



# FCC RADIO TEST REPORT

**FCC ID** : A4RG025J  
**Equipment** : Phone  
**Model Name** : G025J, G025N, G025M  
**Applicant** : Google LLC  
1600 Amphitheatre Parkway,  
Mountain View, California, 94043 USA  
**Standard** : FCC Part 15 Subpart E §15.407

The product was received on Jan. 20, 2020 and testing was started from Jan. 24, 2020 and completed on Feb. 25, 2020. 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

*Louis Wu*

Approved by: Louis Wu

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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### History of this test report

Report No.	Version	Description	Issued Date
FR9D0616-05F	01	Initial issue of report	Mar. 26, 2020
FR9D0616-05F	02	Revise section 1.2 and appendix A	Mar. 30, 2020



## Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.403 (i)	6dB & 26dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.407 (a)	Maximum Conducted Output Power	Pass	-
3.3	15.407 (a)	Power Spectral Density	Pass	-
3.4	15.407(b)	Unwanted Emissions	Pass	Under limit 4.45 dB at 11570.000 MHz
3.5	15.207	AC Conducted Emission	Pass	Under limit 7.20 dB at 0.164 MHz
3.6	15.407 (c)	Automatically Discontinue Transmission	Pass	-
3.7	15.203 & 15.407 (a)	Antenna Requirement	Pass	-

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

**Reviewed by: Wii Chang****Report Producer: Yimin Ho**



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Phone
Model Name	G025J, G025N, G025M
FCC ID	A4RG025J
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/NFC/GNSS WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
EUT Stage	Identical Prototype

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

EUT Information List	
S/N	Performed Test Item
01021FQC200445	RF Conducted Measurement
01021FQC200286	Radiated Spurious Emission
01021FQC200299	Conducted Emission



## 1.2 Product Specification of Equipment Under Test

Standards-related Product Specification										
<b>Tx/Rx Channel Frequency Range</b>	5745 MHz ~ 5825 MHz									
<b>Maximum Output Power</b>	<p><b>&lt;Ant. 3&gt;</b>            802.11a : 18.40 dBm / 0.0692 W            802.11n HT20 : 17.90 dBm / 0.0617 W            802.11n HT40 : 15.90 dBm / 0.0389 W            802.11ac VHT20: 17.80 dBm / 0.0603 W            802.11ac VHT40: 15.80 dBm / 0.0380 W            802.11ac VHT80: 16.50 dBm / 0.0447 W</p> <p><b>MIMO &lt;Ant. 4 + 3&gt;</b>            802.11a : 21.41 dBm / 0.1384 W            802.11n HT20 : 20.81 dBm / 0.1205 W            802.11n HT40 : 18.76 dBm / 0.0752 W            802.11ac VHT20: 20.71 dBm / 0.1178 W            802.11ac VHT40: 18.66 dBm / 0.0735 W            802.11ac VHT80: 19.91 dBm / 0.0979 W</p>									
<b>99% Occupied Bandwidth</b>	<p><b>MIMO&lt;Ant. 4&gt;</b>            802.11a : 17.05 MHz            802.11n HT20 : 18.00 MHz            802.11n HT40 : 36.60 MHz            802.11ac VHT80 : 79.92 MHz</p> <p><b>MIMO&lt;Ant. 3&gt;</b>            802.11a : 17.30 MHz            802.11n HT20 : 18.10 MHz            802.11n HT40 : 36.60 MHz            802.11ac VHT80 : 77.04 MHz</p>									
<b>Type of Modulation</b>	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)									
<b>Antenna Type / Gain</b>	<p><b>&lt;Ant. 4&gt;</b> : PIFA Antenna with gain -1.7 dBi  <b>&lt;Ant. 3&gt;</b> : PIFA Antenna with gain -0.5 dBi</p>									
<b>Antenna Function Description</b>	<table border="1"> <thead> <tr> <th></th> <th>Ant. 4</th> <th>Ant. 3</th> </tr> </thead> <tbody> <tr> <td>802.11 a/n/ac</td> <td>-</td> <td>V</td> </tr> <tr> <td>802.11 a/n/ac MIMO</td> <td>V</td> <td>V</td> </tr> </tbody> </table>		Ant. 4	Ant. 3	802.11 a/n/ac	-	V	802.11 a/n/ac MIMO	V	V
	Ant. 4	Ant. 3								
802.11 a/n/ac	-	V								
802.11 a/n/ac MIMO	V	V								

Remark: MIMO Ant. 4+3 is a calculated result from sum of the power MIMO Ant. 4 and MIMO Ant. 3.

## 1.3 Modification of EUT

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



### 1.4 Testing Location

<b>Test Site</b>	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory	
<b>Test Site Location</b>	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	
	TH05-HY	CO05-HY

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

<b>Test Site</b>	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory	
<b>Test Site Location</b>	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	
	03CH15-HY	

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

FCC designation No.: TW1190 and TW0007

### 1.5 Applicable Standards

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

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

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. 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, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

### 2.1 Carrier Frequency and Channel

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

**Note:**

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





## 2.2 Test Mode

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

### Single Mode

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

### MIMO Mode

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

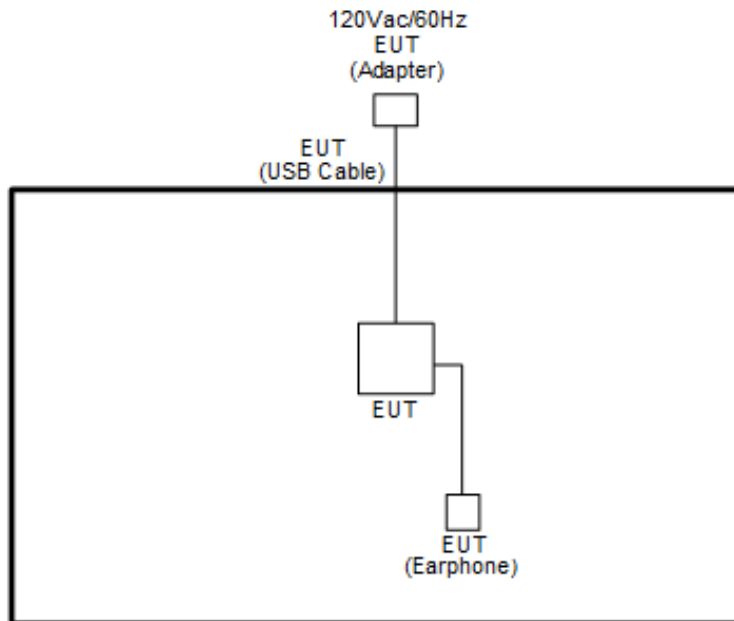
Test Cases	
<b>AC Conducted Emission</b>	Mode 1 : GSM850 Idle + WLAN (5GHz) Link + Bluetooth Link + 3.5mm AJ headset + USB Cable 2 (Charging from Adapter 2)
<b>Remark:</b> For Radiated Test Cases, the tests were performed with Adapter 1, Battery 1 and USB Cable 1.	

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

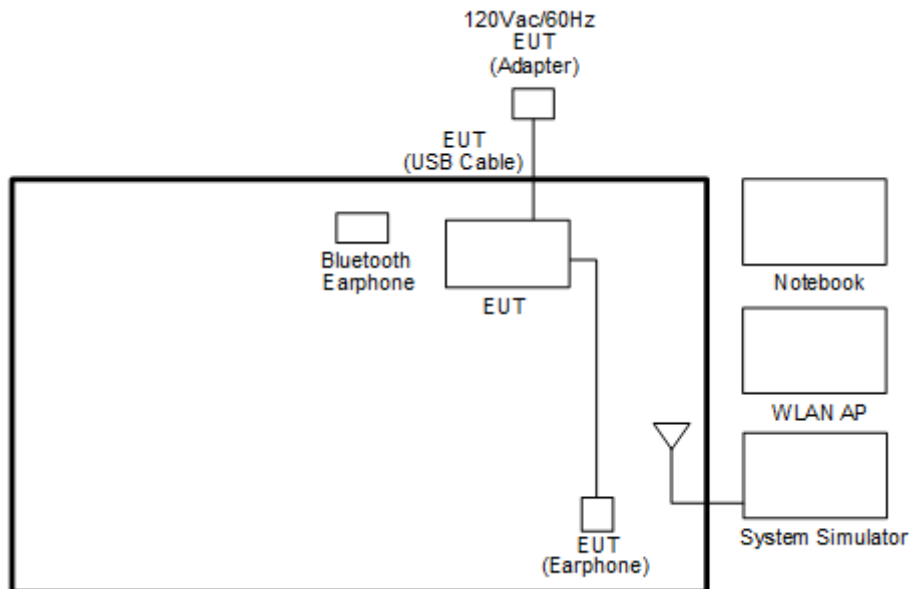
**Remark:** For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.

## 2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emissions Mode>





## 2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Google	G015B	SZGG015B	N/A	N/A
3.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Latitude E3400	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 “QRCT v3.0.298.0” 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 10dB 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.

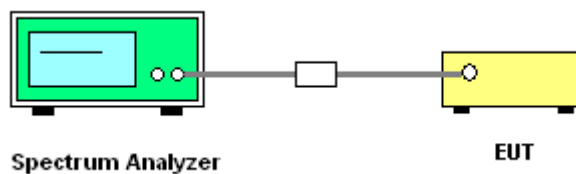
##### 3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

##### 3.1.3 Test Procedures

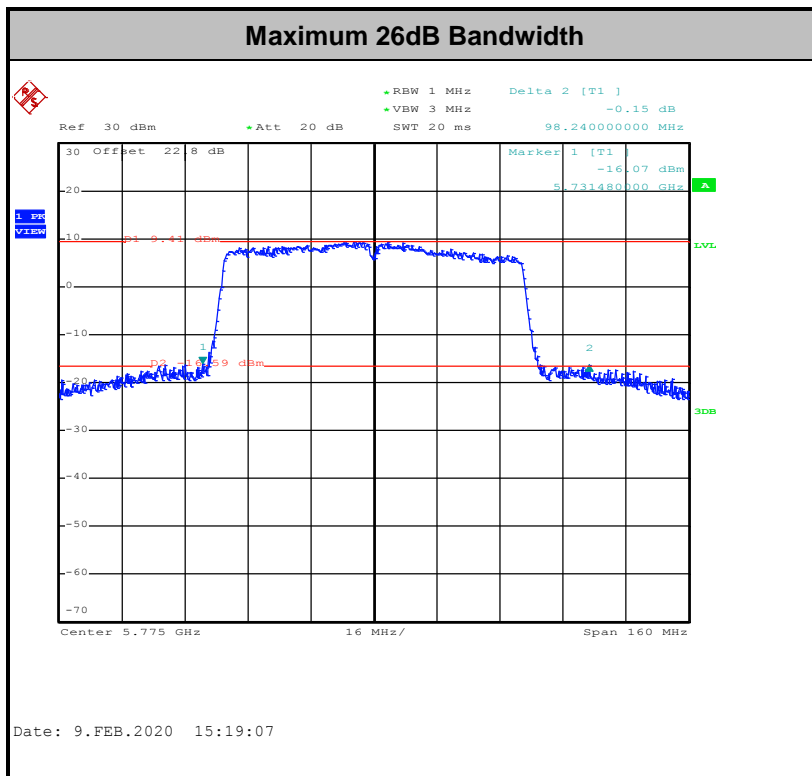
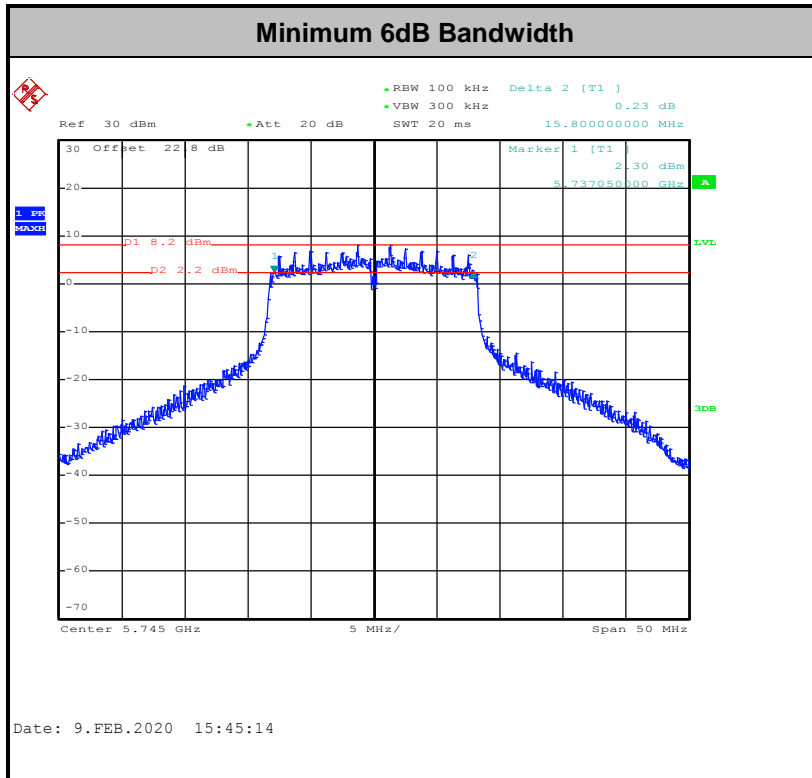
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW  $\geq 3 \times$  RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is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

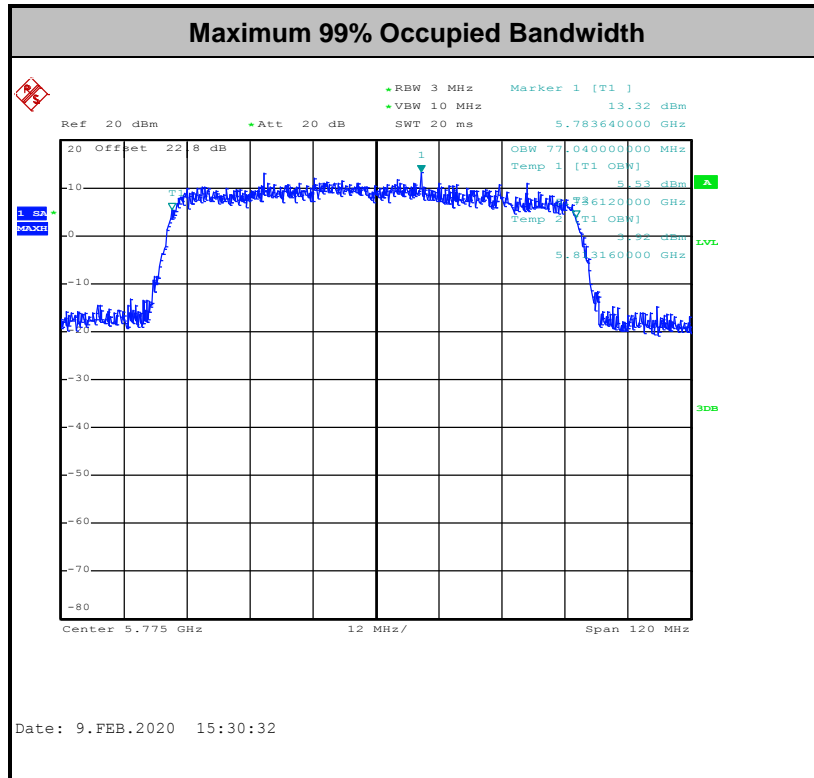
##### 3.1.4 Test Setup



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

Please refer to Appendix A.





