



# FCC RF Test Report

**APPLICANT** : TCL Communication Ltd  
**EQUIPMENT** : 5G NR/ LTE/WCDMA/GSM Mobile Phone  
**BRAND NAME** : TCL  
**MODEL NAME** : T790S  
**FCC ID** : 2ACCJN042  
**STANDARD** : FCC Part 15 Subpart E §15.407  
**CLASSIFICATION** : (NII) Unlicensed National Information Infrastructure

The product was received on May 19, 2020 and testing was completed on Jul. 28, 2020. We, Sporton International (Kunshan) 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.

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

Jason Jia

Reviewed by: Jason Jia / Supervisor

James Huang

Approved by: James Huang / Manager



**Sporton International (Kunshan) Inc.**

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300  
People's Republic of China



# TABLE OF CONTENTS

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

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

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

    1.1 Applicant.....5

    1.2 Manufacturer.....5

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

    1.4 Product Specification of Equipment Under Test.....6

    1.5 Modification of EUT .....7

    1.6 Testing Location .....7

    1.7 Test Software.....7

    1.8 Applicable Standards.....8

**2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST.....9**

    2.1 Carrier Frequency and Channel .....9

    2.2 Test Mode.....10

    2.3 Connection Diagram of Test System.....12

    2.4 Support Unit used in test configuration and system.....13

    2.5 EUT Operation Test Setup .....13

    2.6 Measurement Results Explanation Example.....13

**3 TEST RESULT.....14**

    3.1 26dB & 99% Occupied Bandwidth Measurement .....14

    3.2 Maximum Conducted Output Power Measurement .....16

    3.3 Power Spectral Density Measurement .....18

    3.4 Unwanted Emissions Measurement.....20

    3.5 AC Conducted Emission Measurement.....26

    3.6 Automatically Discontinue Transmission .....28

    3.7 Antenna Requirements.....29

**4 LIST OF MEASURING EQUIPMENT.....30**

**5 UNCERTAINTY OF EVALUATION .....31**

**APPENDIX A. CONDUCTED TEST RESULTS**

**APPENDIX B. AC CONDUCTED EMISSION TEST RESULT**

**APPENDIX C. RADIATED SPURIOUS EMISSION**

**APPENDIX D. DUTY CYCLE PLOTS**

**APPENDIX E. SETUP PHOTOGRAPHS**





### SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 1.76 dB at 5150.000 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 17.13 dB at 0.564 MHz
3.6	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.7	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-

<b>Declaration of Conformity:</b>
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
<b>Comments and Explanations:</b>
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.



# 1 General Description

## 1.1 Applicant

TCL Communication Ltd

5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong

## 1.2 Manufacturer

TCL Communication Ltd

5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong

## 1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	5G NR/ LTE/WCDMA/GSM Mobile Phone
Brand Name	TCL
Model Name	T790S
FCC ID	2ACCJN042
EUT supports Radios application	GSM/WCDMA/LTE/5G NR/NFC/GNSS WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
IMEI Code	Conducted: N/A Conduction: 051749000013818 Radiation: 015749000013859
HW Version	03
SW Version	1B6GTWG0
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



### 1.4 Product Specification of Equipment Under Test

Standards-related Product Specification							
<b>Tx/Rx Frequency Range</b>	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5720 MHz						
<b>Maximum Output Power to Antenna</b>	<p><b>&lt;MIMO Ant. 1+2&gt;</b></p> <p><b>&lt;5180 MHz ~ 5240 MHz&gt;</b>            802.11a : 19.40 dBm / 0.0871 W            802.11n HT20 : 19.28 dBm / 0.0847 W            802.11n HT40 : 19.16 dBm / 0.0824 W            802.11ac VHT20 : 19.30 dBm / 0.0851 W            802.11ac VHT40 : 19.36 dBm / 0.0863 W            802.11ac VHT80 : 17.88 dBm / 0.0614 W</p> <p><b>&lt;5260 MHz ~ 5320 MHz&gt;</b>            802.11a : 19.50 dBm / 0.0891 W            802.11n HT20 : 18.94 dBm / 0.0783 W            802.11n HT40 : 19.06 dBm / 0.0805 W            802.11ac VHT20 : 19.30 dBm / 0.0851 W            802.11ac VHT40 : 19.19 dBm / 0.0830 W            802.11ac VHT80 : 17.63 dBm / 0.0579 W</p> <p><b>&lt;5500 MHz ~ 5720 MHz &gt;</b>            802.11a : 18.87 dBm / 0.0771 W            802.11n HT20 : 19.23 dBm / 0.0838 W            802.11n HT40 : 19.36 dBm / 0.0863 W            802.11ac VHT20 : 19.14 dBm / 0.0820 W            802.11ac VHT40 : 19.29 dBm / 0.0849 W            802.11ac VHT80 : 18.35 dBm / 0.0684 W</p>						
<b>Antenna Type / Gain</b>	<p><b>&lt;5180 MHz ~ 5240 MHz&gt;</b>            &lt;Ant. 1&gt; : LDS Antenna with gain -2.0 dBi            &lt;Ant. 2&gt; : LDS Antenna with gain -1.0 dBi</p> <p><b>&lt;5260 MHz ~ 5320 MHz&gt;</b>            &lt;Ant. 1&gt; : LDS Antenna with gain -2.0 dBi            &lt;Ant. 2&gt; : LDS Antenna with gain -1.0 dBi</p> <p><b>&lt;5500 MHz ~ 5720 MHz&gt;</b>            &lt;Ant. 1&gt; : LDS Antenna with gain -2.0 dBi            &lt;Ant. 2&gt; : LDS Antenna with gain -1.0 dBi</p>						
<b>Type of Modulation</b>	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)						
<b>Antenna Function Description</b>	<table border="1"> <thead> <tr> <th></th> <th>Ant. 1</th> <th>Ant. 2</th> </tr> </thead> <tbody> <tr> <td>802.11 a/n/ac MIMO</td> <td>V</td> <td>V</td> </tr> </tbody> </table>		Ant. 1	Ant. 2	802.11 a/n/ac MIMO	V	V
	Ant. 1	Ant. 2					
802.11 a/n/ac MIMO	V	V					

**Note:**

- For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing is assessed only their higher conducted power.
- EUT only supports MIMO mode.



### 1.5 Modification of EUT

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

### 1.6 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

<b>Test Firm</b>	Sporton International (Kunshan) Inc.		
<b>Test Site Location</b>	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC Designation No.</b>	<b>FCC Test Firm Registration No.</b>
	CO01-KS TH01-KS	CN1257	314309

<b>Test Firm</b>	Sporton International (Shenzhen) Inc.		
<b>Test Site Location</b>	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan Shenzhen, 518055 People's Republic of China TEL: +86-755-33202398		
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC Designation No.</b>	<b>FCC Test Firm Registration No.</b>
	03CH02-SZ	CN1256	421272

### 1.7 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH02-SZ	AUDIX	E3	6.2009-8-24a
2.	CO01-KS	AUDIX	E3	6.2009-8-24



## **1.8 Applicable Standards**

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

- ♦ 47 CFR 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: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

### 2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
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.

### MIMO Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : GSM 850 Idle + Bluetooth Link + WLAN Link(5G) + USB Cable (Charging from Adapter) + Earphone



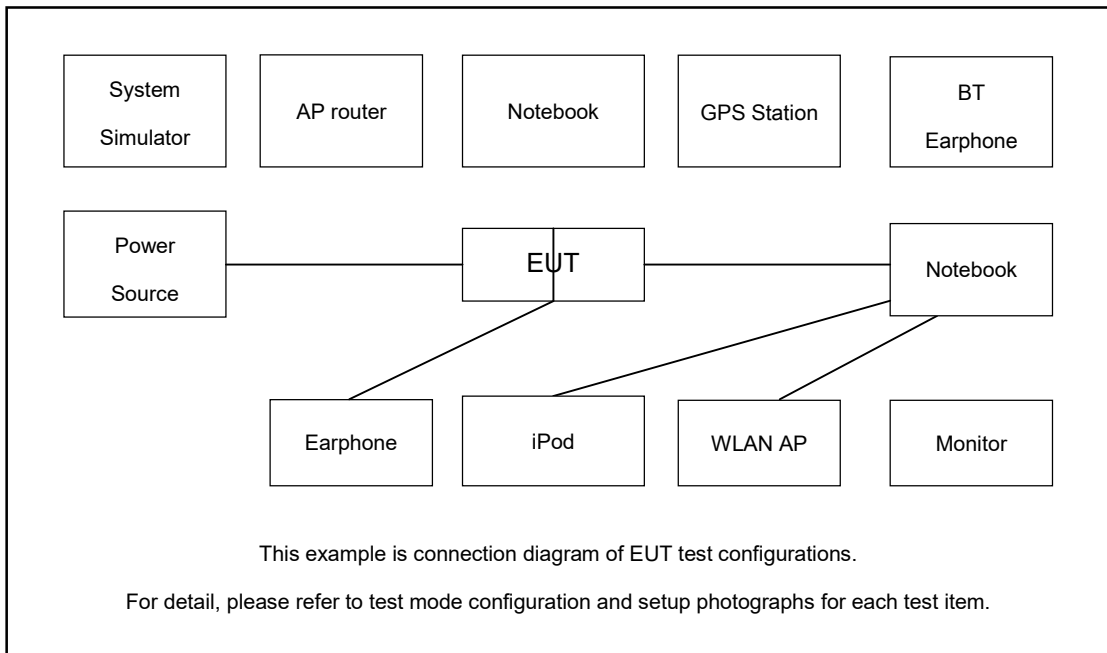
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ac VHT40	802.11ac VHT40	802.11ac VHT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134
Straddle		-	-	142

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	-
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.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8m
3.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
4.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
5.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded, 1.8m
6.	SD Card	Kingston	8GB	N/A	N/A	N/A

### 2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuously transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

### 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.

$$\text{Offset} = \text{RF cable loss} + \text{attenuator factor}.$$

Following shows an offset computation example with cable loss 7.00dB.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 7.00 \text{ (dB)} \end{aligned}$$

### 3 Test Result

#### 3.1 26dB & 99% Occupied Bandwidth Measurement

##### 3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

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.

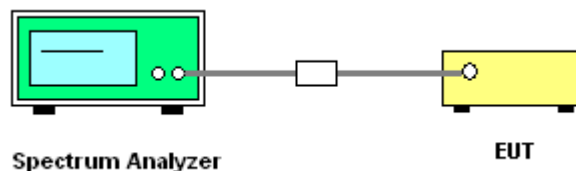
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

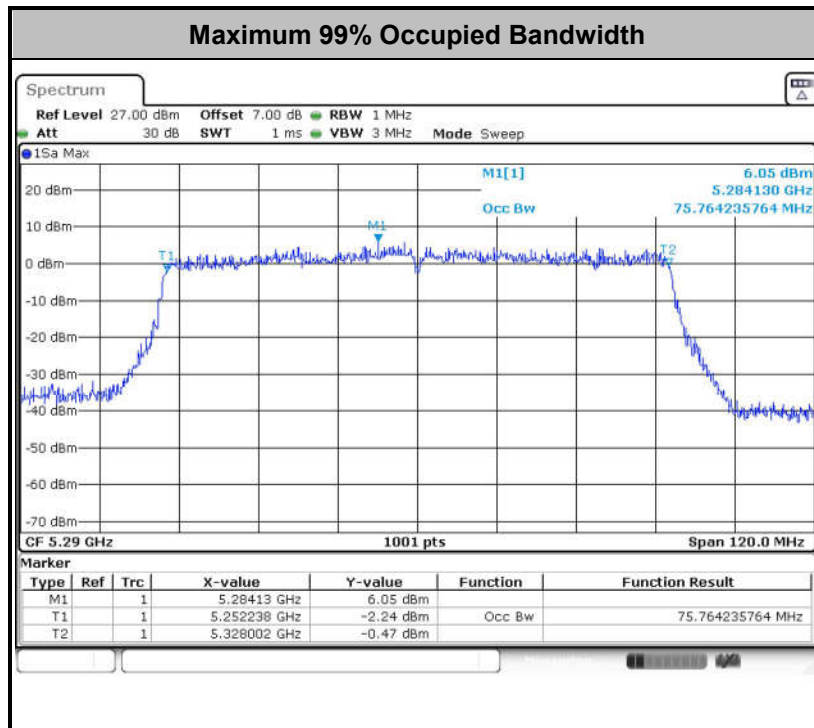
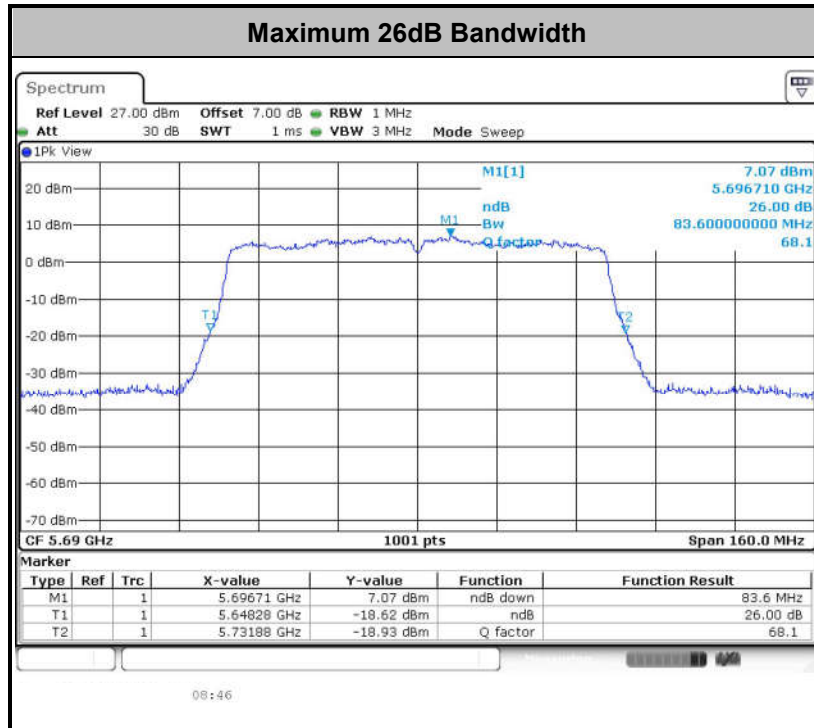
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1MHz and set the Video bandwidth (VBW)  $\geq 3 * RBW$ .
8. Measure and record the results in the test report.

