



# FCC RF Test Report

**APPLICANT** : Aerohive networks Inc  
**EQUIPMENT** : wireless access point  
**BRAND NAME** : Aerohive  
**MODEL NAME** : AP650X  
**FCC ID** : WBV-AP650X  
**STANDARD** : FCC Part 15 Subpart E §15.407  
**CLASSIFICATION** : (NII) Unlicensed National Information Infrastructure

The product was received on Feb. 15, 2019 and testing was completed on Jul. 11, 2019. 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

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Reviewed by: Jason Jia / Supervisor

James Huang

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Approved by: James Huang / Manager



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People's Republic of China***



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## REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR921502B	Rev. 01	Initial issue of report	Aug. 12, 2019

## SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
-	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	Not Required	-
3.1	15.407(a)	Maximum Conducted Output Power	$\leq 24$ dBm	Pass	-
-	15.407(a)	Power Spectral Density	$\leq 11$ dBm	Not Required	-
3.2	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 3.70 dB at 55.220 MHz
-	15.207	AC Conducted Emission	15.207(a)	Not Required	-
3.3	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.4	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-
<b>Remark:</b> Not required means after assessing, test items are not necessary to carry out.					



# 1 General Description

## 1.1 Applicant

Aerohive networks Inc

1011 McCarthy Boulevard, Milpitas, CA 95035, United States

## 1.2 Product Feature of Equipment Under Test

Product Feature	
Equipment	wireless access point
Brand Name	Aerohive
Model Name	AP650X
FCC ID	WBV-AP650X
EUT supports Radios application	WLAN 2.4GHz 802.11b/g/n (HT20) WLAN 2.4GHz 802.11ac (VHT20) WLAN 2.4GHz 802.11ax (HE20) WLAN 5GHz 802.11a/n(HT20/HT40) WLAN 5GHz 802.11ac (VHT20/VHT40/VHT80) WLAN 5GHz 802.11ax (HE20/HE40/HE80/HE160) Bluetooth v4.0 LE
HW Version	1
SW Version	10.0
EUT Stage	Production Unit

### Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This is a C2PC report for AP650X. For model change note, please refer the product equality declaration exhibit submitted separately. Based on the similarity between current and previous project, only the power, conducted band-edge and RSE from original test report (Report Number 1842039R-RF-US-P09V01, FCC ID WBV-AP650X) was verified for the differences.

### 1.3 Product Specification of Equipment Under Test

Standards-related Product Specification					
<b>Tx/Rx Frequency Range</b>	5150 MHz ~ 5250 MHz 5250 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz				
<b>Antenna Type / Gain</b>	<b>&lt;5150 MHz ~ 5250 MHz&gt;</b> <Ant. 1> : Internal bent metal Antenna with gain 5.00 dBi <Ant. 2> : Internal bent metal Antenna with gain 5.00 dBi <Ant. 3> : Internal bent metal Antenna with gain 5.00 dBi <Ant. 4> : Internal bent metal Antenna with gain 5.00 dBi <b>&lt;5250 MHz ~ 5350 MHz&gt;</b> <Ant. 1> : Internal bent metal Antenna with gain 5.00 dBi <Ant. 2> : Internal bent metal Antenna with gain 5.00 dBi <Ant. 3> : Internal bent metal Antenna with gain 5.00 dBi <Ant. 4> : Internal bent metal Antenna with gain 5.00 dBi <b>&lt;5470 MHz ~ 5725 MHz&gt;</b> <Ant. 1> : Internal bent metal Antenna with gain 5.00 dBi <Ant. 2> : Internal bent metal Antenna with gain 5.00 dBi <Ant. 3> : Internal bent metal Antenna with gain 5.00 dBi <Ant. 4> : Internal bent metal Antenna with gain 5.00 dBi <b>Additional Beamforming Gain : 8.01 dB</b>				
<b>Type of Modulation</b>	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac/ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)				
<b>Antenna Function Description</b>		Ant. 1	Ant. 2	Ant. 3	Ant. 4
	802.11 a/n/ac/ax SISO	V	V	V	V
	802.11 a/n/ac/ax SISO	V	V	V	V

**Note:**

1. Support cross-polarization Antenna.
2. ETH6 module support WLAN 5G B1-4, ETH7 module support WLAN 2.4G and 5G B1-2.

### 1.4 Modification of EUT

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



## 1.5 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>
	TH01-KS 03CH06-KS	CN1257	314309

## 1.6 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

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 (Z plane) 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 <sup>#</sup>	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 <sup>#</sup>	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 <sup>#</sup>	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700
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 Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

### MIMO Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0



## TXBF Mode

Modulation	Data Rate
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0

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
		802.11n HT40	802.11n HT40	802.11n HT40
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 VHT20	802.11ac VHT20	802.11ac VHT20
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

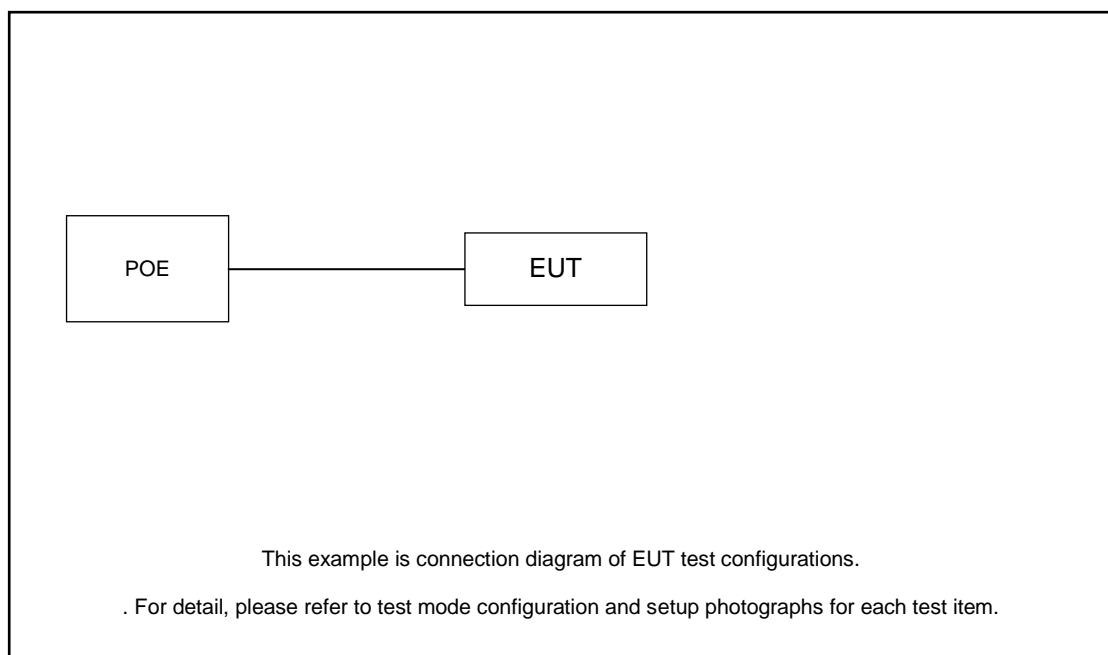
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ax HE20	802.11ax HE20	802.11ax HE20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ax HE40	802.11ax HE40	802.11ax HE40
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
		802.11ax HE80	802.11ax HE80	802.11ax HE80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	-
Straddle		-	-	138

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ax HE160	802.11ax HE160	802.11ax HE160
L	Low	-	-	-
M	Middle	-	50	114
H	High	-	-	-

## 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.	POE	N/A	N/A	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.

## 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 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

*Offset = RF cable loss*

Following shows an offset computation example with cable loss 7.7 dB.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 7.7 \text{ (dB)}\end{aligned}$$

### 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 the 5.47–5.6 GHz and 5.65–5.725 GHz band, the maximum conducted output power shall not exceed 250 mW or  $11 + 10 \log_{10} B$ , dBm, whichever power is less. The maximum e.i.r.p. shall not exceed 1.0 W or  $17 + 10 \log_{10} B$ , dBm, whichever is less. B is the 99% 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.

#### <TXBF Modes>

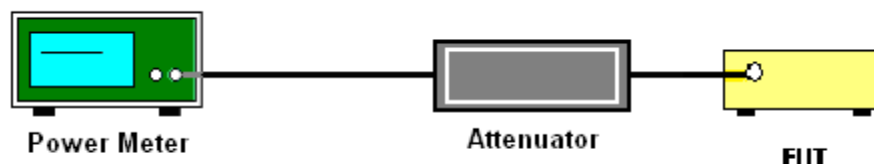
The testing follows Method PM-G of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 for TXBF modes.

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

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

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.

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

where

EIRP is the equivalent isotropically radiated power, in dBm

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

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

(3) ANSI C63.10-2013 clause 12.7.3 note 97

As specified by regulatory requirements, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit. However, an out-of-band emission that complies with both the average and peak general regulatory limits is not required to satisfy the peak emission limit.

### 3.2.2 Measuring Instruments

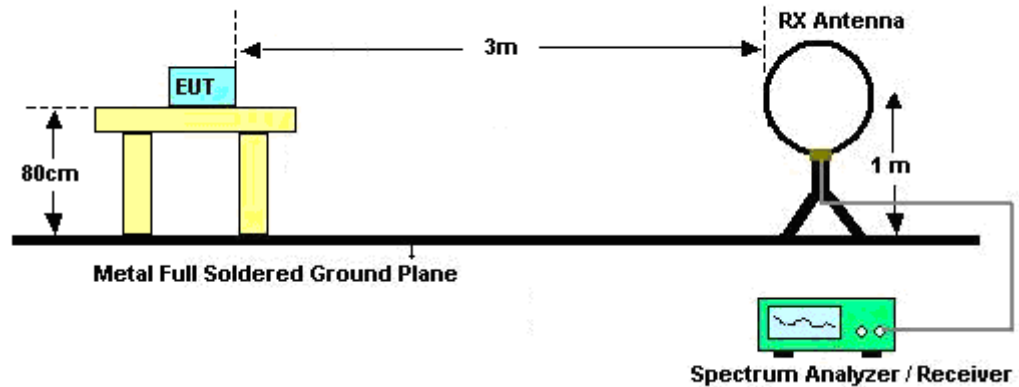
The measuring equipment is listed in the section 4 of this test report.

### 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.

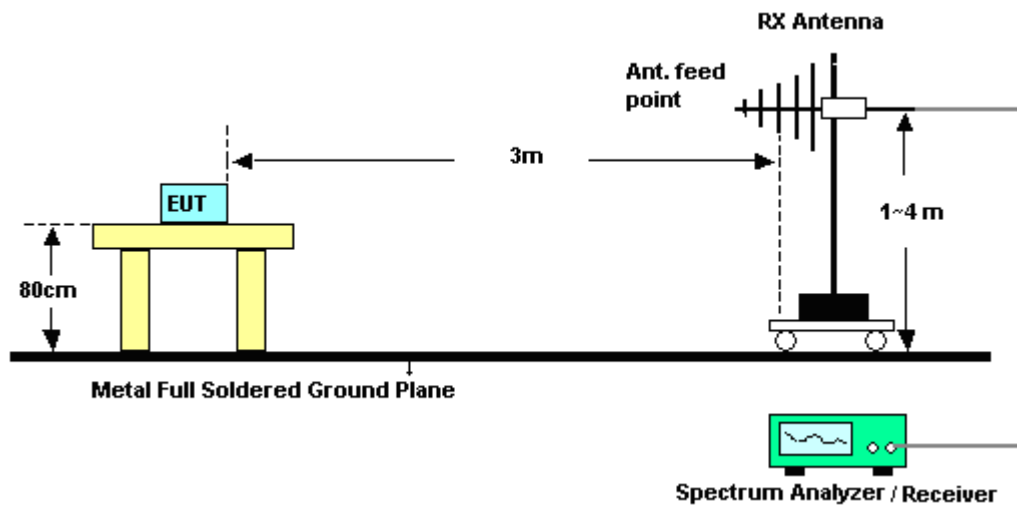
### 3.2.4 Test Setup

For radiated emissions below 30MHz

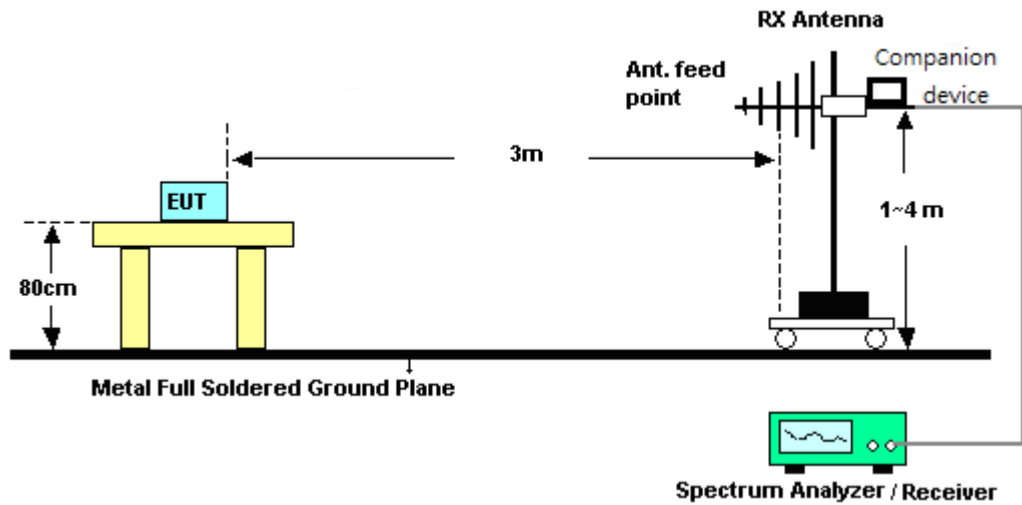


For radiated emissions from 30MHz to 1GHz

<CDD Mode>

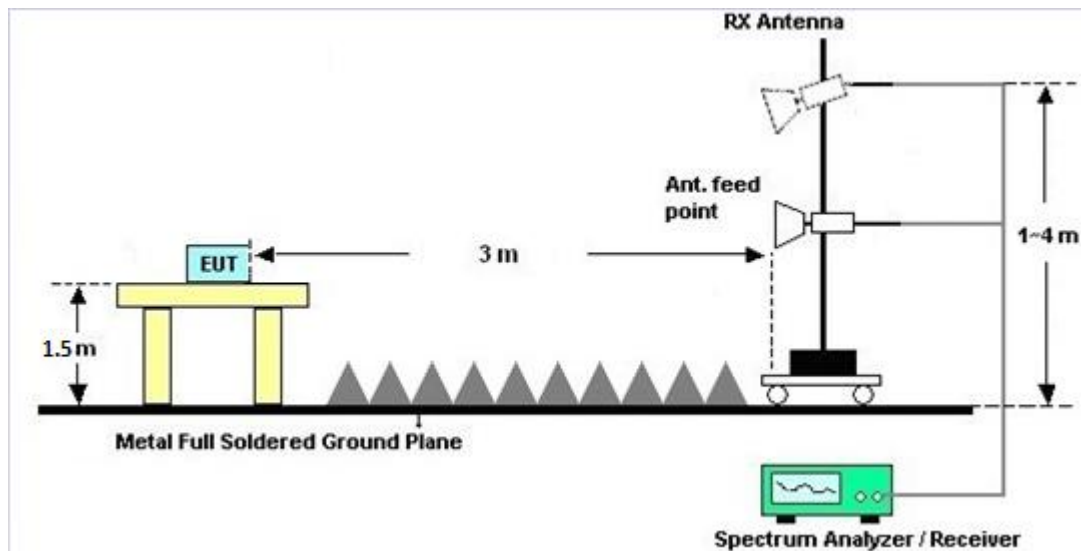


<TXBF Modes>

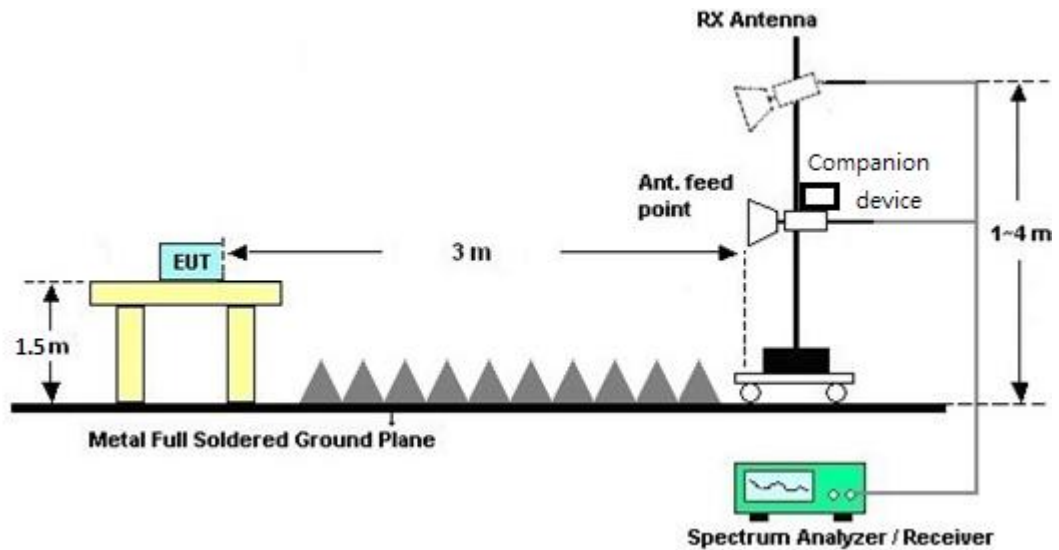


For radiated emissions above 1GHz

<CDD Mode>



### <TXBF Modes>



### 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 Conducted Spurious at Band Edges

Please refer to Appendix B.

### 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 C.

### 3.3 Automatically Discontinue Transmission

#### 3.3.1 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.

#### 3.3.2 Measuring Instruments

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

#### 3.3.3 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.

### 3.4 Antenna Requirements

#### 3.4.1 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.

#### 3.4.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

#### 3.4.3 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 =  $10 \log(\text{NANT}/\text{NSS}=1)$  dB.

For power measurements on IEEE 802.11 devices,

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

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

5G Band Antenna	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
1	5.00	5.00	0.00	0.00
2	5.00	5.00	0.00	0.00
3	5.00	5.00	0.00	0.00
4	5.00	5.00	0.00	0.00
1+2+3+4	5.00	8.01	0.00	2.01

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

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

**TXBF modes**

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

where

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

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

$N_{ANT}$  = the total number of antennas

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

The directional gain “DG” is calculated as following table.

