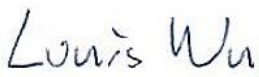
FCC RADIO TEST REPORT

FCC ID	:	**U8G-P1835**
Equipment	:	**PEPWAVE / peplink Wireless Product**
Brand Name	:	**PEPWAVE / peplink**
Model Name	:	**UBR Go** **UBR Rugged** **UBR Go LTEA** **UBR Rugged LTEA** **UBR-GO-LTEA-R-T-PRM** **UBR-GO-LTEA-US-T-PRM** **UBR-RUG-LTEA-US-T-PRM** **UBR-RUG-LTEA-R-T-PRM** **Pepwave UBR Go LTEA** **Pepwave UBR Rugged LTEA** **MAX Transit** **MAX Transit LTEA** **MAX Transit Pro E**
Applicant	:	**PISMO LABS TECHNOLOGY LIMITED** **A8, 5/F, HK Spinners Industrial Building, Phase 6, 481 Castle Peak Road, Cheung Sha Wan, Hong Kong**
Manufacturer	:	**PISMO LABS TECHNOLOGY LIMITED** **A8, 5/F, HK Spinners Industrial Building, Phase 6, 481 Castle Peak Road, Cheung Sha Wan, Hong Kong**
Standard	:	**FCC Part 15 Subpart E §15.407**

The product was received on Jan. 14, 2021 and testing was started from Mar. 31, 2021 and completed on Aug. 27, 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.



Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory
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Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR111402C	01	Initial issue of report	Oct. 14, 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 1.17 dB at 120.210 MHz
3.5	15.207	AC Conducted Emission	Pass	Under limit 14.96 dB at 0.152 MHz
3.6	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: Lewis Ho

Report Producer: Amy Chen

1 General Description

1.1 Product Feature of Equipment Under Test

Wi-Fi 2.4GHz 802.11b/g/n, and Wi-Fi 5GHz 802.11a/n/ac

Product Specification subjective to this standard	
Sample 1	UBR go
Sample 2	UBR rugged
Antenna Type	WLAN: Omni-directional Antenna

Antenna information		
5725 MHz ~ 5850 MHz	Peak Gain (dBi)	<Ant. 0>: 4.73 <Ant. 1>: 4.73

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.**
	TH02-HY, CO05-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.**
	03CH16-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 TW3786

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.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

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

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

2.1 Carrier Frequency and Channel

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

Note:

1. The above Frequency and Channel 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.

MIMO Mode

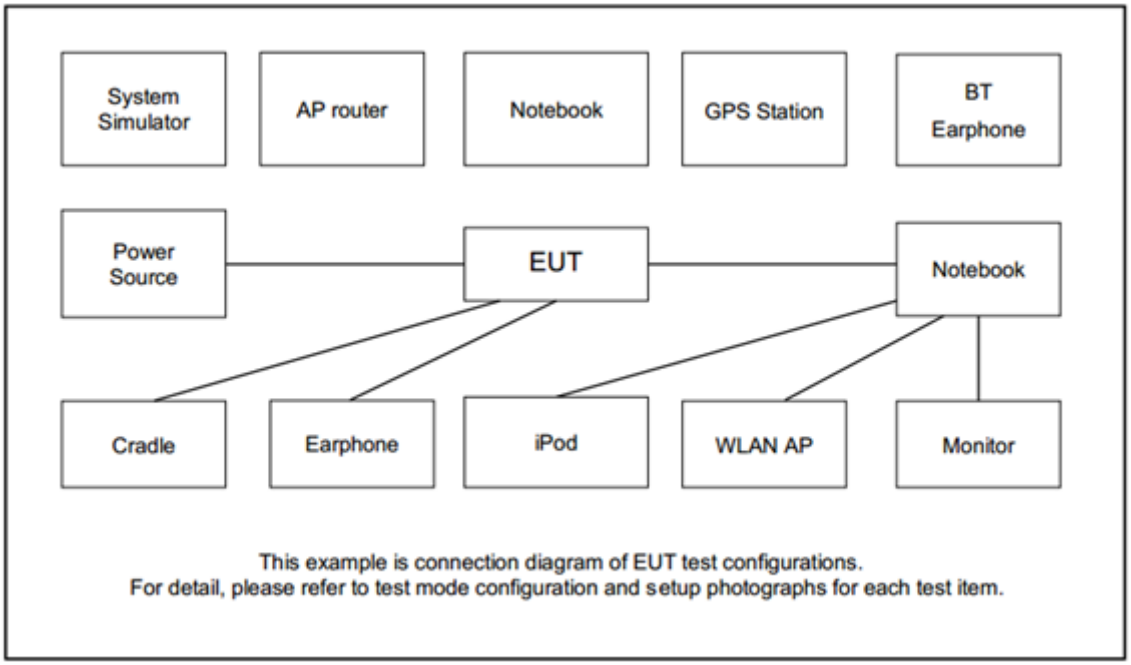
Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20 (Covered by VHT20)	MCS0
802.11n HT40 (Covered by VHT40)	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : WLAN (5GHz) Link + LAN 1 Link + WAN Link + Adapter (Y001-1310) (USB-C Port 1) + LAN 2/3 (Load) for Sample 1

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

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

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Dell	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

The RF test items, utility “ART2-GUI V2.3” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

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

Offset = RF cable loss + attenuator factor.

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

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

= 4.2 + 10 = 14.2 (dB)

3 Test Result

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

3.1.1 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.

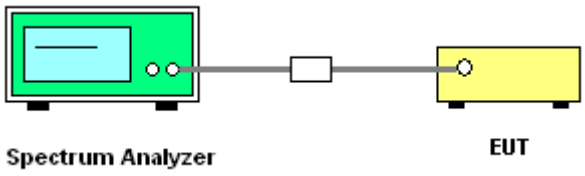
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

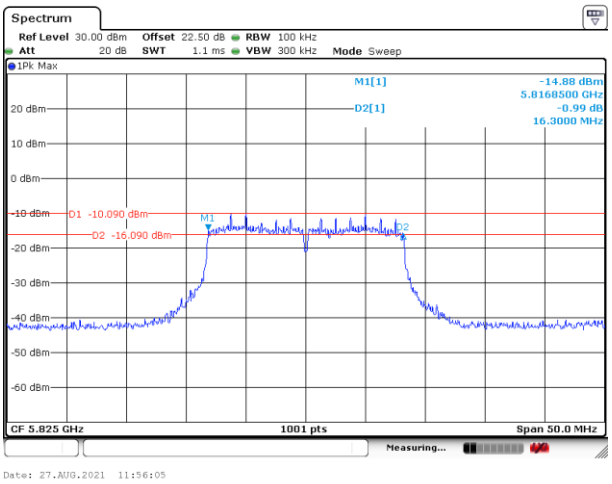
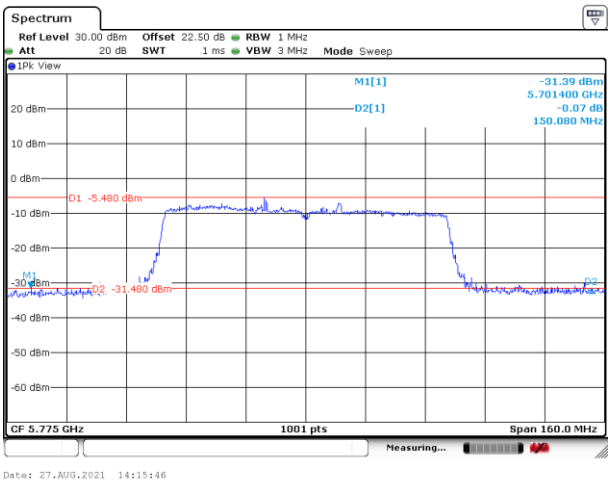
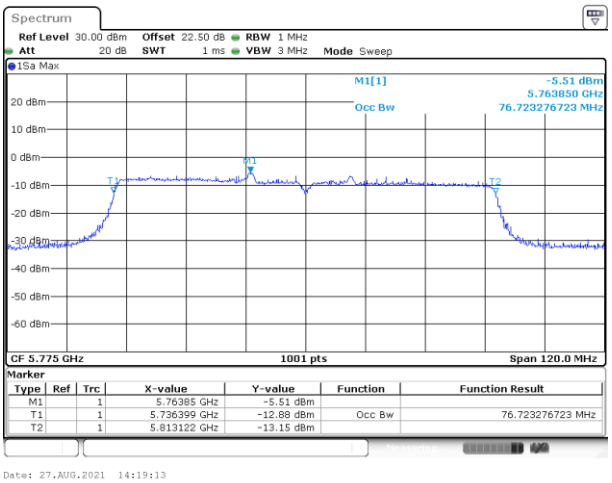
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth for the band 5.725-5.85 GHz
2. Set RBW = 100 kHz.
3. Set the VBW ≥ 3 x RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down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

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

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

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

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

3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

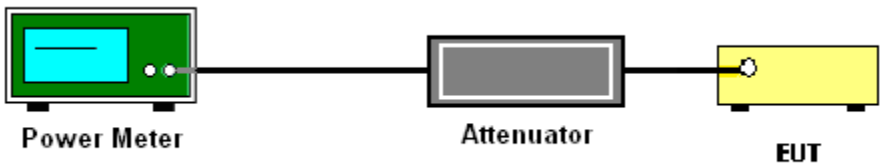
3.2.3 Test Procedures

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.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

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

3.3.2 Measuring Instruments

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.

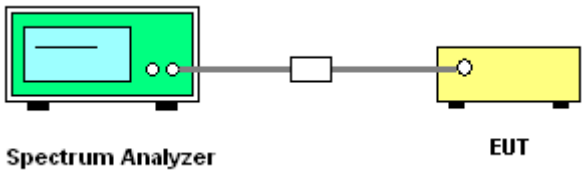
 # Method SA-3 #

(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.

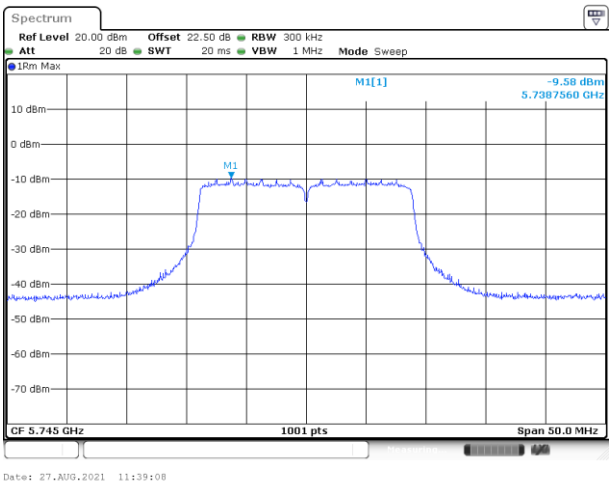
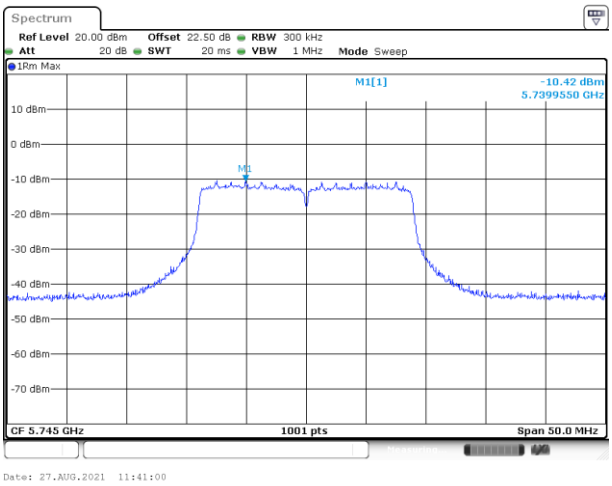
1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
   Method (c): 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)	
MIMO Ant. 0	MIMO Ant. 1
	

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

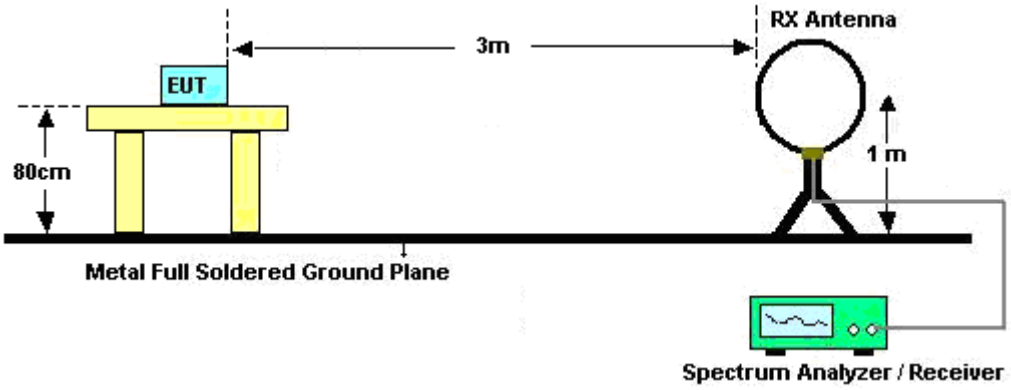
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz

   - 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.

