27.58	226	175	P	V
		5883.2	54.51	-44.6	99.11	43.22	32.43	6.46	27.6	226	175	P	V
		5939.2	51.89	-16.31	68.2	40.36	32.66	6.51	27.64	226	175	P	V
													V
													V

Remark

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

Band 4 5725~5850MHz

WIFI 802.11n 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)
		11490	48.2	-25.8	74	53.37	40.07	10.56	55.8	100	0	P	H
		17235	47.71	-20.49	68.2	51.43	40.01	12.58	56.31	100	0	P	H
802.11n		17989	55.08	-18.92	74	50.81	47.79	12.96	56.48	170	213	P	H
HT20		17989	45.2	-8.8	54	40.93	47.79	12.96	56.48	170	213	A	H
CH 149		11490	47.23	-26.77	74	52.4	40.07	10.56	55.8	100	0	P	V
5745MHz		17235	47.5	-20.7	68.2	51.22	40.01	12.58	56.31	100	0	P	V
		18000	56.46	-17.54	74	51.86	48.1	12.97	56.47	115	162	P	V
		18000	45.85	-8.15	54	41.25	48.1	12.97	56.47	115	162	A	V
		11570	48.5	-25.5	74	53.85	39.89	10.59	55.83	100	0	P	H
		17355	48.27	-19.93	68.2	51.7	40.48	12.64	56.55	100	0	P	H
802.11n		18000	56.24	-17.76	74	51.64	48.1	12.97	56.47	171	216	P	H
HT20		18000	45.93	-8.07	54	41.33	48.1	12.97	56.47	171	216	A	H
CH 157		11570	47.01	-26.99	74	52.36	39.89	10.59	55.83	100	0	P	V
5785MHz		17355	47.89	-20.31	68.2	51.32	40.48	12.64	56.55	100	0	P	V
		17945	56.08	-17.92	74	53.09	46.56	12.94	56.51	115	161	P	V
		17945	45.79	-8.21	54	42.8	46.56	12.94	56.51	115	161	A	V
		11650	46.46	-27.54	74	52.17	39.55	10.62	55.88	100	0	P	H
		17475	48.22	-19.98	68.2	51.4	40.92	12.7	56.8	100	0	P	H
802.11n		17989	55.06	-18.94	74	50.79	47.79	12.96	56.48	175	209	P	H
HT20		17989	45.22	-8.78	54	40.95	47.79	12.96	56.48	175	209	A	H
CH 165		11650	47.1	-26.9	74	52.81	39.55	10.62	55.88	100	0	P	V
5825MHz		17475	48.49	-19.71	68.2	51.67	40.92	12.7	56.8	100	0	P	V
		17956	55.48	-18.52	74	52.17	46.87	12.94	56.5	113	162	P	V
		17956	45.39	-8.61	54	42.08	46.87	12.94	56.5	113	162	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)
		5629	53.79	-14.41	68.2	42.92	31.84	6.44	27.41	230	208	P	H
		5699	63.24	-41.22	104.46	52.28	32	6.42	27.46	230	208	P	H
		5719	79.66	-30.86	110.52	68.69	32.04	6.41	27.48	230	208	P	H
		5725	79.17	-43.03	122.2	68.19	32.05	6.41	27.48	230	208	P	H
	*	5755	112.46	-	-	101.46	32.1	6.4	27.5	230	208	P	H
	*	5755	105.48	-	-	94.48	32.1	6.4	27.5	230	208	A	H
		5851.2	51.82	-67.64	119.46	40.66	32.3	6.43	27.57	230	208	P	H
		5857	51.87	-58.37	110.24	40.68	32.33	6.44	27.58	230	208	P	H
		5895	52.86	-37.5	90.36	41.51	32.48	6.47	27.6	230	208	P	H
		5933.6	51.37	-16.83	68.2	39.87	32.63	6.5	27.63	230	208	P	H
802.11n													H
HT40													H
CH 151		5622	53.2	-15	68.2	42.31	31.86	6.44	27.41	224	153	P	V
5755MHz		5696.4	62.11	-40.44	102.55	51.16	31.99	6.42	27.46	224	153	P	V
		5718.6	79.32	-31.09	110.41	68.35	32.04	6.41	27.48	224	153	P	V
		5722.2	80.47	-35.35	115.82	69.5	32.04	6.41	27.48	224	153	P	V
	*	5755	112.39	-	-	101.39	32.1	6.4	27.5	224	153	P	V
	*	5755	105.23	-	-	94.23	32.1	6.4	27.5	224	153	A	V
		5851.4	52.16	-66.85	119.01	40.99	32.31	6.43	27.57	224	153	P	V
		5858.4	52.38	-57.47	109.85	41.19	32.33	6.44	27.58	224	153	P	V
		5898.8	52.91	-34.64	87.55	41.55	32.5	6.47	27.61	224	153	P	V
		5933.4	53.04	-15.16	68.2	41.54	32.63	6.5	27.63	224	153	P	V
													V
													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)
		5633.6	53.23	-14.97	68.2	42.38	31.83	6.44	27.42	230	210	P	H
		5699.2	54.52	-50.09	104.61	43.56	32	6.42	27.46	230	210	P	H
		5719.4	58.99	-51.64	110.63	48.02	32.04	6.41	27.48	230	210	P	H
		5724.2	59.14	-61.24	120.38	48.16	32.05	6.41	27.48	230	210	P	H
	*	5795	112.26	-	-	101.3	32.1	6.39	27.53	230	210	P	H
	*	5795	105.04	-	-	94.08	32.1	6.39	27.53	230	210	A	H
		5853.2	59.13	-55.77	114.9	47.95	32.31	6.44	27.57	230	210	P	H
		5859.2	58.07	-51.55	109.62	46.87	32.34	6.44	27.58	230	210	P	H
		5879	53.34	-48.89	102.23	42.05	32.42	6.46	27.59	230	210	P	H
		5936.8	52.71	-15.49	68.2	41.18	32.65	6.51	27.63	230	210	P	H
802.11n													H
HT40													H
CH 159		5619.8	51.67	-16.53	68.2	40.78	31.86	6.44	27.41	227	174	P	V
5795MHz		5694.2	53.78	-47.14	100.92	42.84	31.98	6.42	27.46	227	174	P	V
		5717.8	56.8	-53.38	110.18	45.83	32.04	6.41	27.48	227	174	P	V
		5722.8	58.87	-58.31	117.18	47.89	32.05	6.41	27.48	227	174	P	V
	*	5795	111.75	-	-	100.79	32.1	6.39	27.53	227	174	P	V
	*	5795	104.41	-	-	93.45	32.1	6.39	27.53	227	174	A	V
		5853	61.2	-54.16	115.36	50.02	32.31	6.44	27.57	227	174	P	V
		5858.4	61.01	-48.84	109.85	49.82	32.33	6.44	27.58	227	174	P	V
		5882.6	54.88	-44.68	99.56	43.59	32.43	6.46	27.6	227	174	P	V
		5927	52.59	-15.61	68.2	41.11	32.61	6.5	27.63	227	174	P	V
													V
													V

