



FCC RADIO TEST REPORT

FCC ID : A4RGB62Z
Equipment : Phone
Model Name : GB62Z
Applicant : Google LLC
1600 Amphitheatre Parkway,
Mountain View, California, 94043 USA
Standard : FCC Part 15 Subpart E §15.407

The product was received on Nov. 11, 2021 and testing was performed from Nov. 12, 2021 to Jan. 06, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

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



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Product Feature of Equipment Under Test.....	5
1.2 Product Specification of Equipment Under Test.....	5
1.3 Modification of EUT	6
1.4 Testing Location	7
1.5 Applicable Standards.....	7
2 Test Configuration of Equipment Under Test	8
2.1 Carrier Frequency and Channel	8
2.2 Test Mode.....	9
2.3 Connection Diagram of Test System.....	10
2.4 Support Unit used in test configuration and system	11
2.5 EUT Operation Test Setup	11
2.6 Measurement Results Explanation Example.....	11
3 Test Result	12
3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement	12
3.2 Maximum Conducted Output Power Measurement	18
3.3 Power Spectral Density Measurement	19
3.4 Unwanted Emissions Measurement.....	25
3.5 AC Conducted Emission Measurement.....	30
3.6 Antenna Requirements	32
4 List of Measuring Equipment.....	34
5 Uncertainty of Evaluation	36
Appendix A. Conducted Test Results	
Appendix B. AC Conducted Emission Test Result	
Appendix C. Radiated Spurious Emission	
Appendix D. Radiated Spurious Emission Plots	
Appendix E. Duty Cycle Plots	



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	9.06 dB under the limit at 5940.000 MHz
3.5	15.207	AC Conducted Emission	Pass	10.78 dB under the limit at 0.184 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 product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: William Chen
Report Producer: Celery Wei



1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Phone
Model Name	GB62Z
FCC ID	A4RGB62Z
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/5G NR/NFC/GNSS WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE

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

EUT Information List	
S/N	Performed Test Item
1A261FQGR00043	RF Conducted Measurement
1B011FQGR00008	Radiated Spurious Emission
1B011FQGR00006	Conducted Emission

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx/Rx Channel Frequency Range	5745 MHz ~ 5825 MHz
Maximum Output Power	MIMO <Ant. 4 + 3> 802.11a: 22.51 dBm / 0.1782 W 802.11n HT20: 22.46 dBm / 0.1762 W 802.11n HT40: 21.46 dBm / 0.1400 W 802.11ac VHT20: 22.36 dBm / 0.1722 W 802.11ac VHT40: 21.36 dBm / 0.1368 W 802.11ac VHT80: 21.36 dBm / 0.1368 W 802.11ac VHT160: 21.81 dBm / 0.1517 W 802.11ax HE20: 22.26 dBm / 0.1683 W 802.11ax HE40: 21.26 dBm / 0.1337 W 802.11ax HE80: 21.26 dBm / 0.1337 W 802.11ax HE160: 21.91 dBm / 0.1552 W



Product Specification is subject to this standard							
99% Occupied Bandwidth	MIMO <Ant. 4> 802.11a: 18.98 MHz 802.11n HT20: 20.03 MHz 802.11n HT40: 38.06 MHz 802.11ac VHT80: 76.00 MHz 802.11ax HE160: 157.04MHz MIMO <Ant. 3> 802.11a: 18.63 MHz 802.11n HT20: 19.68 MHz 802.11n HT40: 37.36 MHz 802.11ac VHT80: 76.00 MHz 802.11ax HE160: 157.04MHz						
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) 802.11ax: OFDMA (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)						
Antenna Type / Gain	<Ant. 4> : IFA Antenna with gain -1.0 dBi <Ant. 3> : IFA Antenna with gain -2.5 dBi						
Antenna Function Description	<table border="1"> <thead> <tr> <th></th> <th>Ant. 4</th> <th>Ant. 3</th> </tr> </thead> <tbody> <tr> <td>802.11a/n/ac/ax MIMO</td> <td>V</td> <td>V</td> </tr> </tbody> </table>		Ant. 4	Ant. 3	802.11a/n/ac/ax MIMO	V	V
	Ant. 4	Ant. 3					
802.11a/n/ac/ax MIMO	V	V					

Remark:

1. MIMO Ant. 4+3 Directional Gain is a calculated result from MIMO Ant.4 and MIMO Ant.3. The formula used in calculation is documented in section 3.6.
2. Power of MIMO Ant.4 + Ant.3 is a calculated result from sum of the power MIMO Ant.4 and MIMO Ant.3.
3. The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.3 Modification of EUT

No modifications made to the EUT during the testing.



1.4 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. CO05-HY (TAF Code: 1190)
Remark	The Conducted Emission test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory.

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No. TH05-HY; 03CH16-HY

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

FCC designation No.: TW1190 and TW3786

1.5 Applicable Standards

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

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

Remark:

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



2 Test Configuration of Equipment Under Test

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

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4 (U-NII-3)	149	5745	159*	5795
	151*	5755	161	5805
	153	5765	163 [@]	5815
	155 [#]	5775	165	5825
	157	5785		

Note:

1. The above Frequency and Channel with "*" are 802.11n HT40 and 802.11ac VHT40 and 802.11ax HE40.
2. The above Frequency and Channel with "#" are 802.11ac VHT80 and 802.11ax HE80.
3. The above Frequency and Channel with "@n" are 802.11ac VHT160.



2.2 Test Mode

This device support 26/52/106/242/484/996-tone RU but does not support 2x996-tone RU on 160MHz channel.

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

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
802.11ac VHT160 (Covered by HE160)	MCS0
802.11ax HE20 (Covered by HT20)	MCS0
802.11ax HE40 (Covered by HT40)	MCS0
802.11ax HE80 (Covered by VHT80)	MCS0
802.11ax HE160	MCS0

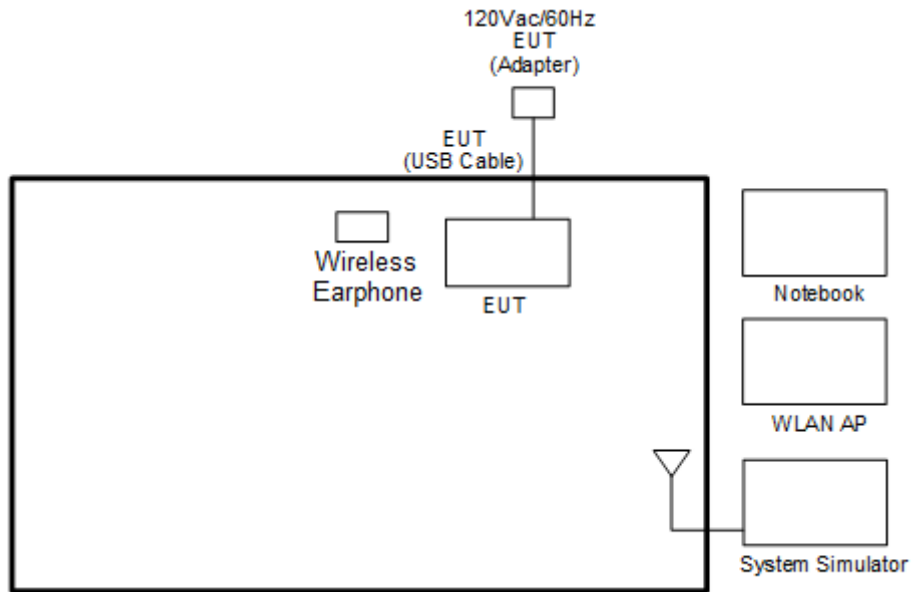
Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + WLAN (5GHz) Link + Bluetooth Link + USB Cable 2 (Charging from AC Adapter 1)
Remark: For Radiated Test Cases, the tests were performed with Adapter 1 and USB Cable 2.	

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	-

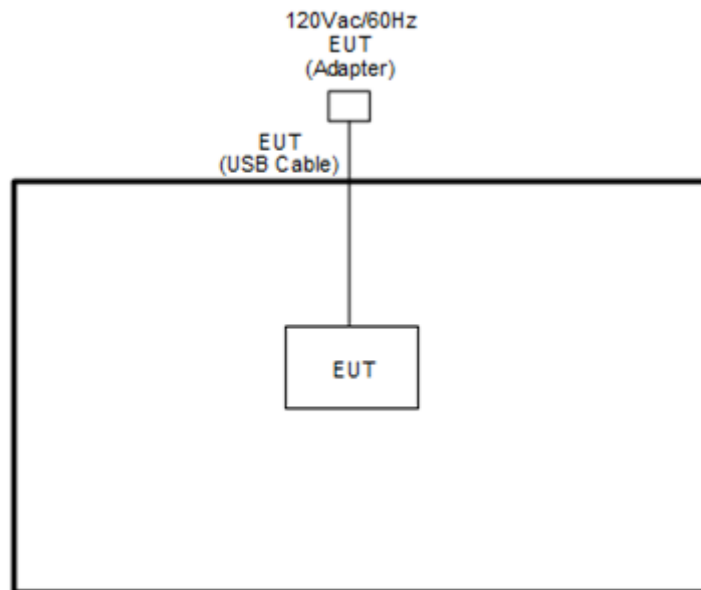
Remark: For radiation spurious emission, the modulation and the data rate picked for testing are determined by the Max. RF conducted power.

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode>



<WLAN Tx Mode>





2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	Wireless Earphone	Google	G1007/G1008	A4RG1007/ A4RG1008	N/A	N/A
3.	WLAN AP	NETGEAR64	RAXE500	N/A	N/A	Unshielded, 1.8m
4.	Notebook	Dell	Latitude 3400	FCC DoC	N/A	AC I/P : Unshielded, 1.2m DC O/P : Shielded, 1.8m

2.5 EUT Operation Test Setup

The RF test items, utility “Command v10.0.17134.134” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

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

Offset = RF cable loss + attenuator factor.

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

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

3 Test Result

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

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

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

26dB and 99% Occupied bandwidth are reporting only.

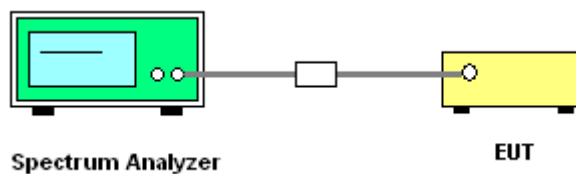
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup

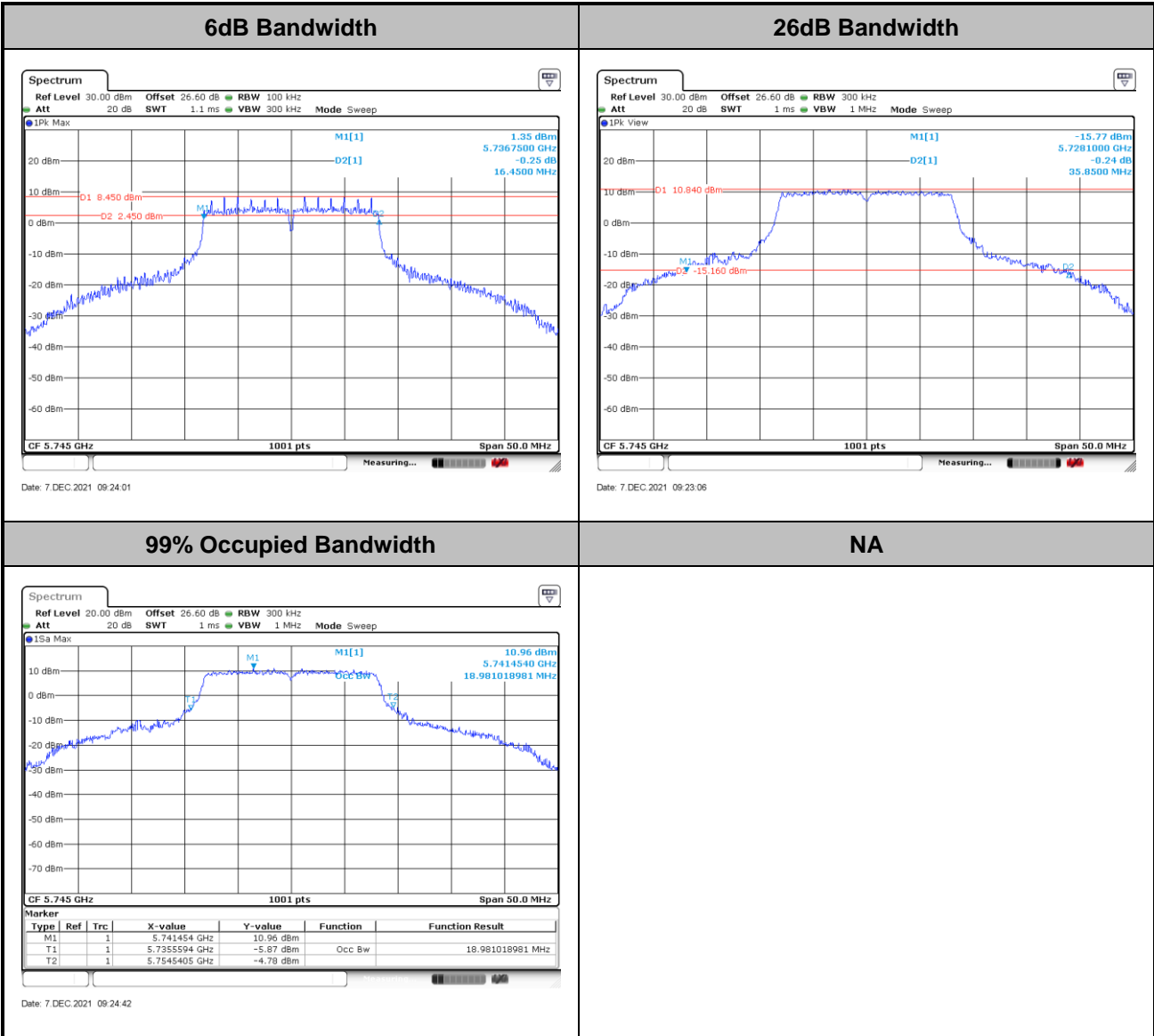


3.1.5 Test Result of 6dB and 26dB and 99% Occupied Bandwidth

Please refer to Appendix A.



