

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

## INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E REQUIREMENT

OF

**Applicant:** MCBP Technologies, LLC  
103 Foulk Road, Suite 202, Wilmington, DE 19803

**Product Name:** FIORANO

**Model No.:** B81AA1xxxx ("x" can be 0 to 9, A to Z, a to z, "/", "-" or blank)

**Model Difference:** For Marketing Purpose

**FCC ID:** 2AO9Z-A5232

**Report Number:** ER/2017/C0004

**FCC Rule Part:** §15.407, Cat: NII

**Issue Date:** May 04, 2018

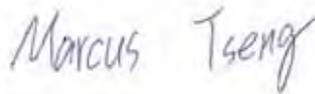
**Date of Test:** Dec. 01, 2017 ~ May 03, 2018

**Date of EUT Re-ceived:** Dec. 01, 2017

**We hereby certify that:**

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits. The test results of this report relate only to the tested sample identified in this report.

**Tested By:**



**Marcus Tseng / Sr. Engineer**

**Approved By:**



**Jim Chang / Manager**



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## Revision History

Report Number	Revision	Description	Effected Page	Issue Date	Revised By
ER/2017/C0004	Rev.00	Initial creation of document	All	May 04, 2018	Yuri Tsai

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## Contents

1	GENERAL INFORMATION .....	4
2	SYSTEM TEST CONFIGURATION.....	7
3	SUMMARY OF TEST RESULT .....	9
4	DESCRIPTION OF TEST MODES.....	10
5	MEASUREMENT UNCERTAINTY .....	14
6	CONDUCTED EMISSION TEST.....	15
7	DUTY CYCLE TEST SIGNAL.....	19
8	26dB & 6dB EMISSION BANDWIDTH MEASUREMENT.....	22
9	MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT .....	44
10	PEAK POWER SPECTRAL DENSITY .....	50
11	UNDESIRABLE RADIATED EMISSION MEASUREMENT.....	63
12	TRANSMISSION IN THE ABSENCE OF DATA .....	219
13	FREQUENCY STABILITY.....	220
14	ANTENNA REQUIREMENT .....	241

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## 1 GENERAL INFORMATION

### 1.1 Product Description

#### General:

Product Name:	FIORANO
Model No.:	B81AA1xxxx ("x" can be 0 to 9, A to Z, a to z, "/", "-" or blank)
Model Difference:	For Marketing Purpose
Power Supply:	100-240V AV, 50-60Hz, 1.7A

#### WLAN 5GHz:

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm)	Modulation Technology
a	5150~5250	4	19.16	OFDM
	5250~5350	4	23.18	
	5470~5725	12	22.57	
	5720~5720	1	14.06	
	5725~5850	5	22.93	
n_HT ac_VHT 20M	5150~5250	4	HT: 19.32 (Worst case)	OFDM
	5250~5350	4	HT: 23.38 (Worst case)	
	5470~5725	12	HT: 22.69 (Worst case)	
	5720~5720	1	HT: 15.9 (Worst case)	
	5725~5850	5	HT: 22.87 (Worst case)	
n_HT ac_VHT 40M	5150~5250	2	HT: 19.60 (Worst case)	OFDM
	5250~5350	2	HT: 22.85 (Worst case)	
	5470~5725	6	HT: 22.26 (Worst case)	
	5710~5710	1	HT: 19.9 (Worst case)	
	5725~5850	2	HT: 23.32 (Worst case)	
ac_VHT 80M	5150~5250	1	18.68	OFDM
	5250~5350	1	18.62	
	5470~5725	3	20.47	
	VHT80 5690	1	20.69	
	5725~5850	1	22.65	

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Modulation type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only
Antenna Designation:	PIFA Antenna, 5150~5250MHz Gain: 0.81dBi (Main) 5250~5350MHz Gain: -0.09dBi (Main) 5470~5725MHz Gain: 1.6dBi (Main) 5725~5850MHz Gain: 1.6dBi (Main) 5150~5250MHz Gain: -0.89dBi (Aux) 5250~5350MHz Gain: -0.88dBi (Aux) 5470~5725MHz Gain: 1.85dBi (Aux) 5725~5850MHz Gain: 1.38dBi (Aux)
Transition Rate:	802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 144.4Mbps 802.11 n_40MHz: 13.5 – 300.0Mbps 802.11 ac_20MHz: 6.5 –173.3Mbps 802.11 ac_40MHz: 13.5 –400.0Mbps 802.11 ac_80MHz: 29.3 – 866.7Mbps

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## 1.2 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407

FCC KDB 789033 D02 General UNII Test Procedures New Rules

FCC KDB 662911 D01 Multiple Transmitter Output

FCC KDB 644545 D03 Guidance for IEEE 802.11ac

ANSI C63.10:2013

### Note:

All test items have been performed and record as per the above standards.

## 1.3 Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803 (TAF code 0513)

FCC Registration Numbers are: 509634 / TW0001

## 1.4 Special Accessories

There are no special accessories used while test was conducted.

## 1.5 Equipment Modifications

There was no modification incorporated into the EUT.

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## 2 SYSTEM TEST CONFIGURATION

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed according to §15.207. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

#### 2.3.2 Radiated Emissions

The EUT is placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plan. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

### 2.4 Measurement Results Explanation Example

#### For all conducted test items:

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

#### Note:

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

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## 2.5 Configuration of Tested System

Fig. 2-1 Radiated Emission Configuration

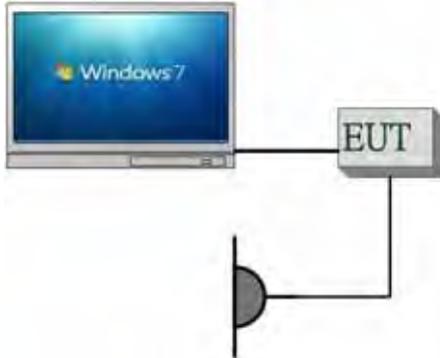


Fig. 2-3 Conducted (AC powerline) Emission Configuration

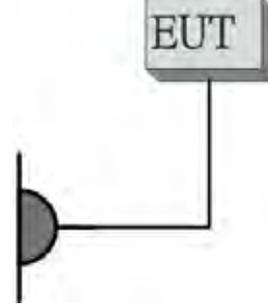


Fig. 2-2 Conducted (Antenna Port) Emission Configuration

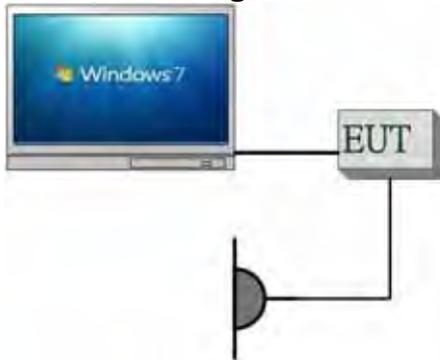


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2.	Notebook	Lenovo	L430	R9-WR6X4	Shielded	Unshielded

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### 3 SUMMARY OF TEST RESULT

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	26 dB & 6dB & 99% Emission Bandwidth	Compliant
§15.407(a)	Maximum Conducted Output Power	Compliant
§15.407(a)	Power Spectral Density	Compliant
§15.407(b)	Undesirable Radiated Emissions	Compliant
§15.407(c)	Transmission in case of Absence of Information	Compliant
§15.407(g)	Frequency Stability	Compliant
§15.203 §15.407(a)	Antenna Requirement	Compliant

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## 4 DESCRIPTION OF TEST MODES

### 4.1 Operated in U-NII Bands

#### Operated band in 5150 MHz ~5250 MHz:

802.11a / n HT20 Mode, 802.11ac VHT20 Mode	
Channel	Frequency
36	5180
40	5200
44	5220
48	5240

802.11 n HT40 Mode, 802.11ac VHT40 Mode	
channel	Frequency
38	5190
46	5230

802.11ac VHT80 Mode	
channel	Frequency
42	5210

#### Operated band in 5250 MHz ~5350 MHz:

802.11a / n HT20 Mode, 802.11ac VHT20 Mode	
channel	Frequency
52	5260
56	5280
60	5300
64	5320

802.11 n HT40 Mode, 802.11ac VHT40 Mode	
channel	Frequency
54	5270
62	5310

802.11ac VHT80 Mode	
Channel	Frequency
58	5290

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**Operated band in 5470 MHz ~5725 MHz:**

<b>802.11a / n HT20 Mode, 802.11ac VHT20 Mode</b>	
Channel	Frequency
100	5500
104	5520
108	5540
112	5560
116	5580
120	5600
124	5620
128	5640
132	5660
136	5680
140	5700
144	5720

<b>802.11 n HT40 Mode, 802.11ac VHT40 Mode</b>	
channel	Frequency
102	5510
110	5550
118	5590
126	5630
134	5670
142	5710

<b>802.11ac VHT80 Mode</b>	
channel	Frequency
106	5530
122	5610
138	5690

**Operated band in 5745 MHz ~5850 MHz:**

<b>802.11a / n HT20 Mode, 802.11ac VHT20 Mode</b>	
Channel	Frequency
149	5745
153	5765
157	5785
161	5805
165	5825

<b>802.11 n HT40 Mode, 802.11ac VHT40 Mode</b>	
channel	Frequency
151	5755
159	5795

<b>802.11ac VHT80 Mode</b>	
channel	Frequency
155	5775

#### 4.1 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting mode is programmed.
3. Investigation has been done on all the possible configurations for searching the worst case.
4. The screen of the EUT can be rotated at 0 degree and 90 degree, when the screen be placed at 0 degree (upright), it is defined as "Portrait Mode" or "H-Plane" and when it be placed at 90 degree ( horizontal ), it is defined as "Landscape Mode" or "E2-Plane"

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**RADIATED EMISSION TEST:**

MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
<b>RADIATED EMISSION TEST (BELOW 1 GHz)</b>						
802.11a	5180~5240	36 to 48	36,44,48	OFDM	54	Aux
802.11ac_VHT80	5210	42	42	OFDM	MCS10	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	54	MIMO
802.11ac_VHT80	5290	58	58	OFDM	MCS10	MIMO
802.11a	5500~5720	100 to 140	100,116,140	OFDM	54	MIMO
802.11ac_VHT80	5530~5690	106 to 138	106,122,138	OFDM	MCS10	MIMO
802.11a	5745~5825	149 to 165	149,157,165	OFDM	54	MIMO
802.11ac_VHT80	5775	155	155	OFDM	MCS10	MIMO
<b>RADIATED EMISSION TEST (ABOVE 1 GHz)</b>						
802.11a	5180~5240	36 to 48	36,44,48	OFDM	54	2TX
802.11n_HT20				OFDM	MCS15	MIMO
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS15	MIMO
802.11ac_VHT80	5210	42	42	OFDM	MCS10	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	54	2TX
802.11n_HT20				OFDM	MCS15	MIMO
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS15	MIMO
802.11ac_VHT80	5290	58	58	OFDM	MCS10	MIMO
802.11a	5500~5720	100 to 144	100,116,140	OFDM	54	2TX
802.11n_HT20				OFDM	MCS15	MIMO
802.11a	5720	144	144	OFDM	54	2TX
802.11n_HT20	5720	144	144	OFDM	MCS15	MIMO
802.11n_HT40	5510~5710	102 to 142	102,110,134	OFDM	MCS15	MIMO
802.11n_HT40	5710	142	142	OFDM	MCS15	MIMO
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS10	MIMO
802.11ac_VHT80	5775	155	155	OFDM	MCS10	MIMO
802.11a	5745~5825	149 to 165	149,157,165	OFDM	54	2TX
802.11n_HT20				OFDM	MCS15	MIMO
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS15	MIMO
802.11ac_VHT80	5775	155	155	OFDM	MCS10	MIMO

**Note:** The field strength of radiation emission was measured as EUT Portrait Mode and Landscape Mode for 802.11a/n/ac WLAN Transmitter for channel Low, Mid and High, the worst case Portrait was reported.

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**ANTENNA PORT CONDUCTED MEASUREMENT:**

CONDUCTED TEST						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	2TX
802.11n_HT20 802.11ac_VHT20				OFDM	MCS8	MIMO
802.11n_HT40 802.11ac_VHT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO
802.11ac_VHT80	5210	42	42	OFDM	MCS8	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	2TX
802.11n_HT20 802.11ac_VHT20				OFDM	MCS8	MIMO
802.11n_HT40 802.11ac_VHT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO
802.11ac_VHT80	5290	58	58	OFDM	MCS8	MIMO
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	2TX
802.11n_HT20 802.11ac_VHT20				OFDM	MCS8	MIMO
802.11a	5720	144	144	OFDM	6	2TX
802.11n_HT20	5720	144	144	OFDM	MCS8	MIMO
802.11n_HT40	5510~5710	102 to 142	102,110,134	OFDM	MCS8	MIMO
802.11n_HT40	5710	142	142	OFDM	MCS8	MIMO
802.11n_HT40 802.11ac_VHT40	5510~5670	102 to 134	102,110,134	OFDM	MCS8	MIMO
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS8	MIMO
802.11a	5745~5825	149 to 165	149,157,165	OFDM	6	2TX
802.11n_HT20 802.11ac_VHT20				OFDM	MCS8	MIMO
802.11n_HT40 802.11ac_VHT40	5755~5795	151 to 159	151,159	OFDM	MCS8	MIMO
802.11ac_VHT80	5775	155	155	OFDM	MCS8	MIMO

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## 5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
26dB & 6dB Emission Bandwidth	+/- 123.36 Hz
The Maximum Output Power Measurement	+/- 0.96 dB
Peak Power Spectral Density Measurement	+/- 1.67 dB
Frequency Stability	+/- 123.36 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

### Radiated Spurious Emission:

Measurement uncertainty (Polarization : <b>Vertical</b> )	9kHz-30MHz: +/-2.87dB
	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB

Measurement uncertainty (Polarization : <b>Horizontal</b> )	9kHz-30MHz: +/-2.87dB
	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

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## 6 CONDUCTED EMISSION TEST

### 6.1. Standard Applicable

Frequency range within 150 kHz to 30 MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note  
1.The lower limit shall apply at the transition frequencies  
2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 6.2. Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESC17	100760	2017/06/06	2018/06/05
LISN	SCHWARZ-BECK	NSLK 8127	8127-649	2017/05/22	2018/05/21
Coaxial Cables	N/A	WK CE Cable	N/A	2017/01/03	2018/01/02
Coaxial Cables	N/A	WK CE Cable	N/A	2018/01/02	2019/01/01

### 6.3. EUT Setup

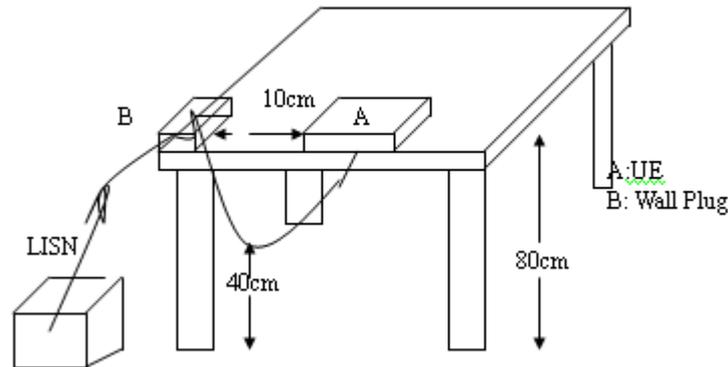
1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the table top.
3. The LISN was connected with 120Vac/60Hz power source.

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## 6.4. Test SET-UP



## 6.5. Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed.

## 6.6. Measurement Result

Note: Refer to next page for measurement data and plots.

Note2: The \* reveals the worst-case results that closet to the limit

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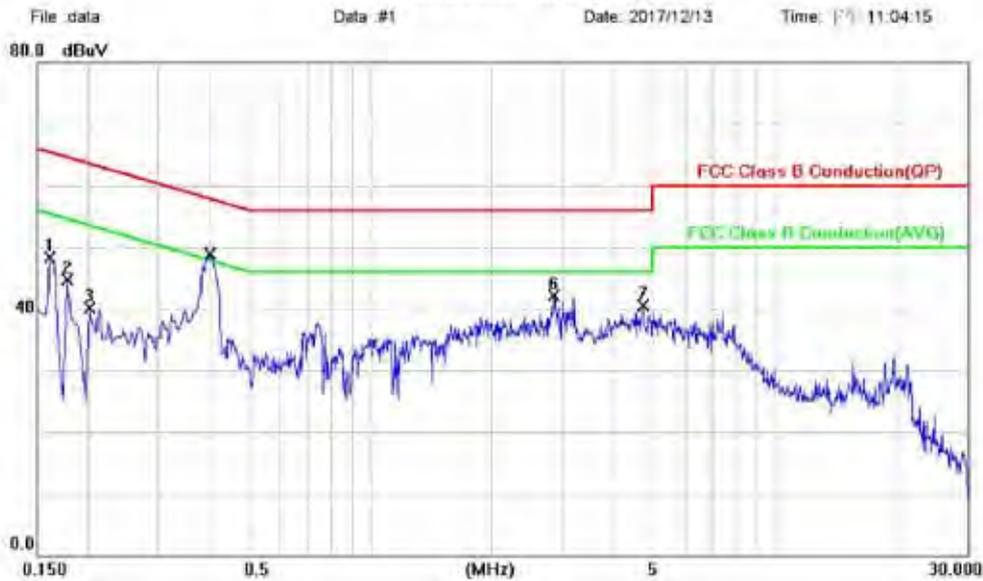
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Site Conduction Room	Phase: <b>N</b>	Temperature: 20 °C
Limit: FCC Class B Conduction(QP)	Power: AC 120V/60Hz	Humidity: 58 %
Mode: Operation		
Note:		

### Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1620	48.21	0.07	48.28	65.36	-17.08	peak	
2		0.1780	44.58	0.07	44.65	64.58	-19.93	peak	
3		0.2020	40.09	0.07	40.16	63.53	-23.37	peak	
4		0.4020	48.20	0.08	48.28	57.81	-9.53	QP	
5	*	0.4020	41.50	0.08	41.58	47.81	-6.23	AVG	
6		2.8420	41.87	0.15	42.02	56.00	-13.98	peak	
7		4.7220	40.27	0.24	40.51	56.00	-15.49	peak	

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## 7 DUTY CYCLE TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

### Formula:

$$\text{Duty Cycle} = \text{Ton} / (\text{Ton} + \text{Toff})$$

### Measurement Procedure:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

Duty Cycle:

Mode	Duty Cycle (%)	Duty Factor (dB) =10*log ( 1/Duty Cycle )	1/T (kHz)	VBW setting (kHz)
802.11a	94.66	0.24	0.49	1.00
802.11n_20	92.27	0.35	0.78	1.00
802.11n_40	92.09	0.36	0.81	1.00
802.11ac_80	95.18	0.21	0.88	1.00

$$\text{Duty Cycle Factor: } 10 * \log(1/0.9466) = 0.24$$

$$\text{Duty Cycle Factor: } 10 * \log(1/0.9227) = 0.35$$

$$\text{Duty Cycle Factor: } 10 * \log(1/0.9209) = 0.36$$

$$\text{Duty Cycle Factor: } 10 * \log(1/0.9518) = 0.21$$

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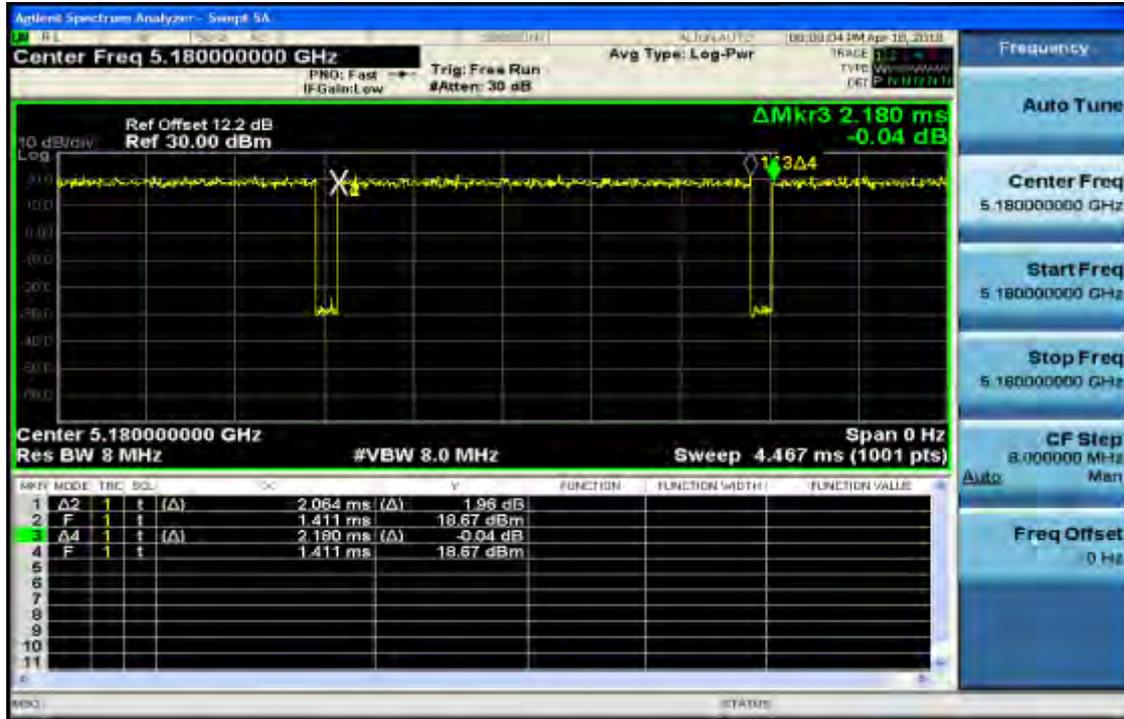
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## DUTY CYCLE TEST SIGNAL Measurement Result 802.11a



## 802.11n HT20



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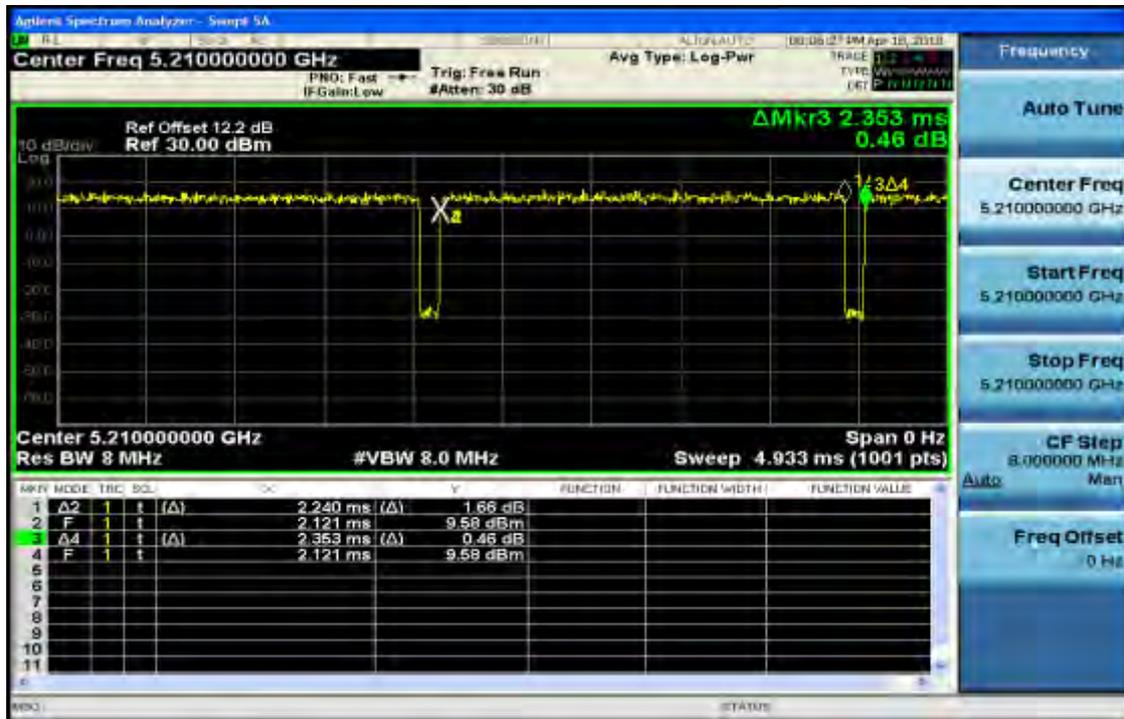
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### 802.11n HT 40



### 802.11 ac VHT 80



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## 8 26DB & 6DB EMISSION BANDWIDTH MEASUREMENT

### 8.1 Standard Applicable

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C.  
The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

### 8.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
  - a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto, Detector = Peak, Trace Mode = Max Hold, Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.
  - b. Mark the peak frequency and -26dB (upper and lower) frequency.
4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
5. Minimum Emission Bandwidth for the band 5.725-5.850GHz.
  - a. Set the spectrum analyzer as RBW = 100 kHz, VBW = 3\*RBW, Span = 30M/50MHz, Detector=Peak, Sweep=auto
  - b. Mark the peak frequency and -6dB (upper and lower) frequency.
6. Repeat above procedures until all test default channel measured were complete.

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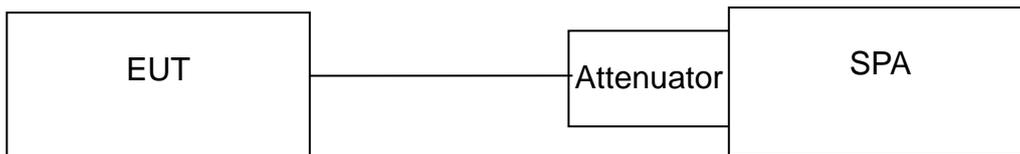
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### 8.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	2017/10/16	2018/10/15
Attenuator	Mini-Circuit	BW-S10W2+	2	2017/01/03	2018/01/02
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Notebook	Lenovo	L430	R9-X11BG	N/A	N/A

### 8.4 Test Set-up



### 8.5 Measurement Result

#### 26dB Bandwidth

##### 802.11a\_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	21.98	13.419
5220	21.97	13.418
5240	21.99	13.423
5260	23.17	13.649
5300	23.20	13.655
5320	22.57	13.536
5500	22.17	13.458
5580	22.87	13.593
5700	21.60	13.345
5720 (U-NII 2C)	17.88	12.524
5720 (U-NII 3)	8.92	9.504

##### 802.11a\_Aux1

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	21.99	13.422
5220	20.64	13.148
5240	22.23	13.469
5260	24.08	13.816
5300	22.51	13.524
5320	21.07	13.236
5500	22.29	13.481
5580	24.31	13.857
5700	22.28	13.479
5720 (U-NII 2C)	17.84	12.514
5720 (U-NII 3)	8.08	9.074

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802.11n\_HT20\_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	21.23	13.269
5220	21.14	13.250
5240	21.89	13.403
5260	23.78	13.762
5300	22.58	13.537
5320	21.24	13.272
5500	21.33	13.290
5580	24.02	13.805
5700	23.23	13.660
5720 (U-NII 2C)	18.40	12.648
5720 (U-NII 3)	8.00	9.031

802.11n\_HT20\_Aux1

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	21.00	13.222
5220	21.12	13.248
5240	20.99	13.220
5260	23.57	13.724
5300	24.02	13.806
5320	21.12	13.247
5500	21.21	13.266
5580	22.37	13.496
5700	24.08	13.816
5720 (U-NII 2C)	18.24	12.61
5720 (U-NII 3)	7.96	9.01

802.11n\_HT40\_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	39.45	15.960
5230	39.36	15.950
5270	39.46	15.962
5310	39.00	15.910
5510	39.46	15.962
5550	<b>39.79</b>	15.998
5670	39.48	15.964
5710 (U-NII 2C)	35.84	15.544
5710 (U-NII 3)	6.32	8.007

802.11n\_HT40\_Aux1

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	39.45	15.960
5230	39.25	15.939
5270	39.72	15.990
5310	39.39	15.954
5510	39.21	15.934
5550	<b>40.00</b>	16.020
5670	39.44	15.960
5710 (U-NII 2C)	35.92	15.553
5710 (U-NII 3)	6.48	8.116

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802.11ac\_VHT80\_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	80.38	19.051
5290	79.96	19.029
5530	80.03	19.033
5610	80.72	19.070
5690 (U-NII 2C)	77.20	18.876
5690 (U-NII 3)	8.72	9.405

802.11ac\_VHT80\_Aux1

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	80.26	19.045
5290	80.64	19.066
5530	80.36	19.051
5610	80.39	19.052
5690 (U-NII 2C)	77.20	18.876
5690 (U-NII 3)	9.04	9.562

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**6dB Bandwidth (5725 MHz~ 5850 MHz) measure with Peak detector for FCC**

**802.11a\_Main**

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.07	12.061
5785	15.12	11.796
5825	15.65	11.945

**802.11a\_Aux1**

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.30	12.122
5785	15.83	11.993
5825	16.30	12.121

**802.11n\_HT20\_Main**

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.91	12.282
5785	15.46	11.892
5825	15.36	11.864

**802.11n\_HT20\_Aux1**

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	15.64	11.943
5785	15.89	12.012
5825	15.01	11.764

**802.11n\_HT40\_Main**

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.41	15.492
5795	35.13	15.457

**802.11n\_HT40\_Aux1**

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.33	15.482
5795	35.39	15.488

**802.11ac\_VHT80\_Main**

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	76.37	18.829

**802.11ac\_VHT80\_Aux1**

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	76.07	18.812

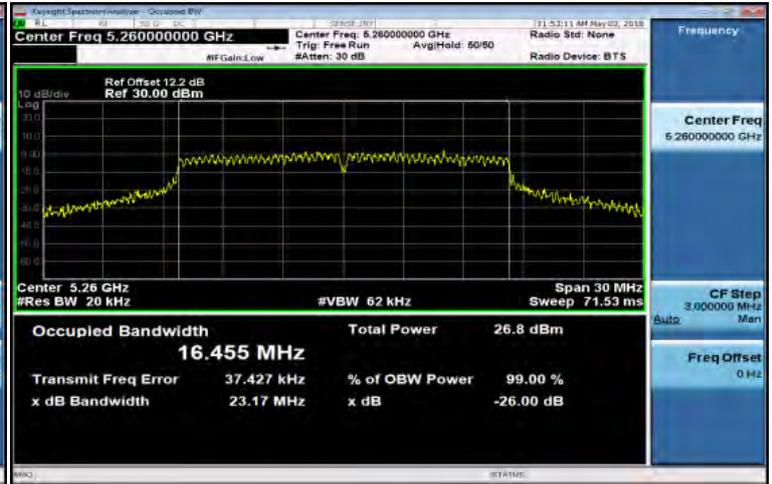
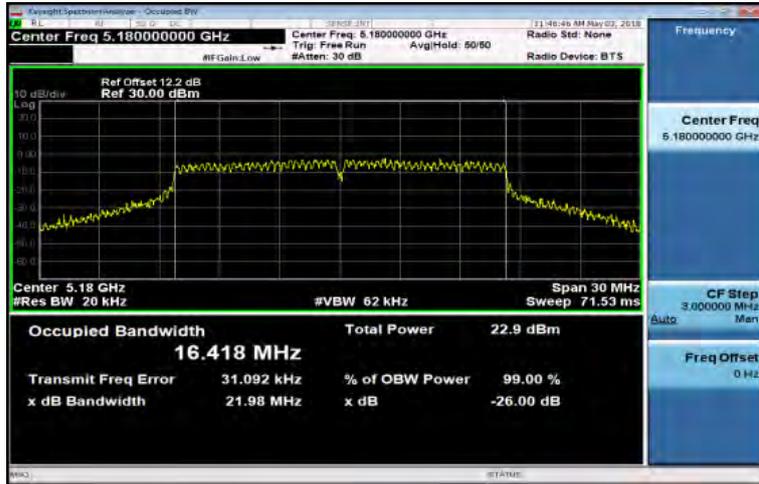
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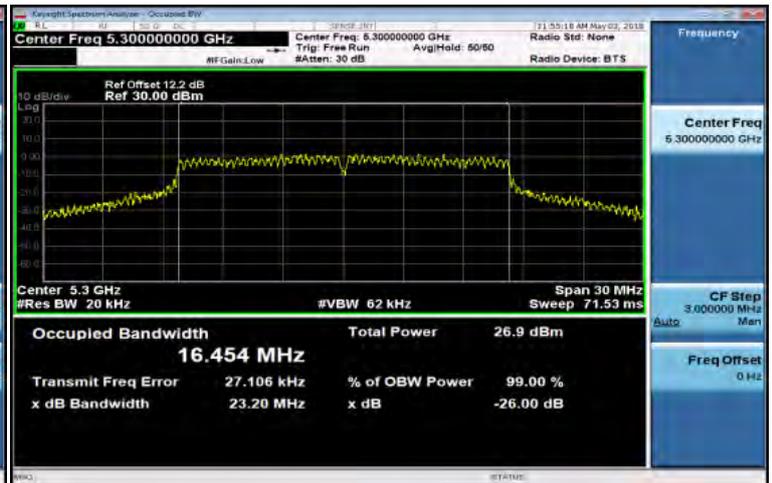
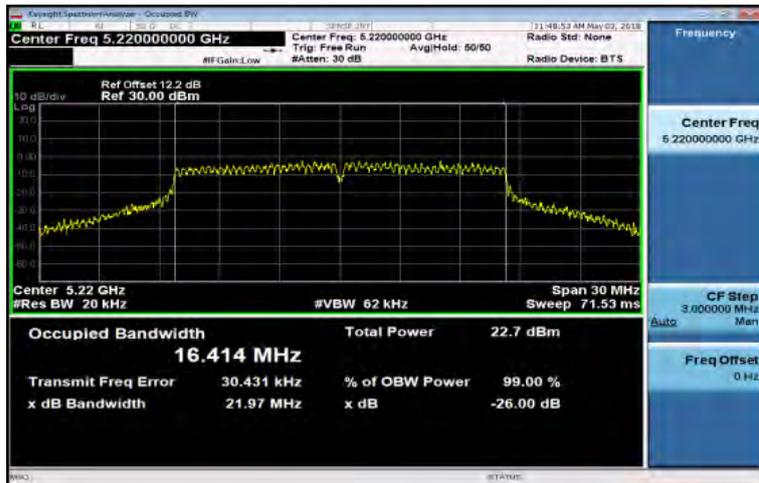
802.11a (Main) 5180MHz

5260MHz



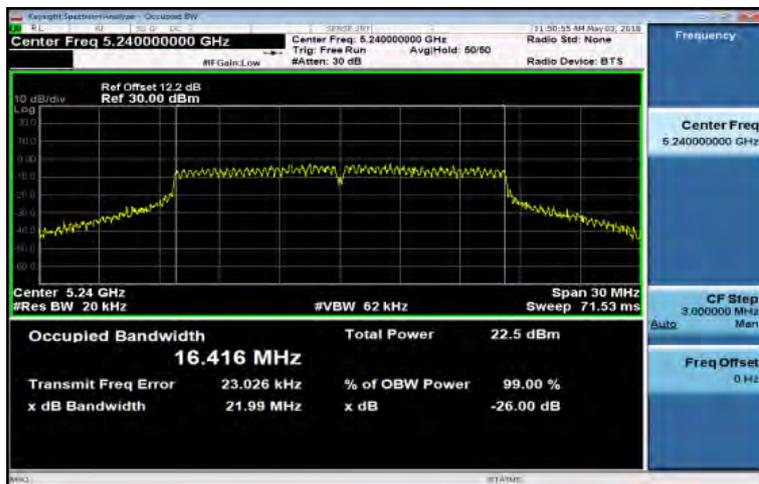
5220MHz

5300MHz



5240MHz

5320MHz

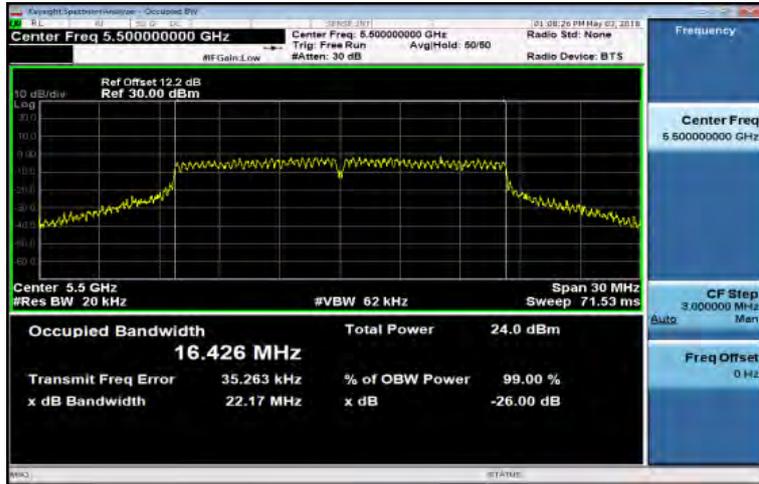


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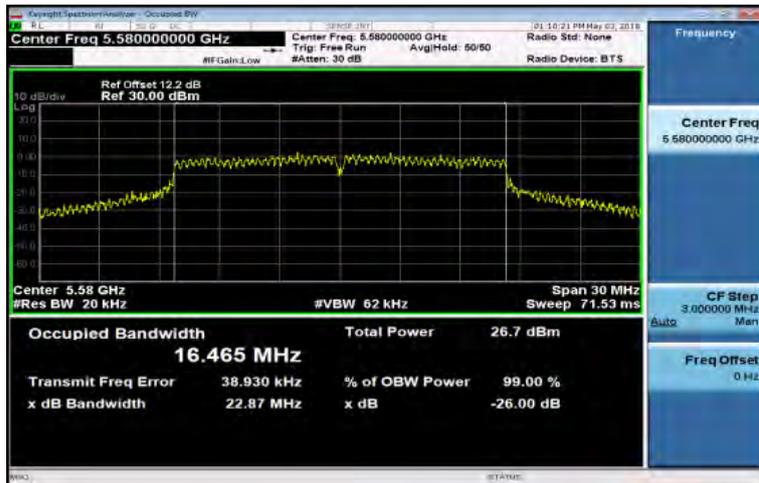
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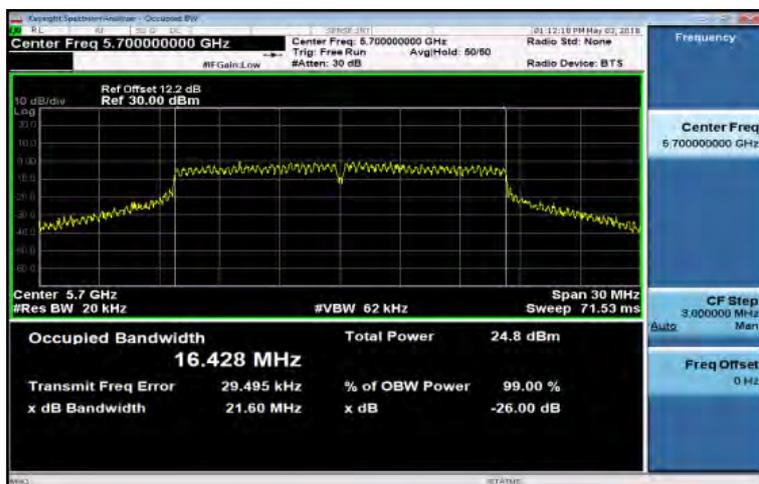
5720MHz



5580MHz



5700MHz

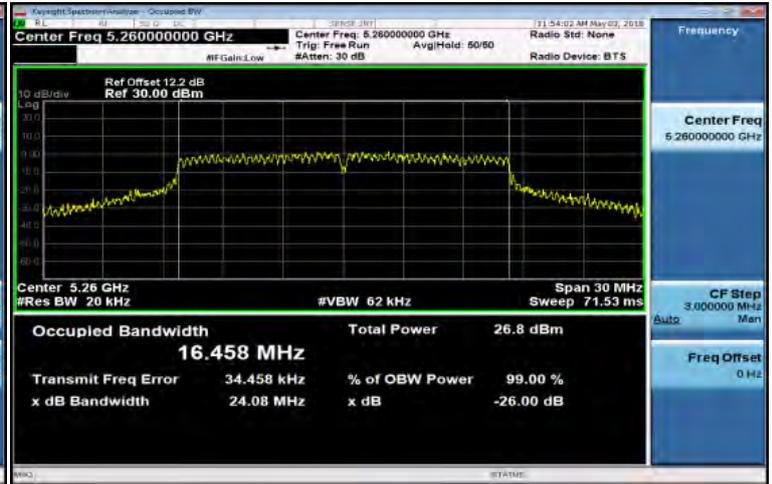
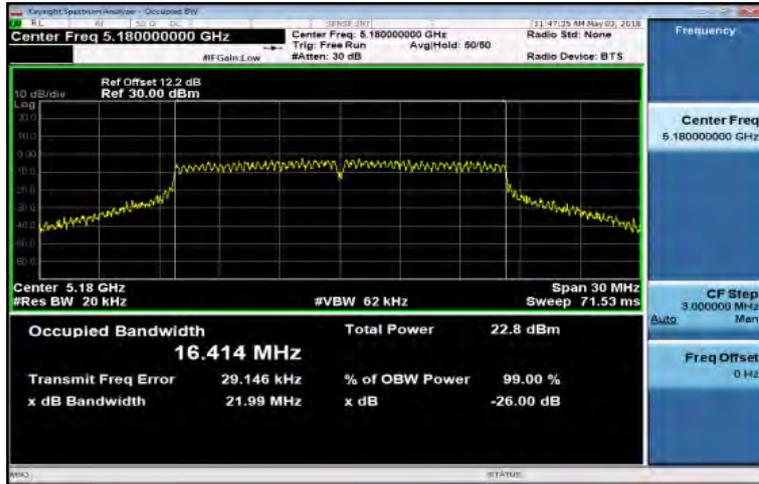


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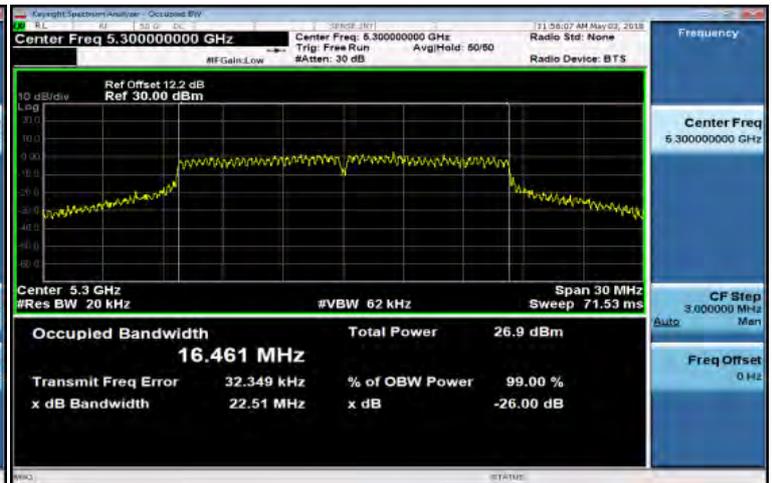
802.11a (Aux1) 5180MHz

5260MHz



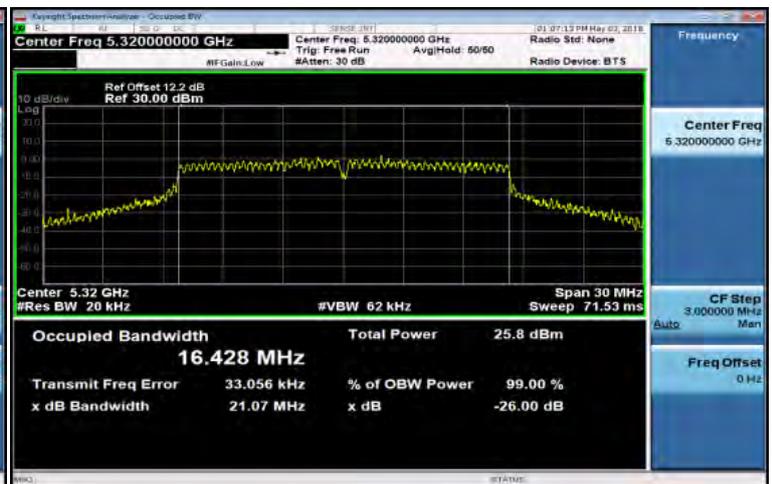
5220MHz

5300MHz



5240MHz

5320MHz

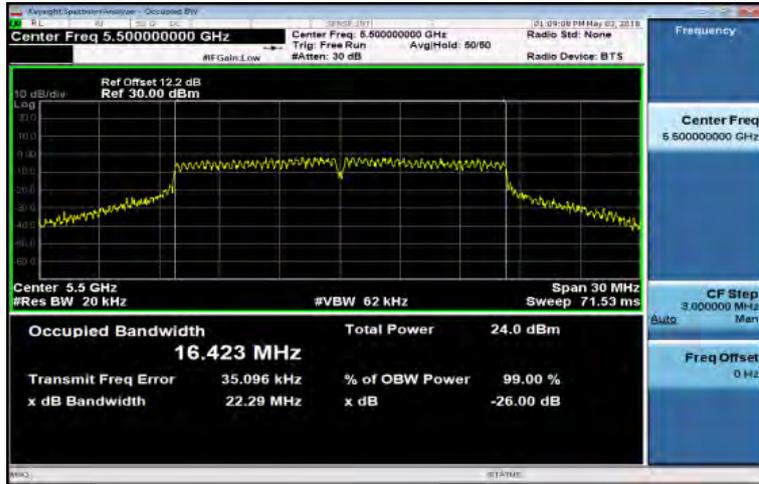


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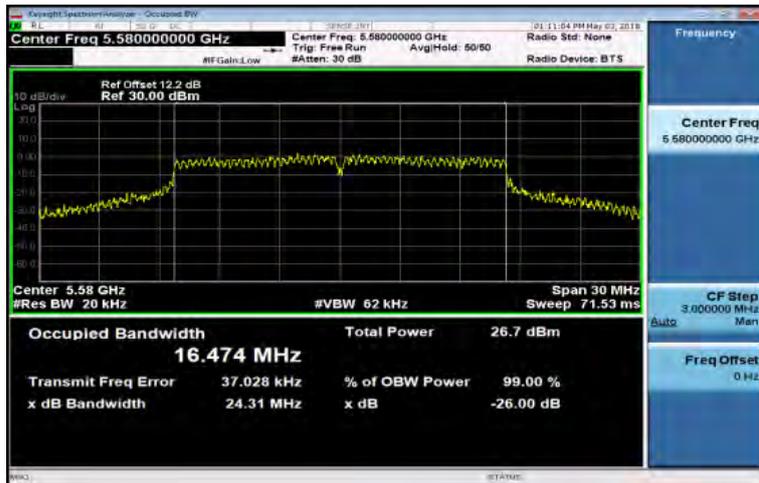
5500MHz



5720MHz



5580MHz



5700MHz



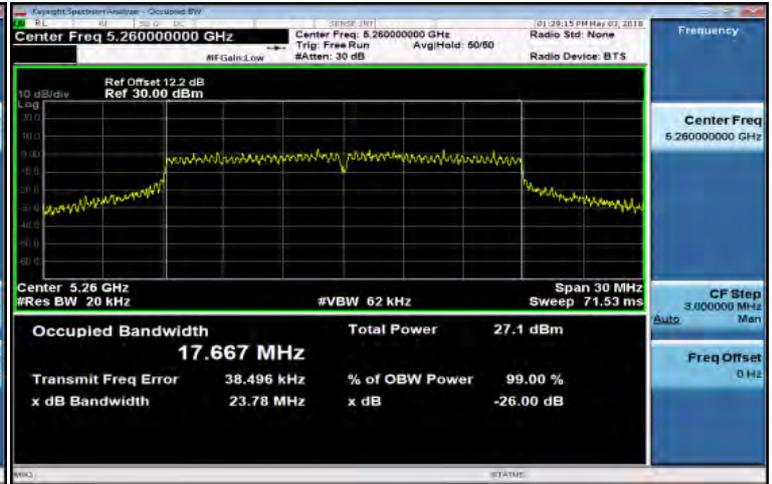
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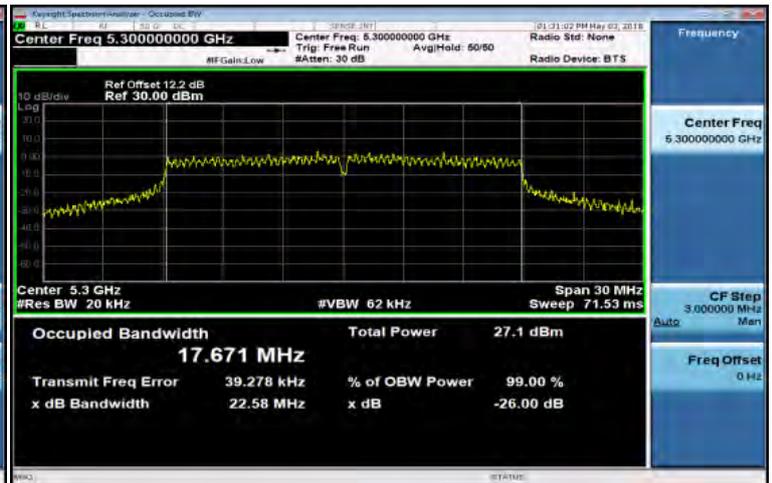
802.11n HT20 (Main) 5180 MHz

5260 MHz



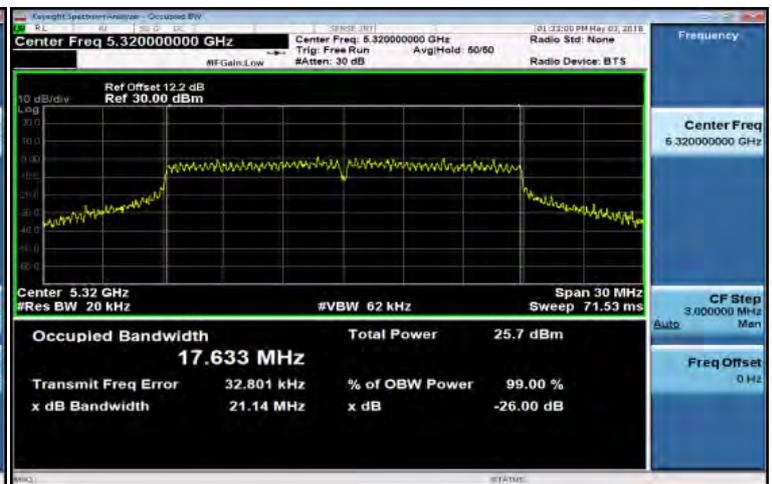
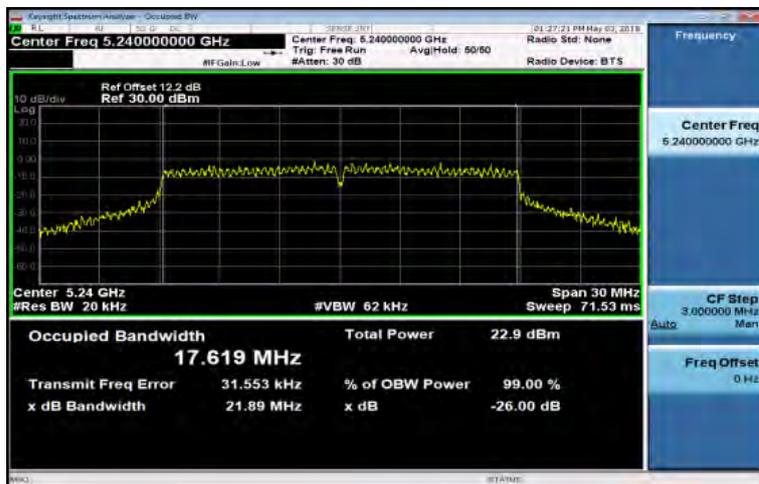
5220 MHz

5300 MHz



5240 MHz

5320 MHz

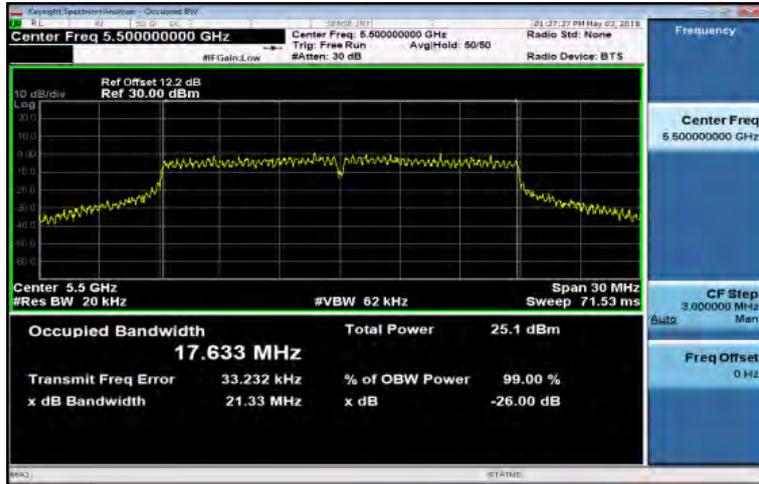


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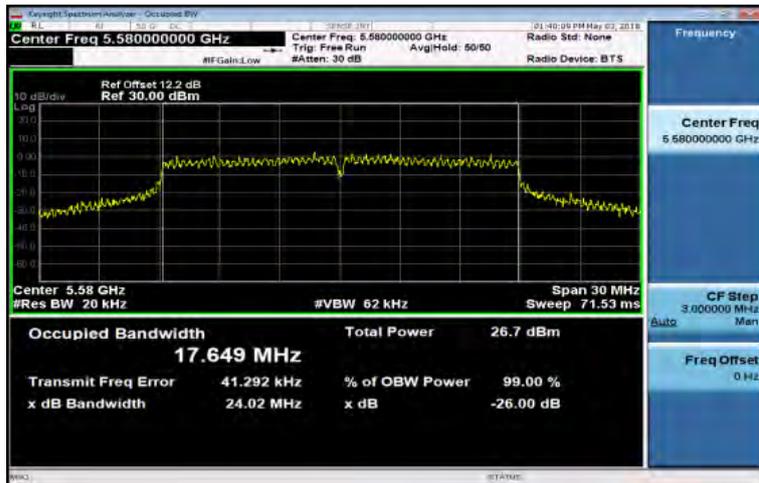
5500 MHz



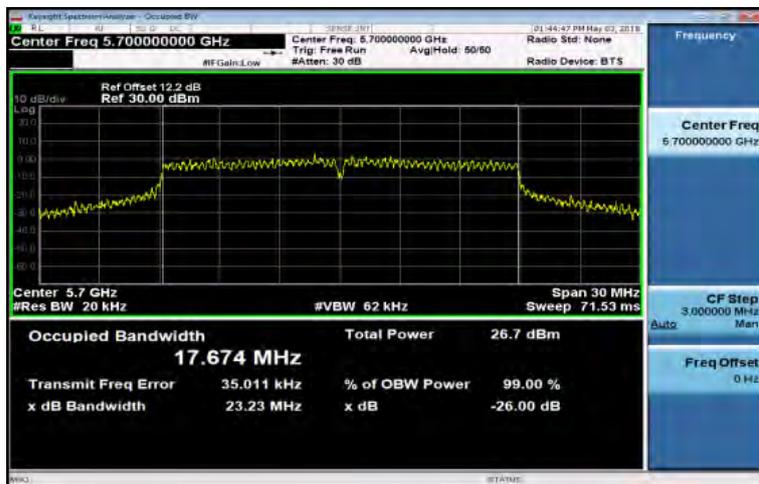
5720 MHz



5580 MHz



5700 MHz

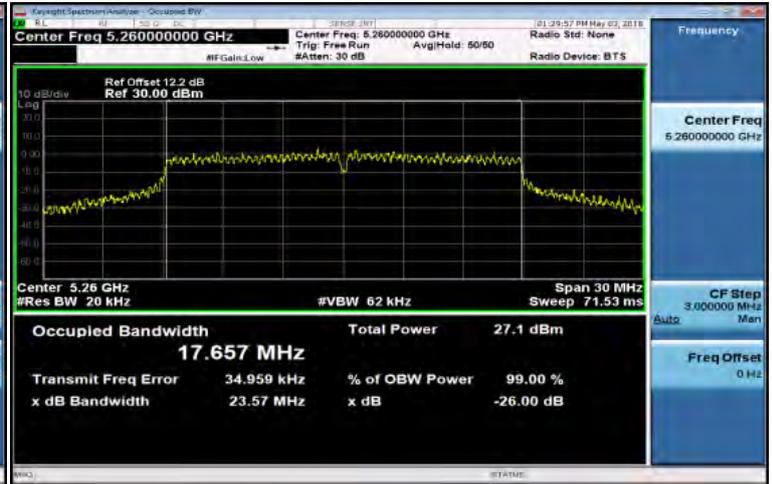
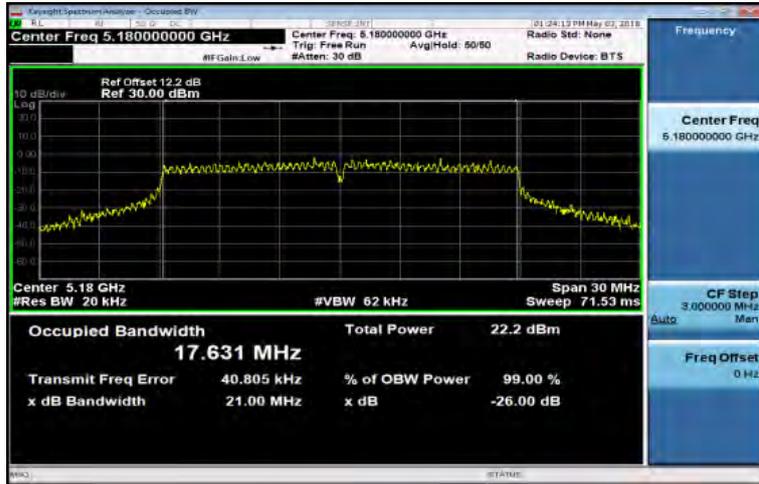


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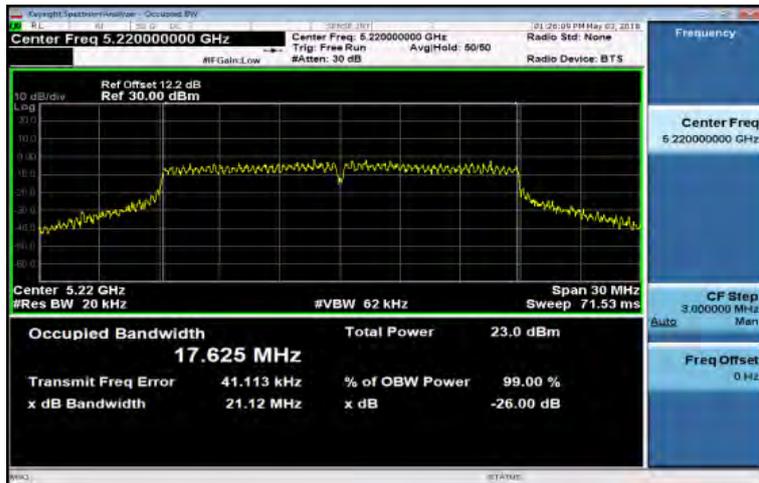
802.11n HT20 (Aux1) 5180 MHz

5260 MHz



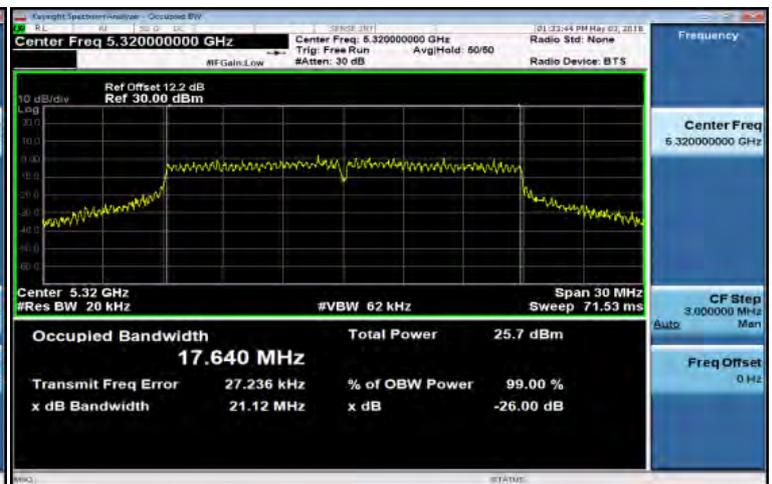
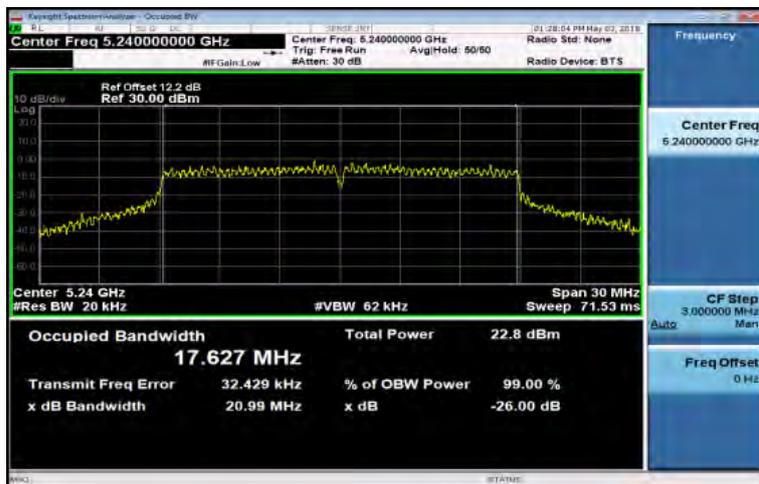
5220 MHz

5300 MHz



5240 MHz

5320 MHz

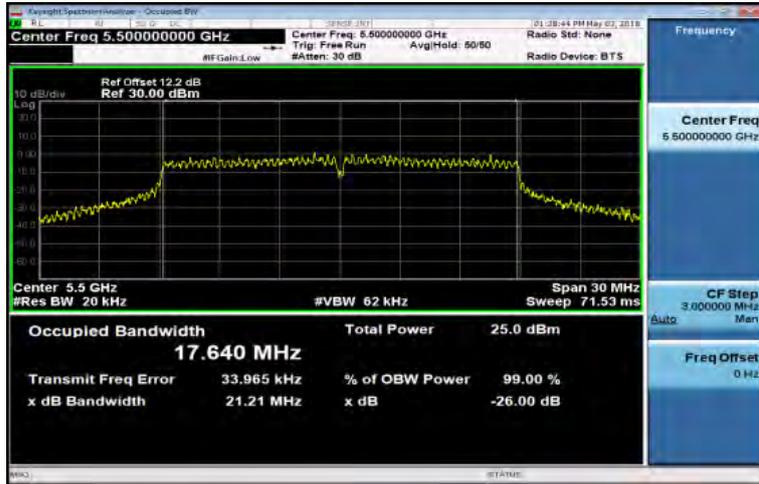


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5500 MHz



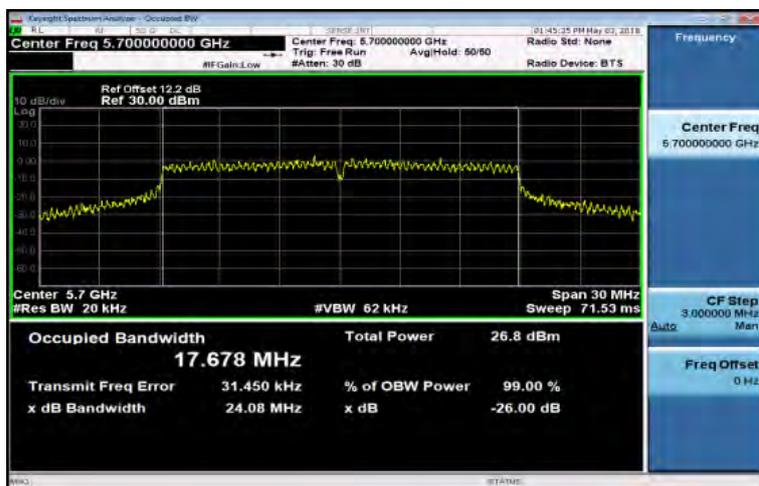
5720 MHz



5580 MHz



5700 MHz

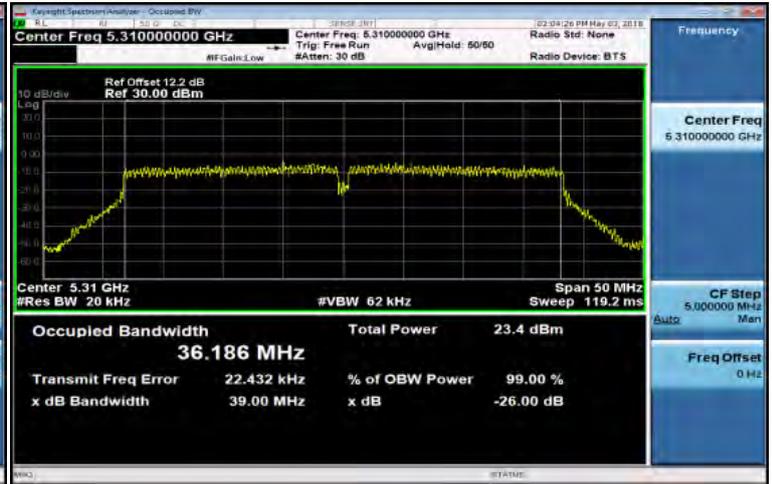
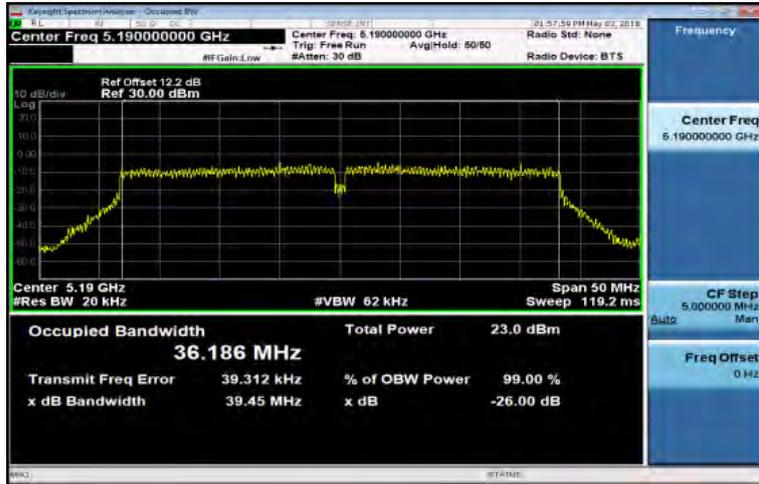


