



# FCC RF Test Report

**APPLICANT** : Getac Technology Corporation.  
**EQUIPMENT** : WLAN module  
**BRAND NAME** : Getac  
**MODEL NAME** : 8265NGW  
**FCC ID** : QYL8265NG  
**STANDARD** : FCC Part 15 Subpart E §15.407  
**CLASSIFICATION** : (NII) Unlicensed National Information Infrastructure

This is a partial report. The product testing was completed on Jul. 13, 2018. We, Sporton International (Shenzhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

This report contains data that were produced under subcontract by Laboratory SPORTON INTERNATIONAL INC.

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



Approved by: Eric Shih / Manager

**Sporton International (Shenzhen) Inc.**

**1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City  
Guangdong Province 518055 China**



# TABLE OF CONTENTS

**REVISION HISTORY..... 3**

**SUMMARY OF TEST RESULT ..... 4**

**1 GENERAL DESCRIPTION ..... 5**

    1.1 Applicant ..... 5

    1.2 Product Feature of Equipment Under Test..... 5

    1.3 Modification of EUT ..... 5

    1.4 Testing Location ..... 6

    1.5 Applicable Standards..... 7

**2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST ..... 8**

    2.1 Carrier Frequency and Channel ..... 8

    2.2 Test Mode..... 9

    2.3 Connection Diagram of Test System..... 10

    2.4 Support Unit used in test configuration and system ..... 10

    2.5 EUT Operation Test Setup ..... 10

**3 TEST RESULT ..... 11**

    3.1 Maximum Conducted Output Power Measurement ..... 11

    3.2 Unwanted Emissions Measurement..... 13

    3.3 Antenna Requirements..... 19

**4 LIST OF MEASURING EQUIPMENT ..... 20**

**5 UNCERTAINTY OF EVALUATION ..... 21**

**APPENDIX A. CONDUCTED TEST RESULTS**

**APPENDIX B. RADIATED SPURIOUS EMISSION**

**APPENDIX C. RADIATED SPURIOUS EMISSION PLOTS**

**APPENDIX D. DUTY CYCLE PLOTS**

**APPENDIX E. SETUP PHOTOGRAPHS**



### REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR570164-39D	Rev. 01	Initial issue of report	Jul. 31, 2018



### SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	Pass	-
3.2	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 10.21 dB at 5350.080 MHz
3.3	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-

**Remark:** Except Conducted output power and Unwanted Emissions is carrying out, For other test data please refer to Intel Report No.: 160321-01.TR01 for WLAN module (Model: 8265NGW).



# 1 General Description

## 1.1 Applicant

**Getac Technology Corporation.**

5F., Building A, No. 209, Sec.1, Nangang Rd.,Nangang Dist., Taipei City 11568, Taiwan, R.O.C.

## 1.2 Product Feature of Equipment Under Test

WCDMA/LTE, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n/ac, NFC, GNSS and Digitizer.

Product Specification subjective to this standard	
<b>Antenna Type</b>	WWAN: PIFA Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna GPS: PATCH Antenna NFC: Loop Antenna Digitizer: Loop Antenna

The product was installed into Tablet (Brand Name: Getac, Model Name: RX10) during test, and all tests were performed with SKU A

SKU Table		
RX10 SKU		
	SKU A	SKU B
CPU	i5	M3
DDR	8G	4G
SSD	256GB	128GB
Panel	FHD	FHD
Digitizer	Support	Not Support
WLAN/BT	Support	Not Support
WWAN	Support	Not Support
GPS	Support	Not Support
RFID	Support	Not Support
Battery	5800mAh & 2160mAh	2160mAh

## 1.3 Modification of EUT

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



### 1.4 Testing Location

SPORTON INTERNATIONAL INC. is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and under the FCC-recognized accredited testing laboratories by Mutual Recognition Agreement (MRA) in FCC Test.

<b>Test Site</b>	SPORTON INTERNATIONAL INC.		
<b>Test Site Location</b>	No.52, Huaya 1st Rd., Guishan Dist. Taoyuan City Taiwan Tel: 886-3-327-3456 FAX: +886-3-327-0978		
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC designation No.</b>	<b>FCC Test Firm Registration No.</b>
	TH05-HY	TW1190	553509

**Note:** Test data subcontracted Conducted power in section 3.1 of this report.

Sporton International (Shenzhen) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0) and the FCC designation No is CN5019.

<b>Test Site</b>	Sporton International (Shenzhen) Inc.	
<b>Test Site Location</b>	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan District Shenzhen City Guangdong Province 518055 China TEL: +86-755-3320-2398	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC Test Firm Registration No.</b>
	03CH01-SZ	577730

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



## 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 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: 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 (X plane for Ant. 1, Z plane for Ant. 2 and MIMO Ant. 1+2) were recorded in this report.

### 2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5150-5250 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42#	5210		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5250-5350 MHz Band 2 (U-NII-2A)	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	58#	5290		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3 (U-NII-2C)	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106#	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700





Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
TDWR Channel	118*	5590	124	5620
	120	5600	126*	5630
	122 <sup>#</sup>	5610	128	5640

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	138 <sup>#</sup>	5690	144	5720
	142*	5710		

**Note:**

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

## 2.2 Test Mode

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

### Single Antenna

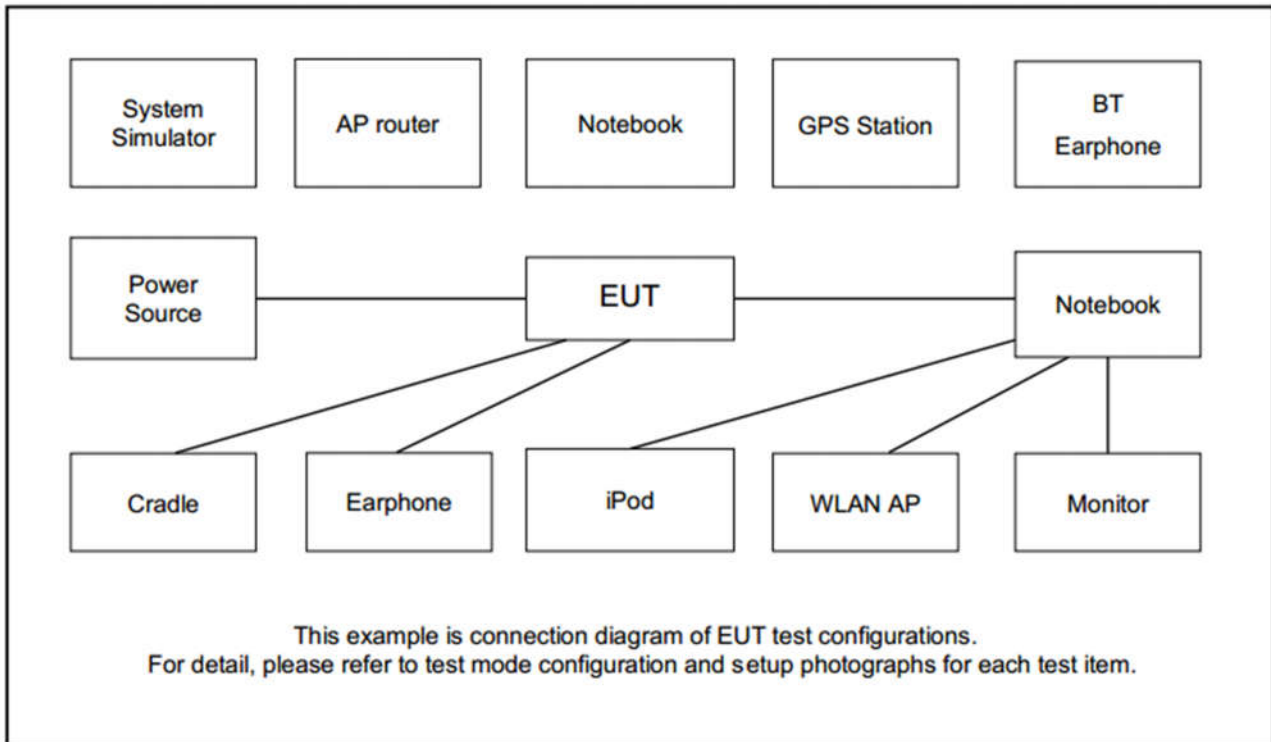
Modulation	Data Rate
802.11n HT20	MCS0
802.11ac VHT80	MCS0