5G Band Antenna	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
1	5.00	5.00	0.00	0.00
2	5.00	5.00	0.00	0.00
3	5.00	5.00	0.00	0.00
4	5.00	5.00	0.00	0.00
1+2+3+4	8.01	8.01	2.01	2.01

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

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





## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 14, 2019	Apr. 12, 2019~Jul. 11, 2019	Jan. 13, 2020	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 14, 2019	Apr. 12, 2019~Jul. 11, 2019	Jan. 13, 2020	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400023	3Hz~8.5GHz;Max 30dBm	Oct. 12, 2018	Jul. 01, 2019	Oct. 11, 2019	Radiation (03CH06-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz	Apr. 16, 2019	Jul. 01, 2019	Apr. 18, 2020	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 19, 2018	Jul. 01, 2019	Oct. 18, 2019	Radiation (03CH06-KS)
Bilog Antenna	TeseQ	CBL6111D	44483	30MHz~1GHz	Dec. 28, 2018	Jul. 01, 2019	Dec. 27, 2019	Radiation (03CH06-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 20, 2018	Jul. 01, 2019	Oct. 19, 2019	Radiation (03CH06-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2019	Jul. 01, 2019	Jan. 04, 2020	Radiation (03CH06-KS)
Amplifier	SONOMA	310N	187289	9KHz ~1GHZ	Aug. 06, 2018	Jul. 01, 2019	Aug. 05, 2019	Radiation (03CH06-KS)
Amplifier	MITEQ	TTA1840-35-HG	2014749	18~40GHz	Jan. 14, 2019	Jul. 01, 2019	Jan. 13, 2020	Radiation (03CH06-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2025788	1Ghz-18Ghz	Apr. 17, 2019	Jul. 01, 2019	Apr. 16, 2020	Radiation (03CH06-KS)
Amplifier	Keysight	83017A	MY53270203	500MHz~26.5GHz	Apr. 15, 2019	Jul. 01, 2019	Apr. 14, 2020	Radiation (03CH06-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jul. 01, 2019	NCR	Radiation (03CH06-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jul. 01, 2019	NCR	Radiation (03CH06-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jul. 01, 2019	NCR	Radiation (03CH06-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 Radiated Emission Measurement (30 MHz ~ 1000 MHz)

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.0dB
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

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

Test Engineer:	Aly Cao	Temperature:	21~25	°C
Test Date:	2019/4/12~2019/7/11	Relative Humidity:	51~54	%

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

FCC Band I														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Ant	Average Conducted Power with duty factor (dBm)				FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4					
11a	6Mbps	1	36	5180	1	17.12				30.00	5.00	22.12	-	Pass
11a	6Mbps	1	44	5220	1	18.58				30.00	5.00	23.58	-	Pass
11a	6Mbps	1	48	5240	1	18.12				30.00	5.00	23.12	-	Pass
HT20	MCS0	1	36	5180	1	16.84				30.00	5.00	21.84	-	Pass
HT20	MCS0	1	44	5220	1	18.86				30.00	5.00	23.86	-	Pass
HT20	MCS0	1	48	5240	1	18.24				30.00	5.00	23.24	-	Pass
HT40	MCS0	1	38	5190	1	14.87				30.00	5.00	19.87	-	Pass
HT40	MCS0	1	46	5230	1	17.16				30.00	5.00	22.16	-	Pass
VHT20	MCS0	1	36	5180	1	16.35				30.00	5.00	21.35	-	Pass
VHT20	MCS0	1	44	5220	1	18.63				30.00	5.00	23.63	-	Pass
VHT20	MCS0	1	48	5240	1	18.27				30.00	5.00	23.27	-	Pass
VHT40	MCS0	1	38	5190	1	14.60				30.00	5.00	19.60	-	Pass
VHT40	MCS0	1	46	5230	1	16.96				30.00	5.00	21.96	-	Pass
VHT80	MCS0	1	42	5210	1	14.47				30.00	5.00	19.47	-	Pass
AX20	MCS0	1	36	5180	1	16.09				30.00	5.00	21.09	-	Pass
AX20	MCS0	1	44	5220	1	18.44				30.00	5.00	23.44	-	Pass
AX20	MCS0	1	48	5240	1	18.10				30.00	5.00	23.10	-	Pass
AX40	MCS0	1	38	5190	1	14.87				30.00	5.00	19.87	-	Pass
AX40	MCS0	1	46	5230	1	16.44				30.00	5.00	21.44	-	Pass
AX80	MCS0	1	42	5210	1	17.11				30.00	5.00	22.11	-	Pass
AX160	MCS0	1	50	5250	1	14.31				30.00	5.00	19.31	-	Pass

FCC Band I															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Ant	Average Conducted Power with duty factor (dBm)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
11a	6Mbps	4	36	5180	1+2+3+4	12.50	13.69	15.69	14.35	20.23	30.00	5.00	25.23	-	Pass
11a	6Mbps	4	44	5220	1+2+3+4	15.50	14.71	15.45	14.94	21.18	30.00	5.00	26.18	-	Pass
11a	6Mbps	4	48	5240	1+2+3+4	14.81	14.46	15.06	13.99	20.61	30.00	5.00	25.61	-	Pass
HT20	MCS0	4	36	5180	1+2+3+4	13.28	14.15	15.74	14.30	20.48	30.00	5.00	25.48	-	Pass
HT20	MCS0	4	44	5220	1+2+3+4	15.28	14.37	15.37	14.45	20.91	30.00	5.00	25.91	-	Pass
HT20	MCS0	4	48	5240	1+2+3+4	14.83	14.25	14.71	14.04	20.49	30.00	5.00	25.49	-	Pass
HT40	MCS0	4	38	5190	1+2+3+4	10.55	11.95	13.16	12.36	18.13	30.00	5.00	23.13	-	Pass
HT40	MCS0	4	46	5230	1+2+3+4	12.95	12.20	13.18	12.51	18.75	30.00	5.00	23.75	-	Pass
VHT20	MCS0	4	36	5180	1+2+3+4	13.45	12.78	15.43	13.89	20.02	30.00	5.00	25.02	-	Pass
VHT20	MCS0	4	44	5220	1+2+3+4	14.40	13.66	15.08	14.20	20.38	30.00	5.00	25.38	-	Pass
VHT20	MCS0	4	48	5240	1+2+3+4	13.87	13.53	14.52	13.89	19.99	30.00	5.00	24.99	-	Pass
VHT40	MCS0	4	38	5190	1+2+3+4	9.37	11.95	13.34	12.64	18.08	30.00	5.00	23.08	-	Pass
VHT40	MCS0	4	46	5230	1+2+3+4	12.60	12.14	12.73	12.51	18.52	30.00	5.00	23.52	-	Pass
VHT80	MCS0	4	42	5210	1+2+3+4	8.24	11.32	12.13	12.26	17.27	30.00	5.00	22.27	-	Pass
AX20	MCS0	4	36	5180	1+2+3+4	14.38	13.62	15.28	14.15	20.43	30.00	5.00	25.43	-	Pass
AX20	MCS0	4	44	5220	1+2+3+4	14.86	14.26	15.17	15.05	20.87	30.00	5.00	25.87	-	Pass
AX20	MCS0	4	48	5240	1+2+3+4	14.64	14.08	14.77	13.81	20.37	30.00	5.00	25.37	-	Pass
AX40	MCS0	4	38	5190	1+2+3+4	9.95	11.98	13.09	12.68	18.10	30.00	5.00	23.10	-	Pass
AX40	MCS0	4	46	5230	1+2+3+4	13.02	12.19	12.90	12.70	18.74	30.00	5.00	23.74	-	Pass
AX80	MCS0	4	42	5210	1+2+3+4	8.74	11.14	12.11	12.22	17.28	30.00	5.00	22.28	-	Pass
AX160	MCS0	4	50	5250	1+2+3+4	10.85	11.10	11.41	10.54	17.01	30.00	5.00	22.01	-	Pass

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

FCC Band II															
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Ant	Average Conducted Power with Duty Factor (dB)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
11a	6Mbps	1	52	5260	1	17.58				17.58	23.98	5.00	22.58	30.00	Pass
11a	6Mbps	1	60	5300	1	17.65				17.65	23.98	5.00	22.65	30.00	Pass
11a	6Mbps	1	64	5320	1	17.68				17.68	23.98	5.00	22.68	30.00	Pass
HT20	MCS0	1	52	5260	1	17.72				17.72	23.98	5.00	22.72	30.00	Pass
HT20	MCS0	1	60	5300	1	17.77				17.77	23.98	5.00	22.77	30.00	Pass
HT20	MCS0	1	64	5320	1	17.63				17.63	23.98	5.00	22.63	30.00	Pass
HT40	MCS0	1	54	5270	1	15.44				15.44	23.98	5.00	20.44	30.00	Pass
HT40	MCS0	1	62	5310	1	15.49				15.49	23.98	5.00	20.49	30.00	Pass
VHT20	MCS0	1	52	5260	1	17.68				17.68	23.98	5.00	22.68	30.00	Pass
VHT20	MCS0	1	60	5300	1	17.86				17.86	23.98	5.00	22.86	30.00	Pass
VHT20	MCS0	1	64	5320	1	17.88				17.88	23.98	5.00	22.88	30.00	Pass
VHT40	MCS0	1	54	5270	1	15.61				15.61	23.98	5.00	20.61	30.00	Pass
VHT40	MCS0	1	62	5310	1	15.66				15.66	23.98	5.00	20.66	30.00	Pass
VHT80	MCS0	1	58	5290	1	15.66				15.66	23.98	5.00	20.66	30.00	Pass
AX20	MCS0	1	52	5260	1	17.20				17.20	23.98	5.00	22.20	30.00	Pass
AX20	MCS0	1	60	5300	1	17.09				17.09	23.98	5.00	22.09	30.00	Pass
AX20	MCS0	1	64	5320	1	17.32				17.32	23.98	5.00	22.32	30.00	Pass
AX40	MCS0	1	54	5270	1	15.16				15.16	23.98	5.00	20.16	30.00	Pass
AX40	MCS0	1	62	5310	1	15.28				15.28	23.98	5.00	20.28	30.00	Pass
AX80	MCS0	1	58	5290	1	15.93				15.93	23.98	5.00	20.93	30.00	Pass

FCC Band II															
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Ant	Average Conducted Power with Duty Factor (dB)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
11a	6Mbps	4	52	5260	1+2+3+4	13.30	13.81	13.65	13.87	19.68	23.98	5.00	24.68	30.00	Pass
11a	6Mbps	4	60	5300	1+2+3+4	13.79	13.47	13.43	13.44	19.55	23.98	5.00	24.55	30.00	Pass
11a	6Mbps	4	64	5320	1+2+3+4	12.63	13.56	13.80	13.94	19.53	23.98	5.00	24.53	30.00	Pass
HT20	MCS0	4	52	5260	1+2+3+4	14.13	13.97	14.04	14.14	20.09	23.98	5.00	25.09	30.00	Pass
HT20	MCS0	4	60	5300	1+2+3+4	14.03	13.48	14.22	14.10	19.99	23.98	5.00	24.99	30.00	Pass
HT20	MCS0	4	64	5320	1+2+3+4	11.82	14.10	14.58	14.16	19.81	23.98	5.00	24.81	30.00	Pass
HT40	MCS0	4	54	5270	1+2+3+4	12.72	12.57	12.91	12.94	18.81	23.98	5.00	23.81	30.00	Pass
HT40	MCS0	4	62	5310	1+2+3+4	8.76	12.24	12.66	12.69	17.88	23.98	5.00	22.88	30.00	Pass
VHT20	MCS0	4	52	5260	1+2+3+4	13.41	13.26	14.06	13.99	19.71	23.98	5.00	24.71	30.00	Pass
VHT20	MCS0	4	60	5300	1+2+3+4	13.80	13.10	13.84	13.98	19.71	23.98	5.00	24.71	30.00	Pass
VHT20	MCS0	4	64	5320	1+2+3+4	13.89	13.20	13.72	13.60	19.63	23.98	5.00	24.63	30.00	Pass
VHT40	MCS0	4	54	5270	1+2+3+4	12.60	12.52	12.64	12.85	18.68	23.98	5.00	23.68	30.00	Pass
VHT40	MCS0	4	62	5310	1+2+3+4	8.71	12.11	12.78	12.43	17.80	23.98	5.00	22.80	30.00	Pass
VHT80	MCS0	4	58	5290	1+2+3+4	8.67	11.66	11.90	12.30	17.36	23.98	5.00	22.36	30.00	Pass
AX20	MCS0	4	52	5260	1+2+3+4	13.86	14.00	14.09	14.54	20.15	23.98	5.00	25.15	30.00	Pass
AX20	MCS0	4	60	5300	1+2+3+4	14.21	13.65	13.98	14.32	20.07	23.98	5.00	25.07	30.00	Pass
AX20	MCS0	4	64	5320	1+2+3+4	14.25	13.81	14.59	14.49	20.32	23.98	5.00	25.32	30.00	Pass
AX40	MCS0	4	54	5270	1+2+3+4	11.90	12.50	12.69	12.68	18.48	23.98	5.00	23.48	30.00	Pass
AX40	MCS0	4	62	5310	1+2+3+4	8.82	12.23	12.86	12.83	17.99	23.98	5.00	22.99	30.00	Pass
AX80	MCS0	4	58	5290	1+2+3+4	7.61	11.17	11.25	11.71	16.72	23.98	5.00	21.72	30.00	Pass



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

FCC Band III															
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Ant	Average Conducted Power with Duty Factor (dB)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
11a	6Mbps	1	100	5500	1	17.81				17.81	23.98	5.00	22.81	30.00	Pass
11a	6Mbps	1	116	5580	1	17.64				17.64	23.98	5.00	22.64	30.00	Pass
11a	6Mbps	1	140	5700	1	17.78				17.78	23.98	5.00	22.78	30.00	Pass
11a	6Mbps	1	144	5720	1	17.67				17.67	23.98	5.00	22.67	30.00	Pass
HT20	MCS0	1	100	5500	1	17.53				17.53	23.98	5.00	22.53	30.00	Pass
HT20	MCS0	1	116	5580	1	17.44				17.44	23.98	5.00	22.44	30.00	Pass
HT20	MCS0	1	140	5700	1	17.85				17.85	23.98	5.00	22.85	30.00	Pass
HT20	MCS0	1	144	5720	1	17.79				17.79	23.98	5.00	22.79	30.00	Pass
HT40	MCS0	1	102	5510	1	15.42				15.42	23.98	5.00	20.42	30.00	Pass
HT40	MCS0	1	110	5550	1	15.54				15.54	23.98	5.00	20.54	30.00	Pass
HT40	MCS0	1	134	5670	1	15.56				15.56	23.98	5.00	20.56	30.00	Pass
HT40	MCS0	1	142	5710	1	15.41				15.41	23.98	5.00	20.41	30.00	Pass
VHT20	MCS0	1	100	5500	1	17.42				17.42	23.98	5.00	22.42	30.00	Pass
VHT20	MCS0	1	116	5580	1	17.42				17.42	23.98	5.00	22.42	30.00	Pass
VHT20	MCS0	1	140	5700	1	17.82				17.82	23.98	5.00	22.82	30.00	Pass
VHT20	MCS0	1	144	5720	1	17.36				17.36	23.98	5.00	22.36	30.00	Pass
VHT40	MCS0	1	102	5510	1	14.59				14.59	23.98	5.00	19.59	30.00	Pass
VHT40	MCS0	1	110	5550	1	17.80				17.80	23.98	5.00	22.80	30.00	Pass
VHT40	MCS0	1	134	5670	1	17.88				17.88	23.98	5.00	22.88	30.00	Pass
VHT40	MCS0	1	142	5710	1	17.99				17.99	23.98	5.00	22.99	30.00	Pass
VHT80	MCS0	1	106	5530	1	14.83				14.83	23.98	5.00	19.83	30.00	Pass
VHT80	MCS0	1	138	5690	1	13.45				13.45	23.98	5.00	18.45	30.00	Pass
AX20	MCS0	1	100	5500	1	16.09				16.09	23.98	5.00	21.09	30.00	Pass
AX20	MCS0	1	116	5580	1	18.44				18.44	23.98	5.00	23.44	30.00	Pass
AX20	MCS0	1	140	5700	1	18.10				18.10	23.98	5.00	23.10	30.00	Pass
AX20	MCS0	1	144	5720	1	17.20				17.20	23.98	5.00	22.20	30.00	Pass
AX40	MCS0	1	102	5510	1	14.82				14.82	23.98	5.00	19.82	30.00	Pass
AX40	MCS0	1	110	5550	1	17.47				17.47	23.98	5.00	22.47	30.00	Pass
AX40	MCS0	1	134	5670	1	17.66				17.66	23.98	5.00	22.66	30.00	Pass
AX40	MCS0	1	142	5710	1	17.53				17.53	23.98	5.00	22.53	30.00	Pass
AX80	MCS0	1	106	5530	1	14.88				14.88	23.98	5.00	19.88	30.00	Pass
AX80	MCS0	1	138	5690	1	14.28				14.28	23.98	5.00	19.28	30.00	Pass
AX160	MCS0	1	114	5570	1	14.49				14.49	23.98	5.00	19.49	30.00	Pass

FCC Band III															
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Ant	Average Conducted Power with Duty Factor (dB)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
11a	6Mbps	4	100	5500	1+2+3+4	13.88	13.31	13.29	14.05	19.66	23.98	5.00	24.66	30.00	Pass
11a	6Mbps	4	116	5580	1+2+3+4	13.07	13.09	13.14	13.57	19.24	23.98	5.00	24.24	30.00	Pass
11a	6Mbps	4	140	5700	1+2+3+4	12.96	12.46	12.34	13.44	18.84	23.98	5.00	23.84	30.00	Pass
11a	6Mbps	4	144	5720	1+2+3+4	12.66	12.59	12.84	12.93	18.77	23.98	5.00	23.77	30.00	Pass
HT20	MCS0	4	100	5500	1+2+3+4	14.50	14.11	14.32	14.48	20.37	23.98	5.00	25.37	30.00	Pass
HT20	MCS0	4	116	5580	1+2+3+4	13.27	13.75	13.84	13.93	19.73	23.98	5.00	24.73	30.00	Pass
HT20	MCS0	4	140	5700	1+2+3+4	13.81	13.01	14.21	13.56	19.69	23.98	5.00	24.69	30.00	Pass
HT20	MCS0	4	144	5720	1+2+3+4	13.47	13.09	13.86	13.23	19.44	23.98	5.00	24.44	30.00	Pass
HT40	MCS0	4	102	5510	1+2+3+4	9.13	13.69	13.70	14.26	19.13	23.98	5.00	24.13	30.00	Pass
HT40	MCS0	4	110	5550	1+2+3+4	13.45	13.06	13.38	13.51	19.38	23.98	5.00	24.38	30.00	Pass
HT40	MCS0	4	134	5670	1+2+3+4	13.21	13.34	14.25	13.96	19.74	23.98	5.00	24.74	30.00	Pass
HT40	MCS0	4	142	5710	1+2+3+4	13.39	12.89	14.35	14.21	19.78	23.98	5.00	24.78	30.00	Pass
VHT20	MCS0	4	100	5500	1+2+3+4	13.84	13.19	13.98	14.33	19.87	23.98	5.00	24.87	30.00	Pass
VHT20	MCS0	4	116	5580	1+2+3+4	13.21	13.15	13.49	13.80	19.44	23.98	5.00	24.44	30.00	Pass
VHT20	MCS0	4	140	5700	1+2+3+4	13.32	11.95	13.94	13.26	19.19	23.98	5.00	24.19	30.00	Pass
VHT20	MCS0	4	144	5720	1+2+3+4	13.15	12.64	13.82	13.26	19.26	23.98	5.00	24.26	30.00	Pass
VHT40	MCS0	4	102	5510	1+2+3+4	10.03	13.56	13.47	13.86	19.00	23.98	5.00	24.00	30.00	Pass
VHT40	MCS0	4	110	5550	1+2+3+4	13.71	13.37	13.46	14.01	19.67	23.98	5.00	24.67	30.00	Pass
VHT40	MCS0	4	134	5670	1+2+3+4	13.05	13.05	13.68	13.77	19.42	23.98	5.00	24.42	30.00	Pass
VHT40	MCS0	4	142	5710	1+2+3+4	13.38	13.21	14.27	14.14	19.80	23.98	5.00	24.80	30.00	Pass
VHT80	MCS0	4	106	5530	1+2+3+4	10.16	10.54	12.27	11.36	17.18	23.98	5.00	22.18	30.00	Pass
VHT80	MCS0	4	138	5690	1+2+3+4	10.76	10.83	12.63	12.31	17.73	23.98	5.00	22.73	30.00	Pass
AX20	MCS0	4	100	5500	1+2+3+4	13.82	13.32	14.23	14.12	19.91	23.98	5.00	24.91	30.00	Pass
AX20	MCS0	4	116	5580	1+2+3+4	12.78	13.42	13.48	13.73	19.39	23.98	5.00	24.39	30.00	Pass
AX20	MCS0	4	140	5700	1+2+3+4	12.95	12.39	13.75	13.89	19.31	23.98	5.00	24.31	30.00	Pass
AX20	MCS0	4	144	5720	1+2+3+4	13.03	13.00	13.50	13.35	19.25	23.98	5.00	24.25	30.00	Pass
AX40	MCS0	4	102	5510	1+2+3+4	9.25	13.35	13.98	14.02	19.05	23.98	5.00	24.05	30.00	Pass
AX40	MCS0	4	110	5550	1+2+3+4	13.45	13.40	13.13	13.75	19.46	23.98	5.00	24.46	30.00	Pass
AX40	MCS0	4	134	5670	1+2+3+4	13.37	13.59	14.05	13.79	19.73	23.98	5.00	24.73	30.00	Pass
AX40	MCS0	4	142	5710	1+2+3+4	13.40	13.58	14.05	13.89	19.76	23.98	5.00	24.76	30.00	Pass
AX80	MCS0	4	106	5530	1+2+3+4	9.21	10.96	12.17	11.79	17.19	23.98	5.00	22.19	30.00	Pass
AX80	MCS0	4	138	5690	1+2+3+4	10.54	11.47	12.51	12.57	17.87	23.98	5.00	22.87	30.00	Pass
AX160	MCS0	4	138	5690	1+2+3+4	11.00	10.53	11.01	10.86	16.87	23.98	5.00	21.87	30.00	Pass