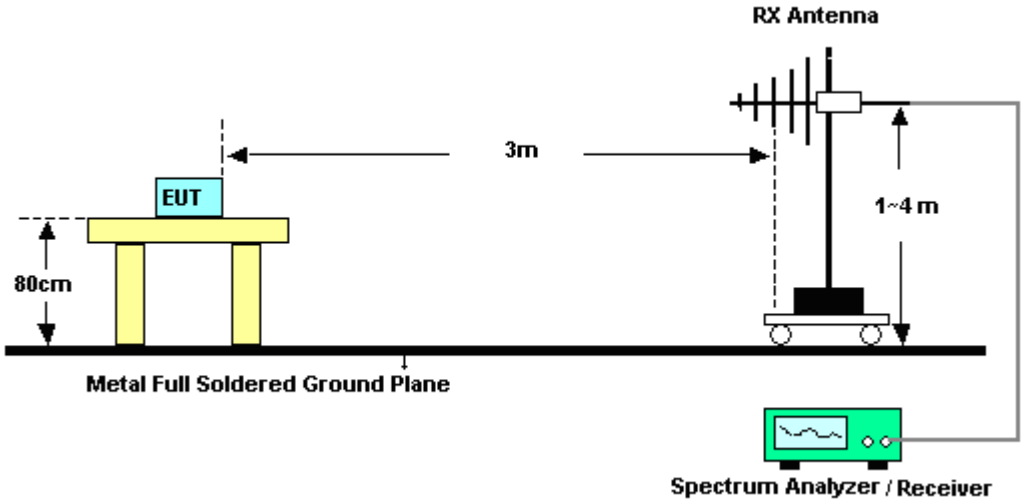
7. For testing above 1 GHz, the emission level of the EUT in peak mode was 20 dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again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

3.4.4 Test Setup

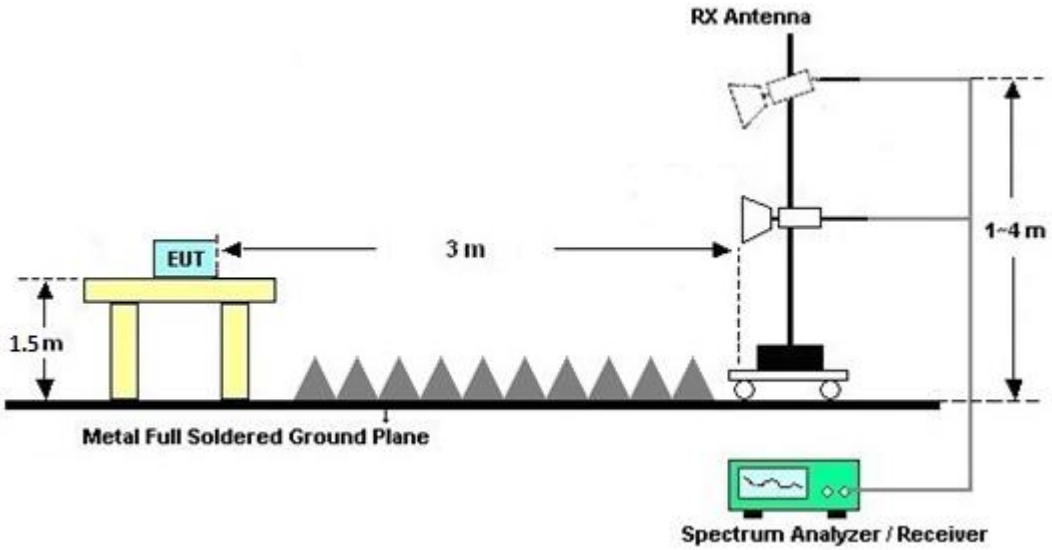
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated test above 1GHz



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 adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix C and D.

3.4.7 Duty Cycle

Please refer to Appendix E.

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

Please refer to Appendix C and D.

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

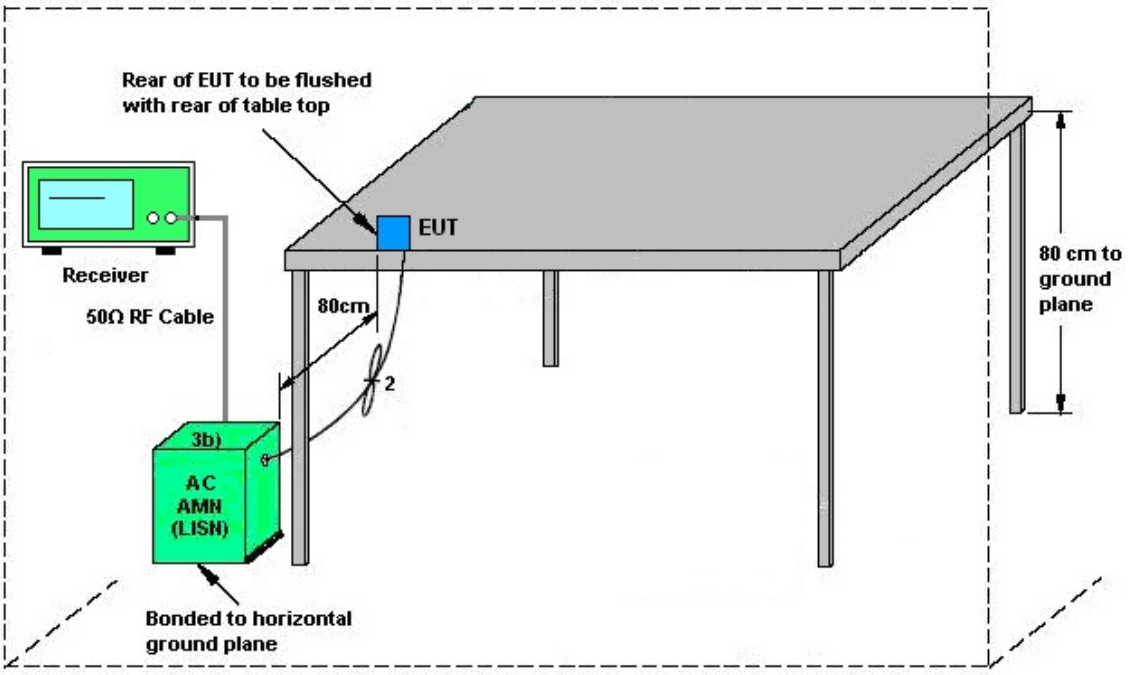
3.5.2 Measuring Instruments

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 Antenna Requirements

3.6.1 Standard Applicable

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

3.6.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.6.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

Array Gain = 10 log(N_{ANT}/N_{SS}=1) dB.

For power measurements on IEEE 802.11 devices,

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

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} 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. 0 (dBi)	Ant. 1 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
Band IV	4.73	4.73	4.73	7.74	0.00	1.74

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	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Jan. 04, 2021	Aug. 06, 2021~ Aug. 24, 2021	Jan. 03, 2022	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N -06	47020 & 06	30MHz to 1GHz	Oct. 11, 2020	Aug. 06, 2021~ Aug. 24, 2021	Oct. 10, 2021	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Sep. 29, 2020	Aug. 06, 2021~ Aug. 24, 2021	Sep. 28, 2021	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00993	18GHz ~40GHz	Nov. 19, 2020	Aug. 06, 2021~ Aug. 24, 2021	Nov. 18, 2021	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1G	Jul. 05, 2021	Aug. 06, 2021~ Aug. 24, 2021	Jul. 04, 2022	Radiation (03CH16-HY)
Amplifier	Jet-Power	JPA0118-55-303	1710001800054001	1-18GHz	Jun. 16, 2021	Aug. 06, 2021~ Aug. 24, 2021	Jun. 15, 2022	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 11, 2020	Aug. 06, 2021~ Aug. 24, 2021	Dec. 10, 2021	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 10, 2020	Aug. 06, 2021~ Aug. 24, 2021	Dec. 09, 2021	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A	MY57290111	3Hz~26.5GHz	Dec. 11, 2020	Aug. 06, 2021~ Aug. 24, 2021	Dec. 10, 2021	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11680/4PE	NA	Aug. 29, 2020	Aug. 06, 2021~ Aug. 24, 2021	Aug. 28, 2021	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11688/4PE	NA	Aug. 29, 2020	Aug. 06, 2021~ Aug. 24, 2021	Aug. 28, 2021	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300-5757	NA	Aug. 29, 2020	Aug. 06, 2021~ Aug. 24, 2021	Aug. 28, 2021	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Aug. 06, 2021~ Aug. 24, 2021	N/A	Radiation (03CH16-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Aug. 06, 2021~ Aug. 24, 2021	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Aug. 06, 2021~ Aug. 24, 2021	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Aug. 06, 2021~ Aug. 24, 2021	N/A	Radiation (03CH16-HY)
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 01, 2021	Aug. 26, 2021~ Aug. 27, 2021	Feb. 28, 2022	Conducted (TH02-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO12	10MHz~6GHz	Dec. 16, 2020	Aug. 26, 2021~ Aug. 27, 2021	Dec. 15, 2021	Conducted (TH02-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101565	10Hz ~ 40GHz	Nov. 13, 2020	Aug. 26, 2021~ Aug. 27, 2021	Nov. 12, 2021	Conducted (TH02-HY)
Switch Box & RF Cable	EM Electronics	EMSW18SE	SW200302	N/A	Mar. 17, 2021	Aug. 26, 2021~ Aug. 27, 2021	Mar. 16, 2022	Conducted (TH02-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. 31, 2021	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 30, 2020	Mar. 31, 2021	Nov. 29, 2021	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 18, 2020	Mar. 31, 2021	Nov. 17, 2021	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 16, 2020	Mar. 31, 2021	Nov. 15, 2021	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Mar. 31, 2021	N/A	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Feb. 25, 2021	Mar. 31, 2021	Feb. 24, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 31, 2020	Mar. 31, 2021	Dec. 30, 2021	Conduction (CO05-HY)

5 Uncertainty of Evaluation

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

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

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.8 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.6 dB**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Richard Qiu	Temperature:	24.5~25.3	°C
Test Date:	2021/8/26~2021/8/27	Relative Humidity:	46.6~50.7	%

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 0	Ant 1	Ant 0	Ant 1	Ant 0	Ant 1		
11a	6Mbps	2	149	5745	18.08	17.88	25.10	23.90	16.35	16.35	0.5	Pass
11a	6Mbps	2	157	5785	18.08	17.88	24.75	23.75	16.34	16.35	0.5	Pass
11a	6Mbps	2	165	5825	18.23	17.83	25.30	24.55	16.30	16.30	0.5	Pass
VHT20	MCS0	2	149	5745	19.08	19.08	26.20	25.95	17.60	17.60	0.5	Pass
VHT20	MCS0	2	157	5785	19.23	18.98	26.15	25.25	17.35	17.55	0.5	Pass
VHT20	MCS0	2	165	5825	19.13	18.98	26.75	25.15	17.30	17.55	0.5	Pass
VHT40	MCS0	2	151	5755	37.56	37.46	49.95	47.97	36.36	36.11	0.5	Pass
VHT40	MCS0	2	159	5795	37.96	37.46	79.56	50.58	36.36	36.08	0.5	Pass
VHT80	MCS0	2	155	5775	76.60	76.72	148.00	150.08	75.80	76.16	0.5	Pass