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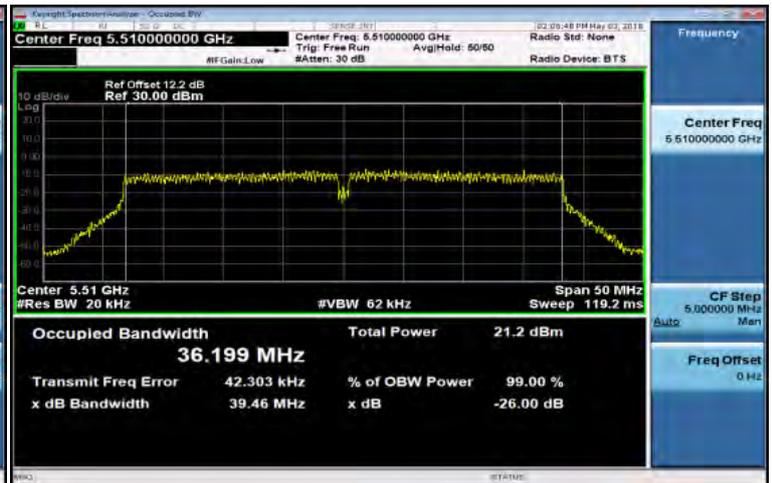
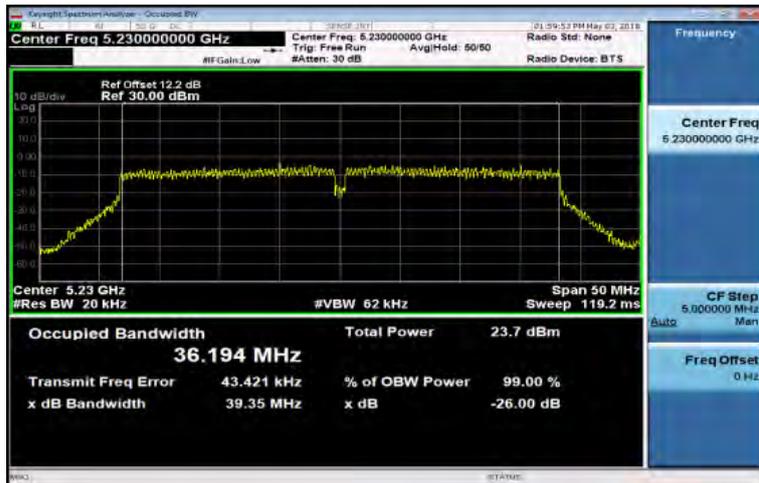
802.11n HT40 (Main) 5190 MHz

5310MHz



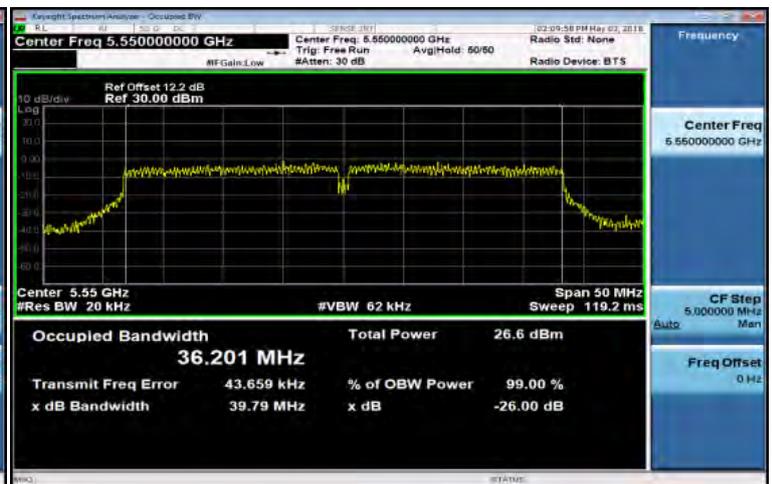
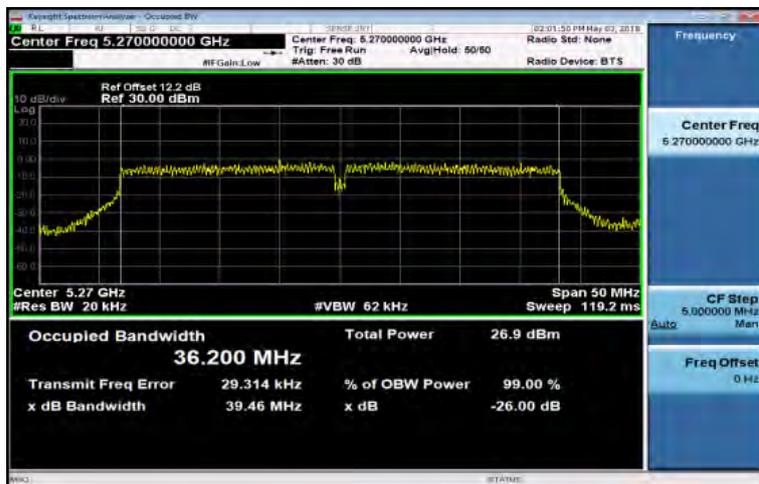
5230 MHz

5510 MHz



5270 MHz

5550 MHz

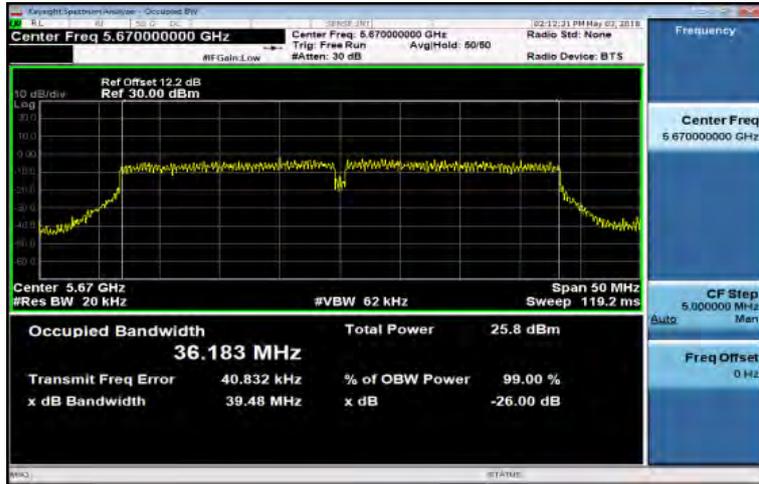


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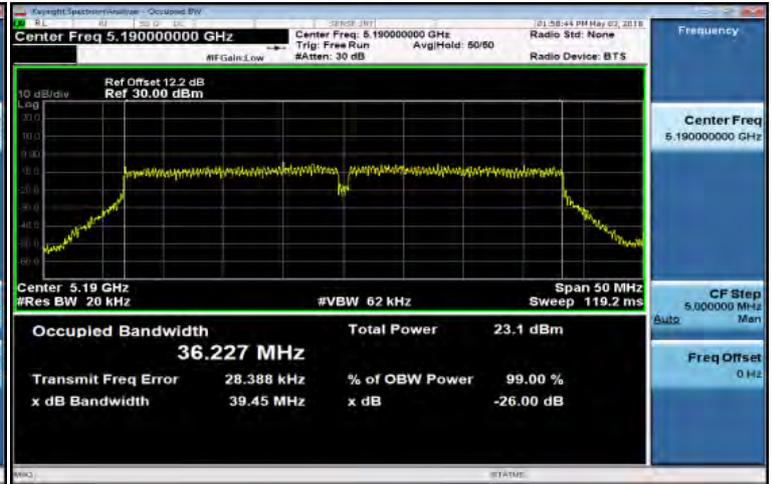
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5670 MHz



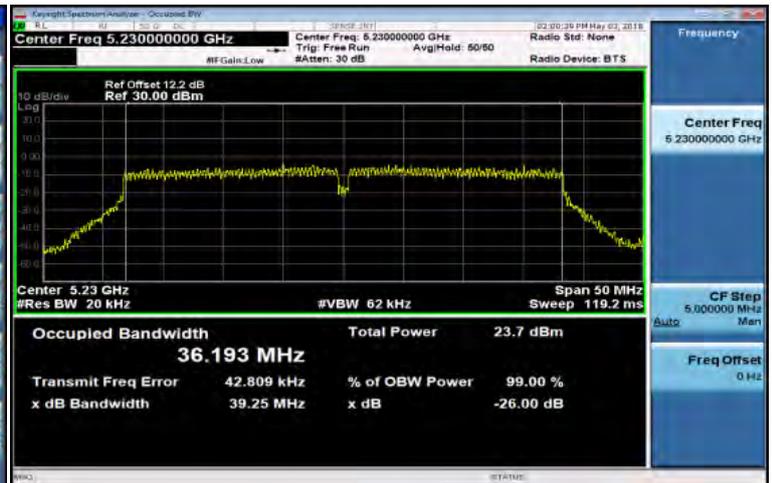
802.11n HT40 (Aux1) 5190 MHz



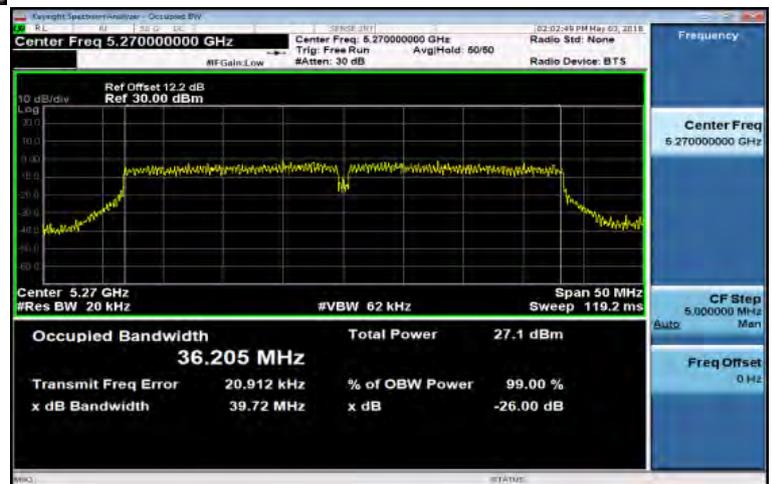
5710 MHz



5230 MHz



5270 MHz

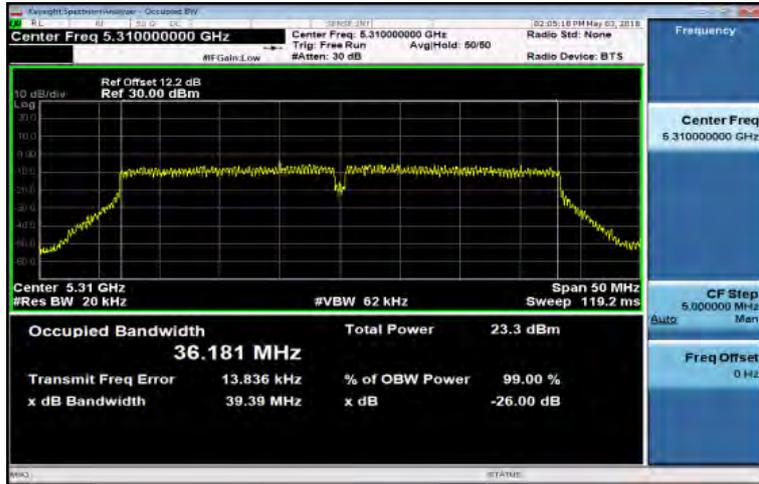


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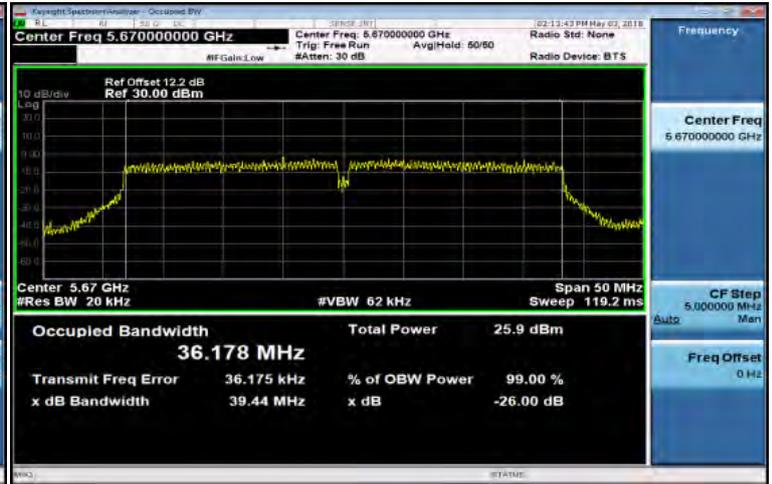
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5310MHz



5670 MHz



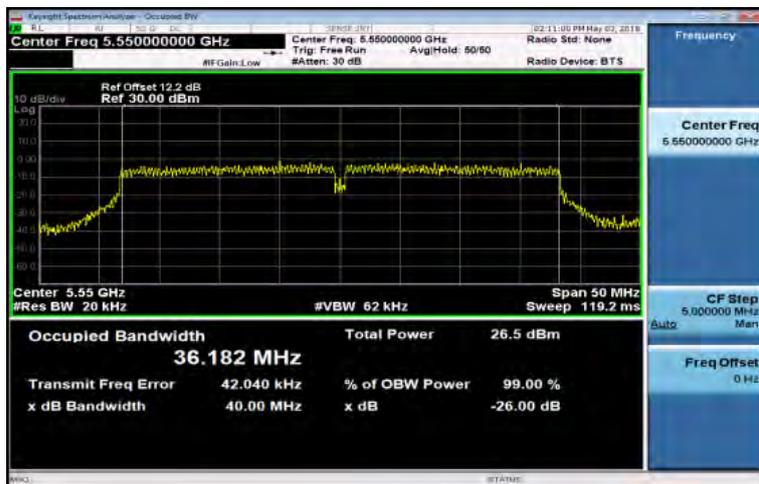
5510 MHz



5710 MHz



5550 MHz

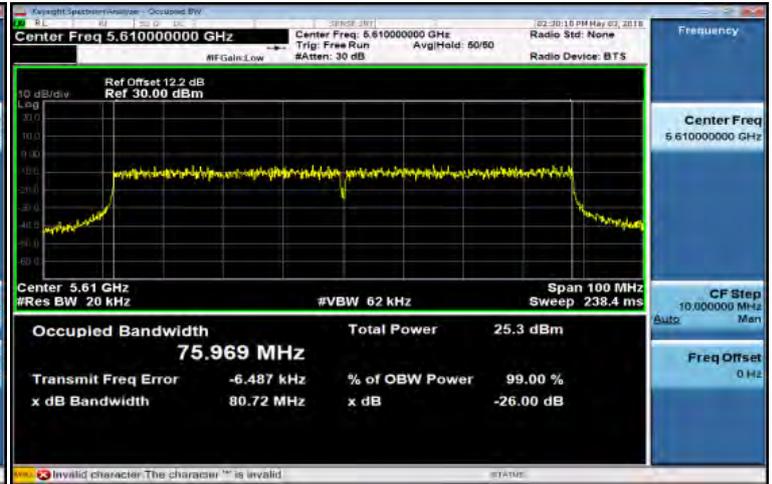
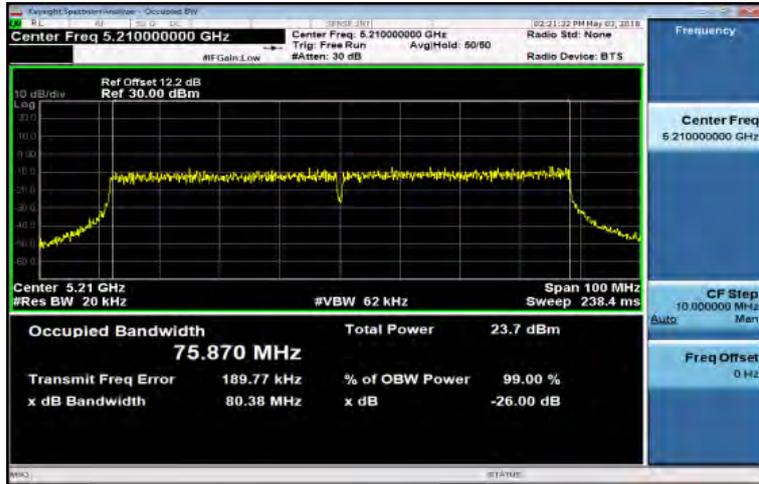


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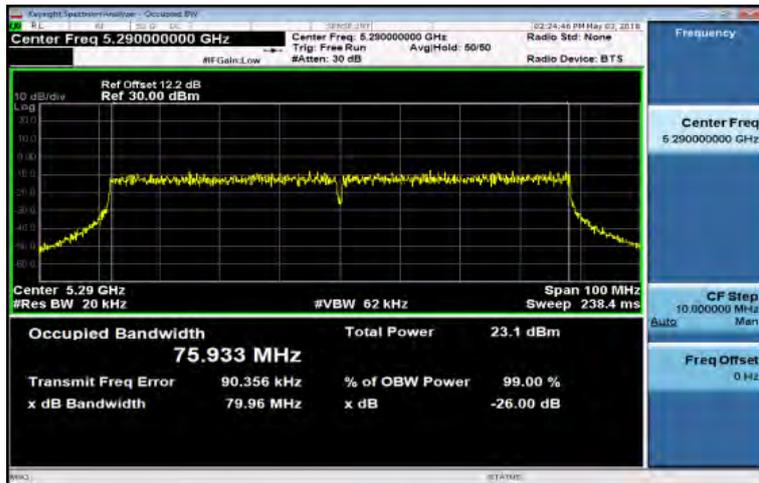
802.11ac VHT80 (Main) 5210 MHz

5610 MHz

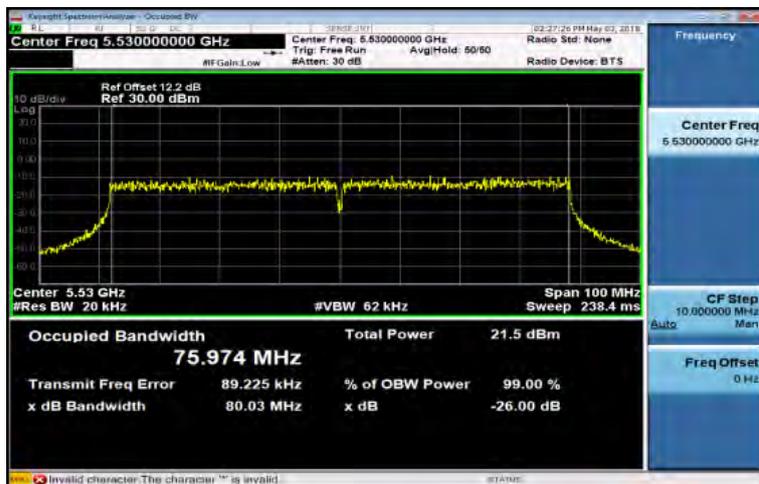


5290 MHz

5690 MHz



5530 MHz

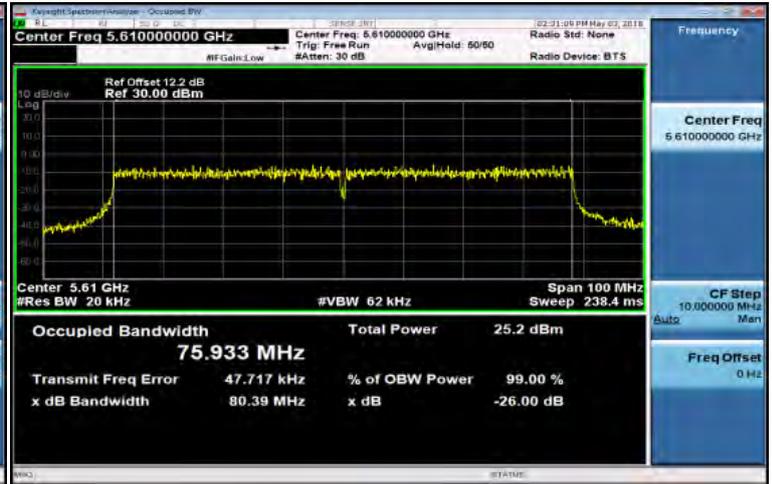
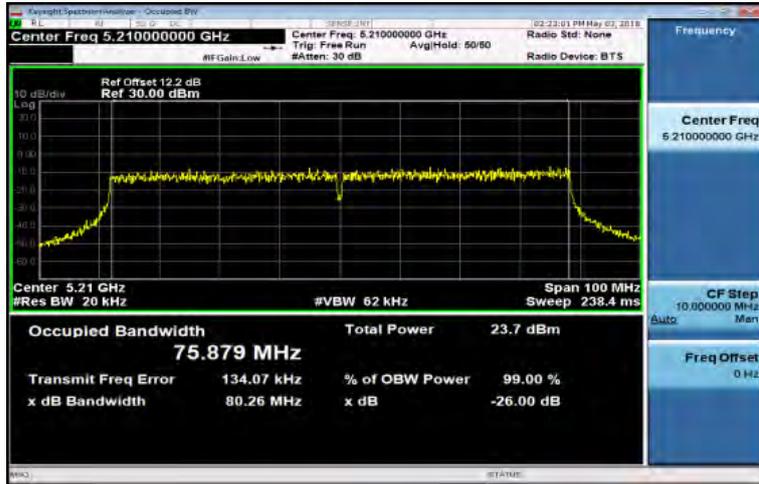


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802.11ac VHT80 (Aux1) 5210 MHz

5610 MHz



5290 MHz

5690 MHz



5530 MHz

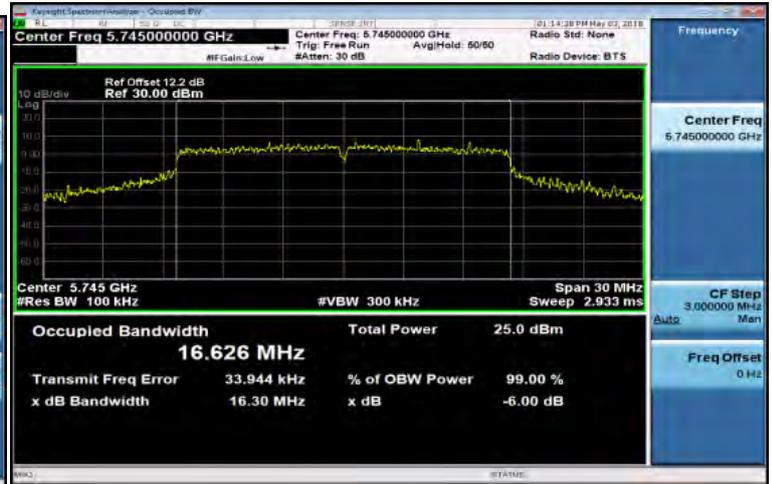
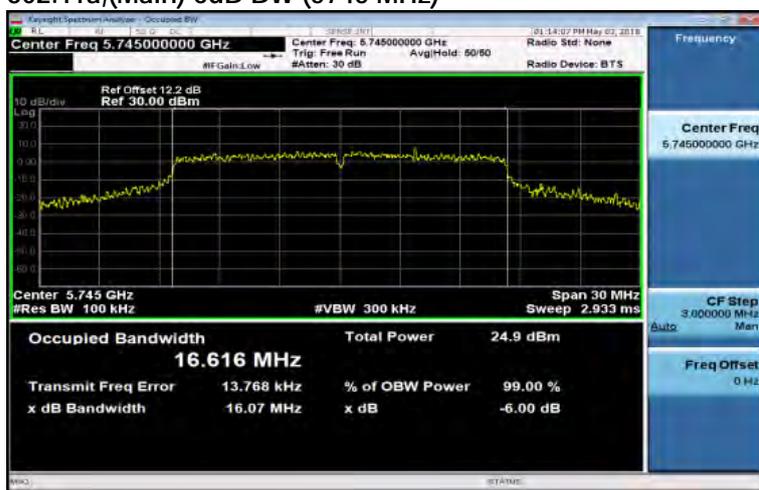


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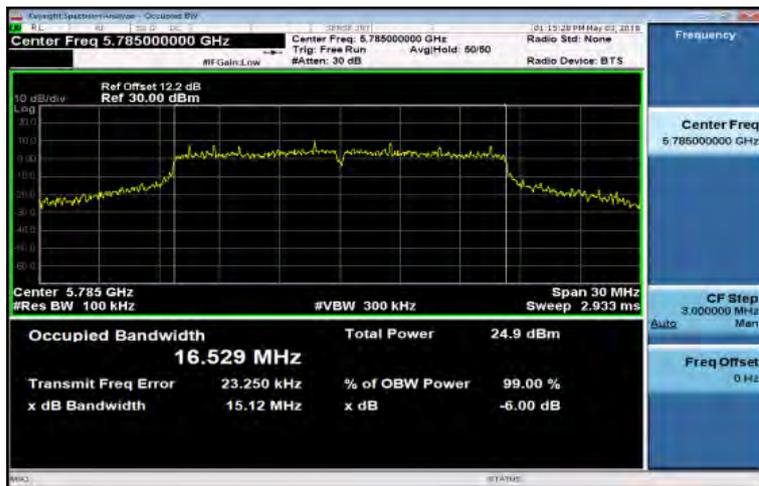
6dB Band Width measure with Peak detector for FCC  
802.11a,(Main) 6dB BW (5745 MHz)

802.11a,(Aux1) 6dB BW (5745 MHz)



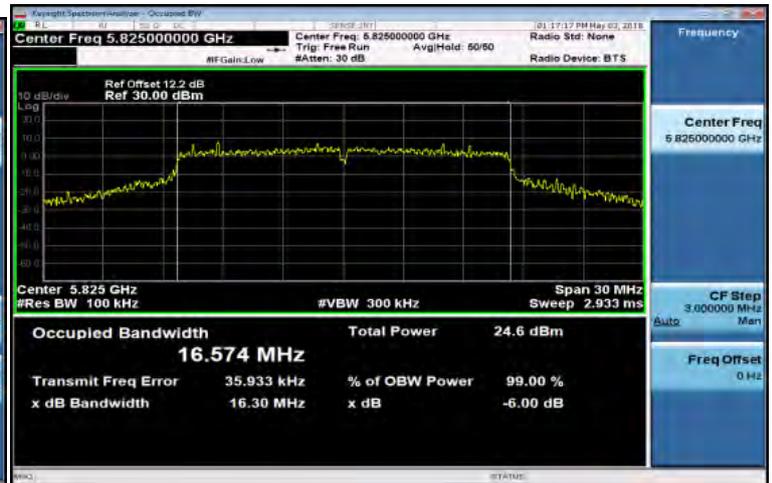
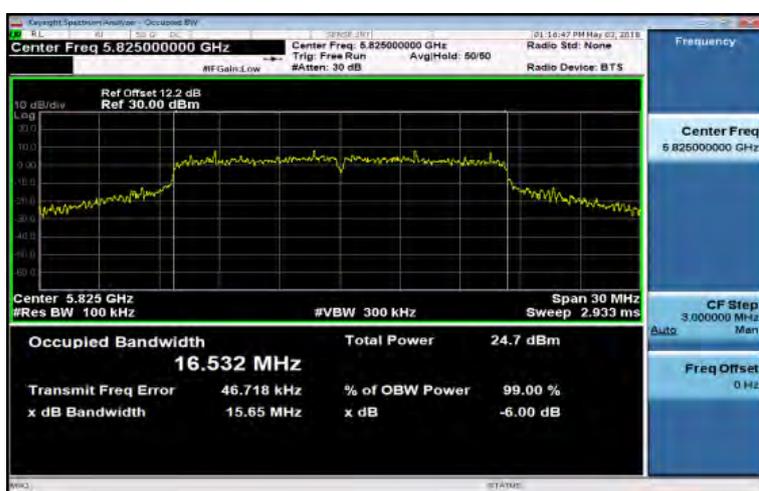
6dB BW (5785 MHz)

6dB BW (5785 MHz)



6dB BW (5825 MHz)

6dB BW (5825 MHz)



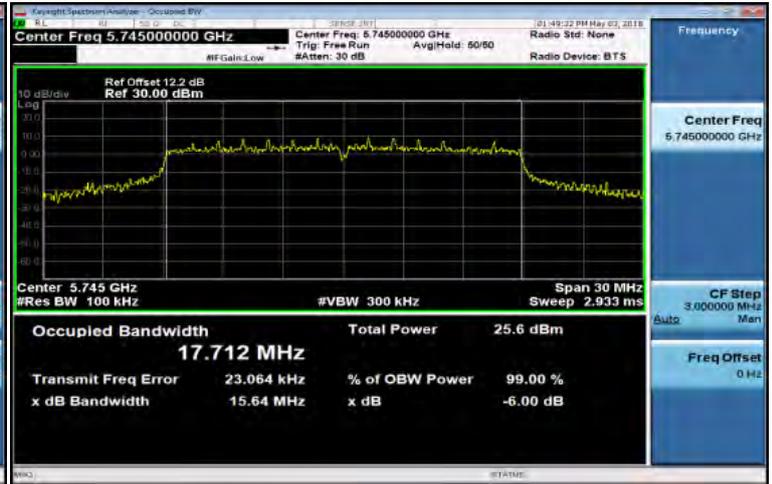
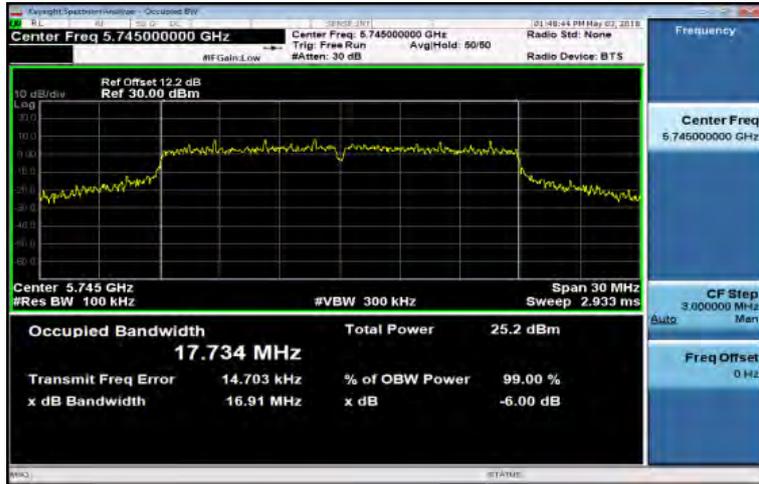
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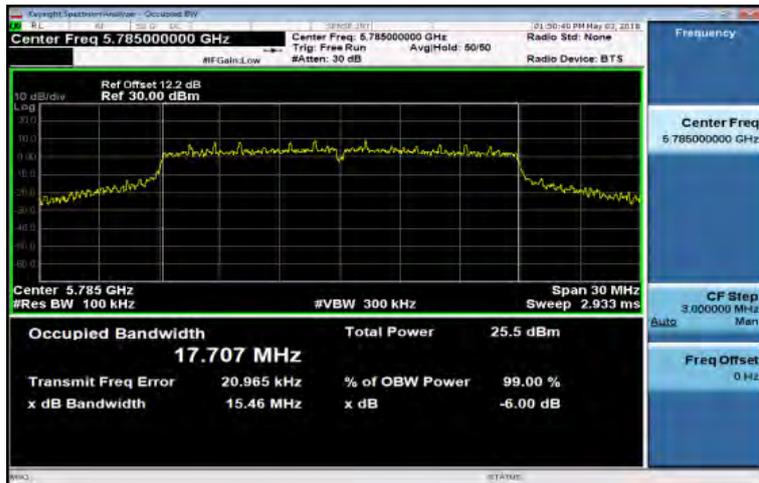
802.11n\_HT20,(Main) 6dB BW (5745 MHz)

802.11n\_HT20,(Aux1) 6dB BW (5745 MHz)



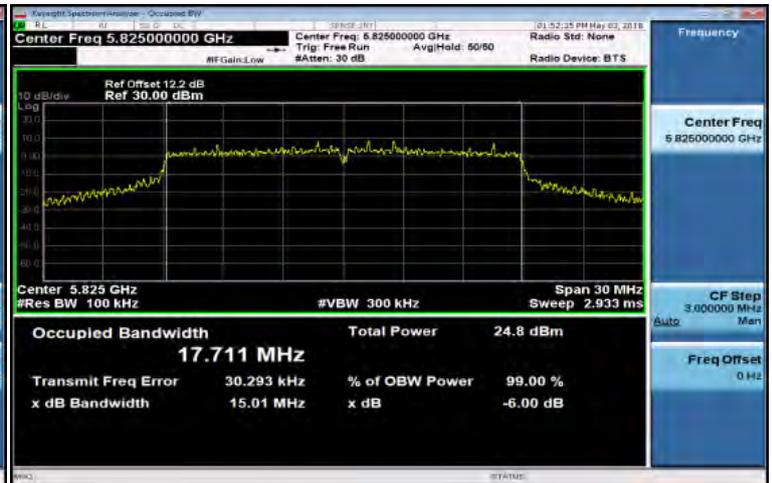
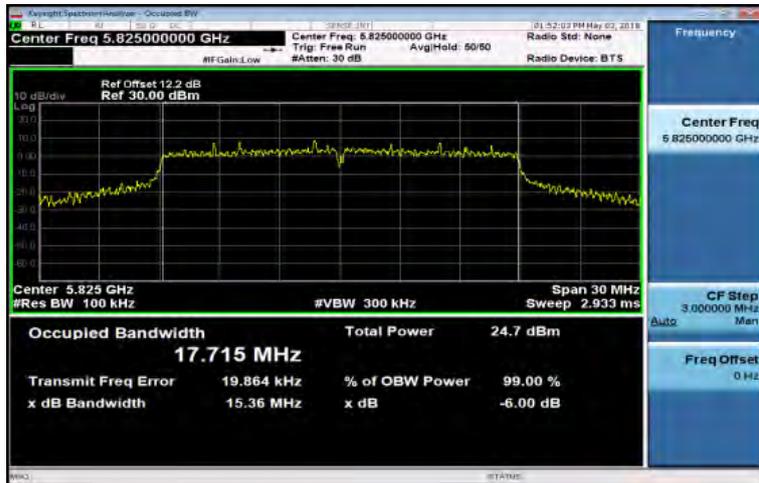
6dB BW (5785 MHz)

6dB BW (5785 MHz)



6dB BW (5825 MHz)

6dB BW (5825 MHz)



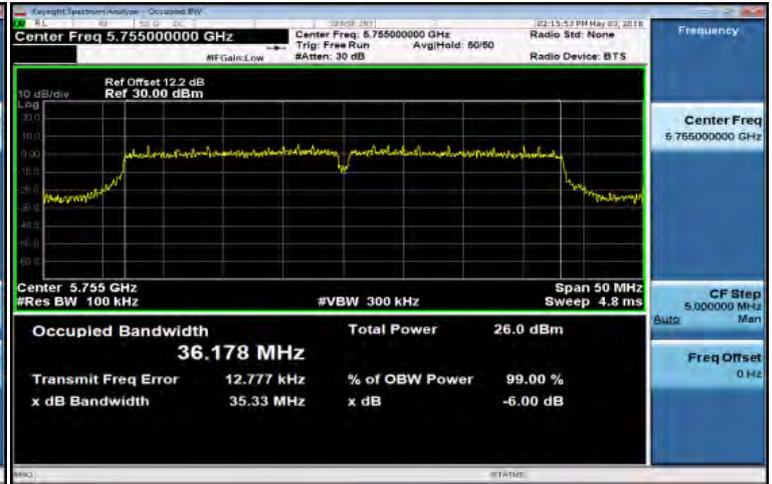
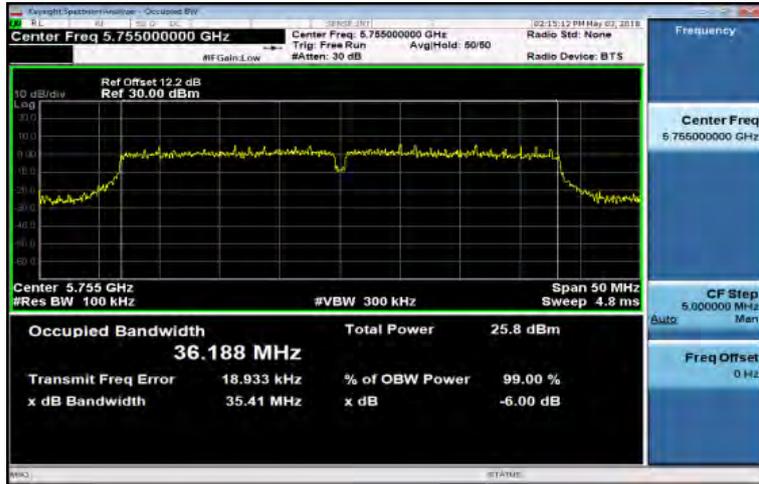
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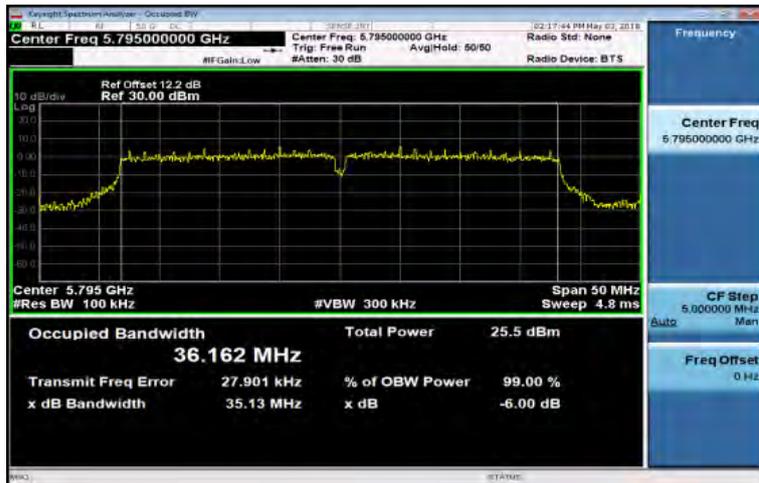
802.11n\_HT40,(Main) 6dB BW (5755 MHz)

802.11n\_HT40,(Aux1) 6dB BW (5755 MHz)



6dB BW (5795 MHz)

6dB BW (5795 MHz)

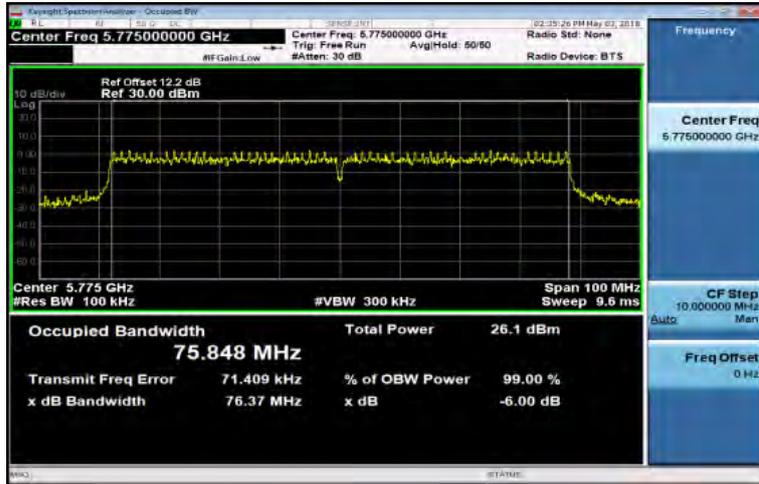


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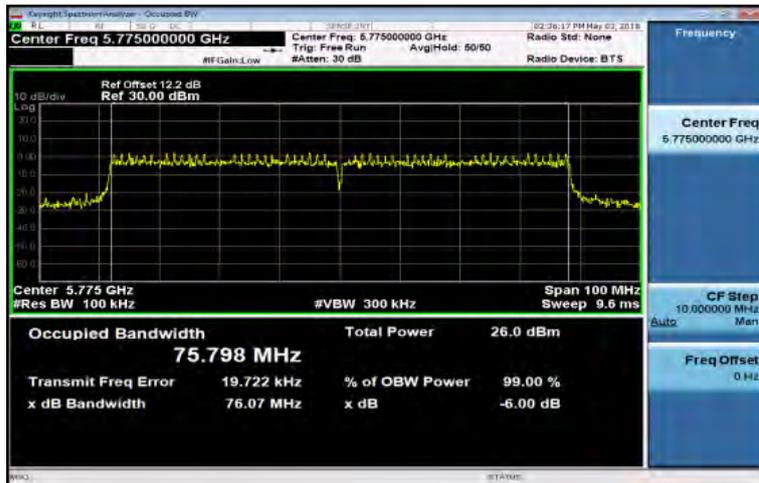
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802.11ac VHT80,(Main) 6dB BW (5775 MHz)



802.11ac VHT80,(Aux1) 6dB BW (5775 MHz)



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## 9 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

### 9.1 Standard Applicable

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Mater device )	1 Watt(30dBm)
		Fixed point-to-point Acss Ponit	1 Watt(30dBm)
	√	Mobile and portable clinet device	250mW(23.98dBm)
U-NII-2A	√		250mW(23.98dBm) or 11dBm+10 log B
U-NII-2C	√		250mW(23.98dBm) or 11dBm+10 log B
U-NII-3	√		1 Watt(30dBm)

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

**Note:**

The antenna gain is granter than 6 dBi in MIMO mode the limit reduce as below:  
Directional Gain that is combined with different magnitude of two antennas:

(i) If transmit signals are *correlated*, then

Directional gain =  $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$  dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

	Effective Legacy Gain (dBi)	Limit
UNII-1	1.48+3.01=4.49dBi	23.98dBm
UNII-2A	0.90+3.01=3.91dBi	23.98dBm
U-NII-2C	-0.74+3.01=2.27dBi	23.98dBm
U-NII-3	-0.74+3.01=2.27dBi	30 dBm

Therefore the limit no needs to reduce for the UNII-1, U-NII-2A, U-NII-2C and U-NII-3 band.

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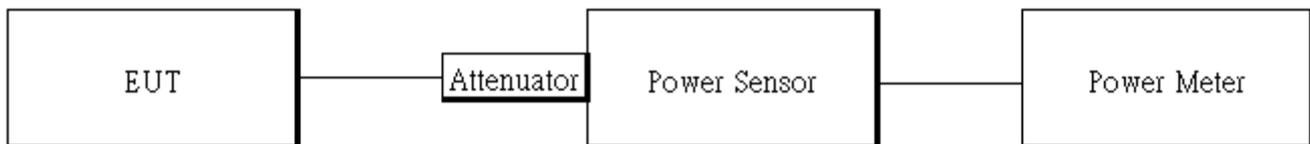
## 9.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter
4. Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
5. Record the max. reading and add 10 log(1/duty cycle).
6. Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

## 9.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equip-ment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Power Meter	Anritsu	ML2496A	1242004	2017/10/16	2018/10/15
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	2017/10/16	2018/10/15
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Notebook	Lenovo	L430	R9-X11BG	N/A	N/A

## 9.4 Test Set-up



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## 9.5 Measurement Result

## Conducted output power (FCC)

## 802.11a\_2TX

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)		RESULT
			CH 0	CH 1					
36	5180	6	15.93	15.9	<b>19.16</b>	82.483		23.98	PASS
44	5220	6	15.73	15.68	18.95	78.524		23.98	PASS
48	5240	6	15.58	15.56	18.82	76.184		23.98	PASS
52	5260	6	19.88	19.93	<b>23.15</b>	206.714	23.98	or $11+10\log(B) = 24.65$	PASS
60	5300	6	19.91	19.95	<b>23.18</b>	207.907	23.98	or $11+10\log(B) = 24.52$	PASS
64	5320	6	18.99	18.94	22.21	166.483	23.98	or $11+10\log(B) = 24.24$	PASS
100	5500	6	17.19	17.15	20.42	110.120	23.98	or $11+10\log(B) = 24.46$	PASS
116	5580	6	19.43	19.21	<b>22.57</b>	180.719	23.98	or $11+10\log(B) = 24.59$	PASS
140	5700	6	17.47	17.25	21.08	128.193	23.98	or $11+10\log(B) = 24.34$	PASS
144	5720	6	11.90	11.89	14.06	25.485	23.98	or $11+10\log(B) = 23.52$	PASS
144	5720	6	5.94	5.93	7.02	5.030		30	PASS
149	5745	6	19.64	19.58	22.86	193.141		30	PASS
157	5785	6	19.5	19.52	22.76	188.740		30	PASS
165	5825	6	19.66	19.7	<b>22.93</b>	196.276		30	PASS

## 802.11n\_HT20\_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)		RESULT
			CH 0	CH 1					
36	5180	MCS8	15.17	15.16	18.52	71.198		23.98	PASS
44	5220	MCS8	15.98	15.94	<b>19.32</b>	85.502		23.98	PASS
48	5240	MCS8	15.8	15.76	19.14	82.030		23.98	PASS
52	5260	MCS8	20.02	20.03	<b>23.38</b>	218.007	23.98	or $11+10\log(B) = 24.72$	PASS
60	5300	MCS8	19.94	19.87	<b>23.26</b>	212.072	23.98	or $11+10\log(B) = 24.54$	PASS
64	5320	MCS8	18.71	18.68	22.05	160.499	23.98	or $11+10\log(B) = 24.25$	PASS
100	5500	MCS8	18.11	18.08	21.45	139.789	23.98	or $11+10\log(B) = 24.27$	PASS
116	5580	MCS8	19.3	19.36	<b>22.69</b>	185.772	23.98	or $11+10\log(B) = 24.50$	PASS
140	5700	MCS8	17.49	17.38	20.80	120.089	23.98	or $11+10\log(B) = 24.66$	PASS
144	5720	MCS8	13.62	13.49	15.90	38.889	23.98	or $11+10\log(B) = 23.65$	PASS
144	5720	MCS8	5.92	5.87	6.91	4.912		30	PASS
149	5745	MCS8	19.5	19.44	22.83	191.858		30	PASS
157	5785	MCS8	19.4	19.37	22.74	188.136		30	PASS
165	5825	MCS8	19.48	19.54	<b>22.87</b>	193.633		30	PASS

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## 802.11n\_HT40\_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
38	5190	MCS8	15.53	15.49	18.88	77.236	23.98	PASS
46	5230	MCS8	16.29	16.17	<b>19.60</b>	91.171	23.98	PASS
54	5270	MCS8	19.5	19.47	<b>22.85</b>	192.895	23.98 or $11+10\log(B) = 26.96$	PASS
62	5310	MCS8	15.9	15.86	19.25	84.105	23.98 or $11+10\log(B) = 26.91$	PASS
102	5510	MCS8	13.67	13.74	17.07	50.972	23.98 or $11+10\log(B) = 26.93$	PASS
110	5550	MCS8	18.91	18.88	<b>22.26</b>	168.391	23.98 or $11+10\log(B) = 27.00$	PASS
134	5670	MCS8	17.99	17.97	21.35	136.401	23.98 or $11+10\log(B) = 26.96$	PASS
142	5710	MCS8	17.06	17.01	19.90	97.707	23.98 or $11+10\log(B) = 26.54$	PASS
142	5710	MCS8	3.01	3.00	3.51	2.243	30	PASS
151	5755	MCS8	19.99	19.91	<b>23.32</b>	214.702	30	PASS
159	5795	MCS8	19.85	19.75	23.17	207.418	30	PASS

## 802.11ac\_VHT80\_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
42	5210	MCS0	15.37	15.53	<b>18.68</b>	73.715	23.98	PASS
58	5290	MCS0	15.55	15.24	<b>18.62</b>	72.822	23.98 or $11+10\log(B) = 30.03$	PASS
106	5530	MCS0	13.65	13.12	16.62	45.898	23.98 or $11+10\log(B) = 30.03$	PASS
122	5610	MCS0	17.49	16.99	20.47	111.482	23.98 or $11+10\log(B) = 30.05$	PASS
138	5690	MCS0	17.85	17.74	<b>20.69</b>	117.300	23.98 or $11+10\log(B) = 29.88$	PASS
138	5690	MCS0	2.02	2.00	2.34	1.713	30	PASS
155	5775	MCS0	19.4	19.45	<b>22.65</b>	184.074	30	PASS

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## 802.11a\_2TX

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
36	5180	54	15.71	15.62	<b>19.04</b>	80.125	23.98	PASS
44	5220	54	15.67	15.61	19.01	79.662	23.98	PASS
48	5240	54	15.37	15.25	18.68	73.839	23.98	PASS
52	5260	54	19.52	19.4	<b>22.83</b>	191.992	23.98 or $11+10\log(B) = 24.65$	PASS
60	5300	54	19.33	19.25	<b>22.66</b>	184.612	23.98 or $11+10\log(B) = 24.52$	PASS
64	5320	54	18.5	18.47	21.86	153.372	23.98 or $11+10\log(B) = 24.24$	PASS
100	5500	54	17.05	16.88	20.34	108.100	23.98 or $11+10\log(B) = 24.46$	PASS
116	5580	54	19.16	19.08	<b>22.49</b>	177.525	23.98 or $11+10\log(B) = 24.59$	PASS
140	5700	54	17.23	17.2	20.59	114.484	23.98 or $11+10\log(B) = 24.34$	PASS
144	5720	54	12.84	12.84	15.09	32.294	23.98 or $11+10\log(B) = 23.52$	PASS
144	5720	54	6.40	6.41	7.53	5.661	30	PASS
149	5745	54	19.19	19.13	22.53	179.165	30	PASS
157	5785	54	19.11	19.09	22.47	176.703	30	PASS
165	5825	54	19.23	19.09	<b>22.53</b>	179.184	30	PASS

## 802.11n\_HT20\_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
36	5180	MCS15	14.92	15.17	18.48	70.486	23.98	PASS
44	5220	MCS15	15.9	15.82	<b>19.29</b>	85.004	23.98	PASS
48	5240	MCS15	15.67	15.61	19.07	80.804	23.98	PASS
52	5260	MCS15	19.67	19.61	<b>23.07</b>	202.971	23.98 or $11+10\log(B) = 24.72$	PASS
60	5300	MCS15	19.51	19.47	<b>22.92</b>	196.077	23.98 or $11+10\log(B) = 24.54$	PASS
64	5320	MCS15	18.21	18.15	21.61	145.022	23.98 or $11+10\log(B) = 24.25$	PASS
100	5500	MCS15	17.59	17.49	20.97	125.156	23.98 or $11+10\log(B) = 24.27$	PASS
116	5580	MCS15	19.05	19.07	<b>22.49</b>	177.592	23.98 or $11+10\log(B) = 24.50$	PASS
140	5700	MCS15	17.02	16.98	20.43	110.517	23.98 or $11+10\log(B) = 24.66$	PASS
144	5720	MCS15	12.73	12.70	15.00	31.656	23.98 or $11+10\log(B) = 23.65$	PASS
144	5720	MCS15	6.35	6.33	7.49	5.605	30	PASS
149	5745	MCS15	19.02	18.99	22.44	175.358	30	PASS
157	5785	MCS15	18.95	18.93	22.37	172.752	30	PASS
165	5825	MCS15	19.15	19.12	<b>22.57</b>	180.686	30	PASS

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## 802.11n\_HT40\_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
38	5190	MCS15	14.96	14.9	18.77	75.346	23.98	PASS
46	5230	MCS15	15.72	15.68	<b>19.54</b>	89.961	23.98	PASS
54	5270	MCS15	18.84	18.8	<b>22.66</b>	184.525	23.98 or $11+10\log(B) = 26.96$	PASS
62	5310	MCS15	15.15	15.13	18.98	79.077	23.98 or $11+10\log(B) = 26.91$	PASS
102	5510	MCS15	13.03	13	16.86	48.479	23.98 or $11+10\log(B) = 26.93$	PASS
110	5550	MCS15	18.34	18.23	<b>22.13</b>	163.149	23.98 or $11+10\log(B) = 27.00$	PASS
134	5670	MCS15	17.28	17.33	21.15	130.184	23.98 or $11+10\log(B) = 26.96$	PASS
142	5710	MCS15	17.39	17.35	20.82	120.739	23.98 or $11+10\log(B) = 26.54$	PASS
142	5710	MCS15	1.96	1.96	2.35	1.719	30	PASS
151	5755	MCS15	19.23	19.2	<b>23.06</b>	202.094	30	PASS
159	5795	MCS15	19.15	19.04	22.94	196.601	30	PASS

## 802.11ac\_VHT80\_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
42	5210	MCS10	13.68	14.03	<b>18.61</b>	72.687	23.98	PASS
58	5290	MCS10	13.76	13.91	<b>18.59</b>	72.305	23.98 or $11+10\log(B) = 30.03$	PASS
106	5530	MCS10	11.8	11.9	16.61	45.775	23.98 or $11+10\log(B) = 30.03$	PASS
122	5610	MCS10	15.58	15.35	<b>20.22</b>	105.258	23.98 or $11+10\log(B) = 30.05$	PASS
138	5690	MCS10	16.04	15.84	20.22	105.111	23.98 or $11+10\log(B) = 29.88$	PASS
138	5690	MCS10	1.81	1.79	2.28	1.692	30	PASS
155	5775	MCS10	17.25	17.28	<b>22.02</b>	159.260	30	PASS

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## 10 PEAK POWER SPECTRAL DENSITY

### 10.1 Standard Applicable

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Mater device )	17dBm/ MHz
		Fixed point-to-point Access Ponit	
	√	Mobile and portable clinet device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

If transmitting antennas of directional gain greater than 6 dBi are used, 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.

**Note:**

The antenna gain is granter than 6 dBi in MIMO mode the limit reduce as below:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

	Effective Legacy Gain (dBi)	Limit
UNII-1	1.48+3.01=4.49dBi	11dBm
UNII-2A	0.90+3.01=3.91dBi	11dBm
U-NII-2C	-0.74+3.01=2.27dBi	11dBm
U-NII-3	-0.74+3.01=2.27dBi	30dBm

Therefore the limit needs to reduce for the UNII-1, U-NII-2A, U-NII-2C and U-NII-3 band.

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## 10.2 Measurement Procedure

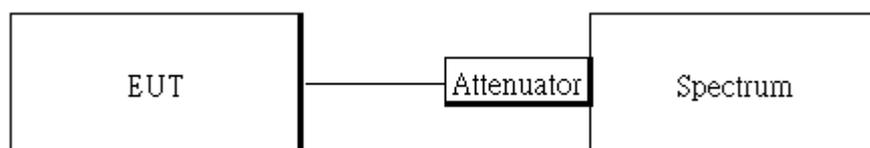
1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
4. **For U-NII1, U-NII-2A, U-NII-2C Band:**  
Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)  
**For U-NII-3 Band:**  
Set RBW=500 kHz,  $VBW \geq 3RBW$ , where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
5. Use the cursor on spectrum to peak search the highest level of trace
6. Record the max. reading and add 10 log(1/duty cycle).
7. Repeat above procedures until all default test channel (low, middle, and high) was complete.

Note: For the test of PSD at MIMO mode, the highest emission of worst case employing Measure and add 10 log (N) technical is reported on this report after the comparison between Main Antenna at single transmitting mode and Aux that yields the higher value. The MIMO transmitting mode produces higher value of outcome.

## 10.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	2017/10/16	2018/10/15
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Notebook	Lenovo	L430	R9-X11BG	N/A	N/A

## 10.4 Test Set-up



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### 10.5 Measurement Result

POWER DENSITY 802.11a MODE					
Frequency (MHz)	PPSD W/O Duty Factor (dBm)	Duty Factor	PPSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5180	4.51	0.24	4.75	11	-6.25
5220	3.09	0.24	3.33	11	-7.67
5240	3.34	0.24	3.58	11	-7.42
5260	8.74	0.24	8.98	11	-2.02
5300	8.67	0.24	8.91	11	-2.09
5320	7.99	0.24	8.23	11	-2.77
5500	5.22	0.24	5.46	11	-5.54
5580	7.60	0.24	7.84	11	-3.16
5700	6.84	0.24	7.08	11	-3.92
5720 (U-NII 2C)	9.59	0.24	9.83	11	-1.17
5720 (U-NII 3)	5.72	0.24	5.95	30	-24.05
5745	16.81	0.24	16.81	30	-13.19
5785	15.99	0.24	15.99	30	-14.01
5825	15.61	0.24	15.61	30	-14.39

POWER DENSITY 802.11n HT20 MODE					
Frequency (MHz)	PPSD W/O Duty Factor (dBm)	Duty Factor	PPSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5180	2.76	0.35	3.11	11	-7.89
5220	4.97	0.35	5.32	11	-5.68
5240	1.65	0.35	2.00	11	-9.00
5260	6.16	0.35	6.51	11	-4.49
5300	7.21	0.35	7.56	11	-3.44
5320	6.45	0.35	6.80	11	-4.20
5500	5.06	0.35	5.41	11	-5.59
5580	6.52	0.35	6.87	11	-4.13
5700	6.09	0.35	6.44	11	-4.56
5720 (U-NII 2C)	6.06	0.36	6.42	11	-4.58
5720 (U-NII 3)	4.00	0.21	4.22	30	-25.78
5745	15.70	0.35	15.70	30	-14.30
5785	15.47	0.35	15.47	30	-14.53
5825	15.29	0.35	15.29	30	-14.71

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POWER DENSITY 802.11n HT40 MODE					
Frequency (MHz)	PPSD W/O Duty Factor (dBm)	Duty Factor	PPSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5190	-1.11	0.36	-0.75	11	-11.75
5230	1.21	0.36	1.57	11	-9.43
5270	6.13	0.36	6.49	11	-4.51
5310	1.2	0.36	1.56	11	-9.44
5510	-0.88	0.36	-0.52	11	-11.52
5550	2.97	0.36	3.33	11	-7.67
5670	3.61	0.36	3.97	11	-7.03
5710 (U-NII 2C)	3.05	0.36	3.41	11	-7.59
5710 (U-NII 3)	-0.10	0.36	0.25	30	-29.75
5755	13.45	0.36	13.45	30	-16.55
5795	13.11	0.36	13.11	30	-16.89

POWER DENSITY 802.11ac VHT80 MODE					
Frequency (MHz)	PPSD W/O Duty Factor (dBm)	Duty Factor	PPSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5210	-9.52	0.21	-9.31	11	-20.31
5290	-9.69	0.21	-9.48	11	-20.48
5530	-10.13	0.21	-9.92	11	-20.92
5610	-9.33	0.21	-9.12	11	-20.12
5690 (U-NII 2C)	-0.13	0.21	0.09	11	-10.91
5690 (U-NII 3)	-1.80	0.21	-1.58	30	-31.58
5775	10.65	0.21	10.65	30	-19.35

Offset: 15.2dB

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802.11a 5150~5250 MHz

Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



802.11a 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Low 5260 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



Peak Power Spectral Density Data Plot (CH High 5240 MHz)



Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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802.11a 5470-5725 MHz

Peak Power Spectral Density Data Plot (CH High 5720 MHz)

Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5580 MHz)



Peak Power Spectral Density Data Plot (CH High 5700 MHz)



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802.11a 5725-5850 MHz

Peak Power Spectral Density Data Plot (CH Low 5745 MHz)



802.11n HT20, 5150-5250 MHz

Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5785 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



Peak Power Spectral Density Data Plot (CH High 5825 MHz)



Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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802.11n HT20, 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Low 5260MHz)



802.11n HT20, 5470~5725 MHz

Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5580MHz)



Peak Power Spectral Density Data Plot (CH High 5320 MHz)



Peak Power Spectral Density Data Plot (CH High 5700 MHz)



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Peak Power Spectral Density Data Plot (CH High 5720 MHz)



802.11n HT20, 5725~5850 MHz

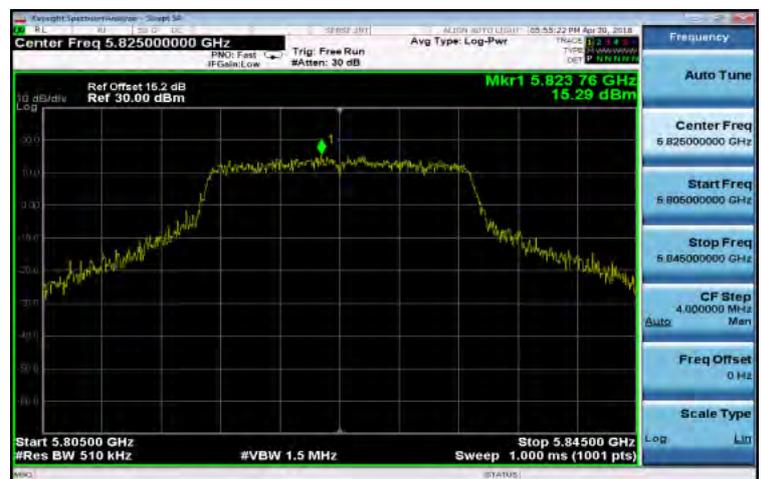
Peak Power Spectral Density Data Plot (CH Low 5745 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5785 MHz)



Peak Power Spectral Density Data Plot (CH High 5825 MHz)



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802.11n HT40, 5150~5250 MHz

802.11n HT40, 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Low 5190 MHz)

Peak Power Spectral Density Data Plot (CH Low 5270 MHz)



Peak Power Spectral Density Data Plot (CH High 5230 MHz)

Peak Power Spectral Density Data Plot (CH High 5310 MHz)



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802.11n HT40, 5470~5725 MHz  
Peak Power Spectral Density Data Plot (CH Low 5510 MHz)



Peak Power Spectral Density Data Plot (CH High 5710 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5550 MHz)



Peak Power Spectral Density Data Plot (CH High 5670 MHz)



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802.11n HT40, 5725~5850 MHz  
Peak Power Spectral Density Data Plot (CH Low 5755 MHz)



802.11ac VHT80, 5150~5250 MHz  
Peak Power Spectral Density Data Plot (CH Mid 5210 MHz)



Peak Power Spectral Density Data Plot (CH High 5795 MHz)



802.11ac VHT80, 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Mid 5290 MHz)



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802.11ac VHT80, 5470~5725 MHz  
Peak Power Spectral Density Data Plot (CH Low 5530 MHz)



Peak Power Spectral Density Data Plot (CH High 5690 MHz)



802.11ac VHT80, 5470~5725 MHz  
Peak Power Spectral Density Data Plot (CH High 5610 MHz)



802.11ac VHT80, 5725~5850 MHz  
Peak Power Spectral Density Data Plot (CH Mid 5775 MHz)



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## 11 UNDESIRABLE RADIATED EMISSION MEASUREMENT

### 11.1 Standard Applicable

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

1. For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
2. For transmitters operating in the 5.725-5.85 GHz band: 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.

APPLICABLE TO	LIMIT	
FCC KDB 789033 D02 General UNII Test Procedures New Rules	FIELD STRENGTH AT 3m	
	PK: 74 (dBμV/m)	AV 54 (dBμV/m)
APPLICABLE TO	EIRP LIMIT	FIELD STRENGTH AT 3m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.3 (dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK:122.2 (dBμV/m) *4
*1 beyond 75 MHz or more above of the bandedge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

$EIRP = (E \cdot d)^2 / 30$ , where E is the field in V/m, d is the measurement distance (3m), EIRP is the equivalent isotropically radiated power in Watts.