For ETH7(Support B1-2) Mode

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

FCC Band I															
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Ant	Average Conducted Power with duty factor (dBm)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
11a	6Mbps	1	36	5180	1	17.46				17.46	30.00	5.00	22.46	-	Pass
11a	6Mbps	1	44	5220	1	17.76				17.76	30.00	5.00	22.76	-	Pass
11a	6Mbps	1	48	5240	1	17.74				17.74	30.00	5.00	22.74	-	Pass
HT20	MCS0	1	36	5180	1	16.93				16.93	30.00	5.00	21.93	-	Pass
HT20	MCS0	1	44	5220	1	17.75				17.75	30.00	5.00	22.75	-	Pass
HT20	MCS0	1	48	5240	1	17.76				17.76	30.00	5.00	22.76	-	Pass
HT40	MCS0	1	38	5190	1	13.74				13.74	30.00	5.00	18.74	-	Pass
HT40	MCS0	1	46	5230	1	16.59				16.59	30.00	5.00	21.59	-	Pass
VHT20	MCS0	1	36	5180	1	16.81				16.81	30.00	5.00	21.81	-	Pass
VHT20	MCS0	1	44	5220	1	17.89				17.89	30.00	5.00	22.89	-	Pass
VHT20	MCS0	1	48	5240	1	17.86				17.86	30.00	5.00	22.86	-	Pass
VHT40	MCS0	1	38	5190	1	13.39				13.39	30.00	5.00	18.39	-	Pass
VHT40	MCS0	1	46	5230	1	16.07				16.07	30.00	5.00	21.07	-	Pass
VHT80	MCS0	1	42	5210	1	14.89				14.89	30.00	5.00	19.89	-	Pass
AX20	MCS0	1	36	5180	1	16.91				16.91	30.00	5.00	21.91	-	Pass
AX20	MCS0	1	44	5220	1	17.62				17.62	30.00	5.00	22.62	-	Pass
AX20	MCS0	1	48	5240	1	17.09				17.09	30.00	5.00	22.09	-	Pass
AX40	MCS0	1	38	5190	1	15.10				15.10	30.00	5.00	20.10	-	Pass
AX40	MCS0	1	46	5230	1	16.15				16.15	30.00	5.00	21.15	-	Pass
AX80	MCS0	1	42	5210	1	15.04				15.04	30.00	5.00	20.04	-	Pass
AX160	MCS0	1	50	5250	1	14.32				14.32	30.00	5.00	19.32	-	Pass

FCC Band I															
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Ant	Average Conducted Power with duty factor (dBm)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
11a	6Mbps	4	36	5180	+2+3+4	13.61	13.48	14.93	15.61	20.52	30.00	5.00	25.52	-	Pass
11a	6Mbps	4	44	5220	+2+3+4	13.44	13.98	13.78	14.83	20.05	30.00	5.00	25.05	-	Pass
11a	6Mbps	4	48	5240	+2+3+4	13.32	14.65	14.61	14.79	20.40	30.00	5.00	25.40	-	Pass
HT20	MCS0	4	36	5180	+2+3+4	13.97	13.42	14.44	15.63	20.46	30.00	5.00	25.46	-	Pass
HT20	MCS0	4	44	5220	+2+3+4	13.93	14.27	14.98	15.18	20.64	30.00	5.00	25.64	-	Pass
HT20	MCS0	4	48	5240	+2+3+4	13.62	14.52	14.20	14.31	20.20	30.00	5.00	25.20	-	Pass
HT40	MCS0	4	38	5190	+2+3+4	10.72	11.88	11.47	13.30	17.97	30.00	5.00	22.97	-	Pass
HT40	MCS0	4	46	5230	+2+3+4	11.32	12.09	12.00	12.77	18.10	30.00	5.00	23.10	-	Pass
VHT20	MCS0	4	36	5180	+2+3+4	13.59	13.78	14.68	15.47	20.46	30.00	5.00	25.46	-	Pass
VHT20	MCS0	4	44	5220	+2+3+4	13.52	14.17	14.27	14.89	20.26	30.00	5.00	25.26	-	Pass
VHT20	MCS0	4	48	5240	+2+3+4	13.37	14.53	14.46	14.80	20.34	30.00	5.00	25.34	-	Pass
VHT40	MCS0	4	38	5190	+2+3+4	11.87	11.94	12.04	12.01	17.99	30.00	5.00	22.99	-	Pass
VHT40	MCS0	4	46	5230	+2+3+4	11.56	12.05	11.84	12.45	18.01	30.00	5.00	23.01	-	Pass
VHT80	MCS0	4	42	5210	+2+3+4	10.64	10.00	10.65	11.95	16.89	30.00	5.00	21.89	-	Pass
AX20	MCS0	4	36	5180	+2+3+4	12.04	12.90	14.68	15.01	19.85	30.00	5.00	24.85	-	Pass
AX20	MCS0	4	44	5220	+2+3+4	12.93	13.69	14.08	14.51	19.86	30.00	5.00	24.86	-	Pass
AX20	MCS0	4	48	5240	+2+3+4	12.96	13.10	13.36	12.82	19.09	30.00	5.00	24.09	-	Pass
AX40	MCS0	4	38	5190	+2+3+4	11.13	11.49	11.59	12.57	17.75	30.00	5.00	22.75	-	Pass
AX40	MCS0	4	46	5230	+2+3+4	11.04	11.89	11.48	12.01	17.64	30.00	5.00	22.64	-	Pass
AX80	MCS0	4	42	5210	+2+3+4	10.87	10.31	11.07	12.17	17.18	30.00	5.00	22.18	-	Pass
AX160	MCS0	4	50	5250	+2+3+4	11.45	11.32	11.48	11.16	17.38	30.00	5.00	22.38	-	Pass

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

FCC Band II															
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Ant	Average Conducted Power with Duty Factor (dB)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
11a	6Mbps	1	52	5260	1	17.66				17.66	23.98	5.00	22.66	30.00	Pass
11a	6Mbps	1	60	5300	1	17.06				17.06	23.98	5.00	22.06	30.00	Pass
11a	6Mbps	1	64	5320	1	17.34				17.34	23.98	5.00	22.34	30.00	Pass
HT20	MCS0	1	52	5260	1	17.74				17.74	23.98	5.00	22.74	30.00	Pass
HT20	MCS0	1	60	5300	1	17.20				17.20	23.98	5.00	22.20	30.00	Pass
HT20	MCS0	1	64	5320	1	16.75				16.75	23.98	5.00	21.75	30.00	Pass
HT40	MCS0	1	54	5270	1	15.54				15.54	23.98	5.00	20.54	30.00	Pass
HT40	MCS0	1	62	5310	1	14.01				14.01	23.98	5.00	19.01	30.00	Pass
VHT20	MCS0	1	52	5260	1	17.63				17.63	23.98	5.00	22.63	30.00	Pass
VHT20	MCS0	1	60	5300	1	17.53				17.53	23.98	5.00	22.53	30.00	Pass
VHT20	MCS0	1	64	5320	1	16.60				16.60	23.98	5.00	21.60	30.00	Pass
VHT40	MCS0	1	54	5270	1	15.41				15.41	23.98	5.00	20.41	30.00	Pass
VHT40	MCS0	1	62	5310	1	13.58				13.58	23.98	5.00	18.58	30.00	Pass
VHT80	MCS0	1	58	5290	1	12.56				12.56	23.98	5.00	17.56	30.00	Pass
AX20	MCS0	1	52	5260	1	17.38				17.38	23.98	5.00	22.38	30.00	Pass
AX20	MCS0	1	60	5300	1	16.90				16.90	23.98	5.00	21.90	30.00	Pass
AX20	MCS0	1	64	5320	1	16.11				16.11	23.98	5.00	21.11	30.00	Pass
AX40	MCS0	1	54	5270	1	14.90				14.90	23.98	5.00	19.90	30.00	Pass
AX40	MCS0	1	62	5310	1	13.94				13.94	23.98	5.00	18.94	30.00	Pass
AX80	MCS0	1	58	5290	1	12.90				12.90	23.98	5.00	17.90	30.00	Pass

FCC Band II															
Mod.	Data Rate	N <sub>Tx</sub>	CH.	Freq. (MHz)	Ant	Average Conducted Power with Duty Factor (dB)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
11a	6Mbps	4	52	5260	1+2+3+4	13.64	12.85	13.24	12.73	19.15	23.98	5.00	24.15	30.00	Pass
11a	6Mbps	4	60	5300	1+2+3+4	12.60	12.57	12.88	13.10	18.81	23.98	5.00	23.81	30.00	Pass
11a	6Mbps	4	64	5320	1+2+3+4	12.79	11.94	12.53	12.43	18.45	23.98	5.00	23.45	30.00	Pass
HT20	MCS0	4	52	5260	1+2+3+4	13.47	12.72	13.94	13.15	19.36	23.98	5.00	24.36	30.00	Pass
HT20	MCS0	4	60	5300	1+2+3+4	13.03	12.69	13.21	13.47	19.13	23.98	5.00	24.13	30.00	Pass
HT20	MCS0	4	64	5320	1+2+3+4	12.97	11.99	13.06	12.82	18.75	23.98	5.00	23.75	30.00	Pass
HT40	MCS0	4	54	5270	1+2+3+4	11.58	11.90	11.82	12.24	17.91	23.98	5.00	22.91	30.00	Pass
HT40	MCS0	4	62	5310	1+2+3+4	10.44	10.64	12.20	12.21	17.47	23.98	5.00	22.47	30.00	Pass
VHT20	MCS0	4	52	5260	1+2+3+4	13.63	12.79	13.12	13.10	19.19	23.98	5.00	24.19	30.00	Pass
VHT20	MCS0	4	60	5300	1+2+3+4	13.14	12.65	12.79	13.22	18.97	23.98	5.00	23.97	30.00	Pass
VHT20	MCS0	4	64	5320	1+2+3+4	12.81	12.00	12.54	12.75	18.55	23.98	5.00	23.55	30.00	Pass
VHT40	MCS0	4	54	5270	1+2+3+4	11.74	11.15	12.69	12.55	18.10	23.98	5.00	23.10	30.00	Pass
VHT40	MCS0	4	62	5310	1+2+3+4	10.26	11.06	11.74	11.98	17.33	23.98	5.00	22.33	30.00	Pass
VHT80	MCS0	4	58	5290	1+2+3+4	8.76	11.03	12.10	12.04	17.19	23.98	5.00	22.19	30.00	Pass
AX20	MCS0	4	52	5260	1+2+3+4	13.30	13.11	13.32	13.32	19.29	23.98	5.00	24.29	30.00	Pass
AX20	MCS0	4	60	5300	1+2+3+4	13.00	12.98	12.95	13.08	19.03	23.98	5.00	24.03	30.00	Pass
AX20	MCS0	4	64	5320	1+2+3+4	11.72	12.54	13.32	13.32	18.80	23.98	5.00	23.80	30.00	Pass
AX40	MCS0	4	54	5270	1+2+3+4	11.39	10.60	11.91	11.93	17.51	23.98	5.00	22.51	30.00	Pass
AX40	MCS0	4	62	5310	1+2+3+4	10.42	10.79	12.10	12.49	17.55	23.98	5.00	22.55	30.00	Pass
AX80	MCS0	4	58	5290	1+2+3+4	8.85	11.04	11.35	11.53	16.83	23.98	5.00	21.83	30.00	Pass

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

FCC Band I															
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Ant	Average Conducted Power with duty factor (dBm)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
HT20	MCS0	4	36	5180	+2+3+4	14.07	14.15	15.06	14.35	20.45	27.99	8.01	28.46	-	Pass
HT20	MCS0	4	44	5220	+2+3+4	13.75	13.93	14.62	14.29	20.18	27.99	8.01	28.19	-	Pass
HT20	MCS0	4	48	5240	+2+3+4	14.04	14.02	14.54	14.21	20.23	27.99	8.01	28.24	-	Pass
HT40	MCS0	4	38	5190	+2+3+4	16.98	16.82	17.81	17.56	23.33	27.99	8.01	31.34	-	Pass
HT40	MCS0	4	46	5230	+2+3+4	16.00	15.77	17.00	16.67	22.41	27.99	8.01	30.42	-	Pass
VHT20	MCS0	4	36	5180	+2+3+4	13.44	13.41	14.65	13.82	19.88	27.99	8.01	27.89	-	Pass
VHT20	MCS0	4	44	5220	+2+3+4	13.59	13.37	14.39	13.44	19.73	27.99	8.01	27.74	-	Pass
VHT20	MCS0	4	48	5240	+2+3+4	13.39	13.41	14.41	13.40	19.69	27.99	8.01	27.70	-	Pass
VHT40	MCS0	4	38	5190	+2+3+4	11.44	11.41	12.25	12.30	17.89	27.99	8.01	25.90	-	Pass
VHT40	MCS0	4	46	5230	+2+3+4	11.46	11.43	12.29	11.91	17.81	27.99	8.01	25.82	-	Pass
VHT80	MCS0	4	42	5210	+2+3+4	10.45	9.98	12.11	10.34	16.82	27.99	8.01	24.83	-	Pass
AX20	MCS0	4	36	5180	+2+3+4	14.21	13.89	14.30	14.96	20.38	27.99	8.01	28.39	-	Pass
AX20	MCS0	4	44	5220	+2+3+4	13.78	13.68	14.31	14.22	20.03	27.99	8.01	28.04	-	Pass
AX20	MCS0	4	48	5240	+2+3+4	13.69	13.58	14.69	14.34	20.12	27.99	8.01	28.13	-	Pass
AX40	MCS0	4	38	5190	+2+3+4	11.81	11.57	12.33	12.24	18.02	27.99	8.01	26.03	-	Pass
AX40	MCS0	4	46	5230	+2+3+4	11.15	11.01	12.01	11.38	17.43	27.99	8.01	25.44	-	Pass
AX80	MCS0	4	42	5210	+2+3+4	10.23	9.99	10.72	11.36	16.63	27.99	8.01	24.64	-	Pass
AX160	MCS0	4	50	5250	+2+3+4	7.88	7.61	7.76	7.78	13.78	27.99	8.01	21.79	-	Pass

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

FCC Band II															
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Ant	Average Conducted Power with Duty Factor (dB)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
HT20	MCS0	4	52	5260	1+2+3+4	8.07	7.63	8.66	8.82	14.34	21.97	8.01	22.35	30.00	Pass
HT20	MCS0	4	60	5300	1+2+3+4	7.91	7.89	8.24	8.16	14.08	21.97	8.01	22.09	30.00	Pass
HT20	MCS0	4	64	5320	1+2+3+4	7.51	7.49	8.08	8.15	13.84	21.97	8.01	21.85	30.00	Pass
HT40	MCS0	4	54	5270	1+2+3+4	8.12	8.01	8.42	8.87	14.39	21.97	8.01	22.40	30.00	Pass
HT40	MCS0	4	62	5310	1+2+3+4	8.49	8.20	9.12	8.99	14.74	21.97	8.01	22.75	30.00	Pass
VHT20	MCS0	4	52	5260	1+2+3+4	7.76	7.84	8.35	8.74	14.21	21.97	8.01	22.22	30.00	Pass
VHT20	MCS0	4	60	5300	1+2+3+4	8.05	7.50	8.20	8.35	14.05	21.97	8.01	22.06	30.00	Pass
VHT20	MCS0	4	64	5320	1+2+3+4	8.18	7.84	8.19	8.32	14.15	21.97	8.01	22.16	30.00	Pass
VHT40	MCS0	4	54	5270	1+2+3+4	7.91	8.36	8.10	8.41	14.22	21.97	8.01	22.23	30.00	Pass
VHT40	MCS0	4	62	5310	1+2+3+4	7.72	8.02	8.50	8.22	14.14	21.97	8.01	22.15	30.00	Pass
VHT80	MCS0	4	58	5290	1+2+3+4	7.34	6.71	7.32	7.38	13.21	21.97	8.01	21.22	30.00	Pass
AX20	MCS0	4	52	5260	1+2+3+4	7.90	8.11	8.44	8.79	14.34	21.97	8.01	22.35	30.00	Pass
AX20	MCS0	4	60	5300	1+2+3+4	8.03	7.51	8.43	7.99	14.02	21.97	8.01	22.03	30.00	Pass
AX20	MCS0	4	64	5320	1+2+3+4	8.42	8.00	8.80	8.99	14.59	21.97	8.01	22.60	30.00	Pass
AX40	MCS0	4	54	5270	1+2+3+4	8.22	8.22	8.53	8.88	14.49	21.97	8.01	22.50	30.00	Pass
AX40	MCS0	4	62	5310	1+2+3+4	7.62	7.22	7.73	7.91	13.65	21.97	8.01	21.66	30.00	Pass
AX80	MCS0	4	58	5290	1+2+3+4	7.26	7.00	7.29	7.81	13.37	21.97	8.01	21.38	30.00	Pass