##### 3.1.4 Test Setup



##### 3.1.5 Test Result of 26dB & 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

#### <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 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.

### 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

#### <CDD Modes>

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

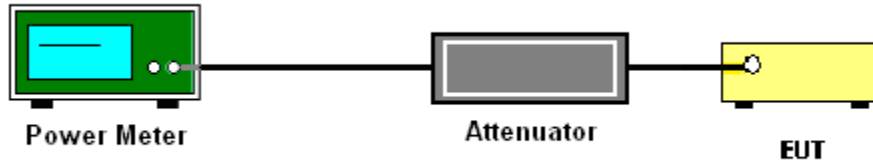
Method PM (Measurement using an RF average power meter):

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.

### 3.2.4 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

**<FCC 14-30 CFR 15.407>**

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

For the 5.25–5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

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.

#### 3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 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.

**<CDD Modes>**

**# Method SA-2 #**

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

- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW  $\geq$  3 MHz.
- Number of points in sweep  $\geq$  2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add  $10 \log(1/x)$ , where x is the duty cycle, to the measured power in order to compute the

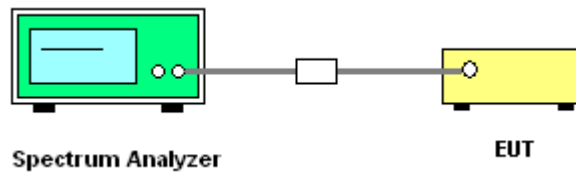
average power during the actual transmission times. For example, add  $10 \log(1/0.25) = 6$  dB if the duty cycle is 25 percent.

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 (a): Measure and sum the spectra across the outputs.

The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

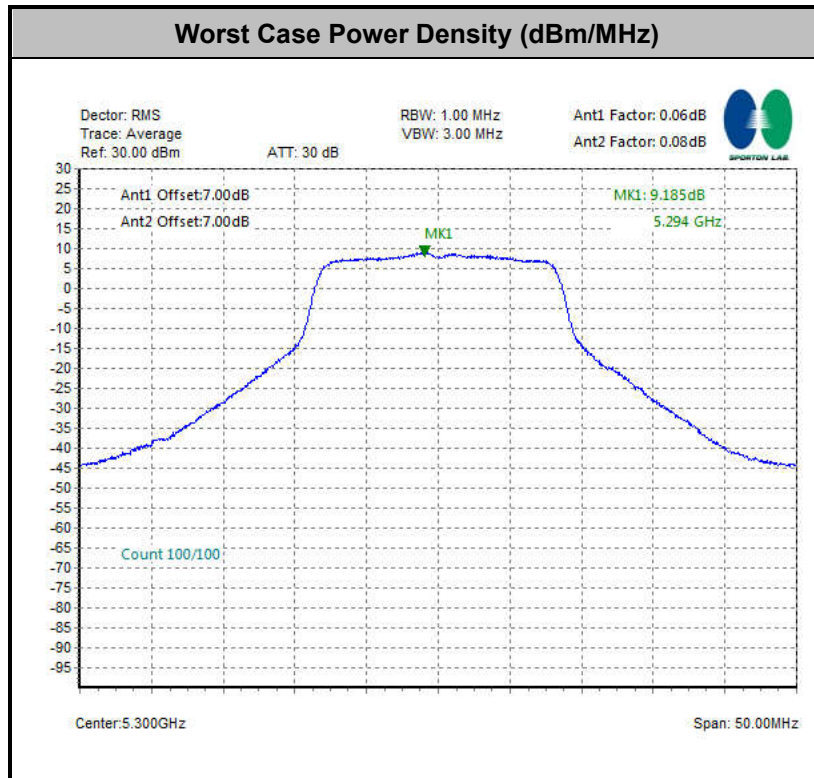
### 3.3.4 Test Setup





### 3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



### 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 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	68.3

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

$$EIRP = E_{Meas} + 20\log(d_{Meas}) - 104.8$$

where

EIRP is the equivalent isotropically radiated power, in dBm

E<sub>Meas</sub> is the field strength of the emission at the measurement distance, in dBμV/m

d<sub>Meas</sub> is the measurement distance, in m

### 3.4.2 Measuring Instruments

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

### 3.4.3 Test Procedures

- 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 ≥ 3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

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

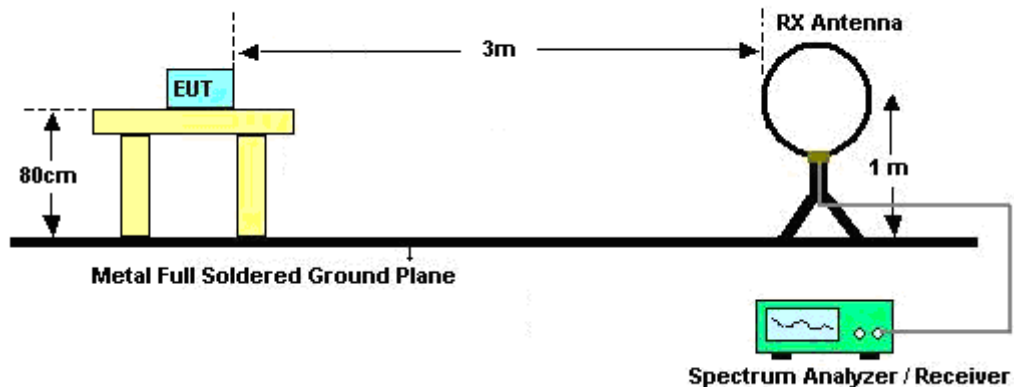
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

- 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.
- 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.

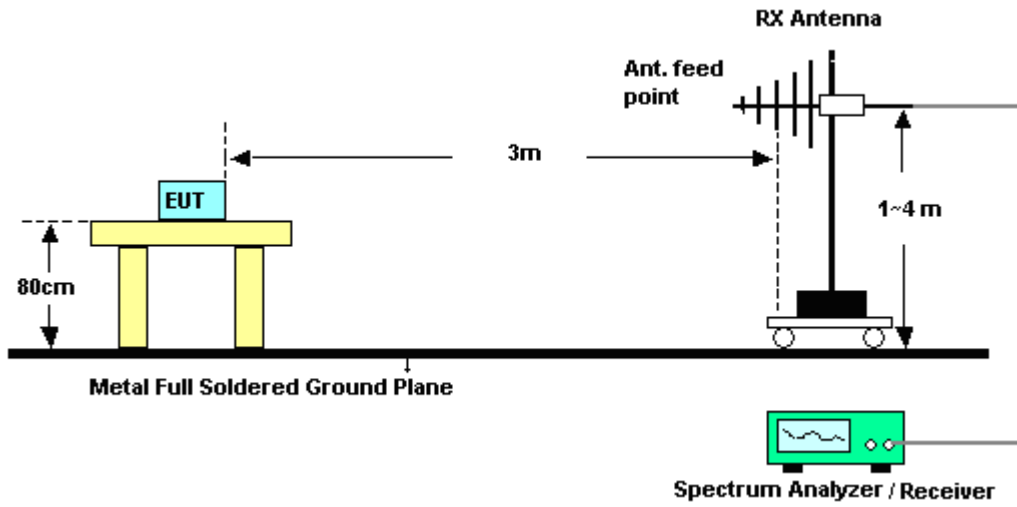
### 3.4.4 Test Setup

For radiated emissions below 30MHz



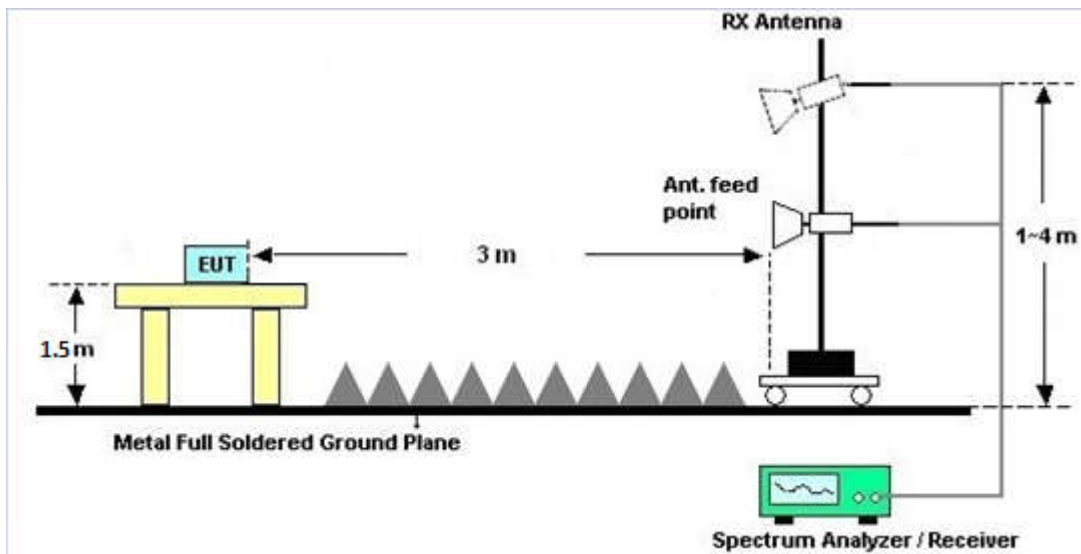
For radiated emissions from 30MHz to 1GHz

<CDD Mode>



For radiated emissions above 1GHz

<CDD Mode>







### **3.4.5 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.

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

Please refer to Appendix C.

### **3.4.7 Duty Cycle**

Please refer to Appendix D.

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

Please refer to Appendix C.



### 3.5 AC Conducted Emission Measurement

#### 3.5.1 Limit of AC Conducted Emission

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

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

\*Decreases with the logarithm of the frequency.

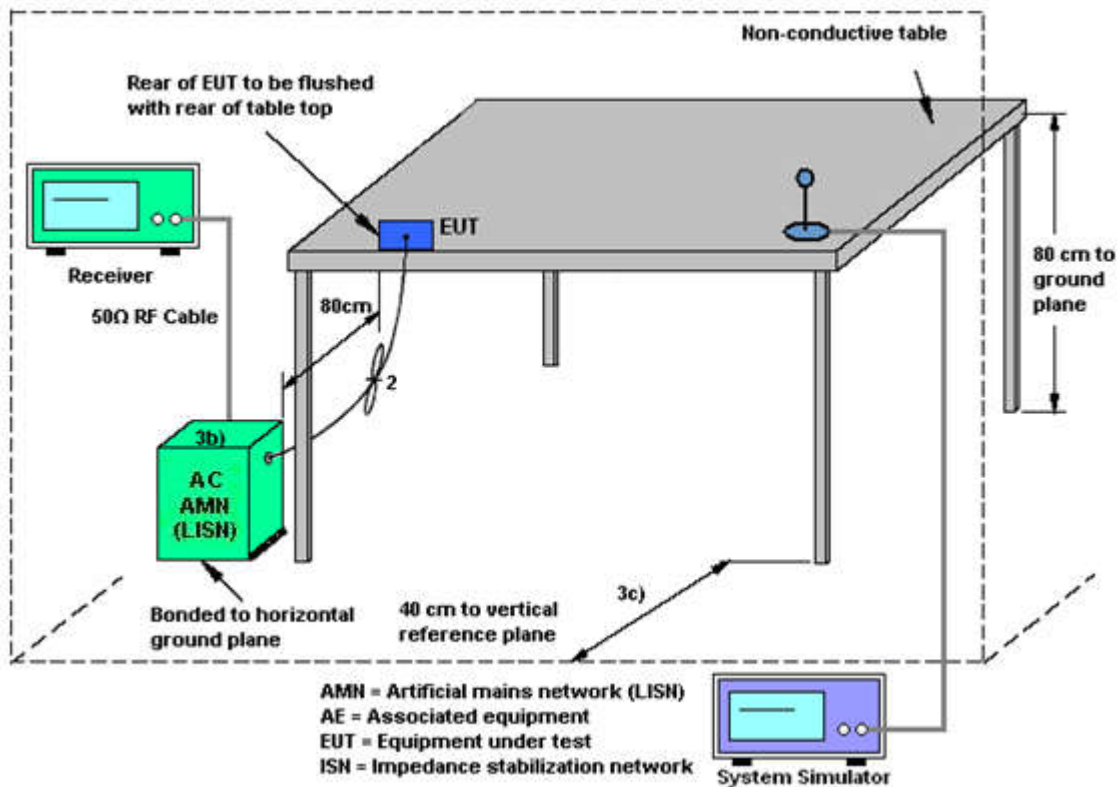
#### 3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 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**

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

### **3.6.3 Test Result of Automatically Discontinue Transmission**

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.