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Unwanted spurious emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

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

**Note:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB $\mu$ V/m) = 20 log Emission level (dB $\mu$ V/m)

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## 11.2 Measurement Equipment Used

SGS SAC-III					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Bi-log Antenna	SCHWAZBECK	VULB9168	378	2017/12/29	2018/12/28
Horn Antenna	Schwarzbeck	BBHA9120D	1441	2017/08/04	2018/8/3
Horn Antenna	Schwarzbeck	BBHA9170	184	2017/12/12	2018/12/11
Loop Antenna	ETS.LINDGREN	6502	148045	2017/09/26	2018/09/25
Spectrum Analyzer	Agilent	E4446A	MY51100003	2017/05/10	2018/05/09
EMI Test Receiver	R&S	ESCI7	100760	2017/06/06	2018/06/05
Pre-Amplifier	HP	8449B	3008A00578	2018/01/02	2019/01/01
Pre-Amplifier	HP	8447D	2944A07676	2018/01/02	2019/01/01
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	2018/01/02	2019/01/01
Attenuator	Mini-Circuit	BW-S10W2+		2018/01/02	2019/01/01
Filter 5150-5350 MHz	Micro-Tronics	BRM50703	1	2018/01/02	2019/01/01
Filter 5470-5725 MHz	Micro-Tronics	BRM50704	1	2018/01/02	2019/01/01
Filter 5725-5875 MHz	Micro-Tronics	BRM50705	1	2018/01/02	2019/01/01
Low Loss Cable	Huber Suhner	966_RX	9	2018/01/02	2019/01/01
Notebook	Lenovo	L430	R9-WGNK5	N/A	N/A

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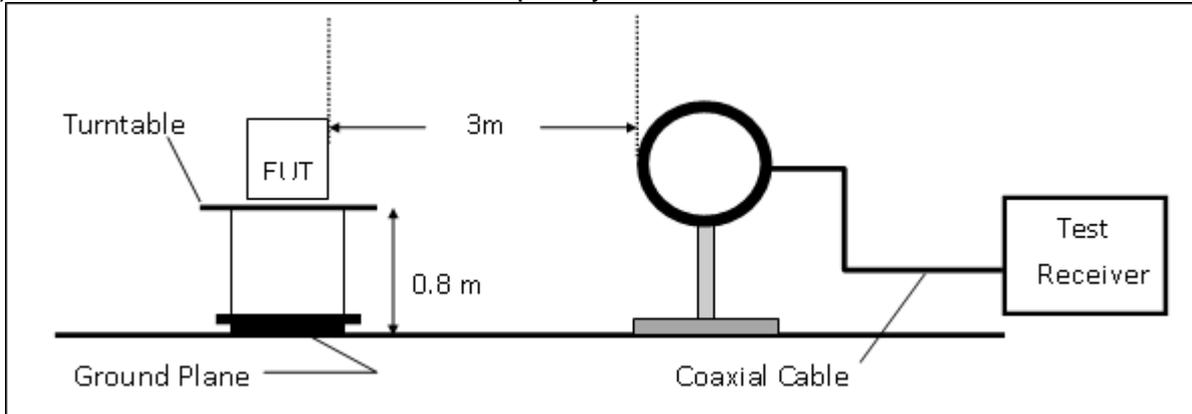
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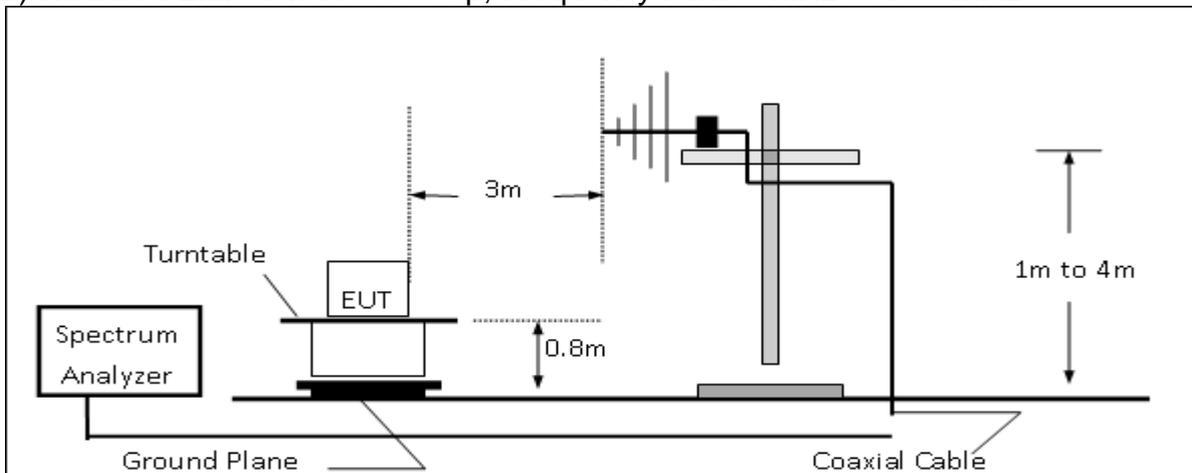
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### 11.3 Test SET-UP

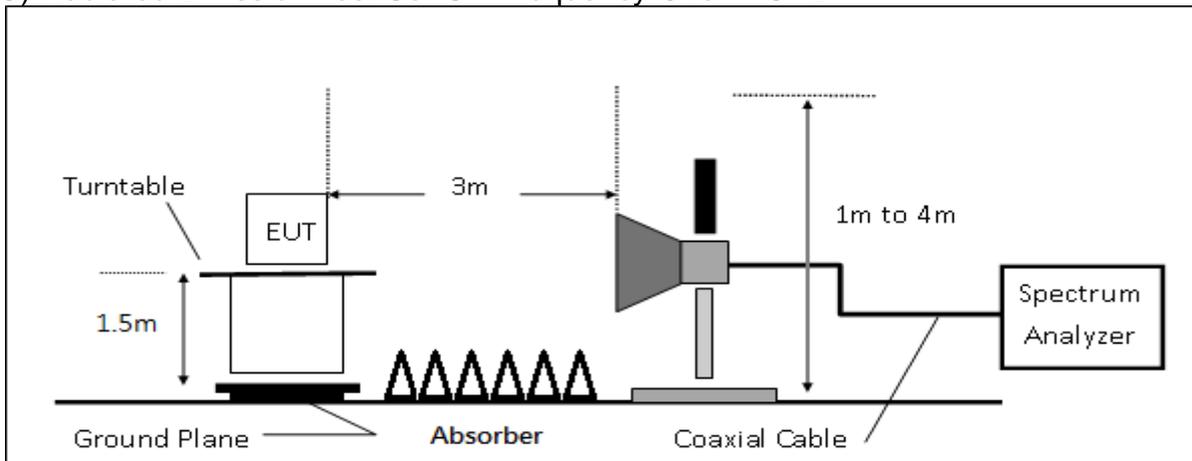
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(B) Radiated Emission Test Set-UP, Frequency form 30MHz to 1000MHz



(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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### 11.4 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules .
3. The EUT was placed on a turn table with 0.8m for frequency < 1GHz and 1.5m for frequency > 1GHz above ground plane.
4. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
5. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
6. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
9. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
10. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
11. Repeat above procedures until all frequency measured were complete.

### 11.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre\_Amplifier Gain(dB)

**Note :**

“F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

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### 11.6 Test Results of Radiated Spurious Emissions form 9 KHz to 30 MHz

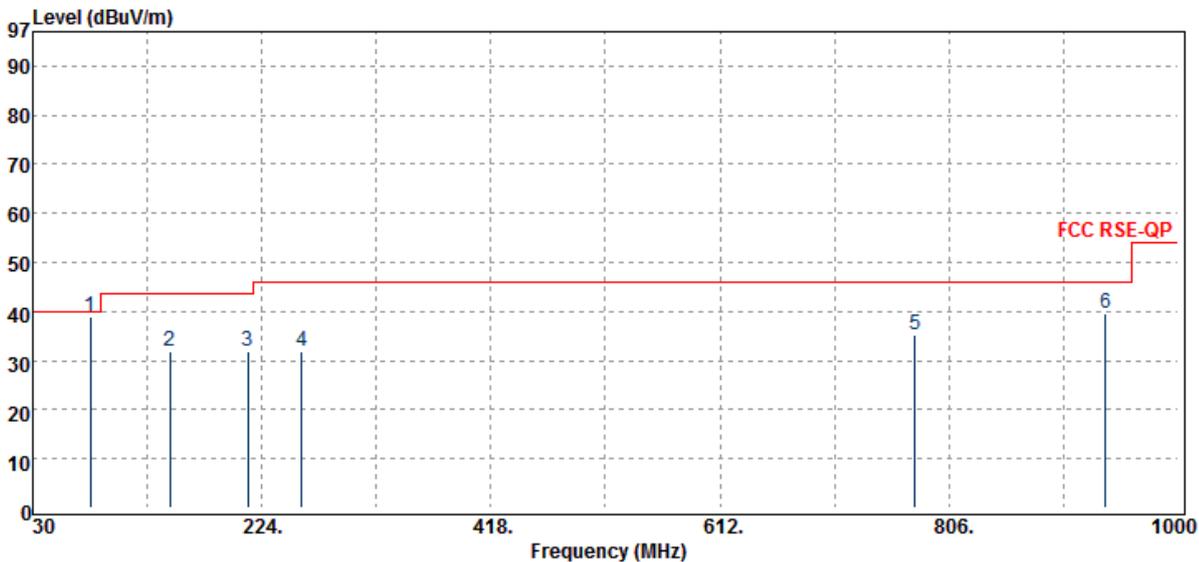
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) was not reported.

### 11.7 Measurement Result

#### Radiated Spurious Emission Measurement Result

##### Below 1GHz Worst-Case Data:

Operation Band	:802.11aB1	Test Date	:2018-04-23
Fundamental Frequency	:5220 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
78.50	S	QP	50.81	-12.02	38.79	40.00	-1.21
146.40	S	Peak	39.93	-8.05	31.88	43.50	-11.62
212.36	S	Peak	41.37	-9.65	31.72	43.50	-11.78
257.95	S	Peak	39.31	-7.37	31.94	46.00	-14.06
776.90	S	Peak	32.72	2.54	35.26	46.00	-10.74
938.89	S	Peak	34.38	5.30	39.68	46.00	-6.32

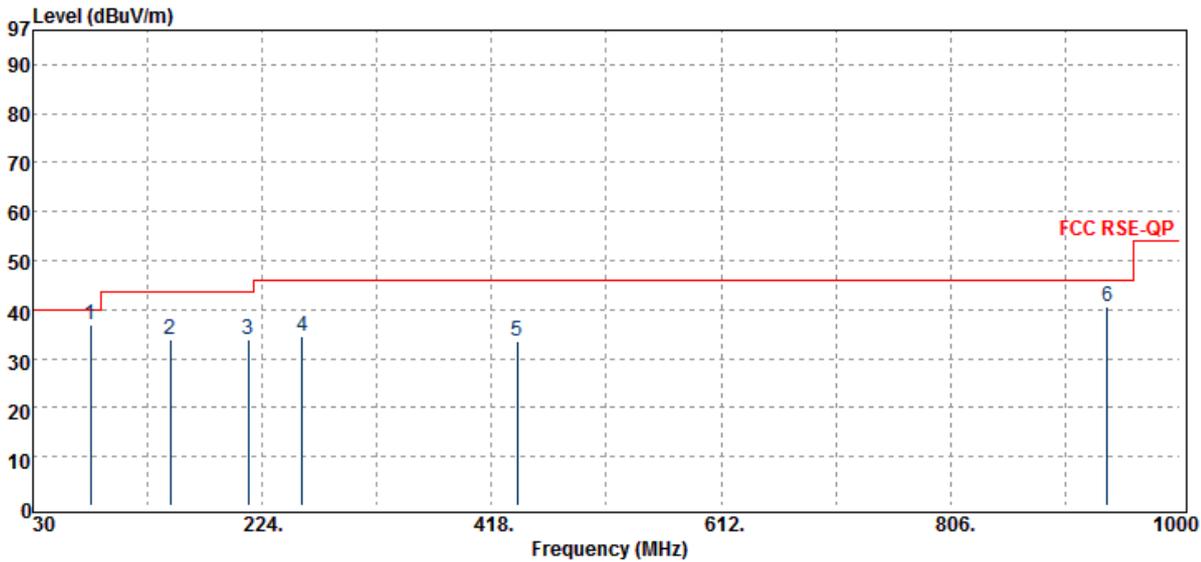
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Operation Band :802.11aB1  
Fundamental Frequency :5220 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	Peak	49.06	-12.02	37.04	40.00	-2.96
146.40	S	Peak	41.90	-8.05	33.85	43.50	-9.65
212.36	S	Peak	43.61	-9.65	33.96	43.50	-9.54
257.95	S	Peak	42.02	-7.37	34.65	46.00	-11.35
439.34	S	Peak	36.65	-3.23	33.42	46.00	-12.58
938.89	S	Peak	35.16	5.30	40.46	46.00	-5.54

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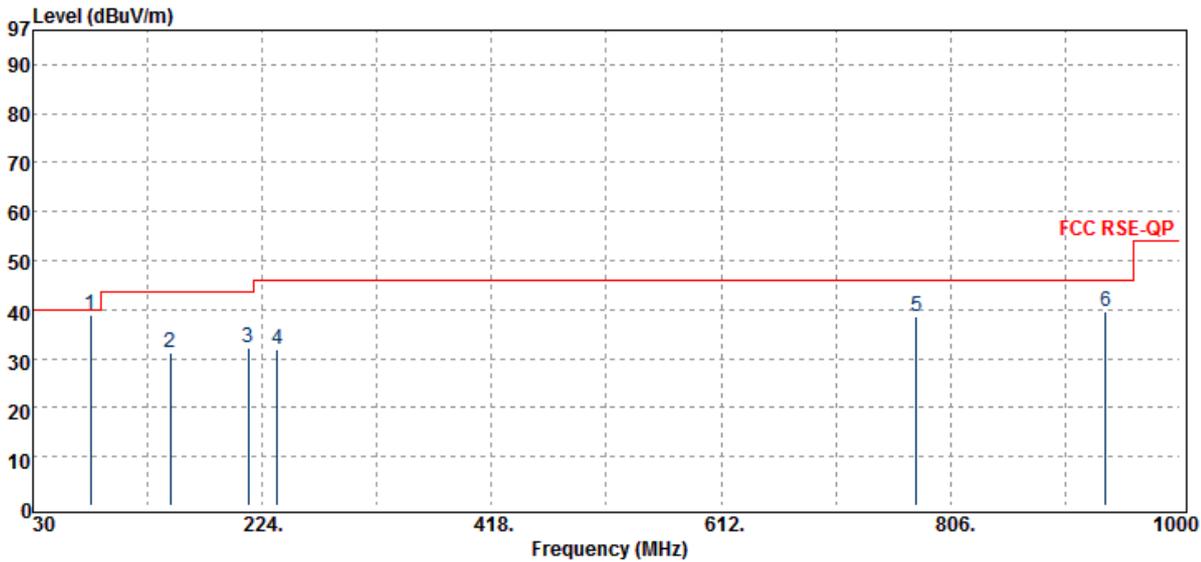
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Operation Band :802.11aB2  
Fundamental Frequency :5300 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	Peak	50.83	-12.02	38.81	40.00	-1.19
146.40	S	Peak	39.26	-8.05	31.21	43.50	-12.29
212.36	S	Peak	41.81	-9.65	32.16	43.50	-11.34
236.61	S	Peak	40.11	-8.37	31.74	46.00	-14.26
776.90	S	Peak	36.18	2.54	38.72	46.00	-7.28
936.95	S	Peak	34.51	5.25	39.76	46.00	-6.24

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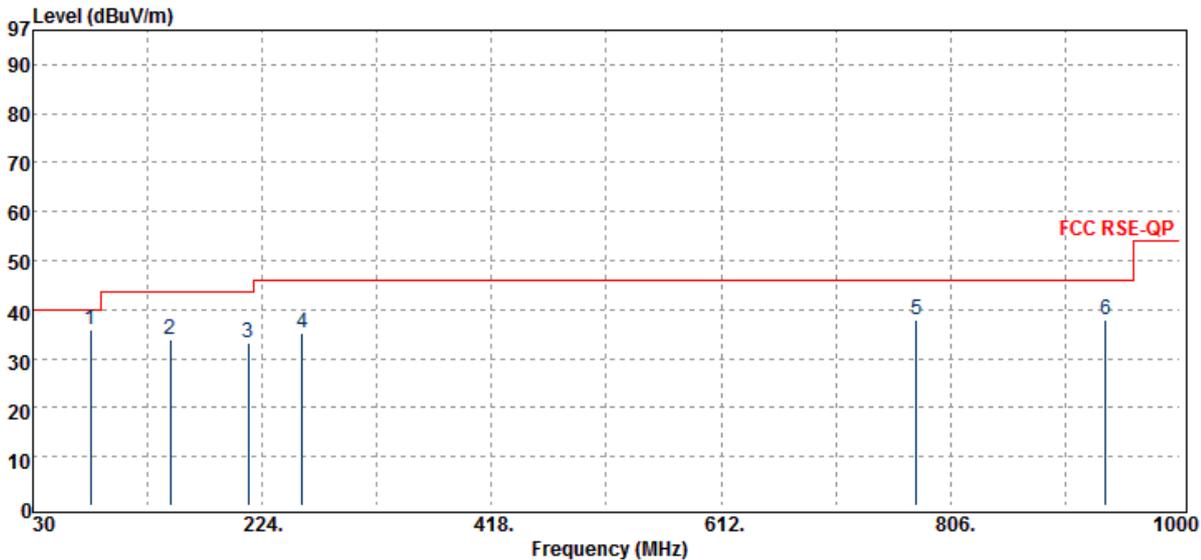
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Operation Band :802.11aB2  
Fundamental Frequency :5300 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	Peak	47.81	-12.02	35.79	40.00	-4.21
146.40	S	Peak	41.88	-8.05	33.83	43.50	-9.67
212.36	S	Peak	43.01	-9.65	33.36	43.50	-10.14
257.95	S	Peak	42.46	-7.37	35.09	46.00	-10.91
776.90	S	Peak	35.31	2.54	37.85	46.00	-8.15
936.95	S	Peak	32.84	5.25	38.09	46.00	-7.91

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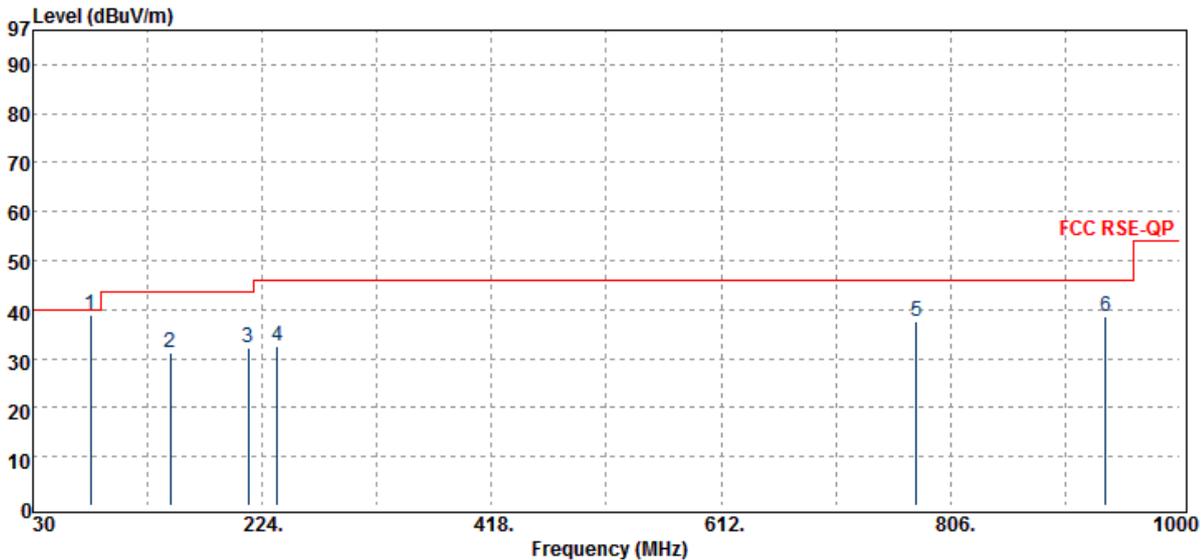
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Operation Band :802.11aB3  
Fundamental Frequency :5580 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	QP	50.81	-12.02	38.79	40.00	-1.21
146.40	S	Peak	39.42	-8.05	31.37	43.50	-12.13
212.36	S	Peak	42.01	-9.65	32.36	43.50	-11.14
236.61	S	Peak	40.85	-8.37	32.48	46.00	-13.52
776.90	S	Peak	35.10	2.54	37.64	46.00	-8.36
936.95	S	Peak	33.24	5.25	38.49	46.00	-7.51

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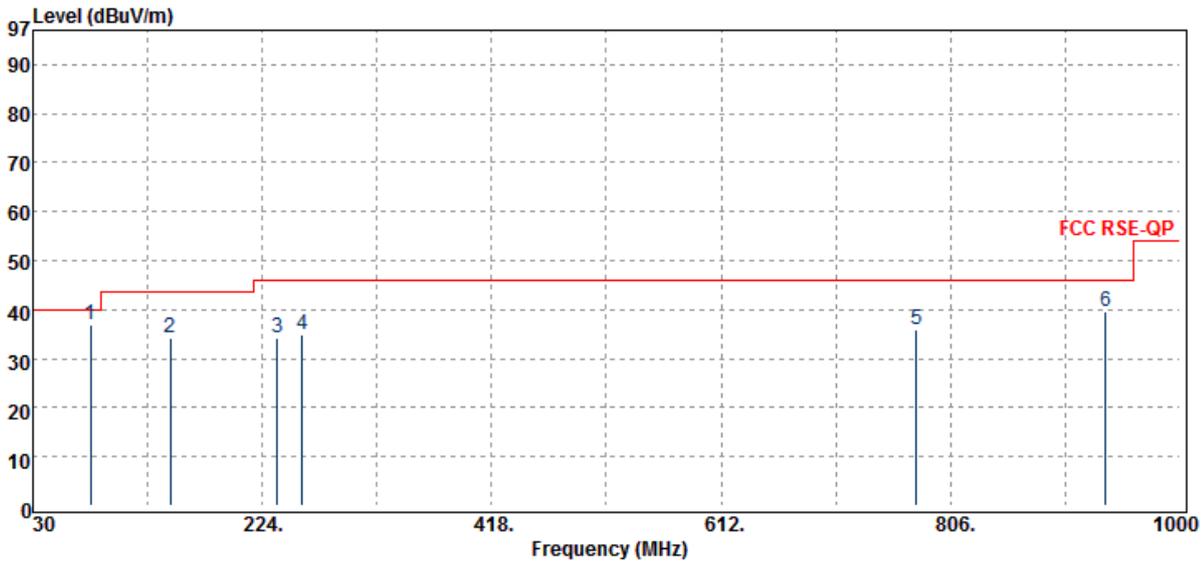
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Operation Band :802.11aB3  
Fundamental Frequency :5580 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	Peak	48.83	-12.02	36.81	40.00	-3.19
146.40	S	Peak	42.28	-8.05	34.23	43.50	-9.27
236.61	S	Peak	42.66	-8.37	34.29	46.00	-11.71
257.95	S	Peak	42.37	-7.37	35.00	46.00	-11.00
776.90	S	Peak	33.28	2.54	35.82	46.00	-10.18
936.95	S	Peak	34.37	5.25	39.62	46.00	-6.38

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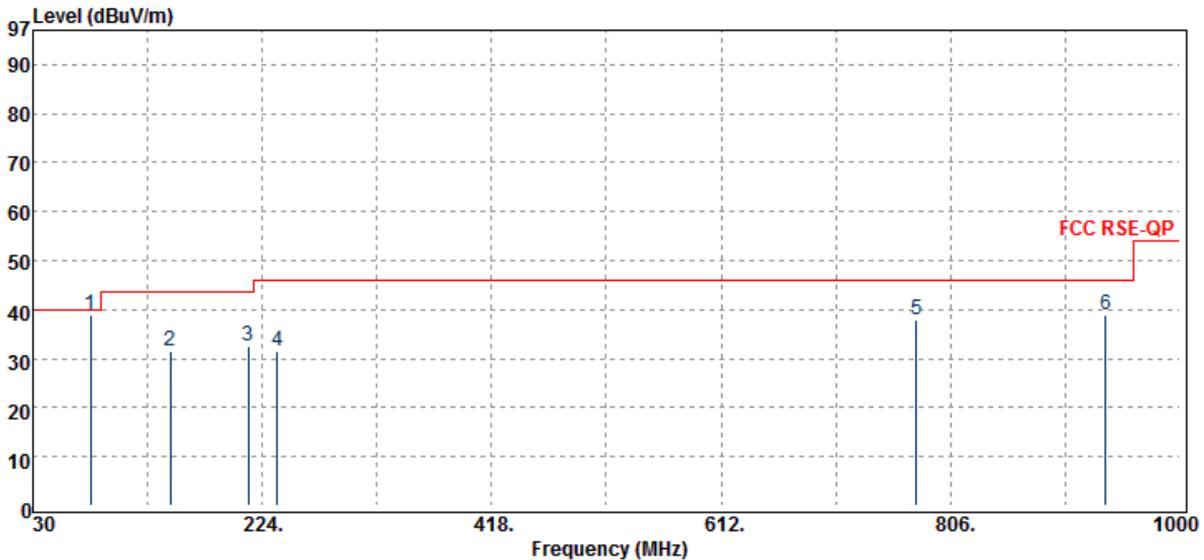
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Operation Band :802.11aB4  
Fundamental Frequency :5785 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	QP	50.85	-12.02	38.83	40.00	-1.17
146.40	S	Peak	39.54	-8.05	31.49	43.50	-12.01
212.36	S	Peak	42.09	-9.65	32.44	43.50	-11.06
236.61	S	Peak	40.01	-8.37	31.64	46.00	-14.36
776.90	S	Peak	35.50	2.54	38.04	46.00	-7.96
936.95	S	Peak	33.67	5.25	38.92	46.00	-7.08

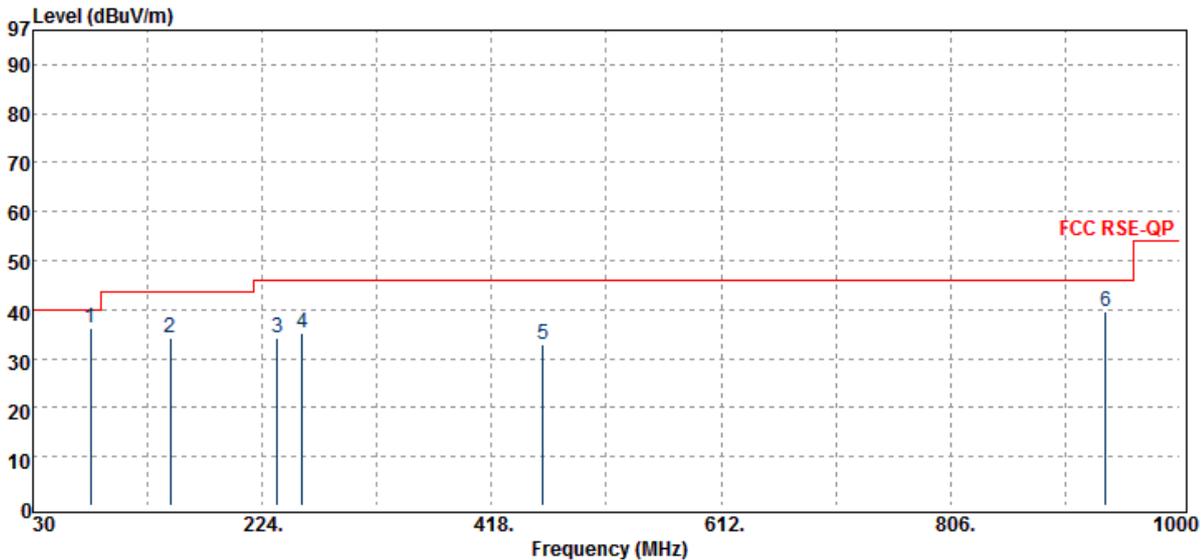
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Operation Band :802.11aB4  
Fundamental Frequency :5785 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	Peak	48.41	-12.02	36.39	40.00	-3.61
146.40	S	Peak	42.13	-8.05	34.08	43.50	-9.42
236.61	S	Peak	42.50	-8.37	34.13	46.00	-11.87
257.95	S	Peak	42.69	-7.37	35.32	46.00	-10.68
461.65	S	Peak	35.56	-2.60	32.96	46.00	-13.04
936.95	S	Peak	34.28	5.25	39.53	46.00	-6.47

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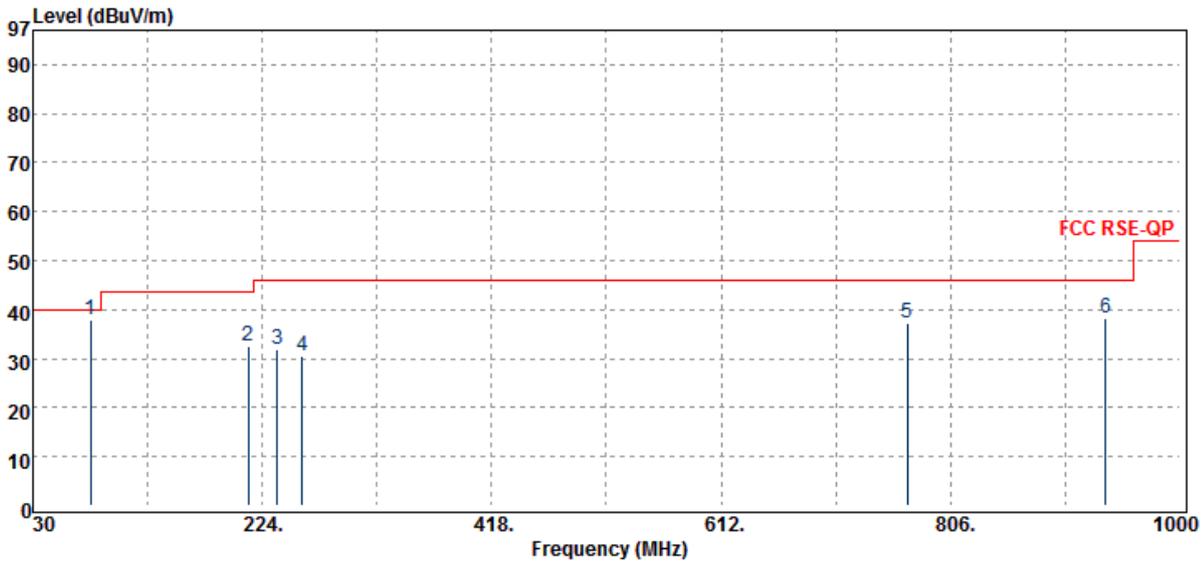
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Operation Band :802.11ac80B1  
Fundamental Frequency :5210 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	QP	50.11	-12.02	38.09	40.00	-1.91
212.36	S	Peak	42.36	-9.65	32.71	43.50	-10.79
236.61	S	Peak	40.11	-8.37	31.74	46.00	-14.26
257.95	S	Peak	38.06	-7.37	30.69	46.00	-15.31
769.14	S	Peak	34.47	2.77	37.24	46.00	-8.76
936.95	S	Peak	32.88	5.25	38.13	46.00	-7.87

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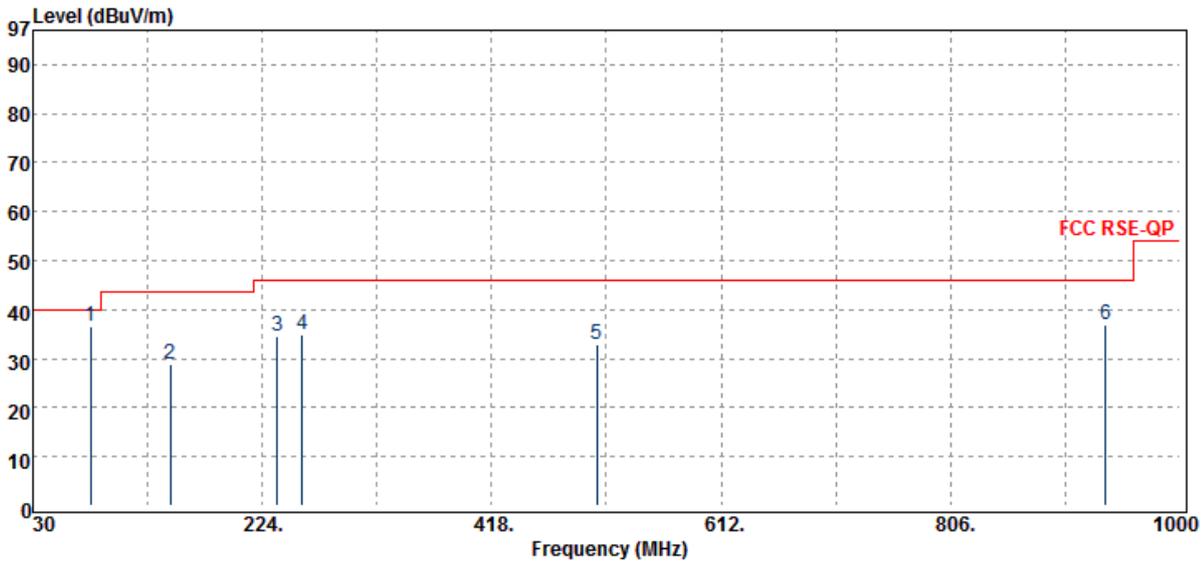
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Operation Band :802.11ac80B1  
Fundamental Frequency :5210 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	Peak	48.70	-12.02	36.68	40.00	-3.32
146.40	S	Peak	36.86	-8.05	28.81	43.50	-14.69
236.61	S	Peak	42.84	-8.37	34.47	46.00	-11.53
257.95	S	Peak	42.26	-7.37	34.89	46.00	-11.11
507.24	S	Peak	35.31	-2.32	32.99	46.00	-13.01
936.95	S	Peak	31.75	5.25	37.00	46.00	-9.00

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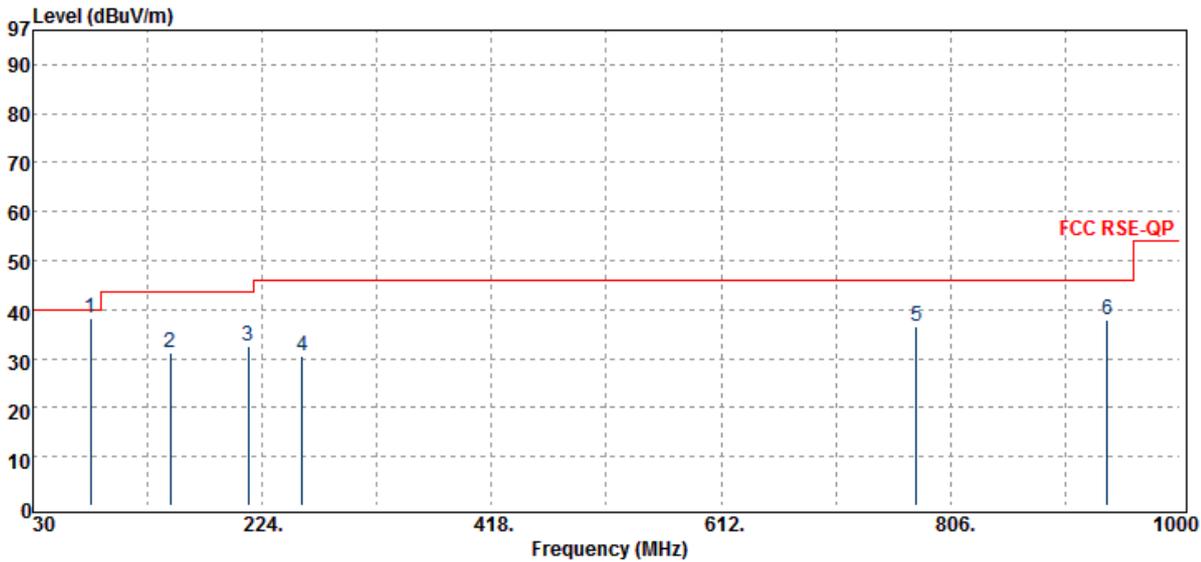
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Operation Band :802.11ac80B2  
Fundamental Frequency :5290 MHz  
Operation Mode :Tx CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	QP	50.13	-12.02	38.11	40.00	-1.89
146.40	S	Peak	39.19	-8.05	31.14	43.50	-12.36
212.36	S	Peak	42.36	-9.65	32.71	43.50	-10.79
257.95	S	Peak	37.81	-7.37	30.44	46.00	-15.56
776.90	S	Peak	34.05	2.54	36.59	46.00	-9.41
938.89	S	Peak	32.74	5.30	38.04	46.00	-7.96

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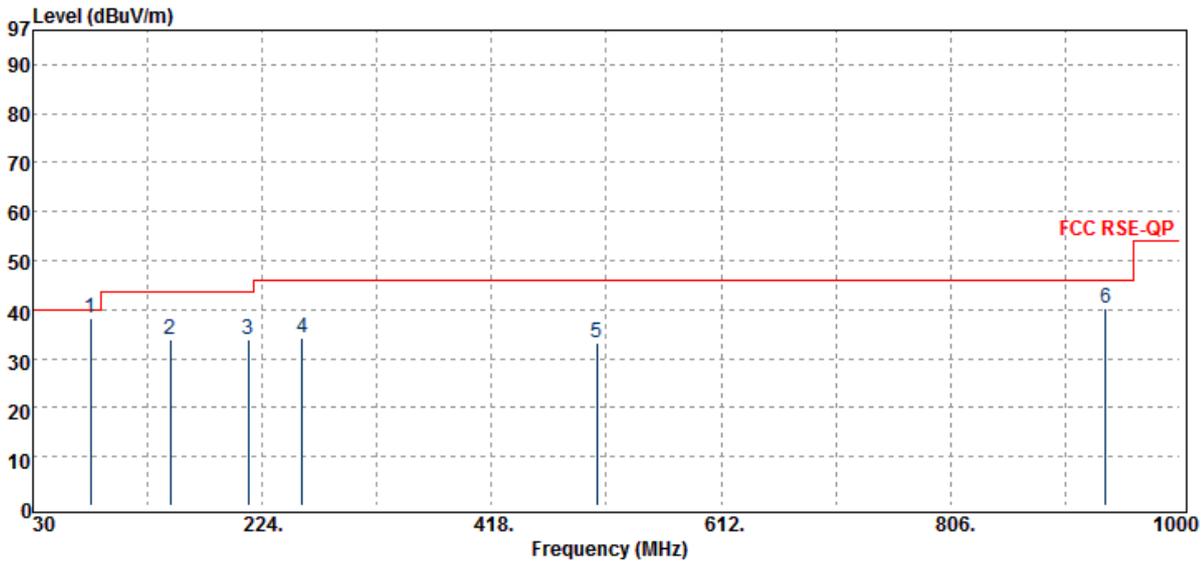
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Operation Band :802.11ac80B2  
Fundamental Frequency :5290 MHz  
Operation Mode :Tx CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	Peak	50.31	-12.02	38.29	40.00	-1.71
146.40	S	Peak	42.07	-8.05	34.02	43.50	-9.48
212.36	S	Peak	43.58	-9.65	33.93	43.50	-9.57
257.95	S	Peak	41.72	-7.37	34.35	46.00	-11.65
507.24	S	Peak	35.59	-2.32	33.27	46.00	-12.73
936.95	S	Peak	34.96	5.25	40.21	46.00	-5.79

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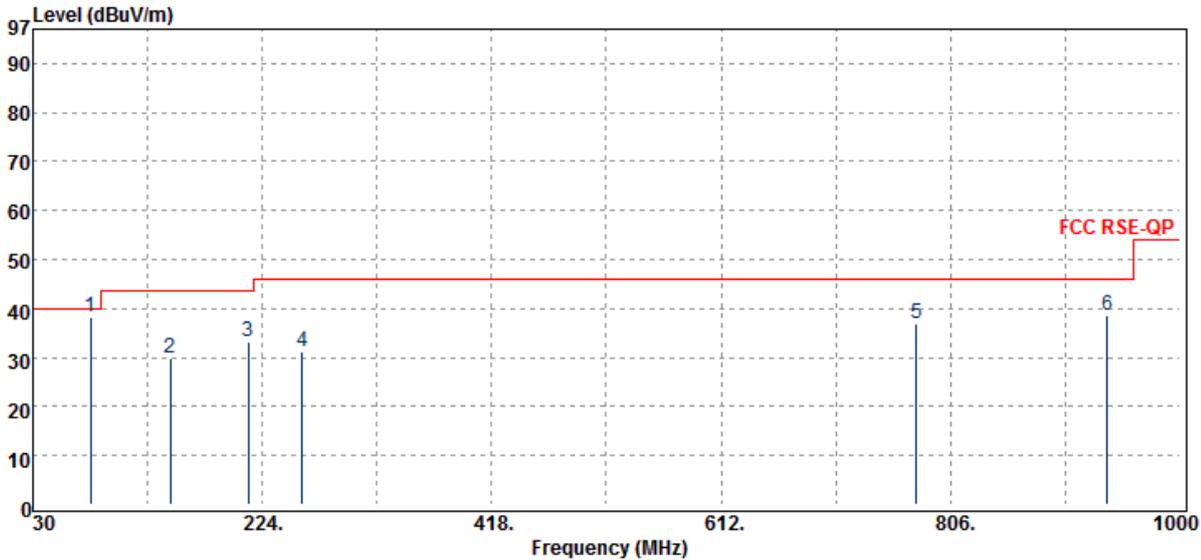
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**802.11ac VHT80, 5470~5725 MHz**

Operation Band :802.11ac80B3  
Fundamental Frequency :5530 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
78.50	S	QP	50.15	-12.02	38.13	40.00	-1.87
146.40	S	Peak	38.03	-8.05	29.98	43.50	-13.52
212.36	S	Peak	42.77	-9.65	33.12	43.50	-10.38
257.95	S	Peak	38.48	-7.37	31.11	46.00	-14.89
776.90	S	Peak	34.50	2.54	37.04	46.00	-8.96
938.89	S	Peak	33.28	5.30	38.58	46.00	-7.42

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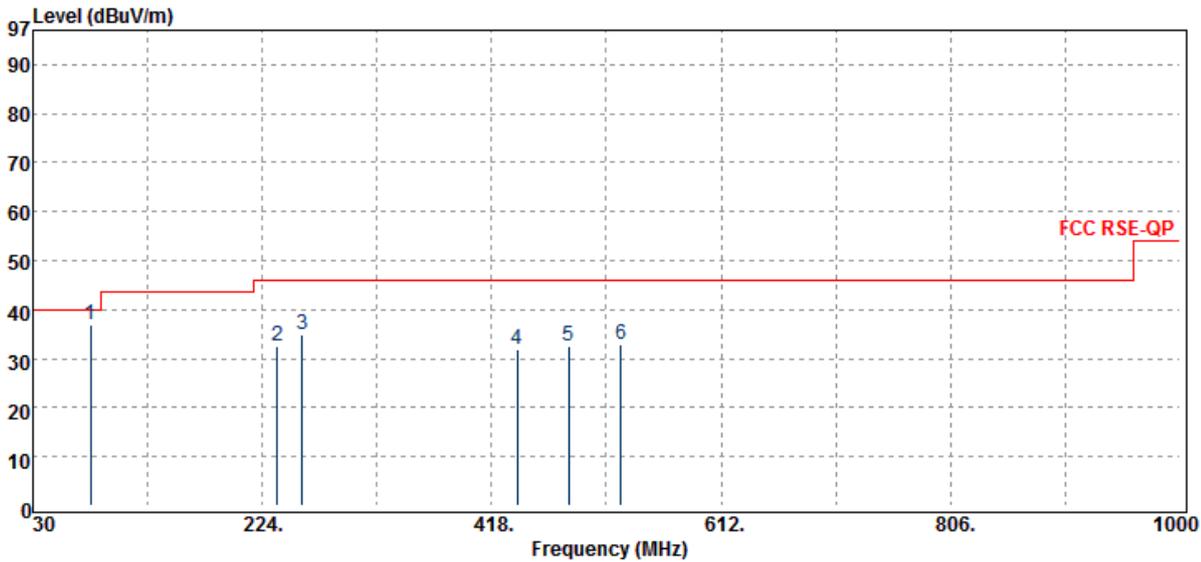
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Operation Band :802.11ac80B3  
Fundamental Frequency :5530 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
78.50	S	Peak	48.80	-12.02	36.78	40.00	-3.22
236.61	S	Peak	40.93	-8.37	32.56	46.00	-13.44
257.95	S	Peak	42.40	-7.37	35.03	46.00	-10.97
439.34	S	Peak	35.23	-3.23	32.00	46.00	-14.00
482.99	S	Peak	35.03	-2.47	32.56	46.00	-13.44
527.61	S	Peak	34.35	-1.32	33.03	46.00	-12.97

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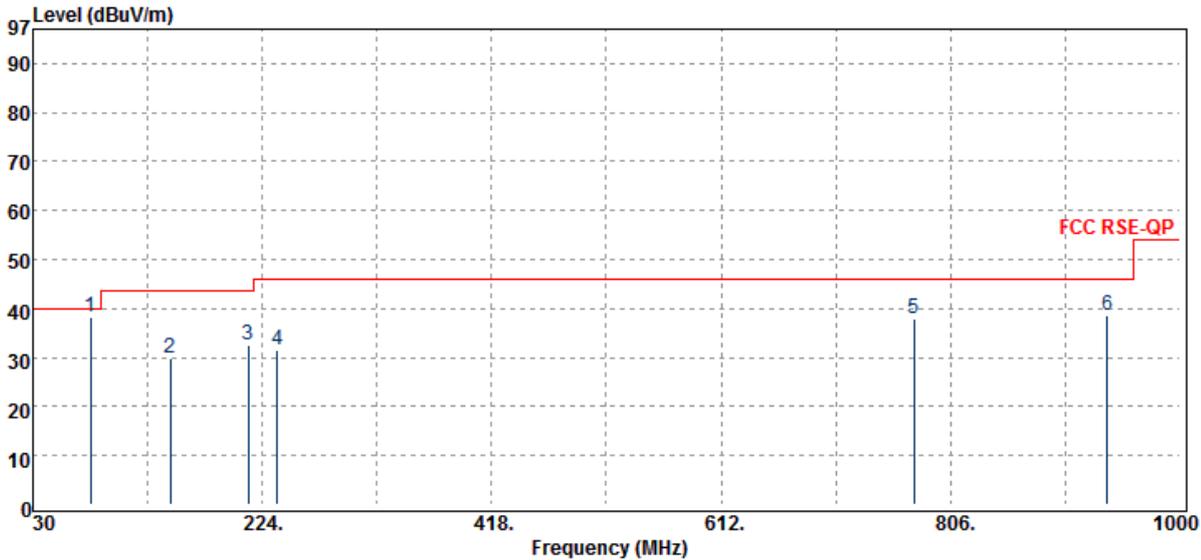
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### 802.11ac VHT80, 5725~5850 MHz

Operation Band	:802.11ac80B4	Test Date	:2018-04-23
Fundamental Frequency	:5775 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
78.50	S	QP	50.12	-12.02	38.10	40.00	-1.90
146.40	S	Peak	38.03	-8.05	29.98	43.50	-13.52
212.36	S	Peak	42.15	-9.65	32.50	43.50	-11.00
236.61	S	Peak	40.00	-8.37	31.63	46.00	-14.37
774.96	S	Peak	35.20	2.76	37.96	46.00	-8.04
938.89	S	Peak	33.28	5.30	38.58	46.00	-7.42

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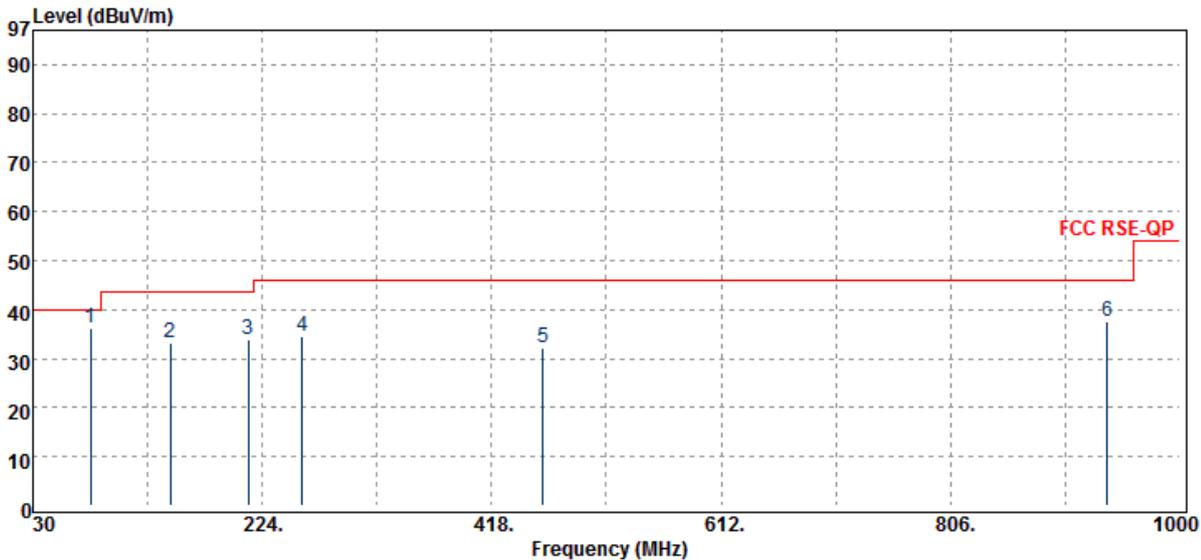
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Operation Band :802.11ac80B4  
Fundamental Frequency :5775 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
78.50	S	Peak	48.21	-12.02	36.19	40.00	-3.81
146.40	S	Peak	41.44	-8.05	33.39	43.50	-10.11
212.36	S	Peak	43.66	-9.65	34.01	43.50	-9.49
257.95	S	Peak	41.92	-7.37	34.55	46.00	-11.45
461.65	S	Peak	34.71	-2.60	32.11	46.00	-13.89
938.89	S	Peak	32.17	5.30	37.47	46.00	-8.53

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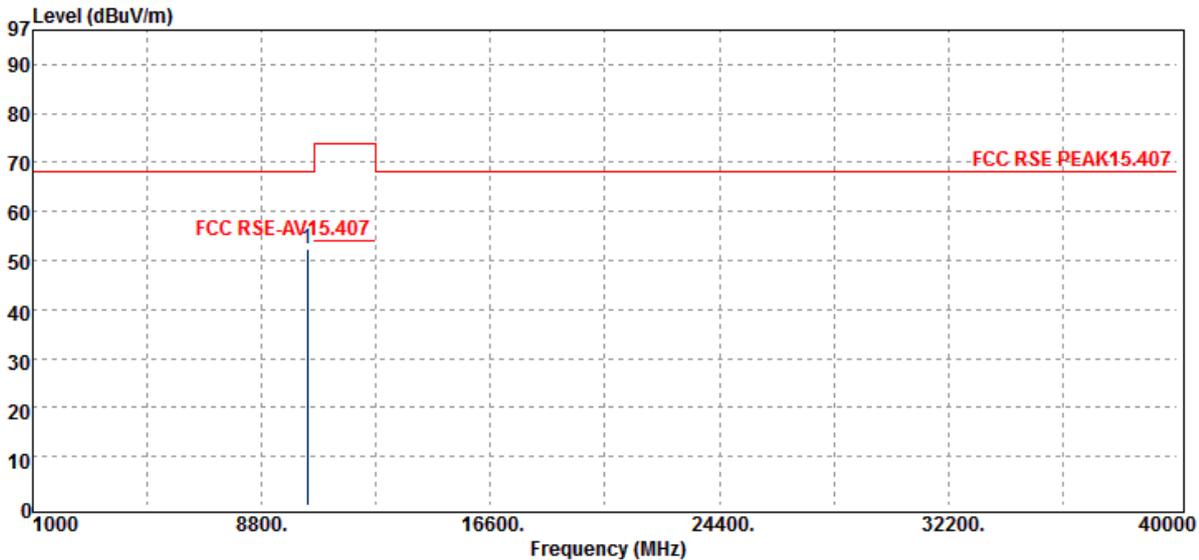
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**Above 1GHz Worst-Case Data:  
Radiated Spurious Emission Measurement Result 802.11a, 5150~5250 MHz**

Operation Band	:802.11aB1	Test Date	:2018-04-23
Fundamental Frequency	:5180 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10360.00	H	Peak	34.05	18.29	52.34	68.30	-15.96

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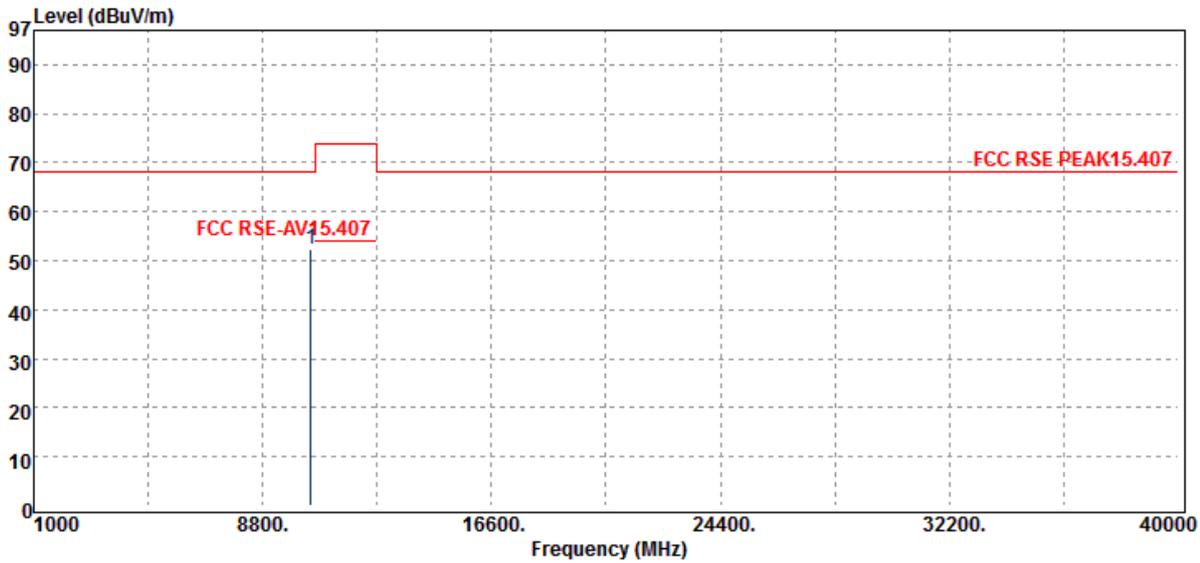
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Operation Band :802.11aB1  
Fundamental Frequency :5220 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
10440.00	H	Peak	33.58	18.69	52.27	68.30	-16.03

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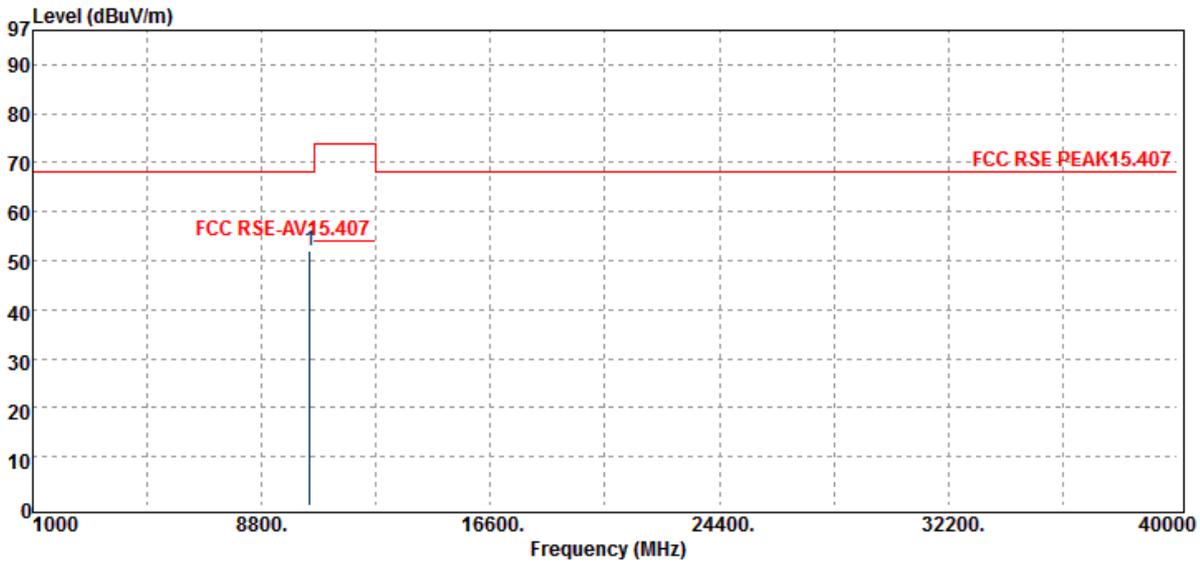
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Operation Band	:802.11aB1	Test Date	:2018-04-23
Fundamental Frequency	:5220 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



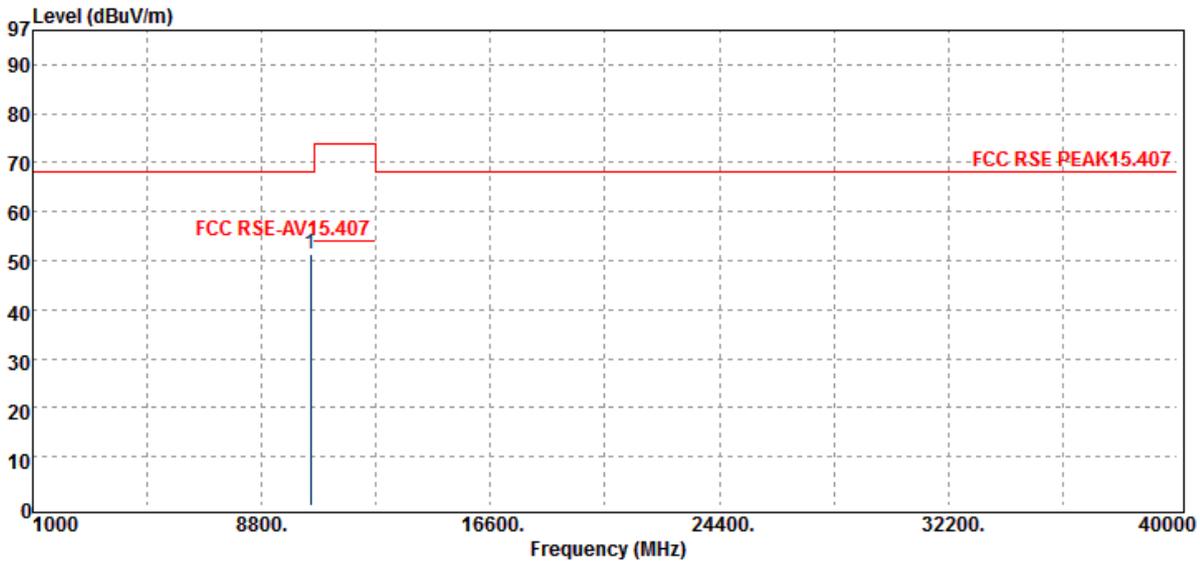
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10440.00	H	Peak	33.19	18.69	51.88	68.30	-16.42

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Operation Band	:802.11aB1	Test Date	:2018-04-23
Fundamental Frequency	:5240 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



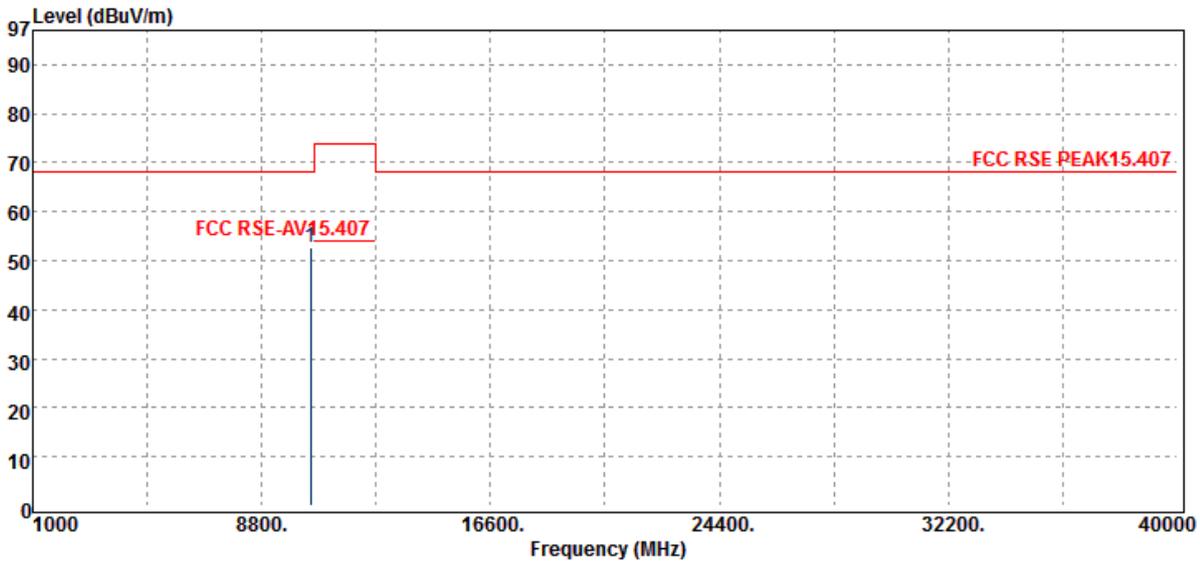
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
10480.00	H	Peak	33.16	18.30	51.46	68.30	-16.84

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Operation Band	:802.11aB1	Test Date	:2018-04-23
Fundamental Frequency	:5240 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10480.00	H	Peak	34.41	18.30	52.71	68.30	-15.59

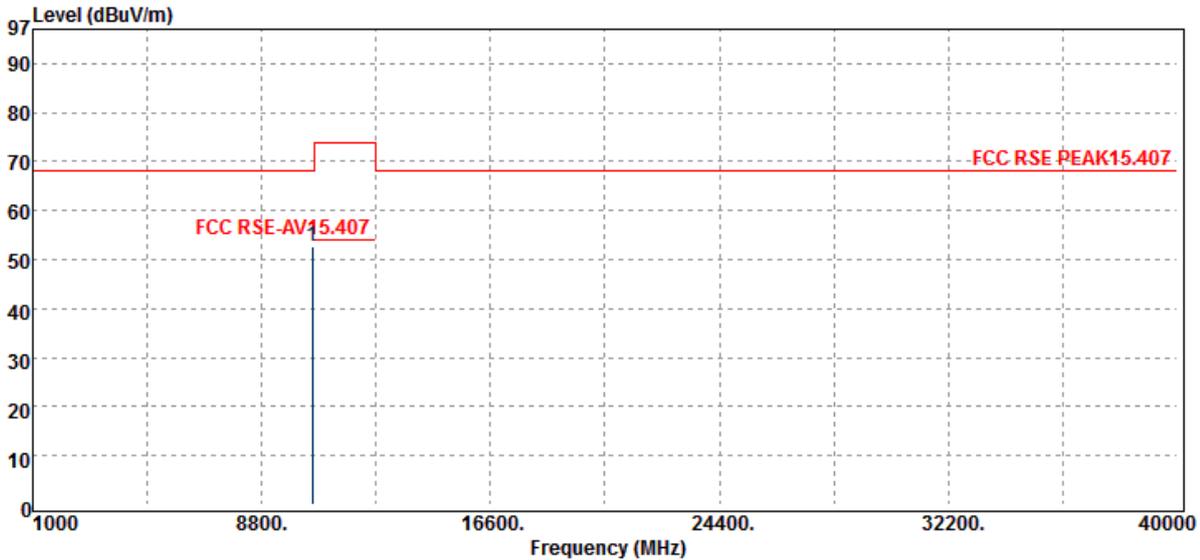
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### Radiated Spurious Emission Measurement Result 802.11a, 5250MHz-5350MHz

Operation Band	:802.11aB2	Test Date	:2018-04-23
Fundamental Frequency	:5260 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



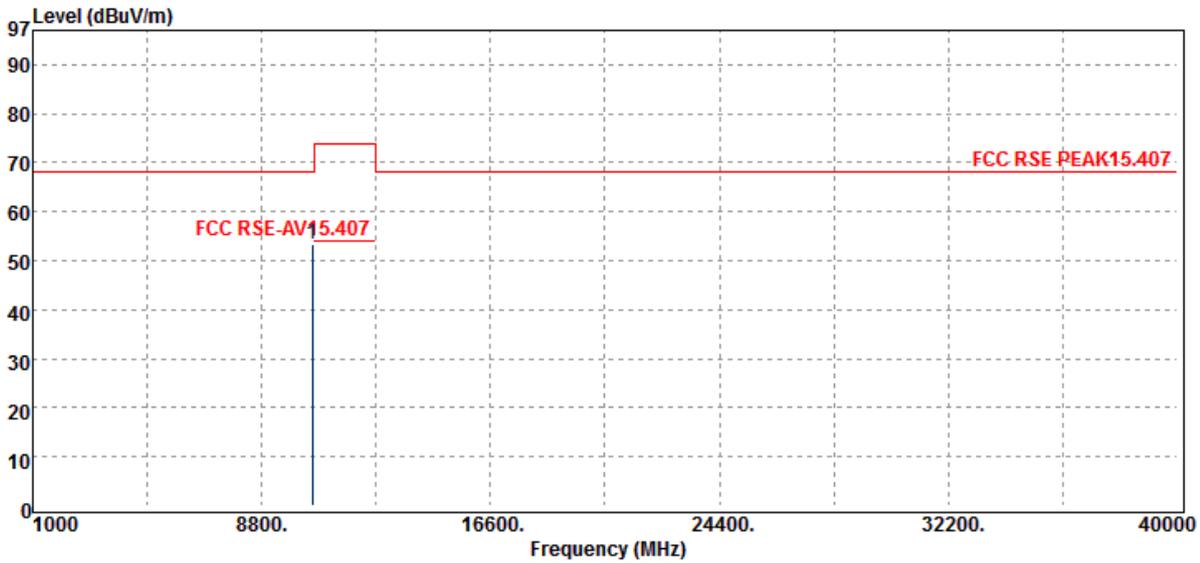
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
10520.00	H	Peak	33.22	19.38	52.60	68.30	-15.70

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Operation Band	:802.11aB2	Test Date	:2018-04-23
Fundamental Frequency	:5260 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
10520.00	H	Peak	33.84	19.38	53.22	68.30	-15.08

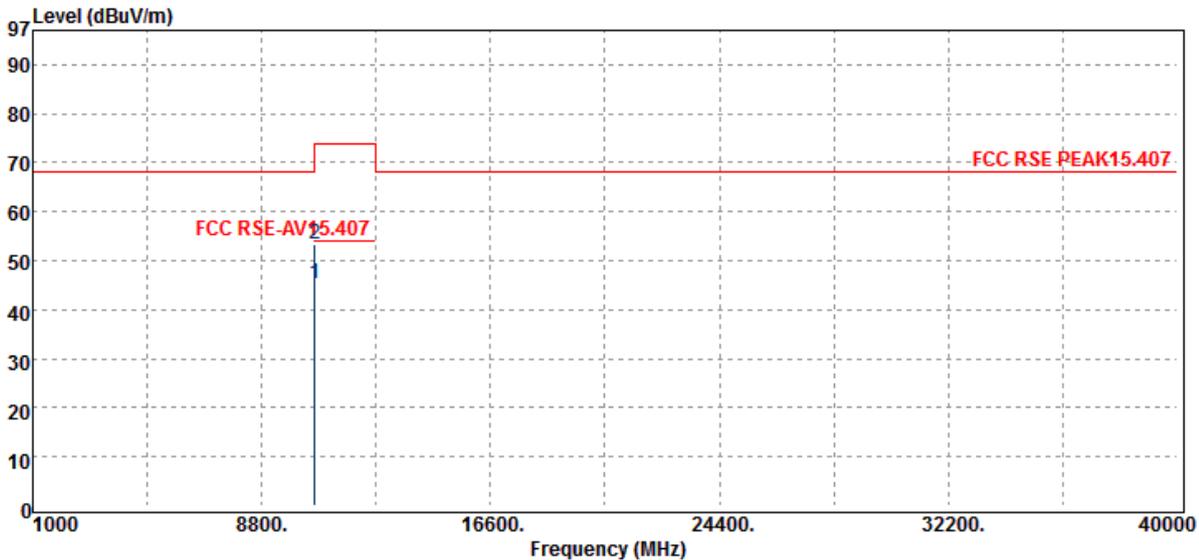
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Operation Band :802.11aB2  
Fundamental Frequency :5300 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Safe Margin dB
10600.00	H	Average	26.54	18.91	45.45	54.00	-8.55
10600.00	H	Peak	34.31	18.91	53.22	74.00	-20.78