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

FCC Band III															
Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	Ant	Average Conducted Power with Duty Factor (dB)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
HT20	MCS0	4	100	5500	1+2+3+4	8.03	7.95	8.47	8.83	14.36	21.97	8.01	22.37	30.00	Pass
HT20	MCS0	4	116	5580	1+2+3+4	8.16	8.14	7.92	8.01	14.08	21.97	8.01	22.09	30.00	Pass
HT20	MCS0	4	140	5700	1+2+3+4	8.11	7.65	8.04	7.96	13.97	21.97	8.01	21.98	30.00	Pass
HT40	MCS0	4	102	5510	1+2+3+4	9.47	9.08	8.65	9.01	15.08	21.97	8.01	23.09	30.00	Pass
HT40	MCS0	4	110	5550	1+2+3+4	9.11	8.83	8.61	9.12	14.94	21.97	8.01	22.95	30.00	Pass
HT40	MCS0	4	134	5670	1+2+3+4	8.87	9.02	8.98	8.78	14.93	21.97	8.01	22.94	30.00	Pass
VHT20	MCS0	4	100	5500	1+2+3+4	8.83	7.79	8.41	8.74	14.48	21.97	8.01	22.49	30.00	Pass
VHT20	MCS0	4	116	5580	1+2+3+4	8.19	7.93	8.10	8.25	14.14	21.97	8.01	22.15	30.00	Pass
VHT20	MCS0	4	140	5700	1+2+3+4	7.71	7.79	8.28	8.90	14.21	21.97	8.01	22.22	30.00	Pass
VHT40	MCS0	4	102	5510	1+2+3+4	8.84	8.24	8.19	8.79	14.54	21.97	8.01	22.55	30.00	Pass
VHT40	MCS0	4	110	5550	1+2+3+4	8.54	8.40	7.83	8.43	14.33	21.97	8.01	22.34	30.00	Pass
VHT40	MCS0	4	134	5670	1+2+3+4	8.02	8.34	8.20	8.33	14.24	21.97	8.01	22.25	30.00	Pass
VHT80	MCS0	4	106	5530	1+2+3+4	6.58	6.68	7.45	7.52	13.10	21.97	8.01	21.11	30.00	Pass
VHT80	MCS0	4	138	5690	1+2+3+4	7.10	6.94	7.01	7.15	13.07	21.97	8.01	21.08	30.00	Pass
AX20	MCS0	4	100	5500	1+2+3+4	8.00	7.33	7.68	8.66	13.97	21.97	8.01	21.98	30.00	Pass
AX20	MCS0	4	116	5580	1+2+3+4	8.81	8.35	8.42	9.23	14.74	21.97	8.01	22.75	30.00	Pass
AX20	MCS0	4	140	5700	1+2+3+4	8.23	7.92	8.66	8.50	14.36	21.97	8.01	22.37	30.00	Pass
AX40	MCS0	4	102	5510	1+2+3+4	7.43	7.01	7.57	8.21	13.60	21.97	8.01	21.61	30.00	Pass
AX40	MCS0	4	110	5550	1+2+3+4	7.99	7.85	6.90	7.92	13.71	21.97	8.01	21.72	30.00	Pass
AX40	MCS0	4	134	5670	1+2+3+4	7.11	8.00	7.44	8.54	13.83	21.97	8.01	21.84	30.00	Pass
AX80	MCS0	4	106	5530	1+2+3+4	7.77	7.99	8.36	8.02	14.06	21.97	8.01	22.07	30.00	Pass
AX80	MCS0	4	138	5690	1+2+3+4	7.57	7.78	8.02	7.77	13.81	21.97	8.01	21.82	30.00	Pass
AX160	MCS0	4	114	5570	1+2+3+4	7.14	7.53	6.99	8.02	13.46	21.97	8.01	21.47	30.00	Pass

ETH7

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

FCC Band II															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Ant	Average Conducted Power with Duty Factor (dB)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
HT20	MCS0	4	52	5260	1+2+3+4	8.16	7.09	8.30	8.50	14.07	21.97	8.01	22.08	30.00	Pass
HT20	MCS0	4	60	5300	1+2+3+4	7.82	6.52	8.11	8.19	13.73	21.97	8.01	21.74	30.00	Pass
HT20	MCS0	4	64	5320	1+2+3+4	6.95	6.07	7.32	8.14	13.20	21.97	8.01	21.21	30.00	Pass
HT40	MCS0	4	54	5270	1+2+3+4	7.88	7.39	8.32	8.90	14.18	21.97	8.01	22.19	30.00	Pass
HT40	MCS0	4	62	5310	1+2+3+4	7.55	7.11	8.17	8.81	13.98	21.97	8.01	21.99	30.00	Pass
VHT20	MCS0	4	52	5260	1+2+3+4	7.89	7.50	8.17	8.99	14.19	21.97	8.01	22.20	30.00	Pass
VHT20	MCS0	4	60	5300	1+2+3+4	7.23	7.05	7.85	7.29	13.38	21.97	8.01	21.39	30.00	Pass
VHT20	MCS0	4	64	5320	1+2+3+4	7.10	6.58	6.88	7.78	13.12	21.97	8.01	21.13	30.00	Pass
VHT40	MCS0	4	54	5270	1+2+3+4	8.06	7.95	8.76	9.16	14.53	21.97	8.01	22.54	30.00	Pass
VHT40	MCS0	4	62	5310	1+2+3+4	7.49	7.26	8.25	8.16	13.83	21.97	8.01	21.84	30.00	Pass
VHT80	MCS0	4	58	5290	1+2+3+4	7.88	7.59	8.89	9.06	14.42	21.97	8.01	22.43	30.00	Pass
AX20	MCS0	4	52	5260	1+2+3+4	7.65	7.46	7.88	8.63	13.95	21.97	8.01	21.96	30.00	Pass
AX20	MCS0	4	60	5300	1+2+3+4	8.57	7.68	8.58	8.76	14.44	21.97	8.01	22.45	30.00	Pass
AX20	MCS0	4	64	5320	1+2+3+4	7.51	6.85	7.92	8.36	13.72	21.97	8.01	21.73	30.00	Pass
AX40	MCS0	4	54	5270	1+2+3+4	6.84	6.75	7.89	8.58	13.60	21.97	8.01	21.61	30.00	Pass
AX40	MCS0	4	62	5310	1+2+3+4	7.42	7.03	8.42	8.36	13.87	21.97	8.01	21.88	30.00	Pass
AX80	MCS0	4	58	5290	1+2+3+4	7.24	6.89	7.77	8.02	13.52	21.97	8.01	21.53	30.00	Pass

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

FCC Band I															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Ant	Average Conducted Power with duty factor (dBm)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
HT20	MCS0	4	36	5180	1+2+3+4	13.10	12.17	13.17	13.08	18.92	27.99	8.01	26.93	-	Pass
HT20	MCS0	4	44	5220	1+2+3+4	12.58	12.03	12.89	12.88	18.63	27.99	8.01	26.64	-	Pass
HT20	MCS0	4	48	5240	1+2+3+4	12.46	12.21	12.83	12.37	18.49	27.99	8.01	26.50	-	Pass
HT40	MCS0	4	38	5190	1+2+3+4	10.44	10.53	11.37	11.75	17.08	27.99	8.01	25.09	-	Pass
HT40	MCS0	4	46	5230	1+2+3+4	10.56	10.63	11.47	11.83	17.18	27.99	8.01	25.19	-	Pass
VHT20	MCS0	4	36	5180	1+2+3+4	13.15	12.45	13.05	13.45	19.06	27.99	8.01	27.07	-	Pass
VHT20	MCS0	4	44	5220	1+2+3+4	10.99	10.74	11.77	11.73	17.35	27.99	8.01	25.36	-	Pass
VHT20	MCS0	4	48	5240	1+2+3+4	12.12	12.29	13.58	12.45	18.67	27.99	8.01	26.68	-	Pass
VHT40	MCS0	4	38	5190	1+2+3+4	11.25	10.06	12.04	11.33	17.25	27.99	8.01	25.26	-	Pass
VHT40	MCS0	4	46	5230	1+2+3+4	11.32	9.87	11.30	11.28	17.01	27.99	8.01	25.02	-	Pass
VHT80	MCS0	4	42	5210	1+2+3+4	8.93	8.10	9.93	9.92	15.30	27.99	8.01	23.31	-	Pass
AX20	MCS0	4	36	5180	1+2+3+4	12.86	12.59	14.02	13.42	19.28	27.99	8.01	27.29	-	Pass
AX20	MCS0	4	44	5220	1+2+3+4	13.15	12.94	13.53	13.62	19.34	27.99	8.01	27.35	-	Pass
AX20	MCS0	4	48	5240	1+2+3+4	13.10	12.88	13.02	13.16	19.06	27.99	8.01	27.07	-	Pass
AX40	MCS0	4	38	5190	1+2+3+4	10.90	10.28	11.30	12.08	17.21	27.99	8.01	25.22	-	Pass
AX40	MCS0	4	46	5230	1+2+3+4	10.78	10.41	11.23	12.05	17.18	27.99	8.01	25.19	-	Pass
AX80	MCS0	4	42	5210	1+2+3+4	8.18	7.49	8.55	8.93	14.34	27.99	8.01	22.35	-	Pass
AX160	MCS0	4	42	5210	1+2+3+4	7.26	6.78	8.28	8.30	13.72	27.99	8.01	21.73	-	Pass

## Appendix B. Conducted Spurious Emission Plots

### Note symbol

-L	Low channel location
-R	High channel location

#### Procedure for conducted measurements in restricted bands:

- Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency
- Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP (see 11.12.2.6 for guidance on determining the applicable antenna gain)
- Add the appropriate maximum ground reflection factor to the EIRP (6 dB for frequencies  $\leq 30$  MHz; 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive; and 0 dB for frequencies  $> 1000$  MHz).
- For MIMO devices, measure the power of each chain and sum the EIRP of all chains in linear terms
- Convert the resultant EIRP to an equivalent electric field strength using the following relationship:

$$E = \sqrt{EIRP - 20 \log d + 104.8}$$

where

E is the electric field strength in dB $\mu$ V/m

EIRP is the equivalent isotropically radiated power in dBm

d is the specified measurement distance in m

- Compare the resultant electric field strength level with the applicable regulatory limit.

Thus, the conducted limits for restricted bands can be converted:

#### For SISO mode (limit at restricted bands):

Conducted Peak limit = 74 dB $\mu$ V/m - 95.2 - Antenna Gain (5 dBi) - setup loss (3.01 dB) = -29.21 dBm

Conducted Average limit = 54 dB $\mu$ V/m - 95.2 - Antenna Gain (5 dBi) - setup loss (3.01 dB) = -49.21 dBm

#### For SISO mode (limit at non-restricted bands):

Conducted Peak limit = 68.3 dB $\mu$ V/m - 95.2 - Antenna Gain (5 dBi) - setup loss (3.01 dB) = -34.91 dBm

**For CDD (TX Ant=4) MIMO mode (limit at restricted bands):**

Conducted Peak limit=74dBuV/m - 95.2- Directional Gain (8.01dBi) – 10 log(NANT)dB (6.02 dB) - setup loss (1dB) = -36.23dBm

Conducted Average limit=54dBuV/m - 95.2 - Directional Gain (8.01dBi) – 10 log(NANT)dB (6.02 dB) - setup loss (1dB) = -56.23dBm

**For CDD (TX Ant=4) MIMO mode (limit at non-restricted bands):**

Conducted Peak limit=68.3dBuV/m - 95.2- Directional Gain (8.01dBi) – 10 log(NANT)dB (6.02 dB) - setup loss (0dB) = -40.93dBm

**For UNII-3C limit:****SISO mode:**

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

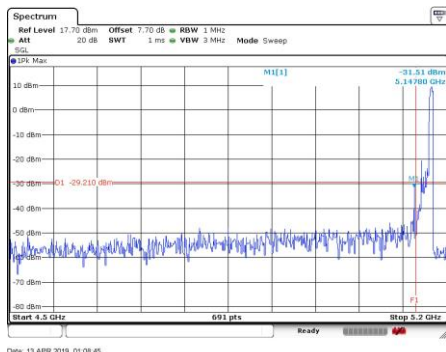
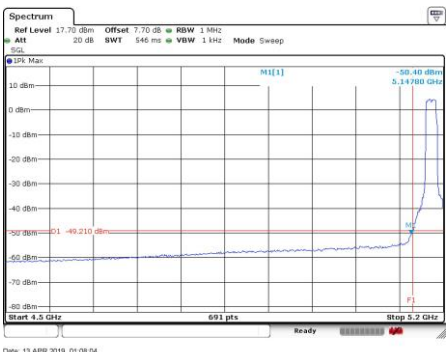
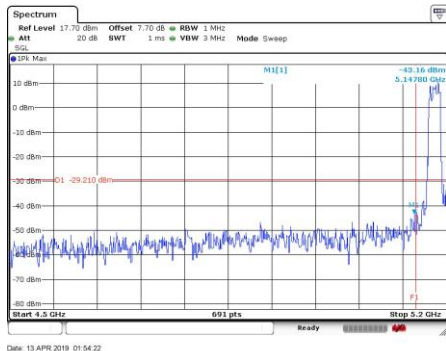
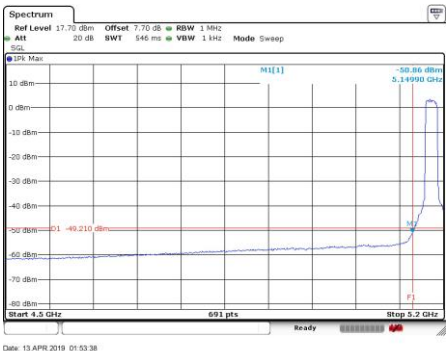
**MIMO mode:**

(All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge)  
- Directional Gain For CDD(8.01dBi) - 10 log(NANT) dB(6.02dB)

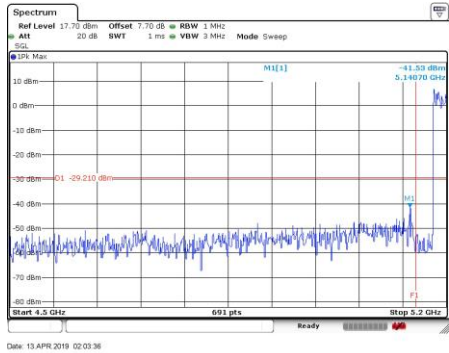
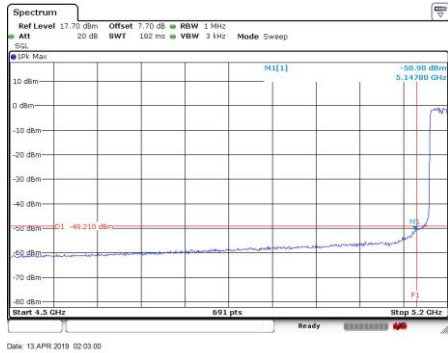
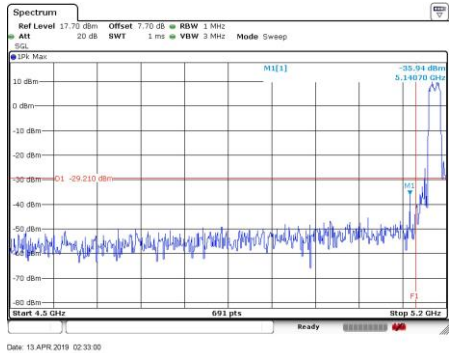
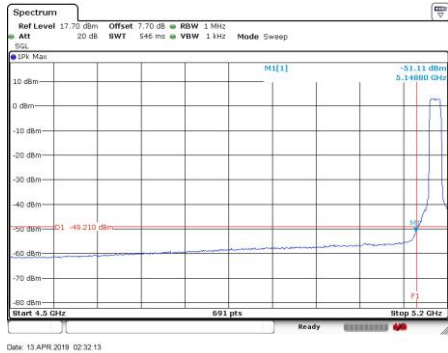


For ETH6 SISO mode:

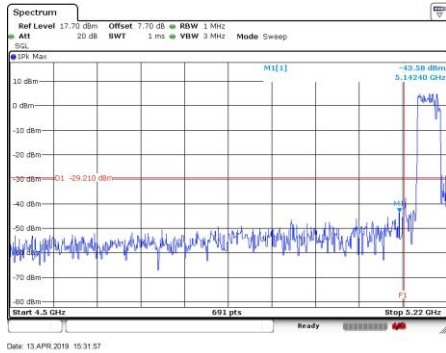
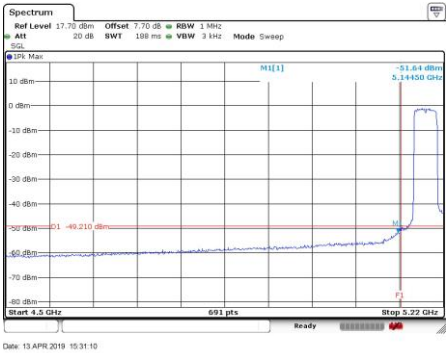
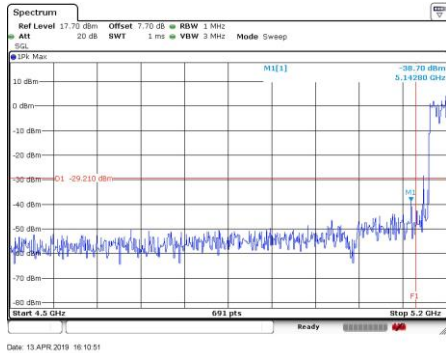
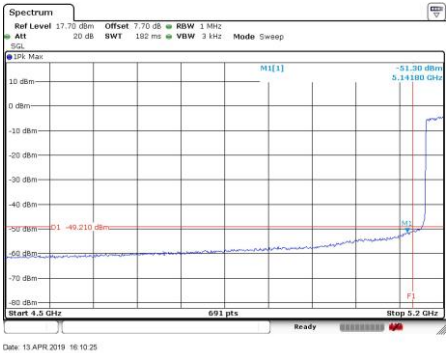
Band 1 - 5150~5250MHz

WIFI	802.11a	
Ant1	Peak	Average
CH36		
WIFI	802.11n HT20	
CH36		



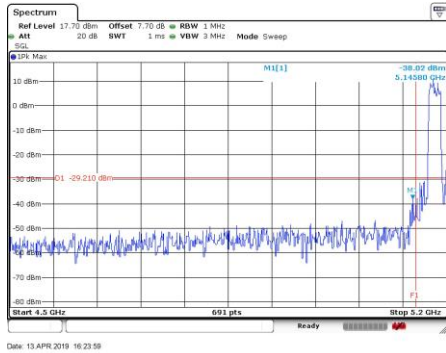
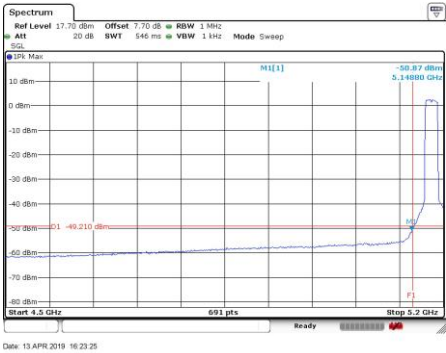
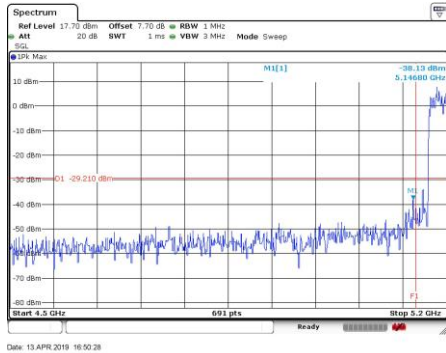
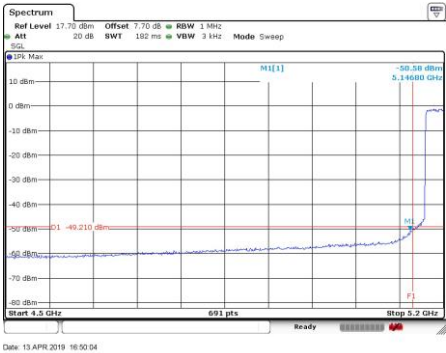
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Ant1	Peak	Average	
CH38			
WIFI		802.11ac VHT20	
CH36			