Remark

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

Band 4 5725~5850MHz

WIFI 802.11n 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	47.04	-26.96	74	52.21	40.07	10.56	55.8	100	0	P	H
		17265	47.59	-20.61	68.2	51.26	40.1	12.6	56.37	100	0	P	H
		18000	56.14	-17.86	74	51.54	48.1	12.97	56.47	171	218	P	H
		18000	45.99	-8.01	54	41.39	48.1	12.97	56.47	171	218	A	H
		11510	48.24	-25.76	74	53.41	40.07	10.56	55.8	100	0	P	V
		17265	47.43	-20.77	68.2	51.1	40.1	12.6	56.37	100	0	P	V
		18000	55.85	-18.15	74	51.25	48.1	12.97	56.47	113	162	P	V
		18000	46.03	-7.97	54	41.43	48.1	12.97	56.47	113	162	A	V
802.11n HT40 CH 159 5795MHz		11590	47.18	-26.82	74	52.6	39.83	10.6	55.85	100	0	P	H
		17385	47.81	-20.39	68.2	51.15	40.62	12.66	56.62	100	0	P	H
		17989	56.74	-17.26	74	52.47	47.79	12.96	56.48	169	214	P	H
		17989	46.94	-7.06	54	42.67	47.79	12.96	56.48	169	214	A	H
		11590	46.96	-27.04	74	52.38	39.83	10.6	55.85	100	0	P	V
		17385	48.8	-19.4	68.2	52.14	40.62	12.66	56.62	100	0	P	V
		17989	55.44	-18.56	74	51.17	47.79	12.96	56.48	112	163	P	V
		17989	45.81	-8.19	54	41.54	47.79	12.96	56.48	112	163	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)
		5649	59.16	-9.04	68.2	48.35	31.8	6.44	27.43	244	208	P	H
		5694	73.58	-27.2	100.78	62.64	31.98	6.42	27.46	244	208	P	H
		5719.8	78.83	-31.91	110.74	67.86	32.04	6.41	27.48	244	208	P	H
		5724	80.84	-39.08	119.92	69.86	32.05	6.41	27.48	244	208	P	H
	*	5775	109.29	-	-	98.31	32.1	6.4	27.52	244	208	P	H
	*	5775	101.99	-	-	91.01	32.1	6.4	27.52	244	208	A	H
		5854.8	70.03	-41.23	111.26	58.85	32.32	6.44	27.58	244	208	P	H
		5859.2	70.06	-39.56	109.62	58.86	32.34	6.44	27.58	244	208	P	H
		5879	61.52	-40.71	102.23	50.23	32.42	6.46	27.59	244	208	P	H
		5929.4	51.21	-16.99	68.2	39.72	32.62	6.5	27.63	244	208	P	H
802.11ac													H
VHT80													H
CH 155		5638.2	58.54	-9.66	68.2	47.7	31.82	6.44	27.42	222	152	P	V
5775MHz		5697.2	73.55	-29.59	103.14	62.6	31.99	6.42	27.46	222	152	P	V
		5712.4	78.79	-29.88	108.67	67.82	32.02	6.42	27.47	222	152	P	V
		5722	79.4	-35.96	115.36	68.43	32.04	6.41	27.48	222	152	P	V
	*	5775	109.12	-	-	98.14	32.1	6.4	27.52	222	152	P	V
	*	5775	101.76	-	-	90.78	32.1	6.4	27.52	222	152	A	V
		5851.6	69.97	-48.58	118.55	58.8	32.31	6.43	27.57	222	152	P	V
		5857.2	69.67	-40.51	110.18	58.48	32.33	6.44	27.58	222	152	P	V
		5876	64.11	-40.35	104.46	52.85	32.4	6.45	27.59	222	152	P	V
		5936.8	52.4	-15.8	68.2	40.87	32.65	6.51	27.63	222	152	P	V
													V
													V