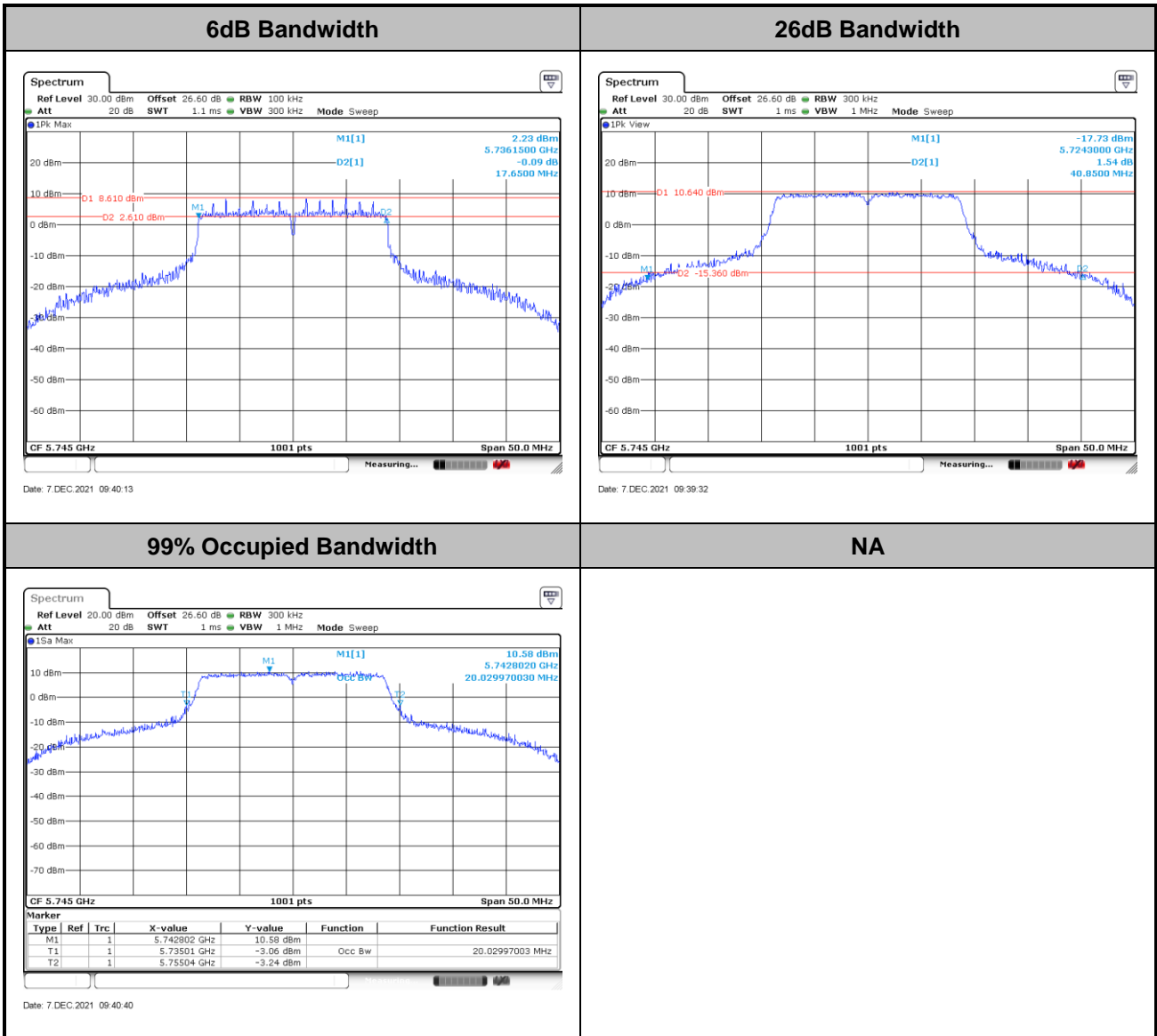
<802.11a>



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



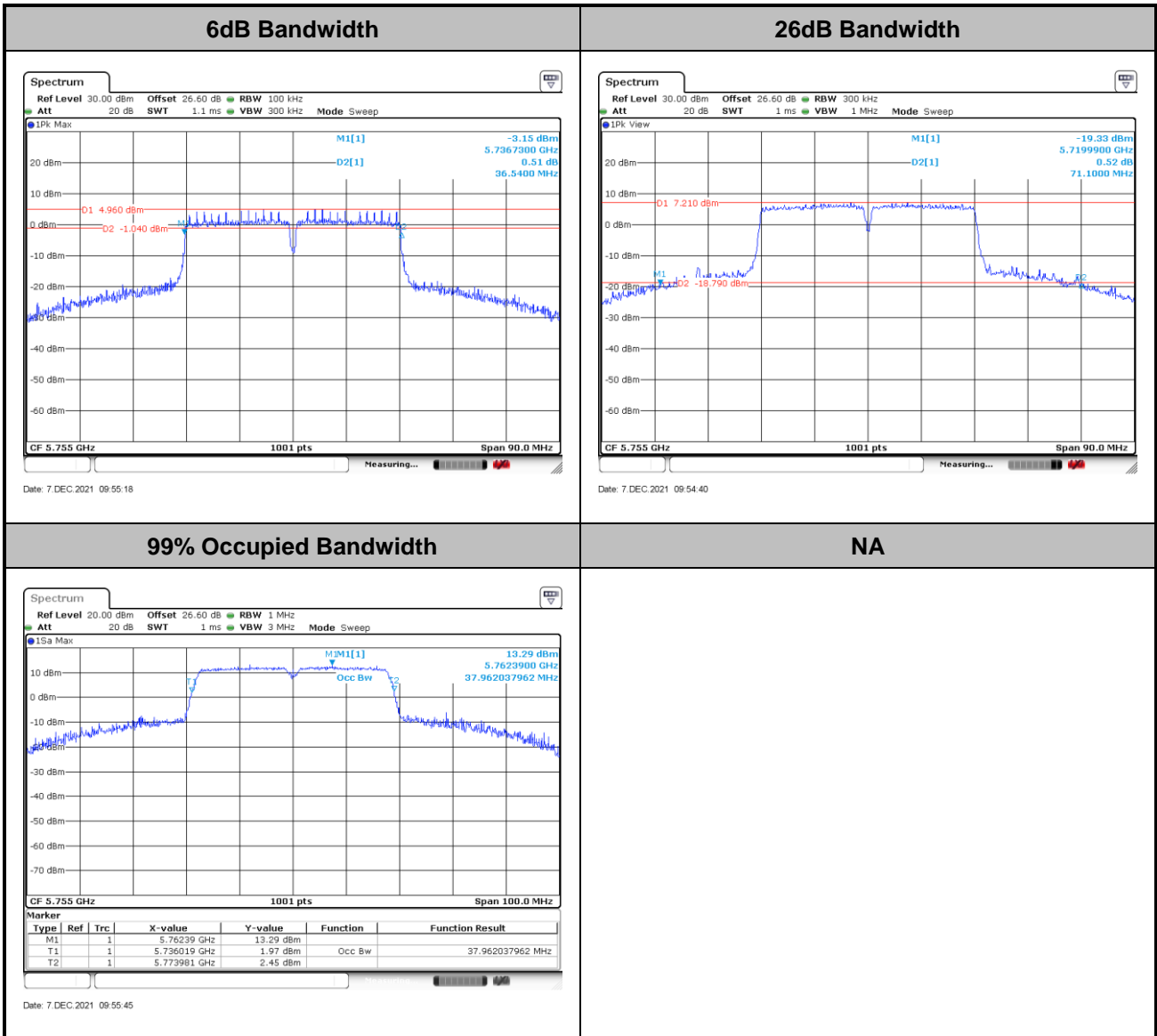
<802.11n HT20>



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



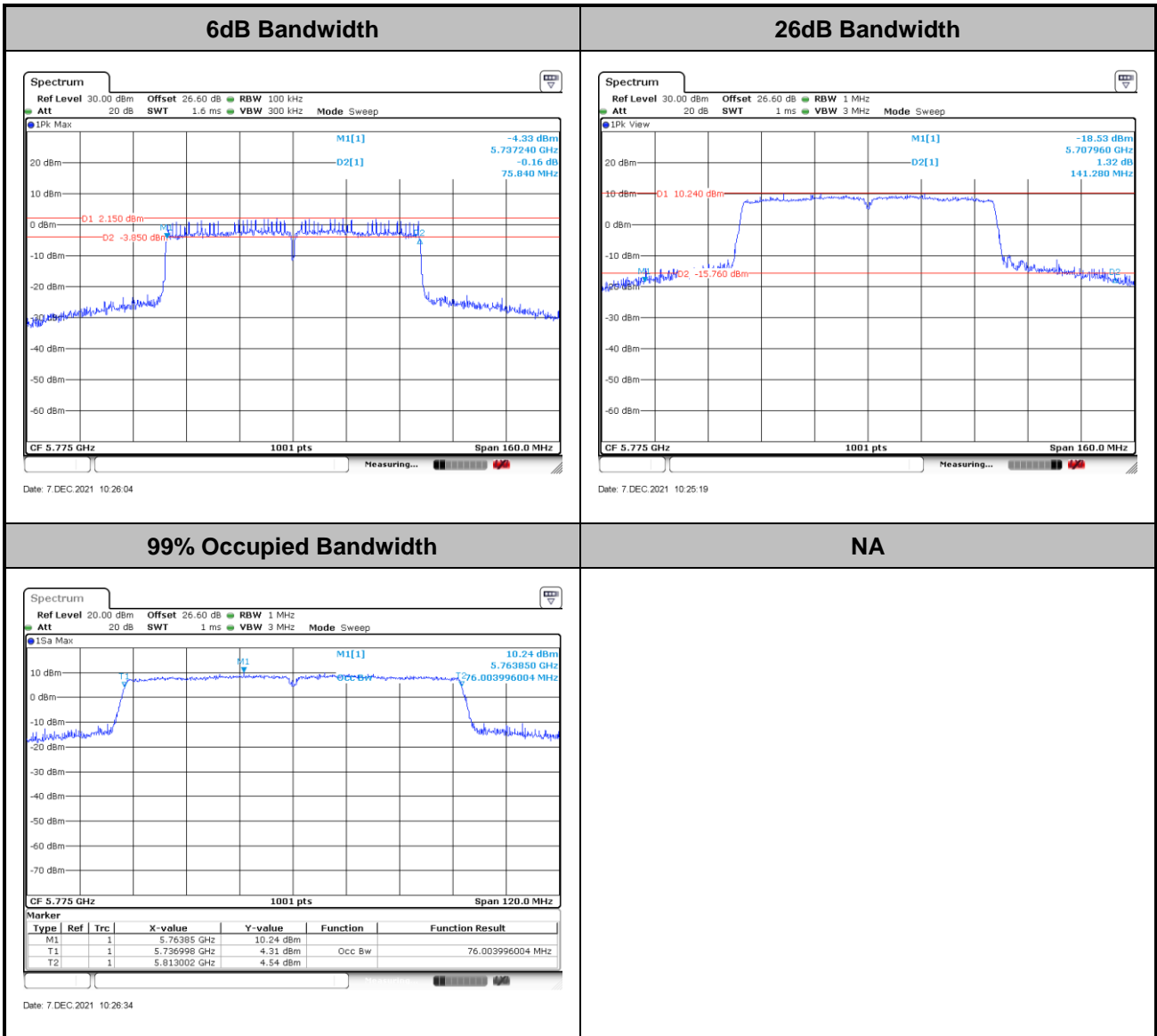
<802.11n HT40>



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



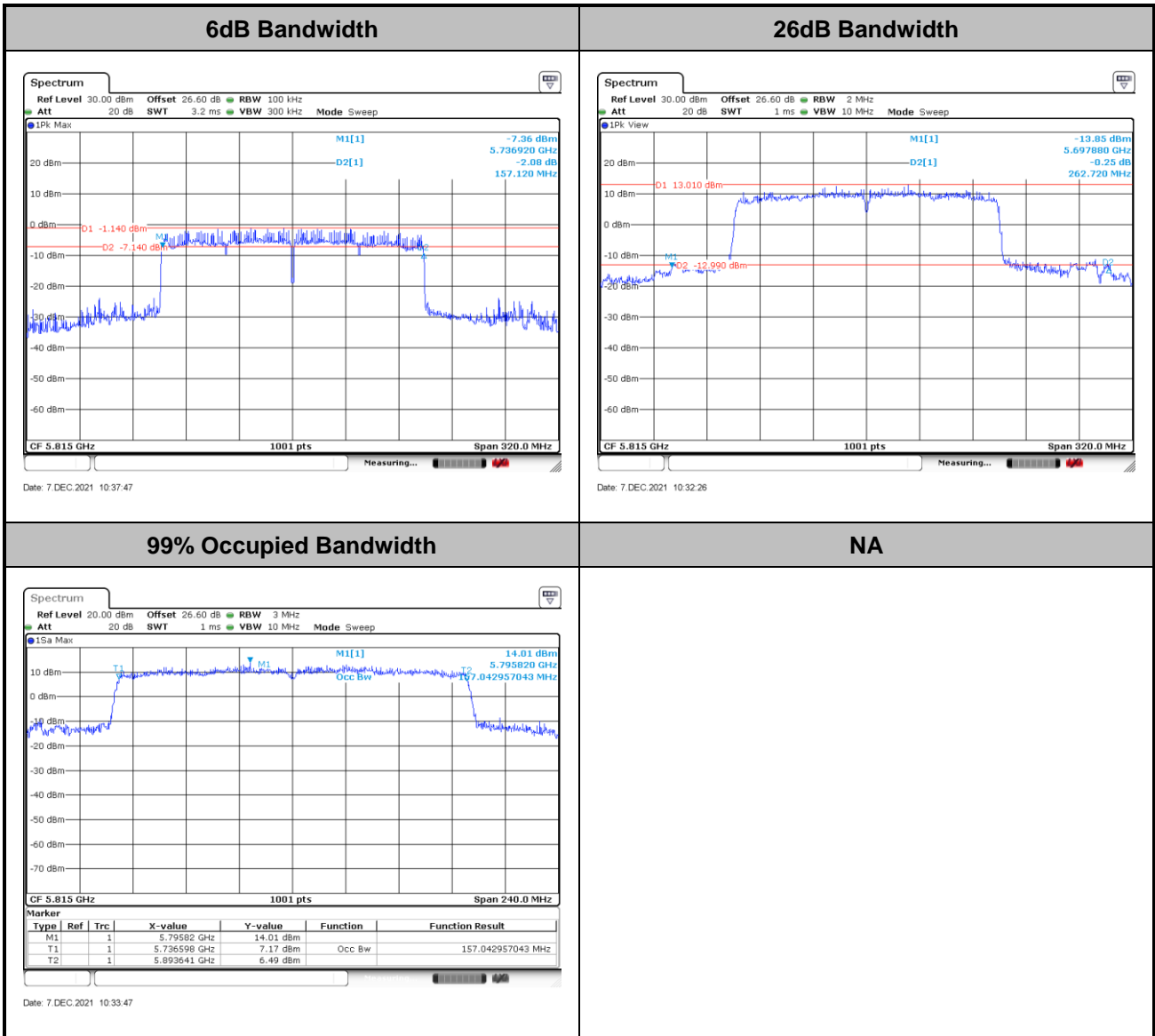
<802.11ac VHT80>



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



<802.11ax HE160>



3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

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

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

3.2.2 Measuring Instruments

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

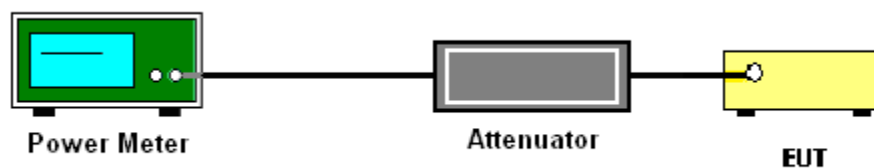
3.2.3 Test Procedures

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

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

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit at its maximum power control level.
3. Measure the average power of the transmitter.
4. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

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

3.3.2 Measuring Instruments

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



3.3.3 Test Procedures

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

Section F) Maximum power spectral density.

