

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

## INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E REQUIREMENT CLASS II PC REPORT

OF

**Product Name:** Max-Stream AC600 Wi-Fi Micro USB Adapter

**Brand Name:** LINKSYS

**Model No.:** WUSB6100M

**Model Difference:** N/A

**FCC ID:** Q87-WUSB6100M

**Report No.:** E2/2016/90029

**Issue Date:** Oct. 07, 2016

**FCC Rule Part:** §15.407

**Prepared for:** Linksys LLC  
121 Theory Drive, Irvine, CA 92617, USA

**SGS Taiwan Ltd.**

**Electronics & Communication Laboratory**  
No.2, Keji 1st Rd., Guishan District,  
Taoyuan City, Taiwan 333



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## VERIFICATION OF COMPLIANCE

**Applicant:** Linksys LLC  
121 Theory Drive, Irvine, CA 92617, USA

**Product Name:** Max-Stream AC600 Wi-Fi Micro USB Adapter

**Brand Name:** LINKSYS

**Model No.:** WUSB6100M

**Model Difference:** N/A

**FCC ID:** Q87-WUSB6100M

**File Number:** E2/2016/90029

**Date of Test:** Sep. 09, 2016 ~ Oct. 03, 2016

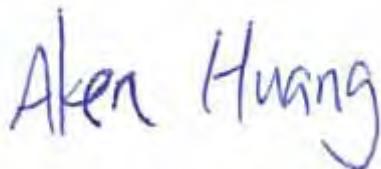
**Date of EUT Received:** Sep. 09, 2016

**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.

**Test By:**

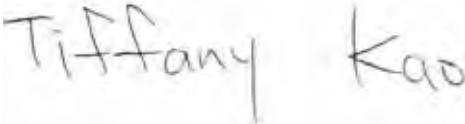


**Date:**

Oct. 07, 2016

**Aken Huang / Engineer**

**Prepared By:**

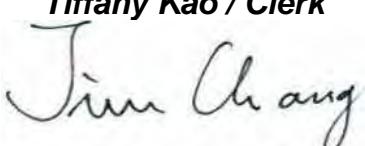


**Date:**

Oct. 07, 2016

**Tiffany Kao / Clerk**

**Approved By:**



**Date:**

Oct. 07, 2016

**Jim Chang / Asst. Manager**

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## Revision History

Report Number	Revision	Description	Issue Date
E2/2016/90029	Rev.00	Initial creation of document	Oct. 07, 2016

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## 1. GENERAL INFORMATION

### 1.1 Product Description

General:

Product Name:	Max-Stream AC600 Wi-Fi Micro USB Adapter
Brand Name:	LINKSYS
Model No.:	WUSB6100M
Model Difference:	N/A
Product SW/HW version:	N/A / N/A
Radio SW/HW version:	N/A / N/A
Test SW Version:	N/A
RF power setting in TEST SW:	N/A
Class II Permissive change:	Enable U-NII-2-A and U-NII-2-C via software.
Power Supply:	5.0Vdc from USB Port

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## WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Rated Power (Avg.)	Modulation Technology	
11a	5250~5350	4	19.91 dBm (Avg.)	OFDM	
	5470~5725	11	19.98 dBm (Avg.)		
11n / ac_20M	HT / VHT20 5250~5350	4	VHT: 19.98 dBm (Avg.)	OFDM	
	HT / VHT20 5470~5725	11	VHT: 19.89 dBm (Avg.)		
11n / ac_40M	HT / VHT40 5250~5350	2	VHT: 19.81 dBm (Avg.)	OFDM	
	HT / VHT40 5470~5725	5	VHT: 19.94 dBm (Avg.)		
11ac_80M	VHT80 5250~5350	1	17.62 dBm (Avg.)	OFDM	
	VHT80 5470~5725	2	19.67 dBm (Avg.)		
Antenna Designation		Metal Antenna, Supplier: INPAQ 5GHz Gain: 2.34dBi (5250MHz-5350MHz) 5GHz Gain: 2.45dBi (5470MHz-5725MHz)			
Modulation type		64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only			
Transition Rate:		802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 72.2Mbps 802.11 n_40MHz: 13.5 – 150Mbps 802.11 ac_20MHz: 6.5 – 86.7Mbps 802.11 ac_40MHz: 13.5 – 200Mbps 802.11 ac_80MHz: 29.3 – 433Mbps			

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## 1.2 Product Feature of Equipment Under Test

The equipment under Test (Hereafter Called: EUT) is supporting, Wi-Fi 802.11bgn feature, and below is details of information.

Product Feature	
Product Name:	Max-Stream AC600 Wi-Fi Micro USB Adapter
Brand Name:	LINKSYS
Model No.:	WUSB6100M
Model Difference:	N/A
FCC ID:	Q87-WUSB6100M
Wi-Fi- Specification	802.11a/b/g/n/ac

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

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### 1.3 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407

FCC KDB 789033 D02 General UNII Test Procedures New Rules

FCC KDB 644545 D03 Guidance for IEEE 802.11ac v01

ANSI C63.10:2013

Note:

1. All test items have been performed and record as per the above standards.
2. The composite system is compliance with FCC Subpart B is authorized under the certification procedure.

### 1.4 Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333 (TAF code 0513)

FCC Registration Numbers are: 735305

Canada Registration Number: 4620A-5.

### 1.5 Special Accessories

There are no special accessories used while test was conducted.

### 1.6 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 plane. 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 hand-held 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. Following shows an offset computation example with cable loss 0.8dB, and 10dB attenuator.

$$\text{offset} = \text{RF cable loss (dB)} + \text{attenuation factor(dB)} = 10.8(\text{dB})$$

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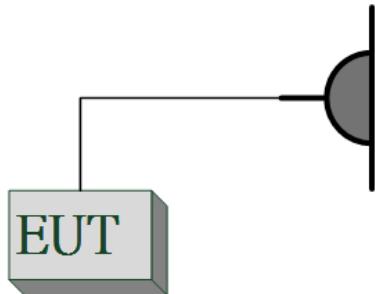
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## 2.5 Configuration of Tested System

**Fig. 2-1 Radiated Emission**



**Fig. 2- 2 AC Power Line Conducted Emission**

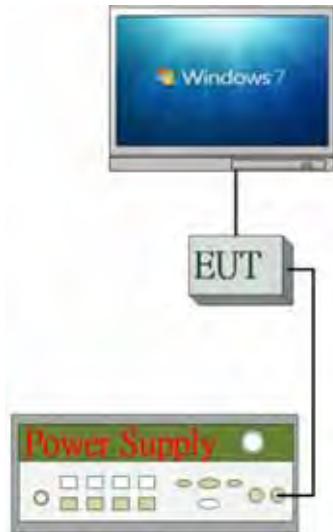


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**Fig. 2- 3 Conducted Emission****Table 2-1 Equipment Used in Tested System**

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-YYG88	shield	Un-shield
3.	DC Power Supply	Agilent	E3640A	MY53140006	N/A	Un-shielded

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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 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 5250 MHz ~5350 MHz:

4 channels are provided for 802.11a, 802.11n\_HT20, 802.11ac\_VHT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n\_HT40, 802.11ac\_VHT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac\_VHT80

CHANNEL	FREQUENCY
58	5290 MHz

Operated band in 5470 MHz ~5725 MHz:

11 channels are provided for 802.11a, 802.11n\_HT20, 802.11ac\_VHT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

5 channels are provided for 802.11n\_HT40, 802.11ac\_VHT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz		

2 channels are provided for 802.11ac\_VHT80

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
106	5530 MHz	122	5610 MHz

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## 4.2 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 given UE is pre-scanned among 802.11n and ac modes, and 802.11ac yields the highest reading that generates the highest emission. Therefore, 802.11ac as the mode of test configuration is chosen to carry out the relevantly mandatory test items.

### RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MAIN
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MAIN
RADIATED EMISSION TEST (ABOVE 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MAIN
802.11ac_HT20 802.11ac_VHT20				OFDM	MCS0	MAIN
802.11ac_HT40 802.11ac_VHT40	5270~5310	54 to 62	54,62	OFDM	MCS0	MAIN
802.11ac_VHT80	5290	58	58	OFDM	MCS0	MAIN
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MAIN
802.11ac_HT20 802.11ac_VHT20				OFDM	MCS0	MAIN
802.11ac_HT40 802.11ac_VHT40	5510~5710	102 to 142	102,110,134	OFDM	MCS0	MAIN
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS0	MAIN

#### Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n/ac WLAN Transmitter for channel Low, Mid and High, the worst case E2 position 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	5260~5320	52 to 64	52,60,64	OFDM	6	MAIN
802.11ac_HT20 802.11ac_VHT20				OFDM	MCS0	MAIN
802.11ac_HT40 802.11ac_VHT40	5270~5310	54 to 62	54,62	OFDM	MCS0	MAIN
802.11ac_VHT80	5290	58	58	OFDM	MCS0	MAIN
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MAIN
802.11ac_HT20 802.11ac_VHT20				OFDM	MCS0	MAIN
802.11ac_HT40 802.11ac_VHT40	5510~5670	102 to 134	102,110,134	OFDM	MCS0	MAIN
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS0	MAIN

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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	ESCI 3	101311	06/18/2015	06/17/2016
Coaxial Cables	N/A	N30N30-1042-15 0cm	N/A	02/07/2016	02/06/2017
LISN	Schwarzbeck	NSLK 8127	8127-648	06/09/2015	06/08/2016
LISN	Rolf-Heine	NNB-2/16Z	99012	03/04/2016	03/03/2017
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

### 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 tabletop.
3. The LISN was connected with 120Vac/60Hz power source.

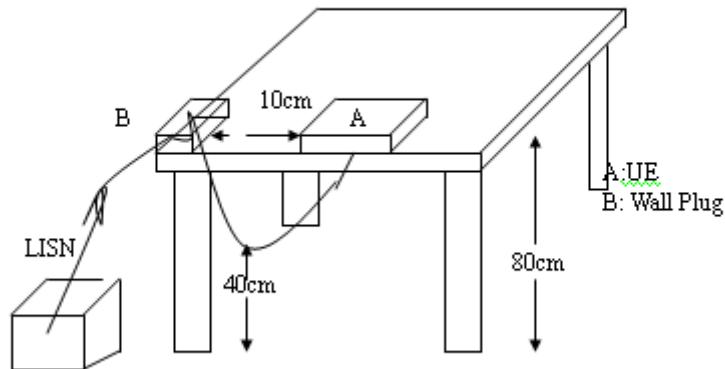
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## 6.4. Test SET-UP



## 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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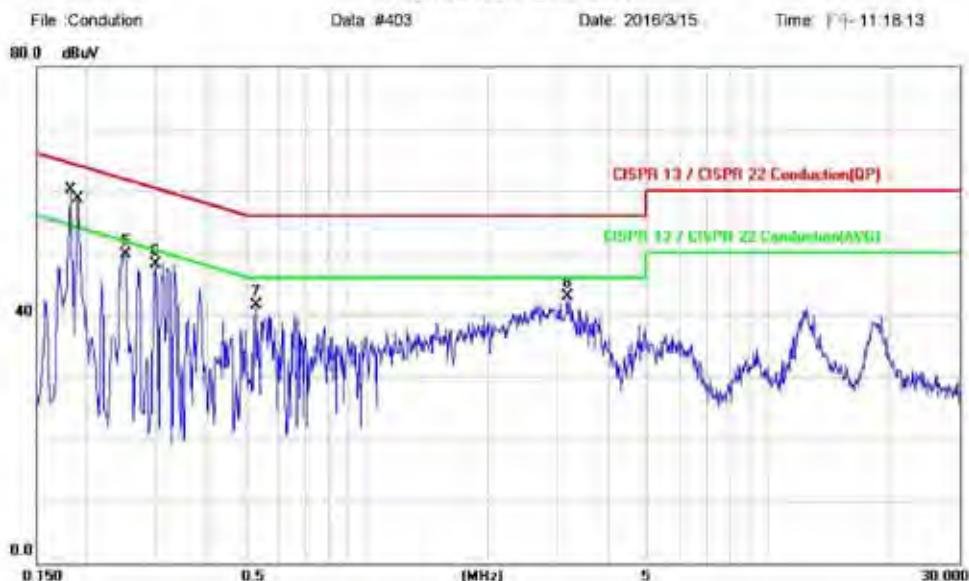
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**AC POWER LINE CONDUCTED EMISSION TEST DATA**

Operation Mode:	Operation mode			Test Date:	Mar. 15, 2016
Temperature:	21	Humidity:	47%	Test By:	Aken

Site: Conduction Room Phase: L1 Temperature: 23 °C  
Limit: CISPR 13 / CISPR 22 Conduction(QP) Power: AC 120V/60Hz Humidity: 41 %  
Mode:  
Note:

**Conducted Emission**

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1820	38.70	19.56	58.26	64.39	-6.13	QP	
2		0.1820	23.40	19.56	42.96	54.39	-11.43	AVG	
3		0.1900	37.10	19.56	56.66	64.04	-7.38	QP	
4		0.1900	21.63	19.56	41.19	54.04	-12.85	AVG	
5		0.2500	30.19	19.59	49.78	61.76	-11.98	peak	
6		0.2980	28.57	19.63	48.20	60.30	-12.10	peak	
7		0.5300	21.81	19.79	41.60	56.00	-14.40	peak	
8		3.1700	23.02	19.90	42.92	56.00	-13.08	peak	

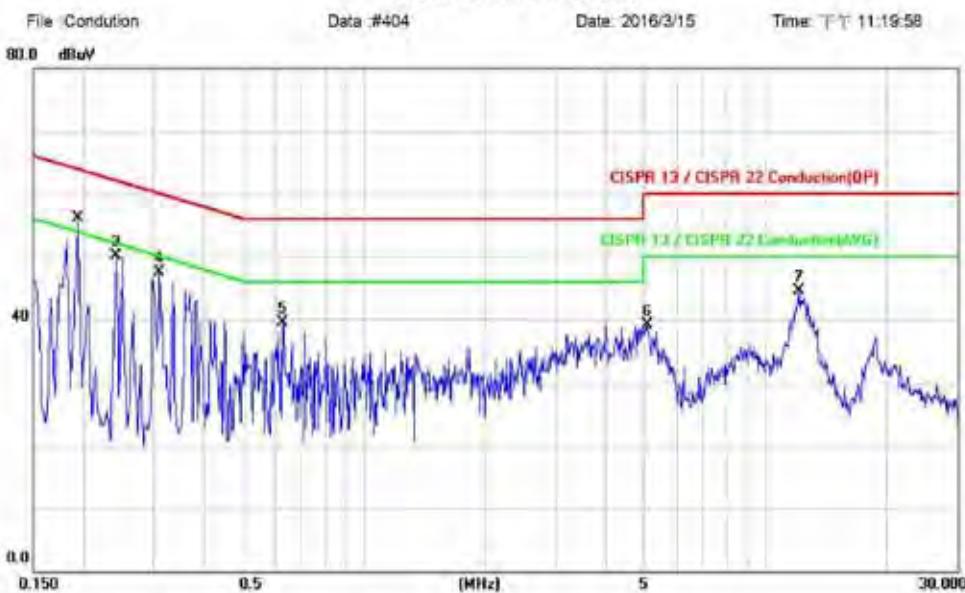
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Site: Conduction Room Phase: **N** Temperature: 23 °C  
 Limit: CISPR 13 / CISPR 22 Conduction(QP) Power: AC 120V/60Hz Humidity: 41 %  
 Mode:  
 Note:

### Conducted Emission



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dB			
1 *		0.1940	35.42	19.56	54.98	63.86	-8.88	QP	
2		0.1940	16.45	19.56	36.01	53.86	-17.85	AVG	
3		0.2420	30.56	19.60	50.16	62.03	-11.87	peak	
4		0.3100	27.81	19.65	47.46	59.97	-12.51	peak	
5		0.6300	19.79	19.80	39.59	56.00	-16.41	peak	
6		5.0740	19.23	19.79	39.02	60.00	-20.98	peak	
7		12.1380	24.66	19.85	44.51	60.00	-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)
802.11a	96.13	0.17
802.11ac_20	95.68	0.19
802.11ac_40	91.50	0.39
802.11ac_80	83.19	0.80

Duty Cycle Factor:  $10 * \log(1/0.9613) = 0.17$

Duty Cycle Factor:  $10 * \log(1/0.9568) = 0.19$

Duty Cycle Factor:  $10 * \log(1/0.915) = 0.39$

Duty Cycle Factor:  $10 * \log(1/0.8319) = 0.8$

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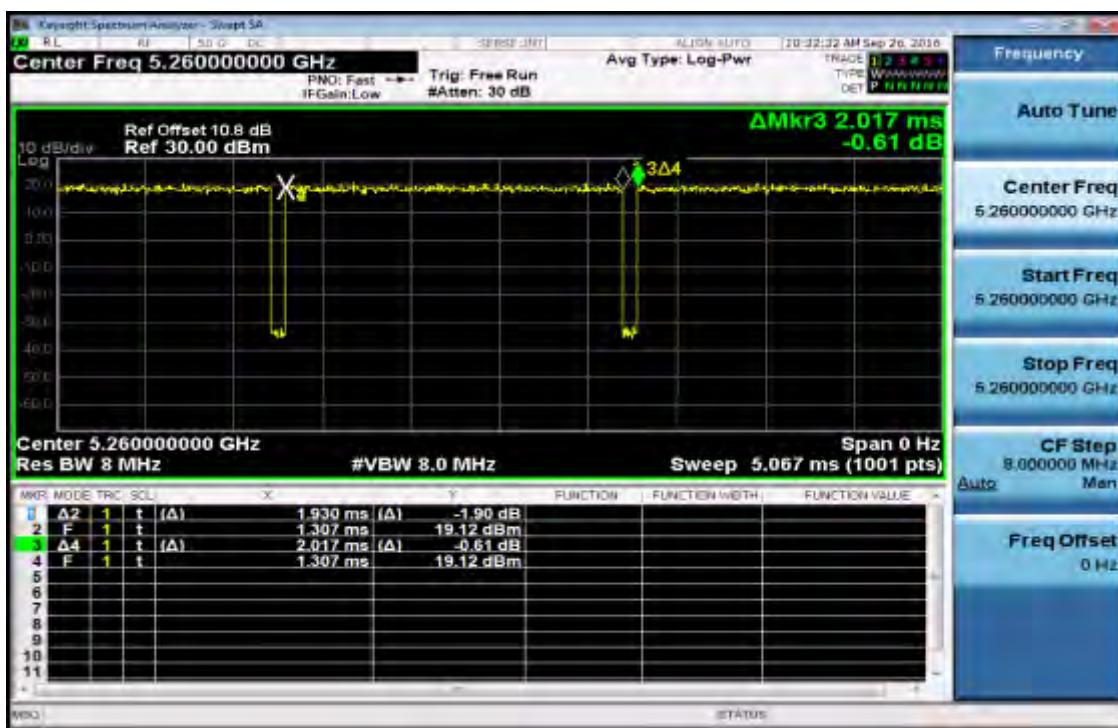
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## DUTY CYCLE TEST SIGNAL Measurement Result

### 802.11a



### 802.11ac VHT20



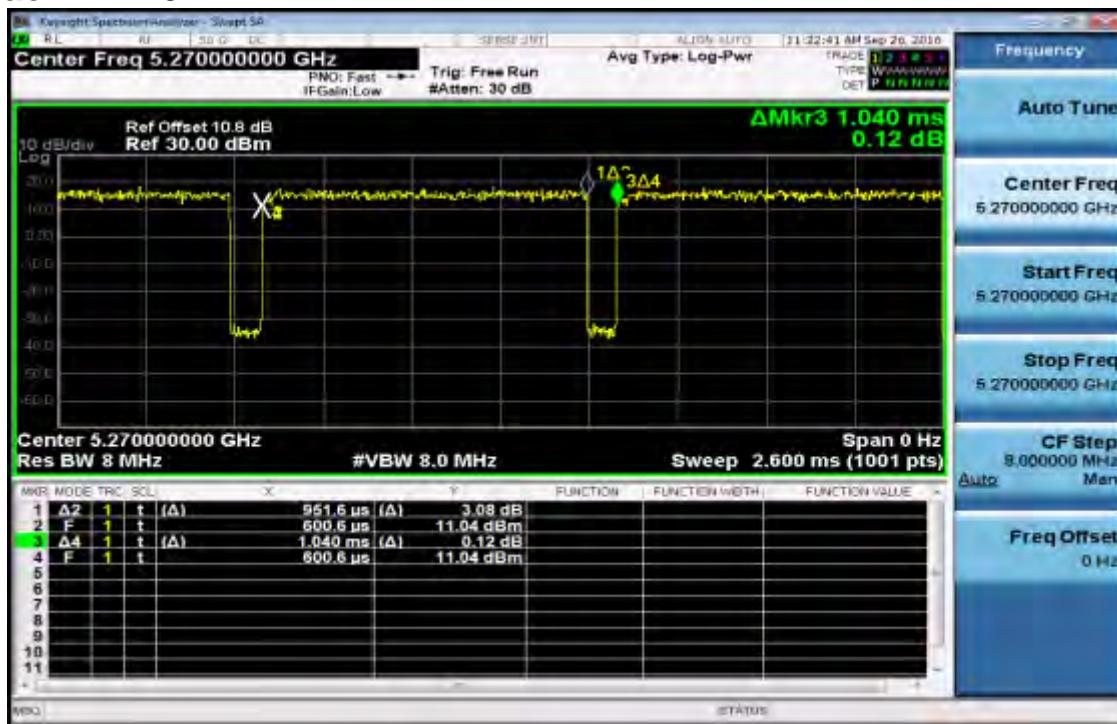
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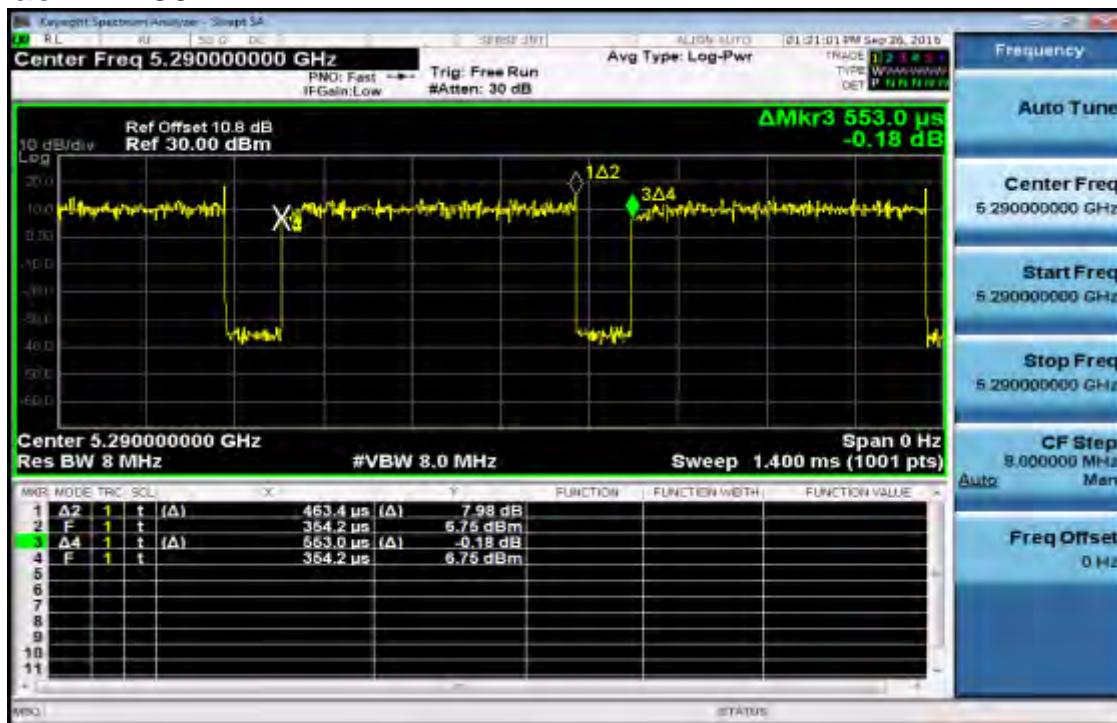
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## 802.11ac VHT 40



## 802.11 ac VHT 80



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## 8. 26dB 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

- 7 Place the EUT on the table and set it in transmitting mode.
- 8 The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
- 9 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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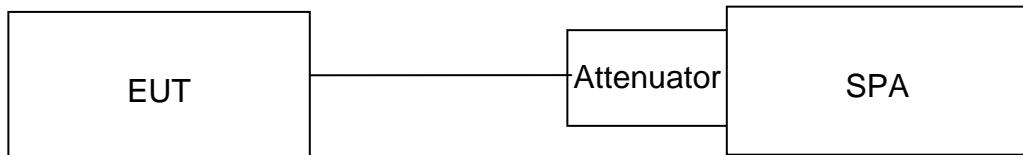
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### 8.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2016	04/13/2017
Power Meter	Anritsu	ML2496A	1326001	06/23/2016	06/22/2017
Power Sensor	Anritsu	MA2411B	1315048	06/23/2016	06/22/2017
Power Sensor	Anritsu	MA2411B	1315049	06/23/2016	06/22/2017
Coaxial Cable 30cm	WOKEN	00100A1F1A195C	RF01	12/12/2015	12/11/2016
DC Block	PASTERNACK	PE8210	RF29	12/12/2015	12/11/2016
Splitter	RF-LAMBAD	RFLT2W1G18G	RF35	12/12/2015	12/11/2016
Attenuator	WOKEN	218FS-10	RF23	12/12/2015	12/11/2016
DC Power Supply	Agilent	E3640A	MY53140006	05/04/2016	05/03/2017

### 8.4 Test Set-up



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## 8.5 Measurement Result

### 26dB Bandwidth

#### 802.11a\_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5260	42.33	16.266
5300	42.28	16.261
5320	41.71	16.202
5500	38.22	15.822
5580	38.46	15.850
5700	35.67	15.523

#### 802.11ac\_VHT20\_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5260	46.85	16.707
5300	45.27	16.558
5320	44.79	16.512
5500	42.15	16.247
5580	43.03	16.337
5700	29.56	14.707

#### 802.11ac\_VHT40\_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5270	94.96	19.776
5310	92.68	19.670
5510	54.97	17.401
5550	89.97	19.541
5670	77.65	18.901

#### 802.11ac\_VHT80\_Main

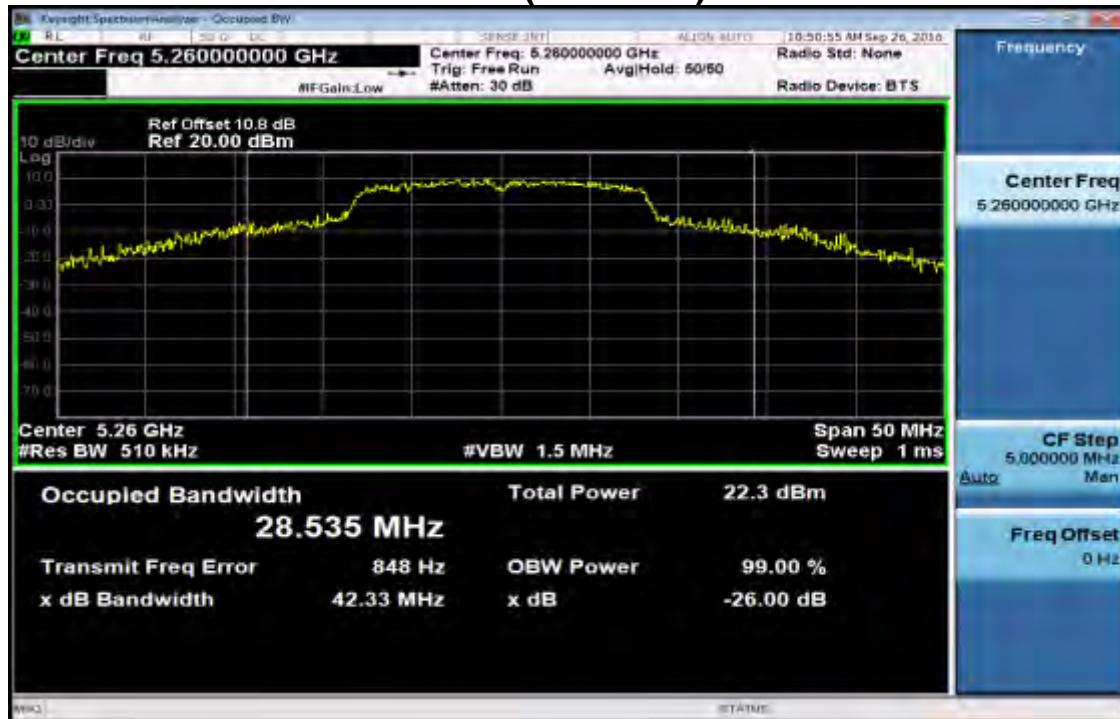
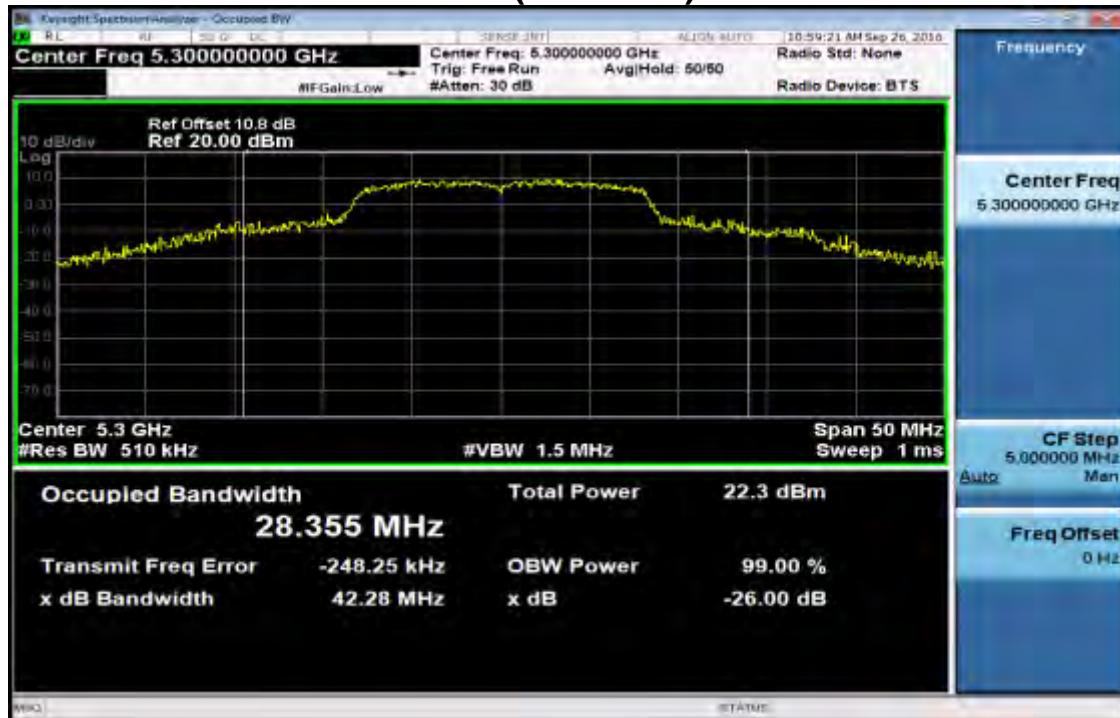
Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5290	149.47	21.745
5530	111.86	20.487
5610	174.87	22.427

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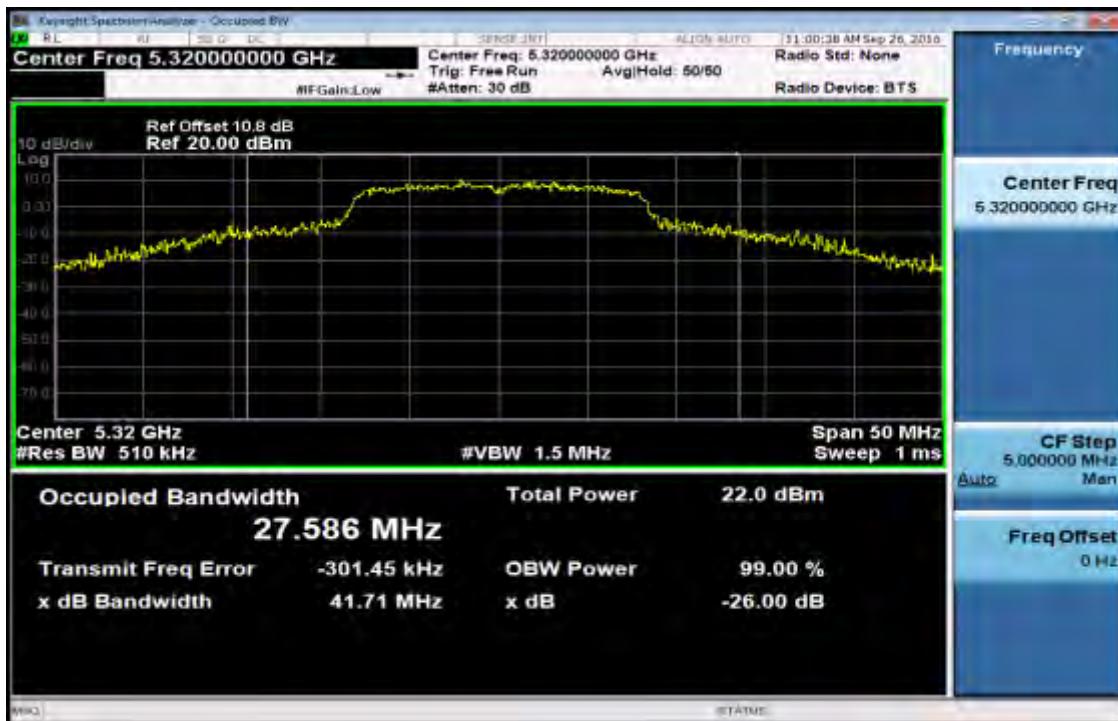
**802.11a, 5250~5350 MHz (Main)  
26dB Band Width Test Data CH-Low (5260MHz)****26dB Band Width Test Data CH-Mid (5300MHz)**

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## 26dB Band Width Test Data CH-High (5320MHz)



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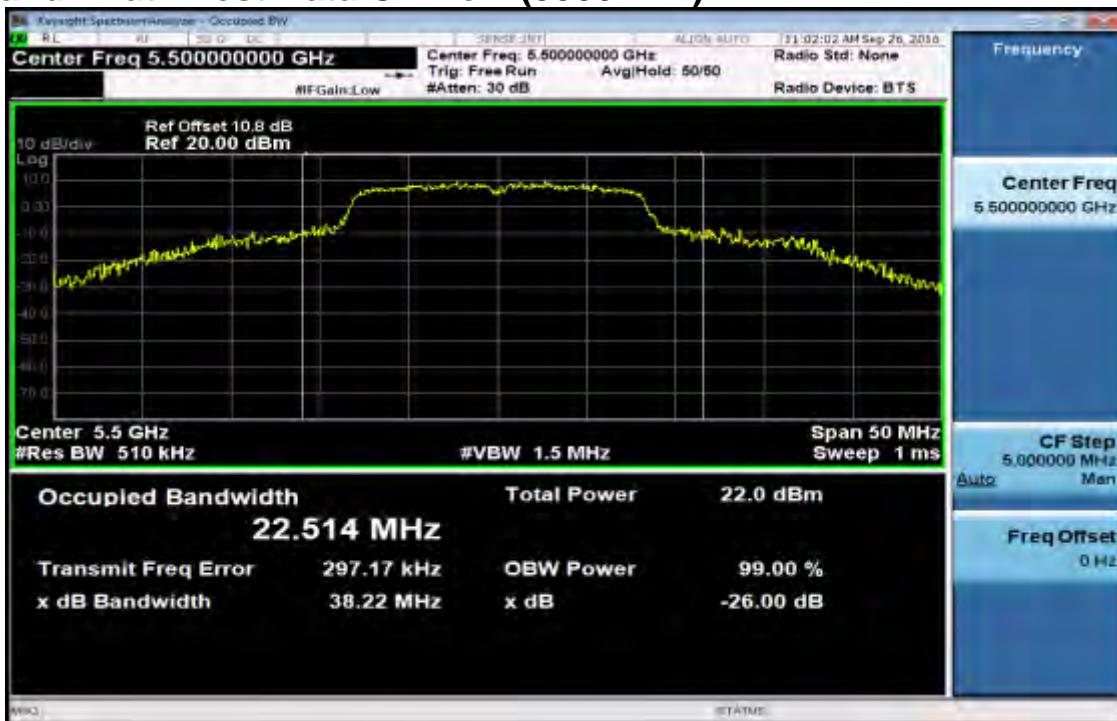
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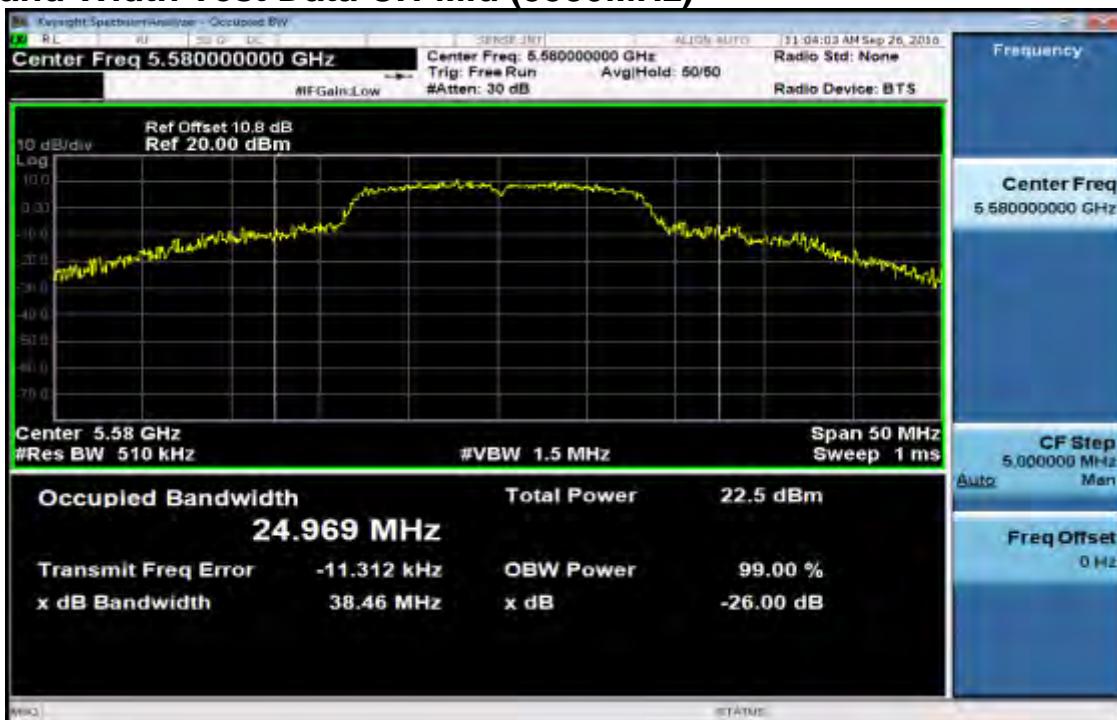
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## 802.11a, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5500MHz)



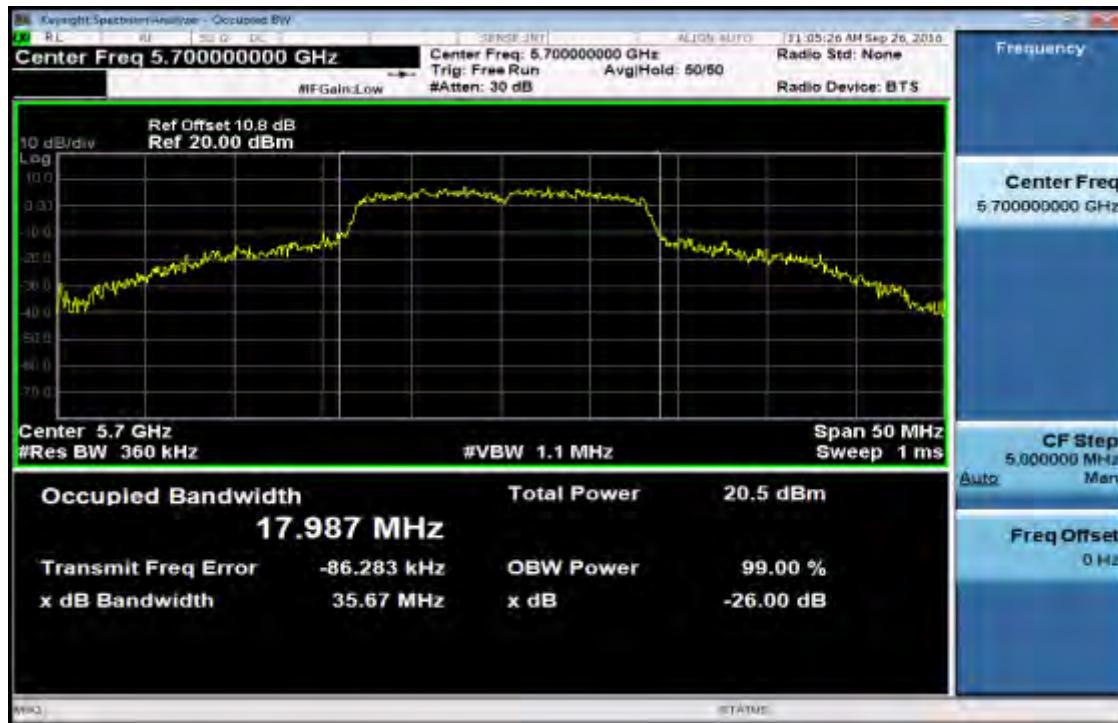
## 26dB Band Width Test Data CH-Mid (5580MHz)



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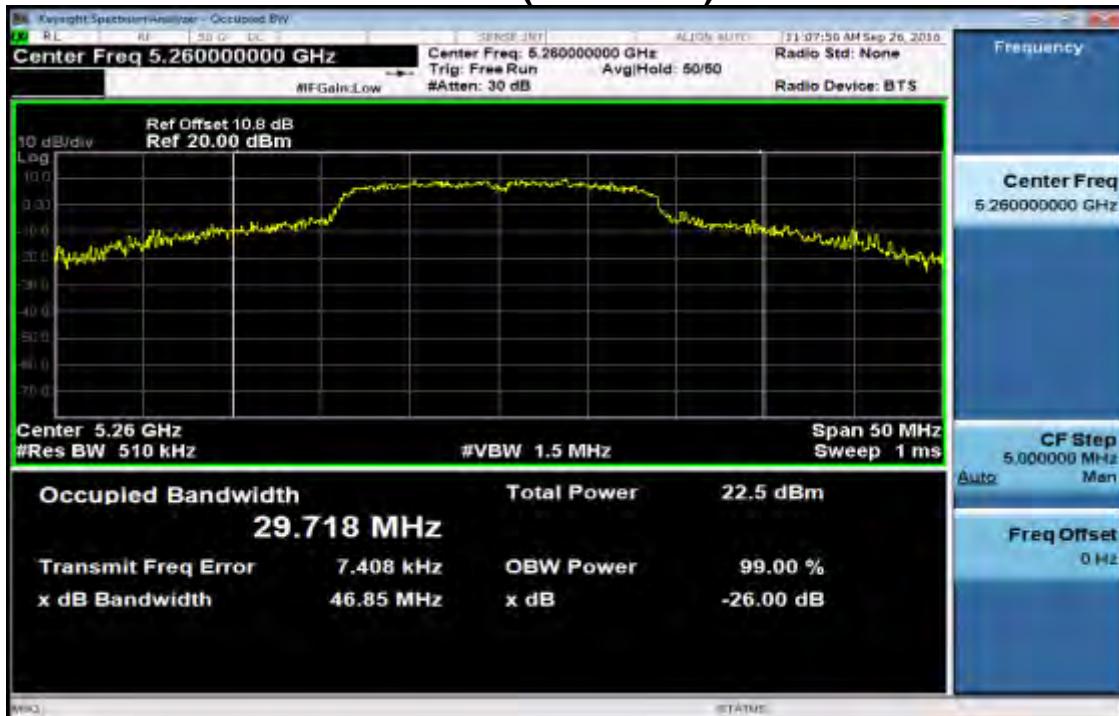
**26dB Band Width Test Data CH-High (5700MHz)**