Remark

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

Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 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	46.33	-27.67	74	51.62	39.95	10.58	55.82	100	0	P	H
		17325	48.14	-20.06	68.2	51.67	40.33	12.63	56.49	100	0	P	H
		17989	55.6	-18.4	74	51.33	47.79	12.96	56.48	177	215	P	H
		17989	45.64	-8.36	54	41.37	47.79	12.96	56.48	177	215	A	H
		11550	46.75	-27.25	74	52.04	39.95	10.58	55.82	100	0	P	V
		17325	47.47	-20.73	68.2	51	40.33	12.63	56.49	100	0	P	V
		17956	55.72	-18.28	74	52.41	46.87	12.94	56.5	110	152	P	V
		17956	45.74	-8.26	54	42.43	46.87	12.94	56.5	110	152	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	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)
		31266	43.88	-30.12	74	43.2	40.38	15.95	55.65	150	0	P	H
		34302	43.24	-24.96	68.2	40.37	41.06	17.29	55.48	150	0	P	H
													H
													H
													H
													H
5GHz													H
802.11ac													H
VHT80		29242	41.95	-26.25	68.2	41.09	40.4	15.16	54.7	150	0	P	V
SHF		30606	43.46	-24.74	68.2	42.69	40.46	15.75	55.44	150	0	P	V
													V
													V
													V
													V
													V
													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	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)
		119.24	37.38	-6.12	43.5	51.04	17.55	1.03	32.24	100	0	P	H
		165.8	23.54	-19.96	43.5	38.49	16.09	1.22	32.26	-	-	P	H
		493.66	25.06	-20.94	46	31.14	23.87	1.97	31.92	-	-	P	H
		744.89	29.73	-16.27	46	30.99	28.02	2.46	31.74	-	-	P	H
		870.99	31.11	-14.89	46	30.63	28.94	2.67	31.13	-	-	P	H
		954.41	32.44	-13.56	46	29.72	30.68	2.81	30.77	-	-	P	H
													H
													H
													H
													H
5GHz													H
802.11ac													H
VHT80		41.64	35.02	-4.98	40	47.83	18.82	0.63	32.26	100	321	Q	V
LF		86.26	25.93	-14.07	40	43.03	14.28	0.87	32.25	-	-	P	V
		122.15	30.91	-12.59	43.5	44.52	17.59	1.04	32.24	-	-	P	V
		480.08	28.04	-17.96	46	34.33	23.64	1.94	31.87	-	-	P	V
		718.7	33.03	-12.97	46	35.58	26.98	2.41	31.94	-	-	P	V
		954.41	32.79	-13.21	46	30.07	30.68	2.81	30.77	-	-	P	V
													V
													V
													V
													V
													V
													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

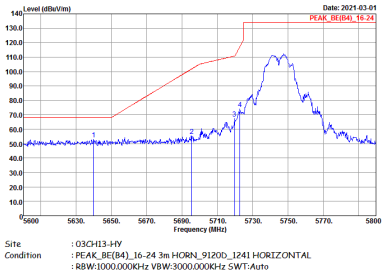
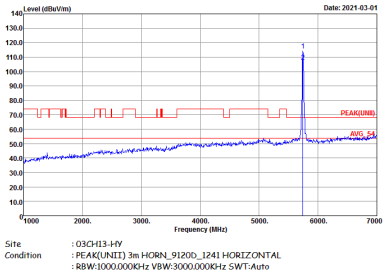
Test Engineer :	Daniel Lee, Jacky Hong and Wilson Wu	**Temperature :**	20~25°C
		Relative Humidity :	50~60%

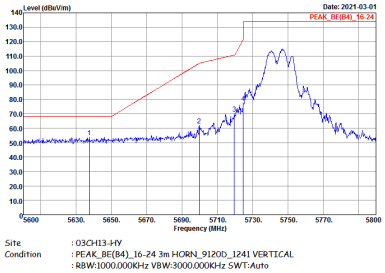
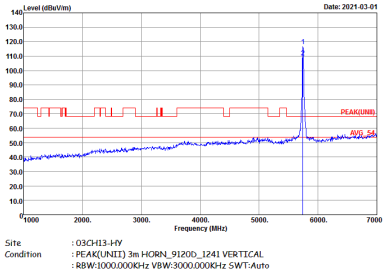
Note symbol

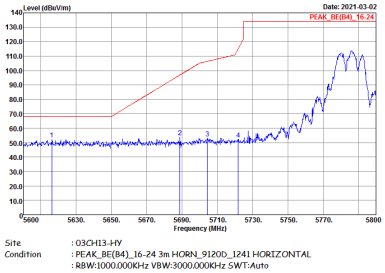
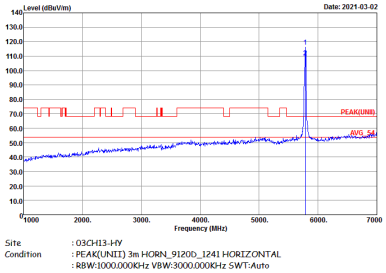
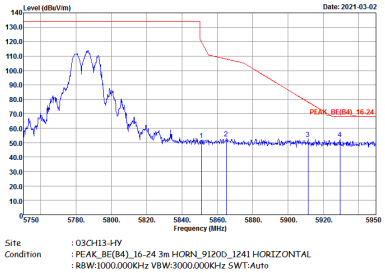
-L	**Low channel location**
-R	**High channel location**

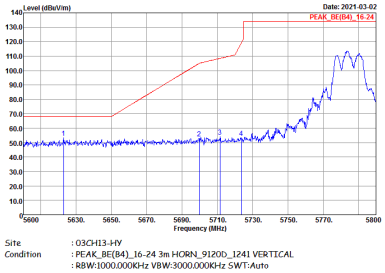
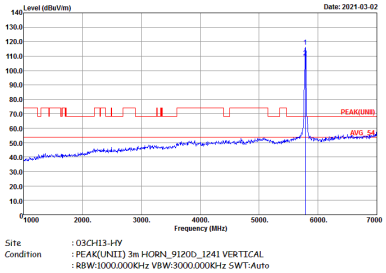
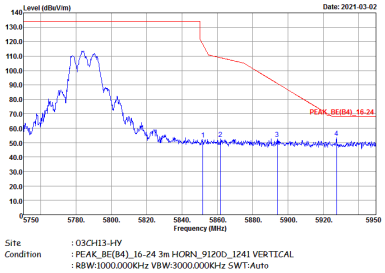
Band 4 - 5725~5850MHz

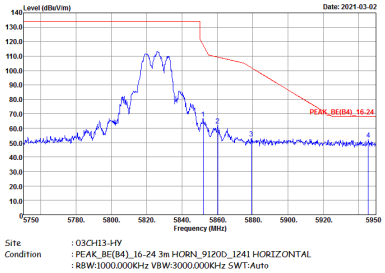
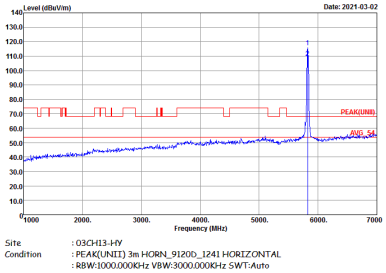
WIFI 802.11a (Band Edge @ 3m)