Method SA-2

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

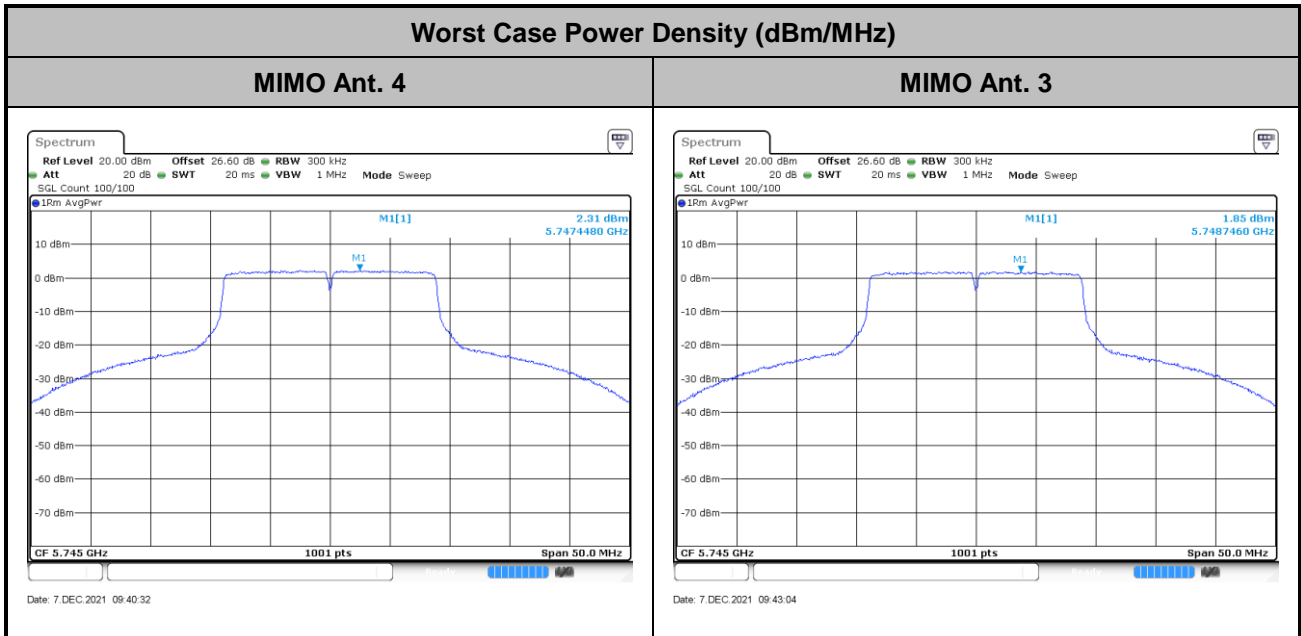
- Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 300kHz.
 - Set VBW \geq 1 MHz.
 - Add $10 \log(500 \text{ kHz/RBW})$ to the measured result, whereas RBW ($<500 \text{ kHz}$) is the reduced resolution bandwidth of the spectrum analyzer set during measurement
 - Number of points in sweep $\geq 2 \text{ Span} / \text{RBW}$.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6 \text{ dB}$ if the duty cycle is 25 percent.
1. The RF output of EUT is connected to the spectrum analyzer by a low loss cable.
 2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
 3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

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

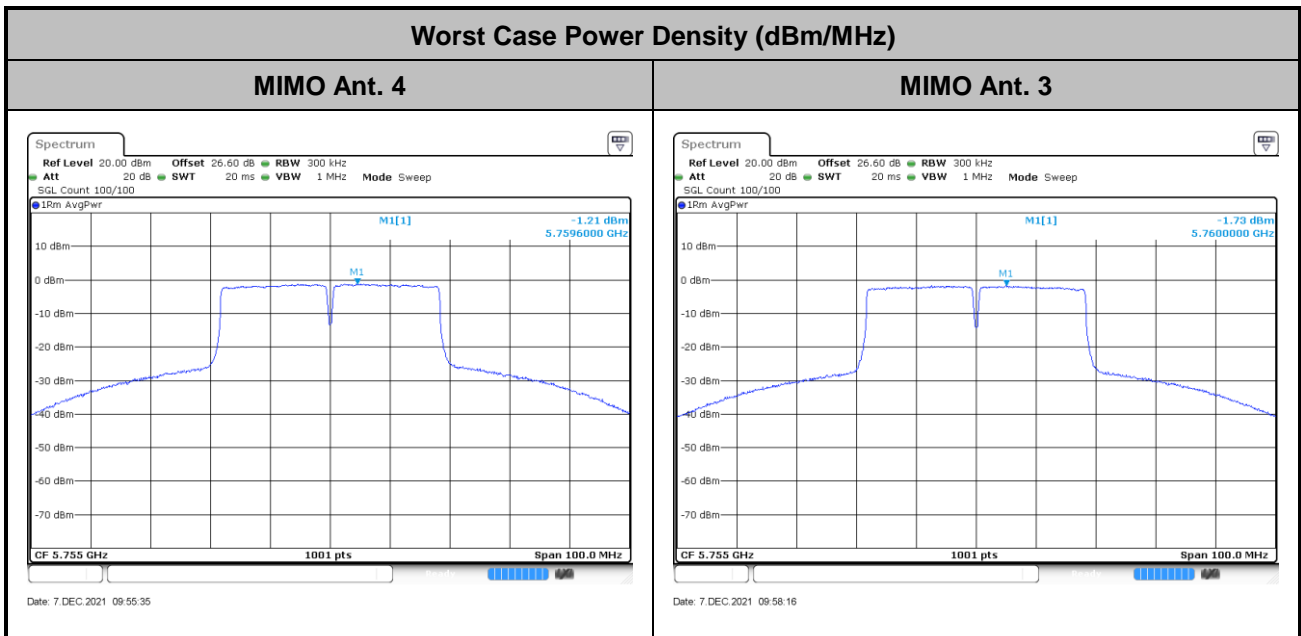
With this technique, spectrum measurements are performed at each output of the device, but rather than summing the spectra or the spectral peaks across the outputs, the quantity $10 \log(N_{\text{ANT}})$ dB is added to each spectrum value before comparing to the emission limit. The addition of $10 \log(N_{\text{ANT}})$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



<802.11n HT20 Mode>

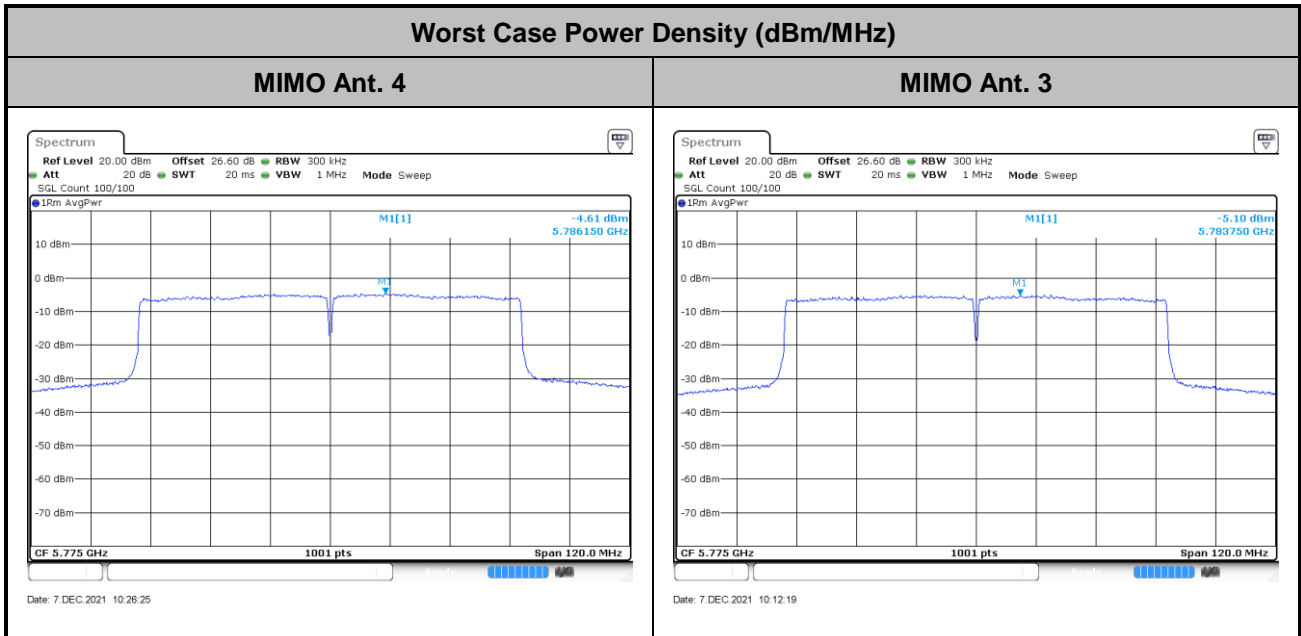


<802.11n HT40 Mode>

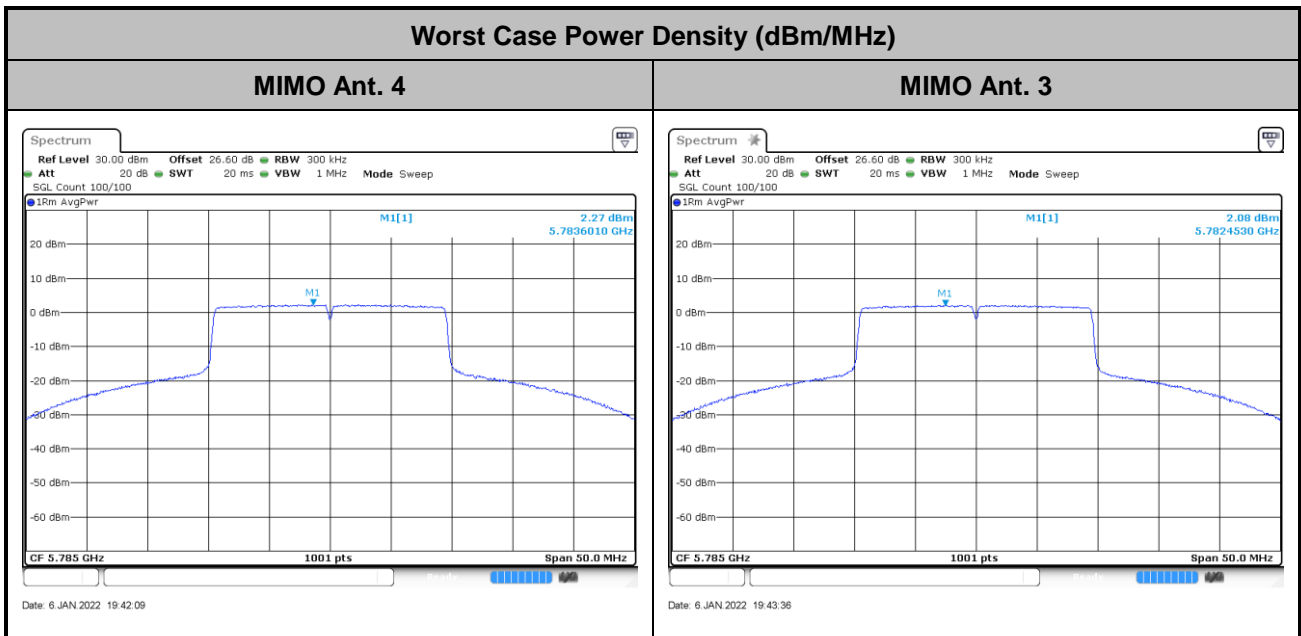




<802.11ac VHT80 Mode>



<802.11ax HE20 Mode>



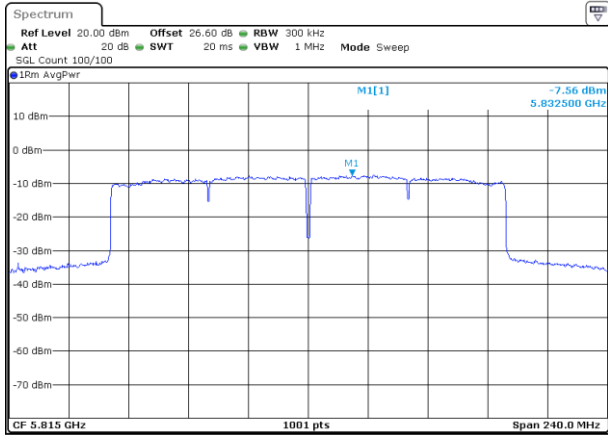


<802.11ax HE160 Mode>

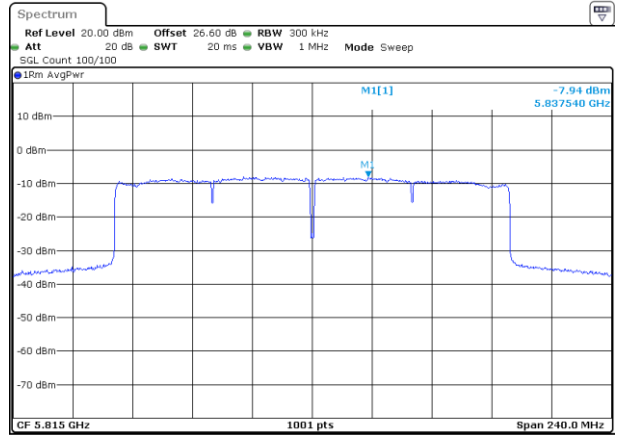
Worst Case Power Density (dBm/MHz)

MIMO Ant. 4

MIMO Ant. 3



Date: 7 DEC 2021 10:33:38



Date: 7 DEC 2021 10:38:07



3.4 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

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

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

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

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

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

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

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

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

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

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



3.4.2 Measuring Instruments

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

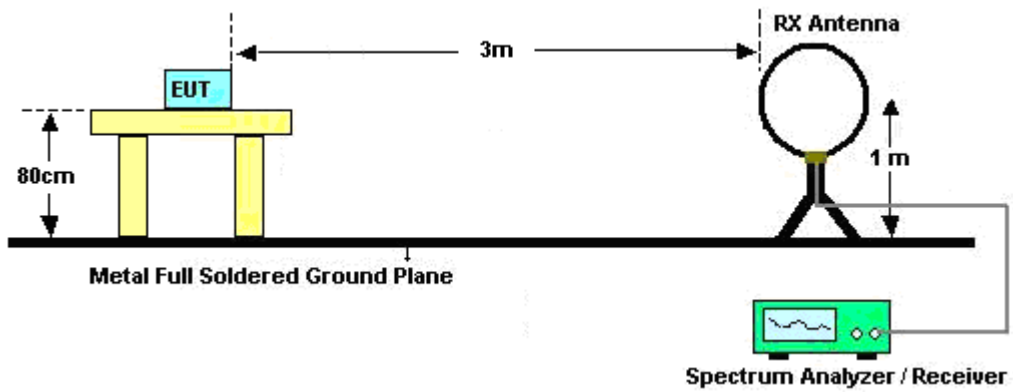
3.4.3 Test Procedures

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

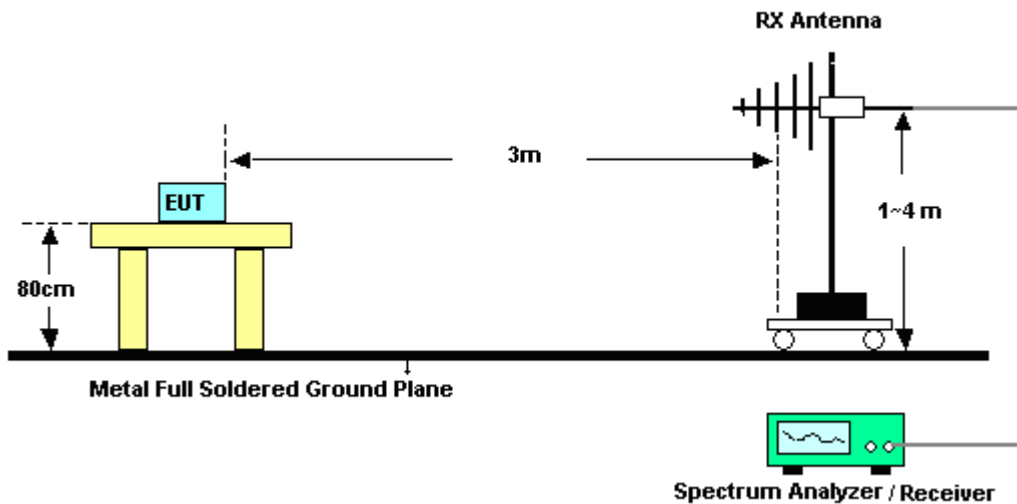
6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as “-“.
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-“.