### MIMO Antenna

Modulation	Data Rate
802.11n HT20	MCS0
802.11ac VHT80	MCS0

Ch. #	Band II : 5250-5350 MHz		Band III : 5470-5725MHz	
	802.11n HT20		802.11ac VHT80	
L	Low	-	-	
M	Middle	-	-	
H	High	64	-	
Straddle		-	138	

### 2.3 Connection Diagram of Test System



### 2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Earphone	Apple	MC690ZP/A	N/A	Shielded, 1.0m	N/A

### 2.5 EUT Operation Test Setup

The RF test items, programmed RF utility, “DRTU” installed in the notebook make the EUT provide functions like channel selection and power level for continuous transmitting signals.



### 3 Test Result

#### 3.1 Maximum Conducted Output Power Measurement

##### 3.1.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW.

For the 5.25–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

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.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.1.3 Test Procedures

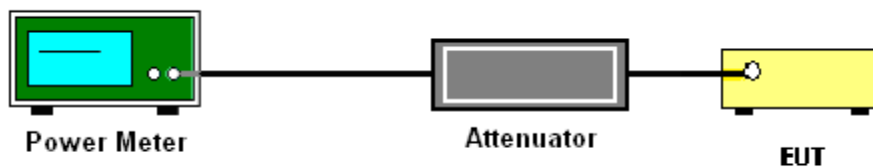
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor,  $10 \log(1/x)$ , where  $x$  is the duty cycle.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

### 3.1.4 Test Setup



### 3.1.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



### 3.2 Unwanted Emissions Measurement

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

#### 3.2.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

- (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



EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27	68.2

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

$$EIRP = E_{Meas} + 20\log (d_{Meas}) - 104.7$$

where

EIRP is the equivalent isotropically radiated power, in dBm

$E_{Meas}$  is the field strength of the emission at the measurement distance, in dBμV/m

$d_{Meas}$  is the measurement distance, in m

### 3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

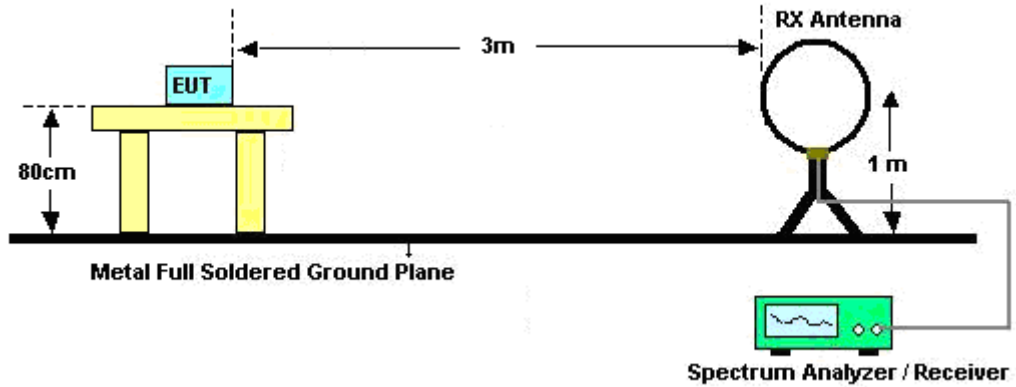


### 3.2.3 Test Procedures

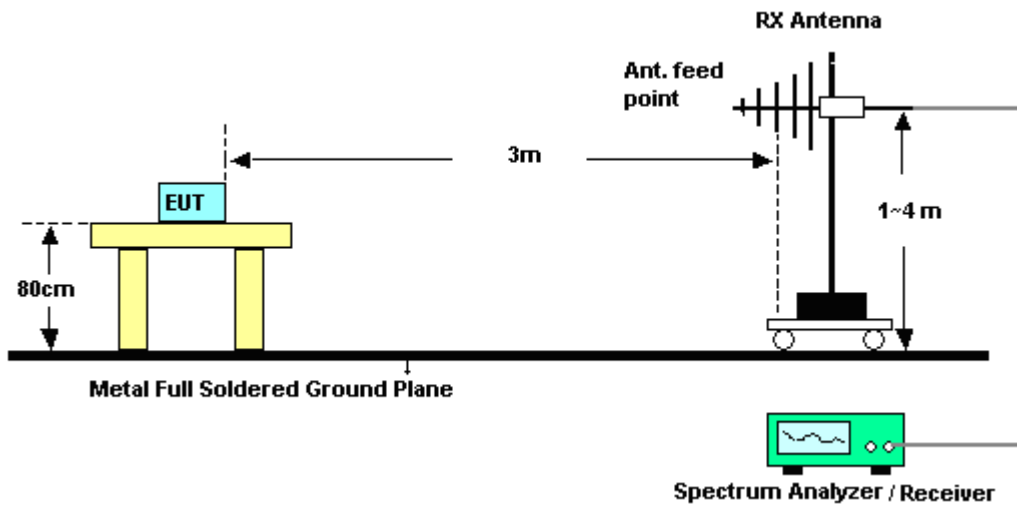
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
  - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
    - RBW = 120 kHz
    - VBW = 300 kHz
    - Detector = Peak
    - Trace mode = max hold
  - (2) Procedure 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.

### 3.2.4 Test Setup

For radiated emissions below 30MHz

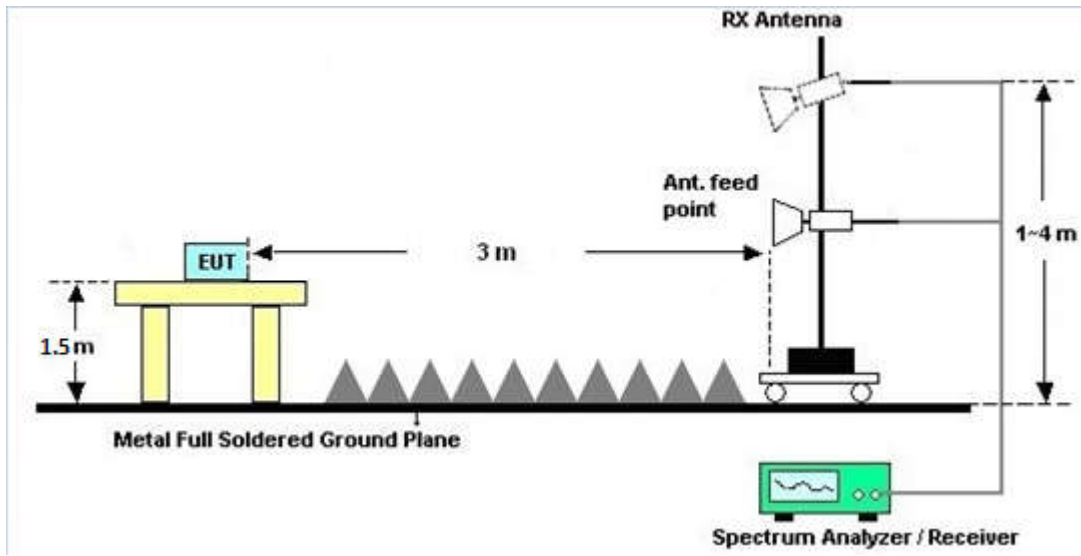


For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz







### **3.2.5 Test Results of Radiated Spurious 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 semi-Anechoic chamber, and the result came out very similar.