### 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

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.

<b>&lt;CDD Modes&gt;</b>						
	<b>Ant. 1</b>	<b>Ant. 2</b>	<b>DG</b>	<b>DG</b>	<b>Power</b>	<b>PSD</b>
	<b>(dBi)</b>	<b>(dBi)</b>	<b>for</b>	<b>for</b>	<b>Limit</b>	<b>Limit</b>
			<b>Power</b>	<b>PSD</b>	<b>Reduction</b>	<b>Reduction</b>
			<b>(dBi)</b>	<b>(dBi)</b>	<b>(dB)</b>	<b>(dB)</b>
<b>Band I</b>	-4.80	-5.50	-4.80	-2.13	0.00	0.00
<b>Band II</b>	-3.50	-1.50	-1.50	0.57	0.00	0.00
<b>Band III</b>	-3.90	-1.00	-1.00	0.68	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
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Nov. 02, 2019	Jun. 21, 2021	Nov. 01, 2020	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 08, 2020	Jun. 21, 2021	Jan. 07, 2021	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 08, 2020	Jun. 21, 2021	Jan. 07, 2021	Conducted (TH01-KS)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Apr. 17, 2020	Jul. 28, 2020	Apr. 16, 2021	Radiation (03CH02-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May. 28, 2020	Jul. 28, 2020	May. 27, 2022	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz~2GHz	Jul. 15, 2020	Jul. 28, 2020	Jul. 14, 2021	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Aug. 27, 2019	Jul. 28, 2020	Aug. 26, 2020	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 15, 2020	Jul. 28, 2020	Jul. 14, 2021	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Apr. 17, 2020	Jul. 28, 2020	Apr. 16, 2021	Radiation (03CH02-SZ)
LF Amplifier	Burgeon	BPA-530	102211	0.01~3000Mhz	Oct. 18, 2019	Jul. 28, 2020	Oct. 17, 2020	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 18, 2019	Jul. 28, 2020	Oct. 17, 2020	Radiation (03CH02-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5GHz	Oct. 18, 2019	Jul. 28, 2020	Oct. 17, 2020	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010002470	N/A	NCR	Jul. 28, 2020	NCR	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Jul. 28, 2020	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Jul. 28, 2020	NCR	Radiation (03CH02-SZ)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 14, 2020	Jul. 20, 2020	Apr. 13, 2021	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 18, 2019	Jul. 20, 2020	Oct. 17, 2020	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Oct. 28, 2019	Jul. 20, 2020	Oct. 27, 2020	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000811	AC 0V~300V, 45Hz~1000Hz	Oct. 18, 2019	Jul. 20, 2020	Oct. 17, 2020	Conduction (CO01-KS)

NCR: No Calibration Required



## 5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.9dB
---	-------

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

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

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

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

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

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



## **Appendix A. Conducted Test Results**



Test Engineer:	Asa Cheng	Temperature:	21~25	°C
Test Date:	2020/6/21	Relative Humidity:	51~54	%

**TEST RESULTS DATA**  
**26dB and 99% OBW**

Band I													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	36	5180	17.43	17.28	23.63	22.73	-	-	22.38	-	
11a	6Mbps	2	44	5220	17.43	17.38	24.28	22.78	-	-	22.40	-	
11a	6Mbps	2	48	5240	17.58	17.33	24.58	23.03	-	-	22.39	-	
VHT20	MCS0	2	36	5180	18.68	18.43	24.58	23.73	-	-	22.66	-	
VHT20	MCS0	2	44	5220	18.68	18.48	25.48	24.23	-	-	22.67	-	
VHT20	MCS0	2	48	5240	18.63	18.48	25.62	24.43	-	-	22.67	-	
VHT40	MCS0	2	38	5190	36.36	36.46	41.63	41.63	-	-	23.01	-	
VHT40	MCS0	2	46	5230	36.46	36.56	41.81	41.45	-	-	23.01	-	
VHT80	MCS0	2	42	5210	75.64	75.64	82.80	82.64	-	-	23.01	-	

**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	2	36	5180	0.06	0.08	16.06	16.09	19.08	24.00	-1.00		Pass	
11a	6Mbps	2	44	5220	0.06	0.08	16.34	16.44	19.40	24.00	-1.00		Pass	
11a	6Mbps	2	48	5240	0.06	0.08	16.17	16.20	19.19	24.00	-1.00		Pass	
HT20	MCS0	2	36	5180	0.08	0.08	16.28	16.25	19.28	24.00	-1.00		Pass	
HT20	MCS0	2	44	5220	0.08	0.08	16.34	16.17	19.27	24.00	-1.00		Pass	
HT20	MCS0	2	48	5240	0.08	0.08	16.21	16.19	19.21	24.00	-1.00		Pass	
HT40	MCS0	2	38	5190	0.16	0.16	15.68	15.72	18.71	24.00	-1.00		Pass	
HT40	MCS0	2	46	5230	0.16	0.16	16.19	16.10	19.16	24.00	-1.00		Pass	
VHT20	MCS0	2	36	5180	0.08	0.08	16.06	15.84	18.96	24.00	-1.00		Pass	
VHT20	MCS0	2	44	5220	0.08	0.08	16.32	16.25	19.30	24.00	-1.00		Pass	
VHT20	MCS0	2	48	5240	0.08	0.08	15.71	15.64	18.69	24.00	-1.00		Pass	
VHT40	MCS0	2	38	5190	0.16	0.16	16.07	16.05	19.07	24.00	-1.00		Pass	
VHT40	MCS0	2	46	5230	0.16	0.16	16.39	16.32	19.36	24.00	-1.00		Pass	
VHT80	MCS0	2	42	5210	0.34	0.34	14.86	14.89	17.88	24.00	-1.00		Pass	

**TEST RESULTS DATA**  
**Power Spectral Density**

FCC Band I														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	36	5180	0.06	0.08			8.93	11.00	1.52		Pass	
11a	6Mbps	2	44	5220	0.06	0.08			8.75	11.00	1.52		Pass	
11a	6Mbps	2	48	5240	0.06	0.08			8.69	11.00	1.52		Pass	
HT20	MCS0	2	36	5180	0.08	0.08			8.53	11.00	1.52		Pass	
HT20	MCS0	2	44	5220	0.08	0.08			8.00	11.00	1.52		Pass	
HT20	MCS0	2	48	5240	0.08	0.08			7.98	11.00	1.52		Pass	
VHT40	MCS0	2	38	5190	0.16	0.16			5.64	11.00	1.52		Pass	
VHT40	MCS0	2	46	5230	0.16	0.16			5.37	11.00	1.52		Pass	
VHT80	MCS0	2	42	5210	0.34	0.34			1.34	11.00	1.52		Pass	

**TEST RESULTS DATA**  
**26dB and 99% OBW**

Band II															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	52	5260	17.48	17.43	23.88	23.08	23.41		29.41		23.98		
11a	6Mbps	2	60	5300	17.53	17.38	23.98	22.48	23.40		29.40		23.98		
11a	6Mbps	2	64	5320	17.43	17.38	24.13	23.13	23.40		29.40		23.98		
VHT20	MCS0	2	52	5260	18.73	18.53	25.52	24.38	23.68		29.68		23.98		
VHT20	MCS0	2	60	5300	18.68	18.58	25.82	24.23	23.69		29.69		23.98		
VHT20	MCS0	2	64	5320	18.58	18.58	24.93	24.58	23.69		29.69		23.98		
VHT40	MCS0	2	54	5270	36.46	36.46	41.81	41.54	23.98		30.00		23.98		
VHT40	MCS0	2	62	5310	36.46	36.46	41.90	41.90	23.98		30.00		23.98		
VHT80	MCS0	2	58	5290	75.76	75.76	83.44	82.64	23.98		30.00		23.98		

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

FCC Band II															
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	2	52	5260	0.06	0.08	16.11	16.16	19.14	23.98		-1.00	26.99	Pass	
11a	6Mbps	2	60	5300	0.06	0.08	16.41	16.57	19.50	23.98		-1.00	26.99	Pass	
11a	6Mbps	2	64	5320	0.06	0.08	16.37	16.35	19.37	23.98		-1.00	26.99	Pass	
HT20	MCS0	2	52	5260	0.08	0.08	16.09	15.75	18.93	23.98		-1.00	26.99	Pass	
HT20	MCS0	2	60	5300	0.08	0.08	16.19	15.66	18.94	23.98		-1.00	26.99	Pass	
HT20	MCS0	2	64	5320	0.08	0.08	15.98	15.84	18.92	23.98		-1.00	26.99	Pass	
HT40	MCS0	2	54	5270	0.16	0.16	16.26	15.83	19.06	23.98		-1.00	26.99	Pass	
HT40	MCS0	2	62	5310	0.16	0.16	16.17	15.77	18.99	23.98		-1.00	26.99	Pass	
VHT20	MCS0	2	52	5260	0.08	0.08	16.31	16.27	19.30	23.98		-1.00	26.99	Pass	
VHT20	MCS0	2	60	5300	0.08	0.08	16.24	15.81	19.04	23.98		-1.00	26.99	Pass	
VHT20	MCS0	2	64	5320	0.08	0.08	16.20	15.85	19.04	23.98		-1.00	26.99	Pass	
VHT40	MCS0	2	54	5270	0.16	0.16	16.28	16.08	19.19	23.98		-1.00	26.99	Pass	
VHT40	MCS0	2	62	5310	0.16	0.16	16.31	15.81	19.07	23.98		-1.00	26.99	Pass	
VHT80	MCS0	2	58	5290	0.34	0.34	14.68	14.56	17.63	23.98		-1.00	26.99	Pass	

**TEST RESULTS DATA**  
**Power Spectral Density**

Band II														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	52	5260	0.06	0.08			8.97		11.00			Pass
11a	6Mbps	2	60	5300	0.06	0.08			9.19		11.00			Pass
11a	6Mbps	2	64	5320	0.06	0.08			8.82		11.00			Pass
VHT20	MCS0	2	52	5260	0.08	0.08			7.34		11.00			Pass
VHT20	MCS0	2	60	5300	0.08	0.08			7.97		11.00			Pass
VHT20	MCS0	2	64	5320	0.08	0.08			7.79		11.00			Pass
VHT40	MCS0	2	54	5270	0.16	0.16			5.05		11.00			Pass
VHT40	MCS0	2	62	5310	0.16	0.16			4.81		11.00			Pass
VHT80	MCS0	2	58	5290	0.34	0.34			0.95		11.00			Pass

**TEST RESULTS DATA**  
**26dB and 99% OBW**

Band III															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		IC 99% Bandwidth Power Limit (dBm)		IC 99% Bandwidth EIRP Limit (dBm)		FCC 26dB Bandwidth Power Limit (dBm)		Note
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	100	5500	17.28	17.43	23.88	23.03	23.38	29.38	23.98				
11a	6Mbps	2	116	5580	17.33	17.43	23.98	22.88	23.39	29.39	23.98				
11a	6Mbps	2	140	5700	17.43	17.48	23.48	22.53	23.41	29.41	23.98				
11a	6Mbps	2	144	5720	17.38	17.48	22.83	24.23	23.40	29.40	23.98				
HT20	MCS0	2	100	5500	18.43	18.63	25.23	24.93	23.66	29.66	23.98				
HT20	MCS0	2	116	5580	18.63	18.58	24.88	24.73	23.69	29.69	23.98				
HT20	MCS0	2	140	5700	18.68	18.53	25.57	24.73	23.68	29.68	23.98				
HT20	MCS0	2	144	5720	18.73	18.58	25.72	24.33	23.69	29.69	23.98				
HT40	MCS0	2	102	5510	36.56	36.36	41.54	41.90	23.98	30.00	23.98				
HT40	MCS0	2	110	5550	36.46	36.36	41.54	41.90	23.98	30.00	23.98				
HT40	MCS0	2	134	5670	36.46	36.46	41.72	41.99	23.98	30.00	23.98				
HT40	MCS0	2	142	5710	36.56	36.36	41.81	41.99	23.98	30.00	23.98				
VHT80	MCS0	2	106	5530	75.64	75.40	82.96	82.00	23.98	30.00	23.98				
VHT80	MCS0	2	122	5610	75.64	75.64	83.28	82.32	23.98	30.00	23.98				
VHT80	MCS0	2	138	5690	75.64	75.64	83.60	83.12	23.98	30.00	23.98				