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

## 3.2 Maximum Conducted Output Power Measurement

### 3.2.1 Limit of Maximum Conducted Output Power

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

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

### 3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

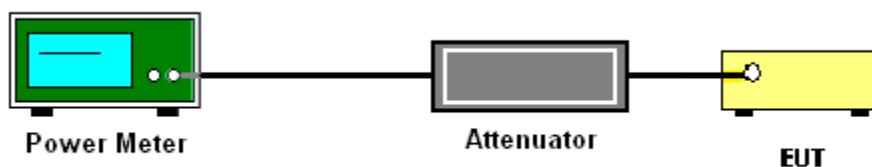
### 3.2.3 Test Procedures

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

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

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

### 3.2.4 Test Setup



### 3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



### 3.3 Power Spectral Density Measurement

#### 3.3.1 Limit of Power Spectral Density

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

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

#### 3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

#### 3.3.3 Test Procedures

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

##### # Method SA-3 #

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

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz.
- Set VBW  $\geq$  1 MHz.
- Number of points in sweep  $\geq$  2 Span / RBW.
- Sweep time  $\leq$  (number of points in sweep)  $\times$  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.

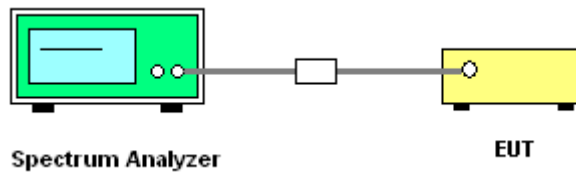


1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (c): Measure and add  $10 \log(N_{\text{ANT}})$  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  $N_{\text{ANT}}$  outputs so that each output is permitted to contribute no more than  $1/N_{\text{ANT}}^{\text{th}}$  of the PSD limit.

### 3.3.4 Test Setup

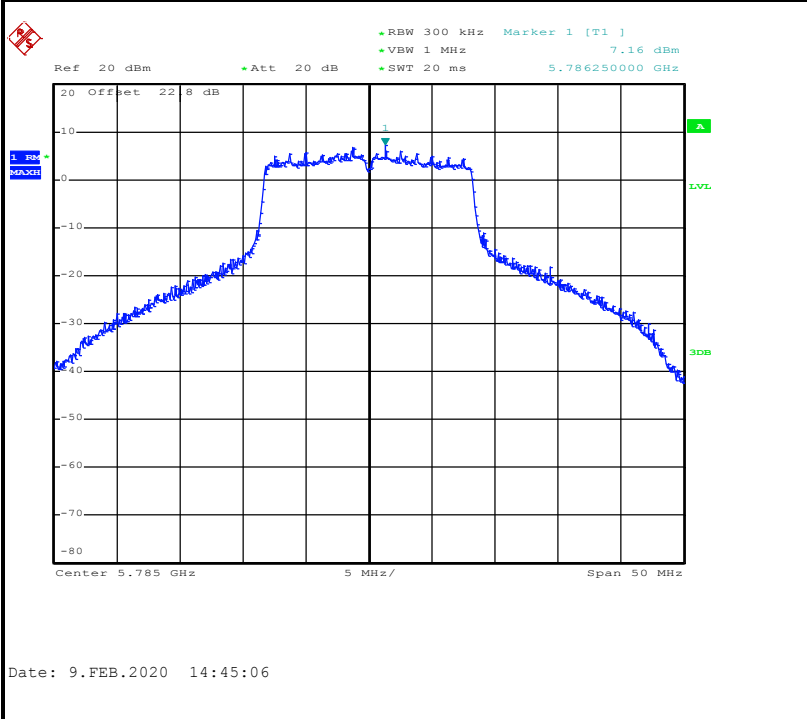


### 3.3.5 Test Result of Power Spectral Density

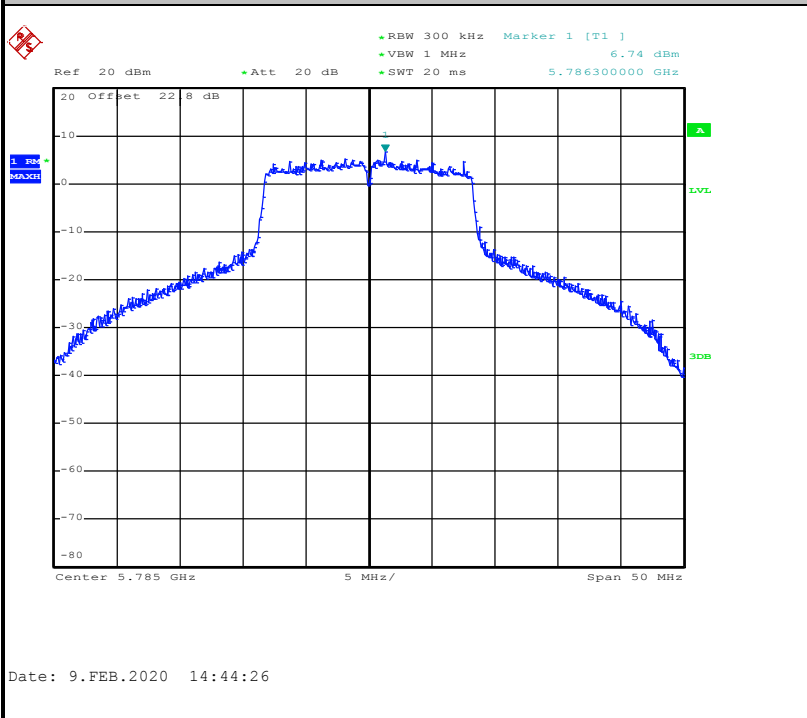
Please refer to Appendix A.



Worst Case Power Density (dBm/MHz) for MIMO Ant. 4



Worst Case Power Density (dBm/MHz) for MIMO Ant. 3





### 3.4 Unwanted Emissions Measurement

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

#### 3.4.1 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.

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

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

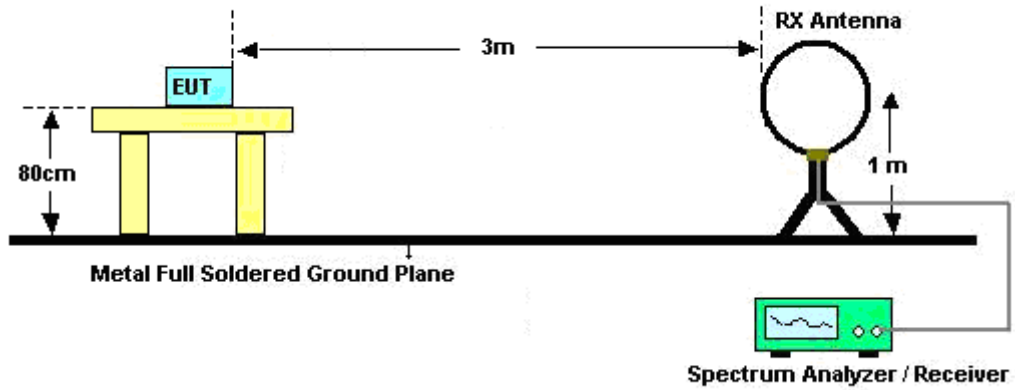
See list of measuring equipment of this test report.

### 3.4.3 Test Procedures

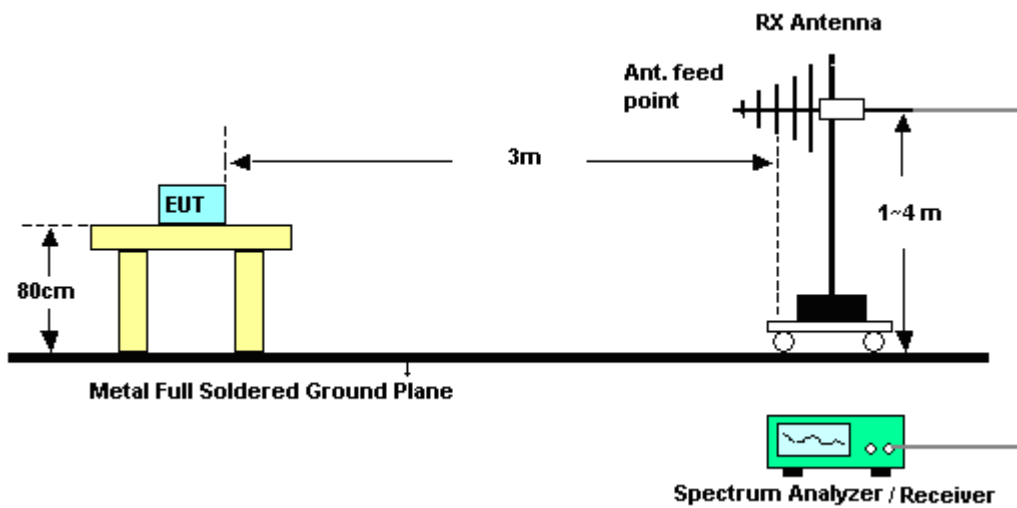
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
  - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
    - RBW = 120 kHz
    - VBW = 300 kHz
    - Detector = Peak
    - Trace mode = max hold
  - (2) Procedure 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 1000MHz
    - 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 was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz 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 1GHz, 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 1GHz, the emission level of the EUT in peak mode was 20dB 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

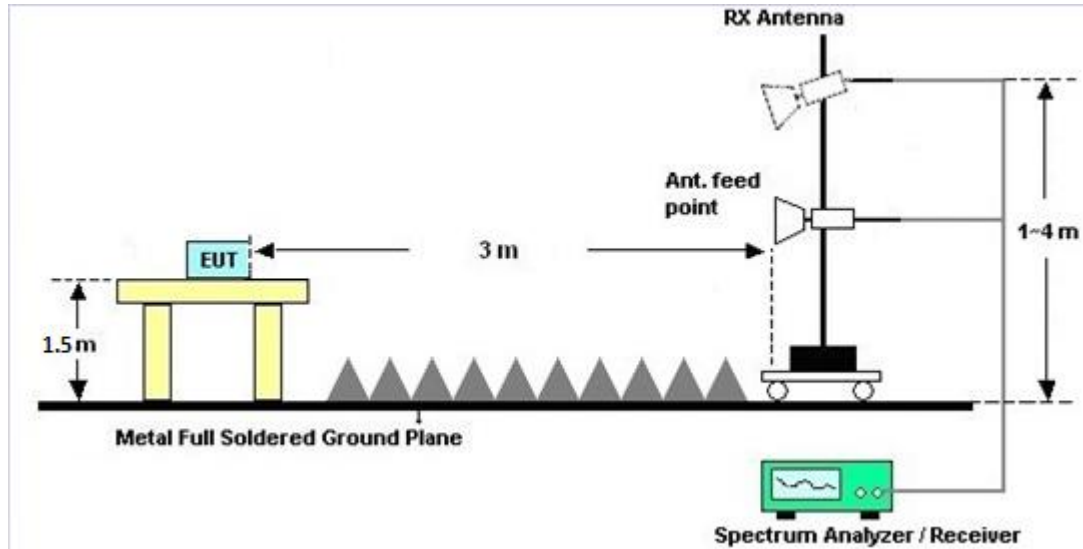
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



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

### 3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix C and D.

### 3.4.7 Duty Cycle

Please refer to Appendix E.

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

Please refer to Appendix C and D.



### 3.5 AC Conducted Emission Measurement

#### 3.5.1 Limit of AC Conducted Emission

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

Frequency of emission (MHz)	Conducted limit (dB $\mu$ 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.

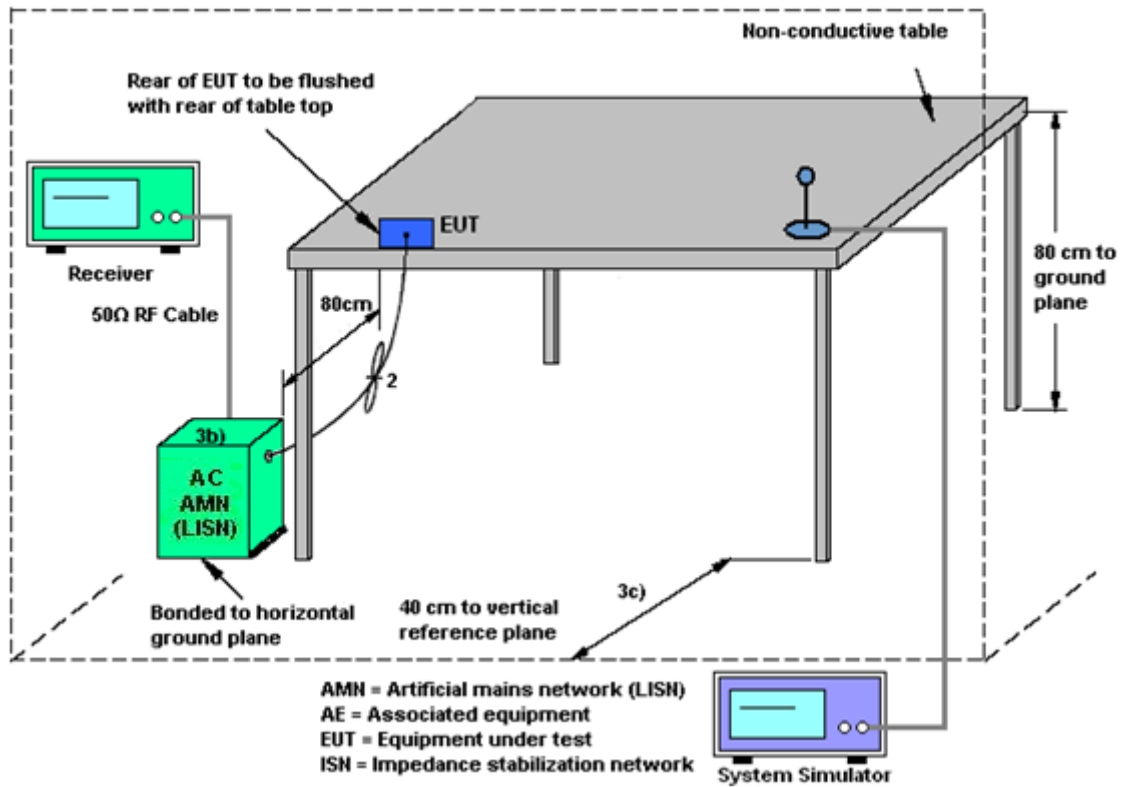
#### 3.5.2 Measuring Instruments

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 should 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



