

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

OF

**Product Name:** abTouchPhone

**Brand Name:** acer

**Model No.:** ASP-9100

**Model Difference:** N/A

**FCC ID:** HLZ-ASP9100

**Report No.:** ER/2016/50047

**Issue Date:** Sep. 06, 2016

**FCC Rule Part:** §15.407

Acer Incorporated

**Prepared for:** 8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi,  
New Taipei City 22181, Taiwan (R.O.C)

SGS Taiwan Ltd.

Electronics & Communication Laboratory

**Prepared by:** No.134, Wu Kung Road, New Taipei  
Industrial Park, Wuku District, New Taipei  
City, Taiwan 24803



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## VERIFICATION OF COMPLIANCE

**Applicant (FCC):** Acer Incorporated  
8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181,  
Taiwan (R.O.C)

**Product Name:** abTouchPhone

**Brand Name:** acer

**Model No.:** ASP-9100

**Model Difference:** N/A

**FCC ID:** HLZ-ASP9100

**File Number:** ER/2016/50047

**Date of Test:** May. 09, 2016 ~ Aug. 29, 2016

**Date of EUT Received:** May. 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:**

Marcus Tseng

**Date:**

Sep. 06, 2016

\_\_\_\_\_  
**Marcus Tseng / Sr. Engineer****Prepared By:**

Tiffany Kao

**Date:**

Sep. 06, 2016

\_\_\_\_\_  
**Tiffany Kao / Clerk****Approved By:**

Jim Chang

**Date:**

Sep. 06, 2016

\_\_\_\_\_  
**Jim Chang / Asst. Manager**

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## Revision History

Report Number	Revision	Description	Issue Date
ER/2016/50047	Rev.00	Initial creation of document	Sep. 06, 2016

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## 1. GENERAL INFORMATION

### 1.1 Product Description

General:

Product Name:	abTouchPhone	
Brand Name:		
Model No.:	ASP-9100	
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	
Power Supply:	5Vdc from AC/DC Adapter	
	Adapter:	Model No.: ASSA53W-050300; Supplier: AQUIL STAR PRECISION INDUSTRIAL (SHENZHEN) CO., LTD.

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## WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Rated Power (Avg.)	Modulation Technology
11a	5150~5250	4	10.47 dBm (Avg.)	OFDM
	5250~5350	4	11.26 dBm (Avg.)	
	5470~5725	12	10.47 dBm (Avg.)	
	5725-5850	5	10.27 dBm	
11n / ac_20M	HT / VHT20 5150~5250	4	HT: 11.50 dBm (Avg.) (Worst Case)	OFDM
	HT / VHT20 5250~5350	4	HT: 11.09 dBm (Avg.) (Worst Case)	
	HT / VHT20 5470~5725	11	HT: 10.35 dBm (Avg.) (Worst Case)	
	HT / VHT20 5725-5850	5	HT: 10.31 dBm (Worst Case)	
11n / ac_40M	HT / VHT40 5150~5250	2	HT: 10.58 dBm (Avg.) (Worst Case)	OFDM
	HT / VHT40 5250~5350	2	HT: 9.28 dBm (Avg.) (Worst Case)	
	HT / VHT40 5470~5725	5	HT: 10.19 dBm (Avg.) (Worst Case)	
	HT / VHT40 5725-5850	2	HT: 10.59 dBm (Worst Case)	
11ac_80M	VHT80 5150~5250	1	8.77 dBm (Avg.)	OFDM
	VHT80 5250~5350	1	10.71 dBm (Avg.)	
	VHT80 5470~5725	2	9.16 dBm (Avg.)	
	VHT80 5725-5850	1	10.37 dBm	

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Antenna Designation	PIFA Antenna, Antenna: 5GHz Gain: 2.63dBi (5150MHz-5250MHz) 5GHz Gain: 2.28dBi (5250MHz-5350MHz) 5GHz Gain: 4.08dBi (5470MHz-5725MHz) 5GHz Gain: 3.63dBi (5725MHz-5850MHz)
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_20 / ac VHT20MHz: 6.5 – 86.7Mbps 802.11 n_40 / ac VHT40MHz: 13.5 – 260Mbps 802.11 ac_80MHz: 29.3 – 433.3Mbps

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## 1.2 Product Feature of Equipment Under Test

The equipment under Test (Hereafter Called: EUT) is abTouchPhone, supporting Wi-Fi 802.11abgn/ac, Bluetooth, features, and below is details of information.

Product Feature	
Product Name:	abTouchPhone
Brand Name:	
Model No.:	ASP-9100
Model Difference:	N/A
FCC ID:	HLZ-ASP9100
Bluetooth Version	V4.0 dual mode
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.

### 1.4 Test Facility

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

FCC Registration Numbers are: 509634

### 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 30 MHz. The CISPR Quasi-Peak and Average detector mode is employed according to §15.207. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

#### 2.3.2 Radiated Emissions

The EUT is placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plan. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this 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.

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## 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 1.5dB, and 10dB attenuator.

#### **offset:**

= RF cable loss (dB)+ attenuation factor(dB)=11.5(dB)

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## 2.5 Configuration of Tested System

Fig. 2-1 Radiated Emission & Conducted (Antenna Port)



Fig. 2-2 Conduction (AC Power Line) Configuration

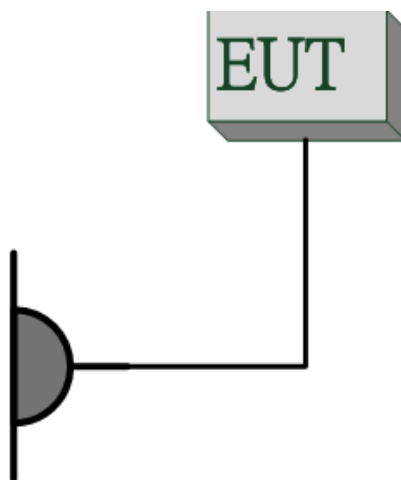


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2.	Notebook	Lenovo	L420	LR-7HXZA	Shielded	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 & 6dB Emission Bandwidth	Compliant
§15.407(a)	Maximum Conducted Output Power	Compliant
§15.407(a)	Power Spectral Density	Compliant
§15.407(b)	Undesirable Radiated Emissions	Compliant
§15.407(c)	Transmission in case of Absence of Information	Compliant
§15.407(g)	Frequency Stability	Compliant
§15.203 §15.407(a)	Antenna Requirement	Compliant

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## 4. DESCRIPTION OF TEST MODES

### 4.1 Operated in U-NII Bands

Operated band in 5150 MHz ~5250 MHz:

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac\_VHT80

CHANNEL	FREQUENCY
42	5210 MHz

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

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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

Operated band in 5725 MHz ~5850 MHz:

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac\_VHT80

CHANNEL	FREQUENCY
155	5775 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 802.11n yields the highest reading that generates the highest emission. Therefore, 802.11n 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	5180~5240	36 to 48	36,44,48	OFDM	1	MAIN
802.11a	5260~5320	52 to 64	52,60,64	OFDM	1	MAIN
802.11a	5500~5720	100 to 140	100,116,140	OFDM	1	MAIN
802.11a	5745~5825	149 to 165	149,157,165	OFDM	1	MAIN
RADIATED EMISSION TEST (ABOVE 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	1	MAIN
802.11n_HT20				OFDM	MCS0	MAIN
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS0	MAIN
802.11ac_VHT80	5210	42	42	OFDM	MCS0	MAIN
802.11a	5260~5320	52 to 64	52,60,64	OFDM	1	MAIN
802.11n_HT20				OFDM	MCS0	MAIN
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS0	MAIN
802.11ac_VHT80	5290	58	58	OFDM	MCS0	MAIN

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MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5500~5720	100 to 144	100,116,140	OFDM	1	MAIN
802.11n_HT20				OFDM	MCS0	MAIN
802.11n_HT40	5510~5710	102 to 142	102,110,134	OFDM	MCS0	MAIN
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS0	MAIN
802.11a	5745~5825	149 to 165	149,157,165	OFDM	1	MAIN
802.11n_HT20				OFDM	MCS0	MAIN
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS0	MAIN
802.11ac_VHT80	5775	155	155	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 H 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	5180~5240	36 to 48	36,44,48	OFDM	1	MAIN
802.11n_HT20				OFDM	MCS0	MAIN
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS0	MAIN
802.11ac_VHT80	5210	42	42	OFDM	MCS0	MAIN
802.11a	5260~5320	52 to 64	52,60,64	OFDM	1	MAIN
802.11n_HT20				OFDM	MCS0	MAIN
802.11n_HT40	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	1	MAIN
802.11n_HT20				OFDM	MCS0	MAIN
802.11n_HT40	5510~5670	102 to 134	102,110,134	OFDM	MCS0	MAIN
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS0	MAIN
802.11a	5745~5825	149 to 165	149,157,165	OFDM	1	MAIN
802.11n_HT20				OFDM	MCS0	MAIN
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS0	MAIN
802.11ac_VHT80	5775	155	155	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
<b>Note</b> 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	ESCI7	100760	05/10/2016	05/09/2017
LISN	SCHWARZBECK	NSLK 8127	8127-649	05/16/2016	05/15/2017
LISN	MESS TEC	FCC-LISN-50/250 -25-2-01	4034	05/16/2016	05/15/2017
Coaxial Cables	N/A	WK CE Cable	N/A	11/26/2015	11/25/2016

### 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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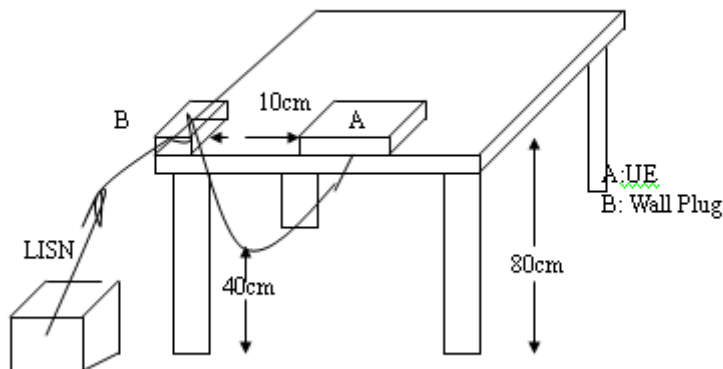
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#### 6.4. Test SET-UP



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

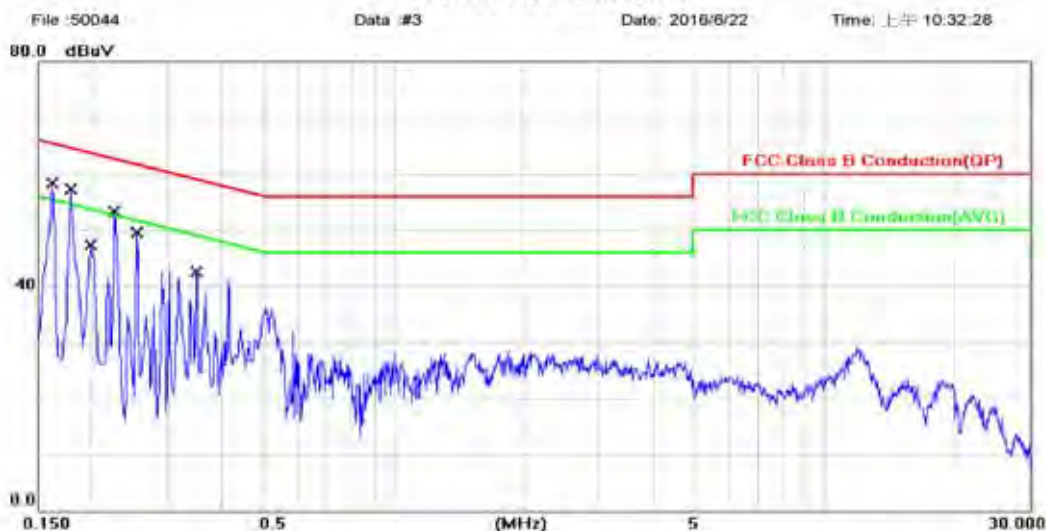
Operation Mode:	Operation mode			Test Date:	Jun. 22, 2016
Temperature:	20	Humidity:	58 %	Test By:	Tin
				Phase:	L1

Site: Conduction Room  
Limit: FCC Class B Conduction(QP)  
Mode: Operation  
Note: Adapter : ASSA53W-050300

Phase: L1  
Power: AC 120V/60Hz

Temperature: 20 °C  
Humidity: 58 %

## Conducted Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1620	51.20	0.10	51.30	65.36	-14.06	QP	
2		0.1620	28.90	0.10	29.00	55.36	-26.36	AVG	
3		0.1780	46.90	0.10	47.00	64.58	-17.58	QP	
4		0.1780	21.40	0.10	21.50	54.58	-33.08	AVG	
5		0.1980	44.50	0.10	44.60	63.69	-19.09	QP	
6		0.1980	24.20	0.10	24.30	53.69	-29.39	AVG	
7		0.2260	38.90	0.10	39.00	62.60	-23.60	QP	
8		0.2260	21.60	0.10	21.70	52.60	-30.90	AVG	
9		0.2540	39.70	0.11	39.81	61.63	-21.82	QP	
10		0.2540	18.20	0.11	18.31	51.63	-33.32	AVG	
11		0.3500	27.60	0.11	27.71	58.96	-31.25	QP	
12		0.3500	17.20	0.11	17.31	48.96	-31.65	AVG	

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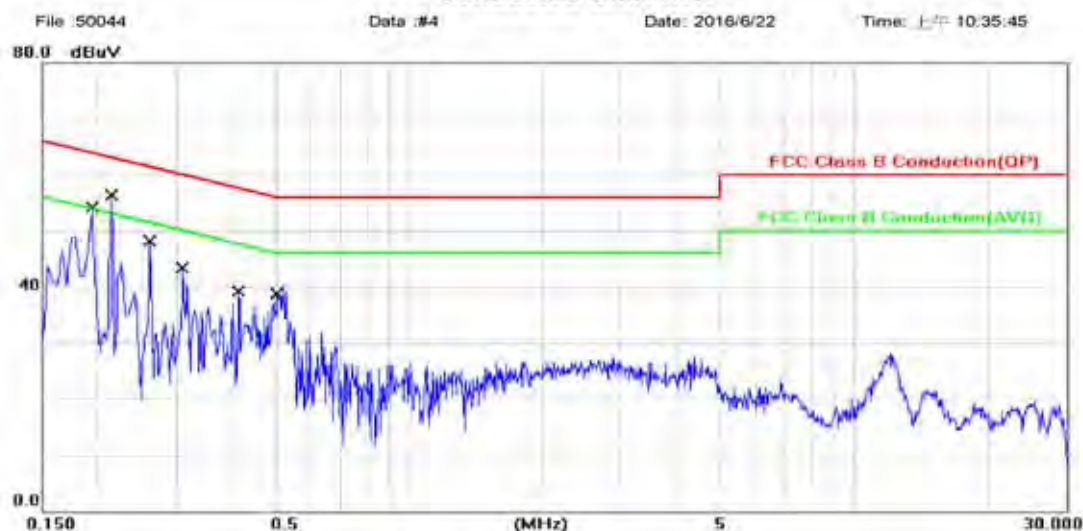


Site: Conduction Room  
Limit: FCC Class B Conduction(QP)  
Mode: Operation  
Note: Adapter : ASSA53W-050300

Phase: N  
Power: AC 120V/60Hz

Temperature: 20 °C  
Humidity: 58 %

## Conducted Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1940	46.30	0.08	46.38	63.86	-17.48	QP	
2		0.1940	31.70	0.08	31.78	53.86	-22.08	AVG	
3 *		0.2140	45.70	0.08	45.78	63.05	-17.27	QP	
4		0.2140	26.30	0.08	26.38	53.05	-26.67	AVG	
5		0.2620	39.50	0.09	39.59	61.37	-21.78	QP	
6		0.2620	19.40	0.09	19.49	51.37	-31.88	AVG	
7		0.3100	32.40	0.09	32.49	59.97	-27.48	QP	
8		0.3100	20.10	0.09	20.19	49.97	-29.78	AVG	
9		0.4140	28.60	0.10	28.70	57.57	-28.87	QP	
10		0.4140	16.80	0.10	16.90	47.57	-30.67	AVG	
11		0.5060	36.20	0.10	36.30	56.00	-19.70	QP	
12		0.5060	26.60	0.10	26.70	46.00	-19.30	AVG	

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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	97.11	0.13
802.11n_20	96.98	0.13
802.11n_40	93.99	0.27
802.11ac_80	88.77	0.52

Duty Cycle Factor:  $10 * \log(1/0.9711) = 0.13$

Duty Cycle Factor:  $10 * \log(1/0.9698) = 0.13$

Duty Cycle Factor:  $10 * \log(1/0.9399) = 0.27$

Duty Cycle Factor:  $10 * \log(1/0.8877) = 0.52$

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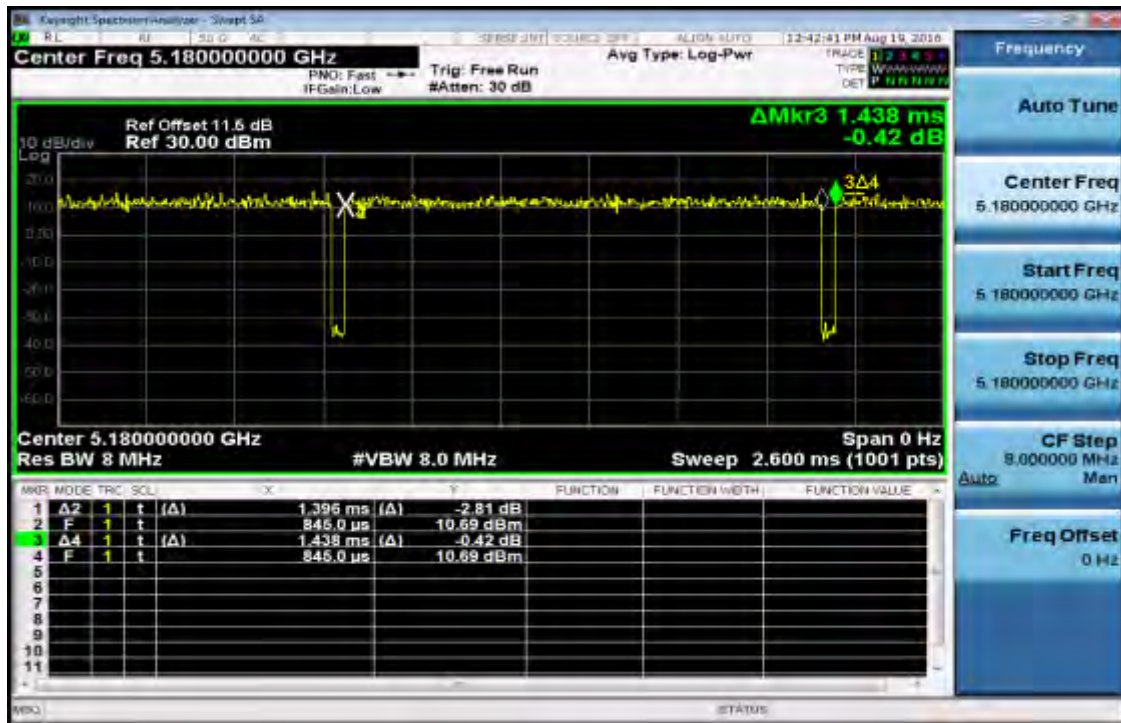
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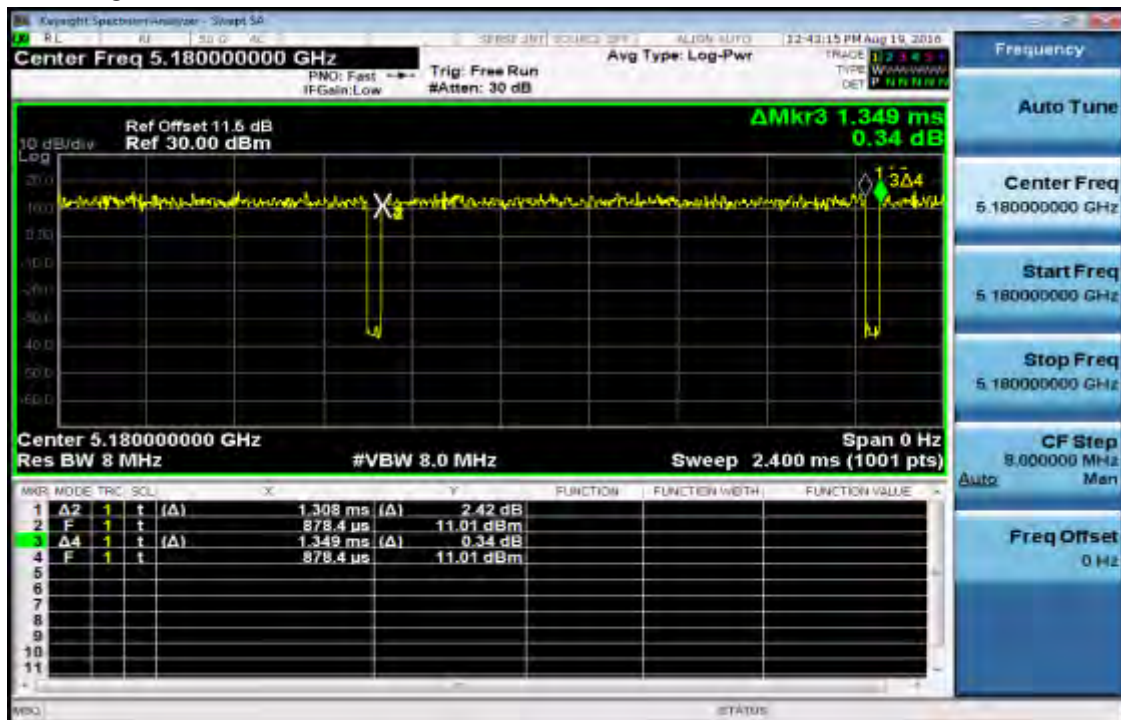
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## DUTY CYCLE TEST SIGNAL Measurement Result 802.11a



## 802.11n HT20



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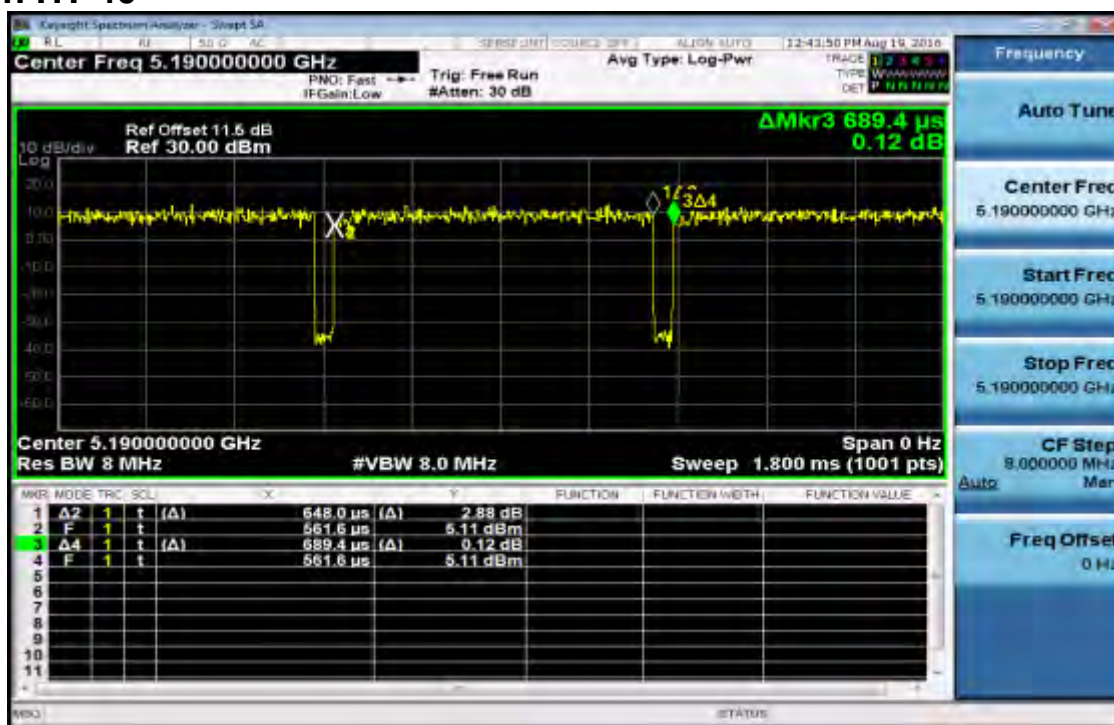
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## 802.11n HT 40



**802.11 ac VHT 80**



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## 8. 26dB & 6dB & 99% EMISSION BANDWIDTH MEASUREMENT

### 8.1 Standard Applicable

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C.

The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

### 8.2 Measurement Procedure

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

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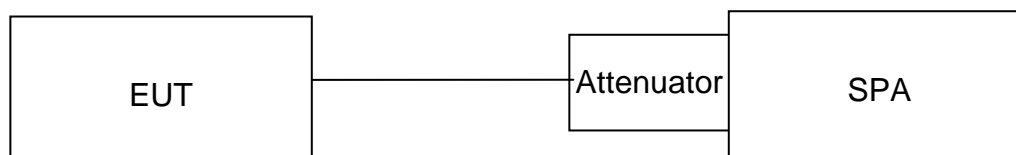
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### 8.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Power Meter	Anritsu	ML2495A	1005007	12/09/2015	12/08/2016
Power Sensor	Anritsu	MA2411B	917032	12/09/2015	12/08/2016
EXA Spectrum Analyzer	Agilent	N9030A	MY53120760	02/26/2016	02/25/2017
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017
Coaxial Cable	HUBER+SUHNER	SUCOFLEX 102	23670/2	01/02/2016	01/01/2017
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2016	01/01/2017
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017
DC Power Supply	Agilent	E3640A	MY52410006	11/05/2015	11/04/2016
Temperature Chamber	TERCHY	MHG-120LF	911009	05/17/2016	05/16/2017

### 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)
5180	21.48	13.321
5220	21.48	13.321
5240	21.43	13.310
5260	21.44	13.312
5300	21.60	13.344
5320	21.59	13.342
5500	21.62	13.348
5580	21.62	13.348
5700	21.53	13.331

#### 802.11n\_HT20\_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	22.00	13.423
5220	21.52	13.328
5240	21.46	13.316
5260	22.09	13.441
5300	21.46	13.317
5320	21.50	13.325
5500	21.70	13.365
5580	22.44	13.509
5700	21.69	13.363

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#### 802.11n \_HT40\_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	40.21	16.044
5230	39.96	16.016
5270	39.85	16.005
5310	39.90	16.010
5510	39.87	16.007
5550	<b>44.80</b>	16.512
5670	40.22	16.044

#### 802.11ac \_VHT80\_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	81.95	19.135
5290	81.37	19.105
5530	81.92	19.134
5610	81.59	19.116

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

### 802.11a\_Main

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.38	12.143
5785	16.38	12.142
5825	16.37	12.141

### 802.11n\_HT20\_Main

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.62	12.461
5785	17.63	12.462
5825	17.61	12.456

### 802.11n\_HT40\_Main

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	36.36	15.606
5795	36.36	15.606

### 802.11ac\_VHT80\_Main

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	76.27	18.824

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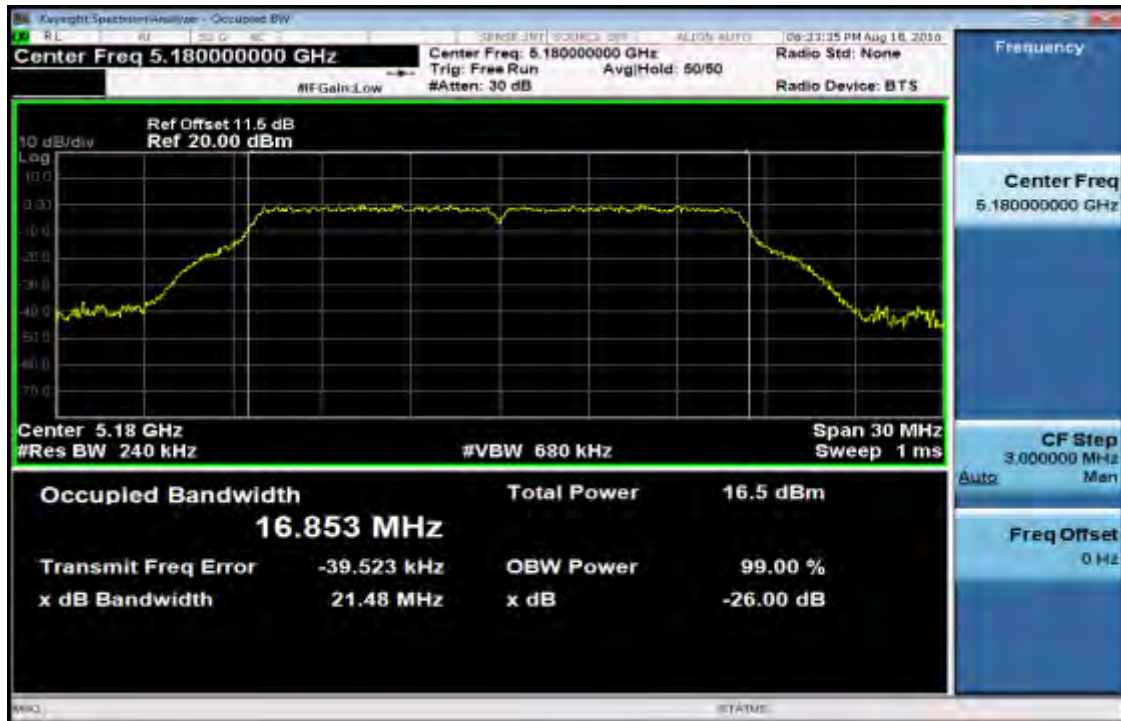
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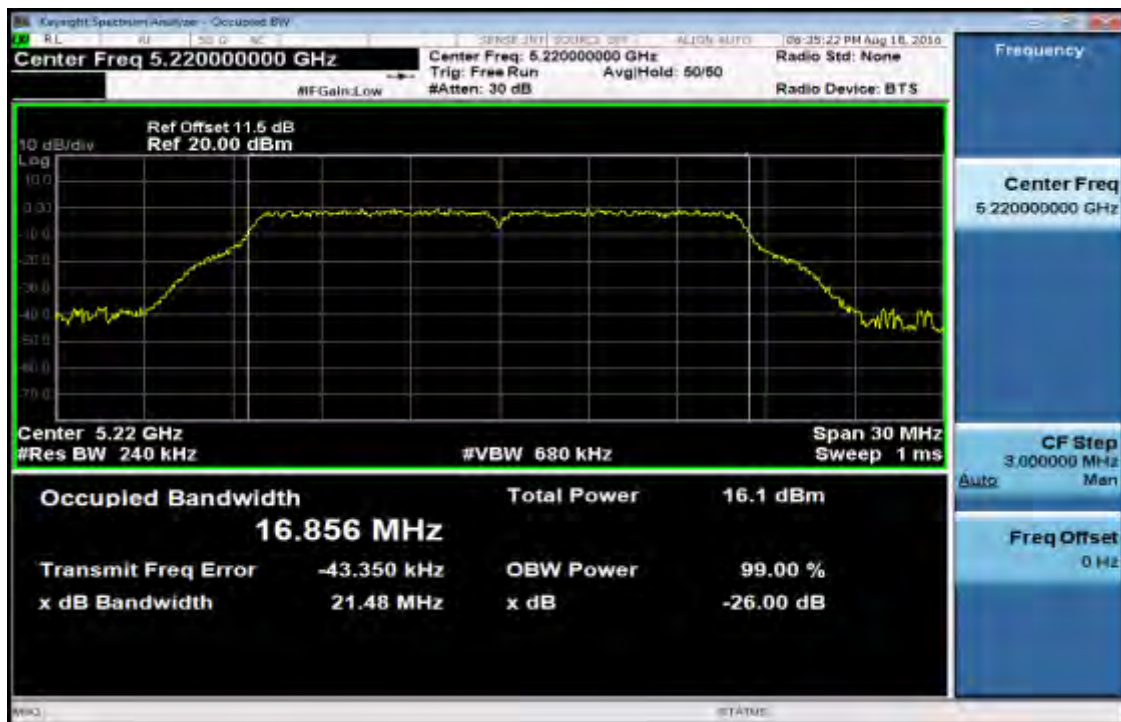
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## 802.11a, 5150~5250 MHz (Main) 26dB Band Width Test Data CH-Low (5180MHz)



## 26dB Band Width Test Data CH-Mid (5220MHz)



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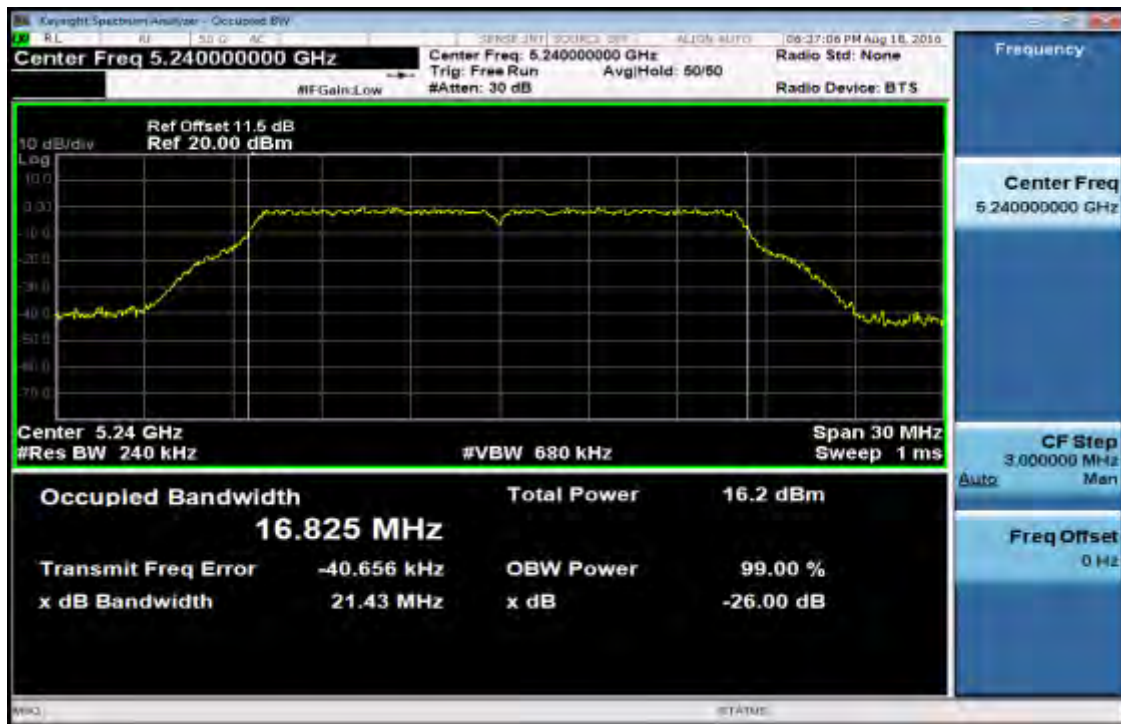
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## 26dB Band Width Test Data CH-High (5240MHz)



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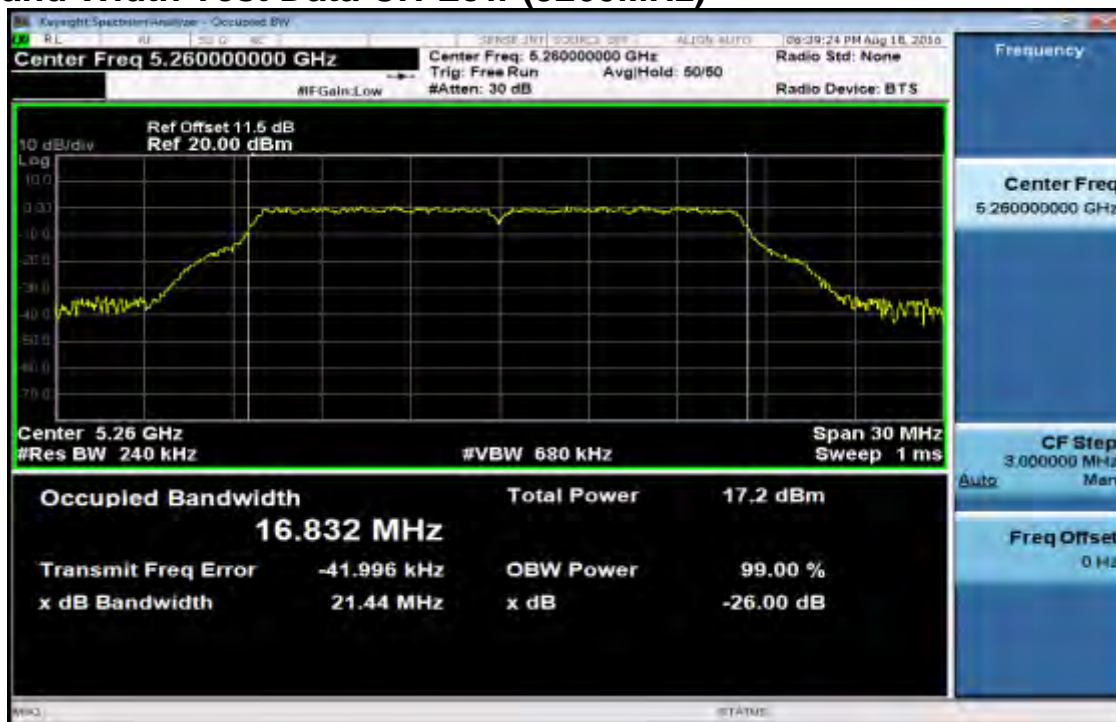
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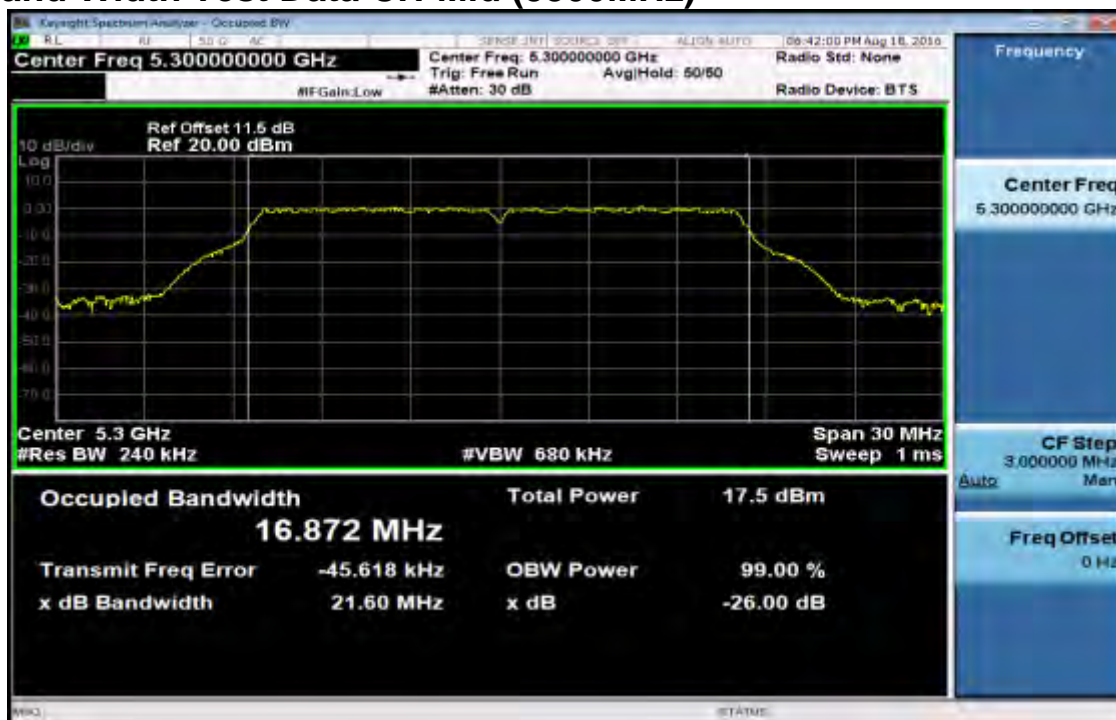
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## 802.11a, 5250~5350 MHz (Main) 26dB Band Width Test Data CH-Low (5260MHz)



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



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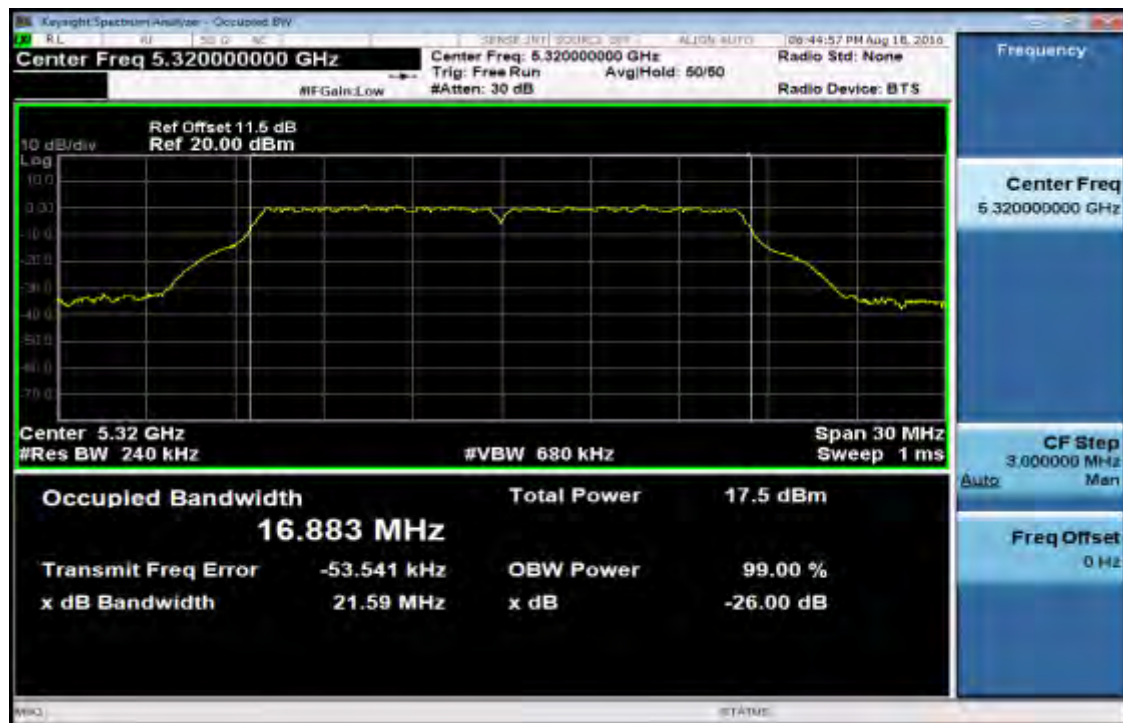
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## 26dB Band Width Test Data CH-High (5320MHz)



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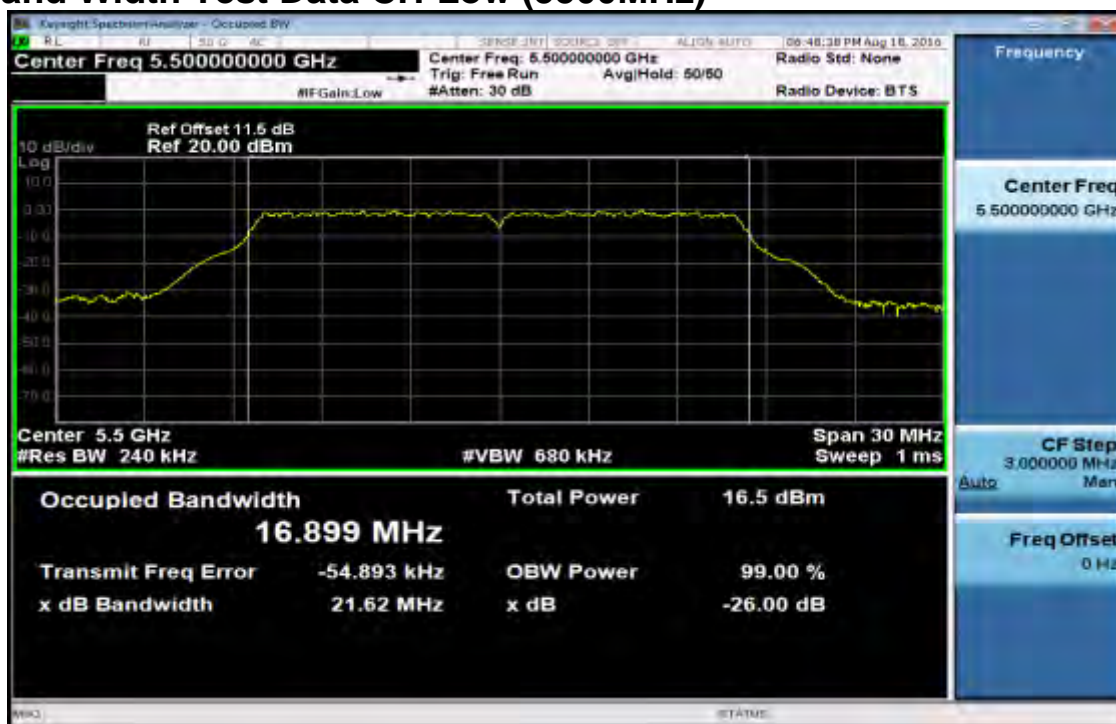
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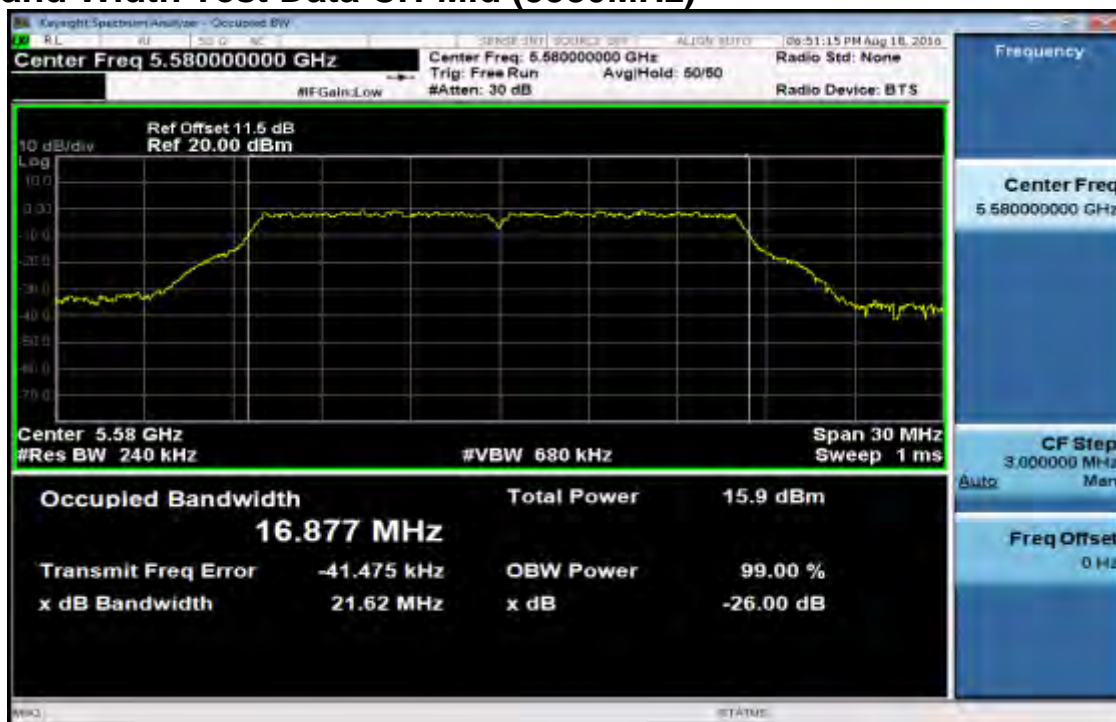
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## 802.11a, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5500MHz)



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



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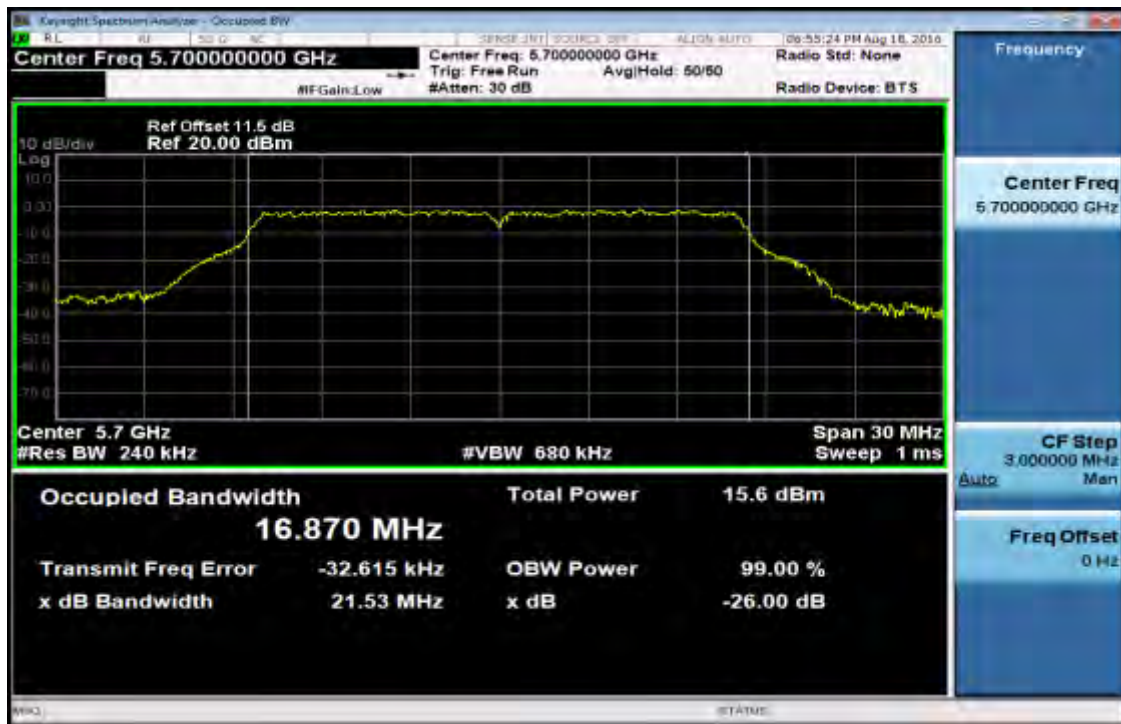
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## 26dB Band Width Test Data CH-High (5700MHz)