Report Number : FR111402C

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 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1	
11a	6Mbps	2	149	5745	3.00	2.10	5.58	30.00		4.73		Pass
11a	6Mbps	2	157	5785	0.90	1.30	4.11	30.00		4.73		Pass
11a	6Mbps	2	165	5825	0.30	3.10	4.93	30.00		4.73		Pass
HT20	MCS0	2	149	5745	2.50	2.50	5.51	30.00		4.73		Pass
HT20	MCS0	2	157	5785	0.80	1.10	3.96	30.00		4.73		Pass
HT20	MCS0	2	165	5825	-0.30	2.20	4.14	30.00		4.73		Pass
HT40	MCS0	2	151	5755	2.20	1.50	4.87	30.00		4.73		Pass
HT40	MCS0	2	159	5795	0.10	1.10	3.64	30.00		4.73		Pass
VHT20	MCS0	2	149	5745	3.50	2.50	6.04	30.00		4.73		Pass
VHT20	MCS0	2	157	5785	0.80	1.20	4.01	30.00		4.73		Pass
VHT20	MCS0	2	165	5825	-0.30	2.30	4.20	30.00		4.73		Pass
VHT40	MCS0	2	151	5755	2.20	1.60	4.92	30.00		4.73		Pass
VHT40	MCS0	2	159	5795	0.10	1.20	3.70	30.00		4.73		Pass
VHT80	MCS0	2	155	5775	0.50	0.70	3.61	30.00		4.73		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 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1	
11a	6Mbps	2	149	5745	2.22		-8.08	-8.87	-5.07	28.26		7.74		Pass
11a	6Mbps	2	157	5785	2.22		-9.59	-9.19	-6.18	28.26		7.74		Pass
11a	6Mbps	2	165	5825	2.22		-10.41	-7.39	-4.38	28.26		7.74		Pass
VHT20	MCS0	2	149	5745	2.22		-7.36	-8.20	-4.35	28.26		7.74		Pass
VHT20	MCS0	2	157	5785	2.22		-9.66	-8.95	-5.94	28.26		7.74		Pass
VHT20	MCS0	2	165	5825	2.22		-10.79	-8.32	-5.31	28.26		7.74		Pass
VHT40	MCS0	2	151	5755	2.22		-11.08	-11.98	-8.07	28.26		7.74		Pass
VHT40	MCS0	2	159	5795	2.22		-13.53	-12.55	-9.54	28.26		7.74		Pass
VHT80	MCS0	2	155	5775	2.22		-15.10	-15.30	-12.09	28.26		7.74		Pass

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

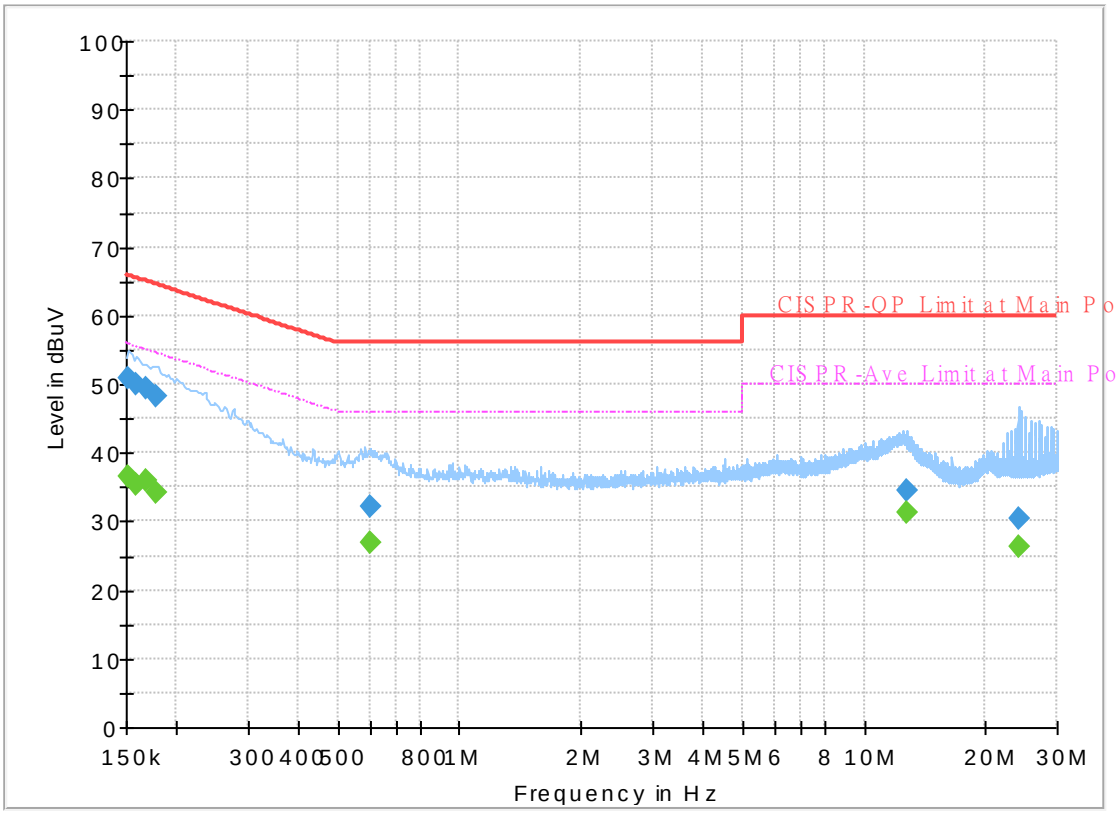
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Tom Lee	**Temperature :**	23~26℃
		Relative Humidity :	40~50%

EUT Information

Report NO :	111402
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



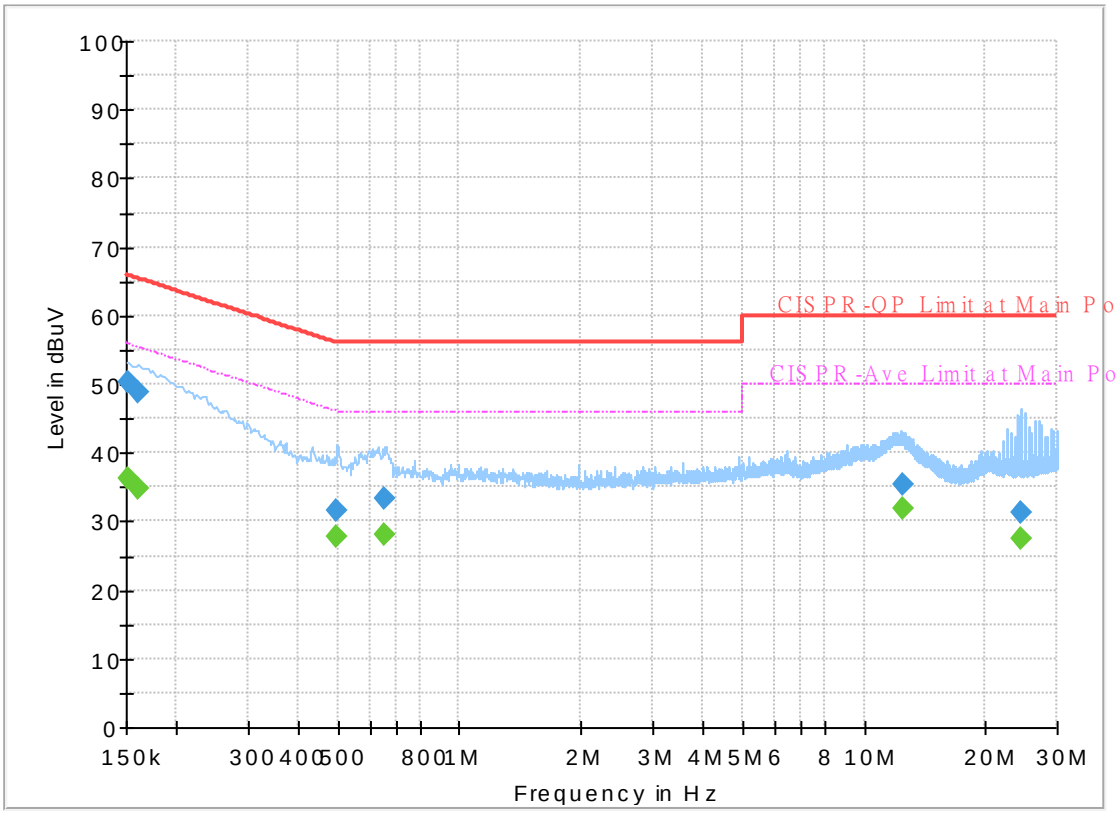
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	36.55	55.88	19.33	L1	OFF	19.7
0.152250	50.92	---	65.88	14.96	L1	OFF	19.7
0.159000	---	35.50	55.52	20.02	L1	OFF	19.7
0.159000	50.00	---	65.52	15.52	L1	OFF	19.7
0.168000	---	35.94	55.06	19.12	L1	OFF	19.7
0.168000	49.43	---	65.06	15.63	L1	OFF	19.7
0.177000	---	34.15	54.63	20.48	L1	OFF	19.7
0.177000	48.11	---	64.63	16.52	L1	OFF	19.7
0.602250	---	26.99	46.00	19.01	L1	OFF	20.0
0.602250	32.06	---	56.00	23.94	L1	OFF	20.0
12.743250	---	31.18	50.00	18.82	L1	OFF	20.3
12.743250	34.62	---	60.00	25.38	L1	OFF	20.3
24.036000	---	26.19	50.00	23.81	L1	OFF	20.7
24.036000	30.30	---	60.00	29.70	L1	OFF	20.7

EUT Information

Report NO :	111402
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)
0.152250	50.32	---	65.88	15.56	N	OFF	19.7
0.152250	---	36.23	55.88	19.65	N	OFF	19.7
0.161250	48.75	---	65.40	16.65	N	OFF	19.7
0.161250	---	34.71	55.40	20.69	N	OFF	19.7
0.498750	31.72	---	56.02	24.30	N	OFF	19.9
0.498750	---	27.92	46.02	18.10	N	OFF	19.9
0.654000	33.35	---	56.00	22.65	N	OFF	20.1
0.654000	---	28.18	46.00	17.82	N	OFF	20.1
12.426000	35.26	---	60.00	24.74	N	OFF	20.3
12.426000	---	31.87	50.00	18.13	N	OFF	20.3
24.513000	31.33	---	60.00	28.67	N	OFF	20.8
24.513000	---	27.48	50.00	22.52	N	OFF	20.8

Appendix C. Radiated Spurious Emission

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

<Sample 1>

Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		5620.8	53.43	-14.77	68.2	37.89	31.66	13.66	29.78	250	25	P	H
		5665.8	53.61	-26.32	79.93	38.07	31.63	13.7	29.79	250	25	P	H
		5704.2	52.74	-53.64	106.38	37.09	31.73	13.73	29.81	250	25	P	H
		5724.2	52.42	-67.96	120.38	36.64	31.85	13.75	29.82	250	25	P	H
	*	5745	93.16	-	-	77.24	31.97	13.77	29.82	250	25	P	H
	*	5745	85.48	-	-	69.56	31.97	13.77	29.82	250	25	A	H
													H
802.11a													H
CH 149		5602.2	56.3	-11.9	68.2	40.73	31.7	13.64	29.77	206	181	P	V
5745MHz		5652.4	55.8	-14.18	69.98	40.3	31.6	13.69	29.79	206	181	P	V
		5717.2	55.29	-54.73	110.02	39.55	31.8	13.75	29.81	206	181	P	V
		5723.8	56.63	-62.83	119.46	40.86	31.84	13.75	29.82	206	181	P	V
		5460	59.99	-14.01	74	44.57	31.62	13.52	29.72	200	193	P	V
		5460	50.52	-3.48	54	35.1	31.62	13.52	29.72	200	193	A	V
	*	5745	108.43	-	-	92.51	31.97	13.77	29.82	206	181	P	V
	*	5745	100.4	-	-	84.48	31.97	13.77	29.82	206	181	A	V