### 3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.





## 3.6 Automatically Discontinue Transmission

### 3.6.1 Limit of Automatically Discontinue Transmission

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

### 3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

### 3.6.3 Test Result of Automatically Discontinue Transmission

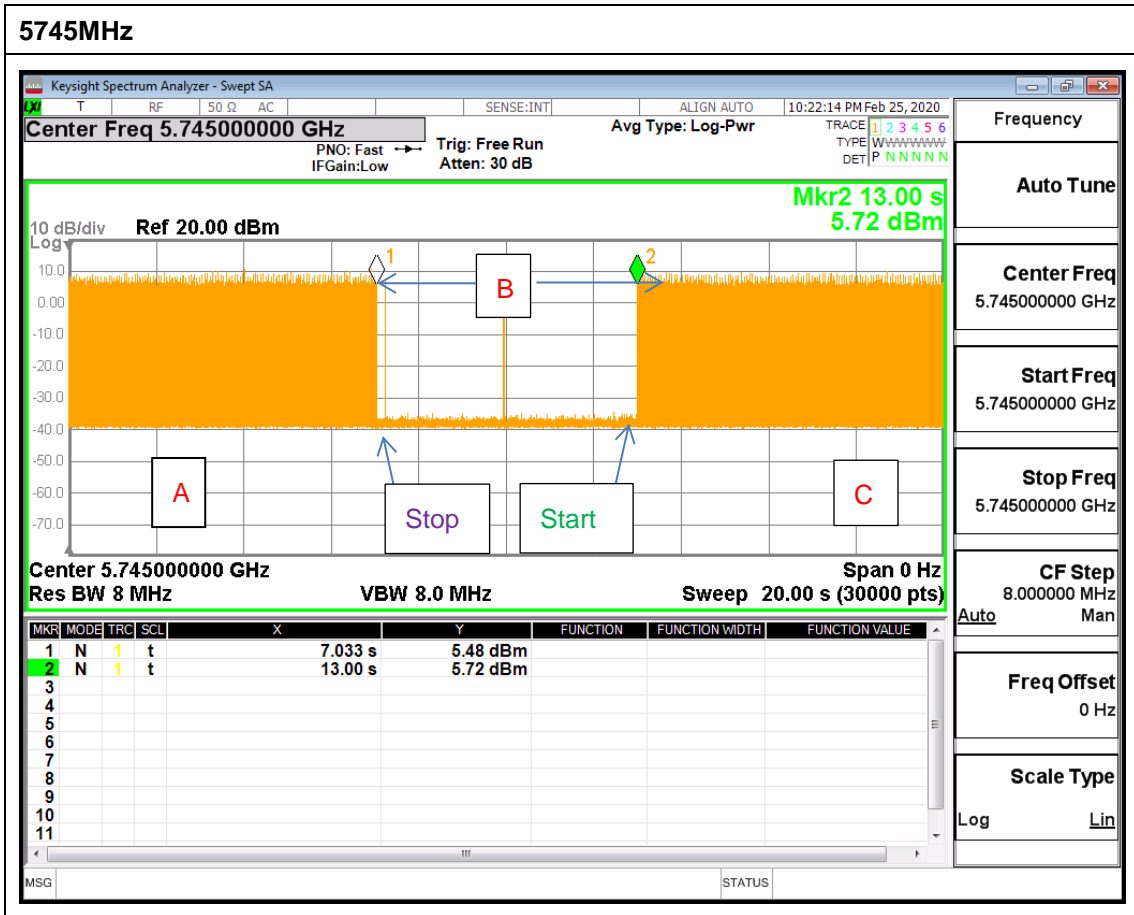
EUT is verified this characteristic during the function check of normal sample associated with an access point:

- A. Information start: make EUT supply information to the access point.
- B. Information stop: stop supplying information to the access point.

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

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

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



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



### 3.7 Antenna Requirements

#### 3.7.1 Standard Applicable

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

#### 3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

#### 3.7.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

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

For power measurements on IEEE 802.11 devices,

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

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

The EUT supports CDD mode.

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

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

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

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

<CDD Modes>						
			DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
	Ant. 4 (dBi)	Ant. 3 (dBi)				
Band IV	-1.70	-0.50	-0.50	1.93	0.00	0.00

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

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



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Dec. 26, 2019	Jan. 28, 2020~ Feb. 17, 2020	Dec. 25, 2020	Radiation (03CH15-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 13, 2019	Jan. 28, 2020~ Feb. 17, 2020	Dec. 12, 2020	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01 N-06	37059 & 01	30MHz~1GHz	Oct. 12, 2019	Jan. 28, 2020~ Feb. 17, 2020	Oct. 11, 2020	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-162 0	1-18GHz	Oct. 28, 2019	Jan. 28, 2020~ Feb. 17, 2020	Oct. 27, 2020	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170 584	18GHz- 40GHz	Dec. 10, 2019	Jan. 28, 2020~ Feb. 17, 2020	Dec. 09, 2020	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 03, 2019	Jan. 28, 2020~ Feb. 17, 2020	Dec. 02, 2020	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-55-3 03	171000180 0055007	1GHz~18GHz	Apr. 01, 2019	Jan. 28, 2020~ Feb. 17, 2020	May 31, 2020	Radiation (03CH15-HY)
Preamplifier	Keysight	83017A	MY532701 95	1GHz~26.5GHz	Aug. 23, 2019	Jan. 28, 2020~ Feb. 17, 2020	Aug. 22, 2020	Radiation (03CH15-HY)
EMI Test Receiver	Keysight	N9038A (MXE)	MY554201 70	20MHz~8.4GHz	Mar. 08, 2019	Jan. 28, 2020~ Feb. 17, 2020	Mar. 07, 2020	Radiation (03CH15-HY)
Spectrum Analyzer	Agilent	E4446A	MY501801 36	3Hz~44GHz	Apr. 29, 2019	Jan. 28, 2020~ Feb. 17, 2020	Apr. 28, 2020	Radiation (03CH15-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Jan. 28, 2020~ Feb. 17, 2020	N/A	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jan. 28, 2020~ Feb. 17, 2020	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jan. 28, 2020~ Feb. 17, 2020	N/A	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24 (k5)	RK-00045 1	N/A	N/A	Jan. 28, 2020~ Feb. 17, 2020	N/A	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY36980/ 4	30M-18G	Apr. 15, 2019	Jan. 28, 2020~ Feb. 17, 2020	Apr. 14, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9838/4 PE	30M-18G	Apr. 15, 2019	Jan. 28, 2020~ Feb. 17, 2020	Apr. 14, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY802430 /4	30M~18G	May 13, 2019	Jan. 28, 2020~ Feb. 17, 2020	May 12, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz-40GHz	Feb. 26, 2019	Jan. 28, 2020~ Feb. 17, 2020	Feb. 25, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz-40GHz	Feb. 26, 2019	Jan. 28, 2020~ Feb. 17, 2020	Feb. 25, 2020	Radiation (03CH15-HY)
Filter	Wainwright	WLK4-1000-1 530-8000-40S S	SN11	1.53G Low Pass	Sep. 15, 2019	Jan. 28, 2020~ Feb. 17, 2020	Sep. 14, 2020	Radiation (03CH15-HY)
Filter	Wainwright	WHKX8-5872. 5-6750-18000 -40SS	SN3	6.75GHz High Pass	Sep. 16, 2019	Jan. 28, 2020~ Feb. 17, 2020	Sep. 15, 2020	Radiation (03CH15-HY)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECEPEL	DTM-302	SN2	N/A	Nov. 08, 2019	Jan. 28, 2020~ Feb. 17, 2020	Nov. 07, 2020	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24 (k5)	RK-00045 1	N/A	N/A	Jan. 28, 2020~ Feb. 17, 2020	N/A	Radiation (03CH15-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jan. 27, 2020	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 15, 2019	Jan. 27, 2020	Nov. 14, 2020	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Mar. 19, 2019	Jan. 27, 2020	Mar. 18, 2020	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 15, 2019	Jan. 27, 2020	Nov. 14, 2020	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Jan. 27, 2020	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 02, 2020	Jan. 27, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 02, 2020	Jan. 27, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Hygrometer	Testo	608-H2	41410069	N/A	Jun. 17, 2019	Jan. 24, 2020~ Feb. 25, 2020	Jun. 16, 2020	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054S NO10	10MHz~6GHz	Dec. 23, 2019	Jan. 24, 2020~ Feb. 25, 2020	Dec. 22, 2020	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Aug. 14, 2019	Jan. 24, 2020~ Feb. 25, 2020	Aug. 13, 2020	Conducted (TH05-HY)
Switch Box & RF Cable	Burgeon	ETF-058	EC120838 2	N/A	Mar. 27, 2019	Jan. 24, 2020~ Feb. 25, 2020	Mar. 26, 2020	Conducted (TH05-HY)
Spectrum Analyzer	Keysight	N9010A	MY560704 12	10Hz~7GHz	Aug. 27, 2019	Jan. 24, 2020~ Feb. 25, 2020	Aug. 26, 2020	Conducted (TH05-HY)



## 5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.0
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.0
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### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.4
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.0
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**Appendix A. Test Result of Conducted Test Items**

Test Engineer:	Owen Yang / Tommy Lee	Temperature:	21~25	°C
Test Date:	2020/1/24~2020/02/10	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	16.90	17.30	28.00	35.90	15.80	16.30	0.5	Pass
11a	6Mbps	2	157	5785	17.05	17.25	33.40	33.10	16.00	16.30	0.5	Pass
11a	6Mbps	2	165	5825	16.85	16.90	28.30	30.00	15.80	16.00	0.5	Pass
HT20	MCS0	2	149	5745	18.00	18.00	29.75	29.45	16.80	16.85	0.5	Pass
HT20	MCS0	2	157	5785	17.95	18.10	27.50	30.20	16.85	16.90	0.5	Pass
HT20	MCS0	2	165	5825	17.95	17.95	26.90	28.95	16.90	16.90	0.5	Pass
HT40	MCS0	2	151	5755	36.60	36.50	41.76	41.76	35.28	35.28	0.5	Pass
HT40	MCS0	2	159	5795	36.60	36.60	42.48	41.94	35.64	36.00	0.5	Pass
VHT80	MCS0	2	155	5775	76.92	77.04	98.24	83.52	75.20	75.20	0.5	Pass



**TEST RESULTS DATA**  
**Average Power Table**

Band IV single antenna												
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	1	149	5745	-	18.30	-	30.00	-	-0.50	Pass	
11a	6Mbps	1	157	5785	-	18.40	-	30.00	-	-0.50	Pass	
11a	6Mbps	1	165	5825	-	18.40	-	30.00	-	-0.50	Pass	
HT20	MCS0	1	149	5745	-	17.70	-	30.00	-	-0.50	Pass	
HT20	MCS0	1	157	5785	-	17.80	-	30.00	-	-0.50	Pass	
HT20	MCS0	1	165	5825	-	17.90	-	30.00	-	-0.50	Pass	
HT40	MCS0	1	151	5755	-	15.90	-	30.00	-	-0.50	Pass	
HT40	MCS0	1	159	5795	-	15.90	-	30.00	-	-0.50	Pass	
VHT20	MCS0	1	149	5745	-	17.60	-	30.00	-	-0.50	Pass	
VHT20	MCS0	1	157	5785	-	17.70	-	30.00	-	-0.50	Pass	
VHT20	MCS0	1	165	5825	-	17.80	-	30.00	-	-0.50	Pass	
VHT40	MCS0	1	151	5755	-	15.80	-	30.00	-	-0.50	Pass	
VHT40	MCS0	1	159	5795	-	15.80	-	30.00	-	-0.50	Pass	
VHT80	MCS0	1	155	5775	-	16.50	-	30.00	-	-0.50	Pass	

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	18.30	18.50	21.41	30.00	30.00	-0.50	-0.50	Pass
11a	6Mbps	2	157	5785	18.00	18.40	21.21	30.00	30.00	-0.50	-0.50	Pass
11a	6Mbps	2	165	5825	18.40	18.10	21.26	30.00	30.00	-0.50	-0.50	Pass
HT20	MCS0	2	149	5745	17.50	18.00	20.77	30.00	30.00	-0.50	-0.50	Pass
HT20	MCS0	2	157	5785	17.50	18.00	20.77	30.00	30.00	-0.50	-0.50	Pass
HT20	MCS0	2	165	5825	18.00	17.60	20.81	30.00	30.00	-0.50	-0.50	Pass
HT40	MCS0	2	151	5755	15.90	15.50	18.71	30.00	30.00	-0.50	-0.50	Pass
HT40	MCS0	2	159	5795	15.80	15.70	18.76	30.00	30.00	-0.50	-0.50	Pass
VHT20	MCS0	2	149	5745	17.40	17.90	20.67	30.00	30.00	-0.50	-0.50	Pass
VHT20	MCS0	2	157	5785	17.40	17.90	20.67	30.00	30.00	-0.50	-0.50	Pass
VHT20	MCS0	2	165	5825	17.90	17.50	20.71	30.00	30.00	-0.50	-0.50	Pass
VHT40	MCS0	2	151	5755	15.80	15.40	18.61	30.00	30.00	-0.50	-0.50	Pass
VHT40	MCS0	2	159	5795	15.70	15.60	18.66	30.00	30.00	-0.50	-0.50	Pass
VHT80	MCS0	2	155	5775	16.80	17.00	19.91	30.00	30.00	-0.50	-0.50	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 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	Ant 4	Ant 3	
11a	6Mbps	2	149	5745	2.22	8.21	7.65	11.22	30.00	1.93	Pass			
11a	6Mbps	2	157	5785	2.22	9.38	8.96	12.39	30.00	1.93	Pass			
11a	6Mbps	2	165	5825	2.22	7.87	7.46	10.88	30.00	1.93	Pass			
HT20	MCS0	2	149	5745	2.22	8.13	8.94	11.95	30.00	1.93	Pass			
HT20	MCS0	2	157	5785	2.22	8.16	8.60	11.61	30.00	1.93	Pass			
HT20	MCS0	2	165	5825	2.22	7.05	8.31	11.32	30.00	1.93	Pass			
HT40	MCS0	2	151	5755	2.22	2.60	1.82	5.61	30.00	1.93	Pass			
HT40	MCS0	2	159	5795	2.22	2.19	1.96	5.20	30.00	1.93	Pass			
VHT80	MCS0	2	155	5775	2.22	2.26	1.05	5.27	30.00	1.93	Pass			

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



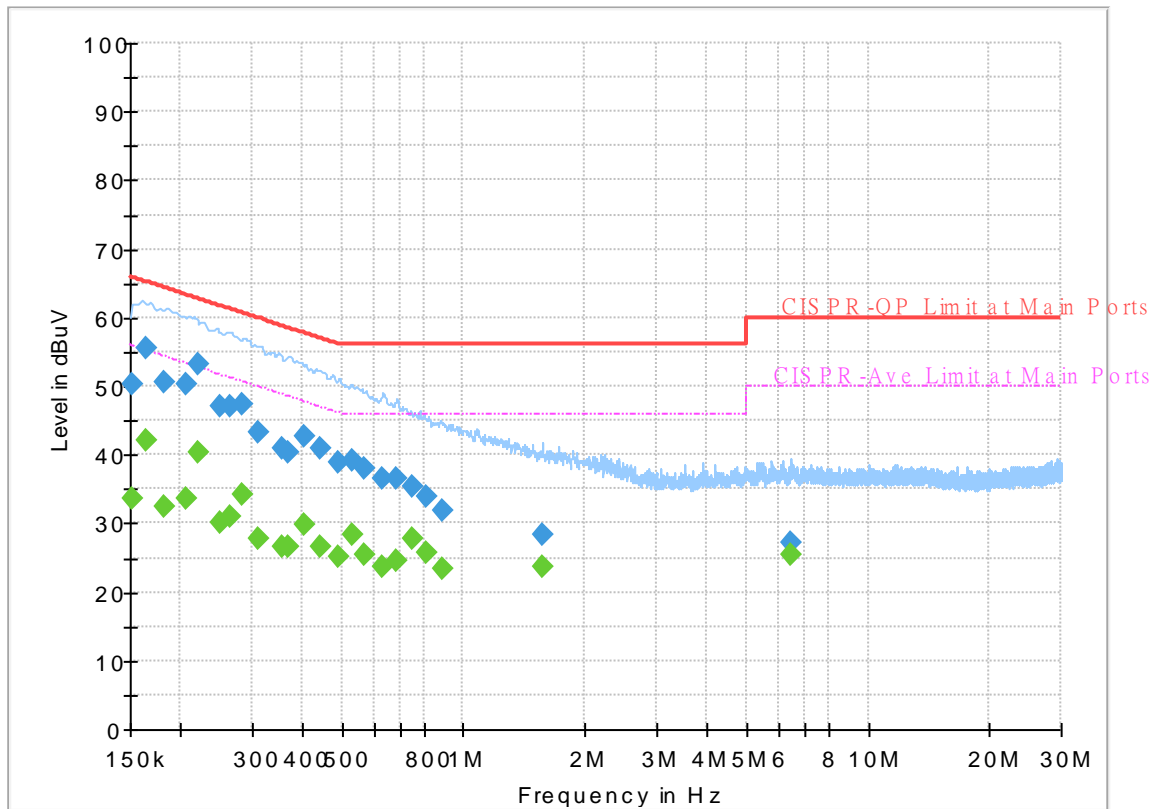
## Appendix B. AC Conducted Emission Test Results