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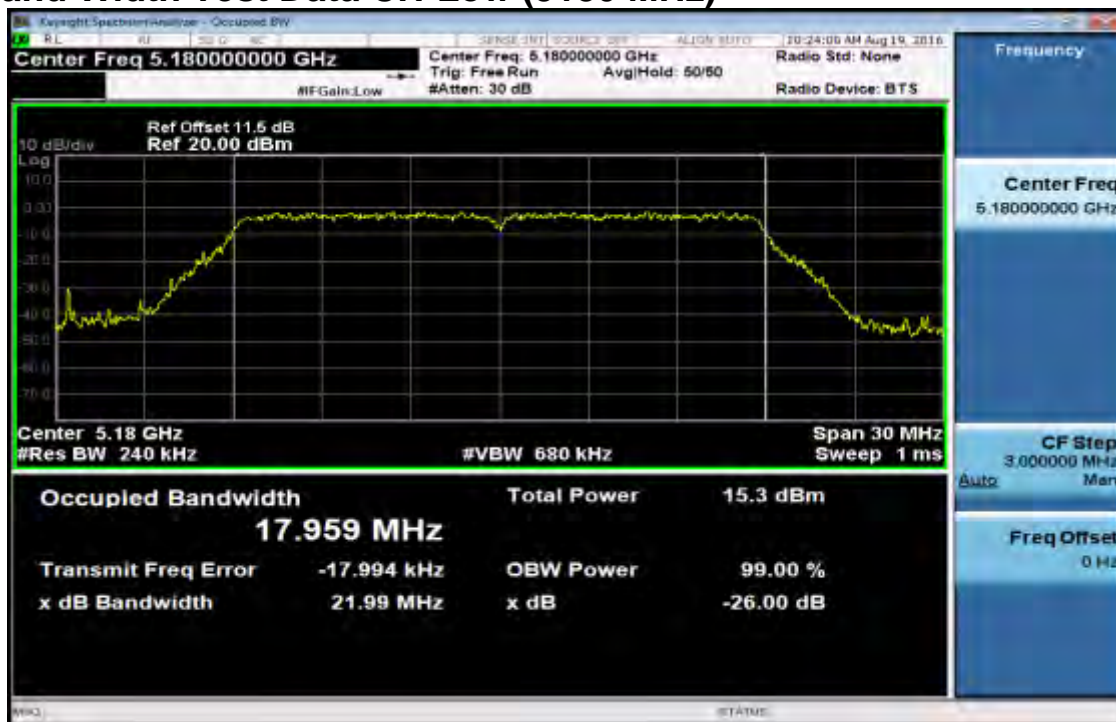
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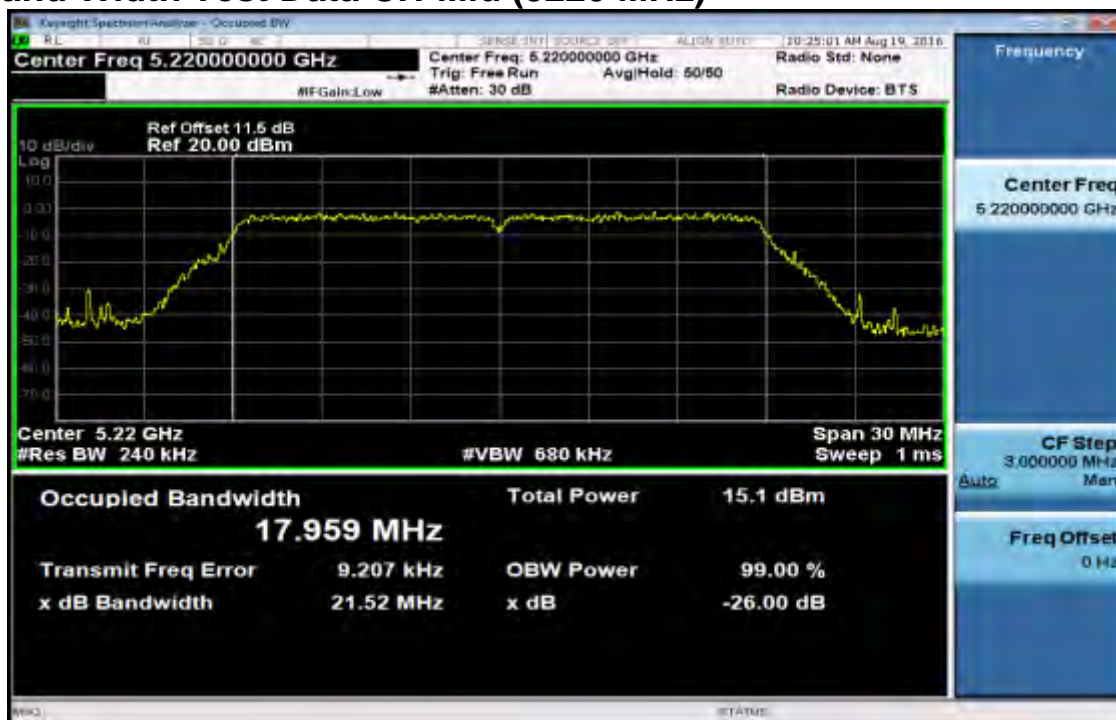
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## 802.11n HT20, 5150~5250 MHz (Main) 26dB Band Width Test Data CH-Low (5180 MHz)



## 26dB Band Width Test Data CH-Mid (5220 MHz)



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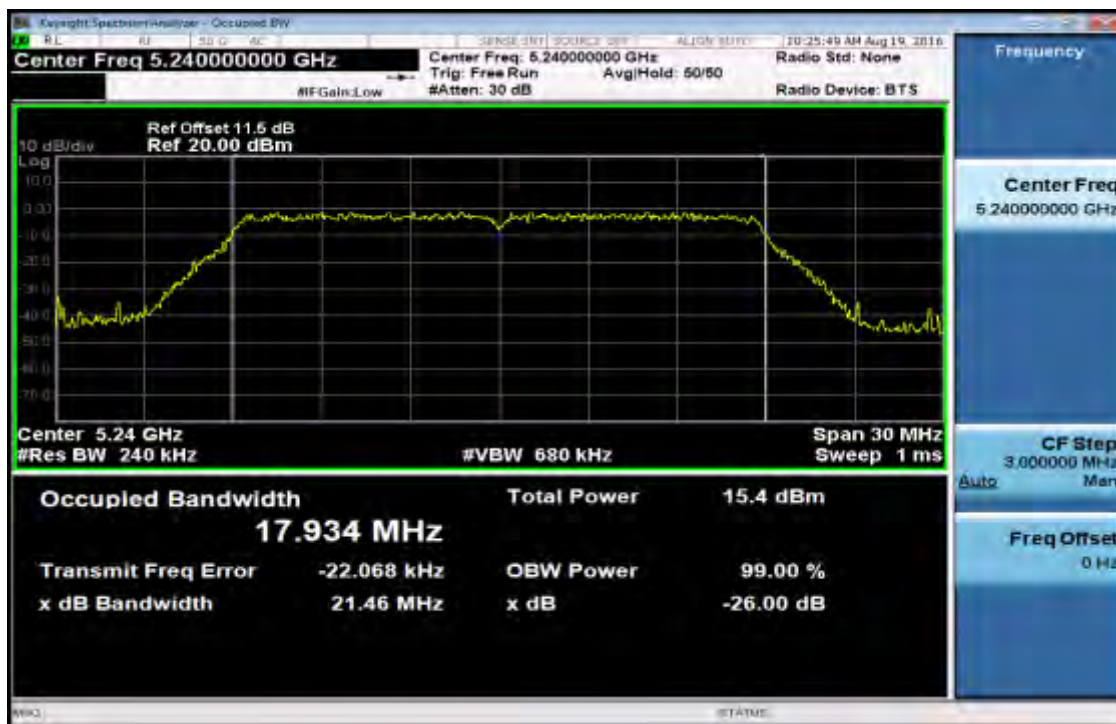
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## 26dB Band Width Test Data CH-High (5240 MHz)



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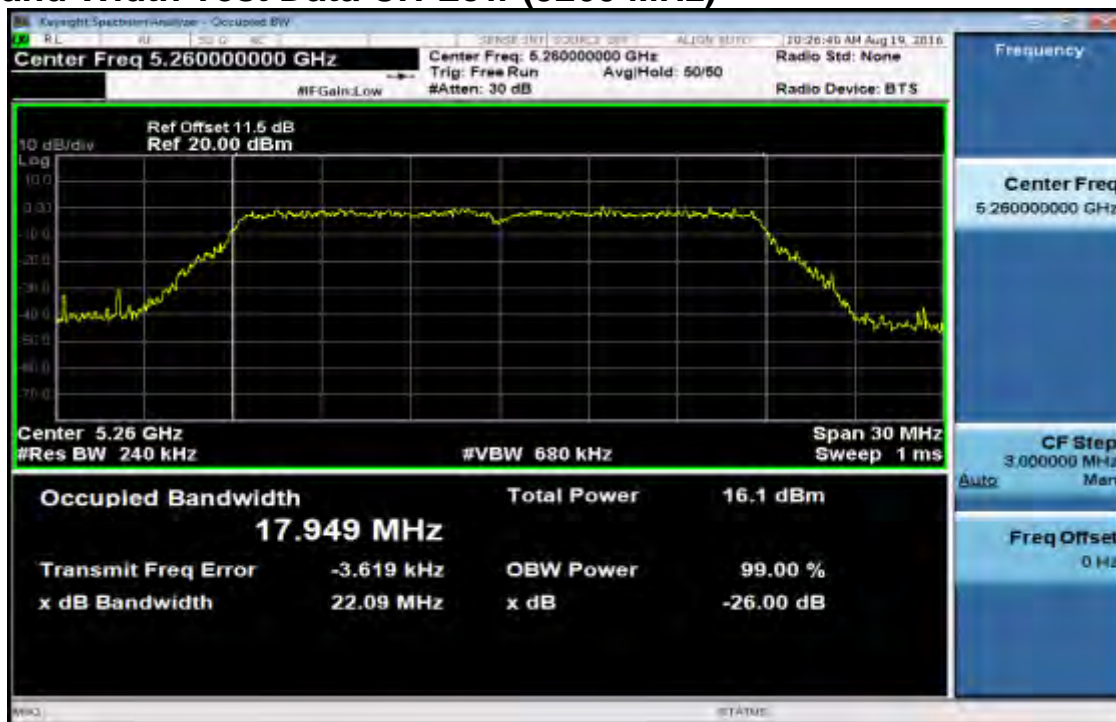
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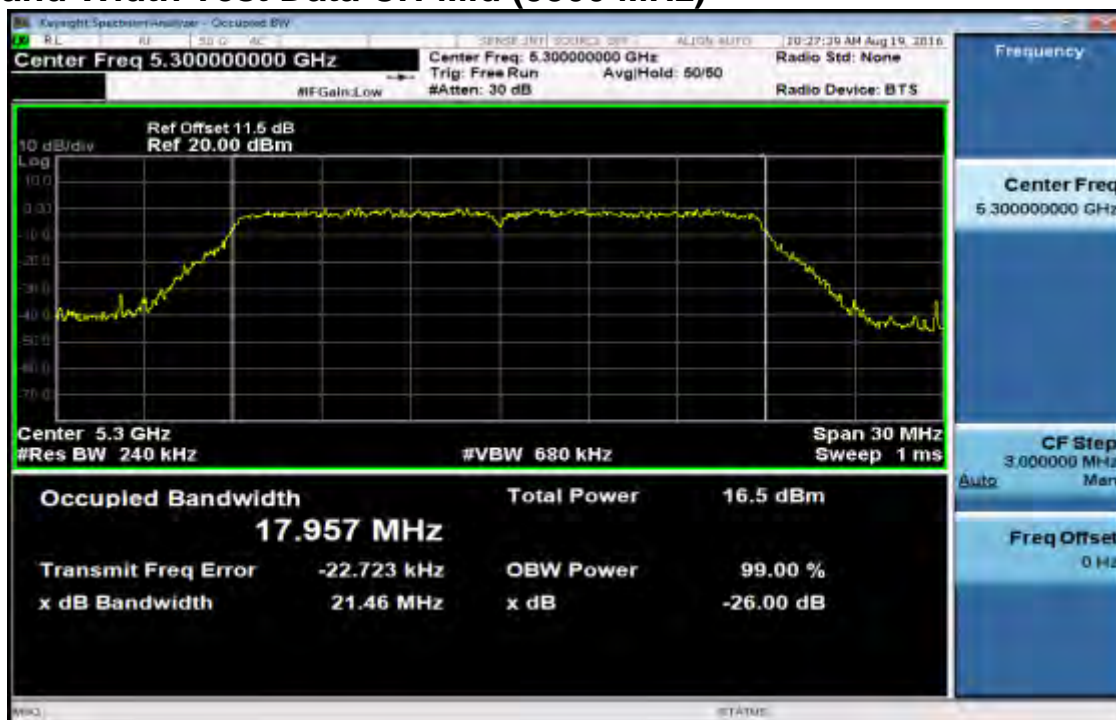
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## 802.11n HT20, 5250~5350 MHz (Main) 26dB Band Width Test Data CH-Low (5260 MHz)



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



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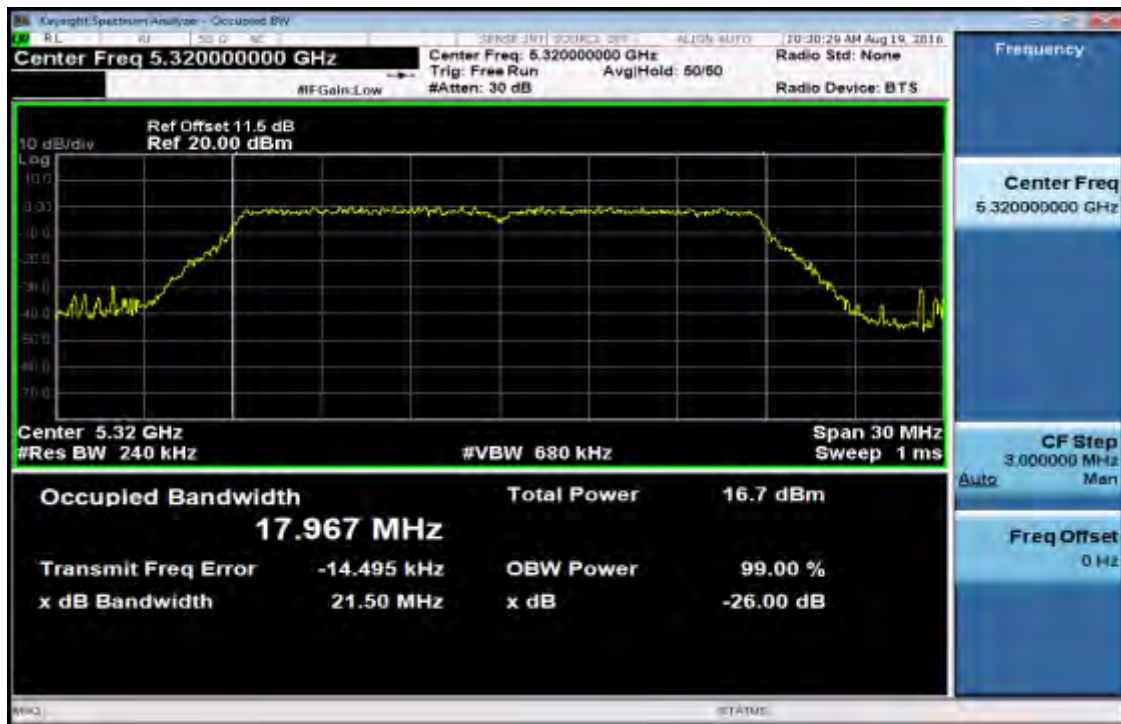
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## 26dB Band Width Test Data CH-High (5320 MHz)



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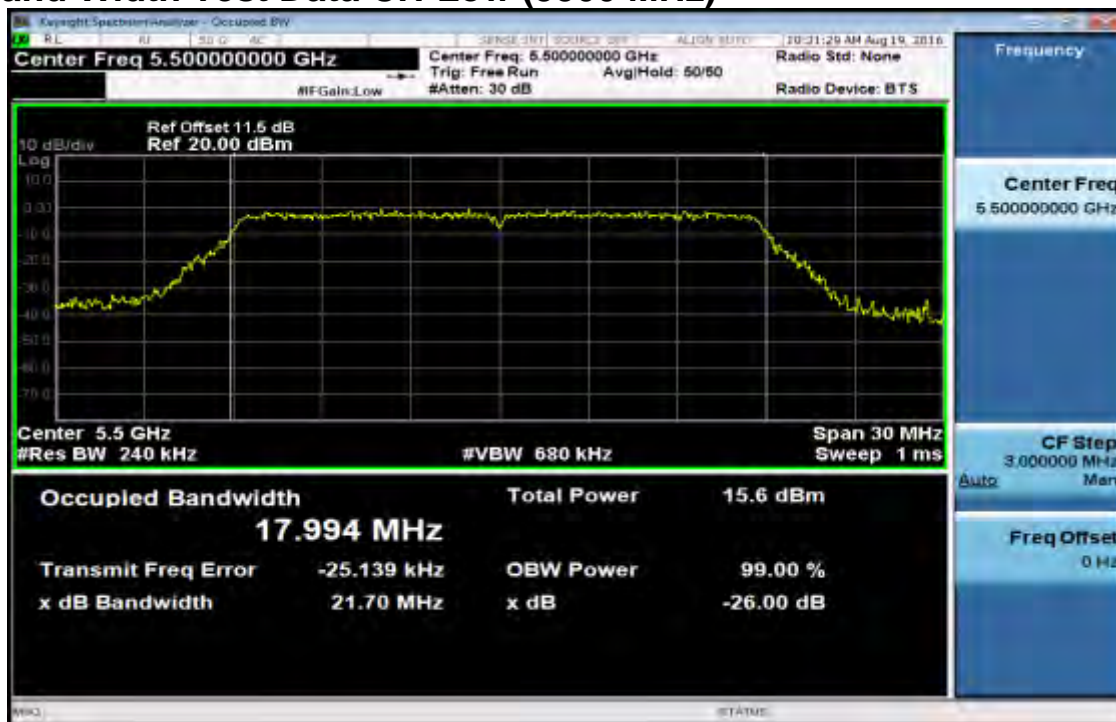
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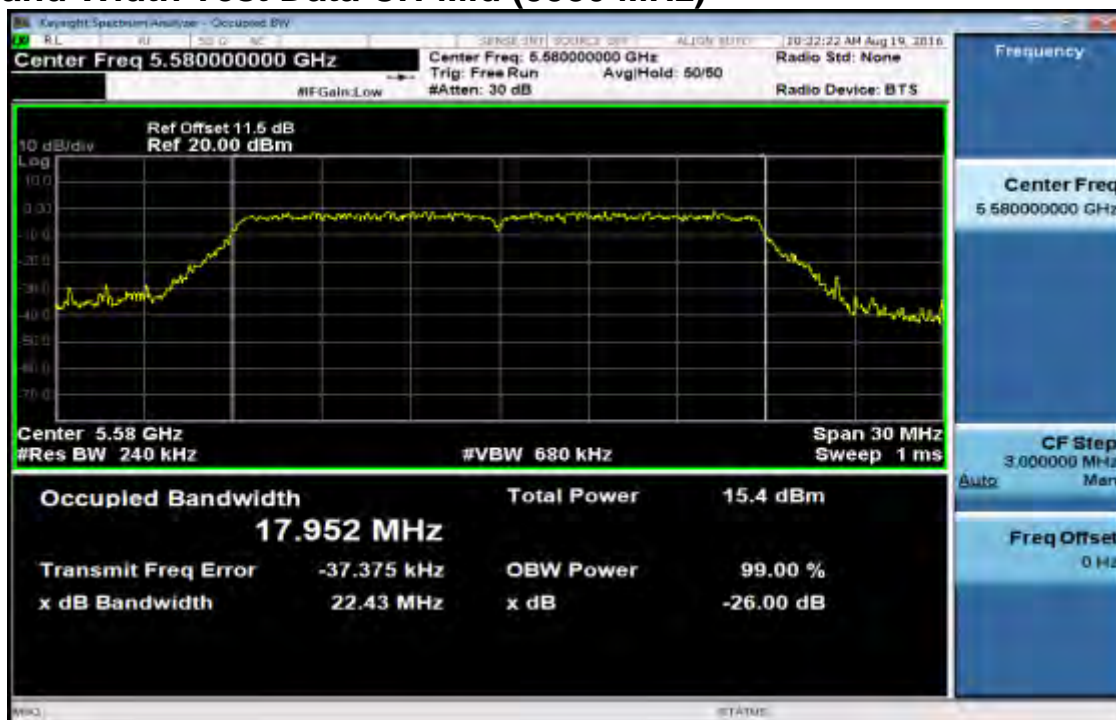
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## 802.11n HT20, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5500 MHz)



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



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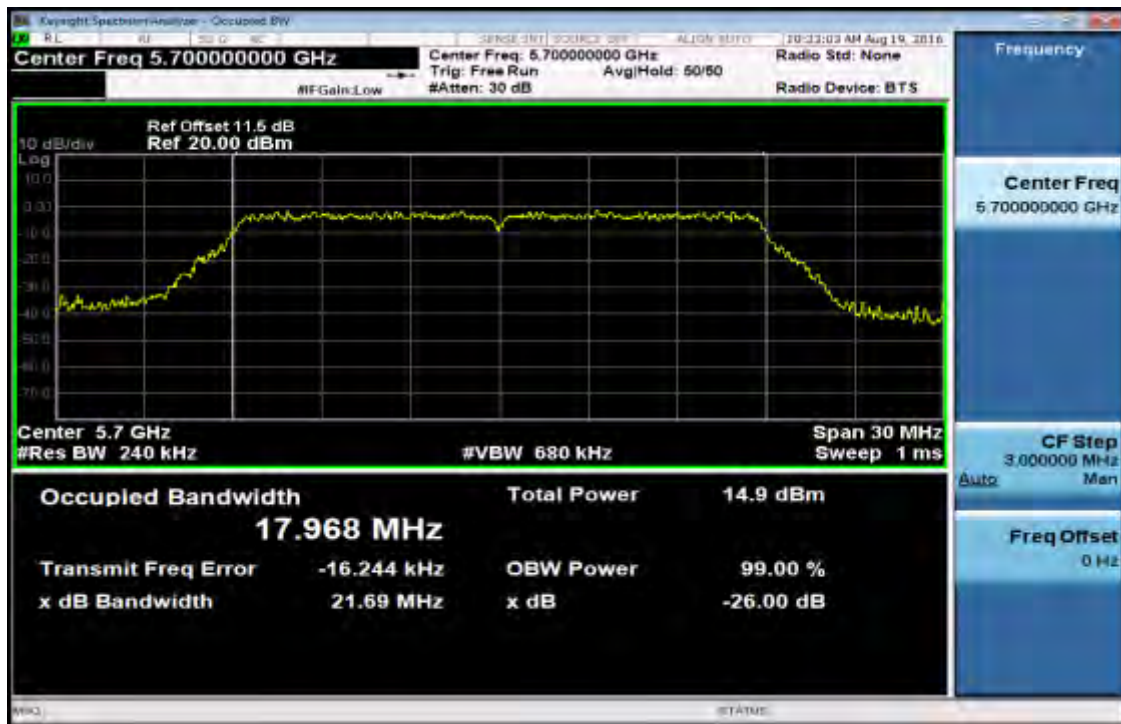
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## 26dB Band Width Test Data CH-High (5700 MHz)



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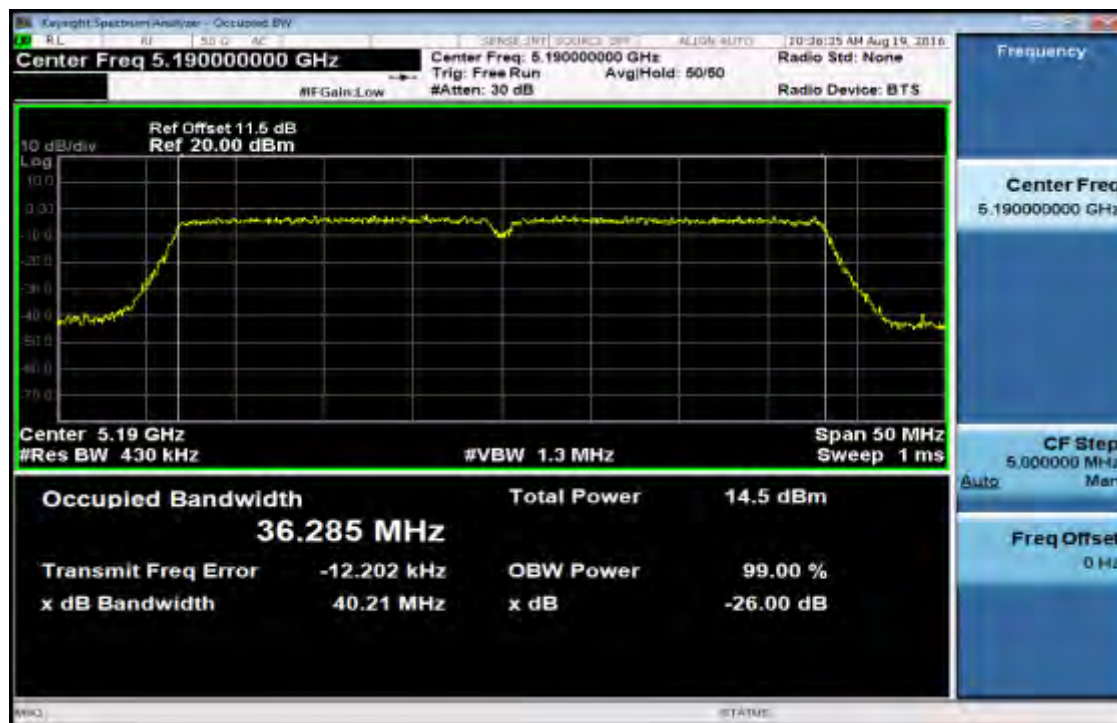
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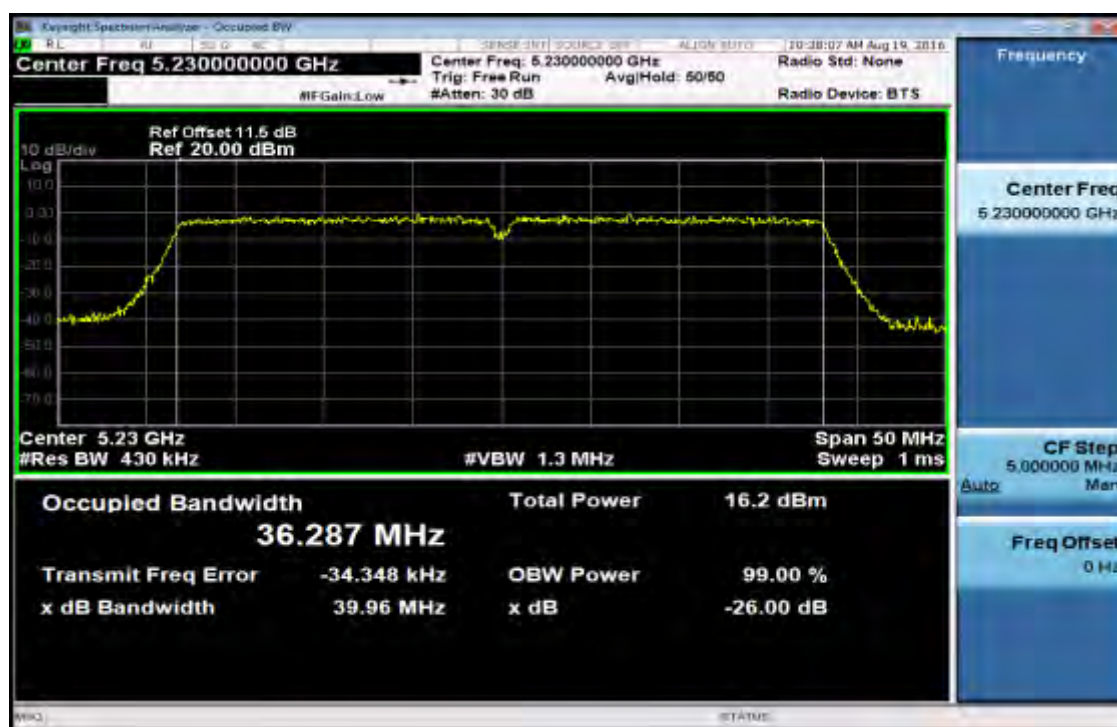
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## 802.11n HT40, 5150~5250 MHz (Main)

### 26dB Band Width Test Data CH-Low (5190 MHz)



### 26dB Band Width Test Data CH-High (5230 MHz)



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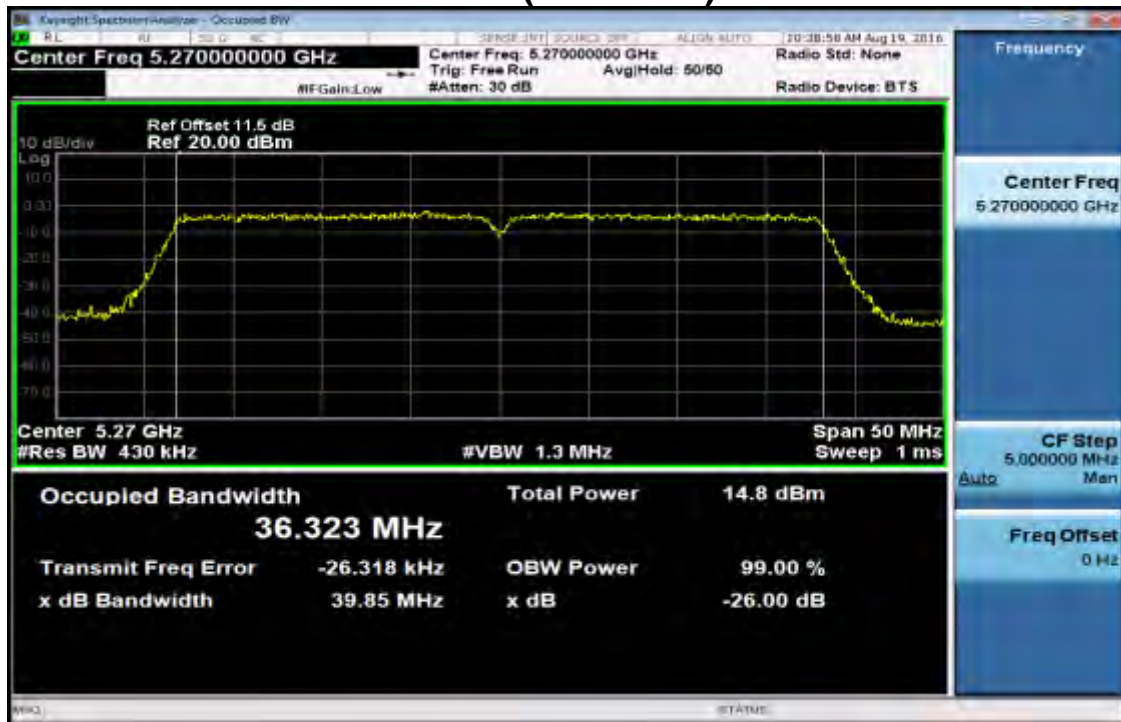
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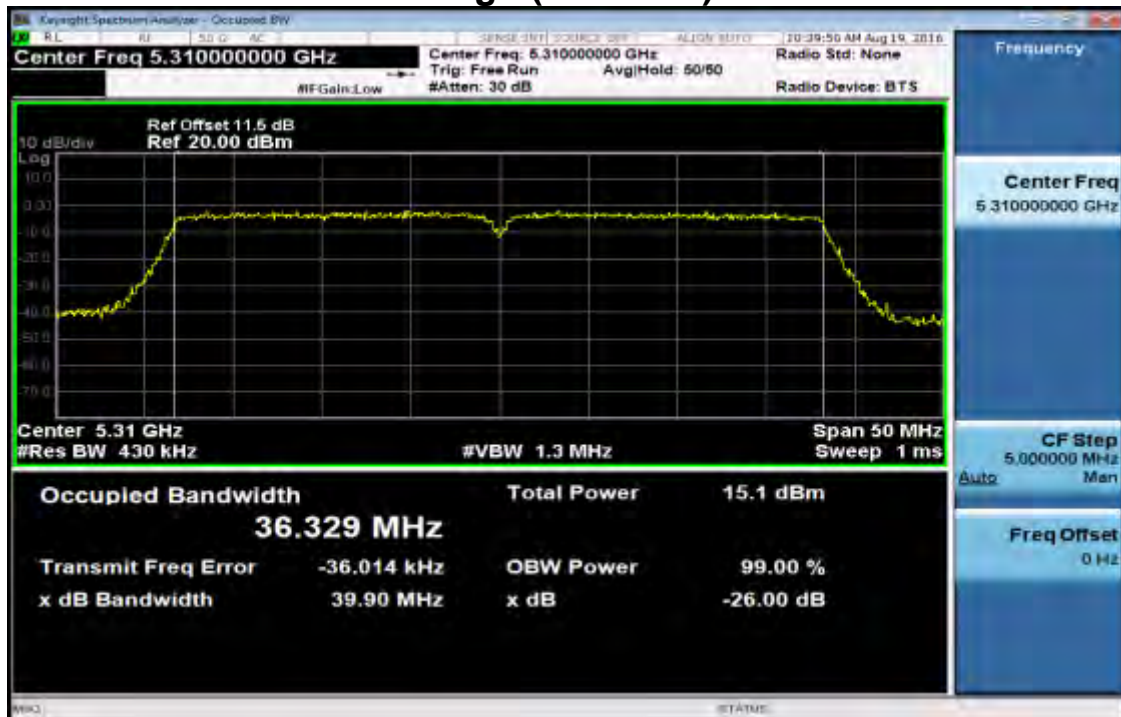
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## 802.11n HT40, 5250~5350 MHz (Main) 26dB Band Width Test Data CH-Low (5270 MHz)



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



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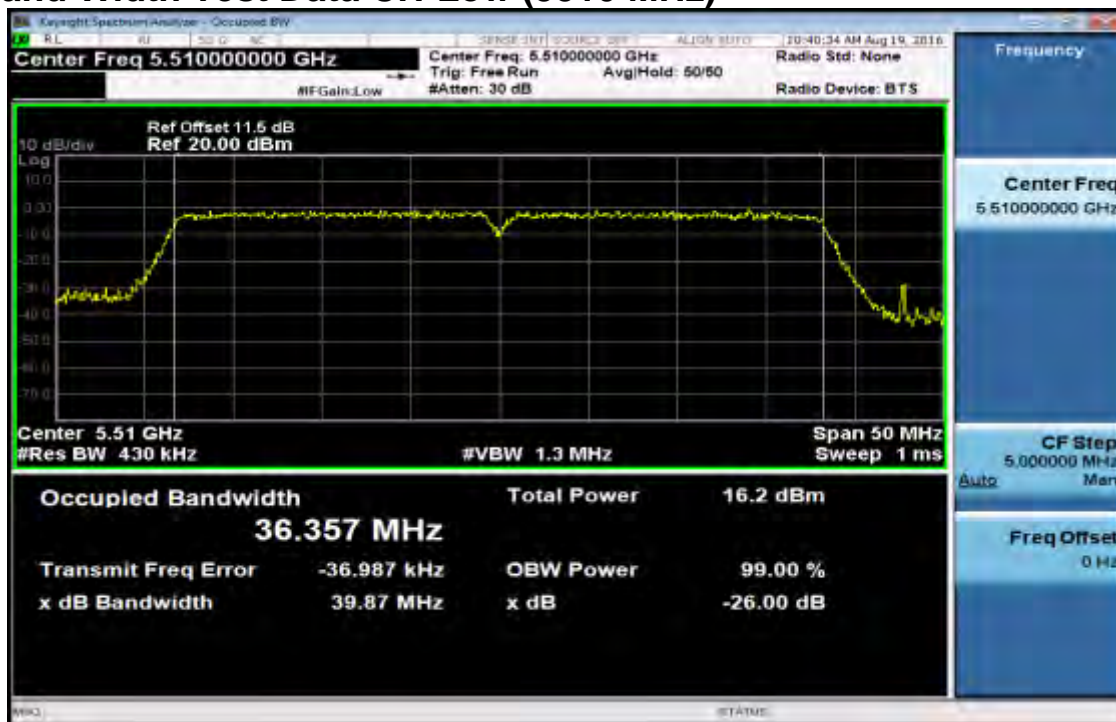
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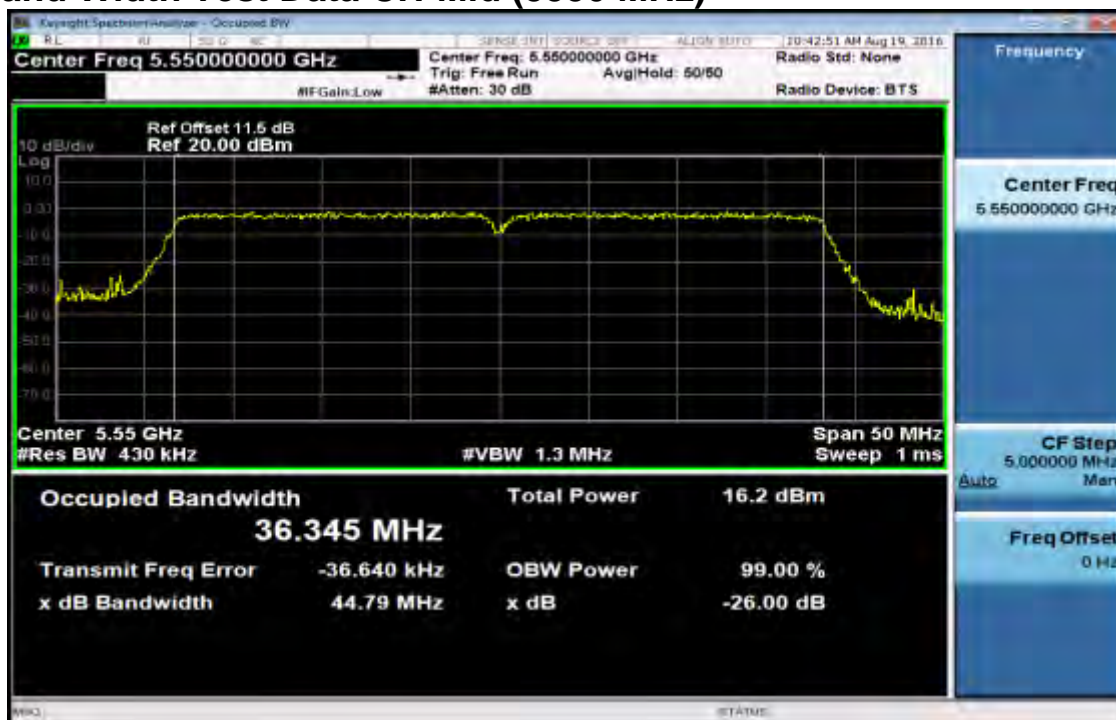
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## 802.11n HT40, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5510 MHz)



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



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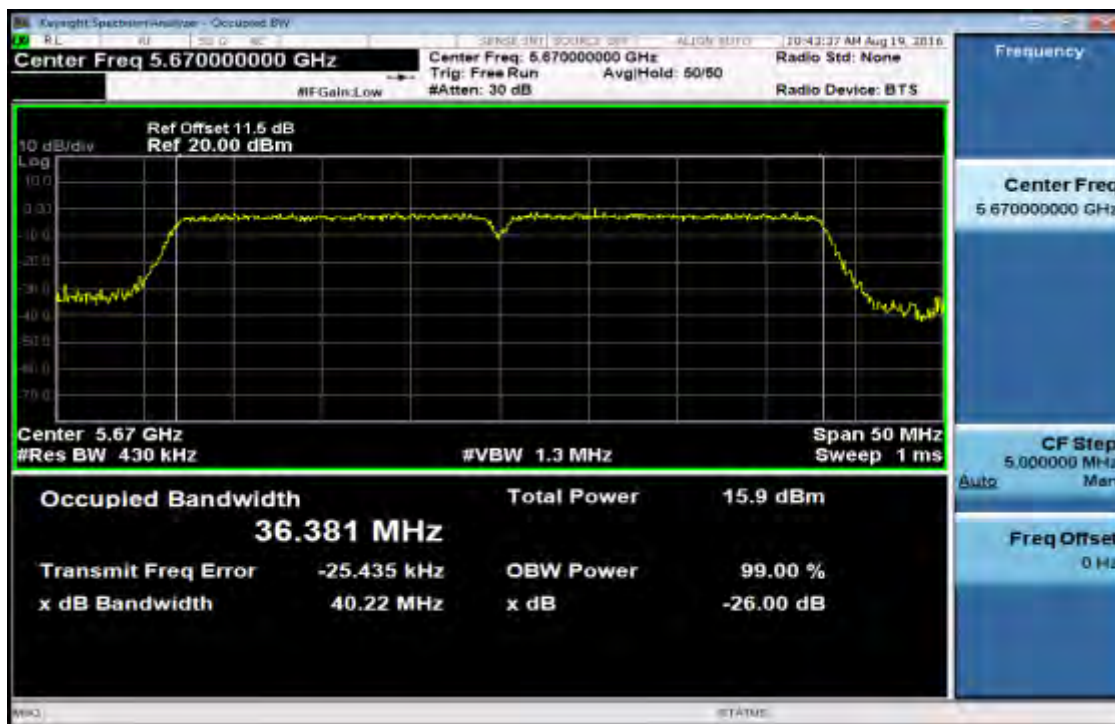
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## 26dB Band Width Test Data CH-High (5670 MHz)



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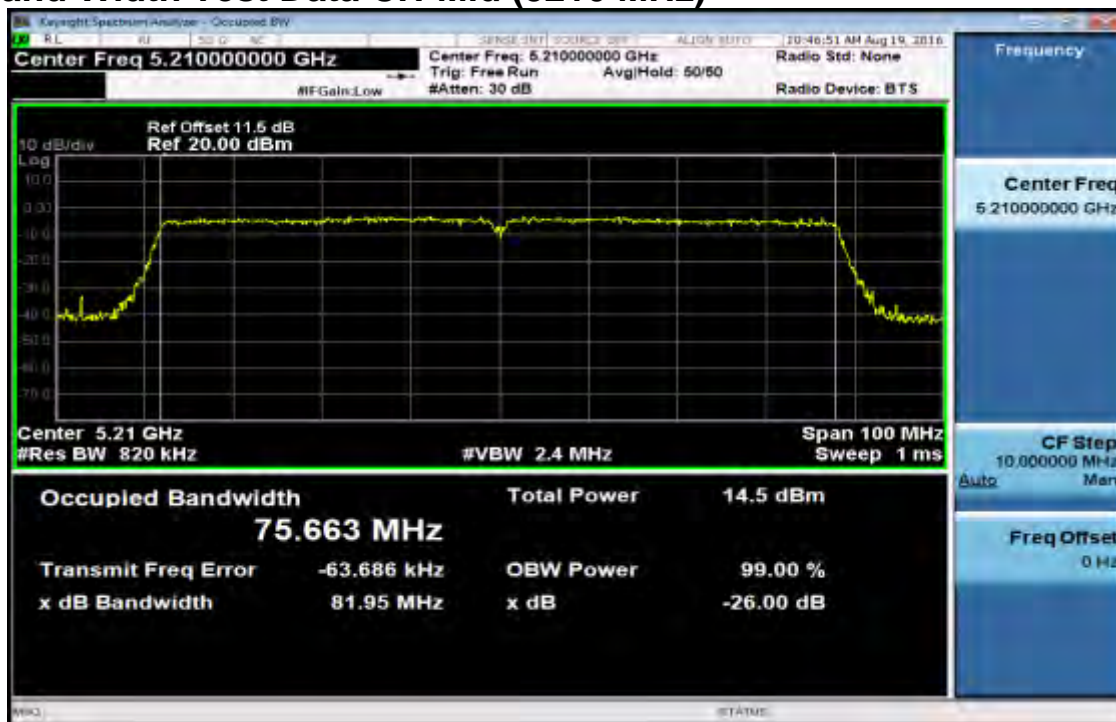
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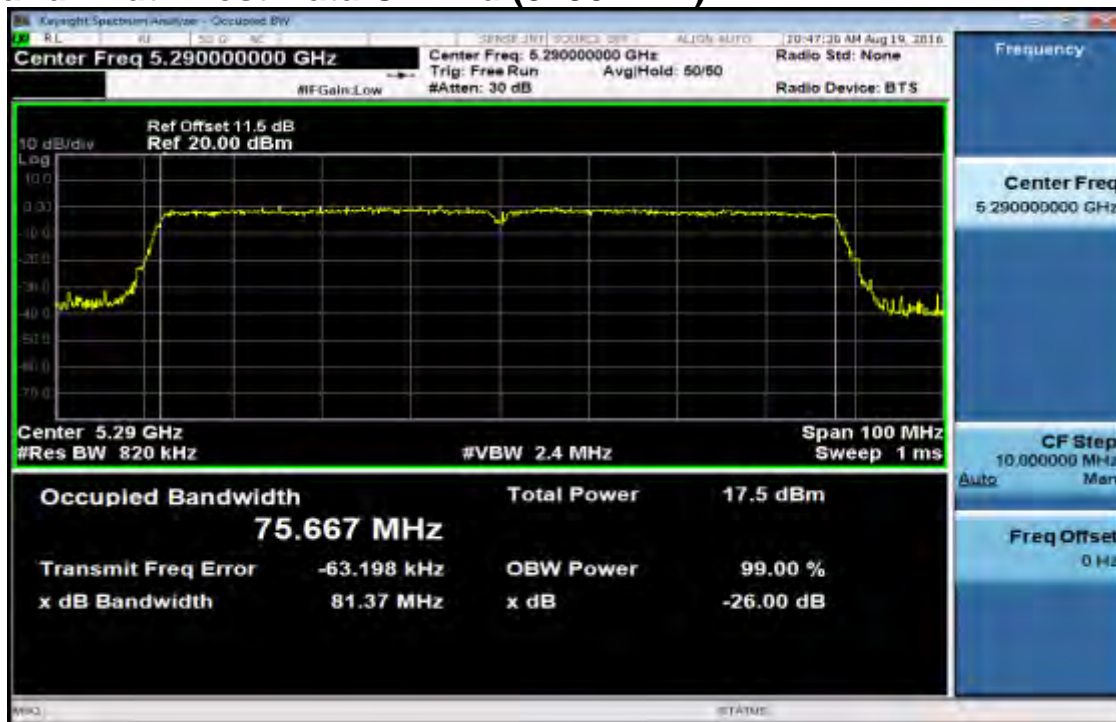
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## 802.11ac VHT80, 5150~5250 MHz (Main) 26dB Band Width Test Data CH-Mid (5210 MHz)



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



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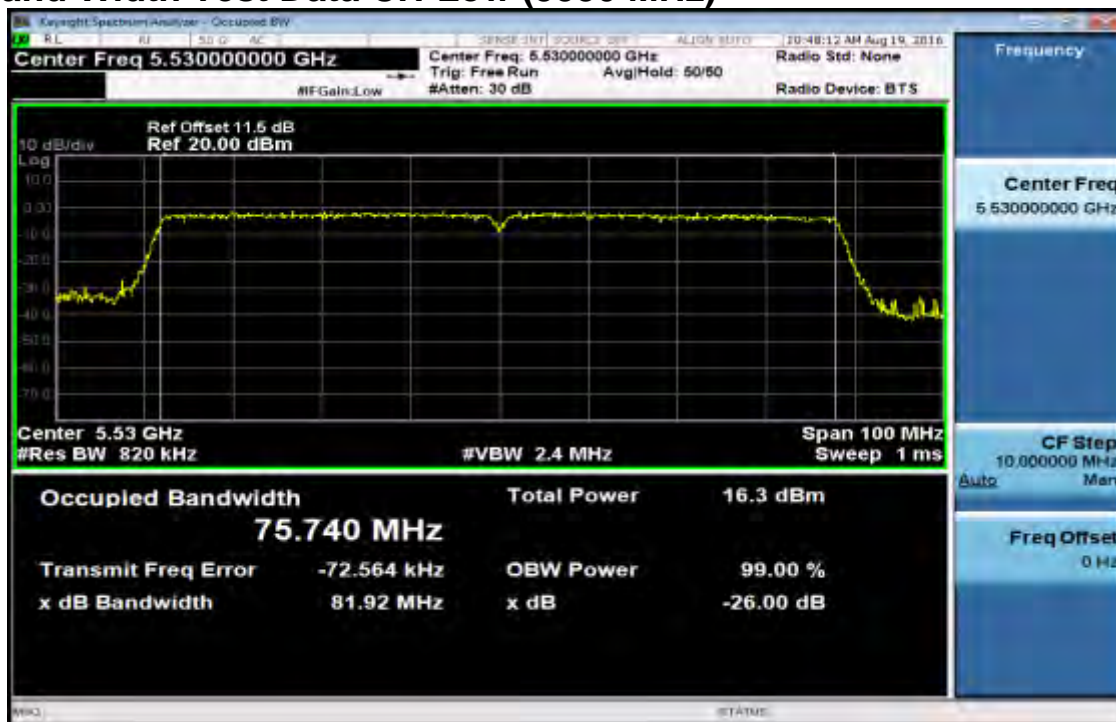
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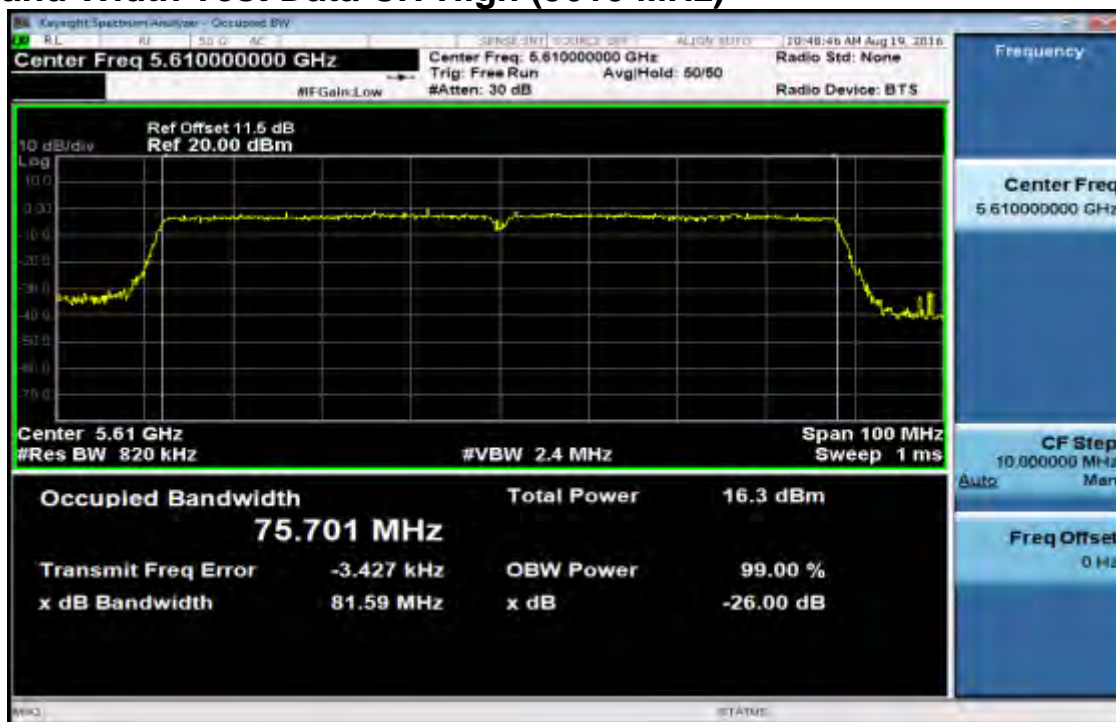
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## 802.11ac VHT80, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5530 MHz)



## 802.11ac VHT80, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-High (5610 MHz)



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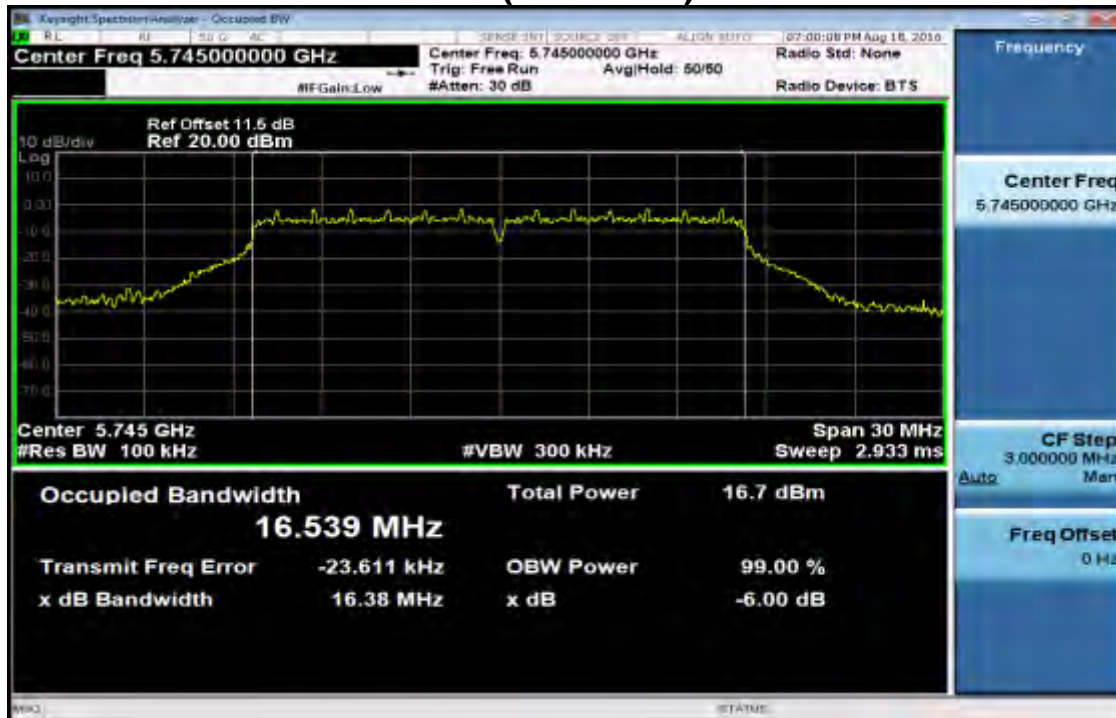
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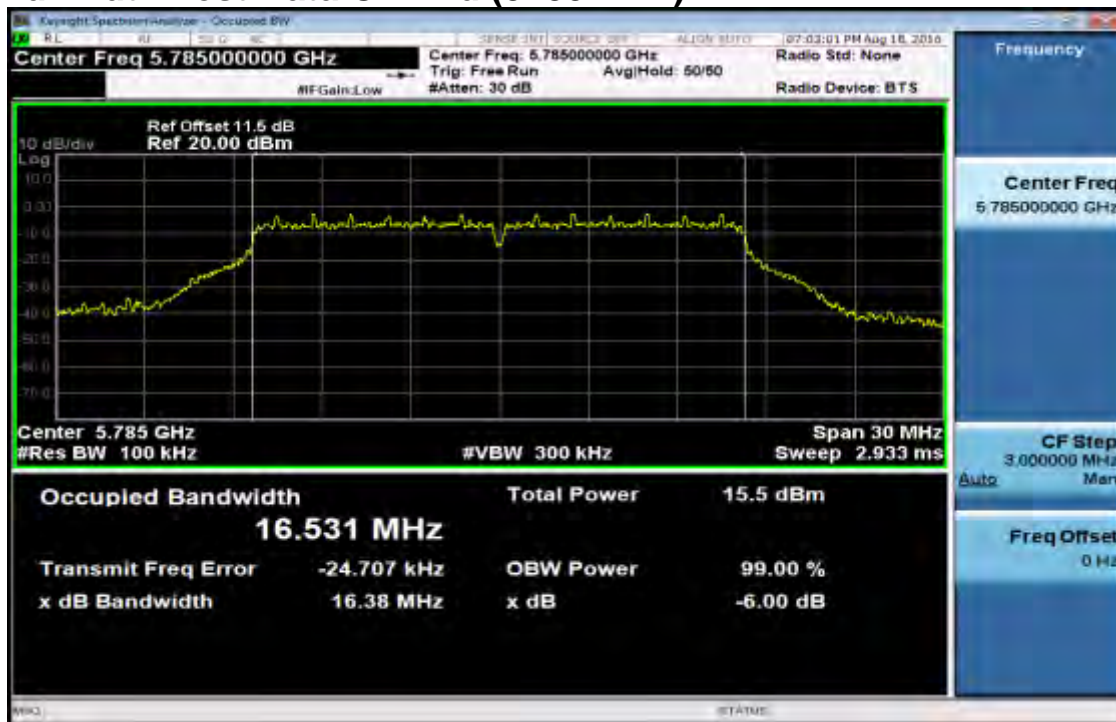
## 6dB Band Width measure with Peak detector for FCC