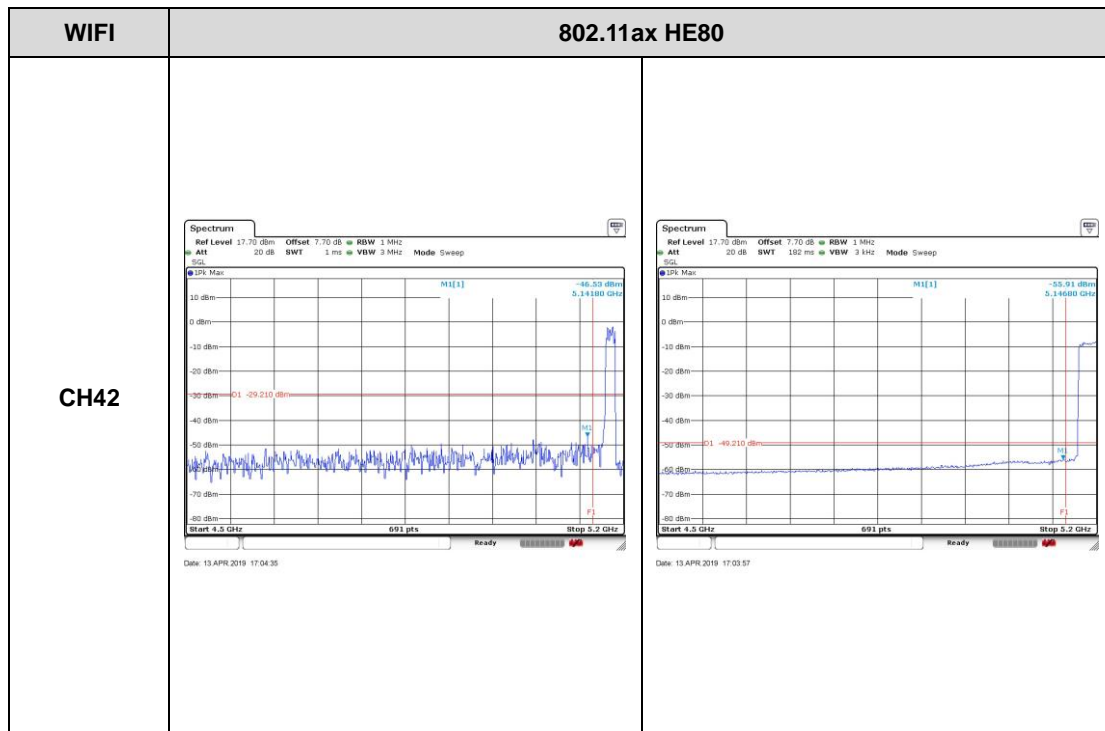


WIFI	802.11ac VHT40	
Ant1	Peak	Average
CH38		
WIFI	802.11ac VHT80	
CH42		



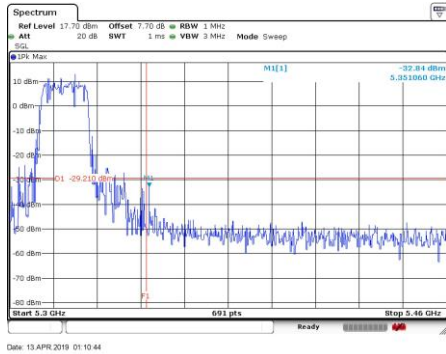
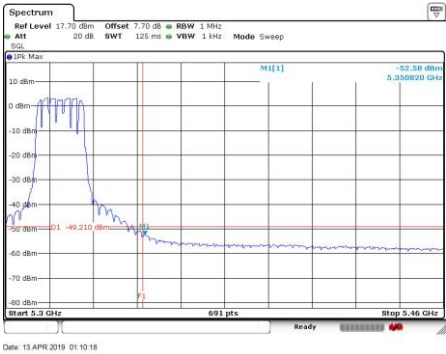
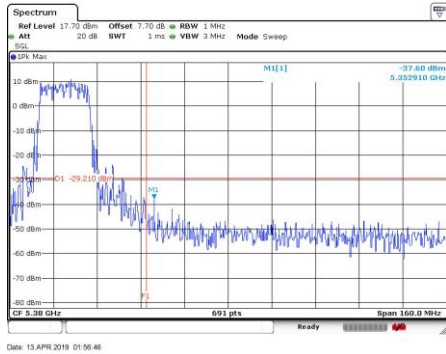
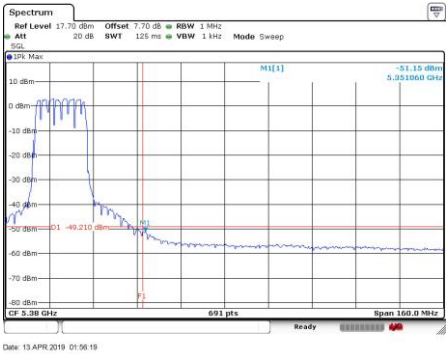


WIFI	802.11ax HE20	
Ant1	Peak	Average
CH36		
WIFI	802.11ax HE40	
CH38		

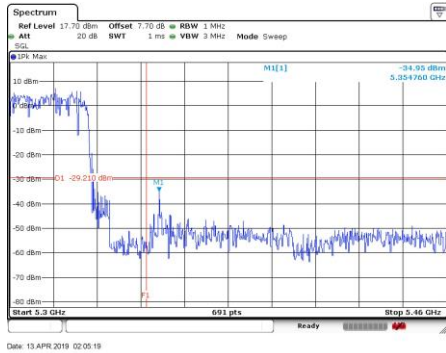
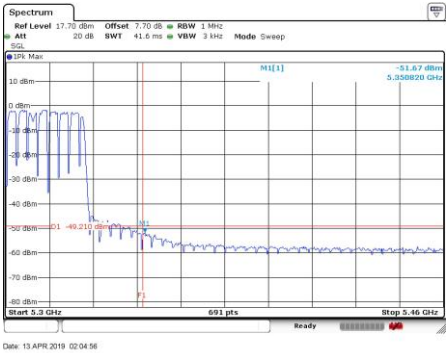
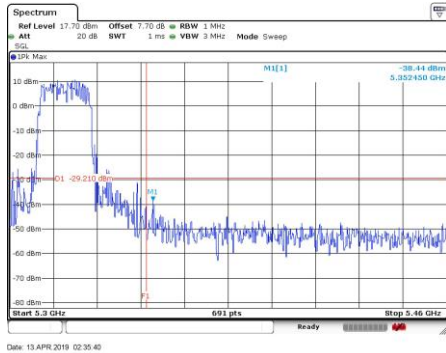
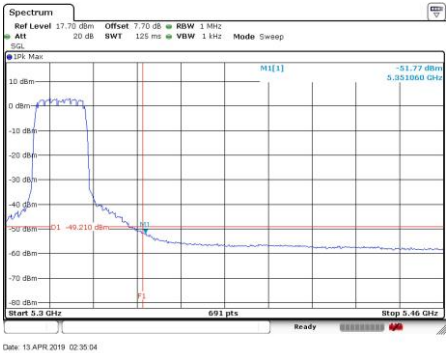




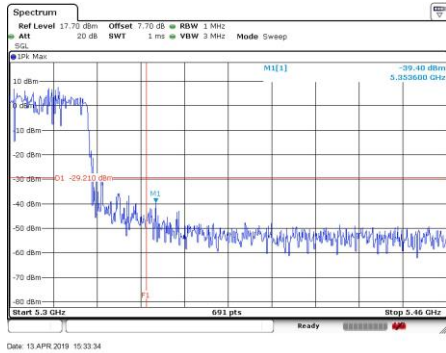
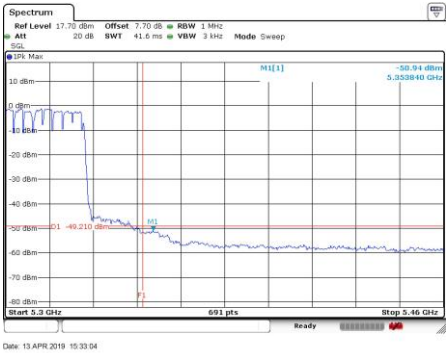
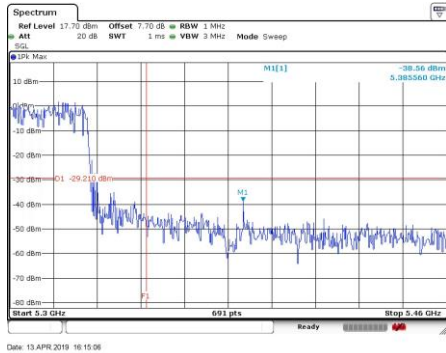
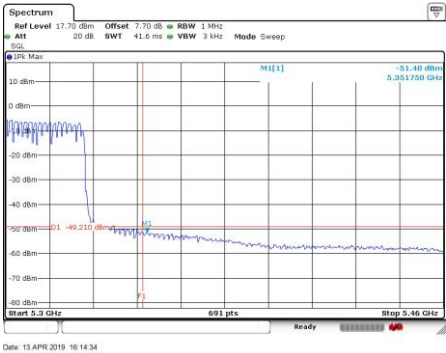
Band 2 - 5250~5350MHz

WIFI	802.11a	
Ant1	Peak	Average
CH64		
WIFI	802.11n HT20	
CH64		

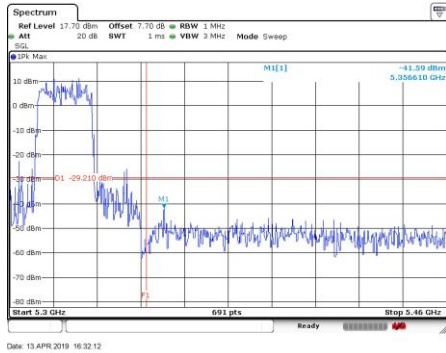
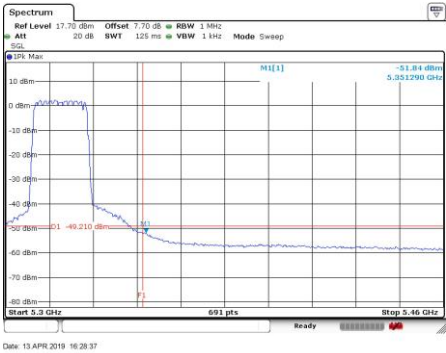
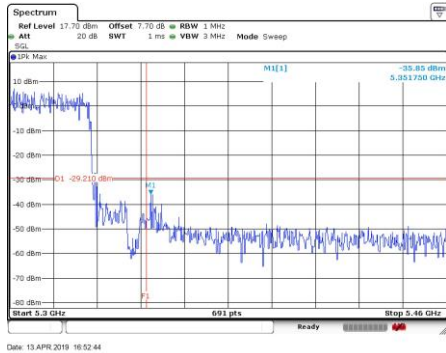
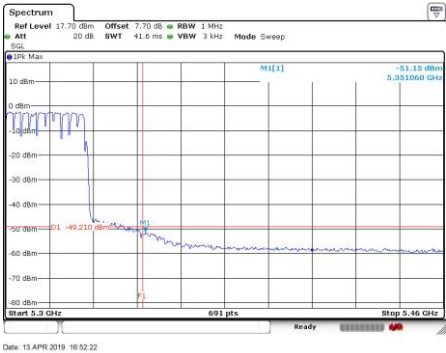


WIFI	802.11n HT40	
Ant1	Peak	Average
CH62		
WIFI	802.11ac VHT20	
CH64		

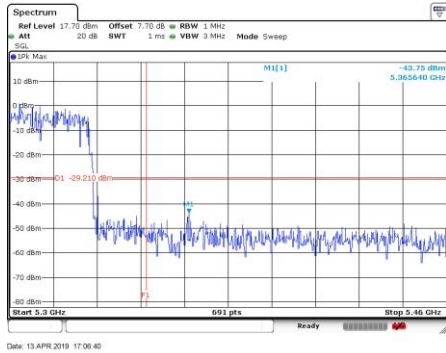
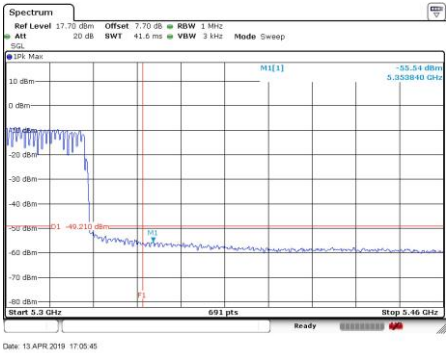


WIFI	802.11ac VHT40	
Ant1	Peak	Average
CH62		
WIFI	802.11ac VHT80	
CH58		

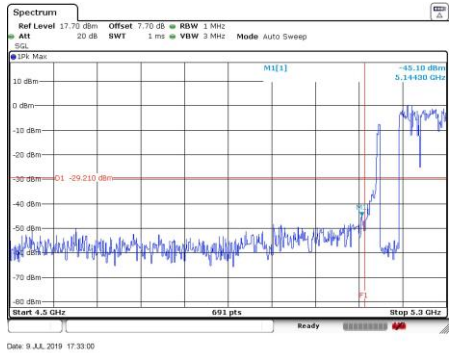
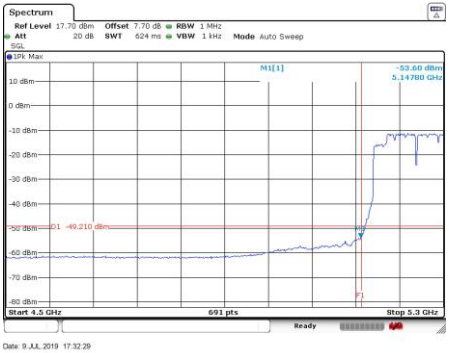
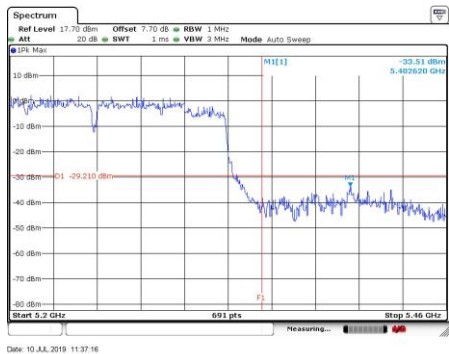
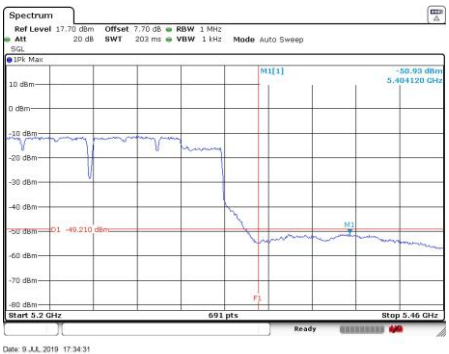


WIFI	802.11ax HE20	
Ant1	Peak	Average
CH64		
WIFI	802.11ax HE40	
CH62		



WIFI	802.11ax HE80	
Ant1	Peak	Average
CH58		

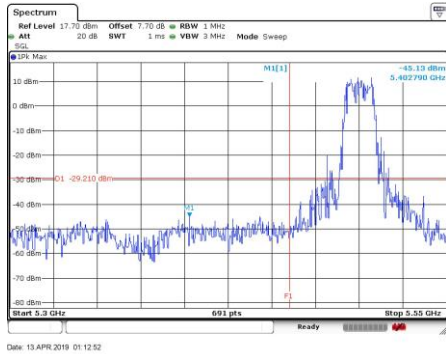
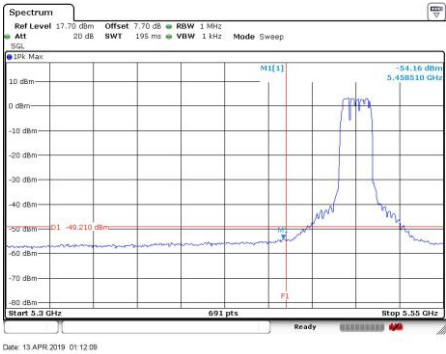
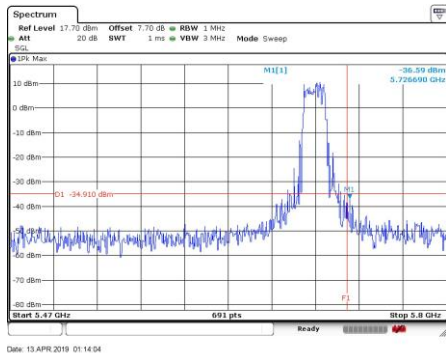


WIFI	802.11ax HE160	
Ant1	Peak	Average
CH50		
		

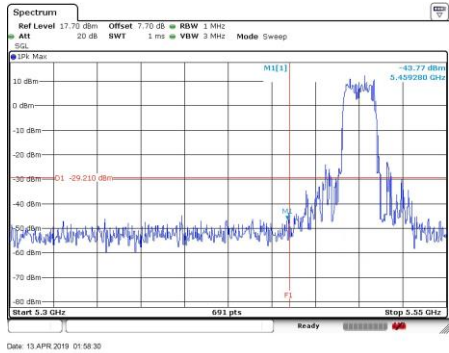
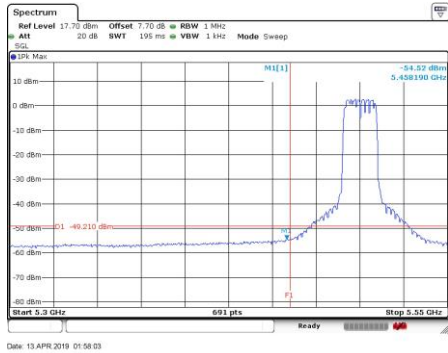
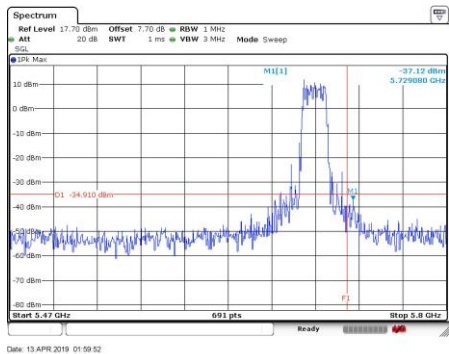