3.4.4 Test Setup

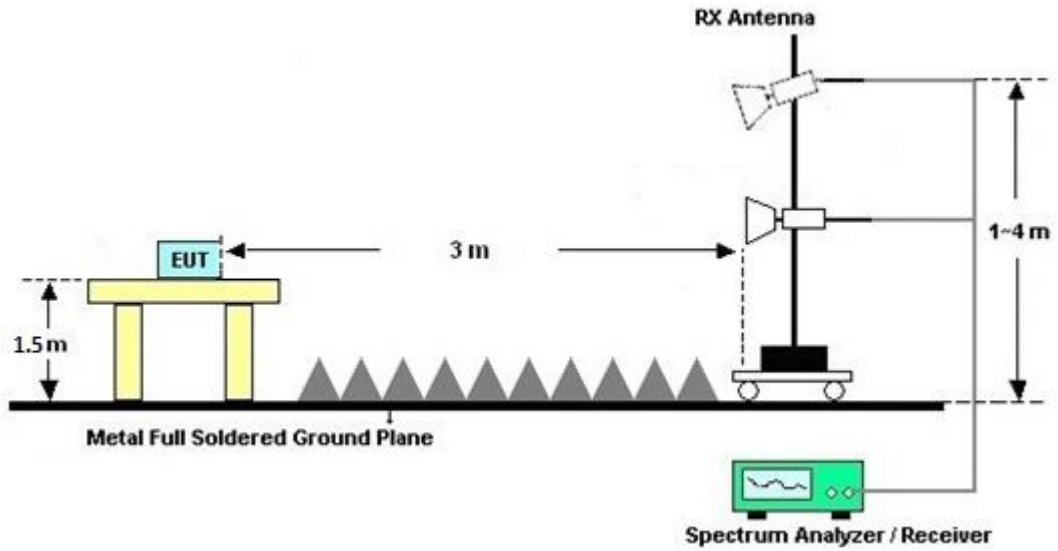
For radiated emissions below 30MHz



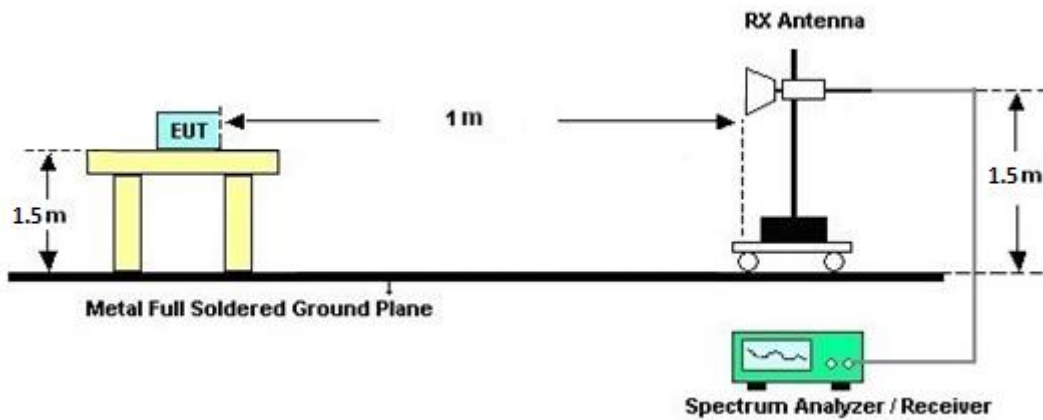
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz





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

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

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

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

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

3.4.7 Test Result of Radiated Band Edges

Please refer to Appendix C and D.

3.4.8 Duty Cycle

Please refer to Appendix E.

3.4.9 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 (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

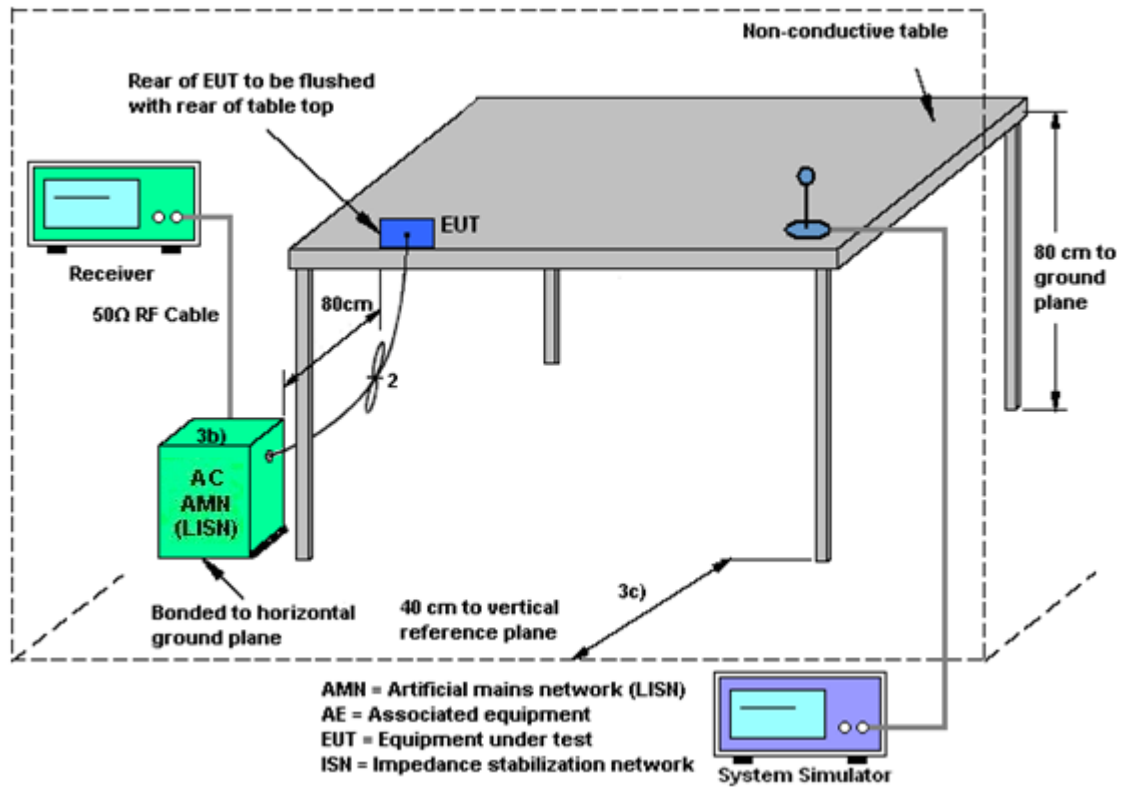
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN shall be used.
6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
7. The frequency range from 150 kHz to 30 MHz is scanned.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.5.4 Test Setup



3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1 Standard Applicable

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 power measurements on IEEE 802.11 devices,

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

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

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

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

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

where

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

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

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the k th antenna is being fed by spatial stream j , or zero if it is not;
 G_k is the gain in dBi of the k th antenna.

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

Directional gain = $10 \cdot \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$ dBi

Where G_1, G_2, \dots, G_N denote single antenna gain.

For example: If a device has two antenna, $G_{ANT1}= 3.6$ dBi; $G_{ANT2}=4.2$ dBi

Directional gain of power measurement = $\max(3.6, 4.2) + 0 = 4.2$ dBi

Directional gain of PSD measurement = $10 \cdot \log[(10^{3.6/20} + 10^{4.2/20})^2 / 2] = 6.92$ dBi



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

<CDD Modes>						
			DG	DG	Power	PSD
			for	for	Limit	Limit
	Ant. 4	Ant. 3	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
Band IV	-1.00	-2.50	-1.00	1.29	0.00	0.00

$$Power\ Limit\ Reduction = DG(Power) - 6dBi, (min = 0)$$

$$PSD\ Limit\ Reduction = DG(PSD) - 6dBi, (min = 0)$$

Calculation example:

The DG for PSD is derived from formula is

$$10 \times \log \left\{ \left[10^{(-1.00\text{ dBi} / 20)} + 10^{(-2.50\text{ dBi} / 20)} \right]^2 / 2 \right\}$$

$$= 1.29\text{ dBi}$$



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 07, 2021	Nov. 12, 2021~ Dec. 15, 2021	Sep. 06, 2022	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N -06	47020 & 06	30MHz to 1GHz	Oct. 09, 2021	Nov. 12, 2021~ Dec. 15, 2021	Oct. 08, 2022	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1522	1G~18GHz	Oct. 12, 2021	Nov. 12, 2021~ Dec. 15, 2021	Oct. 11, 2022	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	00991	18GHz ~40GHz	May 12, 2021	Nov. 12, 2021~ Dec. 15, 2021	May 11, 2022	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1G	Jul. 05, 2021	Nov. 12, 2021~ Dec. 15, 2021	Jul. 04, 2022	Radiation (03CH16-HY)
Preamplifier	Jet-Power	JPA0118-55-30 3	17100018000 54001	1-18GHz	Jun. 16, 2021	Nov. 12, 2021~ Dec. 15, 2021	Jun. 15, 2022	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 10, 2020	Nov. 12, 2021~ Dec. 08, 2021	Dec. 09, 2021	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 09, 2021	Dec. 09, 2021~ Dec. 15, 2021	Dec. 08, 2022	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Nov. 12, 2021~ Dec. 15, 2021	Jun. 21, 2022	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY57290111	3Hz~26.5GHz	Dec. 11, 2020	Nov. 12, 2021~ Dec. 09, 2021	Dec. 10, 2021	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY59053012	3Hz~26.5GHz	Nov. 18, 2021	Nov. 19, 2021~ Dec. 15, 2021	Nov. 17, 2022	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9010A	MY54200485	3Hz ~40GHz	Mar. 05, 2021	Nov. 12, 2021~ Dec. 15, 2021	Mar. 04, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11680/4P E	NA	Aug. 28, 2021	Nov. 12, 2021~ Dec. 15, 2021	Aug. 27, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11688/4P E	NA	Aug. 28, 2021	Nov. 12, 2021~ Dec. 15, 2021	Aug. 27, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300-5 757	NA	Aug. 28, 2021	Nov. 12, 2021~ Dec. 15, 2021	Aug. 27, 2022	Radiation (03CH16-HY)
Hygrometer	TECPEL	DTM-303B	TP200881	QA-3-031	Sep. 30, 2021	Nov. 12, 2021~ Dec. 15, 2021	Sep. 29, 2022	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Nov. 12, 2021~ Dec. 15, 2021	N/A	Radiation (03CH16-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Nov. 12, 2021~ Dec. 15, 2021	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Nov. 12, 2021~ Dec. 15, 2021	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Nov. 12, 2021~ Dec. 15, 2021	N/A	Radiation (03CH16-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECEPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Nov. 20, 2021~ Jan. 06, 2022	Nov. 15, 2022	Conducted (TH05-HY)
USB Power Meter	Raditeq	RPR3006W #010	RPR6W-2101 001 (NO:206)	10MHz~8GHz	Feb. 03, 2021	Nov. 20, 2021~ Jan. 06, 2022	Feb. 02, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Nov. 20, 2021~ Jan. 06, 2022	Aug. 29, 2022	Conducted (TH05-HY)
Switch Box & RF Cable	EM Electronics	EMSW18SE	SW191204(B OX9)	N/A	Mar. 17, 2021	Nov. 20, 2021~ Jan. 06, 2022	Mar. 06, 2022	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Nov. 15, 2021	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 30, 2020	Nov. 15, 2021	Nov. 29, 2021	Conduction (CO05-HY)
Hygrometer	TECEPEL	DTM-303A	TP201973	N/A	Oct. 22, 2021	Nov. 15, 2021	Oct. 21, 2022	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 01, 2020	Nov. 15, 2021	Nov. 30, 2021	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Nov. 15, 2021	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Jul. 28, 2021	Nov. 15, 2021	Jul. 27, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 31, 2020	Nov. 15, 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% ($U = 2Uc(y)$)	3.1 dB
---	--------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.8 dB
---	--------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.2 dB
---	--------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.8 dB
---	--------

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Benny Ku	Temperature:	21~25	°C
Test Date:	2021/11/20~2022/01/06	Relative Humidity:	51~54	%

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 4	Ant 3	Ant 4	Ant 3	Ant 4	Ant 3		
11a	6Mbps	2	149	5745	18.98	18.63	35.85	34.30	16.45	16.40	0.5	Pass
11a	6Mbps	2	157	5785	18.28	18.03	34.25	32.30	16.45	16.45	0.5	Pass
11a	6Mbps	2	165	5825	18.38	17.78	33.85	30.90	16.45	16.45	0.5	Pass
HT20	MCS0	2	149	5745	20.03	19.68	40.85	39.85	17.65	17.65	0.5	Pass
HT20	MCS0	2	157	5785	19.78	19.58	38.50	35.70	17.65	17.65	0.5	Pass
HT20	MCS0	2	165	5825	19.78	19.13	39.65	38.15	17.65	17.65	0.5	Pass
HT40	MCS0	2	151	5755	37.96	37.36	71.10	68.22	36.54	36.54	0.5	Pass
HT40	MCS0	2	159	5795	38.06	37.36	71.82	68.85	36.54	36.50	0.5	Pass
VHT80	MCS0	2	155	5775	76.00	76.00	141.28	133.76	75.84	76.32	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 4	Ant 3	SUM	Ant 4	Ant 3	Ant 4	Ant 3	
11a	6Mbps	2	149	5745	19.50	19.20	22.36	30.00		-1.00	Pass	
11a	6Mbps	2	157	5785	19.60	19.40	22.51	30.00		-1.00	Pass	
11a	6Mbps	2	165	5825	19.60	19.40	22.51	30.00		-1.00	Pass	
HT20	MCS0	2	149	5745	19.50	19.20	22.36	30.00		-1.00	Pass	
HT20	MCS0	2	157	5785	19.60	19.30	22.46	30.00		-1.00	Pass	
HT20	MCS0	2	165	5825	19.40	19.20	22.31	30.00		-1.00	Pass	
HT40	MCS0	2	151	5755	18.60	18.30	21.46	30.00		-1.00	Pass	
HT40	MCS0	2	159	5795	18.60	18.30	21.46	30.00		-1.00	Pass	
VHT20	MCS0	2	149	5745	19.40	19.10	22.26	30.00		-1.00	Pass	
VHT20	MCS0	2	157	5785	19.50	19.20	22.36	30.00		-1.00	Pass	
VHT20	MCS0	2	165	5825	19.30	19.10	22.21	30.00		-1.00	Pass	
VHT40	MCS0	2	151	5755	18.50	18.20	21.36	30.00		-1.00	Pass	
VHT40	MCS0	2	159	5795	18.50	18.20	21.36	30.00		-1.00	Pass	
VHT80	MCS0	2	155	5775	18.50	18.20	21.36	30.00		-1.00	Pass	
VHT160	MCS0	2	163	5815	18.80	18.80	21.81	30.00		-1.00	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 with Duty Factor (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	Ant 4	Ant 3	
11a	6Mbps	2	149	5745	2.22	4.64	4.40	7.65	30.00	30.00	1.29		Pass	
11a	6Mbps	2	157	5785	2.22	4.19	4.07	7.20	30.00	30.00	1.29		Pass	
11a	6Mbps	2	165	5825	2.22	4.29	4.17	7.30	30.00	30.00	1.29		Pass	
HT20	MCS0	2	149	5745	2.22	4.53	4.07	7.54	30.00	30.00	1.29		Pass	
HT20	MCS0	2	157	5785	2.22	4.47	4.34	7.48	30.00	30.00	1.29		Pass	
HT20	MCS0	2	165	5825	2.22	4.46	4.10	7.47	30.00	30.00	1.29		Pass	
HT40	MCS0	2	151	5755	2.22	1.01	0.49	4.02	30.00	30.00	1.29		Pass	
HT40	MCS0	2	159	5795	2.22	0.72	0.62	3.73	30.00	30.00	1.29		Pass	
VHT80	MCS0	2	155	5775	2.22	-2.39	-2.88	0.62	30.00	30.00	1.29		Pass	