### 802.11a, 5725~5850 MHz (Main)

### 6dB Band Width Test Data CH-Low (5745 MHz)



### 6dB Band Width Test Data CH-Mid (5785 MHz)



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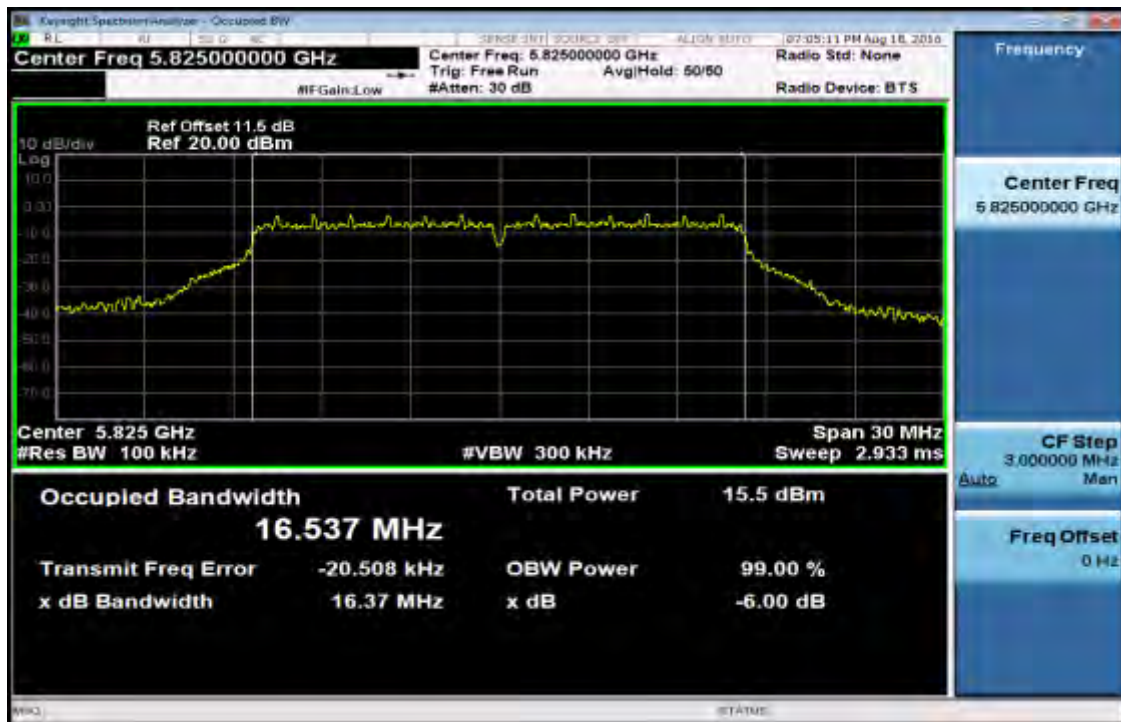
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## 6dB Band Width Test Data CH-High (5825 MHz)



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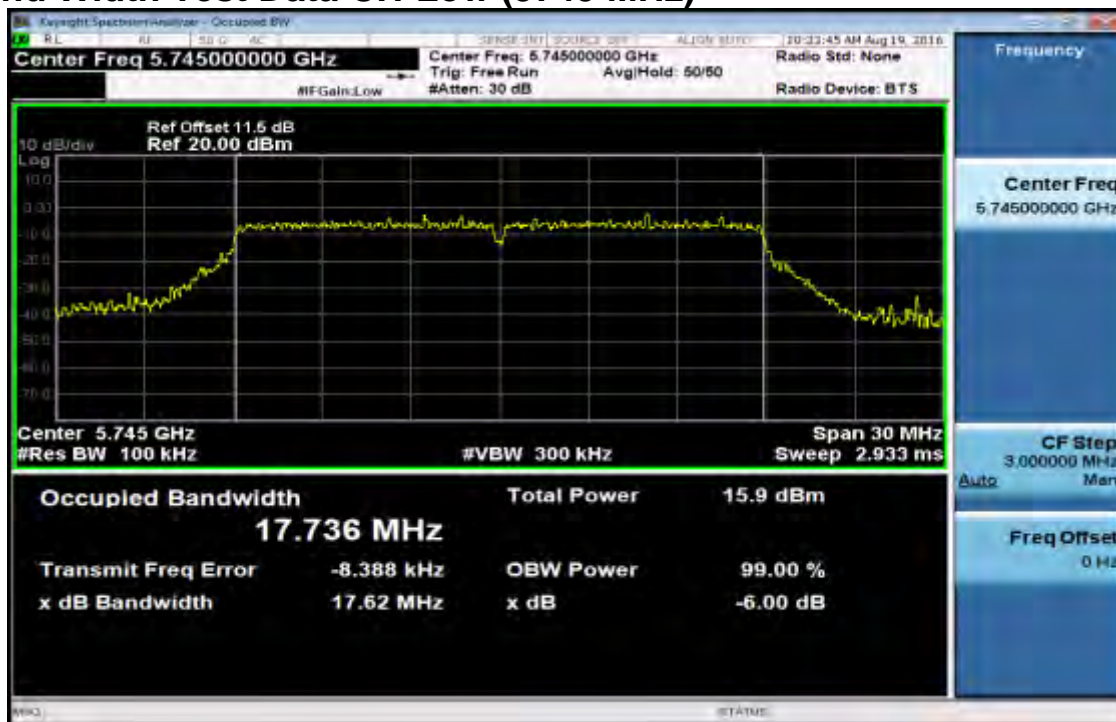
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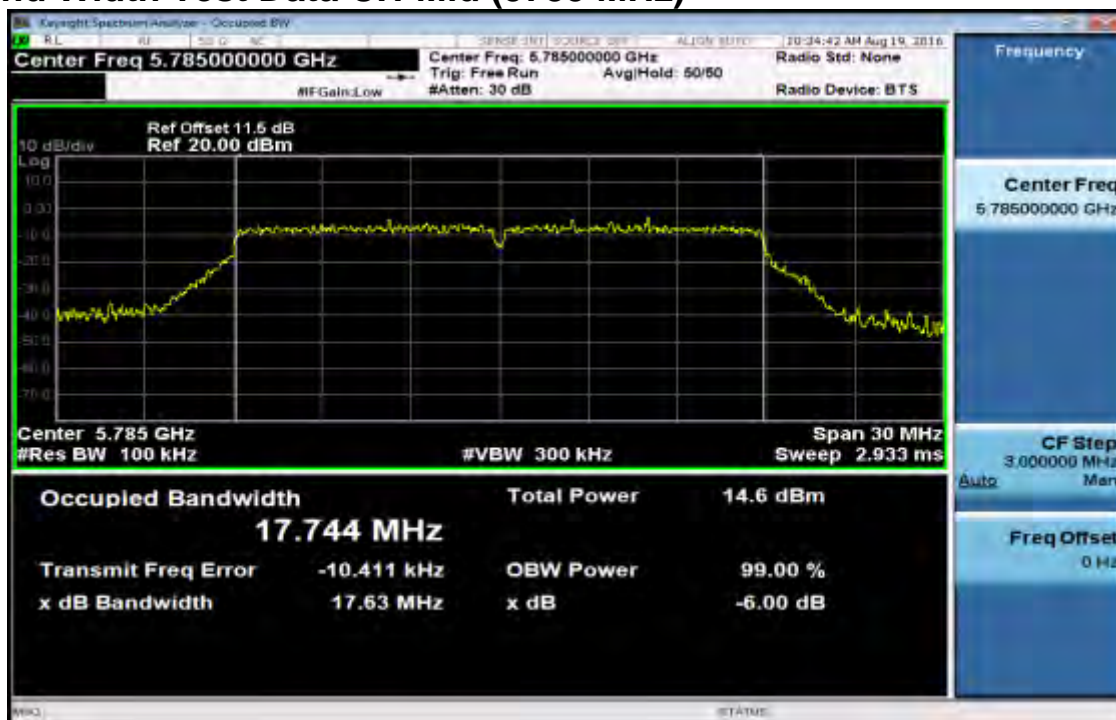
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## 802.11n\_HT20, 5725~5850 MHz (Main) 6dB Band Width Test Data CH-Low (5745 MHz)



## 6dB Band Width Test Data CH-Mid (5785 MHz)



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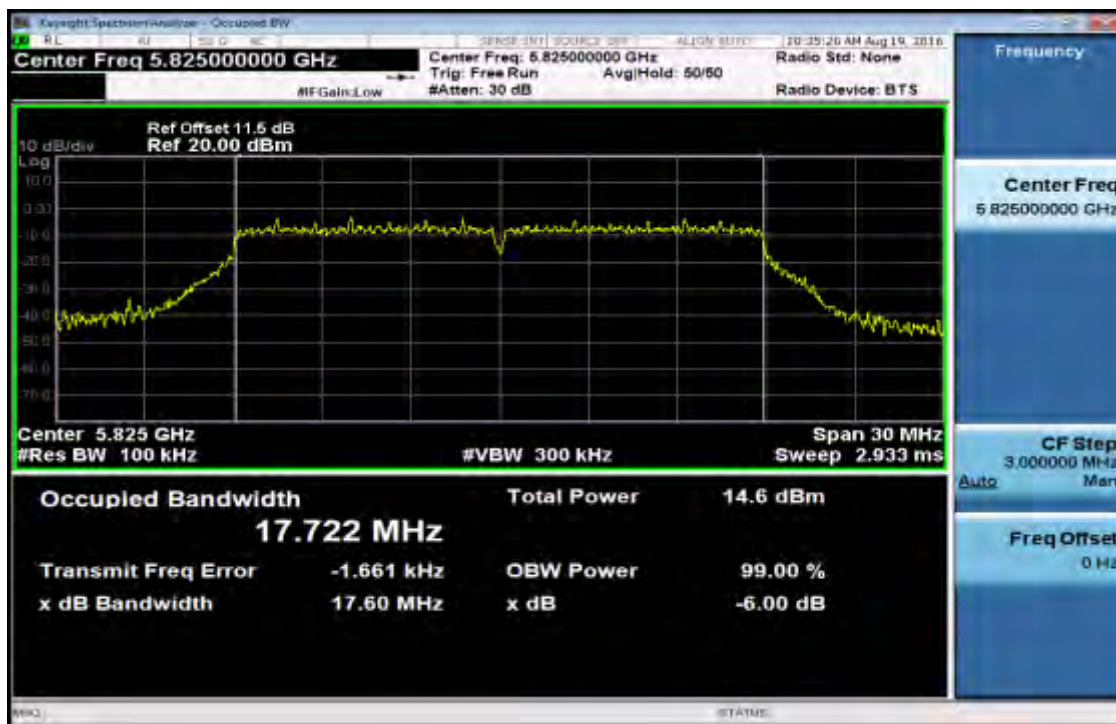
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## 6dB Band Width Test Data CH-High (5825 MHz)



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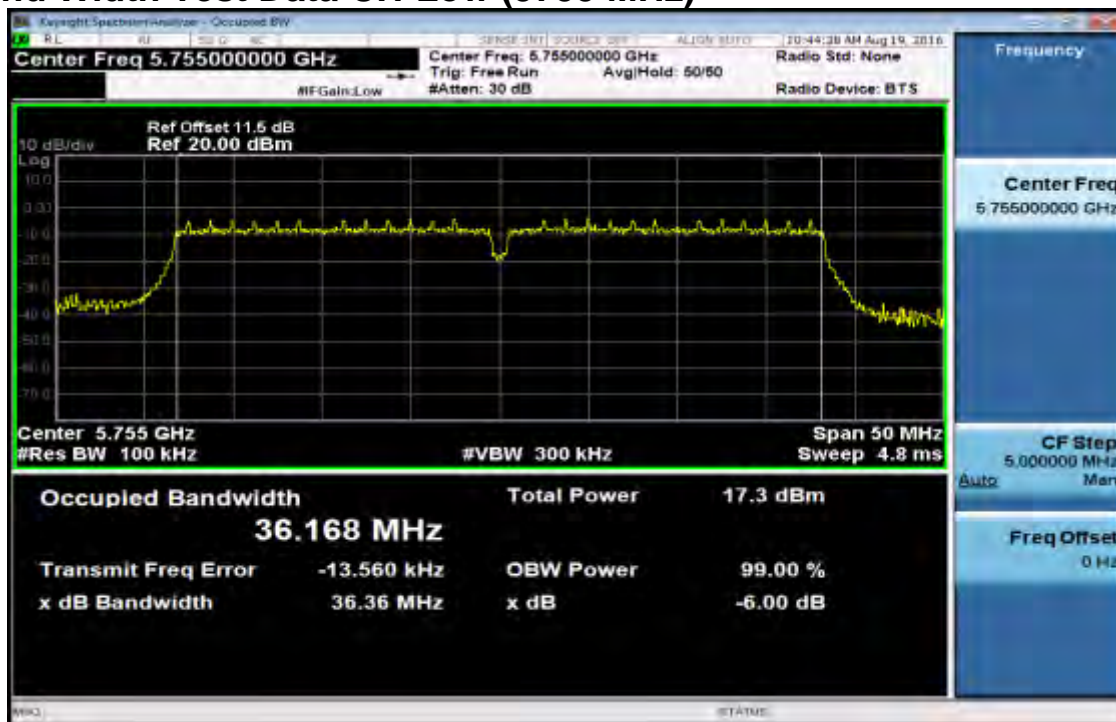
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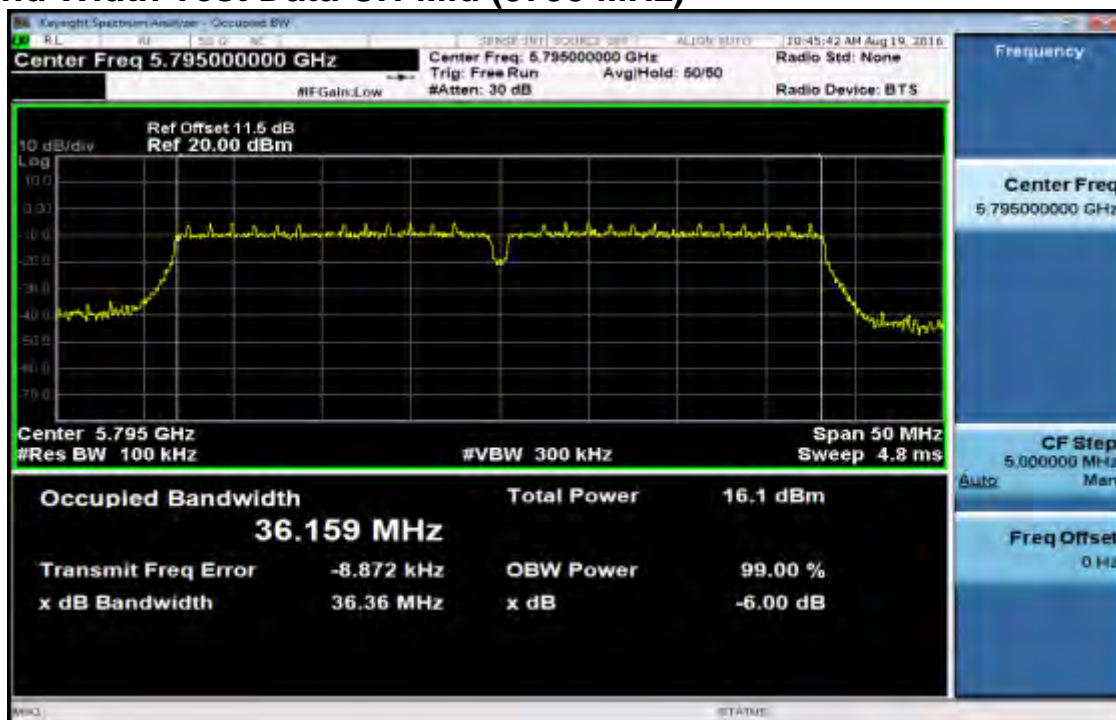
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## 802.11n\_HT40, 5725~5850 MHz (Main) 6dB Band Width Test Data CH-Low (5755 MHz)



## 6dB Band Width Test Data CH-Mid (5795 MHz)



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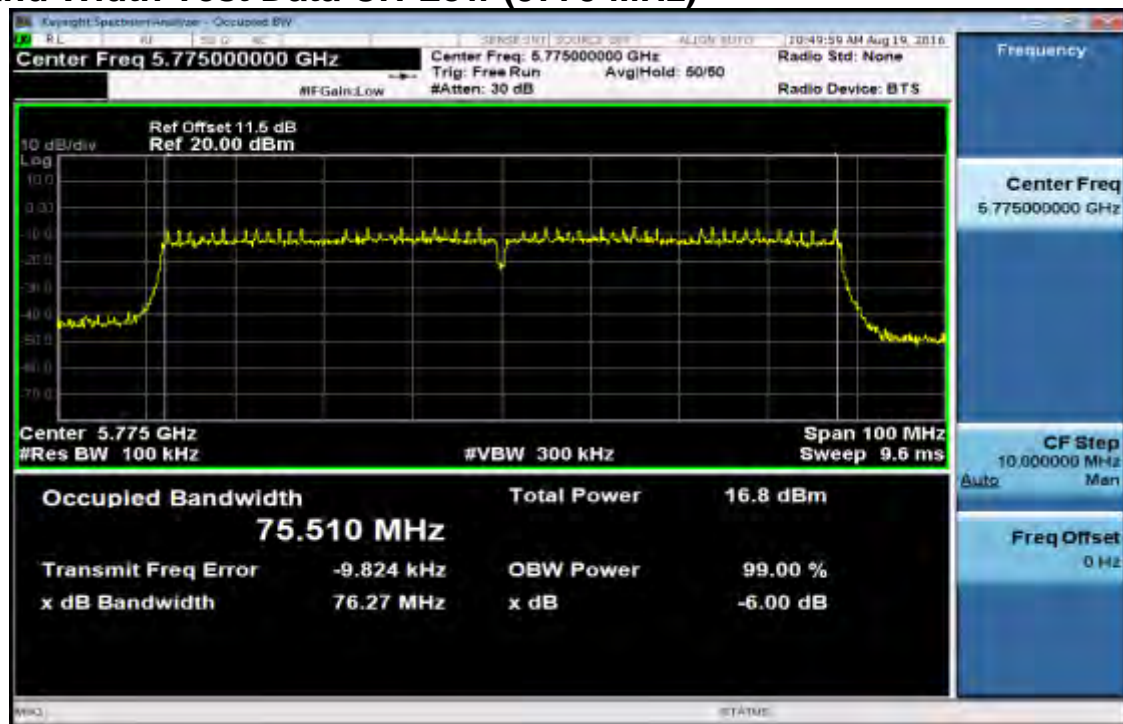
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## 802.11ac VHT80, 5725~5850 MHz (Main) 6dB Band Width Test Data CH-Low (5775 MHz)



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## 9. MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

### 9.1 Standard Applicable

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

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

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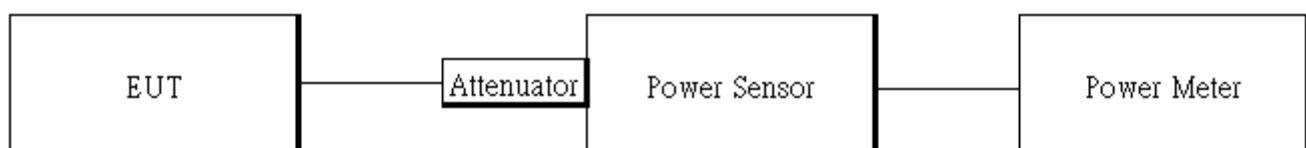
## 9.2 Measurement Procedure

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
Power Meter	Anritsu	ML2495A	1005007	12/09/2015	12/08/2016
Power Sensor	Anritsu	MA2411B	917032	12/09/2015	12/08/2016
EXA Spectrum Analyzer	Agilent	N9030A	MY53120760	02/26/2016	02/25/2017
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017
Coaxial Cable	HUBER+SUHNER	SUCOFLEX 102	23670/2	01/02/2016	01/01/2017
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2016	01/01/2017
Splitter	Agilent	11636B	N/A	01/02/2016	01/01/2017
DC Power Supply	Agilent	E3640A	MY52410006	11/05/2015	11/04/2016
Temperature Chamber	TERCHY	MHG-120LF	911009	05/17/2016	05/16/2017

## 9.4 Test Set-up



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## 9.5 Measurement Result

### Conducted output power

#### 802.11a\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	10.45	11.092	23.98	PASS
44	5220	MCS0	<b>10.47</b>	<b>11.143</b>	23.98	PASS
48	5240	MCS0	10.40	10.965	23.98	PASS
52	5260	MCS0	<b>11.26</b>	<b>13.366</b>	23.98 or $11+10\log(B) = 24.31$	PASS
60	5300	MCS0	11.03	12.677	23.98 or $11+10\log(B) = 24.34$	PASS
64	5320	MCS0	11.06	12.764	23.98 or $11+10\log(B) = 24.34$	PASS
100	5500	MCS0	<b>10.47</b>	<b>11.143</b>	23.98 or $11+10\log(B) = 24.35$	PASS
116	5580	MCS0	9.83	9.616	23.98 or $11+10\log(B) = 24.35$	PASS
140	5700	MCS0	9.46	8.831	23.98 or $11+10\log(B) = 24.33$	PASS
149	5745	MCS0	<b>10.27</b>	<b>10.641</b>	30	PASS
157	5785	MCS0	9.30	8.511	30	PASS
165	5825	MCS0	9.45	8.810	30	PASS

#### 802.11n\_HT20\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	9.29	8.492	23.98	PASS
44	5220	MCS0	<b>10.50</b>	<b>11.220</b>	23.98	PASS
48	5240	MCS0	10.38	10.914	23.98	PASS
52	5260	MCS0	11.03	12.677	23.98 or $11+10\log(B) = 24.44$	PASS
60	5300	MCS0	<b>11.09</b>	<b>12.853</b>	23.98 or $11+10\log(B) = 24.32$	PASS
64	5320	MCS0	10.89	12.274	23.98 or $11+10\log(B) = 24.32$	PASS
100	5500	MCS0	<b>10.35</b>	<b>10.839</b>	23.98 or $11+10\log(B) = 24.36$	PASS
116	5580	MCS0	9.72	9.376	23.98 or $11+10\log(B) = 24.51$	PASS
140	5700	MCS0	9.29	8.492	23.98 or $11+10\log(B) = 24.36$	PASS
149	5745	MCS0	<b>10.31</b>	<b>10.740</b>	30	PASS
157	5785	MCS0	9.47	8.851	30	PASS
165	5825	MCS0	9.34	8.590	30	PASS

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## 802.11ac\_VHT20\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	9.84	9.638	23.98	PASS
44	5220	MCS0	<b>10.45</b>	<b>11.092</b>	23.98	PASS
48	5240	MCS0	10.42	11.015	23.98	PASS
52	5260	MCS0	<b>11.14</b>	<b>13.002</b>	23.98 or $11+10\log(B) = 24.44$	PASS
60	5300	MCS0	11.06	12.764	23.98 or $11+10\log(B) = 24.32$	PASS
64	5320	MCS0	11.03	12.677	23.98 or $11+10\log(B) = 24.32$	PASS
100	5500	MCS0	<b>10.35</b>	<b>10.839</b>	23.98 or $11+10\log(B) = 24.36$	PASS
116	5580	MCS0	9.78	9.506	23.98 or $11+10\log(B) = 24.51$	PASS
140	5700	MCS0	9.30	8.511	23.98 or $11+10\log(B) = 24.36$	PASS
149	5745	MCS0	<b>10.28</b>	<b>10.666</b>	30	PASS
157	5785	MCS0	9.42	8.750	30	PASS
165	5825	MCS0	9.43	8.770	30	PASS

## 802.11n\_HT40\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	9.09	8.110	23.98	PASS
46	5230	MCS0	<b>10.58</b>	<b>11.429</b>	23.98	PASS
54	5270	MCS0	<b>9.28</b>	<b>8.472</b>	23.98 or $11+10\log(B) = 27.00$	PASS
62	5310	MCS0	9.22	8.356	23.98 or $11+10\log(B) = 27.01$	PASS
102	5510	MCS0	7.98	6.281	23.98 or $11+10\log(B) = 27.01$	PASS
110	5550	MCS0	<b>10.19</b>	<b>10.447</b>	23.98 or $11+10\log(B) = 27.51$	PASS
134	5670	MCS0	9.62	9.162	23.98 or $11+10\log(B) = 27.04$	PASS
151	5755	MCS0	<b>10.59</b>	<b>11.455</b>	30	PASS
159	5795	MCS0	9.68	9.290	30	PASS

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## 802.11ac\_VHT40\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	9.13	8.185	23.98	PASS
46	5230	MCS0	<b>10.65</b>	<b>11.614</b>	23.98	PASS
54	5270	MCS0	<b>9.35</b>	<b>8.610</b>	23.98 or $11+10\log(B) = 27.00$	PASS
62	5310	MCS0	9.18	8.279	23.98 or $11+10\log(B) = 27.01$	PASS
102	5510	MCS0	<b>10.55</b>	<b>11.350</b>	23.98 or $11+10\log(B) = 27.01$	PASS
110	5550	MCS0	10.31	10.740	23.98 or $11+10\log(B) = 27.51$	PASS
134	5670	MCS0	9.68	9.290	23.98 or $11+10\log(B) = 27.04$	PASS
151	5755	MCS0	<b>10.57</b>	<b>11.402</b>	30	PASS
159	5795	MCS0	9.77	9.484	30	PASS

## 802.11ac\_VHT80\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
42	5210	MCS0	8.77	7.534	23.98	PASS
58	5290	MCS0	10.71	11.776	23.98 or $11+10\log(B) = 30.10$	PASS
106	5530	MCS0	7.89	6.152	23.98 or $11+10\log(B) = 30.13$	PASS
122	5610	MCS0	9.16	8.241	23.98 or $11+10\log(B) = 30.12$	PASS
155	5775	MCS0	10.37	10.889	30	PASS

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## 10. PEAK POWER SPECTRAL DENSITY

### 10.1 Standard Applicable

#### FCC

OPERATION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Mater device )	17dBm/ MHz
		Fixed point-to-point Acess Ponit	
	√	Clinet Device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

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

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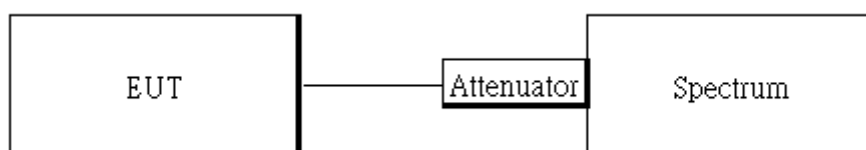
## 10.2 Measurement Procedure

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

## 10.3 Measurement Equipment Used

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EXA Spectrum Analyzer	Agilent	N9030A	MY53120760	02/26/2016	02/25/2017
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2016	01/01/2017

## 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)
5180	-3.88	17	-20.88
5220	-4.55	17	-21.55
5240	-4.06	17	-21.06
5260	-3.54	11	-14.54
5300	-3.80	11	-14.80
5320	-3.38	11	-14.38
5500	-4.42	11	-15.42
5580	-5.00	11	-16.00
5700	-4.52	11	-15.52
5745	3.28	30	-26.72
5785	2.15	30	-27.85
5825	2.42	30	-27.58

POWER DENSITY 802.11n HT20 MODE			
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5180	-3.95	17	-20.95
5220	-4.43	17	-21.43
5240	-4.22	17	-21.22
5260	-4.14	11	-15.14
5300	-3.08	11	-14.08
5320	-3.14	11	-14.14
5500	-4.13	11	-15.13
5580	-4.74	11	-15.74
5700	-4.90	11	-15.90
5745	2.94	30	-27.06
5785	1.72	30	-28.28
5825	1.50	30	-28.50

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POWER DENSITY 802.11n HT40 MODE			
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5190	-9.87	17	-26.87
5230	-7.42	17	-24.42
5270	-9.03	11	-20.03
5310	-9.15	11	-20.15
5510	-7.77	11	-18.77
5550	-7.61	11	-18.61
5670	-7.99	11	-18.99
5755	-0.01	30	-30.01
5795	-0.72	30	-30.72

POWER DENSITY 802.11ac VHT80 MODE			
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5210	-13.97	17	-30.97
5290	-12.13	11	-23.13
5530	-12.64	11	-23.64
5610	-12.46	11	-23.46
5775	-2.31	30	-32.31

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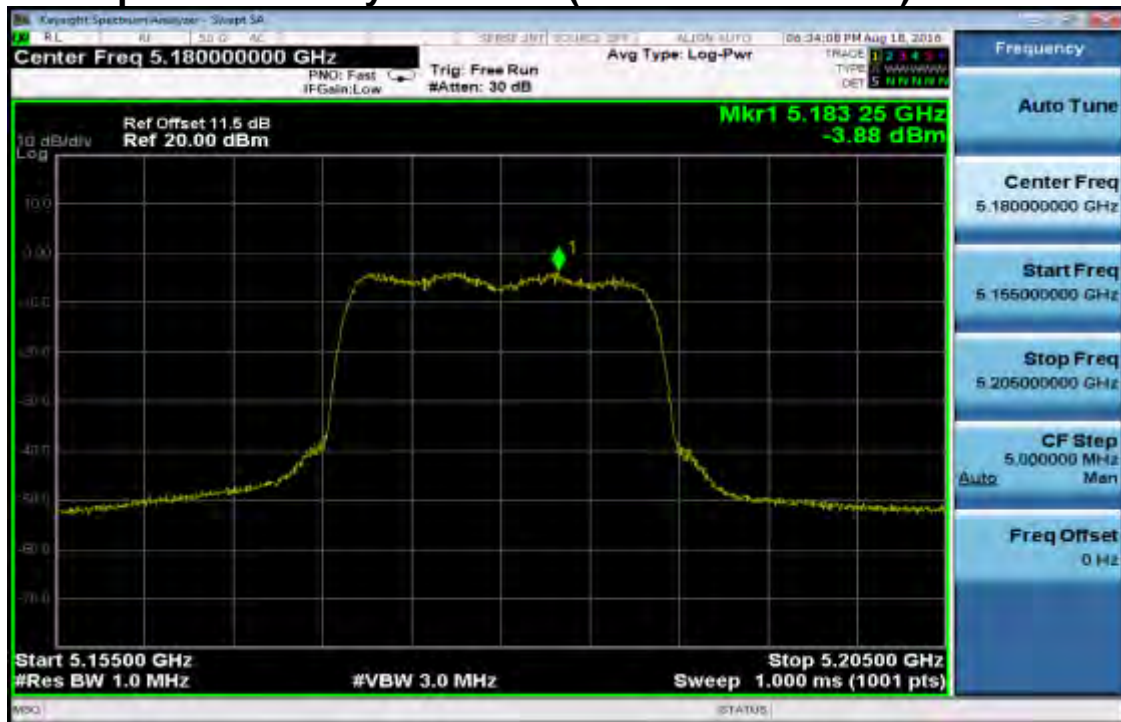
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## 802.11a 5150~5250 MHz

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



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



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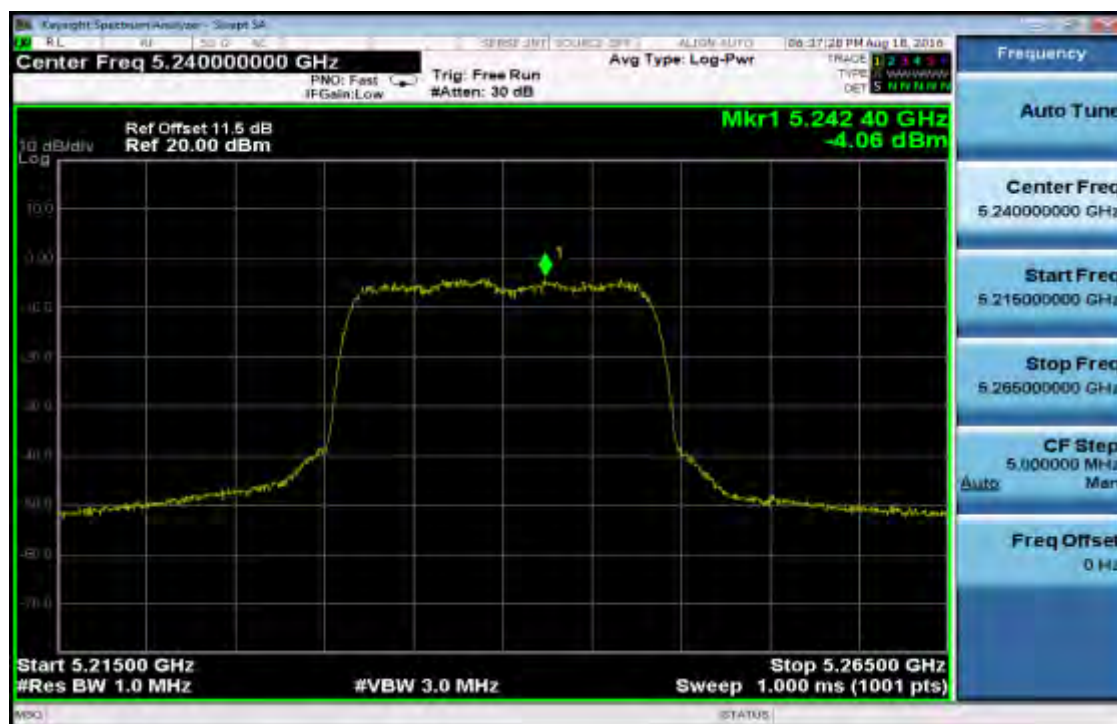
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### Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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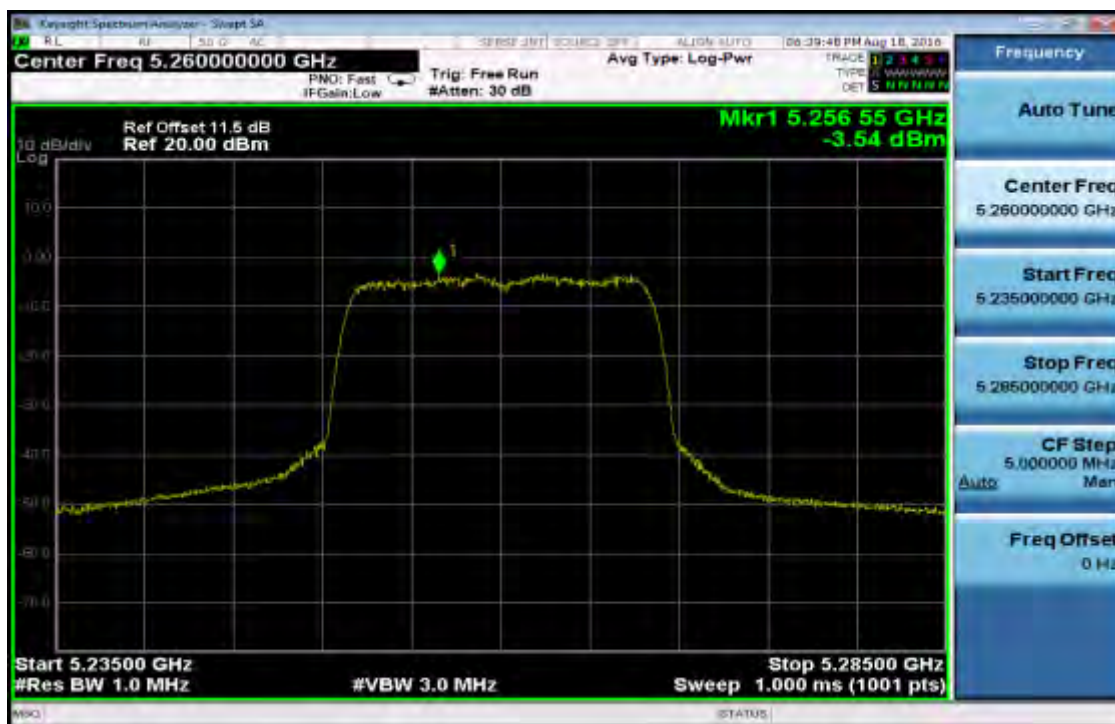
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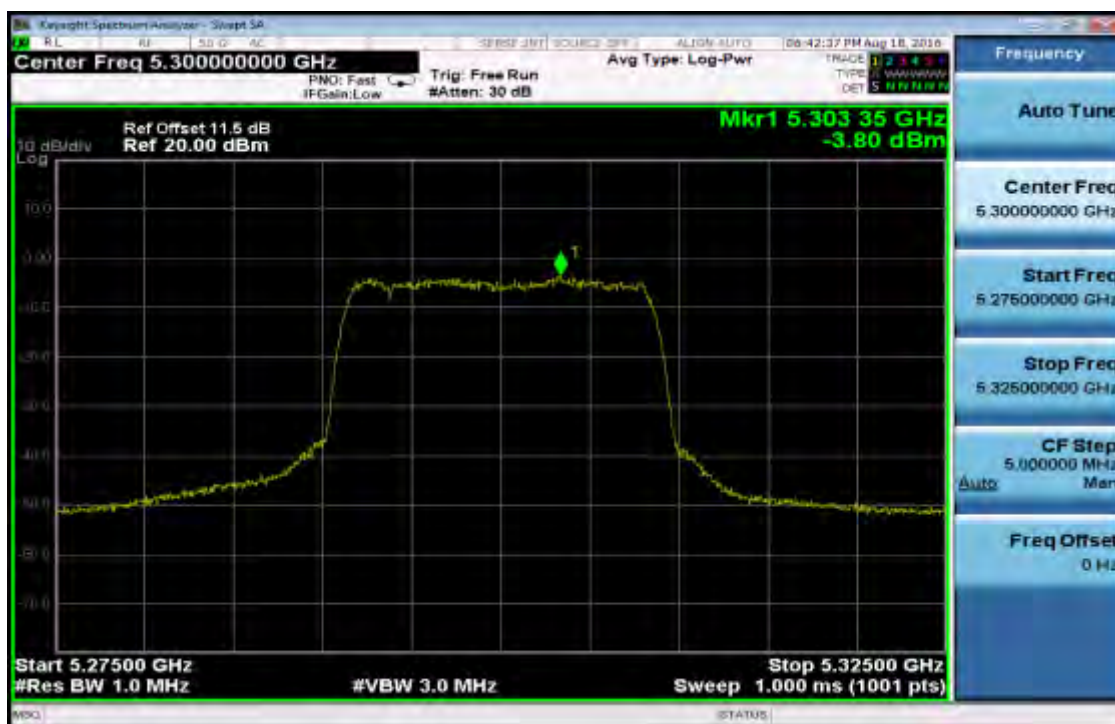


## 802.11a 5250~5350 MHz

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



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



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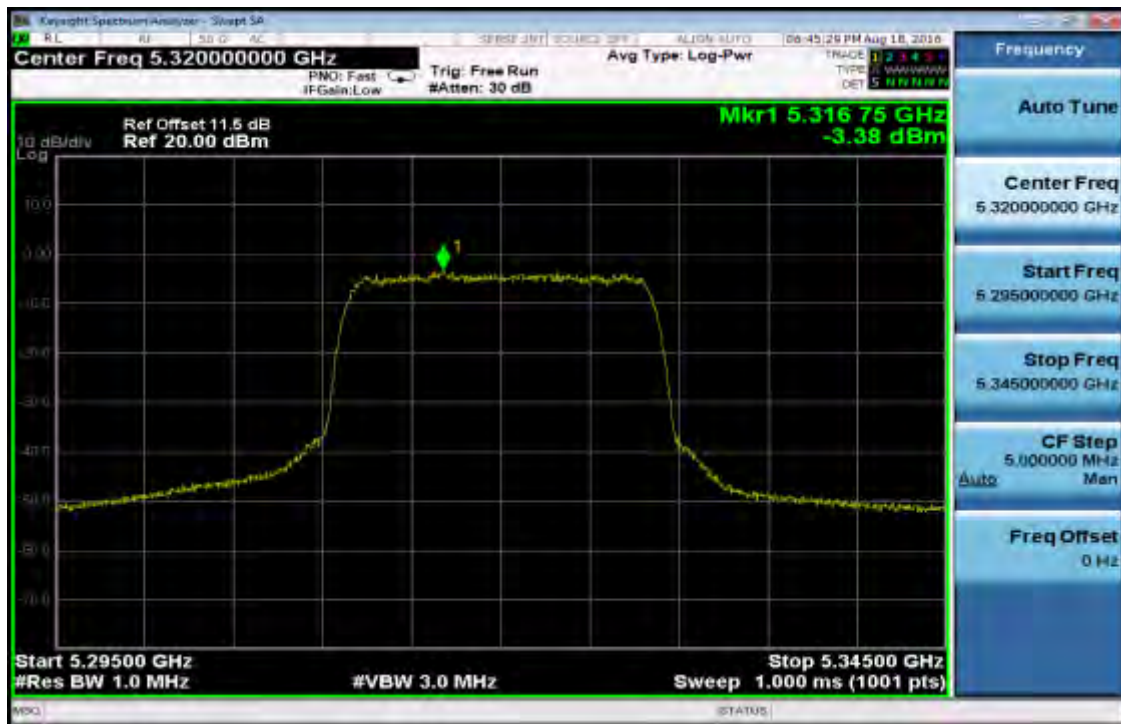
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## Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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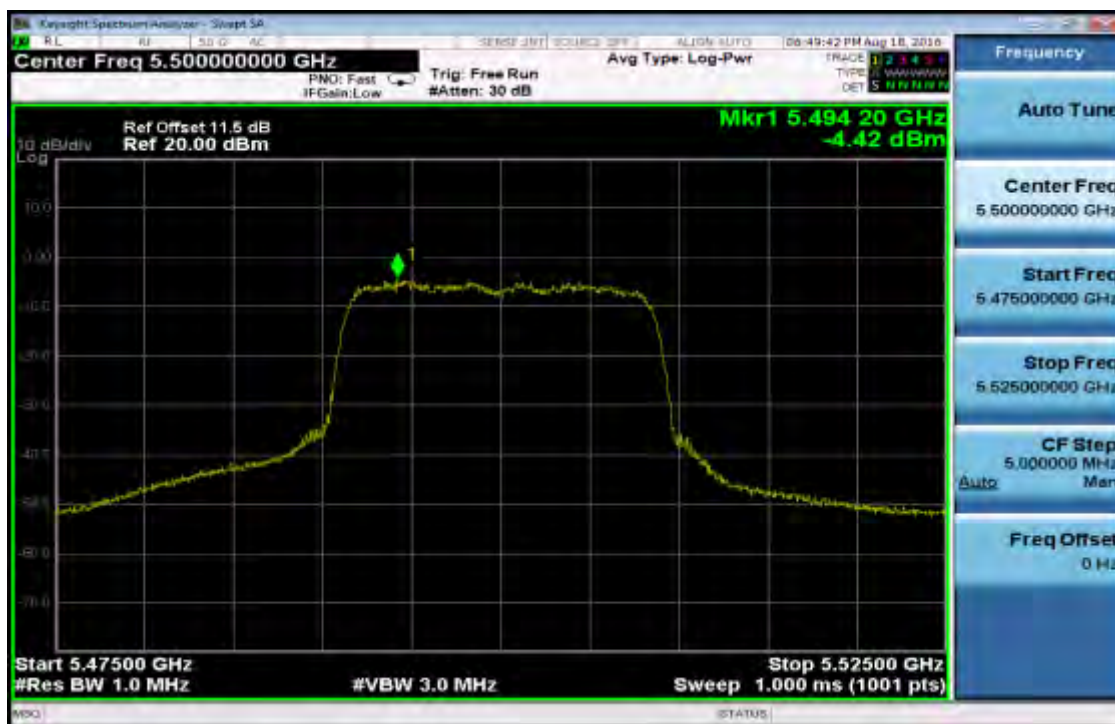
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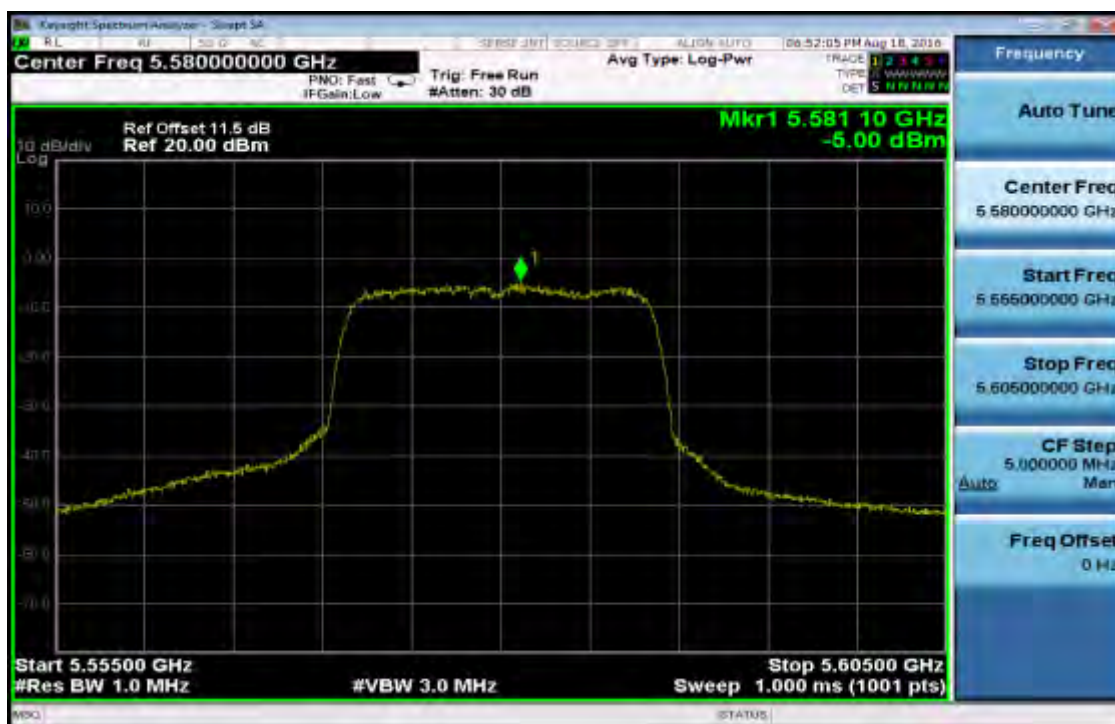
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## 802.11a 5470~5725 MHz

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



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



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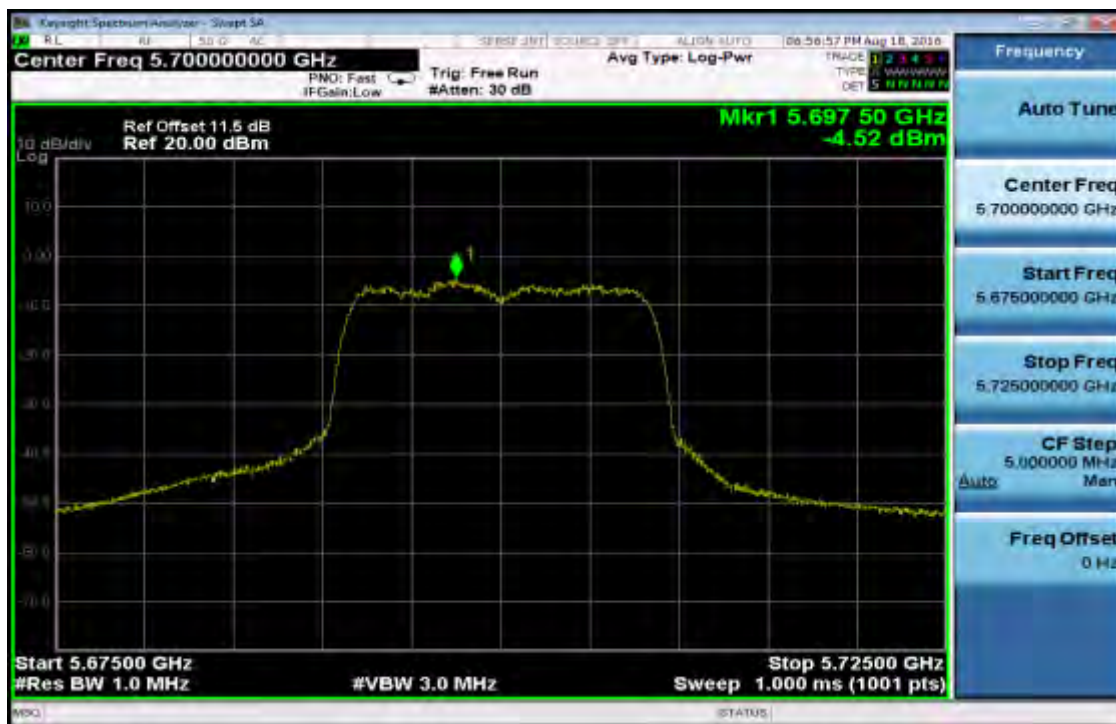
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## Peak Power Spectral Density Data Plot (CH High 5700 MHz)



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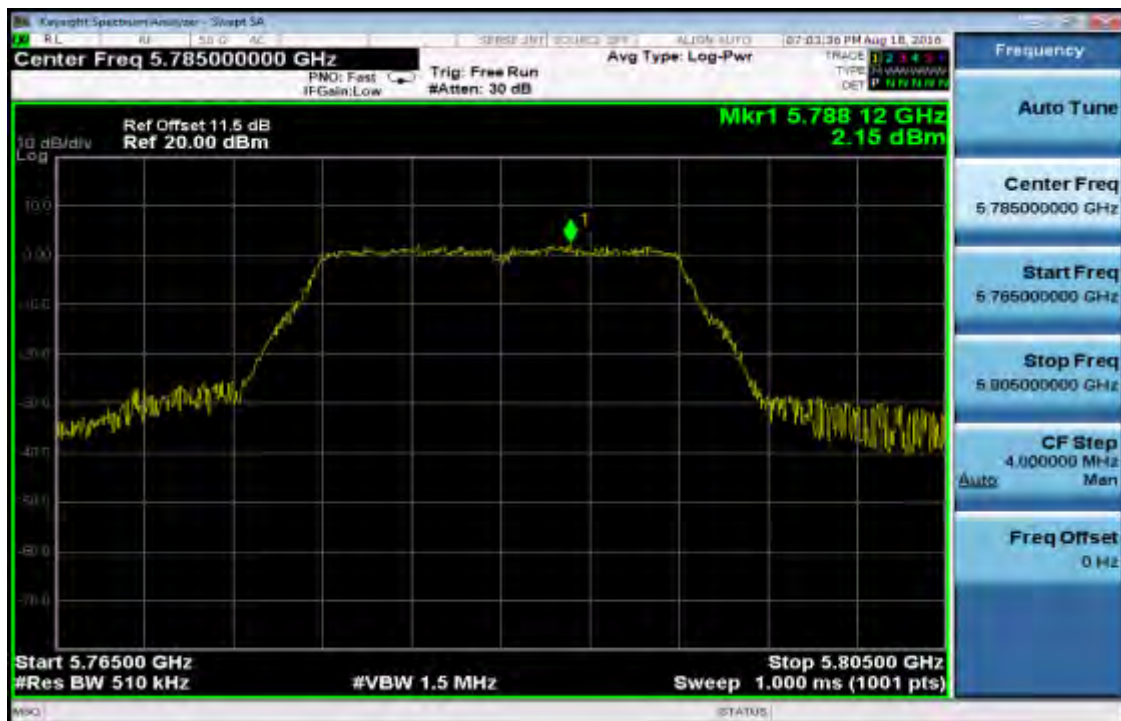
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## 802.11a 5725~5850 MHz