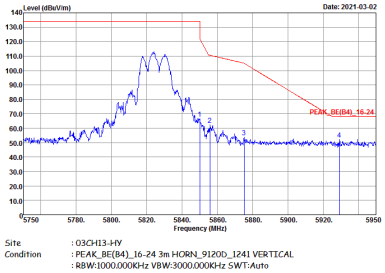
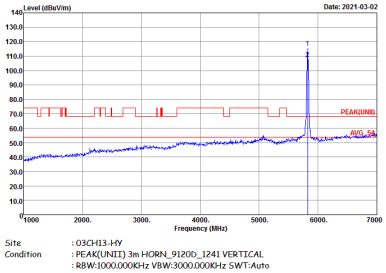
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak		

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

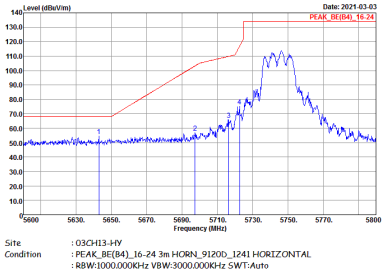
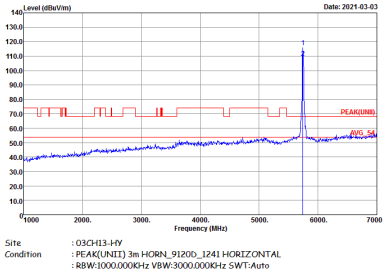
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Fundamental
Peak		
Peak		Left blank

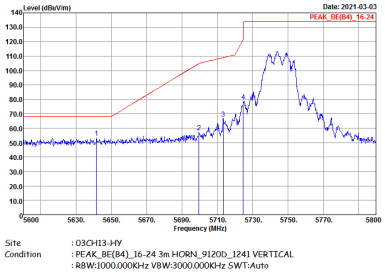
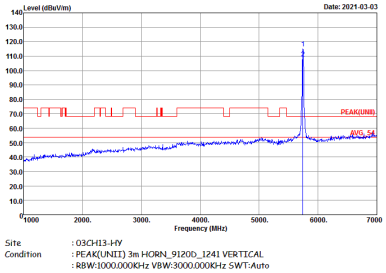
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

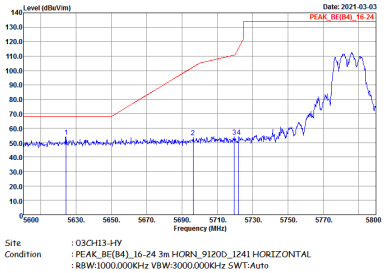
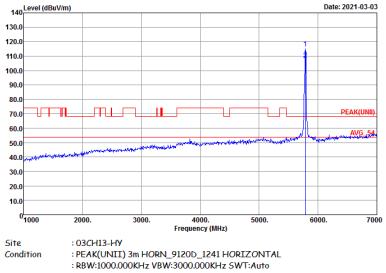
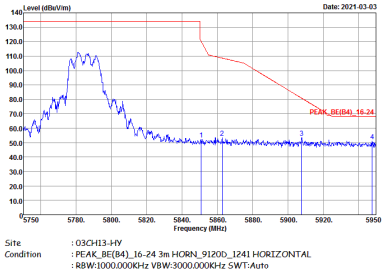
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak		

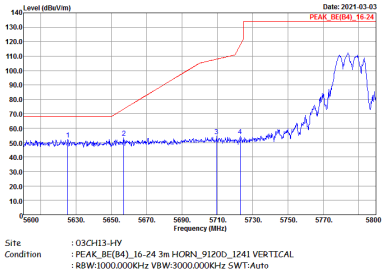
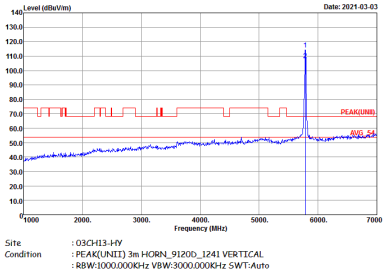
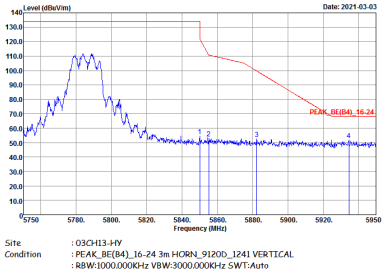
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Vertical	Fundamental
Peak		

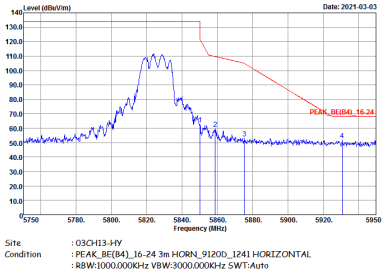
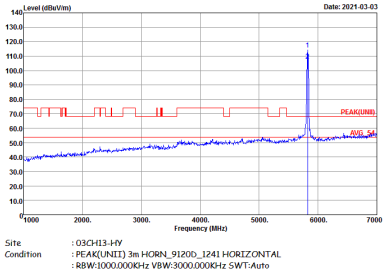
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

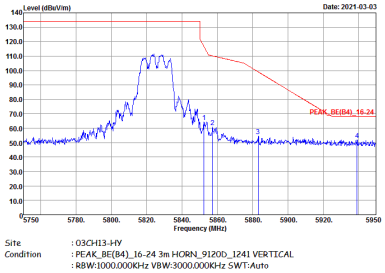
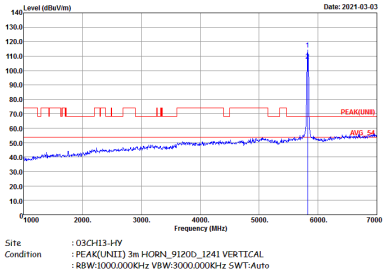
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak		