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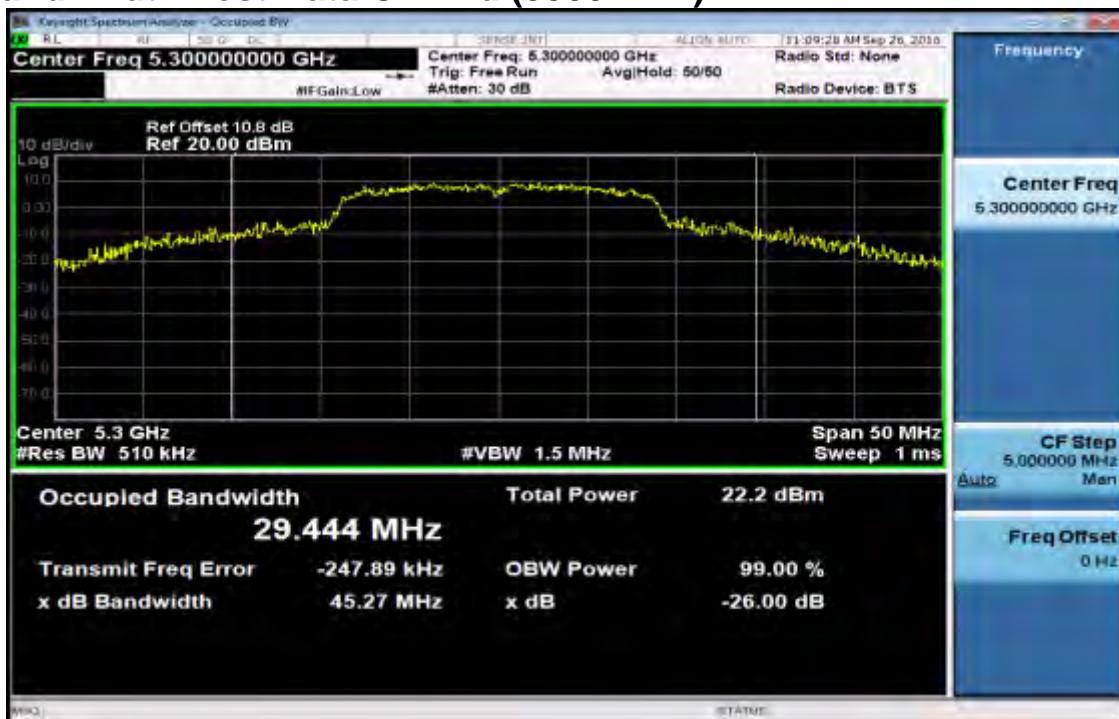
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## 802.11ac VHT20, 5250~5350 MHz (Main) 26dB Band Width Test Data CH-Low (5260 MHz)



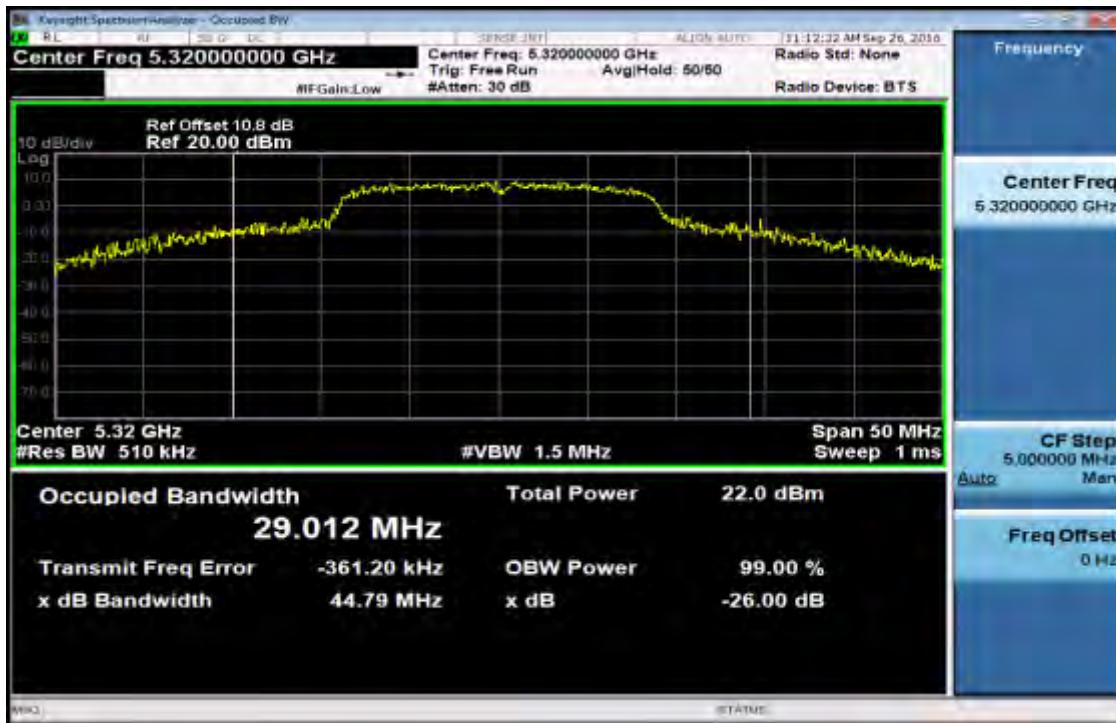
## 26dB Band Width Test Data CH-Mid (5300 MHz)



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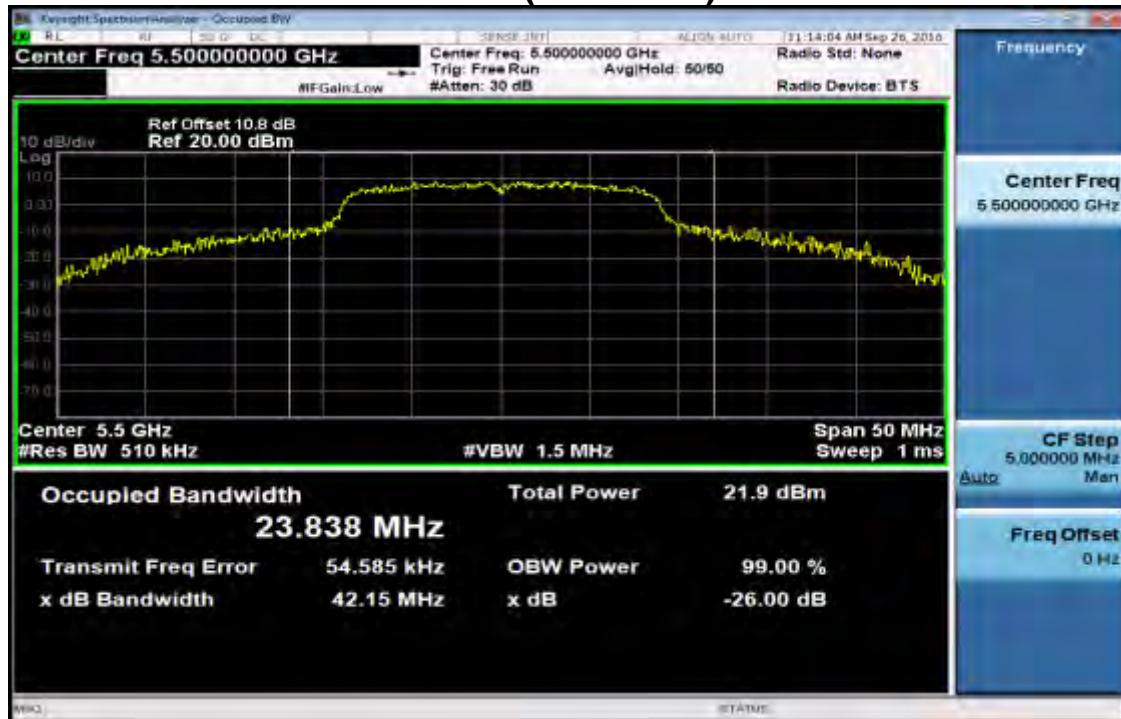
**26dB Band Width Test Data CH-High (5320 MHz)**

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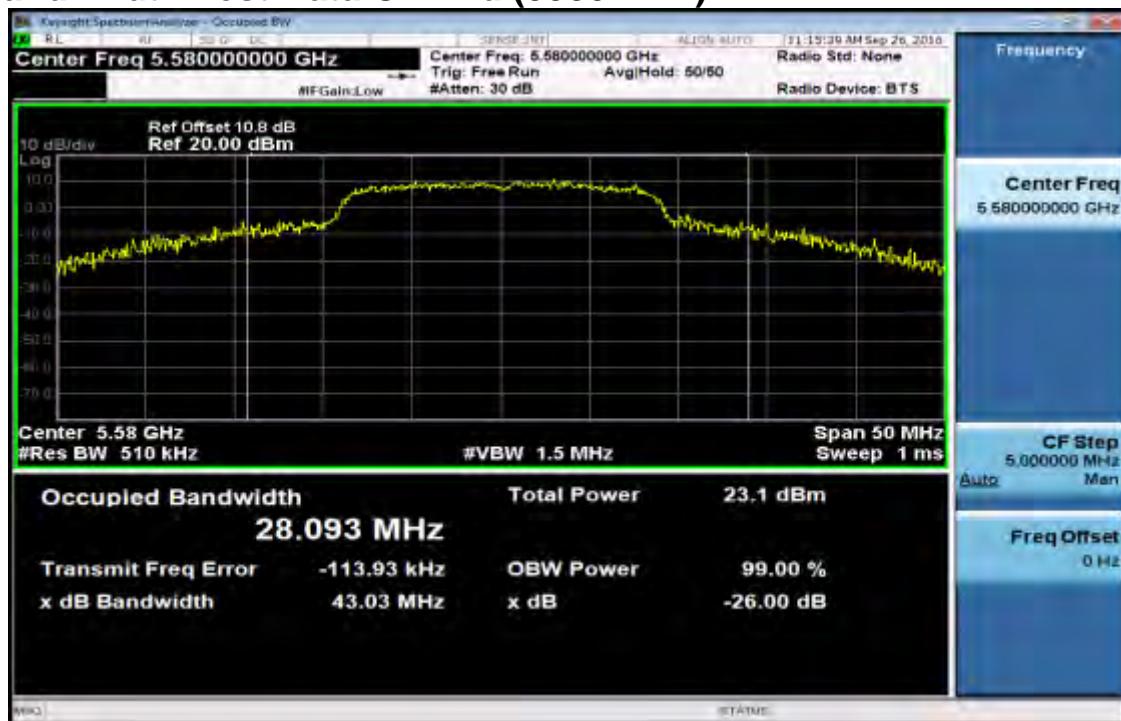
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## 802.11ac VHT20, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5500 MHz)



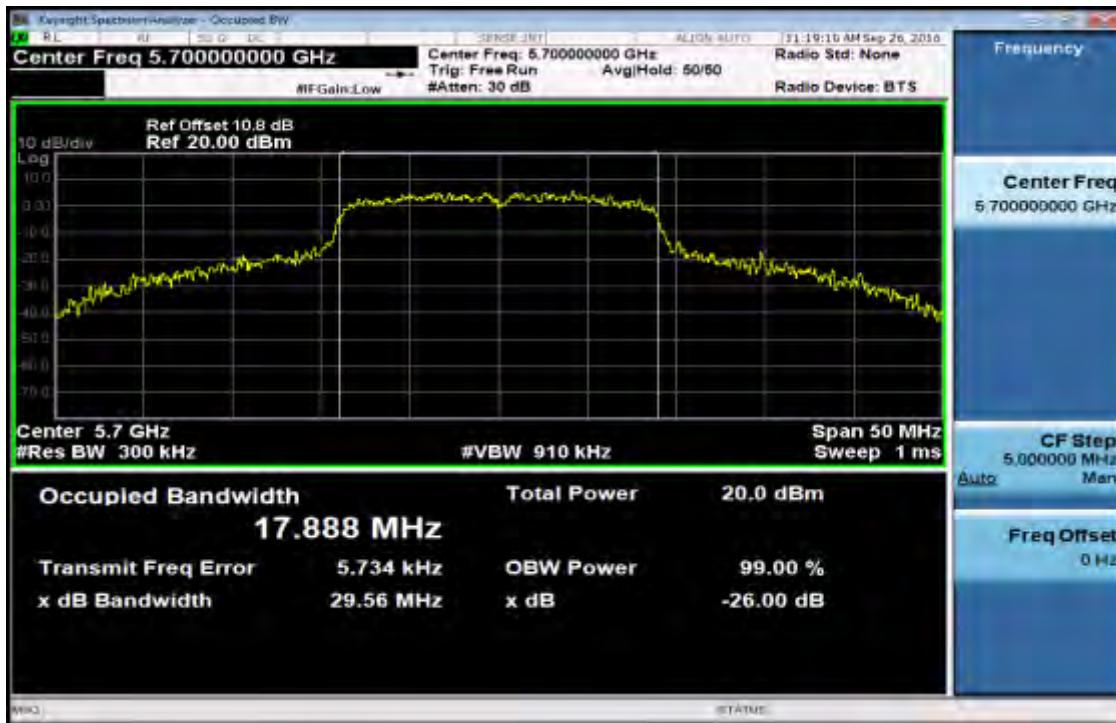
## 26dB Band Width Test Data CH-Mid (5580 MHz)



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**26dB Band Width Test Data CH-High (5700 MHz)**

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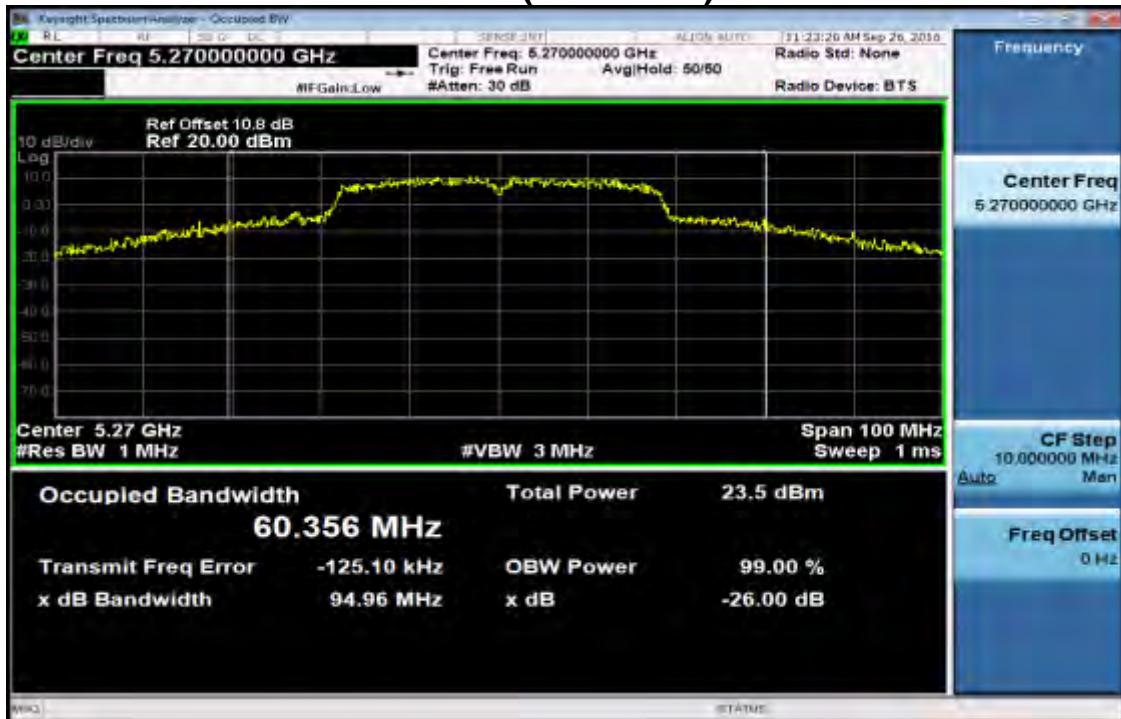
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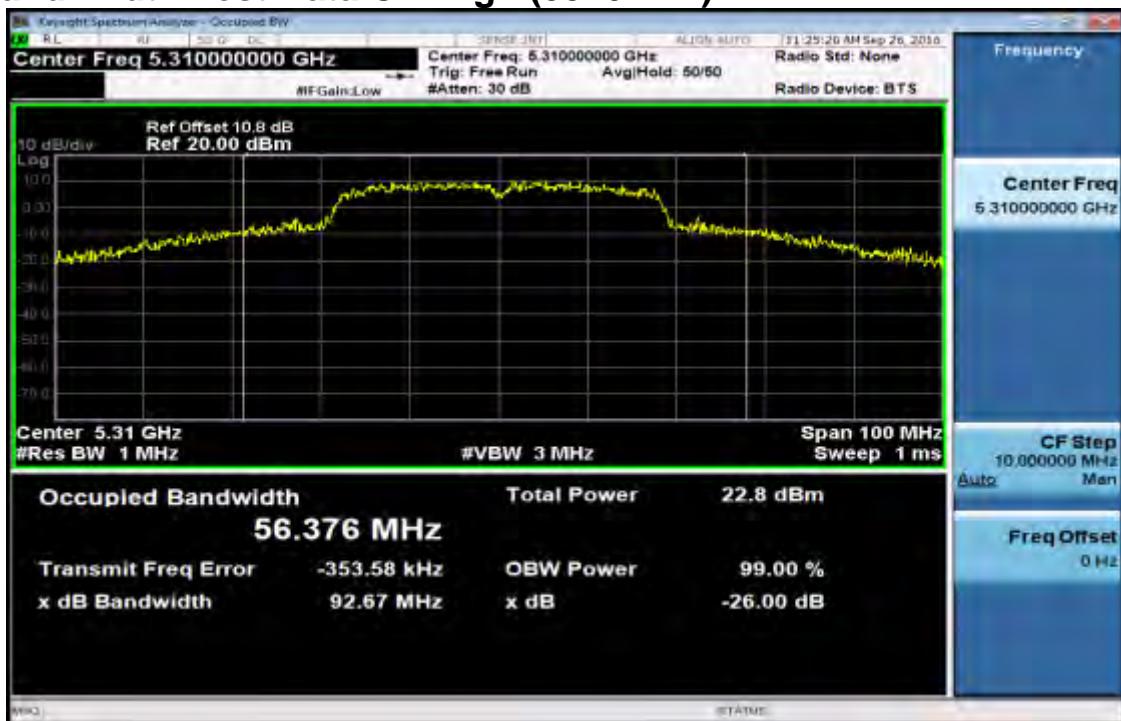
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## 802.11ac VHT40, 5250~5350 MHz (Main) 26dB Band Width Test Data CH-Low (5270 MHz)



## 26dB Band Width Test Data CH-High (5310MHz)

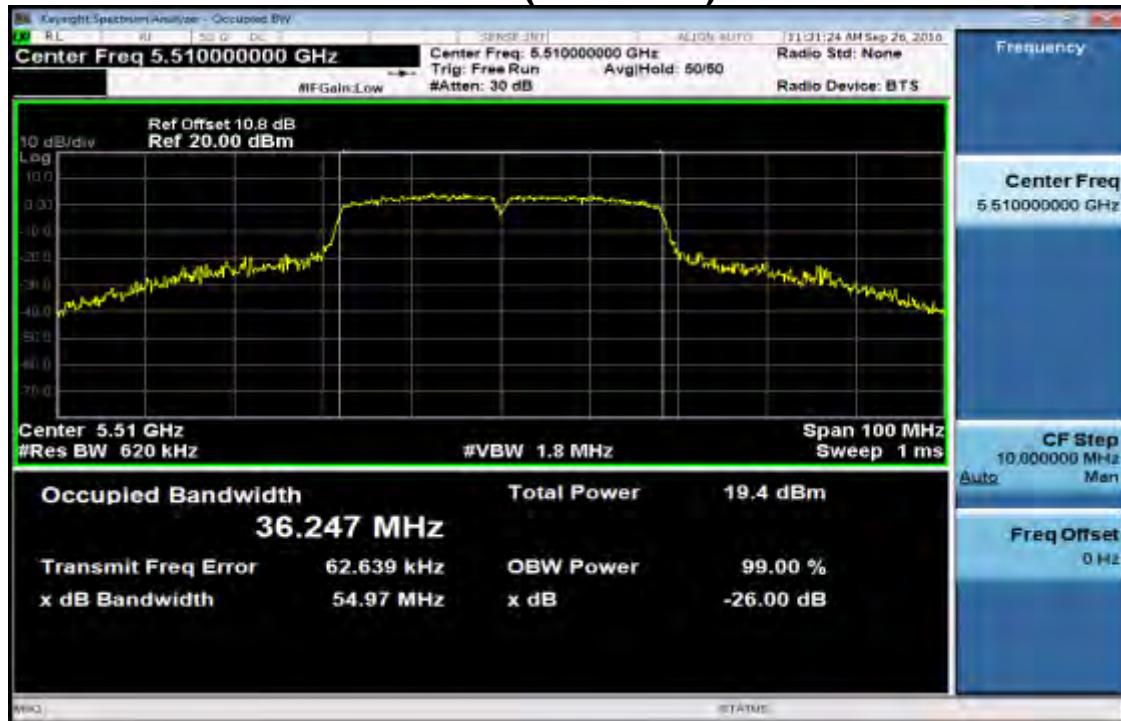


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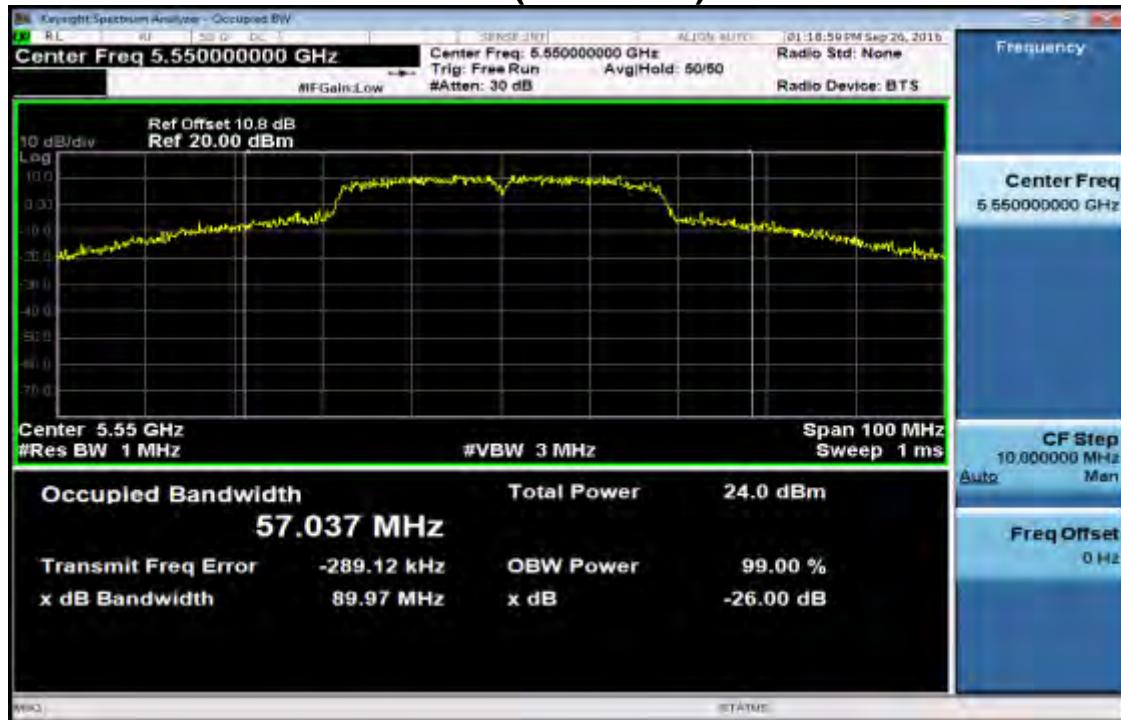
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## 802.11ac VHT40, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5510 MHz)



## 26dB Band Width Test Data CH-Mid (5550 MHz)

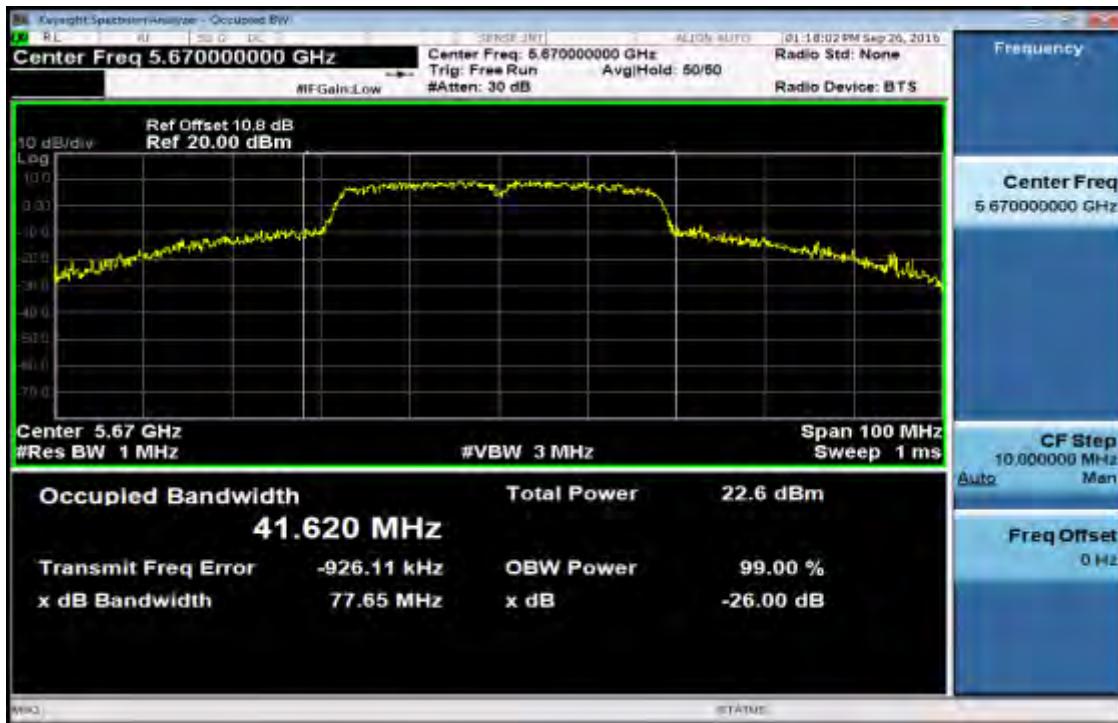


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**26dB Band Width Test Data CH-High (5670 MHz)**

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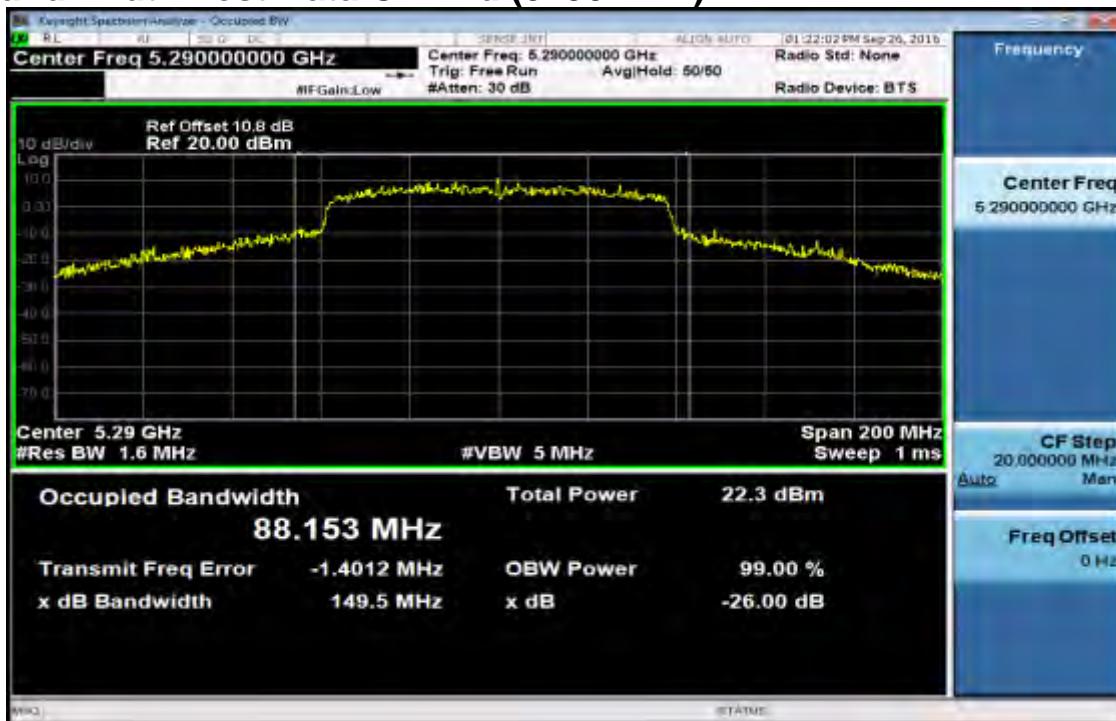
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**802.11ac VHT80, 5250~5350 MHz  
26dB Band Width Test Data CH-Mid (5290 MHz)**

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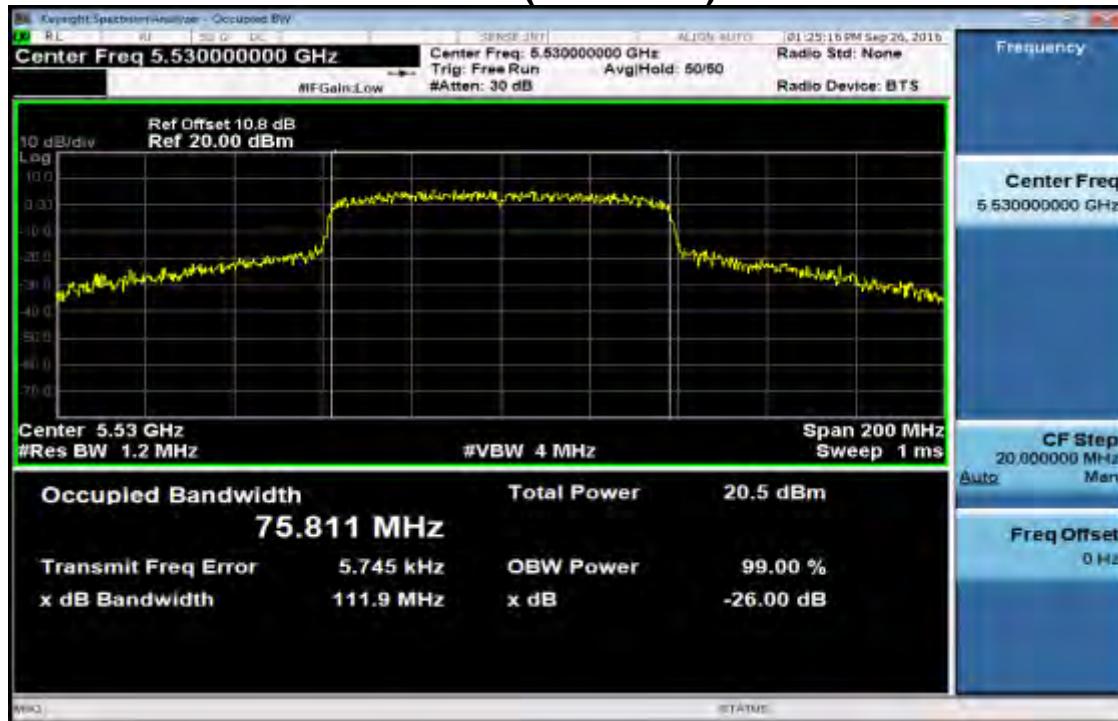
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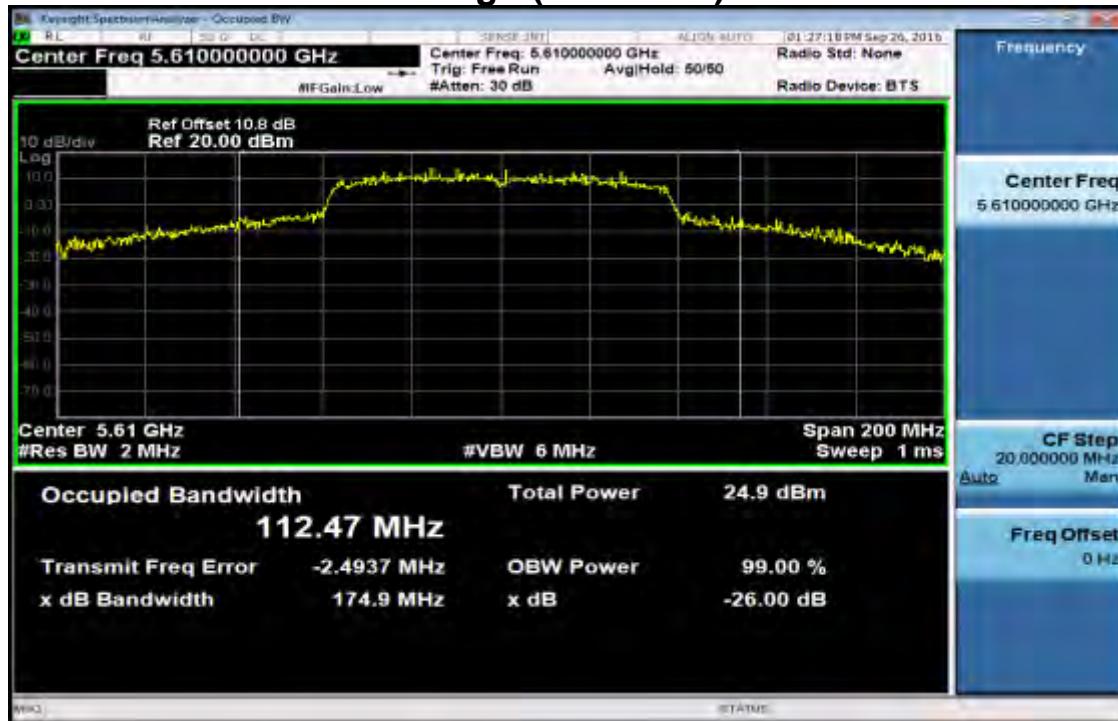
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## 802.11ac VHT80, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5530 MHz)



## 26dB Band Width Test Data CH-High (5610 MHz)



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## 9. MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

### 9.1 Standard Applicable

FCC

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Mater device )	1 Watt(30dBm)
		Fixed point-to-point Acess 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)

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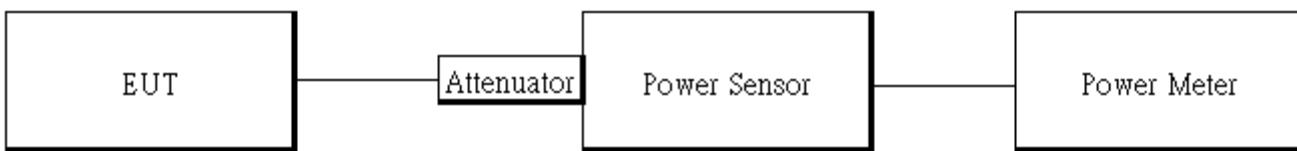
## 9.2 Measurement Procedure

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  $10 \log(1/\text{duty cycle})$ .
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 Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2016	04/13/2017
Power Meter	Anritsu	ML2496A	1326001	06/23/2016	06/22/2017
Power Sensor	Anritsu	MA2411B	1315048	06/23/2016	06/22/2017
Power Sensor	Anritsu	MA2411B	1315049	06/23/2016	06/22/2017
Coaxial Cable 30cm	WOKEN	00100A1F1A195C	RF01	12/12/2015	12/11/2016
DC Block	PASTERNACK	PE8210	RF29	12/12/2015	12/11/2016
Splitter	RF-LAMBAD	RFLT2W1G18G	RF35	12/12/2015	12/11/2016
Attenuator	WOKEN	218FS-10	RF23	12/12/2015	12/11/2016
DC Power Supply	Agilent	E3640A	MY53140006	05/04/2016	05/03/2017

## 9.4 Test Set-up



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## 9.5 Measurement Result

### Conducted output power (FCC)

#### 802.11a\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)		RESULT	
52	5260	MCS0	<b>19.91</b>	<b>97.949</b>	23.98	or $11+10\log(B) =$	27.27	PASS
60	5300	MCS0	19.66	92.470	23.98	or $11+10\log(B) =$	27.26	PASS
64	5320	MCS0	19.74	94.189	23.98	or $11+10\log(B) =$	27.20	PASS
100	5500	MCS0	<b>19.98</b>	<b>99.541</b>	23.98	or $11+10\log(B) =$	26.82	PASS
116	5580	MCS0	19.61	91.411	23.98	or $11+10\log(B) =$	26.85	PASS
140	5700	MCS0	18.67	73.621	23.98	or $11+10\log(B) =$	26.52	PASS

#### 802.11n\_HT20\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)		RESULT	
52	5260	MCS0	19.53	89.743	23.98	or $11+10\log(B) =$	27.71	PASS
60	5300	MCS0	<b>19.72</b>	<b>93.756</b>	23.98	or $11+10\log(B) =$	27.56	PASS
64	5320	MCS0	19.69	93.111	23.98	or $11+10\log(B) =$	27.51	PASS
100	5500	MCS0	<b>19.67</b>	<b>92.683</b>	23.98	or $11+10\log(B) =$	27.25	PASS
116	5580	MCS0	<b>19.77</b>	<b>94.842</b>	23.98	or $11+10\log(B) =$	27.34	PASS
140	5700	MCS0	17.42	55.208	23.98	or $11+10\log(B) =$	25.71	PASS

#### 802.11ac\_VHT20\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)		RESULT	
52	5260	MCS0	19.73	93.972	23.98	or $11+10\log(B) =$	27.71	PASS
60	5300	MCS0	<b>19.98</b>	<b>99.541</b>	23.98	or $11+10\log(B) =$	27.56	PASS
64	5320	MCS0	19.81	95.719	23.98	or $11+10\log(B) =$	27.51	PASS
100	5500	MCS0	<b>19.87</b>	<b>97.051</b>	23.98	or $11+10\log(B) =$	27.25	PASS
116	5580	MCS0	<b>19.89</b>	<b>97.499</b>	23.98	or $11+10\log(B) =$	27.34	PASS
140	5700	MCS0	17.64	58.076	23.98	or $11+10\log(B) =$	25.71	PASS

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## 802.11n\_HT40\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)		RESULT	
54	5270	MCS0	19.47	88.512	23.98	or $11+10\log(B) =$	30.78	PASS
62	5310	MCS0	<b>19.73</b>	<b>93.972</b>	23.98	or $11+10\log(B) =$	30.67	PASS
102	5510	MCS0	16.79	47.753	23.98	or $11+10\log(B) =$	28.40	PASS
110	5550	MCS0	<b>19.82</b>	<b>95.940</b>	23.98	or $11+10\log(B) =$	30.54	PASS
134	5670	MCS0	18.98	79.068	23.98	or $11+10\log(B) =$	29.90	PASS

## 802.11ac\_VHT40\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)		RESULT	
54	5270	MCS0	19.63	91.833	23.98	or $11+10\log(B) =$	30.78	PASS
62	5310	MCS0	<b>19.81</b>	<b>95.719</b>	23.98	or $11+10\log(B) =$	30.67	PASS
102	5510	MCS0	16.93	49.317	23.98	or $11+10\log(B) =$	28.40	PASS
110	5550	MCS0	<b>19.94</b>	<b>98.628</b>	23.98	or $11+10\log(B) =$	30.54	PASS
134	5670	MCS0	19.15	82.224	23.98	or $11+10\log(B) =$	29.90	PASS

## 802.11ac\_VHT80\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)		RESULT	
58	5290	MCS0	17.62	57.810	23.98	or $11+10\log(B) =$	32.75	PASS
106	5530	MCS0	16.01	39.902	23.98	or $11+10\log(B) =$	31.49	PASS
122	5610	MCS0	19.67	92.683	23.98	or $11+10\log(B) =$	33.43	PASS

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## 10. PEAK POWER SPECTRAL DENSITY

### 10.1 Standard Applicable

FCC

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

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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:

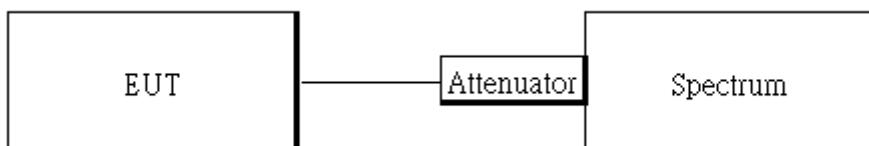
Set RBW=500 kHz, VBW≥ 3RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)

5. User 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.

## 10.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2016	04/13/2017
DC Block	PASTERNAK	PE8210	RF29	12/12/2015	12/11/2016
Attenuator	WOKEN	218FS-10	RF23	12/12/2015	12/11/2016

## 10.4 Test Set-up



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## 10.5 Measurement Result

POWER DENSITY 802.11a MODE			
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5260	3.71	11	-7.29
5300	3.06	11	-7.94
5320	3.37	11	-7.63
5500	3.27	11	-7.73
5580	4.55	11	-6.45
5700	2.74	11	-8.26

POWER DENSITY 802.11ac VHT20 MODE			
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5260	3.83	11	-7.17
5300	3.70	11	-7.30
5320	3.59	11	-7.41
5500	3.62	11	-7.38
5580	3.36	11	-7.64
5700	0.54	11	-10.46

POWER DENSITY 802.11ac VHT40 MODE			
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5270	-0.93	11	-11.93
5310	-1.33	11	-12.33
5510	-3.87	11	-14.87
5550	0.7	11	-10.30
5670	-1.20	11	-12.20

POWER DENSITY 802.11ac VHT80 MODE			
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5290	-9.66	11	-20.66
5530	-9.76	11	-20.76
5610	-4.38	11	-15.38

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## 802.11a 5250~5350 MHz

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



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



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## 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 Low 5500 MHz)****Peak Power Spectral Density Data Plot (CH Mid 5580 MHz)**

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



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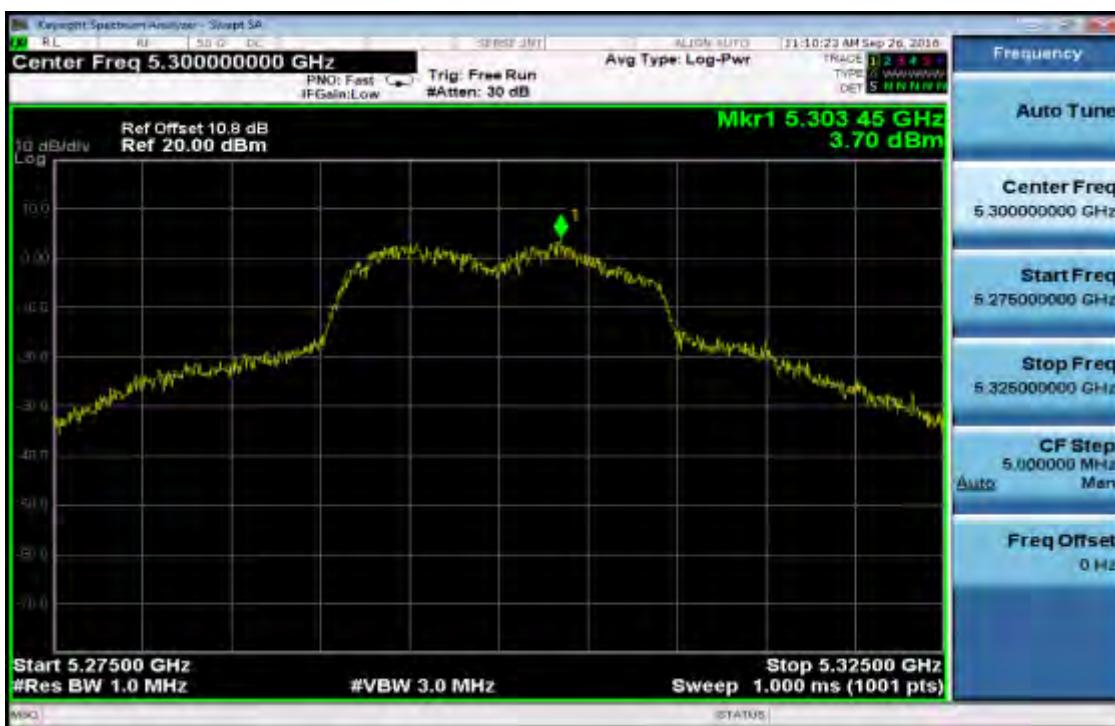
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## 802.11ac VHT20, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5260MHz)



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



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



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## 802.11ac VHT20, 5470~5725 MHz

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



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



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



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## 802.11ac VHT40, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5270 MHz)



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



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**802.11ac VHT40, 5470~5725 MHz****Peak Power Spectral Density Data Plot (CH Low 5510 MHz)****Peak Power Spectral Density Data Plot (CH Mid 5550 MHz)**

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



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## 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)



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



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## 11. UNDESIRABLE RADIATED EMISSION MEASUREMENT1

### 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 (dB $\mu$ V/m)	AV 54 (dB $\mu$ V/m)
APPLICABLE TO	EIRP LIMIT	FIELD STRENGTH AT 3m
15.407(b)(1)		
15.407(b)(2)	PK: -27 (dBm/MHz)	PK: 68.3 (dB $\mu$ V/m)
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(dB $\mu$ V/m) *1 PK:105.2 (dB $\mu$ V/m) *2 PK: 110.8(dB $\mu$ V/m) *3 PK:122.2 (dB $\mu$ V/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\*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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30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

**Note:**

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## 11.2 Measurement Equipment Used

SGS SAC-III					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESU 40	100363	04/12/2016	04/11/2017
Loop Antenna	ETS-Lindgren	6502	00143303	12/23/2015	12/22/2016
Broadband Antenna	TESEQ	CBL 6112D	35240	10/28/2015	10/27/2016
Horn Antenna	ETS-Lindgren	3117	00143272	12/16/2015	12/15/2016
Horn Antenna	Schwarzbeck	BBHA9170	185	07/18/2016	07/17/2017
Pre Amplifier	EMC Instruments	EMC330	980096	12/12/2015	12/11/2016
Pre Amplifier	EMC Instruments	EMC0011830	980199	12/12/2015	12/11/2016
Pre Amplifier	R&S	SCU-18	10204	12/12/2015	12/11/2016
Pre Amplifier	EMC Instruments	EMC184045B	980135	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	RG 214/U	966Rx 9K-30M	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	RG 214/U SUCOFLEX 104	966Rx 30M-3G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Rx 1G-18G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	mini 141-12 SUCOFLEX 104	966Rx 18G-40G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Tx 30M-18G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	966Tx 18G-40G	12/12/2015	12/11/2016
Attenuator	WOKEN	218FS-10	RF27	12/12/2015	12/11/2016
Site NSA	SGS	966 Chamber C	SAC-C	03/04/2016	03/03/2017
Site VSWR	SGS	966 Chamber C	SAC-C	03/04/2016	03/03/2017
DC Power Supply	HOLA	DP-3003	D7070035	05/04/2016	05/03/2017
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.
Test Software	World-Pallas	Dr. E	V 3.0 Lite	N.C.R.	N.C.R.