**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	2	100	5500	0.06	0.08	15.65	15.63	18.65	23.98	-1.00	26.99	Pass		
11a	6Mbps	2	116	5580	0.06	0.08	15.12	15.04	18.09	23.98	-1.00	26.99	Pass		
11a	6Mbps	2	140	5700	0.06	0.08	15.85	15.87	18.87	23.98	-1.00	26.99	Pass		
11a	6Mbps	2	144	5720	0.06	0.08	15.47	15.66	18.58	23.98	-1.00	26.99	Pass		
HT20	MCS0	2	100	5500	0.08	0.08	16.08	16.01	19.06	23.98	-1.00	26.99	Pass		
HT20	MCS0	2	116	5580	0.08	0.08	16.34	16.09	19.23	23.98	-1.00	26.99	Pass		
HT20	MCS0	2	140	5700	0.08	0.08	15.96	15.85	18.92	23.98	-1.00	26.99	Pass		
HT20	MCS0	2	144	5720	0.08	0.08	15.72	15.57	18.66	23.98	-1.00	26.99	Pass		
HT40	MCS0	2	102	5510	0.16	0.16	15.99	16.03	19.02	23.98	-1.00	26.99	Pass		
HT40	MCS0	2	110	5550	0.16	0.16	16.39	16.31	19.36	23.98	-1.00	26.99	Pass		
HT40	MCS0	2	134	5670	0.16	0.16	15.95	16.00	18.99	23.98	-1.00	26.99	Pass		
HT40	MCS0	2	142	5710	0.16	0.16	15.67	15.65	18.67	23.98	-1.00	26.99	Pass		
VHT20	MCS0	2	100	5500	0.08	0.08	16.25	16.00	19.14	23.98	-1.00	26.99	Pass		
VHT20	MCS0	2	116	5580	0.08	0.08	15.51	15.51	18.52	23.98	-1.00	26.99	Pass		
VHT20	MCS0	2	140	5700	0.08	0.08	15.52	15.06	18.31	23.98	-1.00	26.99	Pass		
VHT20	MCS0	2	144	5720	0.08	0.08	15.56	15.01	18.30	23.98	-1.00	26.99	Pass		
VHT40	MCS0	2	102	5510	0.16	0.16	16.08	16.24	19.17	23.98	-1.00	26.99	Pass		
VHT40	MCS0	2	110	5550	0.16	0.16	16.29	16.27	19.29	23.98	-1.00	26.99	Pass		
VHT40	MCS0	2	134	5670	0.16	0.16	15.90	15.99	18.95	23.98	-1.00	26.99	Pass		
VHT40	MCS0	2	142	5710	0.16	0.16	15.62	15.55	18.59	23.98	-1.00	26.99	Pass		
VHT80	MCS0	2	106	5530	0.34	0.34	15.20	15.47	18.35	23.98	-1.00	26.99	Pass		
VHT80	MCS0	2	122	5610	0.34	0.34	15.06	14.99	18.03	23.98	-1.00	26.99	Pass		
VHT80	MCS0	2	138	5690	0.34	0.34	14.70	14.60	17.66	23.98	-1.00	26.99	Pass		

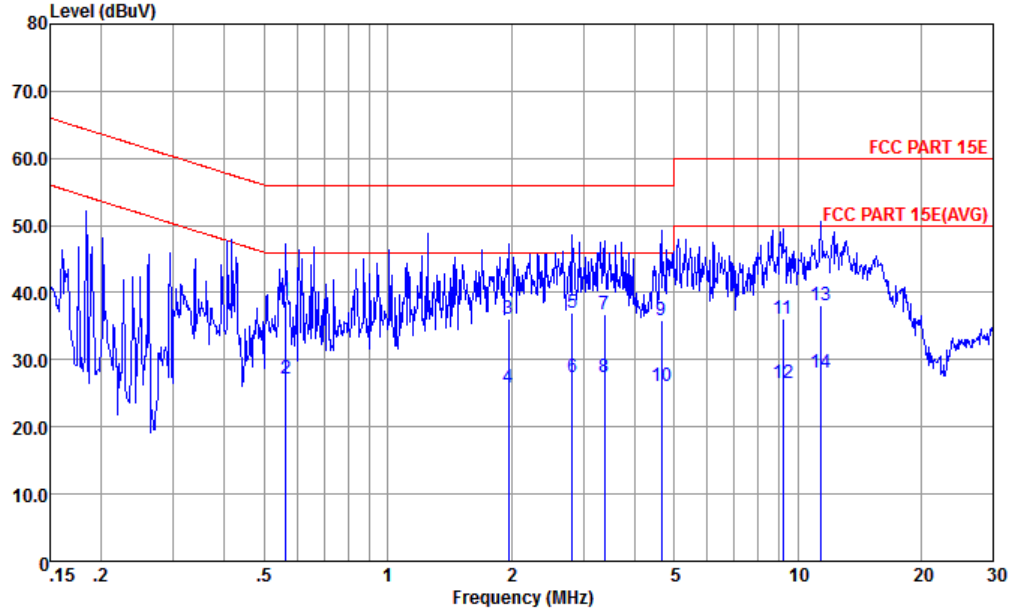
**TEST RESULTS DATA**  
**Power Spectral Density**

Band III														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Power Density (dBm/MHz)			Average PSD Limit (dBm/MHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	100	5500	0.06	0.08			8.30	11.00	1.52			Pass
11a	6Mbps	2	116	5580	0.06	0.08			7.94	11.00	1.52			Pass
11a	6Mbps	2	140	5700	0.06	0.08			8.40	11.00	1.52			Pass
11a	6Mbps	2	144	5720	0.06	0.08			8.22	11.00	1.52			Pass
HT20	MCS0	2	100	5500	0.08	0.08			8.19	11.00	1.52			Pass
HT20	MCS0	2	116	5580	0.08	0.08			7.69	11.00	1.52			Pass
HT20	MCS0	2	140	5700	0.08	0.08			7.67	11.00	1.52			Pass
HT20	MCS0	2	144	5720	0.08	0.08			8.02	11.00	1.52			Pass
HT40	MCS0	2	102	5510	0.16	0.16			5.35	11.00	1.52			Pass
HT40	MCS0	2	110	5550	0.16	0.16			5.25	11.00	1.52			Pass
HT40	MCS0	2	134	5670	0.16	0.16			4.69	11.00	1.52			Pass
HT40	MCS0	2	142	5710	0.16	0.16			5.14	11.00	1.52			Pass
VHT80	MCS0	2	106	5530	0.34	0.34			1.38	11.00	1.52			Pass
VHT80	MCS0	2	122	5610	0.34	0.34			1.13	11.00	1.52			Pass
VHT80	MCS0	2	138	5690	0.34	0.34			1.22	11.00	1.52			Pass



## Appendix B. AC Conducted Emission Test Results

Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line

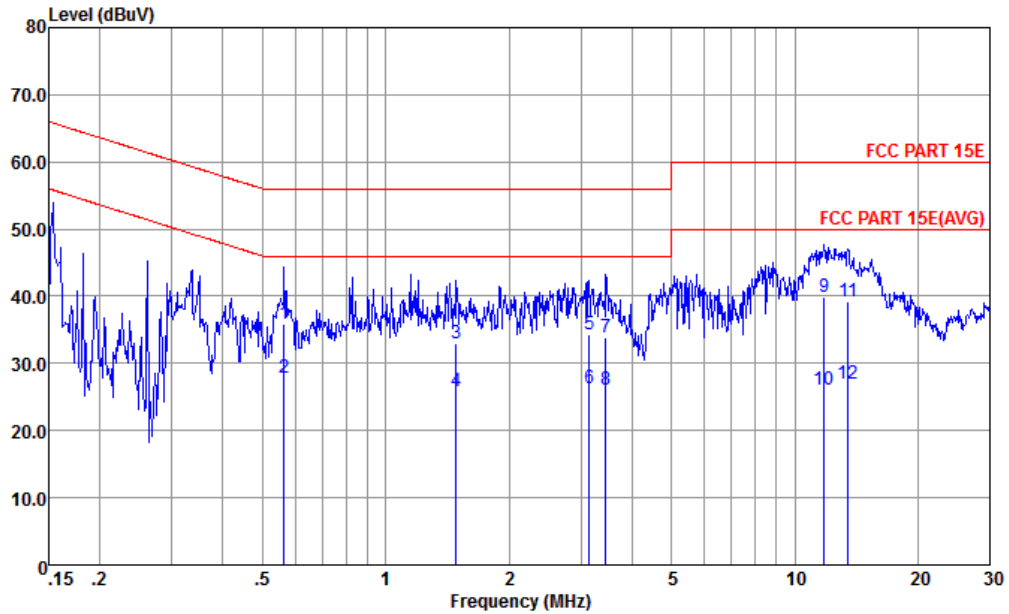


Site : CO01-KS  
Condition : FCC PART 15E LISN-L-191028-CN02 LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1 *	0.564	38.87	-17.13	56.00	28.49	0.14	10.24	QP
2	0.564	27.27	-18.73	46.00	16.89	0.14	10.24	Average
3	1.970	36.11	-19.89	56.00	25.49	0.39	10.23	QP
4	1.970	25.91	-20.09	46.00	15.29	0.39	10.23	Average
5	2.824	36.94	-19.06	56.00	26.20	0.50	10.24	QP
6	2.824	27.34	-18.66	46.00	16.60	0.50	10.24	Average
7	3.381	36.70	-19.30	56.00	25.90	0.55	10.25	QP
8	3.381	27.40	-18.60	46.00	16.60	0.55	10.25	Average
9	4.647	35.81	-20.19	56.00	24.91	0.64	10.26	QP
10	4.647	26.11	-19.89	46.00	15.21	0.64	10.26	Average
11	9.204	36.14	-23.86	60.00	24.90	0.91	10.33	QP
12	9.204	26.44	-23.56	50.00	15.20	0.91	10.33	Average
13	11.377	38.09	-21.91	60.00	26.60	1.13	10.36	QP
14	11.377	28.09	-21.91	50.00	16.60	1.13	10.36	Average



Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral



Site : CO01-KS  
 Condition : FCC PART 15E LISN-N-191028-CN02 NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.564	35.97	-20.03	56.00	25.49	0.24	10.24	QP
2 *	0.564	27.77	-18.23	46.00	17.29	0.24	10.24	Average
3	1.487	32.95	-23.05	56.00	22.30	0.42	10.23	QP
4	1.487	25.95	-20.05	46.00	15.30	0.42	10.23	Average
5	3.140	34.42	-21.58	56.00	23.51	0.67	10.24	QP
6	3.140	26.22	-19.78	46.00	15.31	0.67	10.24	Average
7	3.454	33.85	-22.15	56.00	22.90	0.70	10.25	QP
8	3.454	26.05	-19.95	46.00	15.10	0.70	10.25	Average
9	11.807	39.96	-20.04	60.00	28.10	1.50	10.36	QP
10	11.807	26.16	-23.84	50.00	14.30	1.50	10.36	Average
11	13.479	39.31	-20.69	60.00	27.20	1.73	10.38	QP
12	13.479	26.91	-23.09	50.00	14.80	1.73	10.38	Average

Note:

- Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
- Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)



## Appendix C. Radiated Spurious Emission

### Band 1 - 5150~5250MHz WIFI 802.11a (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 )
802.11a CH 36 5180MHz		5148.2	52.33	-21.67	74	39.34	32	10.63	29.64	171	315	P	H
		5150	44.34	-9.66	54	31.35	32	10.63	29.64	171	315	A	H
	*	5180	112.17	-	-	99.27	31.88	10.65	29.63	171	315	P	H
	*	5180	106.64	-	-	93.74	31.88	10.65	29.63	171	315	A	H
		5146.64	54.12	-19.88	74	41.12	32.01	10.63	29.64	133	18	P	V
		5150	46.8	-7.2	54	33.81	32	10.63	29.64	133	18	A	V
	*	5180	114.72	-	-	101.82	31.88	10.65	29.63	133	18	P	V
	*	5180	107.61	-	-	94.71	31.88	10.65	29.63	133	18	A	V
802.11a CH 44 5220MHz		5084.76	53.05	-20.95	74	40.11	32.01	10.6	29.67	173	310	P	H
		5145.6	43	-11	54	30	32.01	10.63	29.64	173	310	A	H
	*	5220	112.22	-	-	99.48	31.68	10.67	29.61	173	310	P	H
	*	5220	105.92	-	-	93.18	31.68	10.67	29.61	173	310	A	H
		5375.76	50.57	-23.43	74	37.92	31.45	10.75	29.55	173	310	P	H
		5452.8	42.51	-11.49	54	29.52	31.72	10.79	29.52	173	310	A	H
		5140.66	53.5	-20.5	74	40.49	32.02	10.63	29.64	211	20	P	V
		5145.6	44.19	-9.81	54	31.19	32.01	10.63	29.64	211	20	A	V
	*	5220	113.19	-	-	100.45	31.68	10.67	29.61	211	20	P	V
	*	5220	107.08	-	-	94.34	31.68	10.67	29.61	211	20	A	V
		5393.76	50.21	-23.79	74	37.43	31.56	10.76	29.54	211	20	P	V
		5452.8	42.34	-11.66	54	29.35	31.72	10.79	29.52	211	20	A	V