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



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



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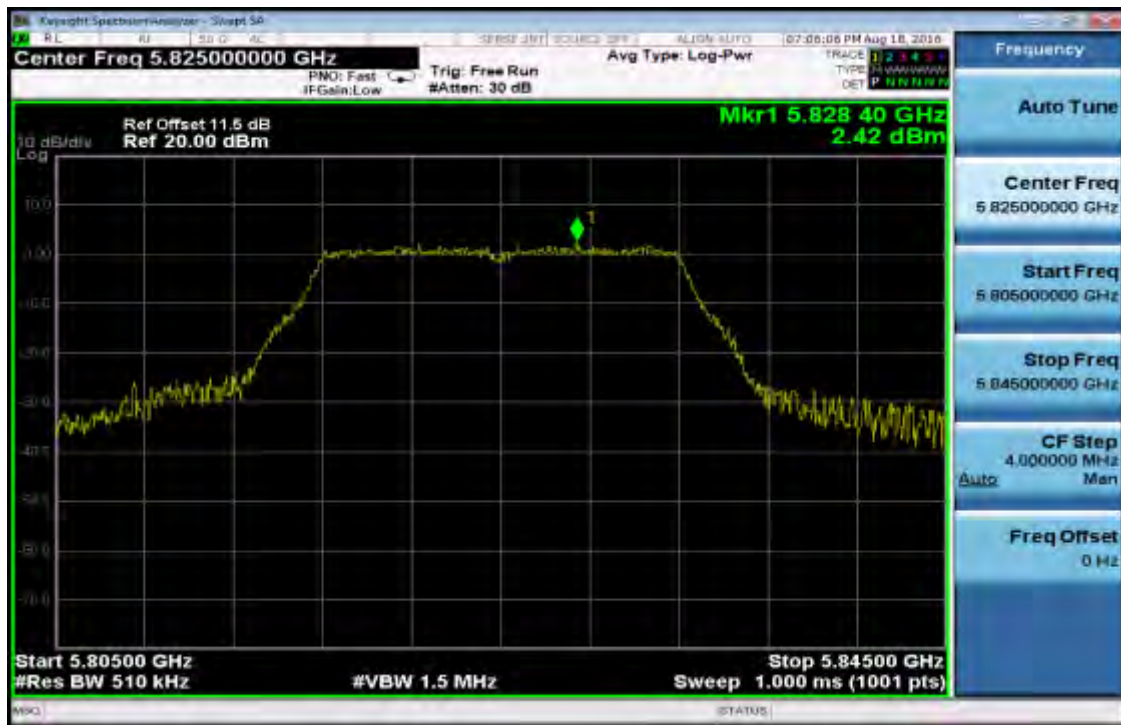
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## Peak Power Spectral Density Data Plot (CH High 5825 MHz)



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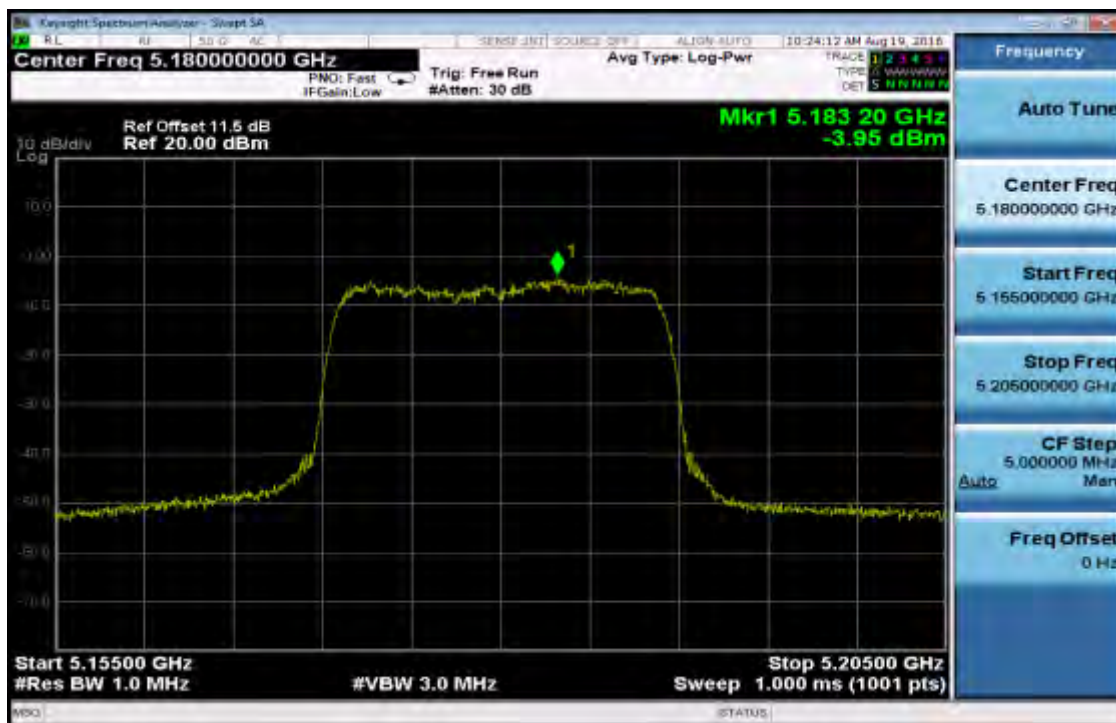
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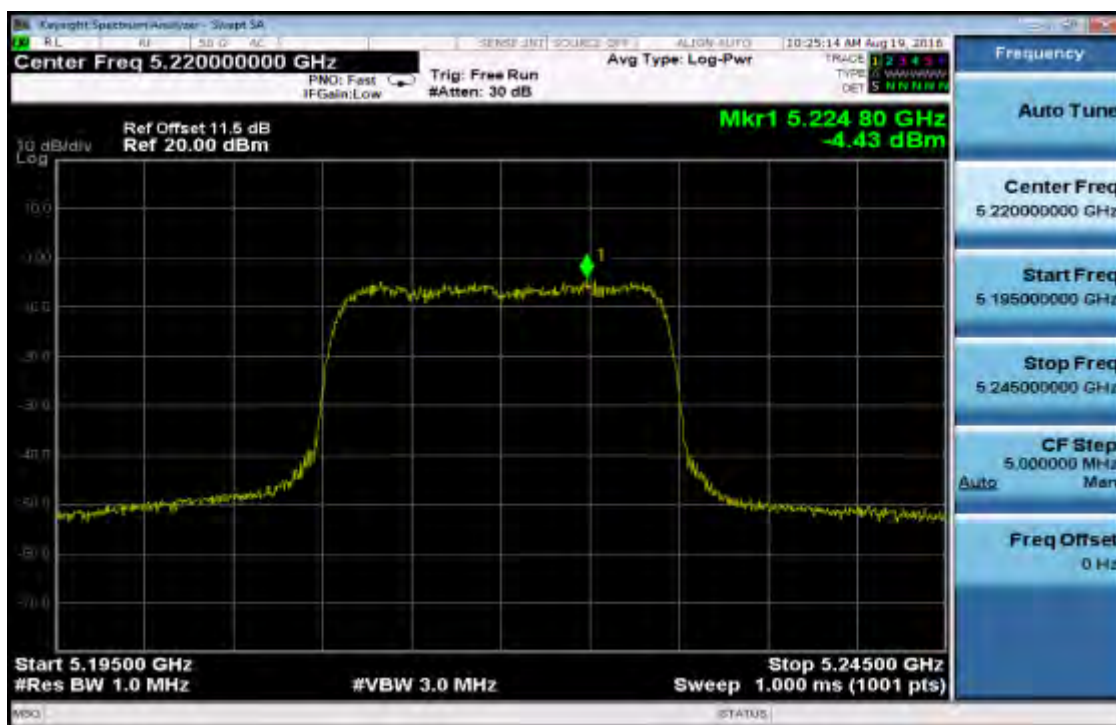
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## 802.11n HT20, 5150~5250 MHz

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



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



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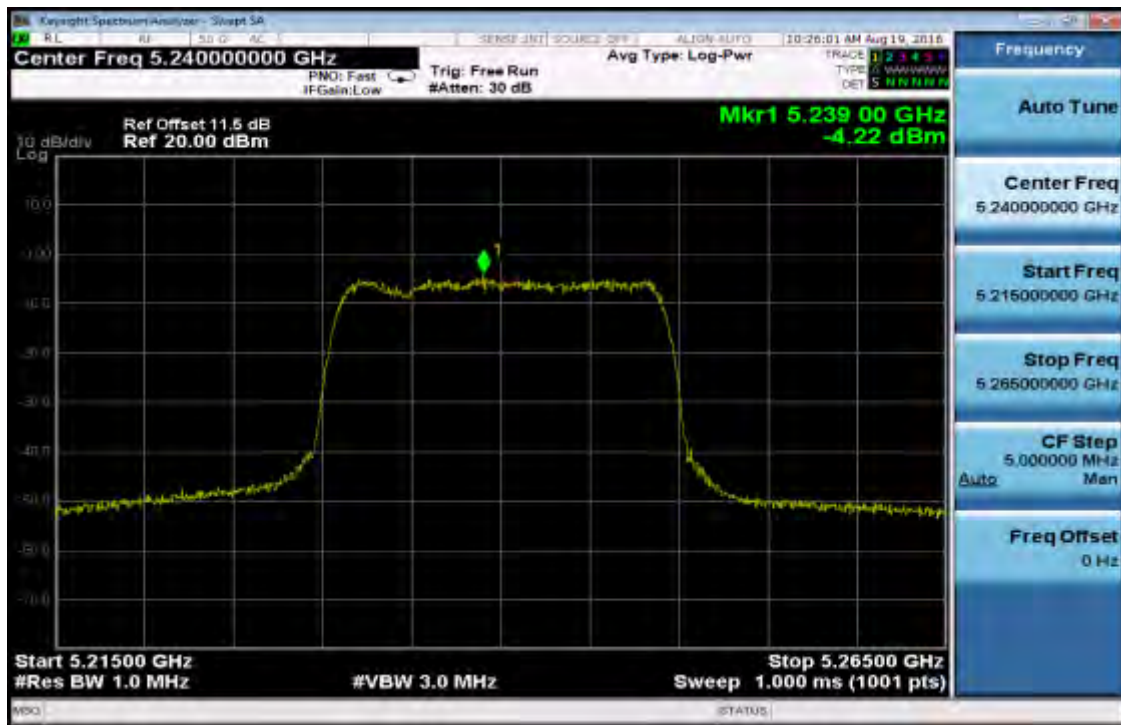
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## Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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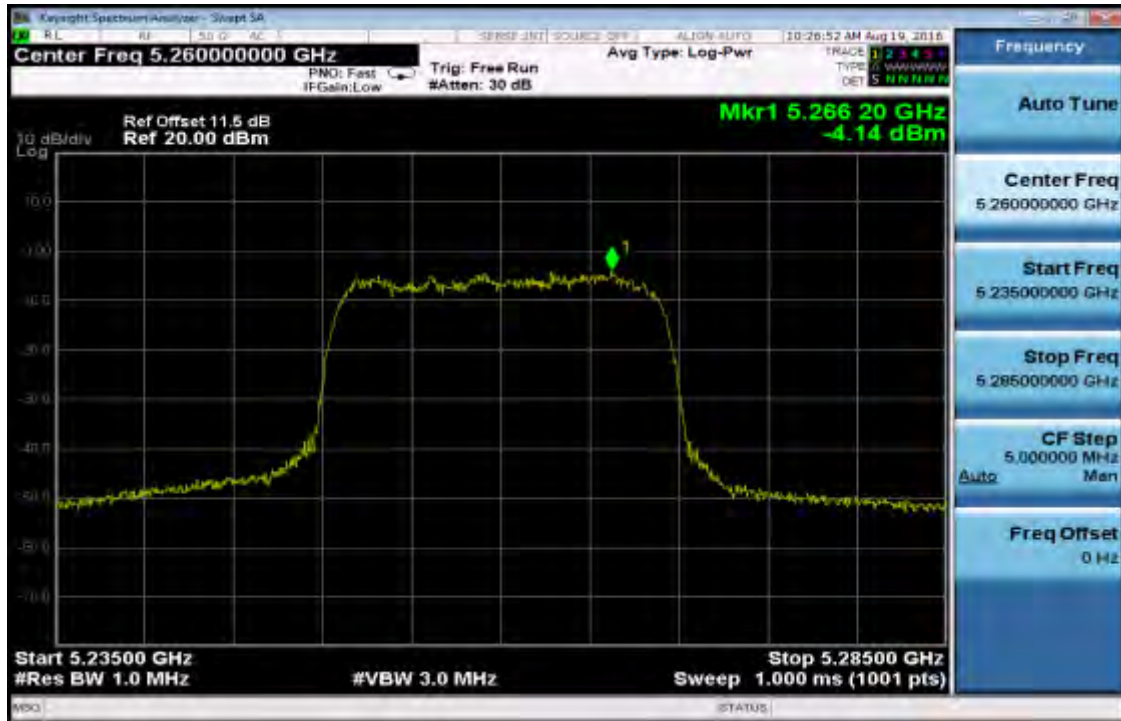
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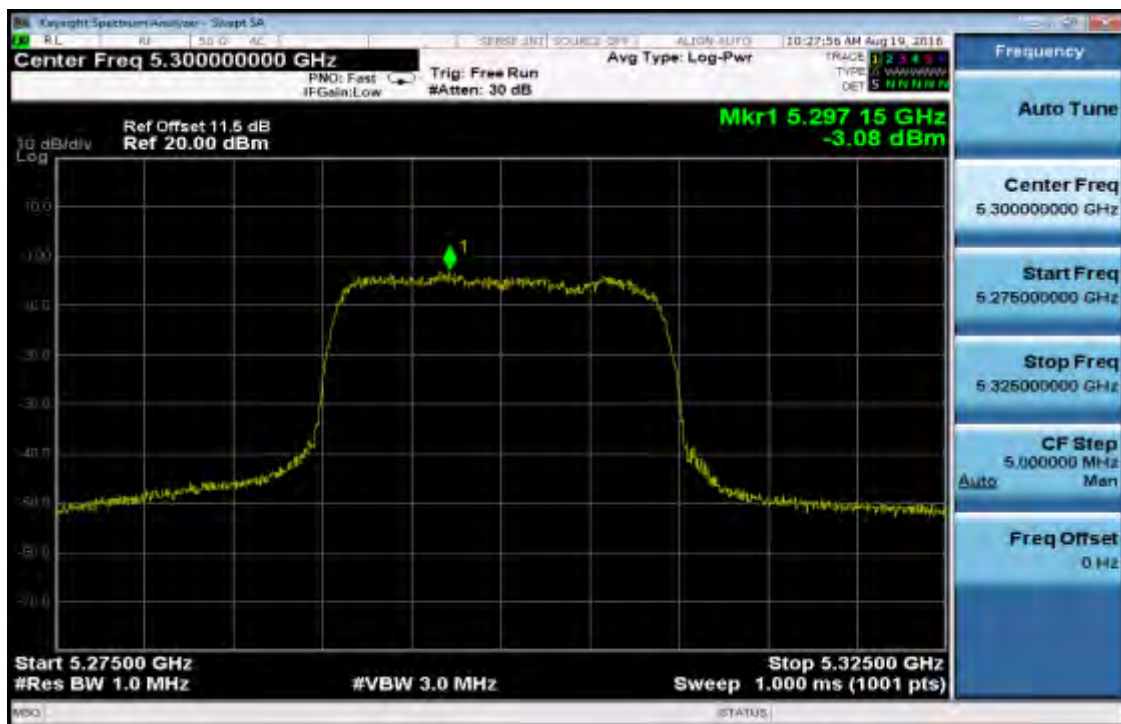
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## 802.11n HT20, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5260MHz)



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



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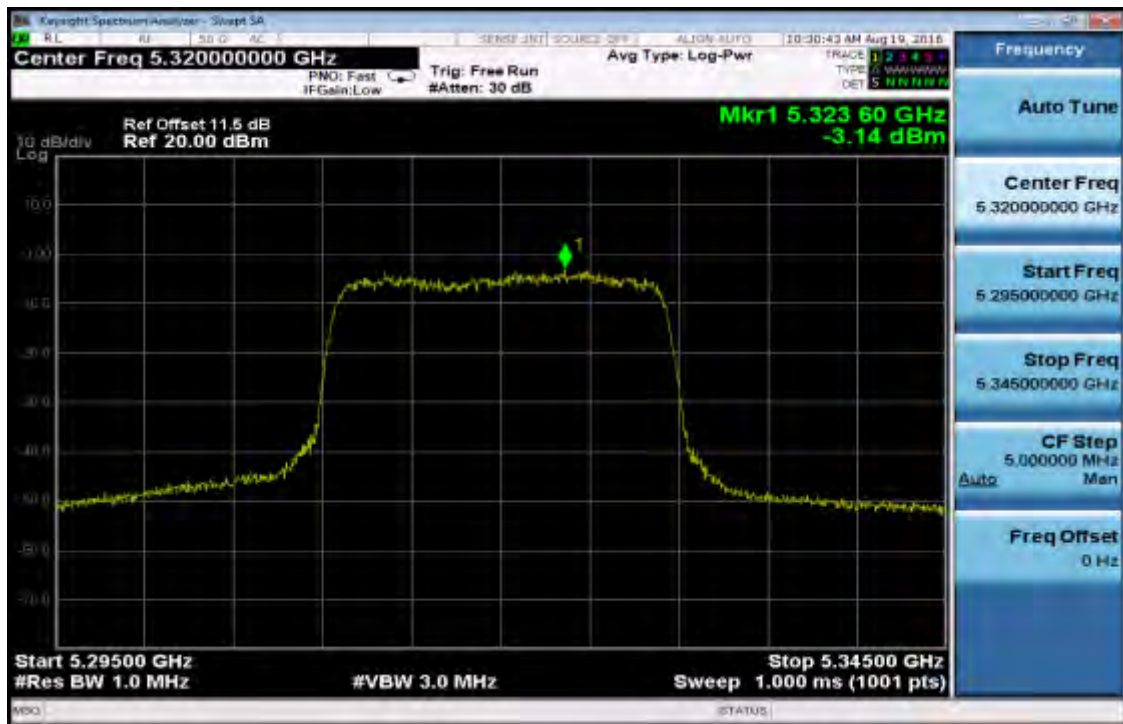
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## Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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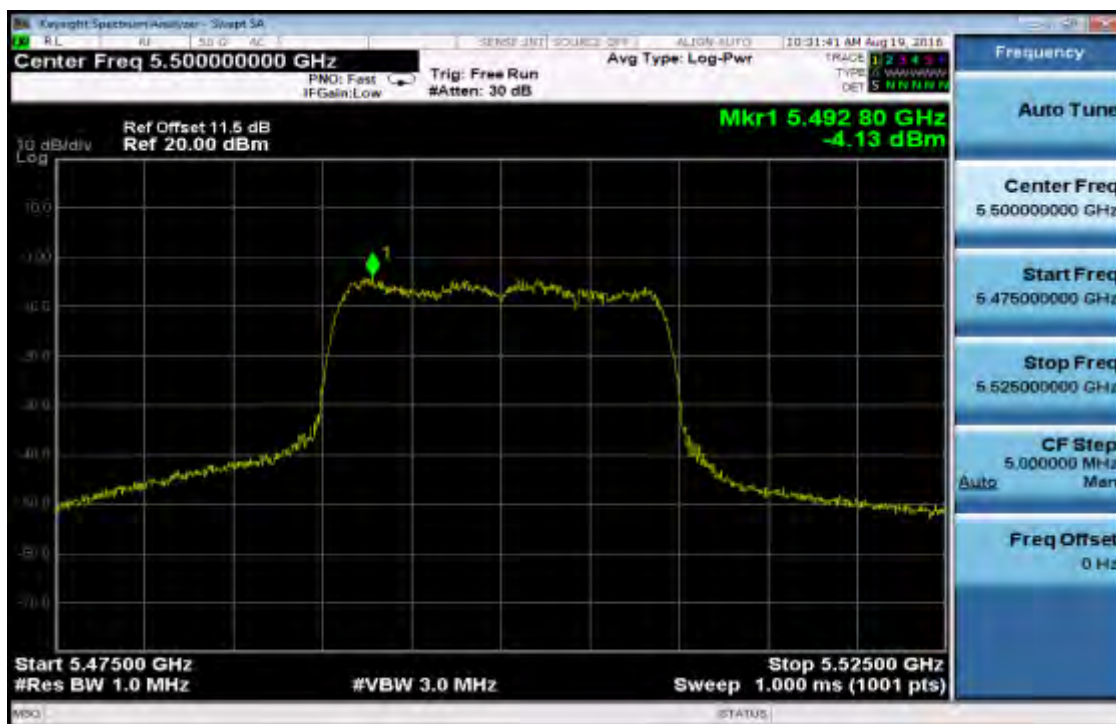
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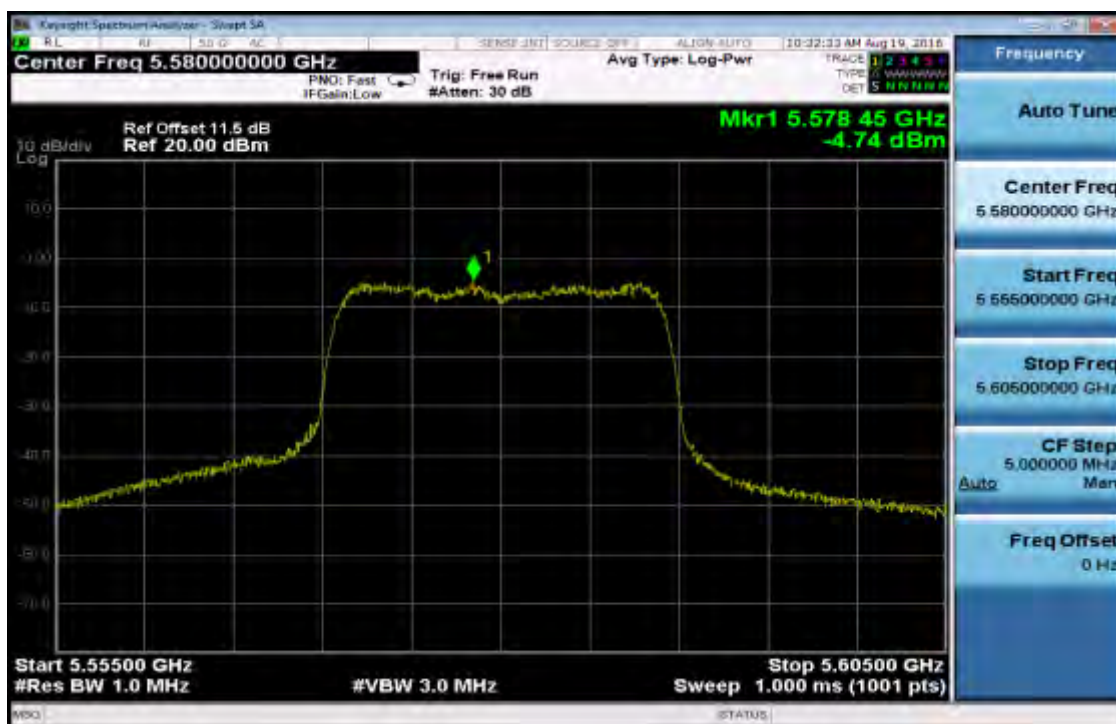


## 802.11n HT20, 5470~5725 MHz

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



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



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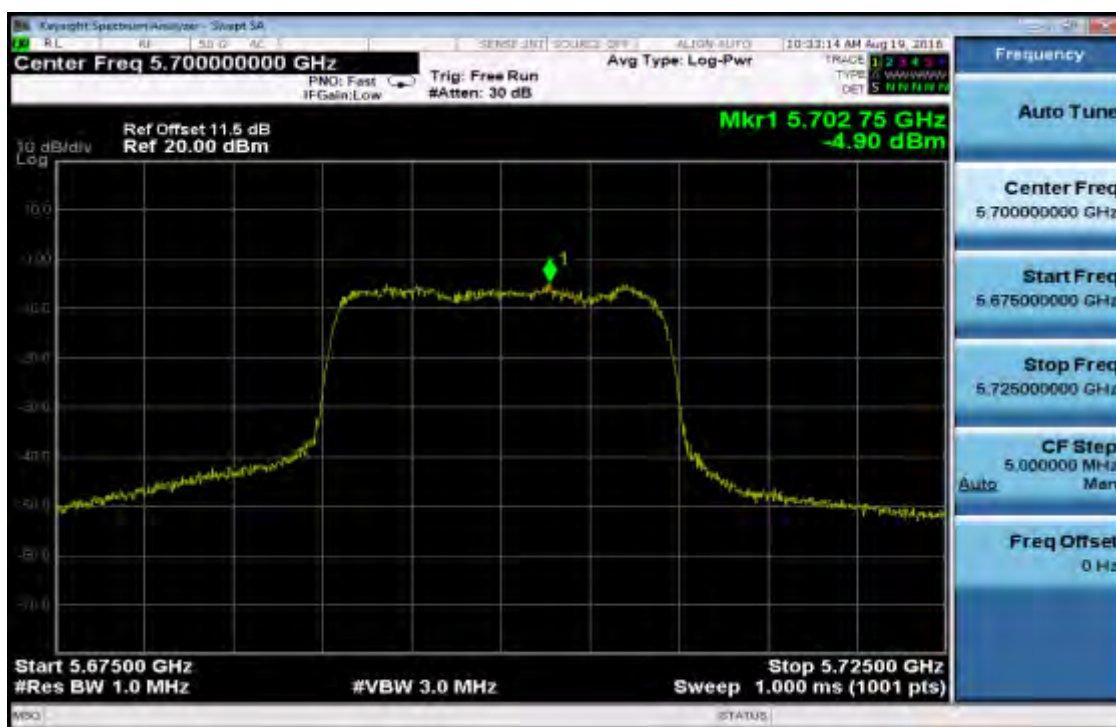
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### Peak Power Spectral Density Data Plot (CH High 5700 MHz)



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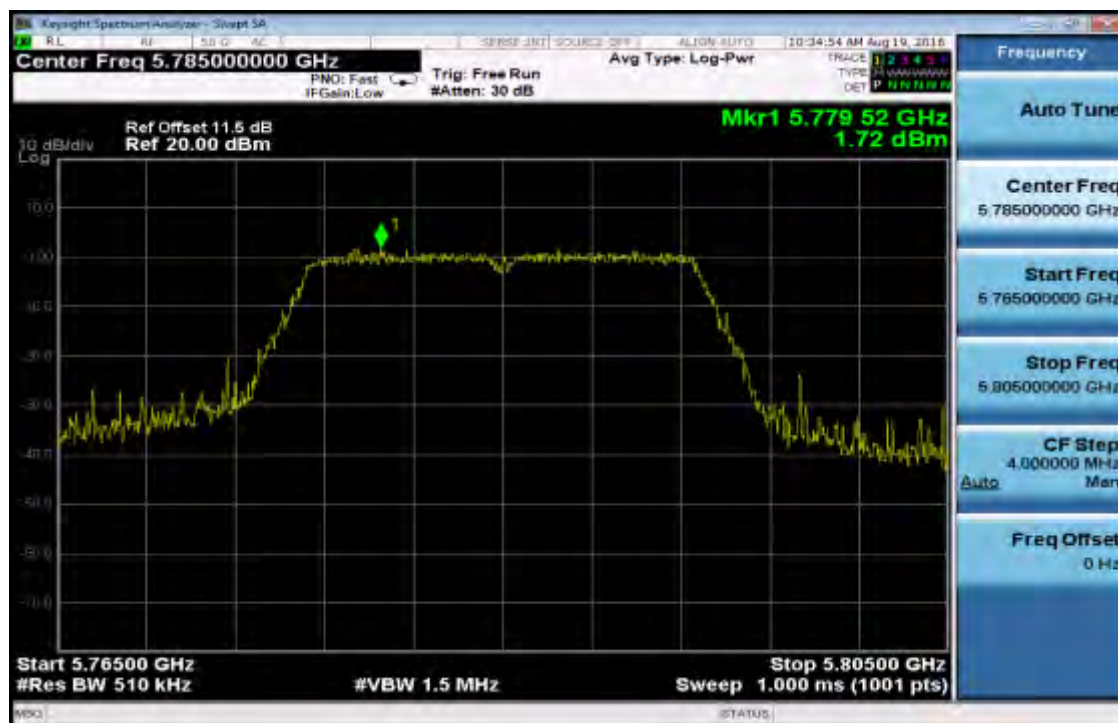
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## 802.11n HT20, 5725~5850 MHz Peak Power Spectral Density Data Plot (CH Low 5745 MHz)



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



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



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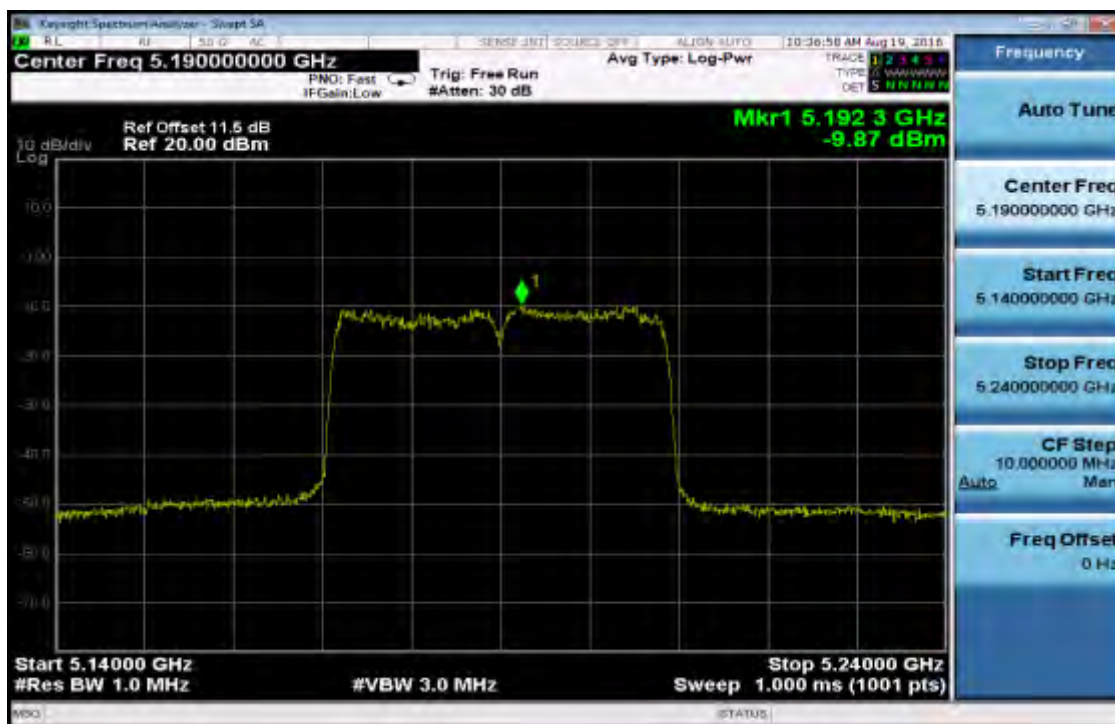
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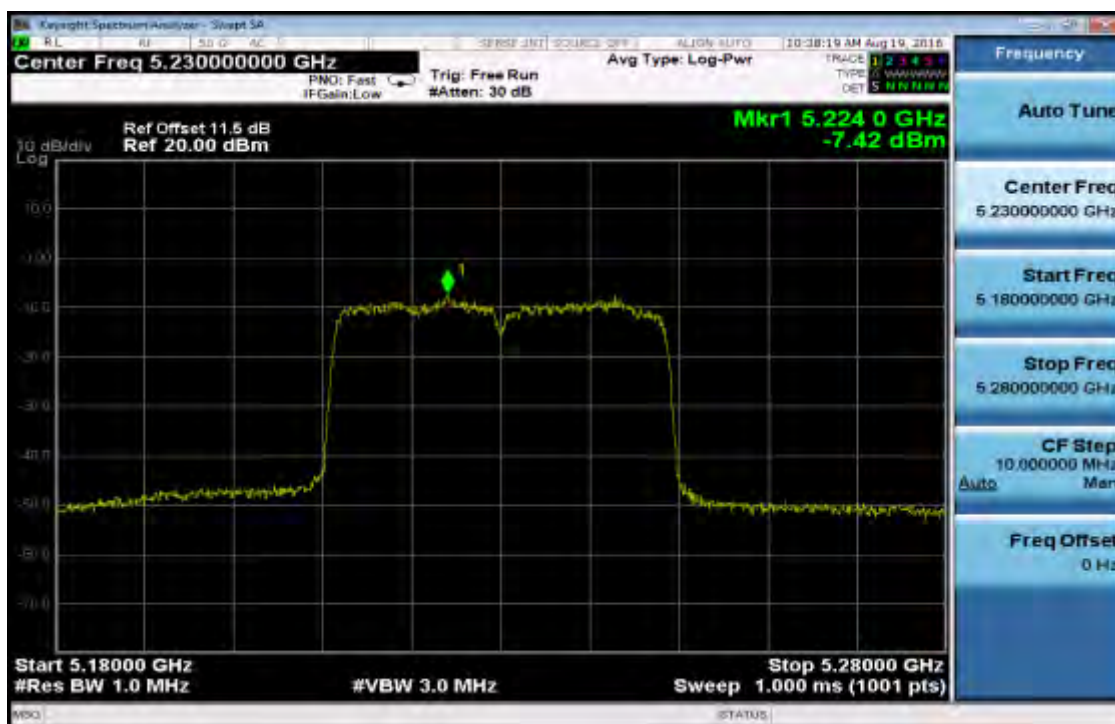
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## 802.11n HT40, 5150~5250 MHz

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



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



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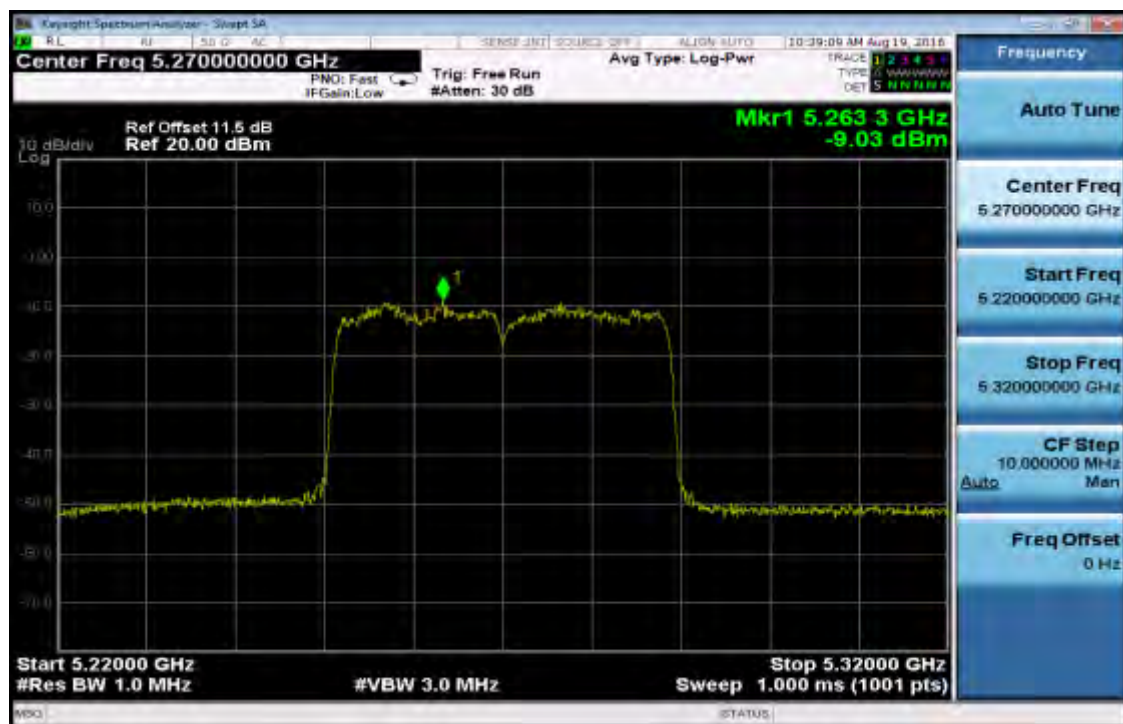
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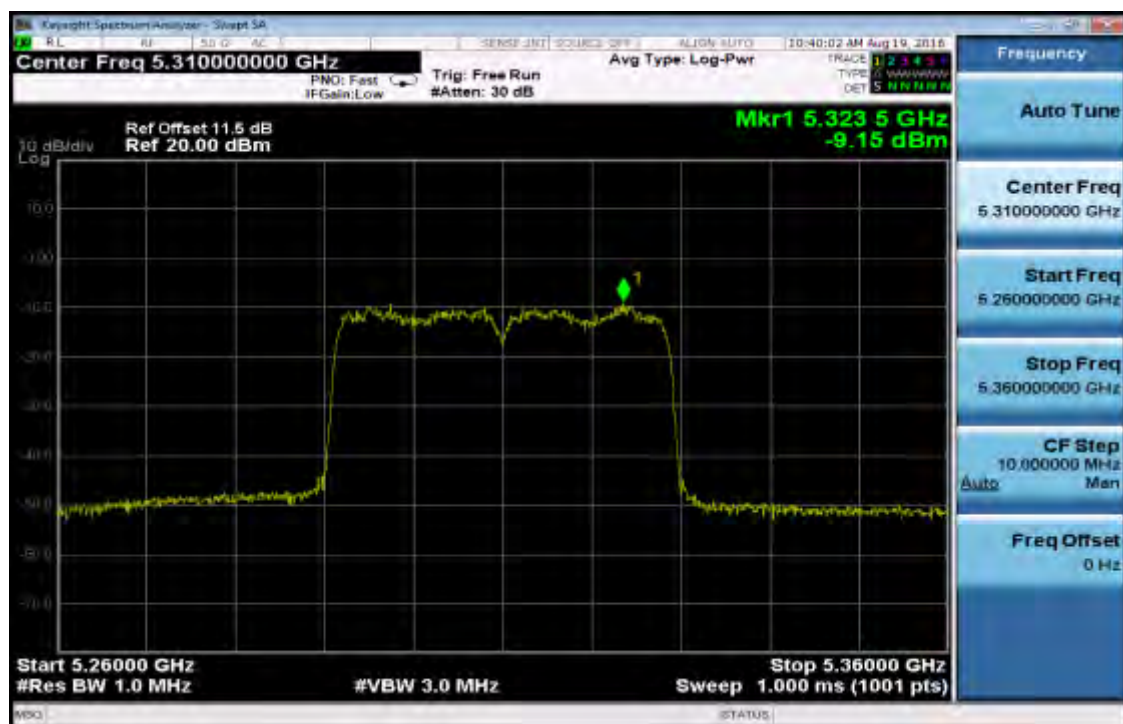


## 802.11n HT40, 5250~5350 MHz

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



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



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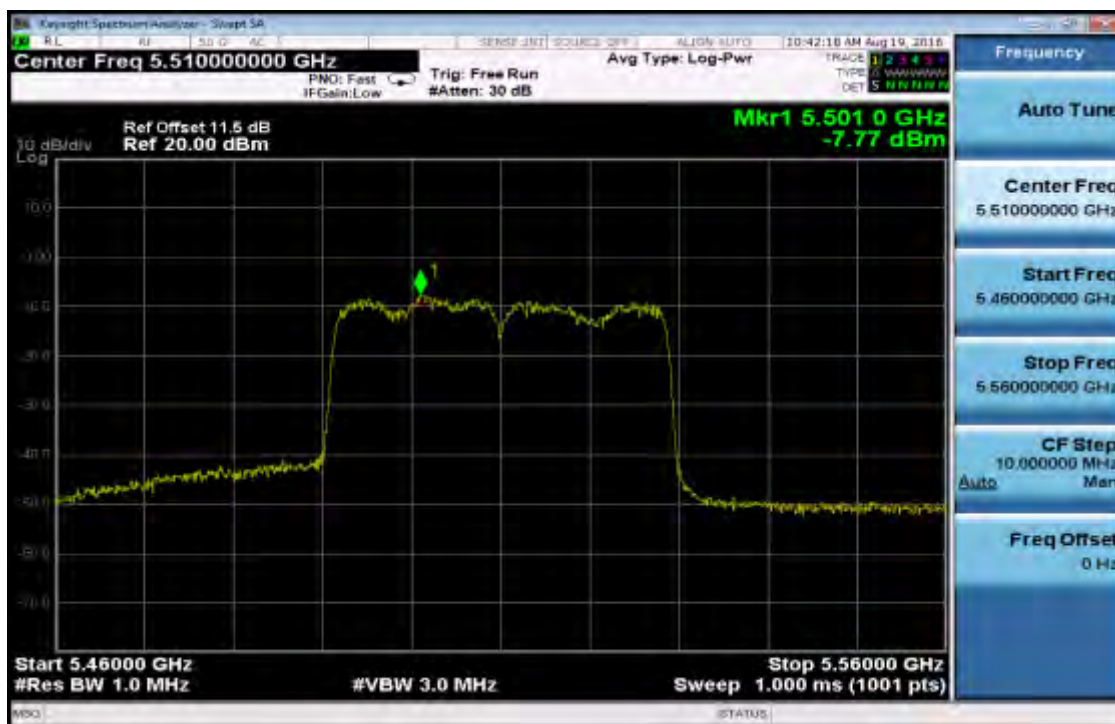
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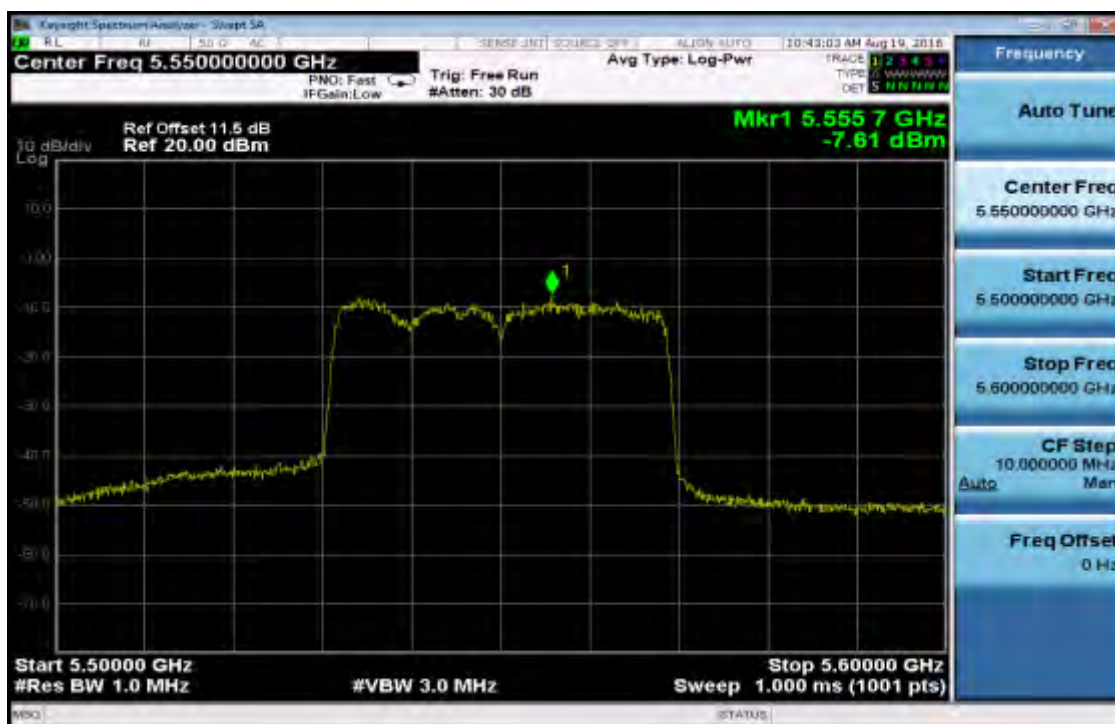
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## 802.11n HT40, 5470~5725 MHz

### Peak Power Spectral Density Data Plot (CH Low 5510 MHz)



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



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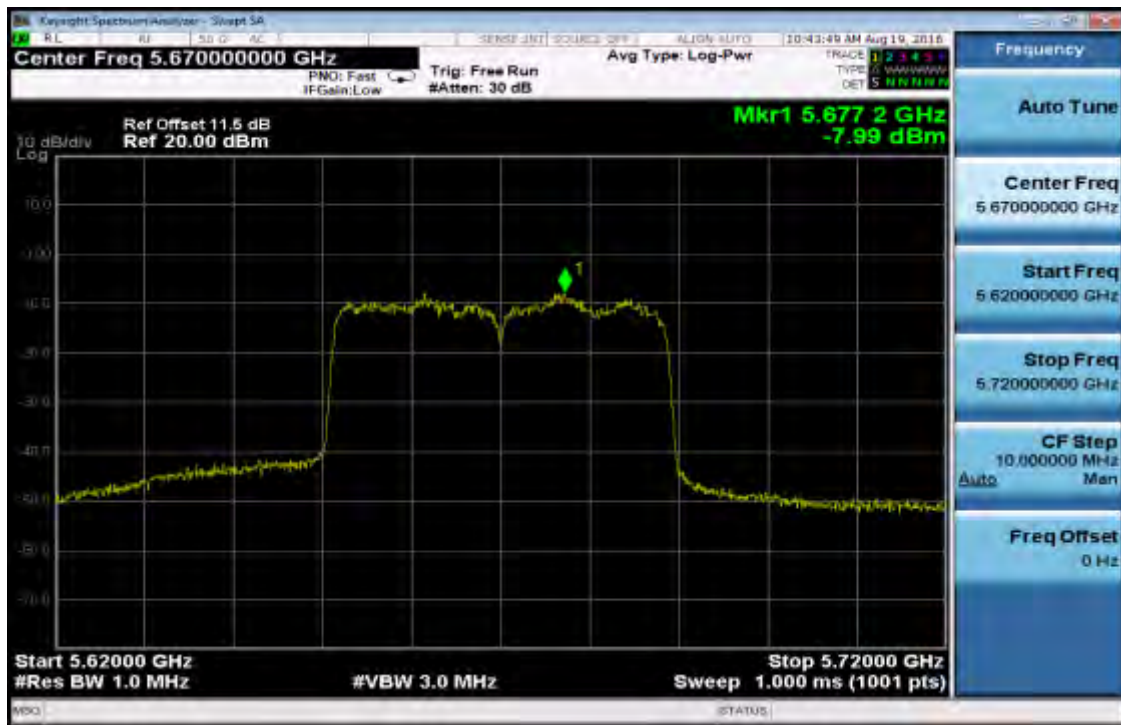
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## Peak Power Spectral Density Data Plot (CH High 5670 MHz)



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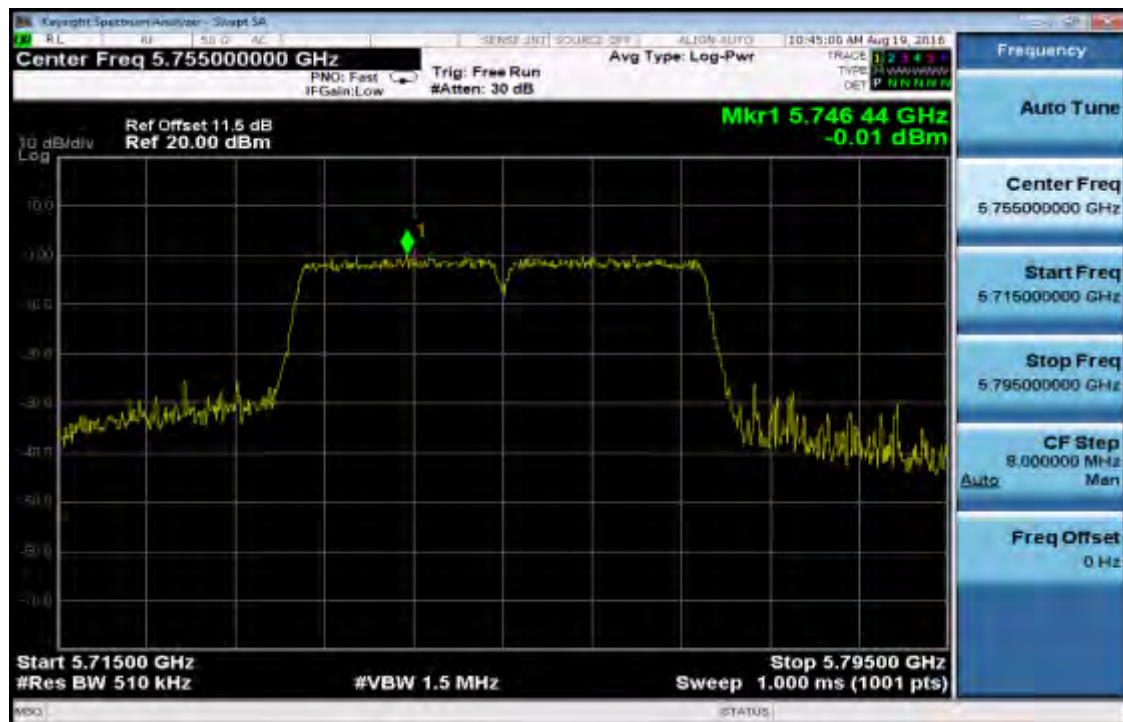
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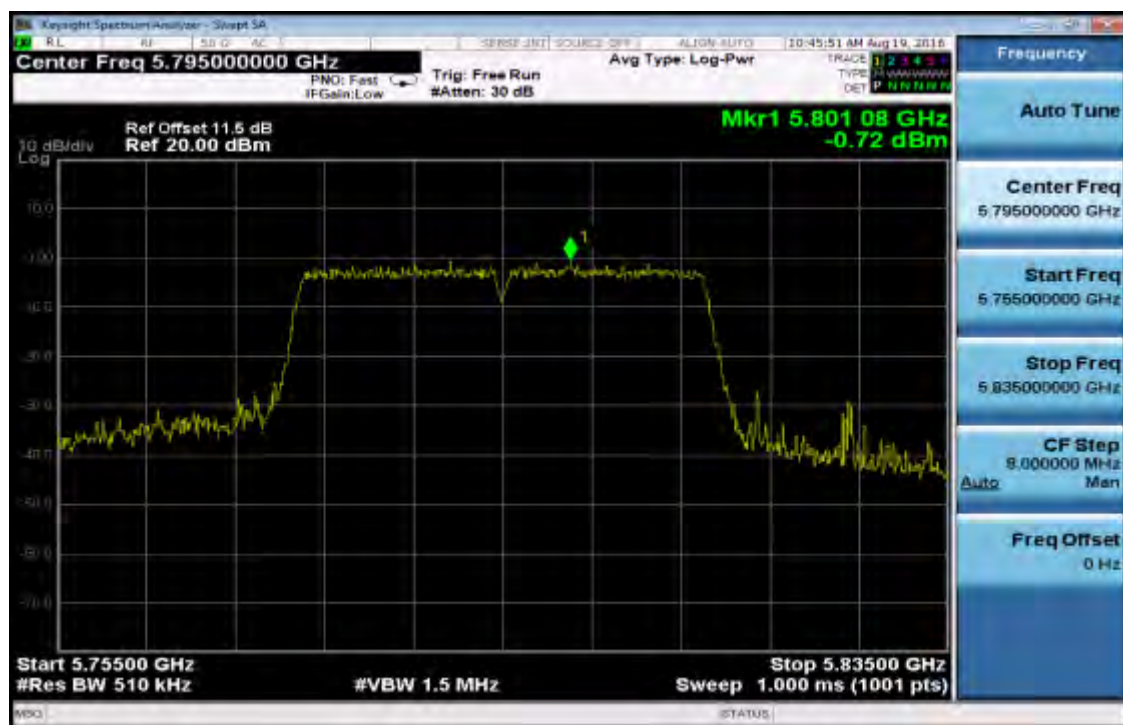