Note: N.C.R refers to Not Calibrated Required.

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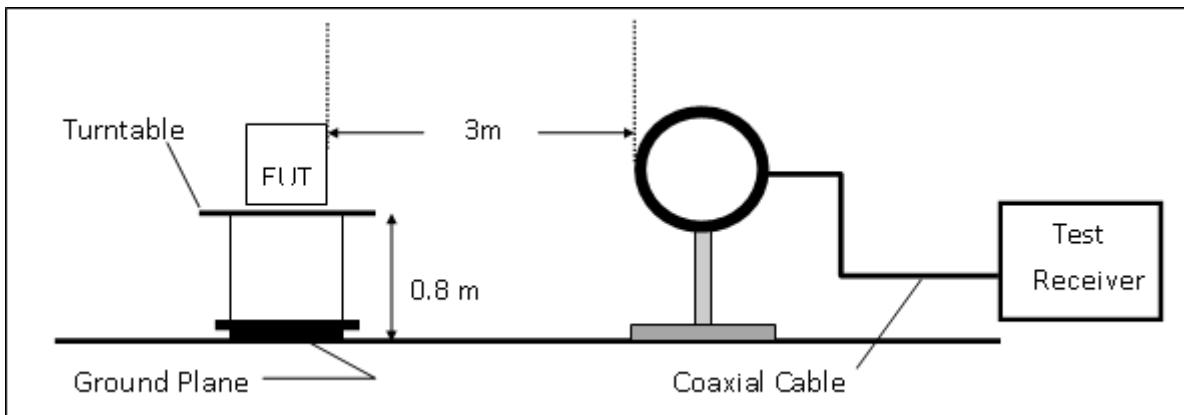
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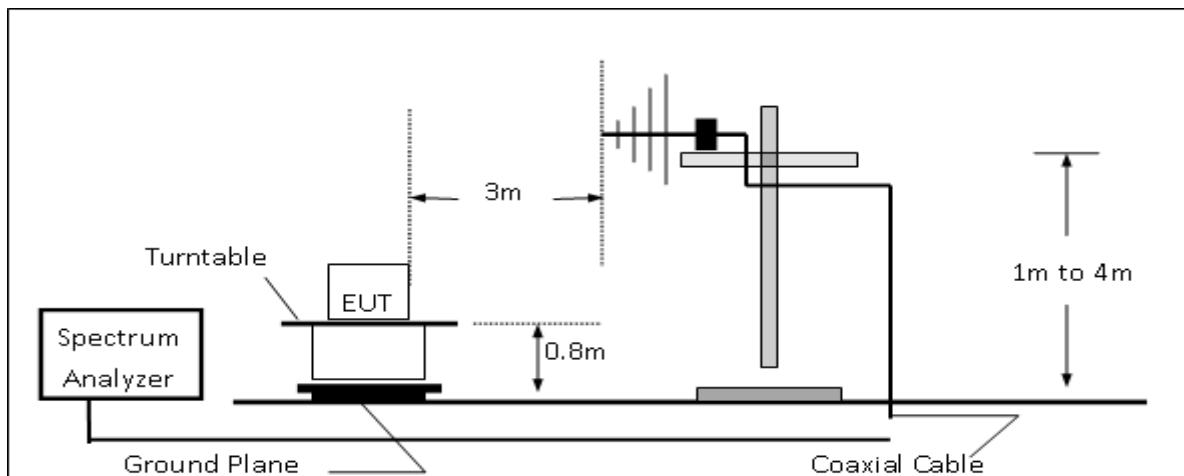
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### 11.3 Test SET-UP

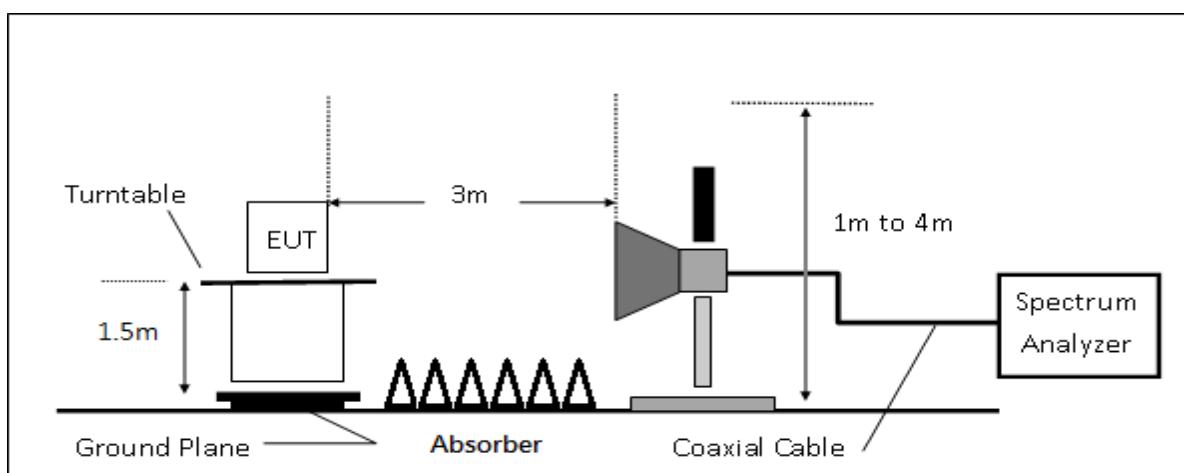
#### (A) Radiated Emission Test Set-UP Frequency Below 30MHz.



#### (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  $\geq$  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(dB $\mu$ V/m) = SPA. Reading level(dB $\mu$ V) + Factor(dB)

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

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**Note :**

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

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

## 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

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

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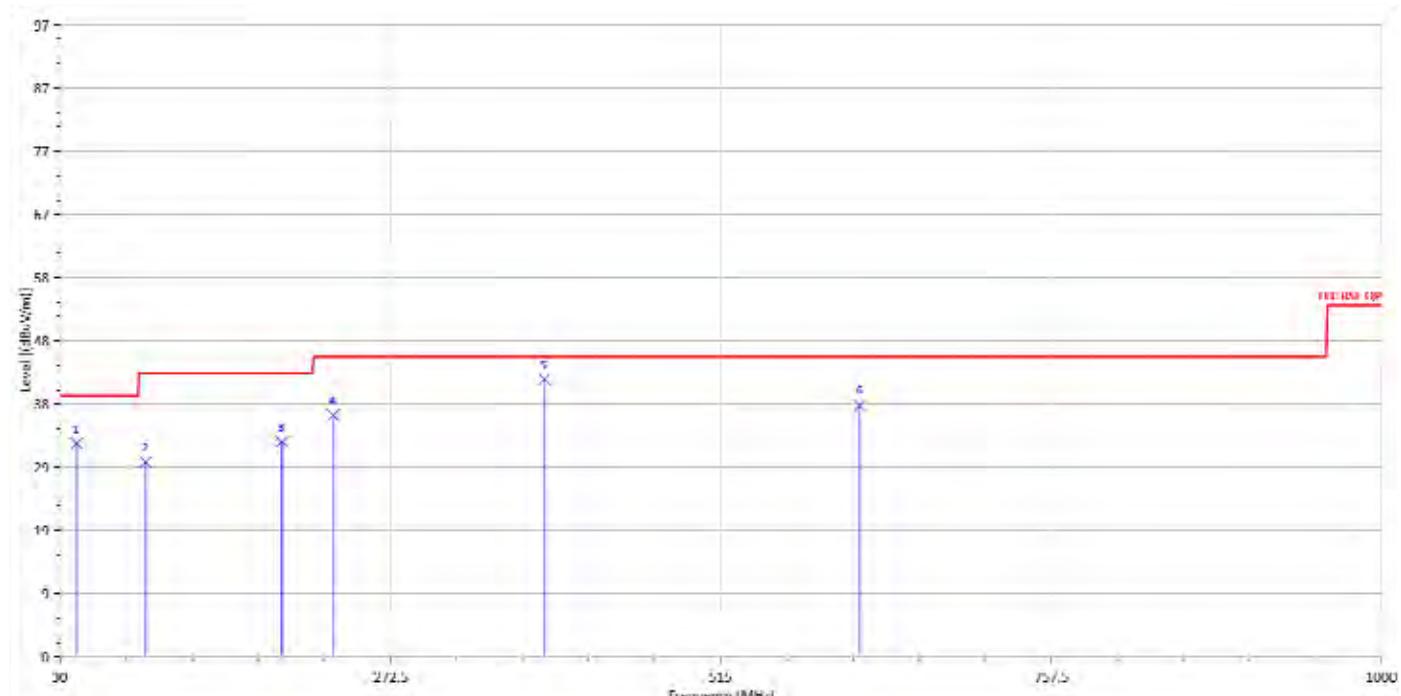
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## Radiated Spurious Emission Measurement Result

## Below 1GHz Worst-Case Data:

## 802.11a 5250~5350 MHz

Operation Mode : 802.11a Test Date : 2016/9/14  
 Fundamental Frequency : 5300 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH Mid Test Engineer : Pony  
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level		Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
			Level dBuV	Factor dB				
42.61	S	Peak	47.34	-14.63	32.71	40	-7.29	
93.05	S	Peak	48.77	-18.95	29.82	43.5	-13.68	
192.96	S	Peak	51.01	-18.05	32.96	43.5	-10.54	
230.79	S	Peak	53.26	-16.17	37.09	46	-8.91	
385.99	S	Peak	52.70	-10.18	42.53	46	-3.47	
616.85	S	Peak	45.16	-6.58	38.58	46	-7.42	

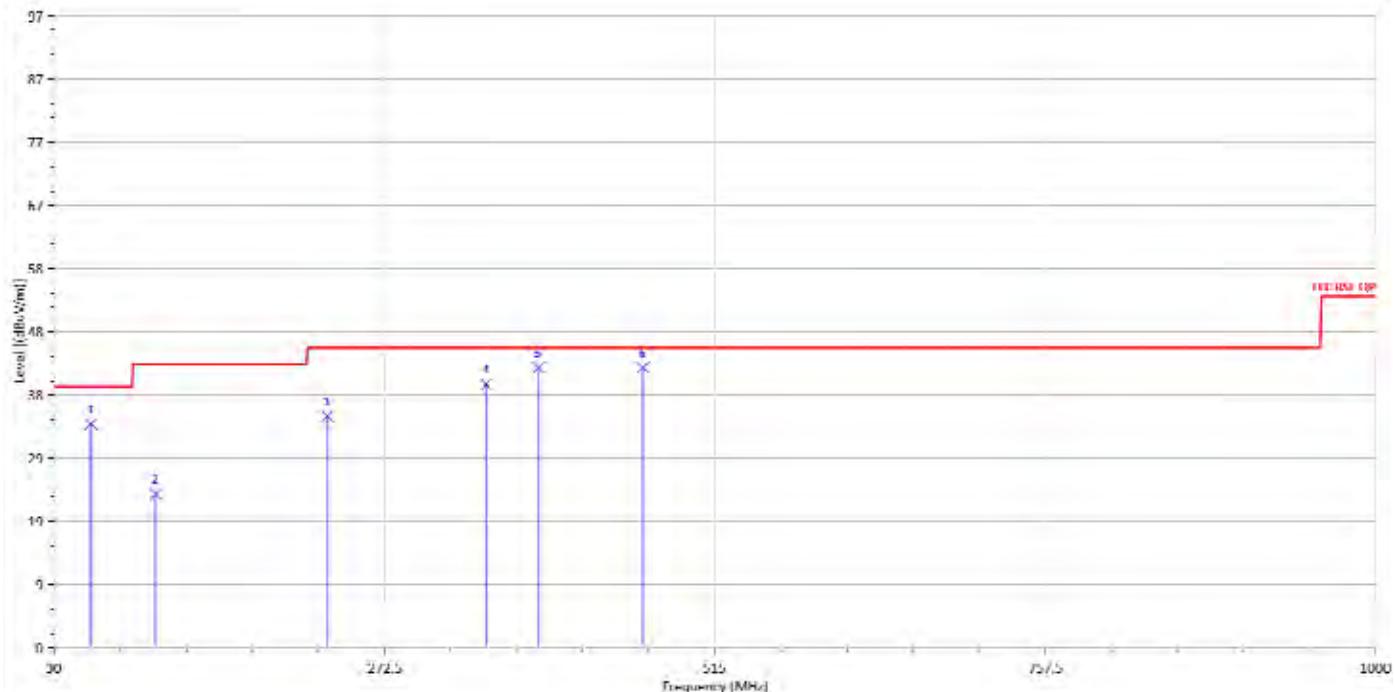
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Operation Mode : 802.11a Test Date : 2016/9/14  
 Fundamental Frequency : 5300 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH Mid Test Engineer : Pony  
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level		Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
			dBμV					
57.16	S	Peak	56.32		-21.98	34.34	40	-5.66
104.69	S	Peak	40.76		-17.17	23.59	43.5	-19.91
230.79	S	Peak	51.72		-16.17	35.56	46	-10.44
347.19	S	Peak	52.02		-11.64	40.38	46	-5.62
385.99	S	Peak	53.12		-10.18	42.95	46	-3.05
462.62	S	Peak	51.08		-8.14	42.94	46	-3.06

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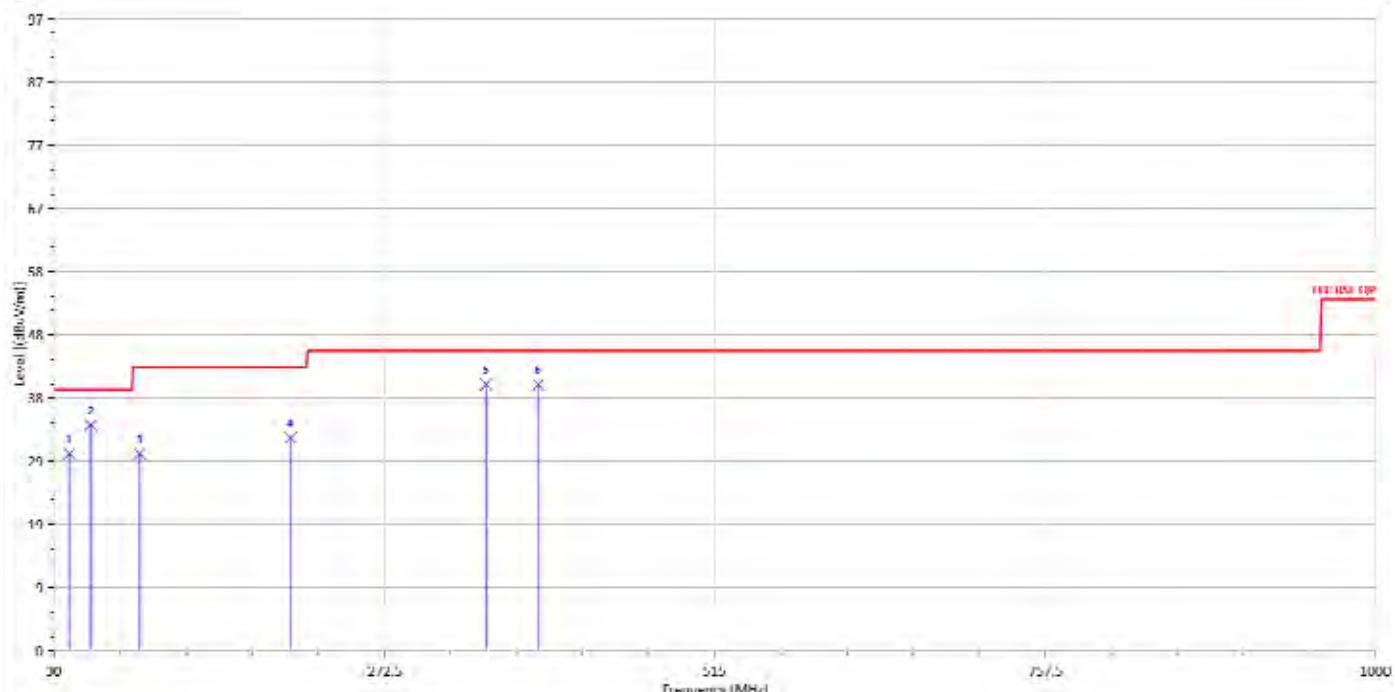
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**802.11a, 5470~5725 MHz**

Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5580 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Mid Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level		Factor	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
			Reading	Level dB $\mu$ V				
41.64	S	Peak	44.16	-13.95	30.21	40	-9.79	
57.16	S	Peak	56.63	-21.98	34.65	40	-5.35	
93.05	S	Peak	49.14	-18.95	30.19	43.5	-13.31	
203.63	S	Peak	50.03	-17.34	32.69	43.5	-10.81	
347.19	S	Peak	52.47	-11.64	40.84	46	-5.16	
385.99	S	Peak	50.97	-10.18	40.79	46	-5.21	

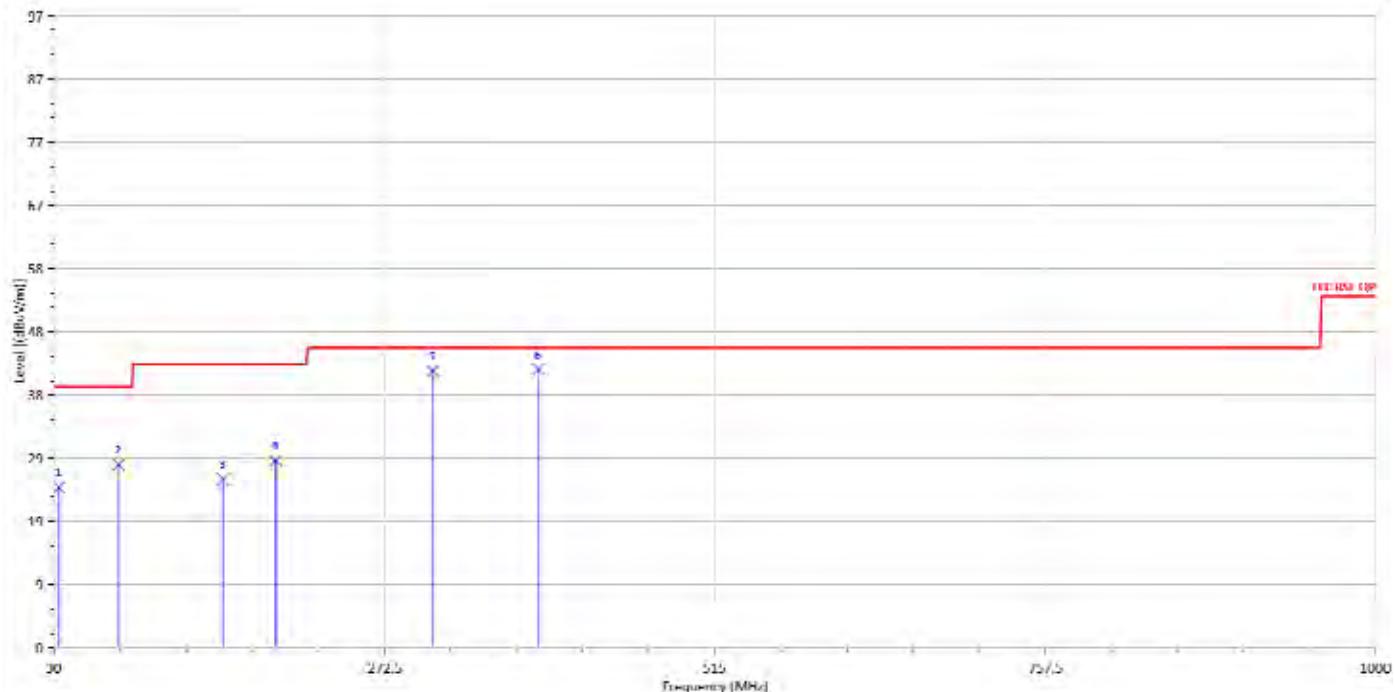
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Operation Mode : 802.11a Test Date : 2016/9/14  
 Fundamental Frequency : 5580 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH Mid Test Engineer : Pony  
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level		Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
			Level dB $\mu$ V	FS dB $\mu$ V/m				
33.88	S	Peak	33.91	24.64	-9.27	40	-15.36	
77.53	S	Peak	49.24	28.07	-21.17	40	-11.93	
154.16	S	Peak	42.79	25.82	-16.97	43.5	-17.68	
192.96	S	Peak	46.68	28.63	-18.05	43.5	-14.87	
308.39	S	Peak	55.18	42.44	-12.74	46	-3.56	
385.99	S	Peak	52.87	42.69	-10.18	46	-3.31	

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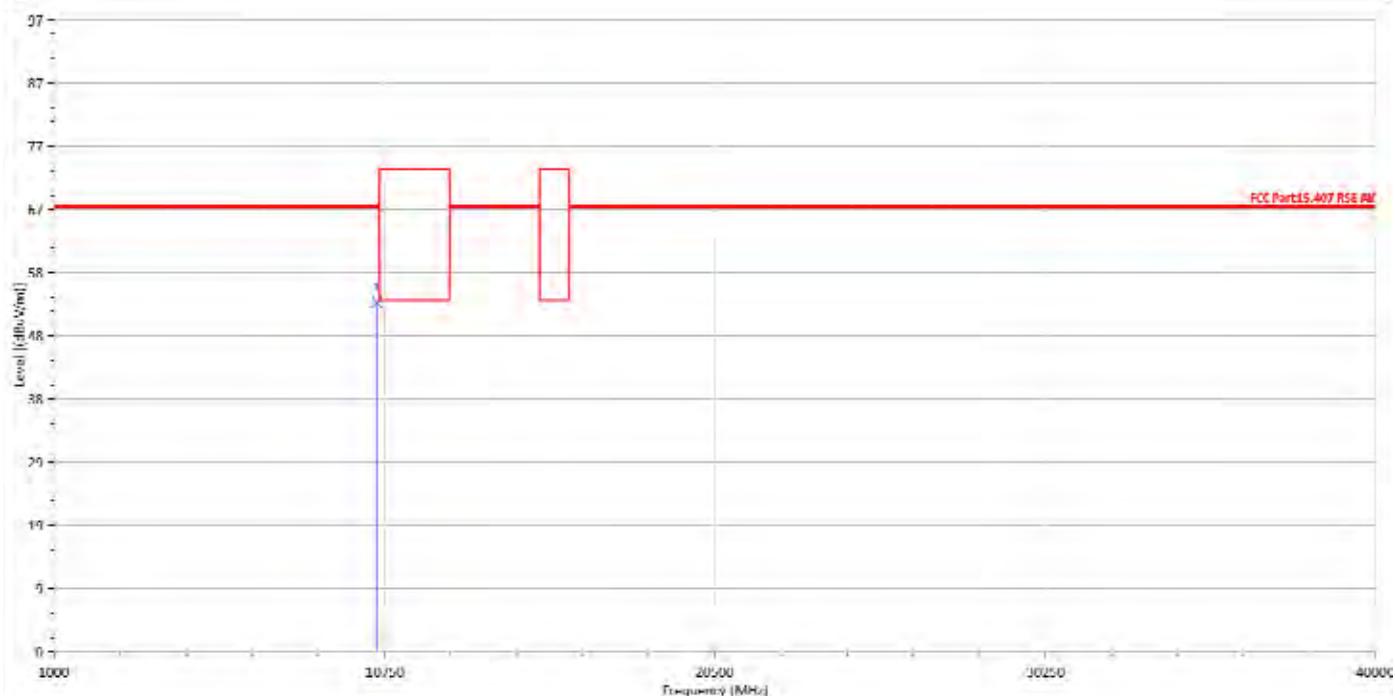
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## Above 1GHz Worst-Case Data:

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

Operation Mode :	802.11a	Test Date :	2016/9/14
Fundamental Frequency :	5260 MHz	Temp. / Humi. :	22.7deg_C/57RH
Operation Band :	Tx CH Low	Test Engineer :	Pony
EUT Pol. :	E2	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
10520.00	H	Peak	36.27	17.39	53.66	68.3	-14.64

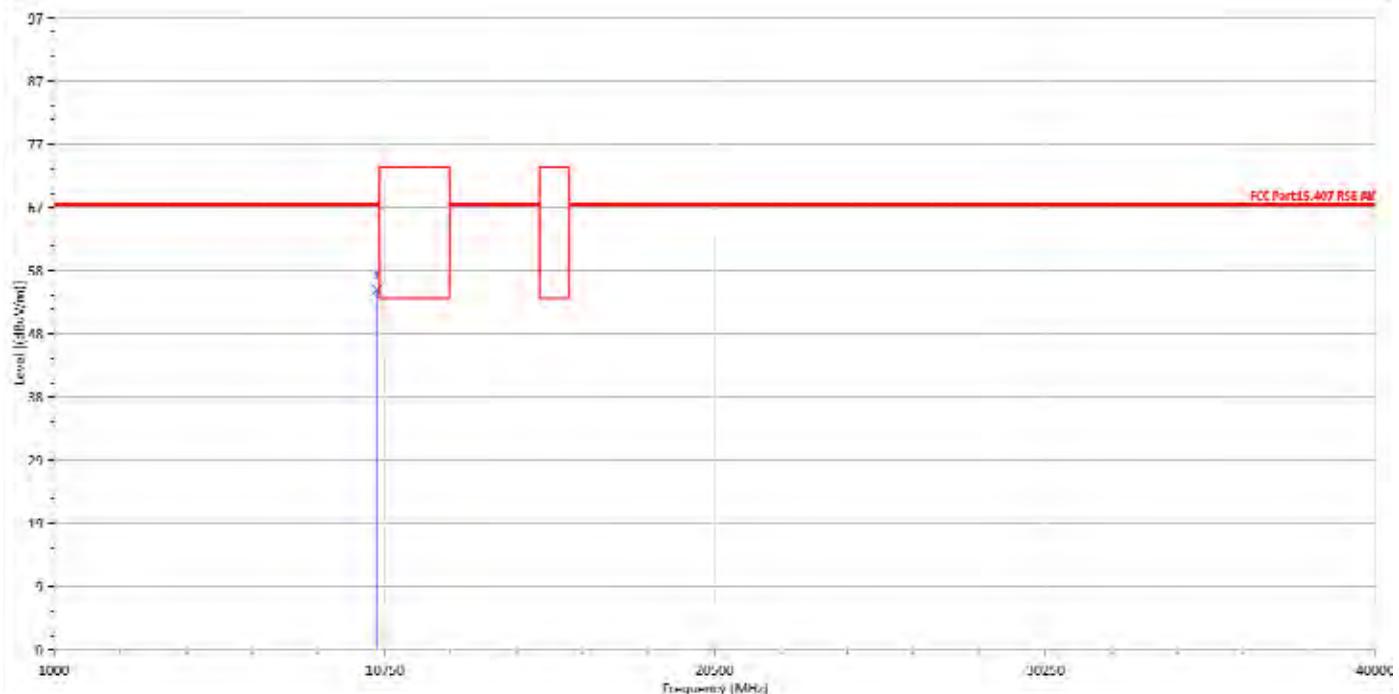
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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5260 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector Mode	Spectrum Reading	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	Level dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
10520.00	H	Peak	37.79	17.39	55.18	68.3	-13.12

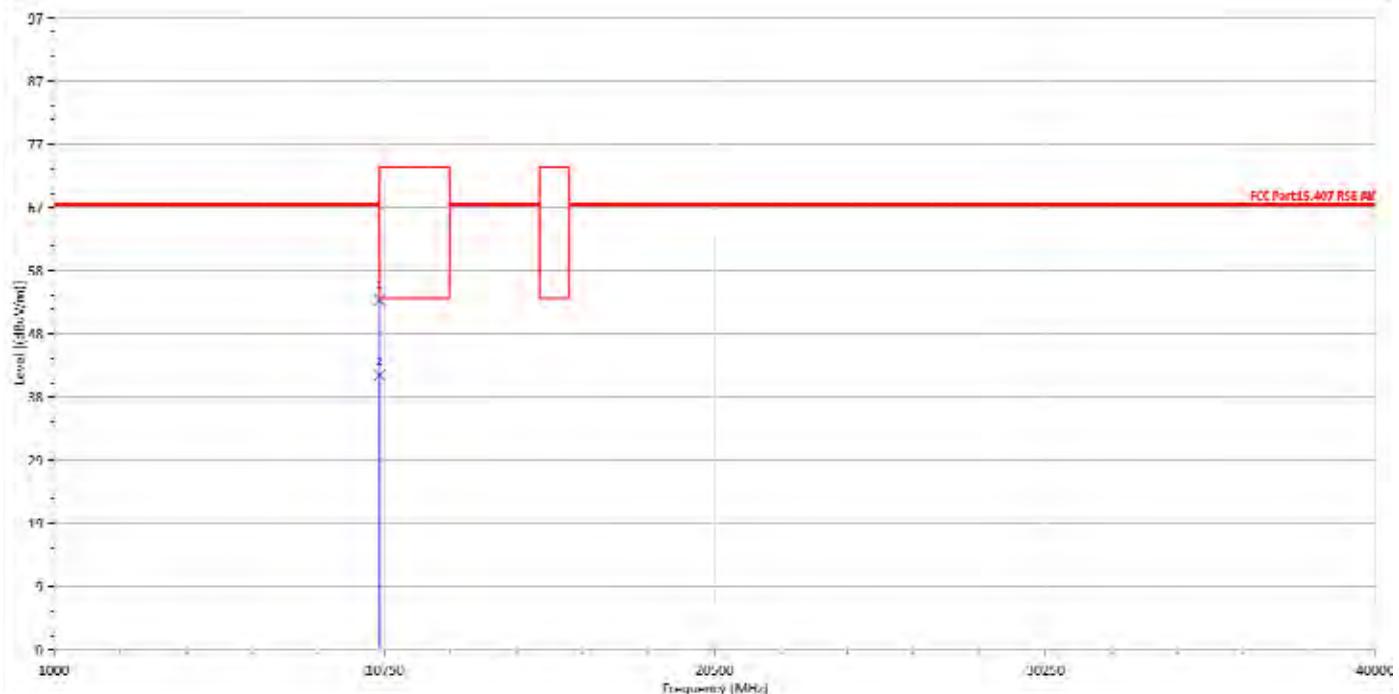
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Operation Mode : 802.11a      Test Date : 2016/9/14  
 Fundamental Frequency : 5300 MHz      Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH Mid      Test Engineer : Pony  
 EUT Pol. : E2      Measurement Antenna Pol. : Vertical



Freq. MHz	Note	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
10600.00	H	Peak	36.29	17.41	53.70	74	-20.30
10600.00	H	Average	24.65	17.41	42.06	54	-11.94

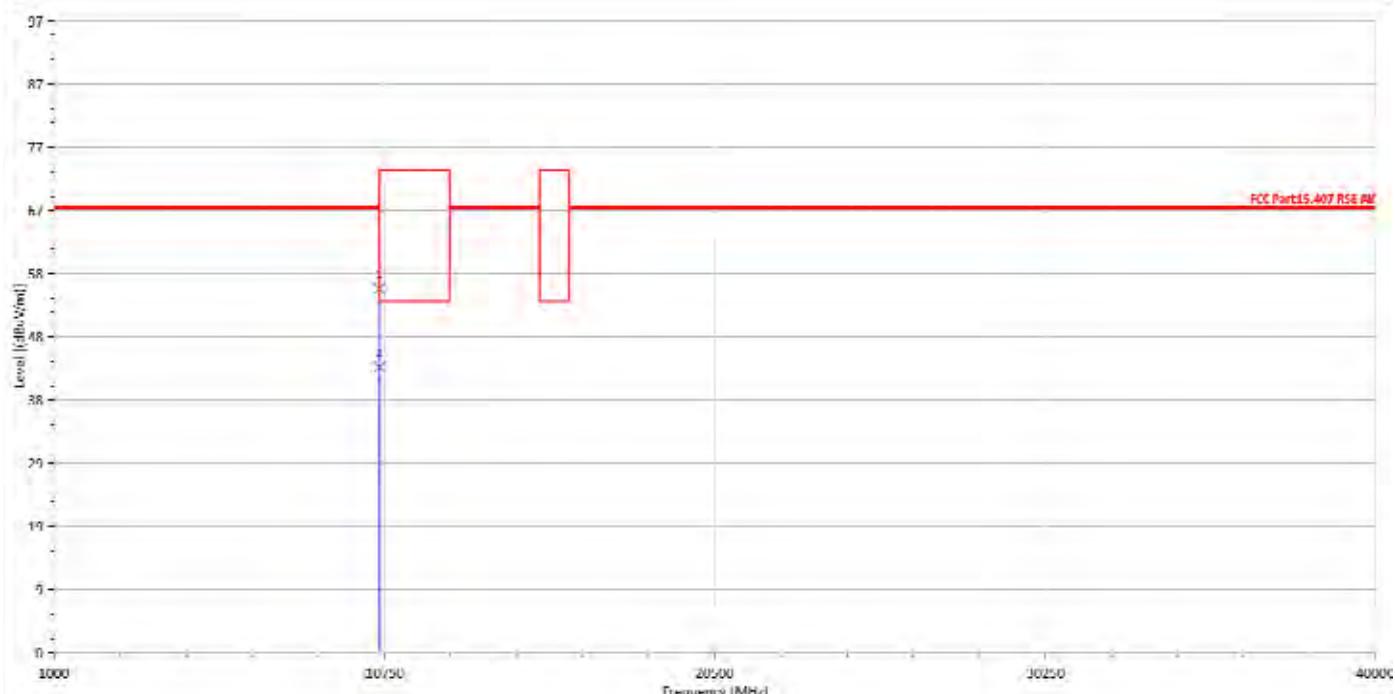
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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5300 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Mid Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note	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
10600.00	H	Peak	38.43	17.41	55.84	74	-18.16
10600.00	H	Average	26.42	17.41	43.83	54	-10.17

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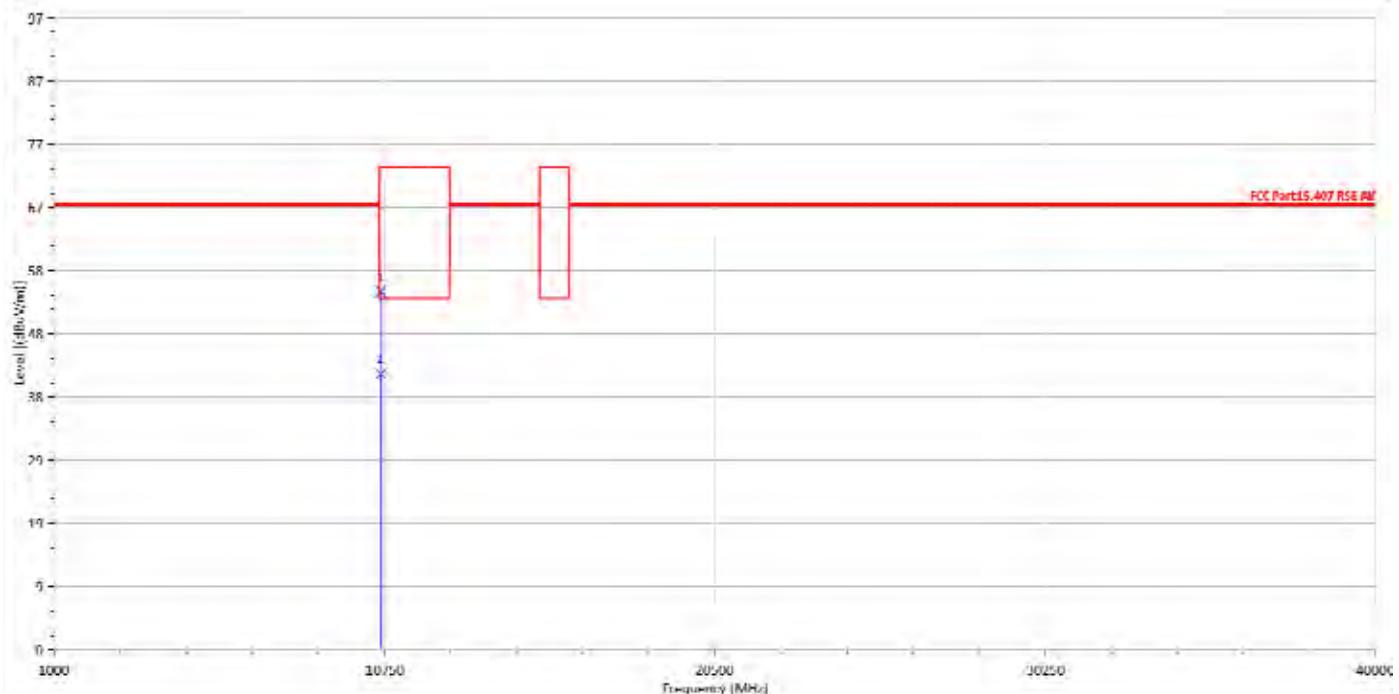
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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5320 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH High Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note	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
10640.00	H	Peak	37.35	17.56	54.91	74	-19.09
10640.00	H	Average	24.73	17.56	42.29	54	-11.71

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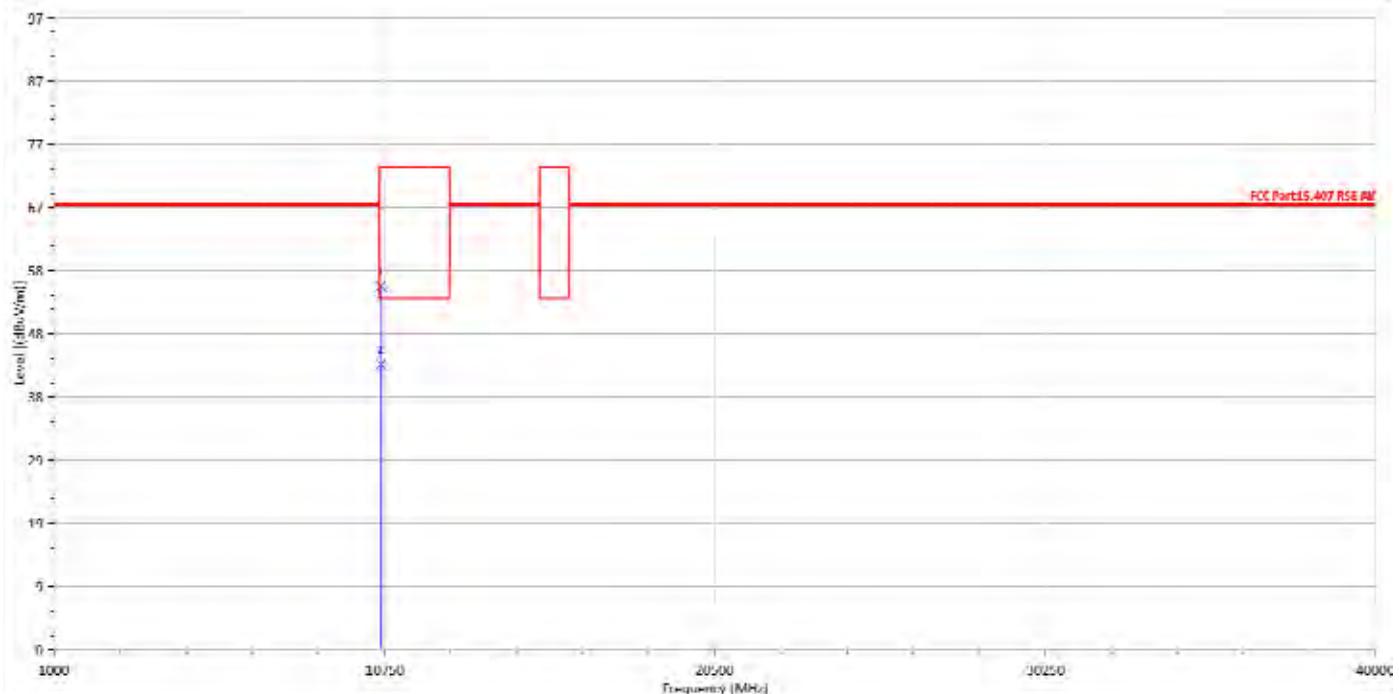
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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5320 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH High Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note	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
10640.00	H	Peak	38.16	17.56	55.72	74	-18.28
10640.00	H	Average	26.19	17.56	43.75	54	-10.25