802.11a CH 48 5240MHz		5101.92	52.82	-21.18	74	39.77	32.1	10.61	29.66	164	316	P	H
		5088.4	42.43	-11.57	54	29.46	32.03	10.6	29.66	164	316	A	H
	*	5240	111.98	-	-	99.34	31.56	10.68	29.6	164	316	P	H
	*	5240	106.05	-	-	93.41	31.56	10.68	29.6	164	316	A	H
		5384.16	49.82	-24.18	74	37.11	31.5	10.76	29.55	164	316	P	H
		5452.8	41.8	-12.2	54	28.81	31.72	10.79	29.52	164	316	A	H
		5100.1	51.67	-22.33	74	38.63	32.1	10.6	29.66	100	19	P	V
		5145.6	43.53	-10.47	54	30.53	32.01	10.63	29.64	100	19	A	V
	*	5240	114.33	-	-	101.69	31.56	10.68	29.6	100	19	P	V
	*	5240	107.81	-	-	95.17	31.56	10.68	29.6	100	19	A	V
		5359.2	49.96	-24.04	74	37.42	31.36	10.74	29.56	100	19	P	V
		5452.8	42.15	-11.85	54	29.16	31.72	10.79	29.52	100	19	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 36 5180MHz		10360	49.03	-19.27	68.3	45.48	39.65	12.5	48.6	152	260	P	H
		15540	43.52	-30.48	74	41.81	38.58	14.16	51.03	189	238	P	H
		10360	48.87	-19.43	68.3	45.32	39.65	12.5	48.6	121	225	P	V
		15540	42.79	-31.21	74	41.08	38.58	14.16	51.03	185	210	P	V
802.11a CH 44 5220MHz		10440	50.14	-18.16	68.3	46.43	39.79	12.4	48.48	150	230	P	H
		15660	43.19	-30.81	74	41.57	38.22	14.53	51.13	160	225	P	H
		10440	50.14	-18.16	68.3	46.43	39.79	12.4	48.48	110	230	P	V
		15660	43.49	-30.51	74	41.87	38.22	14.53	51.13	160	228	P	V
802.11a CH 48 5240MHz		10480	50.66	-17.64	68.3	46.88	39.86	12.35	48.43	189	12	P	H
		15720	43.8	-30.2	74	42.22	38.04	14.72	51.18	198	226	P	H
		10480	49.47	-18.83	68.3	45.69	39.86	12.35	48.43	150	120	P	V
		15720	43.95	-30.05	74	42.37	38.04	14.72	51.18	200	89	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 1 5150~5250MHz**  
**WIFI 802.11ac VHT20 (Band Edge @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 36 5180MHz		5148.2	52.45	-21.55	74	39.46	32	10.63	29.64	169	314	P	H
		5150	44.33	-9.67	54	31.34	32	10.63	29.64	169	314	A	H
	*	5180	112.38	-	-	99.48	31.88	10.65	29.63	169	314	P	H
	*	5180	106	-	-	93.1	31.88	10.65	29.63	169	314	A	H
		5149.76	55	-19	74	42.01	32	10.63	29.64	135	19	P	V
		5145.6	46.98	-7.02	54	33.98	32.01	10.63	29.64	135	19	A	V
	*	5180	114.79	-	-	101.89	31.88	10.65	29.63	135	19	P	V
	5180	109.07	-	-	96.17	31.88	10.65	29.63	135	19	A	V	
802.11ac VHT20 CH 44 5220MHz		5141.44	52.08	-21.92	74	39.07	32.02	10.63	29.64	168	309	P	H
		5145.6	43.08	-10.92	54	30.08	32.01	10.63	29.64	168	309	A	H
	*	5220	113.12	-	-	100.4	31.66	10.67	29.61	168	309	P	H
	*	5220	107.54	-	-	94.82	31.66	10.67	29.61	168	309	A	H
		5373.84	50.7	-23.3	74	38.06	31.44	10.75	29.55	168	309	P	H
		5452.8	42.67	-11.33	54	29.68	31.72	10.79	29.52	168	309	A	H
		5149.5	53.15	-20.85	74	40.16	32	10.63	29.64	130	28	P	V
		5145.6	44.29	-9.71	54	31.29	32.01	10.63	29.64	130	28	A	V
	*	5220	113.86	-	-	101.12	31.68	10.67	29.61	130	28	P	V
	*	5220	108.45	-	-	95.71	31.68	10.67	29.61	130	28	A	V
		5435.76	50.77	-23.23	74	37.84	31.67	10.79	29.53	130	28	P	V
	5452.8	42.76	-11.24	54	29.77	31.72	10.79	29.52	130	28	A	V	





802.11ac VHT20 CH 48 5240MHz		5131.56	52.28	-21.72	74	39.27	32.04	10.62	29.65	177	315	P	H
		5105.04	42.42	-11.58	54	29.38	32.09	10.61	29.66	177	315	A	H
	*	5240	111.92	-	-	99.28	31.56	10.68	29.6	177	315	P	H
	*	5240	106.05	-	-	93.41	31.56	10.68	29.6	177	315	A	H
		5447.04	49.92	-24.08	74	36.96	31.69	10.79	29.52	177	315	P	H
		5452.8	41.84	-12.16	54	28.85	31.72	10.79	29.52	177	315	A	H
		5112.32	52.63	-21.37	74	39.6	32.08	10.61	29.66	136	25	P	V
		5145.6	44.02	-9.98	54	31.02	32.01	10.63	29.64	136	25	A	V
	*	5240	115.14	-	-	102.5	31.56	10.68	29.6	136	25	P	V
	*	5240	108.7	-	-	96.06	31.56	10.68	29.6	136	25	A	V
		5383.68	51.09	-22.91	74	38.38	31.5	10.76	29.55	136	25	P	V
	5452.8	43.13	-10.87	54	30.14	31.72	10.79	29.52	136	25	A	V	
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 1 5150~5250MHz**  
**WIFI 802.11ac VHT20 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10360	48.82	-19.48	68.3	45.27	39.65	12.5	48.6	152	260	P	H
VHT20		15540	44.26	-29.74	74	42.55	38.58	14.16	51.03	189	238	P	H
CH 36		10360	49.16	-19.14	68.3	45.61	39.65	12.5	48.6	121	225	P	V
5180MHz		15540	43.04	-30.96	74	41.33	38.58	14.16	51.03	185	210	P	V
802.11ac		10440	49.57	-18.73	68.3	45.86	39.79	12.4	48.48	150	230	P	H
VHT20		15660	43.87	-30.13	74	42.25	38.22	14.53	51.13	160	225	P	H
CH 44		10440	49.77	-18.53	68.3	46.06	39.79	12.4	48.48	110	230	P	V
5220MHz		15660	43.29	-30.71	74	41.67	38.22	14.53	51.13	160	228	P	V
802.11ac		10480	49.62	-18.68	68.3	45.84	39.86	12.35	48.43	150	120	P	H
VHT20		15720	43.28	-30.72	74	41.7	38.04	14.72	51.18	200	89	P	H
CH 48		10480	49.9	-18.4	68.3	46.12	39.86	12.35	48.43	189	12	P	V
5240MHz		15720	43.89	-30.11	74	42.31	38.04	14.72	51.18	198	226	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 1 5150~5250MHz**  
**WIFI 802.11ac VHT40 (Band Edge @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 38 5190MHz		5144.82	56.02	-17.98	74	43.02	32.01	10.63	29.64	212	360	P	H
		5147.42	48.37	-5.63	54	35.37	32.01	10.63	29.64	212	360	A	H
	*	5190	102.98	-	-	90.11	31.84	10.65	29.62	212	360	P	H
	*	5190	96.9	-	-	84.03	31.84	10.65	29.62	212	360	A	H
		5388.88	49.38	-24.62	74	36.63	31.53	10.76	29.54	212	360	P	H
		5459.16	42.38	-11.62	54	29.35	31.75	10.8	29.52	212	360	A	H
		5149.5	55.24	-18.76	74	42.25	32	10.63	29.64	181	18	P	V
		5150	52.24	-1.76	54	39.25	32	10.63	29.64	181	18	A	V
	*	5190	107.48	-	-	94.61	31.84	10.65	29.62	181	18	P	V
	*	5190	100.42	-	-	87.55	31.84	10.65	29.62	181	18	A	V
		5357.52	49.68	-24.32	74	37.15	31.35	10.74	29.56	181	18	P	V
		5376	42.87	-11.13	54	30.21	31.46	10.75	29.55	181	18	A	V
802.11ac VHT40 CH 46 5230MHz		5124.54	51.97	-22.03	74	38.95	32.05	10.62	29.65	207	360	P	H
		5139.62	44.37	-9.63	54	31.36	32.02	10.63	29.64	207	360	A	H
	*	5230	108.02	-	-	95.34	31.62	10.67	29.61	207	360	P	H
	*	5230	101.62	-	-	88.94	31.62	10.67	29.61	207	360	A	H
		5405.52	49.84	-24.16	74	37	31.61	10.77	29.54	207	360	P	H
		5452.56	42.68	-11.32	54	29.69	31.72	10.79	29.52	207	360	A	H
		5140.14	54.11	-19.89	74	41.1	32.02	10.63	29.64	189	16	P	V
		5145.6	45.57	-8.43	54	32.57	32.01	10.63	29.64	189	16	A	V
	*	5230	111	-	-	98.32	31.62	10.67	29.61	189	16	P	V
	*	5230	104.47	-	-	91.79	31.62	10.67	29.61	189	16	A	V
	5379.36	50.53	-23.47	74	37.85	31.48	10.75	29.55	189	16	P	V	
	5452.8	43.55	-10.45	54	30.56	31.72	10.79	29.52	189	16	A	V	
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 1 5150~5250MHz**  
**WIFI 802.11ac VHT40 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10380	49.72	-18.58	68.3	46.13	39.68	12.48	48.57	150	360	P	H
VHT40		15570	44.29	-29.71	74	42.6	38.49	14.26	51.06	155	360	P	H
CH 38		10380	49.98	-18.32	68.3	46.39	39.68	12.48	48.57	120	360	P	V
5190MHz		15570	43.27	-30.73	74	41.58	38.49	14.26	51.06	155	32	P	V
802.11ac		10460	49.13	-19.17	68.3	45.38	39.83	12.38	48.46	150	360	P	H
VHT40		15690	42.2	-31.8	74	40.59	38.13	14.63	51.15	150	225	P	H
CH 46		10460	49.56	-18.74	68.3	45.81	39.83	12.38	48.46	151	360	P	V
5230MHz		15690	42.05	-31.95	74	40.44	38.13	14.63	51.15	159	241	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 1 5150~5250MHz**  
**WIFI 802.11ac VHT80 (Band Edge @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 42 5210MHz		5149.76	56.24	-17.76	74	43.25	32	10.63	29.64	153	314	P	H
		5149.5	50.05	-3.95	54	37.06	32	10.63	29.64	153	314	A	H
	*	5210	100.84	-	-	88.06	31.74	10.66	29.62	153	314	P	H
	*	5210	95.16	-	-	82.38	31.74	10.66	29.62	153	314	A	H
		5378.64	51.04	-22.96	74	38.37	31.47	10.75	29.55	153	314	P	H
		5453.04	43.2	-10.8	54	30.21	31.72	10.79	29.52	153	314	A	H
		5148.98	56.51	-17.49	74	43.52	32	10.63	29.64	222	17	P	V
		5149.24	52.15	-1.85	54	39.16	32	10.63	29.64	222	17	A	V
	*	5210	103.24	-	-	90.46	31.74	10.66	29.62	222	17	P	V
	*	5210	95.91	-	-	83.13	31.74	10.66	29.62	222	17	A	V
		5440.8	50.15	-23.85	74	37.2	31.68	10.79	29.52	222	17	P	V
		5452.56	43.87	-10.13	54	30.88	31.72	10.79	29.52	222	17	A	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 1 5150~5250MHz**  
**WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10420	49.38	-18.92	68.3	45.7	39.76	12.43	48.51	118	303	P	H
VHT80		15630	43.36	-30.64	74	41.71	38.31	14.44	51.1	161	234	P	H
CH 42		10420	49	-19.3	68.3	45.32	39.76	12.43	48.51	150	360	P	V
5210MHz		15630	42.98	-31.02	74	41.33	38.31	14.44	51.1	155	360	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 - 5250~5350MHz**  
**WiFi 802.11a (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 )
802.11a CH 52 5260MHz		5057.98	52.93	-21.07	74	40.18	31.85	10.58	29.68	174	308	P	H
		5145.6	42.58	-11.42	54	29.58	32.01	10.63	29.64	174	308	A	H
	*	5260	113.14	-	-	100.55	31.5	10.69	29.6	174	308	P	H
	*	5260	106.97	-	-	94.38	31.5	10.69	29.6	174	308	A	H
		5439.12	50.37	-23.63	74	37.42	31.68	10.79	29.52	174	308	P	H
		5452.8	42.64	-11.36	54	29.65	31.72	10.79	29.52	174	308	A	H
		5129.22	52.28	-21.72	74	39.27	32.04	10.62	29.65	207	29	P	V
		5145.6	43.53	-10.47	54	30.53	32.01	10.63	29.64	207	29	A	V
	*	5260	113.94	-	-	101.35	31.5	10.69	29.6	207	29	P	V
	*	5260	108.46	-	-	95.87	31.5	10.69	29.6	207	29	A	V
		5389.92	51.37	-22.63	74	38.61	31.54	10.76	29.54	207	29	P	V
		5376	42.8	-11.2	54	30.14	31.46	10.75	29.55	207	29	A	V
802.11a CH 60 5300MHz		5130.9	53.03	-20.97	74	40.02	32.04	10.62	29.65	159	316	P	H
		5103.25	42.61	-11.39	54	29.57	32.09	10.61	29.66	159	316	A	H
	*	5300	113	-	-	100.37	31.5	10.71	29.58	159	316	P	H
	*	5300	106.91	-	-	94.28	31.5	10.71	29.58	159	316	A	H
		5353.2	54.85	-19.15	74	42.35	31.32	10.74	29.56	159	316	P	H
		5350.08	43.52	-10.48	54	31.04	31.3	10.74	29.56	159	316	A	H
		5094.15	52.07	-21.93	74	39.07	32.06	10.6	29.66	182	35	P	V
		5145.6	43.34	-10.66	54	30.34	32.01	10.63	29.64	182	35	A	V
	*	5300	114.84	-	-	102.21	31.5	10.71	29.58	182	35	P	V
	*	5300	109.05	-	-	96.42	31.5	10.71	29.58	182	35	A	V
		5351.28	53.19	-20.81	74	40.7	31.31	10.74	29.56	182	35	P	V
		5350.32	45.28	-8.72	54	32.8	31.3	10.74	29.56	182	35	A	V