## 802.11n HT40, 5725~5850 MHz

### Peak Power Spectral Density Data Plot (CH Low 5755 MHz)



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



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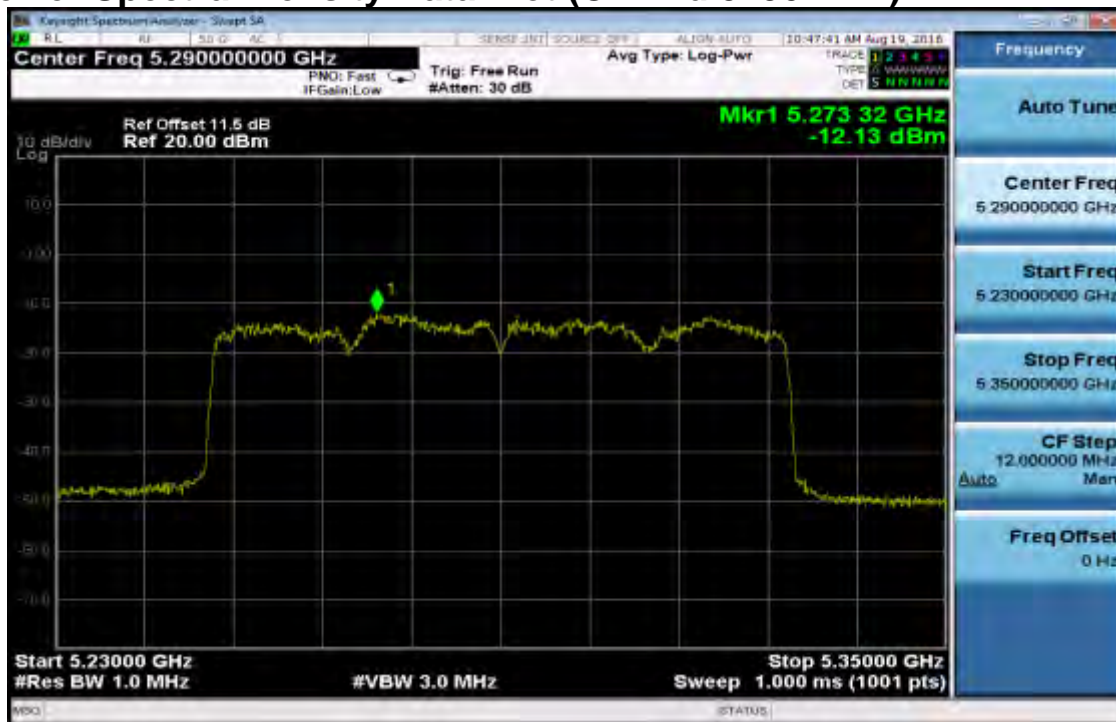
## 802.11ac VHT80, 5150~5250 MHz

### Peak Power Spectral Density Data Plot (CH Mid 5210 MHz)



## 802.11ac VHT80, 5250~5350 MHz

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



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## 802.11ac VHT80, 5470~5725 MHz

### Peak Power Spectral Density Data Plot (CH Low 5530 MHz)



## 802.11ac VHT80, 5470~5725 MHz

### Peak Power Spectral Density Data Plot (CH High 5610 MHz)



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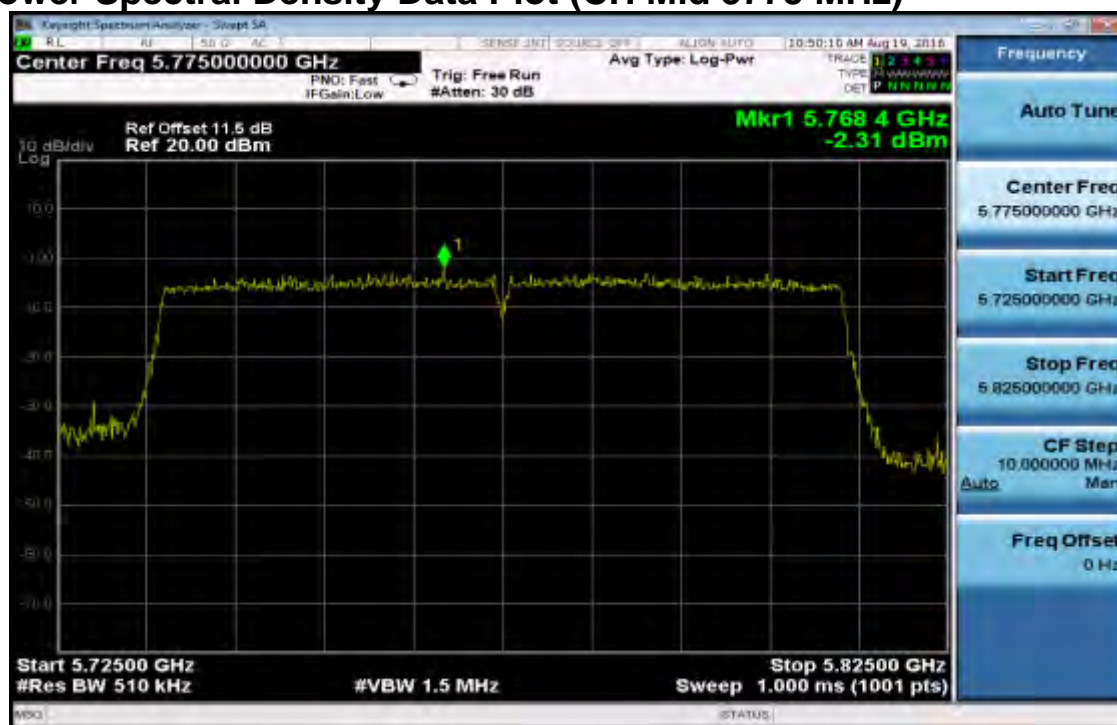
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## 802.11ac VHT80, 5725~5850 MHz

### Peak Power Spectral Density Data Plot (CH Mid 5775 MHz)



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## 11. UNDESIRABLE RADIATED EMISSION MEASUREMENT

### 11.1 Standard Applicable

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

1. For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
2. For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

APPLICABLE TO	LIMIT	
FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01	FIELD STRENGTH AT 3m	
	PK: 74 (dBμV/m)	AV 54 (dBμV/m)
APPLICABLE TO	EIRP LIMIT	FIELD STRENGTH AT 3m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.3 (dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK: -27 (dBm/MHz) PK: -17 (dBm/MHz)	PK: 68.3 (dBμV/m) PK: 78.2 (dBμV/m)
15.407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK:122.2 (dBμV/m) *4
*1 beyond 75 MHz or more above of the bandedge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

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

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

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

**Note:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBμV/m) = 20 log Emission level (dBμV/m)

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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	ESC17	100760	05/10/2016	05/09/2017
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2016	01/28/2017
Loop Antenna	ETS.LINDGREN	6502	148045	09/07/2015	09/06/2016
Bilog Antenna	SCHWAZBECK	VULB9168	378	12/14/2015	12/13/2016
Horn Antenna	Schwarzbeck	BBHA9120D	1441	08/01/2016	07/31/2017
Pre-Amplifier	Agilent	8447D	2944A07676	01/02/2016	01/01/2017
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	01/02/2016	01/01/2017
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	ChamPro	AM-BS-4500-B	060776-ABS	N.C.R	N.C.R
Controller	ChamPro	EM1000	60776	N.C.R	N.C.R
Low Loss Cable	Huber Suhner	966_RX	9	01/02/2016	01/01/2017
3m Site NSA	SGS	966 chamber	N/A	07/01/2016	06/30/2017
Low Loss Cable	Huber Suhner	966 TX	1	01/02/2016	01/01/2017
Horn Antenna	Schwarzbeck	BBHA9170	184	12/12/2015	12/11/2016
Pre-Amplifier	EMC Instruments Corp.	EMC184045	980135	01/02/2016	01/01/2017

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

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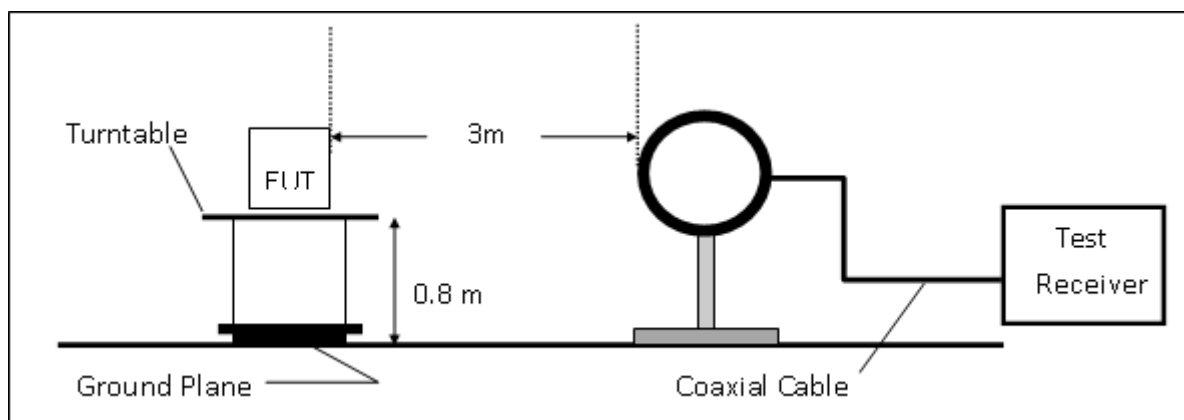
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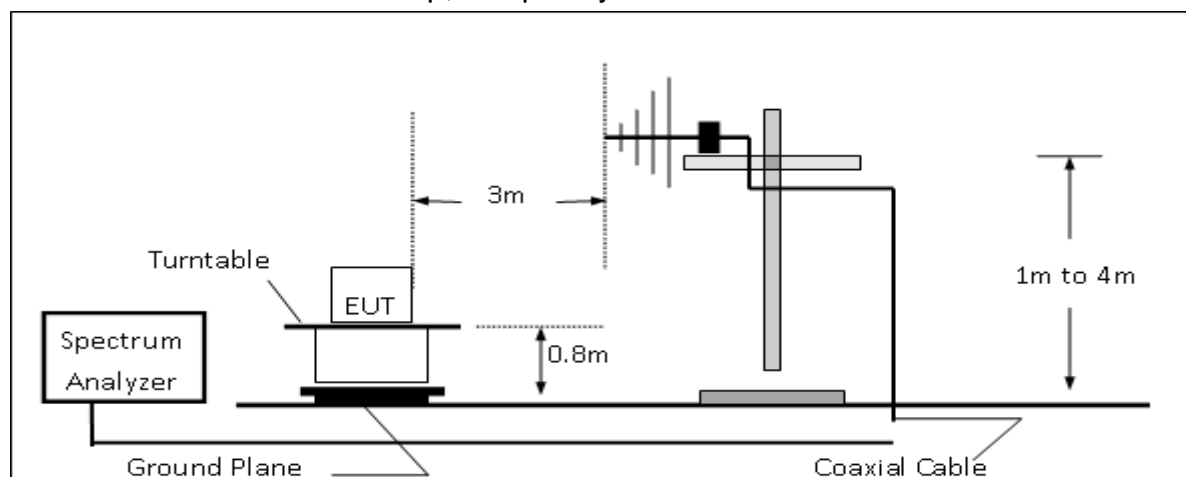
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## 11.3 Test SET-UP

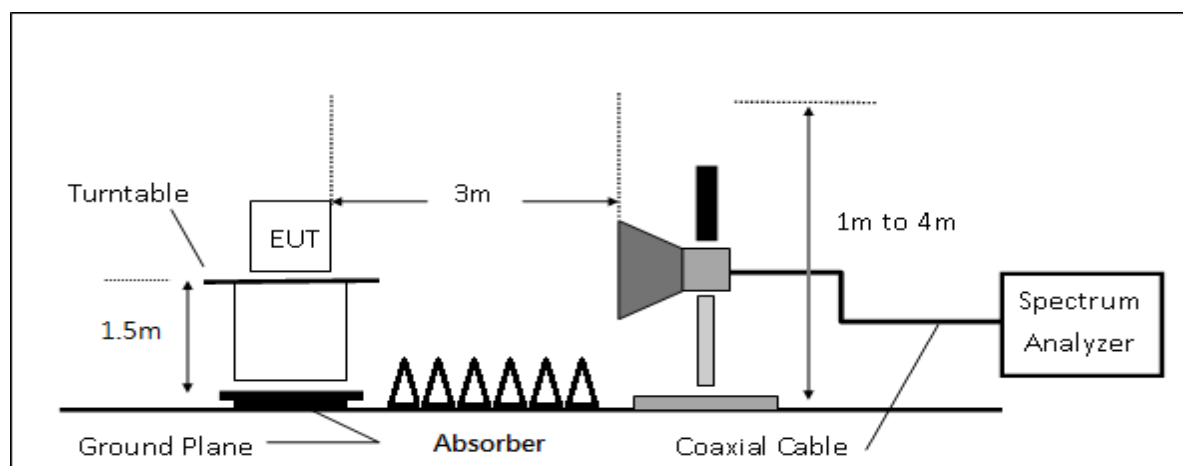
### (A) Radiated Emission Test Set-UP Frequency Below 30MHz.



### (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 ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
9. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
10. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
11. Repeat above procedures until all frequency measured were complete.

## 11.5 Field Strength Calculation

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

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

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

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

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

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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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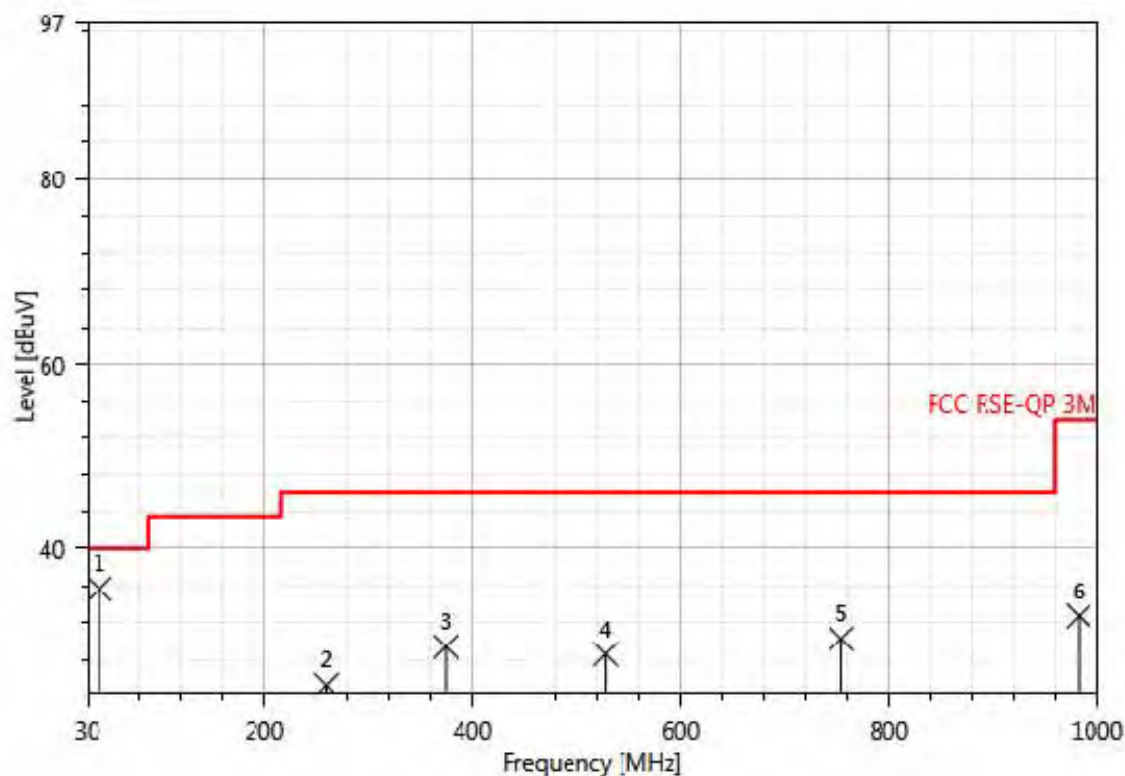


## Radiated Spurious Emission Measurement Result

### Below 1GHz Worst-Case Data:

#### 802.11a 5150~5250 MHz

Operation Mode :	802.11aB1	Test Date :	08/17/2016
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	21 deg_C / 61 RH
Operation Band :	Tx CH MID	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq. MHz	Note F/H/E/S	Decetor Mode QP/AV/PK	Actual Reading Level dBuV/m	Spectrum FS dBuV/m	Factor dB	Limit @ 3m dBuV/m	Margin dB
41.64	S	Peak	35.64	44.01	-8.38	40.00	-4.36
259.89	S	Peak	25.27	32.56	-7.28	46.00	-20.73
374.35	S	Peak	29.41	33.94	-4.53	46.00	-16.59
527.61	S	Peak	28.59	29.90	-1.32	46.00	-17.41
754.59	S	Peak	30.27	27.57	2.70	46.00	-15.73
982.54	S	Peak	32.72	26.70	6.02	54.00	-21.28

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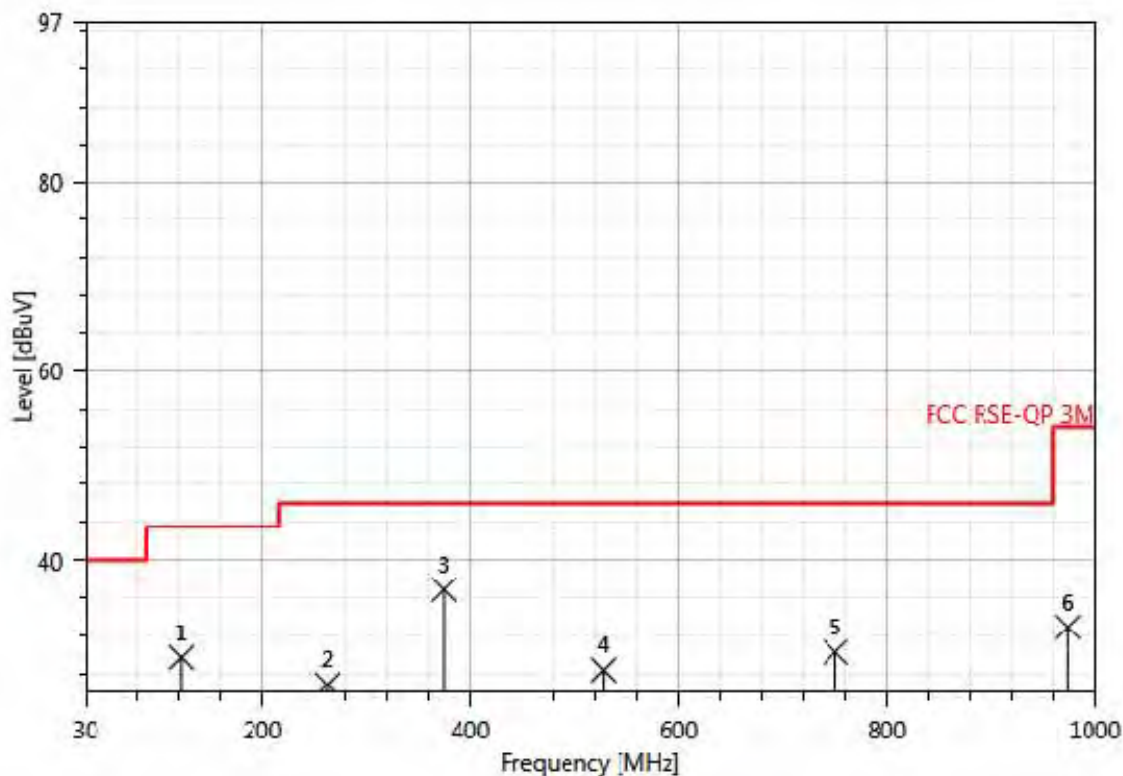
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Operation Mode : 802.11aB1  
 Fundamental Frequency : 5220 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 61 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq. MHz	Note F/H/E/S	Decetor Mode QP/AV/PK	Actual Reading Level dBuV/m	Spectrum FS dBuV/m	Factor dB	Limit @ 3m dBuV/m	Margin dB
122.15	S	Peak	29.68	39.93	-10.25	43.50	-13.82
262.80	S	Peak	26.83	33.97	-7.14	46.00	-19.17
374.35	S	Peak	36.84	41.38	-4.53	46.00	-9.16
527.61	S	Peak	28.37	29.69	-1.32	46.00	-17.63
750.71	S	Peak	30.25	27.49	2.76	46.00	-15.75
973.81	S	Peak	32.88	26.73	6.16	54.00	-21.12

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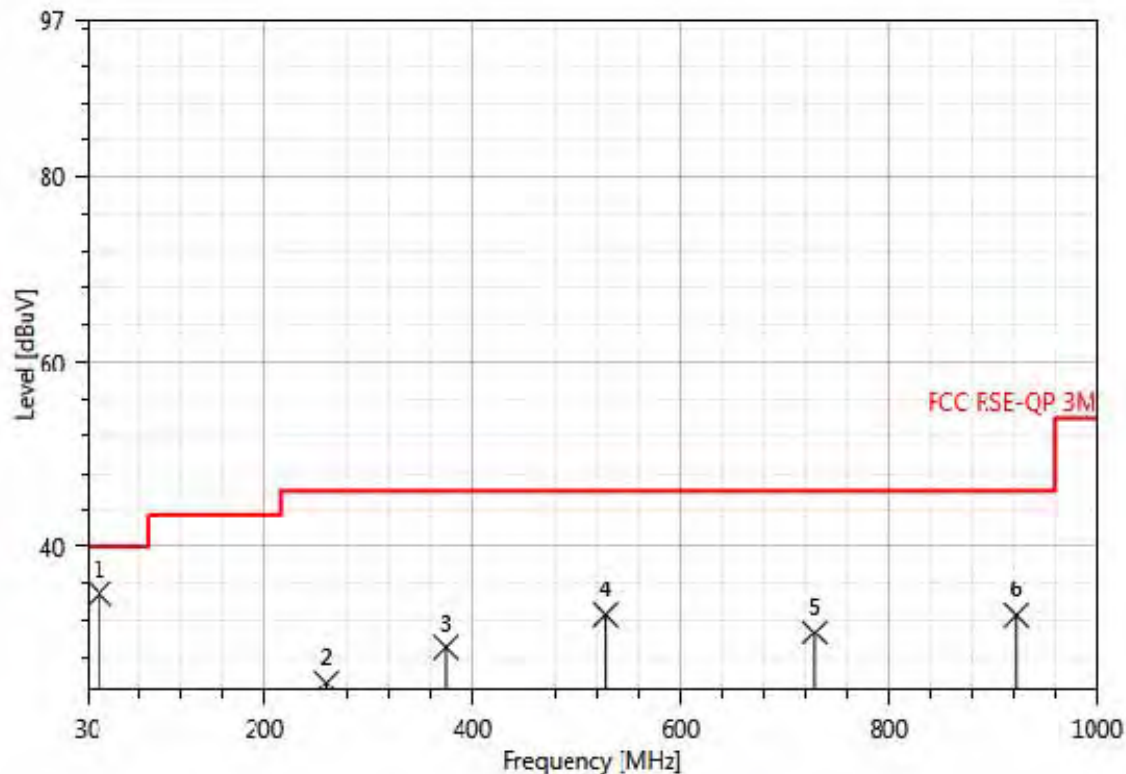
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## 802.11a 5250~5350 MHz

Operation Mode :	802.11aB2	Test Date :	08/17/2016
Fundamental Frequency :	5300 MHz	Temp. / Humi. :	21 deg_C / 61 RH
Operation Band :	Tx CH MID	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq. MHz	Note F/H/E/S	Decetor Mode QP/AV/PK	Actual Reading Level dBuV/m	Spectrum FS dBuV/m	Factor dB	Limit @ 3m dBuV/m	Margin dB
41.64	S	Peak	34.91	43.28	-8.38	40.00	-5.09
259.89	S	Peak	25.32	32.61	-7.28	46.00	-20.68
374.35	S	Peak	29.08	33.62	-4.53	46.00	-16.92
527.61	S	Peak	32.70	34.01	-1.32	46.00	-13.30
728.40	S	Peak	30.72	29.08	1.65	46.00	-15.28
922.40	S	Peak	32.63	27.48	5.15	46.00	-13.37

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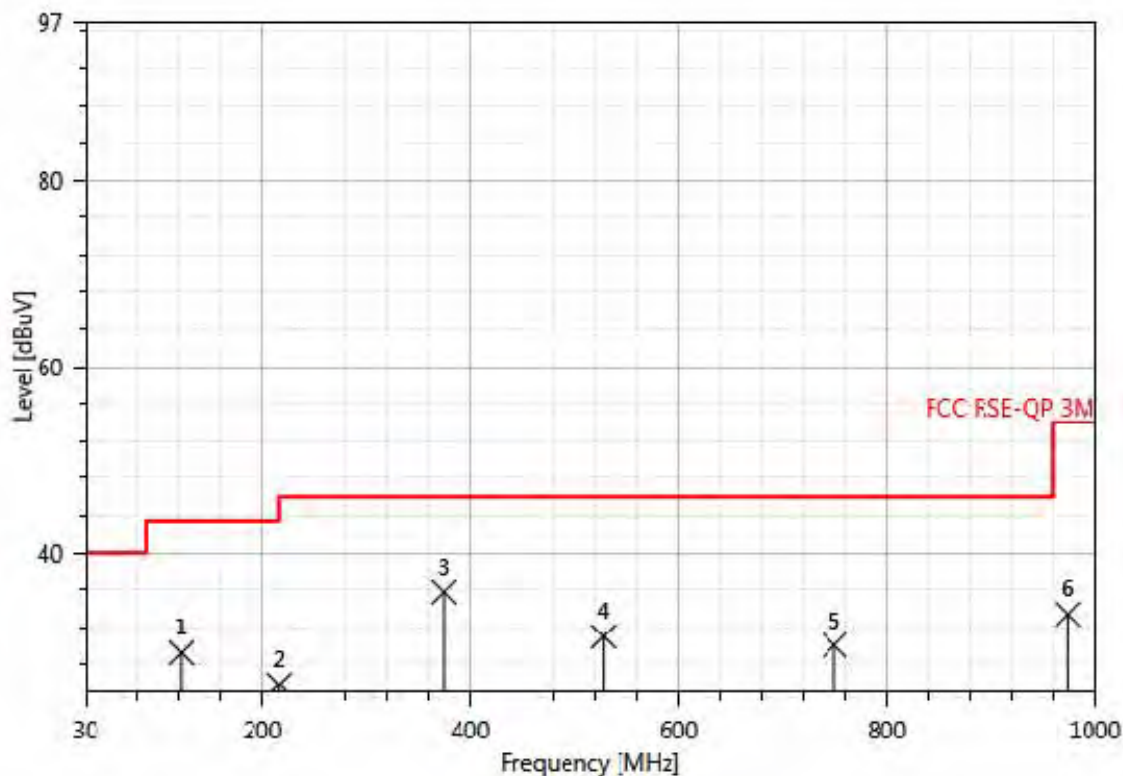
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Operation Mode : 802.11aB2  
 Fundamental Frequency : 5300 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 61 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq. MHz	Note F/H/E/S	Decetor Mode QP/AV/PK	Actual Reading Level dBuV/m	Spectrum FS dBuV/m	Factor dB	Limit @ 3m dBuV/m	Margin dB
122.15	S	Peak	29.28	39.53	-10.25	43.50	-14.22
216.24	S	Peak	25.89	35.32	-9.43	46.00	-20.11
374.35	S	Peak	35.75	40.28	-4.53	46.00	-10.25
527.61	S	Peak	31.03	32.35	-1.32	46.00	-14.97
749.74	S	Peak	30.09	27.37	2.72	46.00	-15.91
973.81	S	Peak	33.42	27.26	6.16	54.00	-20.58

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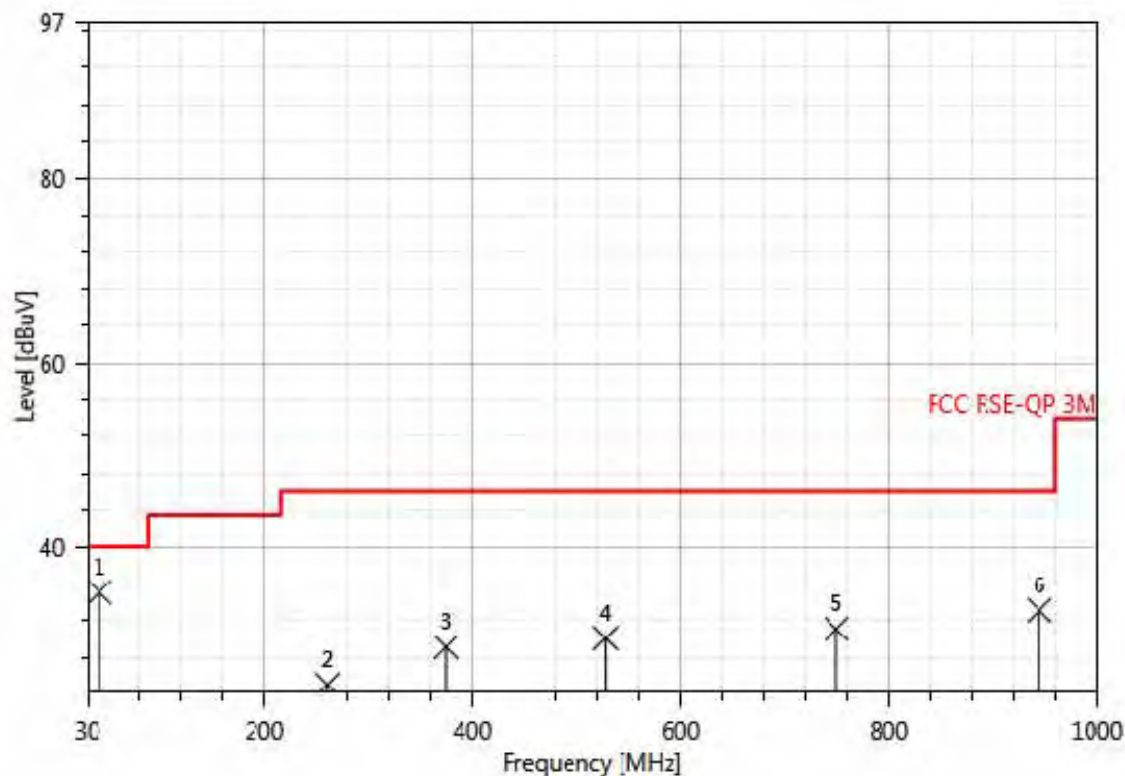
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## 802.11a, 5470~5725 MHz

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

Test Date : 08/17/2016  
Temp. / Humi. : 21 deg\_C / 61 RH  
Test Engineer : Kane  
Measurement Antenna Pol. : VERTICAL



Freq. MHz	Note F/H/E/S	Decetor Mode QP/AV/PK	Actual Reading Level dBuV/m	Spectrum FS dBuV/m	Factor dB	Limit @ 3m dBuV/m	Margin dB
41.64	S	Peak	35.10	43.48	-8.38	40.00	-4.90
260.86	S	Peak	25.07	32.31	-7.24	46.00	-20.93
374.35	S	Peak	29.14	33.67	-4.53	46.00	-16.86
527.61	S	Peak	30.10	31.42	-1.32	46.00	-15.90
749.74	S	Peak	31.11	28.39	2.72	46.00	-14.89
944.71	S	Peak	33.13	27.79	5.34	46.00	-12.87

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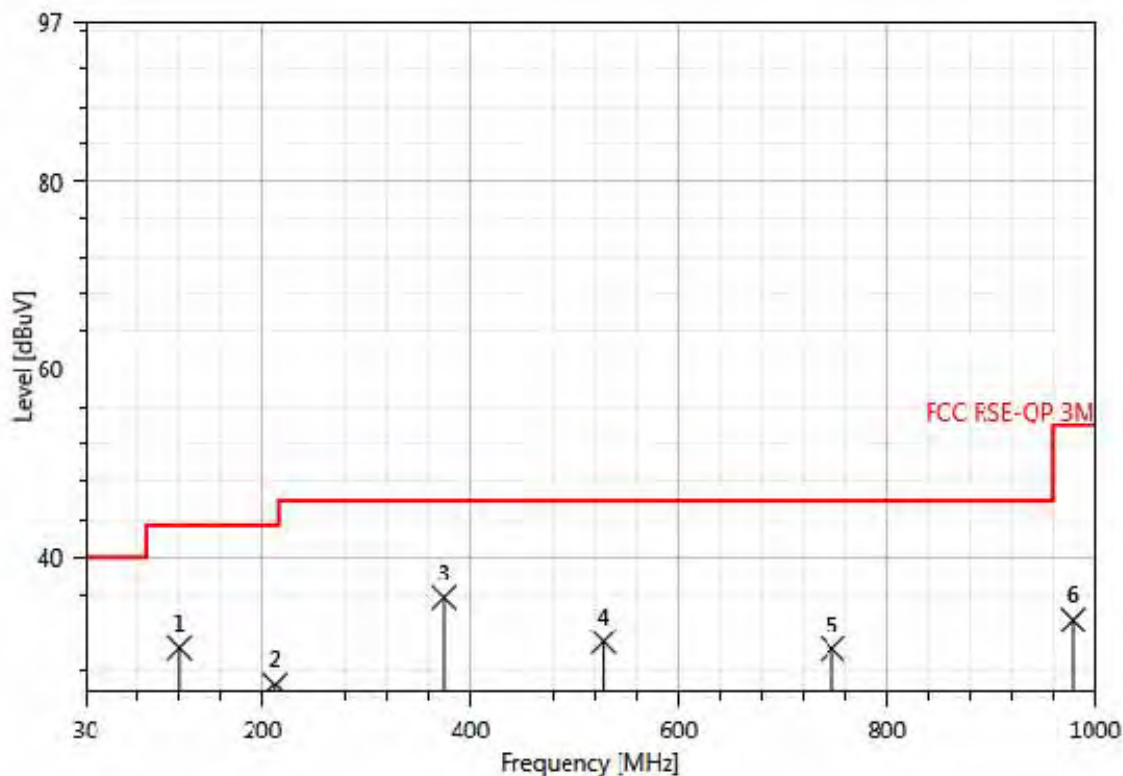
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Operation Mode : 802.11aB3  
Fundamental Frequency : 5580 MHz  
Operation Band : Tx CH MID  
EUT Pol. : H Plane

Test Date : 08/17/2016  
Temp. / Humi. : 21 deg\_C / 61 RH  
Test Engineer : Kane  
Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	QP/AV/PK	Reading Level	FS	dB	@ 3m	dB
120.21	S	Peak	30.31	40.77	-10.45	43.50	-13.19
212.36	S	Peak	26.47	36.12	-9.65	43.50	-17.03
374.35	S	Peak	35.68	40.22	-4.53	46.00	-10.32
527.61	S	Peak	31.00	32.32	-1.32	46.00	-15.00
747.80	S	Peak	30.23	27.74	2.50	46.00	-15.77
978.66	S	Peak	33.35	27.07	6.28	54.00	-20.65

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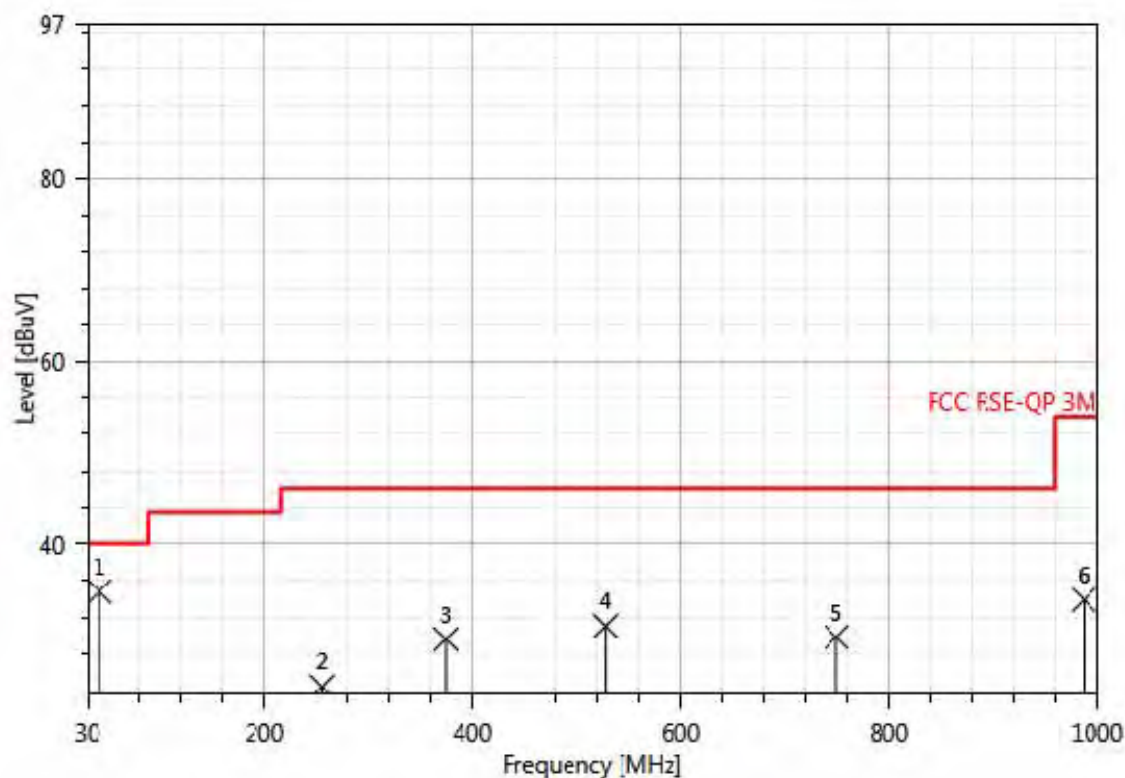
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## 802.11a, 5725~5850 MHz

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

Test Date : 08/17/2016  
Temp. / Humi. : 21 deg\_C / 61 RH  
Test Engineer : Kane  
Measurement Antenna Pol. : VERTICAL



Freq. MHz	Note F/H/E/S	Decetor Mode QP/AV/PK	Actual Reading Level dBuV/m	Spectrum FS dBuV/m	Factor dB	Limit @ 3m dBuV/m	Margin dB
41.64	S	Peak	34.81	43.18	-8.38	40.00	-5.19
256.01	S	Peak	24.39	31.89	-7.50	46.00	-21.61
374.35	S	Peak	29.57	34.11	-4.53	46.00	-16.43
527.61	S	Peak	31.03	32.35	-1.32	46.00	-14.97
749.74	S	Peak	29.80	27.08	2.72	46.00	-16.20
987.39	S	Peak	33.88	27.83	6.04	54.00	-20.12

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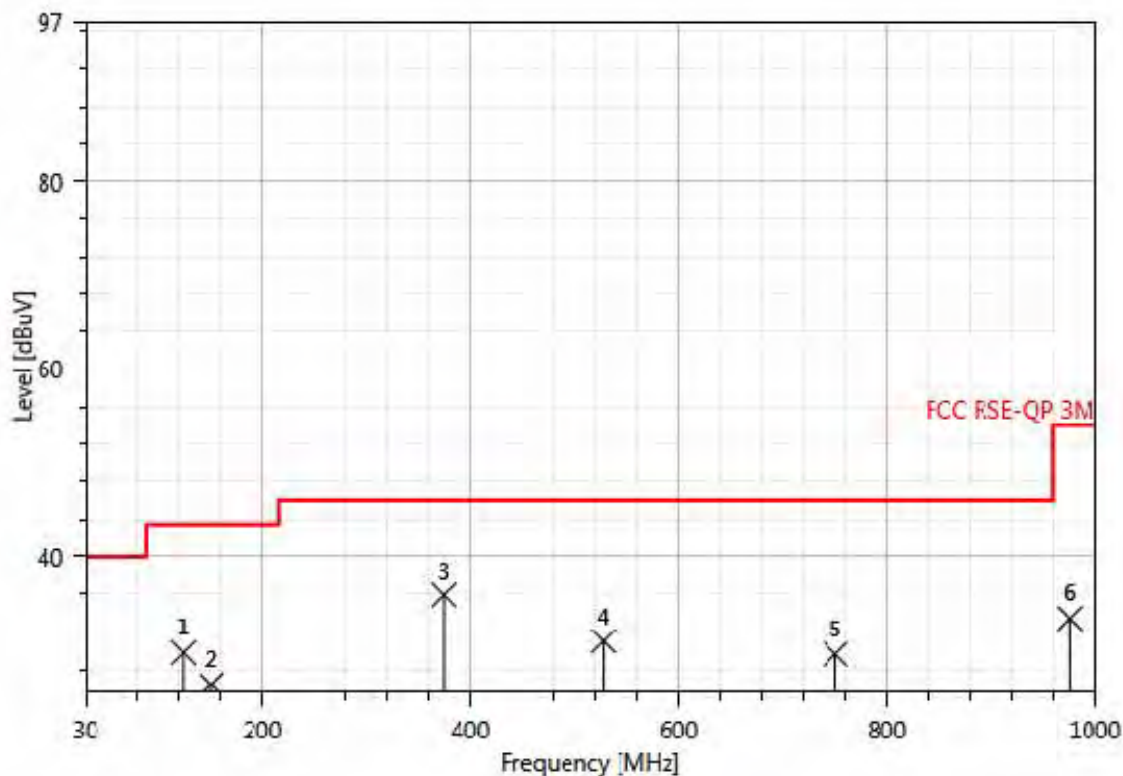
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Operation Mode : 802.11aB4  
 Fundamental Frequency : 5785 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 61 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq. MHz	Note F/H/E/S	Decetor Mode QP/AV/PK	Actual Reading Level dBuV/m	Spectrum FS dBuV/m	Factor dB	Limit @ 3m dBuV/m	Margin dB
124.09	S	Peak	29.78	39.84	-10.06	43.50	-13.72
151.25	S	Peak	26.40	34.10	-7.70	43.50	-17.10
374.35	S	Peak	35.90	40.43	-4.53	46.00	-10.10
527.61	S	Peak	31.01	32.32	-1.32	46.00	-14.99
750.71	S	Peak	29.62	26.86	2.76	46.00	-16.38
975.75	S	Peak	33.42	27.21	6.21	54.00	-20.58

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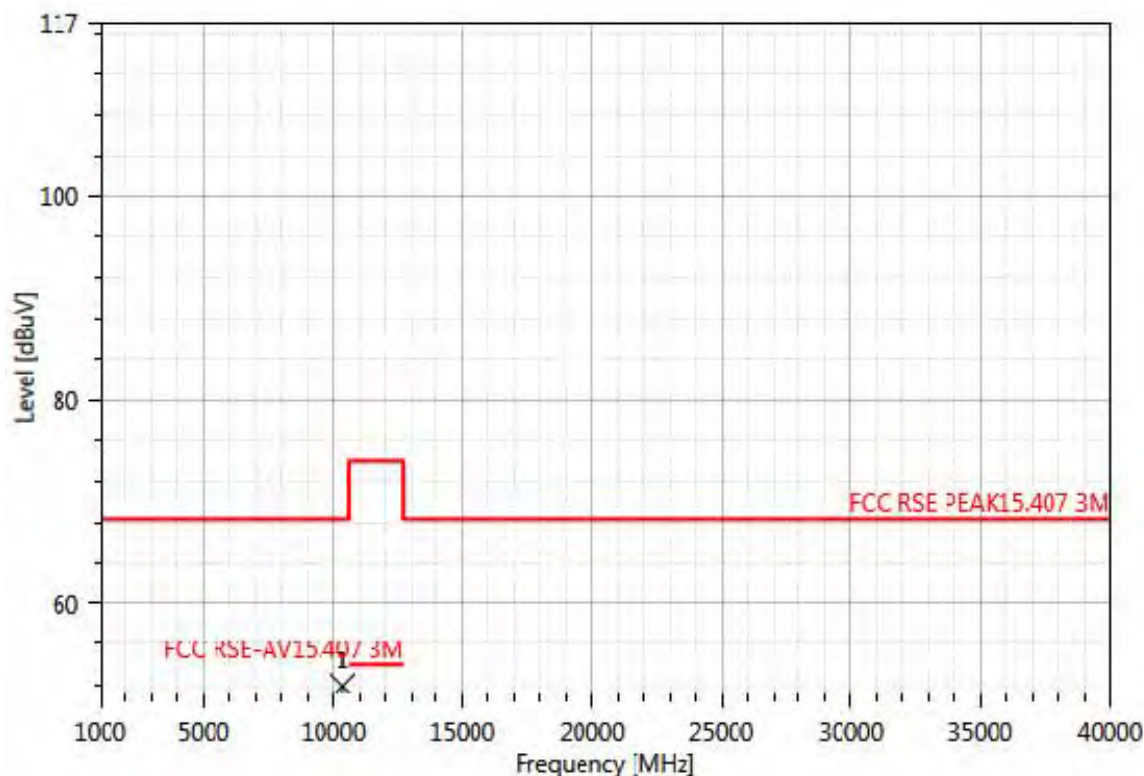
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## Above 1GHz Worst-Case Data:

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

Operation Mode :	802.11aB1	Test Date :	08/17/2016
Fundamental Frequency :	5180 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBuV/m	dBuV/m	dB	dBuV/m	dB
10360.00	H	Peak	51.93	33.63	18.29	68.30	-16.37

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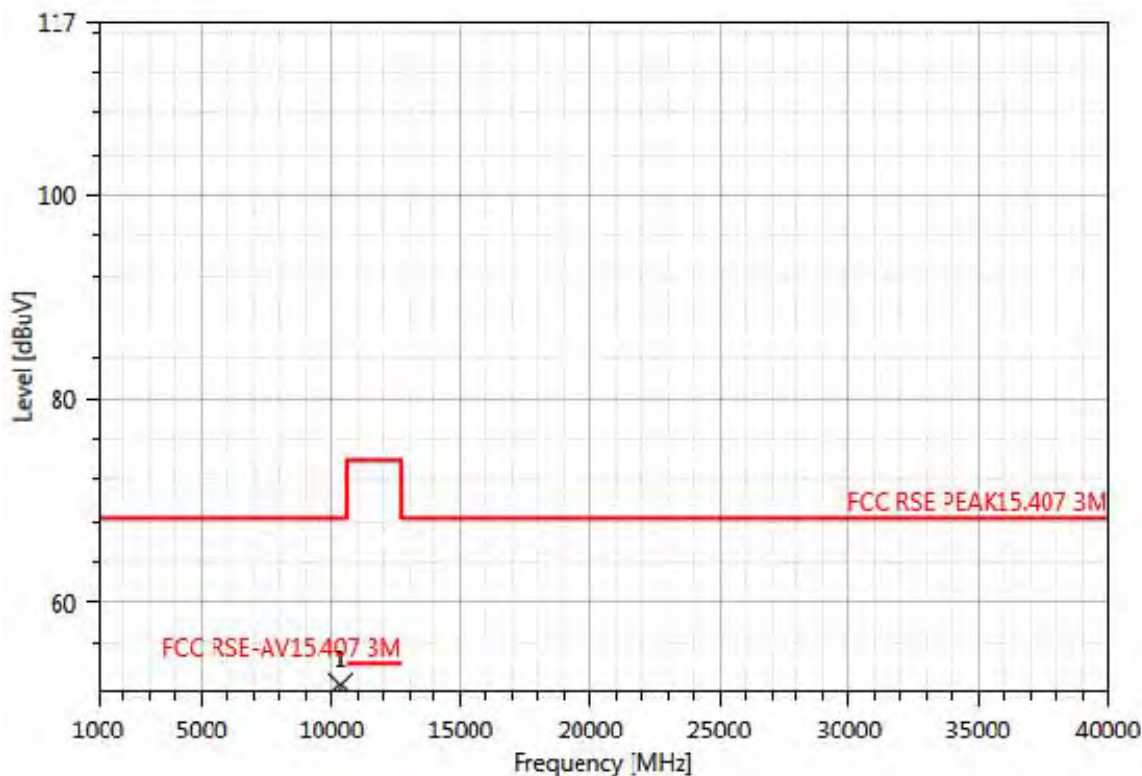
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Operation Mode : 802.11aB1  
 Fundamental Frequency : 5180 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10360.00	H	Peak	51.93	33.64	18.29	68.30	-16.37

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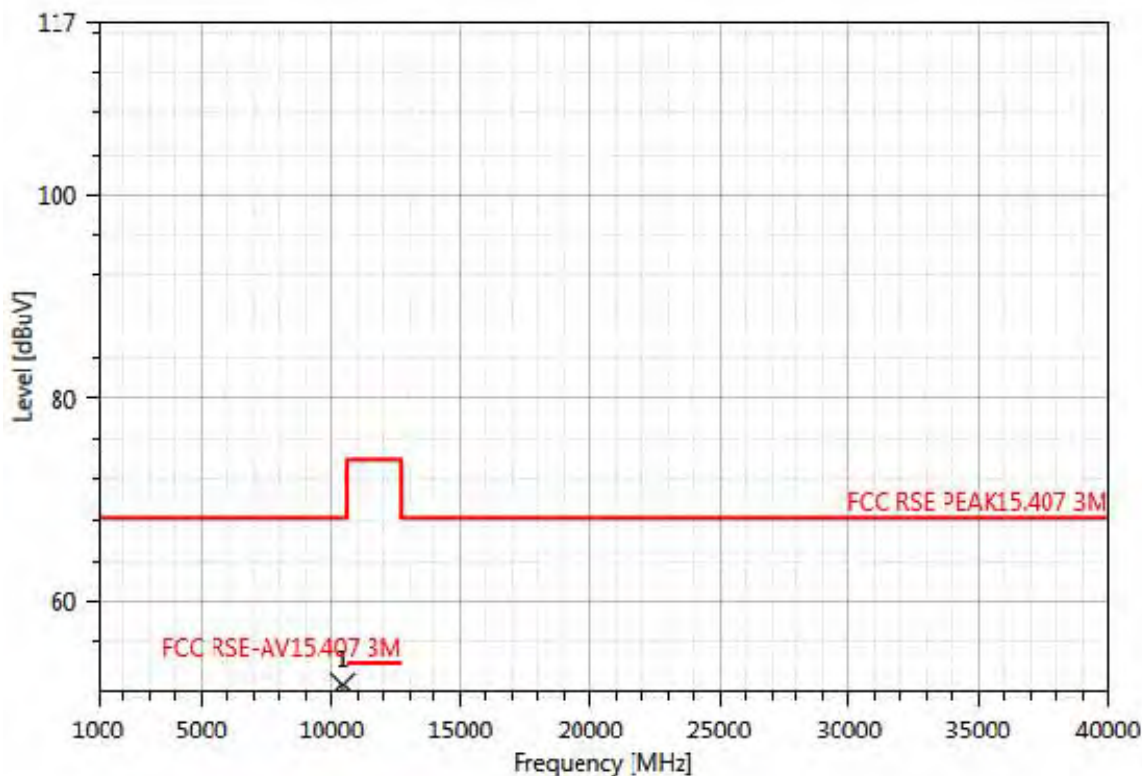
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Operation Mode : 802.11aB1  
 Fundamental Frequency : 5220 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10440.00	H	Peak	51.89	33.20	18.68	68.30	-16.41

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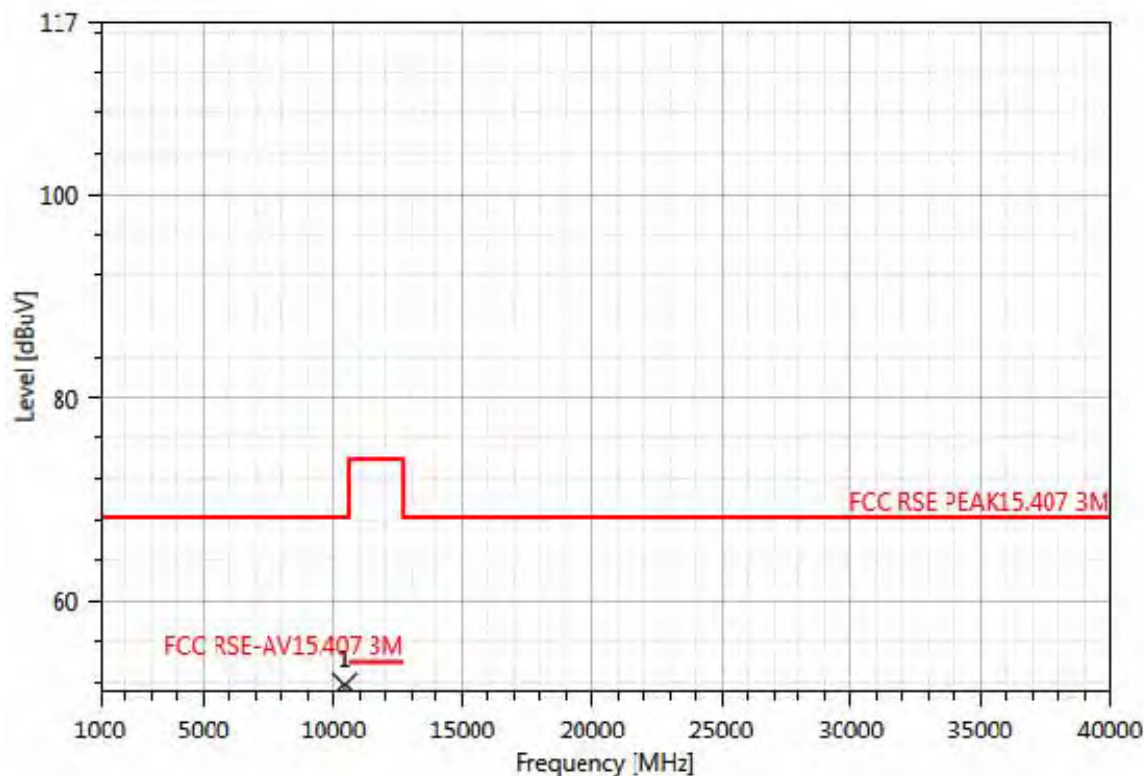
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Operation Mode : 802.11aB1  
 Fundamental Frequency : 5220 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
10440.00	H	Peak	51.78	33.10	18.68	68.30	-16.52