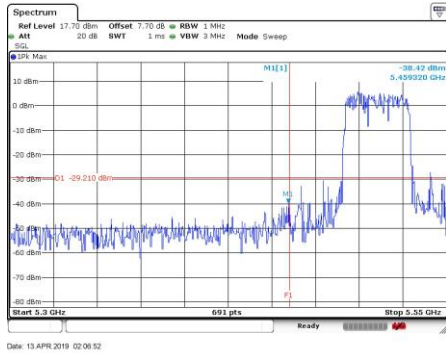
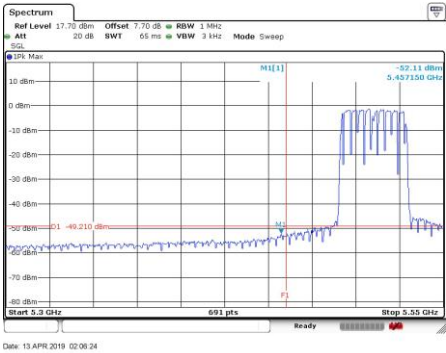
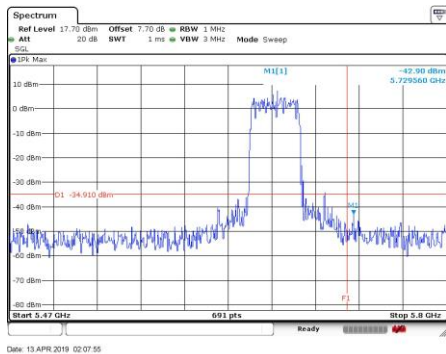
Band 3 - 5470~5725MHz

WIFI	802.11a	
Ant1	Peak	Average
CH100		
CH140		Left Blank

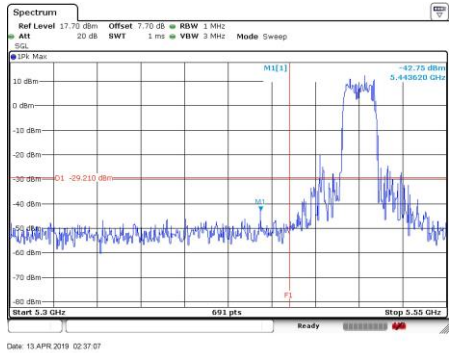
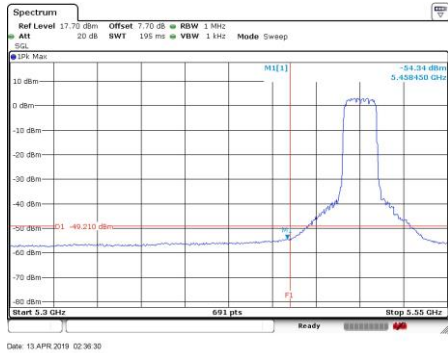
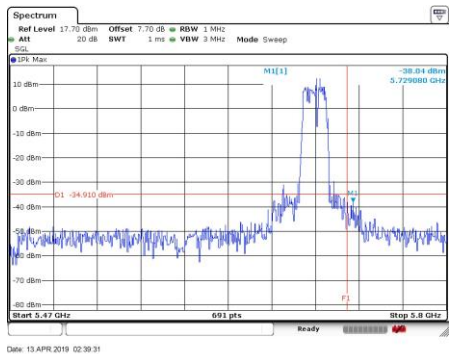


WIFI	802.11n HT20	
Ant1	Peak	Average
CH100		
CH140		Left Blank

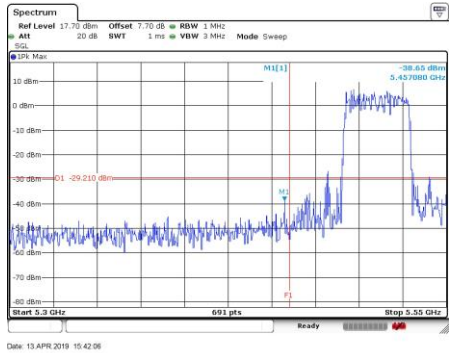
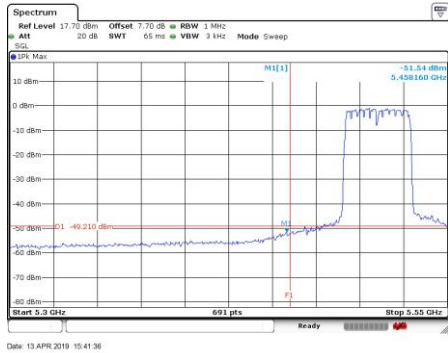
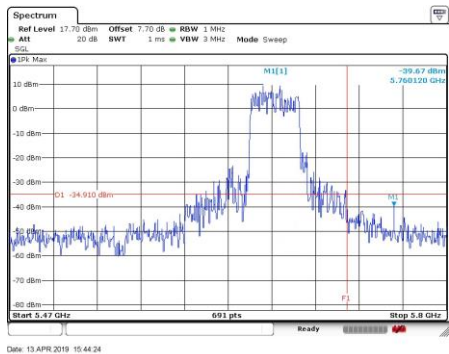


WIFI	802.11n HT40	
Ant1	Peak	Average
CH102		
	CH102	
CH134		Left Blank

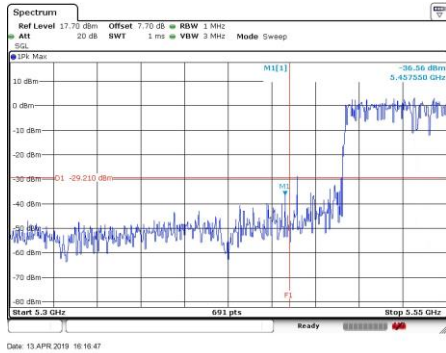
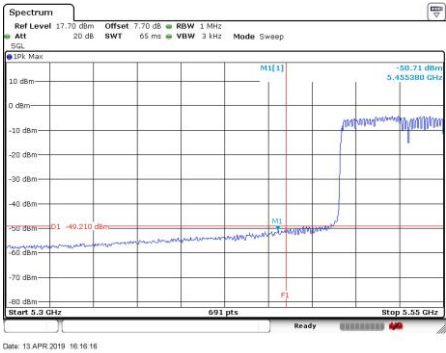


WIFI	802.11ac VHT20	
Ant1	Peak	Average
CH100		
		Left Blank

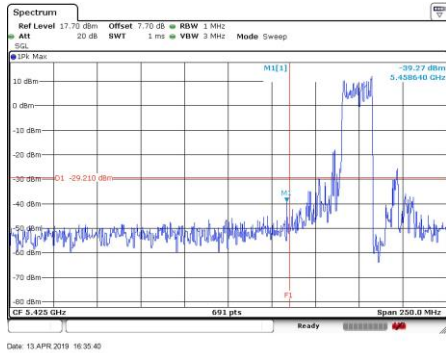
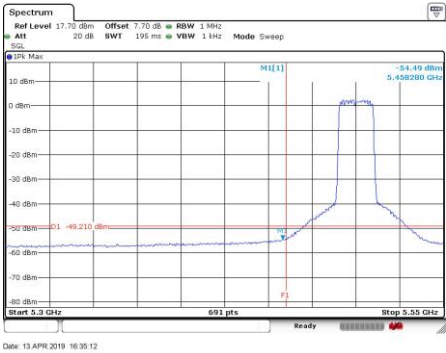
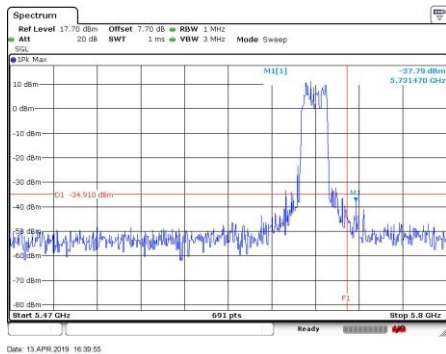


WIFI	802.11ac VHT40	
Ant1	Peak	Average
CH102		
CH134		Left Blank

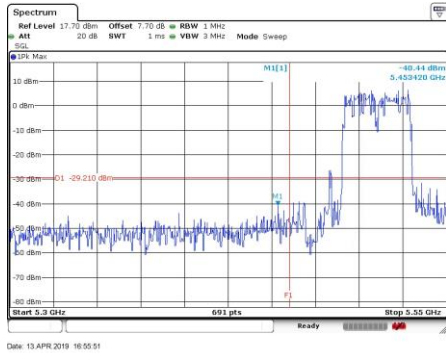
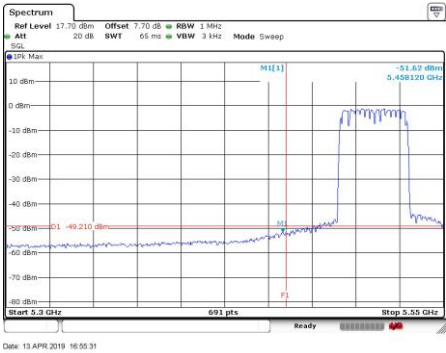
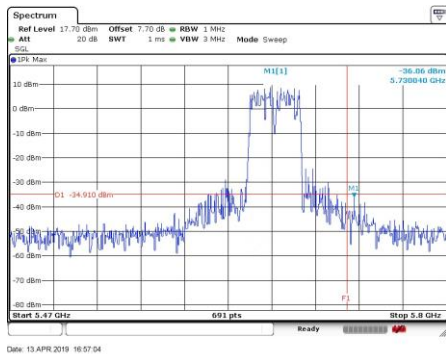


WIFI	802.11ac VHT80	
Ant1	Peak	Average
CH106		



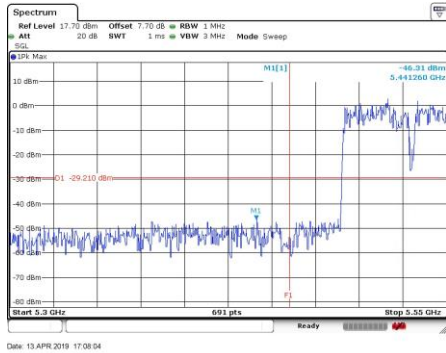
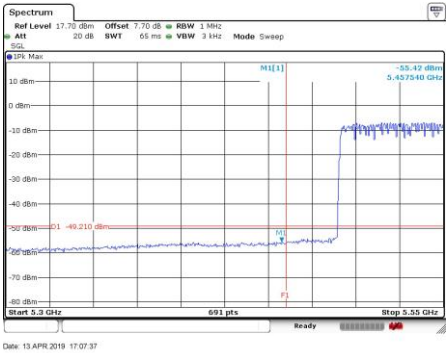
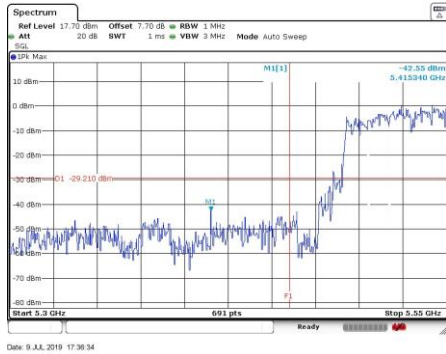
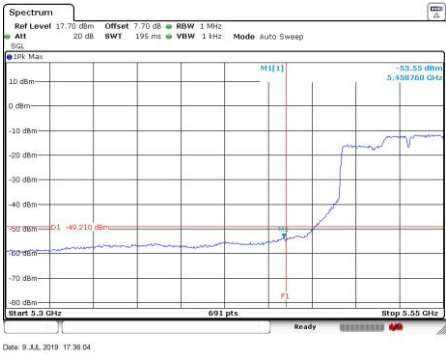
WIFI	802.11ax HE20	
Ant1	Peak	Average
CH100		
CH140		Left Blank



WIFI	802.11ax HE40	
Ant1	Peak	Average
CH102		
CH134		Left Blank



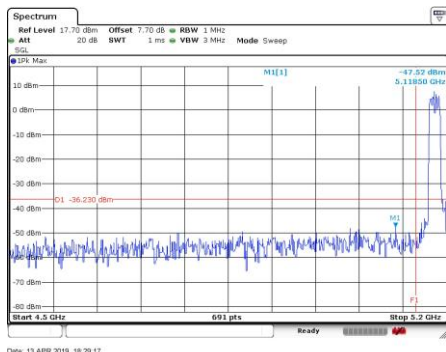
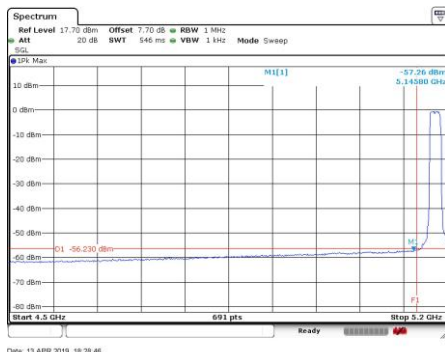
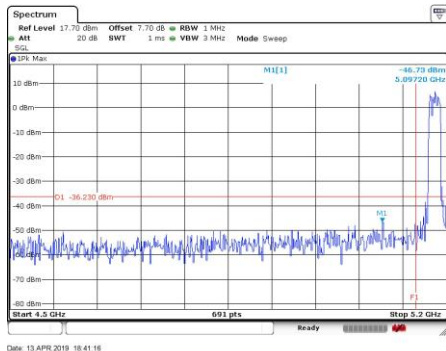
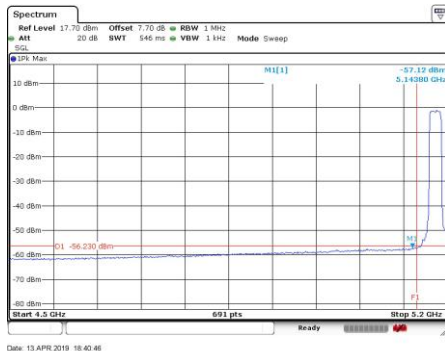


WIFI	802.11ax HE80	
Ant1	Peak	Average
CH106		
WIFI	802.11ax HE160	
Ant1	Peak	Average
CH114		

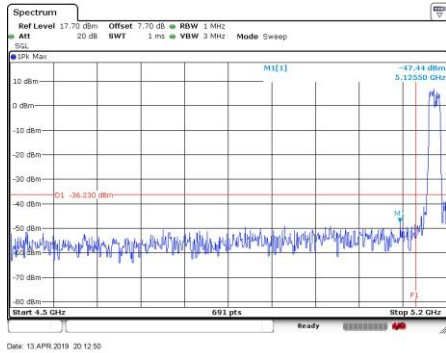
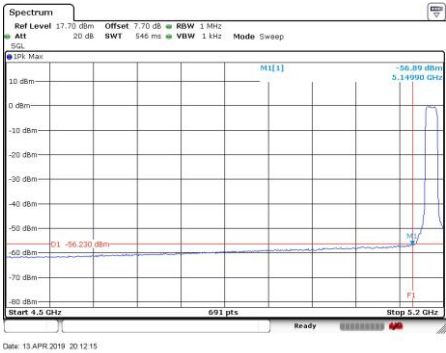


For ETH6 MIMO mode:

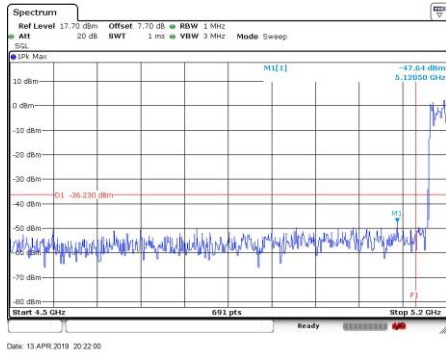
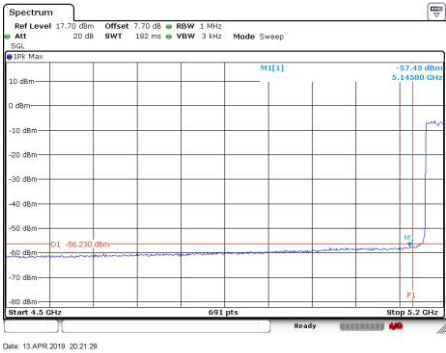
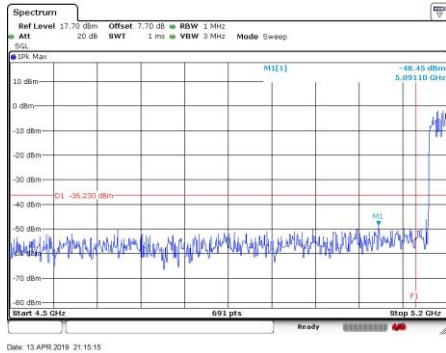
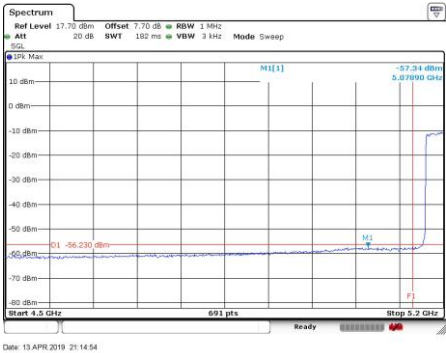
Band 1 - 5150~5250MHz

WIFI	802.11a	
Ant1	Peak	Average
CH36		
WIFI	802.11n HT20	
CH36		

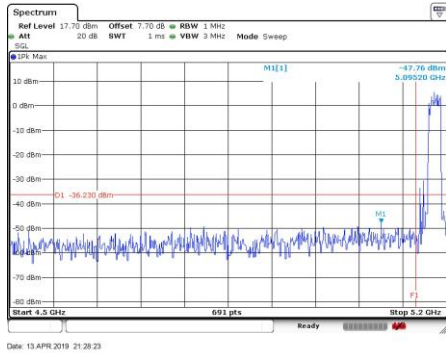
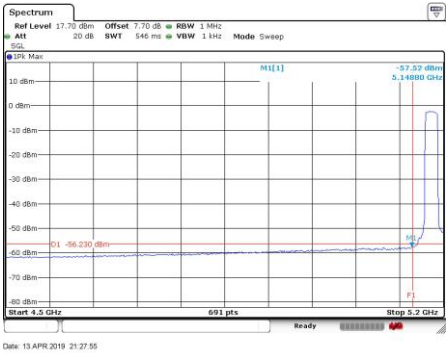
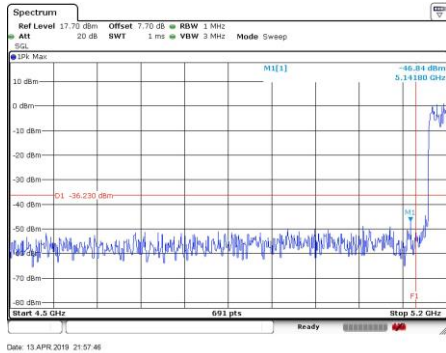
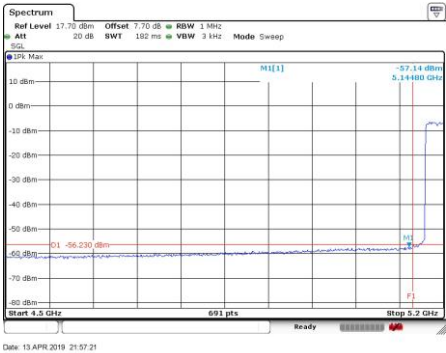