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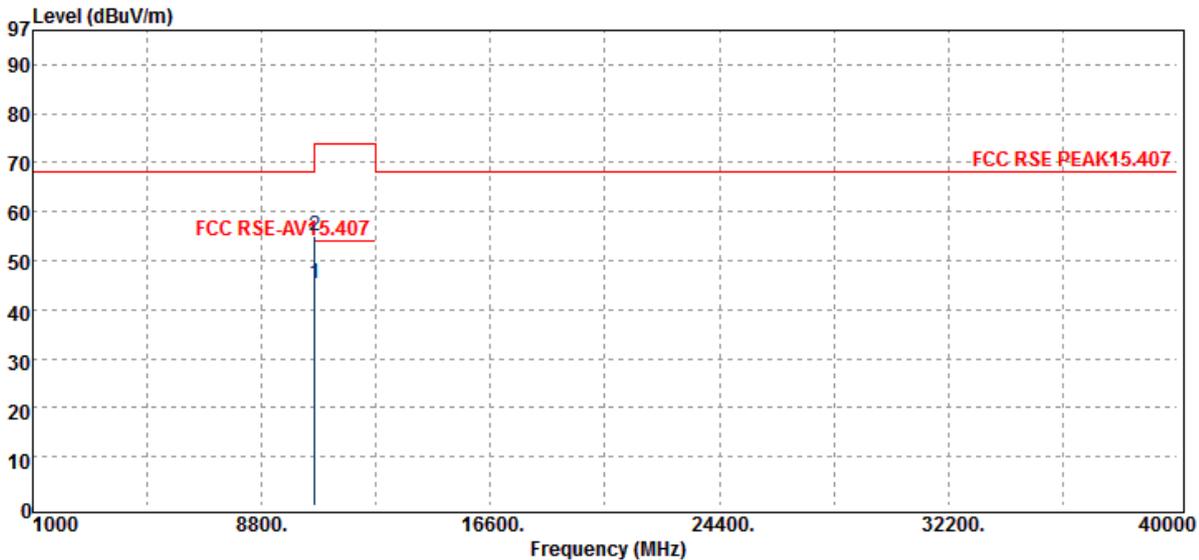
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Operation Band :802.11aB2  
Fundamental Frequency :5300 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
10600.00	H	Average	26.52	18.91	45.43	54.00	-8.57
10600.00	H	Peak	36.27	18.91	55.18	74.00	-18.82

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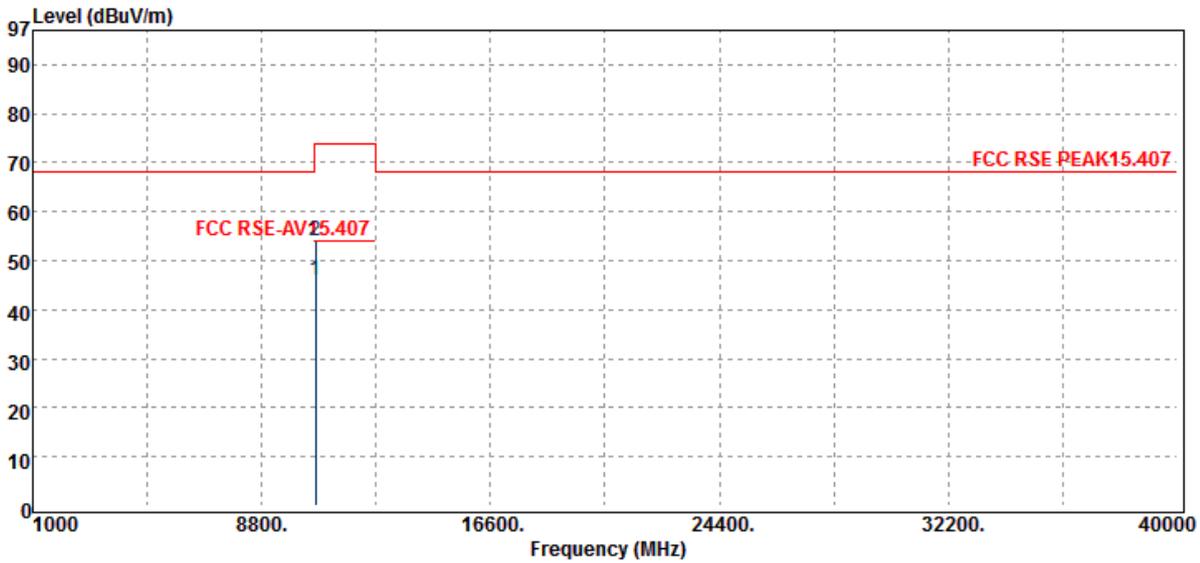
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Operation Band	:802.11aB2	Test Date	:2018-04-23
Fundamental Frequency	:5320 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



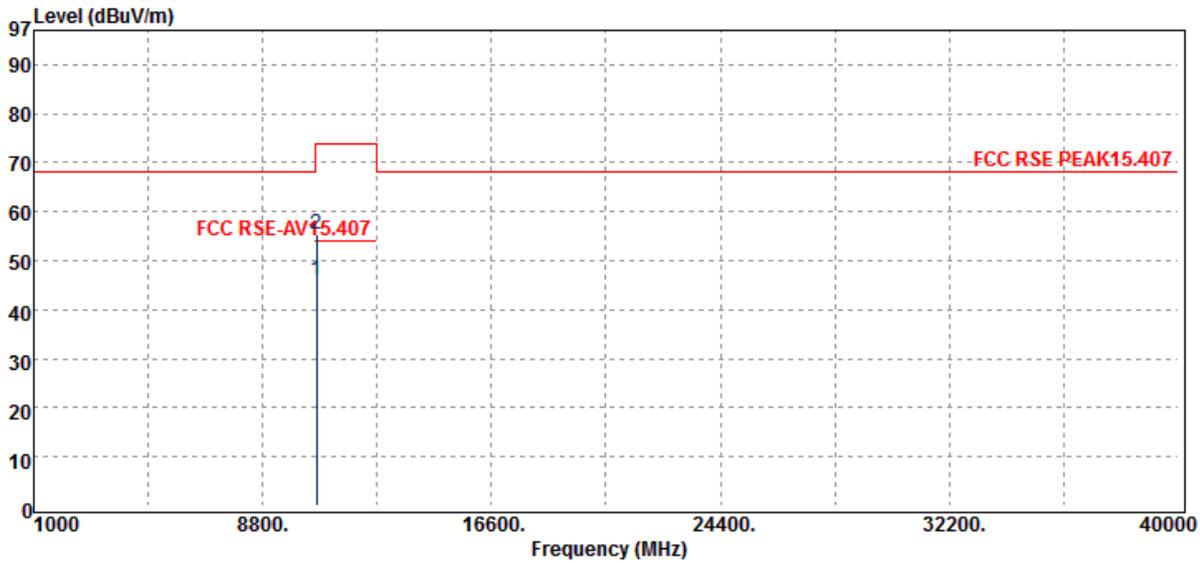
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10640.00	H	Average	26.83	19.19	46.02	54.00	-7.98
10640.00	H	Peak	34.71	19.19	53.90	74.00	-20.10

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Operation Band	:802.11aB2	Test Date	:2018-04-23
Fundamental Frequency	:5320 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10640.00	H	Average	26.89	19.19	46.08	54.00	-7.92
10640.00	H	Peak	36.33	19.19	55.52	74.00	-18.48

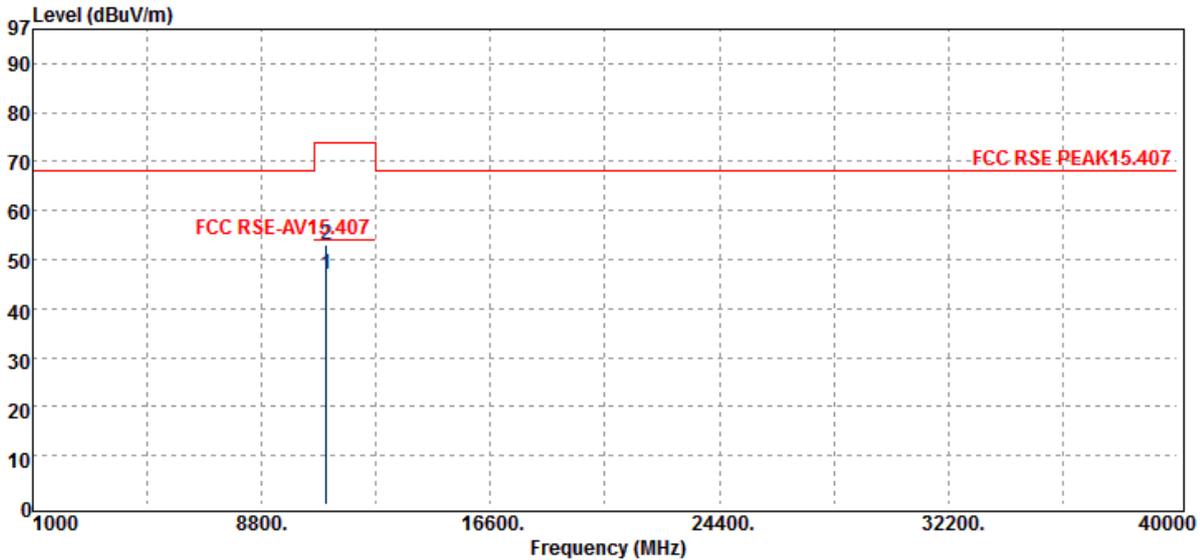
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### Radiated Spurious Emission Measurement Result 802.11a, 5470~5725 MHz

Operation Band	:802.11aB3	Test Date	:2018-04-23
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
11000.00	H	Average	26.98	20.16	47.14	54.00	-6.86
11000.00	H	Peak	33.02	20.16	53.18	74.00	-20.82

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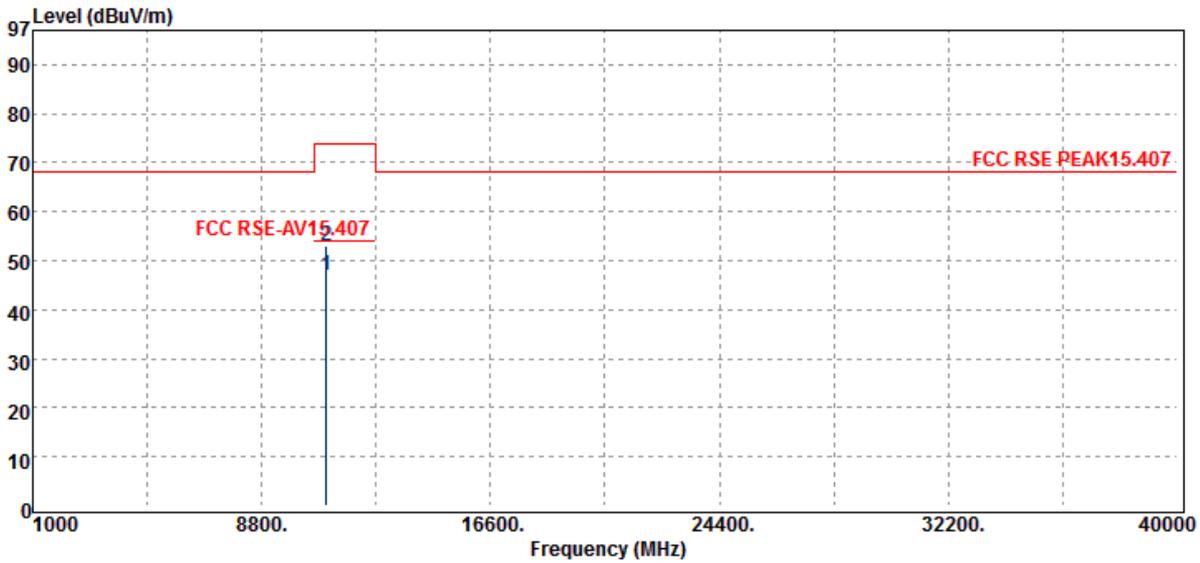
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Operation Band :802.11aB3  
Fundamental Frequency :5500 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11000.00	H	Average	26.97	20.16	47.13	54.00	-6.87
11000.00	H	Peak	32.84	20.16	53.00	74.00	-21.00

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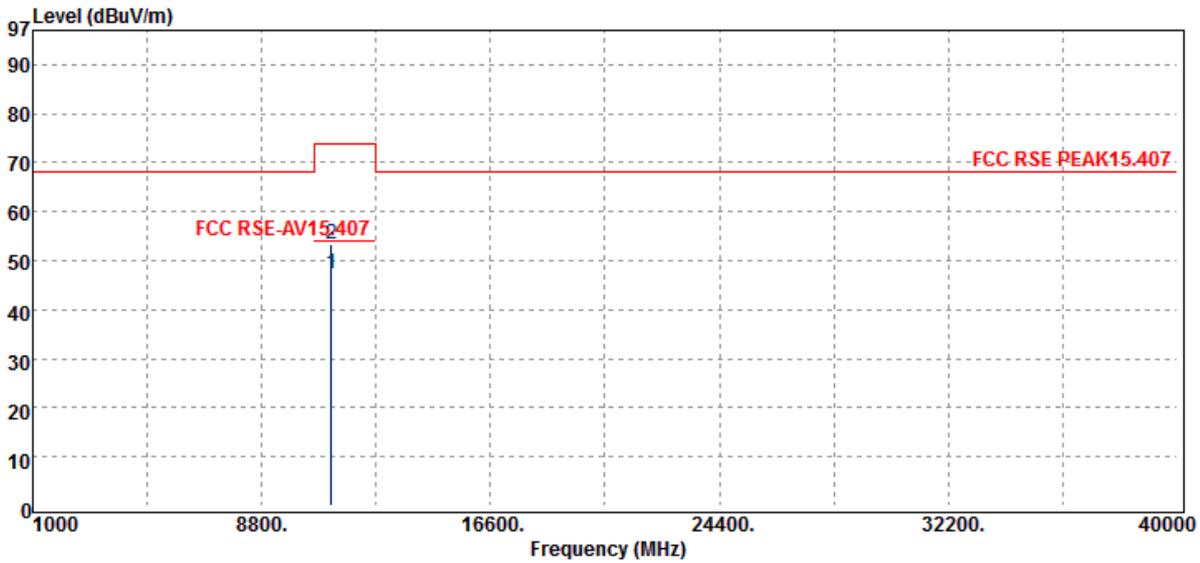
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Operation Band :802.11aB3  
Fundamental Frequency :5580 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



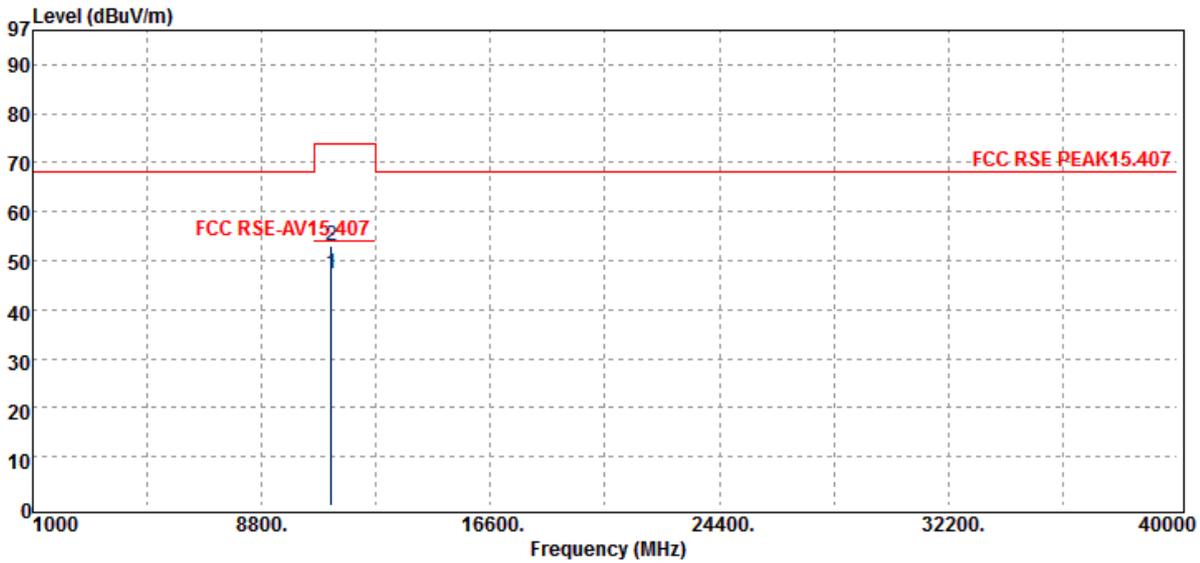
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11160.00	H	Average	26.76	20.44	47.20	54.00	-6.80
11160.00	H	Peak	33.03	20.44	53.47	74.00	-20.53

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Operation Band	:802.11aB3	Test Date	:2018-04-23
Fundamental Frequency	:5580 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



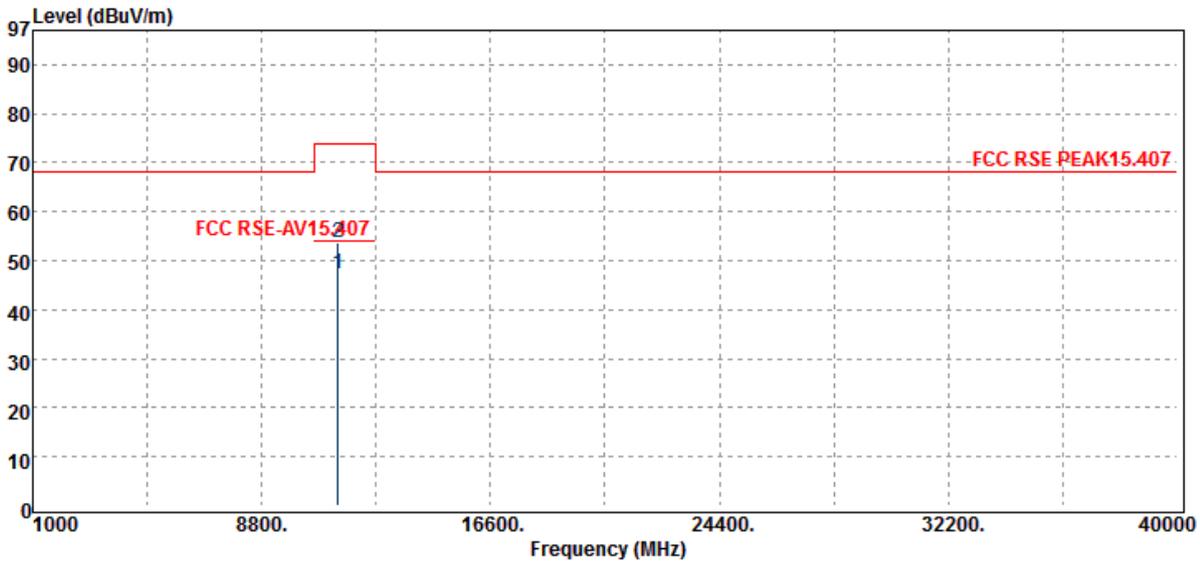
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11160.00	H	Average	26.73	20.44	47.17	54.00	-6.83
11160.00	H	Peak	32.67	20.44	53.11	74.00	-20.89

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Operation Band	:802.11aB3	Test Date	:2018-04-23
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



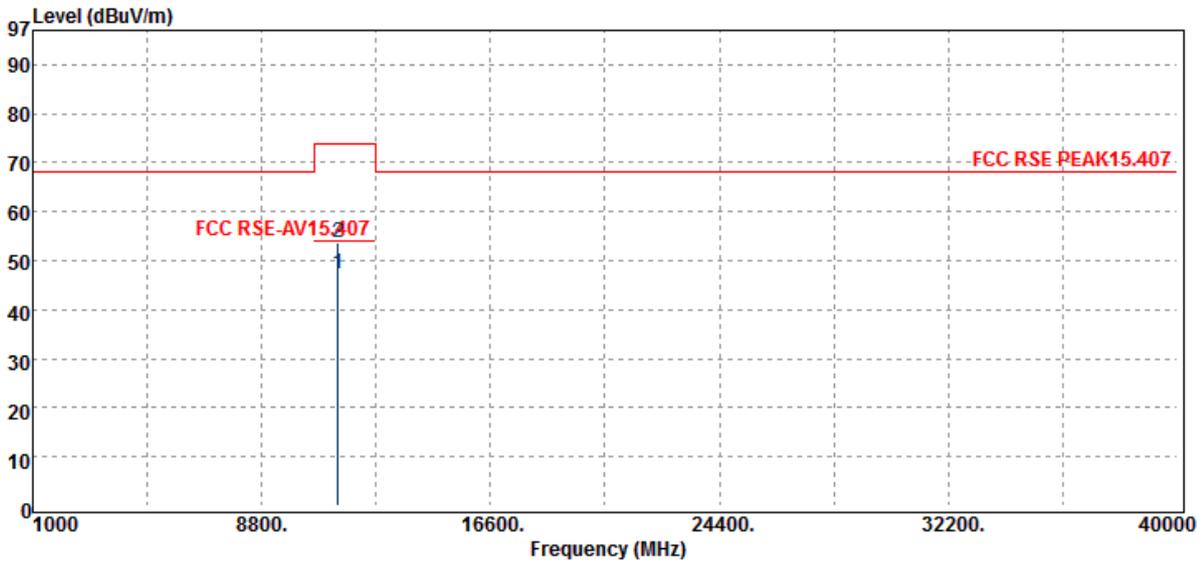
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11400.00	H	Average	26.74	20.56	47.30	54.00	-6.70
11400.00	H	Peak	33.02	20.56	53.58	74.00	-20.42

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Operation Band	:802.11aB3	Test Date	:2018-04-23
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11400.00	H	Average	26.71	20.56	47.27	54.00	-6.73
11400.00	H	Peak	33.13	20.56	53.69	74.00	-20.31

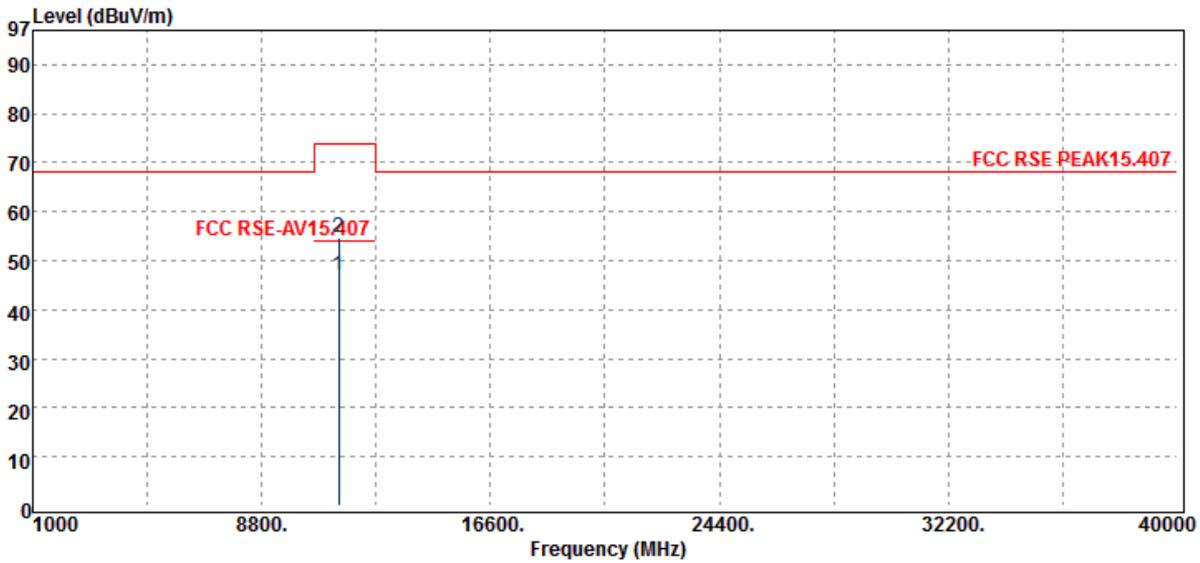
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Operation Band :802.11aB3  
Fundamental Frequency :5720 MHz  
Operation Mode :Tx CH CROSS  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11440.00	H	Average	26.40	20.44	46.84	54.00	-7.16
11440.00	H	Peak	34.21	20.44	54.65	74.00	-19.35

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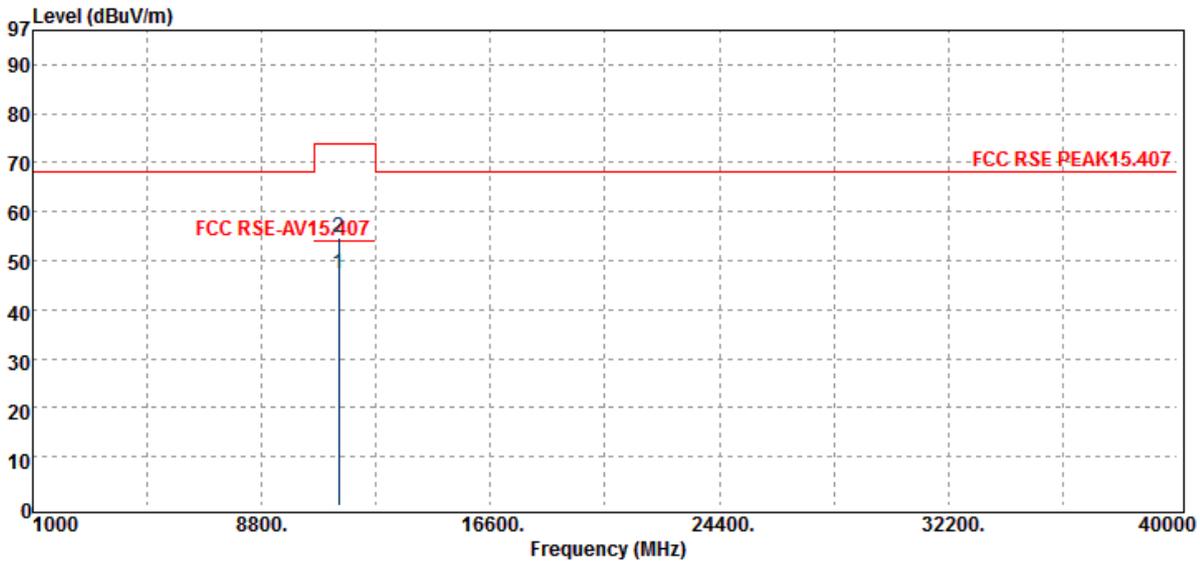
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Operation Band :802.11aB3  
 Fundamental Frequency :5720 MHz  
 Operation Mode :Tx CH CROSS  
 EUT Pol. :H Plane

Test Date :2018-04-23  
 Temp./Humi. :23 deg\_C / 62 RH  
 Engineer :Kane  
 Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
11440.00	H	Average	26.73	20.44	47.17	54.00	-6.83
11440.00	H	Peak	34.10	20.44	54.54	74.00	-19.46

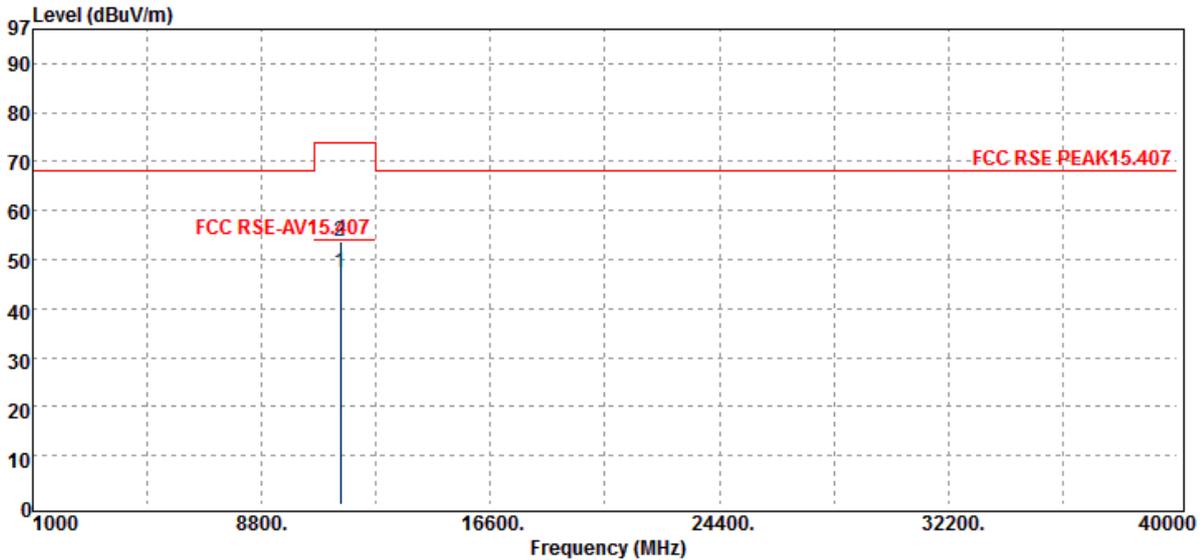
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### Radiated Spurious Emission Measurement Result 802.11a, 5725~5850 MHz

Operation Band	:802.11aB4	Test Date	:2018-04-23
Fundamental Frequency	:5745 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Safe Margin dB
11490.00	H	Average	26.91	20.42	47.33	54.00	-6.67
11490.00	H	Peak	33.37	20.42	53.79	74.00	-20.21

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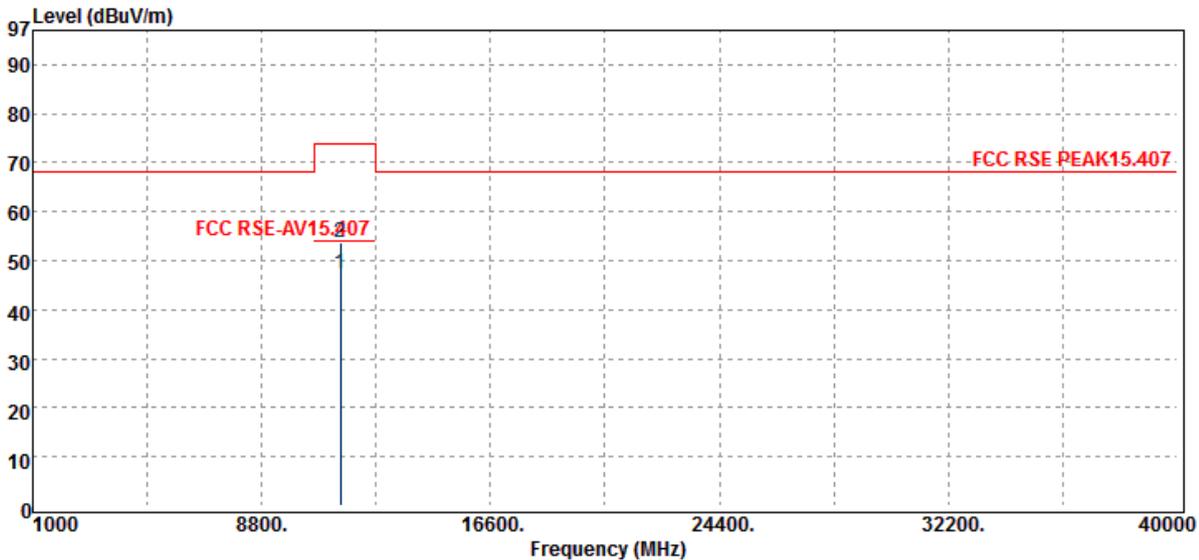
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Operation Band :802.11aB4  
Fundamental Frequency :5745 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11490.00	H	Average	26.89	20.42	47.31	54.00	-6.69
11490.00	H	Peak	33.32	20.42	53.74	74.00	-20.26

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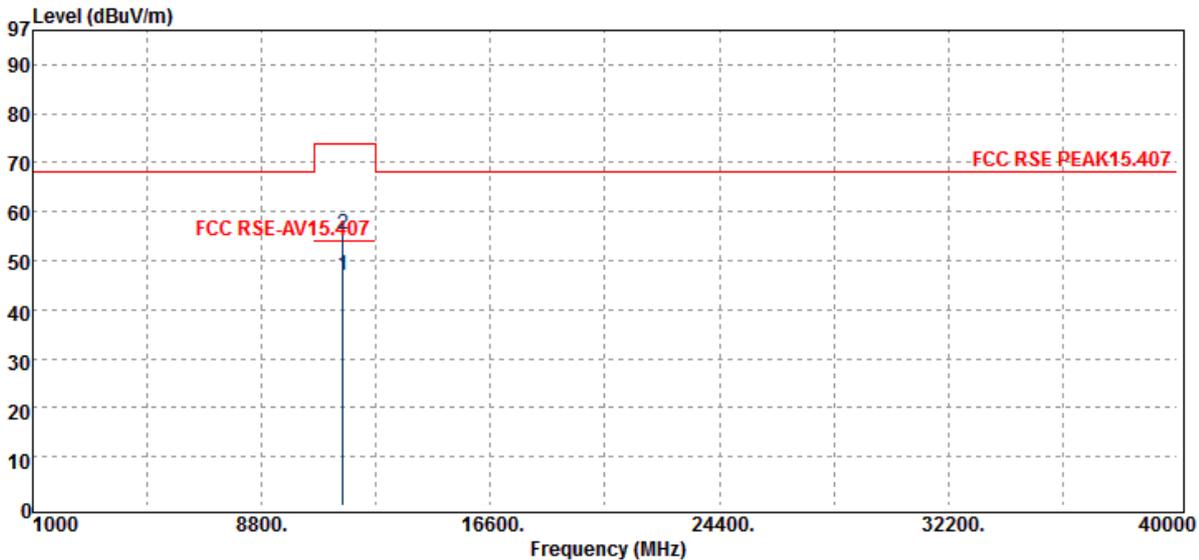
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Operation Band :802.11aB4  
Fundamental Frequency :5785 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11570.00	H	Average	26.54	20.58	47.12	54.00	-6.88
11570.00	H	Peak	34.96	20.58	55.54	74.00	-18.46

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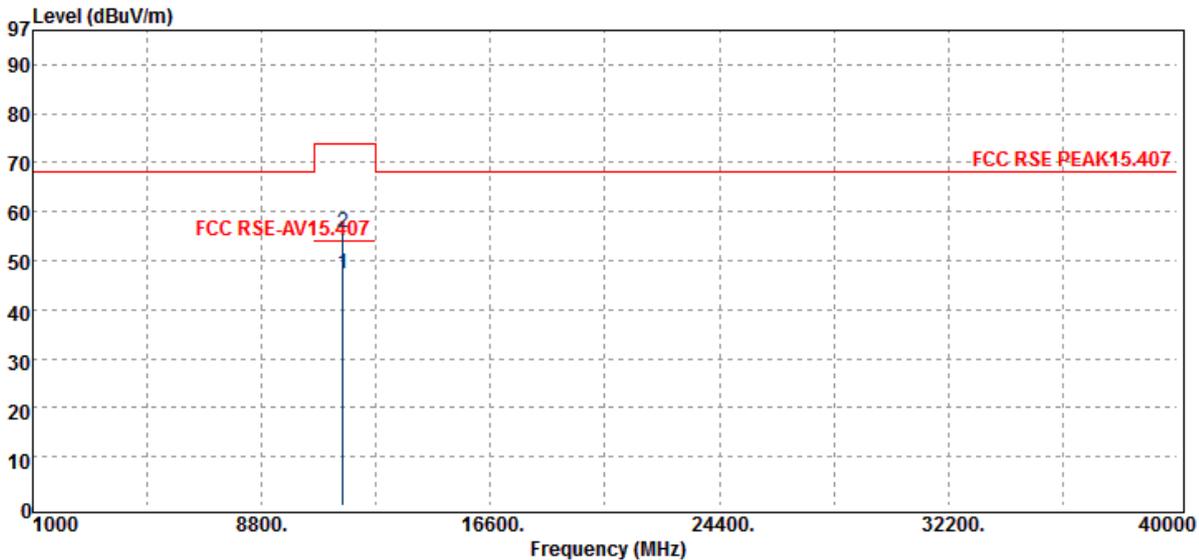
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Operation Band :802.11aB4  
Fundamental Frequency :5785 MHz  
Operation Mode :Tx CH MID  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11570.00	H	Average	26.59	20.58	47.17	54.00	-6.83
11570.00	H	Peak	35.27	20.58	55.85	74.00	-18.15

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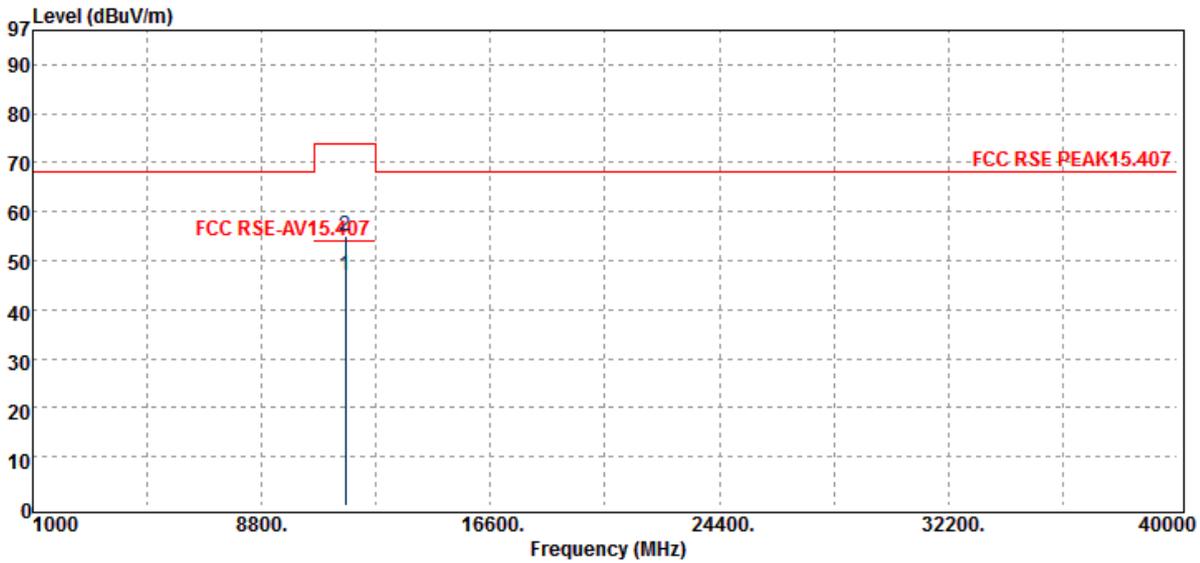
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Operation Band	:802.11aB4	Test Date	:2018-04-23
Fundamental Frequency	:5825 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



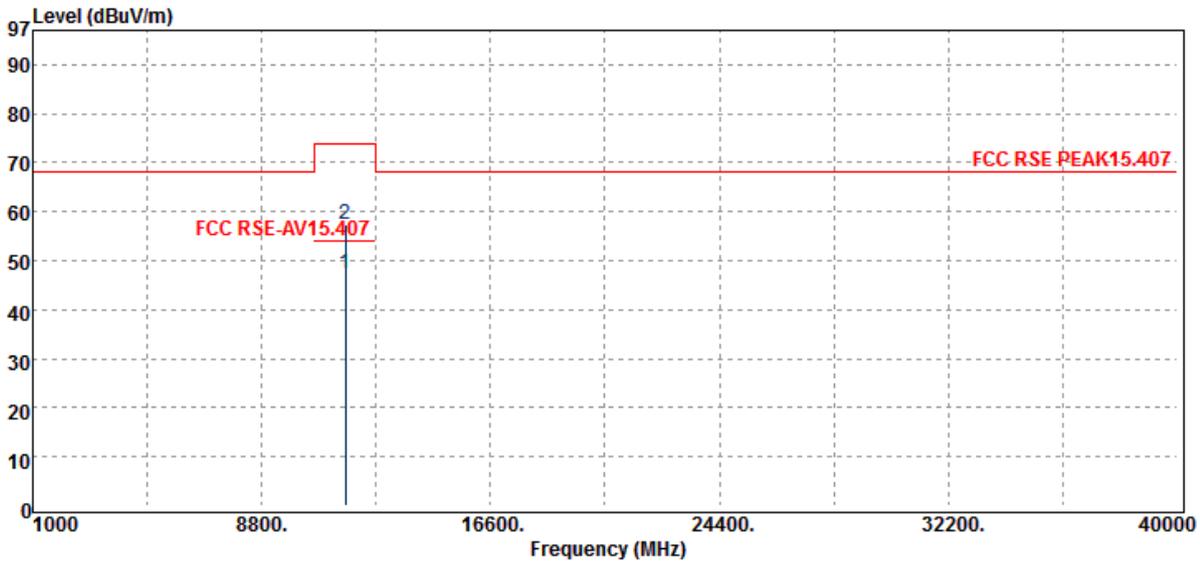
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11650.00	H	Average	26.70	20.43	47.13	54.00	-6.87
11650.00	H	Peak	34.46	20.43	54.89	74.00	-19.11

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Operation Band	:802.11aB4	Test Date	:2018-04-23
Fundamental Frequency	:5825 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
11650.00	H	Average	26.76	20.43	47.19	54.00	-6.81
11650.00	H	Peak	36.92	20.43	57.35	74.00	-16.65

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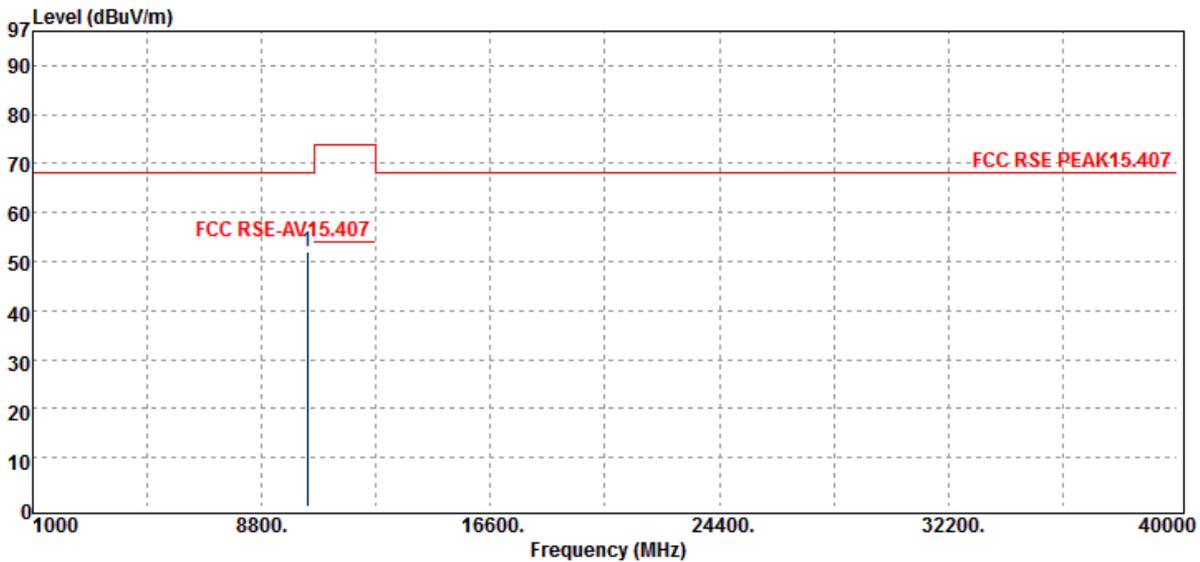
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### Radiated Spurious Emission Measurement Result 802.11n HT20, 5150~5250 MHz

Operation Band	:802.11n20B1	Test Date	:2018-04-23
Fundamental Frequency	:5180 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
10360.00	H	Peak	33.73	18.29	52.02	68.30	-16.28

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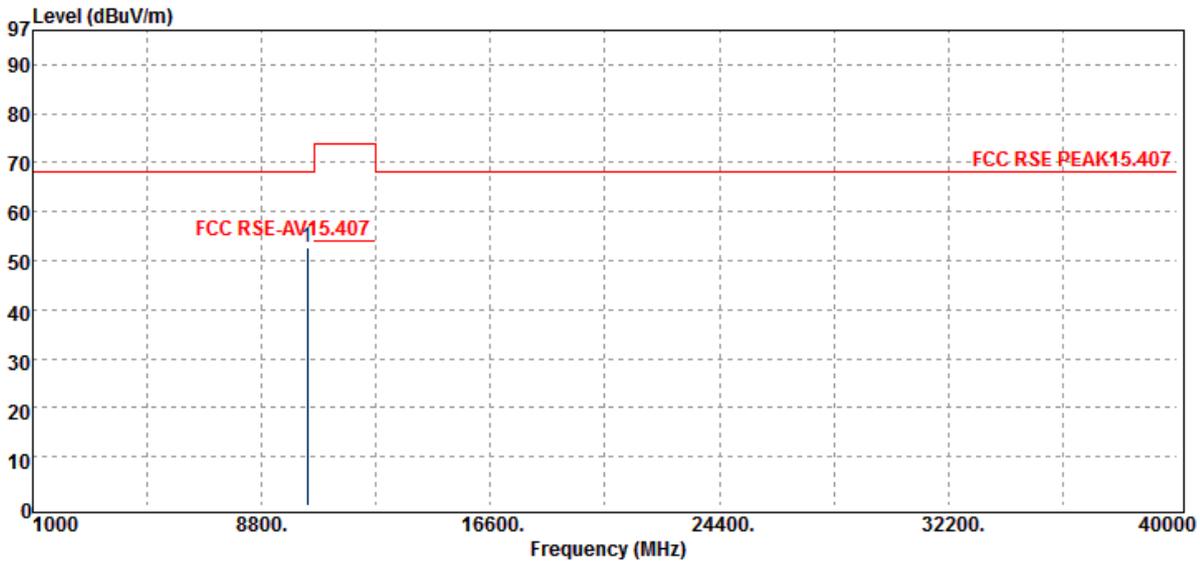
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Operation Band	:802.11n20B1	Test Date	:2018-04-23
Fundamental Frequency	:5180 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



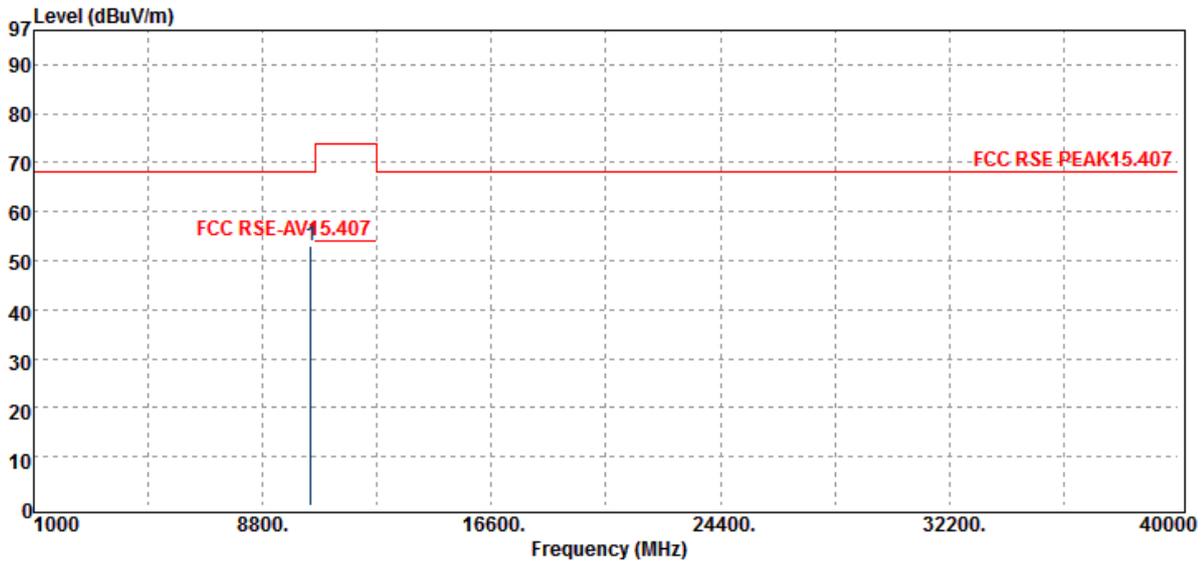
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10360.00	H	Peak	34.55	18.29	52.84	68.30	-15.46

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Operation Band	:802.11n20B1	Test Date	:2018-04-23
Fundamental Frequency	:5220 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



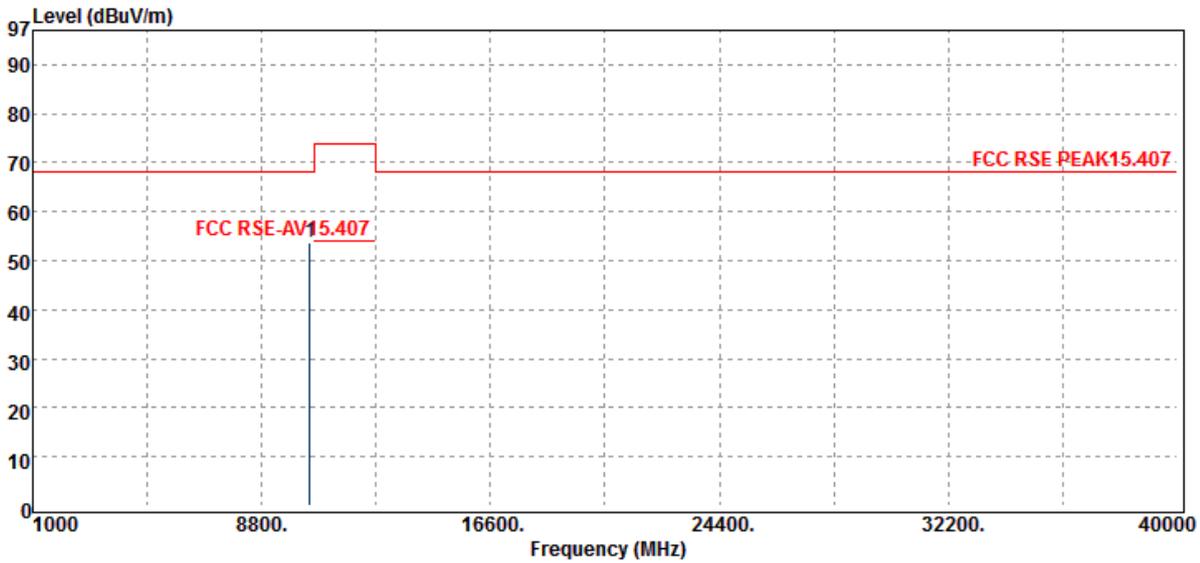
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
10440.00	H	Peak	34.24	18.69	52.93	68.30	-15.37

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Operation Band	:802.11n20B1	Test Date	:2018-04-23
Fundamental Frequency	:5220 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



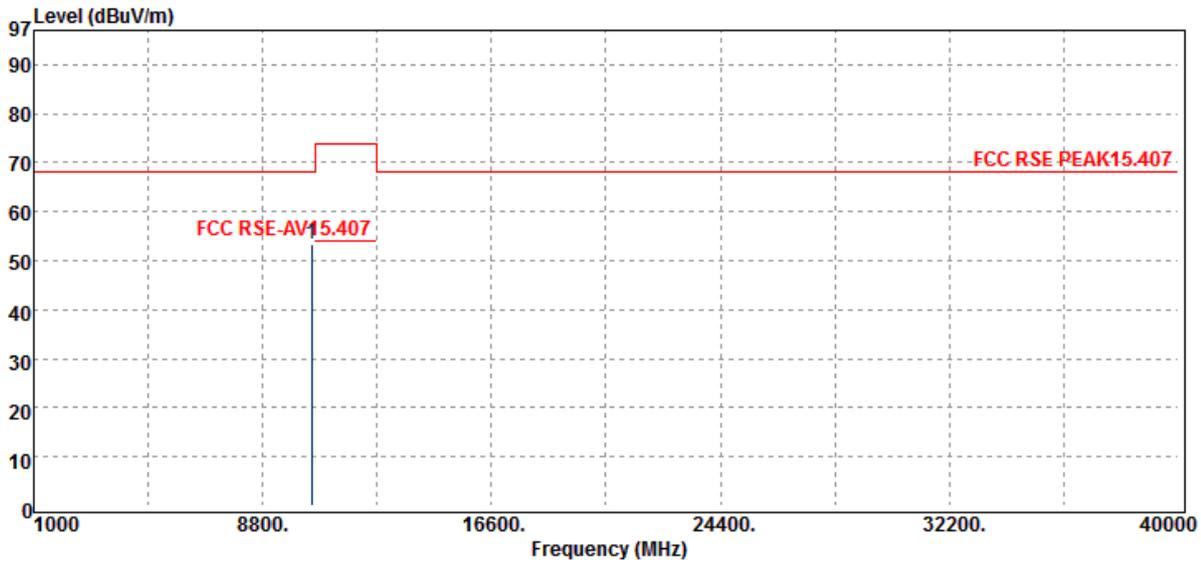
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10440.00	H	Peak	34.97	18.69	53.66	68.30	-14.64

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Operation Band	:802.11n20B1	Test Date	:2018-04-23
Fundamental Frequency	:5240 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



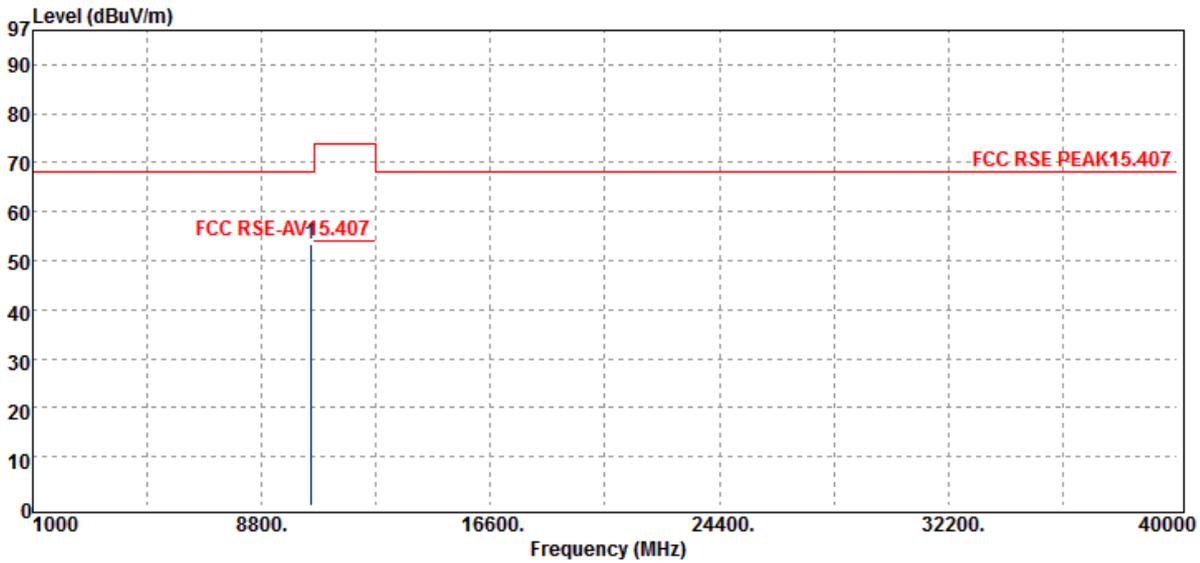
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
10480.00	H	Peak	35.16	18.30	53.46	68.30	-14.84

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Operation Band	:802.11n20B1	Test Date	:2018-04-23
Fundamental Frequency	:5240 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
10480.00	H	Peak	34.95	18.30	53.25	68.30	-15.05

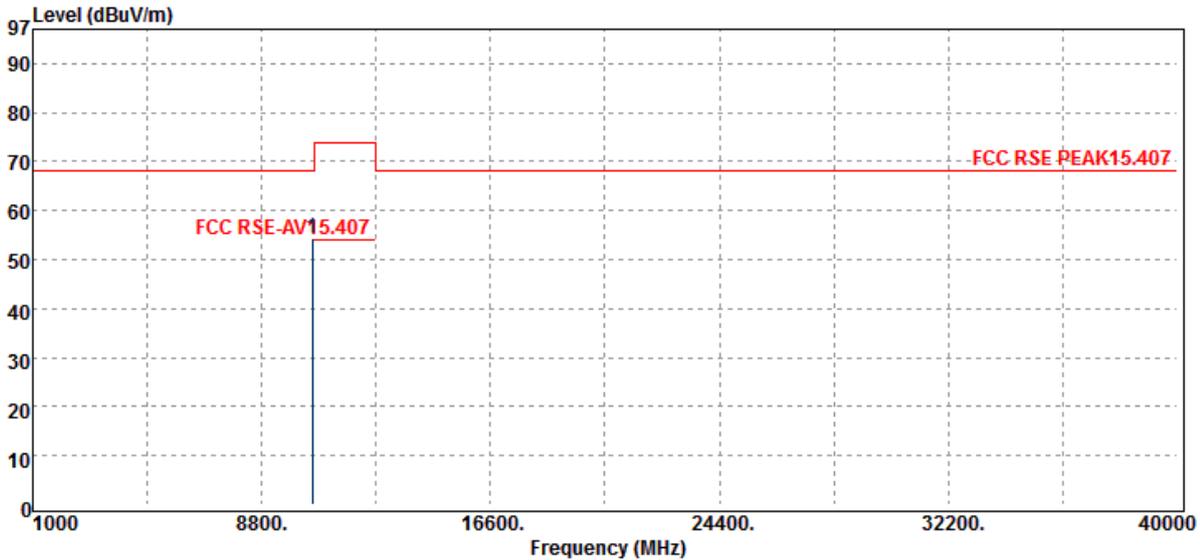
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### Radiated Spurious Emission Measurement Result 802.11n HT20, 5250~5350 MHz

Operation Band	:802.11n20B2	Test Date	:2018-04-23
Fundamental Frequency	:5260 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
10520.00	H	Peak	34.97	19.38	54.35	68.30	-13.95

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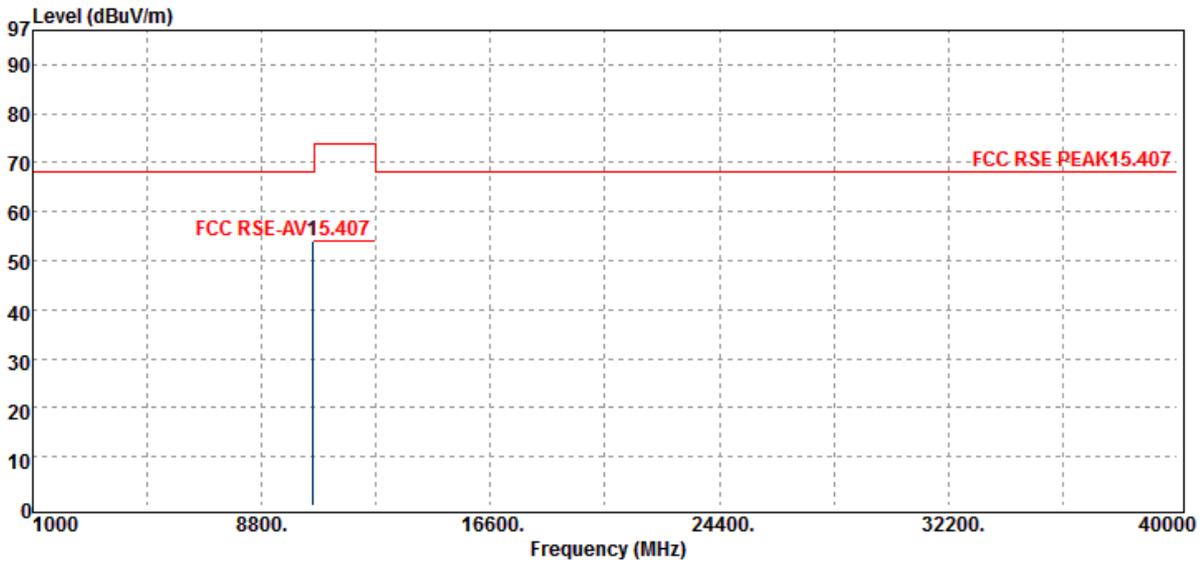
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Operation Band	:802.11n20B2	Test Date	:2018-04-23
Fundamental Frequency	:5260 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



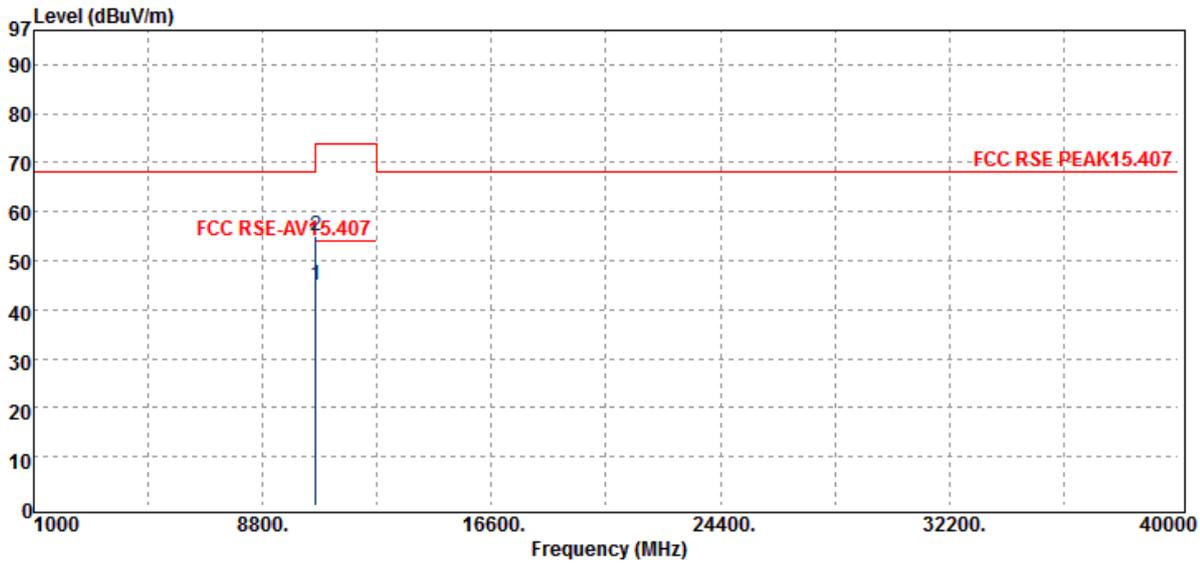
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
10520.00	H	Peak	34.67	19.38	54.05	68.30	-14.25

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Operation Band	:802.11n20B2	Test Date	:2018-04-23
Fundamental Frequency	:5300 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
10600.00	H	Average	26.09	18.91	45.00	54.00	-9.00
10600.00	H	Peak	36.12	18.91	55.03	74.00	-18.97

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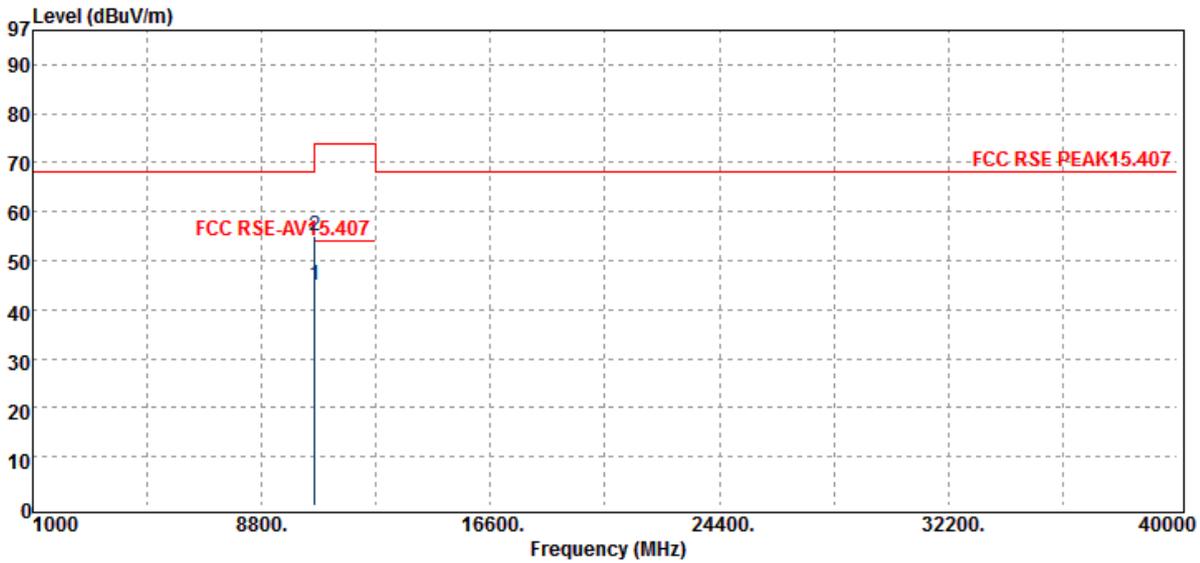
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Operation Band	:802.11n20B2	Test Date	:2018-04-23
Fundamental Frequency	:5300 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



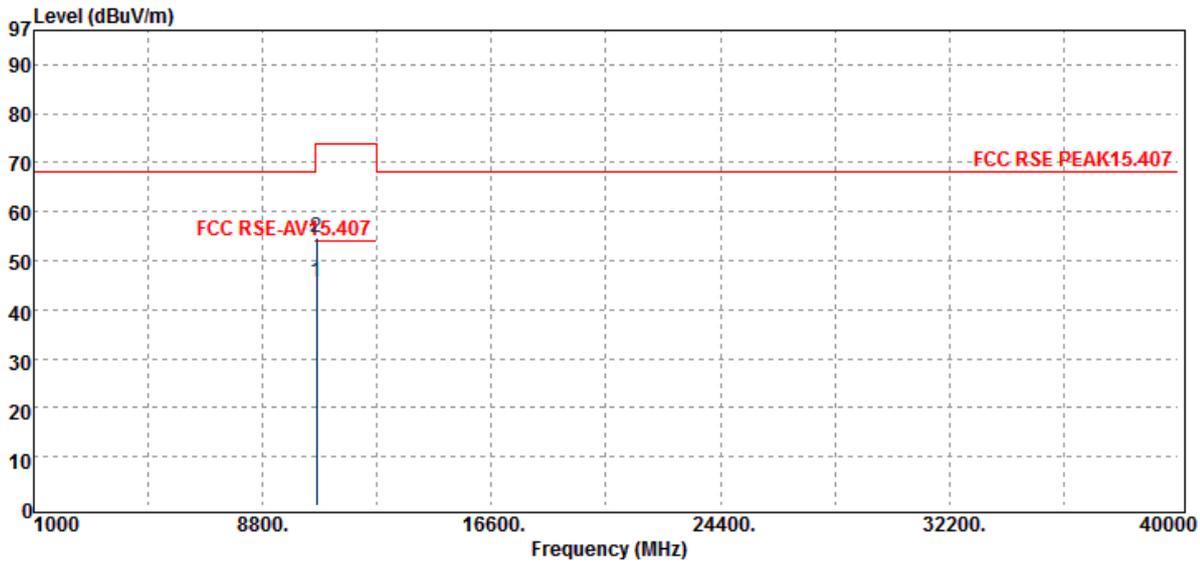
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10600.00	H	Average	26.16	18.91	45.07	54.00	-8.93
10600.00	H	Peak	36.17	18.91	55.08	74.00	-18.92