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

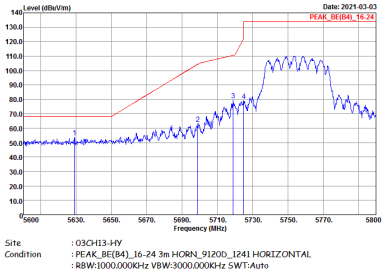
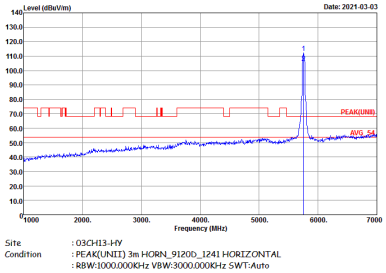
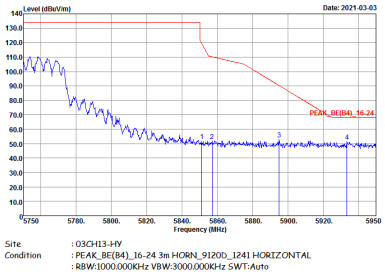
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Horizontal	Fundamental
Peak		
Peak		Left blank

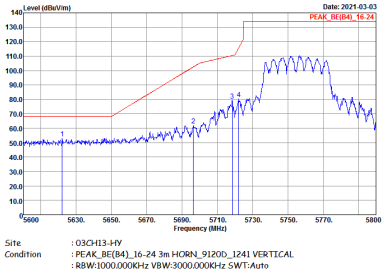
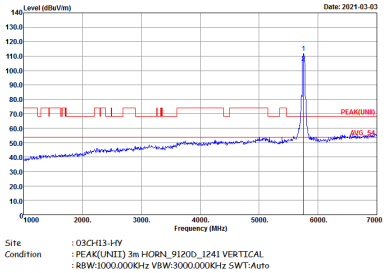
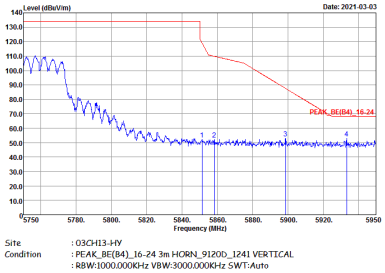
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

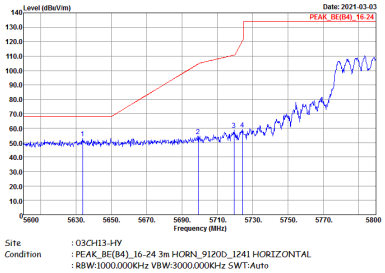
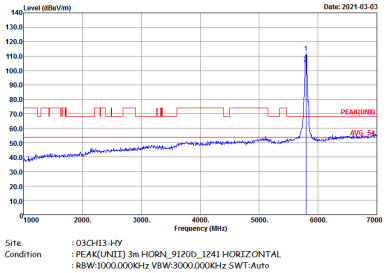
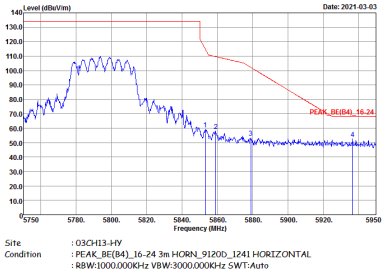
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak		

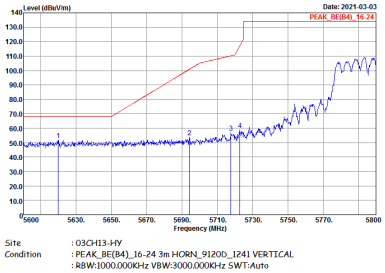
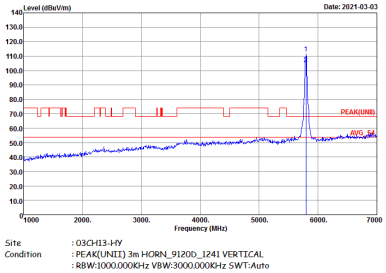
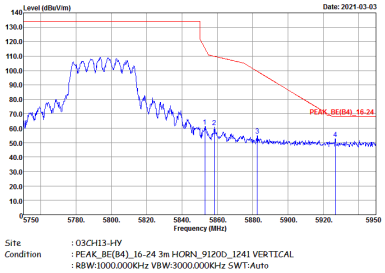
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Vertical	Fundamental
Peak		

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

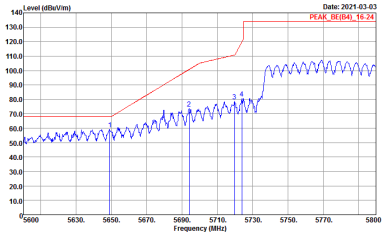
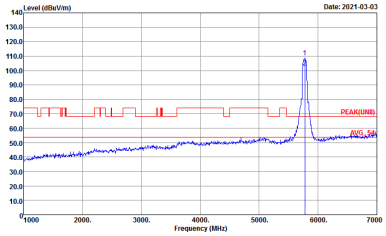
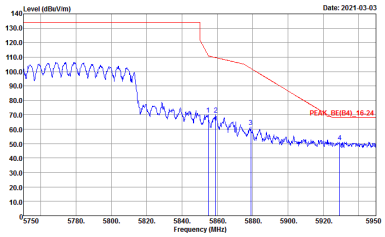
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Horizontal	Fundamental
Peak		
Peak		Left blank

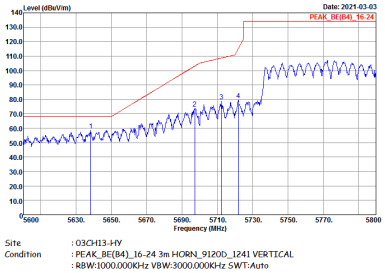
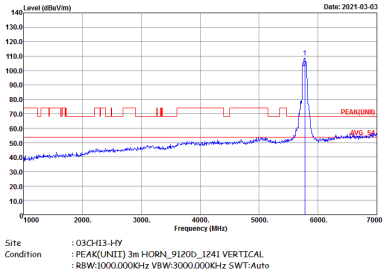
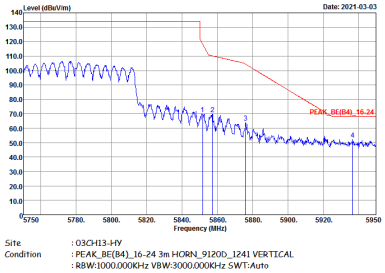
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