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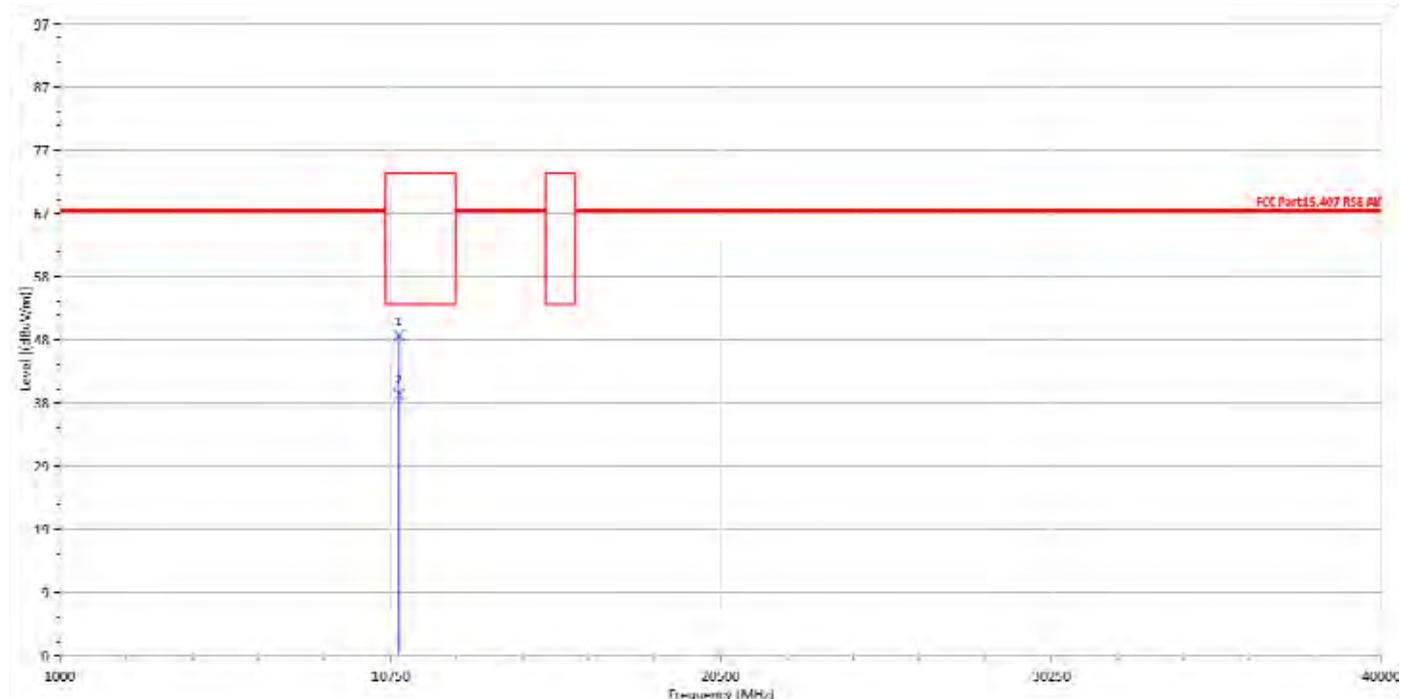
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## Radiated Spurious Emission Measurement Result 802.11a, 5470~5725 MHz

Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5500 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



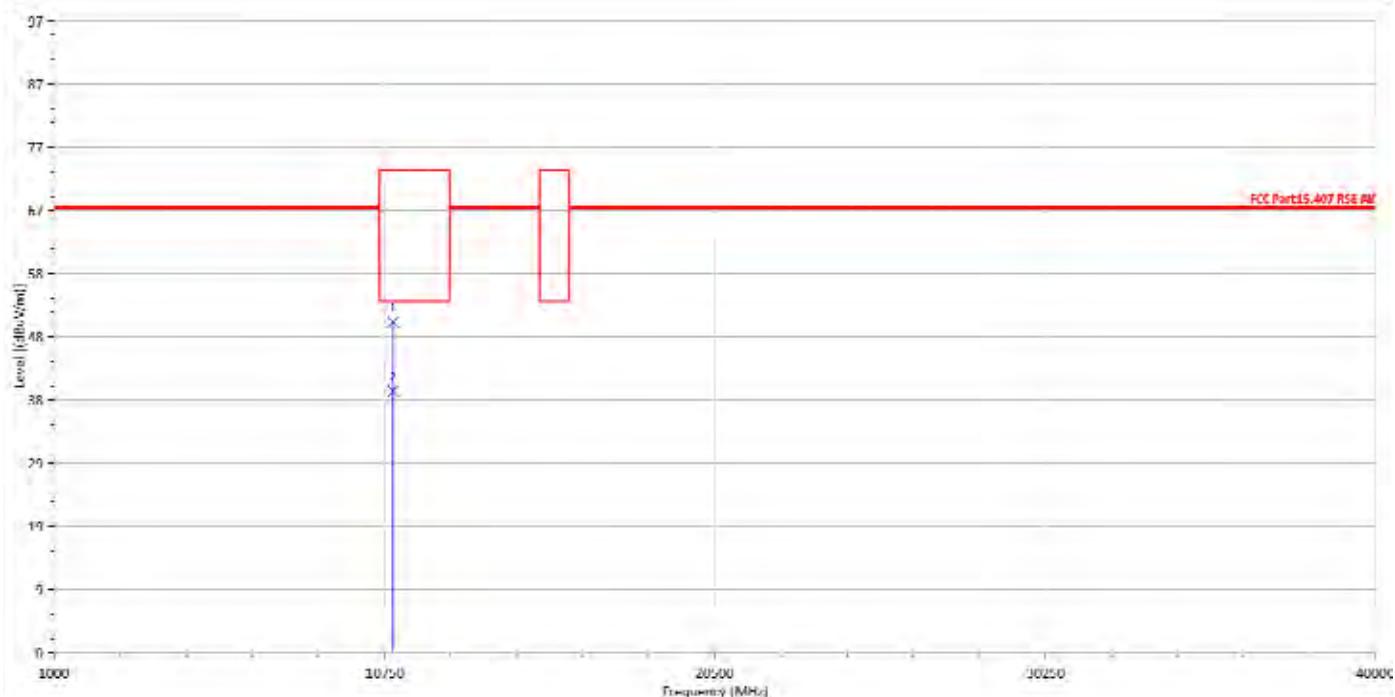
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @ 3m dB $\mu$ V/m	Margin dB
11000.00	H	Peak	30.09	19.11	49.20	74	-24.80
11000.00	H	Average	20.98	19.11	40.09	54	-13.91

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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5500 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 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
11000.00	H	Peak	31.68	19.11	50.79	74	-23.21
11000.00	H	Average	21.02	19.11	40.13	54	-13.87

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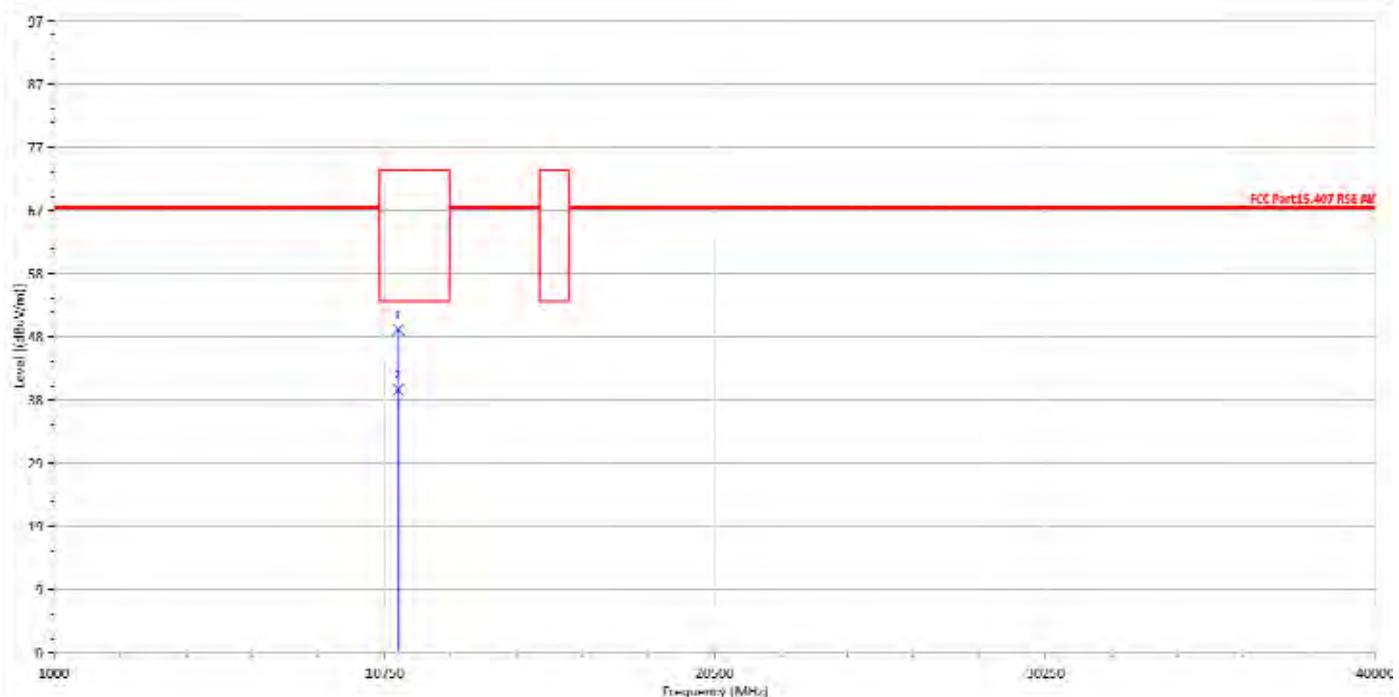
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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5580 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Mid Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



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
11160.00	H	Peak	30.34	19.26	49.60	74	-24.40
11160.00	H	Average	21.10	19.26	40.36	54	-13.64

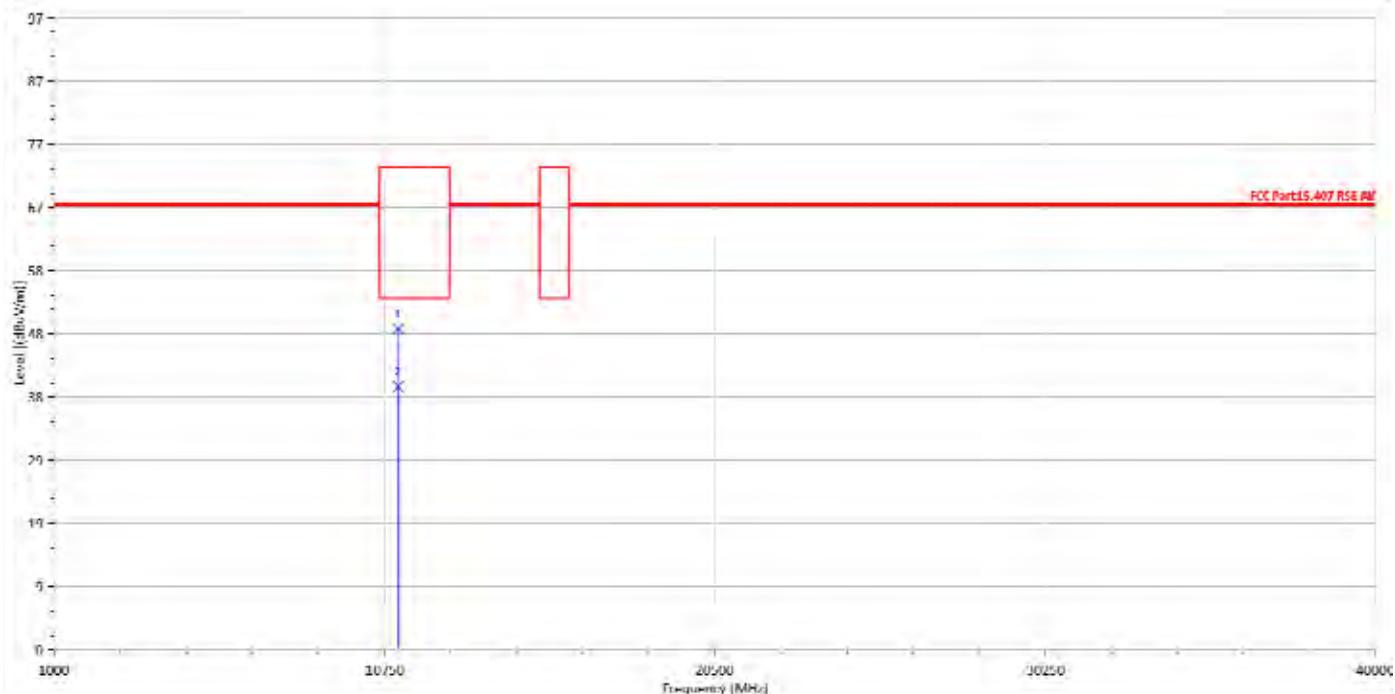
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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5580 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Mid Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



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
11160.00	H	Peak	30.02	19.26	49.28	74	-24.72
11160.00	H	Average	21.11	19.26	40.37	54	-13.63

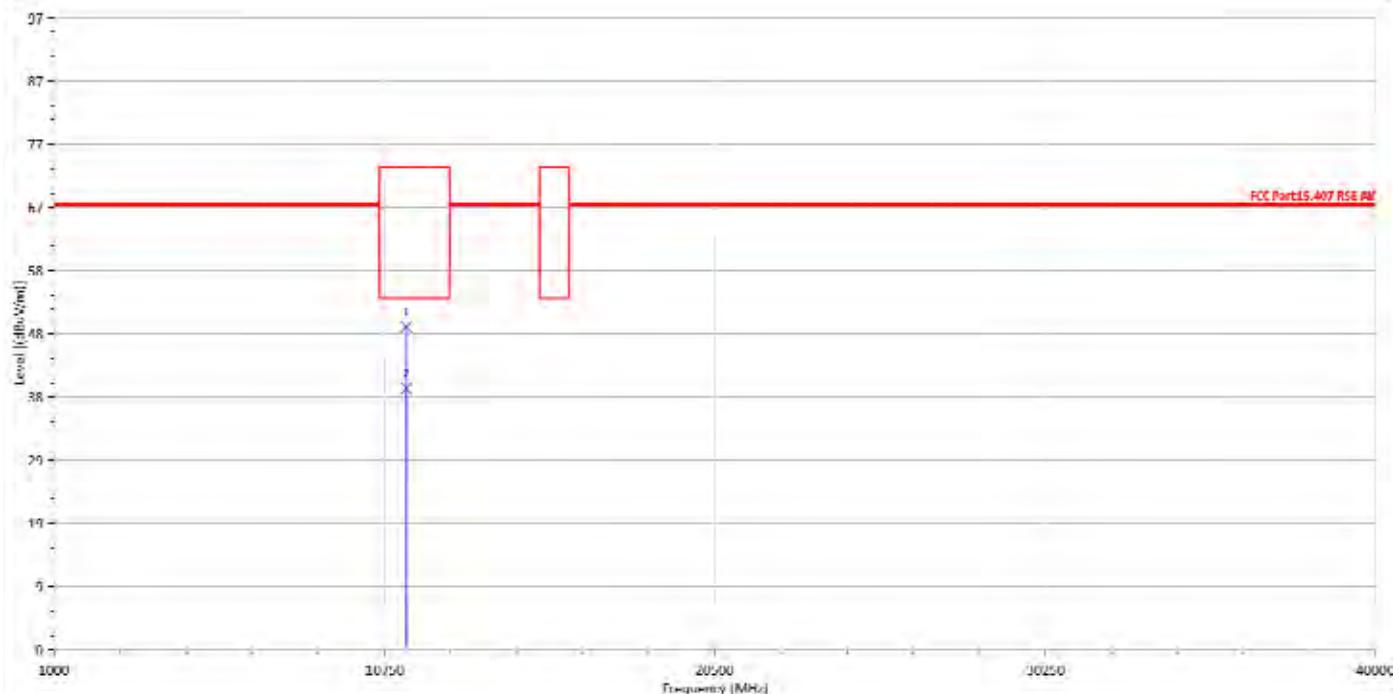
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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5700 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH High Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



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
11400.00	H	Peak	30.78	18.78	49.55	74	-24.45
11400.00	H	Average	21.32	18.78	40.10	54	-13.90

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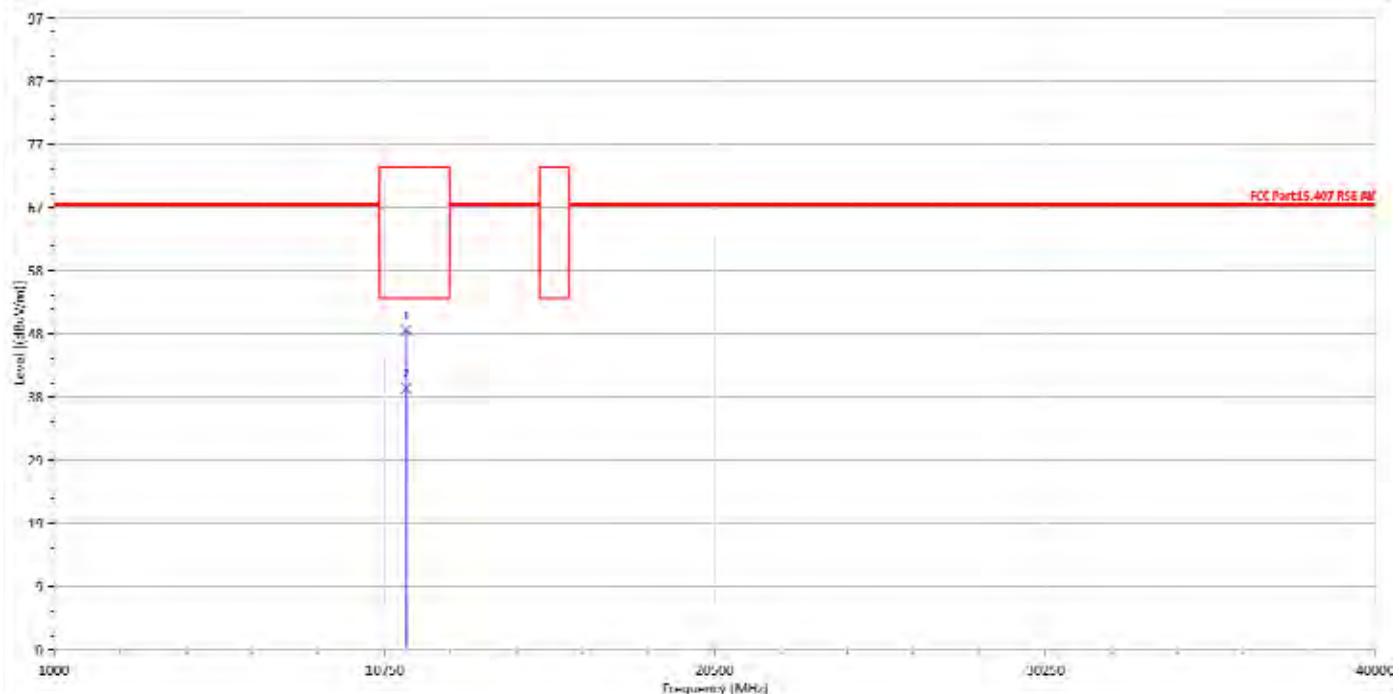
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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5700 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH High Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



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
11400.00	H	Peak	30.31	18.78	49.08	74	-24.92
11400.00	H	Average	21.34	18.78	40.12	54	-13.88

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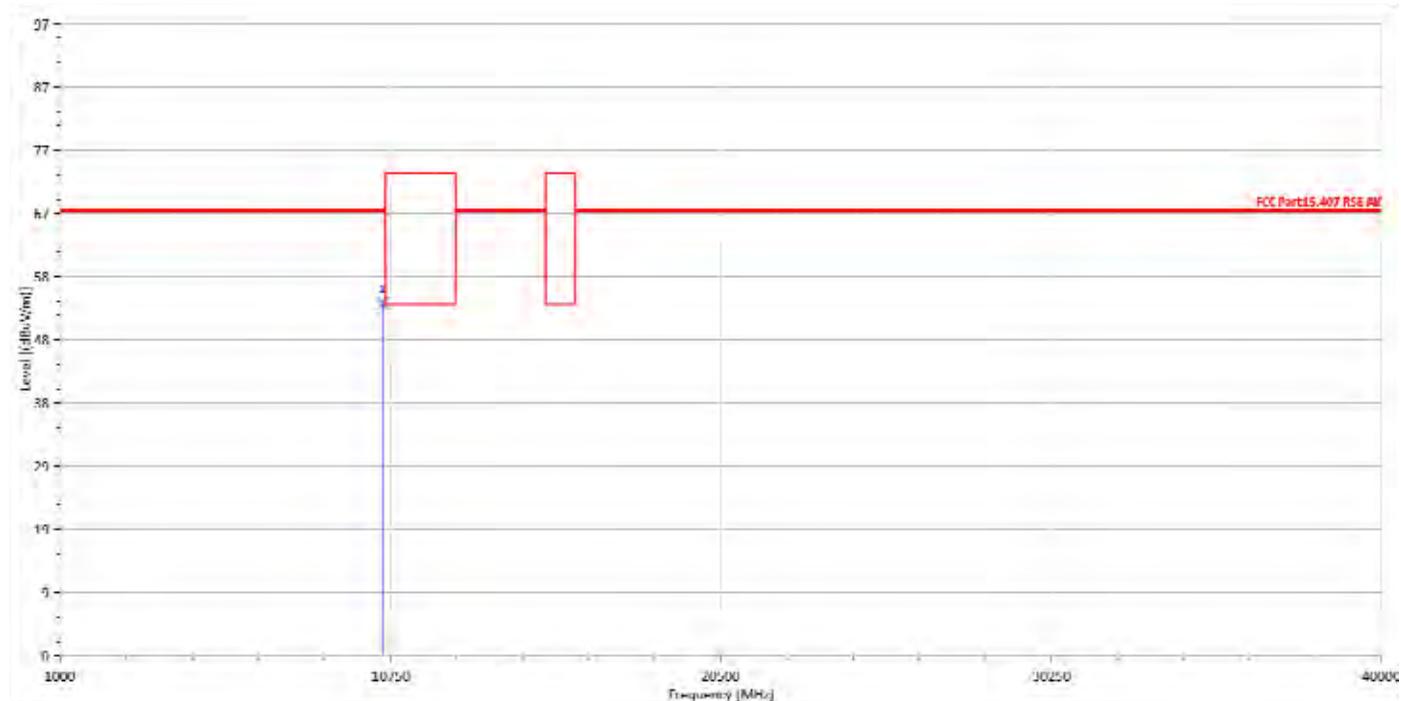
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## Radiated Spurious Emission Measurement Result 802.11ac VHT20, 5250~5350 MHz

Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5260 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



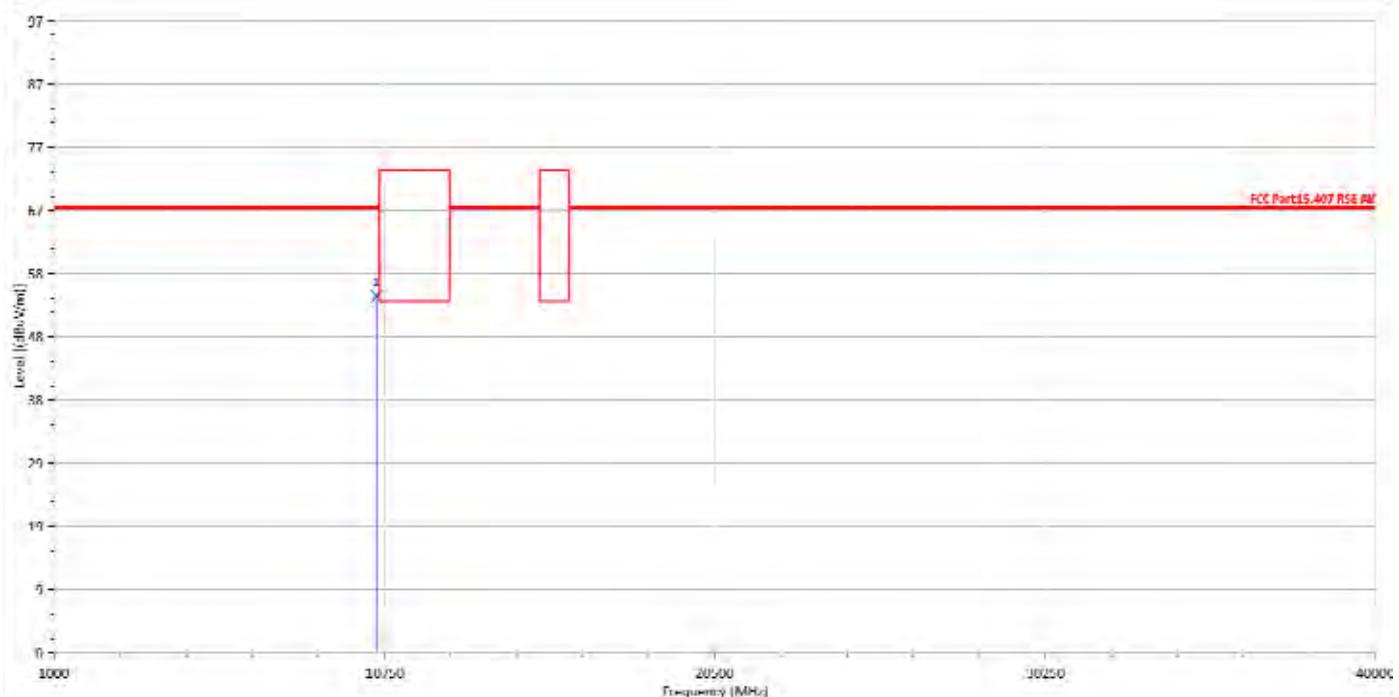
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
10520.00	H	Peak	36.73	17.39	54.12	68.3	-14.18

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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5260 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10520.00	H	Peak	37.31	17.39	54.70	68.3	-13.60

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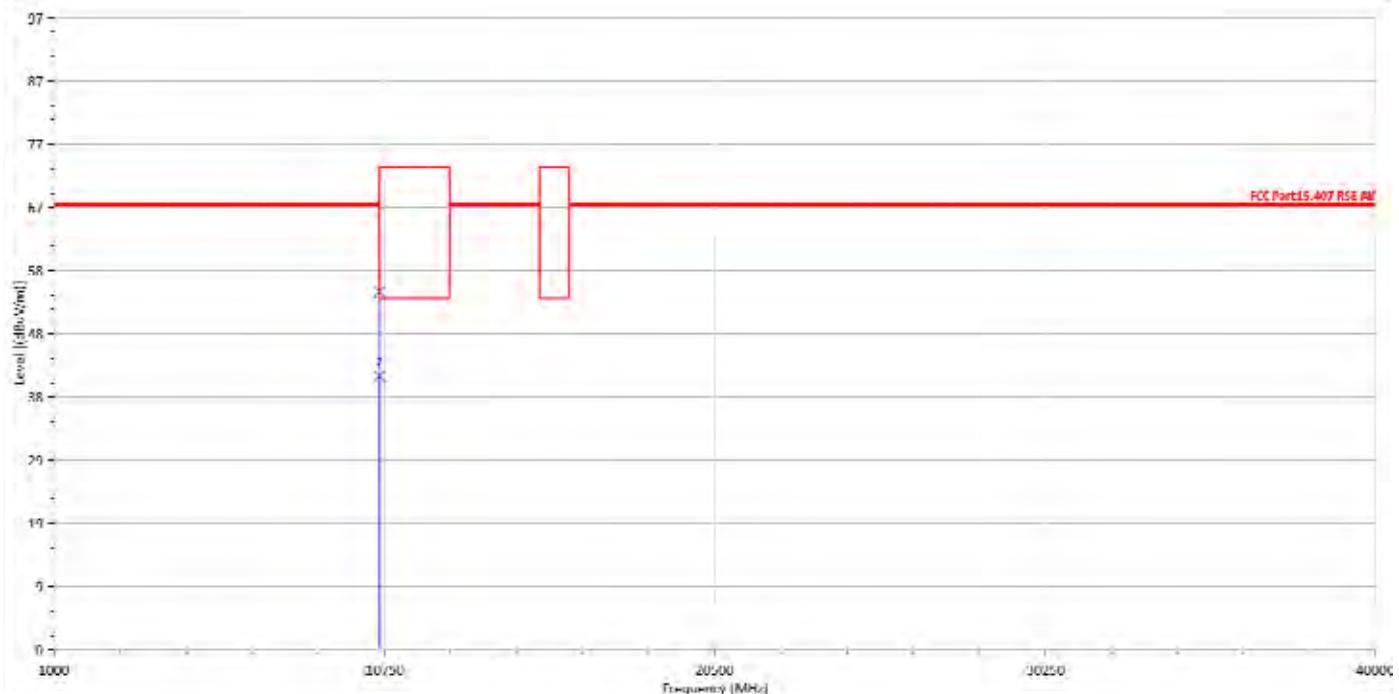
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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5300 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Mid Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note	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
10600.00	H	Peak	37.47	17.41	54.87	74	-19.13
10600.00	H	Average	24.52	17.41	41.93	54	-12.07

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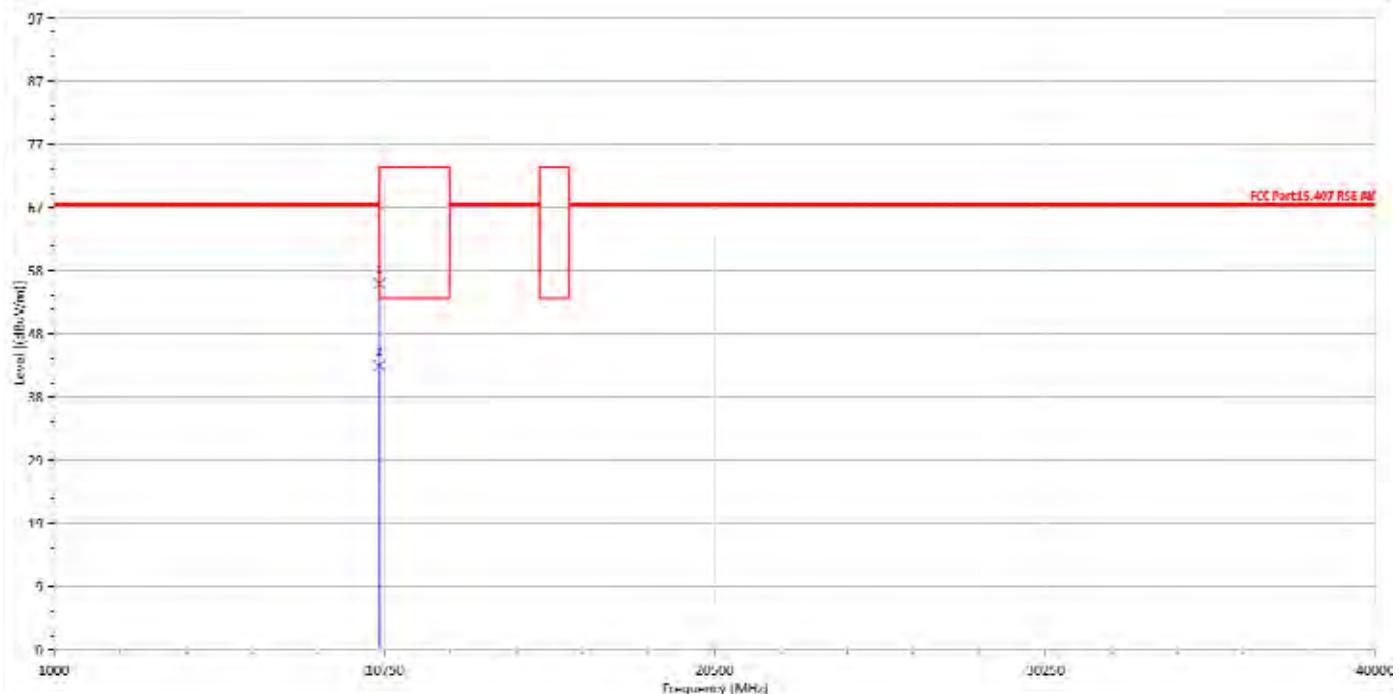
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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
 Fundamental Frequency : 5300 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH Mid Test Engineer : Pony  
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note	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
10600.00	H	Peak	38.74	17.41	56.14	74	-17.86
10600.00	H	Average	26.16	17.41	43.57	54	-10.43

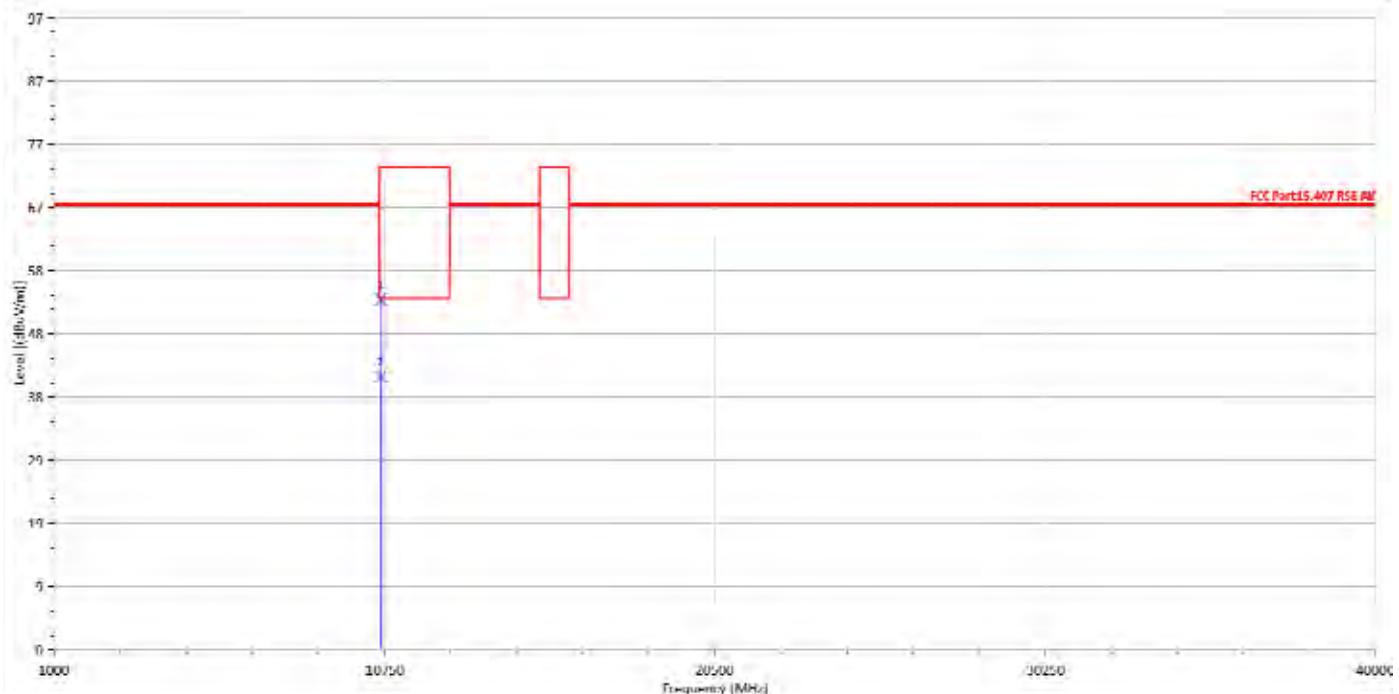
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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5320 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH High Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note	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
10640.00	H	Peak	36.20	17.56	53.76	74	-20.24
10640.00	H	Average	24.27	17.56	41.83	54	-12.17

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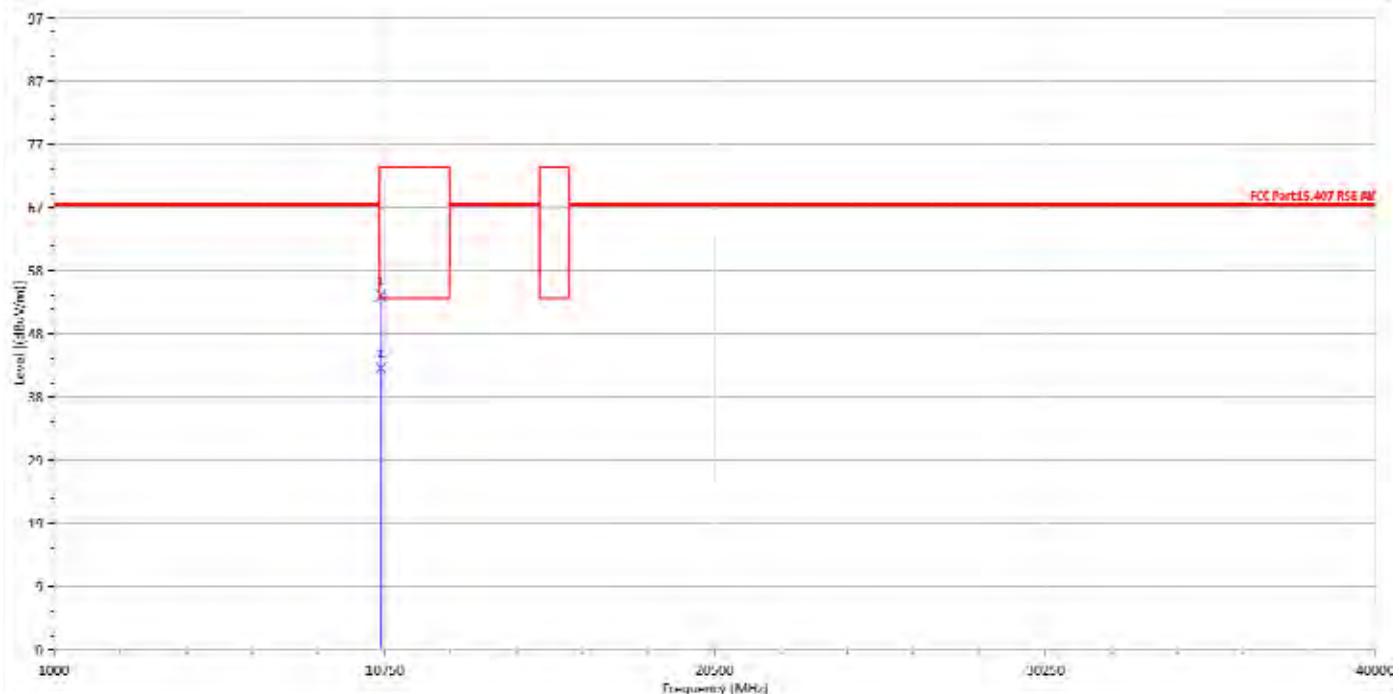
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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
 Fundamental Frequency : 5320 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH High Test Engineer : Pony  
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note	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
10640.00	H	Peak	36.76	17.56	54.32	74	-19.68
10640.00	H	Average	25.63	17.56	43.19	54	-10.81

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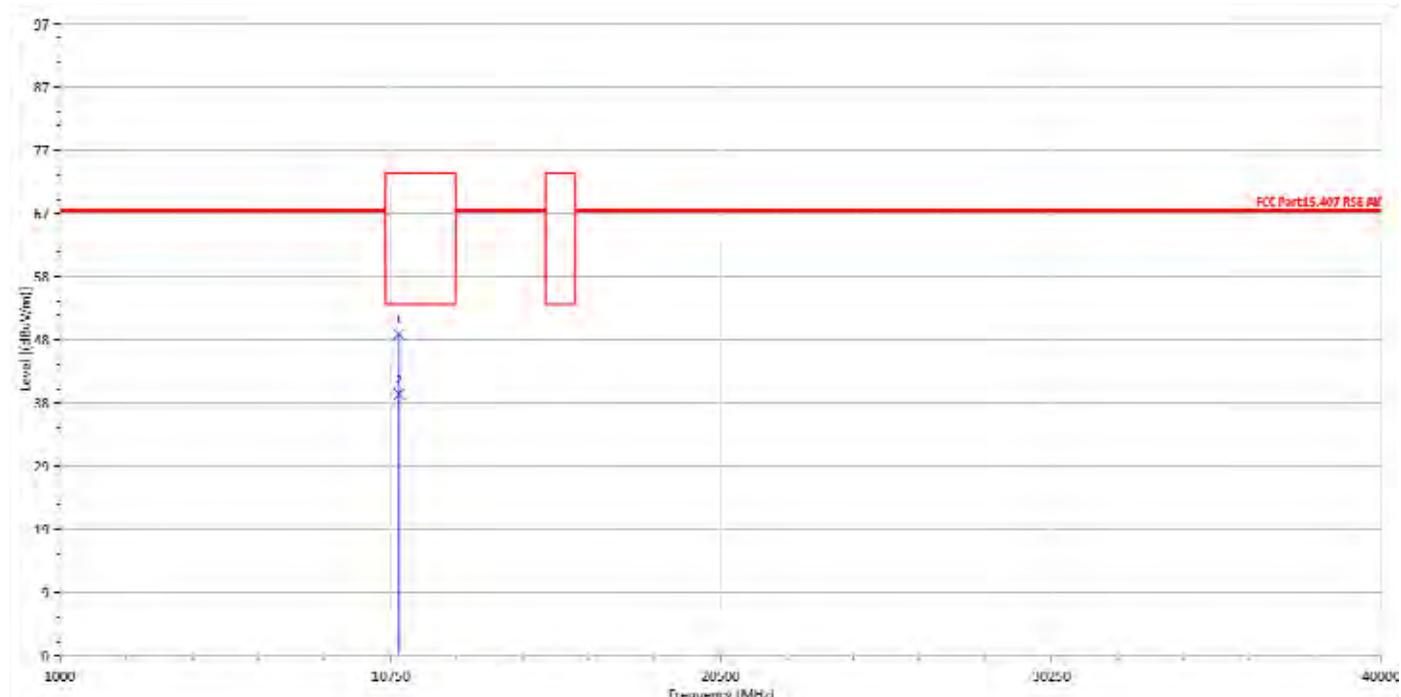
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## Radiated Spurious Emission Measurement Result 802.11ac VHT20, 5470~5725 MHz

Operation Mode : 802.11ac20 Test Date : 2016/9/14  
 Fundamental Frequency : 5500 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH Low Test Engineer : Pony  
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq.	Note	Detector Mode	Spectrum Reading	Factor	Actual FS	Limit @ 3m	Margin
MHz	F/H/E/S	PK/QP/AV	Level dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
11000.00	H	Peak	30.25	19.11	49.36	74	-24.64
11000.00	H	Average	21.02	19.11	40.13	54	-13.87

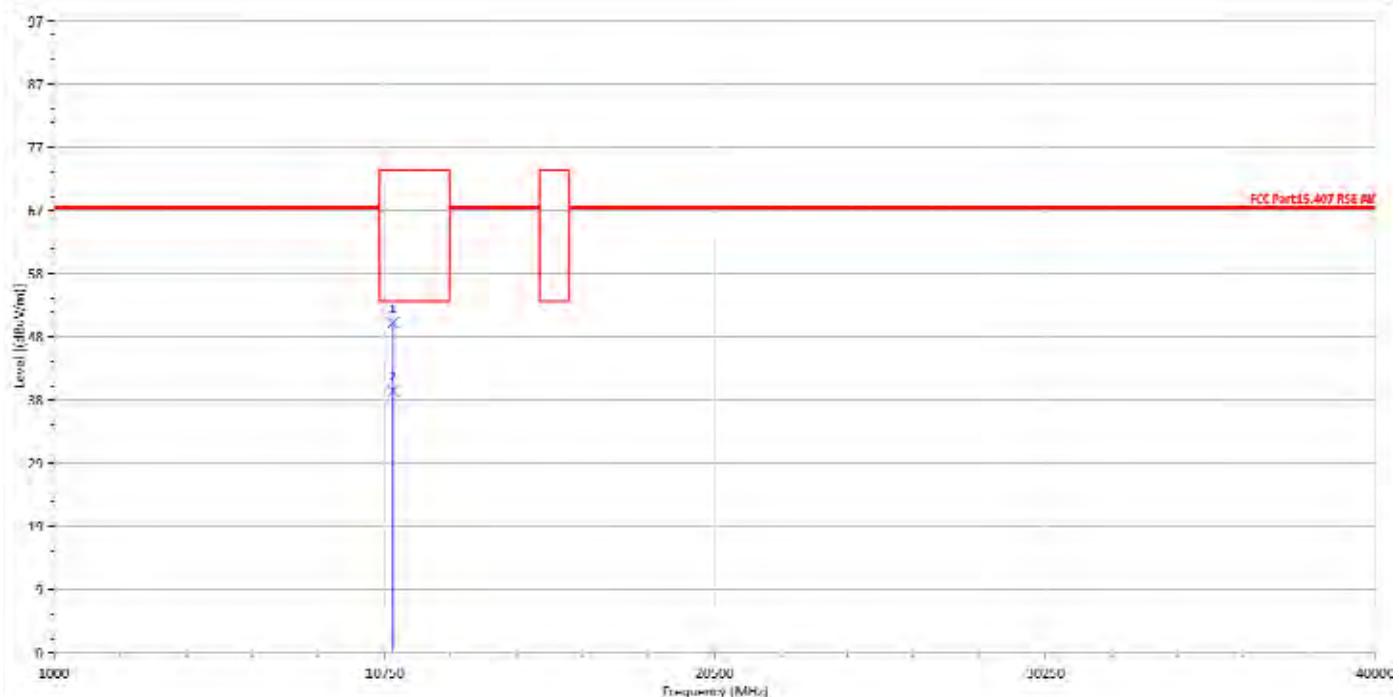
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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5500 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