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Operation Band	:802.11n20B2	Test Date	:2018-04-23
Fundamental Frequency	:5320 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



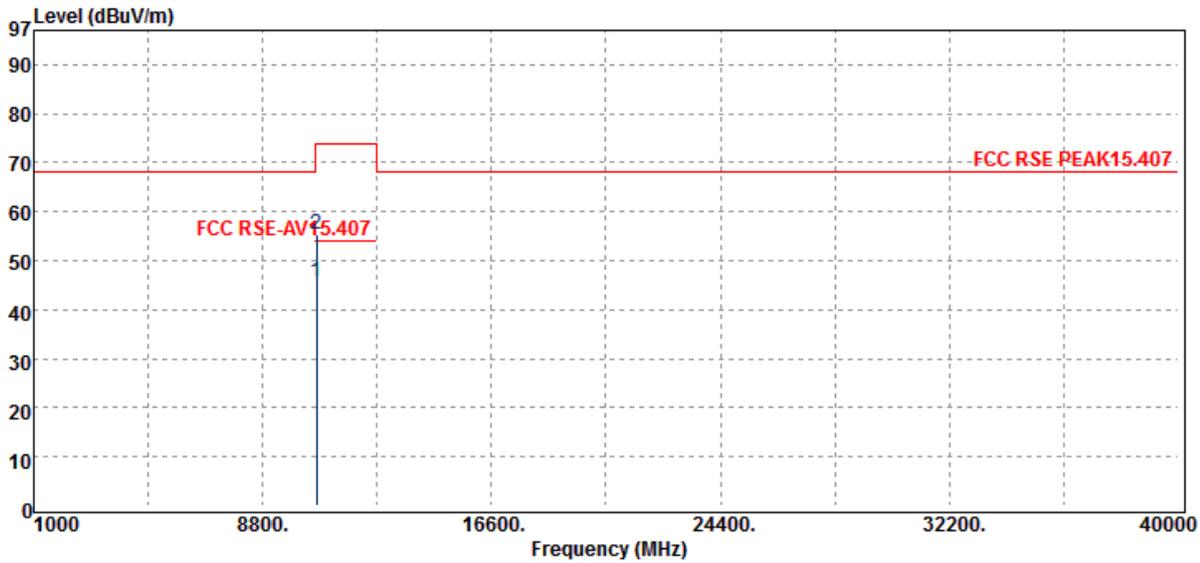
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10640.00	H	Average	26.53	19.19	45.72	54.00	-8.28
10640.00	H	Peak	35.58	19.19	54.77	74.00	-19.23

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Operation Band	:802.11n20B2	Test Date	:2018-04-23
Fundamental Frequency	:5320 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10640.00	H	Average	26.57	19.19	45.76	54.00	-8.24
10640.00	H	Peak	36.29	19.19	55.48	74.00	-18.52

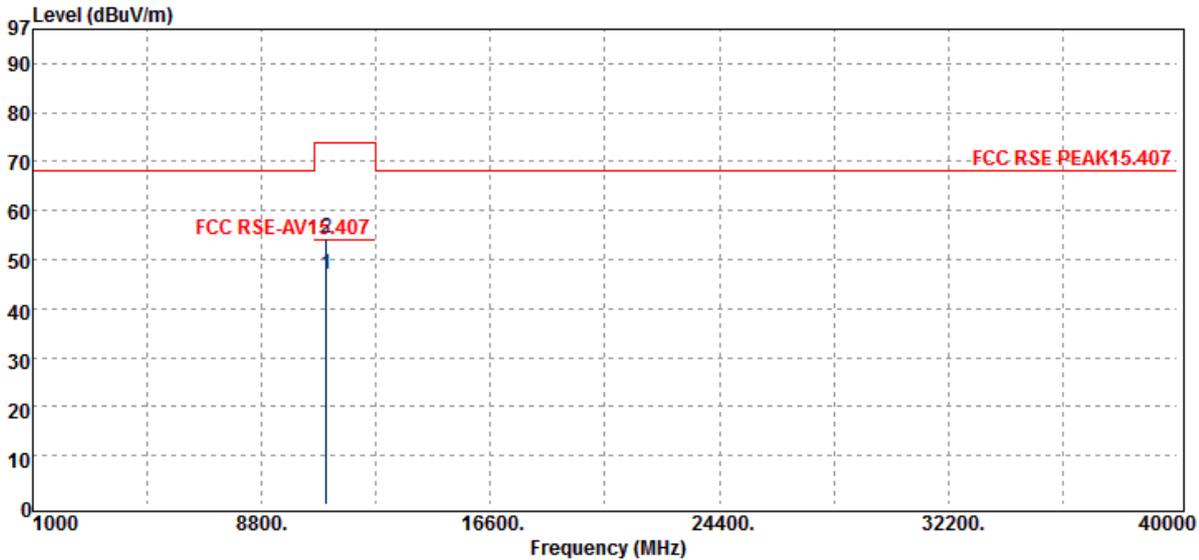
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### Radiated Spurious Emission Measurement Result 802.11n HT20, 5470~5725 MHz

Operation Band	:802.11n20B3	Test Date	:2018-04-23
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Safe Margin dB
11000.00	H	Average	26.73	20.16	46.89	54.00	-7.11
11000.00	H	Peak	34.07	20.16	54.23	74.00	-19.77

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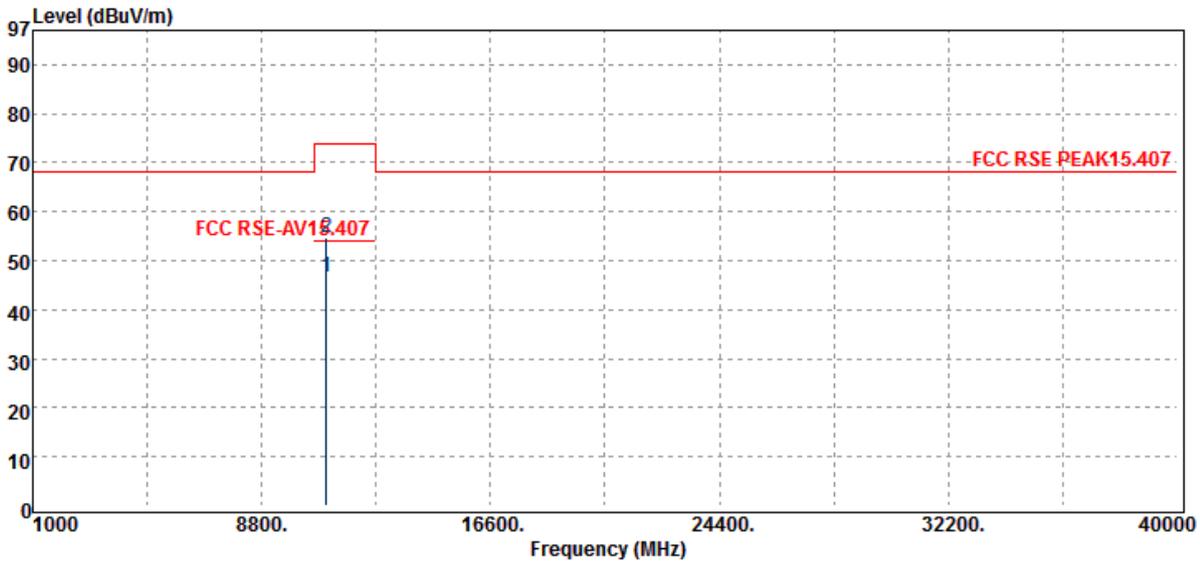
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Operation Band	:802.11n20B3	Test Date	:2018-04-23
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



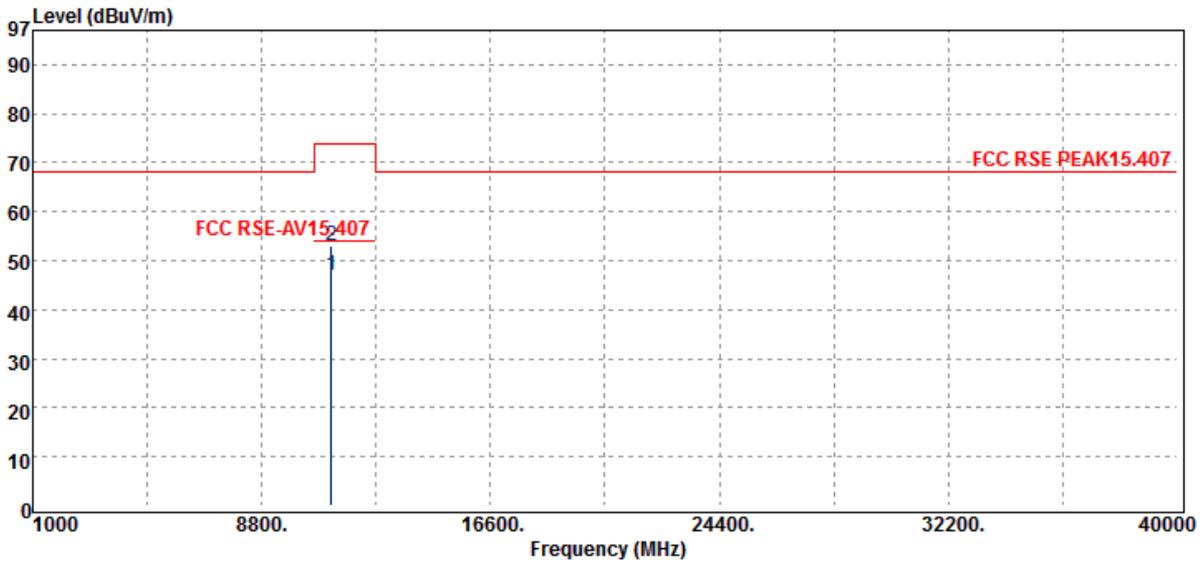
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Safe Margin dB
11000.00	H	Average	26.66	20.16	46.82	54.00	-7.18
11000.00	H	Peak	34.45	20.16	54.61	74.00	-19.39

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Operation Band	:802.11n20B3	Test Date	:2018-04-23
Fundamental Frequency	:5580 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



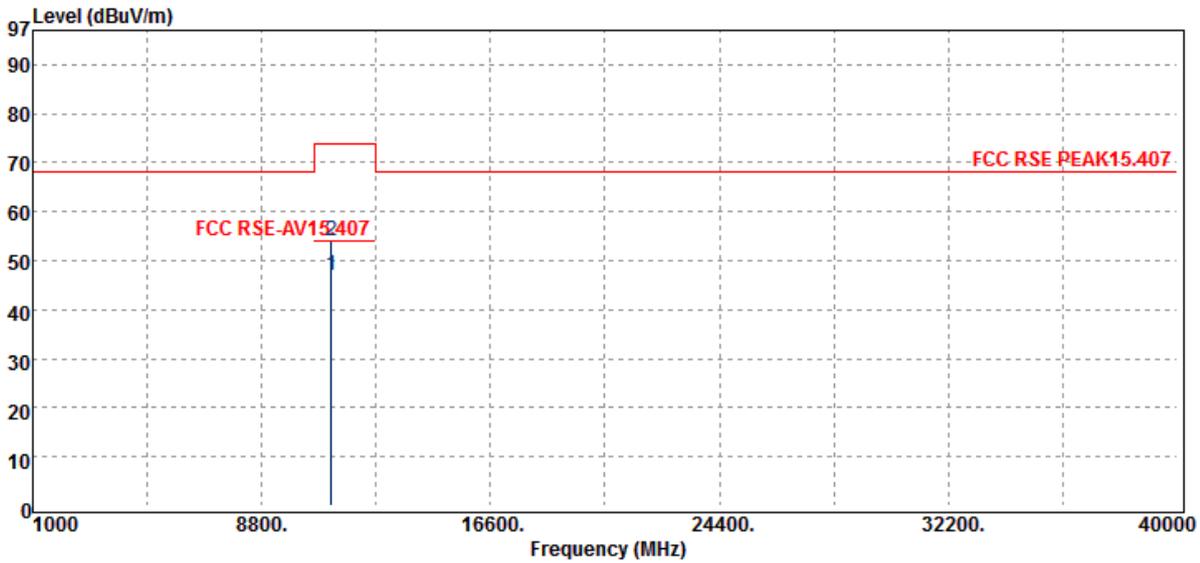
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11160.00	H	Average	26.47	20.44	46.91	54.00	-7.09
11160.00	H	Peak	32.55	20.44	52.99	74.00	-21.01

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Operation Band	:802.11n20B3	Test Date	:2018-04-23
Fundamental Frequency	:5580 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



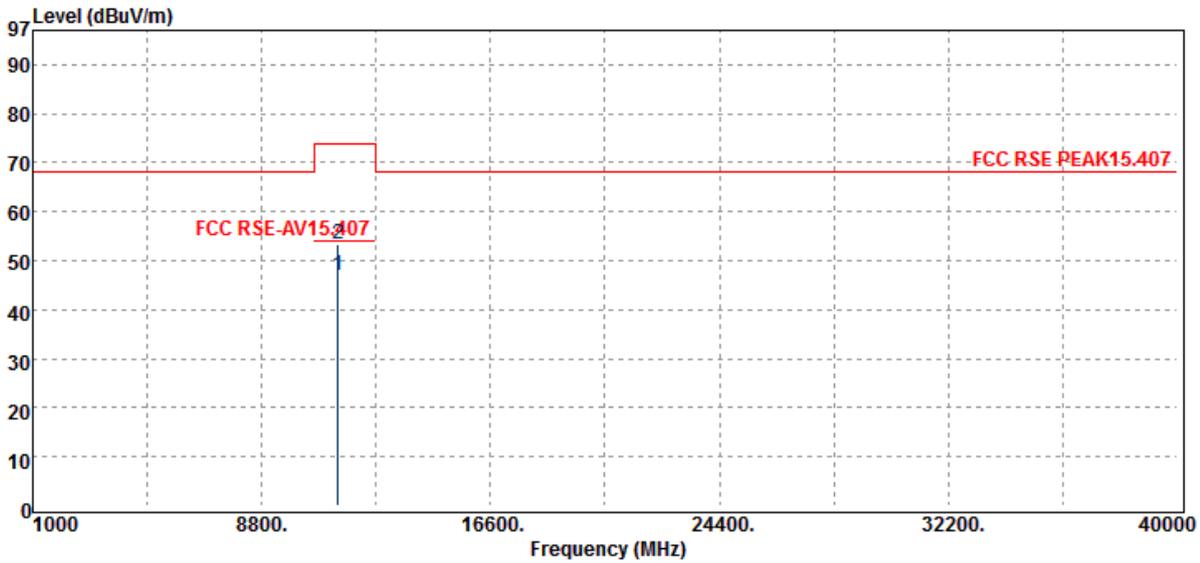
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11160.00	H	Average	26.53	20.44	46.97	54.00	-7.03
11160.00	H	Peak	33.45	20.44	53.89	74.00	-20.11

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Operation Band	:802.11n20B3	Test Date	:2018-04-23
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



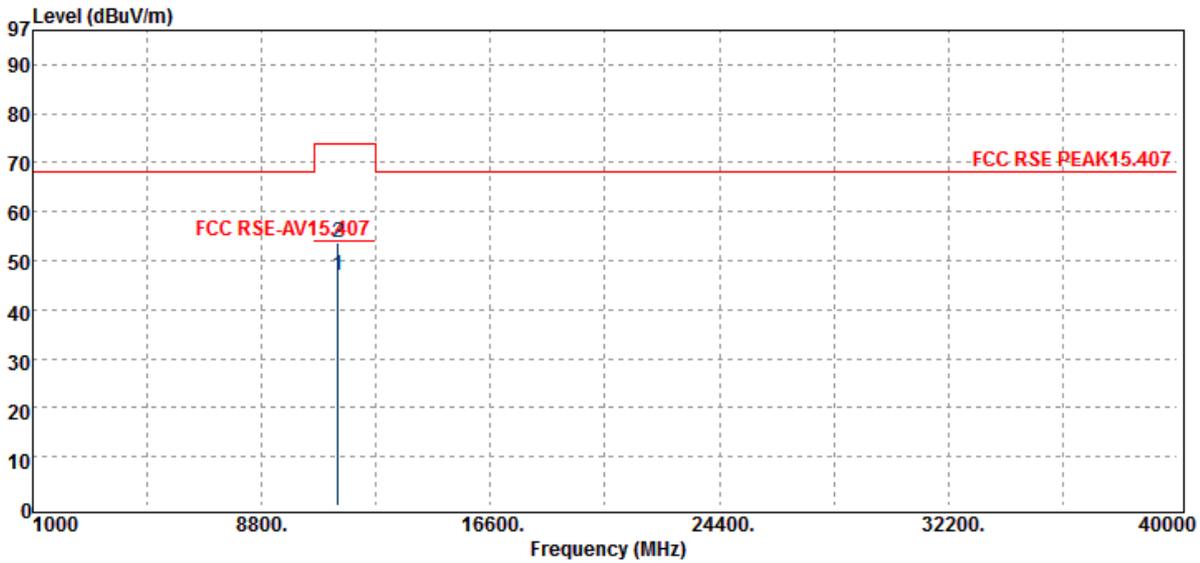
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11400.00	H	Average	26.47	20.56	47.03	54.00	-6.97
11400.00	H	Peak	32.91	20.56	53.47	74.00	-20.53

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Operation Band	:802.11n20B3	Test Date	:2018-04-23
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11400.00	H	Average	26.40	20.56	46.96	54.00	-7.04
11400.00	H	Peak	33.12	20.56	53.68	74.00	-20.32

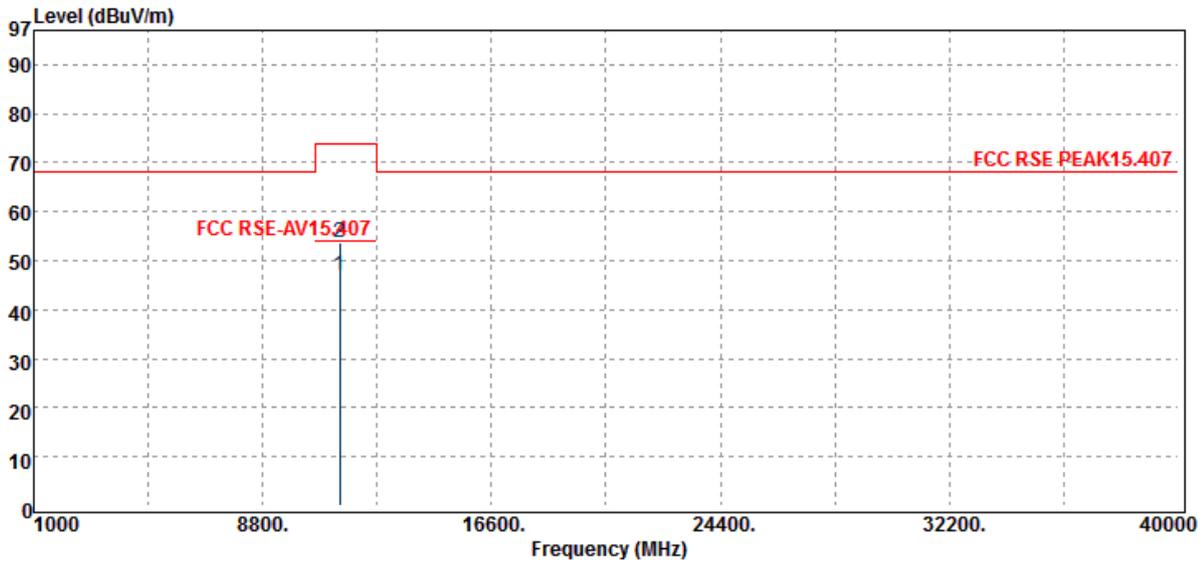
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Operation Band :802.11n20B3  
Fundamental Frequency :5720 MHz  
Operation Mode :Tx CH CROSS  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
11440.00	H	Average	26.51	20.44	46.95	54.00	-7.05
11440.00	H	Peak	33.22	20.44	53.66	74.00	-20.34

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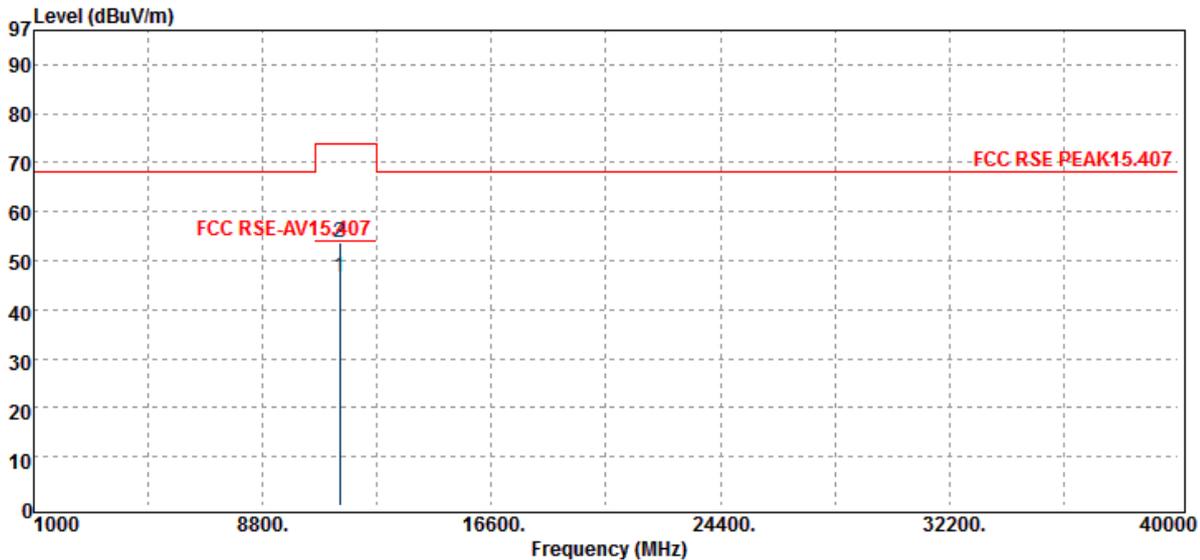
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Operation Band :802.11n20B3  
Fundamental Frequency :5720 MHz  
Operation Mode :Tx CH CROSS  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11440.00	H	Average	26.22	20.44	46.66	54.00	-7.34
11440.00	H	Peak	33.28	20.44	53.72	74.00	-20.28

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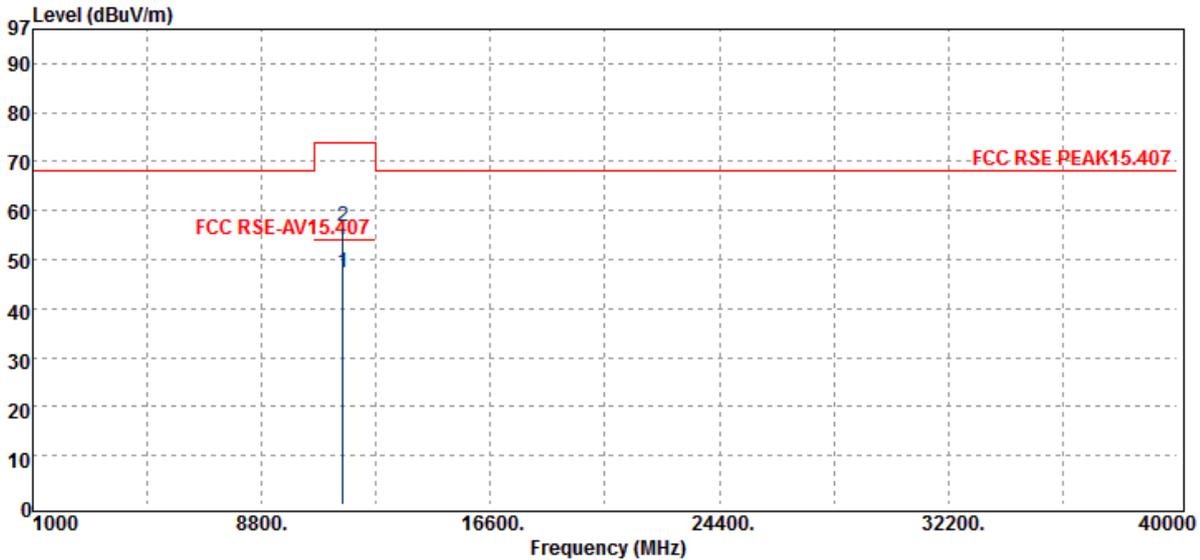
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### Radiated Spurious Emission Measurement Result 802.11n HT20,

Operation Band	:802.11n20B4	Test Date	:2018-04-23
Fundamental Frequency	:5785 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11570.00	H	Average	26.59	20.58	47.17	54.00	-6.83
11570.00	H	Peak	35.99	20.58	56.57	74.00	-17.43

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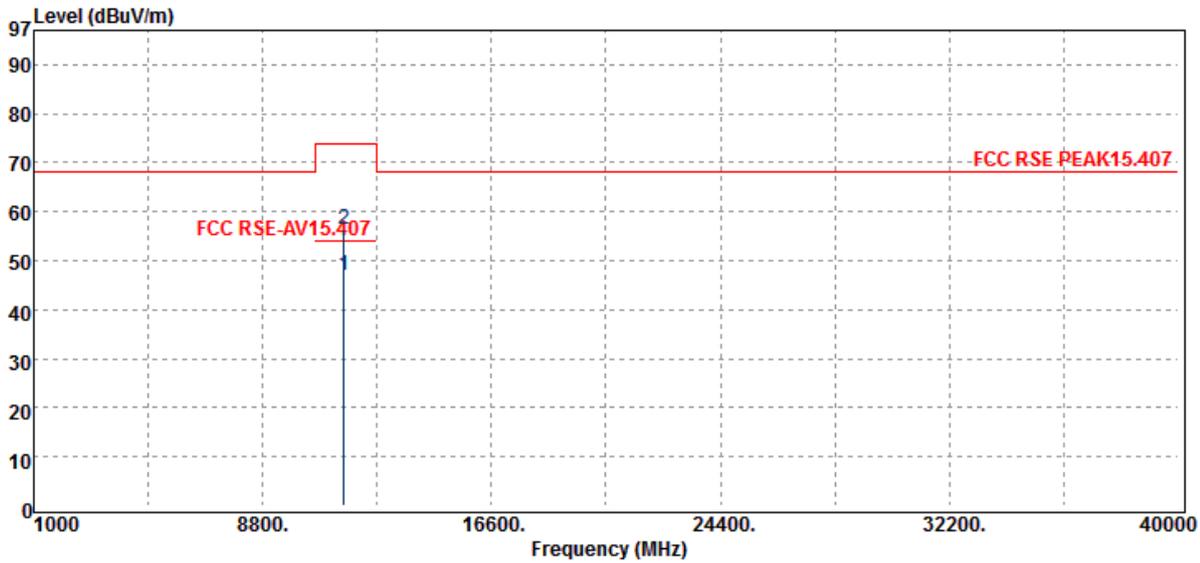
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Operation Band	:802.11n20B4	Test Date	:2018-04-23
Fundamental Frequency	:5785 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



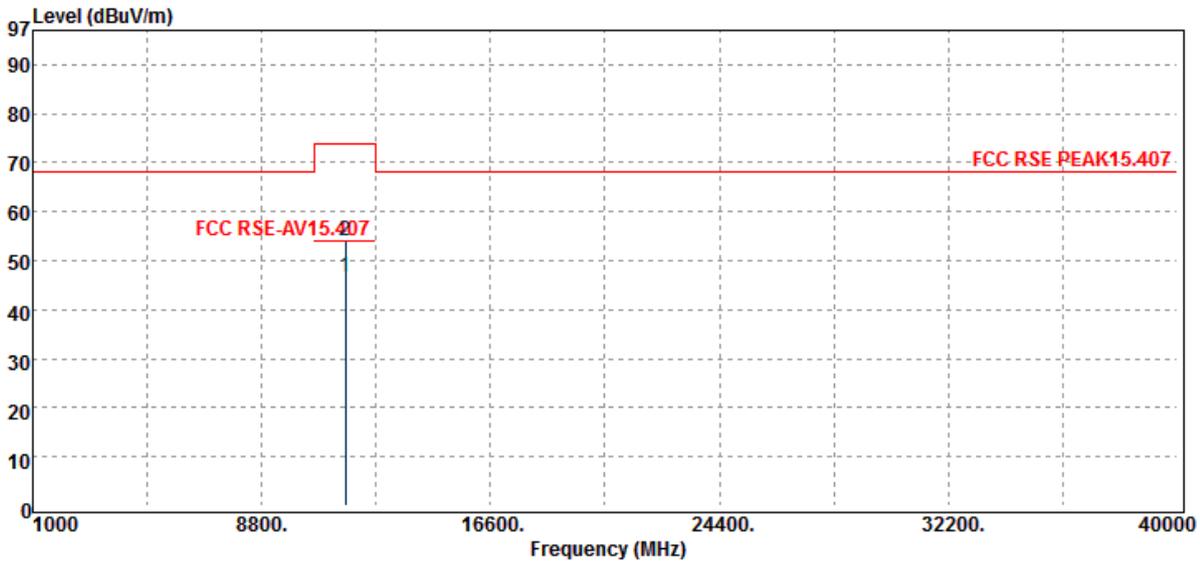
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11570.00	H	Average	26.46	20.58	47.04	54.00	-6.96
11570.00	H	Peak	35.84	20.58	56.42	74.00	-17.58

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Operation Band	:802.11n20B4	Test Date	:2018-04-23
Fundamental Frequency	:5825 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11650.00	H	Average	26.08	20.43	46.51	54.00	-7.49
11650.00	H	Peak	33.71	20.43	54.14	74.00	-19.86

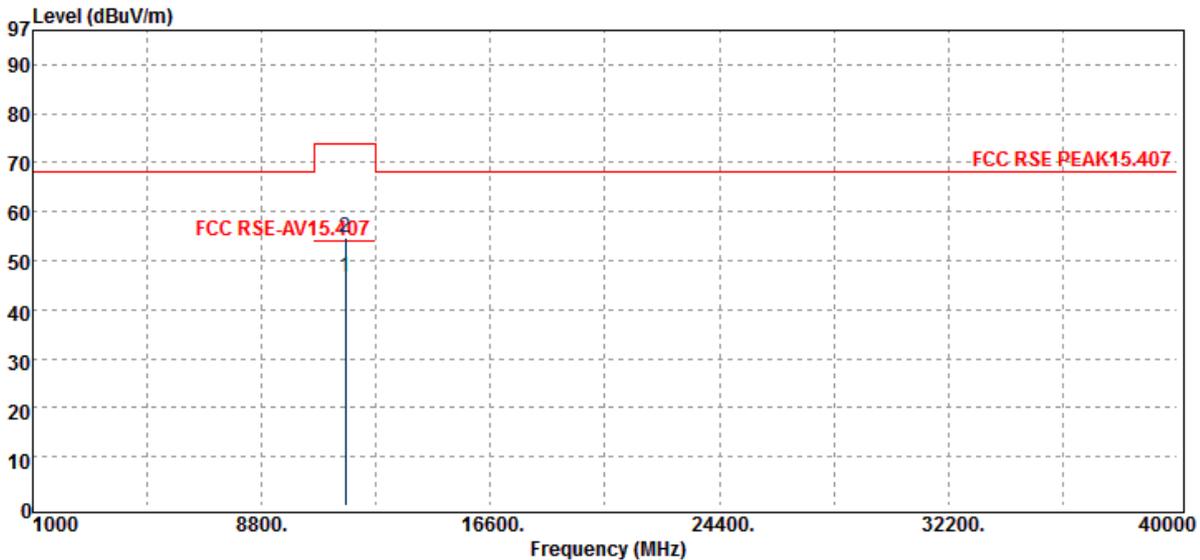
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Operation Band :802.11n20B4  
Fundamental Frequency :5825 MHz  
Operation Mode :Tx CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11650.00	H	Average	26.06	20.43	46.49	54.00	-7.51
11650.00	H	Peak	34.28	20.43	54.71	74.00	-19.29

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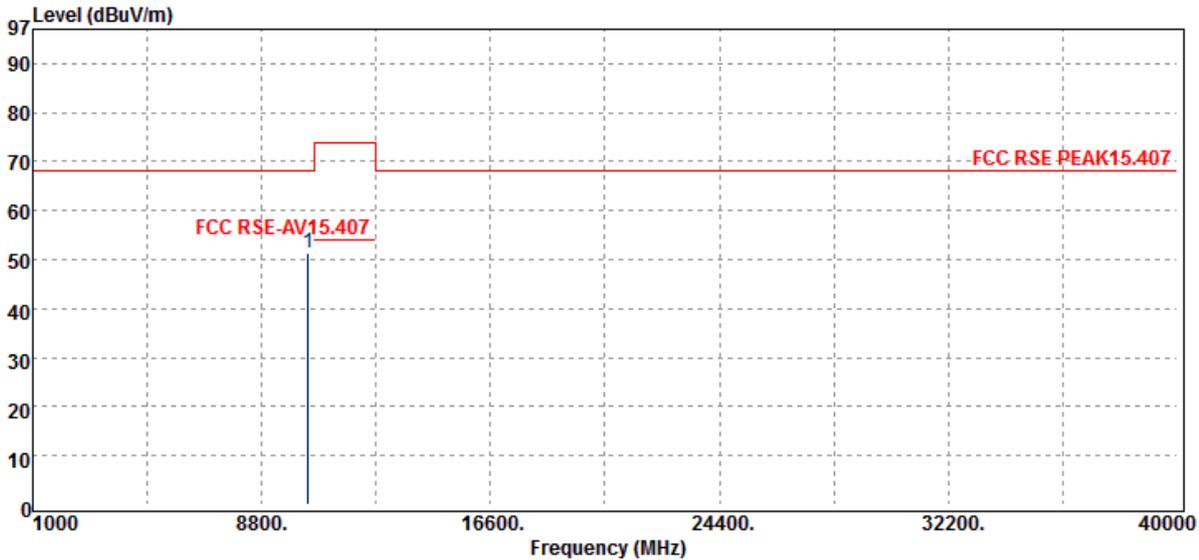
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### Radiated Spurious Emission Measurement Result 802.11n HT40, 5150~5250 MHz

Operation Band	:802.11n40B1	Test Date	:2018-04-23
Fundamental Frequency	:5190 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10380.00	H	Peak	33.40	18.12	51.52	68.30	-16.78

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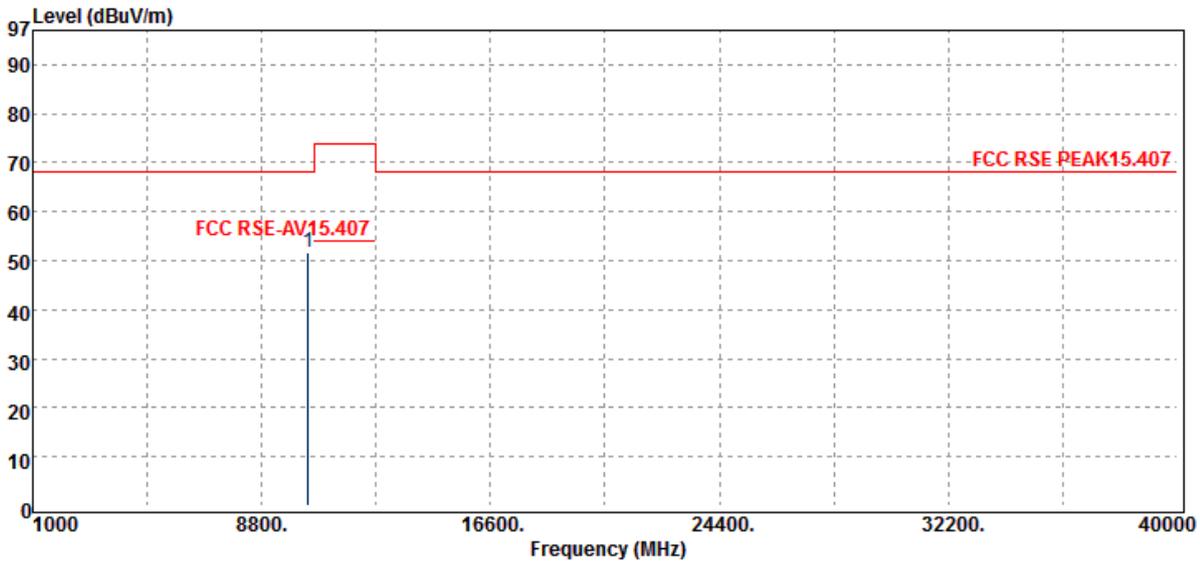
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Operation Band	:802.11n40B1	Test Date	:2018-04-23
Fundamental Frequency	:5190 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



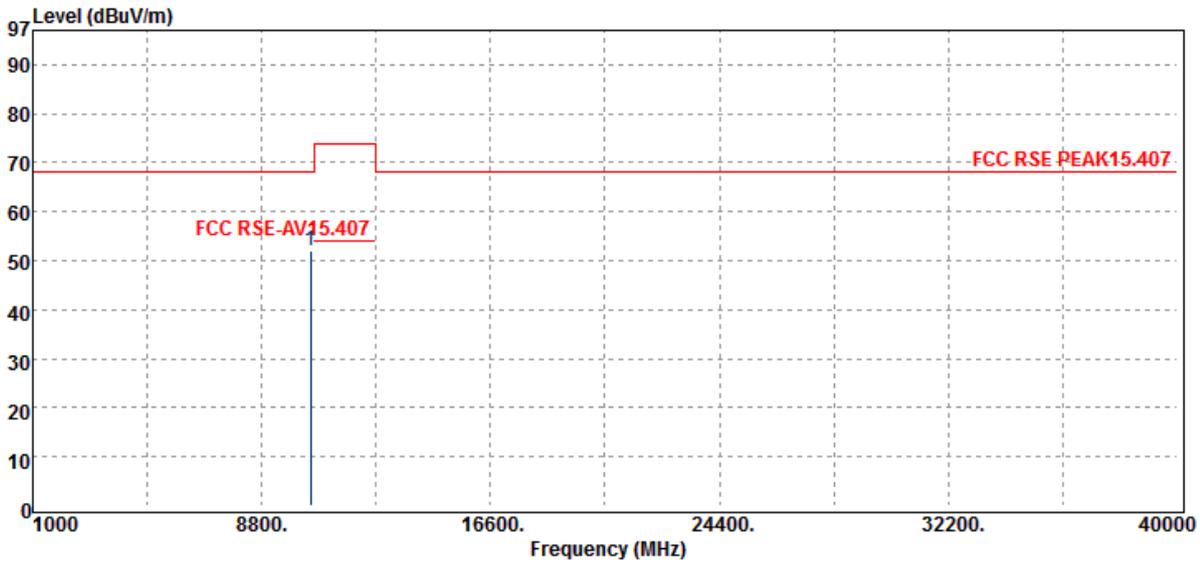
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10380.00	H	Peak	33.71	18.12	51.83	68.30	-16.47

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Operation Band	:802.11n40B1	Test Date	:2018-04-23
Fundamental Frequency	:5230 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



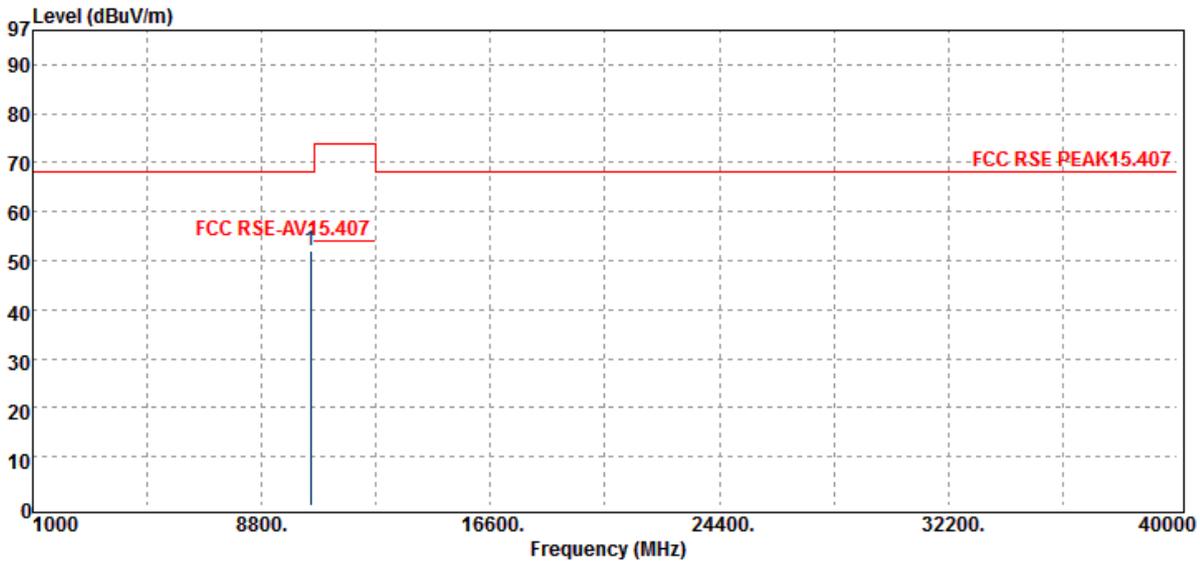
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
10460.00	H	Peak	33.59	18.55	52.14	68.30	-16.16

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Operation Band	:802.11n40B1	Test Date	:2018-04-23
Fundamental Frequency	:5230 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10460.00	H	Peak	33.53	18.55	52.08	68.30	-16.22

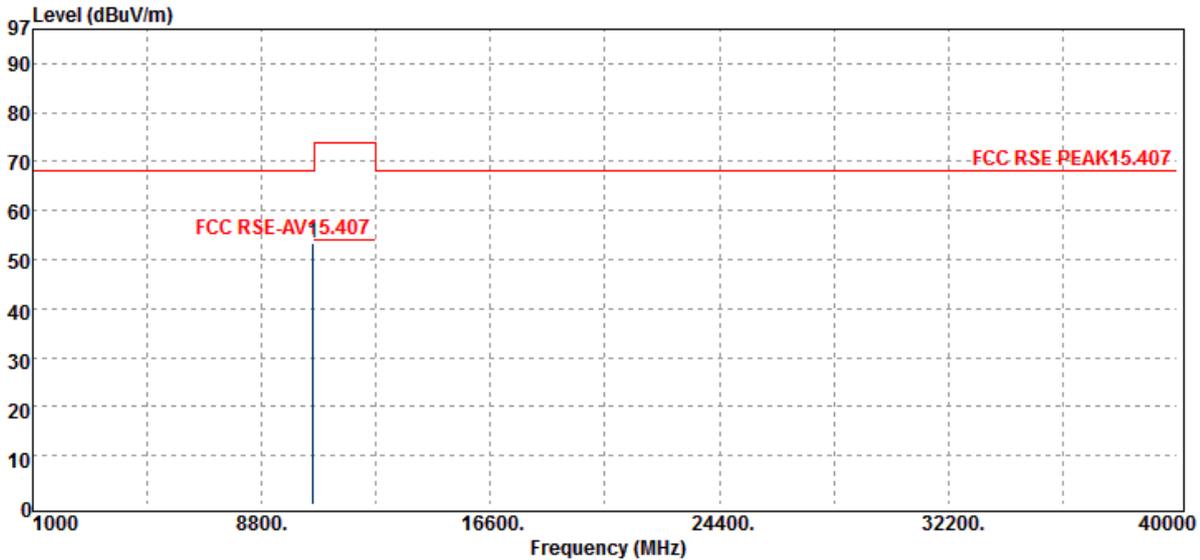
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### Radiated Spurious Emission Measurement Result 802.11n HT40, 5250~5350 MHz

Operation Band	:802.11n40B2	Test Date	:2018-04-23
Fundamental Frequency	:5270 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



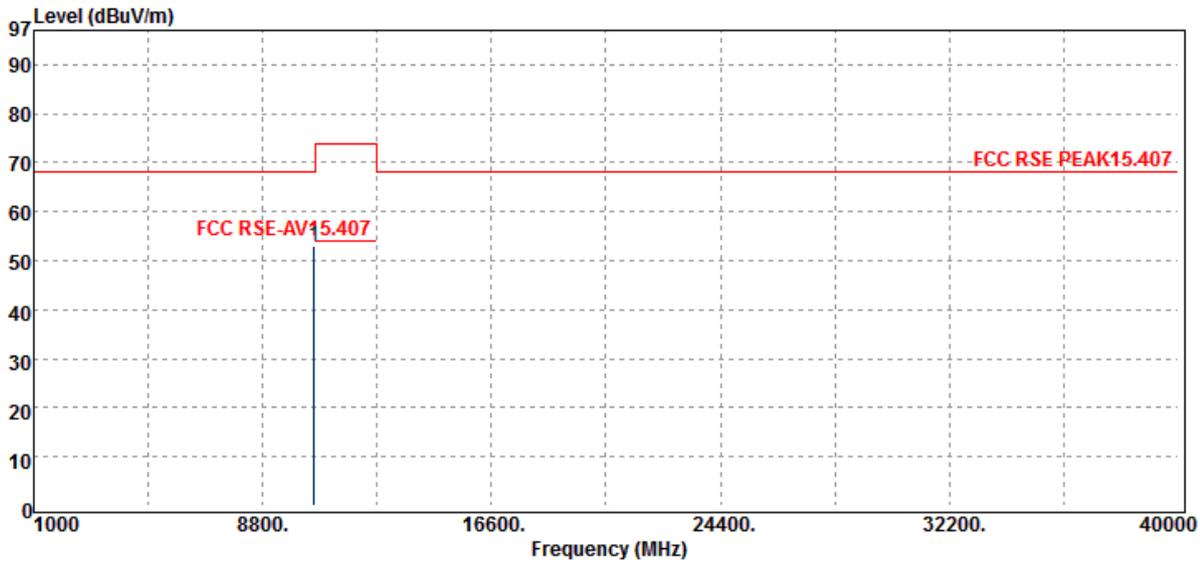
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Safe Margin dB
10540.00	H	Peak	34.16	19.17	53.33	68.30	-14.97

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Operation Band	:802.11n40B2	Test Date	:2018-04-23
Fundamental Frequency	:5270 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



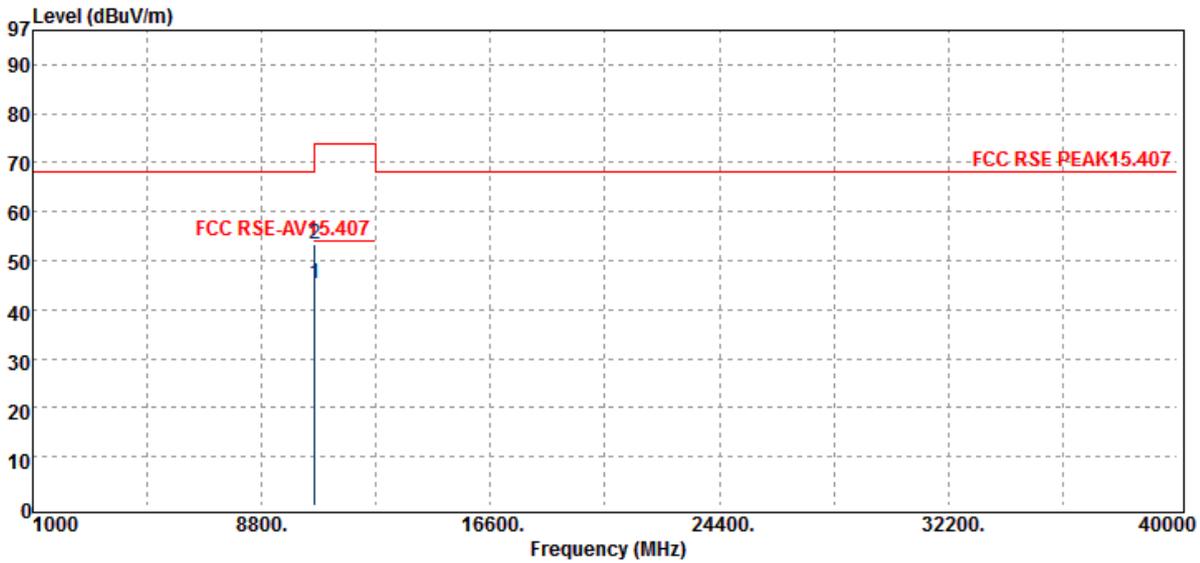
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
10540.00	H	Peak	33.82	19.17	52.99	68.30	-15.31

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Operation Band	:802.11n40B2	Test Date	:2018-04-23
Fundamental Frequency	:5310 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



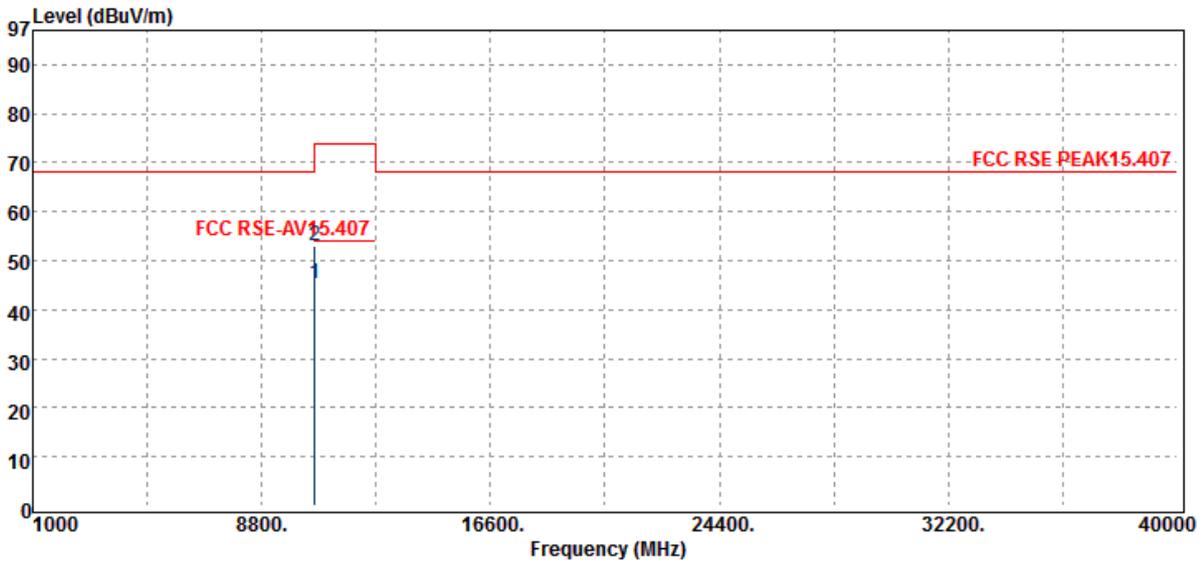
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Safe Margin dB
10620.00	H	Average	26.35	19.11	45.46	54.00	-8.54
10620.00	H	Peak	34.16	19.11	53.27	74.00	-20.73

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Operation Band	:802.11n40B2	Test Date	:2018-04-23
Fundamental Frequency	:5310 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
10620.00	H	Average	26.32	19.11	45.43	54.00	-8.57
10620.00	H	Peak	33.75	19.11	52.86	74.00	-21.14

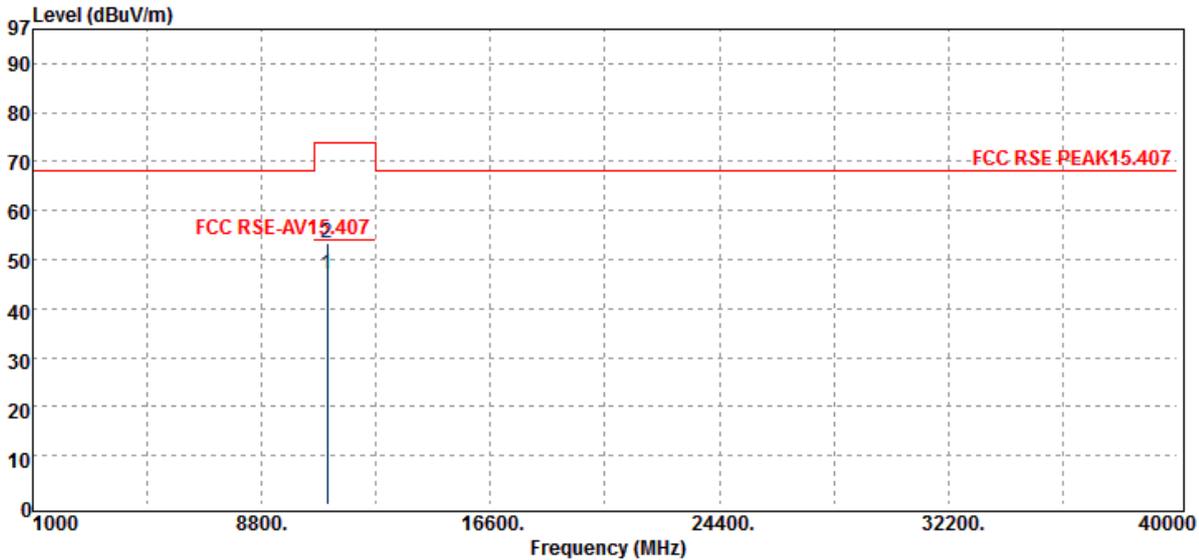
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### Radiated Spurious Emission Measurement Result 802.11n HT40, 5470~5725 MHz

Operation Band	:802.11n40B3	Test Date	:2018-04-23
Fundamental Frequency	:5510 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Safe Margin dB
11020.00	H	Average	26.71	20.16	46.87	54.00	-7.13
11020.00	H	Peak	33.16	20.16	53.32	74.00	-20.68

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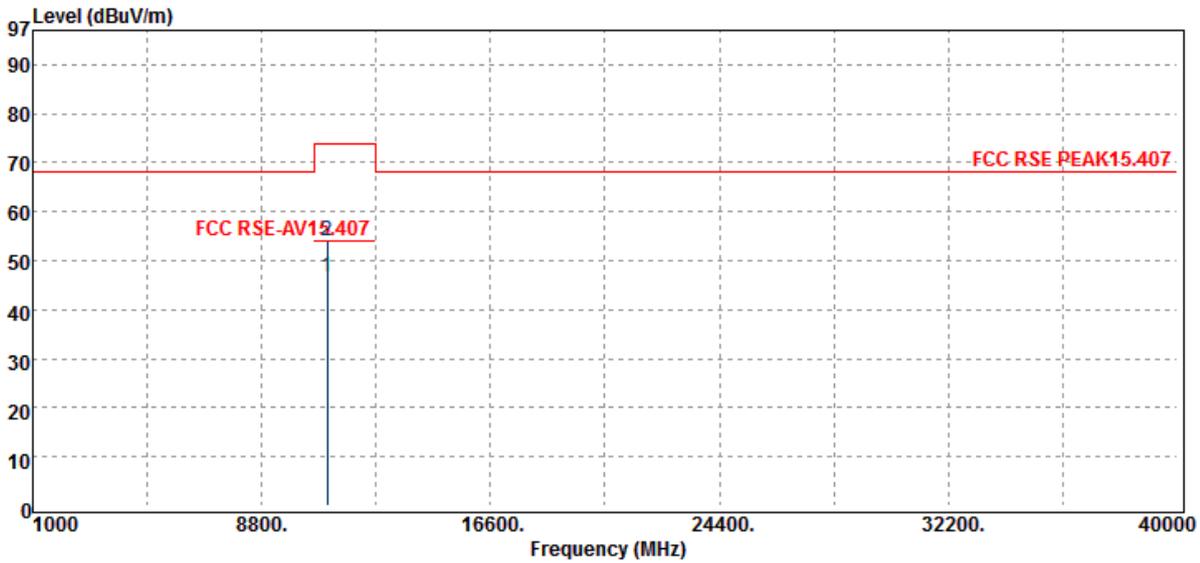
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Operation Band	:802.11n40B3	Test Date	:2018-04-23
Fundamental Frequency	:5510 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



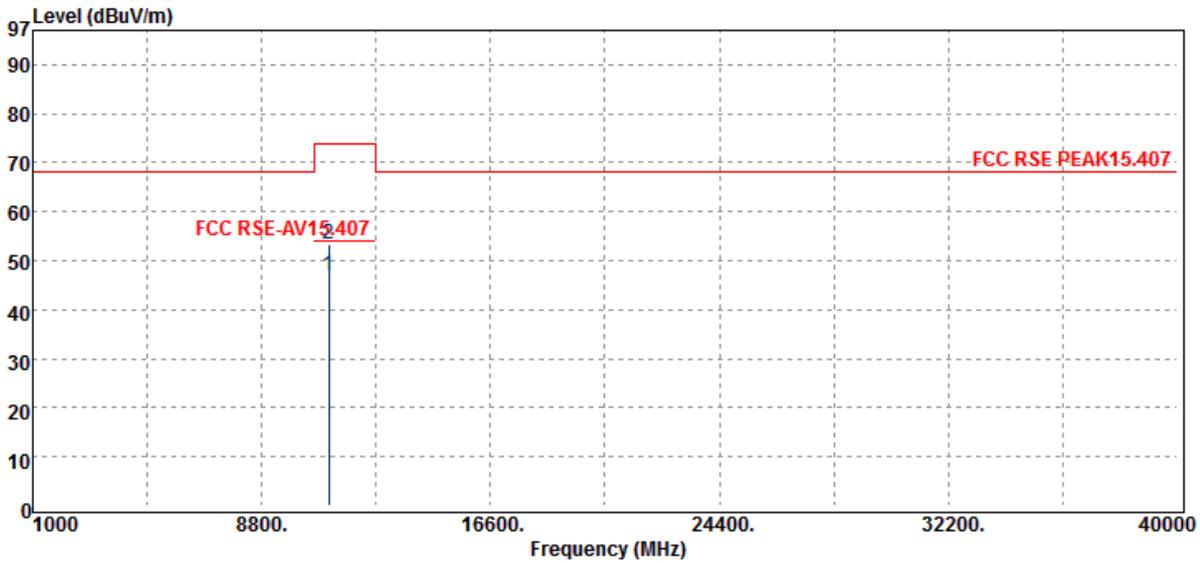
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11020.00	H	Average	26.55	20.16	46.71	54.00	-7.29
11020.00	H	Peak	33.78	20.16	53.94	74.00	-20.06

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Operation Band	:802.11n40B3	Test Date	:2018-04-23
Fundamental Frequency	:5550 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



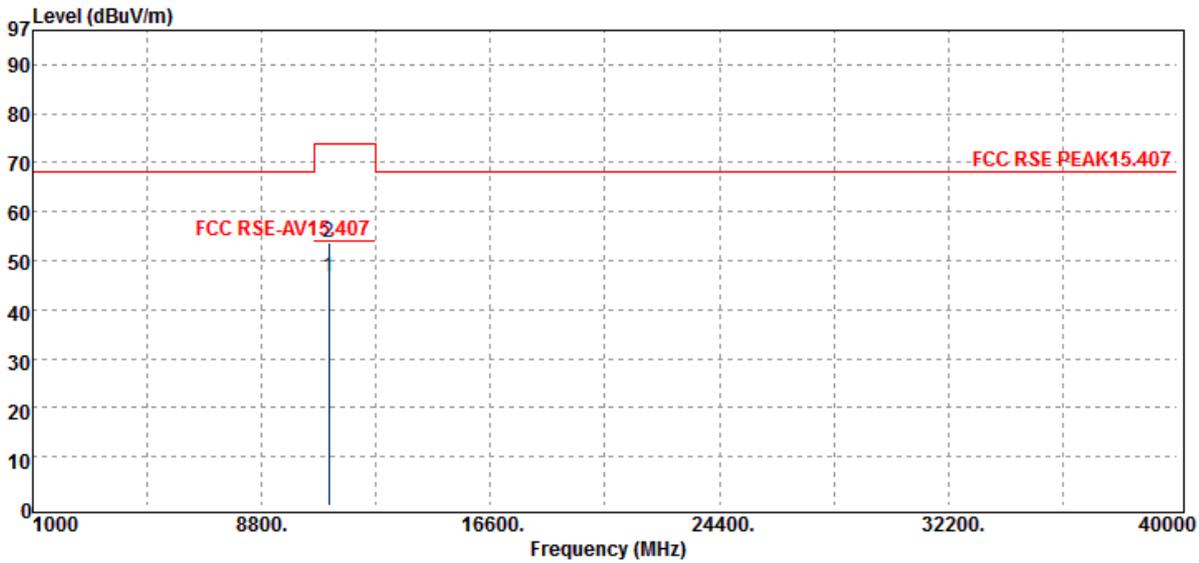
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11100.00	H	Average	26.66	20.32	46.98	54.00	-7.02
11100.00	H	Peak	33.15	20.32	53.47	74.00	-20.53

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Operation Band	:802.11n40B3	Test Date	:2018-04-23
Fundamental Frequency	:5550 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



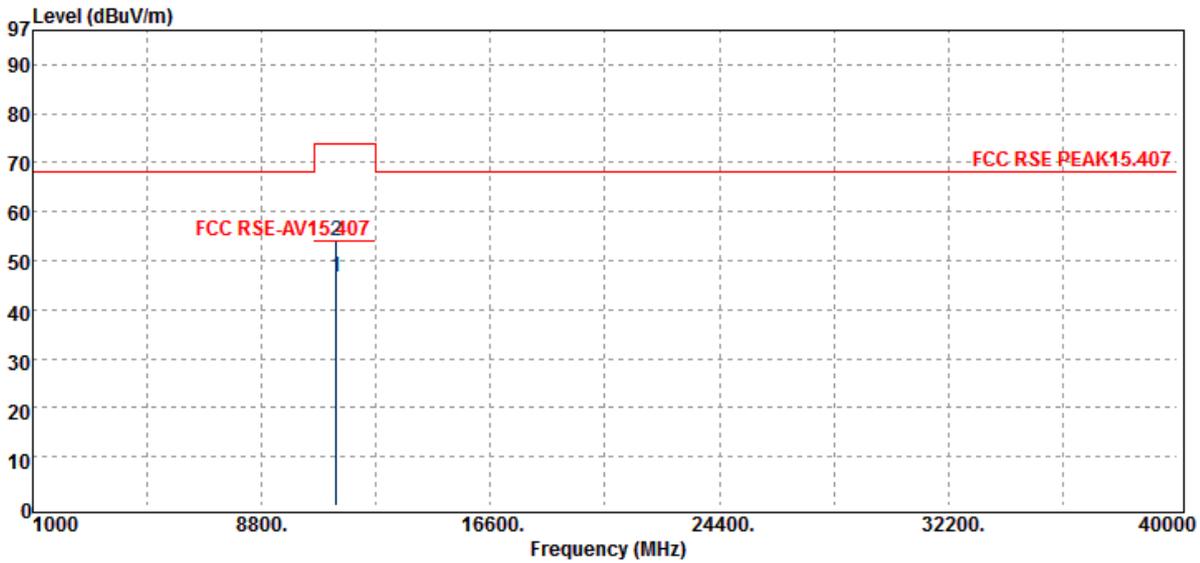
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11100.00	H	Average	26.49	20.32	46.81	54.00	-7.19
11100.00	H	Peak	33.43	20.32	53.75	74.00	-20.25

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Operation Band	:802.11n40B3	Test Date	:2018-04-23
Fundamental Frequency	:5670 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



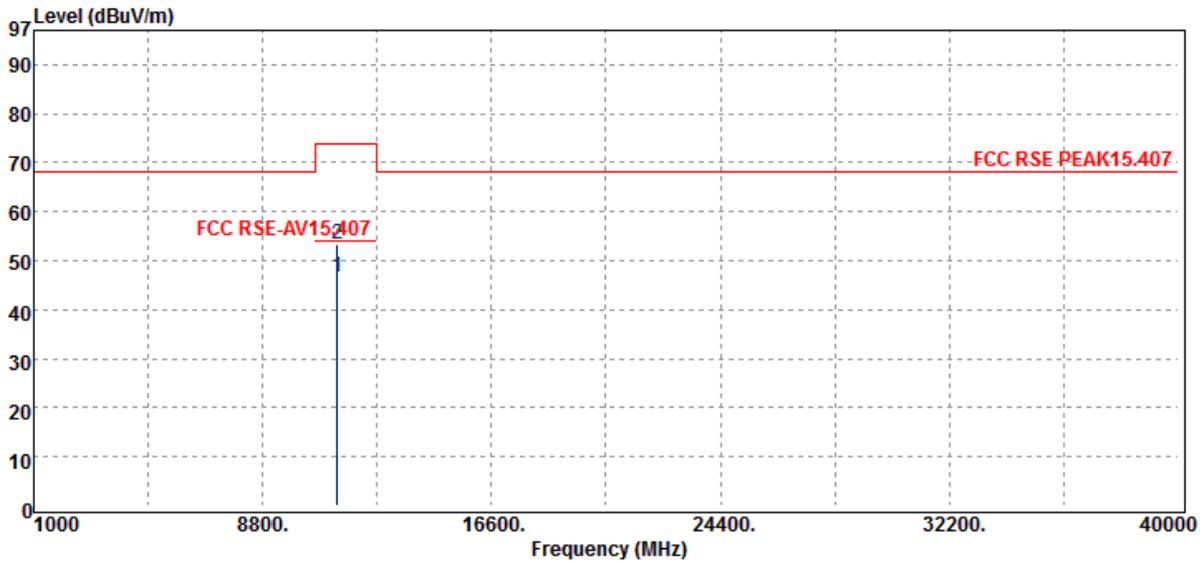
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Safe Margin dB
11340.00	H	Average	26.38	20.38	46.76	54.00	-7.24
11340.00	H	Peak	33.61	20.38	53.99	74.00	-20.01