Test Engineer :	Tom Lee	Temperature :	22~25°C
		Relative Humidity :	45~53%

# EUT Information

Report NO : 9D0616-05  
 Test Mode : Mode 1  
 Test Voltage : 120Vac/60Hz  
 Phase : Line

Full Spectrum



## Final\_Result

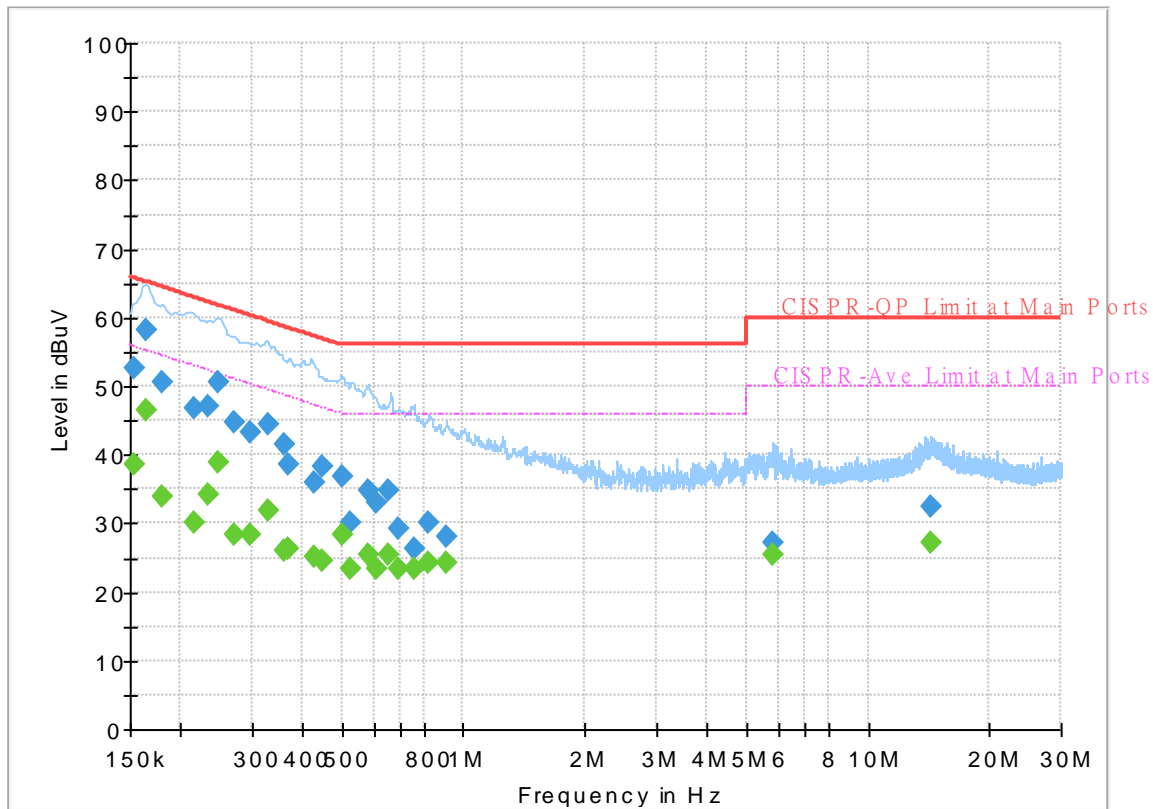
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.151485	---	33.68	55.92	22.24	L1	OFF	19.5
0.151485	50.32	---	65.92	15.60	L1	OFF	19.5
0.164310	---	42.10	55.24	13.14	L1	OFF	19.5
0.164310	55.55	---	65.24	9.69	L1	OFF	19.5
0.182130	---	32.46	54.39	21.93	L1	OFF	19.5
0.182130	50.67	---	64.39	13.72	L1	OFF	19.5
0.206250	---	33.61	53.36	19.75	L1	OFF	19.5
0.206250	50.18	---	63.36	13.18	L1	OFF	19.5
0.222000	---	40.40	52.74	12.34	L1	OFF	19.5
0.222000	53.21	---	62.74	9.53	L1	OFF	19.5
0.250800	---	30.14	51.73	21.59	L1	OFF	19.5
0.250800	47.03	---	61.73	14.70	L1	OFF	19.5
0.264570	---	31.02	51.29	20.27	L1	OFF	19.5
0.264570	47.01	---	61.29	14.28	L1	OFF	19.5
0.285000	---	34.18	50.67	16.49	L1	OFF	19.5
0.285000	47.45	---	60.67	13.22	L1	OFF	19.5
0.312000	---	27.64	49.92	22.28	L1	OFF	19.5
0.312000	43.18	---	59.92	16.74	L1	OFF	19.5
0.354750	---	26.66	48.85	22.19	L1	OFF	19.5
0.354750	40.88	---	58.85	17.97	L1	OFF	19.5
0.368430	---	26.69	48.54	21.85	L1	OFF	19.5

0.368430	40.28	---	58.54	18.26	L1	OFF	19.5
0.405510	---	29.75	47.74	17.99	L1	OFF	19.5
0.405510	42.74	---	57.74	15.00	L1	OFF	19.5
0.444480	---	26.62	46.98	20.36	L1	OFF	19.5
0.444480	41.02	---	56.98	15.96	L1	OFF	19.5
0.489750	---	25.13	46.17	21.04	L1	OFF	19.5
0.489750	38.98	---	56.17	17.19	L1	OFF	19.5
0.532500	---	28.32	46.00	17.68	L1	OFF	19.5
0.532500	39.04	---	56.00	16.96	L1	OFF	19.5
0.569310	---	25.39	46.00	20.61	L1	OFF	19.5
0.569310	37.97	---	56.00	18.03	L1	OFF	19.5
0.629250	---	23.76	46.00	22.24	L1	OFF	19.5
0.629250	36.42	---	56.00	19.58	L1	OFF	19.5
0.686490	---	24.71	46.00	21.29	L1	OFF	19.5
0.686490	36.46	---	56.00	19.54	L1	OFF	19.5
0.744000	---	27.79	46.00	18.21	L1	OFF	19.5
0.744000	35.45	---	56.00	20.55	L1	OFF	19.5
0.807180	---	25.73	46.00	20.27	L1	OFF	19.6
0.807180	33.83	---	56.00	22.17	L1	OFF	19.6
0.882600	---	23.40	46.00	22.60	L1	OFF	19.6
0.882600	31.88	---	56.00	24.12	L1	OFF	19.6
1.565250	---	23.72	46.00	22.28	L1	OFF	19.6
1.565250	28.35	---	56.00	27.65	L1	OFF	19.6
6.465750	---	25.39	50.00	24.61	L1	OFF	19.8
6.465750	27.30	---	60.00	32.70	L1	OFF	19.8

# EUT Information

Report NO : 9D0616-05  
 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)
0.154050	---	38.61	55.78	17.17	N	OFF	19.6
0.154050	52.69	---	65.78	13.09	N	OFF	19.6
0.163680	---	46.39	55.28	8.89	N	OFF	19.6
0.163680	58.08	---	65.28	7.20	N	OFF	19.6
0.179250	---	33.97	54.52	20.55	N	OFF	19.6
0.179250	50.45	---	64.52	14.07	N	OFF	19.6
0.215250	---	30.08	53.00	22.92	N	OFF	19.6
0.215250	46.74	---	63.00	16.26	N	OFF	19.6
0.233250	---	34.13	52.33	18.20	N	OFF	19.6
0.233250	47.15	---	62.33	15.18	N	OFF	19.6
0.246750	---	38.92	51.87	12.95	N	OFF	19.6
0.246750	50.66	---	61.87	11.21	N	OFF	19.6
0.271950	---	28.26	51.06	22.80	N	OFF	19.6
0.271950	44.72	---	61.06	16.34	N	OFF	19.6
0.297420	---	28.49	50.32	21.83	N	OFF	19.6
0.297420	43.41	---	60.32	16.91	N	OFF	19.6
0.327390	---	31.77	49.52	17.75	N	OFF	19.6
0.327390	44.53	---	59.52	14.99	N	OFF	19.6
0.359250	---	25.93	48.75	22.82	N	OFF	19.6
0.359250	41.66	---	58.75	17.09	N	OFF	19.6
0.370500	---	26.45	48.49	22.04	N	OFF	19.6

0.370500	38.48	---	58.49	20.01	N	OFF	19.6
0.426750	---	25.14	47.32	22.18	N	OFF	19.6
0.426750	35.90	---	57.32	21.42	N	OFF	19.6
0.447000	---	24.44	46.93	22.49	N	OFF	19.6
0.447000	38.43	---	56.93	18.50	N	OFF	19.6
0.500550	---	28.24	46.00	17.76	N	OFF	19.6
0.500550	36.98	---	56.00	19.02	N	OFF	19.6
0.526830	---	23.45	46.00	22.55	N	OFF	19.6
0.526830	30.15	---	56.00	25.85	N	OFF	19.6
0.585150	---	25.38	46.00	20.62	N	OFF	19.6
0.585150	34.79	---	56.00	21.21	N	OFF	19.6
0.606930	---	23.26	46.00	22.74	N	OFF	19.6
0.606930	33.02	---	56.00	22.98	N	OFF	19.6
0.654000	---	25.46	46.00	20.54	N	OFF	19.6
0.654000	34.85	---	56.00	21.15	N	OFF	19.6
0.691440	---	23.26	46.00	22.74	N	OFF	19.6
0.691440	29.16	---	56.00	26.84	N	OFF	19.6
0.756510	---	23.39	46.00	22.61	N	OFF	19.6
0.756510	26.26	---	56.00	29.74	N	OFF	19.6
0.819690	---	24.19	46.00	21.81	N	OFF	19.6
0.819690	29.99	---	56.00	26.01	N	OFF	19.6
0.903750	---	24.27	46.00	21.73	N	OFF	19.6
0.903750	28.20	---	56.00	27.80	N	OFF	19.6
5.806140	---	25.34	50.00	24.66	N	OFF	19.8
5.806140	27.14	---	60.00	32.86	N	OFF	19.8
14.383500	---	27.29	50.00	22.71	N	OFF	20.2
14.383500	32.57	---	60.00	27.43	N	OFF	20.2



### Appendix C. Radiated Spurious Emission

Test Engineer :	Leo Li and Mancy Chou	Temperature :	24.2~24.6°C
		Relative Humidity :	56~61%