WIFI Ant. 0+1	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)
		5613.8	53.51	-14.69	68.2	37.96	31.67	13.65	29.77	100	21	P	H
		5677.8	54.26	-34.55	88.81	38.69	31.66	13.71	29.8	100	21	P	H
		5718.8	54.03	-56.43	110.46	38.28	31.81	13.75	29.81	100	21	P	H
		5723.4	52.1	-66.45	118.55	36.32	31.84	13.75	29.81	100	21	P	H
	*	5785	93.11	-	-	77.14	32	13.81	29.84	100	21	P	H
	*	5785	84.91	-	-	68.94	32	13.81	29.84	100	21	A	H
		5854.8	55.71	-55.55	111.26	39.65	32.11	13.81	29.86	100	21	P	H
		5862.4	56.22	-52.51	108.73	40.16	32.12	13.81	29.87	100	21	P	H
		5894.2	54.72	-36.23	90.95	38.6	32.19	13.81	29.88	100	21	P	H
		5946.8	56.29	-11.91	68.2	40.09	32.29	13.81	29.9	100	21	P	H
													H
802.11a CH 157 5785MHz													H
		5609	56.39	-11.81	68.2	40.83	31.68	13.65	29.77	203	183	P	V
		5694.6	54.96	-46.26	101.22	39.34	31.69	13.73	29.8	203	183	P	V
		5707.8	55.2	-52.19	107.39	39.52	31.75	13.74	29.81	203	183	P	V
		5722.8	53.82	-63.36	117.18	38.04	31.84	13.75	29.81	203	183	P	V
		5460	61.46	-12.54	74	46.04	31.62	13.52	29.72	200	191	P	V
		5460	51.36	-2.64	54	35.94	31.62	13.52	29.72	200	191	A	V
	*	5785	107.52	-	-	91.55	32	13.81	29.84	203	183	P	V
	*	5785	100.16	-	-	84.19	32	13.81	29.84	203	183	A	V
		5851	53.38	-66.54	119.92	37.33	32.1	13.81	29.86	203	183	P	V
		5865	54.1	-53.9	108	38.03	32.13	13.81	29.87	203	183	P	V
		5914.8	54.98	-20.74	75.72	38.83	32.23	13.81	29.89	203	183	P	V
		5928.2	55.08	-13.12	68.2	38.9	32.26	13.81	29.89	203	183	P	V

WIFI Ant. 0+1	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	92.49	-	-	76.47	32.05	13.82	29.85	100	20	P	H
	*	5825	84.96	-	-	68.94	32.05	13.82	29.85	100	20	A	H
		5854.6	54.01	-57.7	111.71	37.95	32.11	13.81	29.86	100	20	P	H
		5859.2	53.73	-55.89	109.62	37.67	32.12	13.81	29.87	100	20	P	H
		5912.8	54.45	-22.75	77.2	38.3	32.23	13.81	29.89	100	20	P	H
		5947	53.48	-14.72	68.2	37.28	32.29	13.81	29.9	100	20	P	H
													H
802.11a													H
CH 165		5460	60.35	-13.65	74	44.93	31.62	13.52	29.72	200	194	P	V
5825MHz		5460	51.92	-2.08	54	36.5	31.62	13.52	29.72	200	194	A	V
	*	5825	107.53	-	-	91.51	32.05	13.82	29.85	190	178	P	V
	*	5825	99.94	-	-	83.92	32.05	13.82	29.85	190	178	A	V
		5851	54.1	-65.82	119.92	38.05	32.1	13.81	29.86	190	178	P	V
		5867.4	55.08	-52.25	107.33	39.01	32.13	13.81	29.87	190	178	P	V
		5886.4	55.07	-41.67	96.74	38.97	32.17	13.81	29.88	190	178	P	V
		5932.4	54.52	-13.68	68.2	38.34	32.26	13.81	29.89	190	178	P	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. 0+1	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	48.81	-25.19	74	49.41	39.91	20.11	60.62	100	0	P	H
		17235	50.85	-17.35	68.2	43.14	40.9	25.16	58.35	100	0	P	H
													H
													H
													H
													H
		11490	49.21	-24.79	74	49.81	39.91	20.11	60.62	100	0	P	V
		17235	50.47	-17.73	68.2	42.76	40.9	25.16	58.35	100	0	P	V
													V
													V
													V
													V
802.11a CH 157 5785MHz		11570	48.88	-25.12	74	49.58	39.76	20.18	60.64	100	0	P	H
		17355	50.56	-17.64	68.2	41.67	41.6	25.21	57.92	100	0	P	H
													H
													H
													H
													H
		11570	48.28	-25.72	74	48.98	39.76	20.18	60.64	100	0	P	V
		17355	50.52	-17.68	68.2	41.63	41.6	25.21	57.92	100	0	P	V
													V
													V
													V
													V

802.11a CH 165 5825MHz		11650	48.41	-25.59	74	49.32	39.55	20.23	60.69	100	0	P	H
		17475	50.85	-17.35	68.2	40.64	42.45	25.25	57.49	100	0	P	H
													H
													H
													H
													H
		11650	48.3	-25.7	74	49.21	39.55	20.23	60.69	100	0	P	V
		17475	50.87	-17.33	68.2	40.66	42.45	25.25	57.49	100	0	P	V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI Ant. 0+1	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)
		5613.6	53.12	-15.08	68.2	37.57	31.67	13.65	29.77	100	21	P	H
		5669.4	52.9	-29.69	82.59	37.35	31.64	13.7	29.79	100	21	P	H
		5711.6	53.69	-54.76	108.45	37.99	31.77	13.74	29.81	100	21	P	H
		5725	52.92	-69.28	122.2	37.14	31.85	13.75	29.82	100	21	P	H
	*	5745	93.52	-	-	77.6	31.97	13.77	29.82	100	21	P	H
	*	5745	85.71	-	-	69.79	31.97	13.77	29.82	100	21	A	H
802.11ac													H
VHT20													H
CH 149		5624.6	57.2	-11	68.2	41.67	31.65	13.66	29.78	166	180	P	V
5745MHz		5667.8	55.55	-25.86	81.41	40	31.64	13.7	29.79	166	180	P	V
		5709.8	55	-52.95	107.95	39.31	31.76	13.74	29.81	166	180	P	V
		5725	60.22	-61.98	122.2	44.44	31.85	13.75	29.82	166	180	P	V
		5460	61.25	-12.75	74	45.83	31.62	13.52	29.72	192	195	P	V
		5460	51.04	-2.96	54	35.62	31.62	13.52	29.72	192	195	A	V
	*	5745	107.99	-	-	92.07	31.97	13.77	29.82	166	180	P	V
	*	5745	100.48	-	-	84.56	31.97	13.77	29.82	166	180	A	V

WIFI Ant. 0+1	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	54.85	-13.35	68.2	39.36	31.6	13.68	29.79	100	20	P	H
		5684.4	54.34	-39.35	93.69	38.75	31.67	13.72	29.8	100	20	P	H
		5718.4	53.46	-56.89	110.35	37.71	31.81	13.75	29.81	100	20	P	H
		5722.6	52.5	-64.23	116.73	36.72	31.84	13.75	29.81	100	20	P	H
	*	5785	92.04	-	-	76.07	32	13.81	29.84	100	20	P	H
	*	5785	84.4	-	-	68.43	32	13.81	29.84	100	20	A	H
		5853.4	53.14	-61.31	114.45	37.08	32.11	13.81	29.86	100	20	P	H
		5859	54.9	-54.78	109.68	38.84	32.12	13.81	29.87	100	20	P	H
		5907	53.83	-27.65	81.48	37.69	32.21	13.81	29.88	100	20	P	H
		5930.4	53.94	-14.26	68.2	37.76	32.26	13.81	29.89	100	20	P	H
802.11ac													H
VHT20													H
CH 157		5601.4	57.93	-10.27	68.2	42.36	31.7	13.64	29.77	207	178	P	V
5785MHz		5655.2	54.75	-17.31	72.06	39.24	31.61	13.69	29.79	207	178	P	V
		5708	54.92	-52.52	107.44	39.24	31.75	13.74	29.81	207	178	P	V
		5724.4	53.82	-67.01	120.83	38.04	31.85	13.75	29.82	207	178	P	V
		5460	61.23	-12.77	74	45.81	31.62	13.52	29.72	200	197	P	V
		5460	51.17	-2.83	54	35.75	31.62	13.52	29.72	200	197	A	V
	*	5785	108.04	-	-	92.07	32	13.81	29.84	207	178	P	V
	*	5785	99.85	-	-	83.88	32	13.81	29.84	207	178	A	V
		5853.4	54.12	-60.33	114.45	38.06	32.11	13.81	29.86	207	178	P	V
		5874.8	54.51	-50.75	105.26	38.42	32.15	13.81	29.87	207	178	P	V
		5882.4	55.09	-44.61	99.7	39	32.16	13.81	29.88	207	178	P	V
		5928	54.87	-13.33	68.2	38.69	32.26	13.81	29.89	207	178	P	V

WIFI Ant. 0+1	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	91.48	-	-	75.46	32.05	13.82	29.85	100	20	P	H
	*	5825	83.42	-	-	67.4	32.05	13.82	29.85	100	20	A	H
		5854	52.73	-60.35	113.08	36.67	32.11	13.81	29.86	100	20	P	H
		5870.8	53.9	-52.47	106.37	37.82	32.14	13.81	29.87	100	20	P	H
		5899.6	55.99	-30.97	86.96	39.86	32.2	13.81	29.88	100	20	P	H
		5929.6	54.7	-13.5	68.2	38.52	32.26	13.81	29.89	100	20	P	H
802.11ac													H
VHT20													H
CH 165		5460	60.99	-13.01	74	45.57	31.62	13.52	29.72	200	195	P	V
5825MHz		5460	51.27	-2.73	54	35.85	31.62	13.52	29.72	200	195	A	V
	*	5825	106.49	-	-	90.47	32.05	13.82	29.85	200	179	P	V
	*	5825	99.01	-	-	82.99	32.05	13.82	29.85	200	179	A	V
		5852.2	53.42	-63.76	117.18	37.37	32.1	13.81	29.86	200	179	P	V
		5861.4	54.45	-54.56	109.01	38.39	32.12	13.81	29.87	200	179	P	V
		5891.2	54.97	-38.21	93.18	38.86	32.18	13.81	29.88	200	179	P	V
		5929	54.61	-13.59	68.2	38.43	32.26	13.81	29.89	200	179	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 VHT20 (Harmonic @ 3m)

WIFI Ant. 0+1	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	49.75	-24.25	74	50.35	39.91	20.11	60.62	100	0	P	H
		17235	50.54	-17.66	68.2	42.83	40.9	25.16	58.35	100	0	P	H
													H
													H
802.11ac													H
VHT20													H
CH 149		11490	49.48	-24.52	74	50.08	39.91	20.11	60.62	100	0	P	V
5745MHz		17235	50.38	-17.82	68.2	42.67	40.9	25.16	58.35	100	0	P	V
													V
													V
													V
													V
		11570	48.17	-25.83	74	48.87	39.76	20.18	60.64	100	0	P	H
		17355	50.47	-17.73	68.2	41.58	41.6	25.21	57.92	100	0	P	H
													H
													H
802.11ac													H
VHT20													H
CH 157		11570	48.21	-25.79	74	48.91	39.76	20.18	60.64	100	0	P	V
5785MHz		17355	50.25	-17.95	68.2	41.36	41.6	25.21	57.92	100	0	P	V
													V
													V
													V
													V