### **3.2.6 Test Result of Radiated Spurious at Band Edges**

Please refer to Appendix B and C.

### **3.2.7 Duty Cycle**

Please refer to Appendix D.

### **3.2.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)**

Please refer to Appendix B and C.



### 3.3 Antenna Requirements

#### 3.3.1 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.

#### 3.3.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

#### 3.3.3 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.

	Ant. 1 (dBi)	Ant. 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
Band I	0.90	2.44	2.44	2.44	0.00	0.00
Band II	0.38	2.22	2.22	2.22	0.00	0.00
Band III	0.81	1.57	1.57	1.57	0.00	0.00

Power limit reduction = Composite gain – 6dBi, ( min = 0 )

PSD limit reduction = Composite gain + PSD Array gain – 6dBi, ( min = 0 )



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	1240001	N/A	Sep. 07, 2017	Jun. 19, 2018~ Jun. 20, 2018	Sep. 06, 2018	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1207349	300MHz~40GHz	Sep. 07, 2017	Jun. 19, 2018~ Jun. 20, 2018	Sep. 06, 2018	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 21, 2017	Jun. 19, 2018~ Jun. 20, 2018	Nov. 20, 2018	Conducted (TH05-HY)
Switch Box & RF Cable	Burgeon	ETF-058	EC1300484	N/A	Mar. 01, 2018	Jun. 19, 2018~ Jun. 20, 2018	Feb. 28, 2019	Conducted (TH05-HY)
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Apr. 19, 2018	Jul. 06, 2018~ Jul. 13, 2018	Apr. 18, 2019	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 14, 2018	Jul. 06, 2018~ Jul. 13, 2018	May 13, 2019	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	Apr. 19, 2018	Jul. 06, 2018~ Jul. 13, 2018	Apr. 18, 2019	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	119436	1GHz~18GHz	Jul. 28, 2017	Jul. 06, 2018~ Jul. 13, 2018	Jul. 27, 2018	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Mar. 30, 2018	Jul. 06, 2018~ Jul. 13, 2018	Mar. 29, 2019	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 19, 2018	Jul. 06, 2018~ Jul. 13, 2018	Apr. 18, 2019	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-001018 00-30-10P-R	1707137	1GHz~18GHz	Oct. 19, 2017	Jul. 06, 2018~ Jul. 13, 2018	Oct. 18, 2018	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270104	0.5GHz~26.5Ghz	Oct. 19, 2017	Jul. 06, 2018~ Jul. 13, 2018	Oct. 18, 2018	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 18, 2017	Jul. 06, 2018~ Jul. 13, 2018	Jul. 17, 2018	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	6160100019 85	N/A	NCR	Jul. 06, 2018~ Jul. 13, 2018	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jul. 06, 2018~ Jul. 13, 2018	NCR	Radiation (03CH01-SZ)

NCR: No Calibration Required



## 5 Uncertainty of Evaluation

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.0 dB
---	--------

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.3 dB
---	--------

**Appendix A. Test Result of Conducted Test Items**

Test Engineer:	Lena Lo	Temperature:	21~25	°C
Test Date:	2018/6/19~2018/6/20	Relative Humidity:	51~54	%

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

FCC Band I														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	36	5180	0.04	0.06	13.48	13.44		24.00	24.00	0.90	2.44	Pass
11a	6Mbps	1	44	5220	0.04	0.06	13.32	13.12		24.00	24.00	0.90	2.44	Pass
11a	6Mbps	1	48	5240	0.04	0.06	13.16	13.38		24.00	24.00	0.90	2.44	Pass
HT20	MCS0	1	36	5180	0.09	0.07	13.48	13.41		24.00	24.00	0.90	2.44	Pass
HT20	MCS0	1	44	5220	0.09	0.07	13.33	13.20		24.00	24.00	0.90	2.44	Pass
HT20	MCS0	1	48	5240	0.09	0.07	13.19	13.38		24.00	24.00	0.90	2.44	Pass
HT40	MCS0	1	38	5190	0.11	0.14	13.44	13.22		24.00	24.00	0.90	2.44	Pass
HT40	MCS0	1	46	5230	0.11	0.14	13.29	13.47		24.00	24.00	0.90	2.44	Pass
VHT20	MCS0	1	36	5180	0.07	0.07	13.47	13.39		24.00	24.00	0.90	2.44	Pass
VHT20	MCS0	1	44	5220	0.07	0.07	13.30	13.19		24.00	24.00	0.90	2.44	Pass
VHT20	MCS0	1	48	5240	0.07	0.07	13.13	13.35		24.00	24.00	0.90	2.44	Pass
VHT40	MCS0	1	38	5190	0.14	0.14	13.41	13.20		24.00	24.00	0.90	2.44	Pass
VHT40	MCS0	1	46	5230	0.14	0.14	13.25	13.46		24.00	24.00	0.90	2.44	Pass
VHT80	MCS0	1	42	5210	0.24	0.26	13.26	13.49		24.00	24.00	0.90	2.44	Pass
HT20	MCS0	2	36	5180	0.11	0.11	10.43	10.47	13.46	24.00		2.44		Pass
HT20	MCS0	2	44	5220	0.11	0.11	10.34	10.41	13.39	24.00		2.44		Pass
HT20	MCS0	2	48	5240	0.11	0.11	10.17	10.52	13.36	24.00		2.44		Pass
HT40	MCS0	2	38	5190	0.16	0.16	10.38	10.30	13.35	24.00		2.44		Pass
HT40	MCS0	2	46	5230	0.16	0.16	10.43	10.47	13.46	24.00		2.44		Pass
VHT20	MCS0	2	36	5180	0.15	0.15	10.42	10.44	13.44	24.00		2.44		Pass
VHT20	MCS0	2	44	5220	0.15	0.15	10.33	10.40	13.38	24.00		2.44		Pass
VHT20	MCS0	2	48	5240	0.15	0.15	10.15	10.51	13.35	24.00		2.44		Pass
VHT40	MCS0	2	38	5190	0.30	0.29	10.37	10.29	13.34	24.00		2.44		Pass
VHT40	MCS0	2	46	5230	0.30	0.29	10.24	10.31	13.29	24.00		2.44		Pass
VHT80	MCS0	2	42	5210	0.54	0.57	10.11	10.65	13.40	24.00		2.44		Pass