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		5605.6	51.1	-17.1	68.2	39.86	31.89	9.85	30.5	268	297	P	H	
		5699	52.82	-51.64	104.46	41.51	32	9.86	30.55	268	297	P	H	
		5719.8	63.97	-46.77	110.74	52.68	32	9.86	30.57	268	297	P	H	
		5724.6	73.12	-48.17	121.29	61.83	32	9.86	30.57	268	297	P	H	
	*	5745	111.21	-	-	99.93	32	9.86	30.58	268	297	P	H	
	*	5745	104	-	-	92.72	32	9.86	30.58	268	297	A	H	
														H
														H
			5620.2	49.6	-18.6	68.2	38.39	31.86	9.85	30.5	100	270	P	V
			5683.2	50.83	-41.97	92.8	39.58	31.93	9.86	30.54	100	270	P	V
			5718.6	62.11	-48.3	110.41	50.82	32	9.86	30.57	100	270	P	V
			5723.8	69.75	-49.71	119.46	58.46	32	9.86	30.57	100	270	P	V
	*		5745	108.03	-	-	96.75	32	9.86	30.58	100	270	P	V
	*		5745	101.03	-	-	89.75	32	9.86	30.58	100	270	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)	
802.11a CH 157 5785MHz		5630.8	50.49	-17.71	68.2	39.31	31.84	9.85	30.51	235	299	P	H	
		5654.2	50.06	-21.26	71.32	38.91	31.82	9.86	30.53	235	299	P	H	
		5717.2	51.42	-58.6	110.02	40.12	32	9.86	30.56	235	299	P	H	
		5720.4	52.94	-58.77	111.71	41.65	32	9.86	30.57	235	299	P	H	
	*	5785	113.61	-	-	102.21	32.14	9.87	30.61	235	299	P	H	
	*	5785	106.65	-	-	95.25	32.14	9.87	30.61	235	299	A	H	
		5855	51.09	-59.71	110.8	39.58	32.22	9.94	30.65	235	299	P	H	
		5855	51.09	-59.71	110.8	39.58	32.22	9.94	30.65	235	299	P	H	
		5882.8	50.69	-48.72	99.41	39.06	32.33	9.97	30.67	235	299	P	H	
		5927.4	51.32	-16.88	68.2	39.53	32.45	10.03	30.69	235	299	P	H	
														H
														H
			5634.2	50.24	-17.96	68.2	39.07	31.83	9.85	30.51	100	276	P	V
			5662	50.06	-27.05	77.11	38.88	31.85	9.86	30.53	100	276	P	V
			5719.6	50.44	-60.25	110.69	39.15	32	9.86	30.57	100	276	P	V
			5721.4	50.84	-63.15	113.99	39.55	32	9.86	30.57	100	276	P	V
	*		5785	110.32	-	-	98.92	32.14	9.87	30.61	100	276	P	V
	*		5785	103.21	-	-	91.81	32.14	9.87	30.61	100	276	A	V
			5853.6	50.71	-63.28	113.99	39.21	32.21	9.94	30.65	100	276	P	V
			5856.6	51	-59.35	110.35	39.48	32.23	9.94	30.65	100	276	P	V
			5880	49.95	-51.54	101.49	38.33	32.32	9.97	30.67	100	276	P	V
			5930.6	50.05	-18.15	68.2	38.26	32.46	10.03	30.7	100	276	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	112.57	-	-	101.1	32.2	9.9	30.63	303	297	P	H	
	*	5825	105.65	-	-	94.18	32.2	9.9	30.63	303	297	A	H	
		5850	69.71	-52.49	122.2	58.23	32.2	9.93	30.65	303	297	P	H	
		5855	63.14	-47.66	110.8	51.63	32.22	9.94	30.65	303	297	P	H	
		5882.6	52.88	-46.68	99.56	41.25	32.33	9.97	30.67	303	297	P	H	
		5925.4	50.41	-17.79	68.2	38.62	32.45	10.03	30.69	303	297	P	H	
														H
														H
	*	5825	109.59	-	-	98.12	32.2	9.9	30.63	100	278	P	V	
	*	5825	102.38	-	-	90.91	32.2	9.9	30.63	100	278	A	V	
		5852.4	65.2	-51.53	116.73	53.7	32.21	9.94	30.65	100	278	P	V	
		5858	61.64	-48.32	109.96	50.12	32.23	9.94	30.65	100	278	P	V	
		5880.2	53.02	-48.32	101.34	41.4	32.32	9.97	30.67	100	278	P	V	
		5938.8	49.94	-18.26	68.2	38.12	32.48	10.04	30.7	100	278	P	V	
														V
														V
														V
<b>Remark</b>	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 )
802.11a CH 149 5745MHz		11490	48.81	-25.19	74	56.02	40.48	14.5	62.19	100	0	P	H
		17235	47.85	-20.35	68.2	47.48	40.94	18.51	59.08	100	0	P	H
													H
													H
		11490	49.4	-24.6	74	56.61	40.48	14.5	62.19	100	0	P	V
		17235	48.03	-20.17	68.2	47.66	40.94	18.51	59.08	100	0	P	V
													V
													V
802.11a CH 157 5785MHz		11570	48.1	-25.9	74	55.51	40.29	14.56	62.26	100	0	P	H
		17355	50.24	-17.96	68.2	48.59	41.75	18.72	58.82	100	0	P	H
													H
													H
		11570	58.76	-15.24	74	66.17	40.29	14.56	62.26	100	55	P	V
		11570	49.55	-4.45	54	56.96	40.29	14.56	62.26	100	55	A	V
		17355	49.88	-18.32	68.2	48.23	41.75	18.72	58.82	100	0	P	V
													V
802.11a CH 165 5825MHz		11650	47.08	-26.92	74	54.93	39.85	14.62	62.32	100	0	P	H
		17475	50.83	-17.37	68.2	48.01	42.5	18.88	58.56	100	0	P	H
													H
													H
		11650	49.15	-24.85	74	57	39.85	14.62	62.32	100	0	P	V
		17475	49.77	-18.43	68.2	46.95	42.5	18.88	58.56	100	0	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 (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		5603	50.56	-17.64	68.2	39.31	31.89	9.85	30.49	312	298	P	H	
		5698.6	52.53	-51.64	104.17	41.23	31.99	9.86	30.55	312	298	P	H	
		5720	66.85	-43.95	110.8	55.56	32	9.86	30.57	312	298	P	H	
		5724.8	77.44	-44.3	121.74	66.15	32	9.86	30.57	312	298	P	H	
	*	5745	111.56	-	-	100.28	32	9.86	30.58	312	298	P	H	
	*	5745	104.25	-	-	92.97	32	9.86	30.58	312	298	A	H	
														H
														H
			5606	50.84	-17.36	68.2	39.6	31.89	9.85	30.5	100	282	P	V
			5699.8	53.2	-51.85	105.05	41.89	32	9.86	30.55	100	282	P	V
			5719.6	64.18	-46.51	110.69	52.89	32	9.86	30.57	100	282	P	V
			5724.2	72.56	-47.82	120.38	61.27	32	9.86	30.57	100	282	P	V
	*		5745	107.53	-	-	96.25	32	9.86	30.58	100	282	P	V
	*		5745	100.28	-	-	89	32	9.86	30.58	100	282	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 )
		5625.6	49.87	-18.33	68.2	38.68	31.85	9.85	30.51	217	301	P	H
		5692.2	50.14	-49.31	99.45	38.86	31.97	9.86	30.55	217	301	P	H
		5718.4	51.22	-59.13	110.35	39.93	32	9.86	30.57	217	301	P	H
		5724.2	51.26	-69.12	120.38	39.97	32	9.86	30.57	217	301	P	H
	*	5785	113.19	-	-	101.79	32.14	9.87	30.61	217	301	P	H
	*	5785	105.62	-	-	94.22	32.14	9.87	30.61	217	301	A	H
		5852.8	50.57	-65.25	115.82	39.07	32.21	9.94	30.65	217	301	P	H
		5855.6	51.11	-59.52	110.63	39.6	32.22	9.94	30.65	217	301	P	H
		5875.8	51.65	-52.96	104.61	40.05	32.3	9.96	30.66	217	301	P	H
		5944.8	50.25	-17.95	68.2	38.42	32.49	10.05	30.71	217	301	P	H
802.11n													H
HT20													H
CH 157		5619.2	49.9	-18.3	68.2	38.69	31.86	9.85	30.5	100	277	P	V
5785MHz		5700	50.04	-55.16	105.2	38.73	32	9.86	30.55	100	277	P	V
		5707.4	50.38	-56.89	107.27	39.08	32	9.86	30.56	100	277	P	V
		5720.6	50.71	-61.46	112.17	39.42	32	9.86	30.57	100	277	P	V
	*	5785	108.82	-	-	97.42	32.14	9.87	30.61	100	277	P	V
	*	5785	101.17	-	-	89.77	32.14	9.87	30.61	100	277	A	V
		5854.8	51.26	-60	111.26	39.75	32.22	9.94	30.65	100	277	P	V
		5866.4	50.56	-57.05	107.61	39	32.27	9.95	30.66	100	277	P	V
		5906.2	50.82	-31.26	82.08	39.09	32.41	10	30.68	100	277	P	V
		5926.8	50.27	-17.93	68.2	38.48	32.45	10.03	30.69	100	277	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	112.03	-	-	100.56	32.2	9.9	30.63	311	299	P	H	
	*	5825	104.78	-	-	93.31	32.2	9.9	30.63	311	299	A	H	
		5850	63.83	-58.37	122.2	52.35	32.2	9.93	30.65	311	299	P	H	
		5858.2	59.76	-50.14	109.9	48.24	32.23	9.94	30.65	311	299	P	H	
		5876.6	52.28	-51.73	104.01	40.66	32.31	9.97	30.66	311	299	P	H	
		5934.4	51.1	-17.1	68.2	39.29	32.47	10.04	30.7	311	299	P	H	
														H
														H
	*	5825	108.89	-	-	97.42	32.2	9.9	30.63	100	277	P	V	
	*	5825	100.9	-	-	89.43	32.2	9.9	30.63	100	277	A	V	
		5850	66.45	-55.75	122.2	54.97	32.2	9.93	30.65	100	277	P	V	
		5855.6	61.97	-48.66	110.63	50.46	32.22	9.94	30.65	100	277	P	V	
		5875	50.93	-54.27	105.2	39.33	32.3	9.96	30.66	100	277	P	V	
		5931.2	50	-18.2	68.2	38.21	32.46	10.03	30.7	100	277	P	V	
														V
														V
<b>Remark</b>	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		11490	48.18	-25.82	74	55.39	40.48	14.5	62.19	100	0	P	H	
		17235	48.13	-20.07	68.2	47.76	40.94	18.51	59.08	100	0	P	H	
													H	
													H	
			11490	58.61	-15.39	74	65.82	40.48	14.5	62.19	100	228	P	V
			11490	48.36	-5.64	54	55.57	40.48	14.5	62.19	100	228	A	V
			17325	49.51	-18.69	68.2	48.27	41.45	18.67	58.88	100	0	P	V
													V	
802.11n HT20 CH 157 5785MHz		11570	47.35	-26.65	74	54.76	40.29	14.56	62.26	100	0	P	H	
		17355	49.94	-18.26	68.2	48.29	41.75	18.72	58.82	100	0	P	H	
													H	
													H	
			11570	58.68	-15.32	74	66.09	40.29	14.56	62.26	100	50	P	V
			11570	48.46	-5.54	54	55.87	40.29	14.56	62.26	100	50	A	V
			17355	49.65	-18.55	68.2	48	41.75	18.72	58.82	100	0	P	V
													V	
802.11n HT20 CH 165 5825MHz		11650	48.25	-25.75	74	56.1	39.85	14.62	62.32	100	0	P	H	
		17475	49.06	-19.14	68.2	46.24	42.5	18.88	58.56	100	0	P	H	
													H	
													H	
			11650	57.62	-16.38	74	65.47	39.85	14.62	62.32	100	51	P	V
			11650	47.82	-6.18	54	55.67	39.85	14.62	62.32	100	51	A	V
			17475	49.61	-18.59	68.2	46.79	42.5	18.88	58.56	100	0	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 802.11n 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 )
		5649.4	51.1	-17.1	68.2	39.97	31.8	9.85	30.52	300	299	P	H
		5697.2	56.93	-46.21	103.14	45.63	31.99	9.86	30.55	300	299	P	H
		5714.6	68.62	-40.67	109.29	57.32	32	9.86	30.56	300	299	P	H
		5720	67.2	-43.6	110.8	55.91	32	9.86	30.57	300	299	P	H
	*	5755	107.19	-	-	95.89	32.02	9.87	30.59	300	299	P	H
	*	5755	99.3	-	-	88	32.02	9.87	30.59	300	299	A	H
		5851	50.81	-69.11	119.92	39.33	32.2	9.93	30.65	300	299	P	H
		5863.4	52.34	-56.11	108.45	40.8	32.25	9.95	30.66	300	299	P	H
		5894.2	50.92	-40.03	90.95	39.22	32.38	9.99	30.67	300	299	P	H
		5937.4	51.57	-16.63	68.2	39.76	32.47	10.04	30.7	300	299	P	H
802.11n													H
HT40													H
CH 151		5639.2	50.67	-17.53	68.2	39.52	31.82	9.85	30.52	100	275	P	V
5755MHz		5695	53.57	-47.94	101.51	42.28	31.98	9.86	30.55	100	275	P	V
		5718.2	68.59	-41.71	110.3	57.3	32	9.86	30.57	100	275	P	V
		5723.6	67.03	-51.98	119.01	55.74	32	9.86	30.57	100	275	P	V
	*	5755	103.62	-	-	92.32	32.02	9.87	30.59	100	275	P	V
	*	5755	95.91	-	-	84.61	32.02	9.87	30.59	100	275	A	V
		5854.8	49.68	-61.58	111.26	38.17	32.22	9.94	30.65	100	275	P	V
		5871.4	50.54	-55.67	106.21	38.95	32.29	9.96	30.66	100	275	P	V
		5923.8	50.76	-18.32	69.08	38.98	32.45	10.02	30.69	100	275	P	V
		5947	50.36	-17.84	68.2	38.53	32.49	10.05	30.71	100	275	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)
		5628.4	50.12	-18.08	68.2	38.94	31.84	9.85	30.51	300	298	P	H
		5699	51.36	-53.1	104.46	40.05	32	9.86	30.55	300	298	P	H
		5718.8	52.47	-57.99	110.46	41.18	32	9.86	30.57	300	298	P	H
		5720	51.76	-59.04	110.8	40.47	32	9.86	30.57	300	298	P	H
	*	5795	107.65	-	-	96.21	32.18	9.87	30.61	300	298	P	H
	*	5795	100.3	-	-	88.86	32.18	9.87	30.61	300	298	A	H
		5850.4	53.35	-67.94	121.29	41.87	32.2	9.93	30.65	300	298	P	H
		5855.6	52.19	-58.44	110.63	40.68	32.22	9.94	30.65	300	298	P	H
		5885	51.97	-45.8	97.77	40.32	32.34	9.98	30.67	300	298	P	H
		5936	50.45	-17.75	68.2	38.64	32.47	10.04	30.7	300	298	P	H
802.11n													H
HT40													H
CH 159		5607.2	50.8	-17.4	68.2	39.56	31.89	9.85	30.5	100	276	P	V
5795MHz		5699.2	51.06	-53.55	104.61	39.75	32	9.86	30.55	100	276	P	V
		5708.8	51.74	-55.93	107.67	40.44	32	9.86	30.56	100	276	P	V
		5722	52.63	-62.73	115.36	41.34	32	9.86	30.57	100	276	P	V
	*	5795	104.87	-	-	93.43	32.18	9.87	30.61	100	276	P	V
	*	5795	97.03	-	-	85.59	32.18	9.87	30.61	100	276	A	V
		5853.6	51.58	-62.41	113.99	40.08	32.21	9.94	30.65	100	276	P	V
		5873	51.36	-54.4	105.76	39.77	32.29	9.96	30.66	100	276	P	V
		5905.8	51.31	-31.06	82.37	39.58	32.41	10	30.68	100	276	P	V
		5936	51.14	-17.06	68.2	39.33	32.47	10.04	30.7	100	276	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		11510	47.45	-26.55	74	54.67	40.47	14.52	62.21	100	0	P	H	
		17265	47.99	-20.21	68.2	47.39	41.06	18.56	59.02	100	0	P	H	
													H	
													H	
			11510	47.41	-26.59	74	54.63	40.47	14.52	62.21	100	0	P	V
			17265	48.34	-19.86	68.2	47.74	41.06	18.56	59.02	100	0	P	V
														V
802.11n HT40 CH 159 5795MHz		11590	46.24	-27.76	74	53.71	40.23	14.57	62.27	100	0	P	H	
		17385	50.03	-18.17	68.2	47.98	42.05	18.75	58.75	100	0	P	H	
													H	
													H	
			11590	48.85	-25.15	74	56.32	40.23	14.57	62.27	100	0	P	V
			17385	49.46	-18.74	68.2	47.41	42.05	18.75	58.75	100	0	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 802.11ac 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 )
		5647	53	-15.2	68.2	41.86	31.81	9.85	30.52	241	301	P	H
		5692.6	70.63	-29.11	99.74	59.35	31.97	9.86	30.55	241	301	P	H
		5713.4	74.26	-34.69	108.95	62.96	32	9.86	30.56	241	301	P	H
		5723.4	74.41	-44.14	118.55	63.12	32	9.86	30.57	241	301	P	H
	*	5775	105.72	-	-	94.35	32.1	9.87	30.6	241	301	P	H
	*	5775	98.26	-	-	86.89	32.1	9.87	30.6	241	301	A	H
		5851	73.29	-46.63	119.92	61.81	32.2	9.93	30.65	241	301	P	H
		5868.2	70.25	-36.85	107.1	58.68	32.27	9.96	30.66	241	301	P	H
		5884	61.95	-36.57	98.52	50.31	32.34	9.97	30.67	241	301	P	H
		5932.6	51.57	-16.63	68.2	39.76	32.47	10.04	30.7	241	301	P	H
802.11ac													H
VHT80													H
CH 155		5648.2	51.7	-16.5	68.2	40.57	31.8	9.85	30.52	100	276	P	V
5775MHz		5695.4	67.67	-34.14	101.81	56.38	31.98	9.86	30.55	100	276	P	V
		5710.4	70.51	-37.6	108.11	59.21	32	9.86	30.56	100	276	P	V
		5723.4	71.23	-47.32	118.55	59.94	32	9.86	30.57	100	276	P	V
	*	5775	101.91	-	-	90.54	32.1	9.87	30.6	100	276	P	V
	*	5775	94.54	-	-	83.17	32.1	9.87	30.6	100	276	A	V
		5850.4	68.1	-53.19	121.29	56.62	32.2	9.93	30.65	100	276	P	V
		5866.6	66.21	-41.34	107.55	54.65	32.27	9.95	30.66	100	276	P	V
		5884.2	60.7	-37.67	98.37	49.05	32.34	9.98	30.67	100	276	P	V
		5930.2	50.59	-17.61	68.2	38.8	32.46	10.03	30.7	100	276	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 )	
802.11ac VHT80 CH 155 5775MHz		11550	45.5	-28.5	74	52.84	40.35	14.55	62.24	100	0	P	H	
		17325	49.45	-18.75	68.2	48.21	41.45	18.67	58.88	100	0	P	H	
													H	
													H	
			11550	46.69	-27.31	74	54.03	40.35	14.55	62.24	100	0	P	V
			17325	49.53	-18.67	68.2	48.29	41.45	18.67	58.88	100	0	P	V
														V
														V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