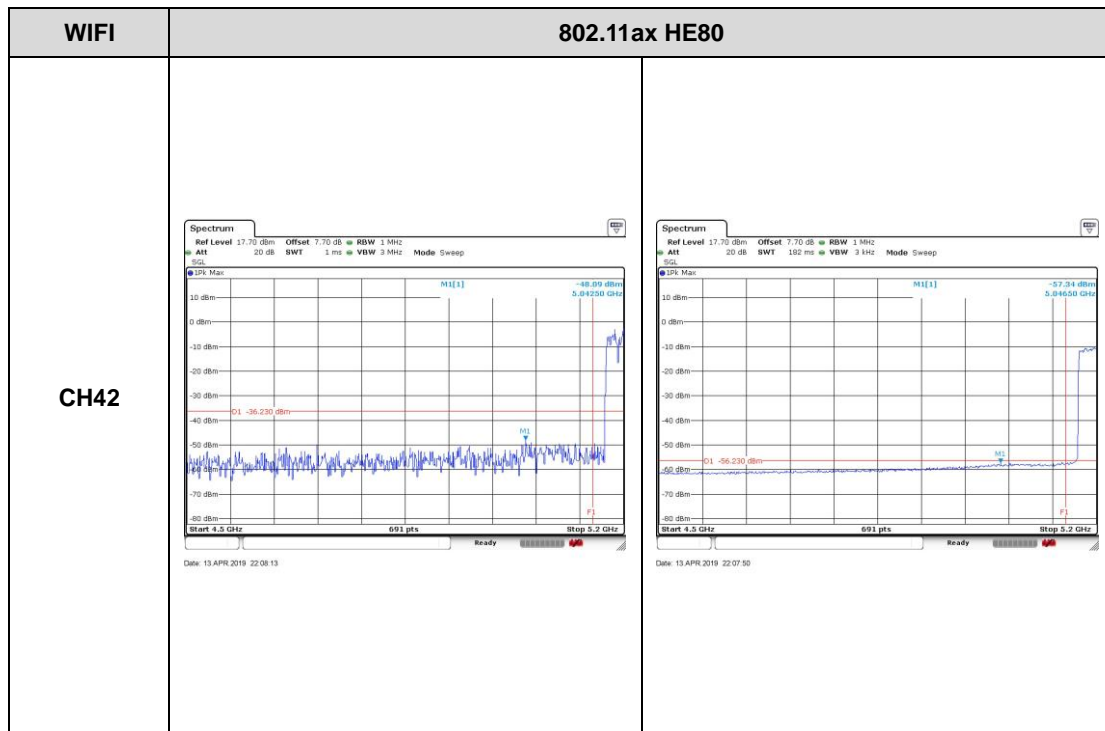
WIFI	802.11ac VHT20	
Ant1	Peak	Average
CH36		



WIFI	802.11ac VHT40	
Ant1	Peak	Average
CH38		
WIFI	802.11ac VHT80	
CH42		

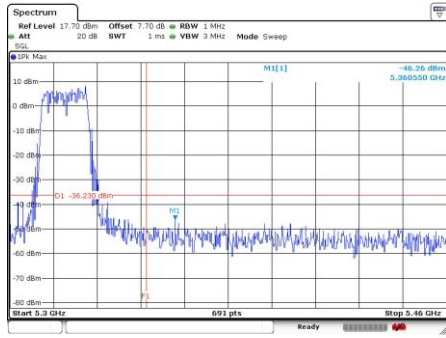
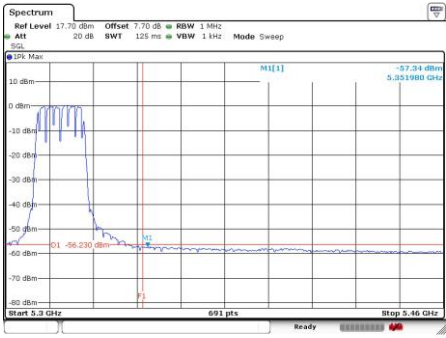
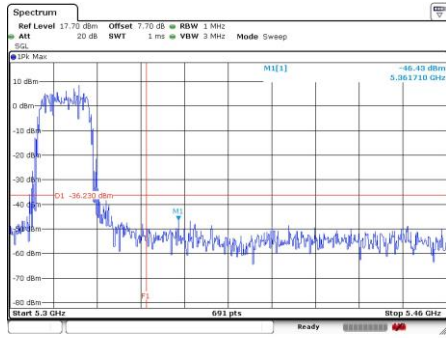
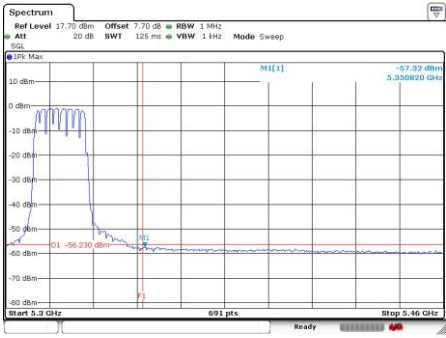


WIFI	802.11ax HE20	
Ant1	Peak	Average
CH36		
WIFI	802.11ax HE40	
CH38		

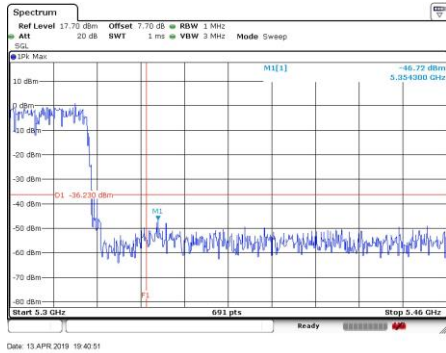
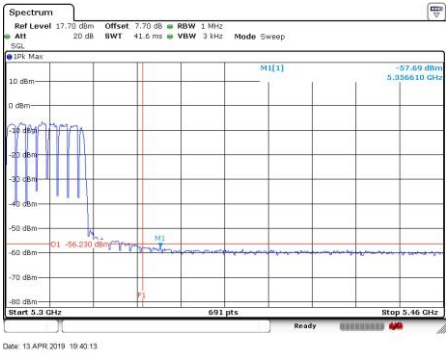
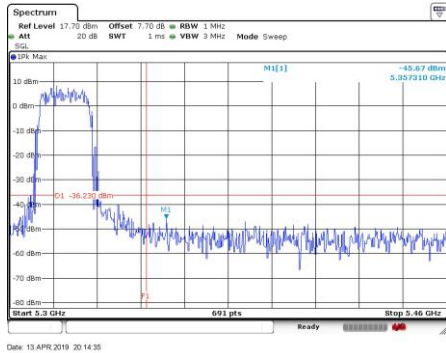
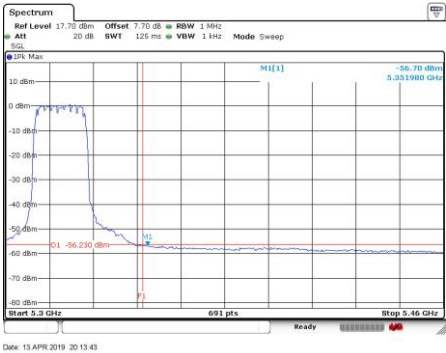




Band 2 - 5250~5350MHz

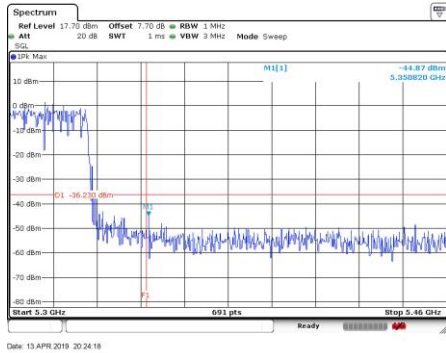
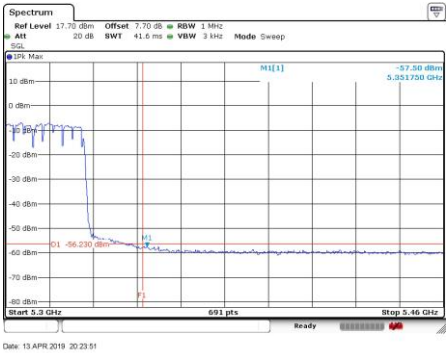
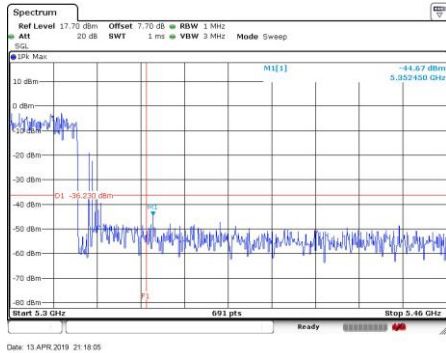
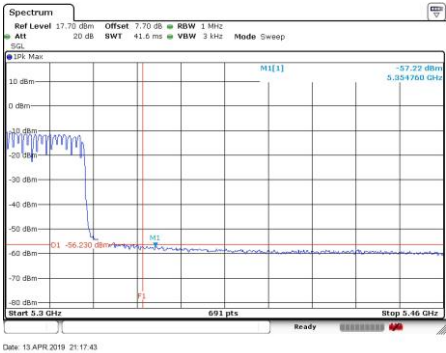
WIFI	802.11a	
Ant1	Peak	Average
CH64		
WIFI	802.11n HT20	
CH64		



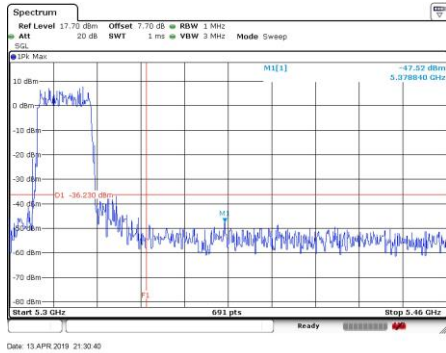
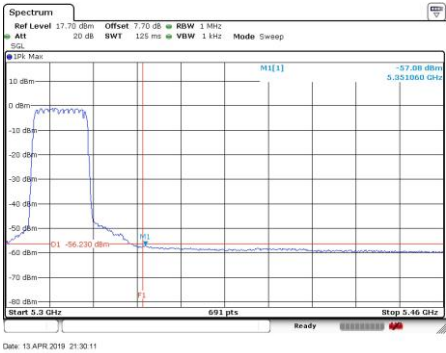
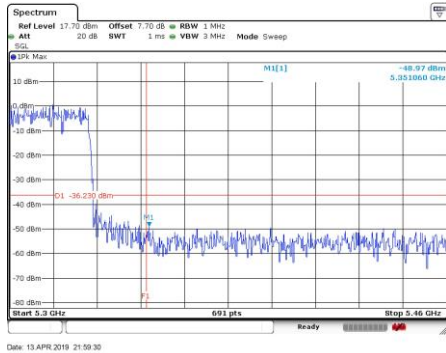
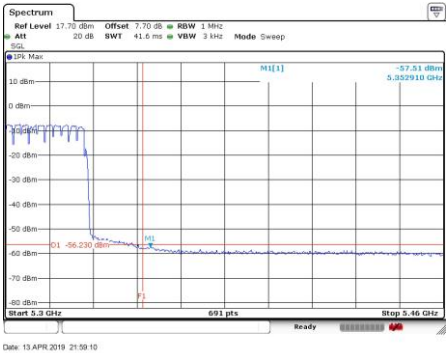
WIFI	802.11n HT40	
Ant1	Peak	Average
CH62		
WIFI	802.11ac VHT20	
CH64		



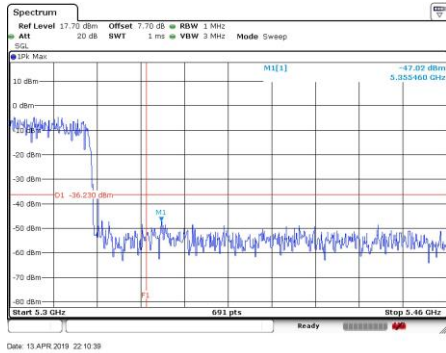
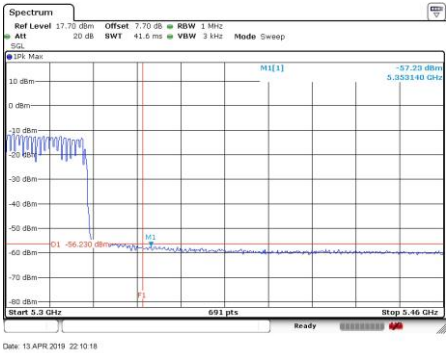


WIFI	802.11ac VHT40	
Ant1	Peak	Average
CH62		
WIFI	802.11ac VHT80	
CH58		

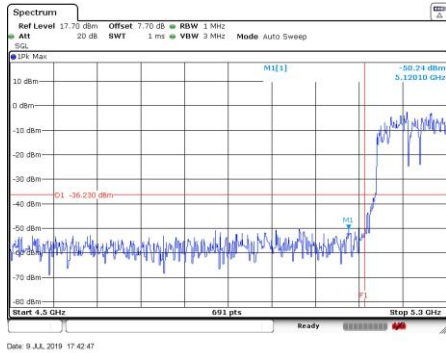
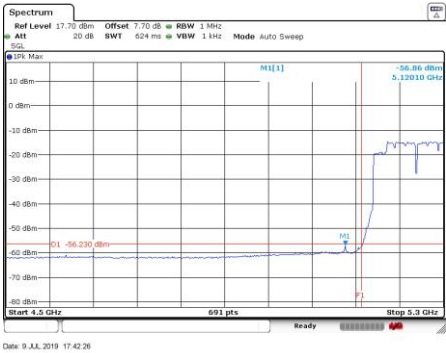
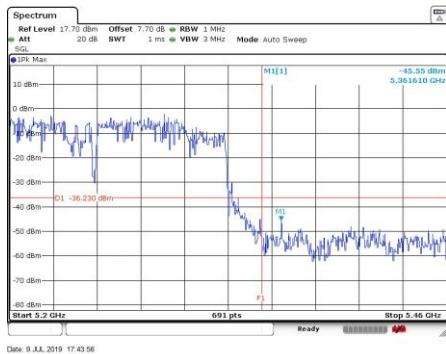
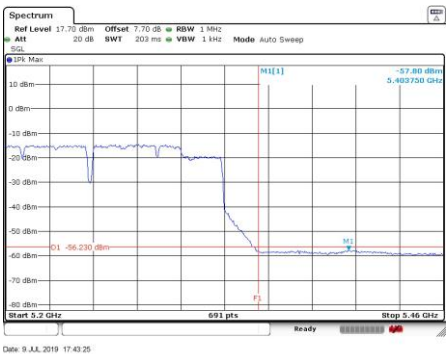


WIFI	802.11ax HE20	
Ant1	Peak	Average
CH64		
WIFI	802.11ax HE40	
CH62		

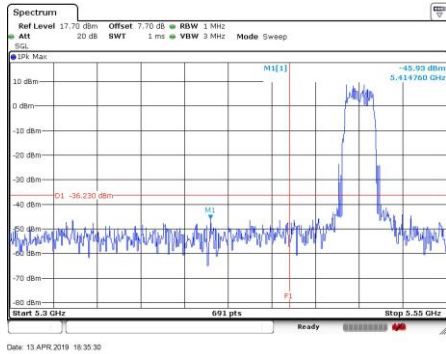
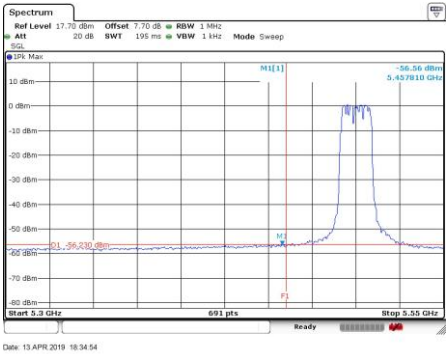
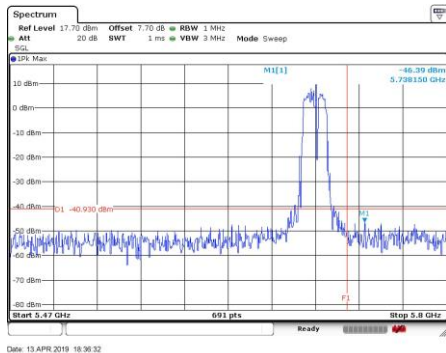


WIFI	802.11ax HE80	
Ant1	Peak	Average
CH58		

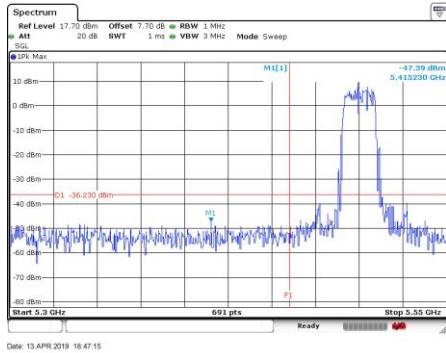
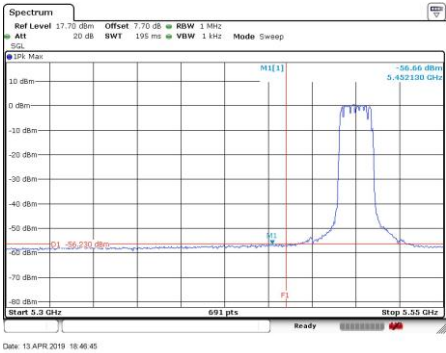
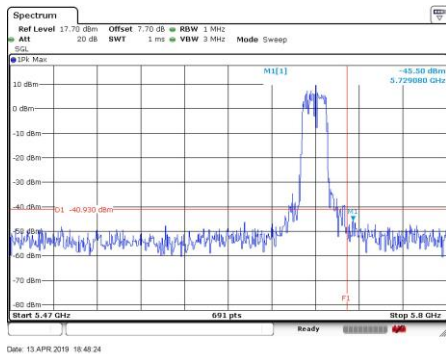


WIFI	802.11ax HE160	
Ant1	Peak	Average
CH50		
		

Band 3 - 5470~5725MHz

WIFI	802.11a	
Ant1	Peak	Average
CH100	 <p>Spectrum plot for CH100 Peak. The plot shows a signal peak at 5.414760 GHz with a maximum level of -36.230 dBm. The y-axis ranges from -80 dBm to 10 dBm, and the x-axis ranges from 5.3 GHz to 5.55 GHz. The plot is titled 'Spectrum' and includes parameters: Ref Level 17.70 dBm, Offset 7.70 dB, RBW 1 MHz, Att 20 dB, SWF 1 ms, VBW 3 MHz, Mode Sweep. The date is 13 APR 2019 18:35:30.</p>	 <p>Spectrum plot for CH100 Average. The plot shows a signal peak at 5.437818 GHz with a maximum level of -36.230 dBm. The y-axis ranges from -80 dBm to 10 dBm, and the x-axis ranges from 5.3 GHz to 5.55 GHz. The plot is titled 'Spectrum' and includes parameters: Ref Level 17.70 dBm, Offset 7.70 dB, RBW 1 MHz, Att 20 dB, SWF 1.95 ms, VBW 1 kHz, Mode Sweep. The date is 13 APR 2019 18:34:54.</p>
CH140	 <p>Spectrum plot for CH140 Peak. The plot shows a signal peak at 5.798150 GHz with a maximum level of -40.030 dBm. The y-axis ranges from -80 dBm to 10 dBm, and the x-axis ranges from 5.47 GHz to 5.8 GHz. The plot is titled 'Spectrum' and includes parameters: Ref Level 17.70 dBm, Offset 7.70 dB, RBW 1 MHz, Att 20 dB, SWF 1 ms, VBW 3 MHz, Mode Sweep. The date is 13 APR 2019 18:36:32.</p>	Left Blank