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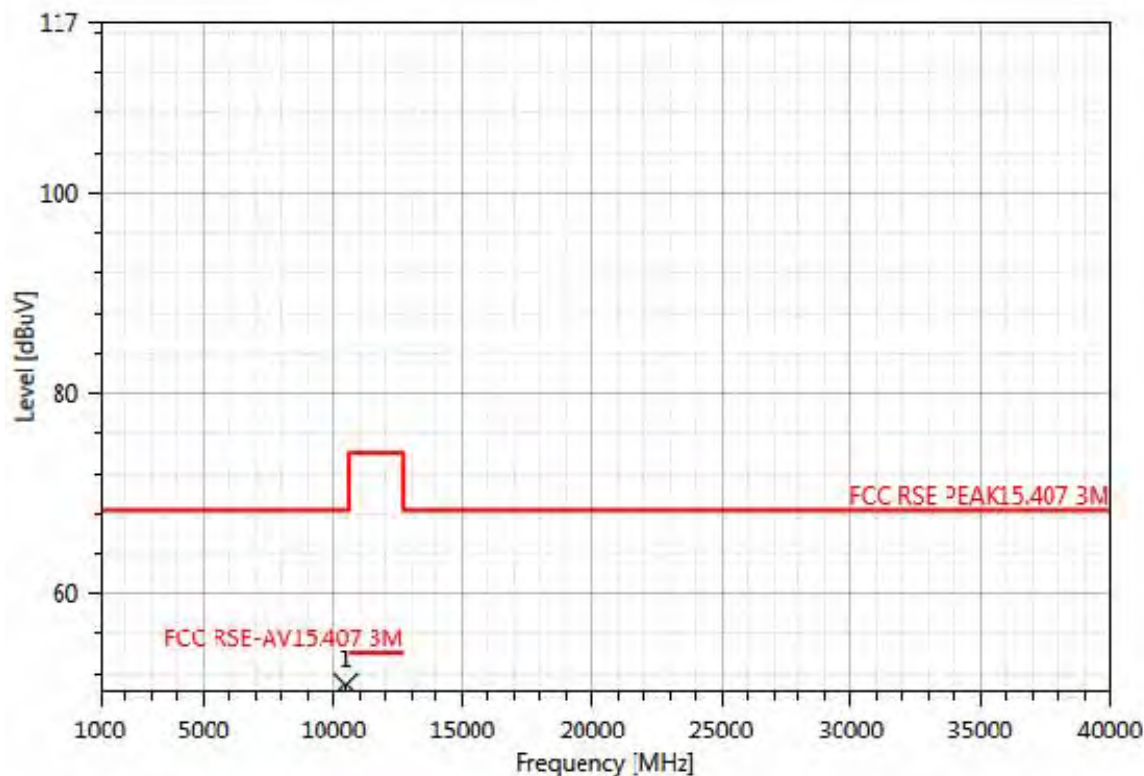
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Operation Mode : 802.11aB1  
 Fundamental Frequency : 5240 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10480.00	H	Peak	50.88	32.59	18.29	68.30	-17.42

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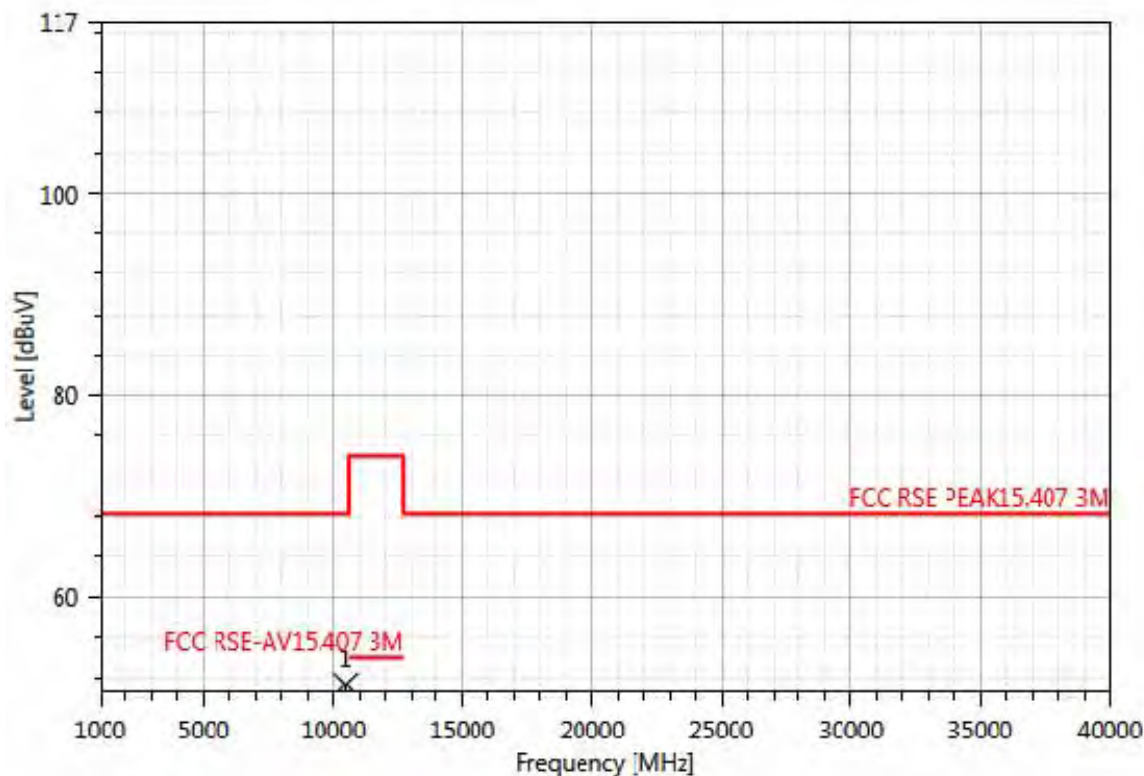
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Operation Mode :	802.11aB1	Test Date :	08/17/2016
Fundamental Frequency :	5240 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH HIGH	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	HORIZONTAL



Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBμV/m	dB
10480.00	H	Peak	51.35	33.05	18.29	68.30	-16.95

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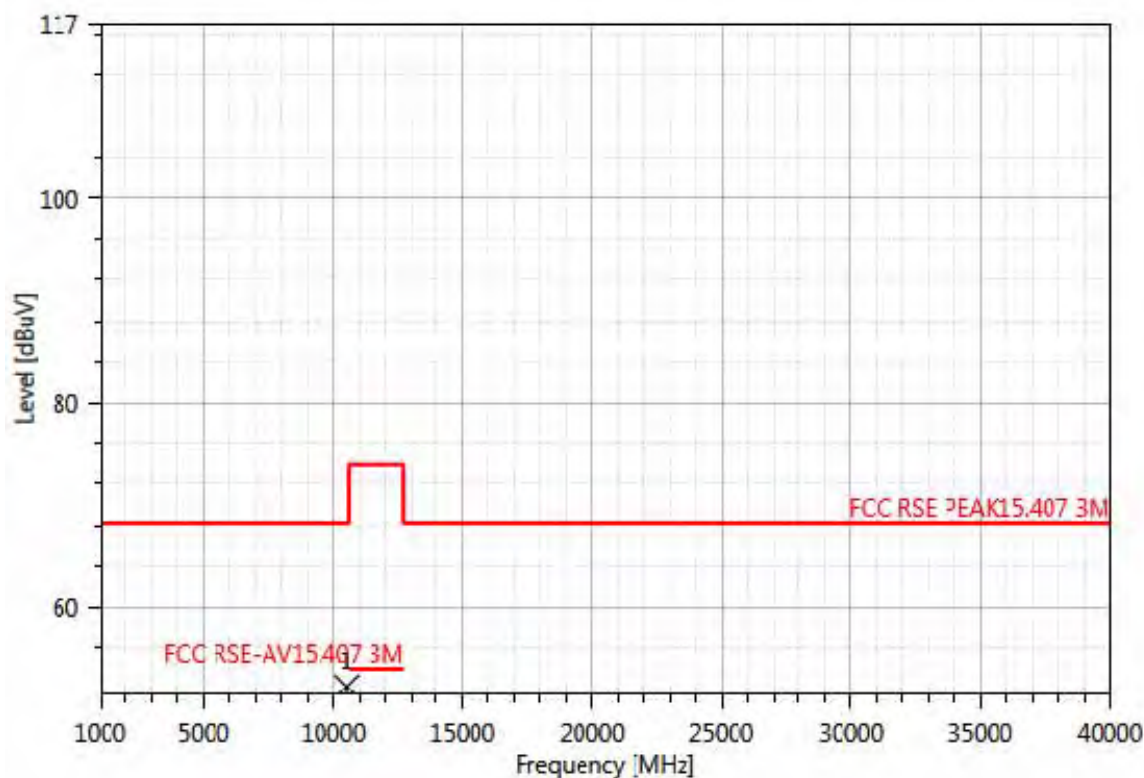
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## Radiated Spurious Emission Measurement Result 802.11a, 5250MHz-5350MHz

Operation Mode :	802.11aB2	Test Date :	08/17/2016
Fundamental Frequency :	5260 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10520.00	H	QP/AV/PK	52.30	32.93	19.37	68.30	-16.00

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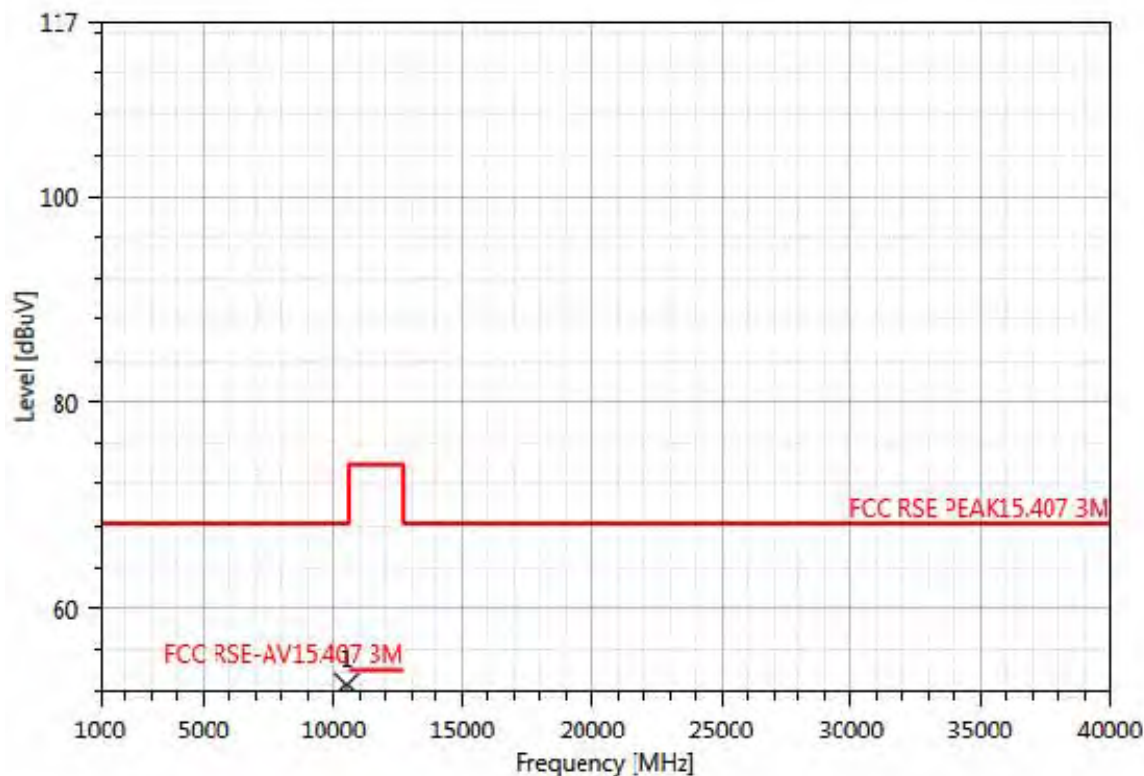
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Operation Mode : 802.11aB2  
 Fundamental Frequency : 5260 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10520.00	H	QP/AV/PK	52.57	33.20	19.37	68.30	-15.73

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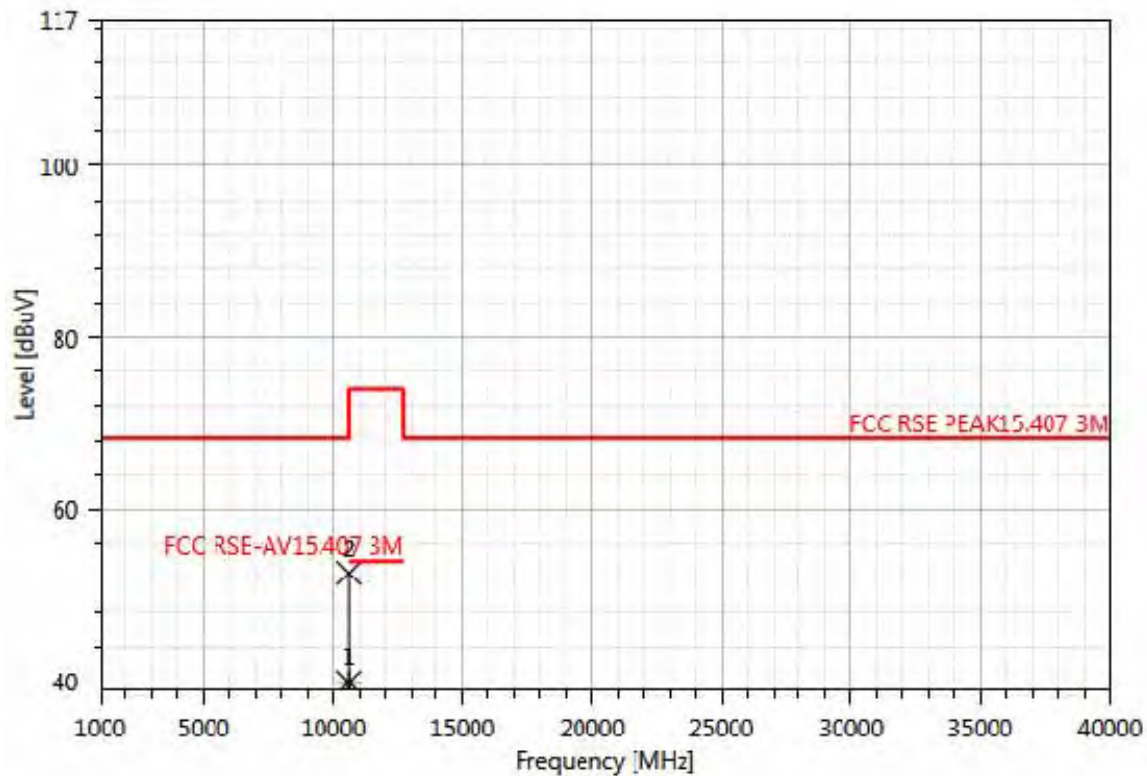
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Operation Mode : 802.11aB2  
Fundamental Frequency : 5300 MHz  
Operation Band : Tx CH MID  
EUT Pol. : H Plane

Test Date : 08/17/2016  
Temp. / Humi. : 21 deg\_C / 62 RH  
Test Engineer : Kane  
Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10600.00	H	Average	39.89	20.98	18.91	54.00	-14.11
10600.00	H	Peak	52.61	33.70	18.91	74.00	-21.39

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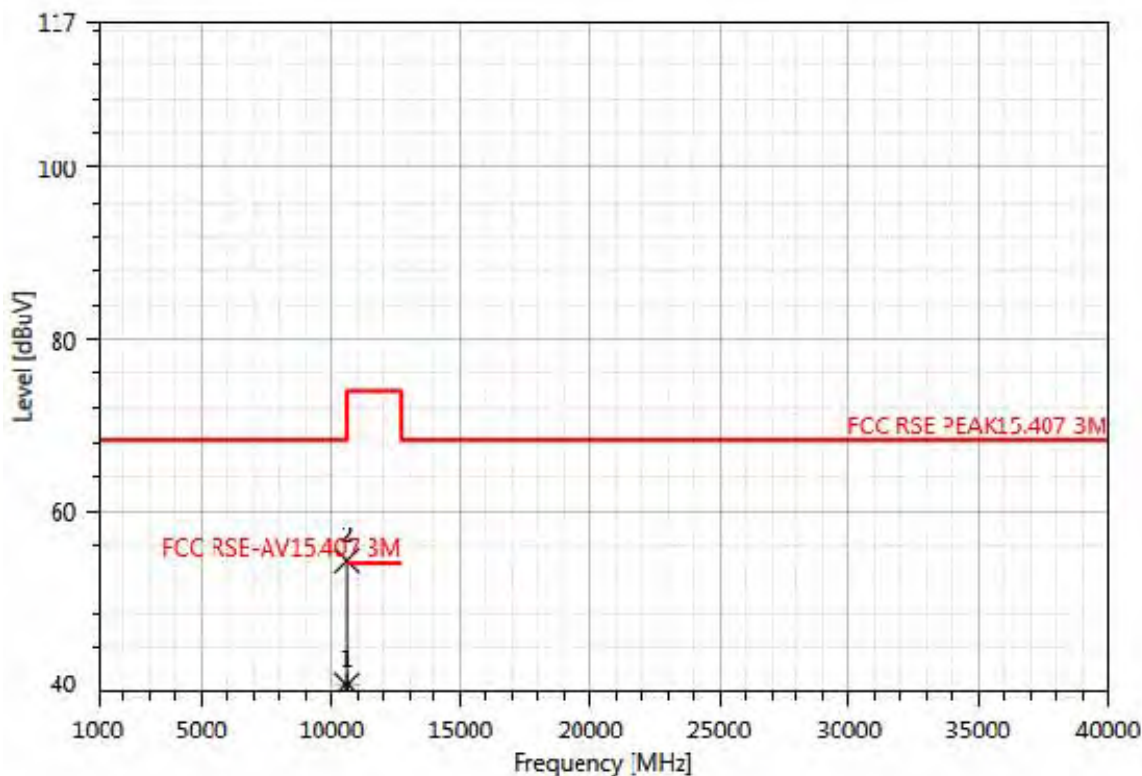
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Operation Mode : 802.11aB2  
 Fundamental Frequency : 5300 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10600.00	H	Average	39.87	20.96	18.91	54.00	-14.13
10600.00	H	Peak	54.32	35.41	18.91	74.00	-19.68

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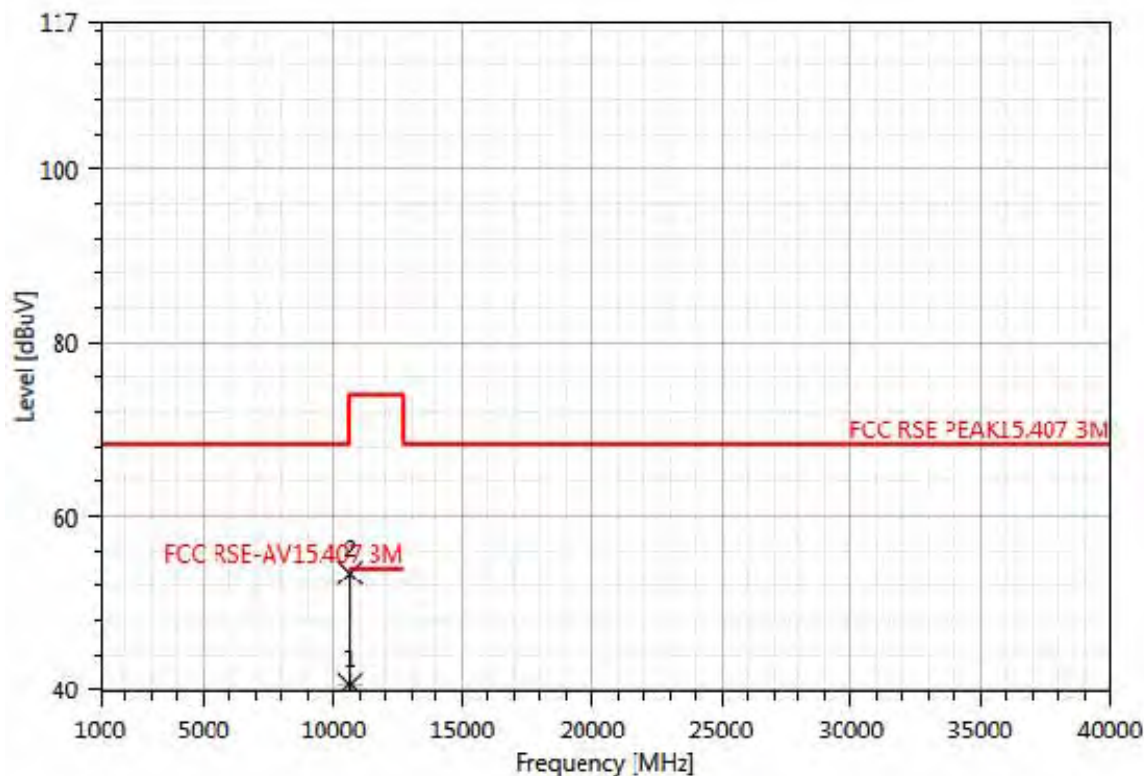
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Operation Mode : 802.11aB2  
 Fundamental Frequency : 5320 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS		@ 3m	
		QP/AV/PK	dBμV/m	dBμV/m	dB	dBμV/m	dB
10640.00	H	Average	40.63	21.45	19.18	54.00	-13.37
10640.00	H	Peak	53.47	34.28	19.18	74.00	-20.53

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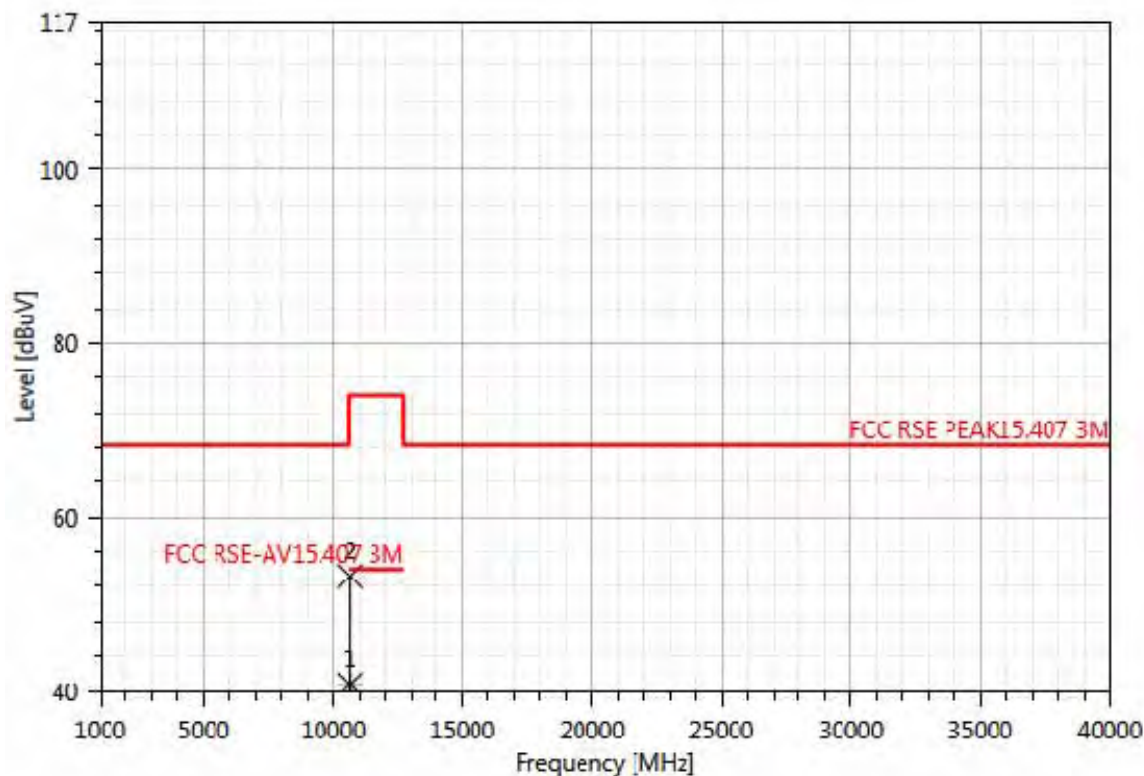
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Operation Mode : 802.11aB2  
 Fundamental Frequency : 5320 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10640.00	H	Average	40.74	21.56	19.18	54.00	-13.26
10640.00	H	Peak	53.20	34.02	19.18	74.00	-20.80

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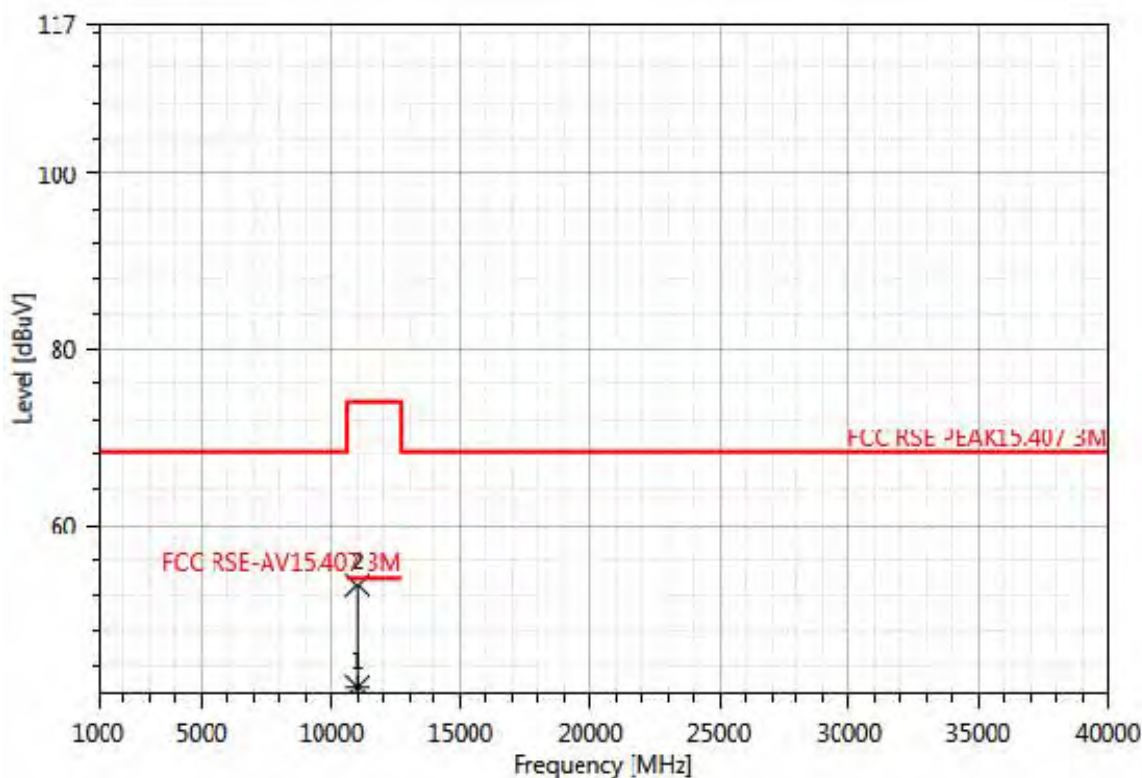
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## Radiated Spurious Emission Measurement Result 802.11a, 5470~5725 MHz

Operation Mode :	802.11aB3	Test Date :	08/17/2016
Fundamental Frequency :	5500 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11000.00	H	Average	41.62	21.45	20.17	54.00	-12.38
11000.00	H	Peak	53.12	32.96	20.17	74.00	-20.88

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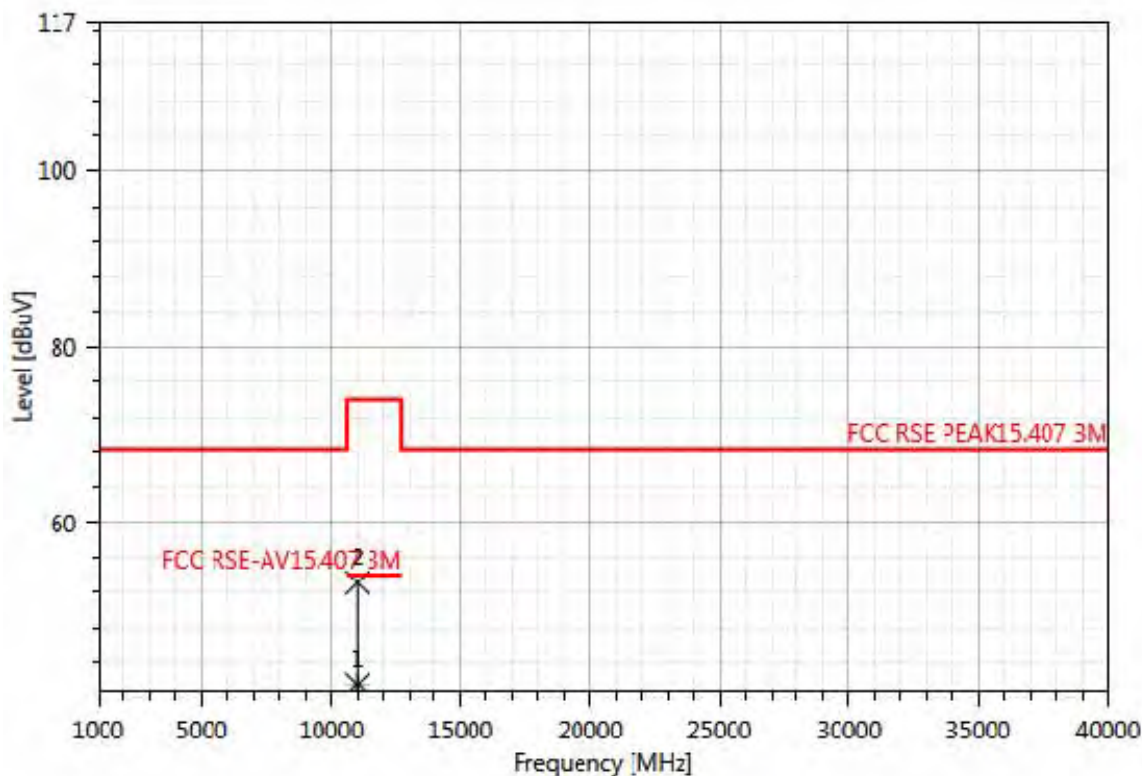
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Operation Mode : 802.11aB3  
 Fundamental Frequency : 5500 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11000.00	H	Average	41.55	21.38	20.17	54.00	-12.45
11000.00	H	Peak	53.12	32.95	20.17	74.00	-20.88

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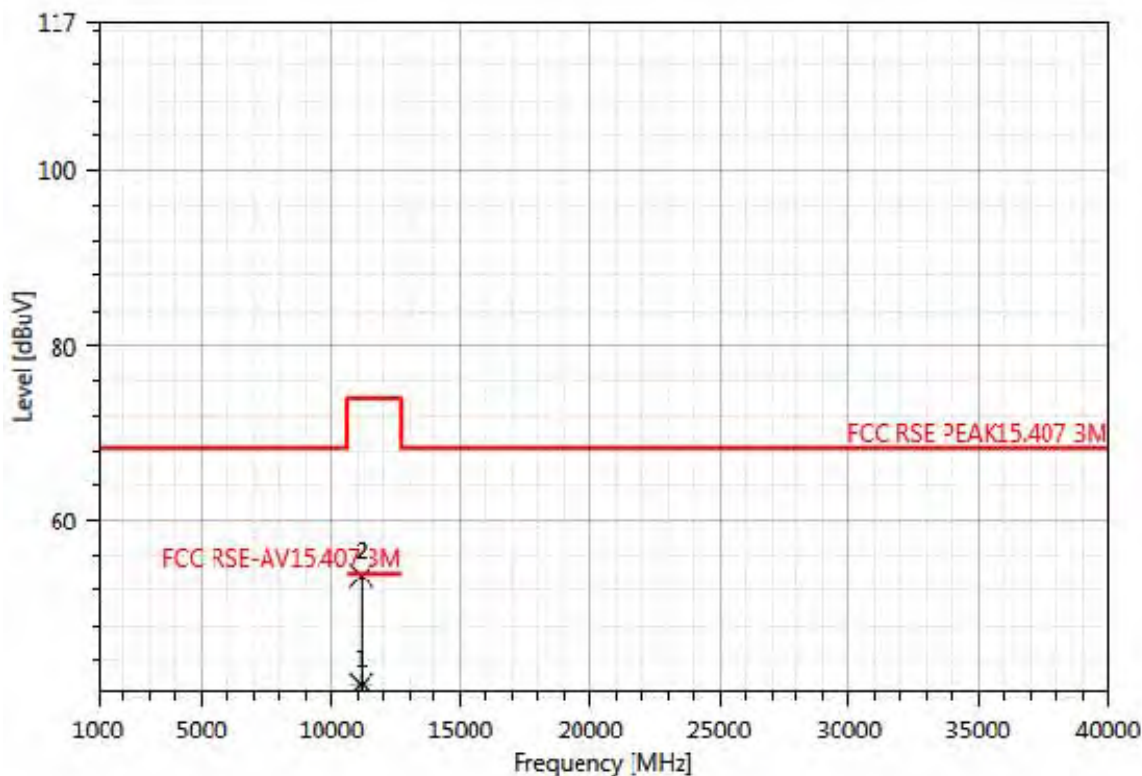
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Operation Mode : 802.11aB3  
 Fundamental Frequency : 5580 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11160.00	H	Average	41.30	20.85	20.45	54.00	-12.70
11160.00	H	Peak	53.69	33.25	20.45	74.00	-20.31

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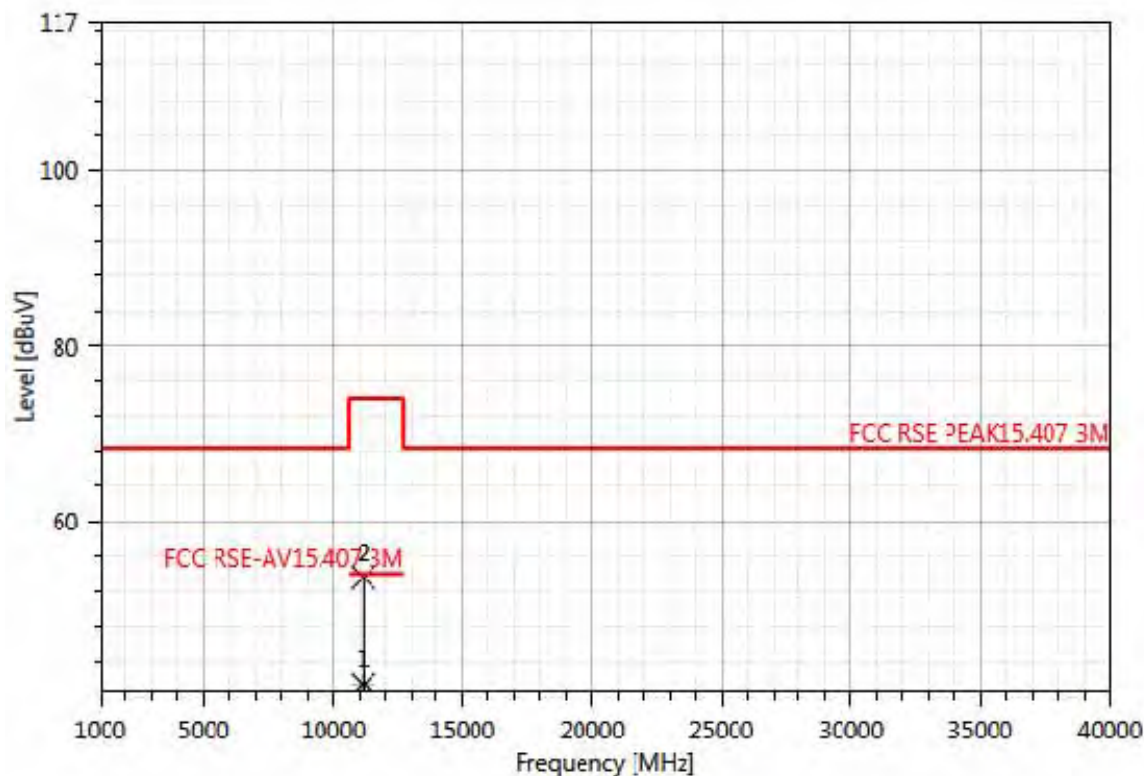
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Operation Mode : 802.11aB3  
 Fundamental Frequency : 5580 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS		@ 3m	
		QP/AV/PK	dBμV/m	dBμV/m	dB	dBμV/m	dB
11160.00	H	Average	41.33	20.88	20.45	54.00	-12.67
11160.00	H	Peak	53.52	33.07	20.45	74.00	-20.48

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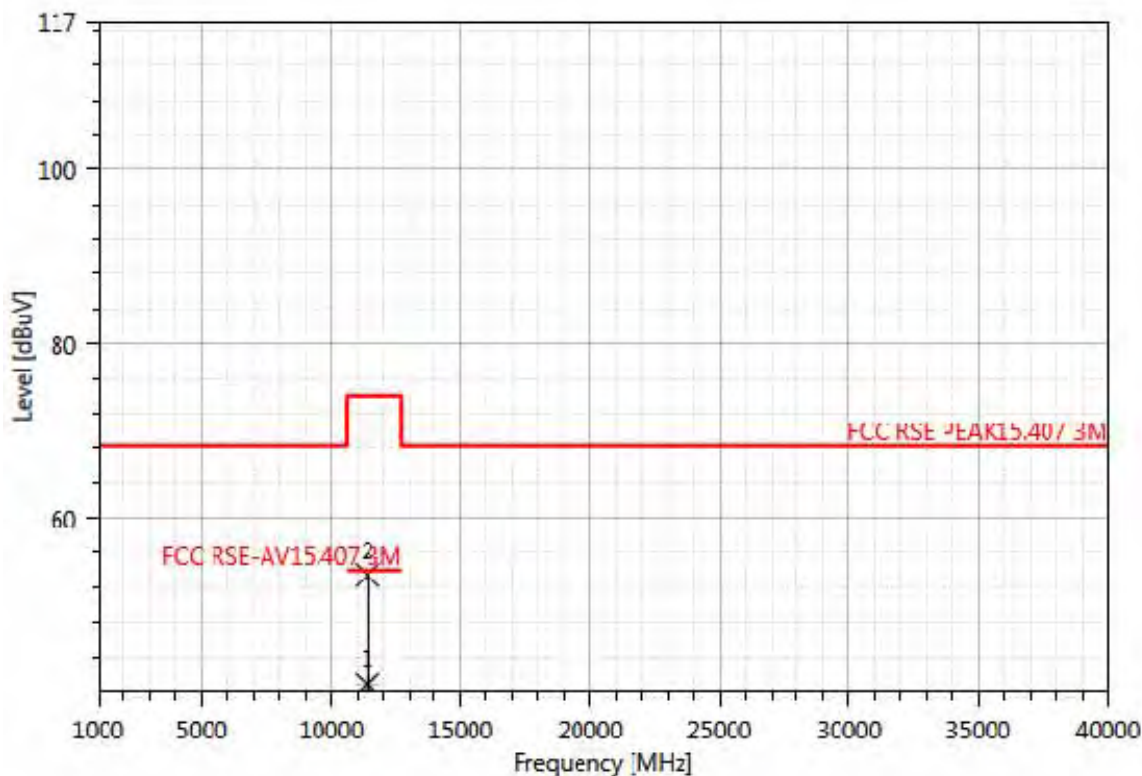
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Operation Mode : 802.11aB3  
 Fundamental Frequency : 5700 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11400.00	H	Average	40.87	20.31	20.56	54.00	-13.13
11400.00	H	Peak	53.43	32.87	20.56	74.00	-20.57

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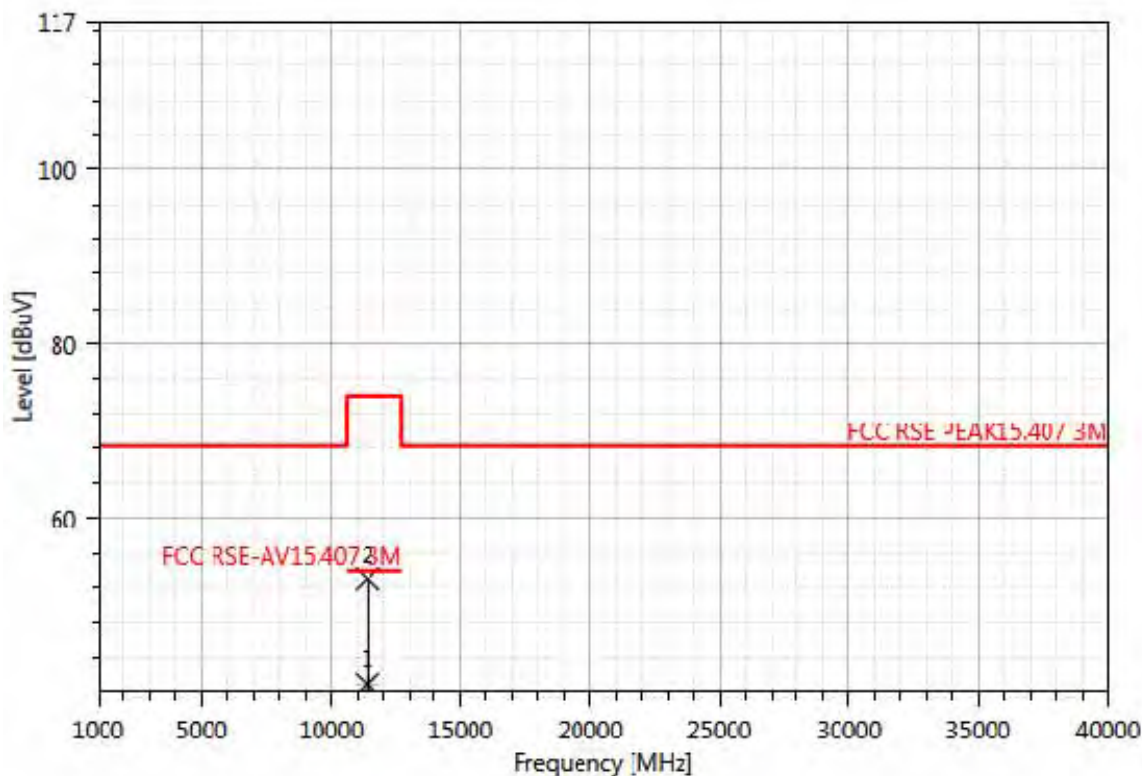
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Operation Mode : 802.11aB3  
 Fundamental Frequency : 5700 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11400.00	H	Average	40.88	20.32	20.56	54.00	-13.12
11400.00	H	Peak	52.99	32.44	20.56	74.00	-21.01

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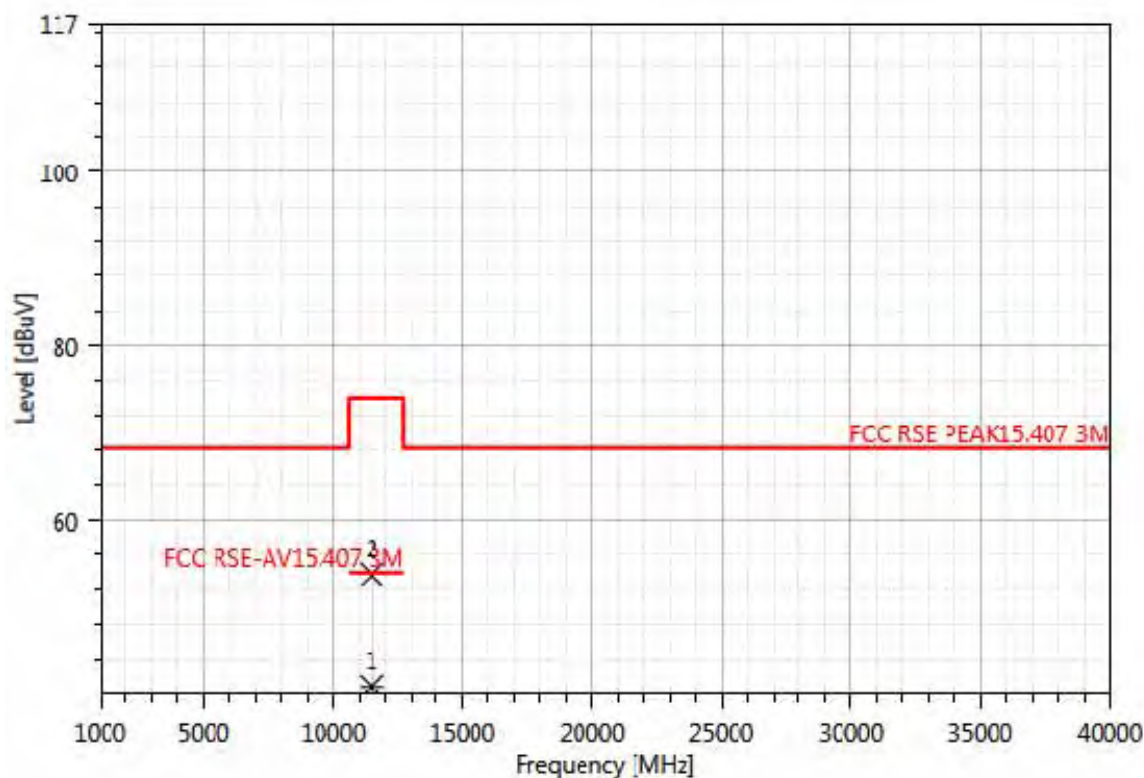
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## Radiated Spurious Emission Measurement Result 802.11a, 5725~5850 MHz

Operation Mode :	802.11aB4	Test Date :	08/17/2016
Fundamental Frequency :	5745 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11490.00	H	Average	40.87	20.45	20.42	54.00	-13.13
11490.00	H	Peak	53.76	33.34	20.42	74.00	-20.24

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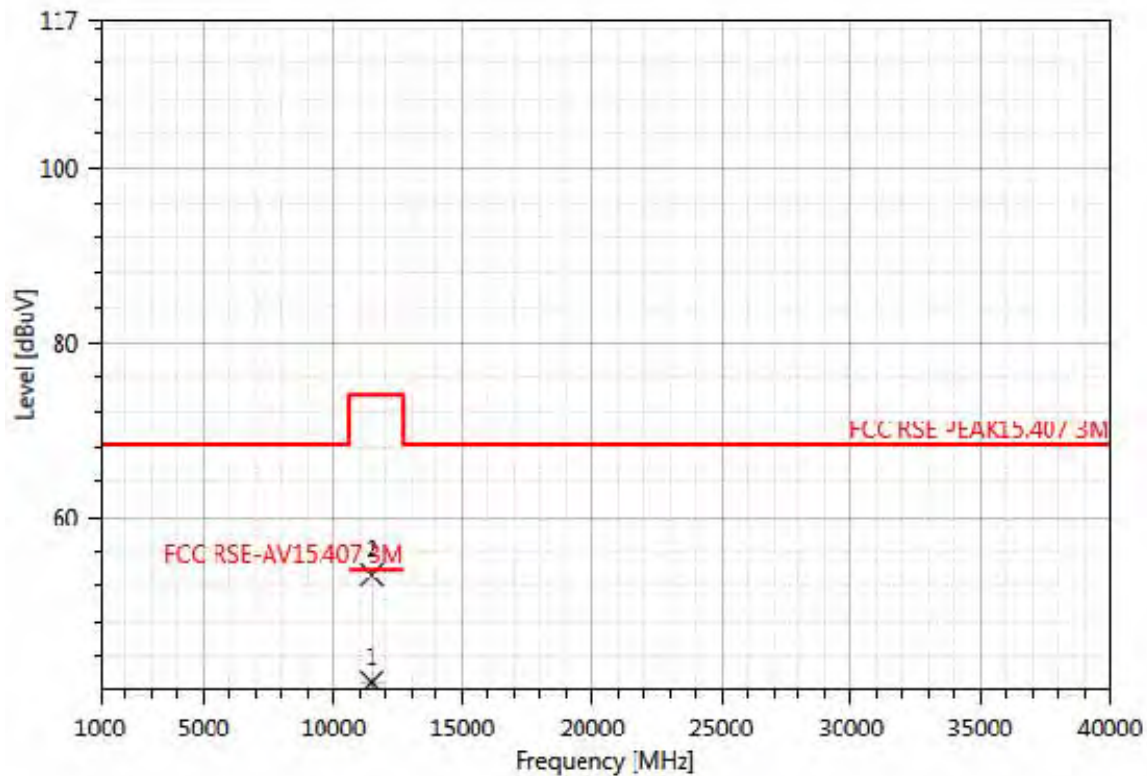
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Operation Mode : 802.11aB4  
 Fundamental Frequency : 5745 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS		@ 3m	
		QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
11490.00	H	Average	41.04	20.62	20.42	54.00	-12.96
11490.00	H	Peak	53.38	32.96	20.42	74.00	-20.62

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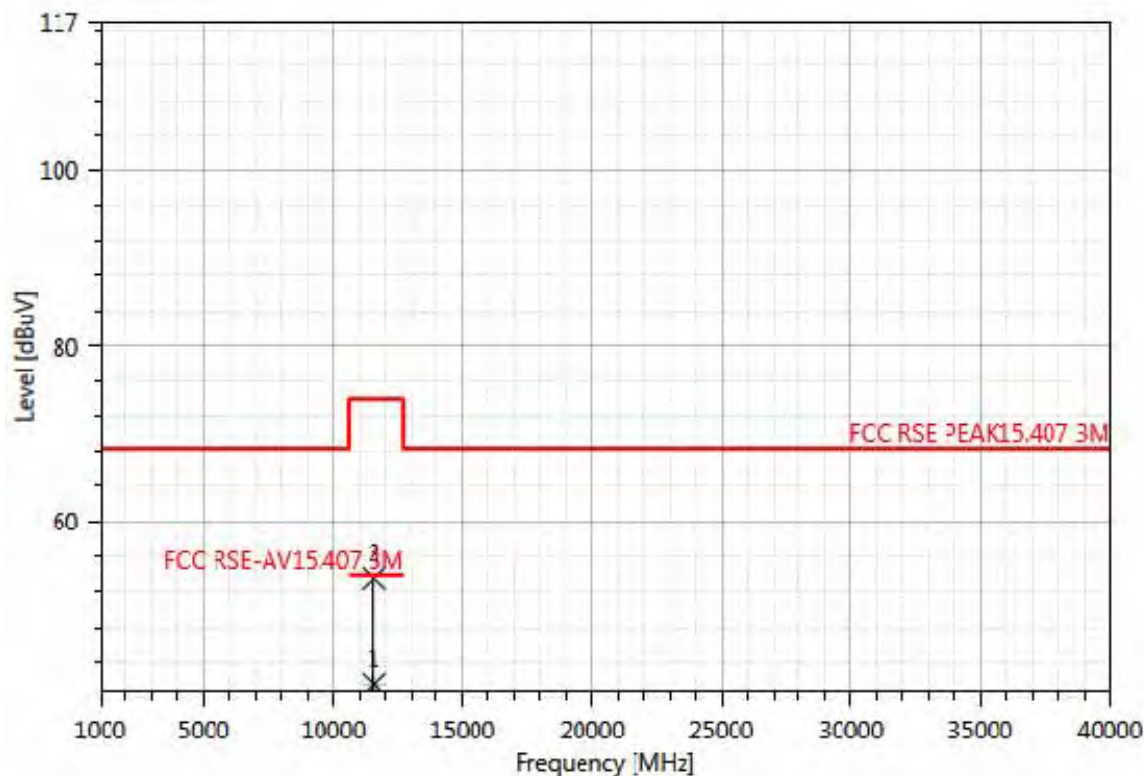
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Operation Mode : 802.11aB4  
 Fundamental Frequency : 5785 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS		@ 3m	
		QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
11570.00	H	Average	41.45	20.86	20.59	54.00	-12.55
11570.00	H	Peak	53.52	32.94	20.59	74.00	-20.48