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
11000.00	H	Peak	31.57	19.11	50.68	74	-23.32
11000.00	H	Average	21.03	19.11	40.14	54	-13.86

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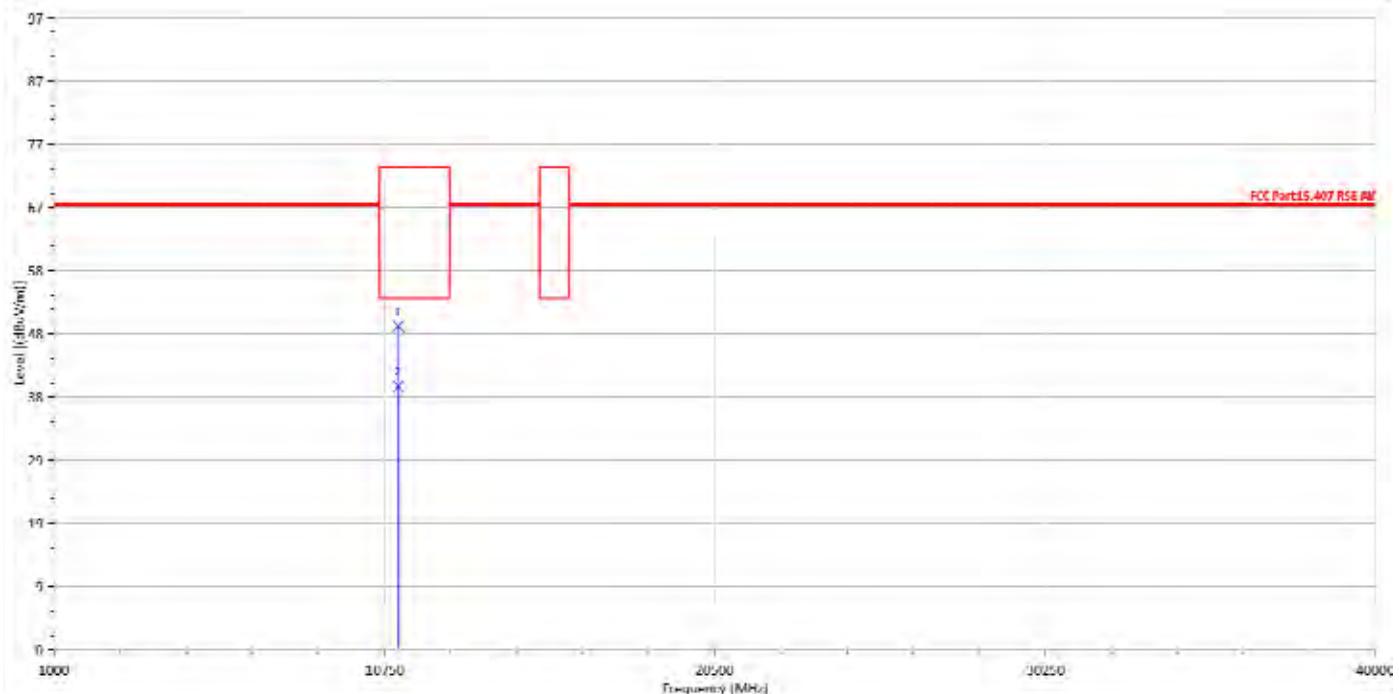
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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5580 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Mid Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



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
11160.00	H	Peak	30.42	19.26	49.68	74	-24.32
11160.00	H	Average	21.14	19.26	40.40	54	-13.60

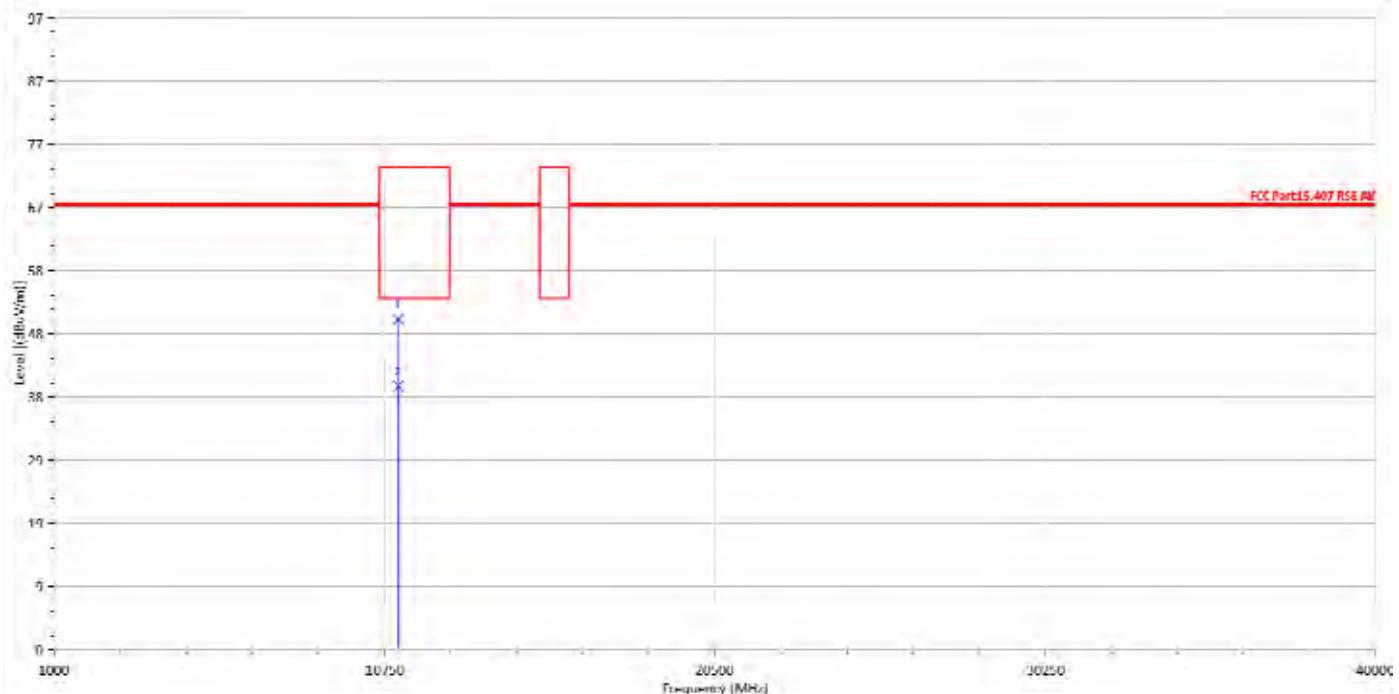
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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5580 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Mid Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



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
11160.00	H	Peak	31.48	19.26	50.74	74	-23.26
11160.00	H	Average	21.17	19.26	40.43	54	-13.57

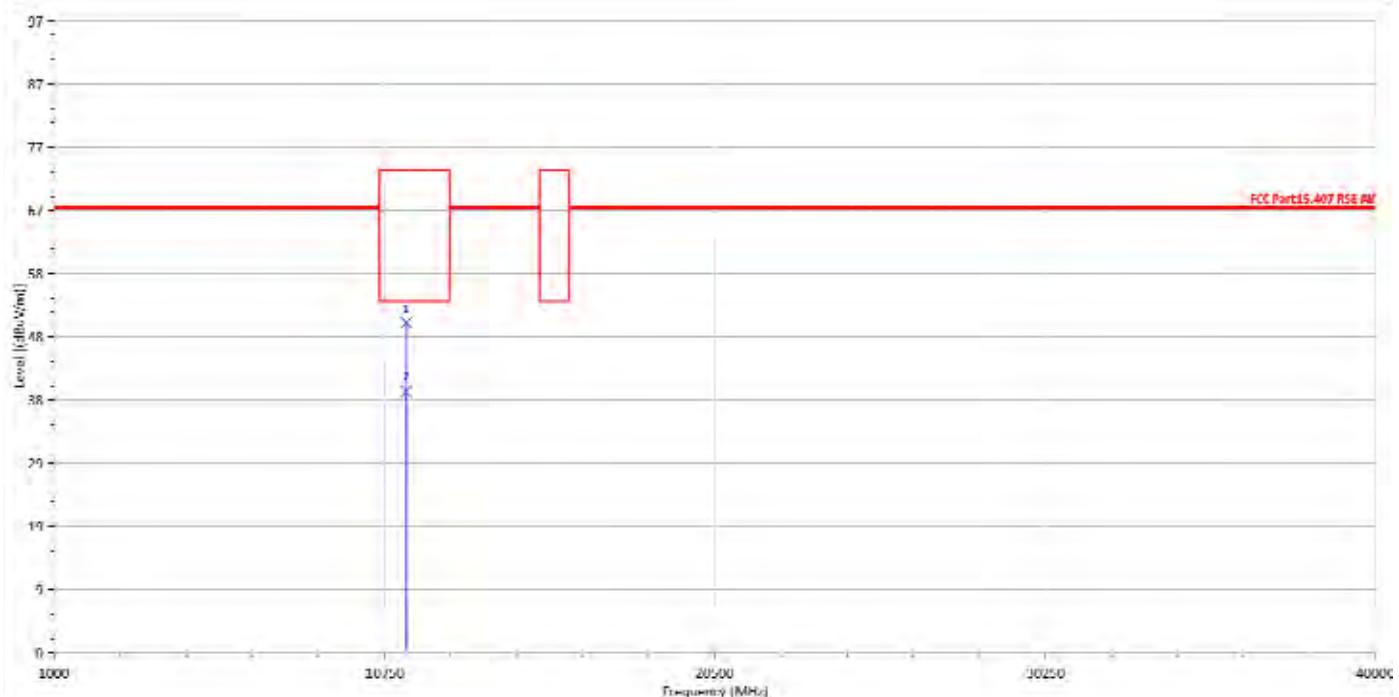
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Operation Mode : 802.11ac20      Test Date : 2016/9/14  
 Fundamental Frequency : 5700 MHz      Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH High      Test Engineer : Pony  
 EUT Pol. : E2      Measurement Antenna Pol. : Vertical



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
11400.00	H	Peak	31.90	18.78	50.67	74	-23.33
11400.00	H	Average	21.29	18.78	40.07	54	-13.93

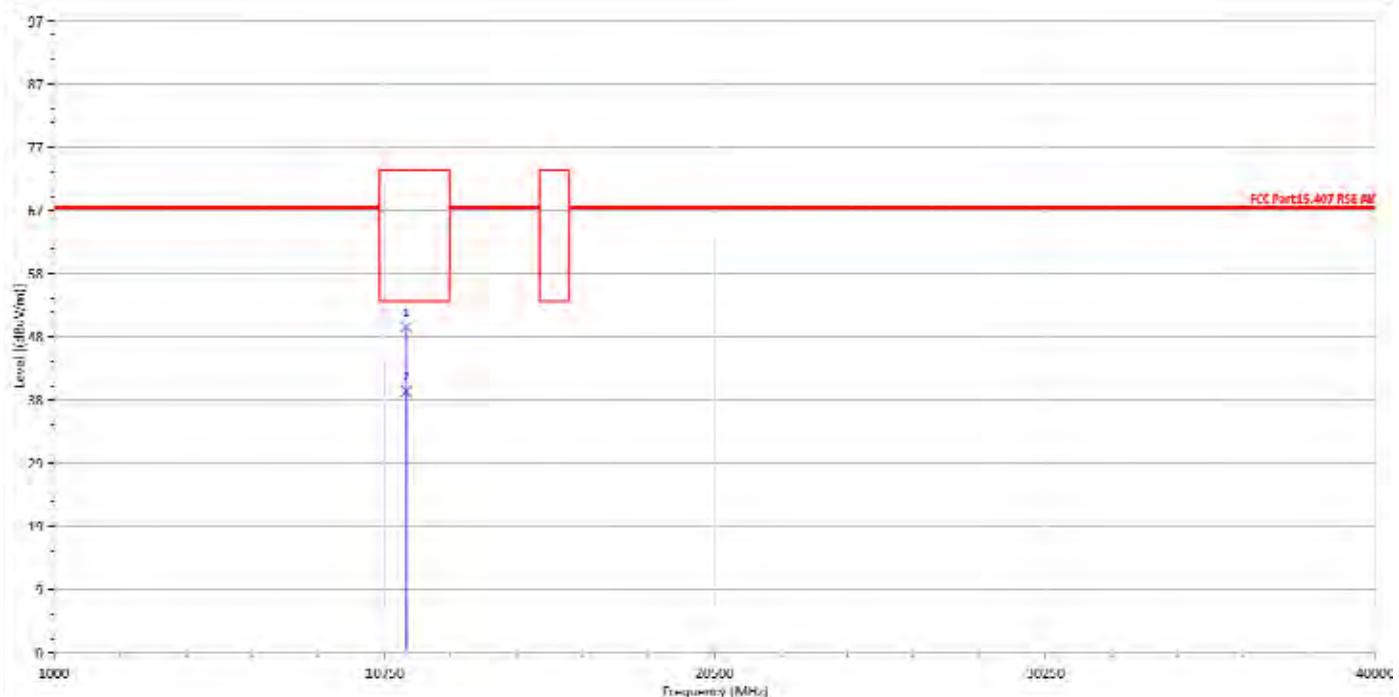
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Operation Mode : 802.11ac20      Test Date : 2016/9/14  
 Fundamental Frequency : 5700 MHz      Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH High      Test Engineer : Pony  
 EUT Pol. : E2      Measurement Antenna Pol. : Horizontal



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
11400.00	H	Peak	31.23	18.78	50.01	74	-23.99
11400.00	H	Average	21.33	18.78	40.11	54	-13.89

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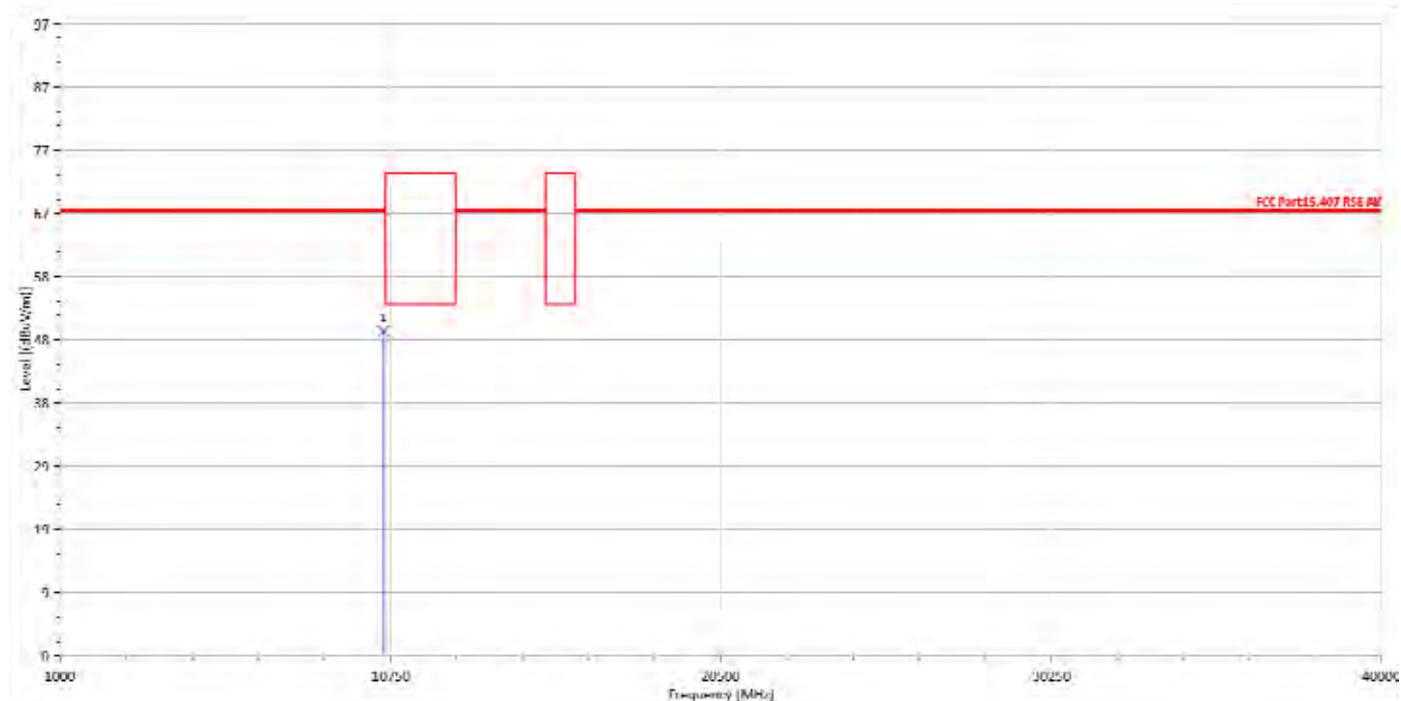
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**Radiated Spurious Emission Measurement Result 802.11ac VHT40, 5250~5350 MHz**

Operation Mode : 802.11ac40 Test Date : 2016/9/14  
Fundamental Frequency : 5270 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



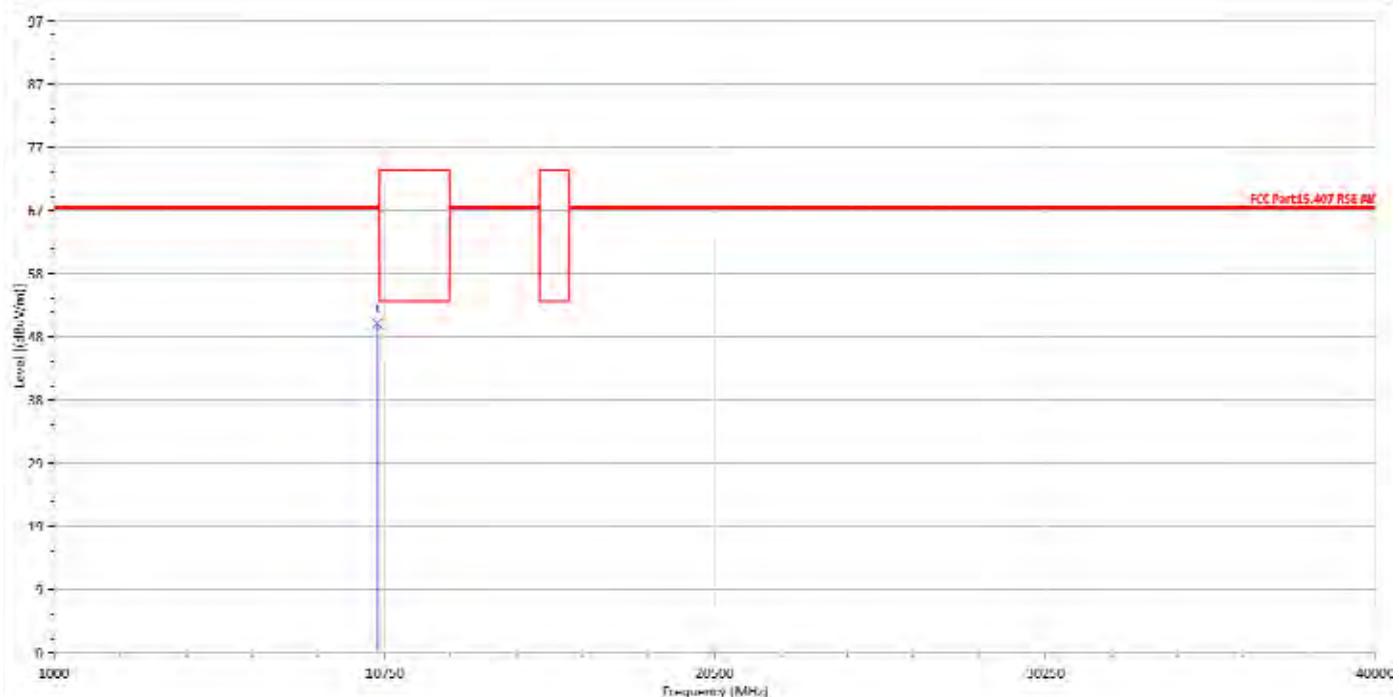
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
10540.00	H	Peak	32.49	17.34	49.82	68.3	-18.48

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Fundamental Frequency : 5270 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 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
10540.00	H	Peak	33.22	17.34	50.55	68.3	-17.75

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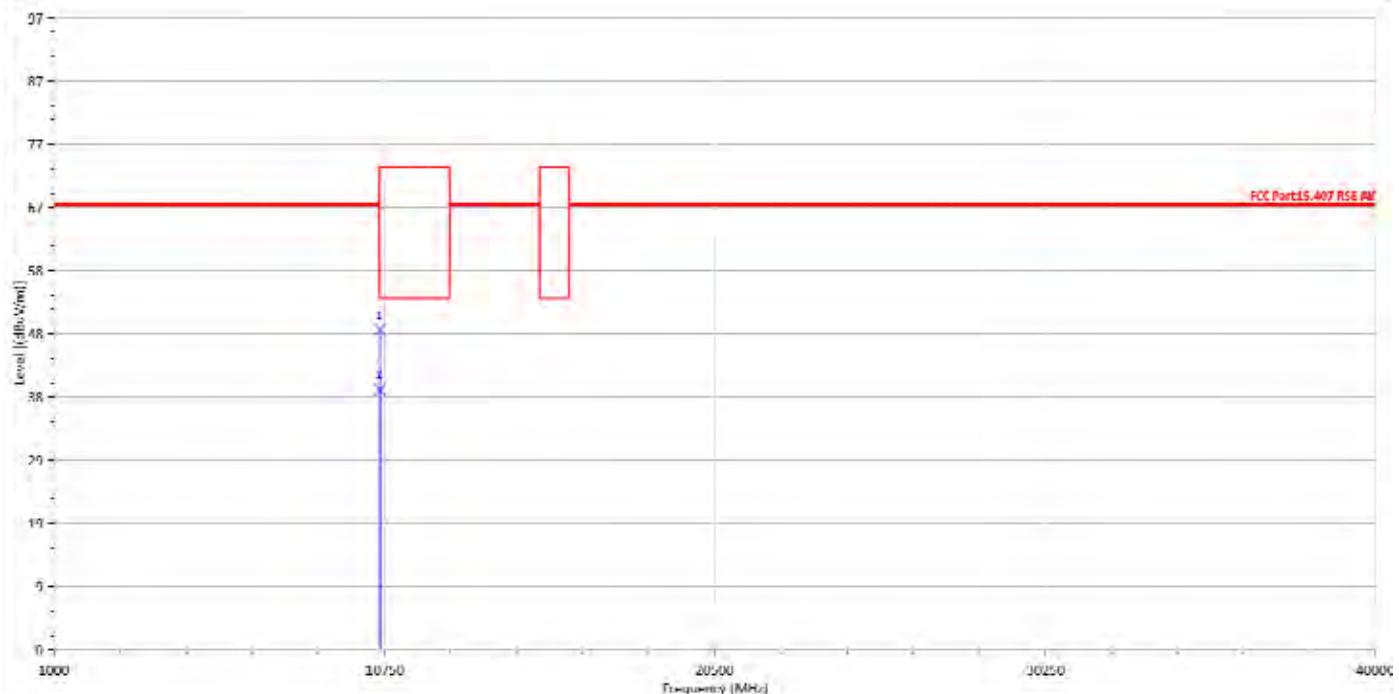
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Operation Mode : 802.11ac40      Test Date : 2016/9/14  
 Fundamental Frequency : 5310 MHz      Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH High      Test Engineer : Pony  
 EUT Pol. : E2      Measurement Antenna Pol. : Vertical



Freq. MHz	Note	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10620.00	H	Peak	31.63	17.52	49.15	74	-24.85
10620.00	H	Average	22.38	17.52	39.90	54	-14.10

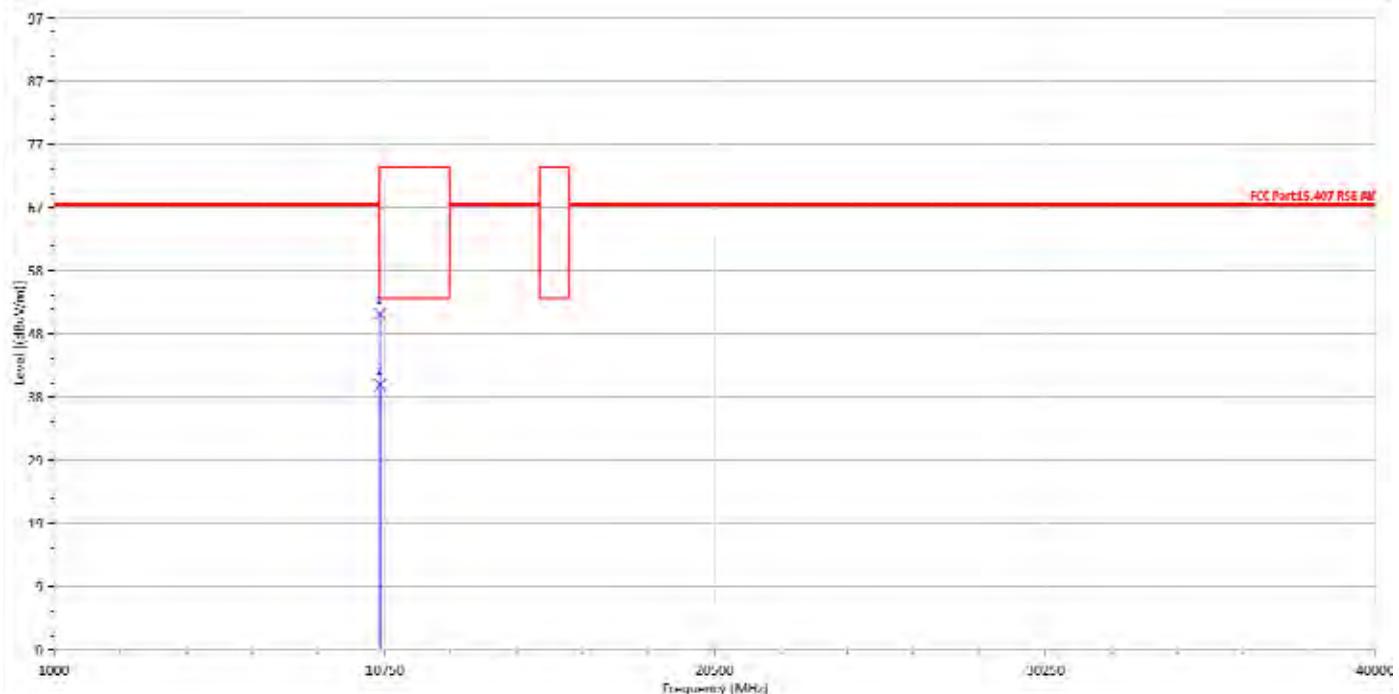
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Fundamental Frequency : 5310 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH High Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note	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
10620.00	H	Peak	34.06	17.52	51.58	74	-22.42
10620.00	H	Average	23.08	17.52	40.60	54	-13.40

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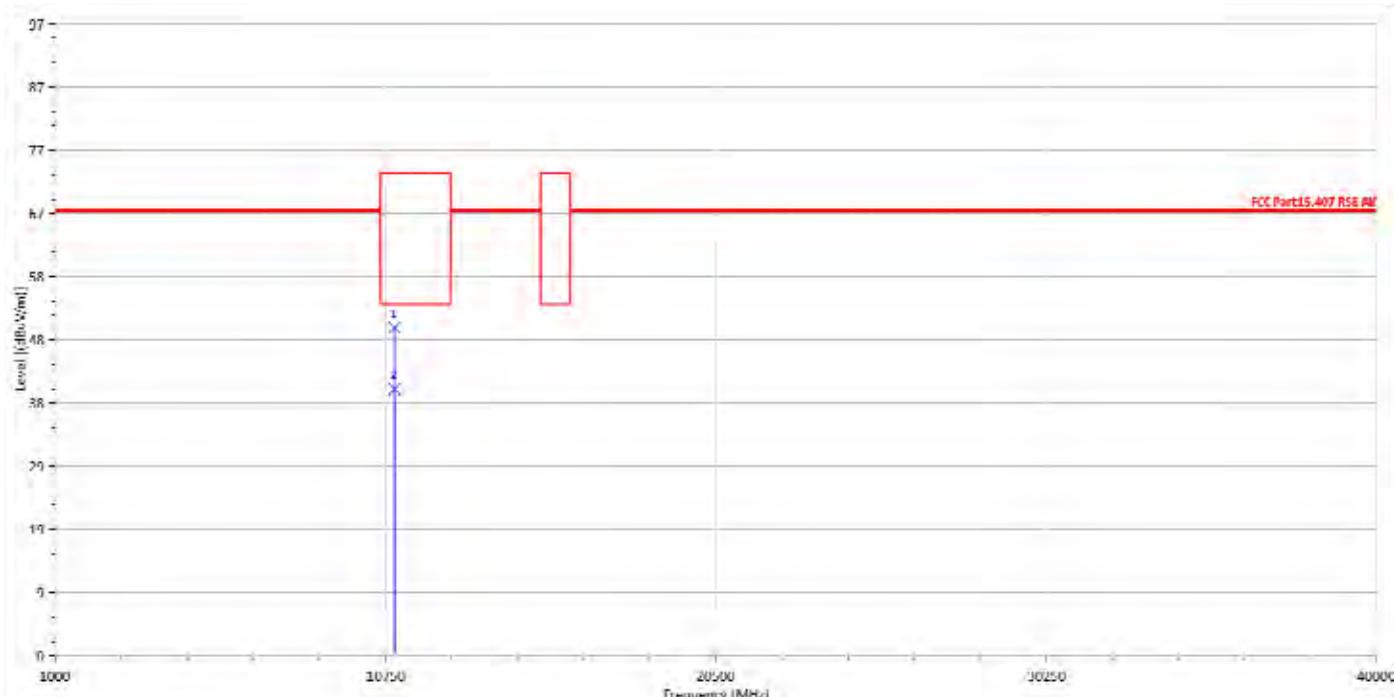
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**Radiated Spurious Emission Measurement Result 802.11ac VHT40, 5470~5725 MHz**

Operation Mode : 802.11ac40 Test Date : 2016/9/14  
Fundamental Frequency : 5510 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



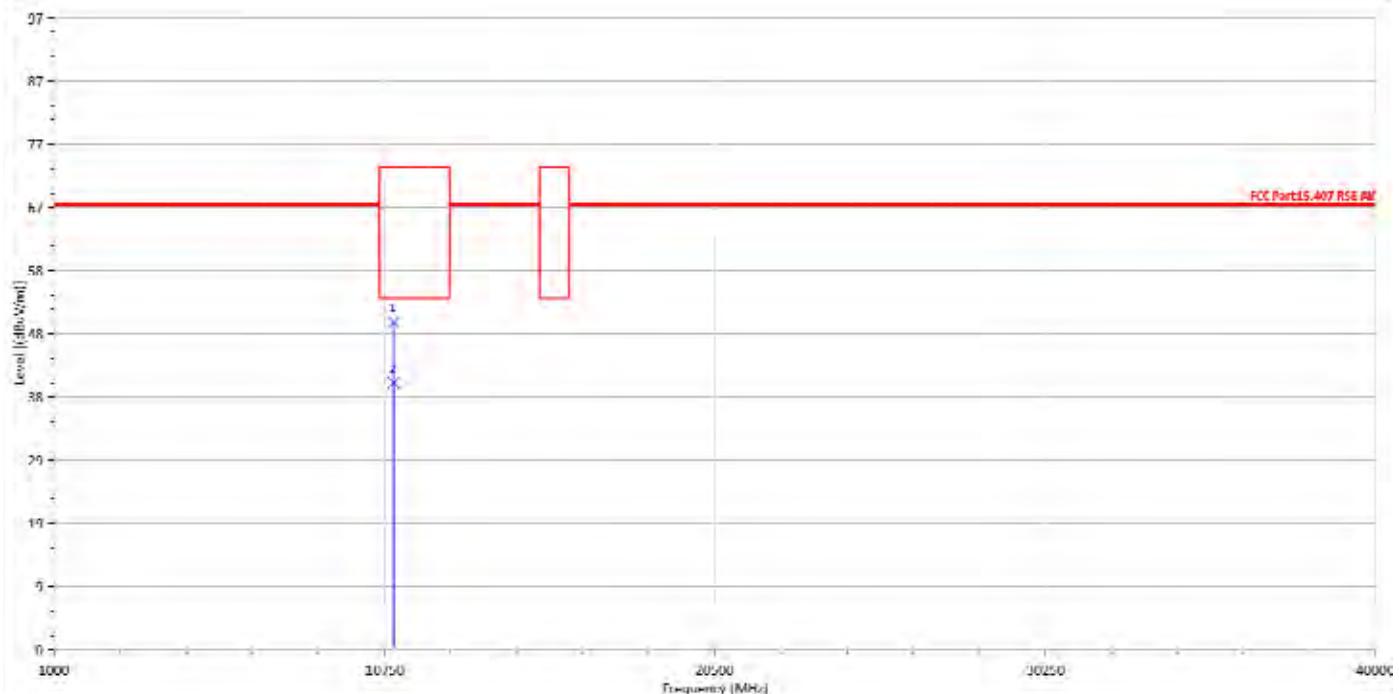
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @ 3m dB $\mu$ V/m	Margin dB
11020.00	H	Peak	30.43	19.93	50.36	74	-23.64
11020.00	H	Average	20.93	19.93	40.86	54	-13.14

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Operation Mode : 802.11ac40 Test Date : 2016/9/14  
Fundamental Frequency : 5510 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 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
11020.00	H	Peak	30.37	19.93	50.29	74	-23.71
11020.00	H	Average	20.98	19.93	40.91	54	-13.09

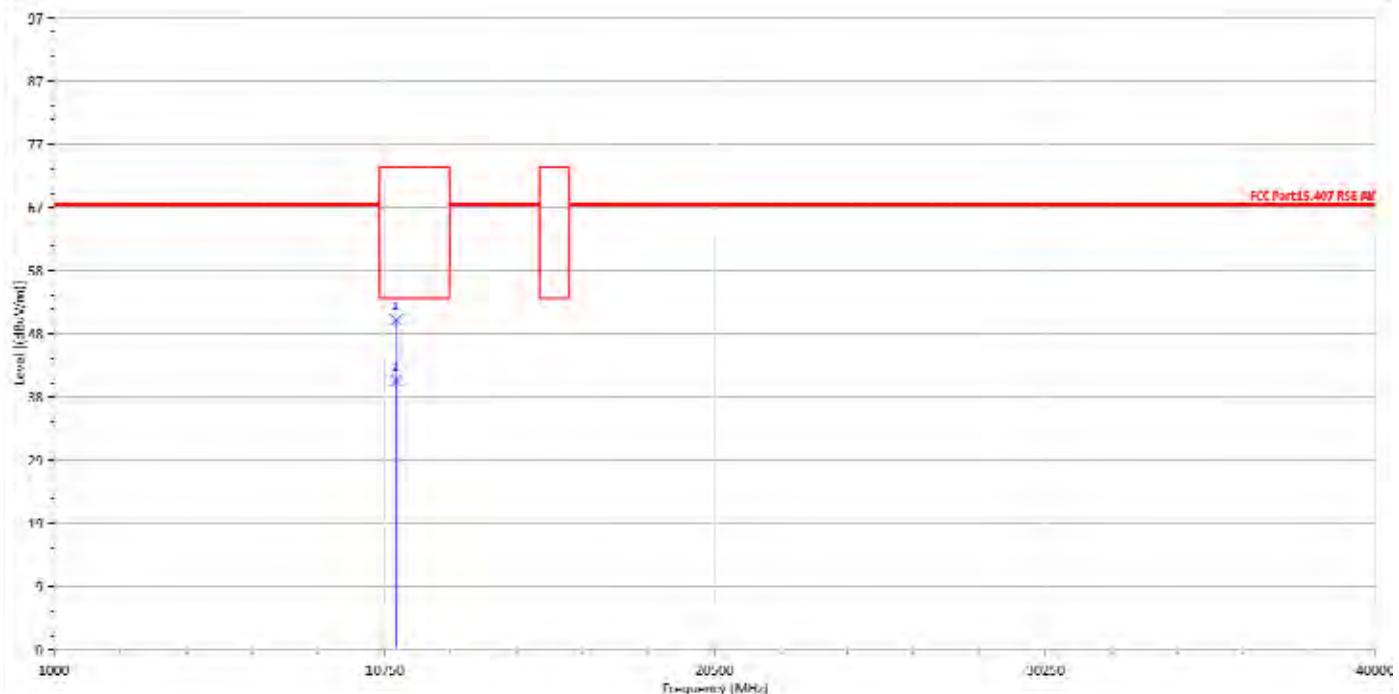
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Operation Mode : 802.11ac40 Test Date : 2016/9/14  
Fundamental Frequency : 5550 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Mid Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



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
11100.00	H	Peak	30.38	20.30	50.69	74	-23.31
11100.00	H	Average	20.91	20.30	41.21	54	-12.79

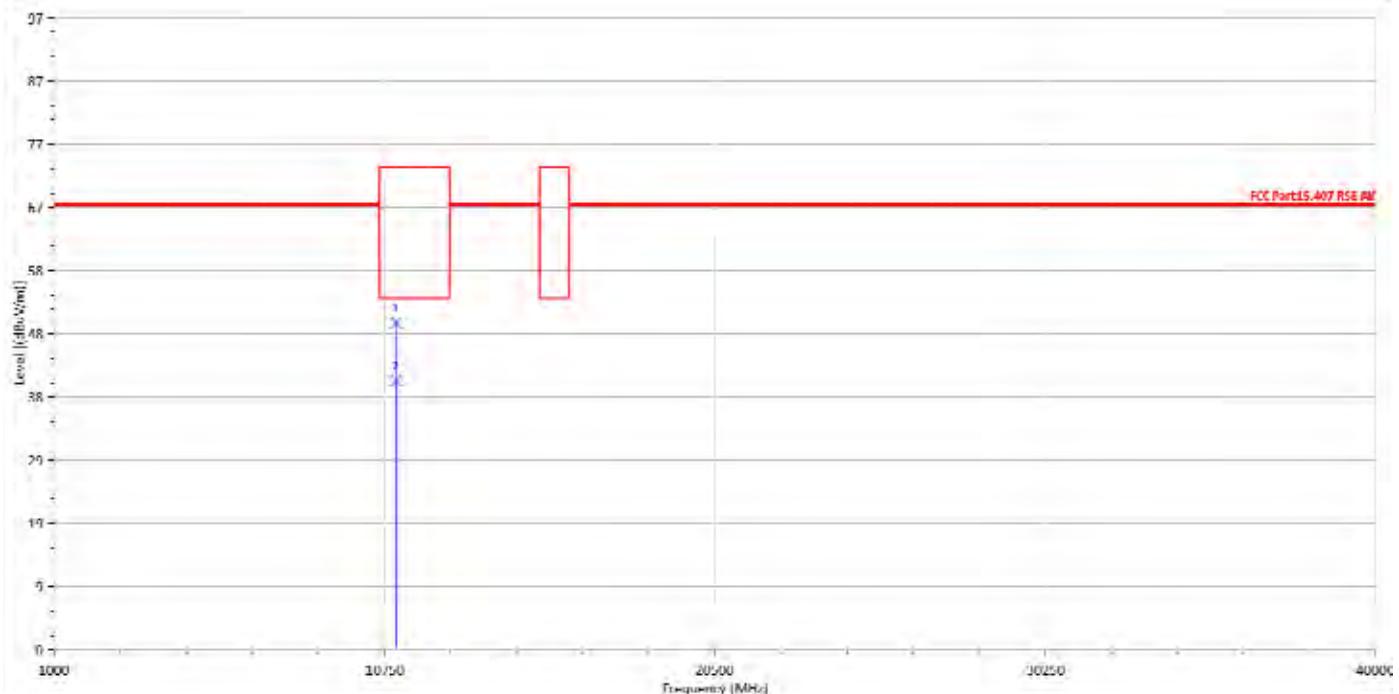
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Operation Mode : 802.11ac40 Test Date : 2016/9/14  
Fundamental Frequency : 5550 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Mid Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
	F/H/E/S	PK/QP/AV					
11100.00	H	Peak	29.84	20.30	50.14	74	-23.86
11100.00	H	Average	20.95	20.30	41.25	54	-12.75

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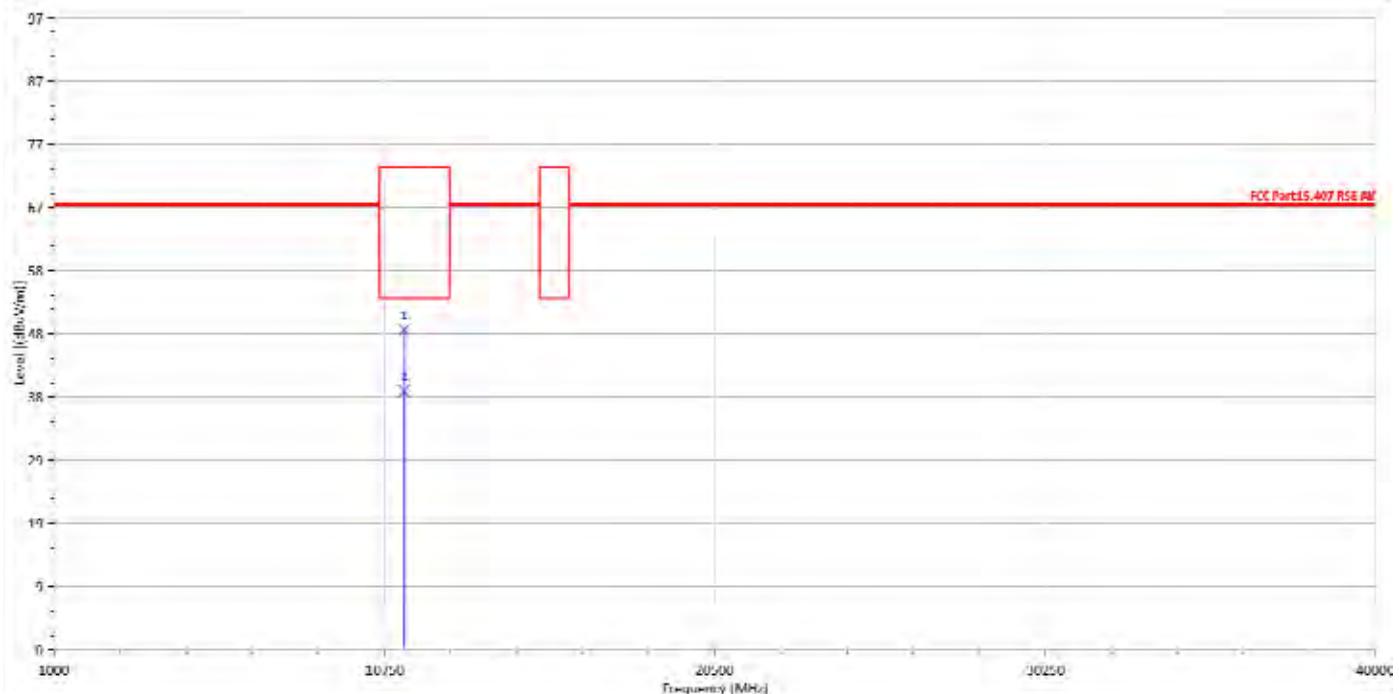
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Operation Mode : 802.11ac40 Test Date : 2016/9/14  
Fundamental Frequency : 5670 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH High Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



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
11340.00	H	Peak	30.72	18.44	49.16	74	-24.84
11340.00	H	Average	21.23	18.44	39.67	54	-14.33