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

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

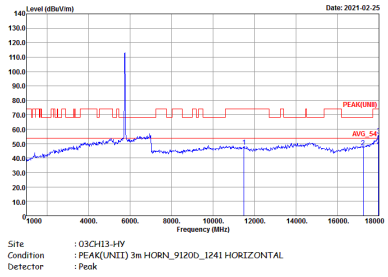
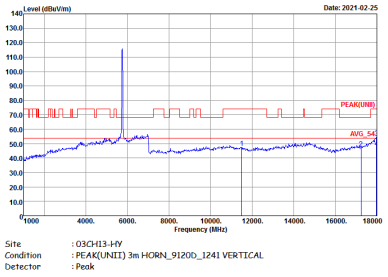
Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

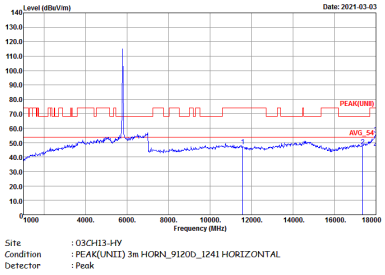
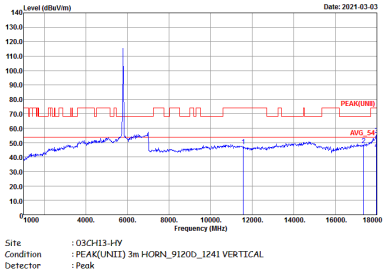
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH13-HV Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HV Condition : PEAK(UNII) 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH13-HV Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

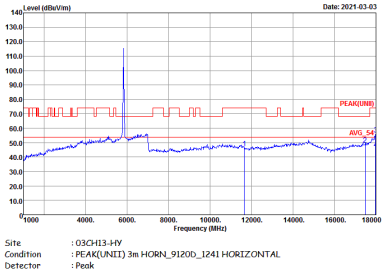
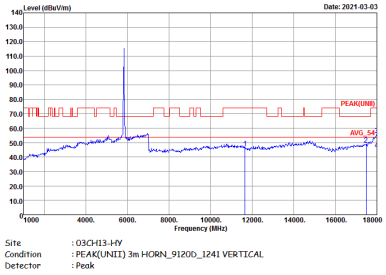
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

Band 4 - 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

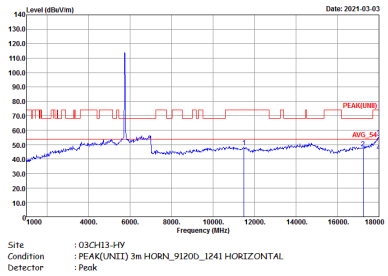
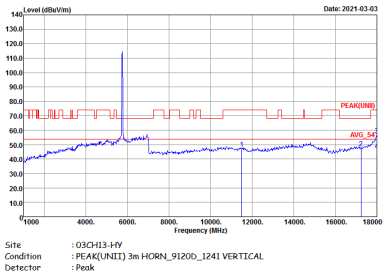
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.		

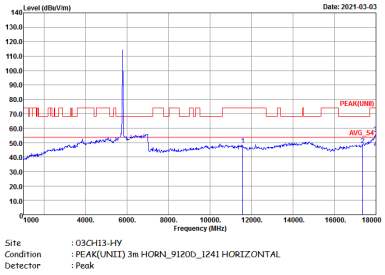
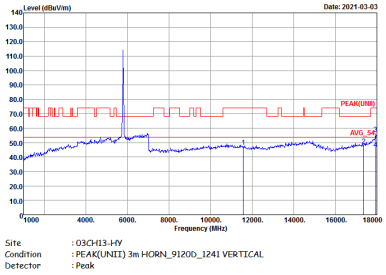
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.		

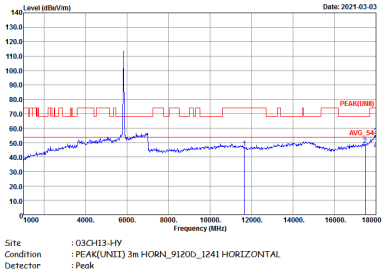
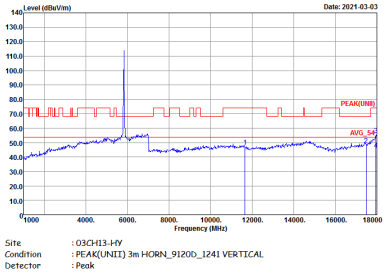
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.		

Band 4 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

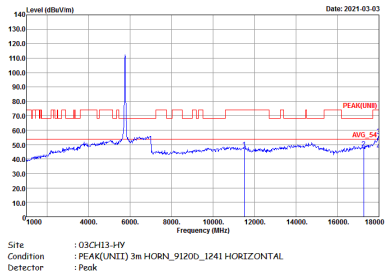
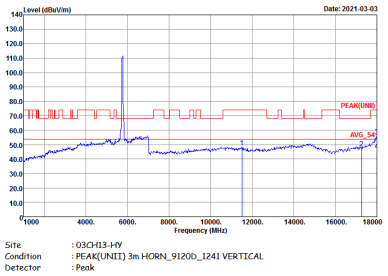
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.		

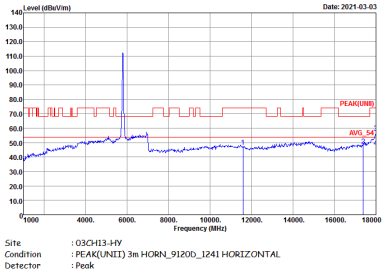
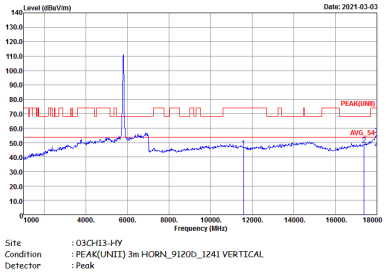
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.		