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

FCC Band II															
Mod.	Data Rate	N <sub>Tx</sub>	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	52	5260	0.04	0.06	13.11	13.16		-	-	0.38	2.22	26.99	Pass
11a	6Mbps	1	60	5300	0.04	0.06	13.45	13.09		-	-	0.38	2.22	26.99	Pass
11a	6Mbps	1	64	5320	0.04	0.06	13.07	13.24		-	-	0.38	2.22	26.99	Pass
HT20	MCS0	1	52	5260	0.09	0.07	13.23	13.17		-	-	0.38	2.22	26.99	Pass
HT20	MCS0	1	60	5300	0.09	0.07	13.42	13.11		-	-	0.38	2.22	26.99	Pass
HT20	MCS0	1	64	5320	0.09	0.07	13.16	13.25		-	-	0.38	2.22	26.99	Pass
HT40	MCS0	1	54	5270	0.11	0.14	13.48	13.48		-	-	0.38	2.22	26.99	Pass
HT40	MCS0	1	62	5310	0.11	0.14	13.35	13.45		-	-	0.38	2.22	26.99	Pass
VHT20	MCS0	1	52	5260	0.07	0.07	13.17	13.15		-	-	0.38	2.22	26.99	Pass
VHT20	MCS0	1	60	5300	0.07	0.07	13.41	13.08		-	-	0.38	2.22	26.99	Pass
VHT20	MCS0	1	64	5320	0.07	0.07	13.12	13.22		-	-	0.38	2.22	26.99	Pass
VHT40	MCS0	1	54	5270	0.14	0.14	13.47	13.47		-	-	0.38	2.22	26.99	Pass
VHT40	MCS0	1	62	5310	0.14	0.14	13.32	13.44		-	-	0.38	2.22	26.99	Pass
VHT80	MCS0	1	58	5290	0.24	0.26	13.18	13.18		-	-	0.38	2.22	26.99	Pass
HT20	MCS0	2	52	5260	0.11	0.11	10.25	10.40	13.34	-	-	2.22	2.22	26.99	Pass
HT20	MCS0	2	60	5300	0.11	0.11	10.49	10.25	13.38	-	-	2.22	2.22	26.99	Pass
HT20	MCS0	2	64	5320	0.11	0.11	10.83	9.96	13.43	-	-	2.22	2.22	26.99	Pass
HT40	MCS0	2	54	5270	0.16	0.16	10.35	10.53	13.45	-	-	2.22	2.22	26.99	Pass
HT40	MCS0	2	62	5310	0.16	0.16	10.28	10.52	13.41	-	-	2.22	2.22	26.99	Pass
VHT20	MCS0	2	52	5260	0.15	0.15	10.21	10.38	13.31	-	-	2.22	2.22	26.99	Pass
VHT20	MCS0	2	60	5300	0.15	0.15	10.46	10.24	13.36	-	-	2.22	2.22	26.99	Pass
VHT20	MCS0	2	64	5320	0.15	0.15	10.67	9.95	13.34	-	-	2.22	2.22	26.99	Pass
VHT40	MCS0	2	54	5270	0.30	0.29	10.33	10.46	13.41	-	-	2.22	2.22	26.99	Pass
VHT40	MCS0	2	62	5310	0.30	0.29	10.27	10.40	13.35	-	-	2.22	2.22	26.99	Pass
VHT80	MCS0	2	58	5290	0.54	0.57	10.54	10.39	13.48	-	-	2.22	2.22	26.99	Pass



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

FCC Band III															
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	1	100	5500	0.04	0.06	13.43	13.33		-	-	0.81	1.57	26.99	Pass
11a	6Mbps	1	116	5580	0.04	0.06	13.38	13.36		-	-	0.81	1.57	26.99	Pass
11a	6Mbps	1	140	5700	0.04	0.06	13.22	13.08		-	-	0.81	1.57	26.99	Pass
HT20	MCS0	1	100	5500	0.09	0.07	13.47	13.33		-	-	0.81	1.57	26.99	Pass
HT20	MCS0	1	116	5580	0.09	0.07	13.41	13.29		-	-	0.81	1.57	26.99	Pass
HT20	MCS0	1	140	5700	0.09	0.07	13.32	13.47		-	-	0.81	1.57	26.99	Pass
HT20	MCS0	1	144	5720	0.09	0.07	13.13	13.49		-	-	0.81	1.57	26.99	Pass
HT40	MCS0	1	102	5510	0.11	0.14	13.42	13.26		-	-	0.81	1.57	26.99	Pass
HT40	MCS0	1	110	5550	0.11	0.14	13.40	13.47		-	-	0.81	1.57	26.99	Pass
HT40	MCS0	1	134	5670	0.11	0.14	13.21	13.31		-	-	0.81	1.57	26.99	Pass
HT40	MCS0	1	142	5710	0.11	0.14	13.45	13.49		-	-	0.81	1.57	26.99	Pass
VHT20	MCS0	1	100	5500	0.07	0.07	13.46	13.28		-	-	0.81	1.57	26.99	Pass
VHT20	MCS0	1	116	5580	0.07	0.07	13.39	13.24		-	-	0.81	1.57	26.99	Pass
VHT20	MCS0	1	140	5700	0.07	0.07	13.27	13.46		-	-	0.81	1.57	26.99	Pass
VHT20	MCS0	1	144	5720	0.07	0.07	13.11	13.48		-	-	0.81	1.57	26.99	Pass
VHT40	MCS0	1	102	5510	0.14	0.14	13.39	13.23		-	-	0.81	1.57	26.99	Pass
VHT40	MCS0	1	110	5550	0.14	0.14	13.38	13.45		-	-	0.81	1.57	26.99	Pass
VHT40	MCS0	1	134	5670	0.14	0.14	13.20	13.29		-	-	0.81	1.57	26.99	Pass
VHT40	MCS0	1	142	5710	0.14	0.14	13.44	13.48		-	-	0.81	1.57	26.99	Pass
VHT80	MCS0	1	106	5530	0.24	0.26	13.45	13.34		-	-	0.81	1.57	26.99	Pass
VHT80	MCS0	1	122	5610	0.24	0.26	13.33	13.37		-	-	0.81	1.57	26.99	Pass
VHT80	MCS0	1	138	5690	0.24	0.26	13.20	13.46		-	-	0.81	1.57	26.99	Pass
HT20	MCS0	2	100	5500	0.11	0.11	10.71	10.09	13.42	-	-	1.57		26.99	Pass
HT20	MCS0	2	116	5580	0.11	0.11	10.58	10.35	13.48	-	-	1.57		26.99	Pass
HT20	MCS0	2	140	5700	0.11	0.11	10.29	10.63	13.48	-	-	1.57		26.99	Pass
HT20	MCS0	2	144	5720	0.11	0.11	10.14	10.68	13.43	-	-	1.57		26.99	Pass
HT40	MCS0	2	102	5510	0.16	0.16	10.72	10.19	13.47	-	-	1.57		26.99	Pass
HT40	MCS0	2	110	5550	0.16	0.16	10.30	10.46	13.39	-	-	1.57		26.99	Pass
HT40	MCS0	2	134	5670	0.16	0.16	10.58	10.34	13.47	-	-	1.57		26.99	Pass
HT40	MCS0	2	142	5710	0.16	0.16	10.49	10.40	13.46	-	-	1.57		26.99	Pass
VHT20	MCS0	2	100	5500	0.15	0.15	10.63	10.07	13.37	-	-	1.57		26.99	Pass
VHT20	MCS0	2	116	5580	0.15	0.15	10.54	10.34	13.45	-	-	1.57		26.99	Pass
VHT20	MCS0	2	140	5700	0.15	0.15	10.28	10.60	13.45	-	-	1.57		26.99	Pass
VHT20	MCS0	2	144	5720	0.15	0.15	10.11	10.67	13.41	-	-	1.57		26.99	Pass
VHT40	MCS0	2	102	5510	0.30	0.29	10.71	9.94	13.35	-	-	1.57		26.99	Pass
VHT40	MCS0	2	110	5550	0.30	0.29	10.29	10.21	13.26	-	-	1.57		26.99	Pass
VHT40	MCS0	2	134	5670	0.30	0.29	10.57	10.33	13.46	-	-	1.57		26.99	Pass
VHT40	MCS0	2	142	5710	0.30	0.29	10.46	10.37	13.43	-	-	1.57		26.99	Pass
VHT80	MCS0	2	106	5530	0.54	0.57	10.45	10.45	13.46	-	-	1.57		26.99	Pass
VHT80	MCS0	2	122	5610	0.54	0.57	10.28	10.54	13.42	-	-	1.57		26.99	Pass
VHT80	MCS0	2	138	5690	0.54	0.57	10.16	10.60	13.40	-	-	1.57		26.99	Pass



## Appendix B. Radiated Spurious Emission

Test Engineer :	Vikki He	Temperature :	24~25°C
		Relative Humidity :	48~49%



**Band 2 - 5250~5350MHz**

**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11n HT20 CH 64 5320MHz	*	5320	100.14	-	-	89.39	32.15	11.7	33.1	110	27	P	H
	*	5320	93.2	-	-	82.45	32.15	11.7	33.1	110	27	A	H
		5355.36	52.76	-21.24	74	41.94	32.18	11.74	33.1	110	27	P	H
		5350.08	42.03	-11.97	54	31.21	32.18	11.74	33.1	110	27	A	H
	*	5320	98.15	-	-	87.4	32.15	11.7	33.1	147	224	P	V
	*	5320	91.62	-	-	80.87	32.15	11.7	33.1	147	224	A	V
		5352.16	50.43	-23.57	74	39.61	32.18	11.74	33.1	147	224	P	V
		5350.08	41.4	-12.6	54	30.58	32.18	11.74	33.1	147	224	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 2 5250~5350MHz**