		11650	48.71	-25.29	74	49.62	39.55	20.23	60.69	100	0	P	H
		17475	51.39	-16.81	68.2	41.18	42.45	25.25	57.49	100	0	P	H
													H
													H
802.11ac													H
VHT20													H
CH 165		11650	48.74	-25.26	74	49.65	39.55	20.23	60.69	100	0	P	V
5825MHz		17475	51.48	-16.72	68.2	41.27	42.45	25.25	57.49	100	0	P	V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI Ant. 0+1	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)
		5605.6	54.32	-13.88	68.2	38.75	31.69	13.65	29.77	100	20	P	H
		5696.8	54.14	-48.7	102.84	38.52	31.69	13.73	29.8	100	20	P	H
		5717	55.6	-54.36	109.96	39.86	31.8	13.75	29.81	100	20	P	H
		5720	52.98	-57.82	110.8	37.22	31.82	13.75	29.81	100	20	P	H
	*	5755	90.19	-	-	74.24	32	13.78	29.83	100	20	P	H
	*	5755	82.4	-	-	66.45	32	13.78	29.83	100	20	A	H
		5854.6	53.69	-58.02	111.71	37.63	32.11	13.81	29.86	100	20	P	H
		5875	53.79	-51.41	105.2	37.7	32.15	13.81	29.87	100	20	P	H
		5884.2	54.26	-44.11	98.37	38.16	32.17	13.81	29.88	100	20	P	H
		5939.6	53.97	-14.23	68.2	37.78	32.28	13.81	29.9	100	20	P	H
802.11ac													H
VHT40													H
CH 151		5612.8	56.8	-11.4	68.2	41.25	31.67	13.65	29.77	194	184	P	V
5755MHz		5682.8	55.62	-36.89	92.51	40.04	31.67	13.71	29.8	194	184	P	V
		5719.2	58.92	-51.66	110.58	43.16	31.82	13.75	29.81	194	184	P	V
		5724.8	65.45	-56.29	121.74	49.67	31.85	13.75	29.82	194	184	P	V
		5460	61.48	-12.52	74	46.06	31.62	13.52	29.72	181	194	P	V
		5460	52.13	-1.87	54	36.71	31.62	13.52	29.72	181	194	A	V
	*	5755	105.38	-	-	89.43	32	13.78	29.83	194	184	P	V
	*	5755	97.99	-	-	82.04	32	13.78	29.83	194	184	A	V
		5853.4	54.64	-59.81	114.45	38.58	32.11	13.81	29.86	194	184	P	V
		5870.8	55.5	-50.87	106.37	39.42	32.14	13.81	29.87	194	184	P	V
		5885.4	55.18	-42.3	97.48	39.08	32.17	13.81	29.88	194	184	P	V
		5942.6	54.57	-13.63	68.2	38.37	32.29	13.81	29.9	194	184	P	V

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5625	53.87	-14.33	68.2	38.34	31.65	13.66	29.78	100	20	P	H
		5689.6	54.17	-43.36	97.53	38.57	31.68	13.72	29.8	100	20	P	H
		5714.8	54.53	-54.82	109.35	38.81	31.79	13.74	29.81	100	20	P	H
		5721	53.36	-59.72	113.08	37.59	31.83	13.75	29.81	100	20	P	H
	*	5795	88.88	-	-	72.9	32	13.82	29.84	100	20	P	H
	*	5795	80.89	-	-	64.91	32	13.82	29.84	100	20	A	H
		5852.4	52.47	-64.26	116.73	36.42	32.1	13.81	29.86	100	20	P	H
		5857.4	53.55	-56.58	110.13	37.5	32.11	13.81	29.87	100	20	P	H
		5888.6	54.37	-40.73	95.1	38.26	32.18	13.81	29.88	100	20	P	H
		5939	53.59	-14.61	68.2	37.4	32.28	13.81	29.9	100	20	P	H
802.11ac													H
VHT40													H
CH 159		5632.2	57.91	-10.29	68.2	42.38	31.64	13.67	29.78	166	184	P	V
5795MHz		5650	56.86	-11.34	68.2	41.36	31.6	13.69	29.79	166	184	P	V
		5718.6	54.46	-55.95	110.41	38.71	31.81	13.75	29.81	166	184	P	V
		5725	54.51	-67.69	122.2	38.73	31.85	13.75	29.82	166	184	P	V
		5460	61.93	-12.07	74	46.51	31.62	13.52	29.72	187	192	P	V
		5460	51.88	-2.12	54	36.46	31.62	13.52	29.72	187	192	A	V
	*	5795	104.69	-	-	88.71	32	13.82	29.84	166	184	P	V
	*	5795	96.72	-	-	80.74	32	13.82	29.84	166	184	A	V
		5852.6	56.11	-60.16	116.27	40.05	32.11	13.81	29.86	166	184	P	V
		5865.6	53.73	-54.1	107.83	37.66	32.13	13.81	29.87	166	184	P	V
		5899	54.79	-32.61	87.4	38.66	32.2	13.81	29.88	166	184	P	V
		5927.4	53.67	-14.53	68.2	37.5	32.25	13.81	29.89	166	184	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 VHT40 (Harmonic @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		11510	49.27	-24.73	74	49.87	39.88	20.13	60.61	100	0	P	H
		17265	51.02	-17.18	68.2	43.11	40.99	25.17	58.25	100	0	P	H
													H
													H
802.11ac													H
VHT40													H
CH 151		11510	49.62	-24.38	74	50.22	39.88	20.13	60.61	100	0	P	V
5755MHz		17265	52.48	-15.72	68.2	44.57	40.99	25.17	58.25	100	0	P	V
													V
													V
													V
													V
		11590	48.89	-25.11	74	49.63	39.72	20.19	60.65	100	0	P	H
		17385	51.93	-16.27	68.2	42.66	41.86	25.22	57.81	100	0	P	H
													H
													H
802.11ac													H
VHT40													H
CH 159		11590	48.72	-25.28	74	49.46	39.72	20.19	60.65	100	0	P	V
5795MHz		17385	51.45	-16.75	68.2	42.18	41.86	25.22	57.81	100	0	P	V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5632.6	53.94	-14.26	68.2	38.42	31.63	13.67	29.78	100	20	P	H
		5686.2	53.1	-41.92	95.02	37.51	31.67	13.72	29.8	100	20	P	H
		5702.8	53.96	-52.03	105.99	38.32	31.72	13.73	29.81	100	20	P	H
		5721.6	54.37	-60.08	114.45	38.6	31.83	13.75	29.81	100	20	P	H
	*	5775	85.78	-	-	69.81	32	13.8	29.83	100	20	P	H
	*	5775	78.29	-	-	62.32	32	13.8	29.83	100	20	A	H
		5851.6	53.98	-64.57	118.55	37.93	32.1	13.81	29.86	100	20	P	H
		5860.8	53.71	-55.46	109.17	37.65	32.12	13.81	29.87	100	20	P	H
		5907.4	54.08	-27.11	81.19	37.94	32.21	13.81	29.88	100	20	P	H
		5948.4	53.41	-14.79	68.2	37.2	32.3	13.81	29.9	100	20	P	H
802.11ac													H
VHT80													H
CH 155		5614.4	56.78	-11.42	68.2	41.23	31.67	13.65	29.77	191	177	P	V
5775MHz		5699.6	57.15	-47.76	104.91	41.53	31.7	13.73	29.81	191	177	P	V
		5720	65.94	-44.86	110.8	50.18	31.82	13.75	29.81	191	177	P	V
		5720.6	68.58	-43.59	112.17	52.82	31.82	13.75	29.81	191	177	P	V
		5460	61.28	-12.72	74	45.86	31.62	13.52	29.72	193	192	P	V
		5460	51.78	-2.22	54	36.36	31.62	13.52	29.72	193	192	A	V
	*	5775	101.47	-	-	85.5	32	13.8	29.83	191	177	P	V
	*	5775	94.04	-	-	78.07	32	13.8	29.83	191	177	A	V
		5852.8	54.95	-60.87	115.82	38.89	32.11	13.81	29.86	191	177	P	V
		5856	54.31	-56.21	110.52	38.26	32.11	13.81	29.87	191	177	P	V
		5876.2	54.89	-49.42	104.31	38.8	32.15	13.81	29.87	191	177	P	V
		5948.2	54.02	-14.18	68.2	37.81	32.3	13.81	29.9	191	177	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. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		11550	48.53	-25.47	74	49.51	39.8	19.85	60.63	100	0	P	H
		17325	51	-17.2	68.2	42.44	41.32	25.27	58.03	100	0	P	H
													H
													H
802.11ac													H
VHT80													H
CH 155		11550	48.93	-25.07	74	49.91	39.8	19.85	60.63	100	0	P	V
5775MHz		17325	51.51	-16.69	68.2	42.95	41.32	25.27	58.03	100	0	P	V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

5GHz WIFI 802.11ac VHT40 (LF @ 3m)

WIFI Ant. 0+1	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)
		120.21	42.33	-1.17	43.5	55.33	17.54	1.73	32.27	288	247	Q	H
		199.75	39.01	-4.49	43.5	53.85	15.09	2.33	32.26	156	319	Q	H
		280.26	37.26	-8.74	46	47.84	18.88	2.81	32.27	-	-	P	H
		359.8	32.74	-13.26	46	40.98	20.82	3.2	32.26	-	-	P	H
		440.31	35.63	-10.37	46	41.35	23.13	3.57	32.42	-	-	P	H
		519.85	39.41	-6.59	46	43.78	24.08	3.92	32.37	-	-	P	H
													H
													H
													H
													H
5GHz													H
802.11ac													H
VHT40		120.21	37.46	-6.04	43.5	50.46	17.54	1.73	32.27	100	0	P	V
LF		199.75	35.91	-7.59	43.5	50.75	15.09	2.33	32.26	-	-	P	V
		280.26	34.18	-11.82	46	44.76	18.88	2.81	32.27	-	-	P	V
		440.31	37.54	-8.46	46	43.26	23.13	3.57	32.42	-	-	P	V
		519.85	39.79	-6.21	46	44.16	24.08	3.92	32.37	-	-	P	V
		600.36	36.37	-9.63	46	39.03	25.65	4.28	32.59	-	-	P	V
													V
													V
													V
													V
													V
													V

Remark

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

<Sample 2>

Band 4 - 5725~5850MHz

WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI Ant. 0+1	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)
		5638.8	53.35	-14.85	68.2	37.84	31.62	13.67	29.78	122	340	P	H
		5680.8	54.31	-36.72	91.03	38.74	31.66	13.71	29.8	122	340	P	H
		5714	54.05	-55.07	109.12	38.34	31.78	13.74	29.81	122	340	P	H
		5723	52.74	-64.9	117.64	36.96	31.84	13.75	29.81	122	340	P	H
	*	5755	86.77	-	-	70.82	32	13.78	29.83	122	340	P	H
	*	5755	79.22	-	-	63.27	32	13.78	29.83	122	340	A	H
		5852.6	52.91	-63.36	116.27	36.85	32.11	13.81	29.86	122	340	P	H
		5859.2	53.69	-55.93	109.62	37.63	32.12	13.81	29.87	122	340	P	H
		5893	55.75	-36.09	91.84	39.63	32.19	13.81	29.88	122	340	P	H
		5941.2	53.66	-14.54	68.2	37.47	32.28	13.81	29.9	122	340	P	H
802.11ac													H
VHT40													H
CH 151		5633.8	57.54	-10.66	68.2	42.02	31.63	13.67	29.78	202	178	P	V
5755MHz		5654.6	56.47	-15.15	71.62	40.96	31.61	13.69	29.79	202	178	P	V
		5718.4	59.05	-51.3	110.35	43.3	31.81	13.75	29.81	202	178	P	V
		5724.8	63.16	-58.58	121.74	47.38	31.85	13.75	29.82	202	178	P	V
		5460	60.77	-13.23	74	45.35	31.62	13.52	29.72	193	161	P	V
		5460	52.02	-1.98	54	36.6	31.62	13.52	29.72	193	161	A	V
	*	5755	103.28	-	-	87.33	32	13.78	29.83	202	178	P	V
	*	5755	96.06	-	-	80.11	32	13.78	29.83	202	178	A	V
		5851.6	54.95	-63.6	118.55	38.9	32.1	13.81	29.86	202	178	P	V
		5864	54.62	-53.66	108.28	38.55	32.13	13.81	29.87	202	178	P	V
		5898	54.87	-33.27	88.14	38.74	32.2	13.81	29.88	202	178	P	V
		5939.4	54.32	-13.88	68.2	38.13	32.28	13.81	29.9	202	178	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 VHT40 (Harmonic @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		11510	49.74	-24.26	74	50.63	39.88	19.84	60.61	100	0	P	H
		17265	52.16	-16.04	68.2	44.18	40.99	25.24	58.25	100	0	P	H
													H
													H
802.11ac													H
VHT40													H
CH 151		7673	53.36	-20.64	74	58.22	36.3	16.87	58.03	193	166	P	V
5755MHz		7673	49.42	-4.58	54	54.28	36.3	16.87	58.03	193	166	A	V
		11510	49.23	-24.77	74	50.12	39.88	19.84	60.61	100	0	P	V
		17265	52.24	-15.96	68.2	44.26	40.99	25.24	58.25	100	0	P	V
													V
													V