802.11a CH 64 5320MHz	*	5320	113.52	-	-	100.95	31.42	10.72	29.57	175	308	P	H
	*	5320	106.75	-	-	94.18	31.42	10.72	29.57	175	308	A	H
		5352.64	55.72	-18.28	74	43.22	31.32	10.74	29.56	175	308	P	H
		5352.8	45.24	-8.76	54	32.74	31.32	10.74	29.56	175	308	A	H
	*	5320	114.89	-	-	102.32	31.42	10.72	29.57	144	26	P	V
	*	5320	108.6	-	-	96.03	31.42	10.72	29.57	144	26	A	V
		5352.32	53.04	-20.96	74	40.55	31.31	10.74	29.56	144	26	P	V
		5352.64	45.11	-8.89	54	32.61	31.32	10.74	29.56	144	26	A	V

<b>Remark</b>	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												





Band 2 5250~5350MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 52 5260MHz		10520	49.82	-18.48	68.3	45.83	39.93	12.44	48.38	150	220	P	H
		15780	43.38	-30.62	74	41.84	37.86	14.9	51.22	159	345	P	H
		10520	50.45	-17.85	68.3	46.46	39.93	12.44	48.38	120	298	P	V
		15780	42.62	-31.38	74	41.08	37.86	14.9	51.22	192	39	P	V
802.11a CH 60 5300MHz		10600	49.85	-24.15	74	45.26	40.04	12.87	48.32	185	215	P	H
		15900	42.33	-31.67	74	40.88	37.5	15.27	51.32	196	190	P	H
		10600	49.81	-24.19	74	45.22	40.04	12.87	48.32	182	215	P	V
		15900	42.79	-31.21	74	41.34	37.5	15.27	51.32	196	18	P	V
802.11a CH 64 5320MHz		10640	50	-24	74	45.11	40.1	13.08	48.29	185	135	P	H
		15960	42.44	-31.56	74	41.03	37.32	15.46	51.37	173	296	P	H
		10640	50.03	-23.97	74	45.14	40.1	13.08	48.29	152	135	P	V
		15960	43.29	-30.71	74	41.88	37.32	15.46	51.37	173	245	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz
WIFI 802.11ac VHT20 (Band Edge @ 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 data for 802.11ac VHT20 CH 52 (5260MHz) and 802.11ac VHT20 CH 60 (5300MHz).



802.11ac VHT20 CH 64 5320MHz	*	5320	112.02	-	-	99.45	31.42	10.72	29.57	175	320	P	H
	*	5320	105.99	-	-	93.42	31.42	10.72	29.57	175	320	A	H
		5350.08	52.79	-21.21	74	40.31	31.3	10.74	29.56	175	320	P	H
		5352.64	43.94	-10.06	54	31.44	31.32	10.74	29.56	175	320	A	H
	*	5320	113.95	-	-	101.38	31.42	10.72	29.57	156	26	P	V
	*	5320	108	-	-	95.43	31.42	10.72	29.57	156	26	A	V
		5355.52	52.85	-21.15	74	40.34	31.33	10.74	29.56	156	26	P	V
		5350.08	45.39	-8.61	54	32.91	31.3	10.74	29.56	156	26	A	V

Remark

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



**Band 2 5250~5350MHz**  
**WIFI 802.11ac VHT20 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10520	49.69	-18.61	68.3	45.7	39.93	12.44	48.38	120	298	P	H
VHT20		15780	42.24	-31.76	74	40.7	37.86	14.9	51.22	192	39	P	H
CH 52		10520	50.03	-18.27	68.3	46.04	39.93	12.44	48.38	150	220	P	V
5260MHz		15780	42.27	-31.73	74	40.73	37.86	14.9	51.22	159	345	P	V
802.11ac		10600	51.42	-22.58	74	46.83	40.04	12.87	48.32	185	215	P	H
VHT20		15900	41.59	-32.41	74	40.14	37.5	15.27	51.32	196	190	P	H
CH 60		10600	49.77	-24.23	74	45.18	40.04	12.87	48.32	182	215	P	V
5300MHz		15900	42.31	-31.69	74	40.86	37.5	15.27	51.32	196	18	P	V
802.11ac		10640	49.29	-24.71	74	44.4	40.1	13.08	48.29	152	135	P	H
VHT20		15960	41.01	-32.99	74	39.6	37.32	15.46	51.37	173	245	P	H
CH 64		10640	50.29	-23.71	74	45.4	40.1	13.08	48.29	185	135	P	V
5320MHz		15960	43.03	-30.97	74	41.62	37.32	15.46	51.37	173	296	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 5250~5350MHz**  
**WIFI 802.11ac VHT40 (Band Edge @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 54 5270MHz		5135.1	52.1	-21.9	74	39.1	32.03	10.62	29.65	176	360	P	H
		5119.7	44.29	-9.71	54	31.27	32.06	10.61	29.65	176	360	A	H
	*	5270	109.15	-	-	96.54	31.5	10.7	29.59	176	360	P	H
	*	5270	101.45	-	-	88.84	31.5	10.7	29.59	176	360	A	H
		5414.16	50.26	-23.74	74	37.39	31.63	10.77	29.53	176	360	P	H
		5452.56	43.48	-10.52	54	30.49	31.72	10.79	29.52	176	360	A	H
		5146.3	52.18	-21.82	74	39.18	32.01	10.63	29.64	133	17	P	V
		5145.25	44.75	-9.25	54	31.75	32.01	10.63	29.64	133	17	A	V
	*	5270	110.74	-	-	98.13	31.5	10.7	29.59	133	17	P	V
	*	5270	104.66	-	-	92.05	31.5	10.7	29.59	133	17	A	V
		5452.8	51.17	-22.83	74	38.18	31.72	10.79	29.52	133	17	P	V
		5350.56	44.41	-9.59	54	31.93	31.3	10.74	29.56	133	17	A	V
802.11ac VHT40 CH 62 5310MHz		5121.45	52.57	-21.43	74	39.54	32.06	10.62	29.65	147	315	P	H
		5067.9	44.35	-9.65	54	31.52	31.91	10.59	29.67	147	315	A	H
	*	5310	109.42	-	-	96.82	31.46	10.72	29.58	147	315	P	H
	*	5310	101.96	-	-	89.36	31.46	10.72	29.58	147	315	A	H
		5361.12	52.77	-21.23	74	40.21	31.37	10.75	29.56	147	315	P	H
		5350.08	47.99	-6.01	54	35.51	31.3	10.74	29.56	147	315	A	H
		5147.7	52.89	-21.11	74	39.9	32	10.63	29.64	143	26	P	V
		5145.25	44.88	-9.12	54	31.88	32.01	10.63	29.64	143	26	A	V
	*	5310	110.81	-	-	98.21	31.46	10.72	29.58	143	26	P	V
	*	5310	104.26	-	-	91.66	31.46	10.72	29.58	143	26	A	V
	5350.08	57.17	-16.83	74	44.69	31.3	10.74	29.56	143	26	P	V	
	5350.32	52.14	-1.86	54	39.66	31.3	10.74	29.56	143	26	A	V	
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 5250~5350MHz**  
**WIFI 802.11ac VHT40 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10540	49.44	-18.86	68.3	45.3	39.96	12.55	48.37	150	220	P	H
VHT40		15810	42.27	-31.73	74	40.76	37.77	14.99	51.25	168	345	P	H
CH 54		10540	49.54	-18.76	68.3	45.4	39.96	12.55	48.37	189	86	P	V
5270MHz		15810	42.35	-31.65	74	40.84	37.77	14.99	51.25	186	39	P	V
802.11ac		10620	50.19	-23.81	74	45.44	40.07	12.98	48.3	150	220	P	H
VHT40		15930	41.73	-32.27	74	40.3	37.41	15.36	51.34	160	100	P	H
CH 62		10620	49.29	-24.71	74	44.54	40.07	12.98	48.3	180	220	P	V
5310MHz		15930	41.22	-32.78	74	39.79	37.41	15.36	51.34	160	169	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 2 5250~5350MHz**  
**WIFI 802.11ac VHT80 (Band Edge @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 58 5290MHz		5044.1	52.13	-21.87	74	39.48	31.76	10.57	29.68	159	359	P	H
		5128.1	44.09	-9.91	54	31.08	32.04	10.62	29.65	159	359	A	H
	*	5290	103.48	-	-	90.85	31.5	10.71	29.58	159	359	P	H
	*	5290	97.59	-	-	84.96	31.5	10.71	29.58	159	359	A	H
		5376	56.28	-17.72	74	43.62	31.46	10.75	29.55	159	359	P	H
		5352.48	48.98	-5.02	54	36.49	31.31	10.74	29.56	159	359	A	H
		5105.35	52.22	-21.78	74	39.18	32.09	10.61	29.66	120	26	P	V
		5145.6	44.44	-9.56	54	31.44	32.01	10.63	29.64	120	26	A	V
	*	5290	106.51	-	-	93.88	31.5	10.71	29.58	120	26	P	V
	*	5290	100.56	-	-	87.93	31.5	10.71	29.58	120	26	A	V
		5364.96	56.42	-17.58	74	43.83	31.39	10.75	29.55	120	26	P	V
	5360.88	51.11	-2.89	54	38.56	31.37	10.74	29.56	120	26	A	V	
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		10580	49.85	-18.45	68.3	45.42	40.01	12.76	48.34	137	242	P	H
VHT80		15870	42.22	-31.78	74	40.75	37.59	15.18	51.3	106	24	P	H
CH 58		10580	50.02	-18.28	68.3	45.59	40.01	12.76	48.34	160	360	P	V
5290MHz		15870	41.71	-32.29	74	40.24	37.59	15.18	51.3	160	0	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												