**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11n HT20 CH 64 5320MHz		10640	50.45	-23.55	74	51.8	39.93	14.68	55.96	152	135	P	H
		15960	49.04	-24.96	74	51.58	36.69	16.64	55.87	173	245	P	H
		10640	50.13	-23.87	74	51.48	39.93	14.68	55.96	152	135	P	V
		15960	49.6	-24.4	74	52.14	36.69	16.64	55.87	173	245	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - Straddle Channel**

**WIFI 802.11ac VHT80 (Band Edge @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11ac	*	5690	95.65	-	-	84.08	32.3	12.37	33.1	100	34	P	H
VHT80	*	5690	89.05	-	-	77.48	32.3	12.37	33.1	100	34	A	H
CH 138	*	5690	91.06	-	-	79.49	32.3	12.37	33.1	110	217	P	V
5690MHz	*	5690	85.16	-	-	73.59	32.3	12.37	33.1	110	217	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 3 - Straddle Channel**

**WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11ac		11380	50.51	-23.49	74	50.95	40.23	14.85	55.52	150	360	P	H
VHT80		17070	50.3	-23.7	74	48.25	40.53	17.87	56.35	150	0	P	H
CH 138		11380	50.34	-23.66	74	50.78	40.23	14.85	55.52	150	360	P	V
5690MHz		17070	50.85	-23.15	74	48.8	40.53	17.87	56.35	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 - 5250~5350MHz**

**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		( MHz )	( dBµV/m )	( dB )	( dBµV/m )	( dBµV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11n HT20 CH 64 5320MHz	*	5320	100.73	-	-	89.98	32.15	11.7	33.1	107	233	P	H
	*	5320	94.11	-	-	83.36	32.15	11.7	33.1	107	233	A	H
		5350.88	55.26	-18.74	74	44.44	32.18	11.74	33.1	107	233	P	H
		5350.08	43.79	-10.21	54	32.97	32.18	11.74	33.1	107	233	A	H
	*	5320	98.15	-	-	87.4	32.15	11.7	33.1	147	224	P	V
	*	5320	91.62	-	-	80.87	32.15	11.7	33.1	147	224	A	V
		5352.16	50.43	-23.57	74	39.61	32.18	11.74	33.1	147	224	P	V
	5350.08	41.4	-12.6	54	30.58	32.18	11.74	33.1	147	224	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 2 5250~5350MHz**

**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		( MHz )	( dBµV/m )	( dB )	( dBµV/m )	( dBµV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11n HT20 CH 64 5320MHz		10640	50.98	-23.02	74	52.33	39.93	14.68	55.96	152	135	P	H
		15960	49.01	-24.99	74	51.55	36.69	16.64	55.87	173	245	P	H
		10640	50.08	-23.92	74	51.43	39.93	14.68	55.96	152	135	P	V
		15960	48.97	-25.03	74	51.51	36.69	16.64	55.87	173	245	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - Straddle Channel**

**WIFI 802.11ac VHT80 (Band Edge @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11ac	*	5690	96.76	-	-	85.19	32.3	12.37	33.1	141	223	P	H
VHT80	*	5690	90.55	-	-	78.98	32.3	12.37	33.1	141	223	A	H
CH 138	*	5690	92.01	-	-	80.44	32.3	12.37	33.1	110	217	P	V
5690MHz	*	5690	86.11	-	-	74.54	32.3	12.37	33.1	110	217	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 3 - Straddle Channel**

**WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11ac		11380	50.83	-23.17	74	51.27	40.23	14.85	55.52	150	360	P	H
VHT80		17070	50.47	-23.53	74	48.42	40.53	17.87	56.35	150	0	P	H
CH 138		11380	49.82	-24.18	74	50.26	40.23	14.85	55.52	150	360	P	V
5690MHz		17070	50.33	-23.67	74	48.28	40.53	17.87	56.35	150	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 - 5250~5350MHz**

**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11n HT20 CH 64 5320MHz	*	5320	100.15	-	-	89.4	32.15	11.7	33.1	162	217	P	H
	*	5320	93.77	-	-	83.02	32.15	11.7	33.1	162	217	A	H
		5355.84	50.31	-23.69	74	39.49	32.18	11.74	33.1	162	217	P	H
		5354.72	41.14	-12.86	54	30.32	32.18	11.74	33.1	162	217	A	H
	*	5320	98.15	-	-	87.4	32.15	11.7	33.1	147	224	P	V
	*	5320	91.62	-	-	80.87	32.15	11.7	33.1	147	224	A	V
		5352.16	50.43	-23.57	74	39.61	32.18	11.74	33.1	147	224	P	V
		5350.08	41.4	-12.6	54	30.58	32.18	11.74	33.1	147	224	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 2 5250~5350MHz**

**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11n HT20 CH 64 5320MHz		10640	50.8	-23.2	74	52.15	39.93	14.68	55.96	152	135	P	H
		15960	48.56	-25.44	74	51.1	36.69	16.64	55.87	173	245	P	H
		10640	50.45	-23.55	74	51.8	39.93	14.68	55.96	152	135	P	V
		15960	49.13	-24.87	74	51.67	36.69	16.64	55.87	173	245	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - Straddle Channel

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	(dBμV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
802.11ac	*	5690	94.86	-	-	83.29	32.3	12.37	33.1	100	34	P	H
VHT80	*	5690	88.01	-	-	76.44	32.3	12.37	33.1	100	34	A	H
CH 138	*	5690	91.72			80.15	32.3	12.37	33.1	400	339	P	V
5690MHz	*	5690	85.37			73.8	32.3	12.37	33.1	400	339	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												





Band 3 - Straddle Channel
WIFI 802.11ac VHT80 (Harmonic @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include 802.11ac VHT80 and CH 138 5690MHz.

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



Emission below 1GHz  
WIFI 802.11n HT20 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11n HT20 LF		30	22.48	-17.52	40	29.55	24.3	0.23	31.6			P	H
		268.62	33.12	-12.88	46	42.7	19.53	1.93	31.04	100	46	P	H
		386.96	31.51	-14.49	46	38.88	21.38	2.35	31.1			P	H
		418.97	29.5	-16.5	46	36.09	22.05	2.46	31.1			P	H
		709	30.01	-15.99	46	32.73	25.2	3.3	31.22			P	H
		874.87	29.81	-16.19	46	30.78	26.57	3.76	31.3			P	H
		33.88	24.09	-15.91	40	33.45	21.94	0.3	31.6			P	V
		68.8	23.01	-16.99	40	41.38	12.66	0.57	31.6			P	V
		268.62	28.61	-17.39	46	38.19	19.53	1.93	31.04			P	V
		386.96	28.7	-17.3	46	36.07	21.38	2.35	31.1			P	V
		570.29	35.45	-10.55	46	39.4	24.34	2.91	31.2	100	154	P	V
		760.41	31.92	-14.08	46	33.97	25.76	3.49	31.3			P	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	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		( 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

- Level(dBμV/m) =  
Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

**For Peak Limit @ 2390MHz:**

- Level(dBμV/m)  
= Antenna Factor(dB/m) + Cable 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)
- Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 55.45(dBμV/m) – 74(dBμV/m)  
= -18.55(dB)

**For Average Limit @ 2390MHz:**

- Level(dBμV/m)  
= Antenna Factor(dB/m) + Cable 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)
- 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 C. Radiated Spurious Emission