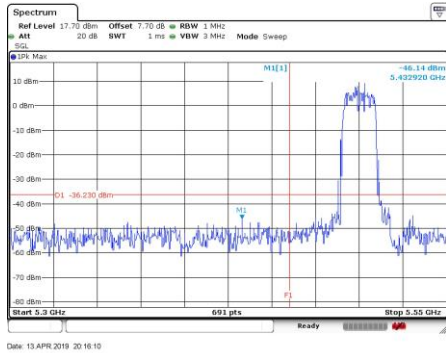
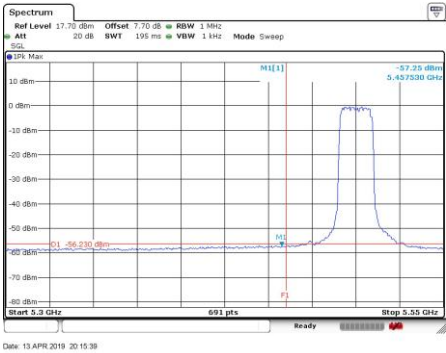
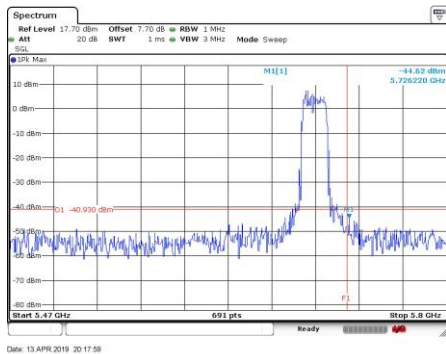


WIFI	802.11n HT20	
Ant1	Peak	Average
CH100		
CH140		Left Blank



WIFI	802.11n HT40	
Ant1	Peak	Average
CH102		
CH134		Left Blank



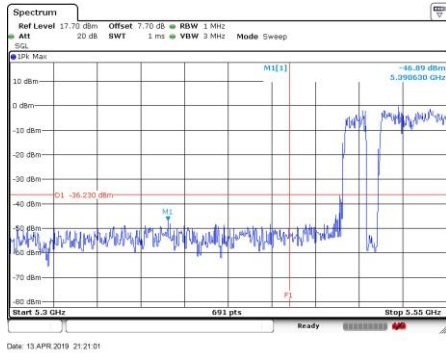
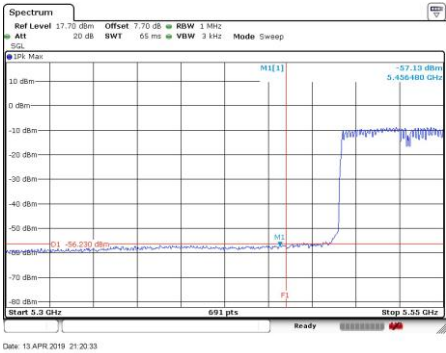
WIFI	802.11ac VHT20	
Ant1	Peak	Average
CH100		
		Left Blank



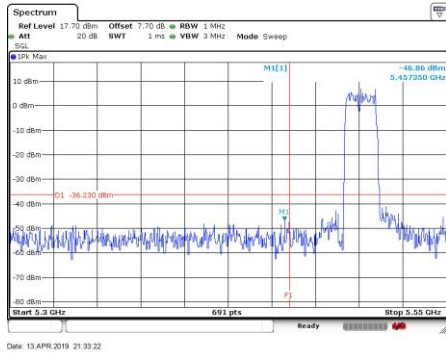
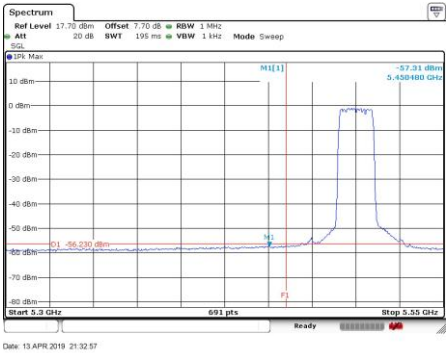
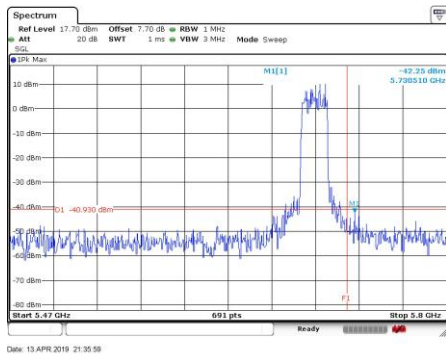


WIFI	802.11ac VHT40	
Ant1	Peak	Average
CH102		
CH134		Left Blank

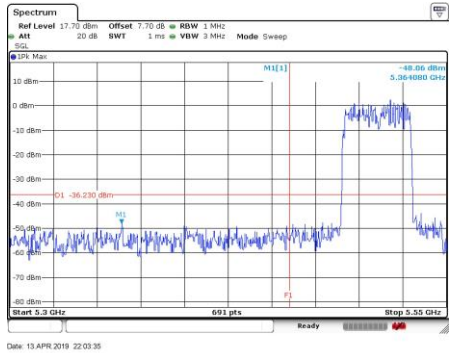
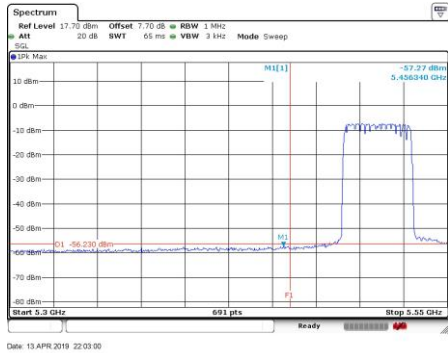
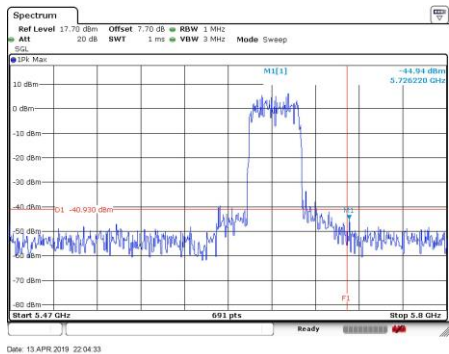


WIFI	802.11ac VHT80	
Ant1	Peak	Average
CH106		

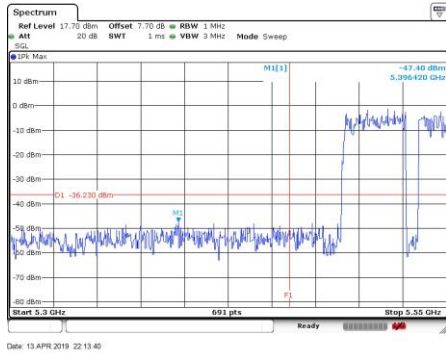
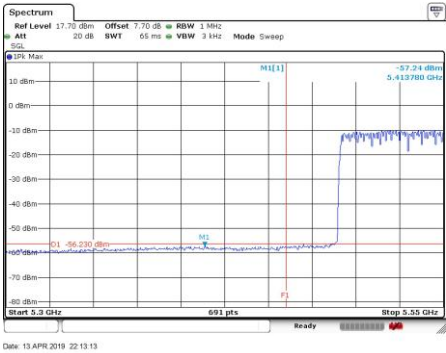


WIFI	802.11ax HE20	
Ant1	Peak	Average
CH100		
CH140		Left Blank

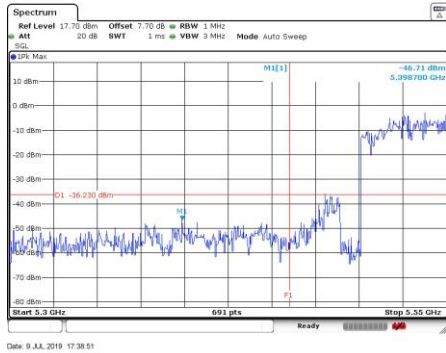
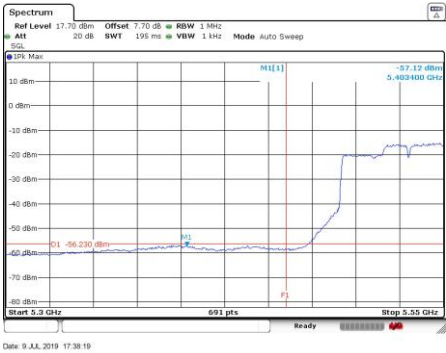
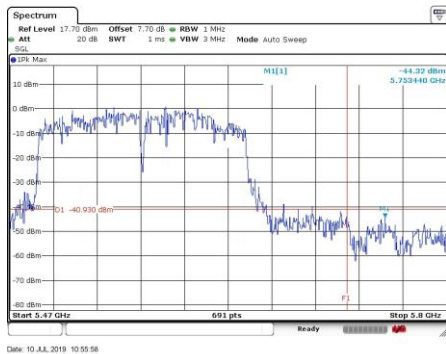


WIFI	802.11ax HE40	
Ant1	Peak	Average
CH102		
CH134		Left Blank



WIFI	802.11ax HE80	
Ant1	Peak	Average
CH106		

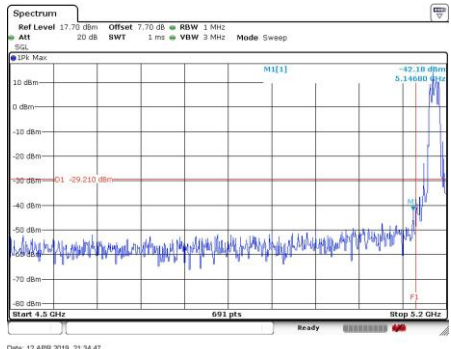
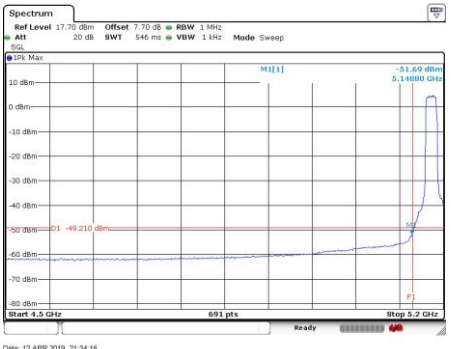
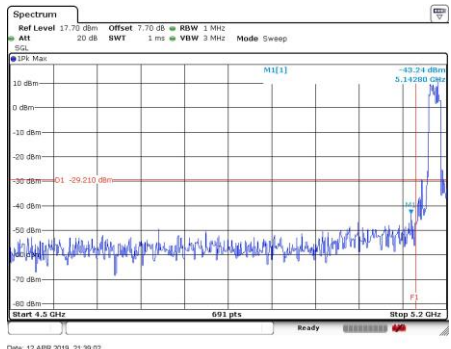
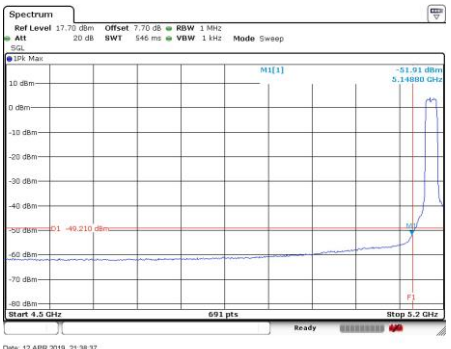


WIFI	802.11ax HE160	
Ant1	Peak	Average
CH114		
CH114		Left Blank

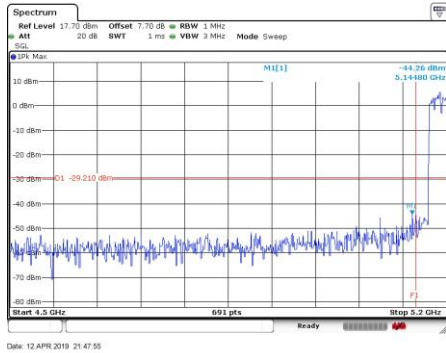
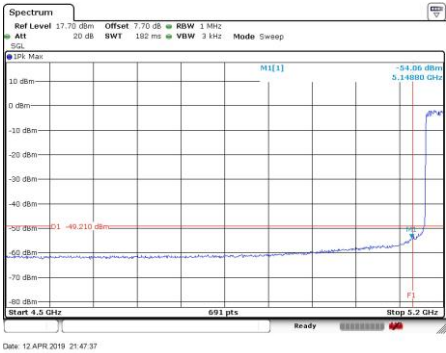
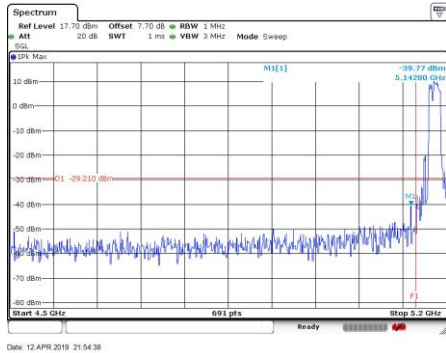
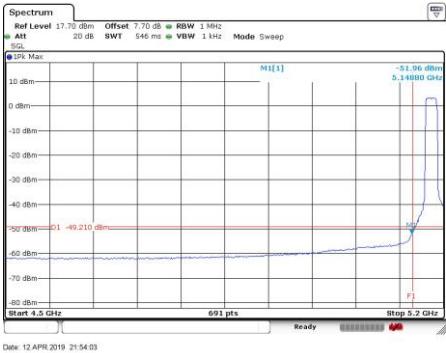


For ETH7 SISO mode:

Band 1 - 5150~5250MHz

WIFI	802.11a	
Ant1	Peak	Average
CH36		
WIFI	802.11n HT20	
CH36		



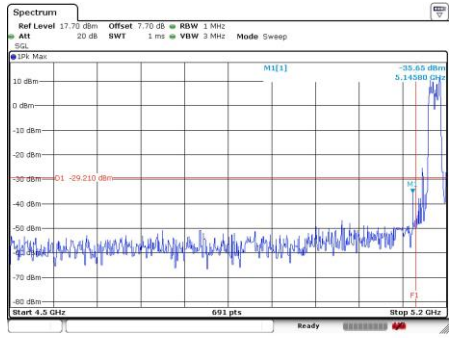
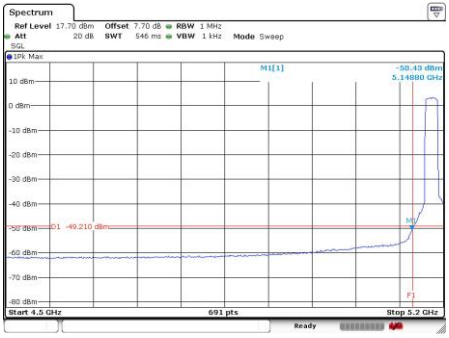
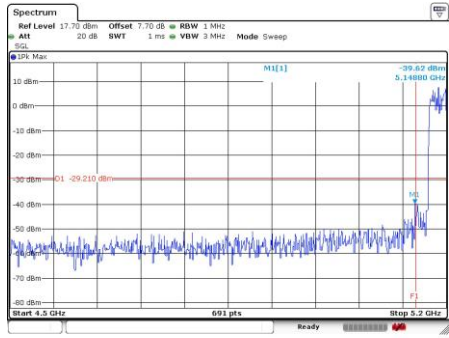
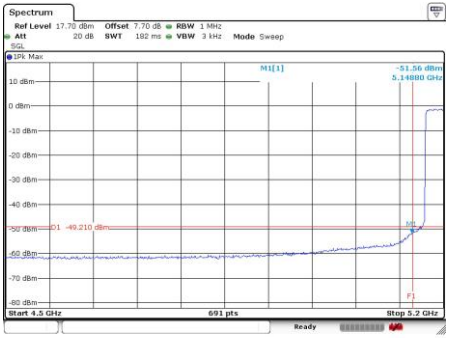
WIFI	802.11n HT40	
Ant1	Peak	Average
CH38		
WIFI	802.11ac VHT20	
CH36		

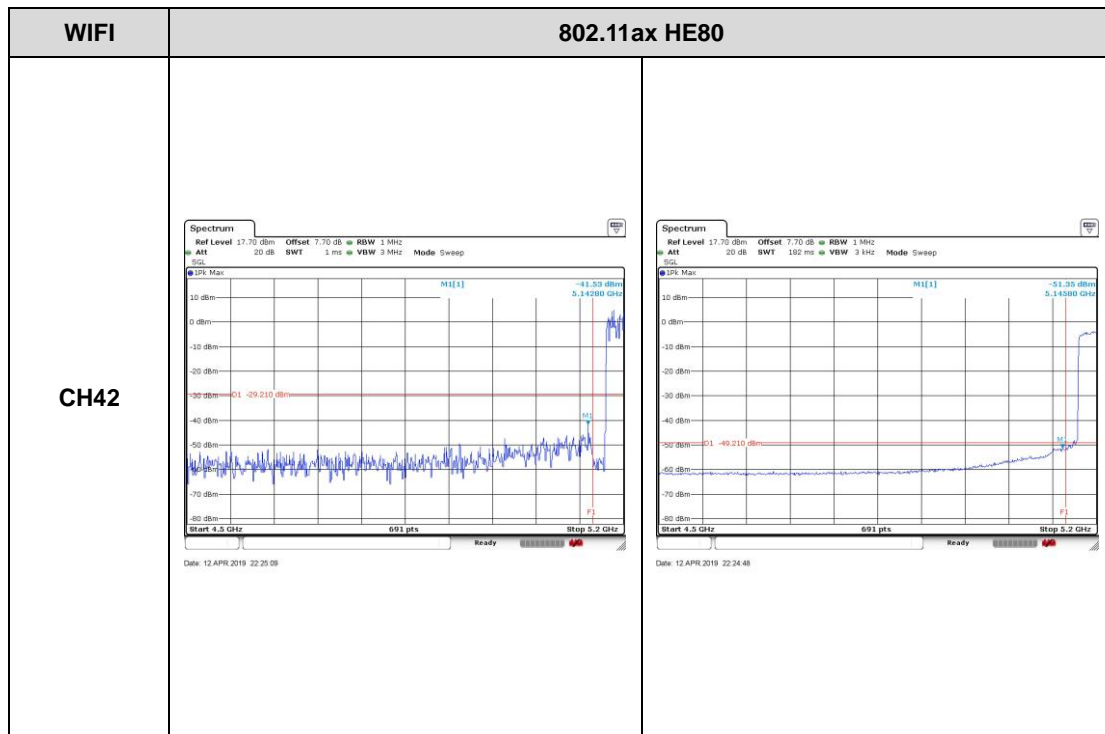




WIFI	802.11ac VHT40	
Ant1	Peak	Average
CH38		
WIFI	802.11ac VHT80	
CH42		

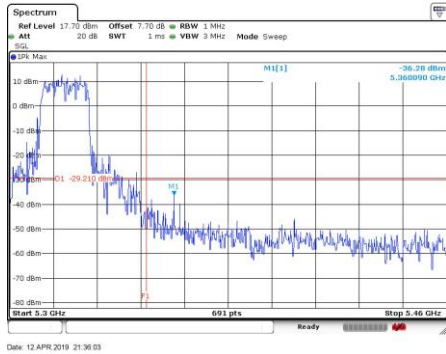
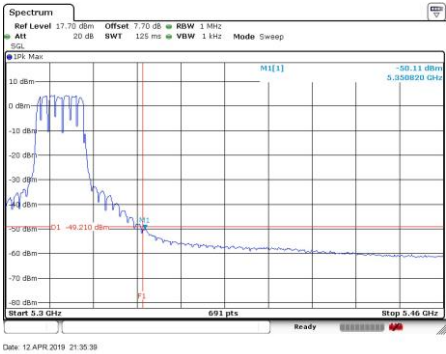


WIFI	802.11ax HE20	
Ant1	Peak	Average
CH36		
WIFI	802.11ax HE40	
CH38		





Band 2 - 5250~5350MHz

WIFI	802.11a	
Ant1	Peak	Average
CH64		
WIFI	802.11n HT20	
CH64	