Note: PSD Sum = Max PSD(Ant. 4, Ant. 3) + 10 log (n)

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

Band IV MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)	Pass/Fail
						Ant 4	Ant 3	Ant 4	Ant 3	Ant 4	Ant 3		
HE160	MCS0	2	163	5815	Full	157.04	157.04	262.72	257.28	157.76	157.12	0.5	Pass

TEST RESULTS DATA
Average Power Table

Band IV MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 4	Ant 3	SUM	Ant 4	Ant 3	Ant 4	Ant 3	
HE20	MCS0	2	149	5745	Full	19.30	19.00	22.16	30.00		-1.00		Pass
HE20	MCS0	2	149	5745	26/0	10.80	10.70	13.76	30.00		-1.00		Pass
HE20	MCS0	2	149	5745	52/37	13.90	13.50	16.71	30.00		-1.00		Pass
HE20	MCS0	2	149	5745	106/53	16.90	16.80	19.86	30.00		-1.00		Pass
HE20	MCS0	2	157	5785	Full	19.40	19.10	22.26	30.00		-1.00		Pass
HE20	MCS0	2	157	5785	26/4	10.40	10.20	13.31	30.00		-1.00		Pass
HE20	MCS0	2	157	5785	52/38	13.80	13.30	16.57	30.00		-1.00		Pass
HE20	MCS0	2	157	5785	106/53	16.80	16.70	19.76	30.00		-1.00		Pass
HE20	MCS0	2	165	5825	Full	19.20	19.00	22.11	30.00		-1.00		Pass
HE20	MCS0	2	165	5825	26/8	10.50	10.10	13.31	30.00		-1.00		Pass
HE20	MCS0	2	165	5825	52/40	13.60	13.10	16.37	30.00		-1.00		Pass
HE20	MCS0	2	165	5825	106/54	16.50	16.40	19.46	30.00		-1.00		Pass
HE40	MCS0	2	151	5755	Full	18.40	18.10	21.26	30.00		-1.00		Pass
HE40	MCS0	2	159	5795	Full	18.40	18.10	21.26	30.00		-1.00		Pass
HE80	MCS0	2	155	5775	Full	18.40	18.10	21.26	30.00		-1.00		Pass
HE160	MCS0	2	163	5815	Full	18.90	18.90	21.91	30.00		-1.00		Pass

TEST RESULTS DATA
Power Spectral Density

Band IV MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	10log (500kHz /RBW) Factor (dB)		Average Power Density with Duty Factor (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	Ant 4	Ant 3	
HE20	MCS0	2	149	5745	Full	2.22	4.21	3.98	7.22		30.00		1.29	Pass	
HE20	MCS0	2	149	5745	26/0	2.22	3.96	3.84	6.97		30.00		1.29	Pass	
HE20	MCS0	2	149	5745	52/37	2.22	4.17	3.64	7.18		30.00		1.29	Pass	
HE20	MCS0	2	149	5745	106/53	2.22	4.02	3.94	7.03		30.00		1.29	Pass	
HE20	MCS0	2	157	5785	Full	2.22	4.49	4.30	7.50		30.00		1.29	Pass	
HE20	MCS0	2	157	5785	26/4	2.22	4.30	3.78	7.31		30.00		1.29	Pass	
HE20	MCS0	2	157	5785	52/38	2.22	4.44	3.67	7.45		30.00		1.29	Pass	
HE20	MCS0	2	157	5785	106/53	2.22	4.10	4.24	7.25		30.00		1.29	Pass	
HE20	MCS0	2	165	5825	Full	2.22	4.37	4.03	7.38		30.00		1.29	Pass	
HE20	MCS0	2	165	5825	26/8	2.22	4.25	3.54	7.26		30.00		1.29	Pass	
HE20	MCS0	2	165	5825	52/40	2.22	4.09	3.59	7.10		30.00		1.29	Pass	
HE20	MCS0	2	165	5825	106/54	2.22	3.88	3.84	6.89		30.00		1.29	Pass	
HE160	MCS0	2	163	5815	Full	2.22	-5.34	-5.72	-2.33		30.00		1.29	Pass	

Note: PSD Sum = Max PSD(Ant. 4, Ant. 3) + 10 log (n)



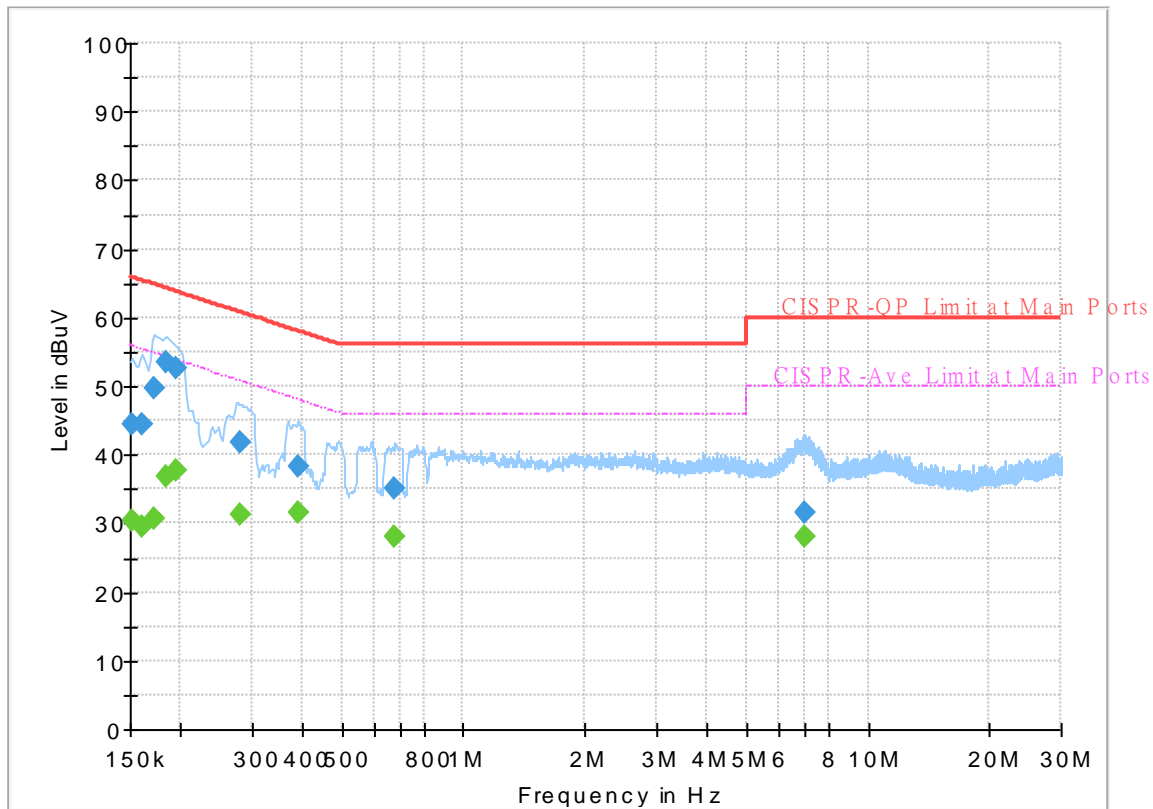
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Tom Lee	Temperature :	23~26°C
		Relative Humidity :	45~55%

EUT Information

Report NO : 161608-03
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Line

Full Spectrum



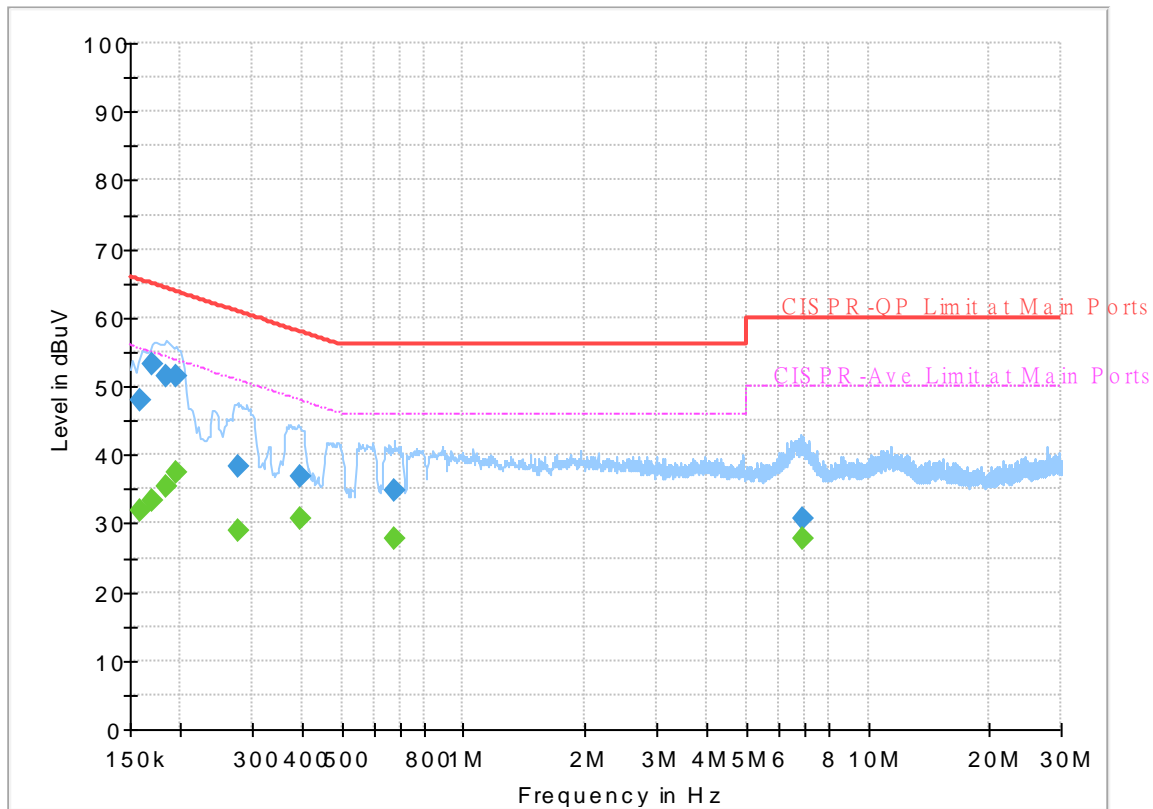
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	30.50	55.88	25.38	L1	OFF	19.7
0.152250	44.40	---	65.88	21.48	L1	OFF	19.7
0.161250	---	29.54	55.40	25.86	L1	OFF	19.7
0.161250	44.30	---	65.40	21.10	L1	OFF	19.7
0.172500	---	30.78	54.84	24.06	L1	OFF	19.7
0.172500	49.64	---	64.84	15.20	L1	OFF	19.7
0.183750	---	36.70	54.31	17.61	L1	OFF	19.7
0.183750	53.53	---	64.31	10.78	L1	OFF	19.7
0.195000	---	37.72	53.82	16.10	L1	OFF	19.7
0.195000	52.63	---	63.82	11.19	L1	OFF	19.7
0.280500	---	31.28	50.80	19.52	L1	OFF	19.7
0.280500	41.90	---	60.80	18.90	L1	OFF	19.7
0.388500	---	31.50	48.10	16.60	L1	OFF	19.7
0.388500	38.42	---	58.10	19.68	L1	OFF	19.7
0.678750	---	28.15	46.00	17.85	L1	OFF	20.0
0.678750	35.14	---	56.00	20.86	L1	OFF	20.0
7.014750	---	28.20	50.00	21.80	L1	OFF	20.1
7.014750	31.72	---	60.00	28.28	L1	OFF	20.1

EUT Information

Report NO : 161608-03
 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)
0.159000	---	31.73	55.52	23.79	N	OFF	19.7
0.159000	47.84	---	65.52	17.68	N	OFF	19.7
0.170250	---	33.37	54.95	21.58	N	OFF	19.7
0.170250	53.16	---	64.95	11.79	N	OFF	19.7
0.183750	---	35.49	54.31	18.82	N	OFF	19.7
0.183750	51.60	---	64.31	12.71	N	OFF	19.7
0.195000	---	37.39	53.82	16.43	N	OFF	19.7
0.195000	51.55	---	63.82	12.27	N	OFF	19.7
0.276000	---	28.97	50.94	21.97	N	OFF	19.7
0.276000	38.42	---	60.94	22.52	N	OFF	19.7
0.393000	---	30.68	48.00	17.32	N	OFF	19.7
0.393000	36.98	---	58.00	21.02	N	OFF	19.7
0.676500	---	27.82	46.00	18.18	N	OFF	20.0
0.676500	34.77	---	56.00	21.23	N	OFF	20.0
6.868500	---	27.75	50.00	22.25	N	OFF	20.1
6.868500	30.64	---	60.00	29.36	N	OFF	20.1



Appendix C. Radiated Spurious Emission

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

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

WIFI Ant.	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		5635.8	54.96	-13.24	68.2	40.11	31.73	12.9	29.78	190	297	P	H	
		5699.8	62.36	-42.69	105.05	47.44	31.8	12.93	29.81	190	297	P	H	
		5716.4	69.14	-40.65	109.79	54.14	31.87	12.94	29.81	190	297	P	H	
		5722	77.19	-38.17	115.36	62.16	31.89	12.95	29.81	190	297	P	H	
	*	5745	114.56	-	-	99.44	31.98	12.96	29.82	190	297	P	H	
	*	5745	106.62	-	-	91.5	31.98	12.96	29.82	190	297	A	H	
														H
														H
			5613.8	55.05	-13.15	68.2	40.16	31.77	12.89	29.77	263	102	P	V
			5693.8	53.82	-46.81	100.63	38.9	31.79	12.93	29.8	263	102	P	V
			5716.8	61.75	-48.16	109.91	46.75	31.87	12.94	29.81	263	102	P	V
			5725	73.69	-48.51	122.2	58.66	31.9	12.95	29.82	263	102	P	V
	*	5745	106.79	-	-	91.67	31.98	12.96	29.82	263	102	P	V	
	*	5745	99.51	-	-	84.39	31.98	12.96	29.82	263	102	A	V	
													V	
													V	