### Note symbol

-L	Low channel location
-R	High channel location



**Band 2 - 5250~5350MHz**  
**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
1	Horizontal	Fundamental
<b>Peak</b>	<p>Site Condition : 05CM01-SZ            : PEAK_0E_74 3m HP_ANT_01200_1355_03 HORIZONTAL            : RSM:1000_000KHz VSM:1000_000KHz</p>	<p>Site Condition : 05CM01-SZ            : PEAK_74 3m HP_ANT_01200_1355_03 HORIZONTAL            : RSM:1000_000KHz VSM:1000_000KHz</p>
<b>Avg.</b>	<p>Site Condition : 05CM01-SZ            : AVG_0E_54 3m HP_ANT_01200_1355_03 HORIZONTAL            : RSM:1000_000KHz VSM:1_000KHz</p>	



WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
1	Vertical	Fundamental
Peak	<p>Site : 83CM1-SZ Condition : PEAK_BE_24 3m HP_ANT_51200_1355_03 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz</p>	<p>Site : 83CM1-SZ Condition : PEAK_24 3m HP_ANT_51200_1355_03 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz</p>
Avg.	<p>Site : 83CM1-SZ Condition : AVG_BE_24 3m HP_ANT_51200_1355_03 VERTICAL : RBW:1000.000kHz VBW:1.000kHz</p>	



**Band 2 - 5250~5350MHz**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Band 2 5250~5350MHz Harmonic @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
1	Horizontal	Vertical
<b>Peak</b> <b>Avg.</b>	<p>Site Condition : 03CM01-S2 : PEAK_74 3m HF_ANT_91200_1355_03 HORIZONTAL</p>	<p>Site Condition : 03CM01-S2 : PEAK_74 3m HF_ANT_91200_1355_03 VERTICAL</p>





Band 3 - Straddle Channel
WIFI 802.11ac VHT80 (Fundamental @ 3m)

Table with 3 columns: WIFI, ANT, and measurement results for Horizontal and Vertical orientations. Includes Peak and Avg. values and corresponding frequency plots.



**Band 3 - Straddle Channel**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Band 3 Straddle Channel Harmonic @ 3m	
ANT	802.11n HT20 CH138 5690MHz	
1	Horizontal	Vertical
<b>Peak</b> <b>Avg.</b>	<p>Site : 83CH81-S2            Condition : PEAK_74 3m HF_ANT_91280_1355_83 HORIZONTAL</p>	<p>Site : 83CH81-S2            Condition : PEAK_74 3m HF_ANT_91280_1355_83 VERTICAL</p>



**Band 2 - 5250~5350MHz**  
**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
2	Horizontal	Fundamental
<b>Peak</b>	<p>Site Condition : 05C001-52          : PEAK_BE_74 3m HP_ANT_91200_1355_03 HORIZONTAL          : RBW:1000.000kHz VBW:3000.000kHz</p>	<p>Site Condition : 05C001-52          : PEAK_74 3m HP_ANT_91200_1355_03 HORIZONTAL          : RBW:1000.000kHz VBW:3000.000kHz</p>
<b>Avg.</b>	<p>Site Condition : 05C001-52          : AVG_BE_54 3m HP_ANT_91200_1355_03 HORIZONTAL          : RBW:1000.000kHz VBW:3000.000kHz</p>	



WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
2	Vertical	Fundamental
Peak	<p>Date: 5 Date: 2018-07-07</p> <p>Site : 85C081-SZ Condition : PEAK_BE_74 3m HP_ANT_91280_1355_03 VERTICAL RSM:1000.000MHz VSM:3000.000MHz</p>	<p>Date: 4 Date: 2018-07-07</p> <p>Site : 85C081-SZ Condition : PEAK_74 3m HP_ANT_91280_1355_03 VERTICAL RSM:1000.000MHz VSM:3000.000MHz</p>
Avg.	<p>Date: 6 Date: 2018-07-07</p> <p>Site : 85C081-SZ Condition : AVG_BE_54 3m HP_ANT_91280_1355_03 VERTICAL RSM:1000.000MHz VSM:3000.000MHz</p>	

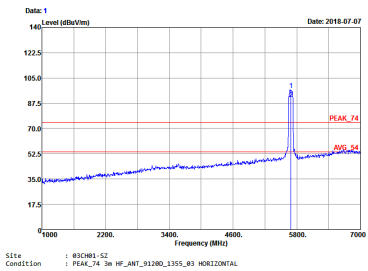
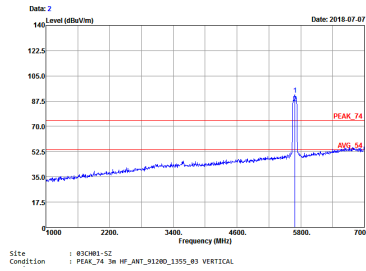


**Band 2 - 5250~5350MHz**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Band 2 5250~5350MHz Harmonic @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
2	Horizontal	Vertical
<b>Peak</b> <b>Avg.</b>	<p>Date: 11 Date: 2018-07-07</p> <p>Site : 03CH01-52 Condition : PEAK_74 3m HF_ANT_91200_1355_03 HORIZONTAL</p>	<p>Date: 12 Date: 2018-07-07</p> <p>Site : 03CH01-52 Condition : PEAK_74 3m HF_ANT_91200_1355_03 VERTICAL</p>



Band 3 - Straddle Channel  
WIFI 802.11ac VHT80 (Fundamental @ 3m)

WIFI	Band 3 Straddle Channel Fundamental @ 3m	
ANT	802.11ac VHT80 CH138 5690MHz	
2	Horizontal	Vertical
Peak Avg.	 <p>Site : #3CH81-52 Condition : PEAK_74 3m HF_ANT_91280_1355_83 HORIZONTAL</p>	 <p>Site : #3CH81-52 Condition : PEAK_74 3m HF_ANT_91280_1355_83 VERTICAL</p>



**Band 3 - Straddle Channel**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Band 3 Straddle Channel Harmonic @ 3m	
ANT	802.11n HT20 CH138 5690MHz	
2	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH01-S2            Condition : PEAK_74 3m HF_ANT_91280_1355_03 HORIZONTAL</p>	<p>Site : 03CH01-S2            Condition : PEAK_74 3m HF_ANT_91280_1355_03 VERTICAL</p>

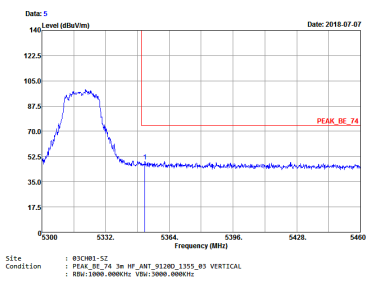
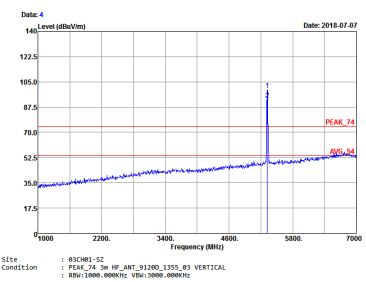
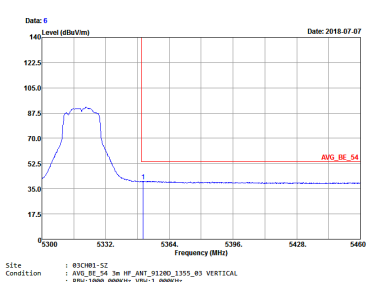


**Band 2 - 5250~5350MHz**  
**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
1+2	Horizontal	Fundamental
<b>Peak</b>	<p>Site Condition : 03C0M1-S2            : PEAK_BE_74 3m HP_ANT_91200_1355_03 HORIZONTAL            : RBW:1000.0000Hz VSW:3.0000dB</p>	<p>Site Condition : 03C0M1-S2            : PEAK_74 3m HP_ANT_91200_1355_03 HORIZONTAL            : RBW:1000.0000Hz VSW:3.0000dB</p>
<b>Avg.</b>	<p>Site Condition : 03C0M1-S2            : AVG_BE_54 3m HP_ANT_91200_1355_03 HORIZONTAL            : RBW:1000.0000Hz VSW:3.0000dB</p>	