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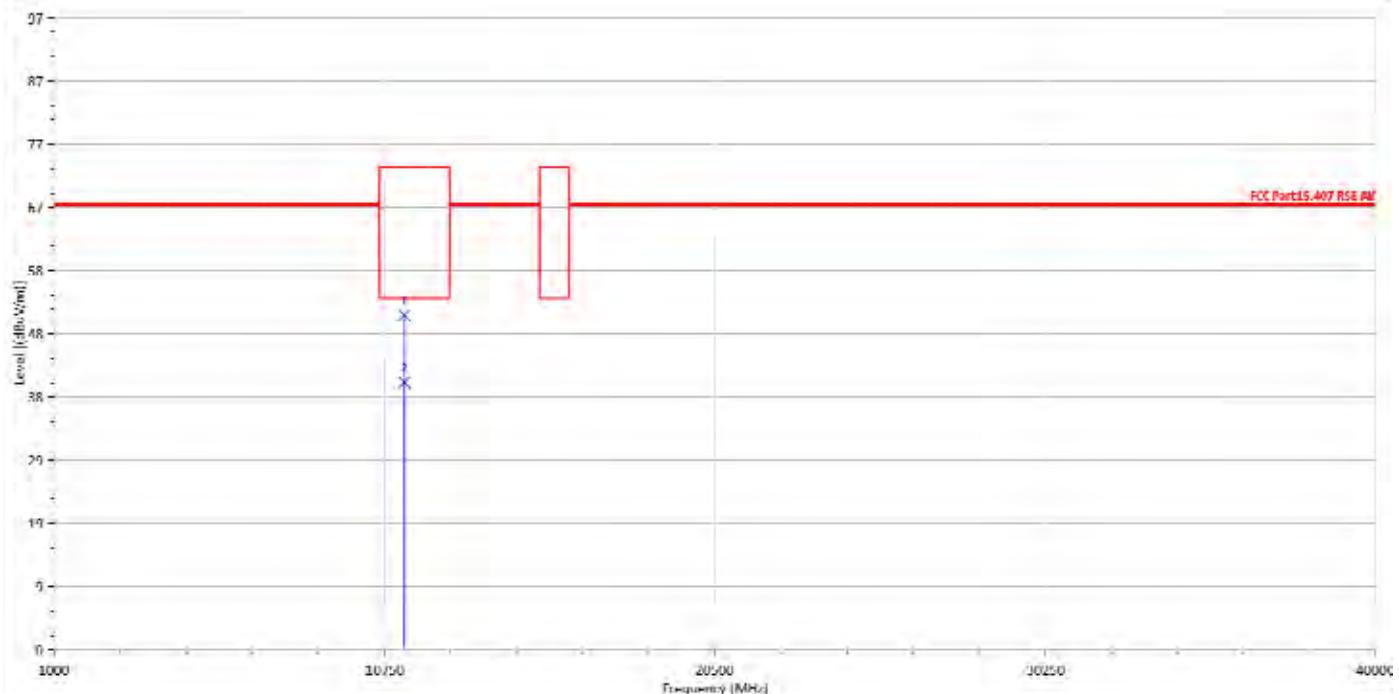
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Operation Mode : 802.11ac40      Test Date : 2016/9/14  
 Fundamental Frequency : 5670 MHz      Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH High      Test Engineer : Pony  
 EUT Pol. : E2      Measurement Antenna Pol. : Horizontal



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
11340.00	H	Peak	32.95	18.44	51.39	74	-22.61
11340.00	H	Average	22.52	18.44	40.96	54	-13.04

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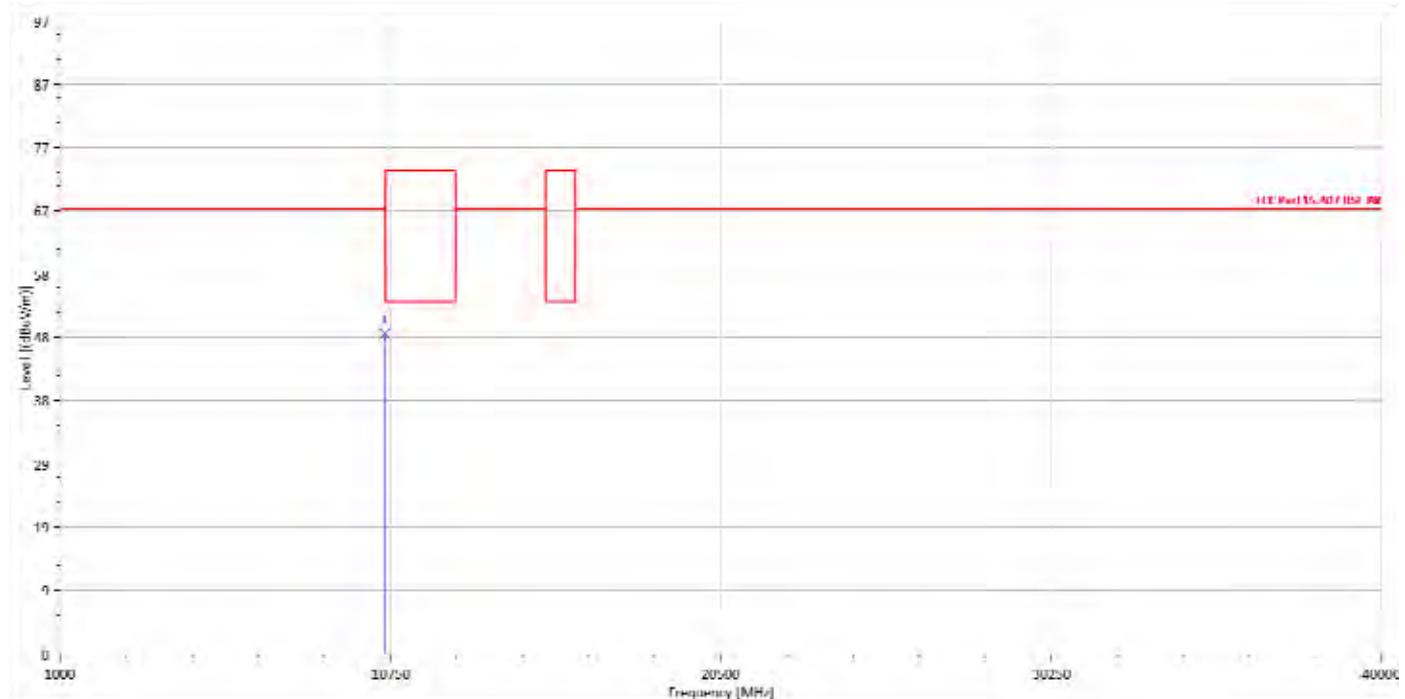
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**Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5250~5350 MHz**

Operation Mode : 802.11ac80 Test Date : 2016/9/14  
Fundamental Frequency : 5290 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH High Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note	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
10580.00	H	Peak	29.63	17.37	47.00	68.3	-21.30

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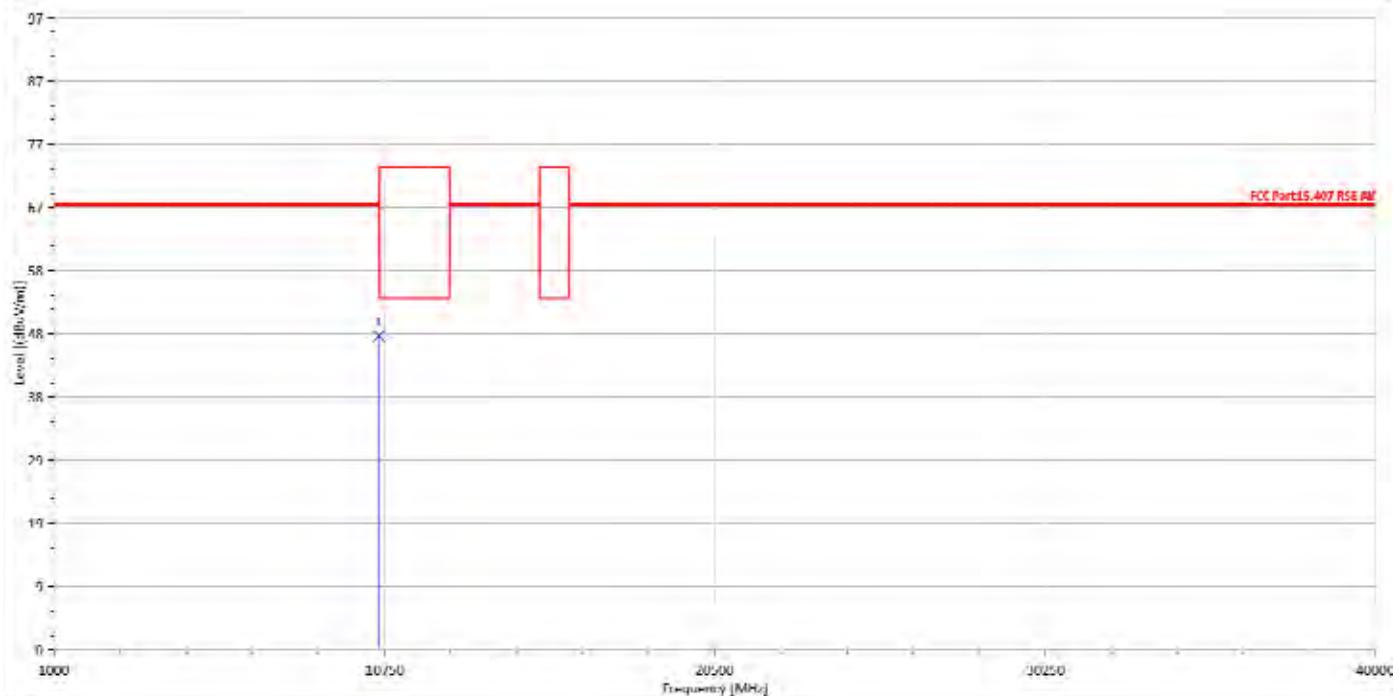
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Operation Mode : 802.11ac80 Test Date : 2016/9/14  
Fundamental Frequency : 5290 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH High Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector Mode	Spectrum Reading	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	Level dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
10580.00	H	Peak	31.65	17.37	49.02	68.3	-19.28

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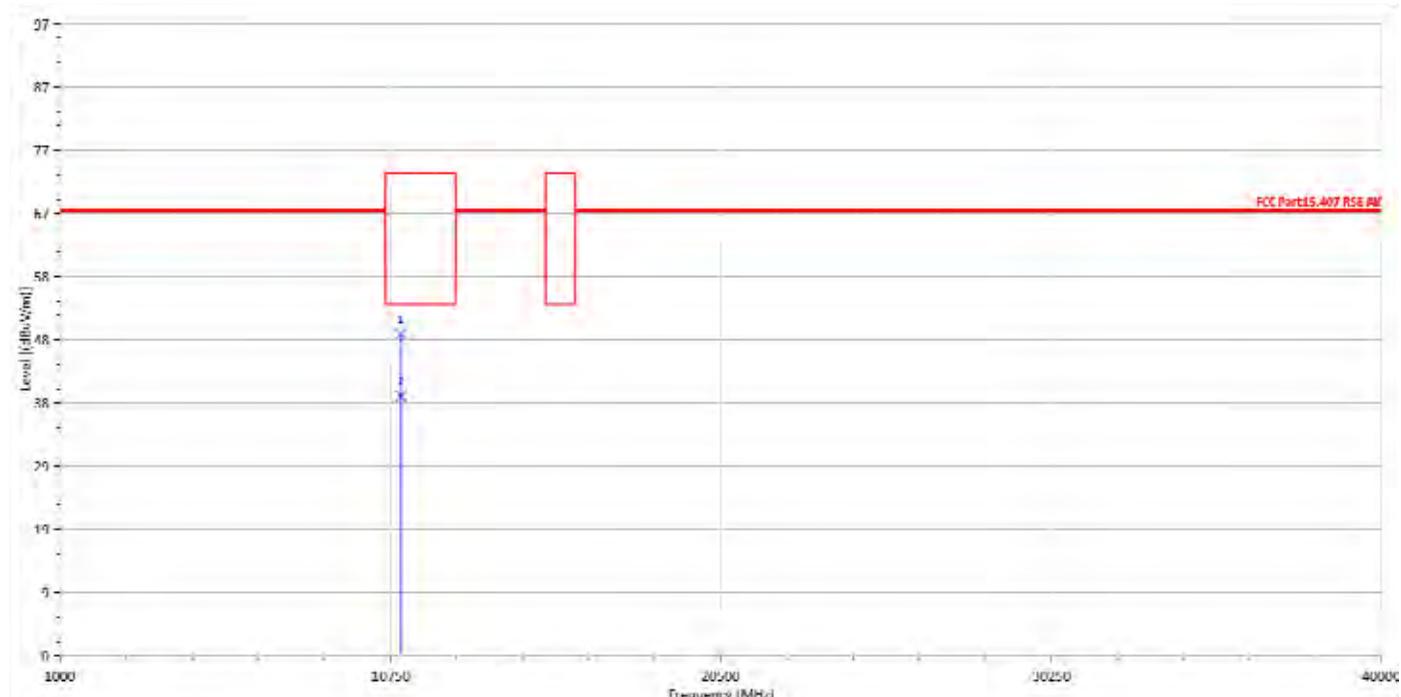
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**Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5470~5725 MHz**

Operation Mode : 802.11ac80 Test Date : 2016/9/14  
Fundamental Frequency : 5530 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



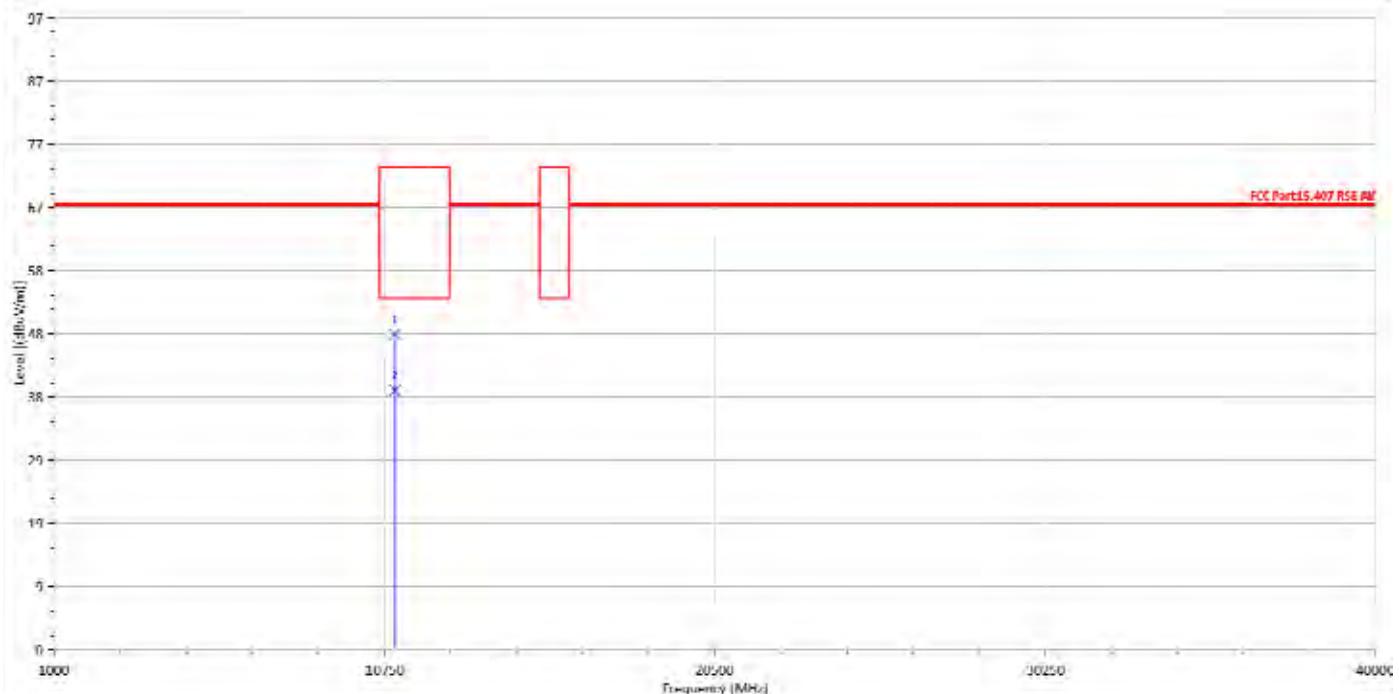
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @ 3m dB $\mu$ V/m	Margin dB
11060.00	H	Peak	30.51	18.91	49.43	74	-24.57
11060.00	H	Average	20.90	18.91	39.81	54	-14.19

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Operation Mode : 802.11ac80 Test Date : 2016/9/14  
Fundamental Frequency : 5530 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Low Test Engineer : Pony  
EUT Pol. : E2 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
11060.00	H	Peak	29.54	18.91	48.45	74	-25.55
11060.00	H	Average	20.89	18.91	39.80	54	-14.20

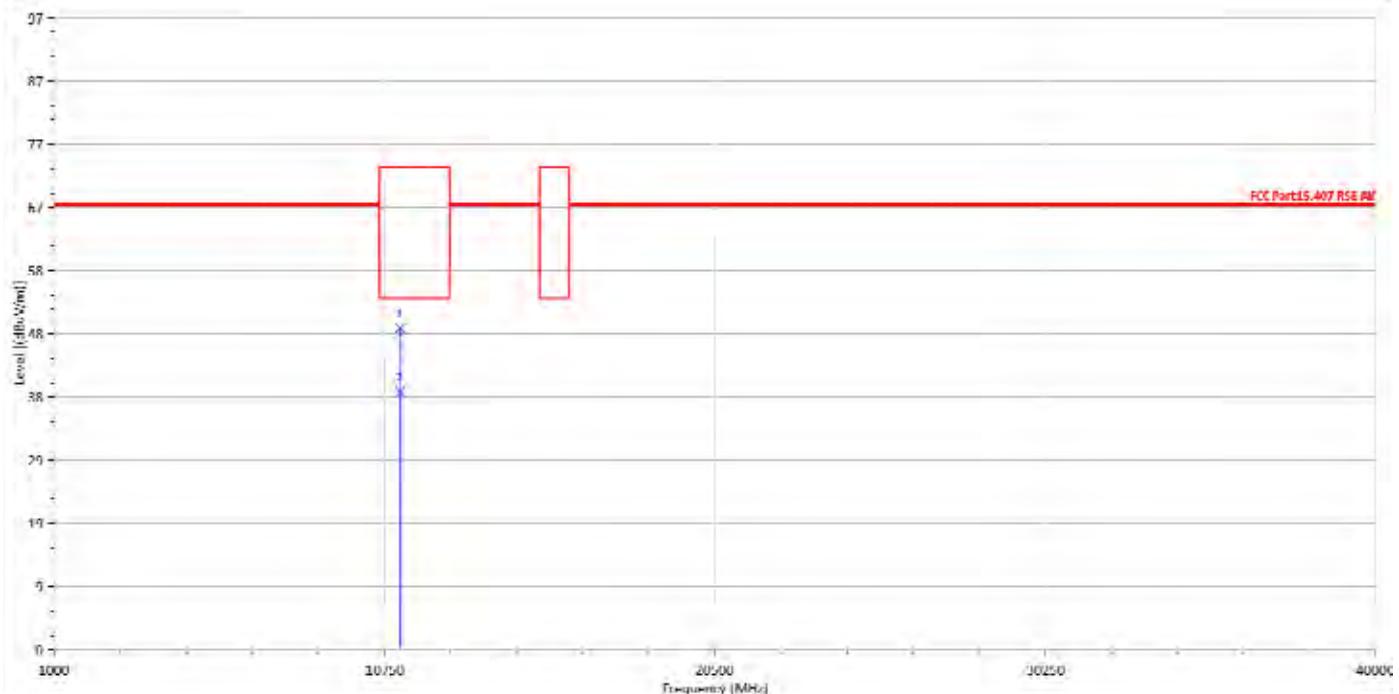
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Operation Mode : 802.11ac80 Test Date : 2016/9/14  
 Fundamental Frequency : 5610 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : Tx CH Mid Test Engineer : Pony  
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



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
11220.00	H	Peak	30.72	18.63	49.35	74	-24.65
11220.00	H	Average	20.92	18.63	39.55	54	-14.45

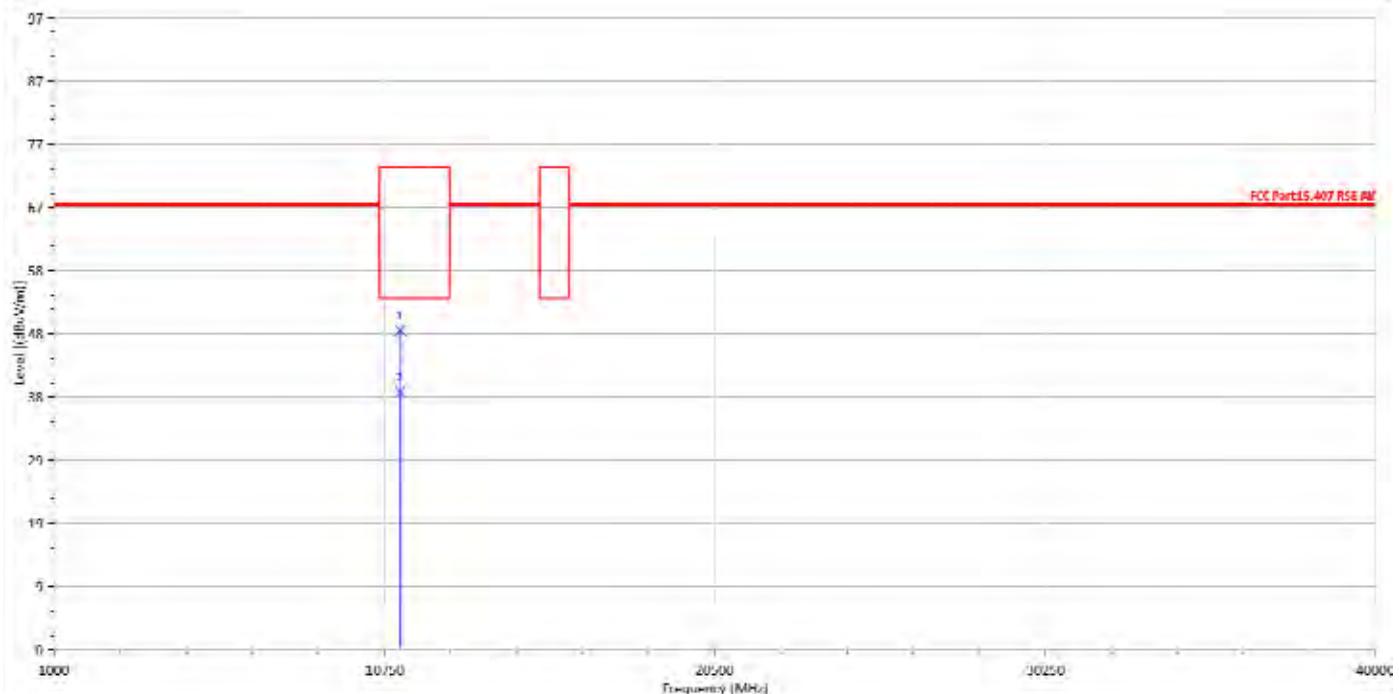
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Operation Mode : 802.11ac80 Test Date : 2016/9/14  
Fundamental Frequency : 5610 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : Tx CH Mid Test Engineer : Pony  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq. MHz	Note	Detector Mode	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @ 3m dB $\mu$ V/m	Margin dB
	F/H/E/S	PK/QP/AV					
11220.00	H	Peak	30.40	18.63	49.03	74	-24.97
11220.00	H	Average	20.93	18.63	39.56	54	-14.44

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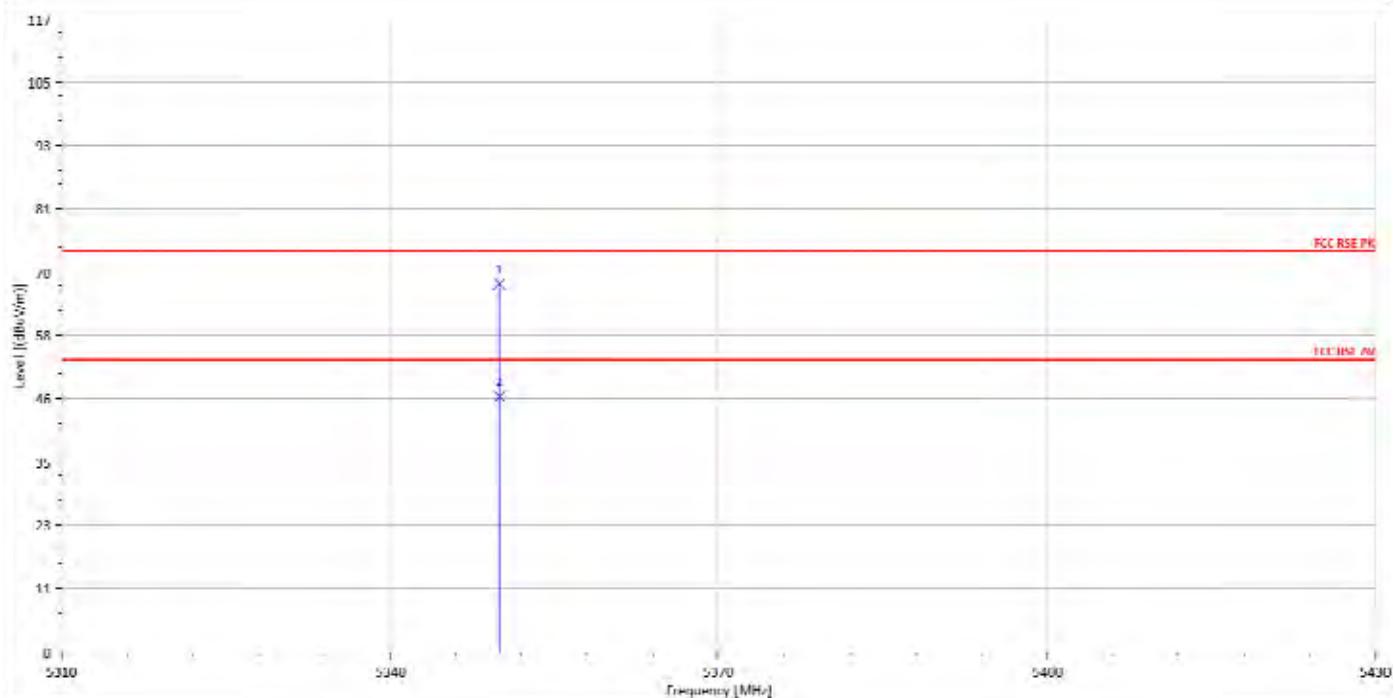
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**Band edge falling to restricted band****802.11a mode**

Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5320 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH High Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level		Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
			Reading	Level dB $\mu$ V				
5350.00	E	Peak	56.44	56.44	11.67	68.11	74	-5.89
5350.00	E	Average	35.56	35.56	11.67	47.23	54	-6.77

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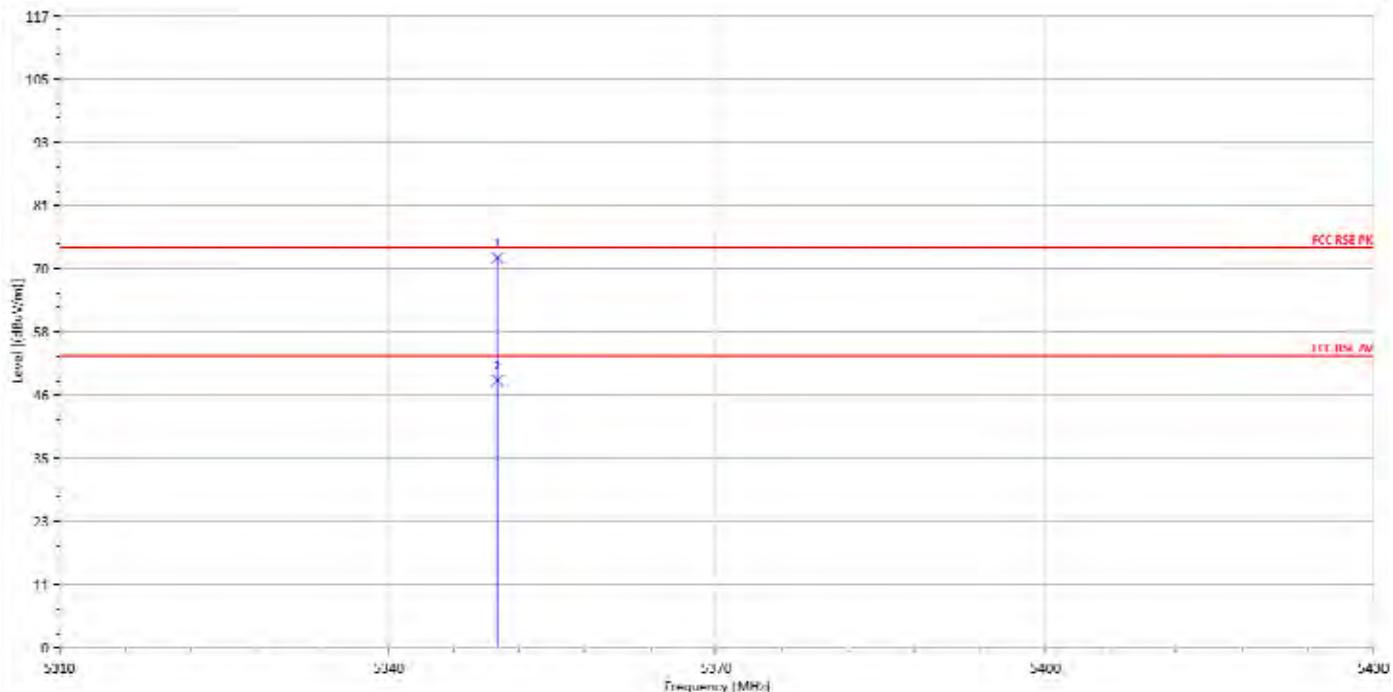
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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5320 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH High Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



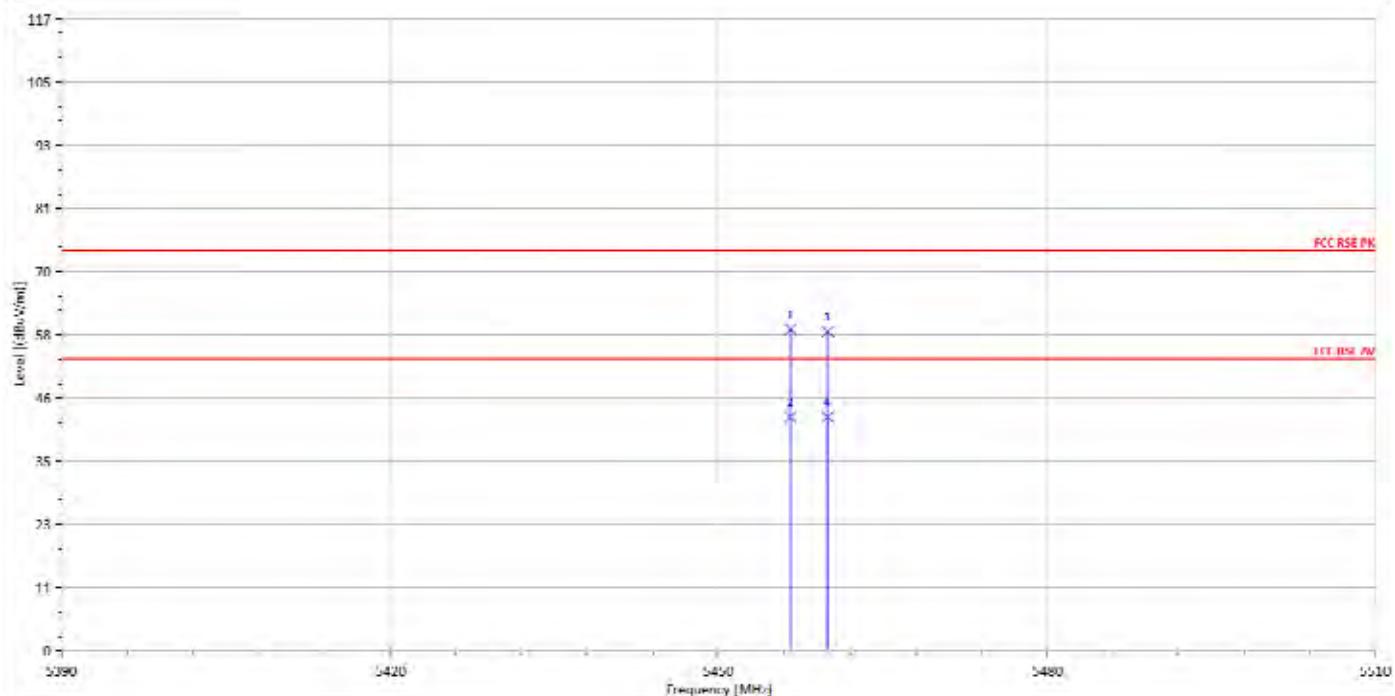
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	dB
5350.00	E	Peak	60.48	11.67	72.15	74	-1.85
5350.00	E	Average	37.73	11.67	49.40	54	-4.60

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Operation Mode : 802.11a      Test Date : 2016/9/14  
 Fundamental Frequency : 5500 MHz      Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH Low      Test Engineer : Ashton  
 EUT Pol. : E2      Measurement Antenna Pol. : Vertical



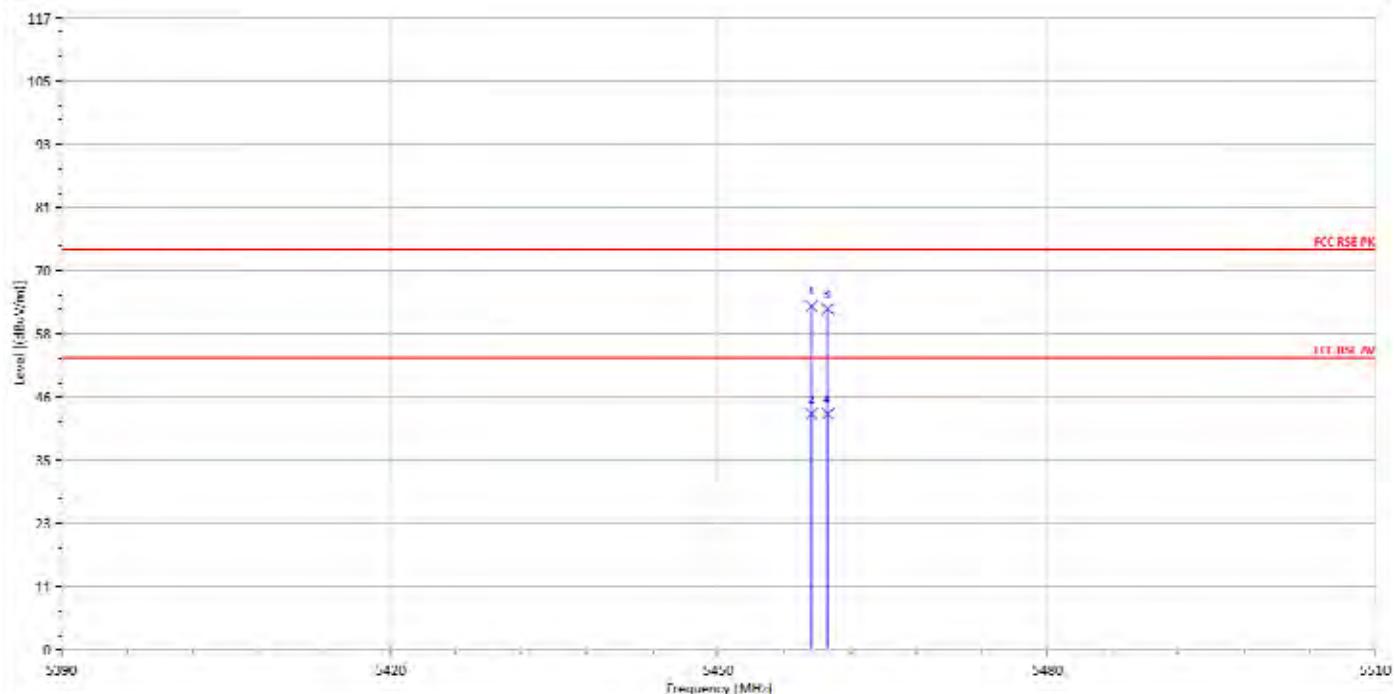
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5456.60	S	Peak	47.86	11.69	59.55	74	-14.45
5456.60	S	Average	31.59	11.69	43.28	54	-10.72
5460.00	E	Peak	47.44	11.66	59.09	74	-14.91
5460.00	E	Average	31.64	11.66	43.30	54	-10.70

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Operation Mode : 802.11a Test Date : 2016/9/14  
 Fundamental Frequency : 5500 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH Low Test Engineer : Ashton  
 EUT Pol. : E2 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
5458.52	S	Peak	51.95	11.67	63.62	74	-10.38
5458.52	S	Average	32.02	11.67	43.69	54	-10.31
5460.00	E	Peak	51.50	11.66	63.16	74	-10.84
5460.00	E	Average	32.05	11.66	43.71	54	-10.29

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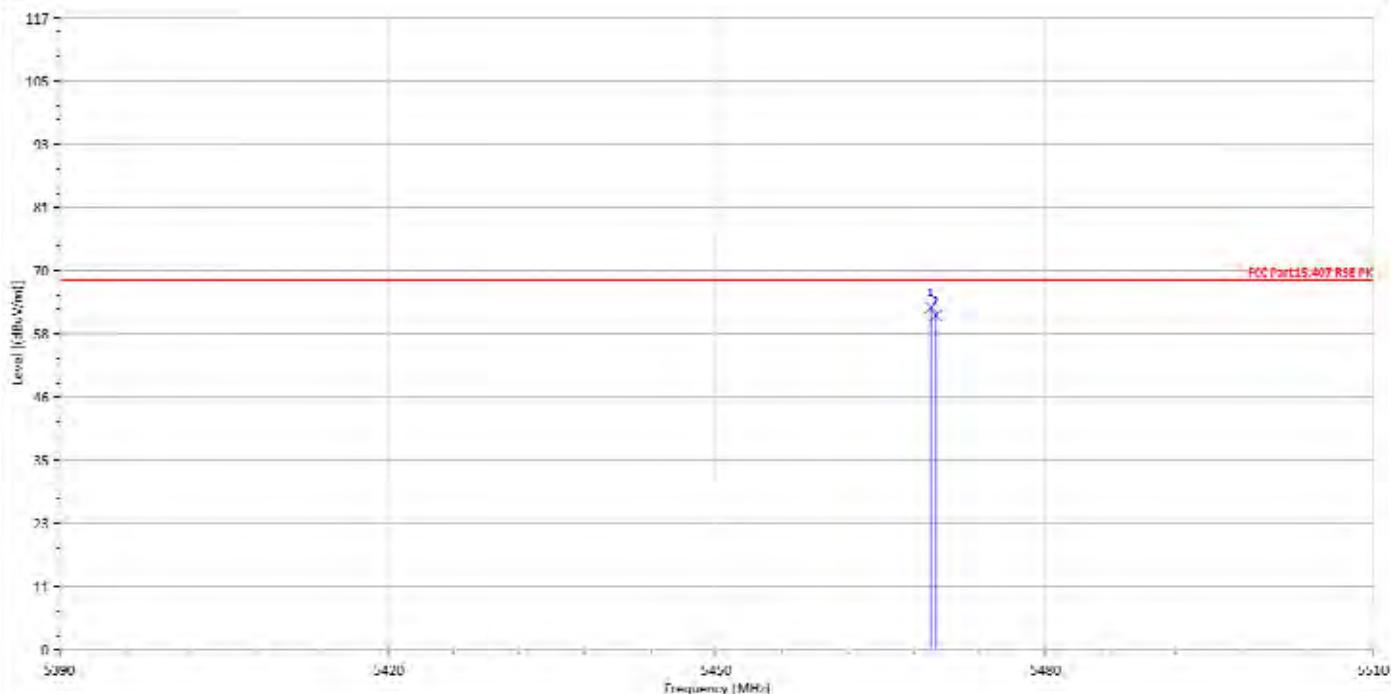
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Operation Mode : 802.11a  
Fundamental Frequency : 5500 MHz  
Operation Band : BE CH Low RSE  
EUT Pol. : E2

Test Date : 2016/9/14  
Temp. / Humi. : 22.7deg\_C/57RH  
Test Engineer : Ashton  
Measurement Antenna Pol. : Vertical



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading	FS	@3m	Margin	
		PK/QP/AV	Level	dB	dBµV/m	dBµV/m	dB
5469.56	S	Peak	51.89	11.57	63.46	68.3	-4.84
5470.00	E	Peak	50.37	11.57	61.94	68.3	-6.36

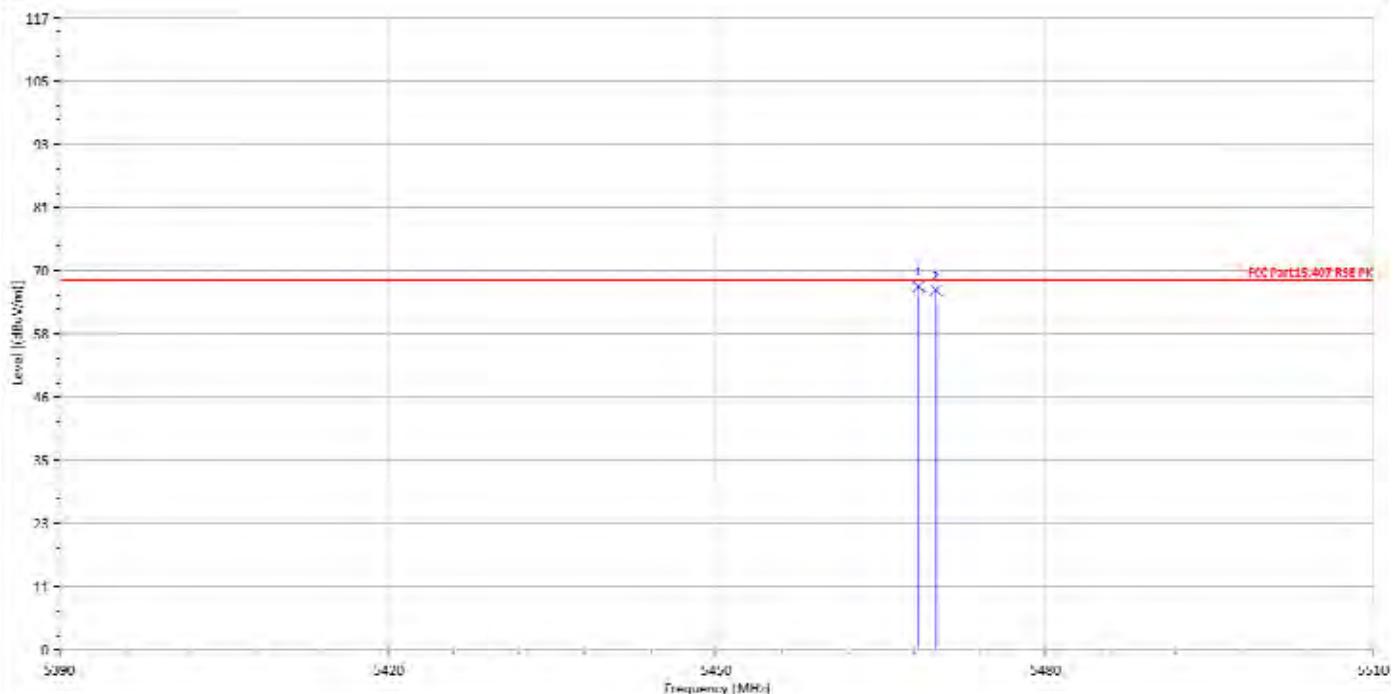
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Operation Mode : 802.11a  
Fundamental Frequency : 5500 MHz  
Operation Band : BE CH Low RSE  
EUT Pol. : E2

Test Date : 2016/9/14  
Temp. / Humi. : 22.7deg\_C/57RH  
Test Engineer : Ashton  
Measurement Antenna Pol. : Horizontal