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

Band 4 5725~5850MHz

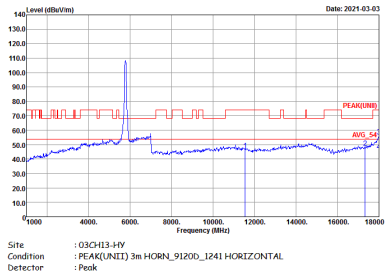
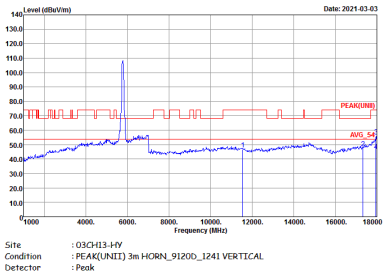
WIFI 802.11n HT40 (Harmonic @ 3m)

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.		

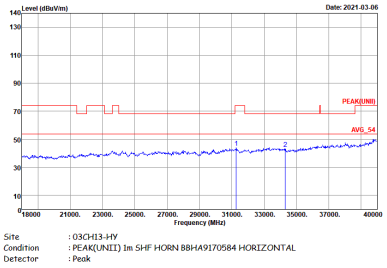
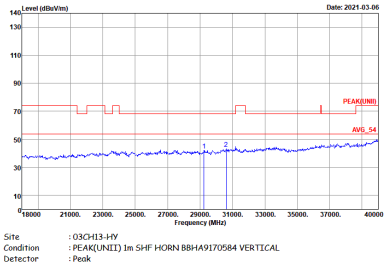
Band 4 5725~5850MHz

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.		

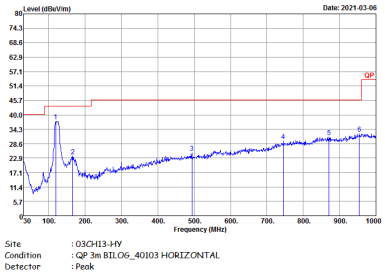
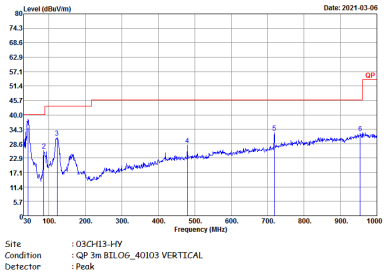
Emission above 18GHz

5GHz WIFI 802.11ac VHT80 (SHF)

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

Emission below 1GHz

5GHz WIFI 802.11ac VHT80 (LF)

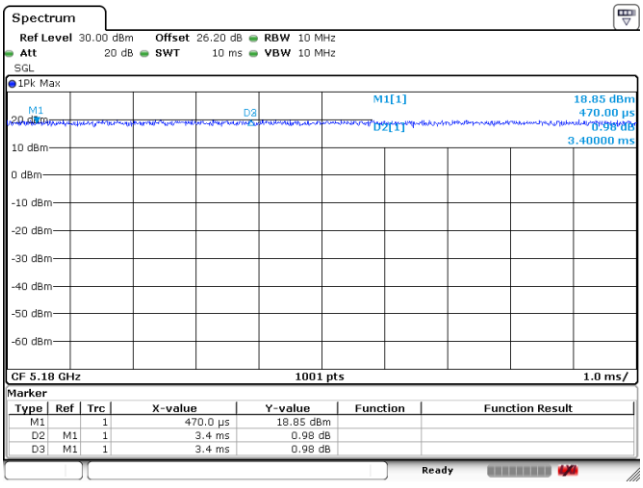
WIFI	5GHz WIFI	
ANT	802.11ac VHT80 LF	
1+2	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

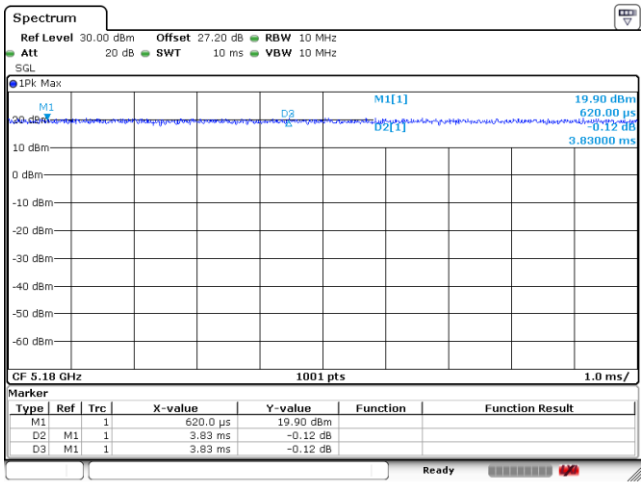
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
1+2	802.11a for Ant. 1	100.00	-	-	10Hz	0.00
1+2	802.11a for Ant. 2	100.00	-	-	10Hz	0.00
1+2	5GHz 802.11n HT20 for Ant. 1	100.00	-	-	10Hz	0.00
1+2	5GHz 802.11n HT20 for Ant. 2	100.00	-	-	10Hz	0.00
1+2	5GHz 802.11n HT40 for Ant. 1	100.00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