WIFI Ant. 4+3	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)
		5640.4	54.31	-13.89	68.2	39.47	31.72	12.9	29.78	190	296	P	H
		5699.2	55	-49.61	104.61	40.08	31.8	12.93	29.81	190	296	P	H
		5713.6	60.14	-48.87	109.01	45.16	31.85	12.94	29.81	190	296	P	H
		5723.8	60.62	-58.84	119.46	45.59	31.9	12.95	29.82	190	296	P	H
	*	5785	113.72	-	-	98.58	32	12.98	29.84	190	296	P	H
	*	5785	106.17	-	-	91.03	32	12.98	29.84	190	296	A	H
		5854.2	54.35	-58.27	112.62	39.2	32.2	12.81	29.86	190	296	P	H
		5857.4	54.28	-55.85	110.13	39.15	32.2	12.8	29.87	190	296	P	H
		5906.4	54.19	-27.74	81.93	39.19	32.24	12.64	29.88	190	296	P	H
		5926.4	53.84	-14.36	68.2	38.79	32.36	12.58	29.89	190	296	P	H
													H
													H
802.11a													
CH 157													
5785MHz		5611.6	53.59	-14.61	68.2	38.69	31.78	12.89	29.77	276	106	P	V
		5699.8	53.74	-51.31	105.05	38.82	31.8	12.93	29.81	276	106	P	V
		5718.4	54.08	-56.27	110.35	39.07	31.87	12.95	29.81	276	106	P	V
		5724	53.18	-66.74	119.92	38.15	31.9	12.95	29.82	276	106	P	V
	*	5785	107.3	-	-	92.16	32	12.98	29.84	276	106	P	V
	*	5785	99.57	-	-	84.43	32	12.98	29.84	276	106	A	V
		5853	53.68	-61.68	115.36	38.52	32.2	12.82	29.86	276	106	P	V
		5865.6	53.61	-54.22	107.83	38.5	32.2	12.78	29.87	276	106	P	V
		5890.2	53.94	-39.98	93.92	38.92	32.2	12.7	29.88	276	106	P	V
		5933.6	53.98	-14.22	68.2	38.91	32.4	12.56	29.89	276	106	P	V
													V
													V



WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11a CH 165 5825MHz	*	5825	113.95	-	-	98.79	32.1	12.91	29.85	188	297	P	H	
	*	5825	106.44	-	-	91.28	32.1	12.91	29.85	188	297	A	H	
		5851.6	67.54	-51.01	118.55	52.38	32.2	12.82	29.86	188	297	P	H	
		5856	66.64	-43.88	110.52	51.5	32.2	12.81	29.87	188	297	P	H	
		5879.8	59.98	-41.65	101.63	44.92	32.2	12.73	29.87	188	297	P	H	
		5940	59.14	-9.06	68.2	44.07	32.44	12.53	29.9	188	297	P	H	
														H
														H
	*	5825	107.36	-	-	92.2	32.1	12.91	29.85	287	105	P	V	
	*	5825	99.99	-	-	84.83	32.1	12.91	29.85	287	105	A	V	
		5850.4	59.52	-61.77	121.29	44.35	32.2	12.83	29.86	287	105	P	V	
		5860.6	57.11	-52.12	109.23	41.99	32.2	12.79	29.87	287	105	P	V	
		5901.2	53.68	-32.09	85.77	38.69	32.21	12.66	29.88	287	105	P	V	
		5925.4	52.38	-15.82	68.2	37.34	32.35	12.58	29.89	287	105	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. 4+3	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)
		10877	51.38	-22.62	74	53.63	40.33	18.99	61.57	-	-	P	H
		10877	41.71	-12.29	54	43.96	40.33	18.99	61.57	-	-	A	H
		11490	52.85	-21.15	74	54.14	40.1	19.23	60.62	201	288	P	H
		11490	43.66	-10.34	54	44.95	40.1	19.23	60.62	201	288	A	H
		14502	53.04	-15.16	68.2	50.08	42	21.76	60.8	-	-	P	H
		14502	43.42	-10.58	54	40.46	42	21.76	60.8	-	-	A	H
		17235	53.29	-14.91	68.2	46.02	40.51	25.11	58.35	-	-	P	H
		18000	61.85	-12.15	74	43.97	49.2	25.48	56.8	-	-	P	H
		18000	47.98	-6.02	54	30.1	49.2	25.48	56.8	-	-	A	H
													H
													H
													H
802.11a													
CH 149													
5745MHz		10877	51.69	-22.31	74	53.94	40.33	18.99	61.57	-	-	P	V
		10877	41.83	-12.17	54	44.08	40.33	18.99	61.57	-	-	A	V
		11490	51.41	-22.59	74	52.7	40.1	19.23	60.62	250	329	P	V
		11490	41.94	-12.06	54	43.23	40.1	19.23	60.62	250	329	A	V
		14502	52.85	-15.35	68.2	49.89	42	21.76	60.8	-	-	P	V
		14502	43.2	-10.8	54	40.24	42	21.76	60.8	-	-	A	V
		17235	53.61	-14.59	68.2	46.34	40.51	25.11	58.35	-	-	P	V
		18000	62.15	-11.85	74	44.27	49.2	25.48	56.8	-	-	P	V
		18000	47.99	-6.01	54	30.11	49.2	25.48	56.8	-	-	A	V
													V
													V
													V



WIFI Ant. 4+3	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)
		10877	52.75	-21.25	74	55	40.33	18.99	61.57	-	-	P	H
		10877	41.68	-12.32	54	43.93	40.33	18.99	61.57	-	-	A	H
		11570	53.3	-20.7	74	54.78	39.89	19.27	60.64	200	299	P	H
		11570	43.68	-10.32	54	45.16	39.89	19.27	60.64	200	299	A	H
		14491	52.64	-21.36	74	49.7	42	21.75	60.81	-	-	P	H
		14491	41.5	-12.5	54	38.56	42	21.75	60.81	-	-	A	H
		17355	54.55	-13.65	68.2	46.06	41.25	25.16	57.92	-	-	P	H
		17989	62.22	-11.78	74	44.6	48.95	25.48	56.81	-	-	P	H
		17989	47.74	-6.26	54	30.12	48.95	25.48	56.81	-	-	A	H
													H
													H
													H
802.11a													
CH 157													
5785MHz		10877	52.93	-21.07	74	55.18	40.33	18.99	61.57	-	-	P	V
		10877	41.8	-12.2	54	44.05	40.33	18.99	61.57	-	-	A	V
		11565	51.84	-22.16	74	53.31	39.9	19.27	60.64	250	329	P	V
		11565	42.42	-11.58	54	43.89	39.9	19.27	60.64	250	329	A	V
		14491	53.03	-20.97	74	50.09	42	21.75	60.81	-	-	P	V
		14491	46.62	-7.38	54	43.68	42	21.75	60.81	-	-	A	V
		17355	53.97	-14.23	68.2	45.48	41.25	25.16	57.92	-	-	P	V
		17989	62.3	-11.7	74	44.68	48.95	25.48	56.81	-	-	P	V
		17989	47.83	-6.17	54	30.21	48.95	25.48	56.81	-	-	A	V
													V
													V
													V



WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11a CH 165 5825MHz		10877	52.2	-21.8	74	54.45	40.33	18.99	61.57	-	-	P	H	
		10877	41.91	-12.09	54	44.16	40.33	18.99	61.57	-	-	A	H	
		11650	53.71	-20.29	74	55.5	39.6	19.3	60.69	200	297	P	H	
		11650	42.78	-11.22	54	44.57	39.6	19.3	60.69	200	297	A	H	
		14480	53.82	-20.18	74	50.9	42	21.74	60.82	-	-	P	H	
		14480	43.44	-10.56	54	40.52	42	21.74	60.82	-	-	A	H	
		17475	55.14	-13.06	68.2	45.26	42.15	25.22	57.49	-	-	P	H	
		17978	61.92	-12.08	74	44.59	48.69	25.47	56.83	-	-	P	H	
		17978	47.75	-6.25	54	30.42	48.69	25.47	56.83	-	-	A	H	
														H
														H
														H
			10877	51.52	-22.48	74	53.77	40.33	18.99	61.57	-	-	P	V
			10877	41.72	-12.28	54	43.97	40.33	18.99	61.57	-	-	A	V
			11650	53.19	-20.81	74	54.98	39.6	19.3	60.69	236	349	P	V
			11650	42.48	-11.52	54	44.27	39.6	19.3	60.69	236	349	A	V
			14480	53.61	-20.39	74	50.69	42	21.74	60.82	-	-	P	V
			14480	43.46	-10.54	54	40.54	42	21.74	60.82	-	-	A	V
			17475	54.87	-13.33	68.2	44.99	42.15	25.22	57.49	-	-	P	V
			18000	62.31	-11.69	74	44.43	49.2	25.48	56.8	-	-	P	V
		18000	47.99	-6.01	54	30.11	49.2	25.48	56.8	-	-	A	V	
													V	
													V	
													V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. The emission position marked as "-" means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only. The emission level close to 18GHz is checked that the average emission level is noise floor only. 													



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

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11n HT20 CH 149 5745MHz		5626.4	54.63	-13.57	68.2	39.77	31.75	12.89	29.78	190	230	P	H	
		5694.8	60.48	-40.89	101.37	45.56	31.79	12.93	29.8	190	230	P	H	
		5720	72.63	-38.17	110.8	57.61	31.88	12.95	29.81	190	230	P	H	
		5724.4	84.27	-36.56	120.83	69.24	31.9	12.95	29.82	190	230	P	H	
	*	5745	113.42	-	-	98.3	31.98	12.96	29.82	190	230	P	H	
	*	5745	105.81	-	-	90.69	31.98	12.96	29.82	190	230	A	H	
														H
														H
			5635.6	53.3	-14.9	68.2	38.45	31.73	12.9	29.78	236	102	P	V
			5679.4	53.87	-36.13	90	38.99	31.76	12.92	29.8	236	102	P	V
			5720	64.73	-46.07	110.8	49.71	31.88	12.95	29.81	236	102	P	V
			5723.2	74.09	-44.01	118.1	59.06	31.89	12.95	29.81	236	102	P	V
	*		5745	106.69	-	-	91.57	31.98	12.96	29.82	236	102	P	V
	*		5745	99.16	-	-	84.04	31.98	12.96	29.82	236	102	A	V
														V
														V



WIFI Ant. 4+3	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)
		5645	55.01	-13.19	68.2	40.19	31.71	12.9	29.79	169	233	P	H
		5657.8	57.47	-16.52	73.99	42.63	31.72	12.91	29.79	169	233	P	H
		5713.2	59.65	-49.25	108.9	44.67	31.85	12.94	29.81	169	233	P	H
		5725	58.23	-63.97	122.2	43.2	31.9	12.95	29.82	169	233	P	H
	*	5785	114.03	-	-	98.89	32	12.98	29.84	169	233	P	H
	*	5785	105.95	-	-	90.81	32	12.98	29.84	169	233	A	H
		5850.2	56.95	-64.79	121.74	41.78	32.2	12.83	29.86	169	233	P	H
		5857	57.11	-53.13	110.24	41.98	32.2	12.8	29.87	169	233	P	H
		5877.4	55.69	-47.73	103.42	40.62	32.2	12.74	29.87	169	233	P	H
		5932.6	54.6	-13.6	68.2	39.53	32.4	12.56	29.89	169	233	P	H
802.11n													H
HT20													H
CH 157		5621.4	53.52	-14.68	68.2	38.65	31.76	12.89	29.78	254	102	P	V
5785MHz		5700	53.63	-51.57	105.2	38.71	31.8	12.93	29.81	254	102	P	V
		5709.2	53.72	-54.06	107.78	38.75	31.84	12.94	29.81	254	102	P	V
		5725	53.58	-68.62	122.2	38.55	31.9	12.95	29.82	254	102	P	V
	*	5785	106.78	-	-	91.64	32	12.98	29.84	254	102	P	V
	*	5785	99.33	-	-	84.19	32	12.98	29.84	254	102	A	V
		5850.4	54.75	-66.54	121.29	39.58	32.2	12.83	29.86	254	102	P	V
		5866.2	54.17	-53.49	107.66	39.07	32.2	12.77	29.87	254	102	P	V
		5892.4	54.08	-38.21	92.29	39.07	32.2	12.69	29.88	254	102	P	V
		5948.8	53.19	-15.01	68.2	38.09	32.49	12.51	29.9	254	102	P	V
													V
													V



WiFi Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11n HT20 CH 165 5825MHz	*	5825	114.09	-	-	98.93	32.1	12.91	29.85	154	232	P	H	
	*	5825	105.37	-	-	90.21	32.1	12.91	29.85	154	232	A	H	
		5850	72.36	-49.84	122.2	57.19	32.2	12.83	29.86	154	232	P	H	
		5856.8	68.8	-41.5	110.3	53.66	32.2	12.81	29.87	154	232	P	H	
		5883.4	64.76	-34.2	98.96	49.72	32.2	12.72	29.88	154	232	P	H	
		5939.2	55.95	-12.25	68.2	40.87	32.44	12.54	29.9	154	232	P	H	
														H
														H
	*	5825	107.57	-	-	92.41	32.1	12.91	29.85	284	106	P	V	
	*	5825	100	-	-	84.84	32.1	12.91	29.85	284	106	A	V	
		5850.4	64.85	-56.44	121.29	49.68	32.2	12.83	29.86	284	106	P	V	
		5856.6	60.69	-49.66	110.35	45.55	32.2	12.81	29.87	284	106	P	V	
		5877.4	54.65	-48.77	103.42	39.58	32.2	12.74	29.87	284	106	P	V	
		5934	54.4	-13.8	68.2	39.34	32.4	12.55	29.89	284	106	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. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11n HT20 CH 149 5745MHz		10877	52.88	-21.12	74	55.13	40.33	18.99	61.57	-	-	P	H	
		10877	42	-12	54	44.25	40.33	18.99	61.57	-	-	A	H	
		11490	53.59	-20.41	74	54.88	40.1	19.23	60.62	200	299	P	H	
		11490	43.42	-10.58	54	44.71	40.1	19.23	60.62	200	299	A	H	
		14480	52.91	-21.09	74	49.99	42	21.74	60.82	-	-	P	H	
		14480	43.28	-10.72	54	40.36	42	21.74	60.82	-	-	A	H	
		17235	53.8	-14.4	68.2	46.53	40.51	25.11	58.35	-	-	P	H	
		17978	61.73	-12.27	74	44.4	48.69	25.47	56.83	-	-	P	H	
		17978	47.75	-6.25	54	30.42	48.69	25.47	56.83	-	-	A	H	
														H
														H
														H
			10877	52.25	-21.75	74	54.5	40.33	18.99	61.57	-	-	P	V
			10877	41.87	-12.13	54	44.12	40.33	18.99	61.57	-	-	A	V
			11490	50.78	-23.22	74	52.07	40.1	19.23	60.62	233	336	P	V
			11490	41.75	-12.25	54	43.04	40.1	19.23	60.62	233	336	A	V
			14480	53.74	-20.26	74	50.82	42	21.74	60.82	-	-	P	V
			14480	43.46	-10.54	54	40.54	42	21.74	60.82	-	-	A	V
			17235	53.58	-14.62	68.2	46.31	40.51	25.11	58.35	-	-	P	V
			18000	61.73	-12.27	74	43.85	49.2	25.48	56.8	-	-	P	V
		18000	47.99	-6.01	54	30.11	49.2	25.48	56.8	-	-	A	V	
													V	
													V	
													V	



WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11n HT20 CH 157 5785MHz		10883	52.4	-21.6	74	54.62	40.35	18.99	61.56	-	-	P	H	
		10883	41.65	-12.35	54	43.87	40.35	18.99	61.56	-	-	A	H	
		11570	53.14	-20.86	74	54.62	39.89	19.27	60.64	244	338	P	H	
		11570	42.76	-11.24	54	44.24	39.89	19.27	60.64	244	338	A	H	
		14491	52.78	-21.22	74	49.84	42	21.75	60.81	-	-	P	H	
		14491	42.75	-11.25	54	39.81	42	21.75	60.81	-	-	A	H	
		17355	54.38	-13.82	68.2	45.89	41.25	25.16	57.92	-	-	P	H	
		18000	62.28	-11.72	74	44.4	49.2	25.48	56.8	-	-	P	H	
		18000	47.7	-6.3	54	29.82	49.2	25.48	56.8	-	-	A	H	
														H
														H
														H
			10880	51.72	-22.28	74	53.96	40.34	18.99	61.57	-	-	P	V
			10880	41.91	-12.09	54	44.15	40.34	18.99	61.57	-	-	A	V
			11570	51.62	-22.38	74	53.1	39.89	19.27	60.64	308	325	P	V
			11570	41.9	-12.1	54	43.38	39.89	19.27	60.64	308	325	A	V
			14491	53.24	-20.76	74	50.3	42	21.75	60.81	-	-	P	V
			14491	42.83	-11.17	54	39.89	42	21.75	60.81	-	-	A	V
			17355	54.42	-13.78	68.2	45.93	41.25	25.16	57.92	-	-	P	V
		18000	62.45	-11.55	74	44.57	49.2	25.48	56.8	-	-	P	V	
		18000	47.79	-6.21	54	29.91	49.2	25.48	56.8	-	-	A	V	
													V	
													V	
													V	



WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11n HT20 CH 165 5825MHz		10883	52.41	-21.59	74	54.63	40.35	18.99	61.56	-	-	P	H	
		10883	41.64	-12.36	54	43.86	40.35	18.99	61.56	-	-	A	H	
		11650	52.46	-21.54	74	54.25	39.6	19.3	60.69	209	357	P	H	
		11650	42.61	-11.39	54	44.4	39.6	19.3	60.69	209	357	A	H	
		14491	52.28	-21.72	74	49.34	42	21.75	60.81	-	-	P	H	
		14491	42.4	-11.6	54	39.46	42	21.75	60.81	-	-	A	H	
		17475	54.85	-13.35	68.2	44.97	42.15	25.22	57.49	-	-	P	H	
		17956	62.01	-11.99	74	45.21	48.19	25.46	56.85	-	-	P	H	
		17956	47.56	-6.44	54	30.76	48.19	25.46	56.85	-	-	A	H	
														H
														H
														H
			10880	51.15	-22.85	74	53.39	40.34	18.99	61.57	-	-	P	V
			10880	41.89	-12.11	54	44.13	40.34	18.99	61.57	-	-	A	V
			11650	51.55	-22.45	74	53.34	39.6	19.3	60.69	264	325	P	V
			11650	41.6	-12.4	54	43.39	39.6	19.3	60.69	264	325	A	V
			14491	52.47	-21.53	74	49.53	42	21.75	60.81	-	-	P	V
			14491	42.2	-11.8	54	39.26	42	21.75	60.81	-	-	A	V
			17475	55.31	-12.89	68.2	45.43	42.15	25.22	57.49	-	-	P	V
		17967	62	-12	74	44.94	48.44	25.46	56.84	-	-	P	V	
		17967	47.52	-6.48	54	30.46	48.44	25.46	56.84	-	-	A	V	
													V	
													V	
													V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. The emission level close to 18GHz is checked that the average emission level is noise floor only. 													



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

WIFI Ant. 4+3	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)
		5622.8	54.13	-14.07	68.2	39.27	31.75	12.89	29.78	197	235	P	H
		5697.2	60.61	-42.53	103.14	45.69	31.79	12.93	29.8	197	235	P	H
		5719.8	78.64	-32.1	110.74	63.62	31.88	12.95	29.81	197	235	P	H
		5723.8	80.84	-38.62	119.46	65.81	31.9	12.95	29.82	197	235	P	H
	*	5755	108.48	-	-	93.34	32	12.97	29.83	197	235	P	H
	*	5755	101.92	-	-	86.78	32	12.97	29.83	197	235	A	H
		5852.4	53.74	-62.99	116.73	38.58	32.2	12.82	29.86	197	235	P	H
		5860	54.04	-55.36	109.4	38.91	32.2	12.8	29.87	197	235	P	H
		5909.8	54.46	-24.96	79.42	39.46	32.26	12.63	29.89	197	235	P	H
		5939.4	55.24	-12.96	68.2	40.16	32.44	12.54	29.9	197	235	P	H
802.11n													H
HT40													H
CH 151		5622.4	53.91	-14.29	68.2	39.04	31.76	12.89	29.78	250	91	P	V
5755MHz		5688.4	54.58	-42.06	96.64	39.67	31.78	12.93	29.8	250	91	P	V
		5720	69.2	-41.6	110.8	54.18	31.88	12.95	29.81	250	91	P	V
		5725	70.98	-51.22	122.2	55.95	31.9	12.95	29.82	250	91	P	V
	*	5755	101.43	-	-	86.29	32	12.97	29.83	250	91	P	V
	*	5755	94.07	-	-	78.93	32	12.97	29.83	250	91	A	V
		5850.2	52.97	-68.77	121.74	37.8	32.2	12.83	29.86	250	91	P	V
		5859.8	53.5	-55.95	109.45	38.37	32.2	12.8	29.87	250	91	P	V
		5888.4	54.33	-40.92	95.25	39.31	32.2	12.7	29.88	250	91	P	V
		5925.4	53.9	-14.3	68.2	38.86	32.35	12.58	29.89	250	91	P	V
													V
													V



WIFI Ant. 4+3	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)
		5602.6	55.32	-12.88	68.2	40.42	31.79	12.88	29.77	162	231	P	H
		5692.6	54.82	-44.92	99.74	39.9	31.79	12.93	29.8	162	231	P	H
		5712.4	56.78	-51.89	108.67	41.8	31.85	12.94	29.81	162	231	P	H
		5724	56.86	-63.06	119.92	41.83	31.9	12.95	29.82	162	231	P	H
	*	5795	109.42	-	-	94.27	32	12.99	29.84	162	231	P	H
	*	5795	101.92	-	-	86.77	32	12.99	29.84	162	231	A	H
		5850.2	61.76	-59.98	121.74	46.59	32.2	12.83	29.86	162	231	P	H
		5855.2	59.82	-50.92	110.74	44.67	32.2	12.81	29.86	162	231	P	H
		5880	55.9	-45.59	101.49	40.84	32.2	12.73	29.87	162	231	P	H
		5936.8	54.79	-13.41	68.2	39.72	32.42	12.55	29.9	162	231	P	H
802.11n													H
HT40													H
CH 159		5618	53.34	-14.86	68.2	38.46	31.76	12.89	29.77	280	97	P	V
5795MHz		5683.4	53.52	-39.43	92.95	38.62	31.77	12.93	29.8	280	97	P	V
		5711.6	53.24	-55.21	108.45	38.26	31.85	12.94	29.81	280	97	P	V
		5720.8	53.95	-58.67	112.62	38.93	31.88	12.95	29.81	280	97	P	V
	*	5795	102.57	-	-	87.42	32	12.99	29.84	280	97	P	V
	*	5795	95.15	-	-	80	32	12.99	29.84	280	97	A	V
		5850	56.97	-65.23	122.2	41.8	32.2	12.83	29.86	280	97	P	V
		5855.8	54.76	-55.82	110.58	39.62	32.2	12.81	29.87	280	97	P	V
		5904	53.65	-30.05	83.7	38.66	32.22	12.65	29.88	280	97	P	V
		5930.6	53.41	-14.79	68.2	38.35	32.38	12.57	29.89	280	97	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. 4+3	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		10883	50.6	-23.4	74	52.82	40.35	18.99	61.56	-	-	P	H	
		10883	41.63	-12.37	54	43.85	40.35	18.99	61.56	-	-	A	H	
		11510	51.19	-22.81	74	52.49	40.07	19.24	60.61	219	352	P	H	
		11510	41.55	-12.45	54	42.85	40.07	19.24	60.61	219	352	A	H	
		14491	51.12	-22.88	74	48.18	42	21.75	60.81	-	-	P	H	
		14491	42.78	-11.22	54	39.84	42	21.75	60.81	-	-	A	H	
		17265	51.84	-16.36	68.2	44.38	40.6	25.11	58.25	-	-	P	H	
		17989	61.21	-12.79	74	43.59	48.95	25.48	56.81	-	-	P	H	
		17989	47.54	-6.46	54	29.92	48.95	25.48	56.81	-	-	A	H	
														H
														H
														H
			10880	50.81	-23.19	74	53.05	40.34	18.99	61.57	-	-	P	V
			10880	41.61	-12.39	54	43.85	40.34	18.99	61.57	-	-	A	V
			11510	50.88	-23.12	74	52.18	40.07	19.24	60.61	189	334	P	V
			11510	41.22	-12.78	54	42.52	40.07	19.24	60.61	189	334	A	V
			14491	52.07	-21.93	74	49.13	42	21.75	60.81	-	-	P	V
			14491	42.87	-11.13	54	39.93	42	21.75	60.81	-	-	A	V
			17265	52.04	-16.16	68.2	44.58	40.6	25.11	58.25	-	-	P	V
			18000	61.08	-12.92	74	43.2	49.2	25.48	56.8	-	-	P	V
		18000	47.65	-6.35	54	29.77	49.2	25.48	56.8	-	-	A	V	
													V	
													V	
													V	



WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11n HT40 CH 159 5795MHz		10883	51.02	-22.98	74	53.24	40.35	18.99	61.56	-	-	P	H	
		10883	41.66	-12.34	54	43.88	40.35	18.99	61.56	-	-	A	H	
		11590	51.65	-22.35	74	53.19	39.83	19.28	60.65	293	356	P	H	
		11590	41.86	-12.14	54	43.4	39.83	19.28	60.65	293	356	A	H	
		14491	52.03	-21.97	74	49.09	42	21.75	60.81	-	-	P	H	
		14491	42.08	-11.92	54	39.14	42	21.75	60.81	-	-	A	H	
		17385	53.31	-14.89	68.2	44.4	41.55	25.17	57.81	-	-	P	H	
		17956	61.26	-12.74	74	44.46	48.19	25.46	56.85	-	-	P	H	
		17956	47.6	-6.4	54	30.8	48.19	25.46	56.85	-	-	A	H	
														H
														H
														H
			10880	51.72	-22.28	74	53.96	40.34	18.99	61.57	-	-	P	V
			10880	41.85	-12.15	54	44.09	40.34	18.99	61.57	-	-	A	V
			11590	51.28	-22.72	74	52.82	39.83	19.28	60.65	208	332	P	V
			11590	40.97	-13.03	54	42.51	39.83	19.28	60.65	208	332	A	V
			14491	52.52	-21.48	74	49.58	42	21.75	60.81	-	-	P	V
			14491	42.12	-11.88	54	39.18	42	21.75	60.81	-	-	A	V
			17385	54.93	-13.27	68.2	46.02	41.55	25.17	57.81	-	-	P	V
		18000	61.07	-12.93	74	43.19	49.2	25.48	56.8	-	-	P	V	
		18000	47.56	-6.44	54	29.68	49.2	25.48	56.8	-	-	A	V	
													V	
													V	
													V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. The emission level close to 18GHz is checked that the average emission level is noise floor only. 													



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

WIFI Ant. 4+3	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)
		5648	56.83	-11.37	68.2	42.01	31.7	12.91	29.79	195	231	P	H
		5698.4	71.77	-32.25	104.02	56.85	31.8	12.93	29.81	195	231	P	H
		5718.2	76.25	-34.05	110.3	61.24	31.87	12.95	29.81	195	231	P	H
		5721.6	76.49	-37.96	114.45	61.46	31.89	12.95	29.81	195	231	P	H
	*	5775	106.56	-	-	91.41	32	12.98	29.83	195	231	P	H
	*	5775	98.98	-	-	83.83	32	12.98	29.83	195	231	A	H
		5852.4	70.91	-45.82	116.73	55.75	32.2	12.82	29.86	195	231	P	H
		5856.6	69.56	-40.79	110.35	54.42	32.2	12.81	29.87	195	231	P	H
		5875.8	63.24	-41.37	104.61	48.17	32.2	12.74	29.87	195	231	P	H
		5926.6	56.6	-11.6	68.2	41.55	32.36	12.58	29.89	195	231	P	H
802.11ac													H
VHT80													H
CH 155		5649.2	53.73	-14.47	68.2	38.91	31.7	12.91	29.79	278	112	P	V
5775MHz		5696.8	62.42	-40.42	102.84	47.5	31.79	12.93	29.8	278	112	P	V
		5720	67.58	-43.22	110.8	52.56	31.88	12.95	29.81	278	112	P	V
		5722.6	68.84	-47.89	116.73	53.81	31.89	12.95	29.81	278	112	P	V
	*	5775	100.37	-	-	85.22	32	12.98	29.83	278	112	P	V
	*	5775	92.48	-	-	77.33	32	12.98	29.83	278	112	A	V
		5850.8	66.87	-53.51	120.38	51.71	32.2	12.82	29.86	278	112	P	V
		5855.4	67.6	-43.09	110.69	52.46	32.2	12.81	29.87	278	112	P	V
		5876	59.77	-44.69	104.46	44.7	32.2	12.74	29.87	278	112	P	V
		5944.2	53.93	-14.27	68.2	38.84	32.47	12.52	29.9	278	112	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. 4+3	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)
		10883	50.57	-23.43	74	52.79	40.35	18.99	61.56	-	-	P	H
		10883	41.61	-12.39	54	43.83	40.35	18.99	61.56	-	-	A	H
		11550	51.66	-22.34	74	53.09	39.95	19.25	60.63	300	297	P	H
		11550	41.16	-12.84	54	42.59	39.95	19.25	60.63	300	297	A	H
		14491	52.13	-21.87	74	49.19	42	21.75	60.81	-	-	P	H
		14491	42.78	-11.22	54	39.84	42	21.75	60.81	-	-	A	H
		17325	52.25	-15.95	68.2	44.19	40.95	25.14	58.03	-	-	P	H
		17967	61.43	-12.57	74	44.37	48.44	25.46	56.84	-	-	P	H
		17967	47.71	-6.29	54	30.65	48.44	25.46	56.84	-	-	A	H
													H
													H
													H
802.11ac													
VHT80													
CH 155		10880	51.85	-22.15	74	54.09	40.34	18.99	61.57	-	-	P	V
5775MHz		10880	41.75	-12.25	54	43.99	40.34	18.99	61.57	-	-	A	V
		11550	50.73	-23.27	74	52.16	39.95	19.25	60.63	283	325	P	V
		11550	40.89	-13.11	54	42.32	39.95	19.25	60.63	283	325	A	V
		14491	52.3	-21.7	74	49.36	42	21.75	60.81	-	-	P	V
		14491	42.8	-11.2	54	39.86	42	21.75	60.81	-	-	A	V
		17325	52.76	-15.44	68.2	44.7	40.95	25.14	58.03	-	-	P	V
		17945	60.97	-13.03	74	44.45	47.94	25.45	56.87	-	-	P	V
		17945	47.62	-6.38	54	31.1	47.94	25.45	56.87	-	-	A	V
													V
													V
													V

Remark

- No other spurious found.
- All results are PASS against Peak and Average limit line.
- The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.
- The emission level close to 18GHz is checked that the average emission level is noise floor only.