**Emission above 18GHz**

**5GHz WIFI 802.11a**

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 )
5GHz 802.11a		23610	41.81	-32.19	74	42.24	39.85	22.56	53.3	150	0	P	H
		39780	49.85	-24.15	74	39.53	45.01	29.5	54.65	150	0	P	H
													H
													H
		23522	41.65	-26.55	68.2	42.19	39.73	22.57	53.3	150	0	P	V
		39890	49.89	-24.11	74	39.14	45.06	29.71	54.48	150	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



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 )	
5GHz 802.11a LF		53.28	26.66	-13.34	40	45.13	13.09	0.97	32.53	100	0	P	H	
		108.57	26.56	-16.94	43.5	40.77	16.81	1.38	32.4	-	-	P	H	
		132.82	26.48	-17.02	43.5	39.77	17.62	1.54	32.45	-	-	P	H	
		154.16	26.69	-16.81	43.5	40.56	16.9	1.72	32.49	-	-	P	H	
		182.29	27.3	-16.2	43.5	43.04	14.9	1.91	32.55	-	-	P	H	
		735.19	31.23	-14.77	46	31.79	27.91	3.5	31.97	-	-	P	H	
														H
														H
														H
														H
														H
														H
			32.91	31.32	-8.68	40	39.36	23.65	0.74	32.43	100	117	Q	V
			82.38	27.29	-12.71	40	44.71	13.78	1.24	32.44	-	-	P	V
			100.81	26.18	-17.32	43.5	41.14	16.08	1.34	32.38	-	-	P	V
			160.95	27.17	-16.33	43.5	41.49	16.41	1.78	32.51	-	-	P	V
			181.32	22.25	-21.25	43.5	37.98	14.9	1.92	32.55	-	-	P	V
			948.59	34.08	-11.92	46	30.28	30.82	4.07	31.09	-	-	P	V
														V
														V
													V	
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													



**Note symbol**

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



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 )
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		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".





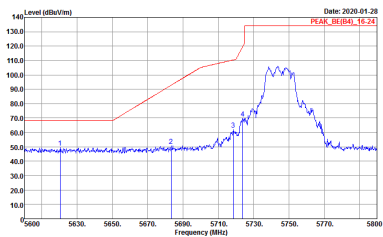
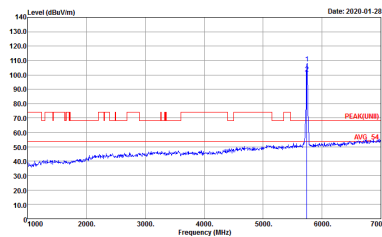
## Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Leo Li and Mancy Chou	Temperature :	24.2~24.6°C
		Relative Humidity :	56~61%

**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 : 03CH15-HY Condition : PEAK_BE(84)_16-24 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0616-05</p>	<p>Site : 03CH15-HY Condition : PEAK(UNIT) 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0616-05</p>

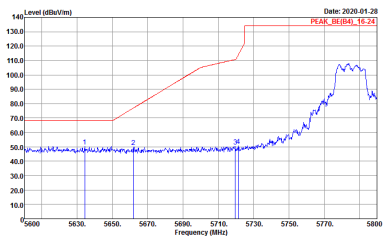
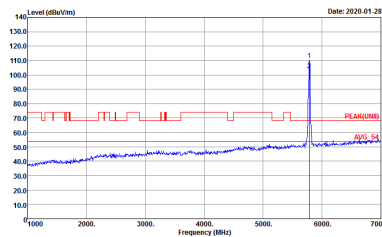
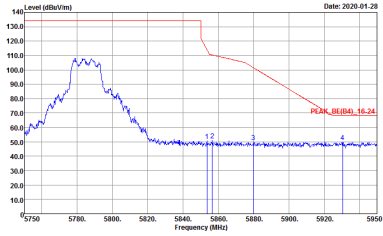


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
4+3	Vertical	Fundamental
Peak	 <p>Site : 03CH15-14Y          Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL          Detector : Peak          Project : 900616-05</p>	 <p>Site : 03CH15-14Y          Condition : PEAK(LINII) 3m 91200_15_1620 VERTICAL          Detector : Peak          Project : 900616-05</p>

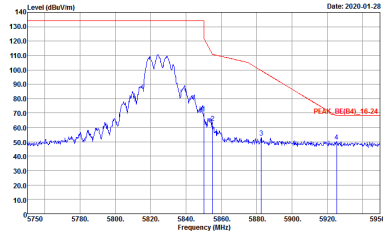
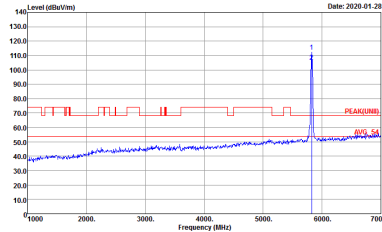


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
4+3	Horizontal	Fundamental
<p><b>Peak</b></p>	<p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL            Detector : Peak            Project : 9D0616-05</p>	<p>Site : 03CH15-HY            Condition : PEAK(LINII) 3m 91200_15_1620 HORIZONTAL            Detector : Peak            Project : 9D0616-05</p>
<p><b>Peak</b></p>	<p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL            Detector : Peak            Project : 9D0616-05</p>	<p><b>Left blank</b></p>

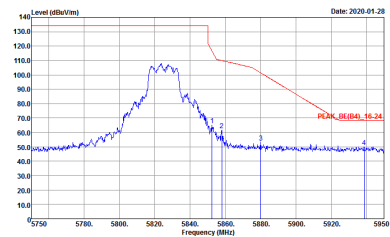
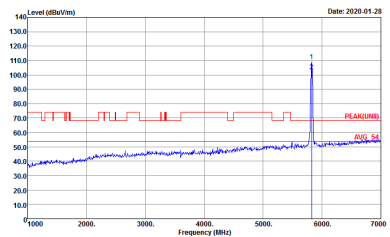


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
4+3	Vertical	Fundamental
<p><b>Peak</b></p>	 <p>Date: 2020-01-28 PEAK_BE(B4)_16-24</p> <p>Site : 03CH15-HY Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Detector : Peak Project : 9D0616-05</p>	 <p>Date: 2020-01-28 PEAK(B4)_16-24 AVG 25</p> <p>Site : 03CH15-HY Condition : PEAK(LINII) 3m 91200_15_1620 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Detector : Peak Project : 9D0616-05</p>
<p><b>Peak</b></p>	 <p>Date: 2020-01-28 PEAK_BE(B4)_16-24</p> <p>Site : 03CH15-HY Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Detector : Peak Project : 9D0616-05</p>	<p><b>Left blank</b></p>



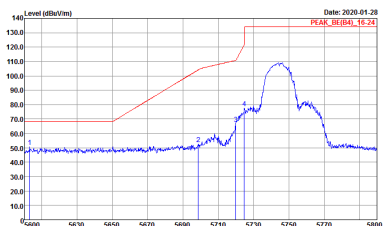
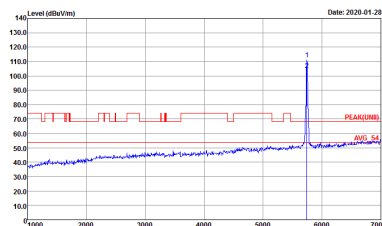
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
4+3	Horizontal	Fundamental
Peak	 <p>Site : 03CH15-11Y  Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL  : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto  Detector : Peak  Project : 900616-05</p>	 <p>Site : 03CH15-11Y  Condition : PEAK(LINB) 3m 91200_15_1620 HORIZONTAL  : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto  Detector : Peak  Project : 900616-05</p>



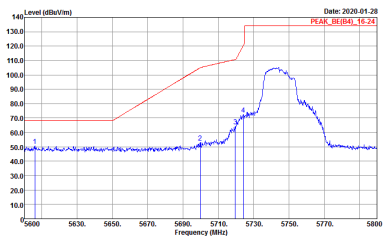
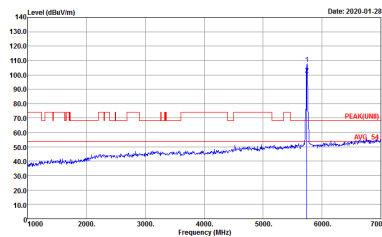
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
4+3	Vertical	Fundamental
Peak	 <p>Date: 2020-01-28</p> <p>Site : 03CH15-11Y          Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL          : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto          Detector : Peak          Project : 900616-05</p>	 <p>Date: 2020-01-28</p> <p>Site : 03CH15-11Y          Condition : PEAK(LINII) 3m 91200_15_1620 VERTICAL          : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto          Detector : Peak          Project : 900616-05</p>



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

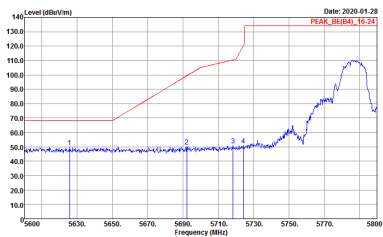
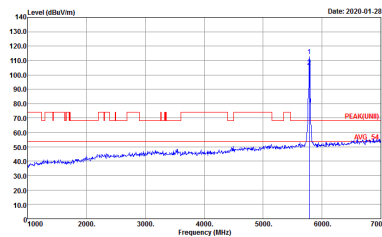
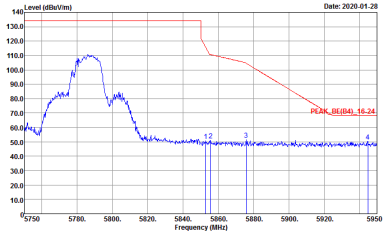
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
4+3	Horizontal	Fundamental
Peak	 <p>Date: 2020-01-28 PEAK_BE(84)_16.24</p> <p>Site : 03CH15-HY  Condition : PEAK_BE(84)_16-24 3m 91200_15_1620 HORIZONTAL  RBW:1000.000KHz VBW:3000.000KHz SWT:Auto  Detector : Peak  Project : 9D0616-05</p>	 <p>Date: 2020-01-28 PEAK(UNIT) AVG_51</p> <p>Site : 03CH15-HY  Condition : PEAK(UNIT) 3m 91200_15_1620 HORIZONTAL  RBW:1000.000KHz VBW:3000.000KHz SWT:Auto  Detector : Peak  Project : 9D0616-05</p>



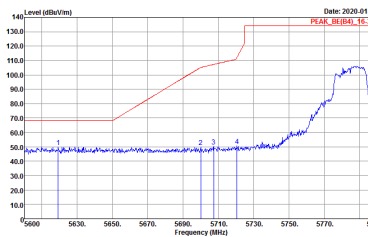
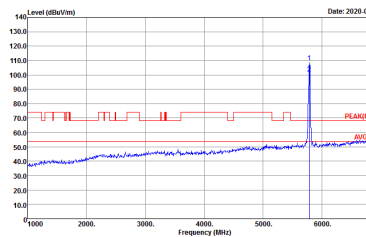
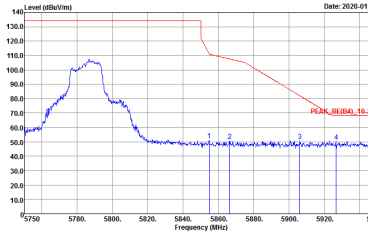
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
4+3	Vertical	Fundamental
Peak	 <p>Date: 2020-01-28 PEAK_BE(B4)_16-24</p> <p>Site : 03CH15-11Y Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 900616-05</p>	 <p>Date: 2020-01-28 PEAK(LINB) AVG_01</p> <p>Site : 03CH15-11Y Condition : PEAK(LINB)_3m 91200_15_1620 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 900616-05</p>





WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
4+3	Horizontal	Fundamental
<p><b>Peak</b></p>	 <p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL            Detector : Peak            Project : 9D0616-05</p>	 <p>Site : 03CH15-HY            Condition : PEAK(LINII) 3m 91200_15_1620 HORIZONTAL            Detector : Peak            Project : 9D0616-05</p>
<p><b>Peak</b></p>	 <p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL            Detector : Peak            Project : 9D0616-05</p>	<p><b>Left blank</b></p>

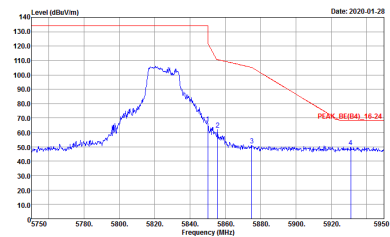
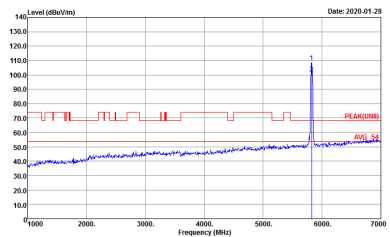


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
4+3	Vertical	Fundamental
<p><b>Peak</b></p>	 <p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL            Detector : Peak            Project : 9D0616-05</p>	 <p>Site : 03CH15-HY            Condition : PEAK(LINII) 3m 91200_15_1620 VERTICAL            Detector : Peak            Project : 9D0616-05</p>
<p><b>Peak</b></p>	 <p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL            Detector : Peak            Project : 9D0616-05</p>	<p><b>Left blank</b></p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
4+3	Horizontal	Fundamental
Peak	<p>Site : 03CH15-11Y          Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL          Detector : Peak          Project : 900616-05</p>	<p>Site : 03CH15-11Y          Condition : PEAK(LINII) 3m 91200_15_1620 HORIZONTAL          Detector : Peak          Project : 900616-05</p>



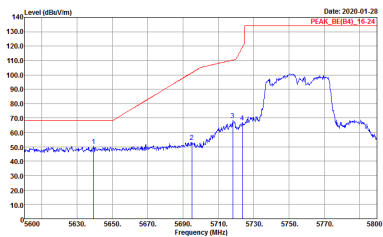
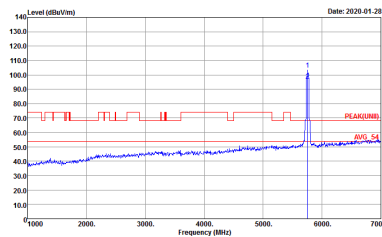
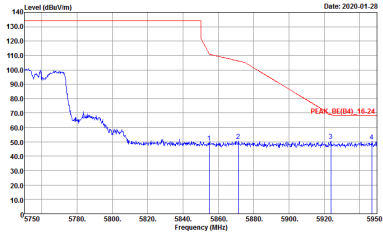
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
4+3	Vertical	Fundamental
Peak	 <p>Site : 03CH15-11Y          Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL          Detector : Peak          Project : 900616-05</p>	 <p>Site : 03CH15-11Y          Condition : PEAK(FUNB) 3m 91200_15_1620 VERTICAL          Detector : Peak          Project : 900616-05</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
<b>Peak</b>	<p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 9D0616-05</p>	<p>Site : 03CH15-HY            Condition : PEAK(UNIT) 3m 91200_15_1620 HORIZONTAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 9D0616-05</p>
<b>Peak</b>	<p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 9D0616-05</p>	<b>Left blank</b>