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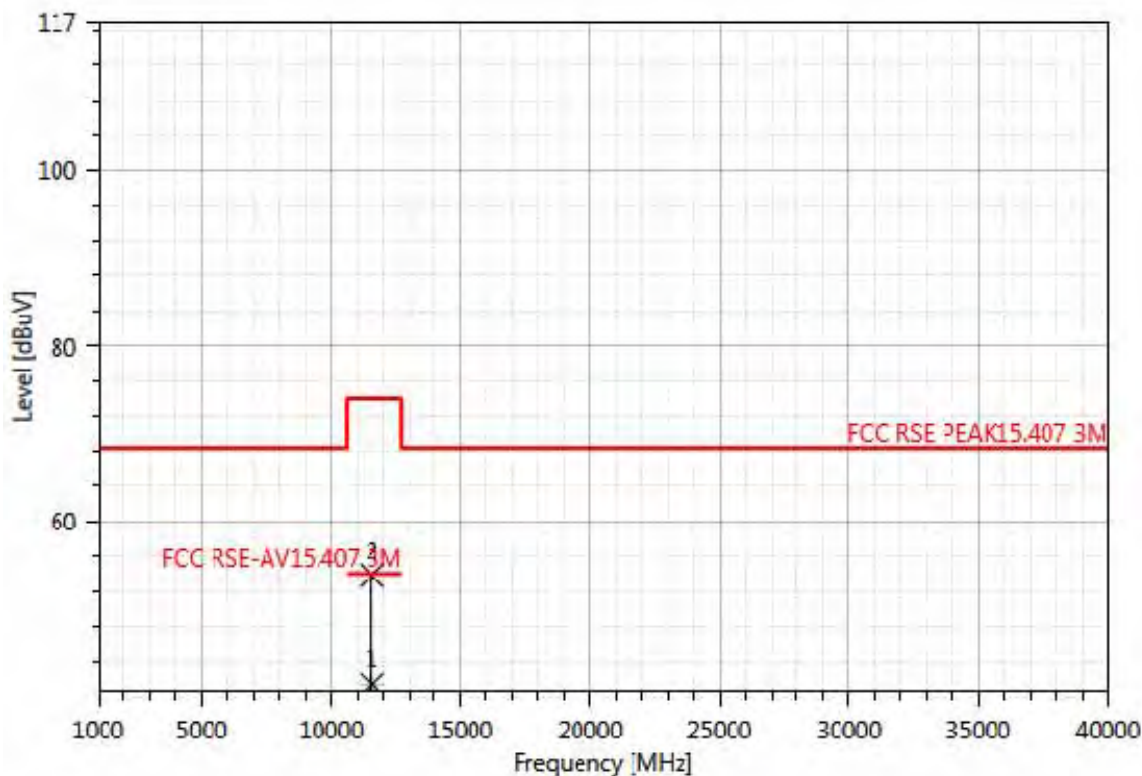
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Operation Mode : 802.11aB4  
 Fundamental Frequency : 5785 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11570.00	H	Average	41.35	20.76	20.59	54.00	-12.65
11570.00	H	Peak	53.80	33.21	20.59	74.00	-20.20

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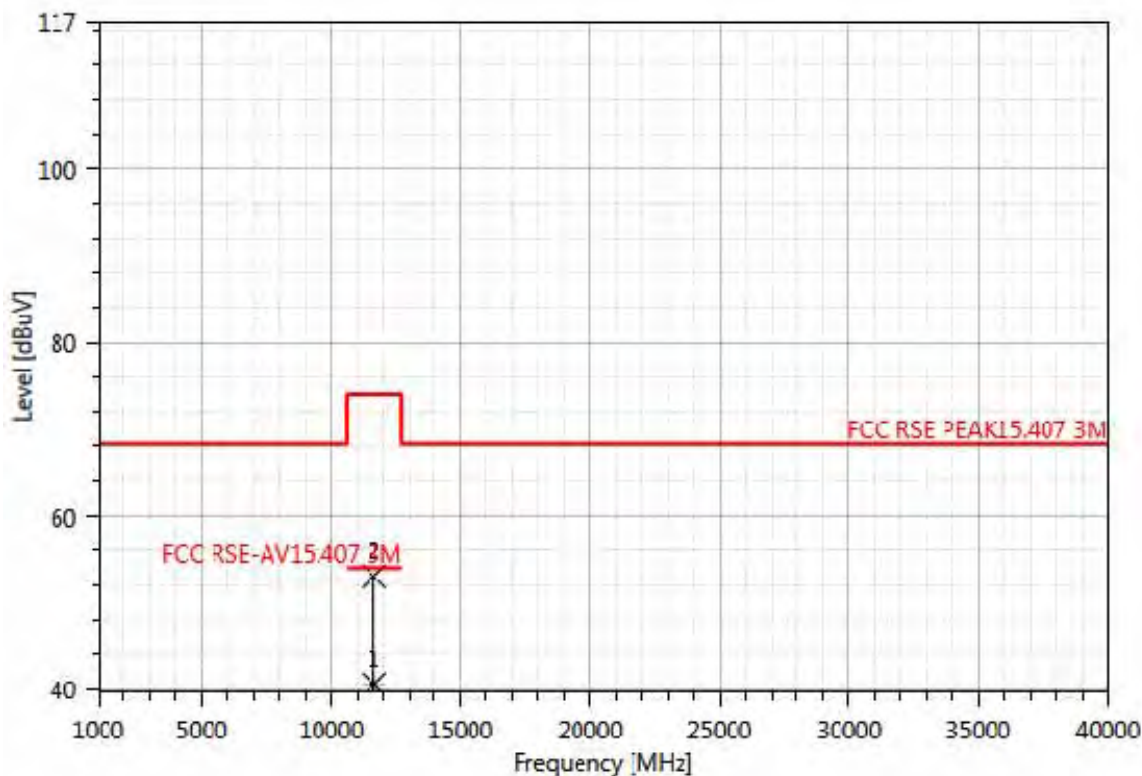
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Operation Mode : 802.11aB4  
 Fundamental Frequency : 5825 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11650.00	H	Average	40.55	20.12	20.43	54.00	-13.45
11650.00	H	Peak	53.03	32.60	20.43	74.00	-20.97

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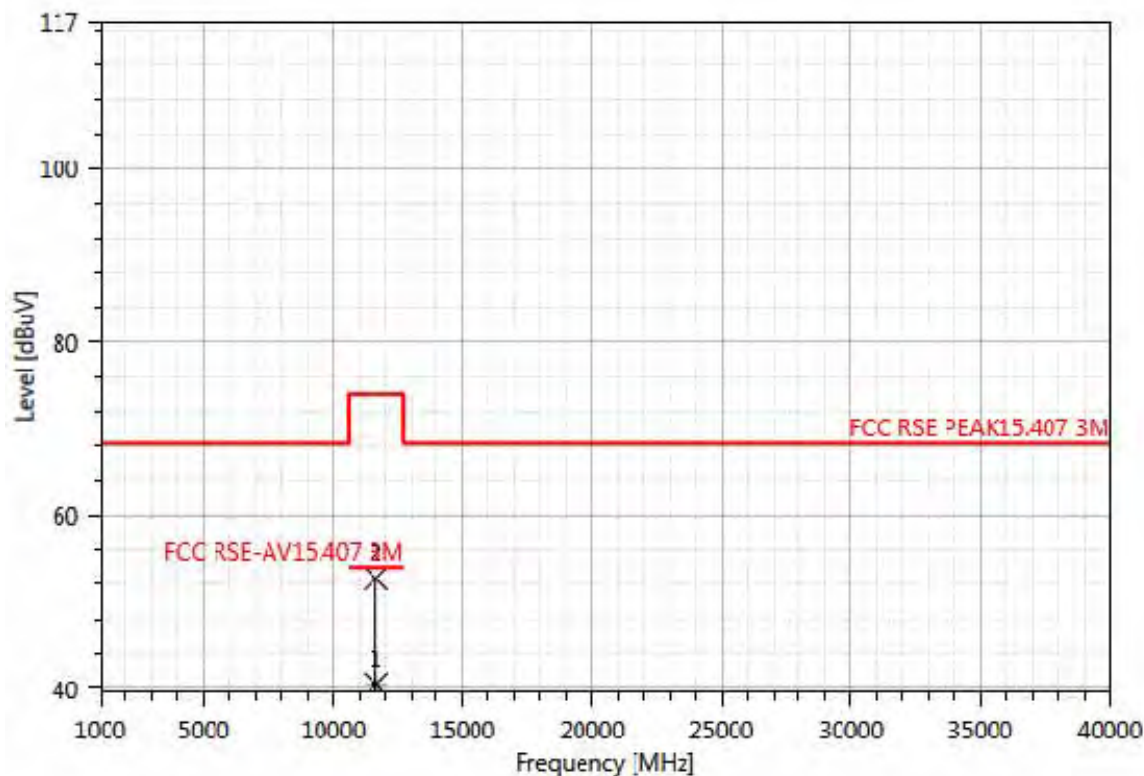
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Operation Mode : 802.11aB4  
 Fundamental Frequency : 5825 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11650.00	H	Average	40.47	20.04	20.43	54.00	-13.53
11650.00	H	Peak	52.72	32.28	20.43	74.00	-21.28

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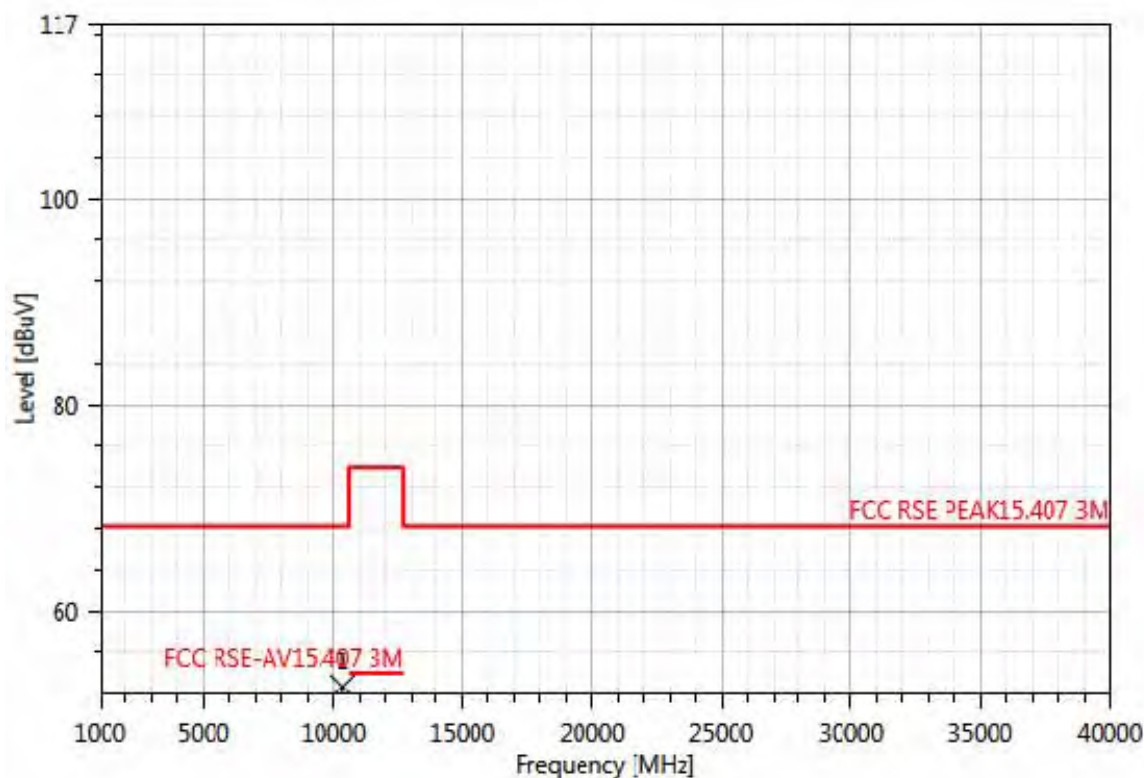
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## Radiated Spurious Emission Measurement Result 802.11n HT20, 5150~5250 MHz

Operation Mode :	802.11n20B1	Test Date :	08/17/2016
Fundamental Frequency :	5180 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
		QP/AV/PK	dBuV/m	dBuV/m		dBuV/m	
10360.00	H	Peak	52.67	34.38	18.29	68.30	-15.63

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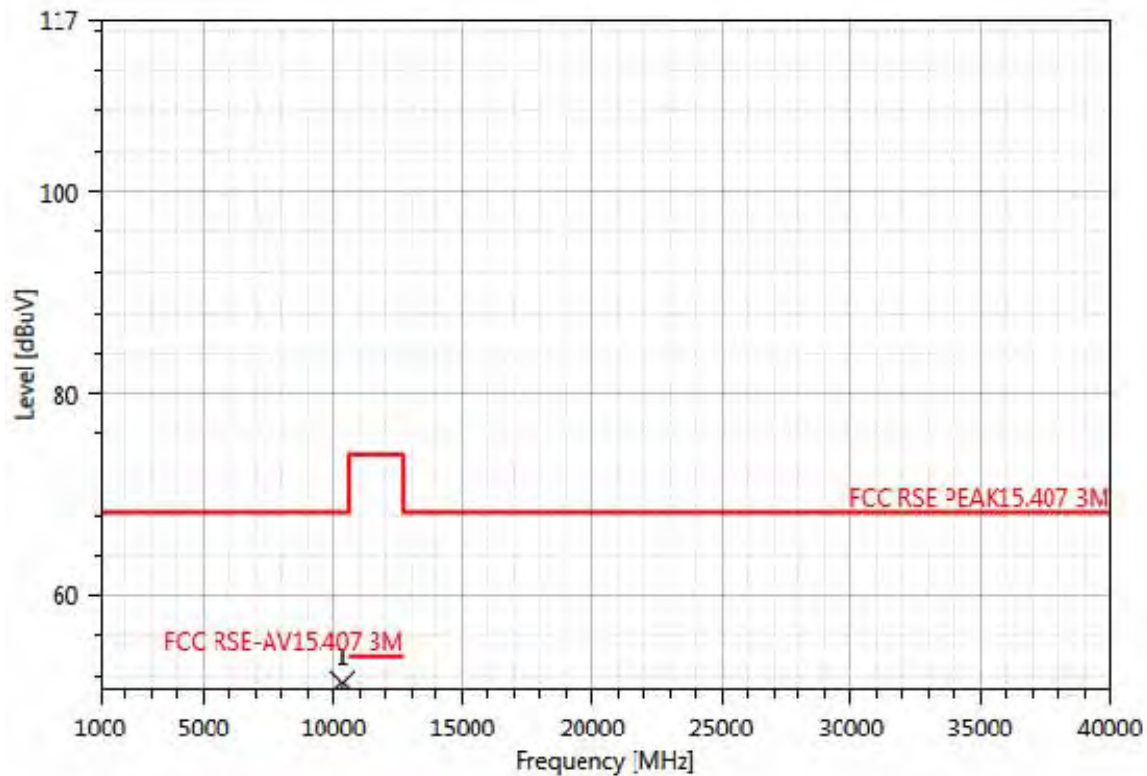
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Operation Mode : 802.11n20B1  
 Fundamental Frequency : 5180 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10360.00	H	Peak	51.43	33.13	18.29	68.30	-16.87

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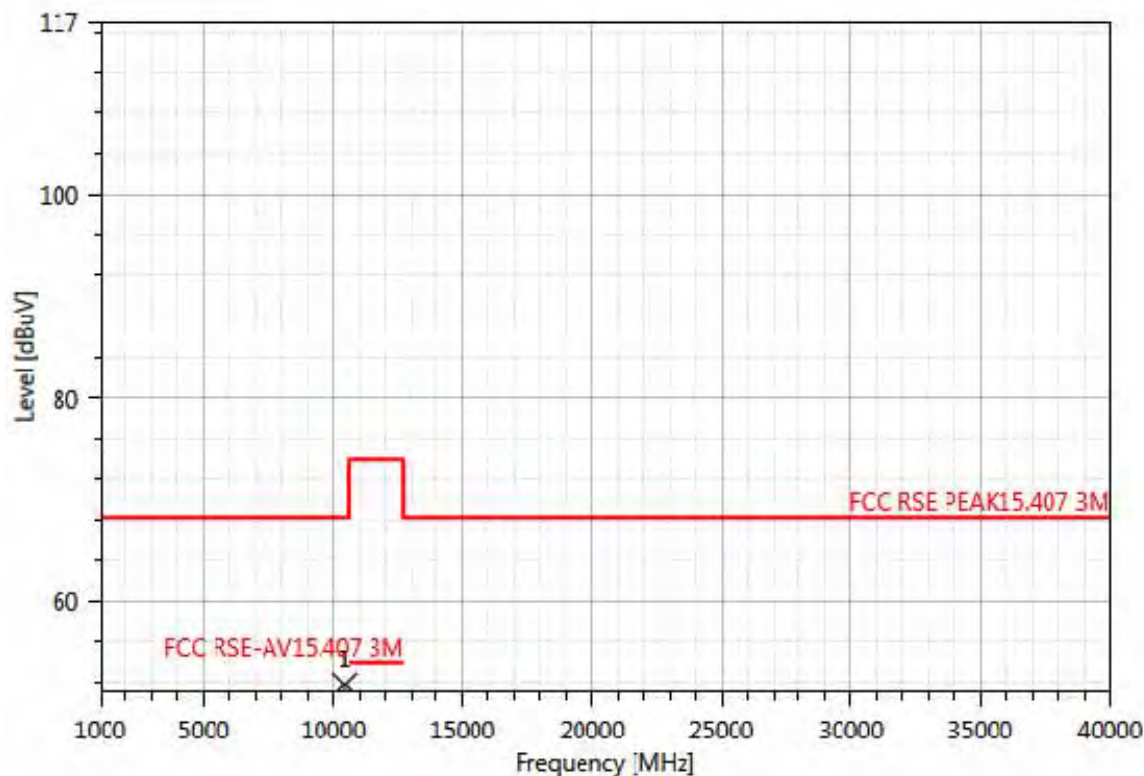
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Operation Mode : 802.11n20B1  
 Fundamental Frequency : 5220 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
10440.00	H	Peak	51.84	33.16	18.68	68.30	-16.46

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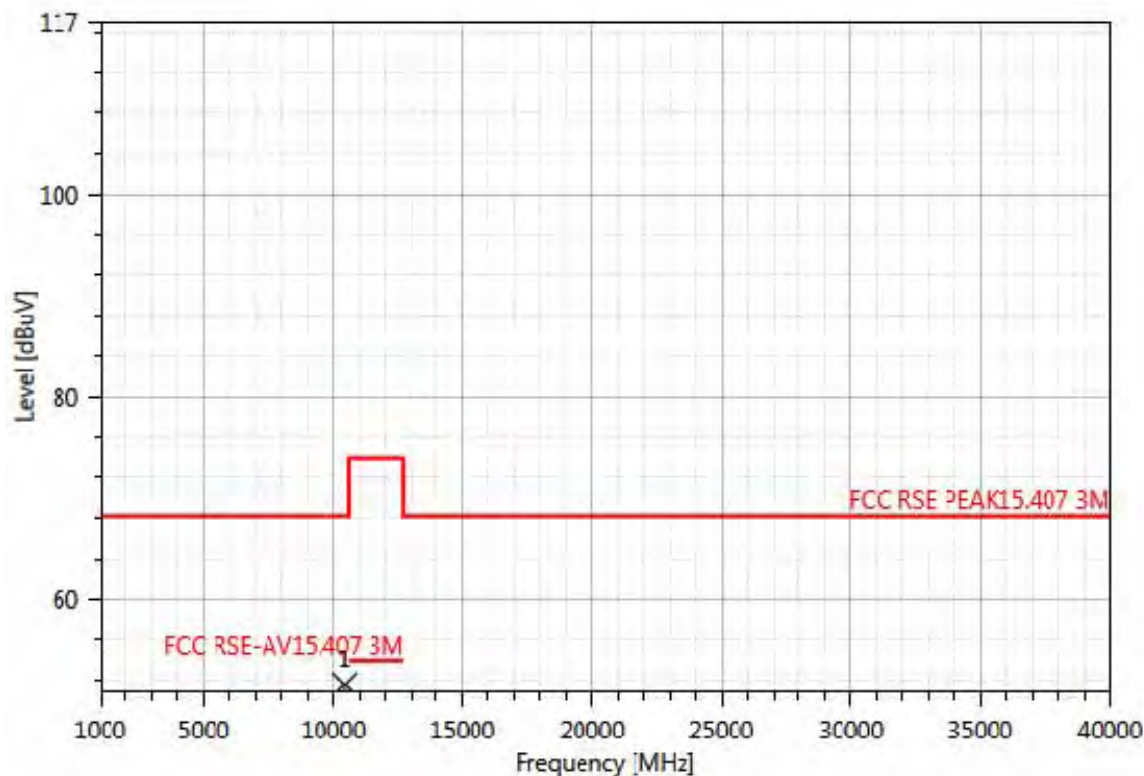
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Operation Mode :	802.11n20B1	Test Date :	08/17/2016
Fundamental Frequency :	5220 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH MID	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10440.00	H	Peak	51.65	32.97	18.68	68.30	-16.65

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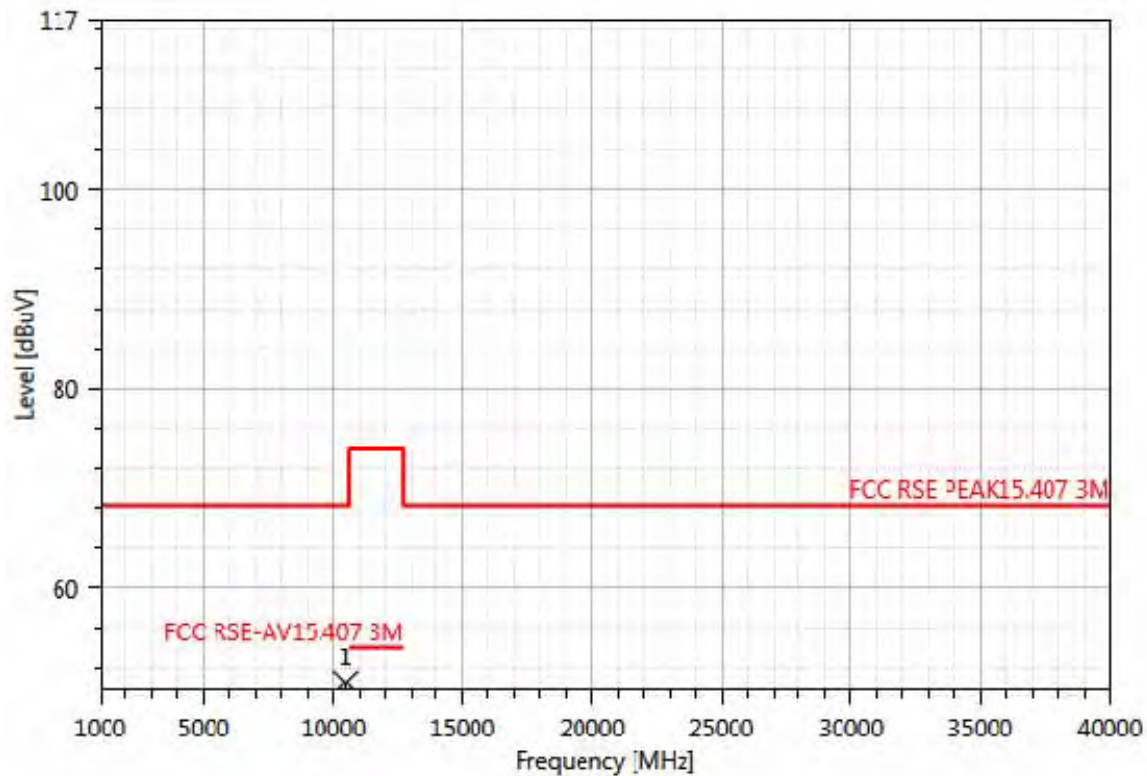
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Operation Mode : 802.11n20B1  
 Fundamental Frequency : 5240 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBμV/m	dB
10480.00	H	Peak	50.55	32.25	18.29	68.30	-17.75

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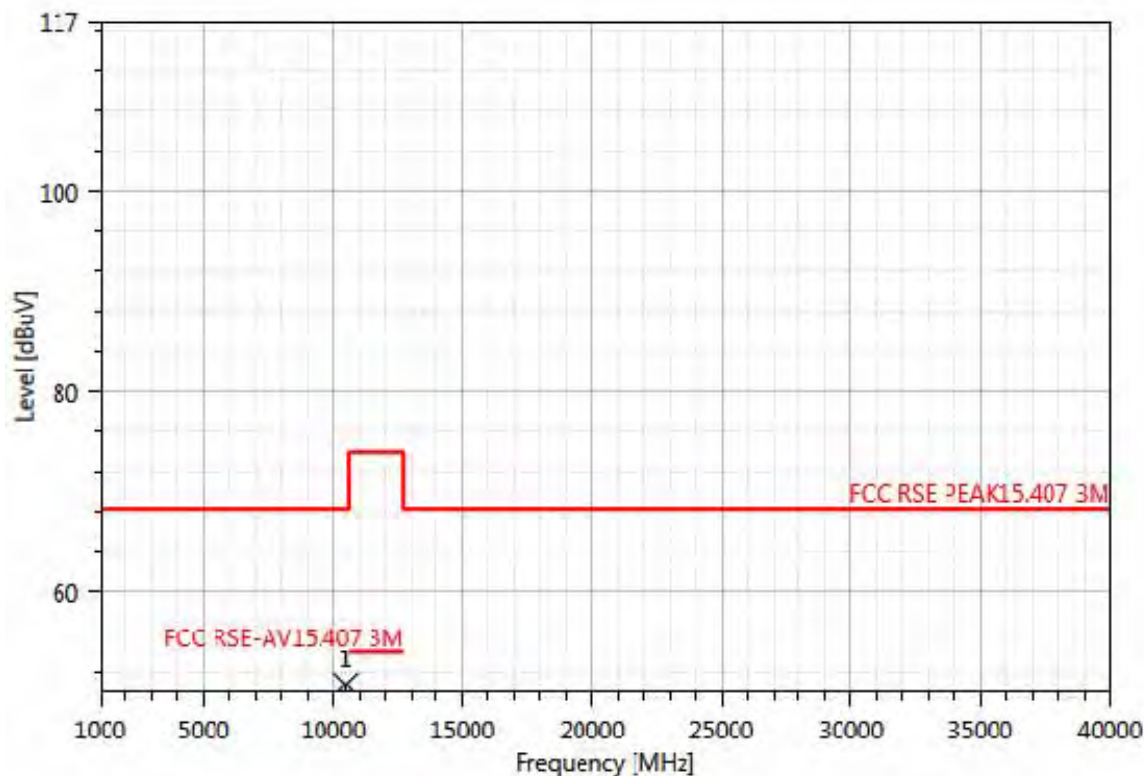
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Operation Mode : 802.11n20B1  
 Fundamental Frequency : 5240 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10480.00	H	Peak	50.76	32.47	18.29	68.30	-17.54

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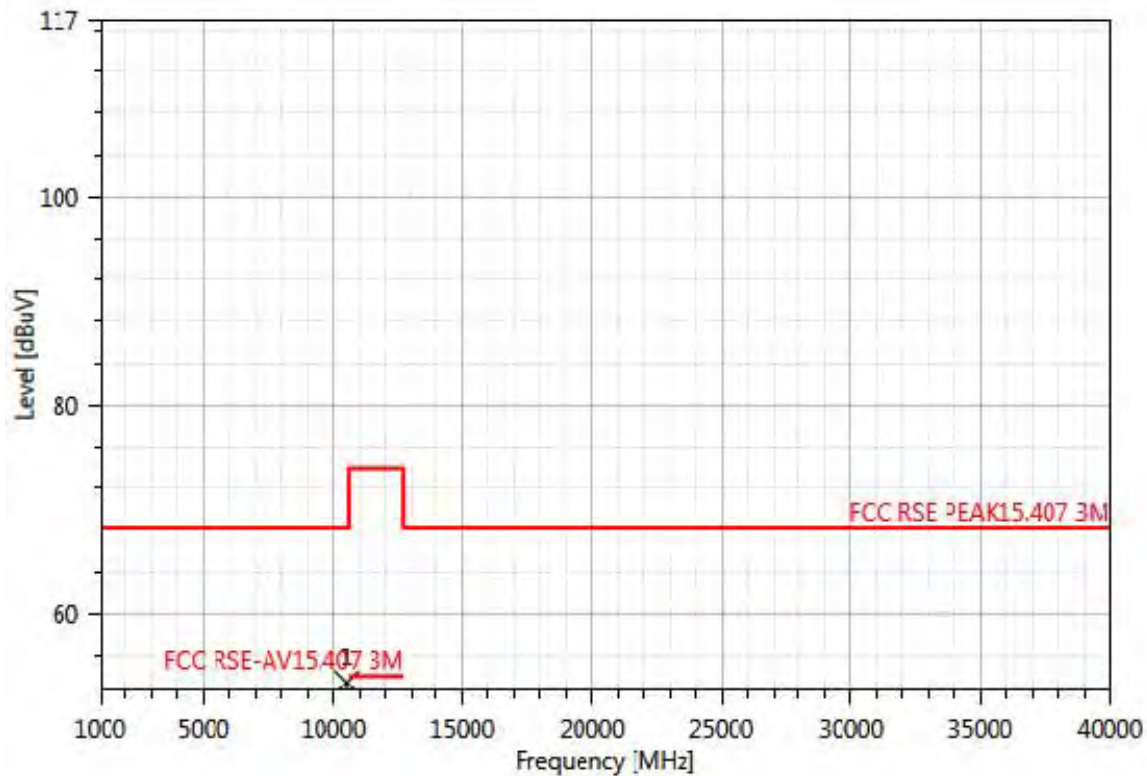
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## Radiated Spurious Emission Measurement Result 802.11n HT20, 5250~5350 MHz

Operation Mode :	802.11n20B2	Test Date :	08/17/2016
Fundamental Frequency :	5260 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10520.00	H	QP/AV/PK	53.37	34.00	19.37	68.30	-14.93

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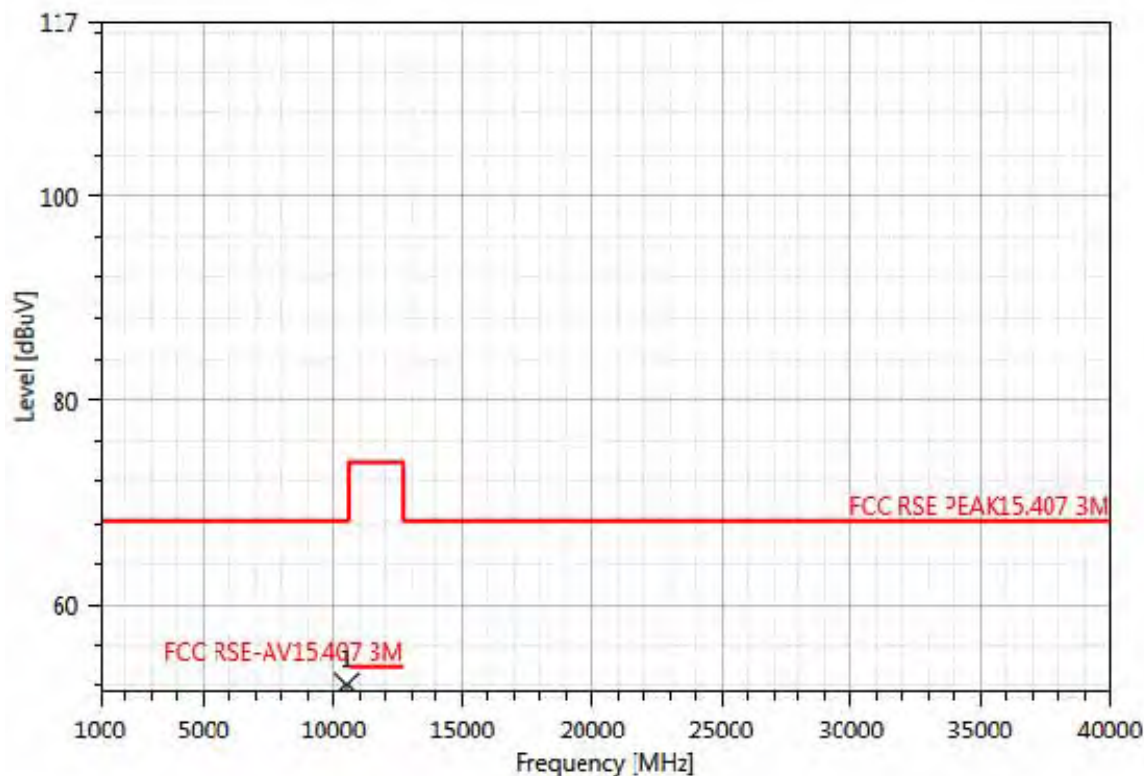
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Operation Mode : 802.11n20B2  
 Fundamental Frequency : 5260 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
10520.00	H	Peak	52.24	32.87	19.37	68.30	-16.06

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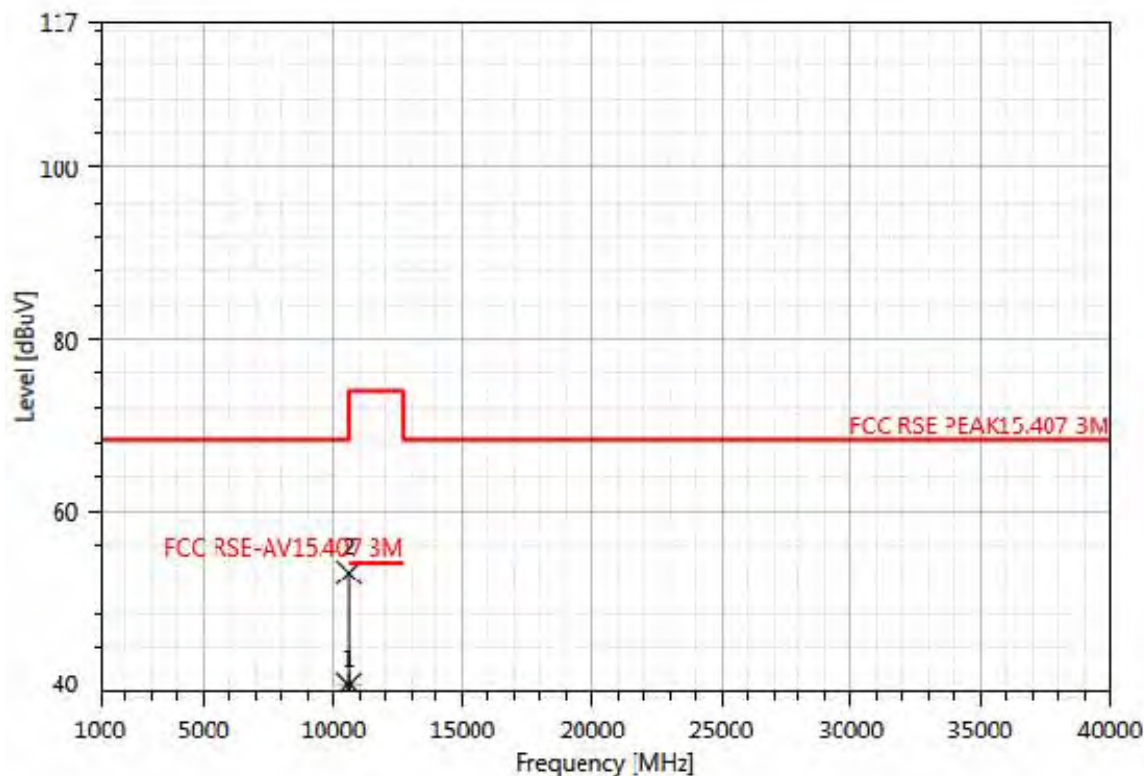
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Operation Mode : 802.11n20B2  
 Fundamental Frequency : 5300 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10600.00	H	Average	39.86	20.95	18.91	54.00	-14.14
10600.00	H	Peak	52.87	33.96	18.91	74.00	-21.13

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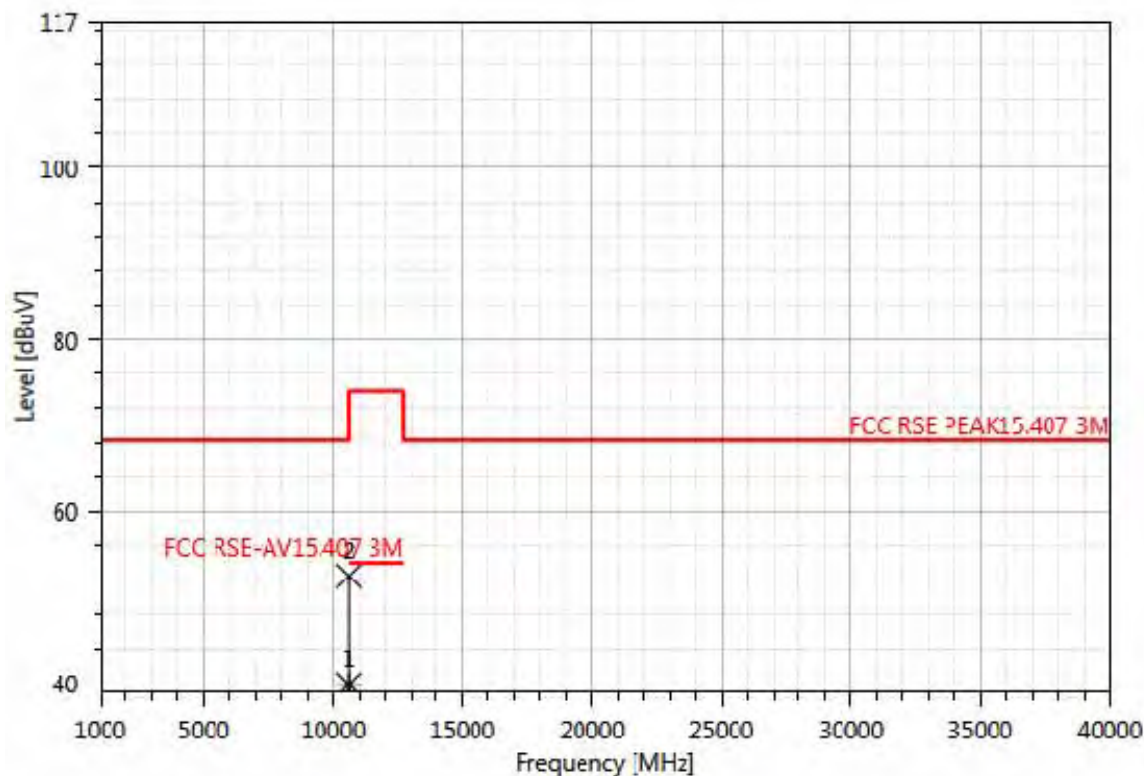
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Operation Mode : 802.11n20B2  
 Fundamental Frequency : 5300 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10600.00	H	Average	39.88	20.97	18.91	54.00	-14.12
10600.00	H	Peak	52.49	33.58	18.91	74.00	-21.51

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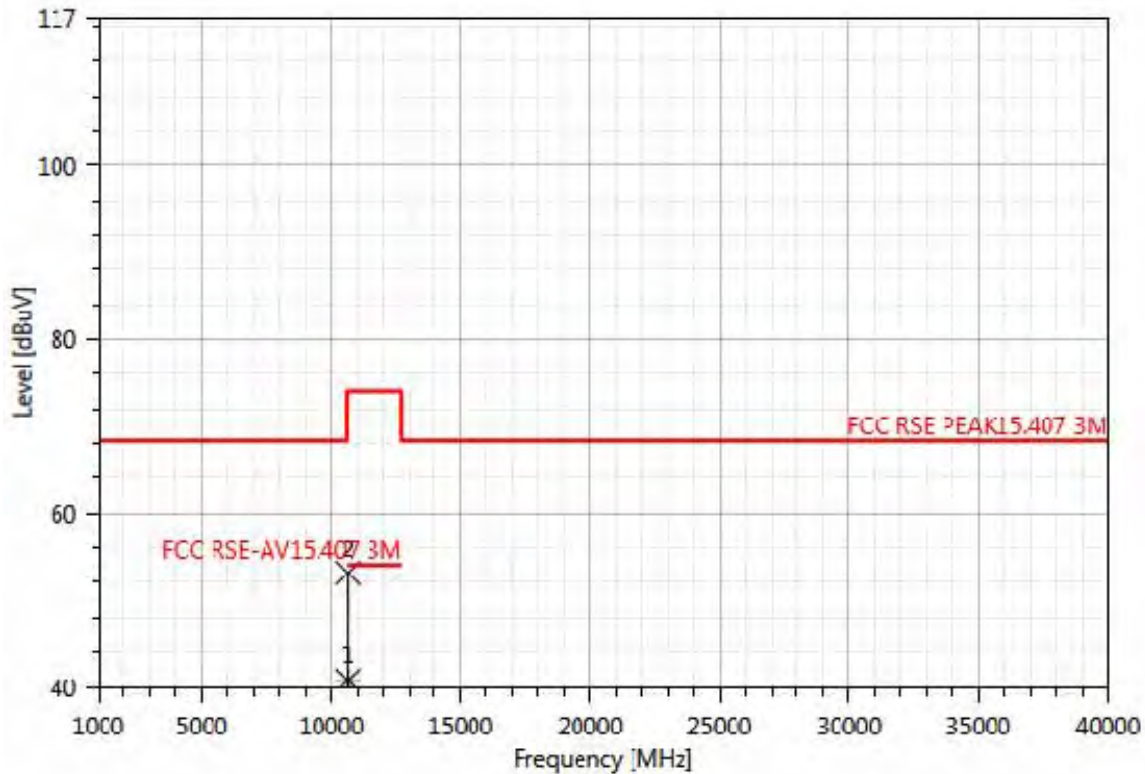
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Operation Mode : 802.11n20B2  
 Fundamental Frequency : 5320 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10640.00	H	Average	40.71	21.53	19.18	54.00	-13.29
10640.00	H	Peak	53.08	33.90	19.18	74.00	-20.92

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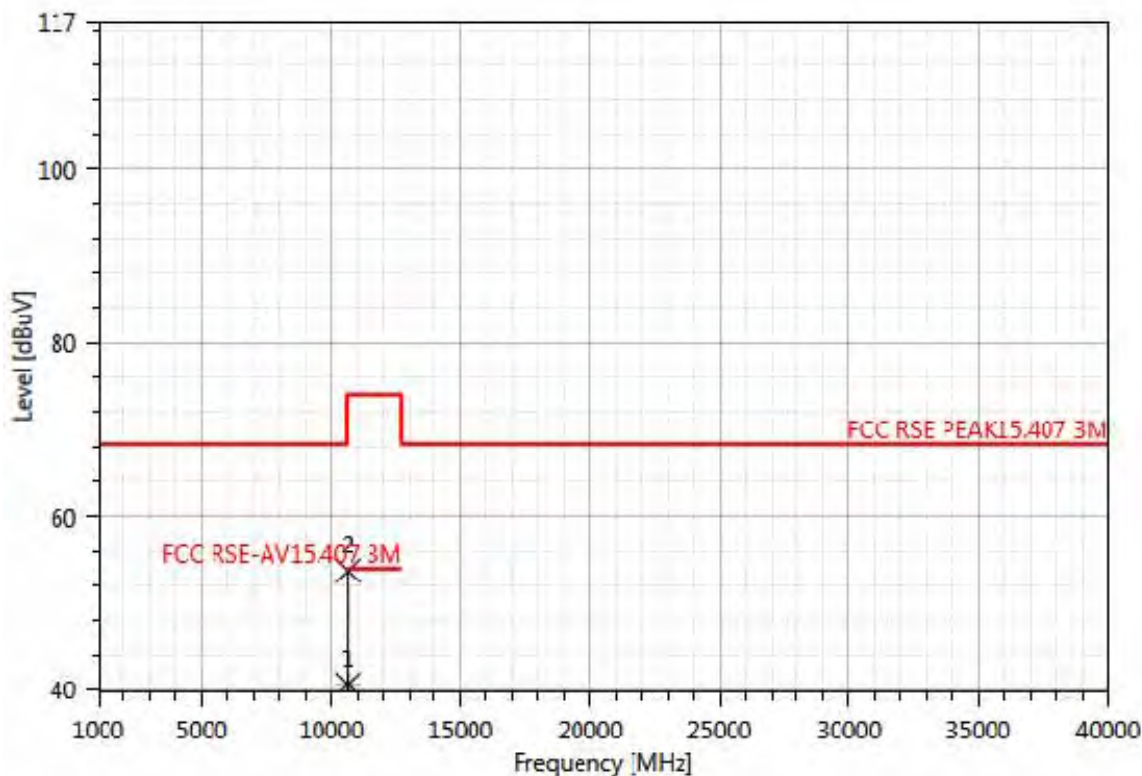
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Operation Mode : 802.11n20B2  
 Fundamental Frequency : 5320 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10640.00	H	Average	40.63	21.45	19.18	54.00	-13.37
10640.00	H	Peak	53.73	34.54	19.18	74.00	-20.27

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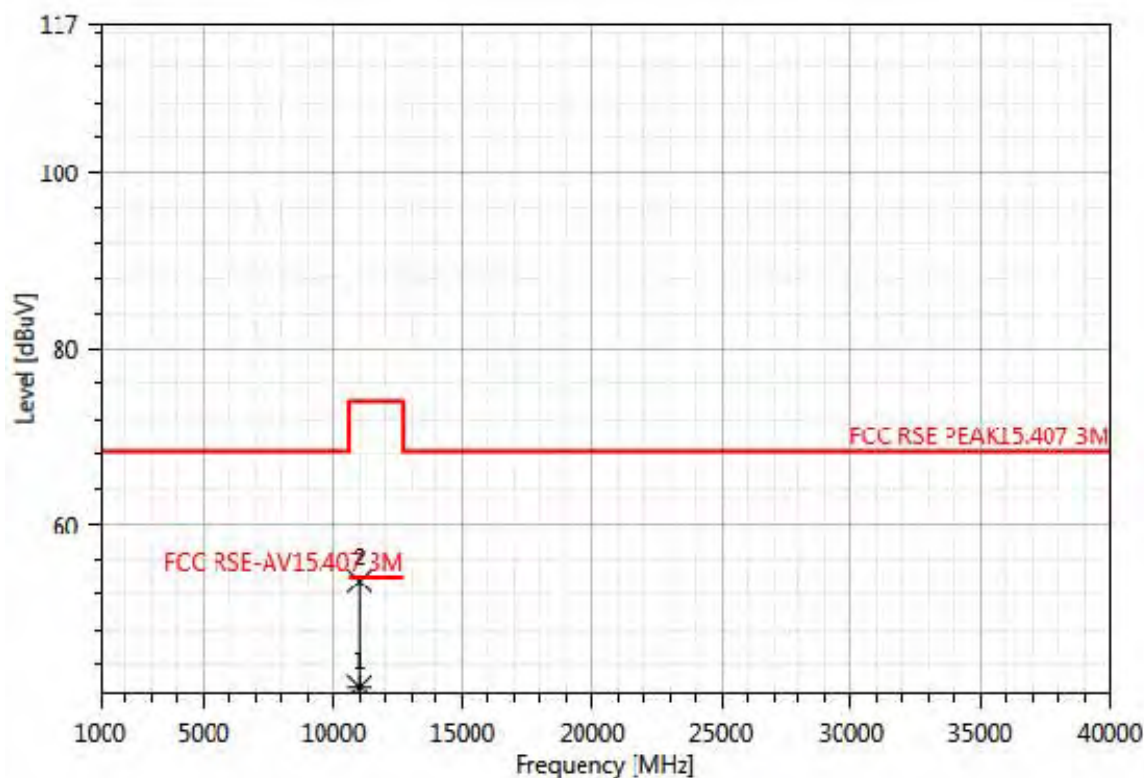
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## Radiated Spurious Emission Measurement Result 802.11n HT20, 5470~5725 MHz

Operation Mode :	802.11n20B3	Test Date :	08/17/2016
Fundamental Frequency :	5500 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11000.00	H	Average	41.51	21.34	20.17	54.00	-12.49
11000.00	H	Peak	53.51	33.34	20.17	74.00	-20.49

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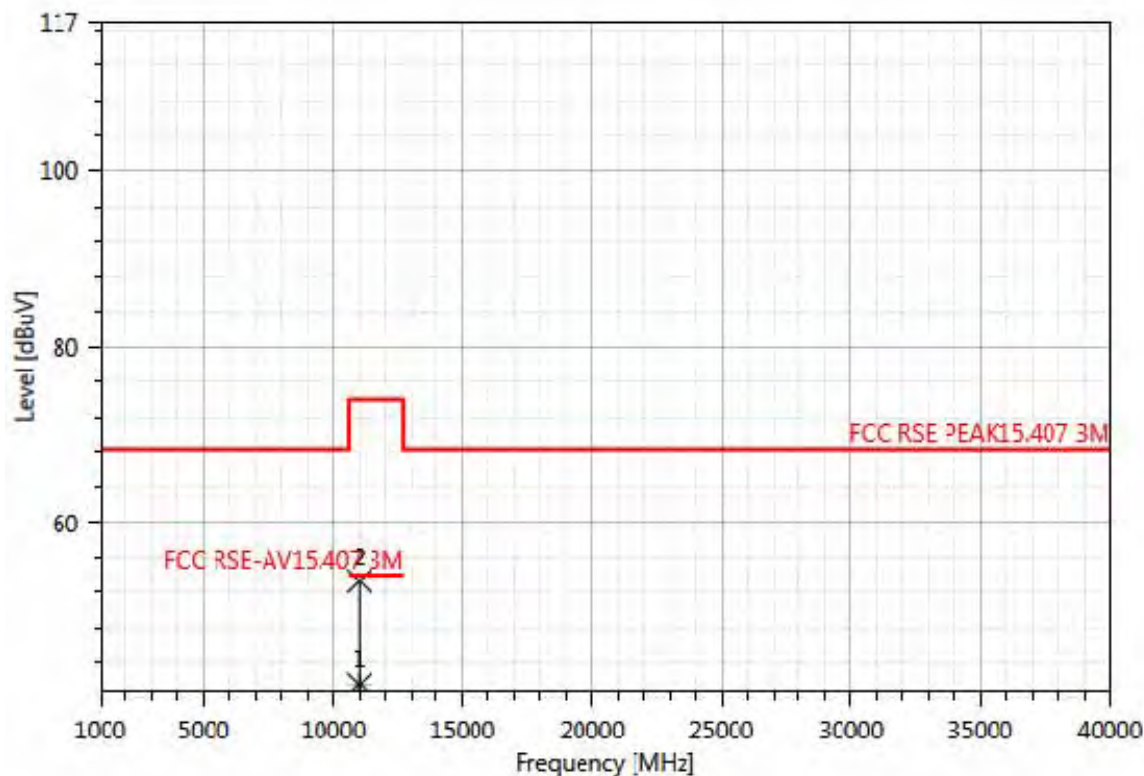
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Operation Mode : 802.11n20B3  
 Fundamental Frequency : 5500 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11000.00	H	Average	41.56	21.39	20.17	54.00	-12.44
11000.00	H	Peak	53.30	33.13	20.17	74.00	-20.70

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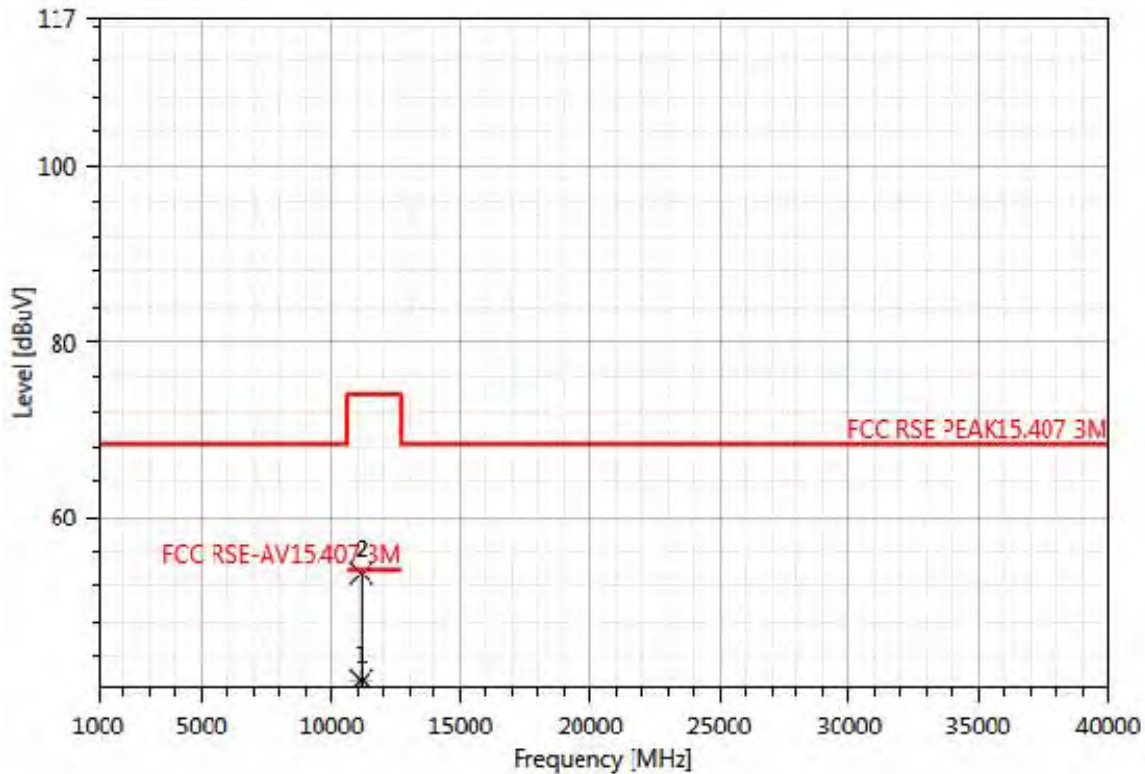
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Operation Mode : 802.11n20B3  
 Fundamental Frequency : 5580 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11160.00	H	Average	41.31	20.86	20.45	54.00	-12.69
11160.00	H	Peak	53.52	33.07	20.45	74.00	-20.48