WIFI	Band 2 5250~5350MHz Band Edge @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
1+2	Vertical	Fundamental
Peak	 <p>Site : 05CH01-SZ Condition : PEAK_BE_74 3m HP_ANT_91200_1355_03 VERTICAL RSM:1000.000KHz VSM:3000.000KHz</p>	 <p>Site : 05CH01-SZ Condition : PEAK_74 3m HP_ANT_91200_1355_03 VERTICAL RSM:1000.000KHz VSM:3000.000KHz</p>
Avg.	 <p>Site : 05CH01-SZ Condition : AVG_BE_54 3m HP_ANT_91200_1355_03 VERTICAL RSM:1000.000KHz VSM:1.000KHz</p>	



**Band 2 - 5250~5350MHz**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Band 2 5250~5350MHz Harmonic @ 3m	
ANT	802.11n HT20 CH64 5320MHz	
1+2	Horizontal	Vertical
<b>Peak</b> <b>Avg.</b>	<p>Date: 11 11 Level (dBuV/m) Date: 2018-07-07</p> <p>Site : 03CH01-SZ Condition : PEAK_74 3m HF_ANT_91200_1355_03 HORIZONTAL</p>	<p>Date: 12 11 Level (dBuV/m) Date: 2018-07-07</p> <p>Site : 03CH01-SZ Condition : PEAK_74 3m HF_ANT_91200_1355_03 VERTICAL</p>



Band 3 - Straddle Channel  
WIFI 802.11ac VHT80 (Fundamental @ 3m)

WIFI	Band 3 Straddle Channel Fundamental @ 3m	
ANT	802.11ac VHT80 CH138 5690MHz	
1+2	Horizontal	Vertical
Peak Avg.	<p>Site Condition : 83CH81-S2 : PEAK_74 3m HF_ANT_91200_1355_83 HORIZONTAL</p>	<p>Site Condition : 83CH81-S2 : PEAK_74 3m HF_ANT_91200_1355_83 VERTICAL</p>



**Band 3 - Straddle Channel**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Band 3 Straddle Channel Harmonic @ 3m	
ANT	802.11n HT20 CH138 5690MHz	
1+2	Horizontal	Vertical
<b>Peak</b> <b>Avg.</b>	<p>Site Condition : #3SCH1-S2 : PEAK(UWII) 3m HF_ANT_91280_1355_03 HORIZONTAL</p>	<p>Site Condition : #3SCH1-S2 : PEAK(UWII) 3m HF_ANT_91280_1355_03 VERTICAL</p>



Emission below 1GHz  
5GHz WIFI 802.11n HT20 (LF)

WIFI	5GHz WIFI	
ANT	802.11n HT20 LF	
2	Horizontal	Vertical
QP / Peak	<p>Site Condition : 03CH01-S2 : FCC CLASS-B 3m LF_ANT(35487)_6 HORIZONTAL</p>	<p>Site Condition : 03CH01-S2 : FCC CLASS-B 3m LF_ANT(35487)_6 VERTICAL</p>

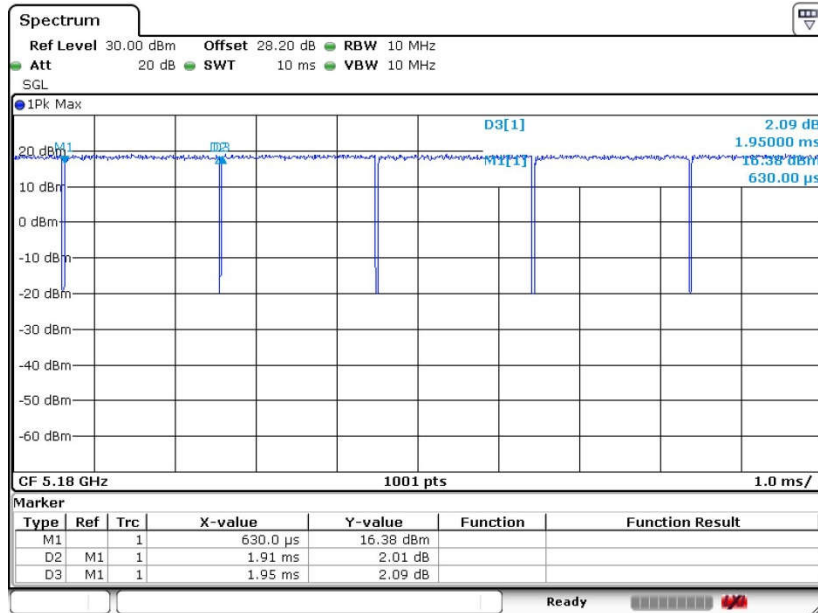
## Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1	5GHz 802.11n HT20	97.95	1.910	0.524	1KHz
1	5GHz 802.11ac VHT80	94.67	0.462	2.165	3KHz
2	5GHz 802.11n HT20	98.45	-	-	10Hz
2	5GHz 802.11ac VHT80	94.26	0.460	2.174	3KHz
1+2	5GHz 802.11n HT20 for Ant.1	97.45	1.910	0.524	1KHz
1+2	5GHz 802.11n HT20 for Ant.2	97.45	1.910	0.524	1KHz
1+2	5GHz 802.11ac VHT80 for Ant.1	88.28	0.256	3.906	10KHZ
1+2	5GHz 802.11ac VHT80 for Ant.2	87.67	0.256	3.906	10KHZ