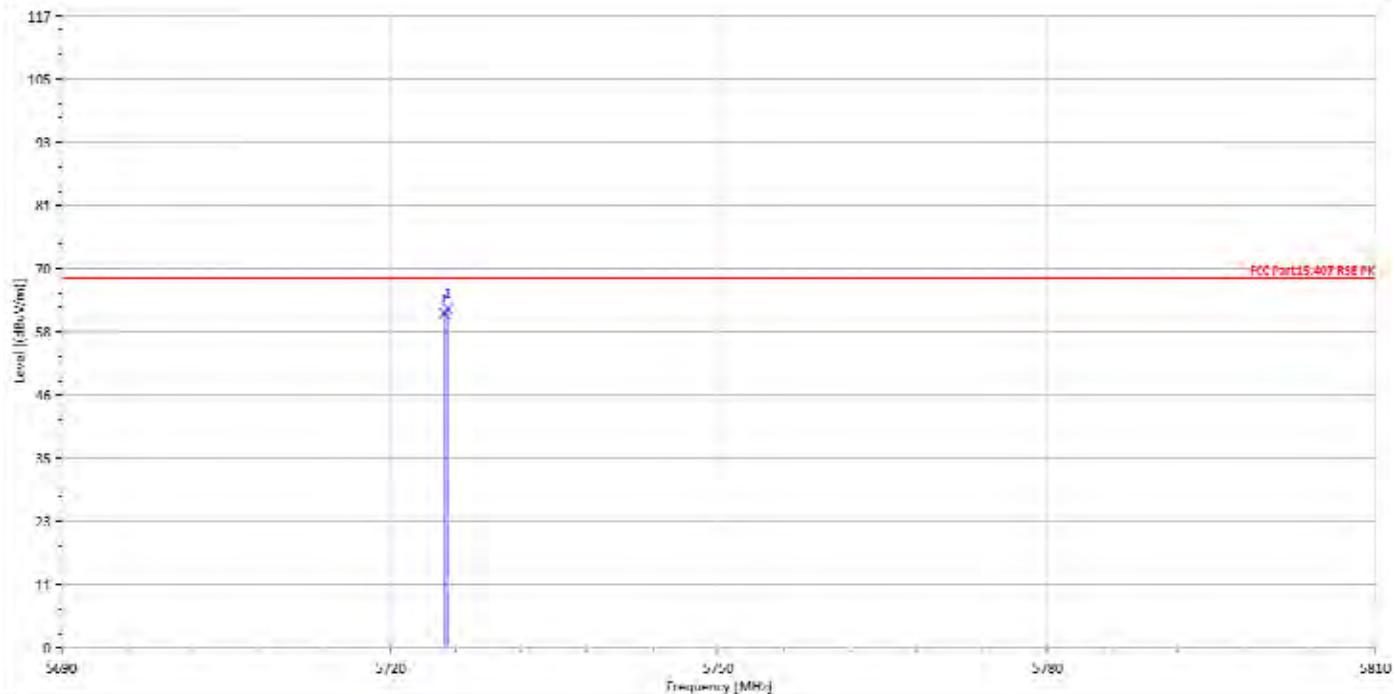
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5468.48	S	Peak	55.58	11.58	67.16	68.3	-1.14
5470.00	E	Peak	54.92	11.57	66.49	68.3	-1.81

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Operation Mode : 802.11a Test Date : 2016/9/14  
 Fundamental Frequency : 5700 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH High Test Engineer : Ashton  
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading	FS	@3m	Margin	
		PK/QP/AV	Level	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5725.00	E	Peak	49.90	12.01	61.91	68.3	-6.39
5725.28	S	Peak	50.82	12.01	62.83	68.3	-5.47

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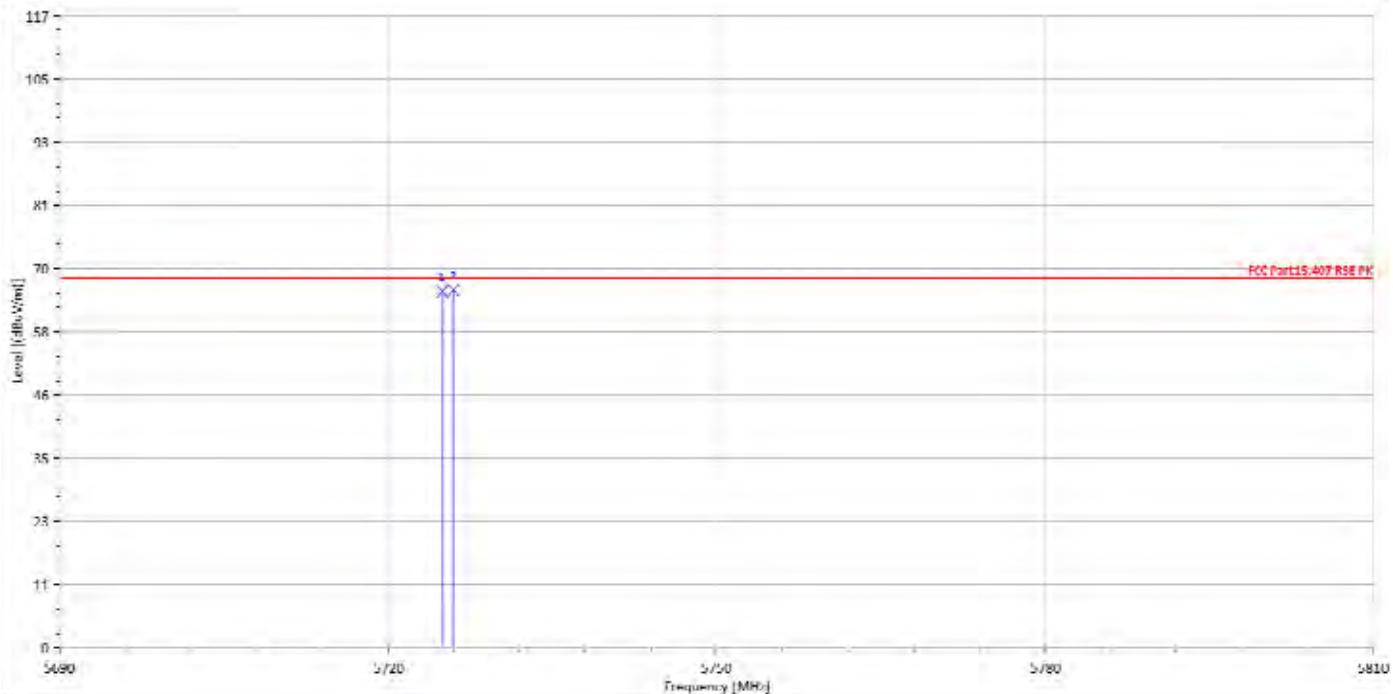
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Operation Mode : 802.11a Test Date : 2016/9/14  
Fundamental Frequency : 5700 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH High Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading	FS	FS	@3m	
		PK/QP/AV	Level	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5725.00	E	Peak	53.93	12.01	65.94	68.3	-2.36
5726.00	S	Peak	54.14	12.01	66.16	68.3	-2.14

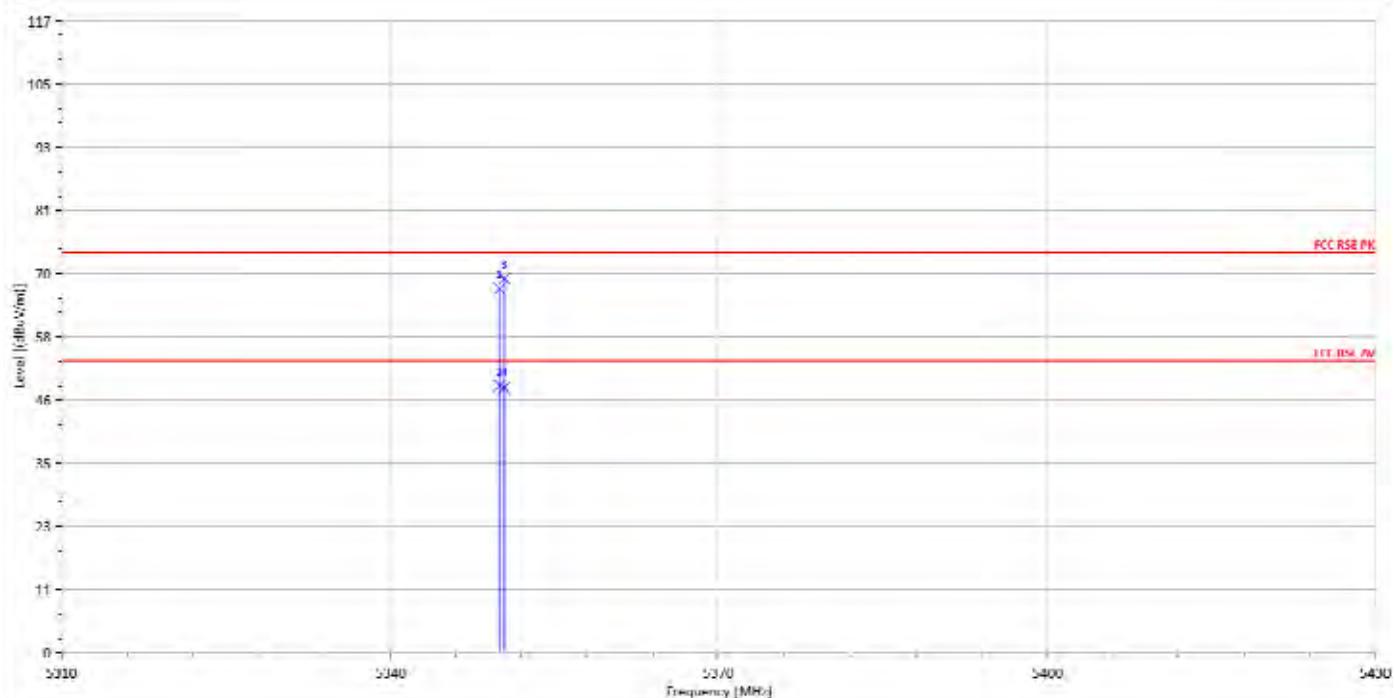
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## 802.11ac20 VHT mode

Operation Mode : 802.11ac20 Test Date : 2016/9/14  
 Fundamental Frequency : 5320 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH High Test Engineer : Ashton  
 EUT Pol. : E2 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	Peak	55.65	11.67	67.33	74	-6.67
5350.00	E	Average	37.66	11.67	49.33	54	-4.67
5350.44	S	Peak	57.54	11.68	69.22	74	-4.78
5350.44	S	Average	37.34	11.68	49.02	54	-4.98

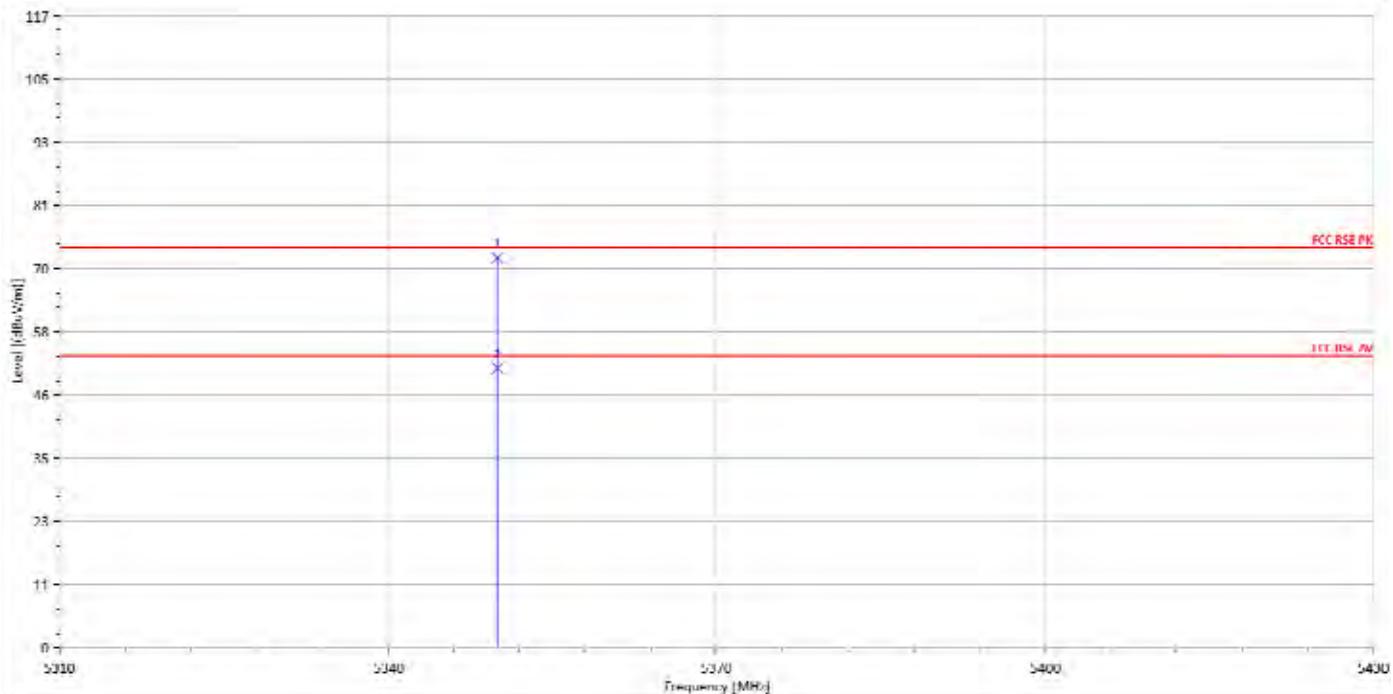
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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
 Fundamental Frequency : 5320 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH High Test Engineer : Ashton  
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



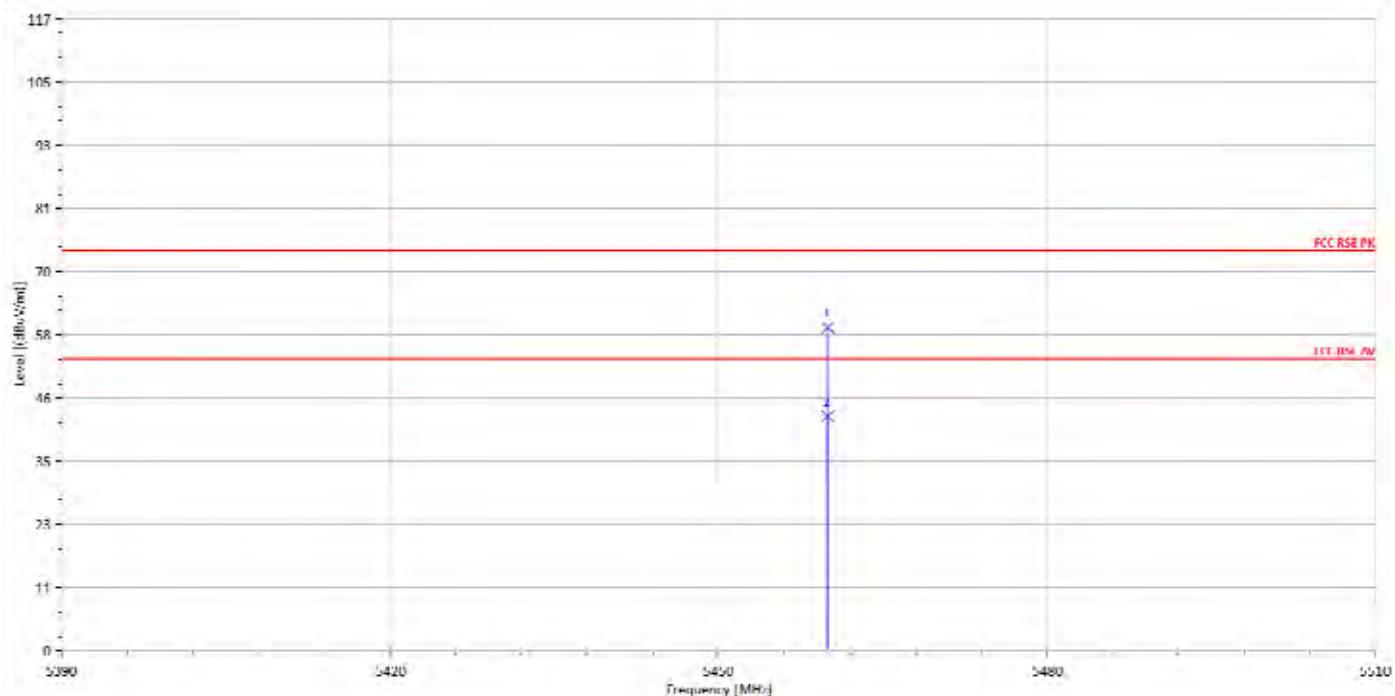
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading	FS	FS	@3m	
		PK/QP/AV	Level	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5350.00	E	Peak	60.47	11.67	72.14	74	-1.86
5350.00	E	Average	40.01	11.67	51.68	54	-2.32

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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5500 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH Low Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



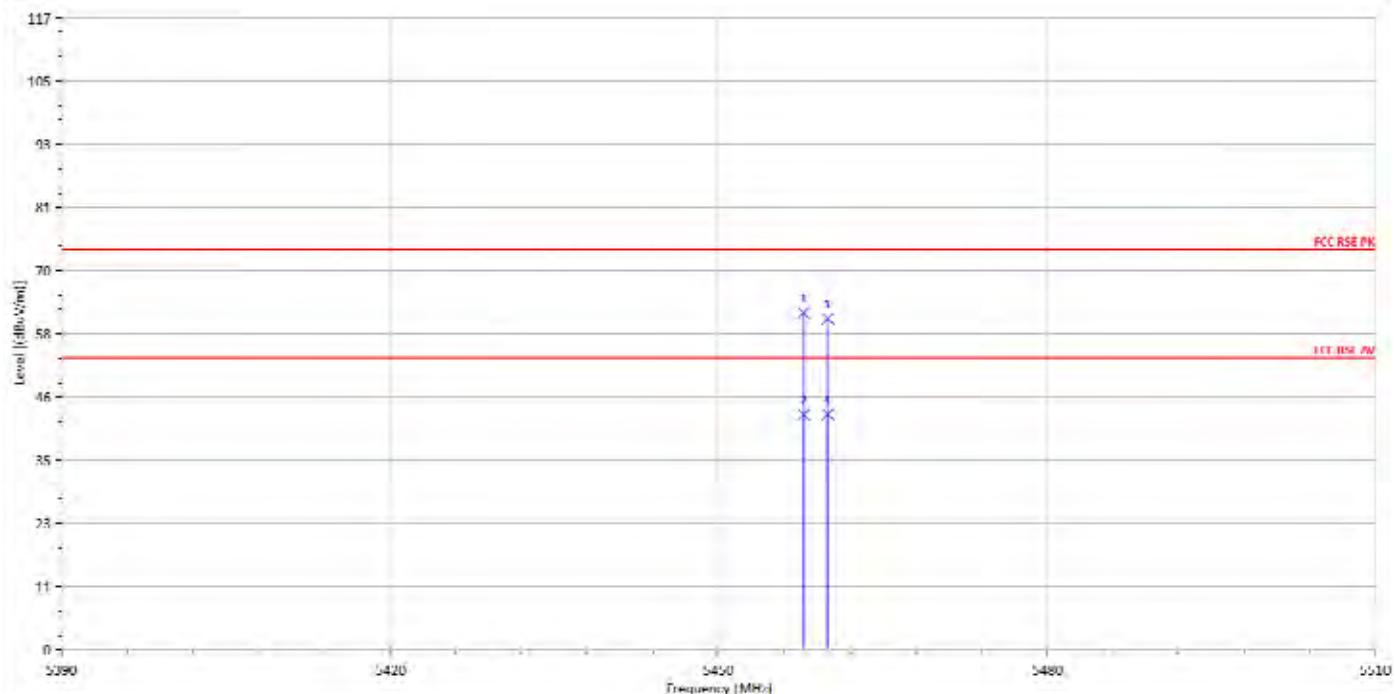
Freq.	Note	Detector Mode	Spectrum Reading	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	Level dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	E	Peak	48.16	11.66	59.82	74	-14.18
5460.00	E	Average	31.75	11.66	43.41	54	-10.59

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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5500 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH Low Test Engineer : Ashton  
EUT Pol. : E2 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
5457.80	S	Peak	50.75	11.68	62.43	74	-11.57
5457.80	S	Average	31.88	11.68	43.56	54	-10.44
5460.00	E	Peak	49.65	11.66	61.31	74	-12.69
5460.00	E	Average	31.94	11.66	43.60	54	-10.40

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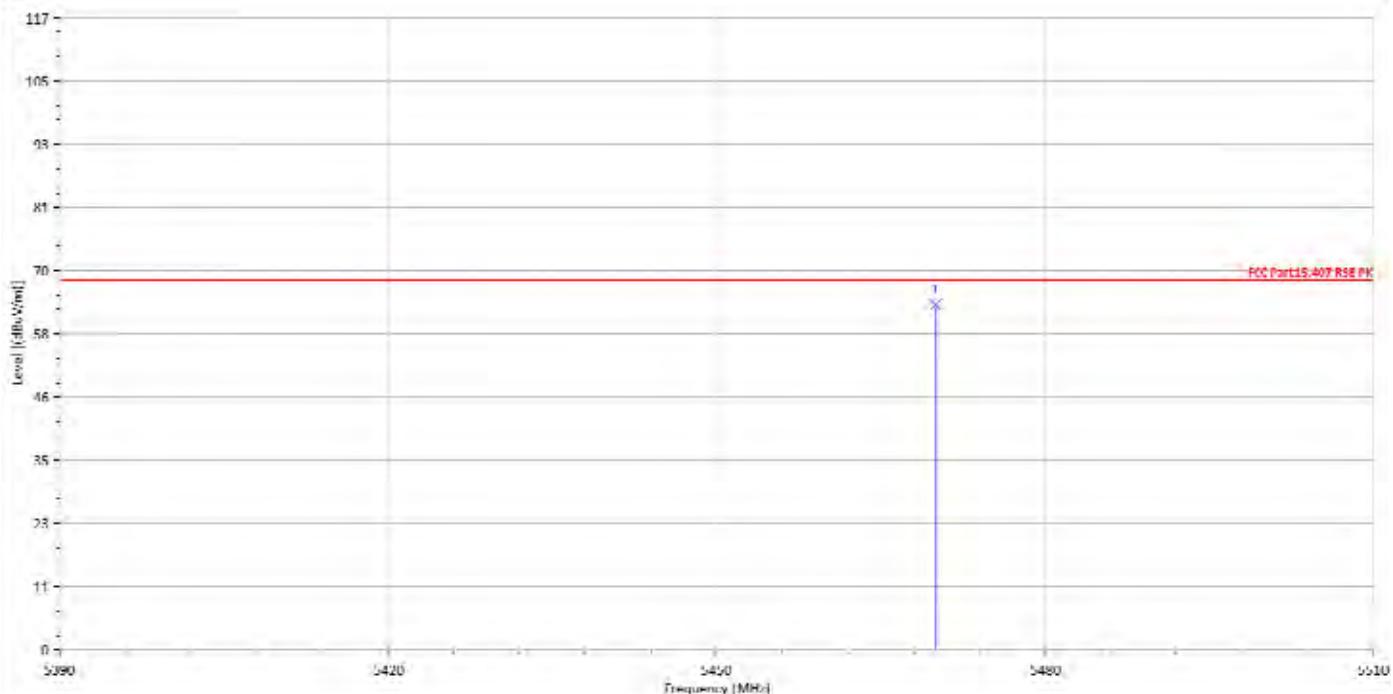
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Operation Mode : 802.11ac20  
Fundamental Frequency : 5500 MHz  
Operation Band : BE CH Low RSE  
EUT Pol. : E2

Test Date : 2016/9/14  
Temp. / Humi. : 22.7deg\_C/57RH  
Test Engineer : Ashton  
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
5470.00	E	Peak	52.39	11.57	63.96	68.3	-4.34

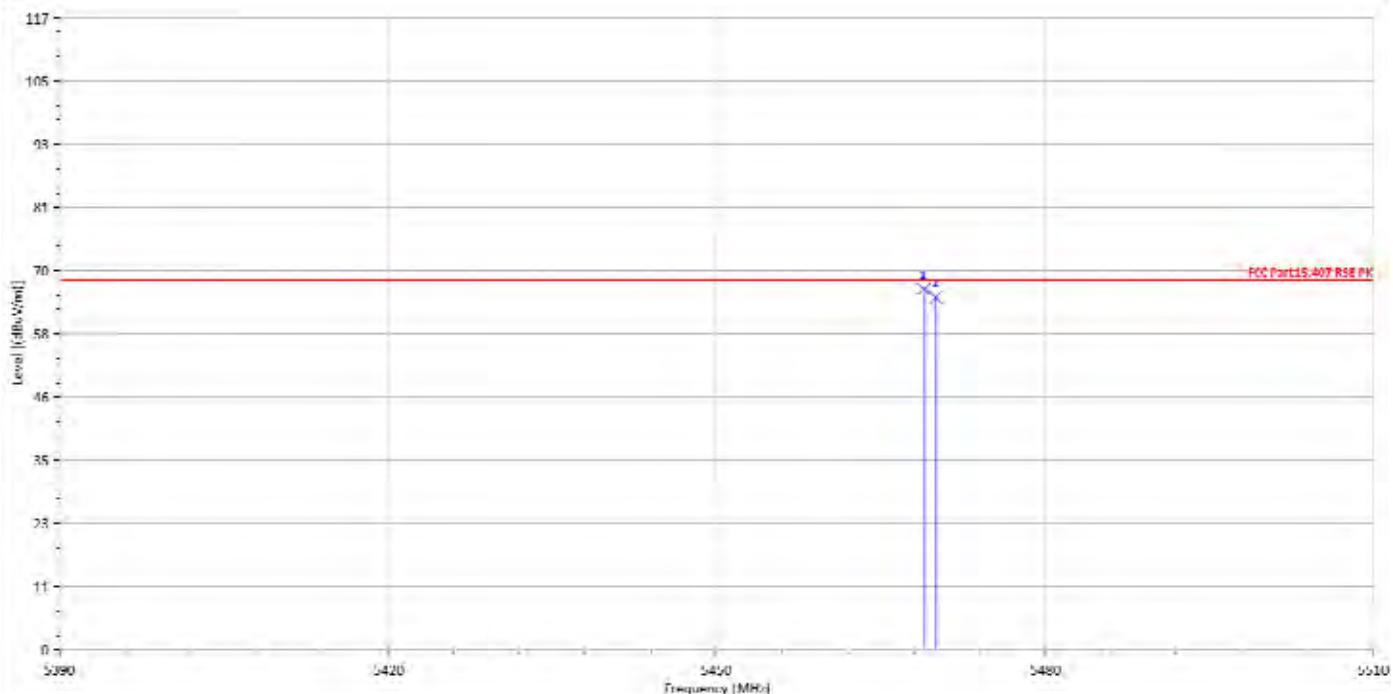
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Operation Mode : 802.11ac20  
Fundamental Frequency : 5500 MHz  
Operation Band : BE CH Low RSE  
EUT Pol. : E2

Test Date : 2016/9/14  
Temp. / Humi. : 22.7deg\_C/57RH  
Test Engineer : Ashton  
Measurement Antenna Pol. : Horizontal



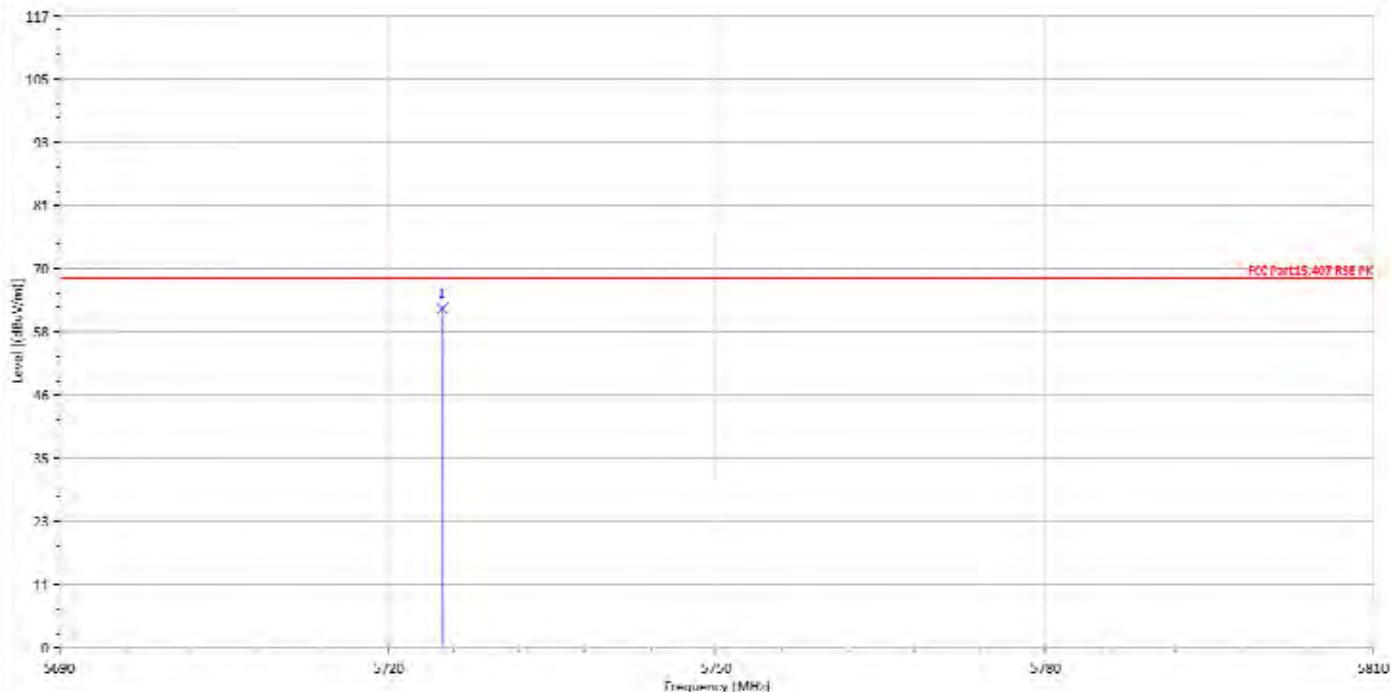
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5468.96	S	Peak	55.12	11.58	66.69	68.3	-1.61
5470.00	E	Peak	53.65	11.57	65.22	68.3	-3.08

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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5700 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH High Test Engineer : Ashton  
EUT Pol. : E2 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	50.89	12.01	62.90	68.3	-5.40

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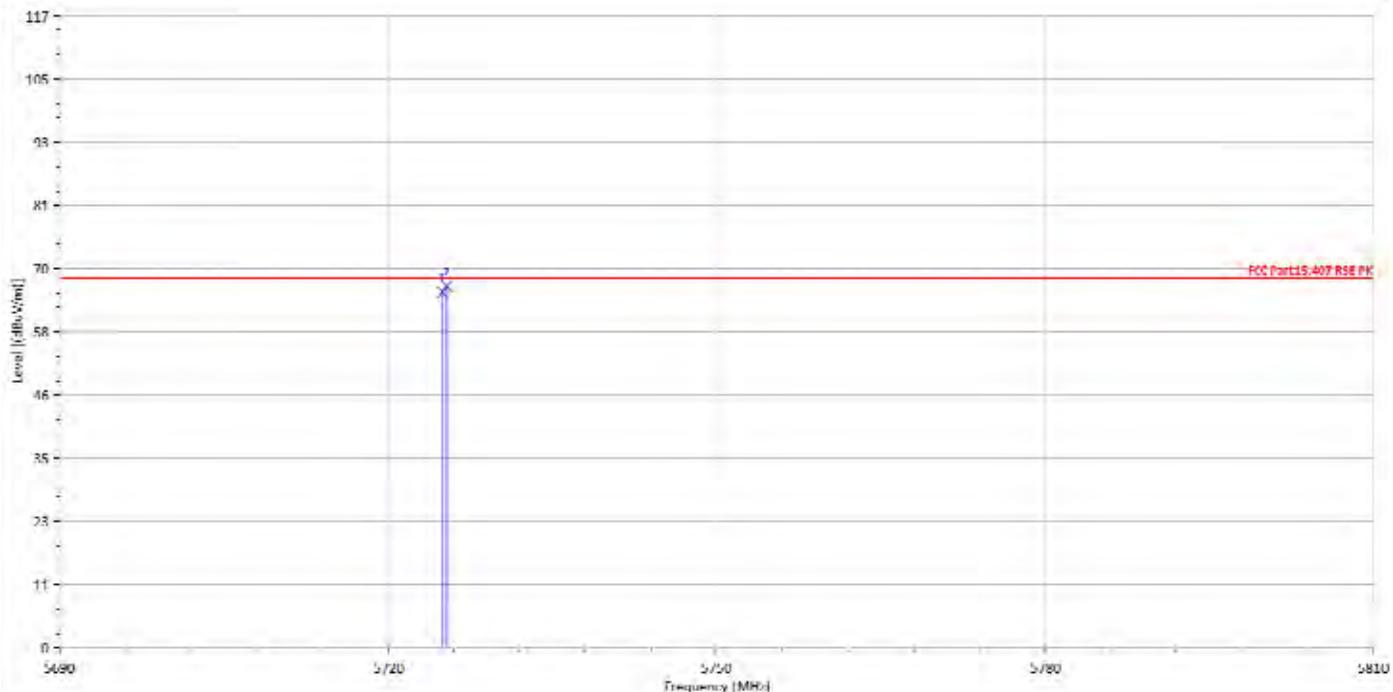
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Operation Mode : 802.11ac20 Test Date : 2016/9/14  
Fundamental Frequency : 5700 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH High Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading	FS	FS	@3m	
		PK/QP/AV	Level	dB	dBuV/m	dBuV/m	dB
5725.00	E	Peak	53.75	12.01	65.77	68.3	-2.53
5725.40	S	Peak	54.89	12.01	66.91	68.3	-1.39

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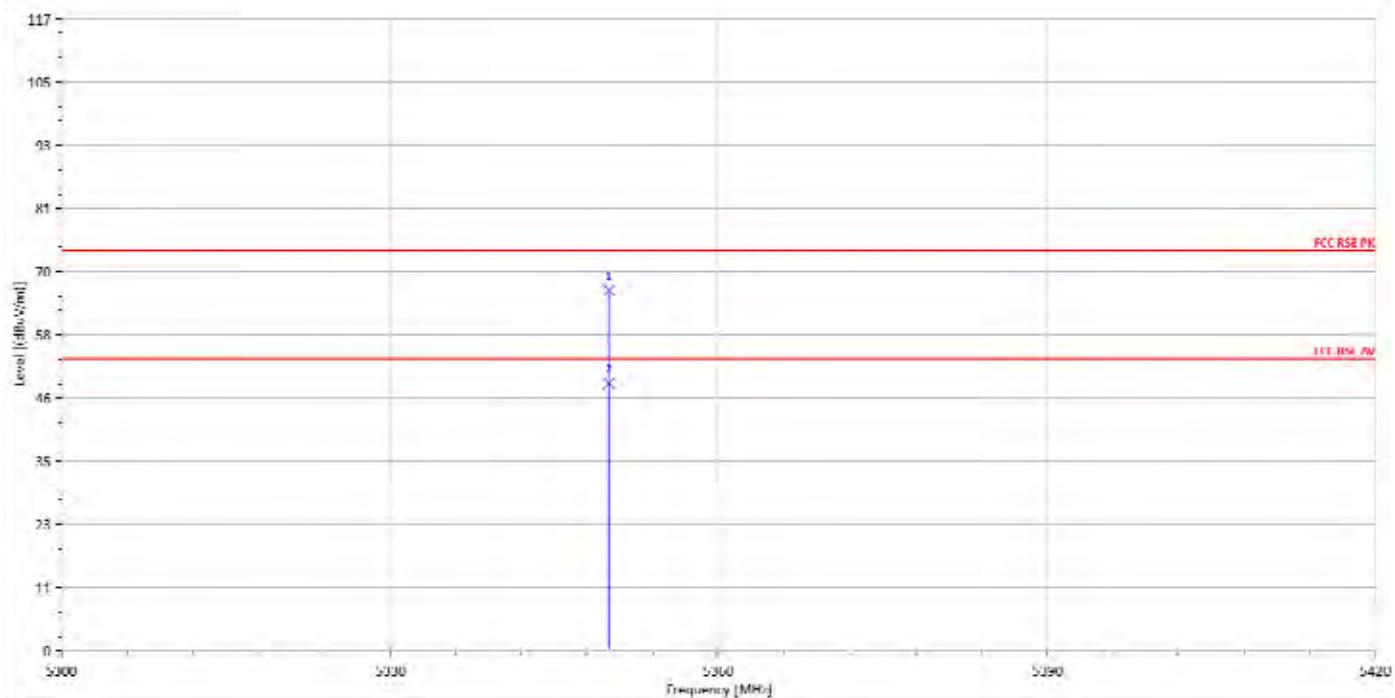
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## 802.11ac40 VHT mode

Operation Mode : 802.11ac40 Test Date : 2016/9/14  
Fundamental Frequency : 5310 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH High Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



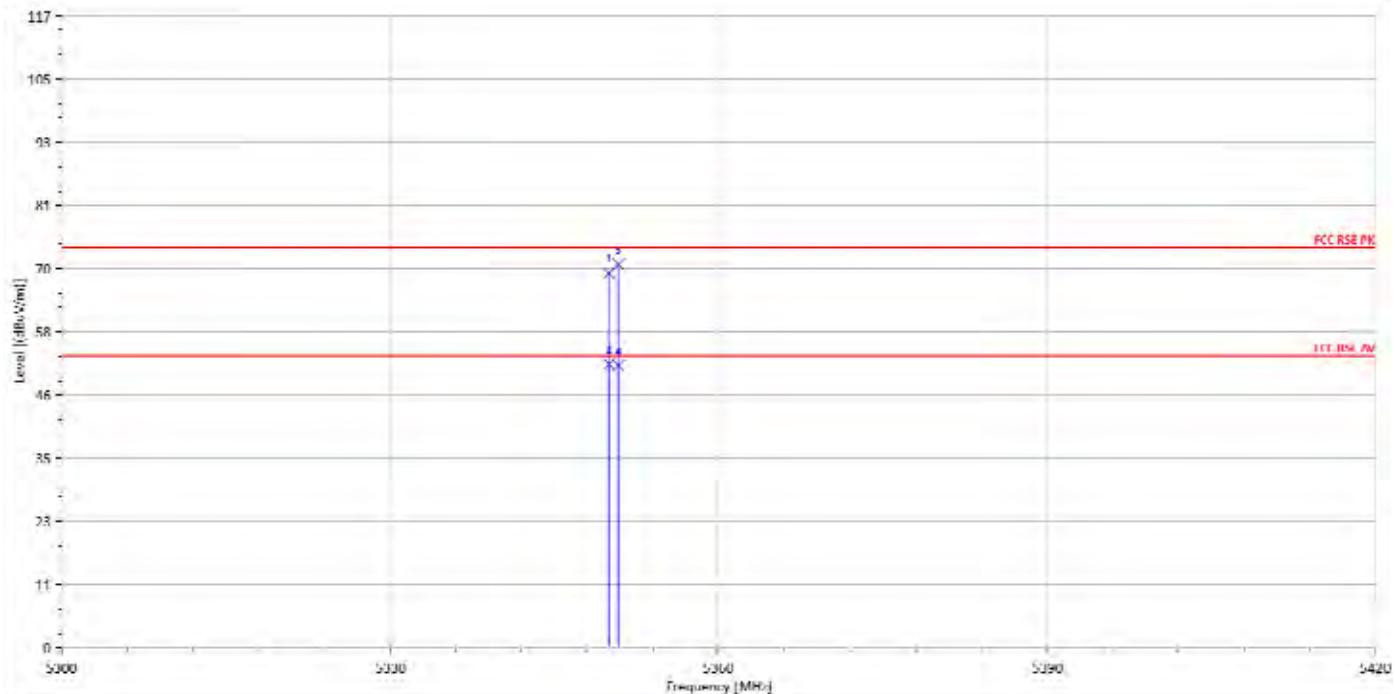
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB <sub>u</sub> V	Factor dB	Actual FS dB <sub>u</sub> V/m	Limit @3m dB <sub>u</sub> V/m	Margin dB
5350.00	E	Peak	54.97	11.67	66.64	74	-7.36
5350.00	E	Average	37.75	11.67	49.42	54	-4.58

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Operation Mode : 802.11ac40 Test Date : 2016/9/14  
 Fundamental Frequency : 5310 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH High Test Engineer : Ashton  
 EUT Pol. : E2 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	Peak	57.59	11.67	69.26	74	-4.74
5350.00	E	Average	40.77	11.67	52.44	54	-1.56
5350.88	S	Peak	59.24	11.69	70.93	74	-3.07
5350.88	S	Average	40.48	11.69	52.17	54	-1.83

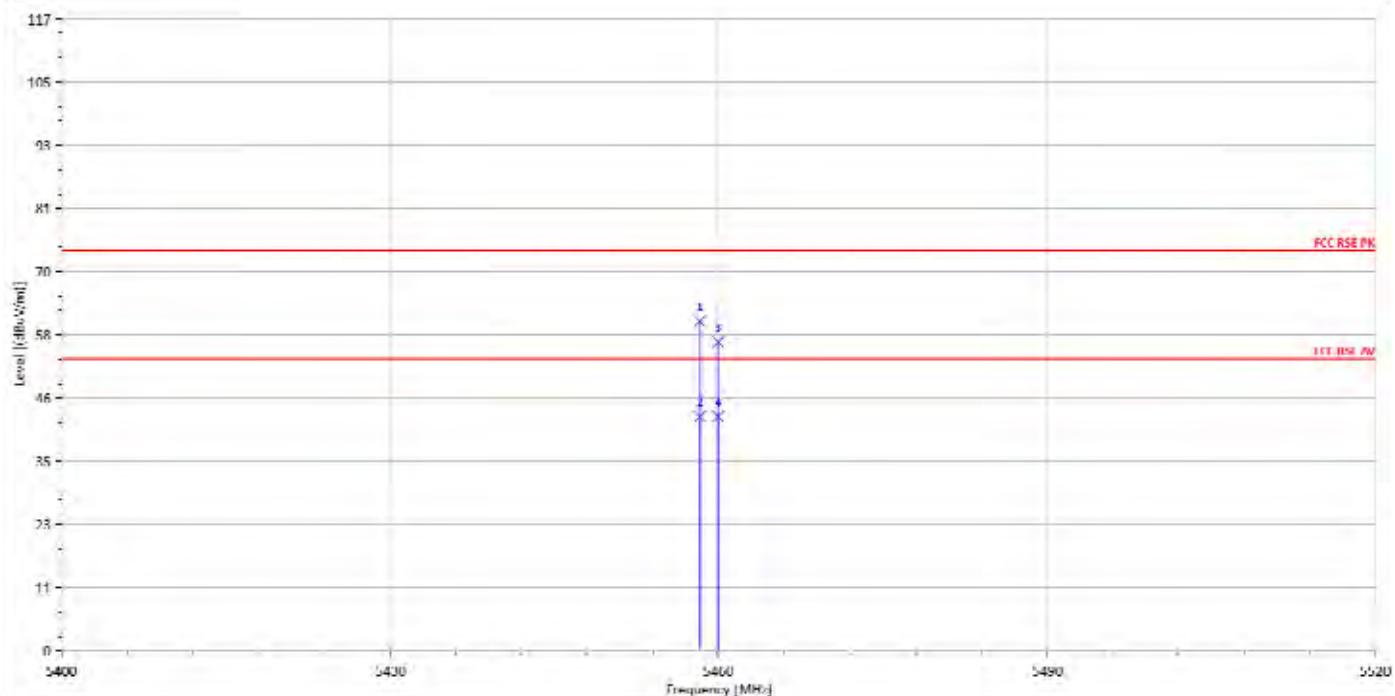
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Operation Mode : 802.11ac40 Test Date : 2016/9/14  
 Fundamental Frequency : 5510 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH Low Test Engineer : Ashton  
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



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
5458.32	S	Peak	49.36	11.67	61.04	74	-12.96
5458.32	S	Average	31.67	11.67	43.34	54	-10.66
5460.00	E	Peak	45.49	11.66	57.14	74	-16.86
5460.00	E	Average	31.70	11.66	43.36	54	-10.64