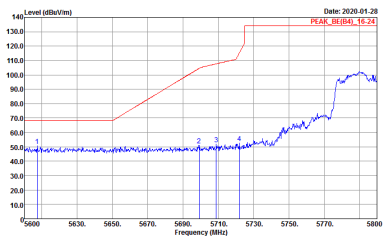
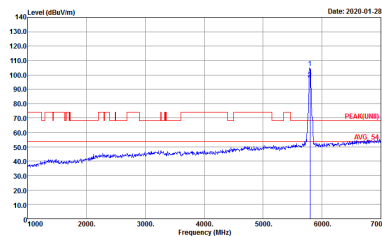
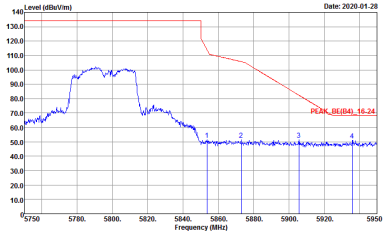


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
4+3	Vertical	Fundamental
Peak	 <p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL            Detector : Peak            Project : 9D0616-05</p>	 <p>Site : 03CH15-HY            Condition : PEAK(LINII) 3m 91200_15_1620 VERTICAL            Detector : Peak            Project : 9D0616-05</p>
Peak	 <p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL            Detector : Peak            Project : 9D0616-05</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
4+3	Horizontal	Fundamental
<p><b>Peak</b></p>	<p>Date: 2020-01-28 PEAK_BE(B4)_16-24</p> <p>Site : 03CH15-HY Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 9D0616-05</p>	<p>Date: 2020-01-28 PEAK(LNB) AVG-51</p> <p>Site : 03CH15-HY Condition : PEAK(LNB) 3m 91200_15_1620 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 9D0616-05</p>
<p><b>Peak</b></p>	<p>Date: 2020-01-28 PEAK_BE(B4)_16-24</p> <p>Site : 03CH15-HY Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 9D0616-05</p>	<p><b>Left blank</b></p>

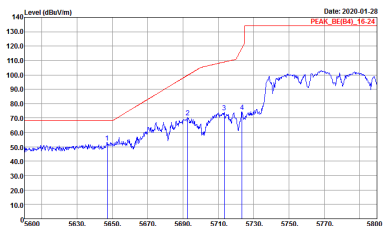
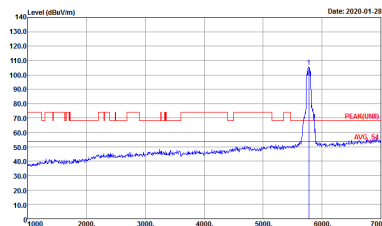
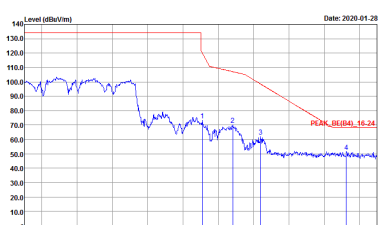


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
4+3	Vertical	Fundamental
<p><b>Peak</b></p>	 <p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL            Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 9D0616-05</p>	 <p>Site : 03CH15-HY            Condition : PEAK(LNB) 3m 91200_15_1620 VERTICAL            Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 9D0616-05</p>
<p><b>Peak</b></p>	 <p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL            Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 9D0616-05</p>	<p><b>Left blank</b></p>

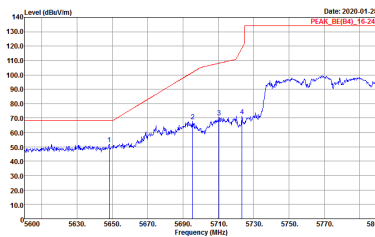
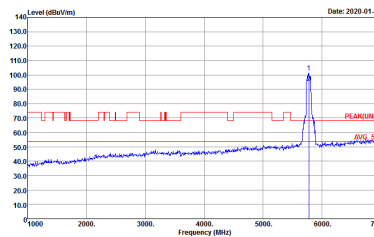
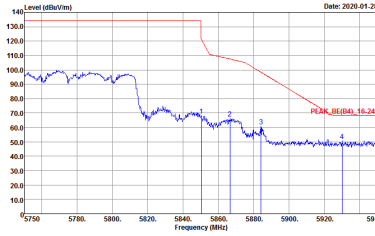




**Band 4 5725~5850MHz**  
**WIFI 802.11ac VHT80 (Band Edge @ 3m)**

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
4+3	Horizontal	Fundamental
<p><b>Peak</b></p>	 <p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 9D0616-05</p>	 <p>Site : 03CH15-HY            Condition : PEAK(UNIT) 3m 91200_15_1620 HORIZONTAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 9D0616-05</p>
<p><b>Peak</b></p>	 <p>Site : 03CH15-HY            Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 HORIZONTAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 9D0616-05</p>	<p align="center"><b>Left blank</b></p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
4+3	Vertical	Fundamental
<p><b>Peak</b></p>	 <p>Date: 2020-01-28 PEAK_BE(B4)_16-24</p> <p>Site : 03CH15-HY Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL Detector : Peak Project : 9D0616-05</p>	 <p>Date: 2020-01-28 PEAK(LNB) AVG_21</p> <p>Site : 03CH15-HY Condition : PEAK(LNB) 3m 91200_15_1620 VERTICAL Detector : Peak Project : 9D0616-05</p>
<p><b>Peak</b></p>	 <p>Date: 2020-01-28 PEAK_BE(B4)_16-24</p> <p>Site : 03CH15-HY Condition : PEAK_BE(B4)_16-24 3m 91200_15_1620 VERTICAL Detector : Peak Project : 9D0616-05</p>	<p><b>Left blank</b></p>



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 Avg.	<p>Site : 03CH15-HY Condition : PEAR(LINET) 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 9D0616-05</p>	<p>Site : 03CH15-HY Condition : PEAR(LINET) 3m 91200_15_1620 VERTICAL Detector : Peak Project : 9D0616-05</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
4+3	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH15-111 Condition : PEAK(LINEI) 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 9D0616-05</p>	<p>Site : 03CH15-111 Condition : PEAK(LINEII) 3m 91200_15_1620 VERTICAL Detector : Peak Project : 9D0616-05</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
4+3	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH15-11Y Condition : PEAK(LINEI) 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 9D0616-05</p>	<p>Site : 03CH15-11Y Condition : PEAK(LINEI) 3m 91200_15_1620 VERTICAL Detector : Peak Project : 9D0616-05</p>



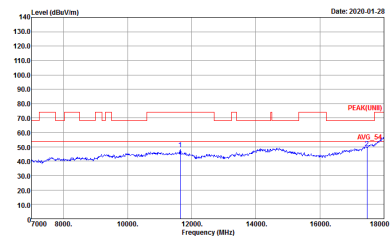
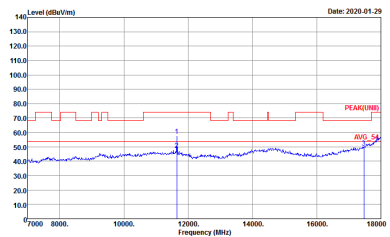
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

Table with 2 columns: Horizontal and Vertical. Each column contains a spectral plot of Level (dBm/m) vs Frequency (MHz) and associated metadata like Site, Condition, Detector, and Project.



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
4+3	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH15-111 Condition : PEAK(LINEI) 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 9D0616-05</p>	<p>Site : 03CH15-111 Condition : PEAK(LINEI) 3m 91200_15_1620 VERTICAL Detector : Peak Project : 9D0616-05</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
4+3	Horizontal	Vertical
<p>Peak</p> <p>Avg.</p>	 <p>Site : 03CH15-111          Condition : PEAK(LINE) 3m 91200_15_1620 HORIZONTAL          Detector : Peak          Project : 9D0616-05</p>	 <p>Site : 03CH15-111          Condition : PEAK(LINE) 3m 91200_15_1620 VERTICAL          Detector : Peak          Project : 9D0616-05</p>





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

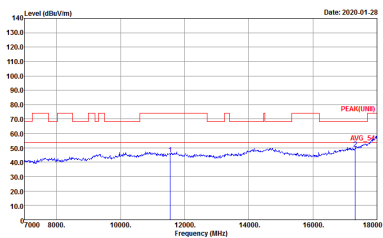
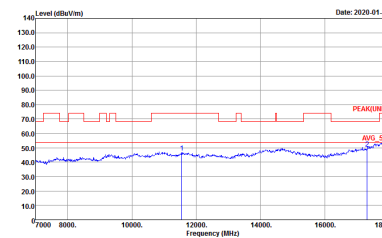
<b>WIFI</b>	<b>Band 4 5725~5850MHz Harmonic @ 3m</b>	
<b>ANT</b>	<b>802.11n HT40 CH151 5755MHz</b>	
<b>4+3</b>	<b>Horizontal</b>	<b>Vertical</b>
<b>Peak</b> <b>Avg.</b>	<p>Site : 03CH15-HY          Condition : PEAK(LINII) 3m 91200_15_1620 HORIZONTAL          Detector : Peak          Project : 9D0616-05</p>	<p>Site : 03CH15-HY          Condition : PEAK(LINII) 3m 91200_15_1620 VERTICAL          Detector : Peak          Project : 9D0616-05</p>



<b>WIFI</b>	<b>Band 4 5725~5850MHz Harmonic @ 3m</b>	
<b>ANT</b>	<b>802.11n HT40 CH159 5795MHz</b>	
<b>4+3</b>	<b>Horizontal</b>	<b>Vertical</b>
<b>Peak</b> <b>Avg.</b>	<p>Site : 03CH15-11Y Condition : PEAK(LINEI) 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 9D0616-05</p>	<p>Site : 03CH15-11Y Condition : PEAK(LINEI) 3m 91200_15_1620 VERTICAL Detector : Peak Project : 9D0616-05</p>



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

<b>WIFI</b>	<b>Band 4 5725~5850MHz Harmonic @ 3m</b>	
<b>ANT</b>	<b>802.11ac VHT80 CH155 5775MHz</b>	
<b>4+3</b>	<b>Horizontal</b>	<b>Vertical</b>
<b>Peak Avg.</b>	 <p>Site : 03CH15-HY Condition : PEAK(LNII) 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 9D0616-05</p>	 <p>Site : 03CH15-HY Condition : PEAK(LNII) 3m 91200_15_1620 VERTICAL Detector : Peak Project : 9D0616-05</p>



Emission above 18GHz

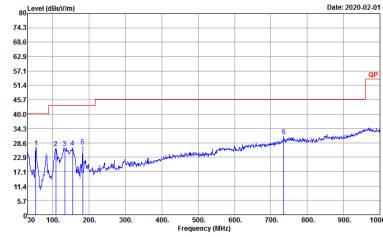
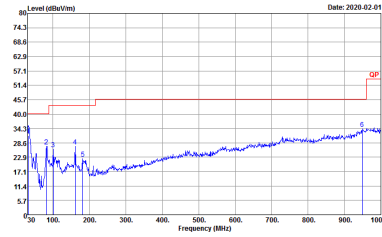
5GHz WIFI 802.11a

WIFI	5GHz 5725~5850MHz	
ANT	802.11a	
4+3	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH15-HY          Condition : PEAQ(LINE) 3m SHF HORN BBH49170584 HORIZONTAL          RBW:1000.000KHz VBW:3000.000KHz SWT:Auto          Detector : Peak          Project : 9D0616-05</p>	<p>Site : 03CH15-HY          Condition : PEAQ(LINE) 3m SHF HORN BBH49170584 VERTICAL          RBW:1000.000KHz VBW:3000.000KHz SWT:Auto          Detector : Peak          Project : 9D0616-05</p>



Emission below 1GHz

5GHz WIFI 802.11a (LF)

WIFI	5GHz 5725~5850MHz	
ANT	802.11a LF	
4+3	Horizontal	Vertical
QP / Peak	 <p>Site : 03CH15-HY          Condition : QP 3m BIL06_15_41912 HORIZONTAL          Detector : Peak          Project : 9D0616-05</p>	 <p>Site : 03CH15-HY          Condition : QP 3m BIL06_15_41912 VERTICAL          Detector : Peak          Project : 9D0616-05</p>



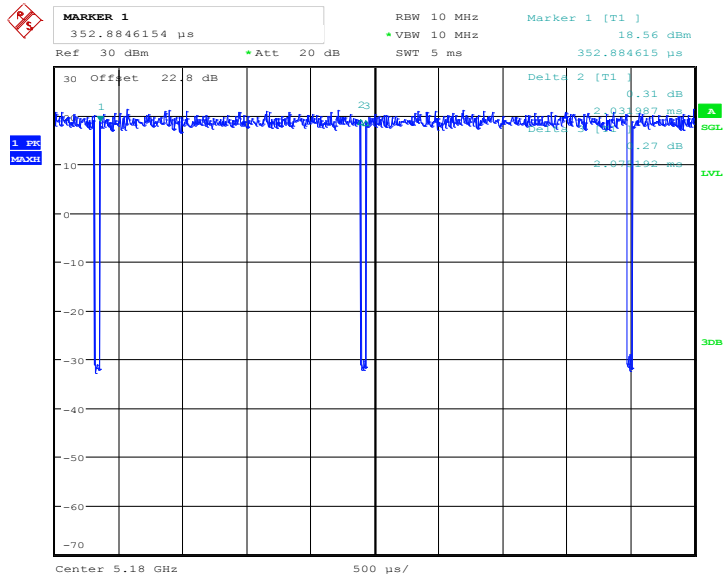
## Appendix E. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
4+3	802.11a for Ant. 4	97.92	2032	0.49	1kHz	0.09
4+3	802.11a for Ant. 3	97.78	2032	0.49	1kHz	0.10
4+3	5GHz 802.11n HT20 for Ant. 4	97.83	1893	0.53	1kHz	0.10
4+3	5GHz 802.11n HT20 for Ant. 3	98.18	-	-	10Hz	0.08
4+3	5GHz 802.11n HT40 for Ant. 4	95.89	929	1.08	3kHz	0.18
4+3	5GHz 802.11n HT40 for Ant. 3	96.02	927	1.08	3kHz	0.18
4+3	5GHz 802.11ac VHT20 for Ant. 4	97.63	1904	0.53	1kHz	0.10
4+3	5GHz 802.11ac VHT20 for Ant. 3	97.63	1904	0.53	1kHz	0.10
4+3	5GHz 802.11ac VHT40 for Ant. 4	96.14	934	1.07	3kHz	0.17
4+3	5GHz 802.11ac VHT40 for Ant. 3	95.58	936	1.07	3kHz	0.20
4+3	5GHz 802.11ac VHT80 for Ant. 4	92.20	454	2.20	3kHz	0.35
4+3	5GHz 802.11ac VHT80 for Ant. 3	91.96	454	2.20	3kHz	0.36