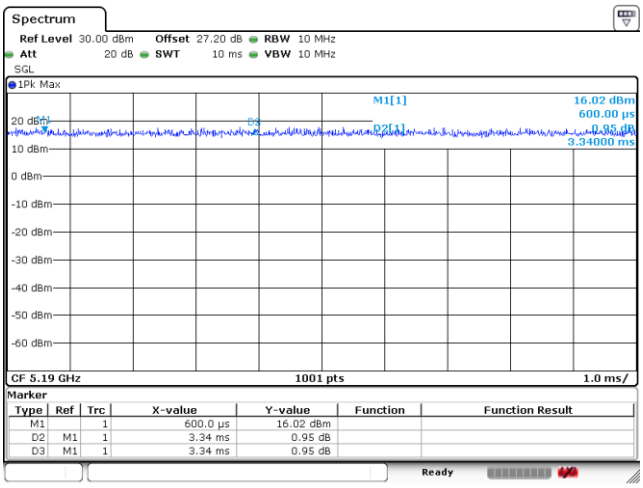
802.11a



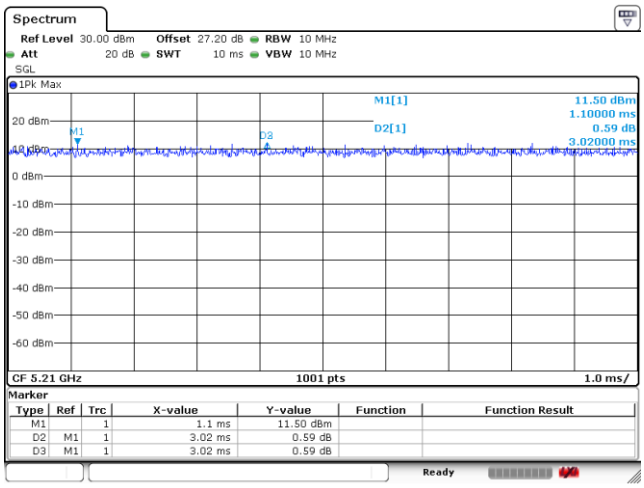
802.11n HT20



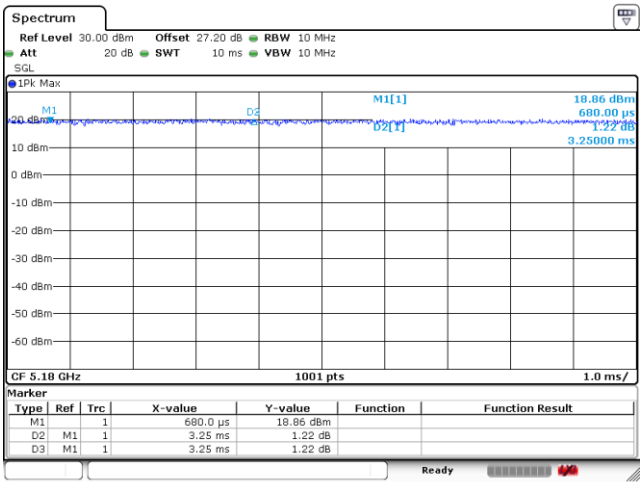
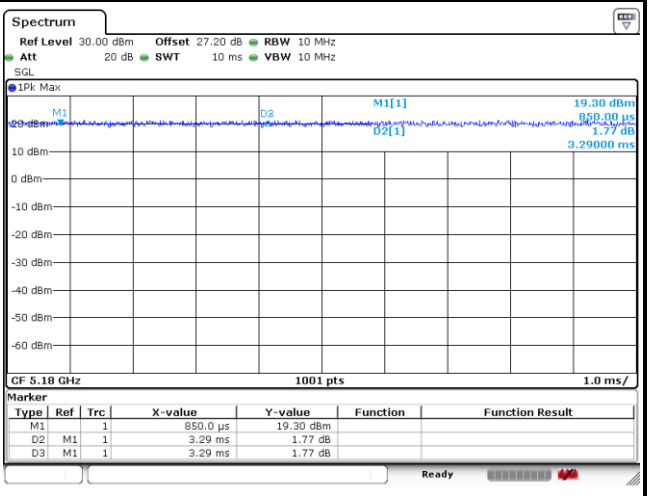
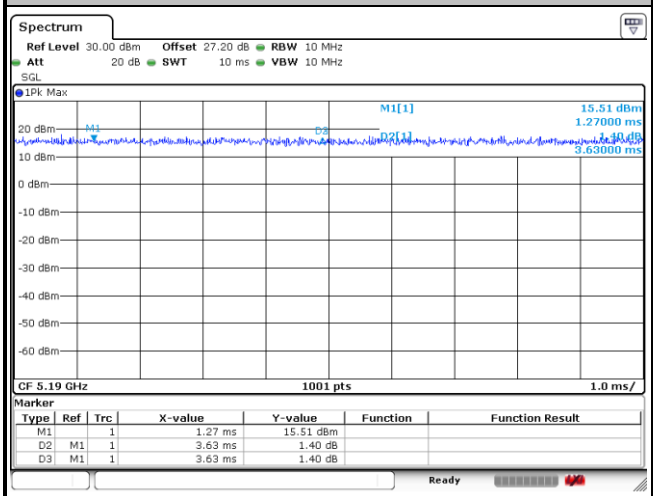
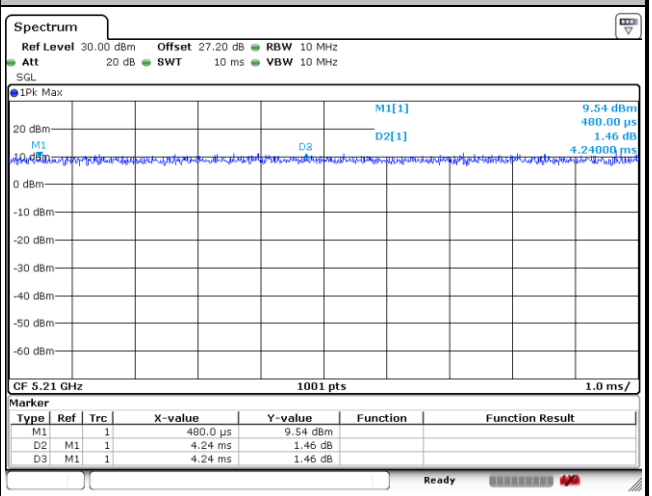
802.11n HT40



802.11ac VHT80



MIMO <Ant. 2>

802.11a	802.11n HT20
	
802.11n HT40	802.11ac VHT80
	

———THE END———