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Operation Band	:802.11n40B3	Test Date	:2018-04-23
Fundamental Frequency	:5670 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11340.00	H	Average	26.36	20.38	46.74	54.00	-7.26
11340.00	H	Peak	33.03	20.38	53.41	74.00	-20.59

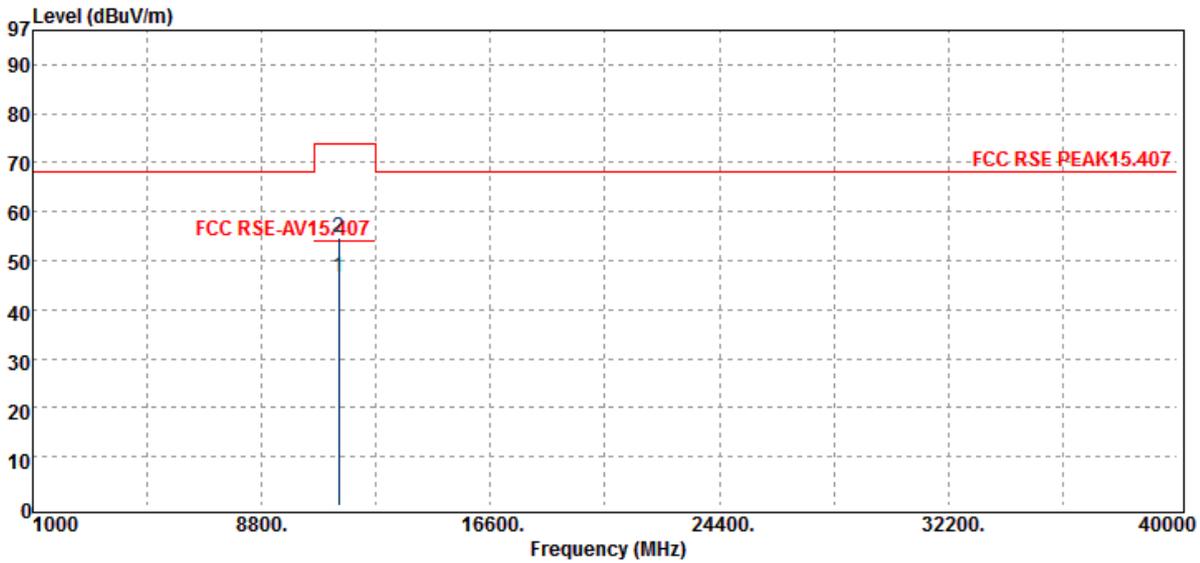
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Operation Band :802.11n40B3  
 Fundamental Frequency :5710 MHz  
 Operation Mode :Tx CH CROSS  
 EUT Pol. :H Plane

Test Date :2018-04-23  
 Temp./Humi. :23 deg\_C / 62 RH  
 Engineer :Kane  
 Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11420.00	H	Average	26.22	20.44	46.66	54.00	-7.34
11420.00	H	Peak	34.43	20.44	54.87	74.00	-19.13

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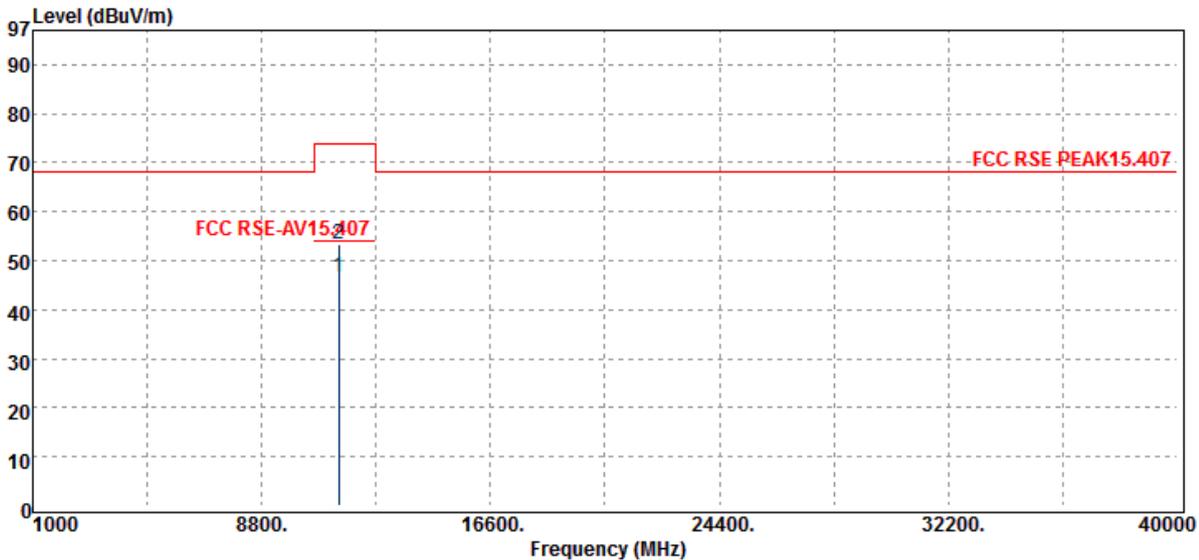
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Operation Band :802.11n40B3  
Fundamental Frequency :5710 MHz  
Operation Mode :Tx CH CROSS  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
11420.00	H	Average	26.26	20.44	46.70	54.00	-7.30
11420.00	H	Peak	33.01	20.44	53.45	74.00	-20.55

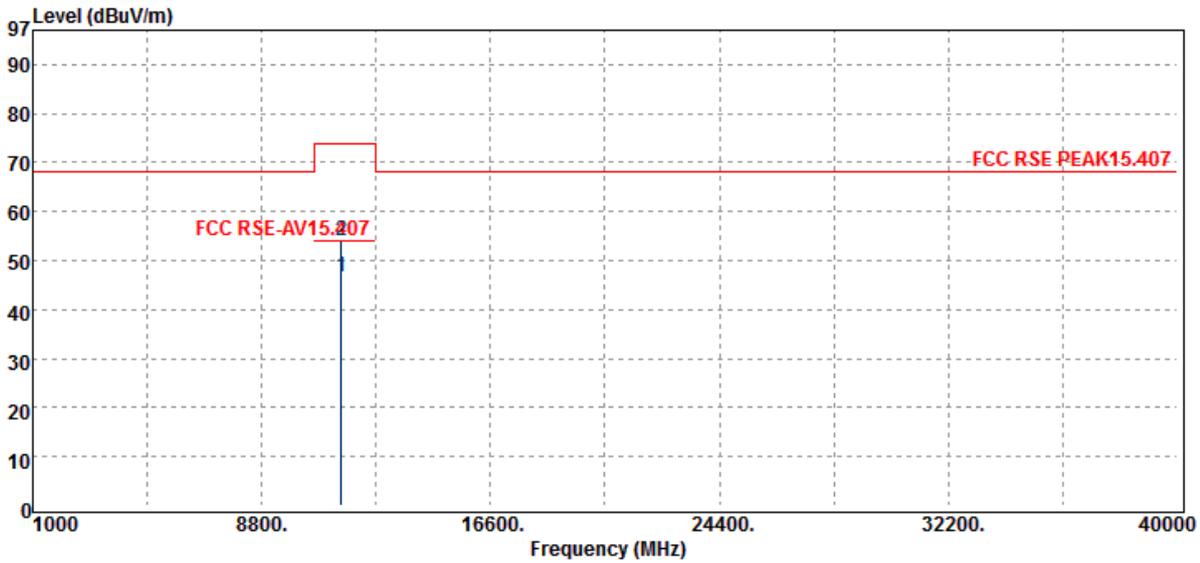
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### Radiated Spurious Emission Measurement Result 802.11n HT40,

Operation Band	:802.11n40B4	Test Date	:2018-04-23
Fundamental Frequency	:5755 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11510.00	H	Average	26.30	20.38	46.68	54.00	-7.32
11510.00	H	Peak	33.61	20.38	53.99	74.00	-20.01

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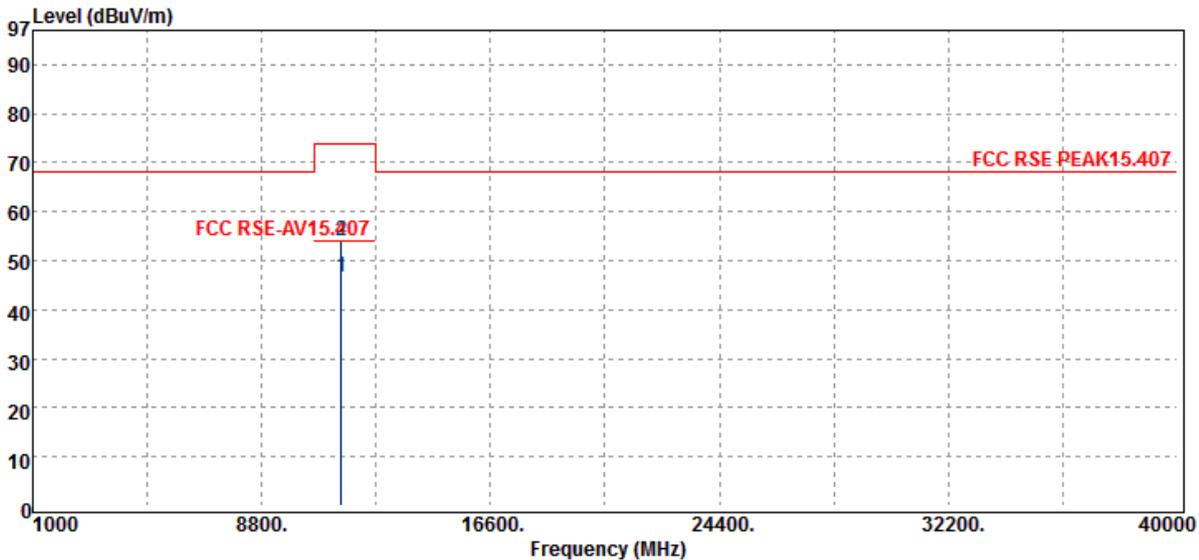
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Operation Band :802.11n40B4  
Fundamental Frequency :5755 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11510.00	H	Average	26.31	20.38	46.69	54.00	-7.31
11510.00	H	Peak	33.65	20.38	54.03	74.00	-19.97

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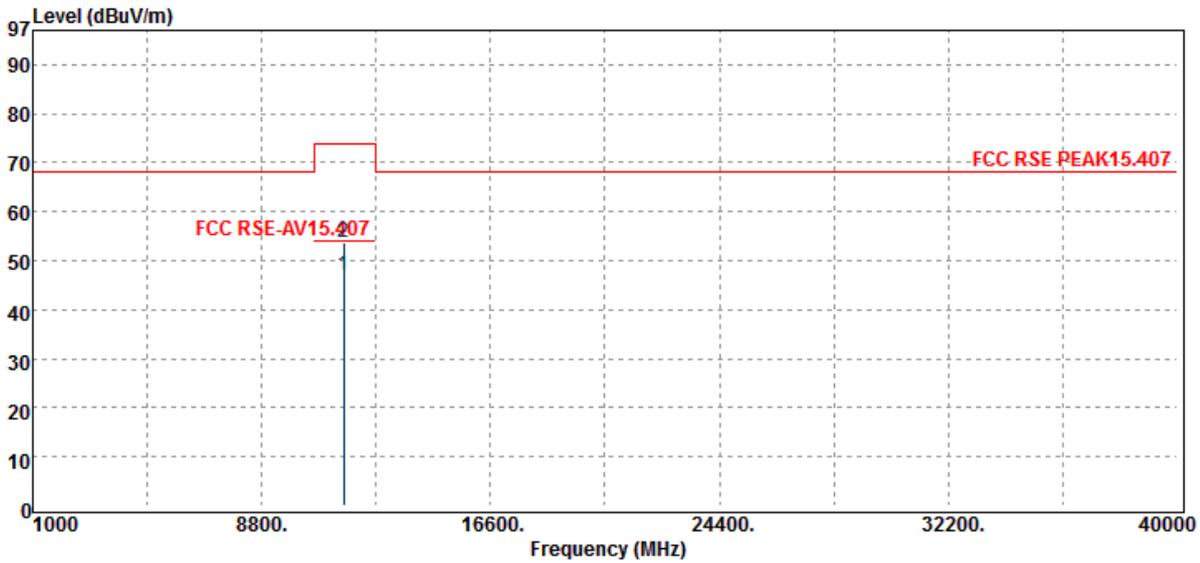
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Operation Band	:802.11n40B4	Test Date	:2018-04-23
Fundamental Frequency	:5795 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



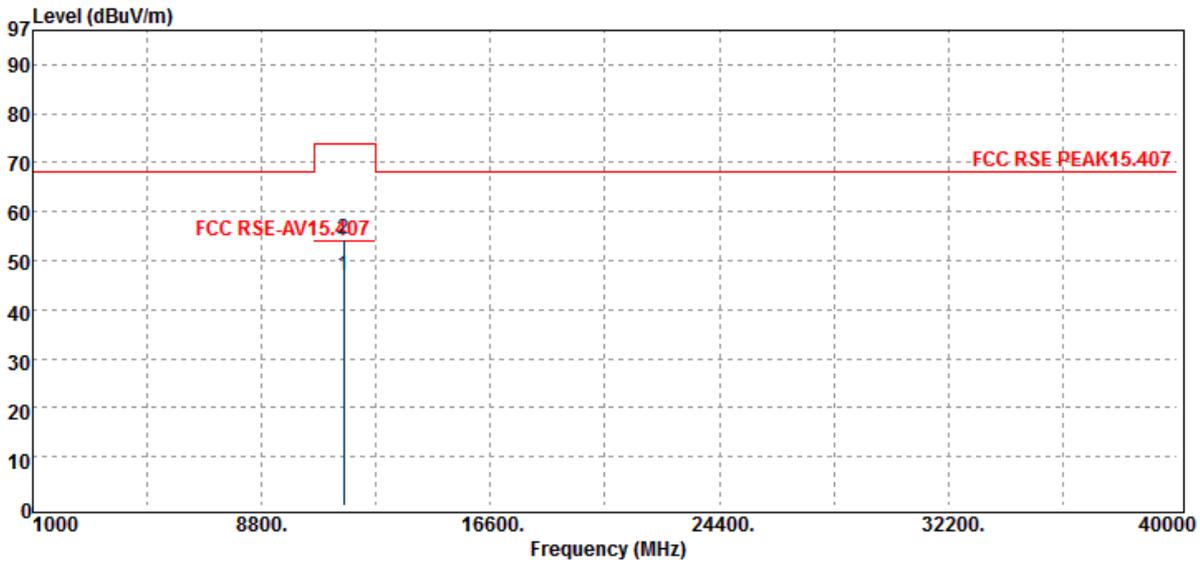
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11590.00	H	Average	26.44	20.43	46.87	54.00	-7.13
11590.00	H	Peak	33.26	20.43	53.69	74.00	-20.31

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Operation Band	:802.11n40B4	Test Date	:2018-04-23
Fundamental Frequency	:5795 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11590.00	H	Average	26.41	20.43	46.84	54.00	-7.16
11590.00	H	Peak	33.89	20.43	54.32	74.00	-19.68

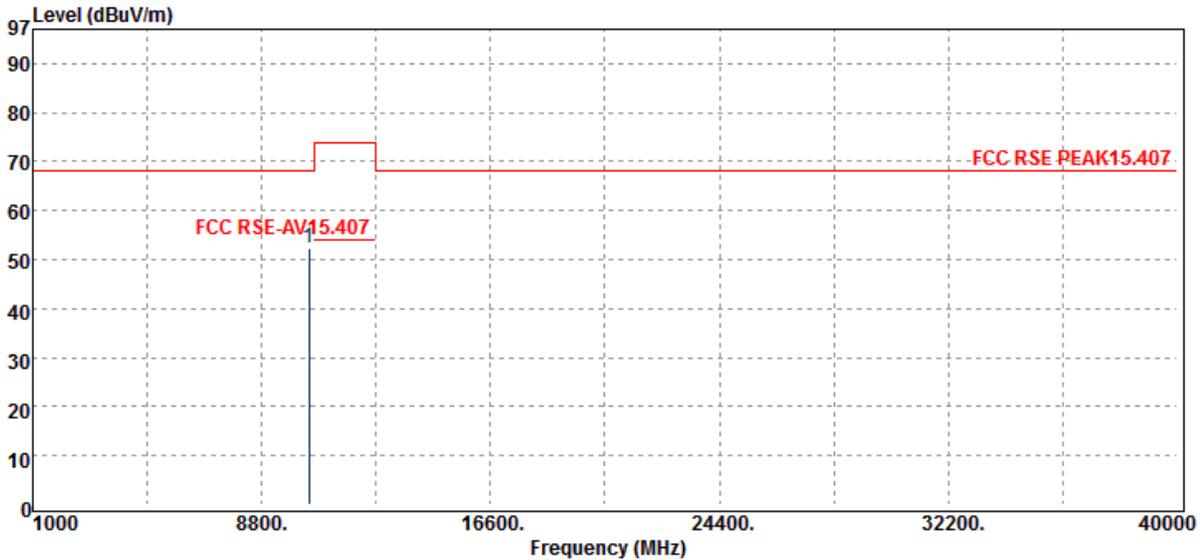
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### Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5150~5250 MHz

Operation Band	:802.11ac80B1	Test Date	:2018-04-23
Fundamental Frequency	:5210 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
10420.00	H	Peak	33.67	18.71	52.38	68.30	-15.92

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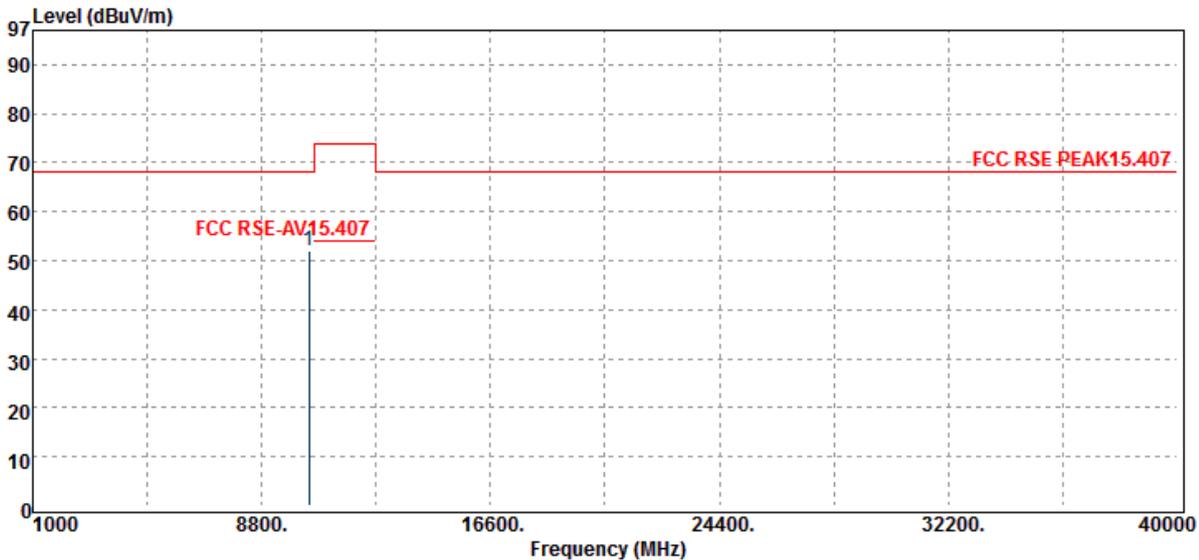
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Operation Band :802.11ac80B1  
Fundamental Frequency :5210 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
10420.00	H	Peak	33.17	18.71	51.88	68.30	-16.42

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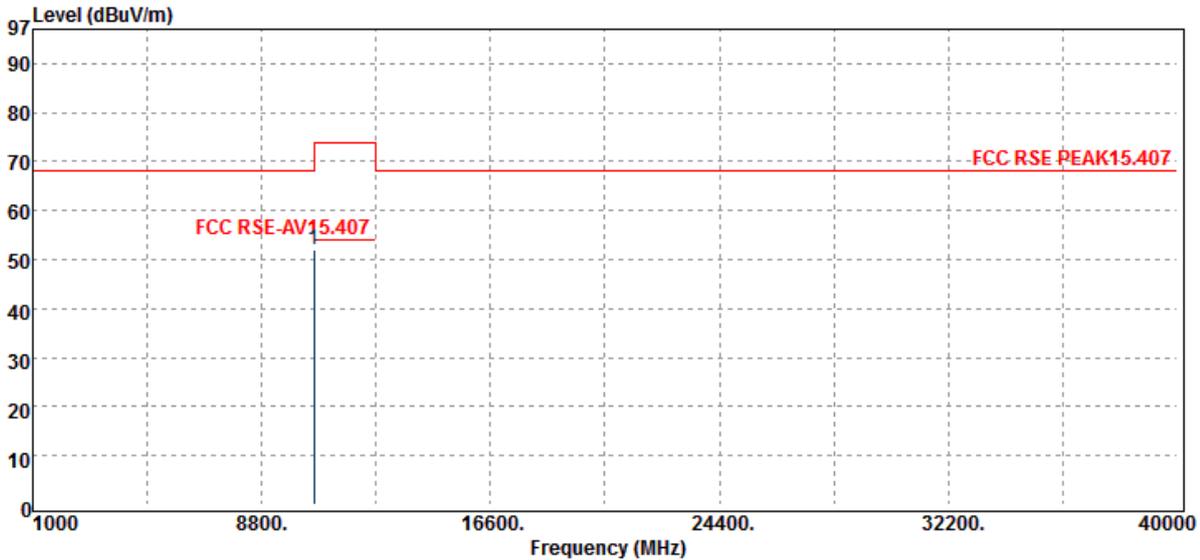
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### Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5250~5350 MHz

Operation Band	:802.11ac80B2	Test Date	:2018-04-23
Fundamental Frequency	:5290 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
10580.00	H	Peak	33.27	18.88	52.15	68.30	-16.15

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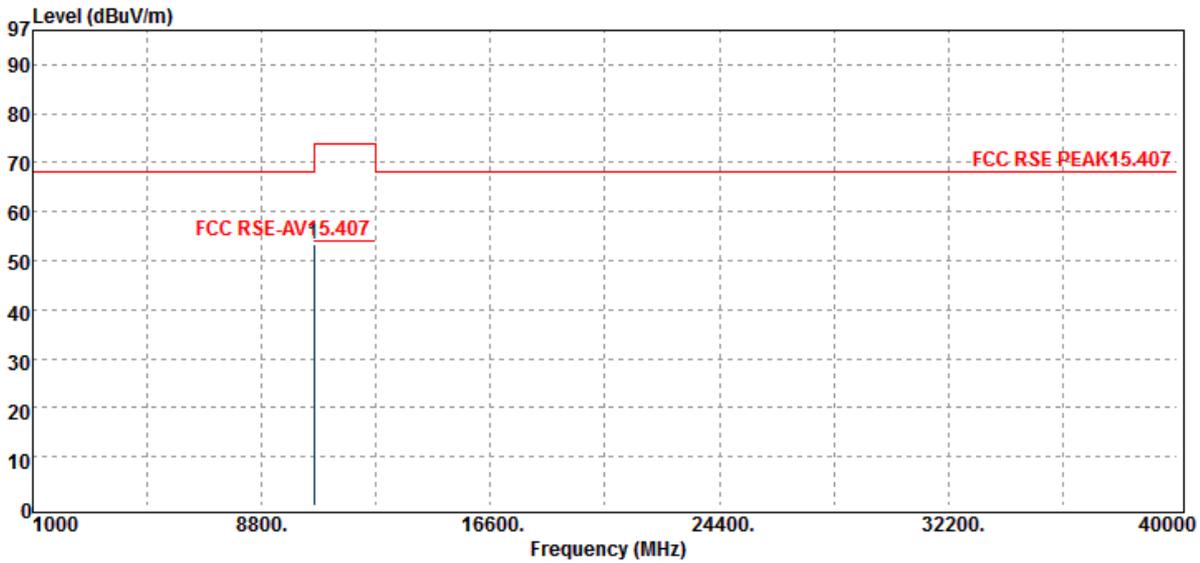
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Operation Band :802.11ac80B2  
Fundamental Frequency :5290 MHz  
Operation Mode :Tx CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
10580.00	H	Peak	34.56	18.88	53.44	68.30	-14.86

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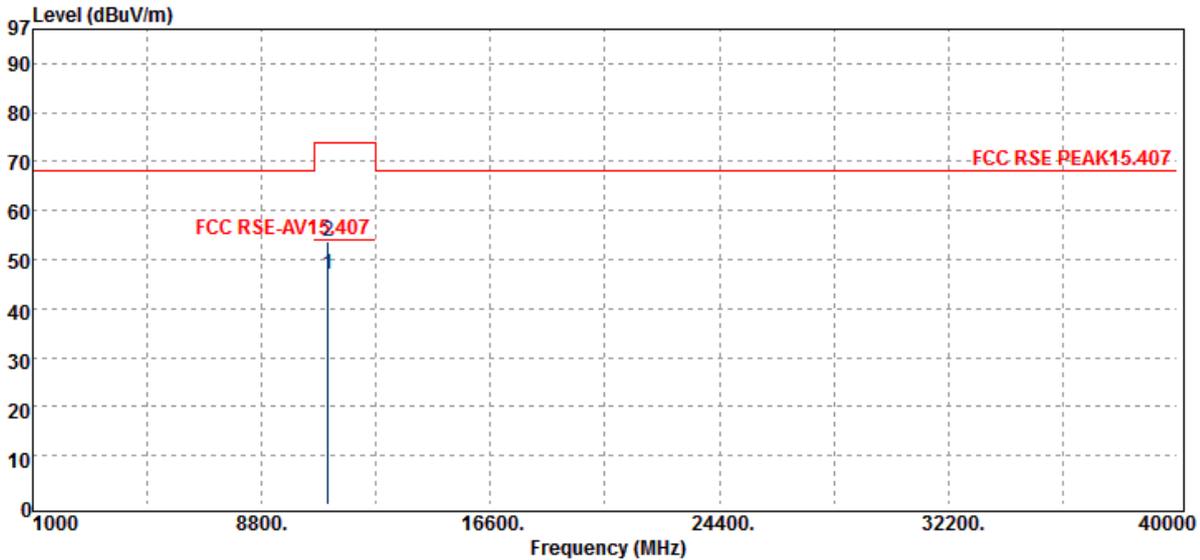
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### Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5470~5725 MHz

Operation Band	:802.11ac80B3	Test Date	:2018-04-23
Fundamental Frequency	:5530 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Safe Margin dB
11060.00	H	Average	26.66	20.27	46.93	54.00	-7.07
11060.00	H	Peak	33.33	20.27	53.60	74.00	-20.40

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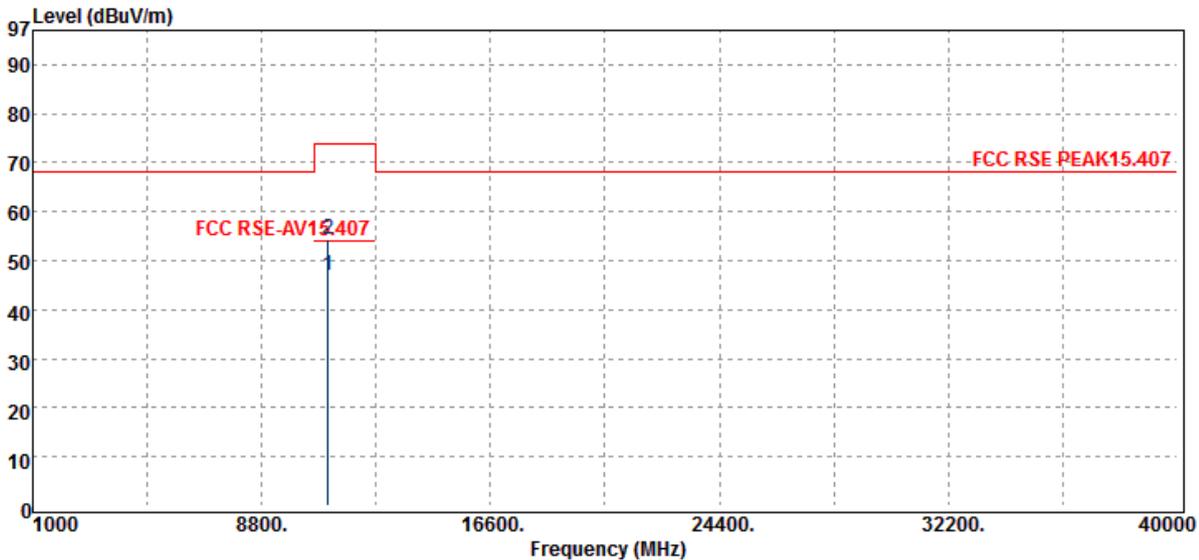
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Operation Band :802.11ac80B3  
Fundamental Frequency :5530 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11060.00	H	Average	26.74	20.27	47.01	54.00	-6.99
11060.00	H	Peak	34.09	20.27	54.36	74.00	-19.64

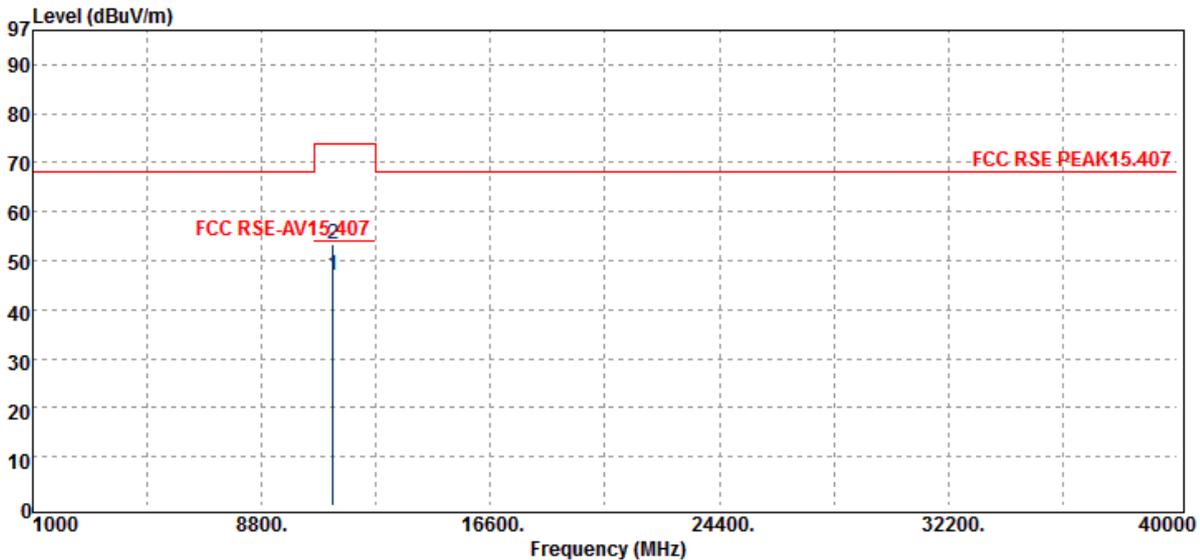
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Operation Band :802.11ac80B3  
Fundamental Frequency :5610 MHz  
Operation Mode :Tx CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11220.00	H	Average	26.36	20.47	46.83	54.00	-7.17
11220.00	H	Peak	32.76	20.47	53.23	74.00	-20.77

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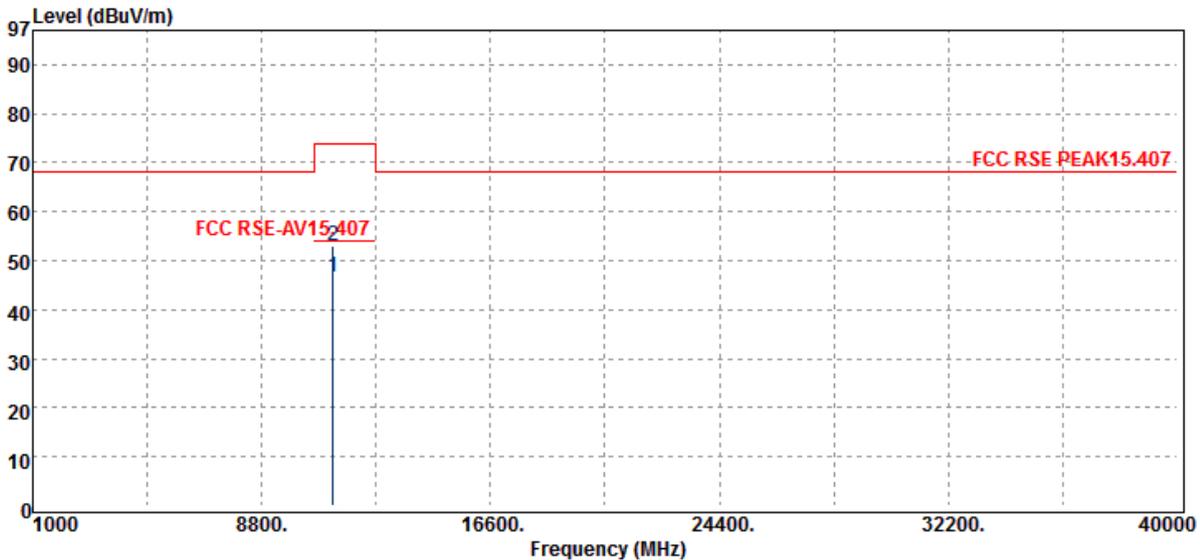
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Operation Band :802.11ac80B3  
Fundamental Frequency :5610 MHz  
Operation Mode :Tx CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Safe Margin dB
11220.00	H	Average	26.22	20.47	46.69	54.00	-7.31
11220.00	H	Peak	32.65	20.47	53.12	74.00	-20.88

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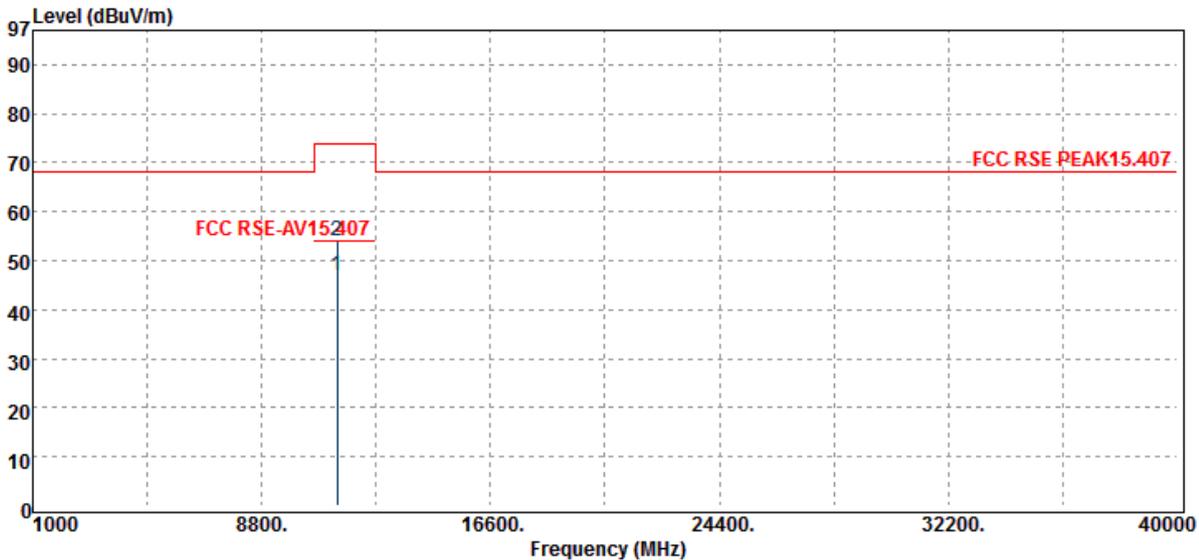
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Operation Band :802.11ac80B3  
 Fundamental Frequency :5690 MHz  
 Operation Mode :Tx CH CROSS  
 EUT Pol. :H Plane

Test Date :2018-04-23  
 Temp./Humi. :23 deg\_C / 62 RH  
 Engineer :Kane  
 Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11380.00	H	Average	26.33	20.50	46.83	54.00	-7.17
11380.00	H	Peak	33.54	20.50	54.04	74.00	-19.96

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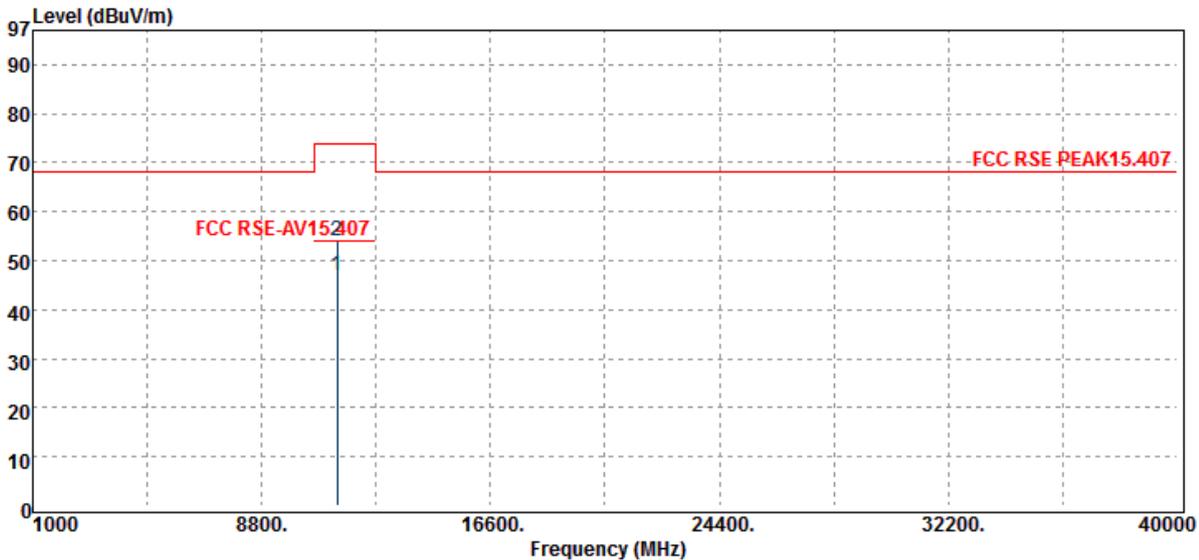
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Operation Band :802.11ac80B3  
Fundamental Frequency :5690 MHz  
Operation Mode :Tx CH CROSS  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Safe Margin dB
11380.00	H	Average	26.60	20.50	47.10	54.00	-6.90
11380.00	H	Peak	33.46	20.50	53.96	74.00	-20.04

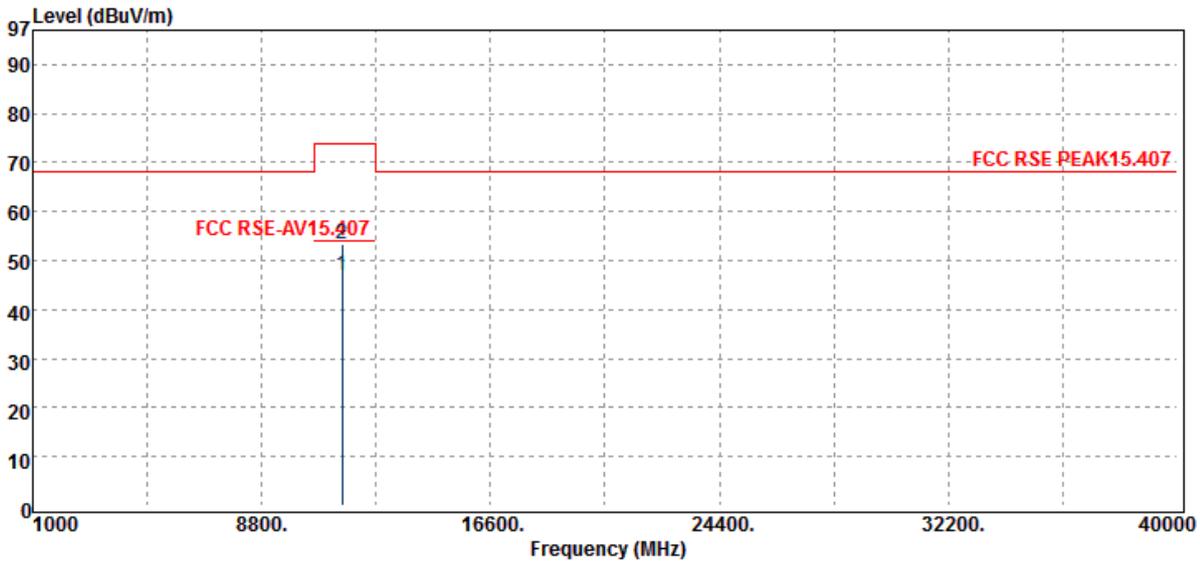
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### Radiated Spurious Emission Measurement Result 802.11ac VHT80,

Operation Band	:802.11ac80B4	Test Date	:2018-04-23
Fundamental Frequency	:5775 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level d $\mu$ V	Factor dB	Actual FS d $\mu$ V/m	Limit @3m d $\mu$ V/m	Safe Margin dB
11550.00	H	Average	26.45	20.51	46.96	54.00	-7.04
11550.00	H	Peak	32.96	20.51	53.47	74.00	-20.53

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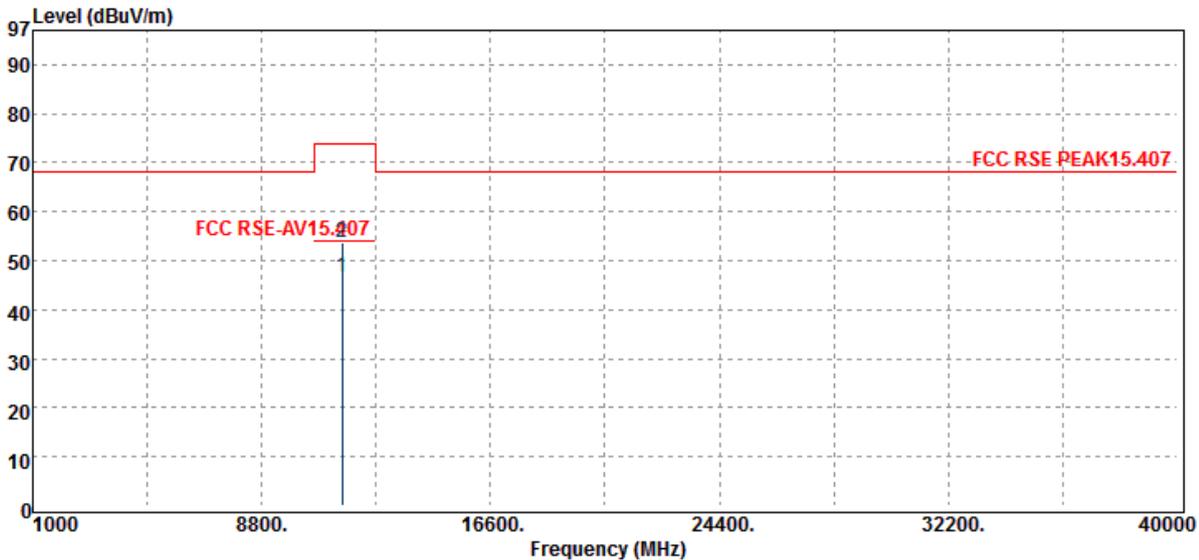
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Operation Band :802.11ac80B4  
Fundamental Frequency :5775 MHz  
Operation Mode :Tx CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-23  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Safe Margin dB
11550.00	H	Average	26.18	20.51	46.69	54.00	-7.31
11550.00	H	Peak	33.15	20.51	53.66	74.00	-20.34

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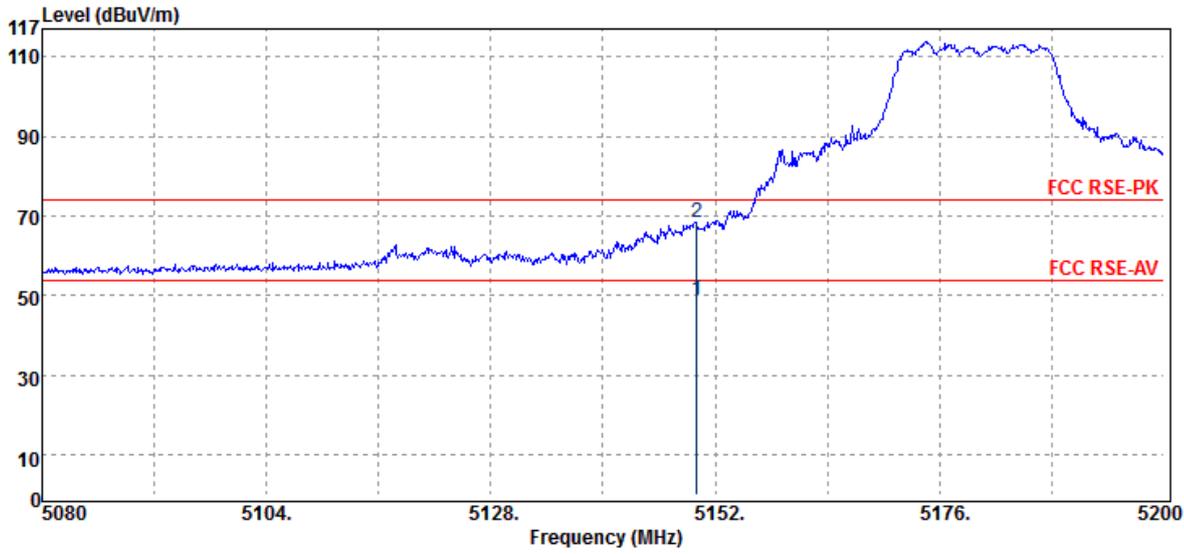
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**Band edge falling to restricted band**

**802.11a mode**

Operation Band :802.11aB1  
Fundamental Frequency :5180 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-12  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
5150.00	E	Average	43.13	5.88	49.01	54.00	-4.99
5150.00	E	Peak	62.41	5.88	68.29	74.00	-5.71

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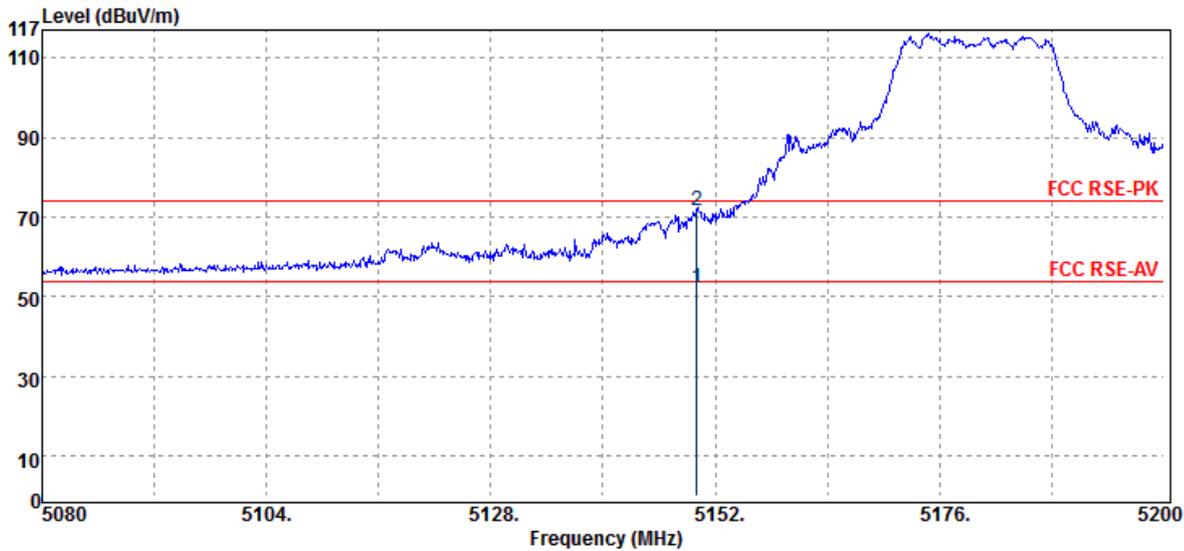
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Operation Band :802.11aB1  
Fundamental Frequency :5180 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-12  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5150.00	E	Average	46.29	5.88	52.17	54.00	-1.83
5150.00	E	Peak	65.98	5.88	71.86	74.00	-2.14

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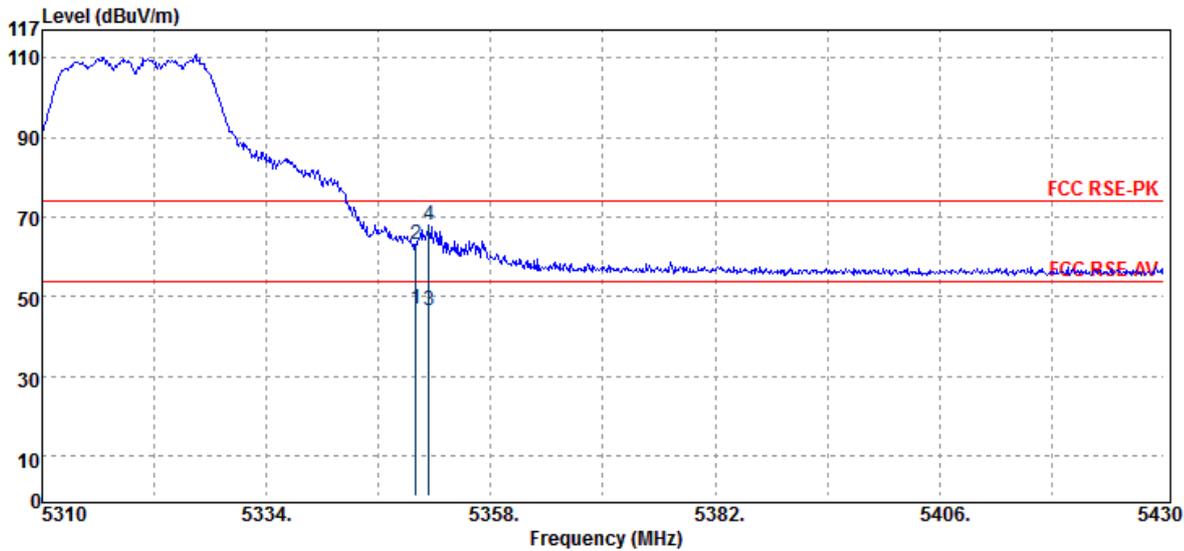
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Member of SGS Group

Operation Band :802.11aB2  
Fundamental Frequency :5320 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-12  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5350.00	E	Average	40.62	6.16	46.78	54.00	-7.22
5350.00	E	Peak	56.90	6.16	63.06	74.00	-10.94
5351.40	E	Average	40.33	6.15	46.48	54.00	-7.52
5351.40	E	Peak	61.86	6.15	68.01	74.00	-5.99

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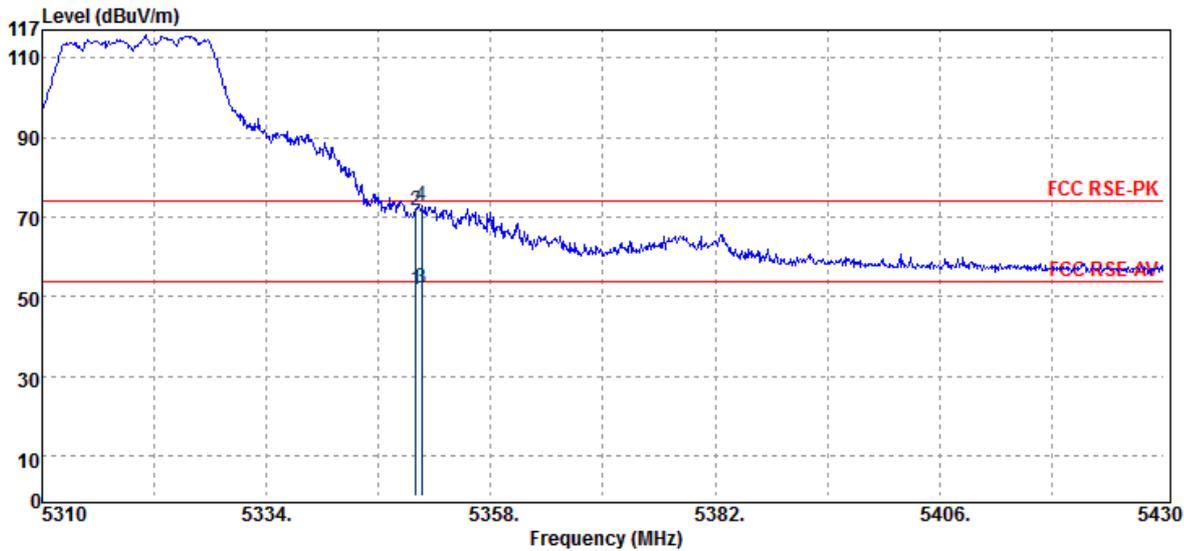
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Operation Band :802.11aB2  
Fundamental Frequency :5320 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-12  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5350.00	E	Average	45.55	6.16	51.71	54.00	-2.29
5350.00	E	Peak	65.44	6.16	71.60	74.00	-2.40
5350.56	E	Average	46.06	6.15	52.21	54.00	-1.79
5350.56	E	Peak	66.80	6.15	72.95	74.00	-1.05

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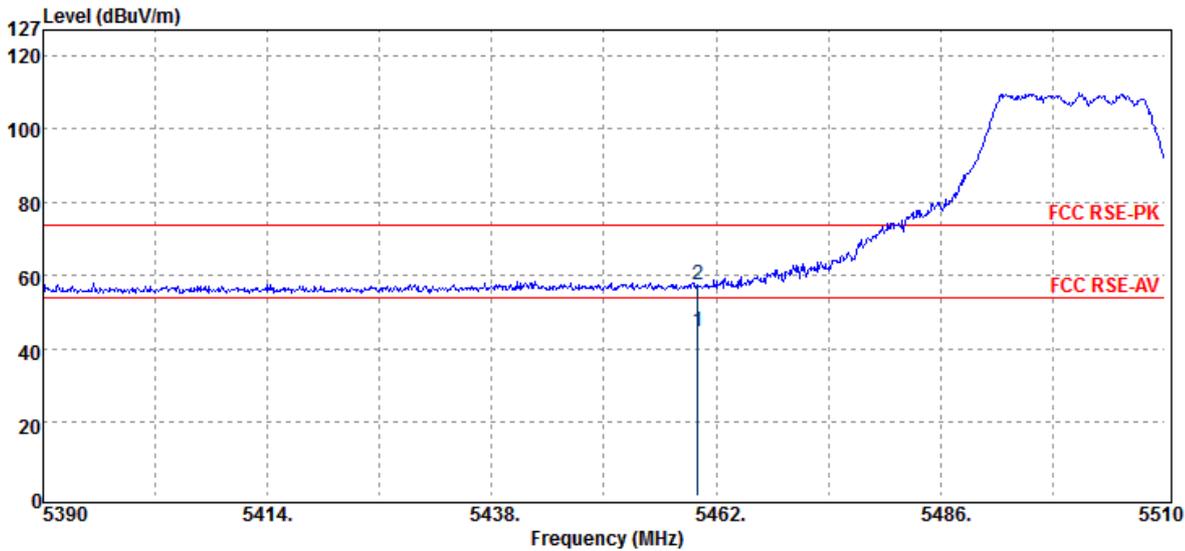
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Member of SGS Group

Operation Band :802.11aB3  
Fundamental Frequency :5500 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-13  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5460.00	E	Average	38.67	6.23	44.90	54.00	-9.10
5460.00	E	Peak	51.21	6.23	57.44	74.00	-16.56

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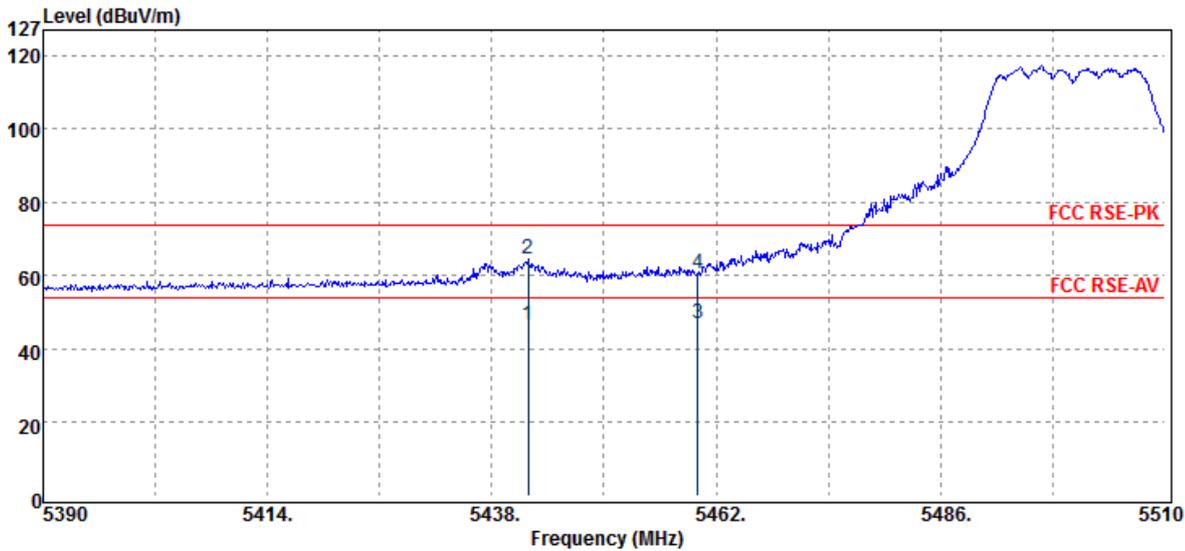
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Operation Band :802.11aB3  
Fundamental Frequency :5500 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-13  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5441.84	E	Average	40.40	6.17	46.57	54.00	-7.43
5441.84	E	Peak	58.33	6.17	64.50	74.00	-9.50
5460.00	E	Average	40.84	6.23	47.07	54.00	-6.93
5460.00	E	Peak	54.53	6.23	60.76	74.00	-13.24

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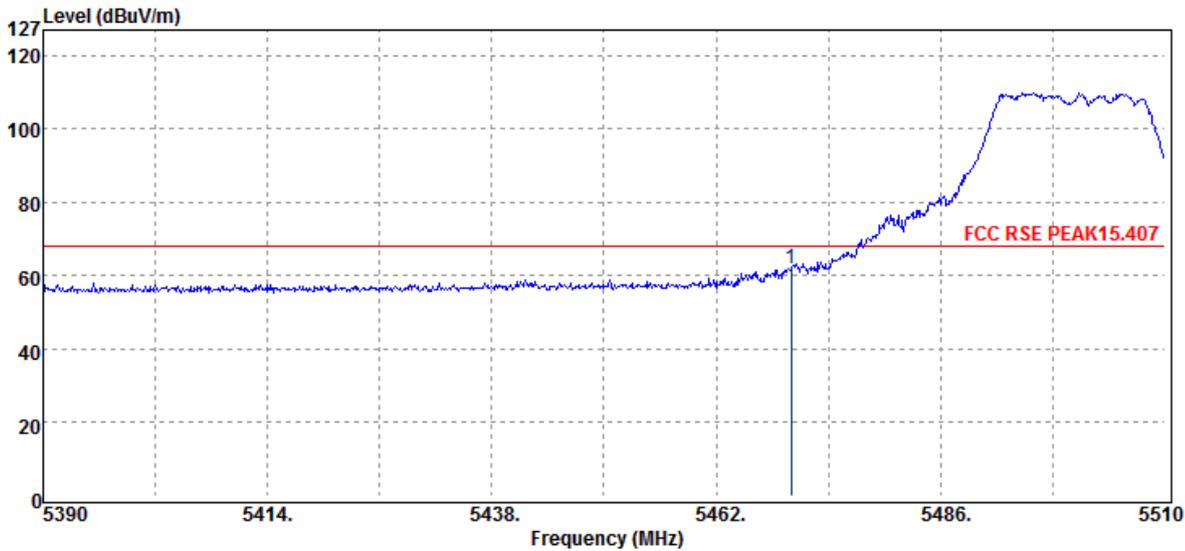
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Operation Band	:802.11aB3	Test Date	:2018-04-13
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5470.00	E	Peak	55.67	6.26	61.93	68.30	-6.37

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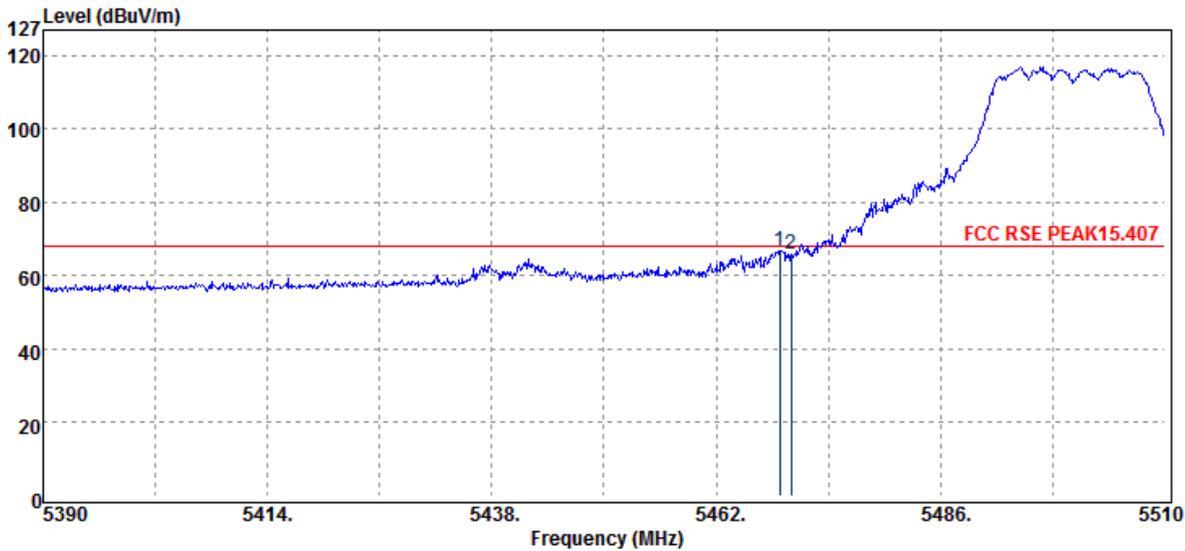
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Operation Band	:802.11aB3	Test Date	:2018-04-13
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5468.84	E	Peak	60.66	6.26	66.92	68.30	-1.38
5470.00	E	Peak	59.50	6.26	65.76	68.30	-2.54

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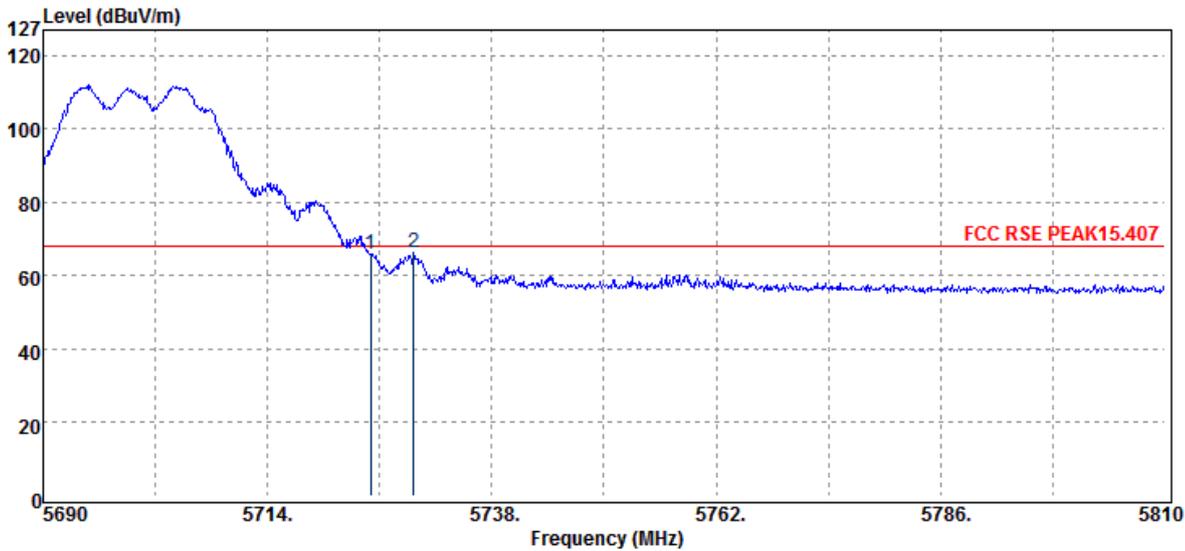
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Operation Band :802.11aB3  
 Fundamental Frequency :5700 MHz  
 Operation Mode :Bandedge CH HIGH RSE  
 EUT Pol. :H Plane

Test Date :2018-04-13  
 Temp./Humi. :23 deg\_C / 62 RH  
 Engineer :Kane  
 Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5725.00	E	Peak	59.47	6.59	66.06	68.30	-2.24
5729.60	E	Peak	59.65	6.64	66.29	68.30	-2.01

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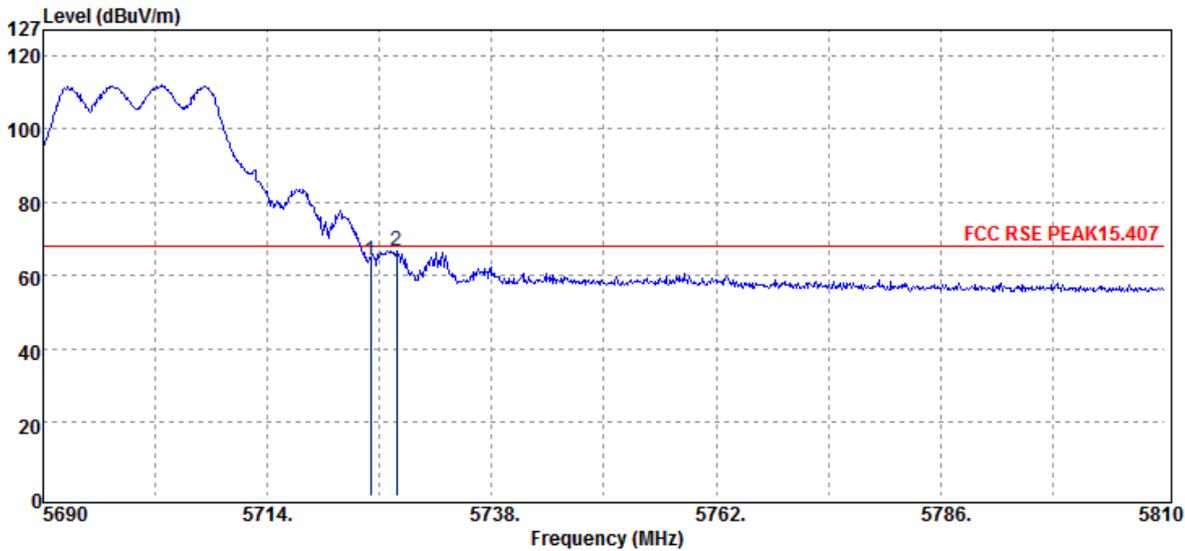
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Operation Band	:802.11aB3	Test Date	:2018-04-13
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5725.00	E	Peak	57.54	6.59	64.13	68.30	-4.17
5727.80	E	Peak	60.05	6.63	66.68	68.30	-1.62