Remark

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

Emission below 1GHz

5GHz WIFI 802.11ac VHT40 (LF @ 3m)

WIFI Ant. 0+1	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)
		199.75	33.55	-9.95	43.5	48.39	15.09	2.33	32.26	-	-	P	H
		359.8	34.41	-11.59	46	42.65	20.82	3.2	32.26	-	-	P	H
		440.31	37.56	-8.44	46	43.28	23.13	3.57	32.42	100	0	P	H
		519.85	35.41	-10.59	46	39.78	24.08	3.92	32.37	-	-	P	H
		600.36	35.08	-10.92	46	37.74	25.65	4.28	32.59	-	-	P	H
		920.46	33.07	-12.93	46	29.34	29.75	5.38	31.4	-	-	P	H
													H
													H
													H
													H
5GHz													H
802.11ac													H
VHT40		199.75	35.62	-7.88	43.5	50.46	15.09	2.33	32.26	100	0	P	V
LF		440.31	33.41	-12.59	46	39.13	23.13	3.57	32.42	-	-	P	V
		519.85	36.03	-9.97	46	40.4	24.08	3.92	32.37	-	-	P	V
		600.36	34.75	-11.25	46	37.41	25.65	4.28	32.59	-	-	P	V
		679.9	30.92	-15.08	46	32.2	26.62	4.53	32.43	-	-	P	V
		951.5	33.42	-12.58	46	28.35	30.78	5.48	31.19	-	-	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.	
0+1		(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 :	Karl Hou and Andy Yang	**Temperature :**	20~25°C
		Relative Humidity :	50~60%

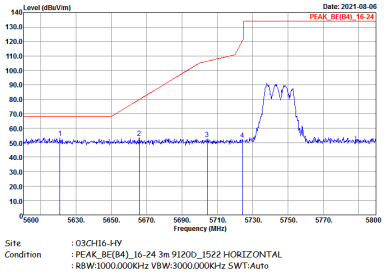
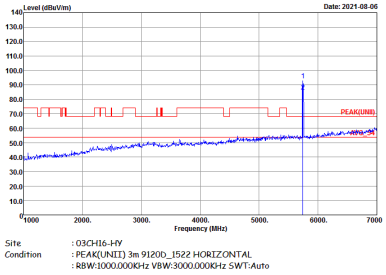
Note symbol

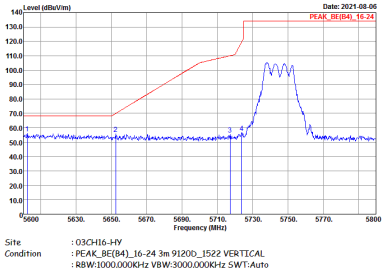
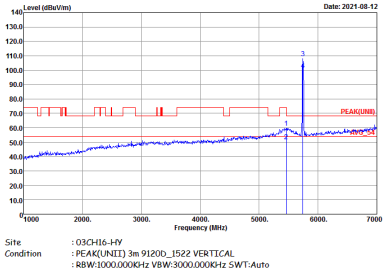
-L	**Low channel location**
-R	**High channel location**

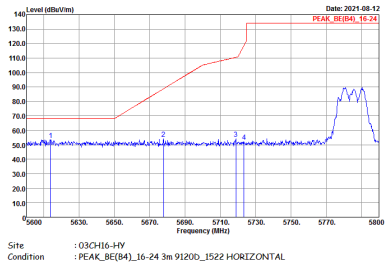
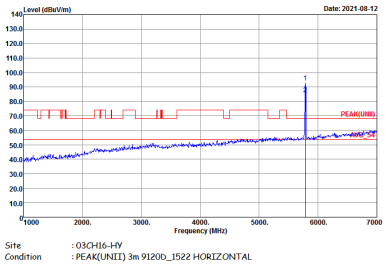
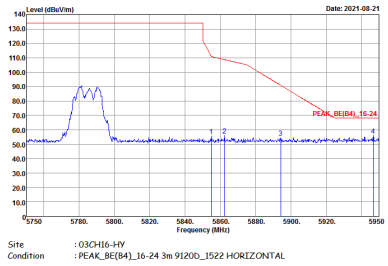
<Sample 1>

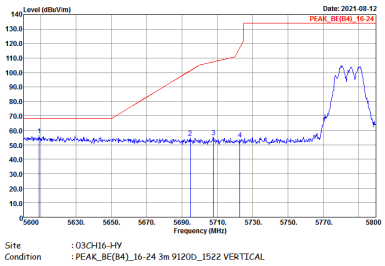
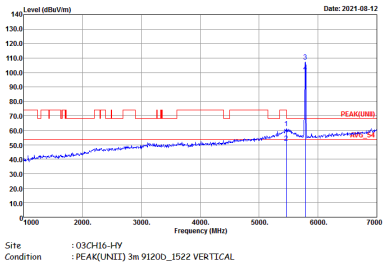
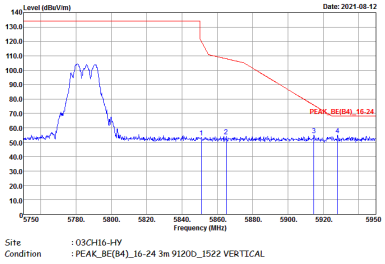
Band 4 - 5725~5850MHz

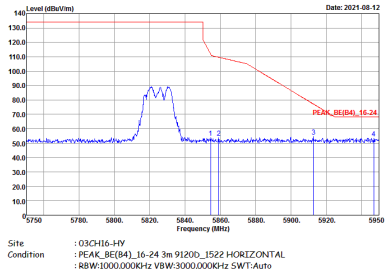
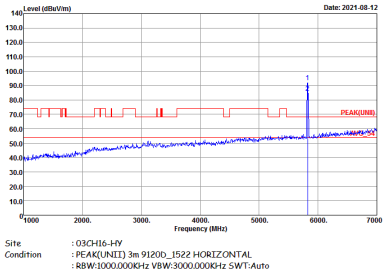
WIFI 802.11a (Band Edge @ 3m)

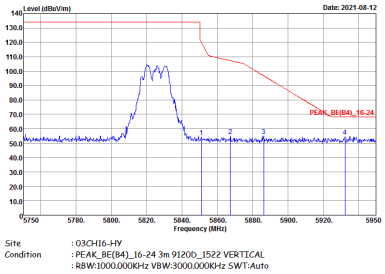
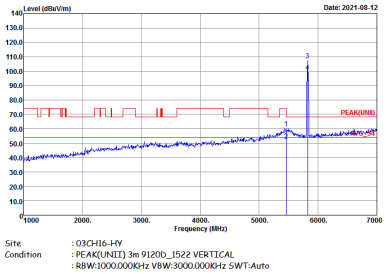
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
0+1	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
0+1	Vertical	Fundamental
Peak		

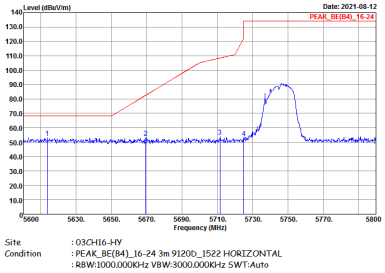
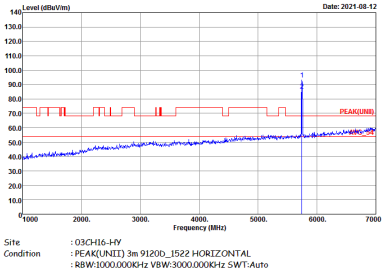
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
0+1	Horizontal	Fundamental
Peak		
Peak		Left blank

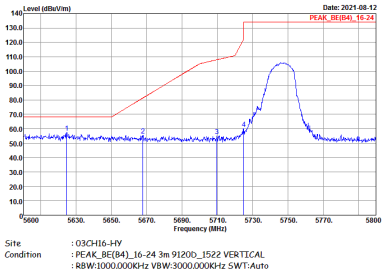
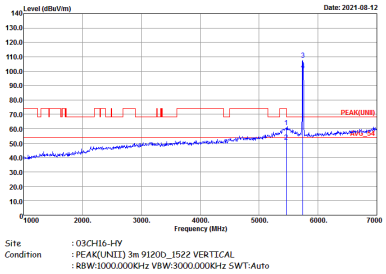
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
0+1	Vertical	Fundamental
Peak		
Peak		Left blank

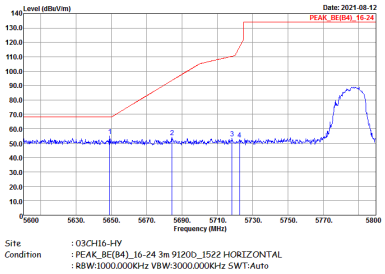
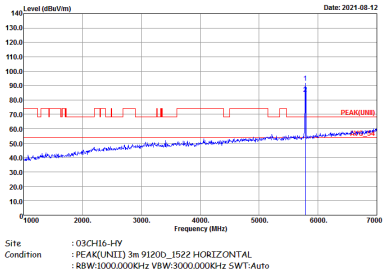
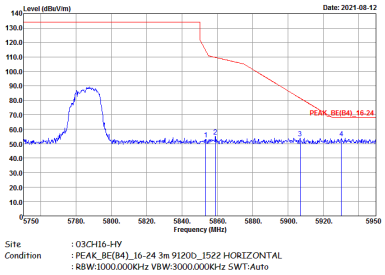
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
0+1	Horizontal	Fundamental
Peak		

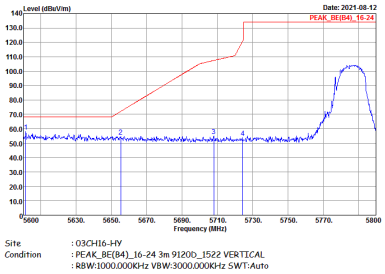
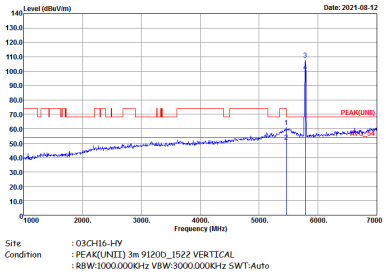
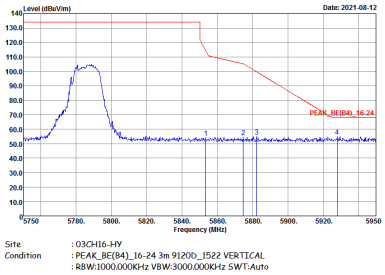
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
0+1	Vertical	Fundamental
Peak		

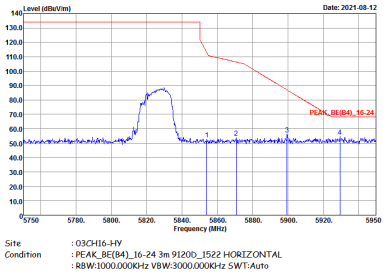
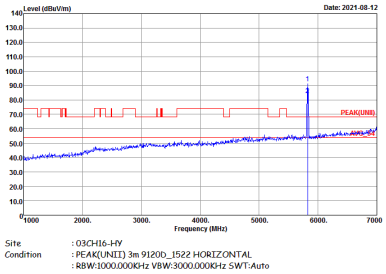
Band 4 5725~5850MHz
WIFI 802.11ac VHT20 (Band Edge @ 3m)

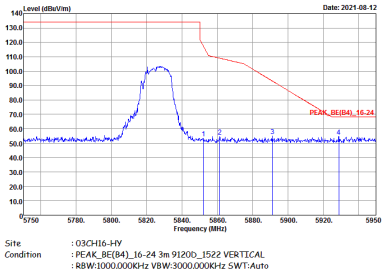
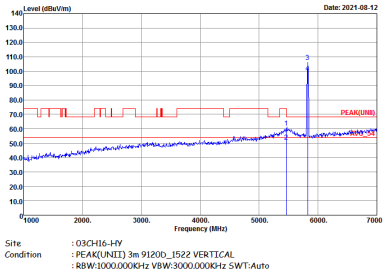
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
0+1	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
0+1	Vertical	Fundamental
Peak Avg.		