**Band 3 - 5470~5725MHz**  
**WIFI 802.11a (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 )
802.11a CH 100 5500MHz		5435.92	50.87	-23.13	74	37.94	31.67	10.79	29.53	221	314	P	H
		5462.48	52.26	-16.04	68.3	39.21	31.77	10.8	29.52	221	314	P	H
		5460	43.64	-10.36	54	30.6	31.76	10.8	29.52	221	314	A	H
	*	5500	111.78	-	-	98.46	32	10.82	29.5	221	314	P	H
	*	5500	105.39	-	-	92.07	32	10.82	29.5	221	314	A	H
		5456.88	51.76	-22.24	74	38.74	31.74	10.8	29.52	139	45	P	V
		5463.92	52.19	-16.11	68.3	39.12	31.78	10.8	29.51	139	45	P	V
		5459.92	44.4	-9.6	54	31.36	31.76	10.8	29.52	139	45	A	V
	*	5500	112.01	-	-	98.69	32	10.82	29.5	139	45	P	V
	*	5500	106.39	-	-	93.07	32	10.82	29.5	139	45	A	V
802.11a CH 116 5580MHz		5414.8	50.06	-23.94	74	37.19	31.63	10.77	29.53	212	315	P	H
		5465.68	48.78	-19.52	68.3	35.7	31.79	10.8	29.51	212	315	P	H
		5452.96	41.35	-12.65	54	28.36	31.72	10.79	29.52	212	315	A	H
	*	5580	110.27	-	-	96.9	32.02	10.82	29.47	212	315	P	H
	*	5580	103.74	-	-	90.37	32.02	10.82	29.47	212	315	A	H
		5760.27	50.94	-17.36	68.3	37.35	32.18	10.81	29.4	212	315	P	H
		5446.96	50.16	-23.84	74	37.2	31.69	10.79	29.52	142	4	P	V
		5462.32	49.59	-18.71	68.3	36.54	31.77	10.8	29.52	142	4	P	V
		5452.72	41.84	-12.16	54	28.85	31.72	10.79	29.52	142	4	A	V
	*	5580	111.6	-	-	98.23	32.02	10.82	29.47	142	4	P	V
	*	5580	105.71	-	-	92.34	32.02	10.82	29.47	142	4	A	V
		5732.55	51.31	-16.99	68.3	37.74	32.17	10.81	29.41	142	4	P	V



802.11a CH 140 5700MHz	*	5700	110.39	-	-	96.9	32.1	10.81	29.42	167	314	P	H
	*	5700	104	-	-	90.51	32.1	10.81	29.42	167	314	A	H
		5739.64	54.05	-14.25	68.3	40.46	32.18	10.81	29.4	167	314	P	H
	*	5700	111.53	-	-	98.03	32.11	10.81	29.42	226	30	P	V
	*	5700	105.57	-	-	92.07	32.11	10.81	29.42	226	30	A	V
		5737.88	55.39	-12.91	68.3	41.8	32.18	10.81	29.4	226	30	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**WIFI 802.11a (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 100 5500MHz		11000	51.69	-22.31	74	44.07	40.6	15.02	48	185	230	P	H
		16500	43.81	-24.49	68.3	41.38	39.6	14.53	51.7	178	291	P	H
		11000	52.92	-21.08	74	45.3	40.6	15.02	48	163	230	P	V
		16500	44.63	-23.67	68.3	42.2	39.6	14.53	51.7	178	296	P	V
802.11a CH 116 5580MHz		11160	51.75	-22.25	74	44.35	40.57	14.8	47.97	170	200	P	H
		16740	44.56	-23.74	68.3	40.38	40.66	15.08	51.56	156	350	P	H
		11160	50.83	-23.17	74	43.43	40.57	14.8	47.97	141	200	P	V
		16740	44.38	-23.92	68.3	40.2	40.66	15.08	51.56	156	354	P	V
802.11a CH 140 5700MHz		11380	50.38	-23.62	74	43.28	40.52	14.5	47.92	160	313	P	H
		17070	48.32	-19.98	68.3	42.04	42.02	15.8	51.54	155	139	P	H
		11380	51.12	-22.88	74	44.02	40.52	14.5	47.92	134	273	P	V
		17070	47.47	-20.83	68.3	41.19	42.02	15.8	51.54	181	19	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**WIFI 802.11ac VHT20 (Band Edge @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 100 5500MHz		5454.8	51.3	-22.7	74	38.29	31.73	10.8	29.52	178	316	P	H
		5468.08	52.94	-15.36	68.3	39.84	31.81	10.8	29.51	178	316	P	H
		5457.52	43.89	-10.11	54	30.86	31.75	10.8	29.52	178	316	A	H
	*	5500	110.99	-	-	97.67	32	10.82	29.5	178	316	P	H
	*	5500	105.38	-	-	92.06	32	10.82	29.5	178	316	A	H
		5456.4	51.07	-22.93	74	38.05	31.74	10.8	29.52	142	42	P	V
		5468.56	52.34	-15.96	68.3	39.24	31.81	10.8	29.51	142	42	P	V
		5458.32	44.46	-9.54	54	31.43	31.75	10.8	29.52	142	42	A	V
	*	5500	114.03	-	-	100.71	32	10.82	29.5	142	42	P	V
*	5500	107.7	-	-	94.38	32	10.82	29.5	142	42	A	V	
802.11ac VHT20 CH 116 5580MHz		5459.92	49.74	-24.26	74	36.7	31.76	10.8	29.52	178	331	P	H
		5507.92	51.95	-16.35	68.3	38.65	31.98	10.82	29.5	178	331	P	H
		5452.72	41.64	-12.36	54	28.65	31.72	10.79	29.52	178	331	A	H
	*	5580	111.87	-	-	98.5	32.02	10.82	29.47	178	331	P	H
	*	5580	106.19	-	-	92.82	32.02	10.82	29.47	178	331	A	H
		5742.00	50.67	-17.63	68.3	37.08	32.18	10.81	29.4	178	331	P	H
		5452.24	50.37	-23.63	74	37.39	31.71	10.79	29.52	107	33	P	V
		5467.84	48.79	-19.51	68.3	35.69	31.81	10.8	29.51	107	33	P	V
		5452.72	42.16	-11.84	54	29.17	31.72	10.79	29.52	107	33	A	V
	*	5580	113.46	-	-	100.09	32.02	10.82	29.47	107	33	P	V
*	5580	107.74	-	-	94.37	32.02	10.82	29.47	107	33	A	V	
		5733.81	52.09	-16.21	68.3	38.52	32.17	10.81	29.41	107	33	P	V



802.11ac	*	5700	112.35	-	-	98.86	32.1	10.81	29.42	198	337	P	H
	*	5700	105.87	-	-	92.38	32.1	10.81	29.42	198	337	A	H
VHT20		5751.24	54.36	-13.94	68.3	40.75	32.2	10.81	29.4	198	337	P	H
CH 140	*	5700	113.13	-	-	99.64	32.1	10.81	29.42	214	35	P	V
5700MHz	*	5700	106.92	-	-	93.43	32.1	10.81	29.42	214	35	A	V
		5733.72	55.2	-13.1	68.3	41.63	32.17	10.81	29.41	214	35	P	V
<b>Remark</b>	<ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> </ol>												



**Band 3 - 5470~5725MHz**  
**WIFI 802.11ac VHT20 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		11000	51.45	-22.55	74	43.83	40.6	15.02	48	163	230	P	H
VHT20		16500	42.94	-25.36	68.3	40.51	39.6	14.53	51.7	178	296	P	H
CH 100		11000	51.74	-22.26	74	44.12	40.6	15.02	48	185	230	P	V
5500MHz		16500	43.28	-25.02	68.3	40.85	39.6	14.53	51.7	178	291	P	V
802.11ac		11160	50.51	-23.49	74	43.11	40.57	14.8	47.97	170	200	P	H
VHT20		16740	43.46	-24.84	68.3	39.28	40.66	15.08	51.56	156	350	P	H
CH 116		11160	51.47	-22.53	74	44.07	40.57	14.8	47.97	141	200	P	V
5580MHz		16740	43.95	-24.35	68.3	39.77	40.66	15.08	51.56	156	354	P	V
802.11ac		11400	50.84	-23.16	74	43.77	40.52	14.47	47.92	157	285	P	H
VHT20		17100	47.6	-20.7	68.3	41.23	42.12	15.85	51.6	165	246	P	H
CH 140		11400	49.92	-24.08	74	42.85	40.52	14.47	47.92	152	285	P	V
5700MHz		17100	47.86	-20.44	68.3	41.49	42.12	15.85	51.6	165	298	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 - 5470~5725MHz**  
**WIFI 802.11ac VHT40 (Band Edge @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ac VHT40 CH 102 5510MHz		5458.48	56.97	-17.03	74	43.94	31.75	10.8	29.52	130	316	P	H
		5469.52	62.71	-5.59	68.3	49.6	31.82	10.8	29.51	130	316	P	H
		5459.92	51.78	-2.22	54	38.74	31.76	10.8	29.52	130	316	A	H
	*	5510	109.54	-	-	96.24	31.98	10.82	29.5	130	316	P	H
	*	5510	102.79	-	-	89.49	31.98	10.82	29.5	130	316	A	H
		5760.27	51.07	-17.23	68.3	37.48	32.18	10.81	29.4	130	316	P	H
		5459.92	57.1	-16.9	74	44.06	31.76	10.8	29.52	158	38	P	V
		5467.36	58.49	-9.81	68.3	45.4	31.8	10.8	29.51	158	38	P	V
		5459.92	51.61	-2.39	54	38.57	31.76	10.8	29.52	158	38	A	V
	*	5510	108.63	-	-	95.33	31.98	10.82	29.5	158	38	P	V
	*	5510	102.62	-	-	89.32	31.98	10.82	29.5	158	38	A	V
	5749.25	50.84	-17.46	68.3	37.23	32.2	10.81	29.4	158	38	P	V	
802.11ac VHT40 CH 110 5550MHz		5457.76	50.2	-23.8	74	37.17	31.75	10.8	29.52	137	314	P	H
		5466.64	49.99	-18.31	68.3	36.9	31.8	10.8	29.51	137	314	P	H
		5457.04	43.66	-10.34	54	30.64	31.74	10.8	29.52	137	314	A	H
	*	5550	106.84	-	-	93.6	31.9	10.82	29.48	137	314	P	H
	*	5550	100.5	-	-	87.26	31.9	10.82	29.48	137	314	A	H
		5764.05	50.33	-17.97	68.3	36.74	32.17	10.81	29.39	137	314	P	H
		5443.12	50.15	-23.85	74	37.19	31.69	10.79	29.52	120	3	P	V
		5467.12	51.23	-17.07	68.3	38.14	31.8	10.8	29.51	120	3	P	V
		5454.16	43.92	-10.08	54	30.92	31.72	10.8	29.52	120	3	A	V
	*	5550	107.98	-	-	94.74	31.9	10.82	29.48	120	3	P	V
	*	5550	101.8	-	-	88.56	31.9	10.82	29.48	120	3	A	V
	5729.40	50.43	-17.87	68.3	36.87	32.16	10.81	29.41	120	3	P	V	



802.11ac VHT40 CH 134 5670MHz		5458.5	49.41	-24.59	74	36.38	31.75	10.8	29.52	140	318	P	H
		5469.35	48.99	-19.31	68.3	35.88	31.82	10.8	29.51	140	318	P	H
		5459.9	42.36	-11.64	54	29.32	31.76	10.8	29.52	140	318	A	H
	*	5670	109.1	-	-	95.8	31.92	10.81	29.43	140	318	P	H
	*	5670	101.93	-	-	88.63	31.92	10.81	29.43	140	318	A	H
		5726.5	53.72	-14.58	68.3	40.17	32.15	10.81	29.41	140	318	P	H
		5414.05	49.66	-24.34	74	36.79	31.63	10.77	29.53	119	28	P	V
		5464.8	48.42	-19.88	68.3	35.34	31.79	10.8	29.51	119	28	P	V
		5452.55	42.92	-11.08	54	29.93	31.72	10.79	29.52	119	28	A	V
	*	5670	107.35	-	-	94.05	31.92	10.81	29.43	119	28	P	V
	*	5670	100.96	-	-	87.66	31.92	10.81	29.43	119	28	A	V
		5725.45	54.26	-14.04	68.3	40.71	32.15	10.81	29.41	119	28	P	V
<b>Remark</b>	<ol style="list-style-type: none"> <li>No other spurious found.</li> <li>All results are PASS against Peak and Average limit line.</li> </ol>												