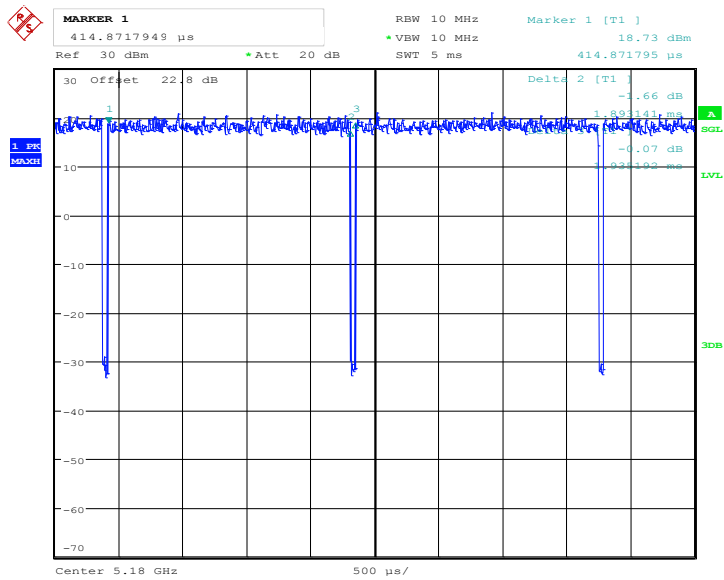
MIMO <Ant. 4>

802.11a



Date: 1.JAN.2003 04:59:52

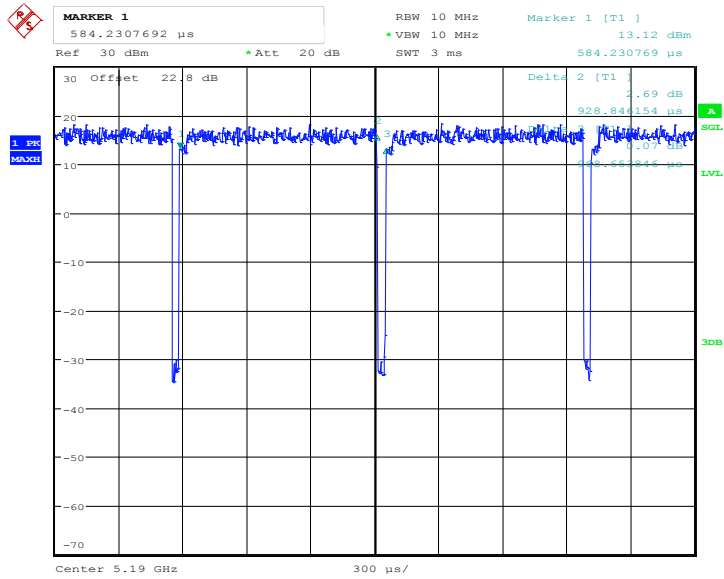
802.11n HT20



Date: 1.JAN.2003 05:03:39

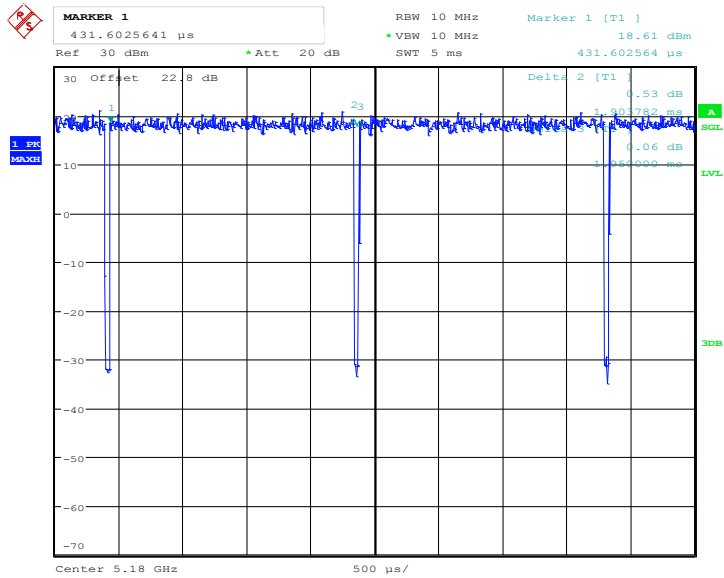


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Date: 1.JAN.2003 05:07:28

802.11ac VHT20

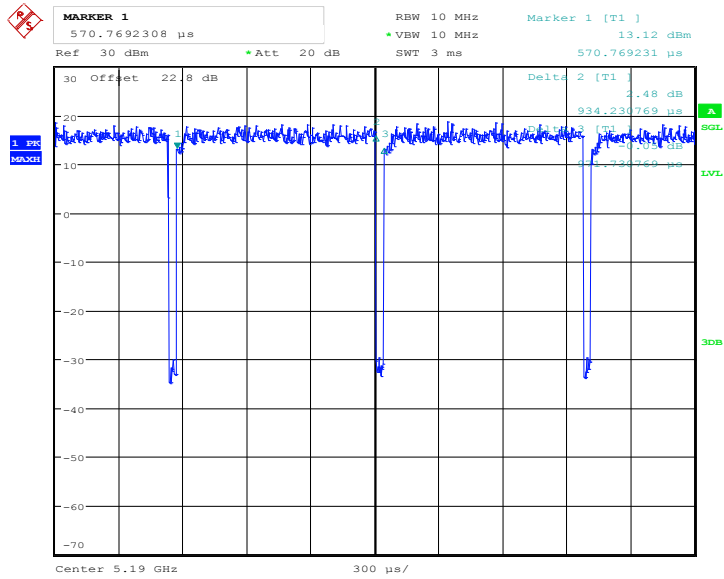


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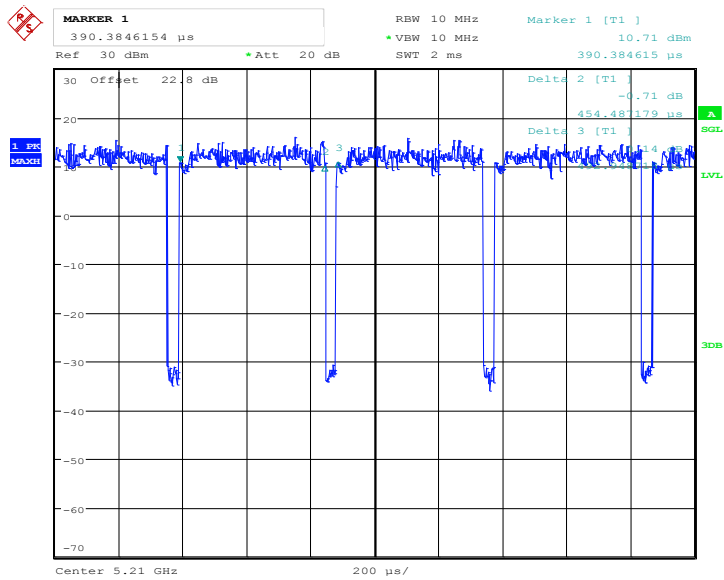


802.11ac VHT40



Date: 1.JAN.2003 05:21:11

802.11ac VHT80

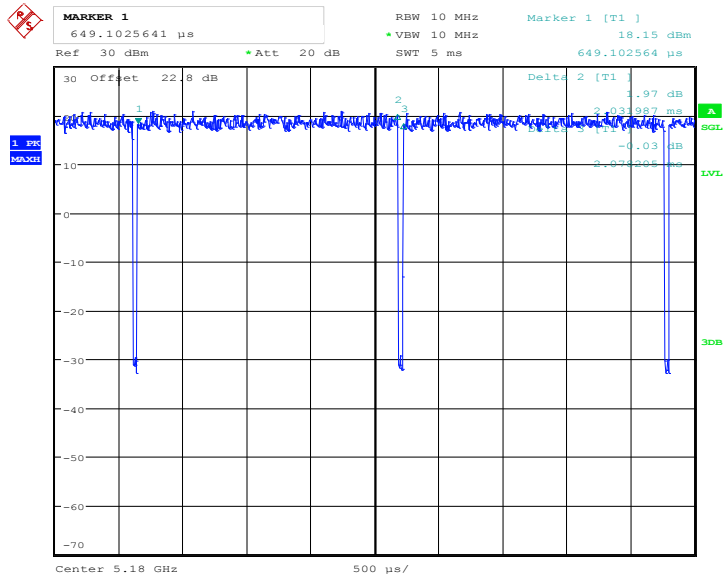


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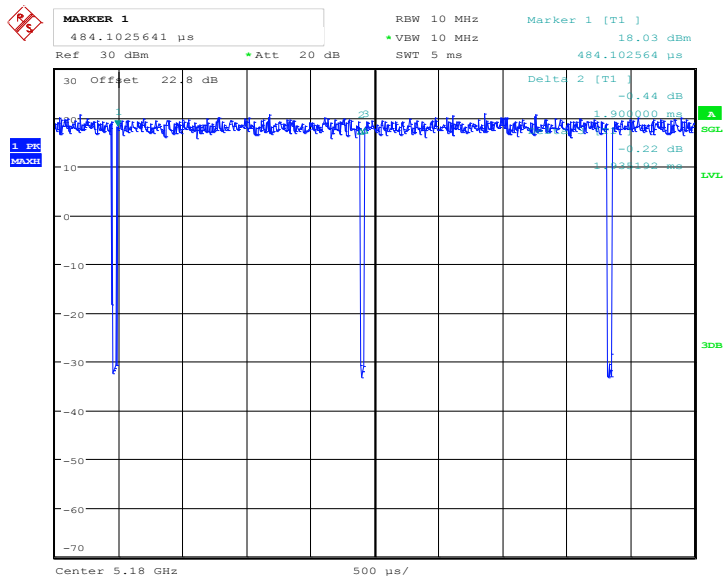
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Date: 1.JAN.2003 05:00:33

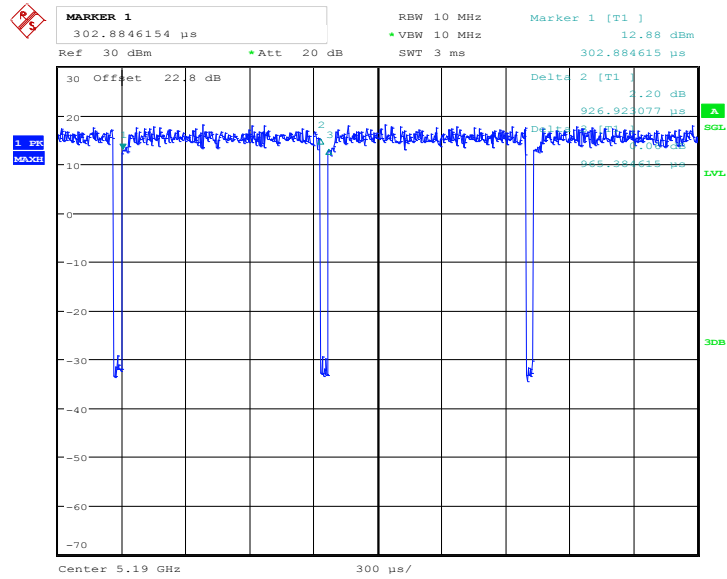
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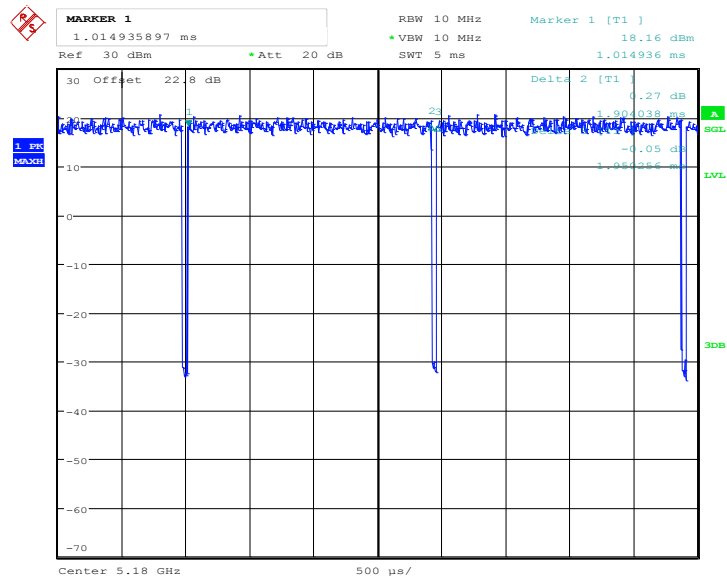


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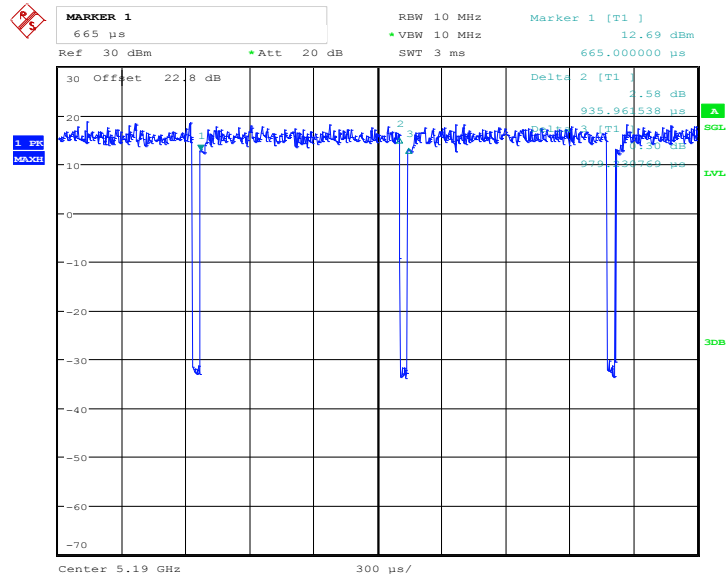
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Date: 1.JAN.2003 05:17:43

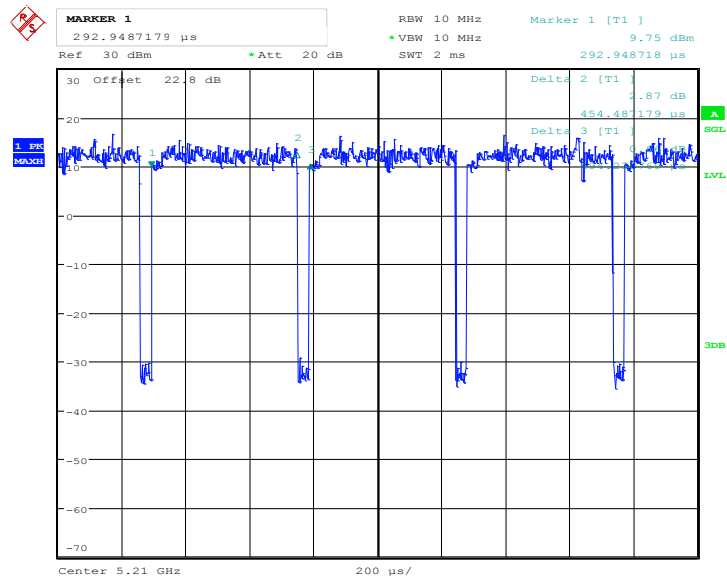


802.11ac VHT40



Date: 1.JAN.2003 05:21:56

802.11ac VHT80



Date: 1.JAN.2003 05:26:43

—THE END—