Emission below 1GHz
5GHz WIFI 802.11a (LF @ 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.		
4+3		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
802.11a LF		95.96	30.87	-12.63	43.5	46	15.41	1.77	32.31	-	-	P	H	
		159.01	25.56	-17.94	43.5	38.84	16.67	2.3	32.25	-	-	P	H	
		441.28	25.35	-20.65	46	30.99	23.09	3.69	32.42	-	-	P	H	
		565.44	28.02	-17.98	46	30.28	26.03	4.17	32.46	-	-	P	H	
		746.83	32.42	-13.58	46	31.92	28.09	4.75	32.34	-	-	P	H	
		944.71	34.29	-11.71	46	29.73	30.36	5.44	31.24	-	-	P	H	
														H
														H
														H
														H
														H
														H
			33.88	29.87	-10.13	40	38.51	22.77	0.9	32.31	-	-	P	V
			95.96	27.7	-15.8	43.5	42.83	15.41	1.77	32.31	-	-	P	V
			420.91	24.13	-21.87	46	30.02	22.9	3.62	32.41	-	-	P	V
			736.16	30.49	-15.51	46	30.22	27.9	4.72	32.35	-	-	P	V
			872.93	33.99	-12.01	46	31.62	28.93	5.2	31.76	-	-	P	V
			945.68	33.92	-12.08	46	29.3	30.4	5.45	31.23	-	-	P	V
													V	
													V	
													V	
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission level is with at least 6 dB margin against limit line, the position is marked as "-".													



Note symbol

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



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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
4+3		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a		11490	52.85	-21.15	74	54.14	40.1	19.23	60.62	201	288	P	H
CH 149		11490	43.66	-10.34	54	44.95	40.1	19.23	60.62	201	288	A	H
5745MHz													

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

For Peak Limit @ 11490MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
=40.1(dB/m) + 19.23(dB) + 54.14(dBμV) – 60.62 (dB)
= 52.85 (dBμV/m)
2. Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 52.85(dBμV/m) – 74(dBμV/m)
= -21.15(dB)

For Average Limit @ 11490MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
=40.1(dB/m) + 19.23(dB) +44.95(dBμV) – 60.62 (dB)
= 43.66 (dBμV/m)
2. Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 43.66(dBμV/m) – 54(dBμV/m)
= -10.34(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%

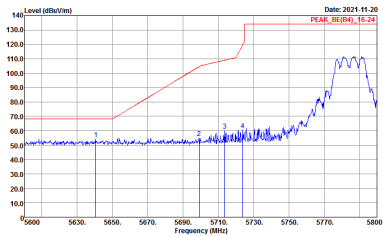
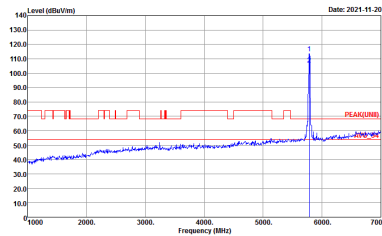
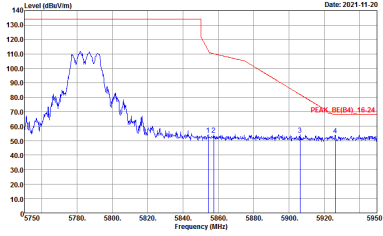
Band 4 - 5725~5850MHz
WIFI 802.11a (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
4+3	Horizontal	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK(UNII) 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

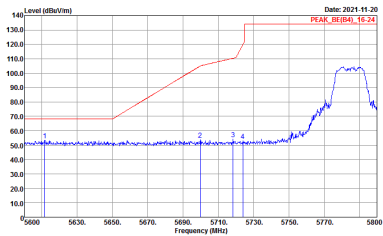
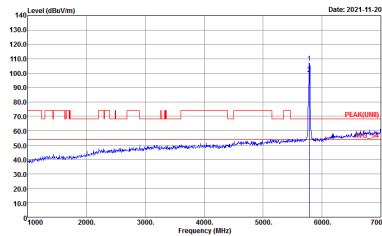
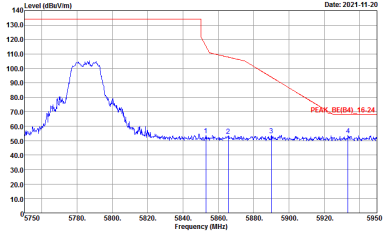


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
4+3	Vertical	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

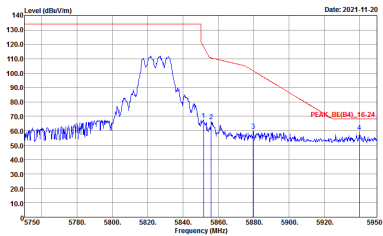
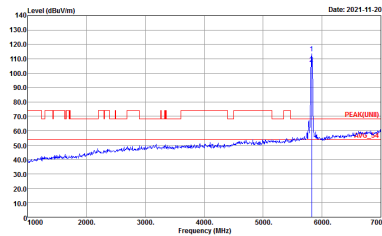


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
4+3	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank

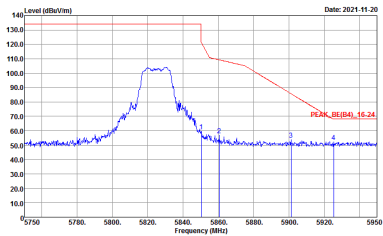
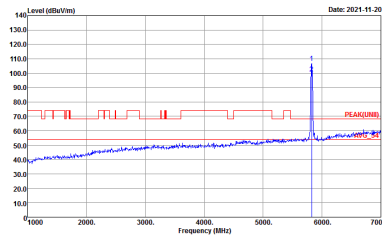


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
4+3	Vertical	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_21101Z VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_21101Z VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_21101Z VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
4+3	Horizontal	Fundamental
Peak	 <p>Date: 2021-11-20</p> <p>Site : 03CH16-HY Condition : PEAK_SC(94)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2021-11-20</p> <p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
4+3	Vertical	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BU(B4)_16-24 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



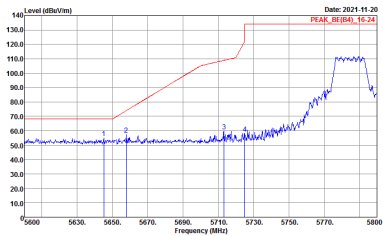
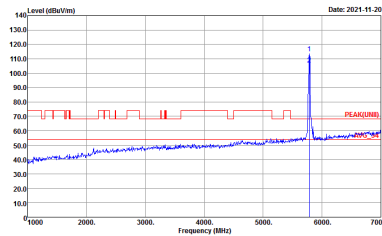
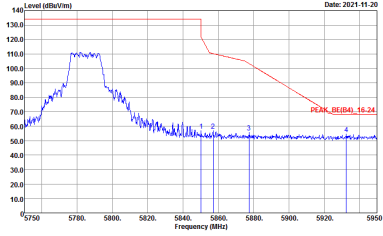
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
4+3	Horizontal	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(84)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK(UNII) 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
4+3	Vertical	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK(FUNDF) 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
4+3	Horizontal	Fundamental
Peak	 <p>Date: 2021-11-20 PEAK_BE(B4)_16-24</p> <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_21101Z HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2021-11-20 PEAK(LINE)</p> <p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_21101Z HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	 <p>Date: 2021-11-20 PEAK_BE(B4)_16-24</p> <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_21101Z HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank

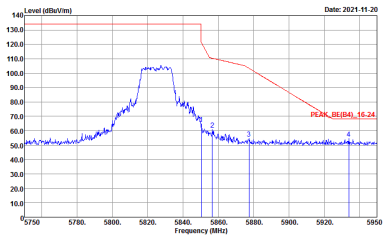
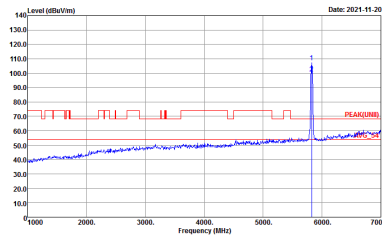


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
4+3	Vertical	Fundamental
Peak	<p>Date: 2021-11-20 PEAK_BE(B4)_16-24</p> <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_21101Z VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Date: 2021-11-20 PEAK(LINE)</p> <p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_21101Z VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Date: 2021-11-20 PEAK_BE(B4)_16-24</p> <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_21101Z VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



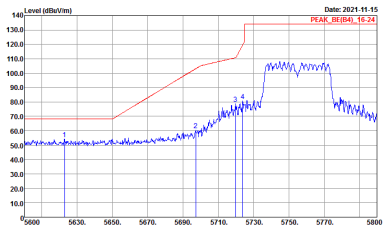
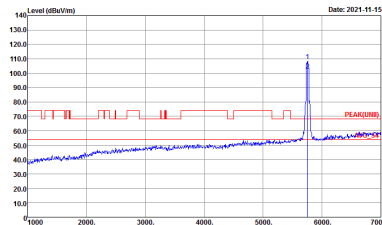
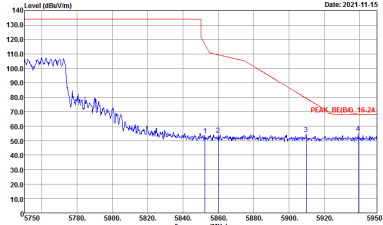
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
4+3	Horizontal	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_SC[94]_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK[LINE] 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
4+3	Vertical	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_B([B4]_16-24 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



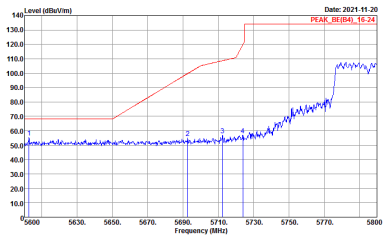
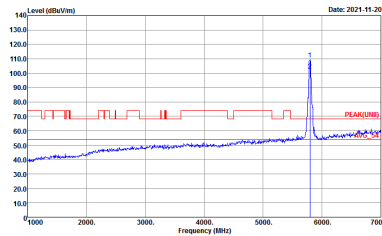
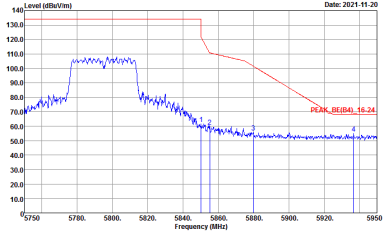
**Band 4 5725~5850MHz
WIFI 802.11n HT40 (Band Edge @ 3m)**

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
4+3	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK(UWB) 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
4+3	Vertical	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
4+3	Horizontal	Fundamental
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	 <p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
4+3	Vertical	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_21101Z VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_21101Z VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_21101Z VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



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

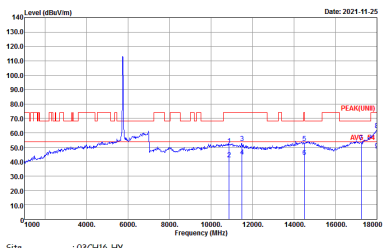
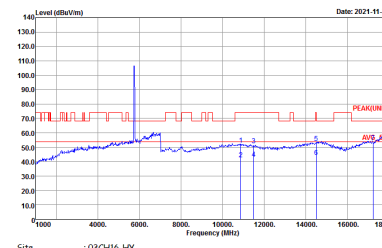
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
4+3	Horizontal	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK(UIN2) 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
4+3	Vertical	Fundamental
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH16-HY Condition : PEAK_BE(B4)_16-24 3m 91200_1522_211012 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



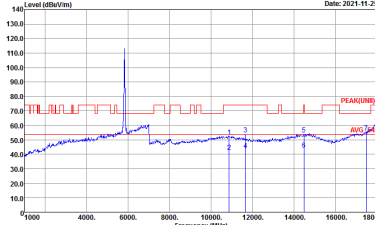
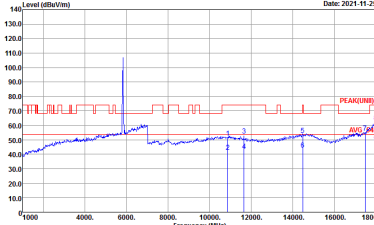
Band 4 - 5725~5850MHz
WIFI 802.11a (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
4+3	Horizontal	Vertical
Peak	 <p>Site : 03CH16-HY Condition : PEAK(UNII) 3m 91200_1522_211012 HORIZONTAL</p>	 <p>Site : 03CH16-HY Condition : PEAK(UNII) 3m 91200_1522_211012 VERTICAL</p>
Avg.		



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
4+3	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH16-HY Condition : PEAK(UNII) 3m 91200_1522_211012 HORIZONTAL</p>	<p>Site : 03CH16-HY Condition : PEAK(UNII) 3m 91200_1522_211012 VERTICAL</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
4+3	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_211012 HORIZONTAL</p>	 <p>Site : 03CH16-HY Condition : PEAK(LINE) 3m 91200_1522_211012 VERTICAL</p>



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

Table with 4 columns: WIFI, ANT, 4+3, and two measurement plots (Horizontal and Vertical). The plots show Level (dBu/Vm) vs Frequency (MHz) with Peak and Avg. markers.



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
4+3	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH16-HY Condition : PEAK(LNII) 3m 91200_1522_211012 HORIZONTAL</p>	<p>Site : 03CH16-HY Condition : PEAK(LNII) 3m 91200_1522_211012 VERTICAL</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
4+3	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH16-HY Condition : PEAK(UNII) 3m 91200_1522_211012 HORIZONTAL</p>	<p>Site : 03CH16-HY Condition : PEAK(UNII) 3m 91200_1522_211012 VERTICAL</p>



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

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
4+3	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH16-HY Condition : -PEAK(LINE) 3m 9120D_1522_211012 HORIZONTAL</p>	<p>Site : 03CH16-HY Condition : -PEAK(LINE) 3m 9120D_1522_211012 VERTICAL</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
4+3	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH16-HY Condition : PEAK(UNII) 3m 91200_1522_211012 HORIZONTAL</p>	<p>Site : 03CH16-HY Condition : PEAK(UNII) 3m 91200_1522_211012 VERTICAL</p>



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

Table with 4 columns: WIFI, ANT, 4+3, and two measurement plots (Horizontal and Vertical). The plots show Level (dBu/Vm) vs Frequency (MHz) with Peak and Avg. markers.



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

WIFI	5GHz WIFI	
ANT	802.11a LF	
4+3	Horizontal	Vertical
QP / Peak	<p>Site : 03CH16-HY Condition : QP 3m BIL06_47020_211009 HORIZONTAL</p>	<p>Site : 03CH16-HY Condition : QP 3m BIL06_47020_211009 VERTICAL</p>



Appendix E. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
4+3	5GHz 802.11a	93.44	1425	0.70	1kHz
4+3	5GHz 802.11n HT20	93.03	1335	0.75	1kHz
4+3	5GHz 802.11n HT40	96.79	3020	0.33	1kHz
4+3	5GHz 802.11ac VHT80	88.17	738	1.36	3kHz

MIMO <Ant. 4+3>



—THE END—