**Band 3 - 5470~5725MHz**  
**WIFI 802.11ac VHT40 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11ac		11020	51.16	-22.84	74	43.57	40.6	14.99	48	170	230	P	H
VHT40		16530	43.91	-24.39	68.3	41.26	39.73	14.6	51.68	160	300	P	H
CH 102		11020	51.67	-22.33	74	44.08	40.6	14.99	48	170	86	P	V
5510MHz		16530	43.18	-25.12	68.3	40.53	39.73	14.6	51.68	160	59	P	V
802.11ac		11100	51.6	-22.4	74	44.12	40.58	14.88	47.98	185	200	P	H
VHT40		16650	43.39	-24.91	68.3	39.86	40.26	14.88	51.61	180	325	P	H
CH 110		11100	51.41	-22.59	74	43.93	40.58	14.88	47.98	196	200	P	V
5550MHz		16650	42.73	-25.57	68.3	39.2	40.26	14.88	51.61	180	314	P	V
802.11ac		11340	50.51	-23.49	74	43.36	40.53	14.55	47.93	200	360	P	H
VHT40		17010	45.4	-22.9	68.3	39.29	41.83	15.7	51.42	200	360	P	H
CH 134		11340	50.67	-23.33	74	43.52	40.53	14.55	47.93	100	360	P	V
5670MHz		17010	46.03	-22.27	68.3	39.92	41.83	15.7	51.42	200	369	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 5470~5725MHz**  
**WIFI 802.11ac VHT80 (Band Edge @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 106 5530MHz		5459.44	54.68	-19.32	74	41.64	31.76	10.8	29.52	183	323	P	H
		5467.12	58.64	-9.66	68.3	45.55	31.8	10.8	29.51	183	323	P	H
		5445.04	51.08	-2.92	54	38.12	31.69	10.79	29.52	183	323	A	H
	*	5530	103.14	-	-	89.87	31.94	10.82	29.49	183	323	P	H
	*	5530	97.06	-	-	83.79	31.94	10.82	29.49	183	323	A	H
		5760.27	51.55	-16.75	68.3	37.96	32.18	10.81	29.4	183	323	P	H
		5437.6	52.48	-21.52	74	39.53	31.68	10.79	29.52	133	0	P	V
		5463.52	54.99	-13.31	68.3	41.92	31.78	10.8	29.51	133	0	P	V
		5459.44	48.1	-5.9	54	35.06	31.76	10.8	29.52	133	0	A	V
	*	5530	103	-	-	89.73	31.94	10.82	29.49	133	0	P	V
	*	5530	96.89	-	-	83.62	31.94	10.82	29.49	133	0	A	V
		5737.28	50.41	-17.89	68.3	36.84	32.17	10.81	29.41	133	0	P	V
802.11ac VHT80 CH 122 5610MHz		5386.48	49.17	-24.83	74	36.44	31.52	10.76	29.55	166	315	P	H
		5464.96	49.48	-18.82	68.3	36.4	31.79	10.8	29.51	166	315	P	H
		5459.44	43.47	-10.53	54	30.43	31.76	10.8	29.52	166	315	A	H
	*	5610	105.05	-	-	91.65	32.04	10.82	29.46	166	315	P	H
	*	5610	99.58	-	-	86.18	32.04	10.82	29.46	166	315	A	H
		5730.7	51.49	-16.81	68.3	37.93	32.16	10.81	29.41	166	315	P	H
		5457.28	49.81	-24.19	74	36.79	31.74	10.8	29.52	141	28	P	V
		5467.36	48.94	-19.36	68.3	35.85	31.8	10.8	29.51	141	28	P	V
		5455.84	43.06	-10.94	54	30.04	31.74	10.8	29.52	141	28	A	V
	*	5610	104.51	-	-	91.11	32.04	10.82	29.46	141	28	P	V
	*	5610	99.01	-	-	85.61	32.04	10.82	29.46	141	28	A	V
		5744.35	52.58	-15.72	68.3	38.98	32.19	10.81	29.4	141	28	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**Band 3 5470~5725MHz**  
**WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		11060	50.45	-23.55	74	42.91	40.59	14.94	47.99	160	360	P	H
VHT80		16590	44.08	-24.22	68.3	40.99	40	14.74	51.65	160	0	P	H
CH 106		11060	50.98	-23.02	74	43.44	40.59	14.94	47.99	155	202	P	V
5530MHz		16590	43.37	-24.93	68.3	40.28	40	14.74	51.65	135	284	P	V
802.11ac		11220	50.71	-23.29	74	43.39	40.56	14.72	47.96	158	360	P	H
VHT80		16830	46.49	-21.81	68.3	41.65	41.05	15.29	51.5	158	0	P	H
CH 122		11220	50.96	-23.04	74	43.64	40.56	14.72	47.96	144	118	P	V
5610MHz		16830	45.64	-22.66	68.3	40.8	41.05	15.29	51.5	184	325	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - Straddle Channel

WIFI 802.11a (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)
802.11a CH 144 5720MHz		11440	50.97	-23.03	74	43.96	40.51	14.41	47.91	157	285	P	H
		17160	49.32	-18.98	68.3	42.77	42.31	15.96	51.72	165	246	P	H
		11440	51.2	-22.8	74	44.19	40.51	14.41	47.91	152	285	P	V
		17160	49.37	-18.93	68.3	42.82	42.31	15.96	51.72	165	298	P	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - Straddle Channel
WIFI 802.11ac VHT20 (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 data for 802.11ac VHT20 CH 144 5720MHz and a Remark section.



Band 3 - Straddle Channel
WIFI 802.11ac VHT40 (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 data for 802.11ac, VHT40, CH 142, and 5710MHz, plus a Remark section.



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 CH 138 5690MHz and a Remark section.



Emission below 1GHz

WIFI 802. 11ac VHT40 (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.	
1+2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11ac VHT40 LF		57.16	21.39	-18.61	40	34.47	19.86	2.17	35.11	-	-	P	H
		155.13	25.84	-17.66	43.5	39.08	19.29	2.57	35.1	167	214	P	H
		198.78	21.78	-21.72	43.5	37.67	16.46	2.75	35.1	-	-	P	H
		275.41	19.35	-26.65	46	32.14	19.14	3.02	34.95	-	-	P	H
		659.53	25.93	-20.07	46	30.1	26.42	3.91	34.5	-	-	P	H
		898.15	28.25	-17.75	46	29.19	29.11	4.25	34.3	-	-	P	H
		42.61	23.07	-16.93	40	36.06	20	2.04	35.03	-	-	P	V
		102.75	21.59	-21.91	43.5	39.06	15.26	2.46	35.19	-	-	P	V
		157.07	28.16	-15.34	43.5	41.38	19.3	2.58	35.1	117	327	P	V
		281.23	19.52	-26.48	46	32.03	19.37	3.06	34.94	-	-	P	V
		619.76	26.08	-19.92	46	30.65	26.04	3.89	34.5	-	-	P	V
		950.53	29.12	-16.88	46	29.48	29.77	4.07	34.2	-	-	P	V
<b>Remark</b>	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+2		( 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)

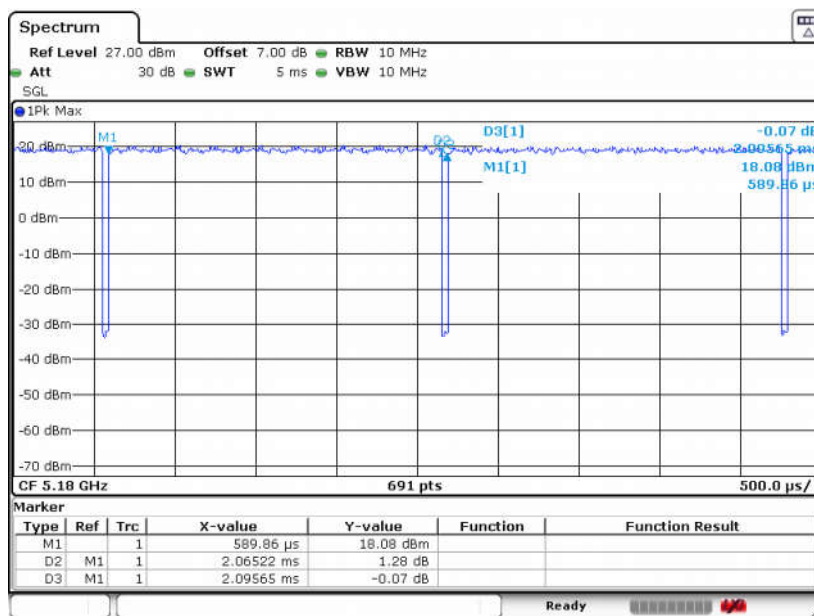
Both peak and average measured complies with the limit line, so test result is “PASS”.

## Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1+2	802.11a	98.55	-	-	10Hz
1+2	802.11ac VHT20	98.16	-	-	10Hz
1+2	802.11ac VHT40	96.46	0.946	1.057	3KHz
1+2	802.11ac VHT80	92.49	0.464	2.156	3KHz

### MIMO <Ant. 1+2>

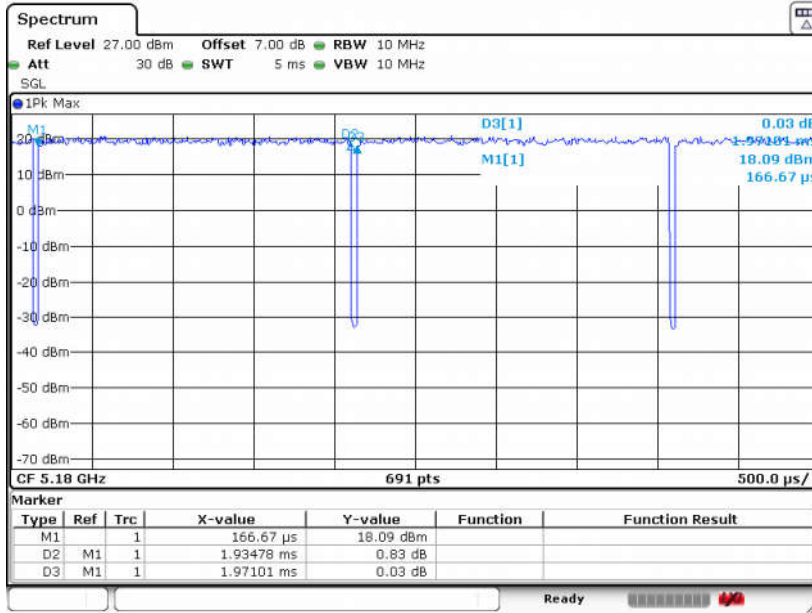
#### 802.11a



Date: 17 JUN 2020 13:08:22

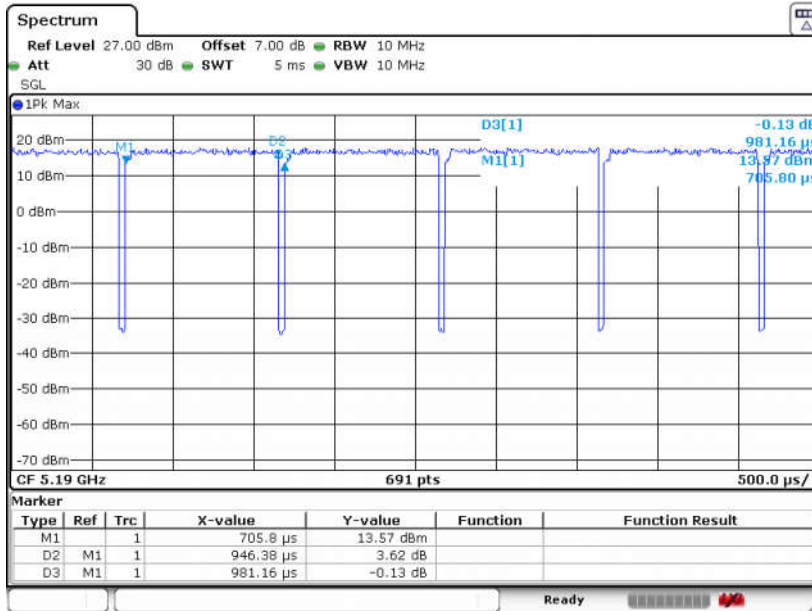


802.11ac VHT20



Date: 17 JUN 2020 12:51:30

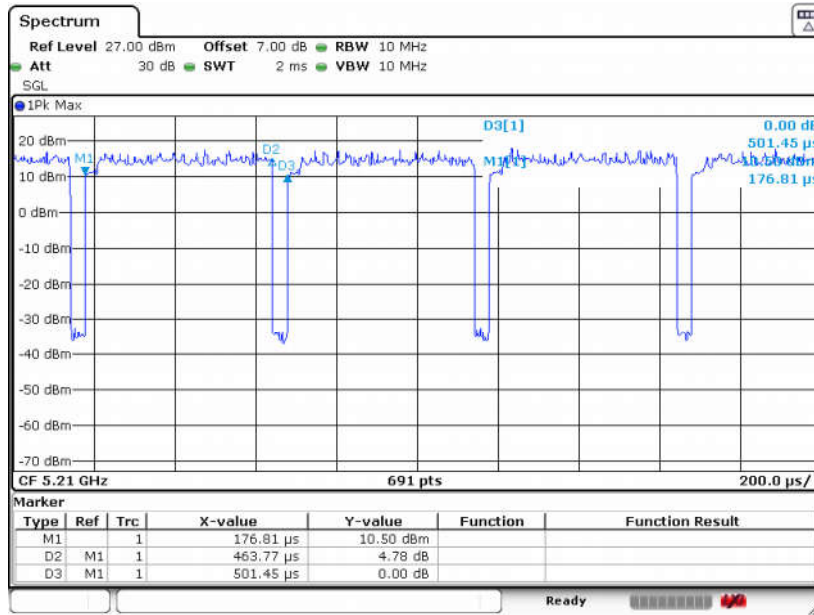
802.11ac VHT40



Date: 17 JUN 2020 12:58:46



802.11ac VHT80



Date: 17 JUN 2020 13:02:30