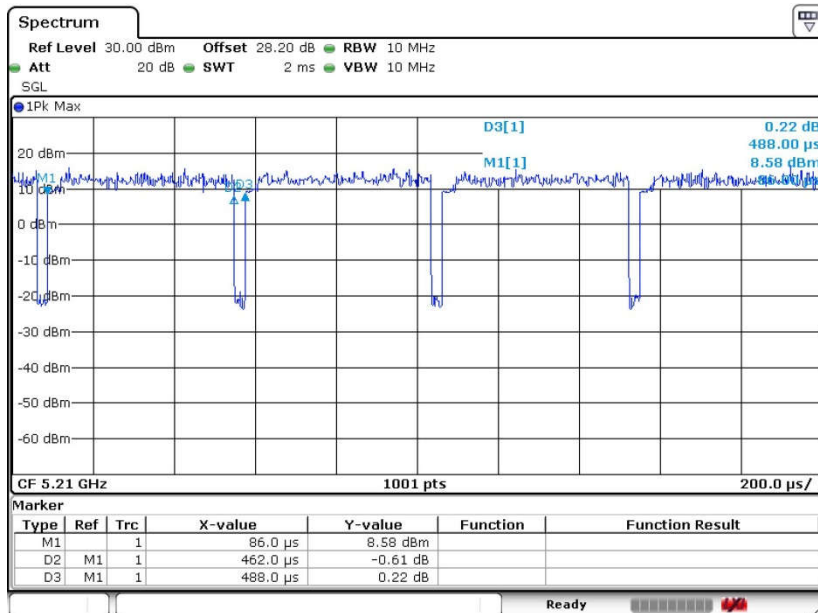


<Ant. 1>

802.11n HT20



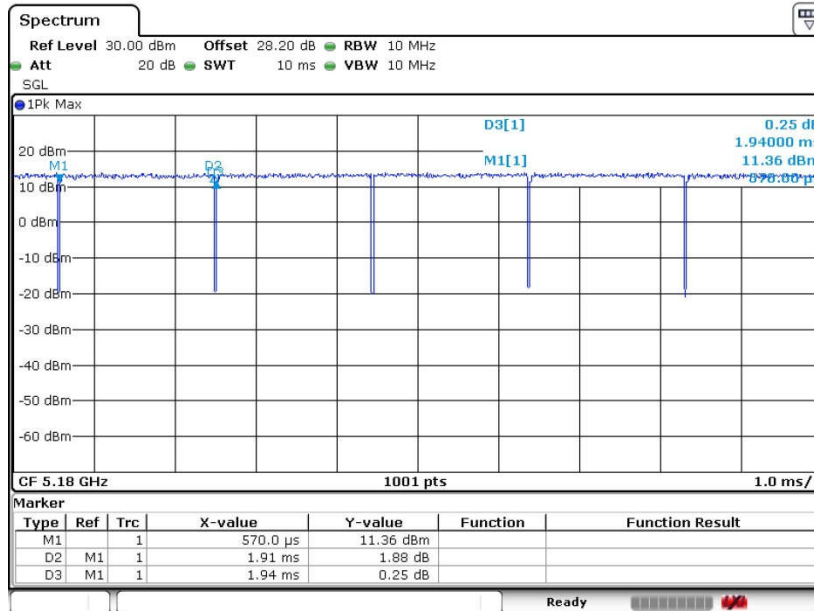
802.11ac VHT80



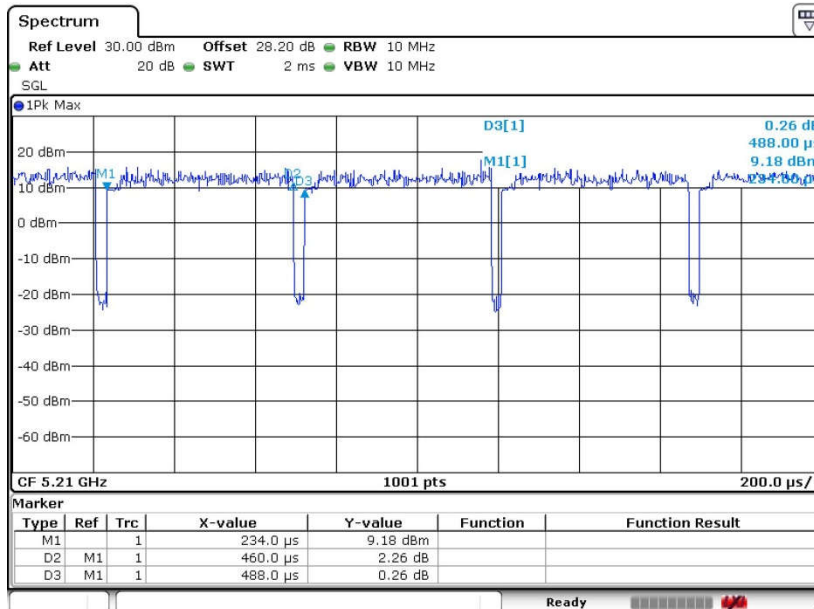


<Ant. 2>

802.11n HT20



802.11ac VHT80

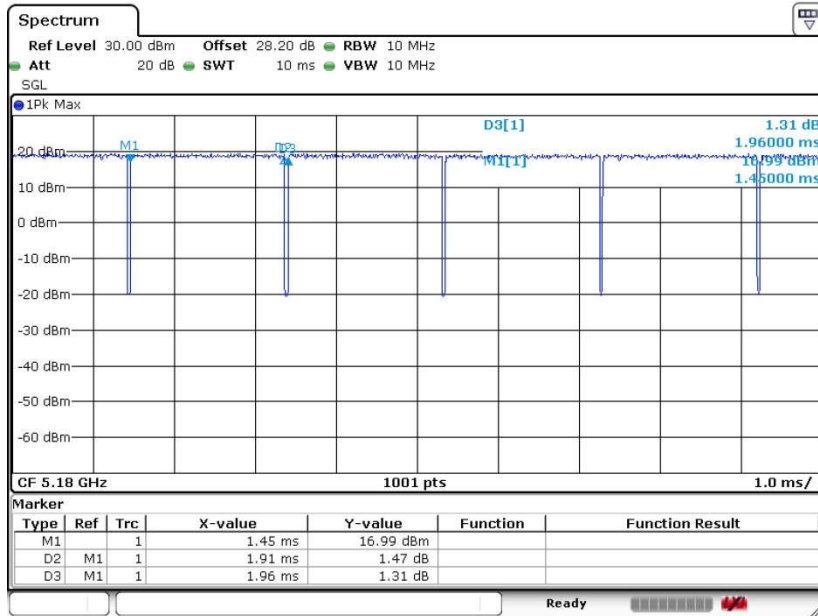




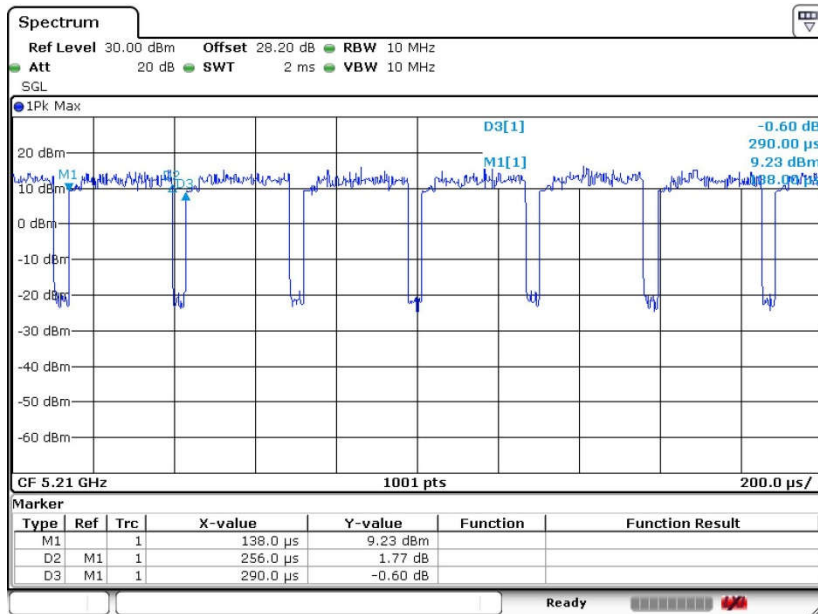


<MIMO Ant. 1>

802.11n HT20



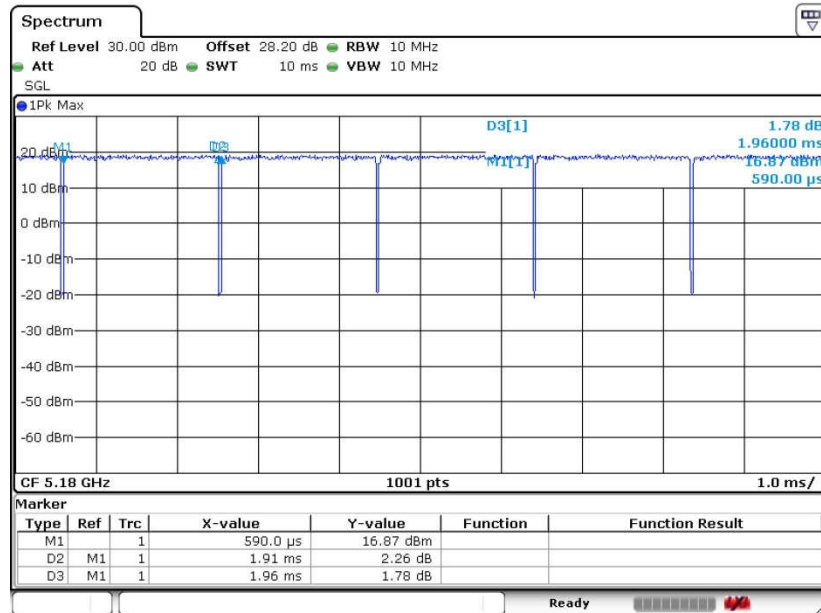
802.11ac VHT80





<MIMO Ant. 2>

802.11n HT20



802.11ac VHT80