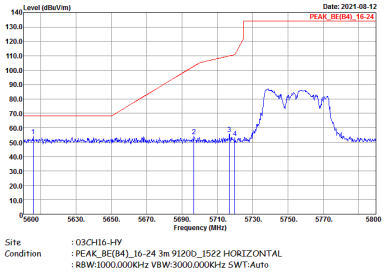
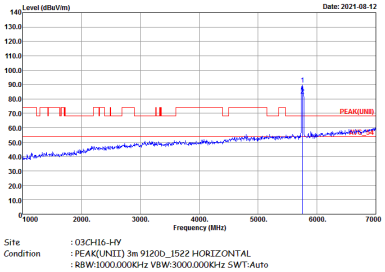
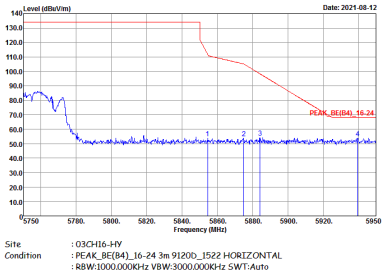
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
0+1	Horizontal	Fundamental
Peak		
Peak		Left blank

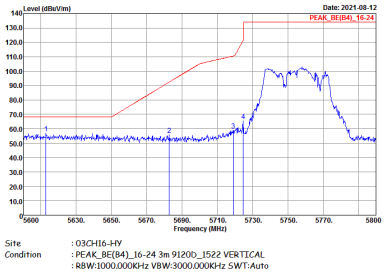
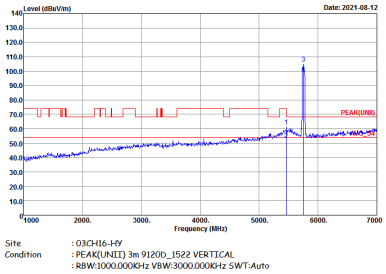
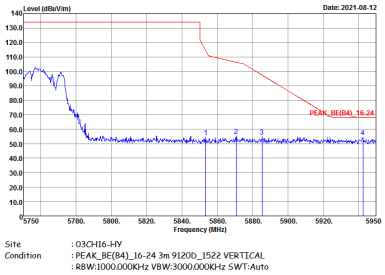
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
0+1	Vertical	Fundamental
Peak		
Peak		Left blank

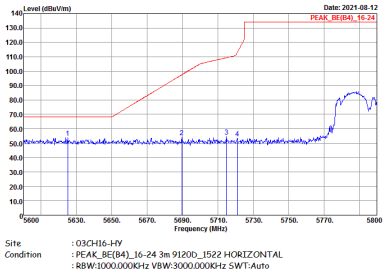
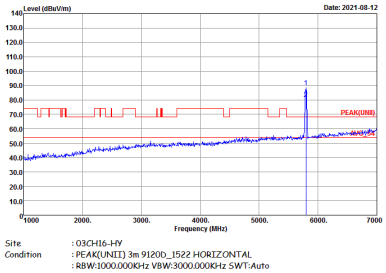
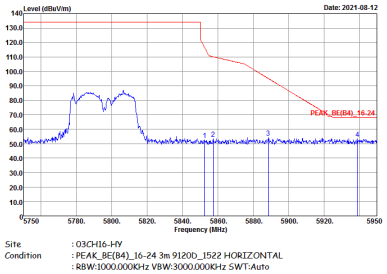
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
0+1	Horizontal	Fundamental
Peak		

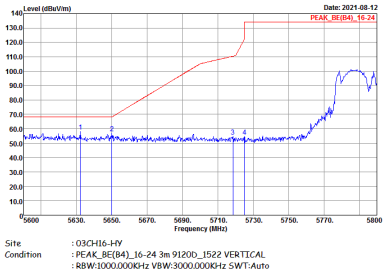
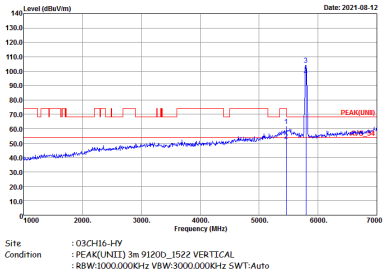
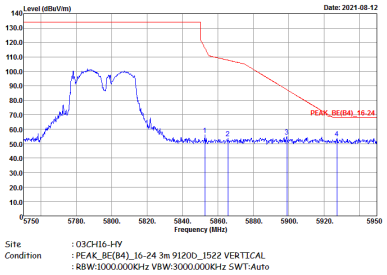
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
0+1	Vertical	Fundamental
Peak Avg.		

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

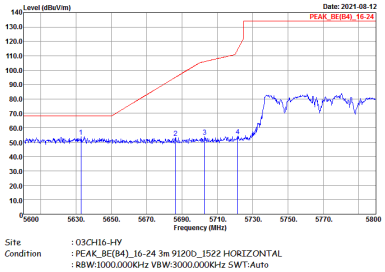
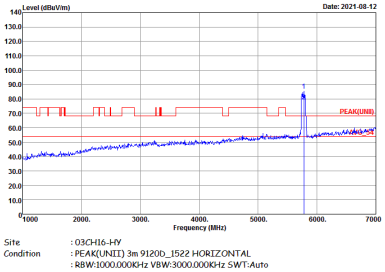
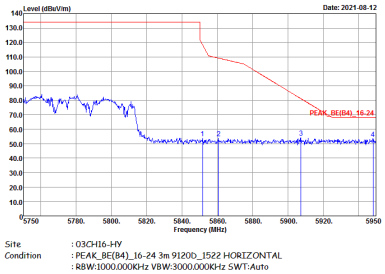
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
0+1	Horizontal	Fundamental
Peak		
Peak		Left blank

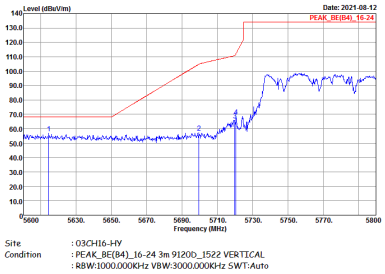
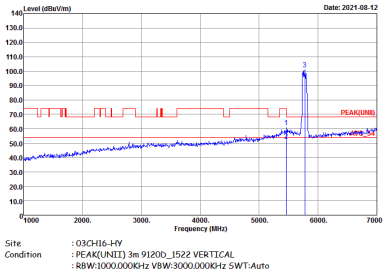
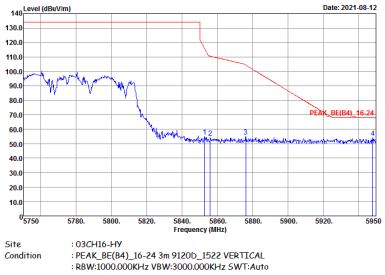
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
0+1	Vertical	Fundamental
Peak		
Peak		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
0+1	Horizontal	Fundamental
Peak		
Peak		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
0+1	Vertical	Fundamental
Peak		
Peak		Left blank

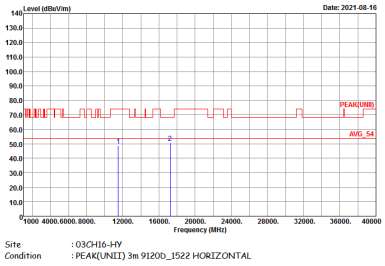
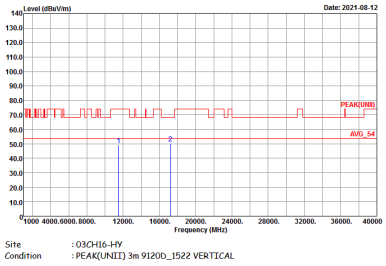
Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

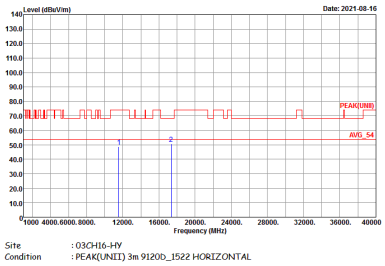
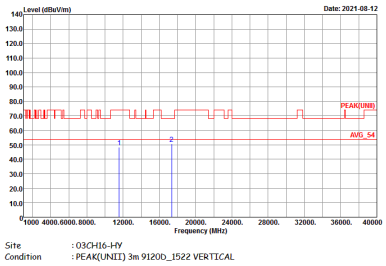
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
0+1	Horizontal	Fundamental
Peak		
Peak		Left blank

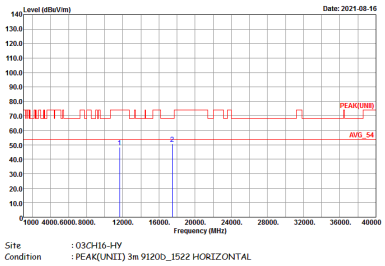
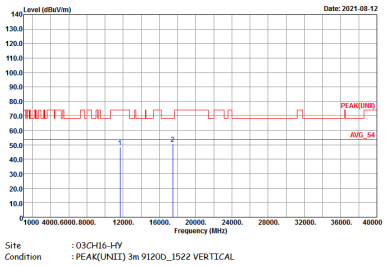
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
0+1	Vertical	Fundamental
Peak		
Peak		Left blank

Band 4 - 5725~5850MHz

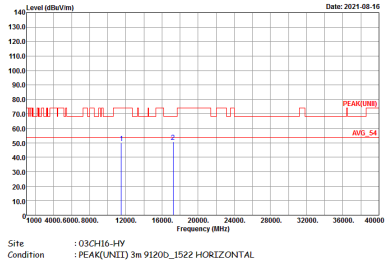
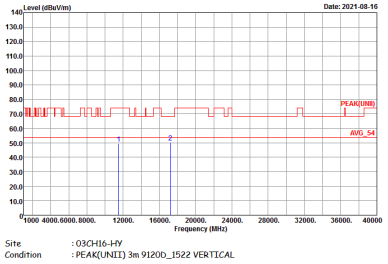
WIFI 802.11a (Harmonic @ 3m)

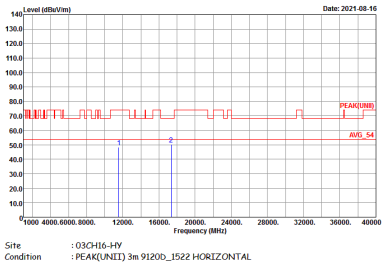
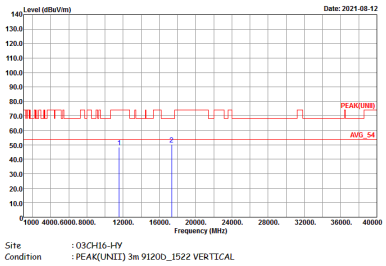
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
0+1	Horizontal	Vertical
Peak Avg.		