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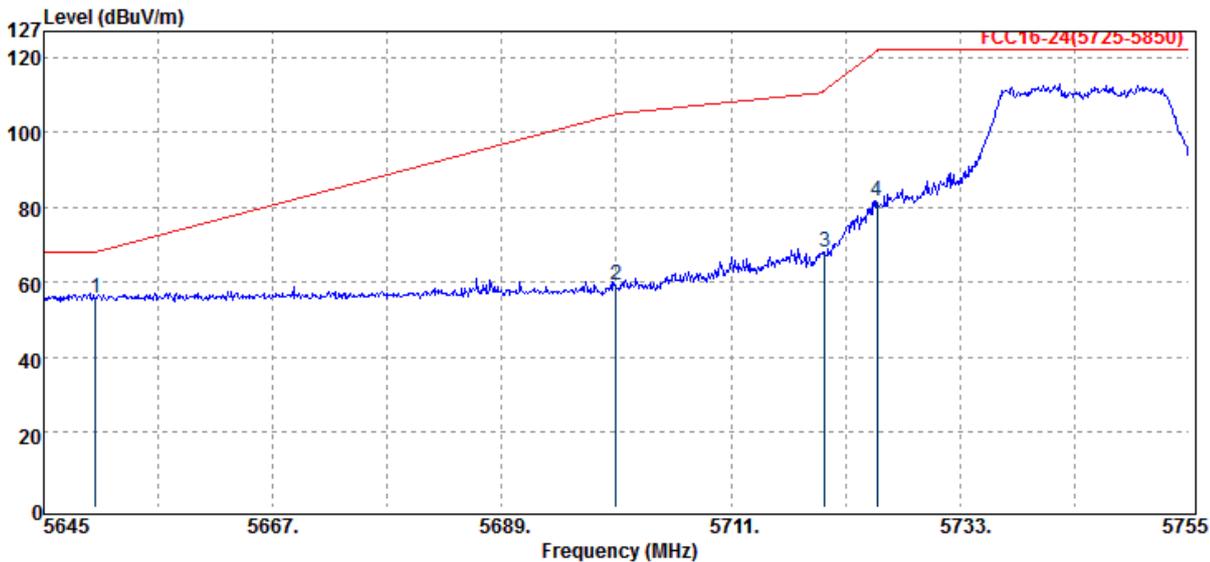
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Operation Band :802.11aB4  
Fundamental Frequency :5745 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	E	Peak	49.45	6.48	55.93	68.23	-12.30
5700.00	E	Peak	52.53	6.67	59.20	105.23	-46.03
5720.00	E	Peak	61.30	6.60	67.90	110.83	-42.93
5725.00	E	Peak	75.11	6.59	81.70	122.23	-40.53

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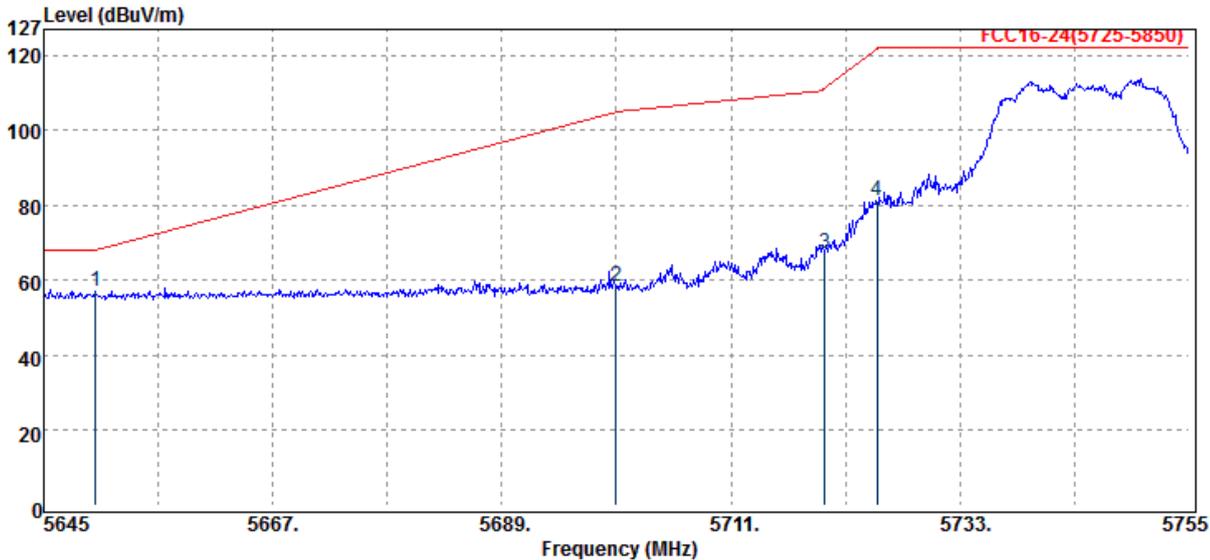
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Operation Band :802.11aB4  
Fundamental Frequency :5745 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	E	Peak	50.48	6.48	56.96	68.23	-11.27
5700.00	E	Peak	51.79	6.67	58.46	105.23	-46.77
5720.00	E	Peak	60.80	6.60	67.40	110.83	-43.43
5725.00	E	Peak	74.73	6.59	81.32	122.23	-40.91

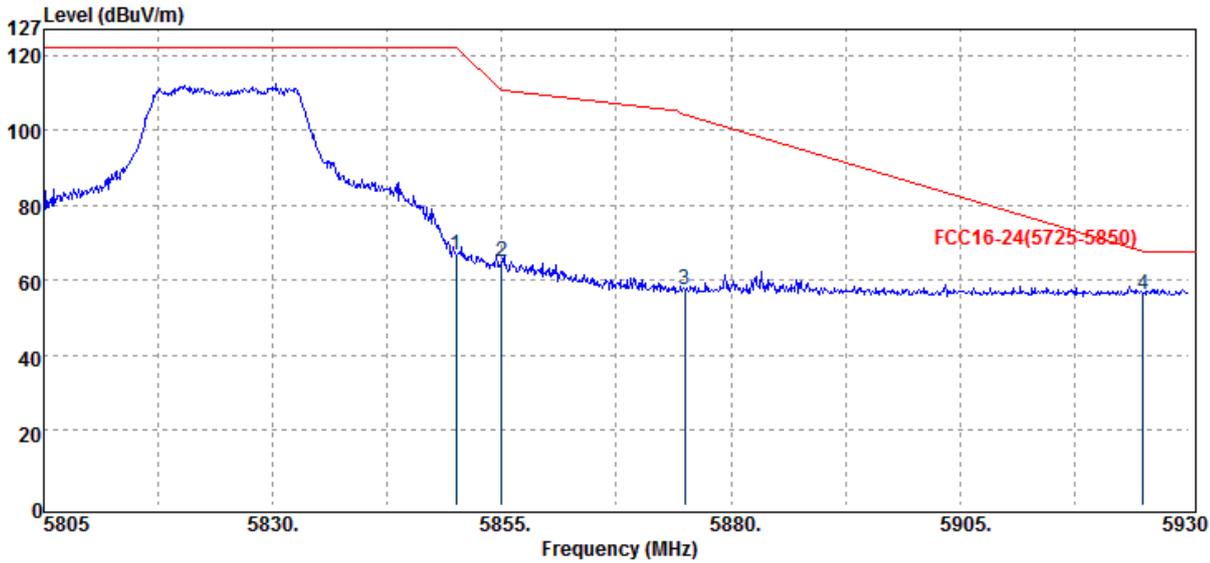
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Operation Band :802.11aB4  
Fundamental Frequency :5825 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5850.00	E	Peak	59.30	7.28	66.58	122.23	-55.65
5855.00	E	Peak	57.69	7.32	65.01	110.83	-45.82
5875.00	E	Peak	49.98	7.37	57.35	105.23	-47.88
5925.00	E	Peak	49.02	7.39	56.41	68.23	-11.82

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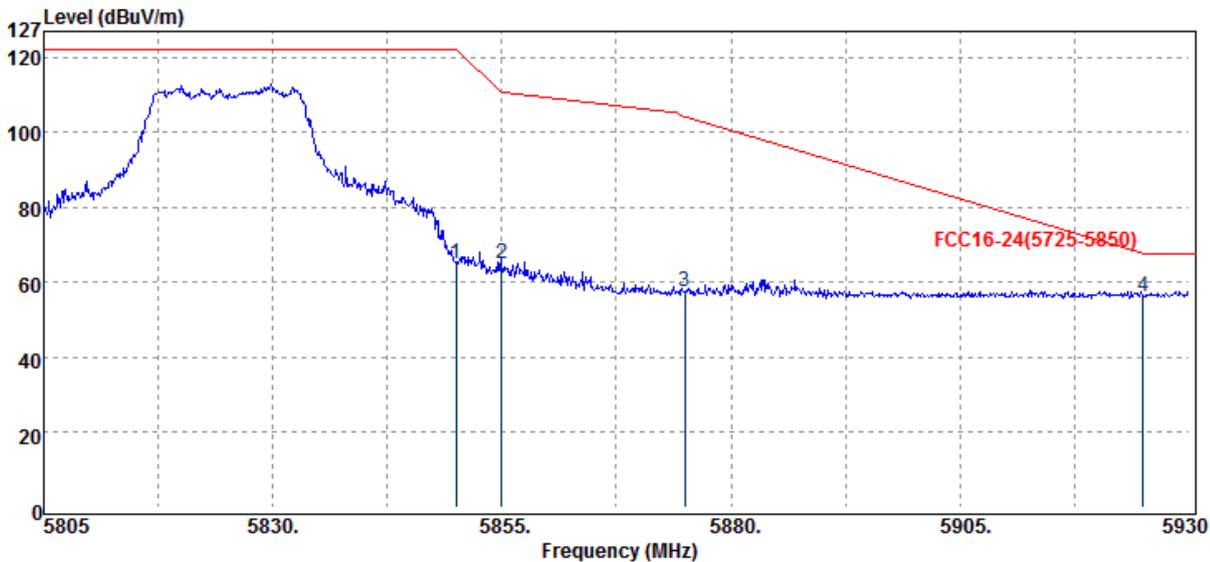
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Operation Band :802.11aB4  
Fundamental Frequency :5825 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5850.00	E	Peak	57.75	7.28	65.03	122.23	-57.20
5855.00	E	Peak	57.53	7.32	64.85	110.83	-45.98
5875.00	E	Peak	50.31	7.37	57.68	105.23	-47.55
5925.00	E	Peak	48.99	7.39	56.38	68.23	-11.85

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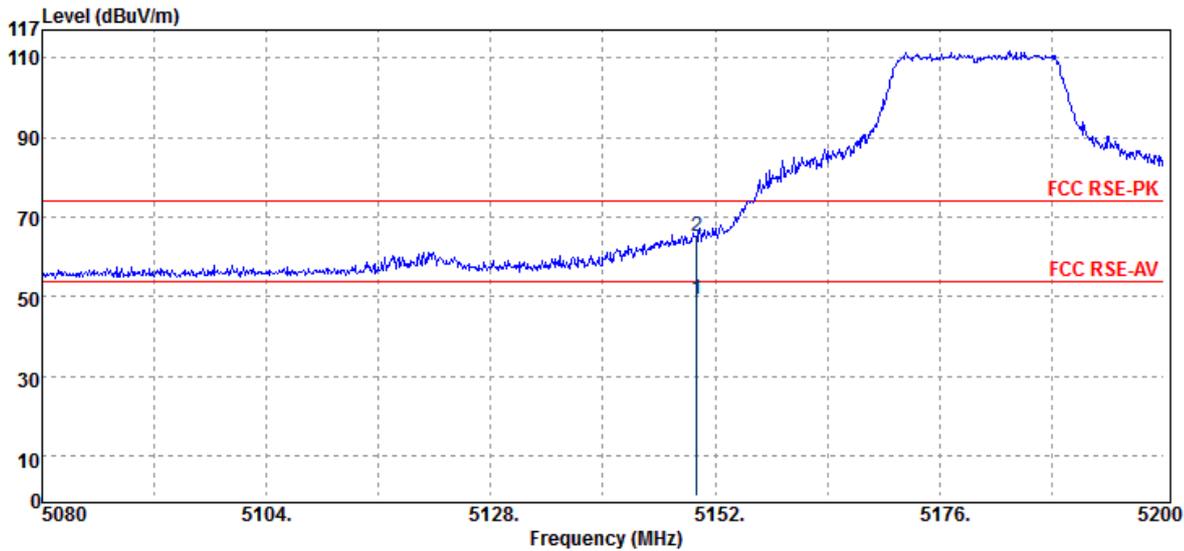
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### 802.11 n20 HT mode

Operation Band :802.11n20B1  
 Fundamental Frequency :5180 MHz  
 Operation Mode :Bandedge CH LOW  
 EUT Pol. :H Plane

Test Date :2018-04-12  
 Temp./Humi. :23 deg\_C / 62 RH  
 Engineer :Kane  
 Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Average	43.59	5.88	49.47	54.00	-4.53
5150.00	E	Peak	59.18	5.88	65.06	74.00	-8.94

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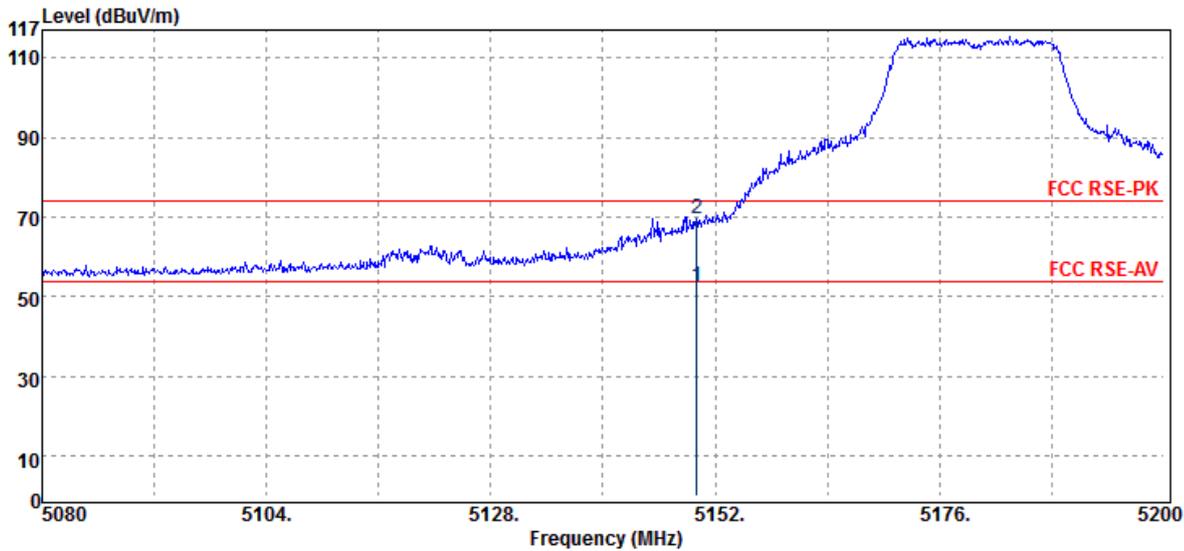
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Operation Band :802.11n20B1  
Fundamental Frequency :5180 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-12  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5150.00	E	Average	46.82	5.88	52.70	54.00	-1.30
5150.00	E	Peak	63.59	5.88	69.47	74.00	-4.53

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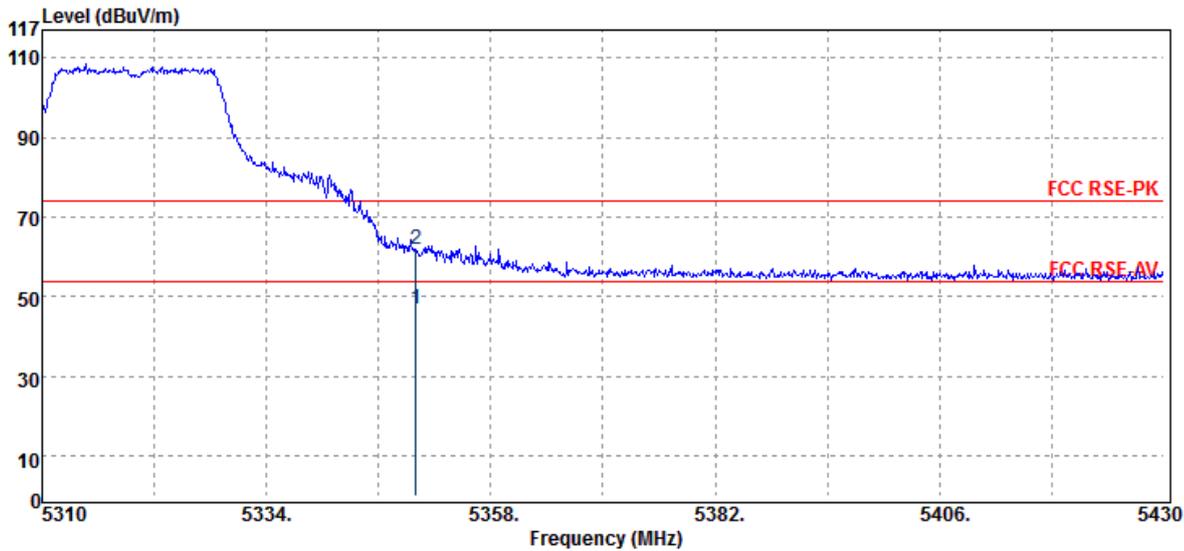
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Operation Band :802.11n20B2  
Fundamental Frequency :5320 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-12  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5350.00	E	Average	40.84	6.16	47.00	54.00	-7.00
5350.00	E	Peak	55.78	6.16	61.94	74.00	-12.06

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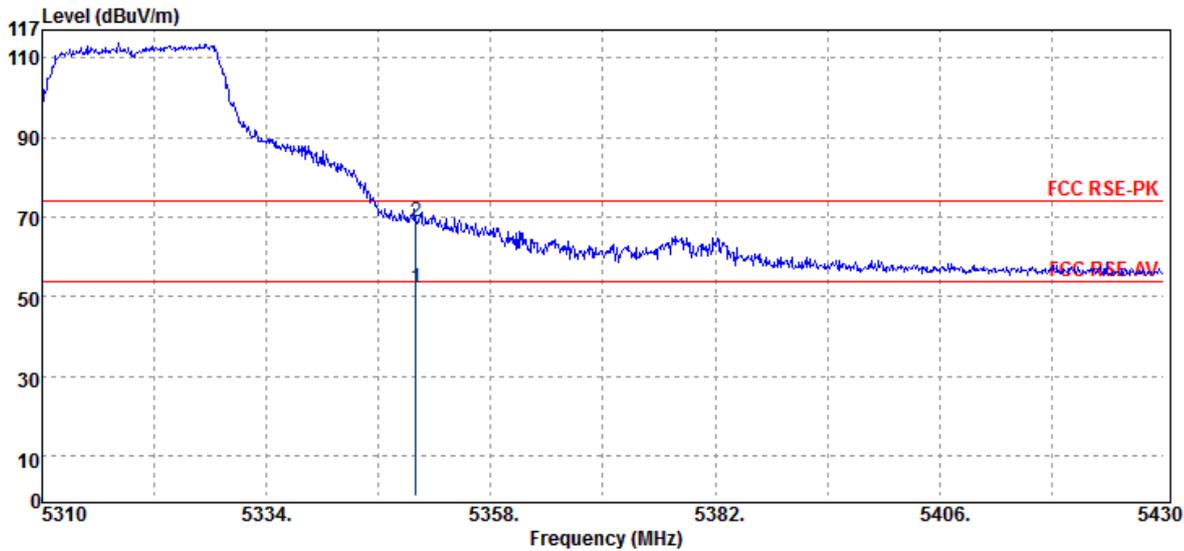
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Operation Band :802.11n20B2  
Fundamental Frequency :5320 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-12  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5350.00	E	Average	45.95	6.16	52.11	54.00	-1.89
5350.00	E	Peak	62.84	6.16	69.00	74.00	-5.00

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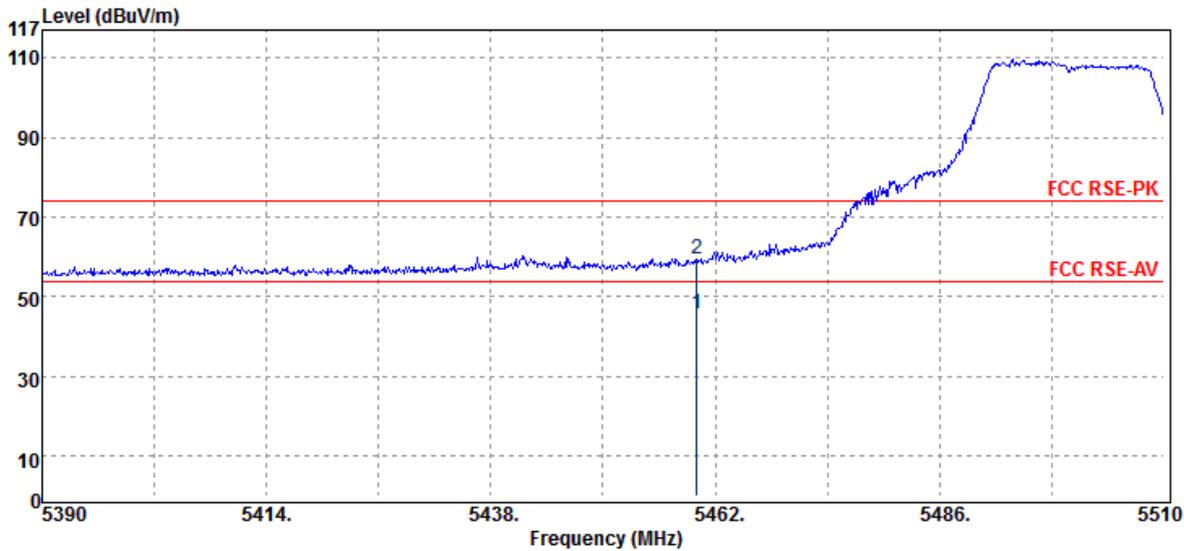
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Operation Band :802.11n20B3  
Fundamental Frequency :5500 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-12  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5460.00	E	Average	39.32	6.23	45.55	54.00	-8.45
5460.00	E	Peak	53.40	6.23	59.63	74.00	-14.37

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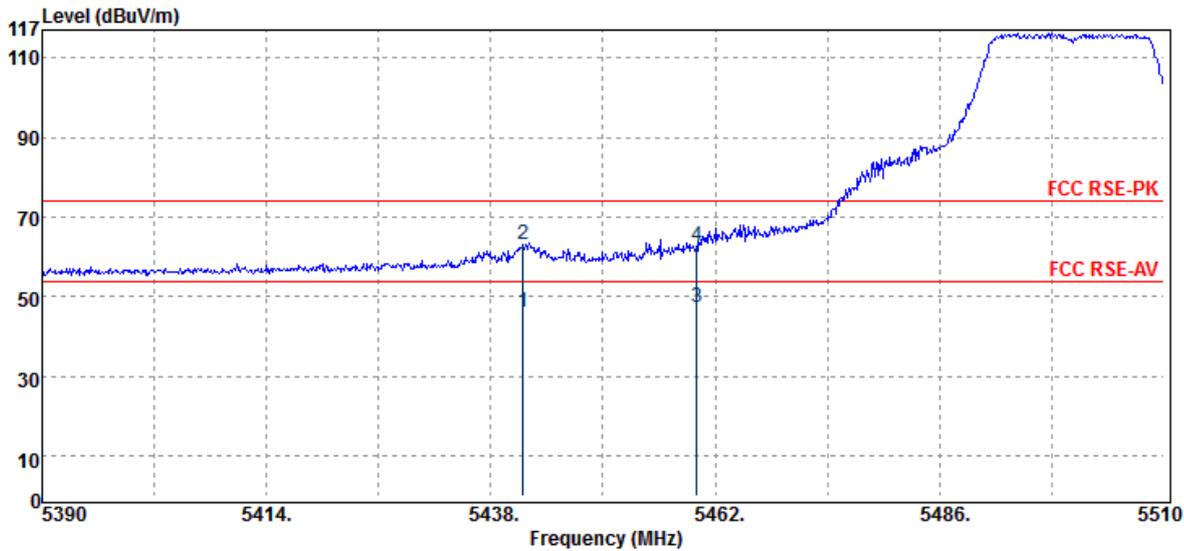
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Operation Band :802.11n20B3  
Fundamental Frequency :5500 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-09  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5441.48	E	Average	39.85	6.17	46.02	54.00	-7.98
5441.48	E	Peak	57.15	6.17	63.32	74.00	-10.68
5460.00	E	Average	41.08	6.23	47.31	54.00	-6.69
5460.00	E	Peak	56.49	6.23	62.72	74.00	-11.28

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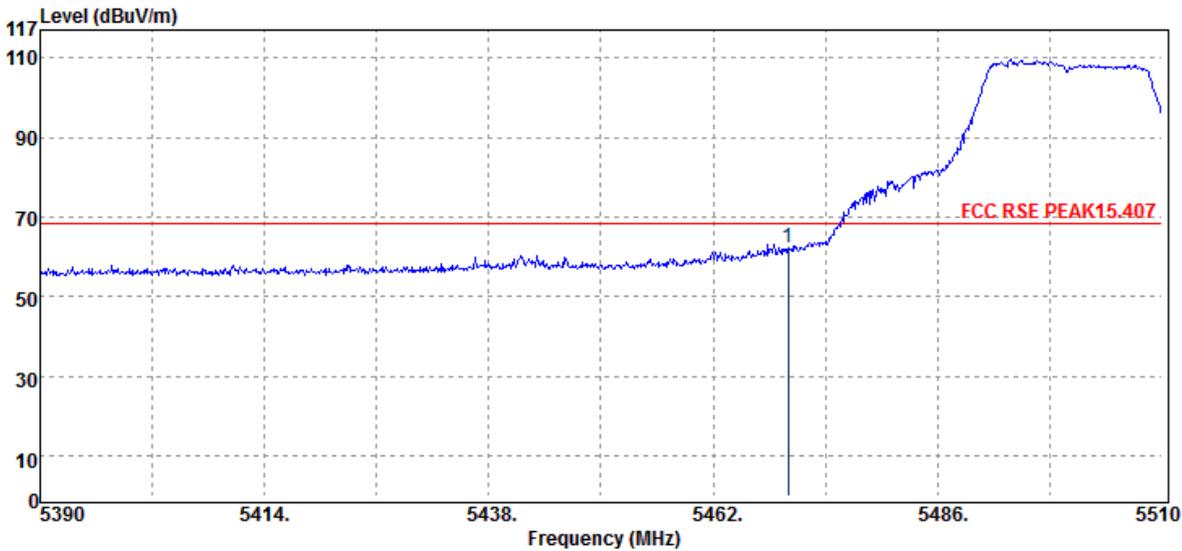
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Operation Band	:802.11n20B3	Test Date	:2018-04-12
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5470.00	E	Peak	56.21	6.26	62.47	68.30	-5.83

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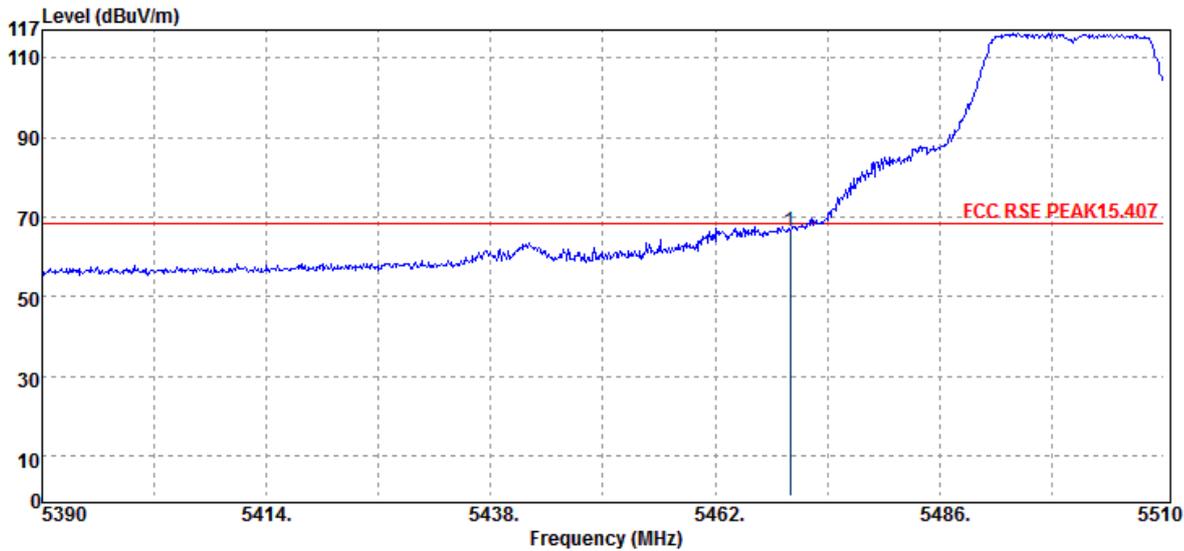
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Operation Band	:802.11n20B3	Test Date	:2018-04-09
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5470.00	E	Peak	60.21	6.26	66.47	68.30	-1.83

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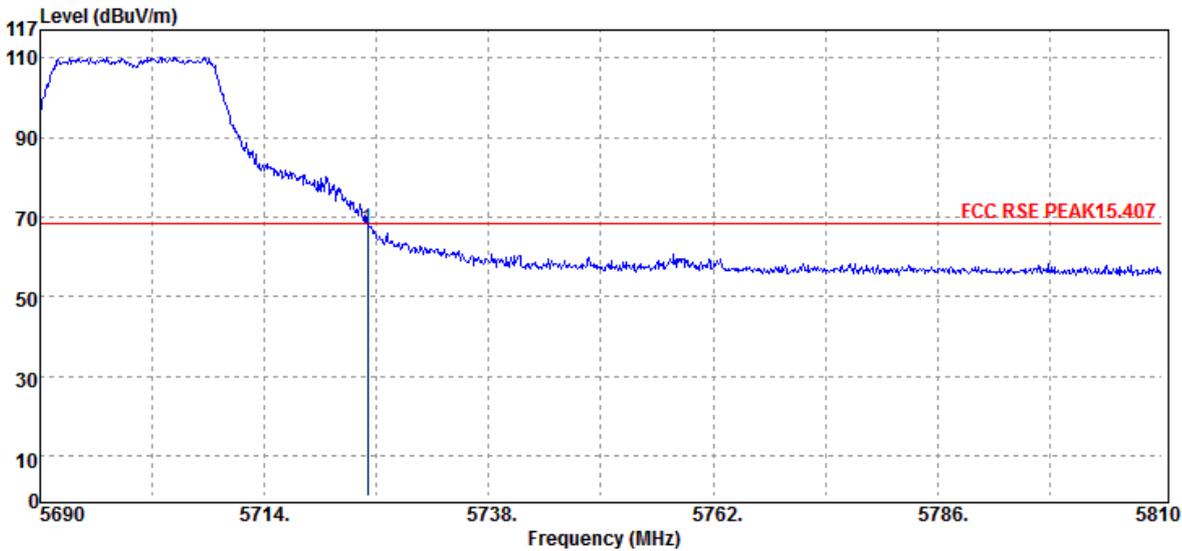
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Operation Band	:802.11n20B3	Test Date	:2018-04-12
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5725.00	E	Peak	60.61	6.59	67.20	68.30	-1.10

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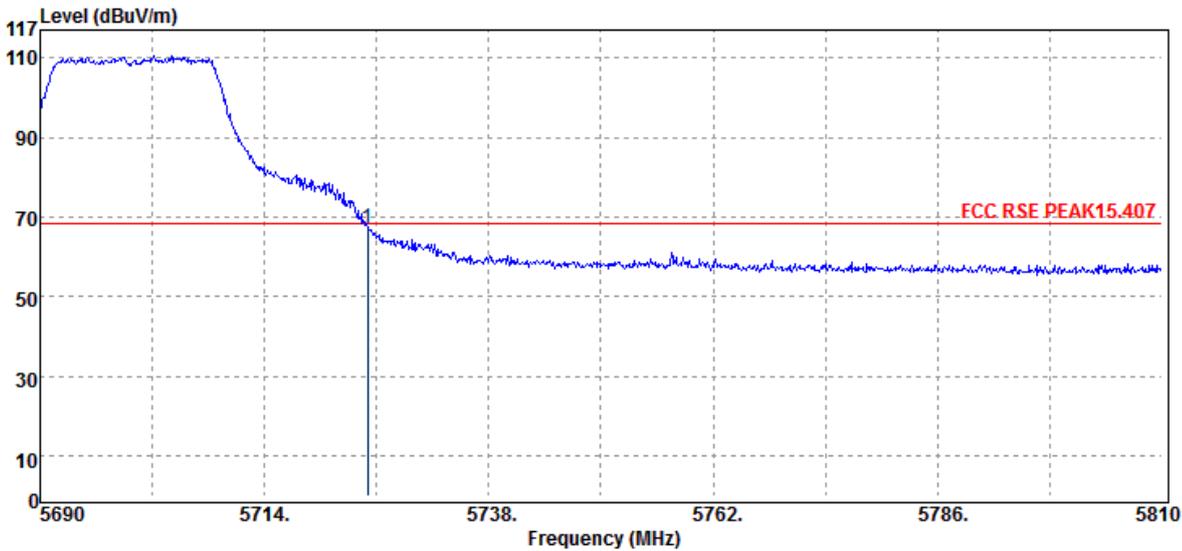
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Operation Band	:802.11n20B3	Test Date	:2018-04-12
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5725.00	E	Peak	60.65	6.59	67.24	68.30	-1.06

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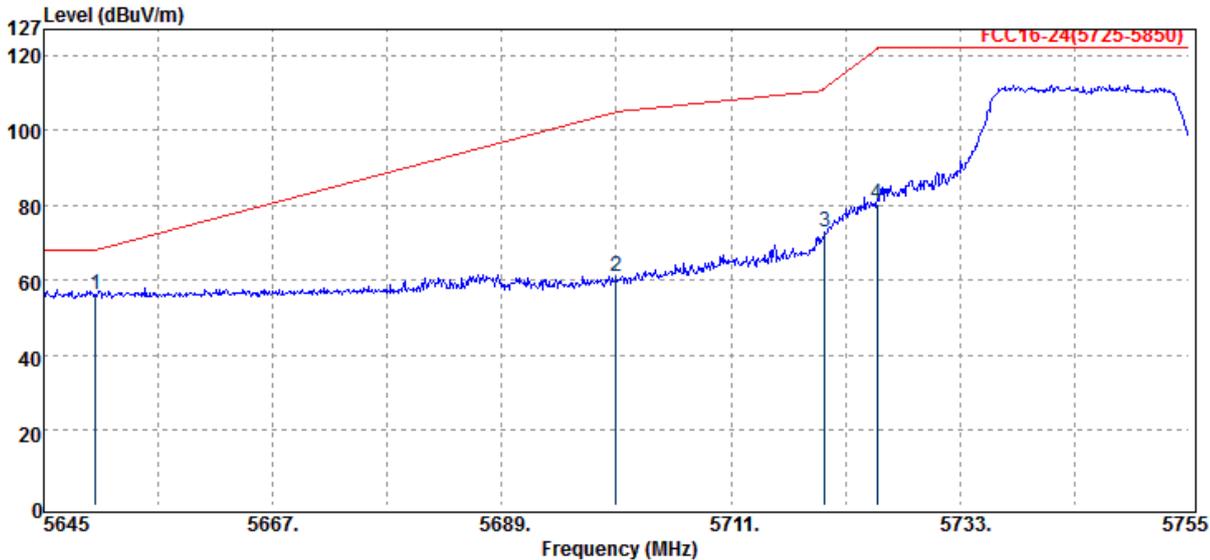
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Operation Band :802.11n20B4  
Fundamental Frequency :5745 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	E	Peak	49.81	6.48	56.29	68.23	-11.94
5700.00	E	Peak	54.51	6.67	61.18	105.23	-44.05
5720.00	E	Peak	66.55	6.60	73.15	110.83	-37.68
5725.00	E	Peak	73.85	6.59	80.44	122.23	-41.79

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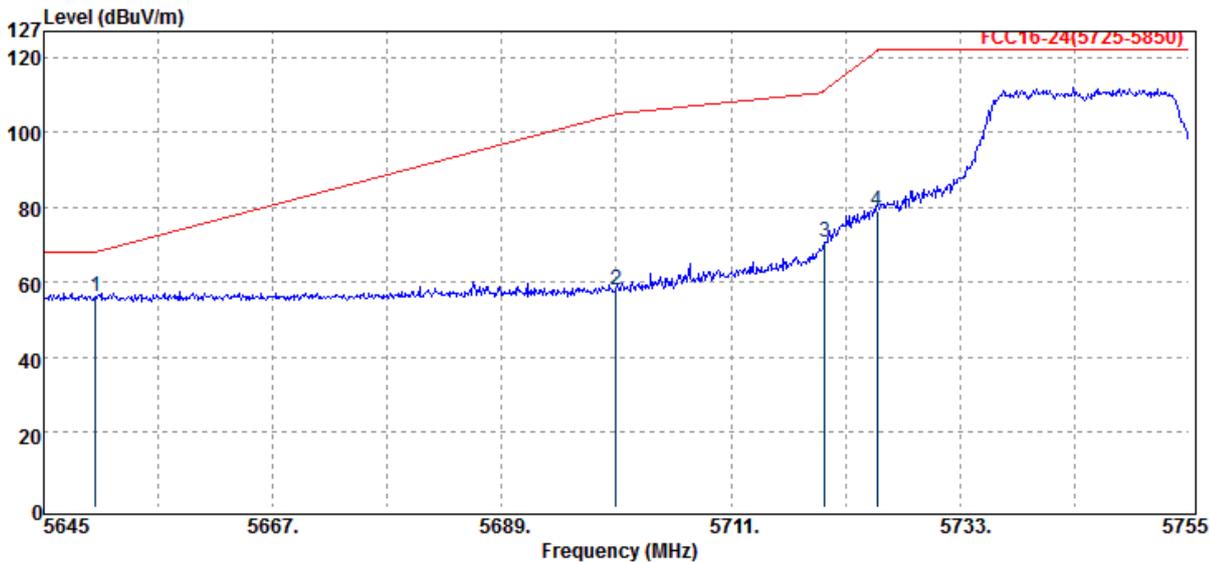
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Operation Band :802.11n20B4  
Fundamental Frequency :5745 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	E	Peak	49.56	6.48	56.04	68.23	-12.19
5700.00	E	Peak	51.16	6.67	57.83	105.23	-47.40
5720.00	E	Peak	64.05	6.60	70.65	110.83	-40.18
5725.00	E	Peak	72.51	6.59	79.10	122.23	-43.13

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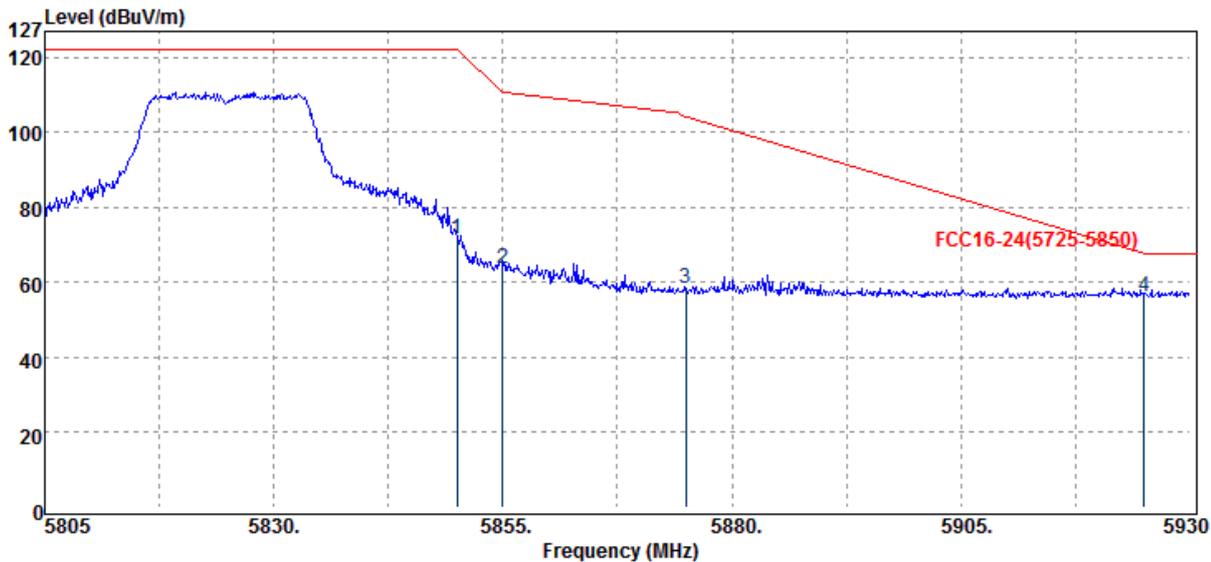
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Operation Band :802.11n20B4  
Fundamental Frequency :5825 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5850.00	E	Peak	64.36	7.28	71.64	122.23	-50.59
5855.00	E	Peak	56.23	7.32	63.55	110.83	-47.28
5875.00	E	Peak	50.98	7.37	58.35	105.23	-46.88
5925.00	E	Peak	48.71	7.39	56.10	68.23	-12.13

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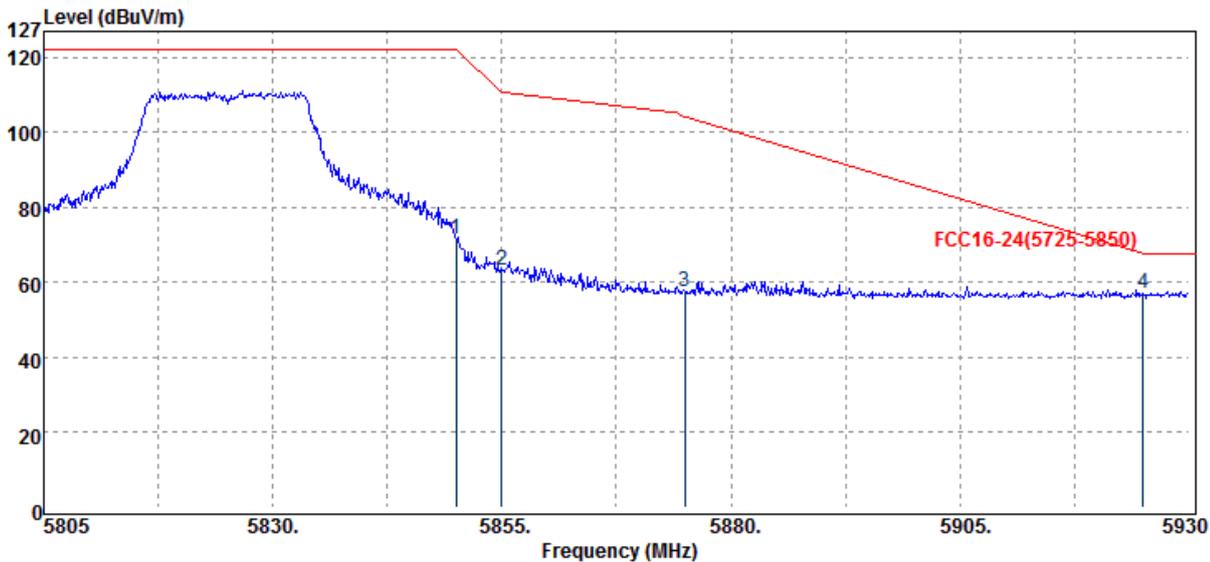
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Operation Band :802.11n20B4  
Fundamental Frequency :5825 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5850.00	E	Peak	64.41	7.28	71.69	122.23	-50.54
5855.00	E	Peak	55.78	7.32	63.10	110.83	-47.73
5875.00	E	Peak	50.09	7.37	57.46	105.23	-47.77
5925.00	E	Peak	49.62	7.39	57.01	68.23	-11.22

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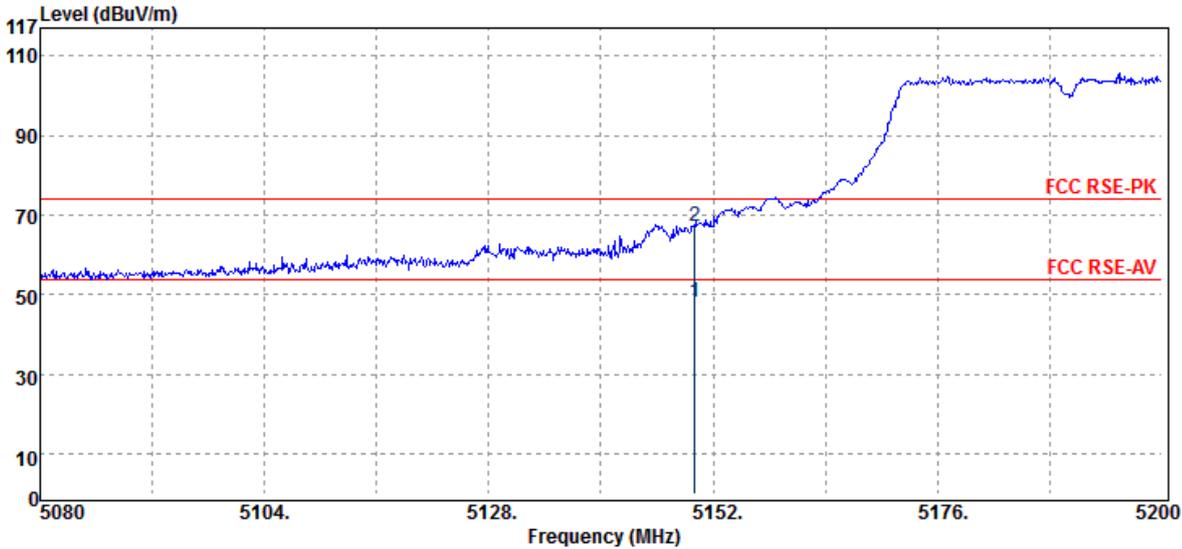
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**802.11 n40 HT mode**

Operation Band :802.11n40B1  
 Fundamental Frequency :5190 MHz  
 Operation Mode :Bandedge CH LOW  
 EUT Pol. :H Plane

Test Date :2018-04-13  
 Temp./Humi. :23 deg\_C / 62 RH  
 Engineer :Kane  
 Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5150.00	E	Average	42.22	5.88	48.10	54.00	-5.90
5150.00	E	Peak	61.42	5.88	67.30	74.00	-6.70

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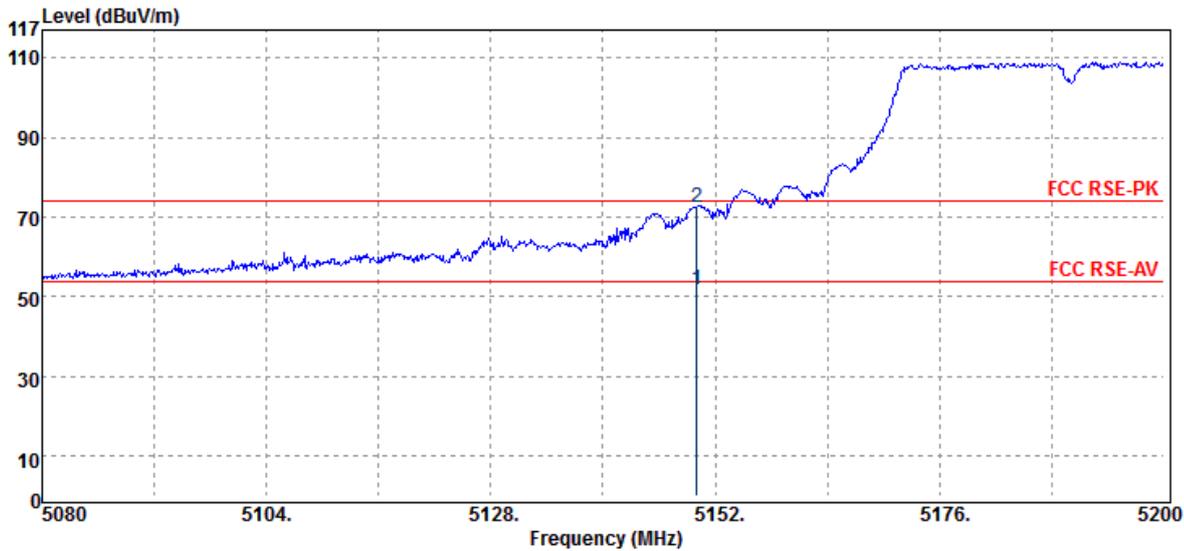
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Operation Band :802.11n40B1  
Fundamental Frequency :5190 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-13  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5150.00	E	Average	46.02	5.88	51.90	54.00	-2.10
5150.00	E	Peak	66.46	5.88	72.34	74.00	-1.66

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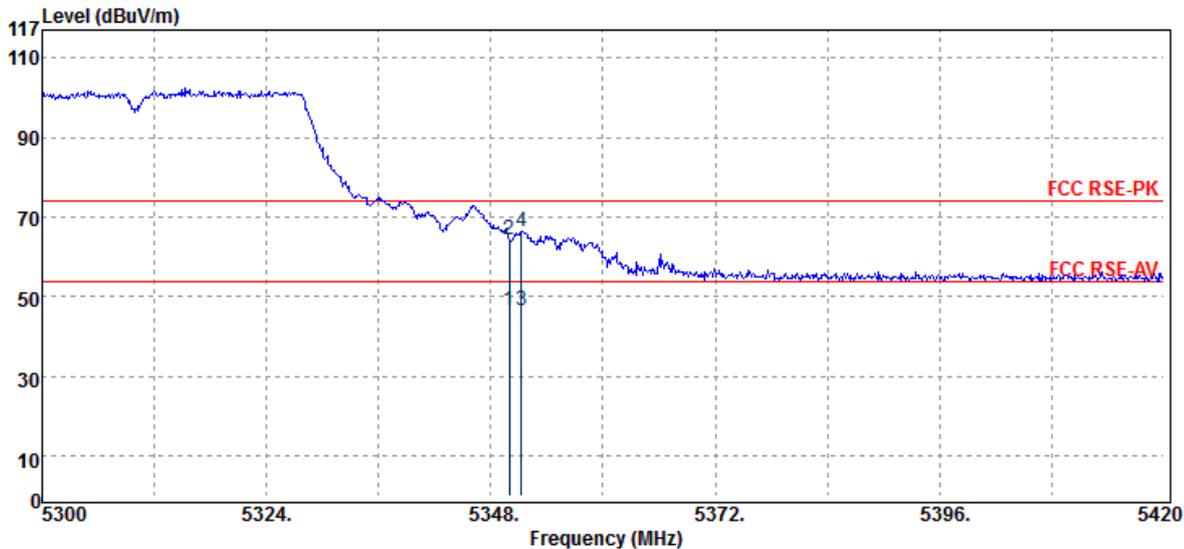
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Operation Band :802.11n40B2  
Fundamental Frequency :5310 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-13  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5350.00	E	Average	40.54	6.16	46.70	54.00	-7.30
5350.00	E	Peak	58.18	6.16	64.34	74.00	-9.66
5351.24	E	Average	40.59	6.15	46.74	54.00	-7.26
5351.24	E	Peak	60.44	6.15	66.59	74.00	-7.41

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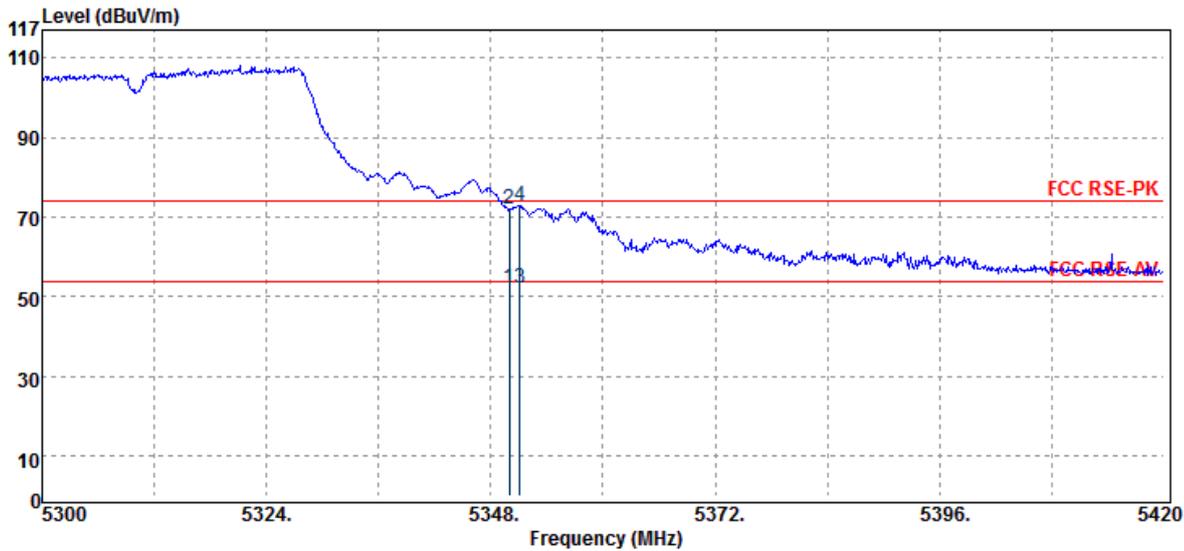
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Operation Band :802.11n40B2  
Fundamental Frequency :5310 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-13  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5350.00	E	Average	46.01	6.16	52.17	54.00	-1.83
5350.00	E	Peak	65.83	6.16	71.99	74.00	-2.01
5351.12	E	Average	46.16	6.15	52.31	54.00	-1.69
5351.12	E	Peak	66.78	6.15	72.93	74.00	-1.07

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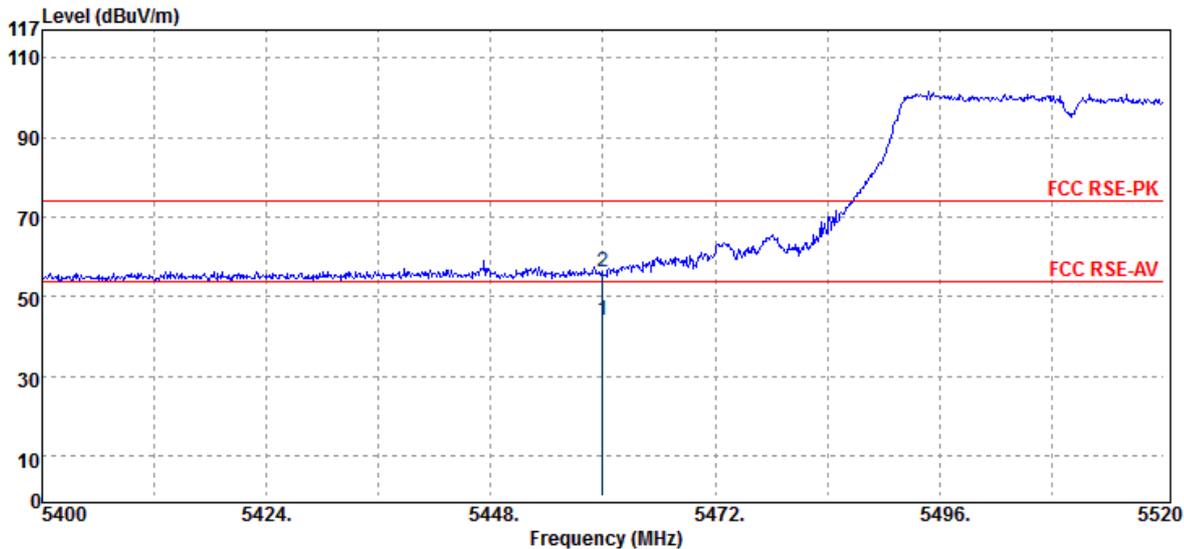
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Operation Band :802.11n40B3  
Fundamental Frequency :5510 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-13  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5460.00	E	Average	37.74	6.23	43.97	54.00	-10.03
5460.00	E	Peak	49.92	6.23	56.15	74.00	-17.85

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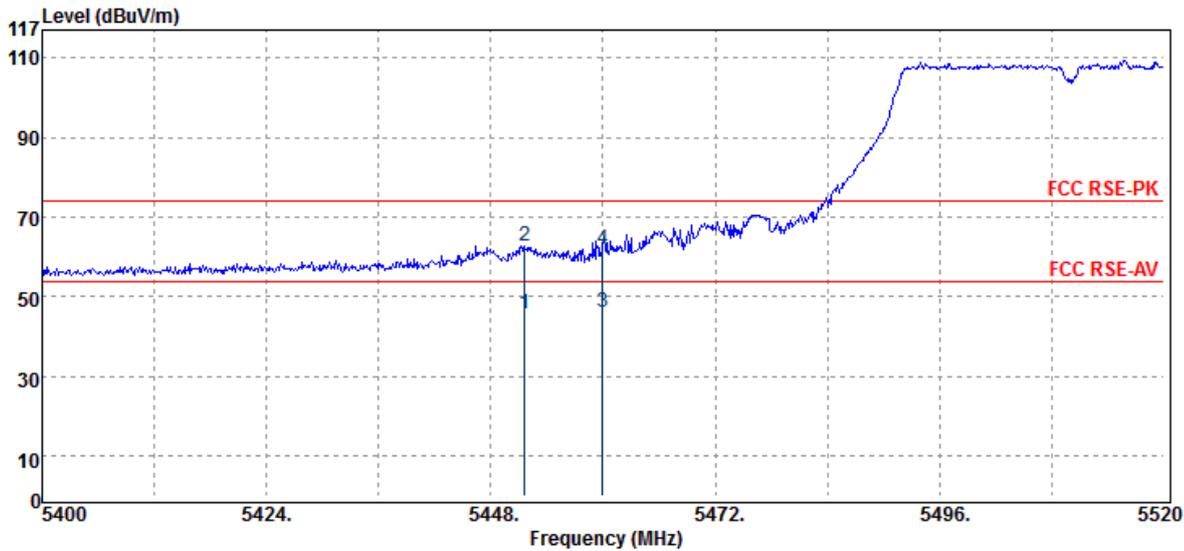
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Operation Band :802.11n40B3  
Fundamental Frequency :5510 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-09  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5451.60	E	Average	39.60	6.20	45.80	54.00	-8.20
5451.60	E	Peak	56.70	6.20	62.90	74.00	-11.10
5460.00	E	Average	39.88	6.23	46.11	54.00	-7.89
5460.00	E	Peak	55.61	6.23	61.84	74.00	-12.16

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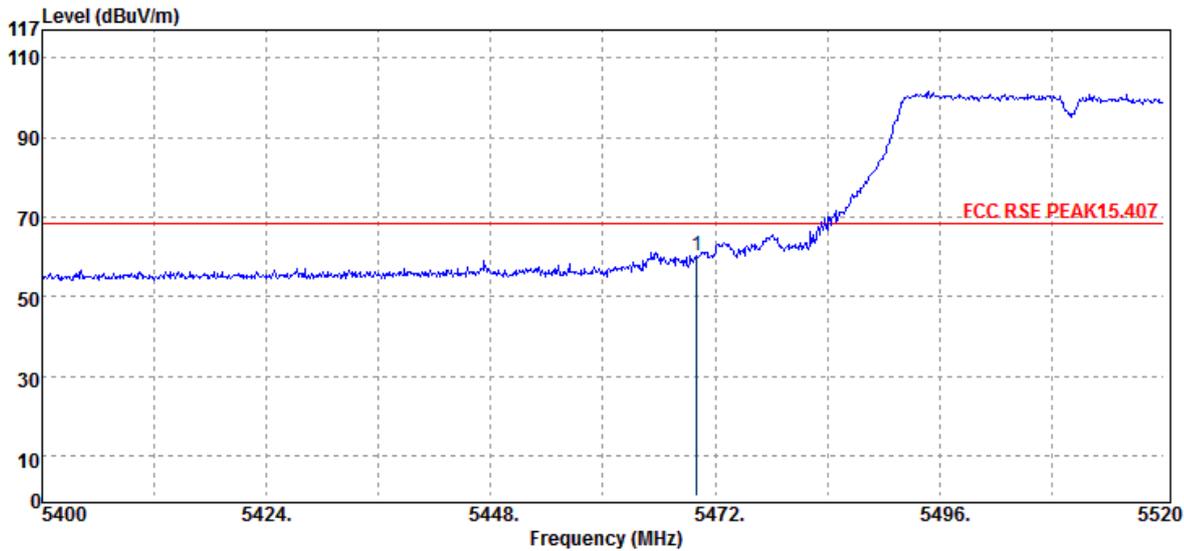
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Operation Band	:802.11n40B3	Test Date	:2018-04-13
Fundamental Frequency	:5510 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5470.00	E	Peak	54.03	6.26	60.29	68.30	-8.01

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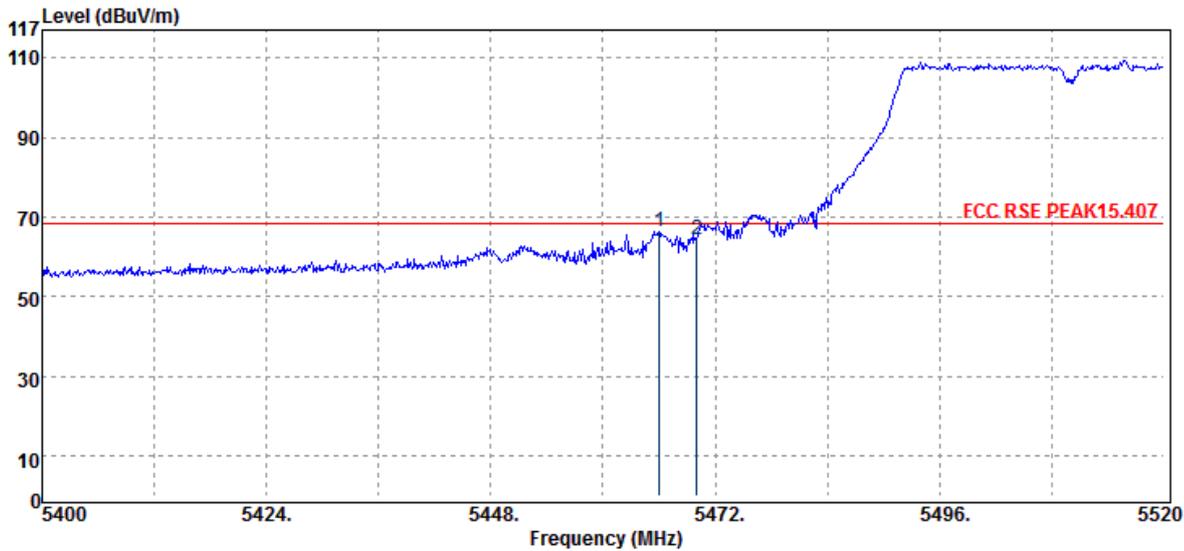
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Operation Band	:802.11n40B3	Test Date	:2018-04-09
Fundamental Frequency	:5510 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5466.00	E	Peak	60.16	6.25	66.41	68.30	-1.89
5470.00	E	Peak	58.13	6.26	64.39	68.30	-3.91

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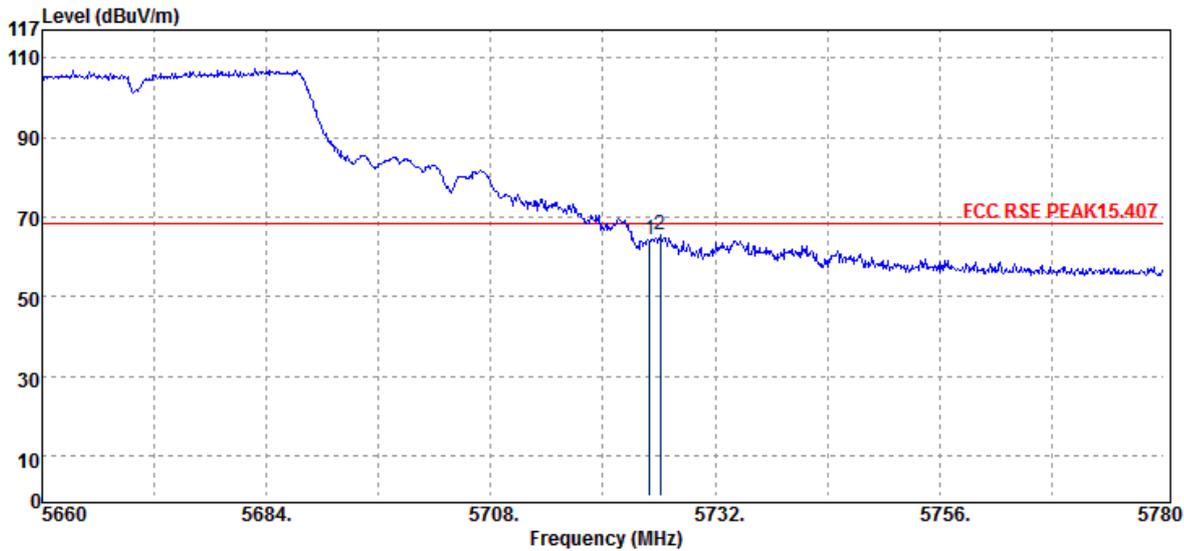
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Operation Band	:802.11n40B3	Test Date	:2018-04-13
Fundamental Frequency	:5670 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5725.00	E	Peak	57.77	6.59	64.36	68.30	-3.94
5726.12	E	Peak	58.88	6.61	65.49	68.30	-2.81