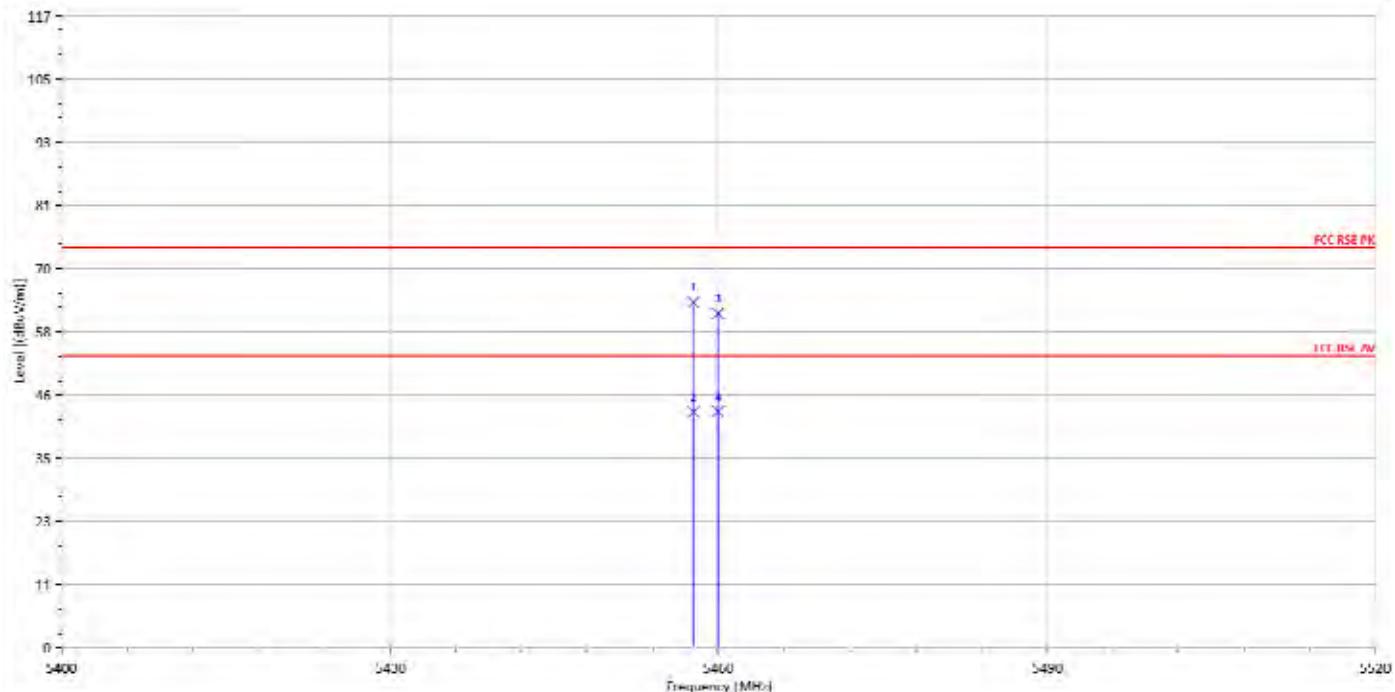
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Operation Mode : 802.11ac40 Test Date : 2016/9/14  
 Fundamental Frequency : 5510 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH Low Test Engineer : Ashton  
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



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
5457.72	S	Peak	52.34	11.68	64.02	74	-9.98
5457.72	S	Average	31.99	11.68	43.67	54	-10.33
5460.00	E	Peak	50.28	11.66	61.94	74	-12.06
5460.00	E	Average	32.09	11.66	43.75	54	-10.25

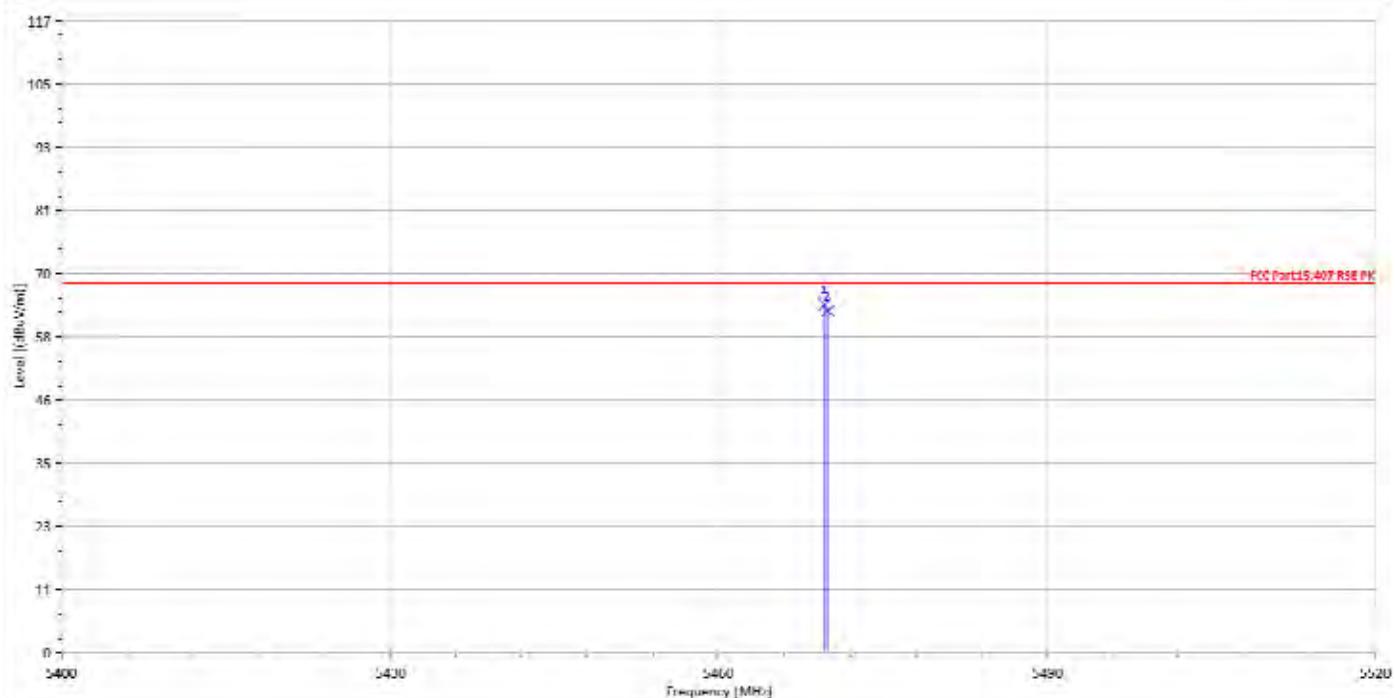
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Operation Mode : 802.11ac40 Test Date : 2016/9/14  
Fundamental Frequency : 5510 MHz Temp. / Humi. : 22.7 deg\_C/57RH  
Operation Band : BE CH Low RSE Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



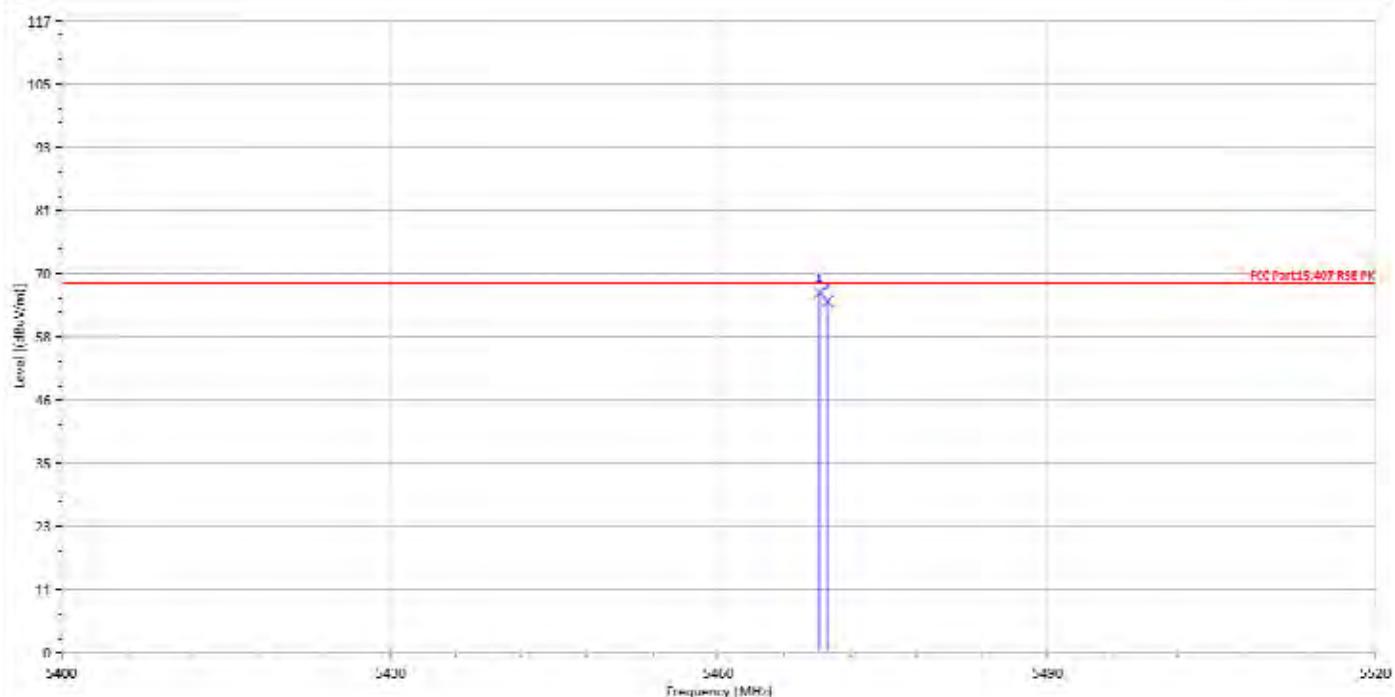
Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB $\mu$ V	Factor dB	Actual FS dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB
5469.72	S	Peak	52.91	11.57	64.48	68.3	-3.82
5470.00	E	Peak	51.77	11.57	63.34	68.3	-4.96

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Operation Mode : 802.11ac40 Test Date : 2016/9/14  
Fundamental Frequency : 5510 MHz Temp. / Humi. : 22.7 deg\_C/57RH  
Operation Band : BE CH Low RSE Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



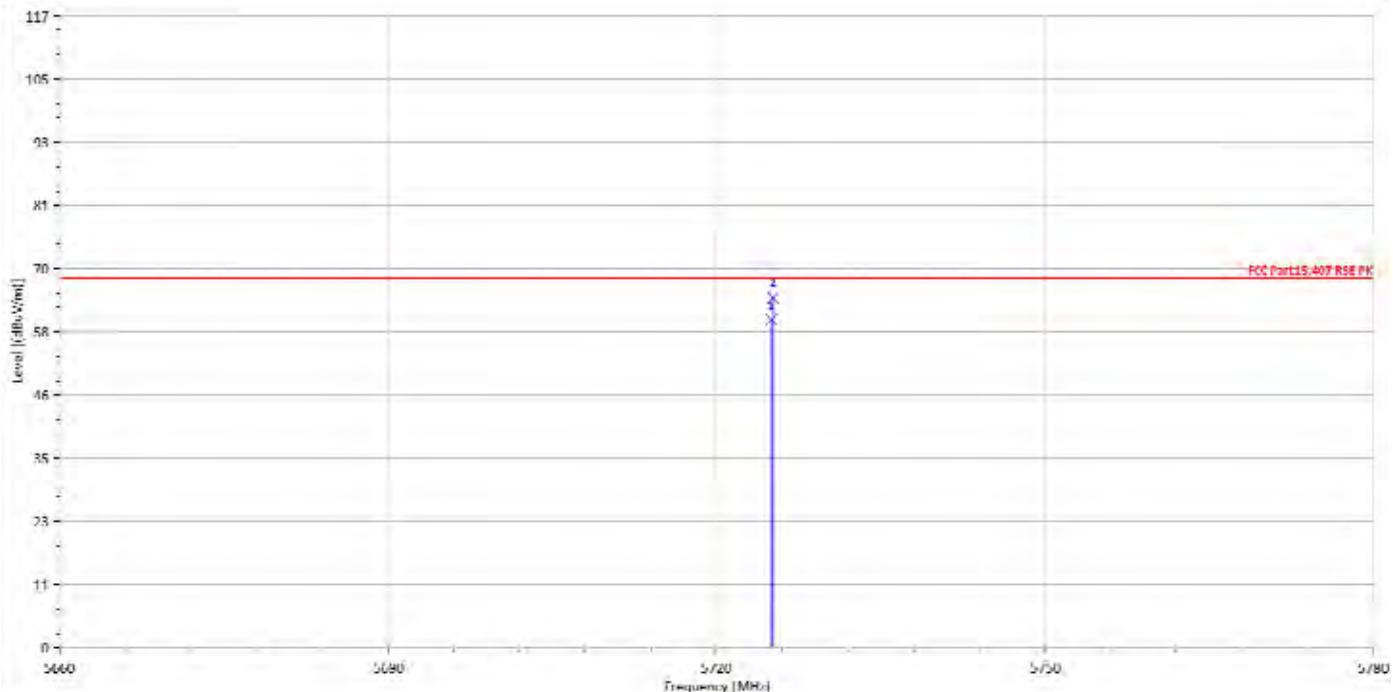
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading	FS	FS	@3m	
		PK/QP/AV	Level	dB	dBµV/m	dBµV/m	dB
5469.24	S	Peak	54.99	11.58	66.57	68.3	-1.73
5470.00	E	Peak	53.50	11.57	65.07	68.3	-3.23

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Operation Mode : 802.11ac40 Test Date : 2016/9/14  
Fundamental Frequency : 5670 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH High Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



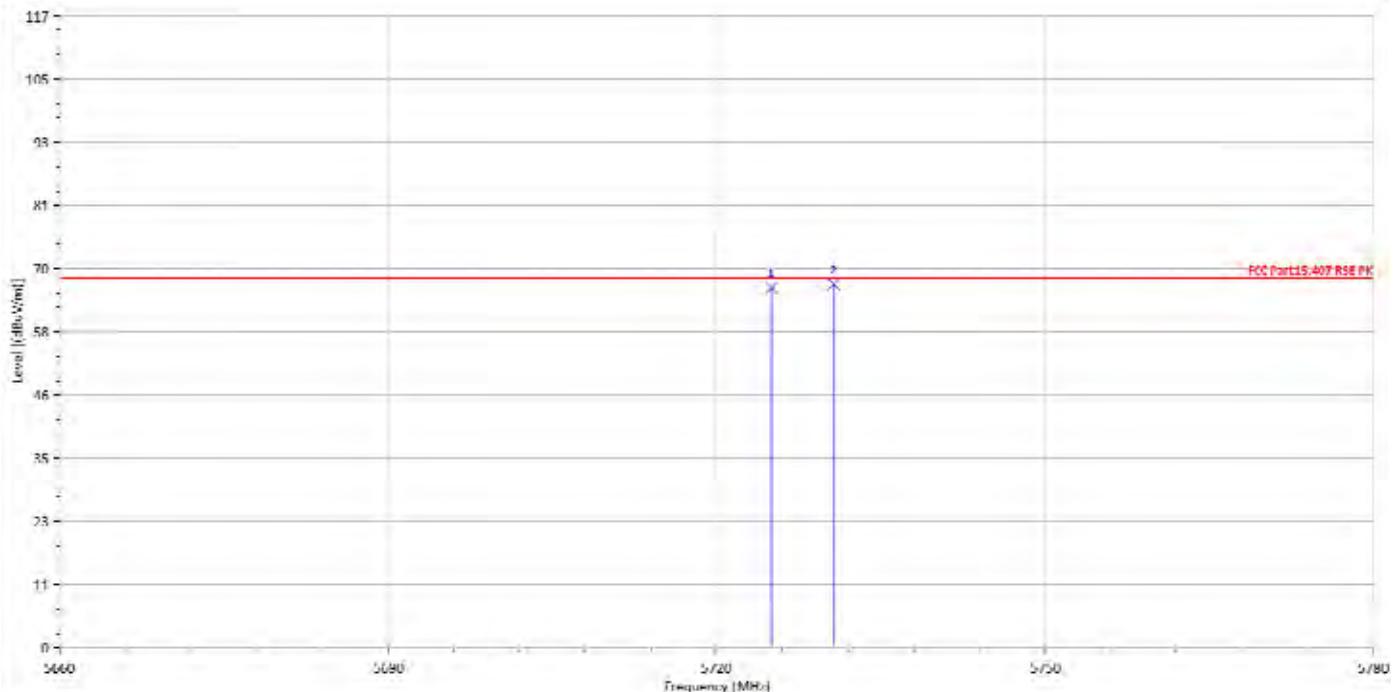
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading	FS	@3m		
		PK/QP/AV	Level	dB	dBuV/m	dBuV/m	dB
5725.00	E	Peak	48.77	12.01	60.78	68.3	-7.52
5725.16	S	Peak	52.76	12.01	64.77	68.3	-3.53

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Operation Mode : 802.11ac40      Test Date : 2016/9/14  
 Fundamental Frequency : 5670 MHz      Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH High      Test Engineer : Ashton  
 EUT Pol. : E2      Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading	FS	@3m	dBuV/m	dB
		PK/QP/AV	Level	dB	dBuV/m	dBuV/m	
5725.00	E	Peak	54.55	12.01	66.56	68.3	-1.74
5730.68	S	Peak	55.21	12.00	67.21	68.3	-1.09

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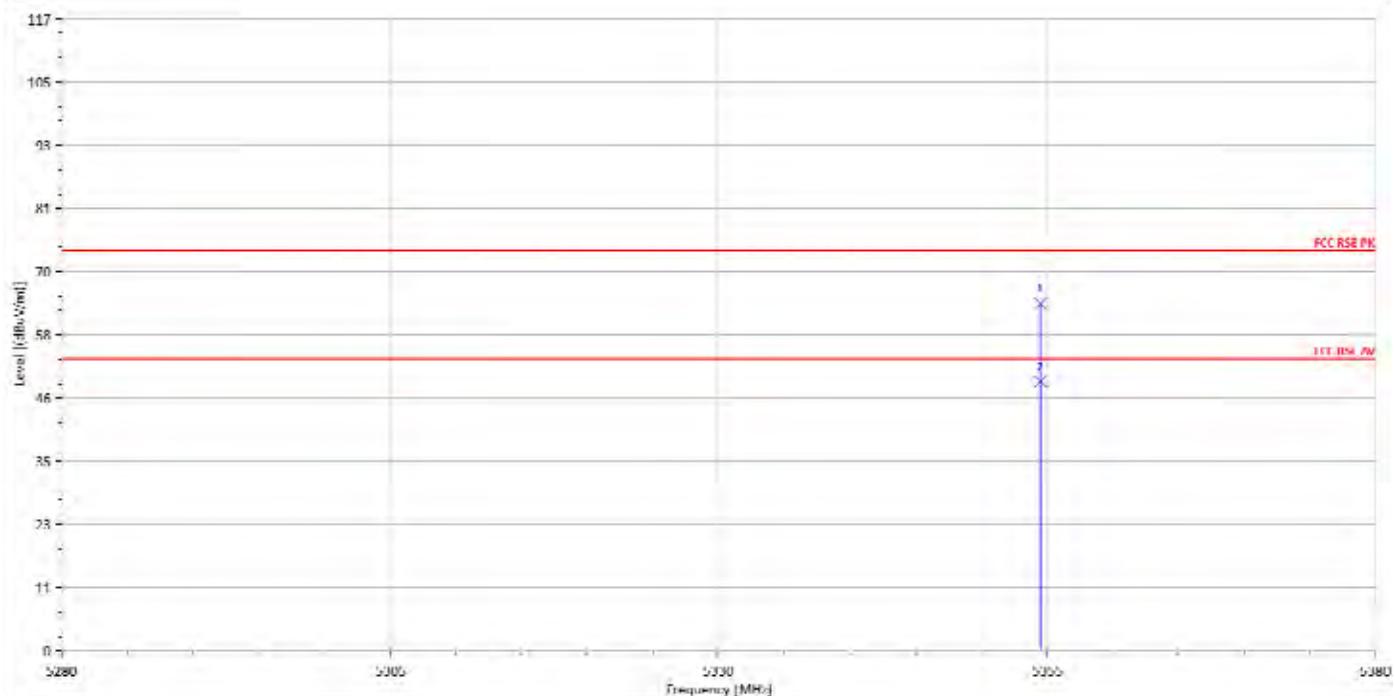
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## 802.11ac80 VHT mode

Operation Mode : 802.11ac80 Test Date : 2016/9/14  
Fundamental Frequency : 5290 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH High Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



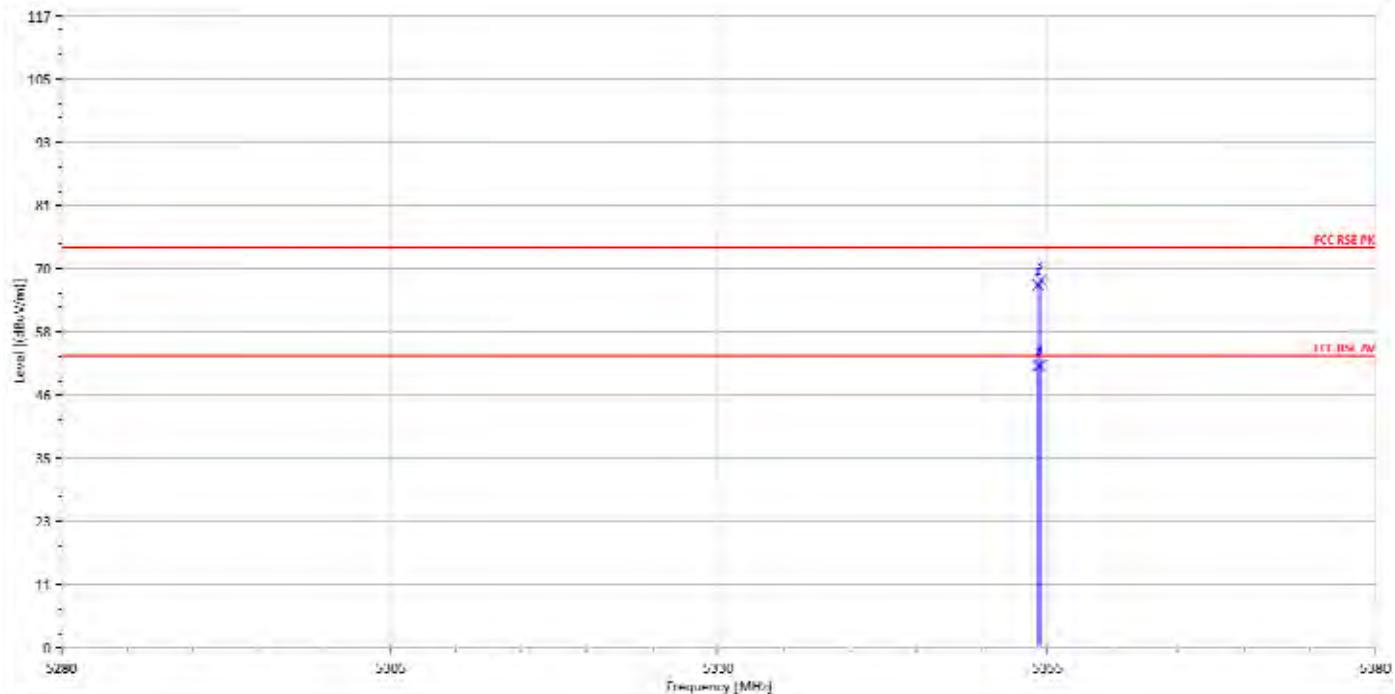
Freq.	Note	Detector Mode	Spectrum Reading	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	Level dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5350.00	E	Peak	52.62	11.68	64.30	74	-9.70
5350.00	E	Average	38.09	11.68	49.77	54	-4.23

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Operation Mode : 802.11ac80 Test Date : 2016/9/14  
 Fundamental Frequency : 5290 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH High Test Engineer : Ashton  
 EUT Pol. : E2 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	Peak	55.40	11.69	67.09	74	-6.91
5350.00	E	Average	40.40	11.69	52.09	54	-1.91
5354.50	S	Peak	56.34	11.68	68.03	74	-5.97
5354.50	S	Average	40.55	11.68	52.23	54	-1.77

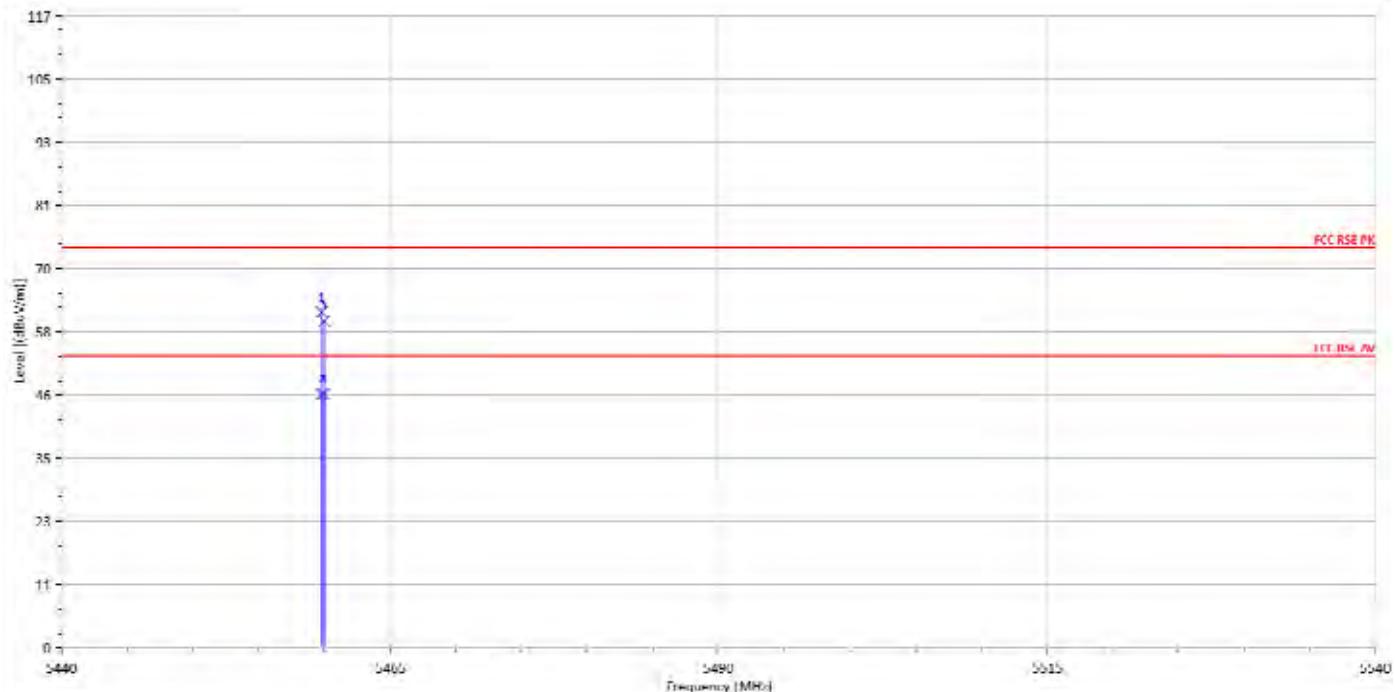
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Operation Mode : 802.11ac80 Test Date : 2016/9/14  
 Fundamental Frequency : 5530 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH Low Test Engineer : Ashton  
 EUT Pol. : E2 Measurement Antenna Pol. : Vertical



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
5459.80	S	Peak	50.54	11.66	62.20	74	-11.80
5459.80	S	Average	35.29	11.66	46.95	54	-7.05
5460.00	E	Peak	48.83	11.66	60.49	74	-13.51
5460.00	E	Average	35.36	11.66	47.02	54	-6.98

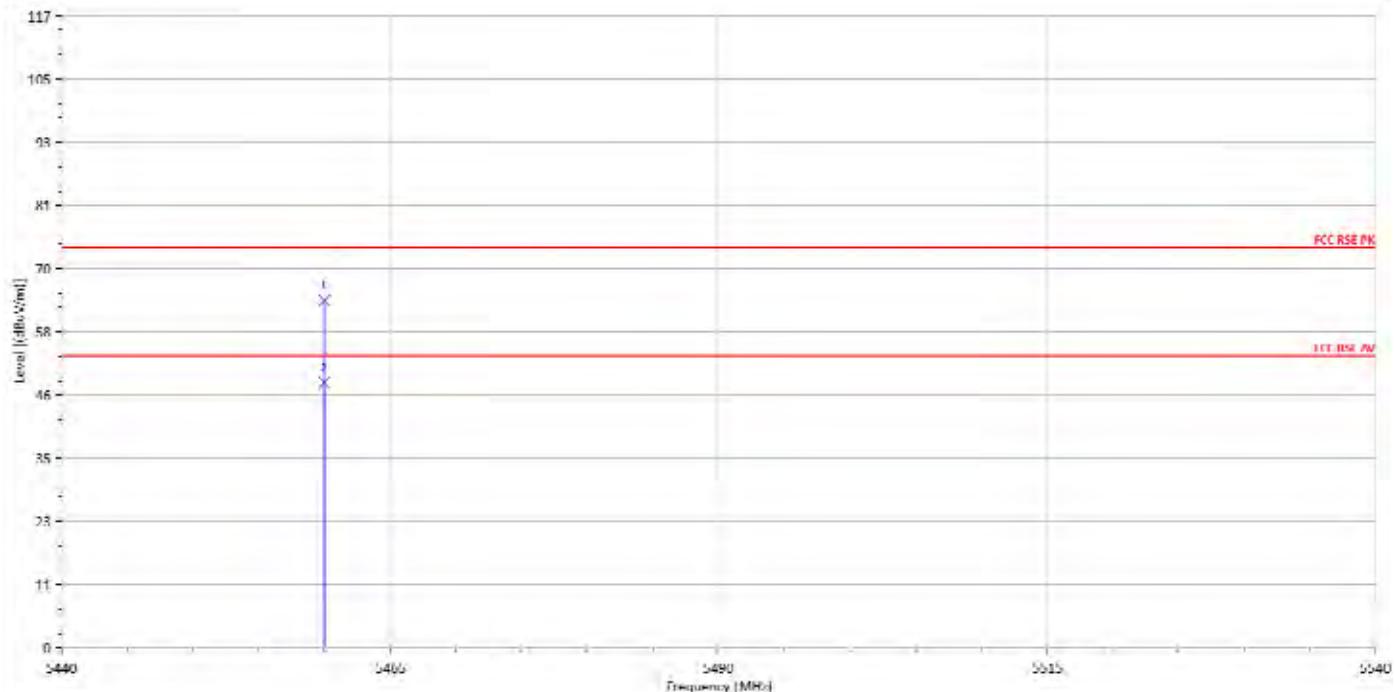
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Operation Mode : 802.11ac80 Test Date : 2016/9/14  
 Fundamental Frequency : 5530 MHz Temp. / Humi. : 22.7deg\_C/57RH  
 Operation Band : BE CH Low Test Engineer : Ashton  
 EUT Pol. : E2 Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector Mode	Spectrum Reading	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	Peak	52.68	11.66	64.34	74	-9.66
5460.00	E	Average	37.36	11.66	49.02	54	-4.98

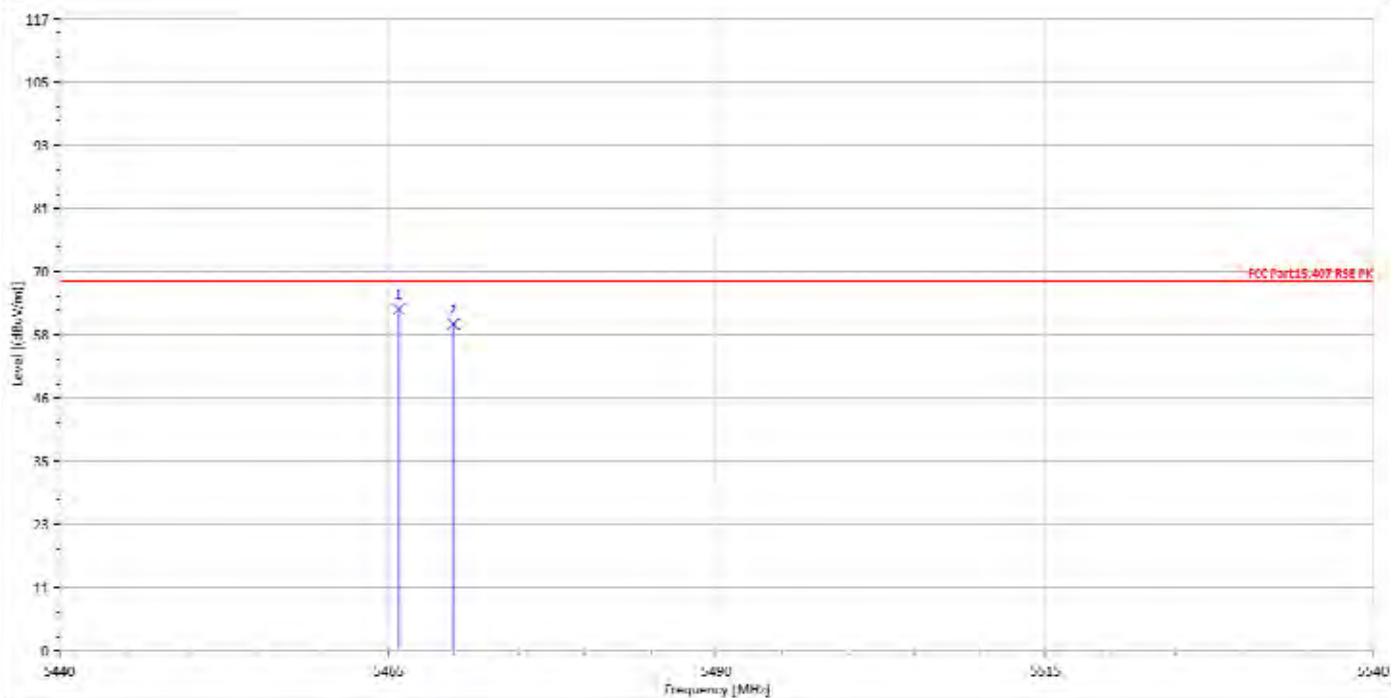
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Operation Mode : 802.11ac80 Test Date : 2016/9/14  
Fundamental Frequency : 5530 MHz Temp. / Humi. : 22.7deg\_C/57RH  
Operation Band : BE CH Low RSE Test Engineer : Ashton  
EUT Pol. : E2 Measurement Antenna Pol. : Vertical



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
5465.80	S	Peak	51.65	11.61	63.25	68.3	-5.05
5470.00	E	Peak	48.92	11.57	60.49	68.3	-7.81

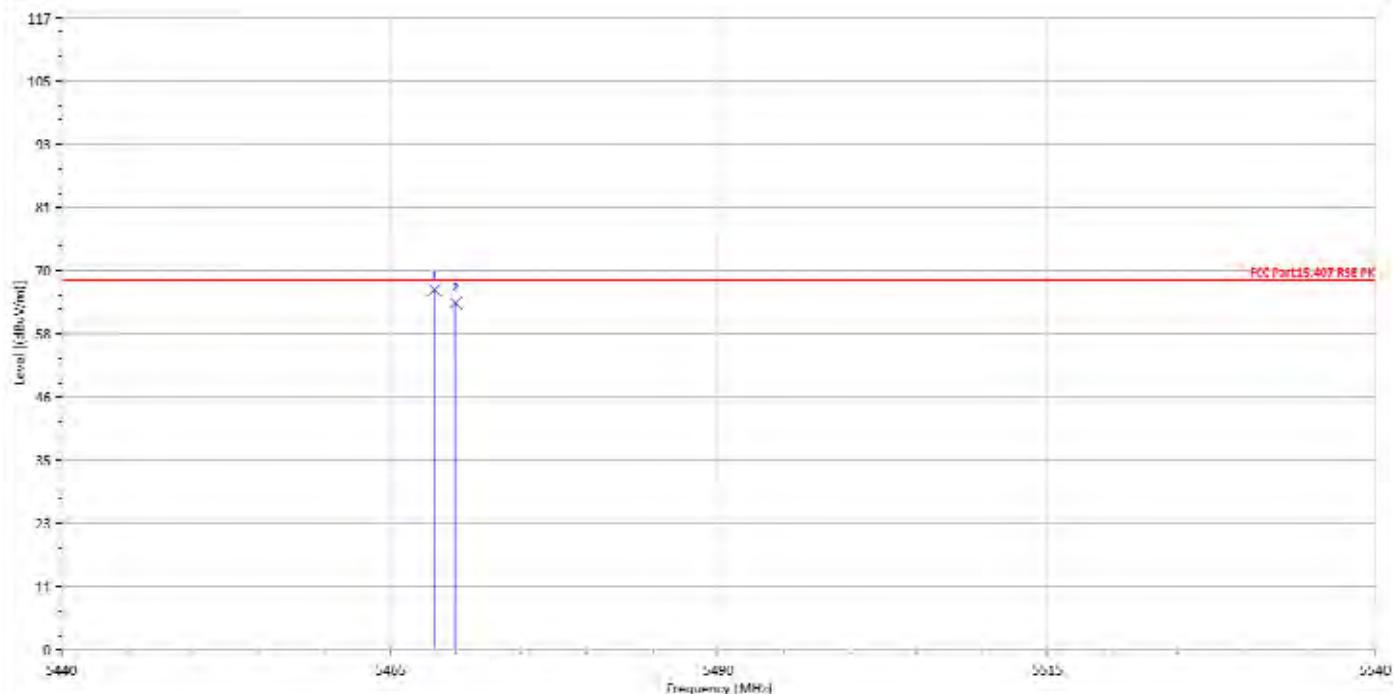
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Operation Mode : 802.11ac80  
Fundamental Frequency : 5530 MHz  
Operation Band : BE CH Low RSE  
EUT Pol. : E2

Test Date : 2016/9/14  
Temp. / Humi. : 22.7deg\_C/57RH  
Test Engineer : Ashton  
Measurement Antenna Pol. : Horizontal



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading	FS	@3m	dB	
		PK/QP/AV	Level	dB	dB $\mu$ V/m	dB $\mu$ V/m	
5468.40	S	Peak	54.96	11.58	66.55	68.3	-1.75
5470.00	E	Peak	52.68	11.57	64.25	68.3	-4.05

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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

No non-compliance noted:

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

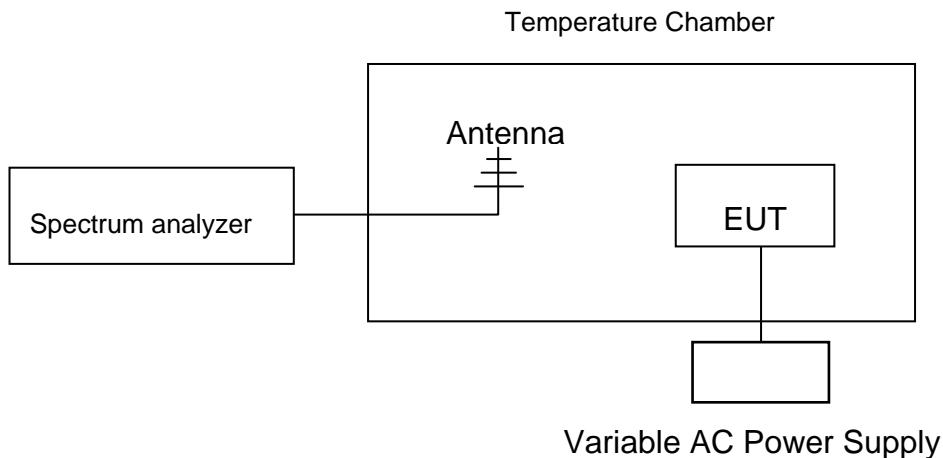
### 13.1 Standard Applicable

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



### 13.4 Measurement Equipment Used:

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2016	04/13/2017
DC Power Supply	Agilent	E3640A	MY53140006	05/04/2016	05/03/2017
Temperature Chamber	TERCHY	MHK-120LK	1020582	06/16/2016	06/15/2017

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### 13.5 Measurement Result

Operation Mode	802.11 a	Test Date	2016.09.26
Temperature	:22	Test By	Wayne
Humidity	:65 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	4.75V	52	5260	5,260.04610	-0.00000876
		60	5300	5,300.05970	-0.00001126
		64	5320	5,320.04550	-0.00000855
		100	5500	5,500.04320	-0.00000785
		116	5580	5,580.05380	-0.00000964
		140	5700	5,700.04830	-0.00000847
	5.25V	52	5260	5,260.05970	-0.00001135
		60	5300	5,300.04720	-0.00000891
		64	5320	5,320.05630	-0.00001058
		100	5500	5,500.04400	-0.00000800
		116	5580	5,580.04250	-0.00000762
		140	5700	5,700.05910	-0.00001037
25	5V	52	5260	5,260.04640	-0.00000882
		60	5300	5,300.05300	-0.00001000
		64	5320	5,320.05460	-0.00001026
		100	5500	5,500.06580	-0.00001196
		116	5580	5,580.07000	-0.00001254
		140	5700	5,700.07300	-0.00001281
40	4.75V	52	5260	5,260.04550	-0.00000865
		60	5300	5,300.04700	-0.00000887
		64	5320	5,320.05950	-0.00001118
		100	5500	5,500.04420	-0.00000804
		116	5580	5,580.05660	-0.00001014
		140	5700	5,700.05950	-0.00001044
	5.25V	52	5260	5,260.05880	-0.00001118
		60	5300	5,300.05400	-0.00001019
		64	5320	5,320.04480	-0.00000842
		100	5500	5,500.04380	-0.00000796
		116	5580	5,580.05010	-0.00000898
		140	5700	5,700.05170	-0.00000907

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Operation Mode	802.11 ac_VHT40	Test Date	2016.09.26
Temperature	:22	Test By	Wayne
Humidity	:65 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	4.75V	54	5270	5,270.03950	-0.00000750
		62	5310	5,310.02330	-0.00000439
		102	5510	5,510.03500	-0.00000635
		110	5550	5,550.03060	-0.00000551
		134	5670	5,670.02910	-0.00000513
	5.25V	54	5270	5,270.02360	-0.00000448
		62	5310	5,310.03250	-0.00000612
		102	5510	5,510.03400	-0.00000617
		110	5550	5,550.02410	-0.00000434
		134	5670	5,670.02340	-0.00000413
25	5V	54	5270	5,270.06680	-0.00001268
		62	5310	5,310.06360	-0.00001198
		102	5510	5,510.07240	-0.00001314
		110	5550	5,550.06680	-0.00001204
		134	5670	5,670.07200	-0.00001270
40	4.75V	54	5270	5,270.03760	-0.00000713
		62	5310	5,310.03160	-0.00000595
		102	5510	5,510.03310	-0.00000601
		110	5550	5,550.03530	-0.00000636
		134	5670	5,670.03880	-0.00000684
	5.25V	54	5270	5,270.02010	-0.00000381
		62	5310	5,310.03220	-0.00000606
		102	5510	5,510.02080	-0.00000377
		110	5550	5,550.03230	-0.00000582
		134	5670	5,670.02930	-0.00000517

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Operation Mode	802.11 ac_VHT80	Test Date	2016.09.26
Temperature	:22	Test By	Wayne
Humidity	:65 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	4.75V	58	5290	5,290.02140	-0.00000405
		106	5530	5,530.03600	-0.00000651
		122	5610	5,610.03960	-0.00000706
	5.25V	58	5290	5,290.02640	-0.00000499
		106	5530	5,530.02650	-0.00000479
		122	5610	5,610.02900	-0.00000517
25	5V	58	5290	5,290.07120	-0.00001346
		106	5530	5,530.07600	-0.00001374
		122	5610	5,610.08860	-0.00001579
40	4.75V	58	5290	5,290.03230	-0.00000611
		106	5530	5,530.03930	-0.00000711
		122	5610	5,610.03940	-0.00000702
	5.25V	58	5290	5,290.03250	-0.00000614
		106	5530	5,530.03880	-0.00000702
		122	5610	5,610.03110	-0.00000554

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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

PIFA 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.

The antenna gain is less than 6dBi. Therefore, it is not necessary to reduce maximum output power limit.

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