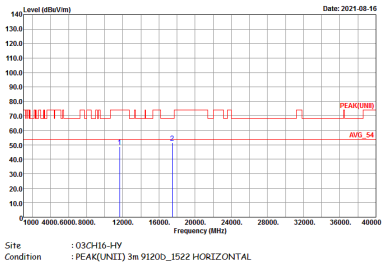
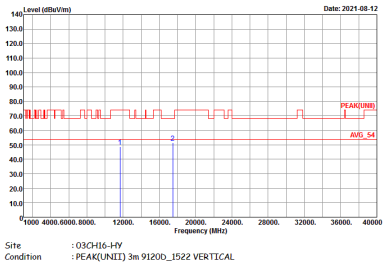
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
0+1	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
0+1	Horizontal	Vertical
Peak Avg.		

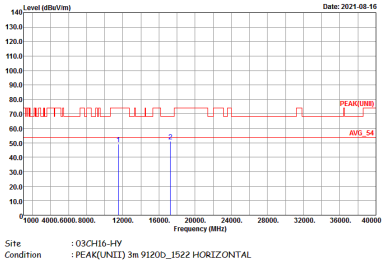
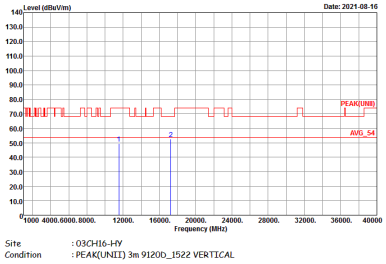
Band 4 5725~5850MHz
WIFI 802.11ac VHT20 (Harmonic @ 3m)

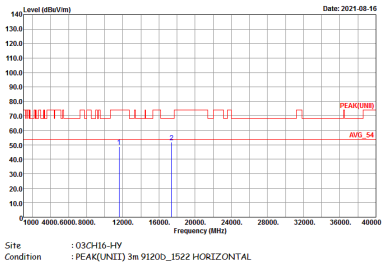
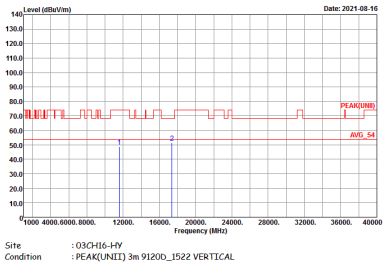
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH149 5745MHz	
0+1	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH157 5785MHz	
0+1	Horizontal	Vertical
Peak Avg.		

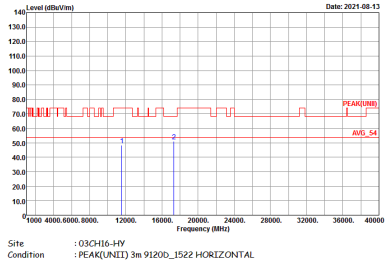
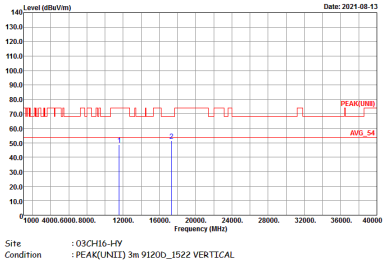
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT20 CH165 5825MHz	
0+1	Horizontal	Vertical
Peak Avg.		

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

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
0+1	Horizontal	Vertical
Peak Avg.		

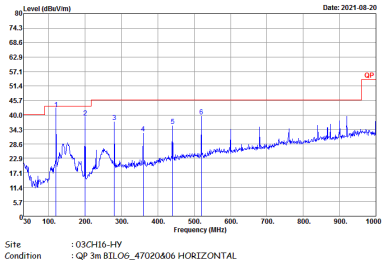
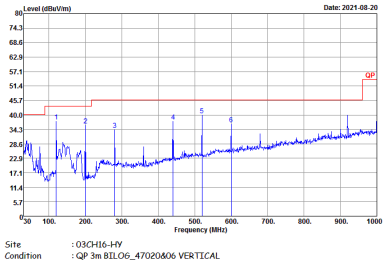
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT40 CH159 5795MHz	
0+1	Horizontal	Vertical
Peak Avg.		

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

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
0+1	Horizontal	Vertical
Peak Avg.		

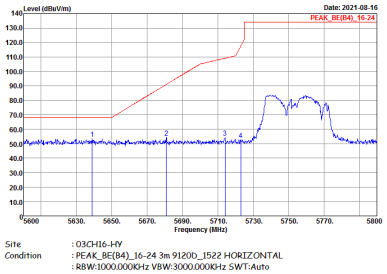
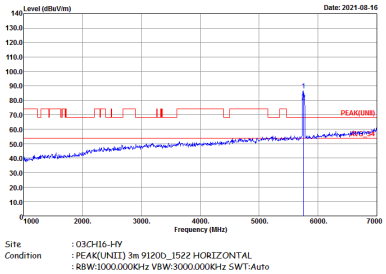
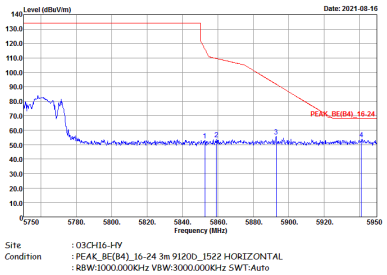
Emission below 1GHz

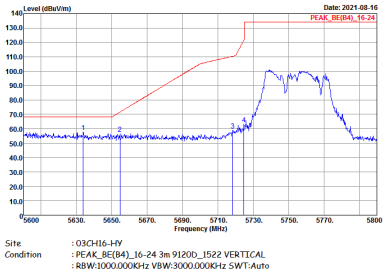
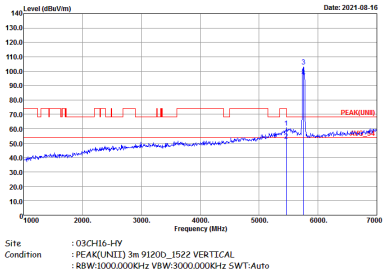
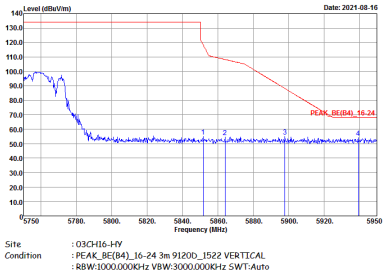
5GHz WIFI 802.11ac VHT40 (LF @ 3m)

WIFI	5GHz WIFI	
ANT	802.11ac VHT40 LF	
0+1	Horizontal	Vertical
QP / Peak		

<Sample 2>

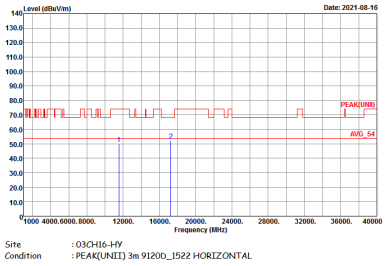
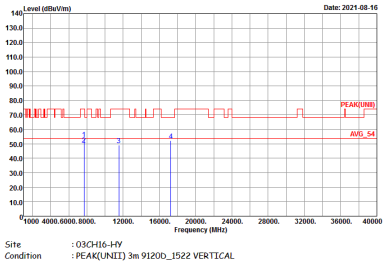
Band 4 - 5725~5850MHz
WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
0+1	Horizontal	Fundamental
Peak		
Peak		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
0+1	Vertical	Fundamental
Peak		
Peak		Left blank

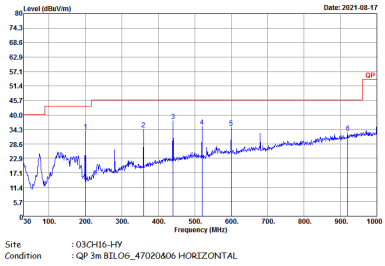
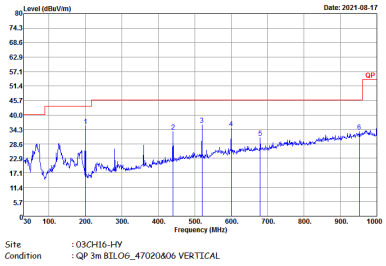
Band 4 - 5725~5850MHz

WIFI 802.11ac VHT40 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT40 CH151 5755MHz	
0+1	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

5GHz WIFI 802.11ac VHT40 (LF @ 3m)

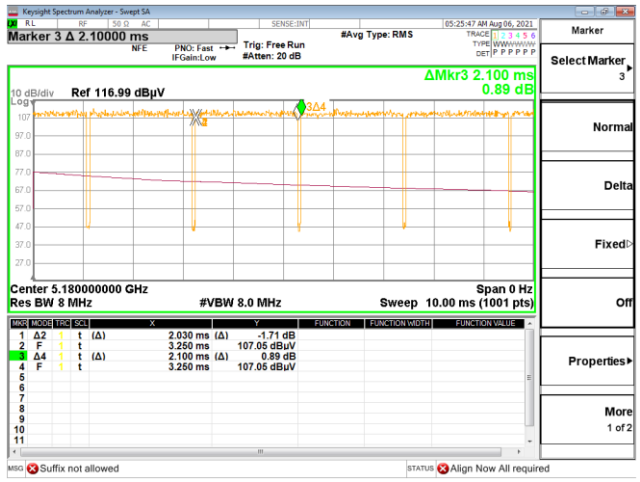
WIFI	5GHz WIFI	
ANT	802.11ac VHT40 LF	
0+1	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

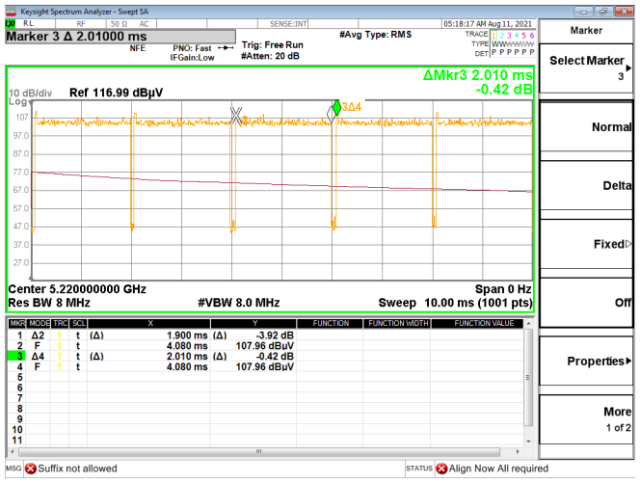
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
0+1	802.11a	96.67	2030	0.49	1kHz
0+1	5GHz 802.11ac VHT20	94.06	1900	0.53	1kHz
0+1	5GHz 802.11ac VHT40	93.00	930	1.08	3kHz
0+1	5GHz 802.11ac VHT80	87.36	456	2.19	3kHz

MIMO <Ant. 0+1>

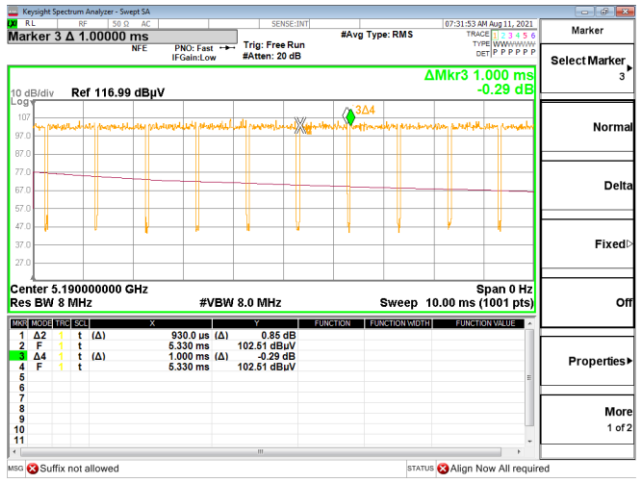
802.11a



802.11ac VHT20



802.11ac VHT40



802.11ac VHT80