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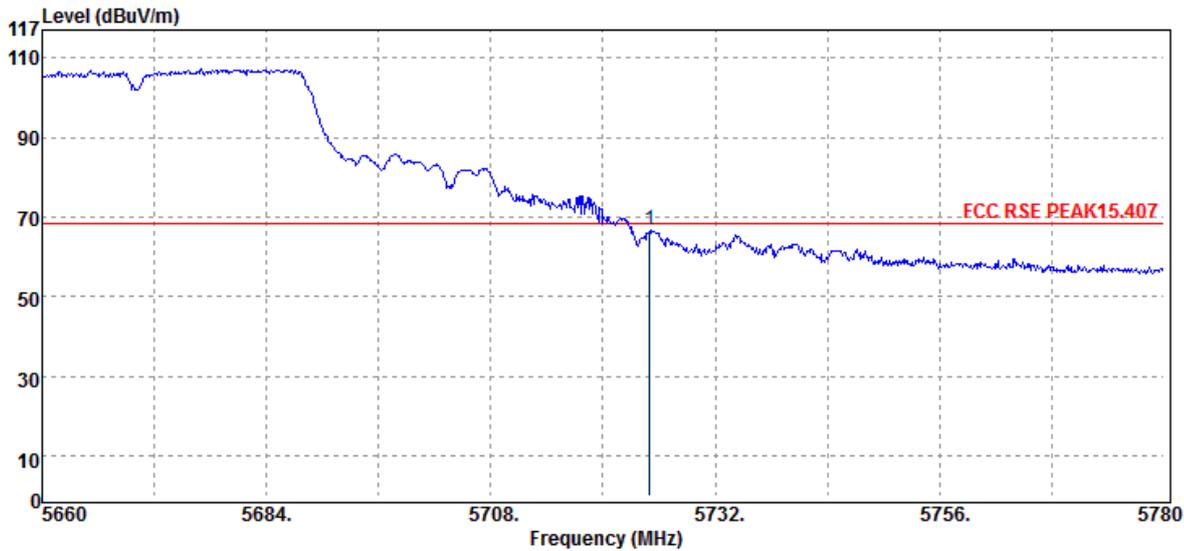
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Operation Band	:802.11n40B3	Test Date	:2018-04-13
Fundamental Frequency	:5670 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
5725.00	E	Peak	60.02	6.59	66.61	68.30	-1.69

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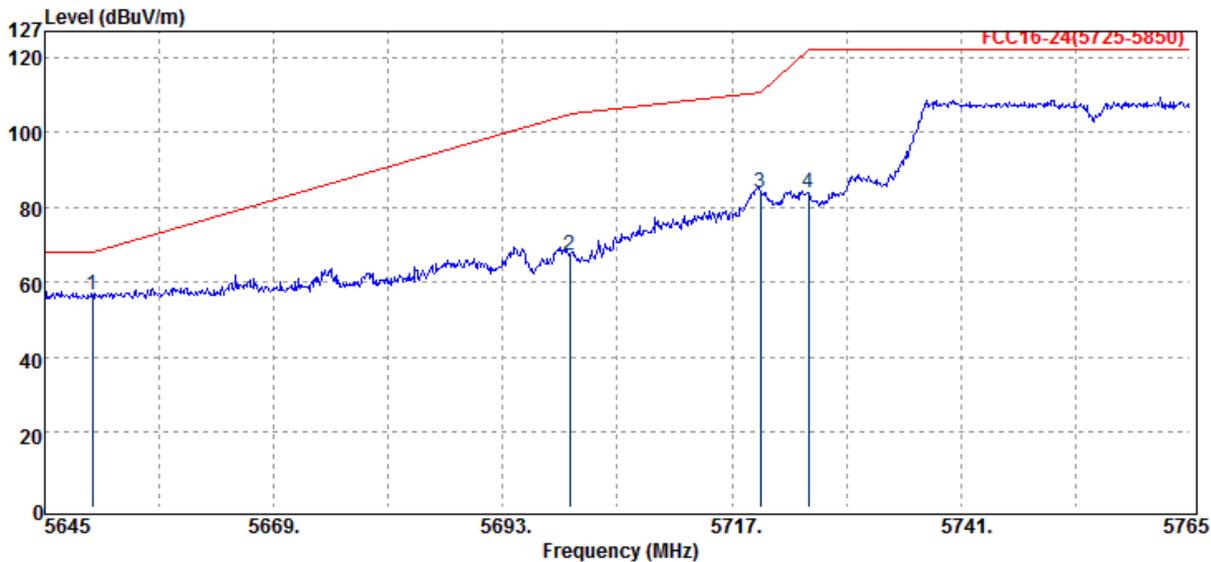
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Operation Band :802.11n40B4  
Fundamental Frequency :5755 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5650.00	E	Peak	50.39	6.48	56.87	68.23	-11.36
5700.00	E	Peak	60.68	6.67	67.35	105.23	-37.88
5720.00	E	Peak	77.12	6.60	83.72	110.83	-27.11
5725.00	E	Peak	77.41	6.59	84.00	122.23	-38.23

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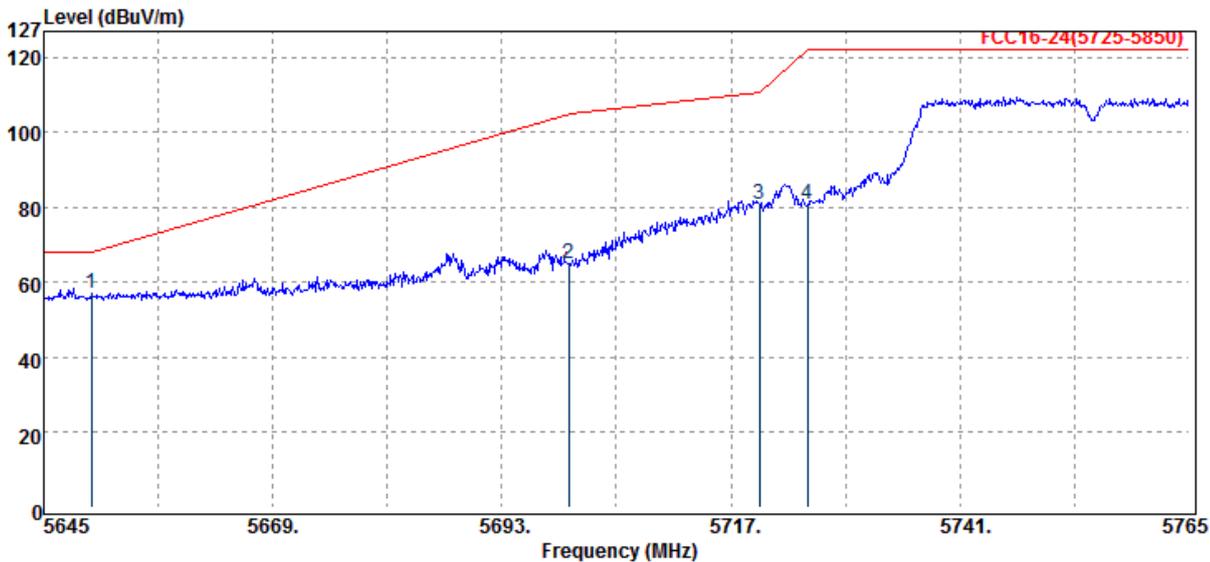
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Operation Band :802.11n40B4  
Fundamental Frequency :5755 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	E	Peak	50.65	6.48	57.13	68.23	-11.10
5700.00	E	Peak	58.19	6.67	64.86	105.23	-40.37
5720.00	E	Peak	74.06	6.60	80.66	110.83	-30.17
5725.00	E	Peak	74.28	6.59	80.87	122.23	-41.36

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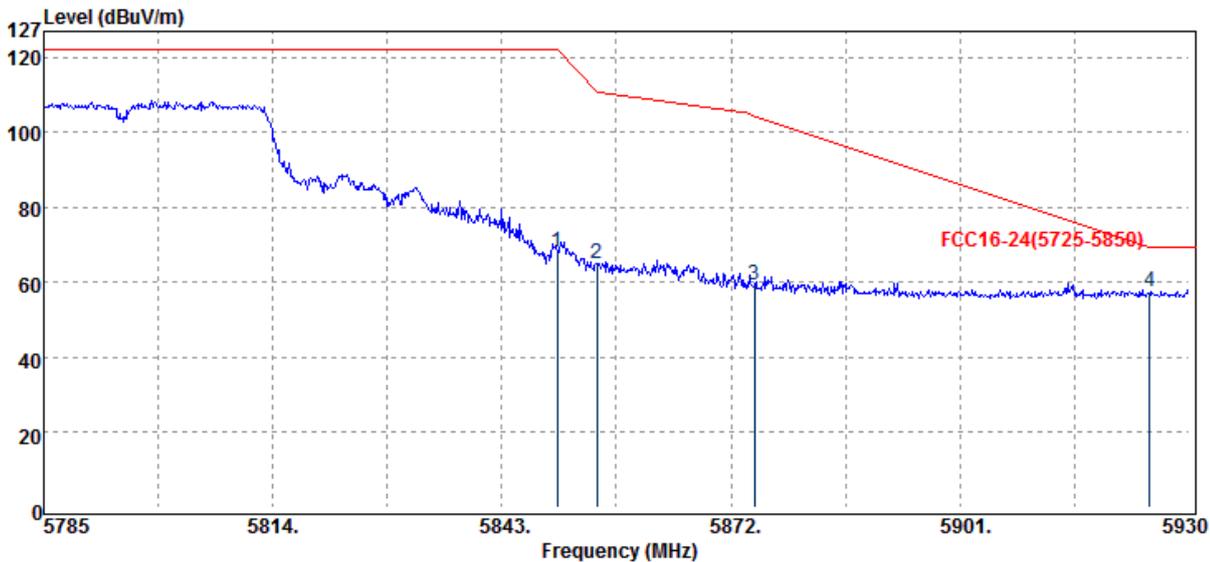
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Operation Band :802.11n40B4  
Fundamental Frequency :5795 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5850.00	E	Peak	60.90	7.28	68.18	122.23	-54.05
5855.00	E	Peak	57.58	7.32	64.90	110.83	-45.93
5875.00	E	Peak	51.94	7.37	59.31	105.23	-45.92
5925.00	E	Peak	50.25	7.39	57.64	68.23	-10.59

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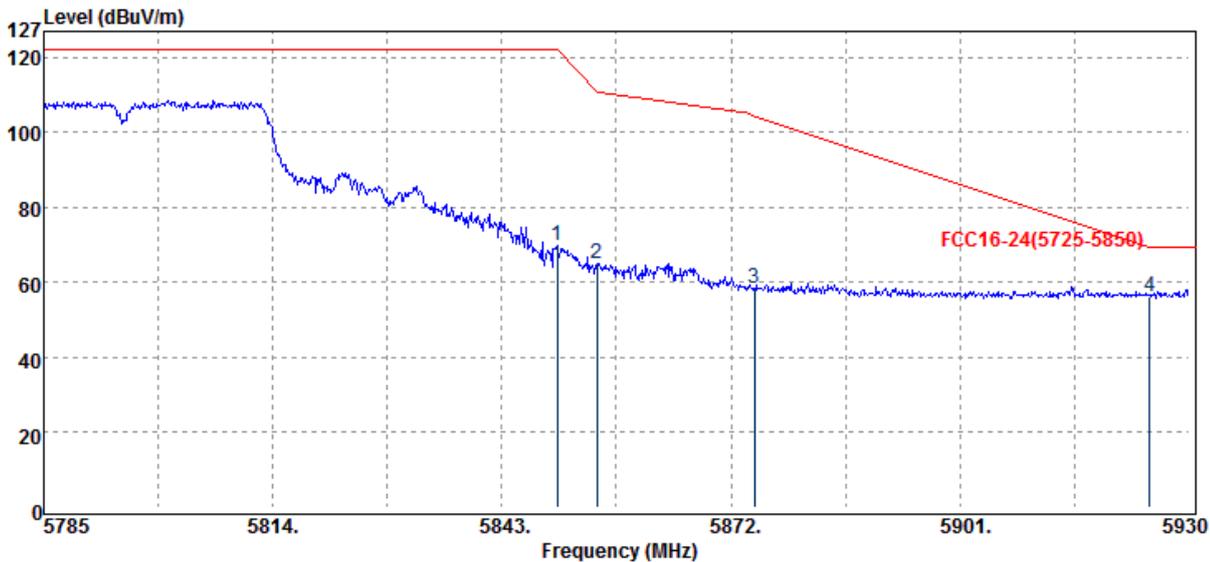
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Operation Band :802.11n40B4  
Fundamental Frequency :5795 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5850.00	E	Peak	62.50	7.28	69.78	122.23	-52.45
5855.00	E	Peak	57.90	7.32	65.22	110.83	-45.61
5875.00	E	Peak	51.04	7.37	58.41	105.23	-46.82
5925.00	E	Peak	48.86	7.39	56.25	68.23	-11.98

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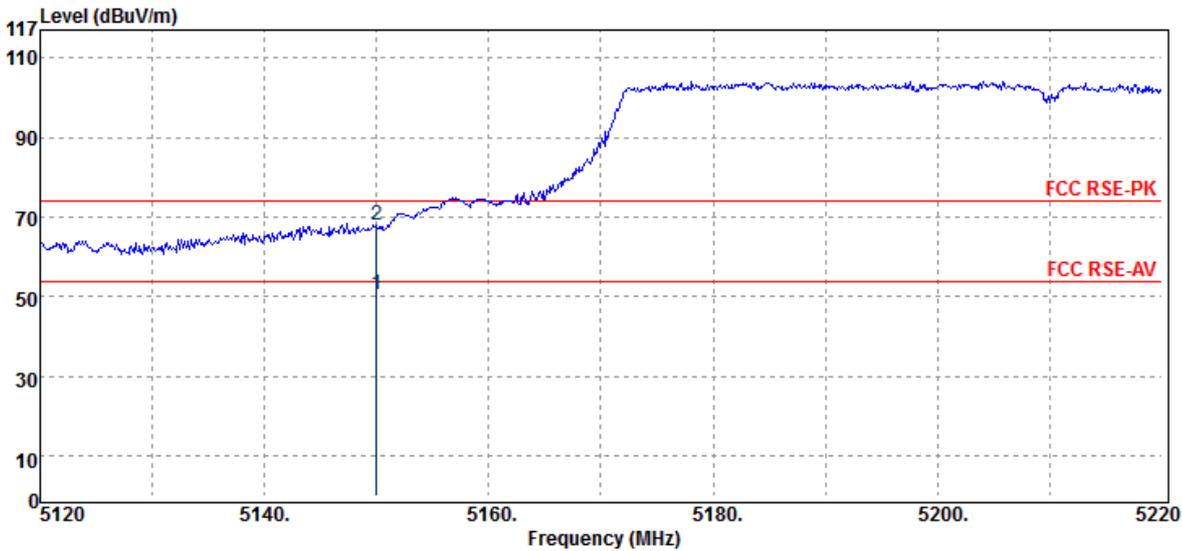
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**802.11 ac80 VHT mode**

Operation Band :802.11ac80B1  
 Fundamental Frequency :5210 MHz  
 Operation Mode :Bandedge CH LOW  
 EUT Pol. :H Plane

Test Date :2018-04-18  
 Temp./Humi. :23 deg\_C / 62 RH  
 Engineer :Kane  
 Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Average	44.85	5.88	50.73	54.00	-3.27
5150.00	E	Peak	62.10	5.88	67.98	74.00	-6.02

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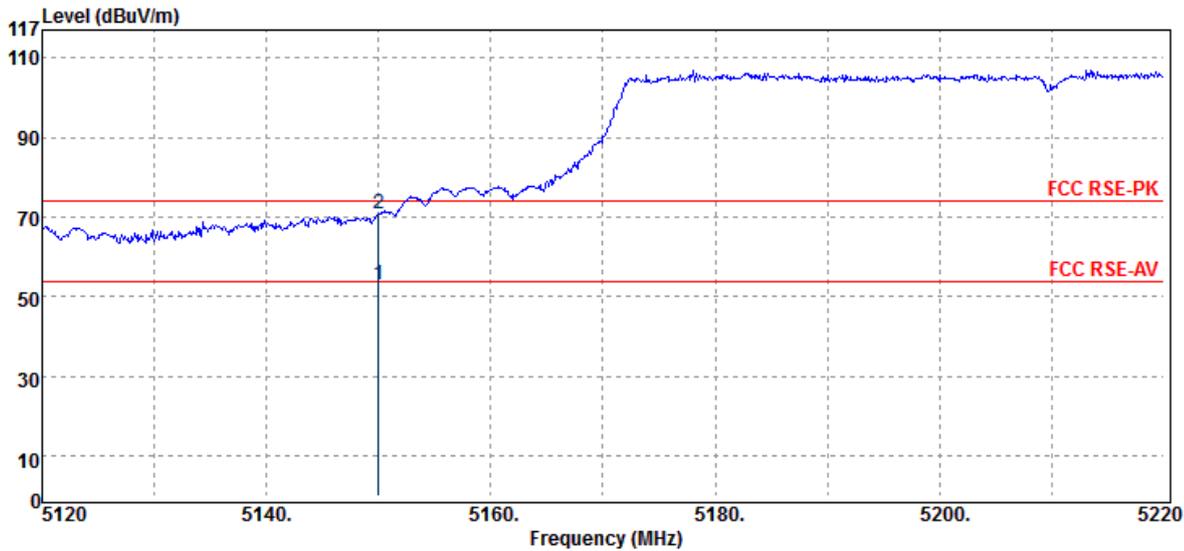
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Operation Band :802.11ac80B1  
Fundamental Frequency :5210 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5150.00	E	Average	47.08	5.88	52.96	54.00	-1.04
5150.00	E	Peak	64.94	5.88	70.82	74.00	-3.18

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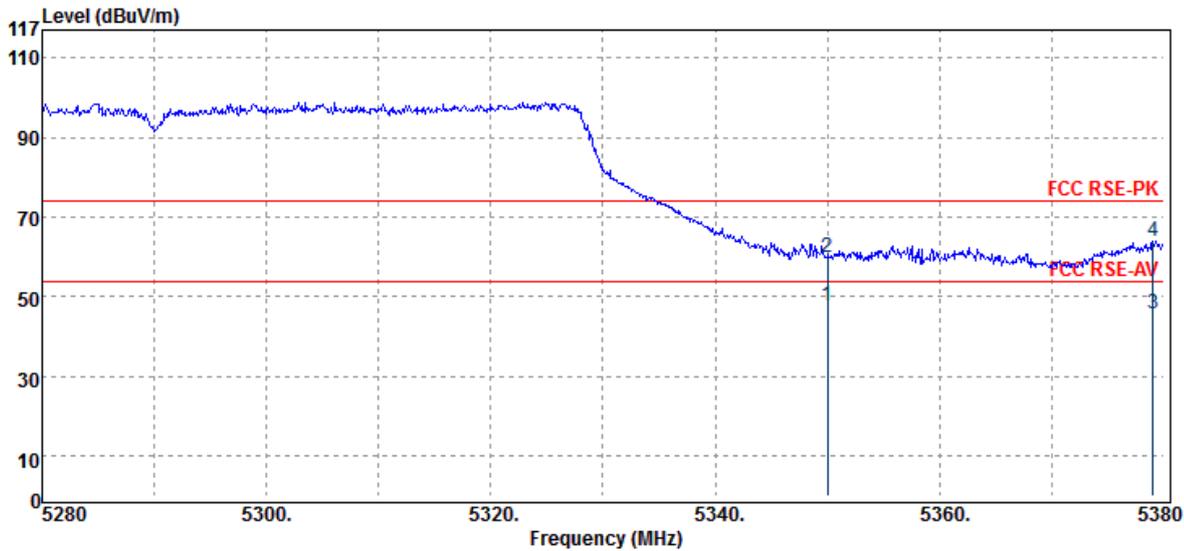
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Operation Band :802.11ac80B2  
Fundamental Frequency :5290 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :E2 Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5350.00	E	Average	41.43	6.16	47.59	54.00	-6.41
5350.00	E	Peak	53.58	6.16	59.74	74.00	-14.26
5379.00	E	Average	39.84	5.97	45.81	54.00	-8.19
5379.00	E	Peak	58.04	5.97	64.01	74.00	-9.99

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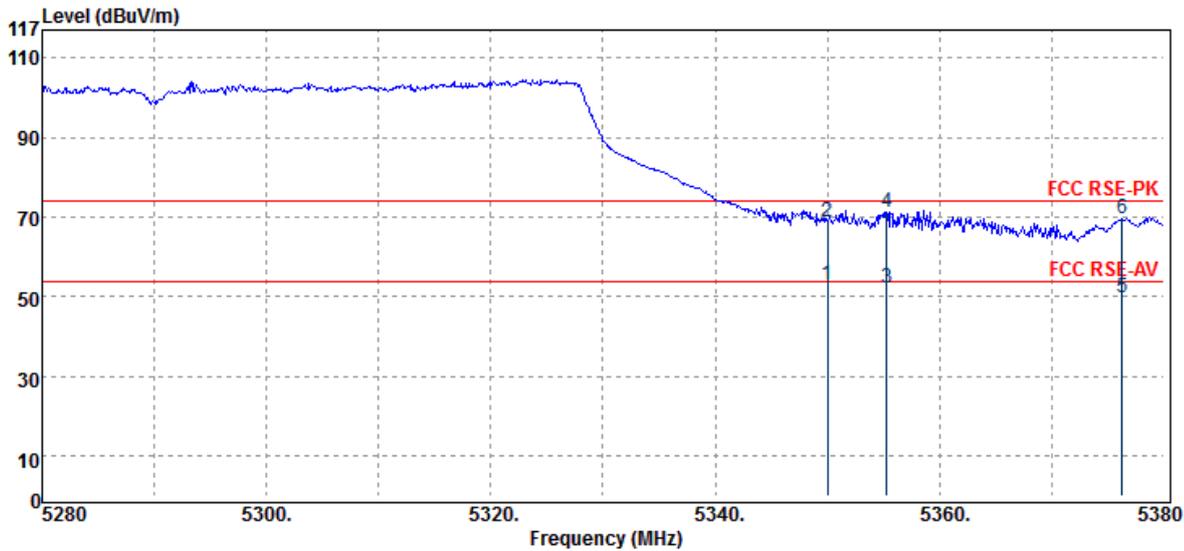
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Operation Band :802.11ac80B2  
Fundamental Frequency :5290 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :E2 Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5350.00	E	Average	46.84	6.16	53.00	54.00	-1.00
5350.00	E	Peak	62.85	6.16	69.01	74.00	-4.99
5355.30	E	Average	46.19	6.11	52.30	54.00	-1.70
5355.30	E	Peak	65.31	6.11	71.42	74.00	-2.58
5376.30	E	Average	43.77	5.97	49.74	54.00	-4.26
5376.30	E	Peak	63.56	5.97	69.53	74.00	-4.47

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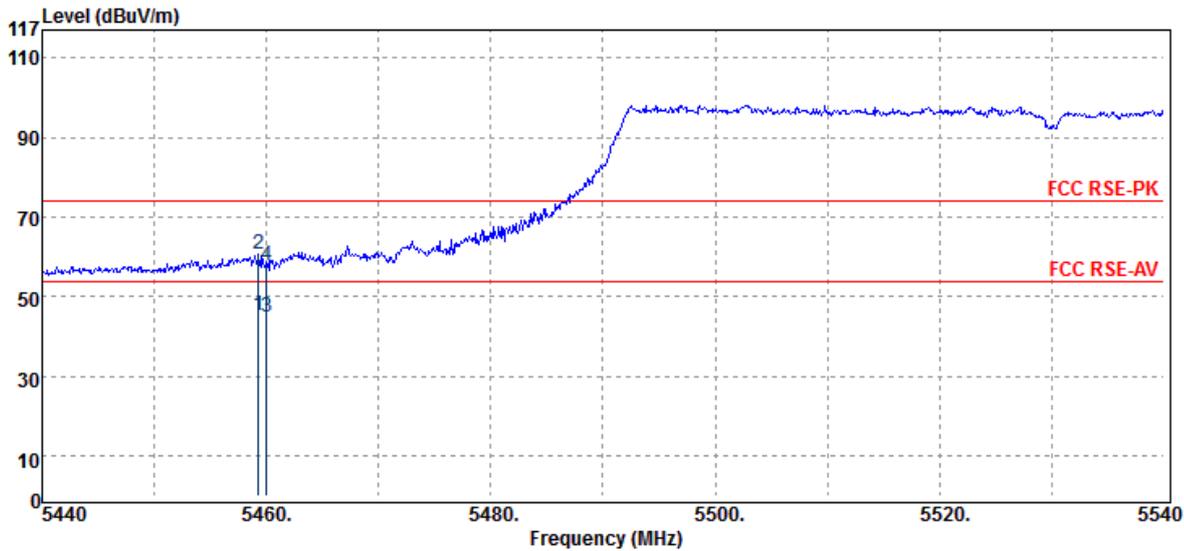
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Operation Band :802.11ac80B3  
 Fundamental Frequency :5530 MHz  
 Operation Mode :Bandedge CH LOW  
 EUT Pol. :H Plane

Test Date :2018-04-18  
 Temp./Humi. :23 deg\_C / 62 RH  
 Engineer :Kane  
 Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5459.30	E	Average	39.18	6.23	45.41	54.00	-8.59
5459.30	E	Peak	54.60	6.23	60.83	74.00	-13.17
5460.00	E	Average	38.87	6.23	45.10	54.00	-8.90
5460.00	E	Peak	51.82	6.23	58.05	74.00	-15.95

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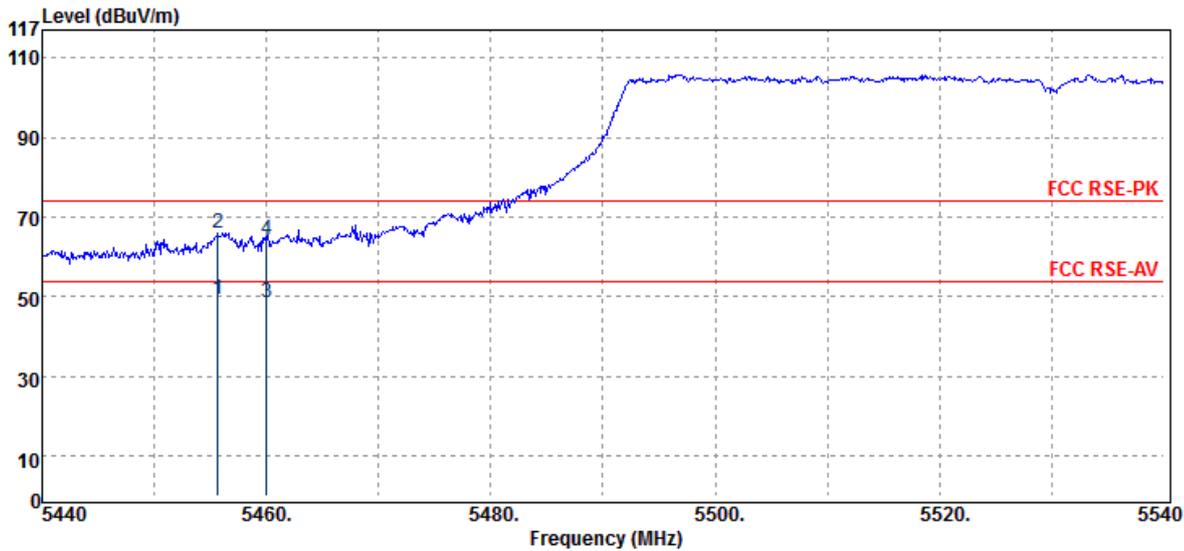
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Operation Band :802.11ac80B3  
Fundamental Frequency :5530 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5455.70	E	Average	43.15	6.22	49.37	54.00	-4.63
5455.70	E	Peak	59.78	6.22	66.00	74.00	-8.00
5460.00	E	Average	42.36	6.23	48.59	54.00	-5.41
5460.00	E	Peak	57.94	6.23	64.17	74.00	-9.83

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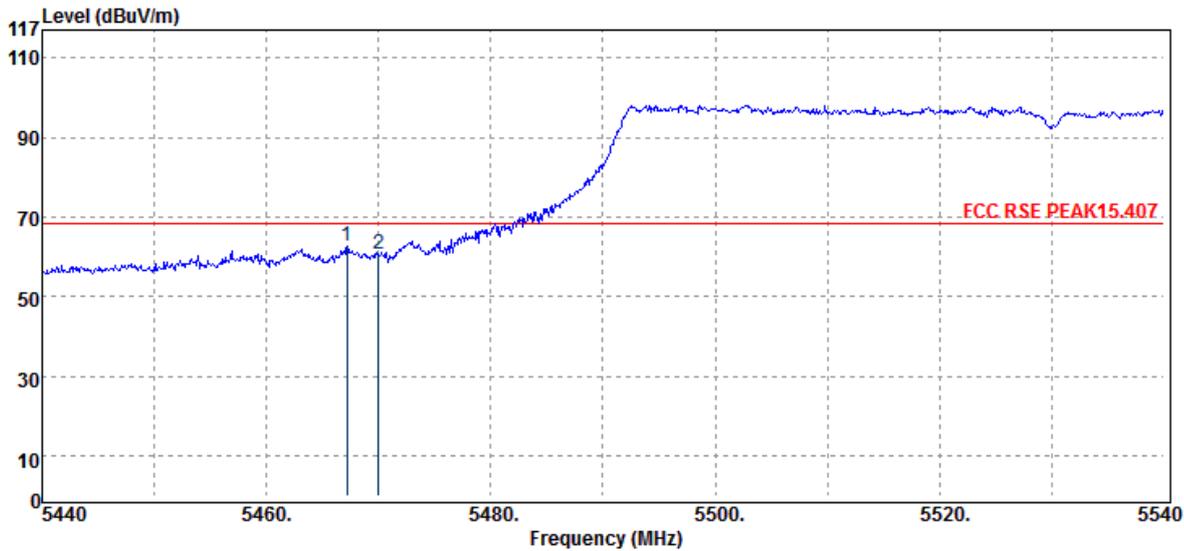
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Operation Band	:802.11ac80B3	Test Date	:2018-04-18
Fundamental Frequency	:5530 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5467.20	E	Peak	56.47	6.25	62.72	68.30	-5.58
5470.00	E	Peak	54.30	6.26	60.56	68.30	-7.74

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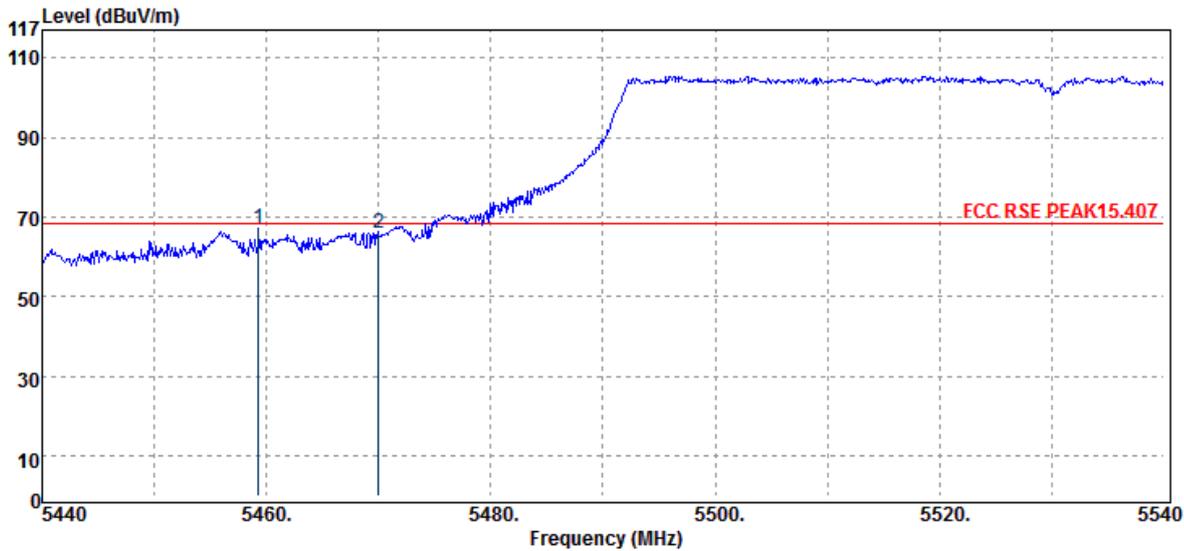
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Operation Band	:802.11ac80B3	Test Date	:2018-04-18
Fundamental Frequency	:5530 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Kane
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5459.30	E	Peak	60.80	6.23	67.03	68.30	-1.27
5470.00	E	Peak	59.56	6.26	65.82	68.30	-2.48

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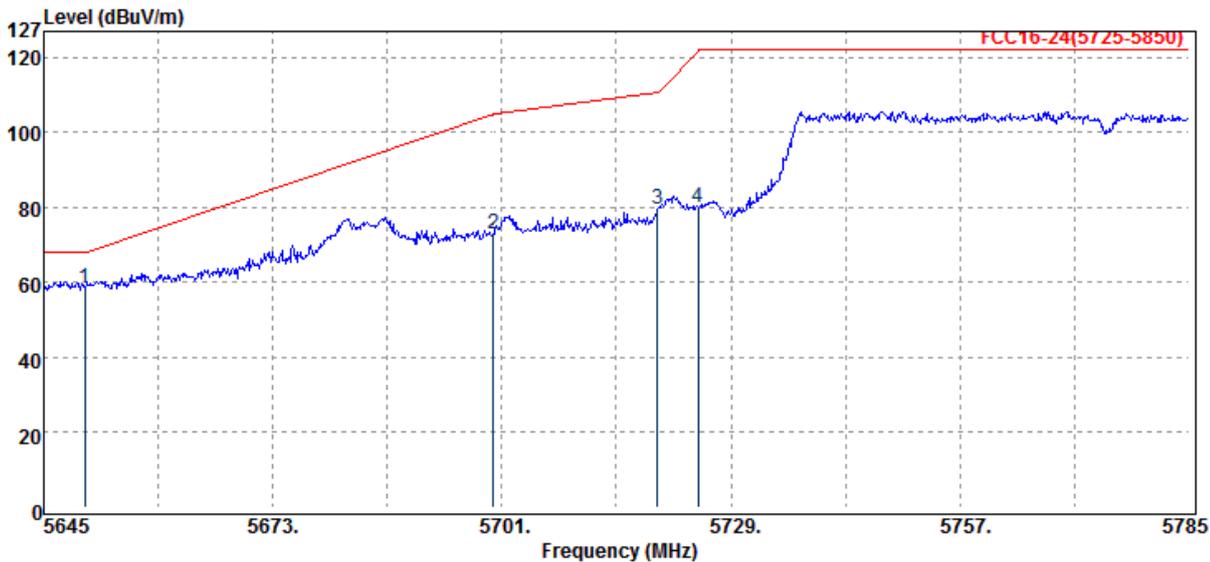
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Operation Band :802.11ac80B4  
Fundamental Frequency :5775 MHz  
Operation Mode :Bandedge CH LOW  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	E	Peak	51.96	6.48	58.44	68.23	-9.79
5700.00	E	Peak	66.18	6.67	72.85	105.23	-32.38
5720.00	E	Peak	72.91	6.60	79.51	110.83	-31.32
5725.00	E	Peak	73.28	6.59	79.87	122.23	-42.36

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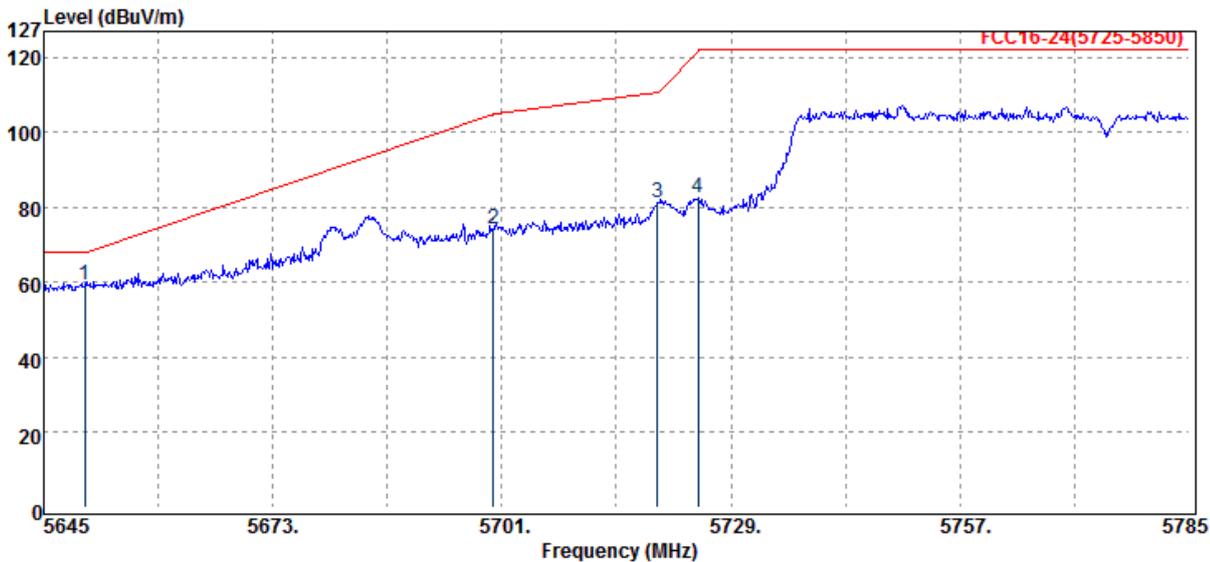
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Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5650.00	E	Peak	52.83	6.48	59.31	68.23	-8.92
5700.00	E	Peak	67.38	6.67	74.05	105.23	-31.18
5720.00	E	Peak	74.56	6.60	81.16	110.83	-29.67
5725.00	E	Peak	75.92	6.59	82.51	122.23	-39.72

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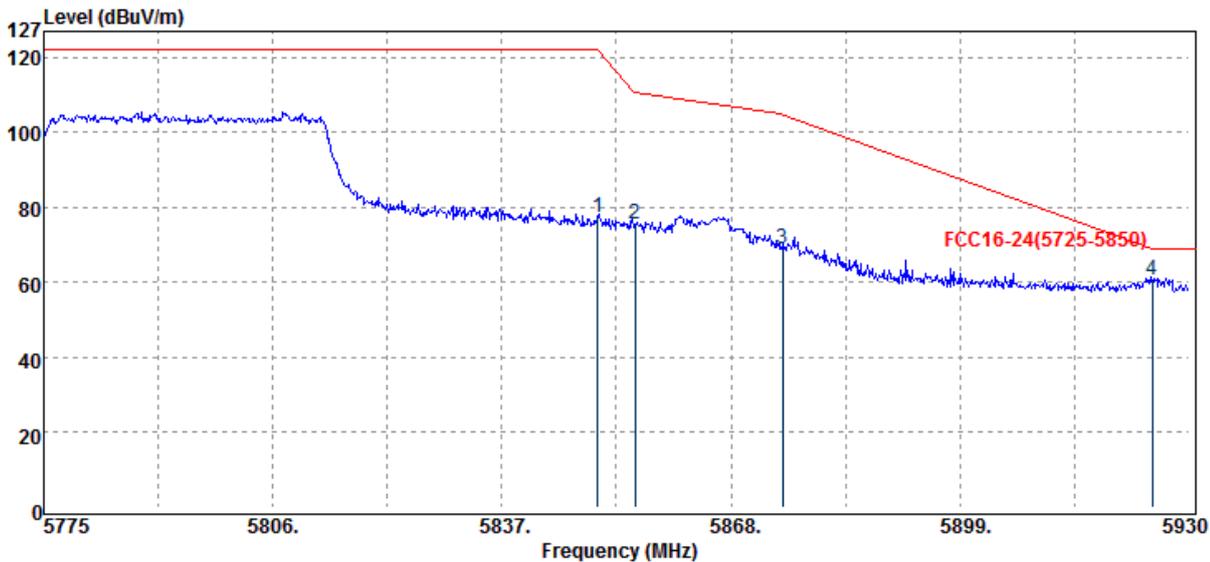
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Fundamental Frequency :5775 MHz  
Operation Mode :Bandedge CH HIGH  
EUT Pol. :H Plane

Test Date :2018-04-18  
Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5850.00	E	Peak	70.24	7.28	77.52	122.23	-44.71
5855.00	E	Peak	68.08	7.32	75.40	110.83	-35.43
5875.00	E	Peak	61.79	7.37	69.16	105.23	-36.07
5925.00	E	Peak	53.03	7.39	60.42	68.23	-7.81

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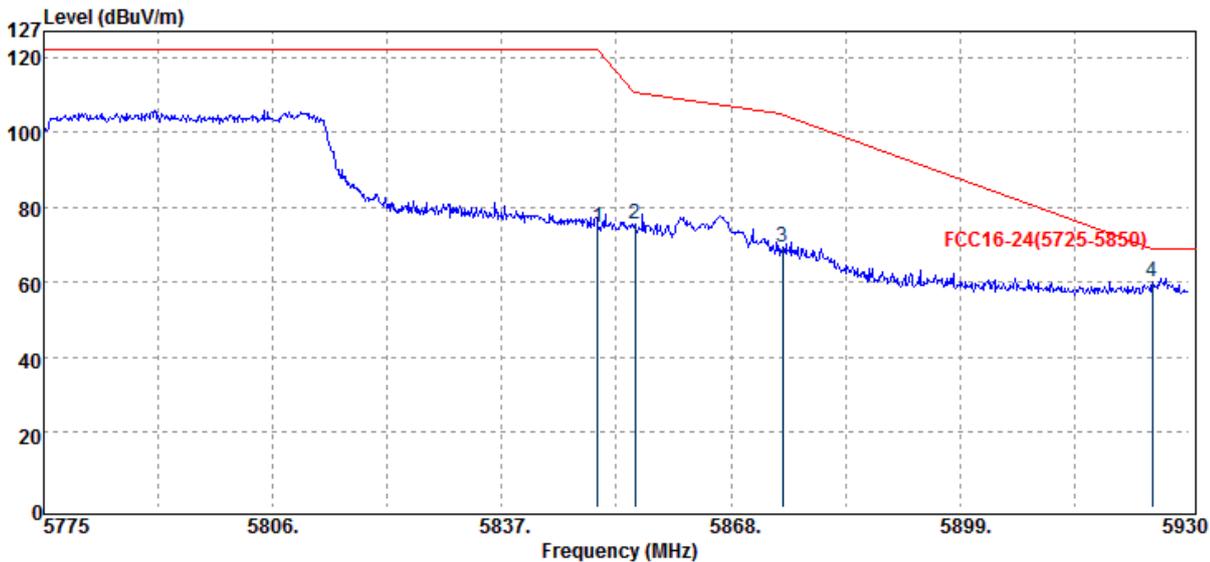
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Temp./Humi. :23 deg\_C / 62 RH  
Engineer :Kane  
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5850.00	E	Peak	67.54	7.28	74.82	122.23	-47.41
5855.00	E	Peak	68.07	7.32	75.39	110.83	-35.44
5875.00	E	Peak	62.12	7.37	69.49	105.23	-35.74
5925.00	E	Peak	52.73	7.39	60.12	68.23	-8.11

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## 12 TRANSMISSION IN THE ABSENCE OF DATA

### 12.1 Standard Applicable

According to §15.407(c)

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 a description of how this requirement is met.

### 12.2 Result

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 ASK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

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## 13 FREQUENCY STABILITY

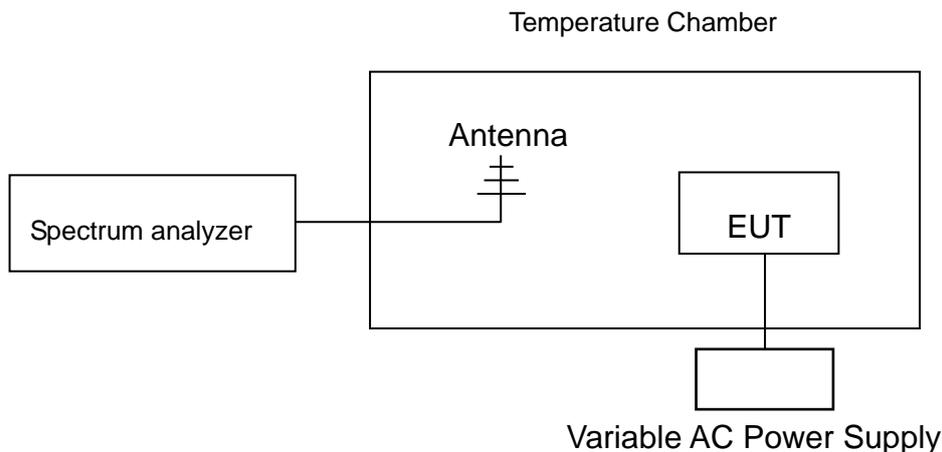
### 13.1 Standard Applicable

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

### 13.2 Measurement Procedure

1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.
2. Set EUT as normal operation.
3. Turn the EUT on and couple its output to spectrum.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.
6. Repeat step with the temperature chamber set to the lowest temperature.

### 13.3 Test SET-UP



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**13.4 Measurement Equipment Used:**

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	2017/10/16	2018/10/15
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Notebook	Lenovo	L430	R9-X11BG	N/A	N/A

**13.5 Measurement Result**
**Startup:**

Operation Mode	802.11 a	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	36	5180	5,180.04492	-0.0000867
		44	5220	5,220.04492	-0.0000861
		48	5240	5,240.03003	-0.0000573
		52	5260	5,260.03003	-0.0000571
		60	5300	5,300.02979	-0.0000562
		64	5320	5,320.02979	-0.0000560
		100	5500	5,500.03003	-0.0000546
		116	5580	5,580.02979	-0.0000534
		140	5700	5,700.03003	-0.0000527
		144	5720	5,721.98511	-0.00034705
		149	5745	5,745.03003	-0.0000523
		157	5785	5,785.04492	-0.0000777
	165	5825	5,825.04492	-0.0000771	
	102V	36	5180	5,180.03003	-0.0000580
		44	5220	5,220.02979	-0.0000571
		48	5240	5,240.04492	-0.0000857
		52	5260	5,260.01514	-0.0000288
		60	5300	5,300.02979	-0.0000562
		64	5320	5,320.03003	-0.0000564
		100	5500	5,500.02979	-0.0000542
		116	5580	5,580.02979	-0.0000534
		140	5700	5,700.01489	-0.0000261
		144	5720	5,720.00000	0.0000000
		149	5745	5,745.04492	-0.0000782
157		5785	5,785.04492	-0.0000777	
165	5825	5,825.02979	-0.0000511		

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25	120V	36	5180	5,180.02979	-0.00000575
		44	5220	5,220.04492	-0.00000861
		48	5240	5,240.05981	-0.00001141
		52	5260	5,260.01489	-0.00000283
		60	5300	5,300.03003	-0.00000567
		64	5320	5,320.01514	-0.00000285
		100	5500	5,500.01514	-0.00000275
		116	5580	5,580.01514	-0.00000271
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.98511	-0.00034705
		149	5745	5,745.06006	-0.00001045
		157	5785	5,785.01489	-0.00000257
		165	5825	5,825.04492	-0.00000771
35	138V	36	5180	5,180.01514	-0.00000292
		44	5220	5,220.03003	-0.00000575
		48	5240	5,240.02979	-0.00000568
		52	5260	5,260.01514	-0.00000288
		60	5300	5,300.02979	-0.00000562
		64	5320	5,320.02979	-0.00000560
		100	5500	5,500.04492	-0.00000817
		116	5580	5,580.00000	0.00000000
		140	5700	5,700.01514	-0.00000266
		144	5720	5,721.98511	-0.00034705
		149	5745	5,745.06006	-0.00001045
		157	5785	5,785.04492	-0.00000777
		165	5825	5,825.02979	-0.00000511
	102V	36	5180	5,180.03003	-0.00000580
		44	5220	5,220.02979	-0.00000571
		48	5240	5,240.04492	-0.00000857
		52	5260	5,260.04492	-0.00000854
		60	5300	5,300.03003	-0.00000567
		64	5320	5,320.01514	-0.00000285
		100	5500	5,500.03003	-0.00000546
		116	5580	5,580.01489	-0.00000267
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.98511	-0.00034705
		149	5745	5,745.04492	-0.00000782
157	5785	5,785.05981	-0.00001034		
165	5825	5,825.03003	-0.00000516		

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Operation Mode	802.11 n_HT40	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.02490	-0.00000473
		62	5310	5,310.02490	-0.00000469
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.02490	-0.00000449
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.97022	-0.00034505
		151	5755	5,755.04981	-0.00000865
	159	5795	5,795.02490	-0.00000430	
	102V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.02490	-0.00000452
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.02490	-0.00000439
		142	5710	5,711.98486	-0.00034761
151		5755	5,755.04981	-0.00000865	
159	5795	5,795.02490	-0.00000430		

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25	120V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.02490	-0.00000476
		54	5270	5,270.02490	-0.00000473
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.97510	-0.00034590
		151	5755	5,755.02490	-0.00000433
		159	5795	5,795.04981	-0.00000859
35	138V	38	5190	5,190.02490	-0.00000480
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.02490	-0.00000452
		110	5550	5,550.02490	-0.00000449
		134	5670	5,670.04981	-0.00000878
		142	5710	5,710.00000	0.00000000
		151	5755	5,755.02490	-0.00000433
		159	5795	5,795.02490	-0.00000430
	102V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.02490	-0.00000469
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.97510	-0.00034590
		151	5755	5,755.00000	0.00000000
		159	5795	5,795.04981	-0.00000859

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Operation Mode	802.11 ac_VHT80	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	42	5210	5,210.09985	-0.00001917
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.04981	-0.00000875
		155	5775	5,775.00000	0.00000000
	102V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.09985	-0.00001755
		155	5775	5,775.05005	-0.00000867
25	120V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.09985	-0.00001806
		122	5610	5,610.04981	-0.00000888
		138	5690	5,690.04981	-0.00000875
		155	5775	5,775.05005	-0.00000867
35	138V	42	5210	5,210.09985	-0.00001917
		58	5290	5,290.05005	-0.00000946
		106	5530	5,530.09985	-0.00001806
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.09985	-0.00001755
		155	5775	5,775.05005	-0.00000867
	102V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.09985	-0.00001755
		155	5775	5,775.00000	0.00000000

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2 Minutes:

Operation Mode	802.11 a	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	36	5180	5,180.04492	-0.00000867
		44	5220	5,220.04492	-0.00000861
		48	5240	5,240.03003	-0.00000573
		52	5260	5,260.03003	-0.00000571
		60	5300	5,300.02979	-0.00000562
		64	5320	5,320.02979	-0.00000560
		100	5500	5,500.03003	-0.00000546
		116	5580	5,580.02979	-0.00000534
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.98718	-0.00034741
		149	5745	5,745.03003	-0.00000523
		157	5785	5,785.04492	-0.00000777
	165	5825	5,825.04492	-0.00000771	
	102V	36	5180	5,180.03003	-0.00000580
		44	5220	5,220.02979	-0.00000571
		48	5240	5,240.04492	-0.00000857
		52	5260	5,260.01514	-0.00000288
		60	5300	5,300.02979	-0.00000562
		64	5320	5,320.03003	-0.00000564
		100	5500	5,500.02979	-0.00000542
		116	5580	5,580.02979	-0.00000534
		140	5700	5,700.01489	-0.00000261
		144	5720	5,720.00186	-0.00000032
		149	5745	5,745.04492	-0.00000782
157		5785	5,785.04492	-0.00000777	
165	5825	5,825.02979	-0.00000511		

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25	120V	36	5180	5,180.02979	-0.00000575
		44	5220	5,220.04492	-0.00000861
		48	5240	5,240.05981	-0.00001141
		52	5260	5,260.01489	-0.00000283
		60	5300	5,300.03003	-0.00000567
		64	5320	5,320.01514	-0.00000285
		100	5500	5,500.01514	-0.00000275
		116	5580	5,580.01514	-0.00000271
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.98768	-0.00034750
		149	5745	5,745.06006	-0.00001045
		157	5785	5,785.01489	-0.00000257
		165	5825	5,825.04492	-0.00000771
35	138V	36	5180	5,180.01514	-0.00000292
		44	5220	5,220.03003	-0.00000575
		48	5240	5,240.02979	-0.00000568
		52	5260	5,260.01514	-0.00000288
		60	5300	5,300.02979	-0.00000562
		64	5320	5,320.02979	-0.00000560
		100	5500	5,500.04492	-0.00000817
		116	5580	5,580.00000	0.00000000
		140	5700	5,700.01514	-0.00000266
		144	5720	5,721.98593	-0.00034719
		149	5745	5,745.06006	-0.00001045
		157	5785	5,785.04492	-0.00000777
		165	5825	5,825.02979	-0.00000511
	102V	36	5180	5,180.03003	-0.00000580
		44	5220	5,220.02979	-0.00000571
		48	5240	5,240.04492	-0.00000857
		52	5260	5,260.04492	-0.00000854
		60	5300	5,300.03003	-0.00000567
		64	5320	5,320.01514	-0.00000285
		100	5500	5,500.03003	-0.00000546
		116	5580	5,580.01489	-0.00000267
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.97675	-0.00034559
		149	5745	5,745.04492	-0.00000782
157	5785	5,785.05981	-0.00001034		
165	5825	5,825.03003	-0.00000516		

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Operation Mode	802.11 n_HT40	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.02490	-0.00000473
		62	5310	5,310.02490	-0.00000469
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.02490	-0.00000449
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.96979	-0.00034497
		151	5755	5,755.04981	-0.00000865
	159	5795	5,795.02490	-0.00000430	
	102V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.02490	-0.00000452
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.02490	-0.00000439
		142	5710	5,711.99370	-0.00034916
151		5755	5,755.04981	-0.00000865	
159	5795	5,795.02490	-0.00000430		

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25	120V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.02490	-0.00000476
		54	5270	5,270.02490	-0.00000473
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.97313	-0.00034556
		151	5755	5,755.02490	-0.00000433
		159	5795	5,795.04981	-0.00000859
35	138V	38	5190	5,190.02490	-0.00000480
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.02490	-0.00000452
		110	5550	5,550.02490	-0.00000449
		134	5670	5,670.04981	-0.00000878
		142	5710	5,710.00129	-0.00000023
		151	5755	5,755.02490	-0.00000433
		159	5795	5,795.02490	-0.00000430
	102V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.02490	-0.00000469
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.96553	-0.00034423
		151	5755	5,755.00000	0.00000000
		159	5795	5,795.04981	-0.00000859

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Operation Mode	802.11 ac_VHT80	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	42	5210	5,210.09985	-0.00001917
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.04177	-0.00000734
		155	5775	5,775.00000	0.00000000
	102V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.10967	-0.00001927
		155	5775	5,775.05005	-0.00000867
25	120V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.09985	-0.00001806
		122	5610	5,610.04981	-0.00000888
		138	5690	5,690.05725	-0.00001006
		155	5775	5,775.05005	-0.00000867
35	138V	42	5210	5,210.09985	-0.00001917
		58	5290	5,290.05005	-0.00000946
		106	5530	5,530.09985	-0.00001806
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.09796	-0.00001722
		155	5775	5,775.05005	-0.00000867
	102V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.10084	-0.00001772
		155	5775	5,775.00000	0.00000000

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**5 Minutes:**

Operation Mode	802.11 a	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	36	5180	5,180.04492	-0.00000867
		44	5220	5,220.04492	-0.00000861
		48	5240	5,240.03003	-0.00000573
		52	5260	5,260.03003	-0.00000571
		60	5300	5,300.02979	-0.00000562
		64	5320	5,320.02979	-0.00000560
		100	5500	5,500.03003	-0.00000546
		116	5580	5,580.02979	-0.00000534
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.99275	-0.00034838
		149	5745	5,745.03003	-0.00000523
		157	5785	5,785.04492	-0.00000777
	165	5825	5,825.04492	-0.00000771	
	102V	36	5180	5,180.03003	-0.00000580
		44	5220	5,220.02979	-0.00000571
		48	5240	5,240.04492	-0.00000857
		52	5260	5,260.01514	-0.00000288
		60	5300	5,300.02979	-0.00000562
		64	5320	5,320.03003	-0.00000564
		100	5500	5,500.02979	-0.00000542
		116	5580	5,580.02979	-0.00000534
		140	5700	5,700.01489	-0.00000261
		144	5720	5,719.99917	0.00000015
		149	5745	5,745.04492	-0.00000782
157		5785	5,785.04492	-0.00000777	
165	5825	5,825.02979	-0.00000511		

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25	120V	36	5180	5,180.02979	-0.00000575
		44	5220	5,220.04492	-0.00000861
		48	5240	5,240.05981	-0.00001141
		52	5260	5,260.01489	-0.00000283
		60	5300	5,300.03003	-0.00000567
		64	5320	5,320.01514	-0.00000285
		100	5500	5,500.01514	-0.00000275
		116	5580	5,580.01514	-0.00000271
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.99265	-0.00034836
		149	5745	5,745.06006	-0.00001045
		157	5785	5,785.01489	-0.00000257
		165	5825	5,825.04492	-0.00000771
35	138V	36	5180	5,180.01514	-0.00000292
		44	5220	5,220.03003	-0.00000575
		48	5240	5,240.02979	-0.00000568
		52	5260	5,260.01514	-0.00000288
		60	5300	5,300.02979	-0.00000562
		64	5320	5,320.02979	-0.00000560
		100	5500	5,500.04492	-0.00000817
		116	5580	5,580.00000	0.00000000
		140	5700	5,700.01514	-0.00000266
		144	5720	5,721.97698	-0.00034563
		149	5745	5,745.06006	-0.00001045
		157	5785	5,785.04492	-0.00000777
		165	5825	5,825.02979	-0.00000511
	102V	36	5180	5,180.03003	-0.00000580
		44	5220	5,220.02979	-0.00000571
		48	5240	5,240.04492	-0.00000857
		52	5260	5,260.04492	-0.00000854
		60	5300	5,300.03003	-0.00000567
		64	5320	5,320.01514	-0.00000285
		100	5500	5,500.03003	-0.00000546
		116	5580	5,580.01489	-0.00000267
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.99070	-0.00034802
		149	5745	5,745.04492	-0.00000782
157	5785	5,785.05981	-0.00001034		
165	5825	5,825.03003	-0.00000516		

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Operation Mode	802.11 n_HT40	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.02490	-0.00000473
		62	5310	5,310.02490	-0.00000469
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.02490	-0.00000449
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.96823	-0.00034470
		151	5755	5,755.04981	-0.00000865
	159	5795	5,795.02490	-0.00000430	
	102V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.02490	-0.00000452
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.02490	-0.00000439
		142	5710	5,711.98496	-0.00034763
151		5755	5,755.04981	-0.00000865	
159	5795	5,795.02490	-0.00000430		

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25	120V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.02490	-0.00000476
		54	5270	5,270.02490	-0.00000473
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.97007	-0.00034502
		151	5755	5,755.02490	-0.00000433
		159	5795	5,795.04981	-0.00000859
35	138V	38	5190	5,190.02490	-0.00000480
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.02490	-0.00000452
		110	5550	5,550.02490	-0.00000449
		134	5670	5,670.04981	-0.00000878
		142	5710	5,710.00162	-0.00000028
		151	5755	5,755.02490	-0.00000433
		159	5795	5,795.02490	-0.00000430
	102V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.02490	-0.00000469
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.96993	-0.00034500
		151	5755	5,755.00000	0.00000000
		159	5795	5,795.04981	-0.00000859

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Operation Mode	802.11 ac_VHT80	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	42	5210	5,210.09985	-0.00001917
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.09115	-0.00001602
		155	5775	5,775.00000	0.00000000
	102V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.04212	-0.00000740
		155	5775	5,775.05005	-0.00000867
25	120V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.09985	-0.00001806
		122	5610	5,610.04981	-0.00000888
		138	5690	5,690.10643	-0.00001870
		155	5775	5,775.05005	-0.00000867
35	138V	42	5210	5,210.09985	-0.00001917
		58	5290	5,290.05005	-0.00000946
		106	5530	5,530.09985	-0.00001806
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.09886	-0.00001737
		155	5775	5,775.05005	-0.00000867
	102V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.09994	-0.00001756
		155	5775	5,775.00000	0.00000000

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Operation Mode	802.11 a	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	36	5180	5,180.04492	-0.00000867
		44	5220	5,220.04492	-0.00000861
		48	5240	5,240.03003	-0.00000573
		52	5260	5,260.03003	-0.00000571
		60	5300	5,300.02979	-0.00000562
		64	5320	5,320.02979	-0.00000560
		100	5500	5,500.03003	-0.00000546
		116	5580	5,580.02979	-0.00000534
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.99125	-0.00034812
		149	5745	5,745.03003	-0.00000523
		157	5785	5,785.04492	-0.00000777
	165	5825	5,825.04492	-0.00000771	
	102V	36	5180	5,180.03003	-0.00000580
		44	5220	5,220.02979	-0.00000571
		48	5240	5,240.04492	-0.00000857
		52	5260	5,260.01514	-0.00000288
		60	5300	5,300.02979	-0.00000562
		64	5320	5,320.03003	-0.00000564
		100	5500	5,500.02979	-0.00000542
		116	5580	5,580.02979	-0.00000534
		140	5700	5,700.01489	-0.00000261
		144	5720	5,719.99329	0.00000117
		149	5745	5,745.04492	-0.00000782
157		5785	5,785.04492	-0.00000777	
165	5825	5,825.02979	-0.00000511		

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25	120V	36	5180	5,180.02979	-0.00000575
		44	5220	5,220.04492	-0.00000861
		48	5240	5,240.05981	-0.00001141
		52	5260	5,260.01489	-0.00000283
		60	5300	5,300.03003	-0.00000567
		64	5320	5,320.01514	-0.00000285
		100	5500	5,500.01514	-0.00000275
		116	5580	5,580.01514	-0.00000271
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.98423	-0.00034689
		149	5745	5,745.06006	-0.00001045
		157	5785	5,785.01489	-0.00000257
		165	5825	5,825.04492	-0.00000771
35	138V	36	5180	5,180.01514	-0.00000292
		44	5220	5,220.03003	-0.00000575
		48	5240	5,240.02979	-0.00000568
		52	5260	5,260.01514	-0.00000288
		60	5300	5,300.02979	-0.00000562
		64	5320	5,320.02979	-0.00000560
		100	5500	5,500.04492	-0.00000817
		116	5580	5,580.00000	0.00000000
		140	5700	5,700.01514	-0.00000266
		144	5720	5,721.97512	-0.00034530
		149	5745	5,745.06006	-0.00001045
		157	5785	5,785.04492	-0.00000777
		165	5825	5,825.02979	-0.00000511
	102V	36	5180	5,180.03003	-0.00000580
		44	5220	5,220.02979	-0.00000571
		48	5240	5,240.04492	-0.00000857
		52	5260	5,260.04492	-0.00000854
		60	5300	5,300.03003	-0.00000567
		64	5320	5,320.01514	-0.00000285
		100	5500	5,500.03003	-0.00000546
		116	5580	5,580.01489	-0.00000267
		140	5700	5,700.03003	-0.00000527
		144	5720	5,721.99112	-0.00034810
		149	5745	5,745.04492	-0.00000782
157	5785	5,785.05981	-0.00001034		
165	5825	5,825.03003	-0.00000516		

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Operation Mode	802.11 n_HT40	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.02490	-0.00000473
		62	5310	5,310.02490	-0.00000469
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.02490	-0.00000449
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.96560	-0.00034424
		151	5755	5,755.04981	-0.00000865
	159	5795	5,795.02490	-0.00000430	
	102V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.02490	-0.00000452
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.02490	-0.00000439
		142	5710	5,711.98330	-0.00034734
151		5755	5,755.04981	-0.00000865	
159	5795	5,795.02490	-0.00000430		

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25	120V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.02490	-0.00000476
		54	5270	5,270.02490	-0.00000473
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.98109	-0.00034695
		151	5755	5,755.02490	-0.00000433
		159	5795	5,795.04981	-0.00000859
35	138V	38	5190	5,190.02490	-0.00000480
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.04981	-0.00000938
		102	5510	5,510.02490	-0.00000452
		110	5550	5,550.02490	-0.00000449
		134	5670	5,670.04981	-0.00000878
		142	5710	5,709.99325	0.00000118
		151	5755	5,755.02490	-0.00000433
		159	5795	5,795.02490	-0.00000430
	102V	38	5190	5,190.04981	-0.00000960
		46	5230	5,230.04981	-0.00000952
		54	5270	5,270.04981	-0.00000945
		62	5310	5,310.02490	-0.00000469
		102	5510	5,510.04981	-0.00000904
		110	5550	5,550.04981	-0.00000897
		134	5670	5,670.04981	-0.00000878
		142	5710	5,711.98009	-0.00034678
		151	5755	5,755.00000	0.00000000
		159	5795	5,795.04981	-0.00000859

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Operation Mode	802.11 ac_VHT80	Test Date	2018.04.19
Temperature	:23	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	138V	42	5210	5,210.09985	-0.00001917
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.05617	-0.00000987
		155	5775	5,775.00000	0.00000000
	102V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.10642	-0.00001870
		155	5775	5,775.05005	-0.00000867
25	120V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.09985	-0.00001806
		122	5610	5,610.04981	-0.00000888
		138	5690	5,690.05758	-0.00001012
		155	5775	5,775.05005	-0.00000867
35	138V	42	5210	5,210.09985	-0.00001917
		58	5290	5,290.05005	-0.00000946
		106	5530	5,530.09985	-0.00001806
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.09659	-0.00001698
		155	5775	5,775.05005	-0.00000867
	102V	42	5210	5,210.04981	-0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.04981	-0.00000901
		122	5610	5,610.09985	-0.00001780
		138	5690	5,690.09784	-0.00001719
		155	5775	5,775.00000	0.00000000

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## 14 ANTENNA REQUIREMENT

### 14.1 Standard Applicable

According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

According to §15.407, If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 14.2 Antenna Connected Construction

PCB antenna designs are used.

The antenna is designed with permanent attached and no consideration of replacement. Please see EUT photo and antenna spec. for details.

*~ End of Report ~*

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