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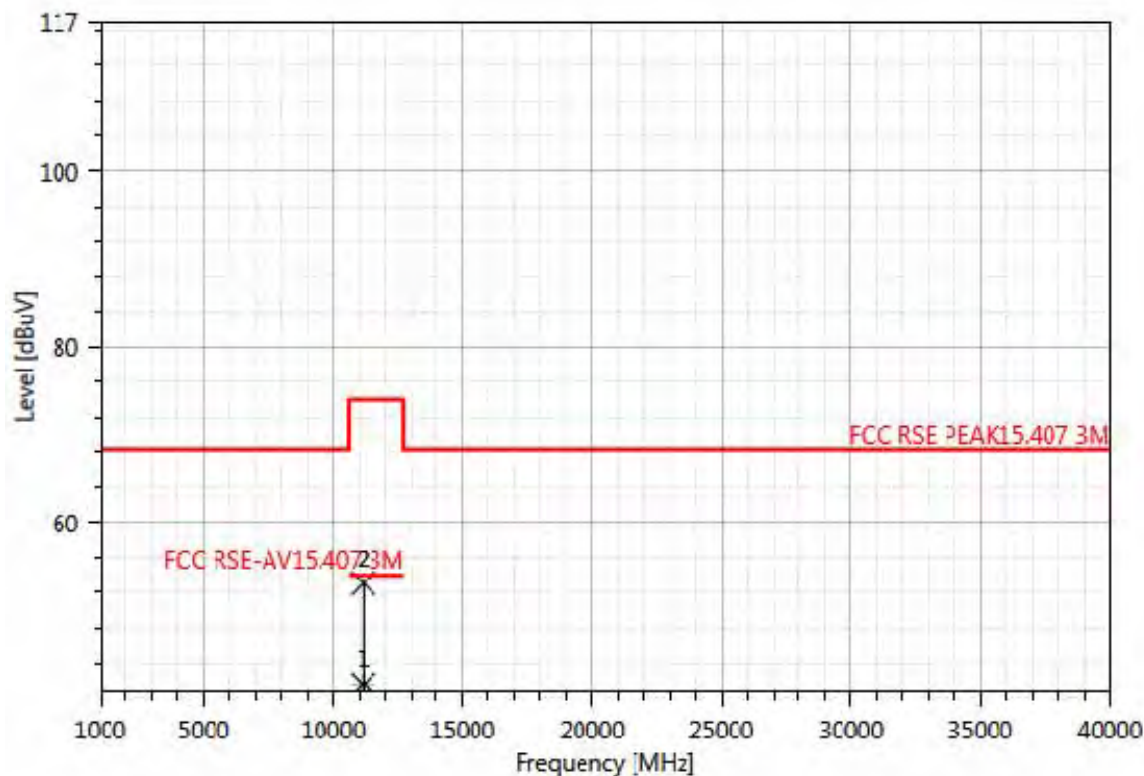
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Operation Mode : 802.11n20B3  
 Fundamental Frequency : 5580 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11160.00	H	Average	41.58	21.13	20.45	54.00	-12.42
11160.00	H	Peak	53.08	32.63	20.45	74.00	-20.92

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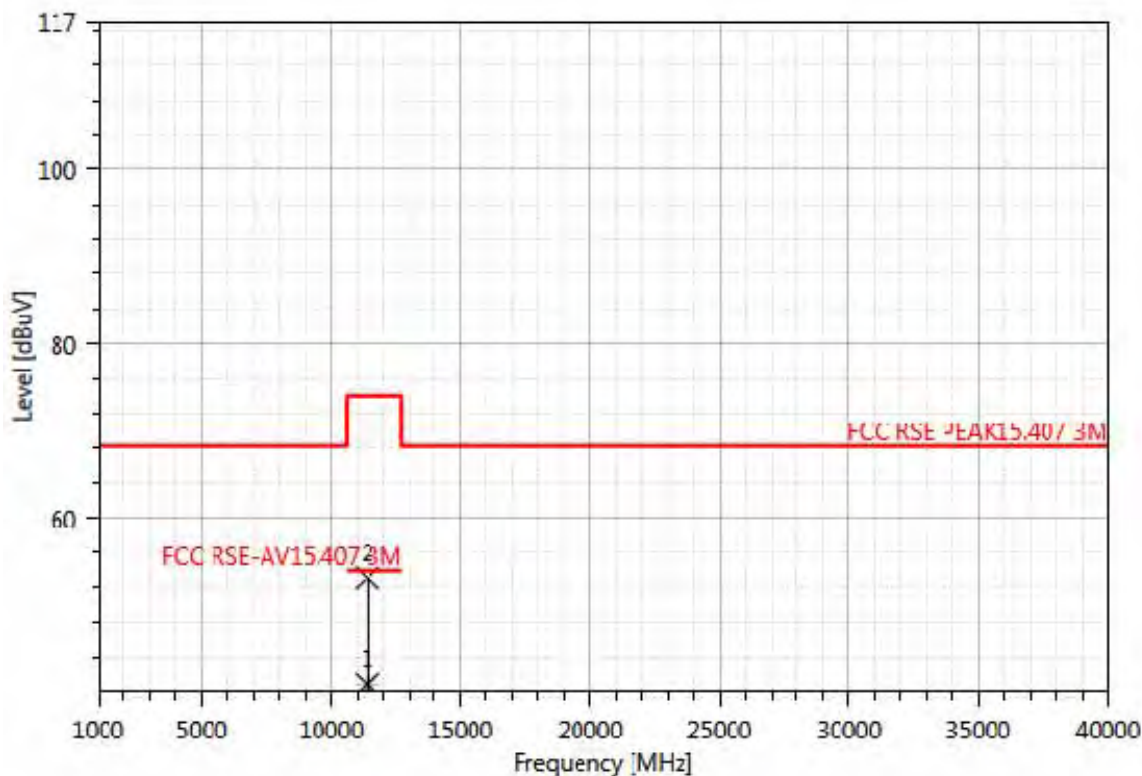
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Operation Mode : 802.11n20B3  
 Fundamental Frequency : 5700 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11400.00	H	Average	40.87	20.31	20.56	54.00	-13.13
11400.00	H	Peak	53.07	32.52	20.56	74.00	-20.93

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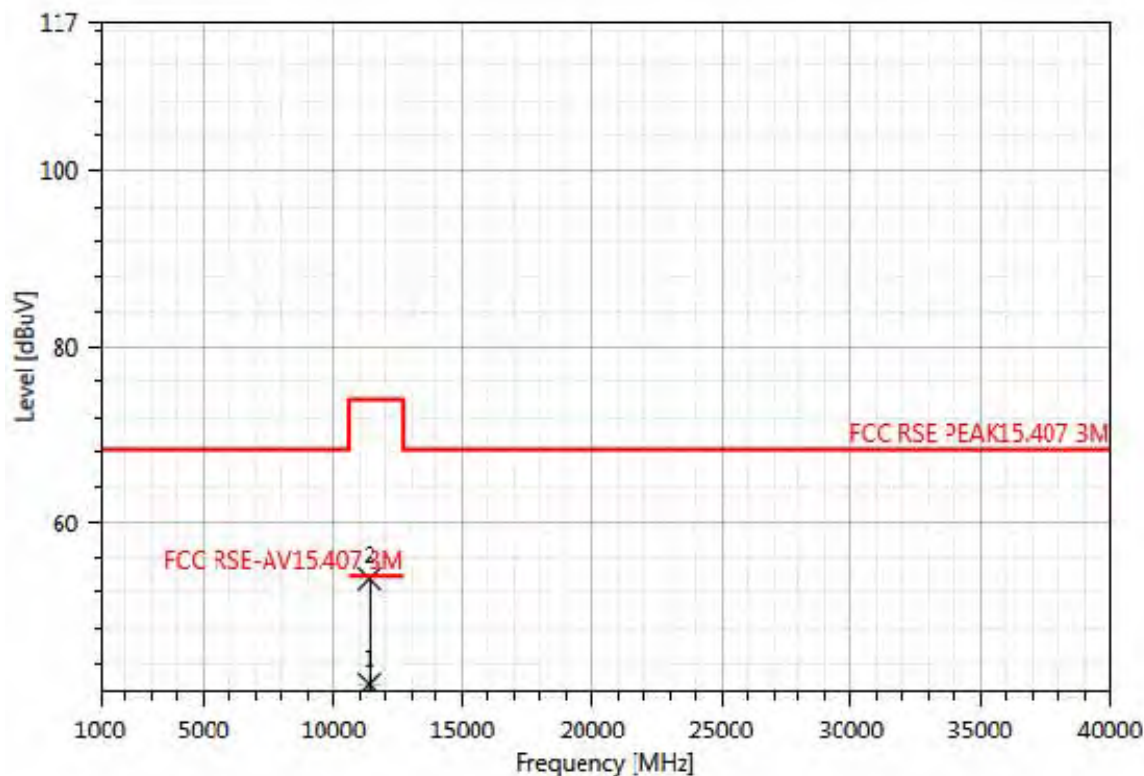
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Operation Mode : 802.11n20B3  
 Fundamental Frequency : 5700 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11400.00	H	Average	41.57	21.01	20.56	54.00	-12.43
11400.00	H	Peak	53.58	33.02	20.56	74.00	-20.42

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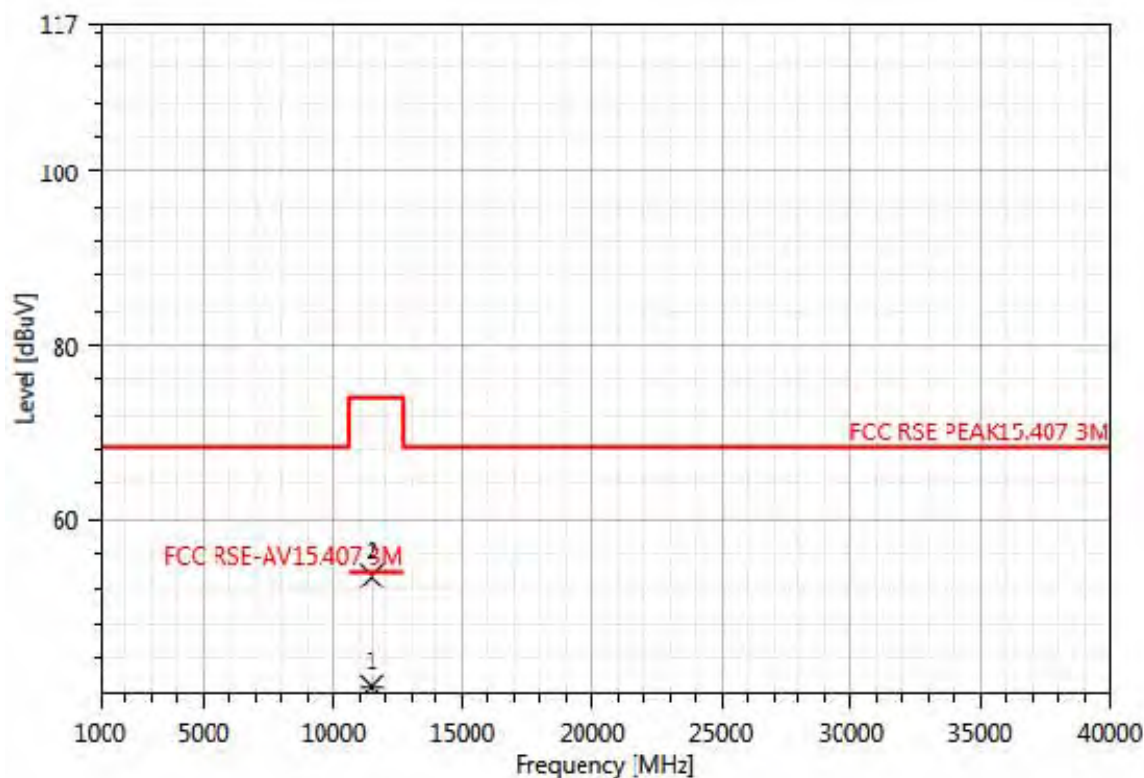
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## Radiated Spurious Emission Measurement Result 802.11n HT20, 5725~5850 MHz

Operation Mode :	802.11n20B4	Test Date :	08/17/2016
Fundamental Frequency :	5745 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11490.00	H	Average	40.79	20.37	20.42	54.00	-13.21
11490.00	H	Peak	53.53	33.11	20.42	74.00	-20.47

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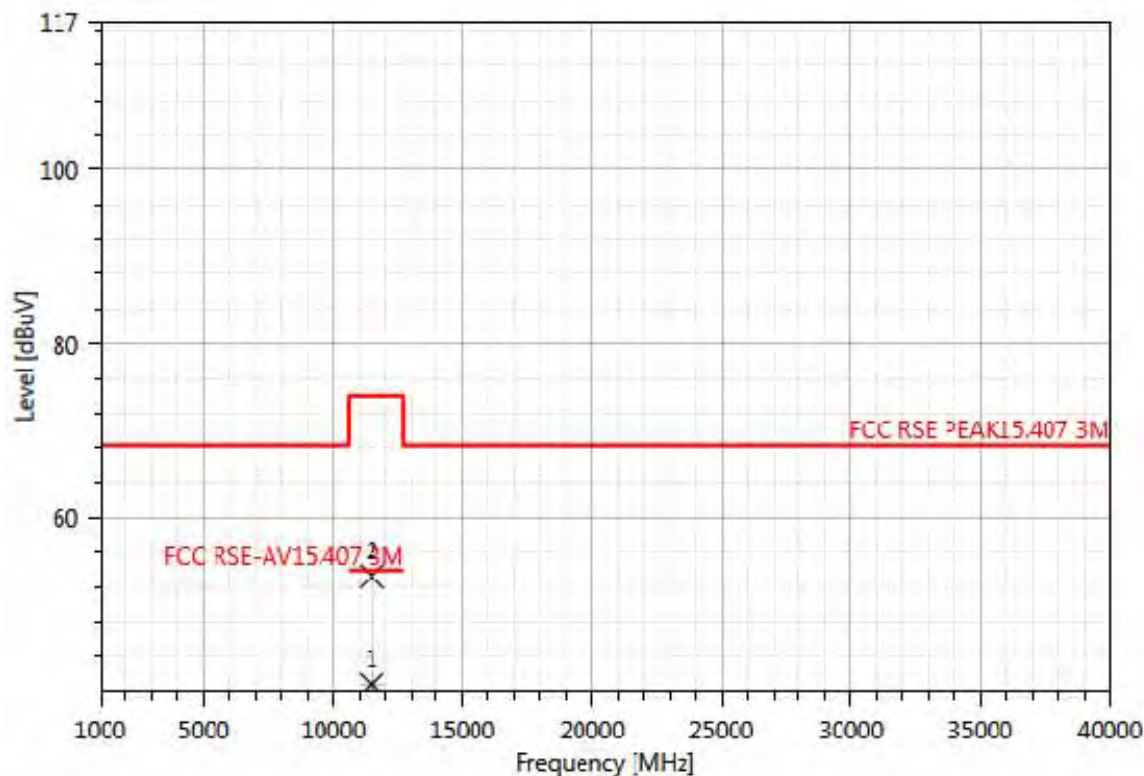
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Operation Mode : 802.11n20B4  
 Fundamental Frequency : 5745 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11490.00	H	Average	40.84	20.42	20.42	54.00	-13.16
11490.00	H	Peak	53.27	32.85	20.42	74.00	-20.73

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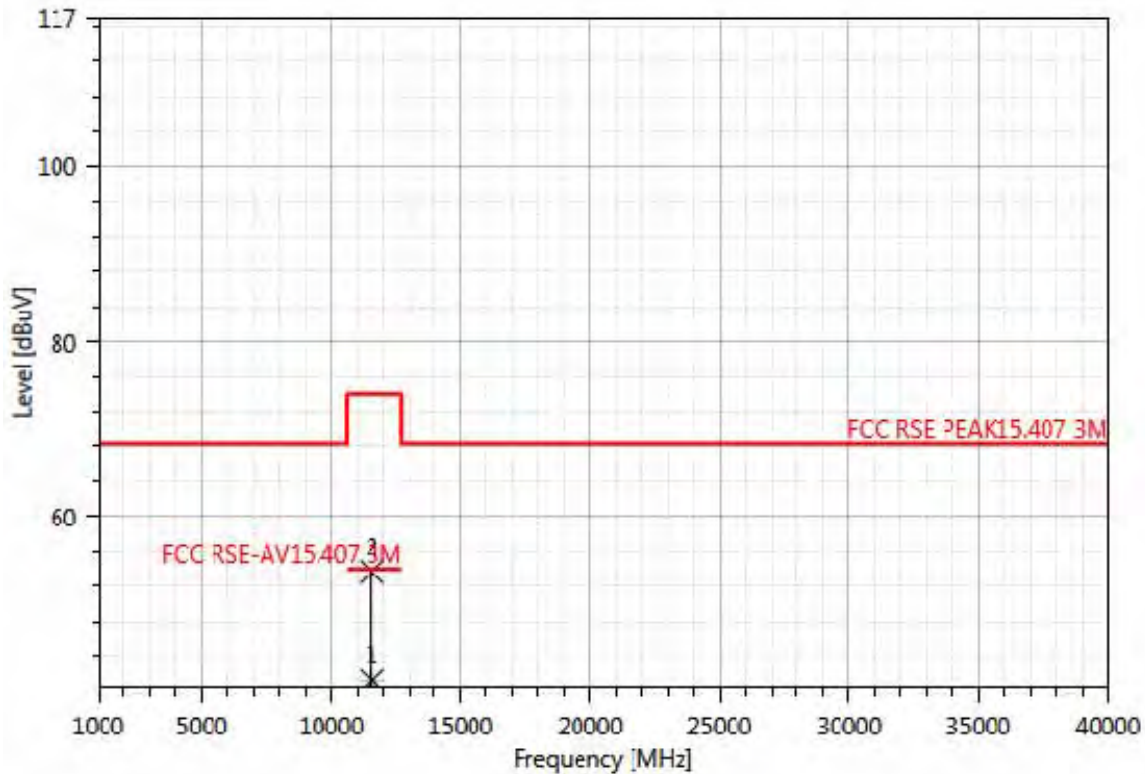
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Operation Mode : 802.11n20B4  
 Fundamental Frequency : 5785 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11570.00	H	Average	41.26	20.67	20.59	54.00	-12.74
11570.00	H	Peak	53.69	33.10	20.59	74.00	-20.31

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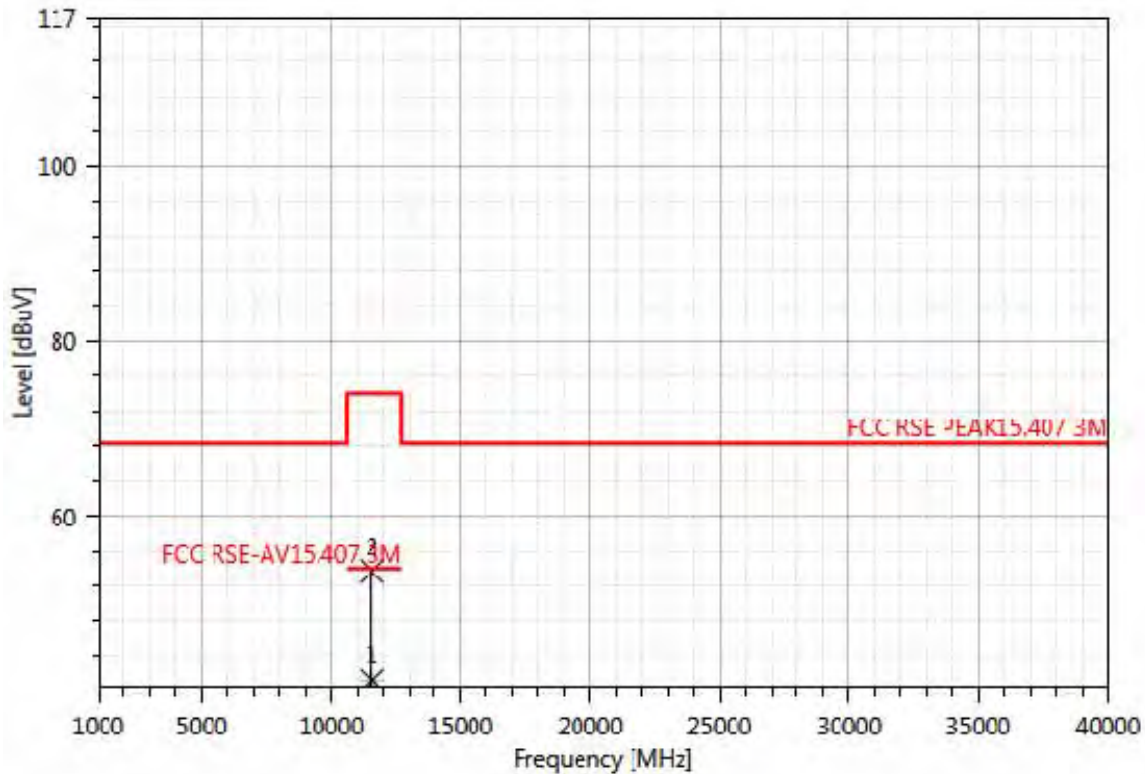
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Operation Mode : 802.11n20B4  
 Fundamental Frequency : 5785 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11570.00	H	Average	41.17	20.58	20.59	54.00	-12.83
11570.00	H	Peak	53.66	33.07	20.59	74.00	-20.34

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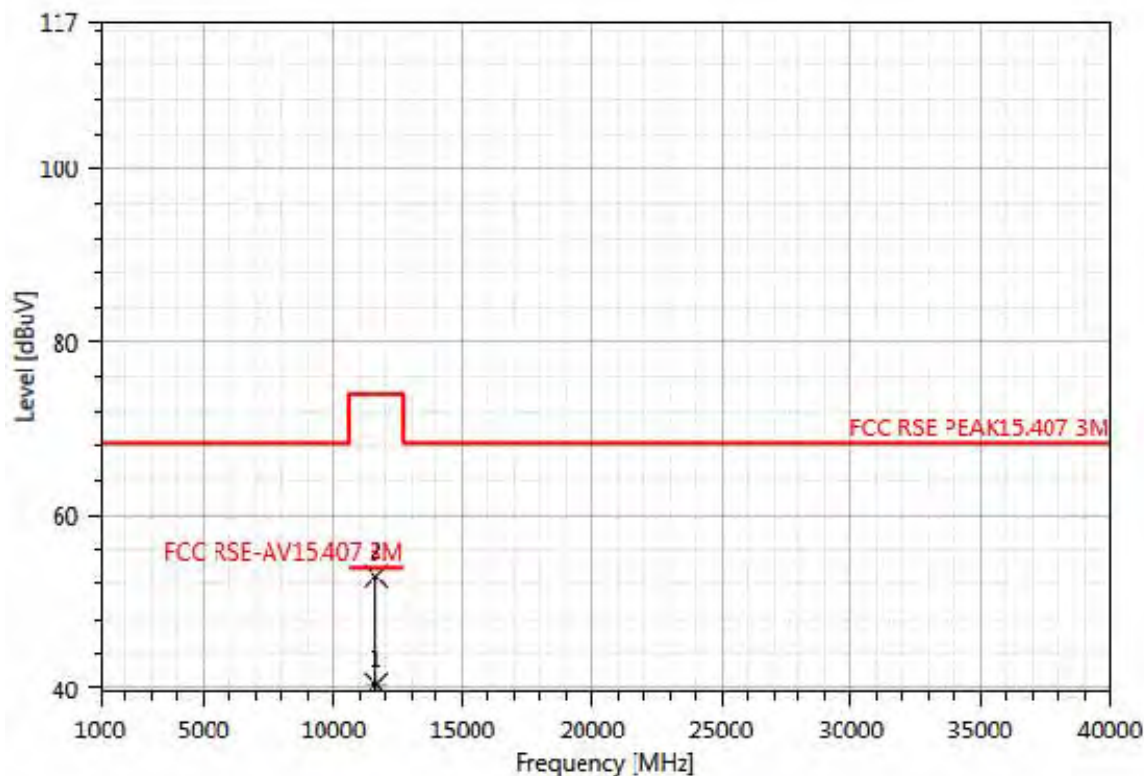
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Operation Mode : 802.11n20B4  
 Fundamental Frequency : 5825 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11650.00	H	Average	40.49	20.06	20.43	54.00	-13.51
11650.00	H	Peak	53.00	32.57	20.43	74.00	-21.00

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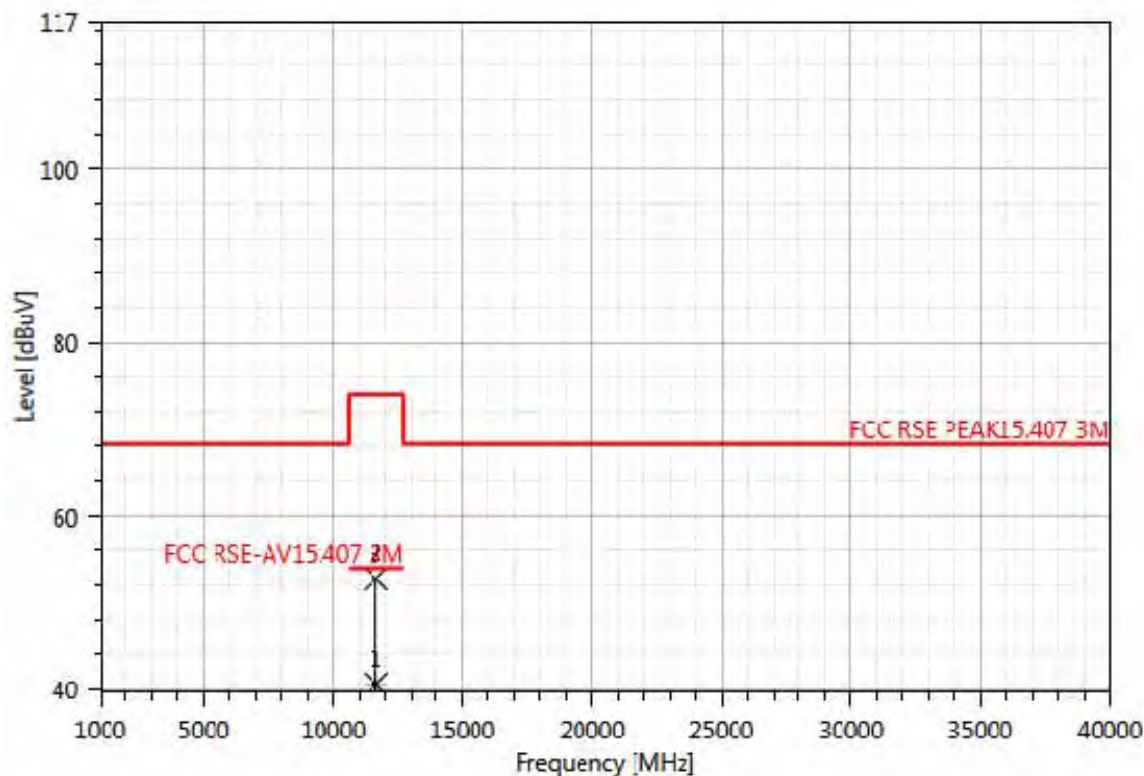
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Operation Mode : 802.11n20B4  
 Fundamental Frequency : 5825 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11650.00	H	Average	40.56	20.13	20.43	54.00	-13.44
11650.00	H	Peak	52.76	32.33	20.43	74.00	-21.24

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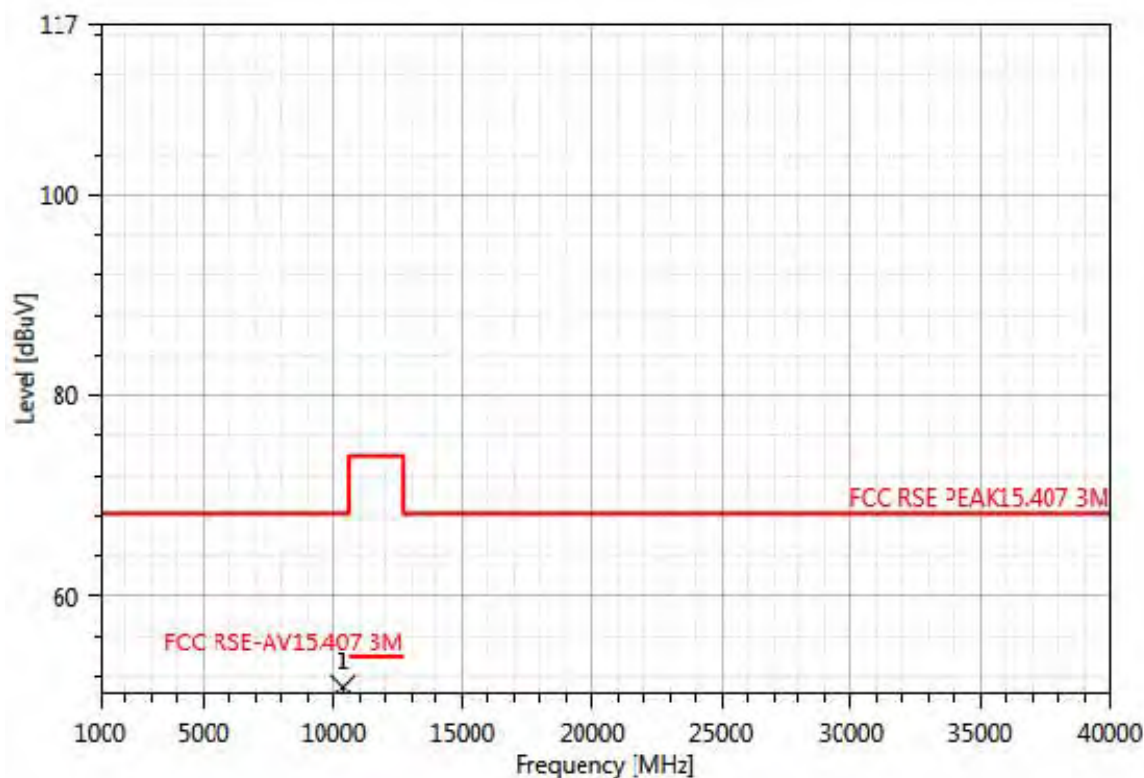
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## Radiated Spurious Emission Measurement Result 802.11n HT40, 5150~5250 MHz

Operation Mode :	802.11n40B1	Test Date :	08/17/2016
Fundamental Frequency :	5190 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10380.00	H	QP/AV/PK	51.05	32.92	18.12	68.30	-17.25

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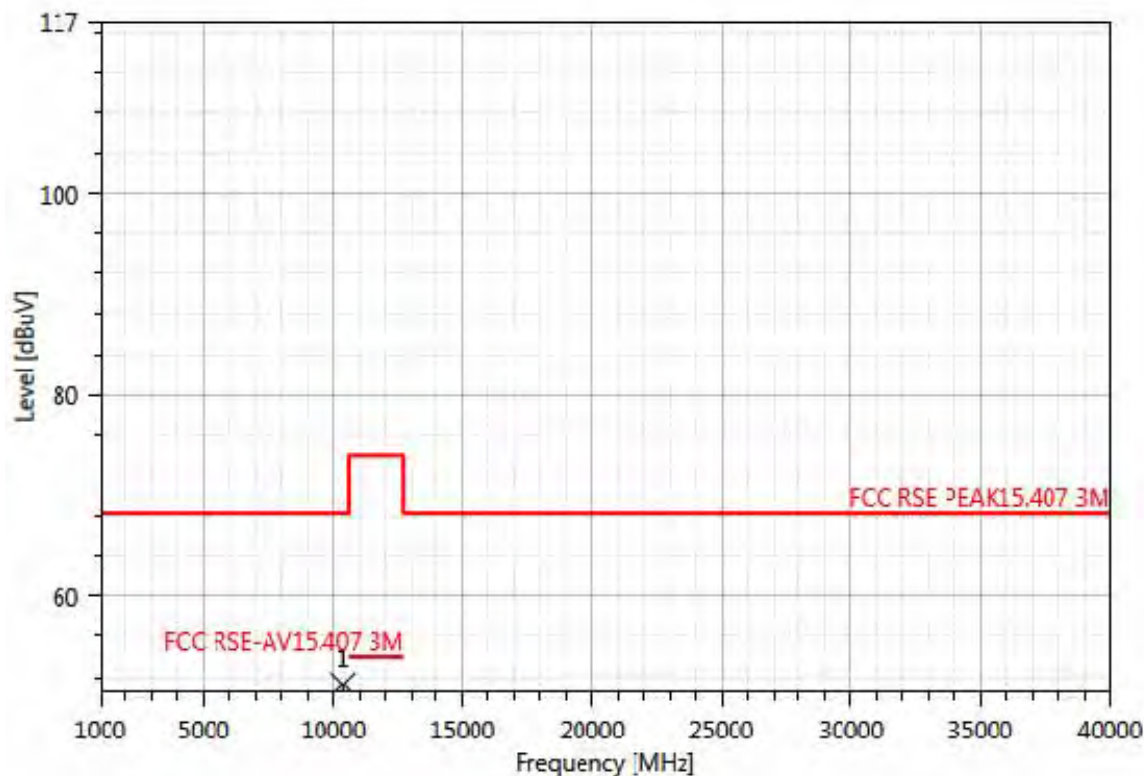
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Operation Mode : 802.11n40B1  
 Fundamental Frequency : 5190 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10380.00	H	Peak	51.28	33.16	18.12	68.30	-17.02

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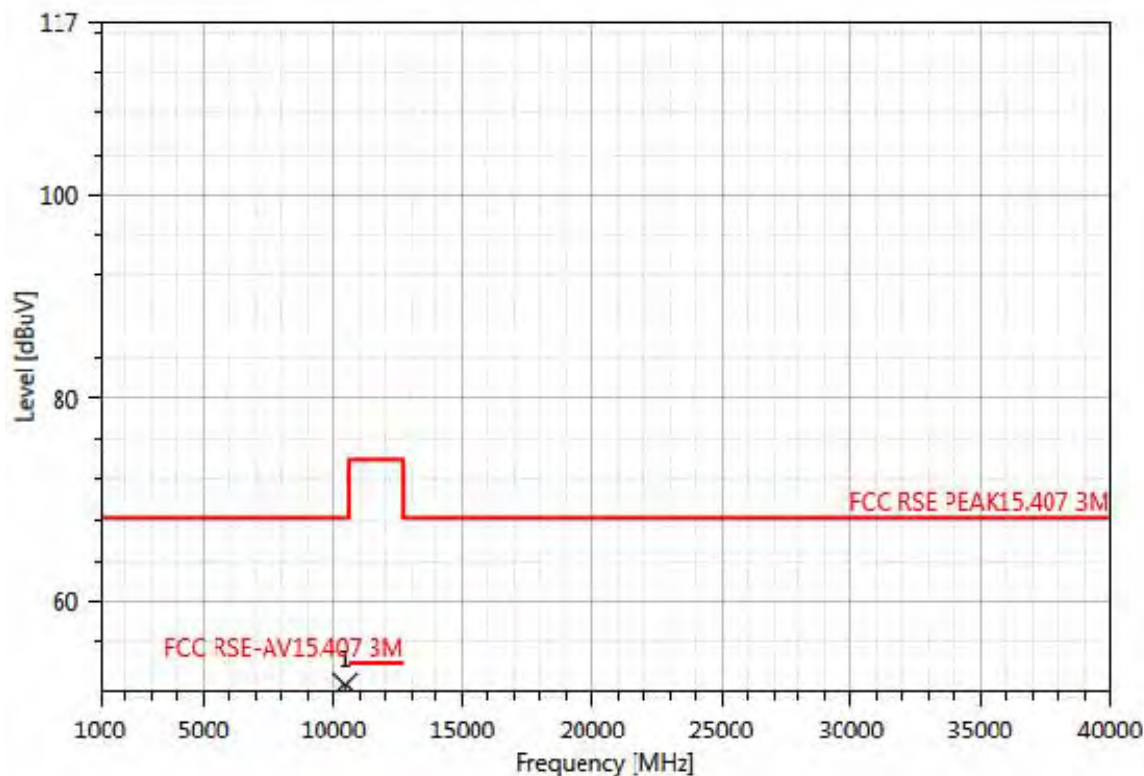
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Operation Mode : 802.11n40B1  
 Fundamental Frequency : 5230 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10460.00	H	Peak	51.89	33.35	18.54	68.30	-16.41

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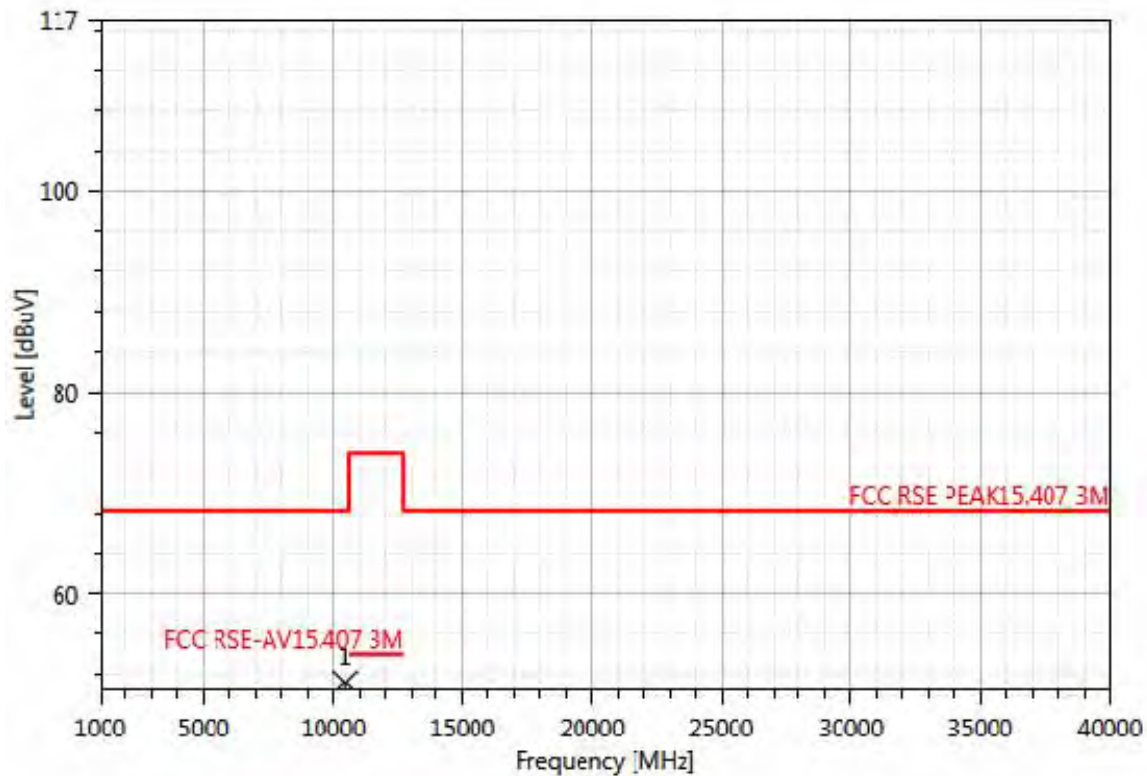
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Operation Mode : 802.11n40B1  
 Fundamental Frequency : 5230 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBμV/m	dB
10460.00	H	Peak	51.23	32.69	18.54	68.30	-17.07

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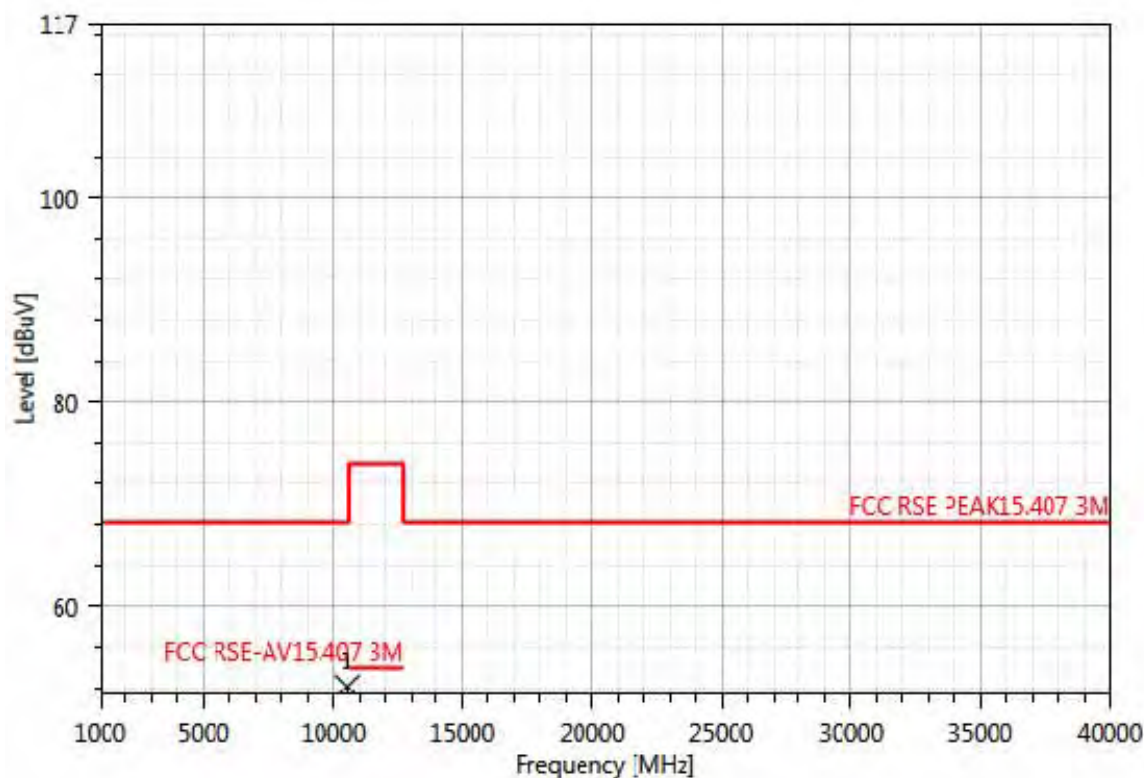
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## Radiated Spurious Emission Measurement Result 802.11n HT40, 5250~5350 MHz

Operation Mode :	802.11n40B2	Test Date :	08/17/2016
Fundamental Frequency :	5270 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
		QP/AV/PK	dBμV/m	dBμV/m		dBuV/m	
10540.00	H	Peak	52.18	33.01	19.17	68.30	-16.12

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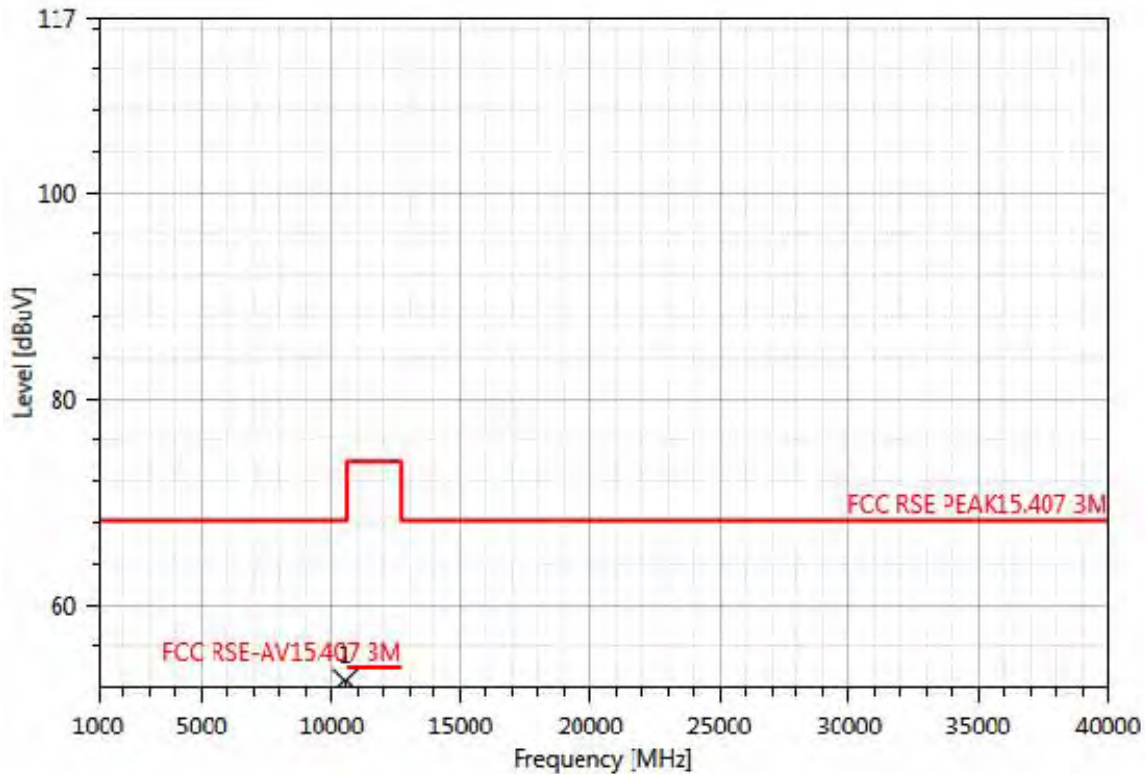
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Operation Mode :	802.11n40B2	Test Date :	08/17/2016
Fundamental Frequency :	5270 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10540.00	H	QP/AV/PK	52.69	33.52	19.17	68.30	-15.61

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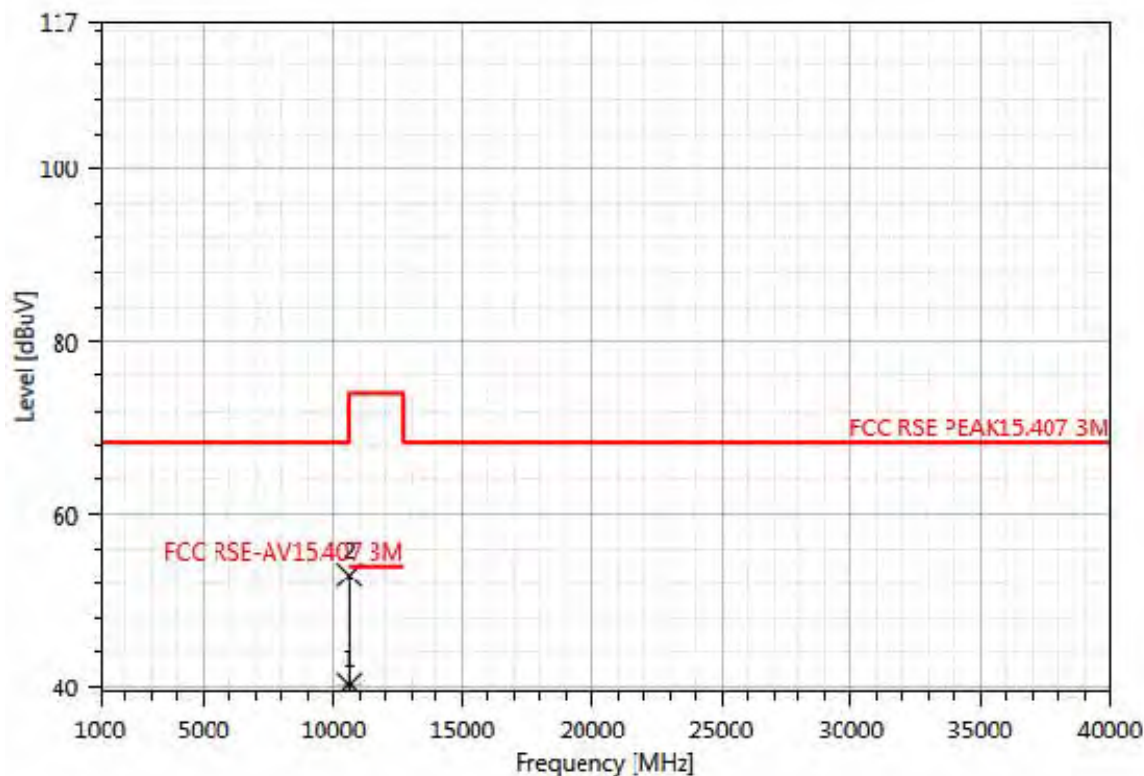
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Operation Mode : 802.11n40B2  
 Fundamental Frequency : 5310 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10620.00	H	Average	40.34	21.23	19.11	54.00	-13.66
10620.00	H	Peak	52.97	33.86	19.11	74.00	-21.03

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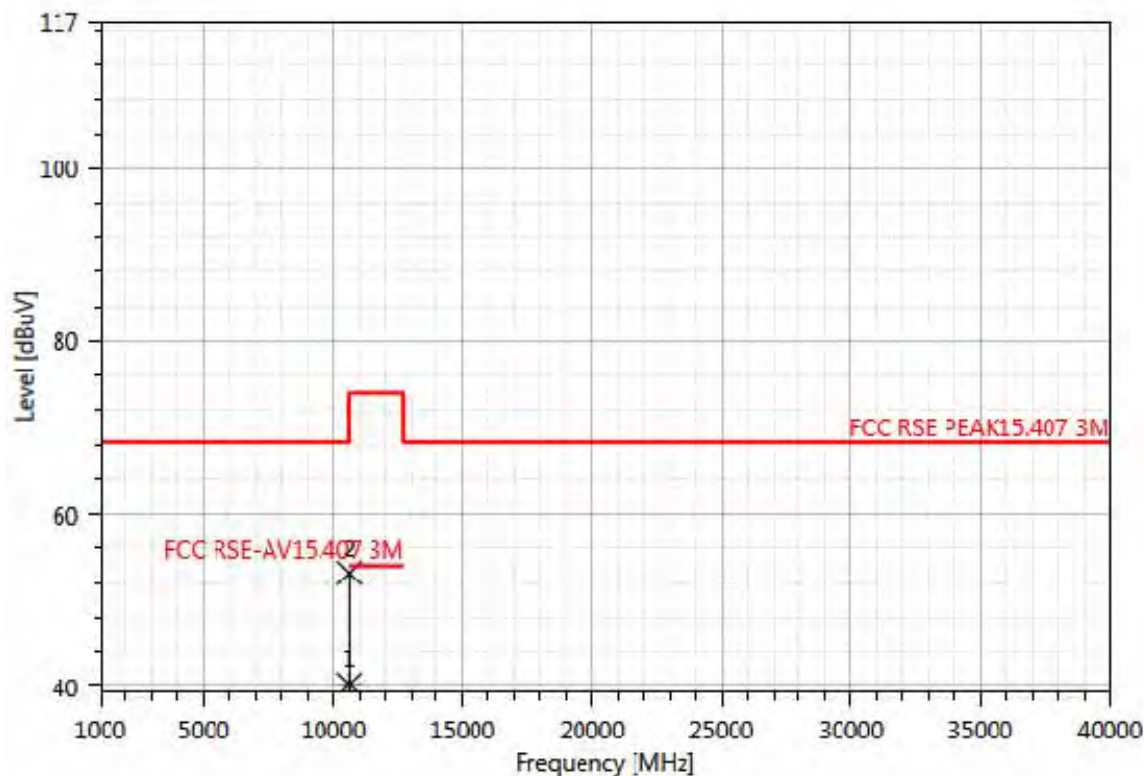
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Operation Mode : 802.11n40B2  
 Fundamental Frequency : 5310 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10620.00	H	Average	40.27	21.16	19.11	54.00	-13.73
10620.00	H	Peak	53.17	34.07	19.11	74.00	-20.83

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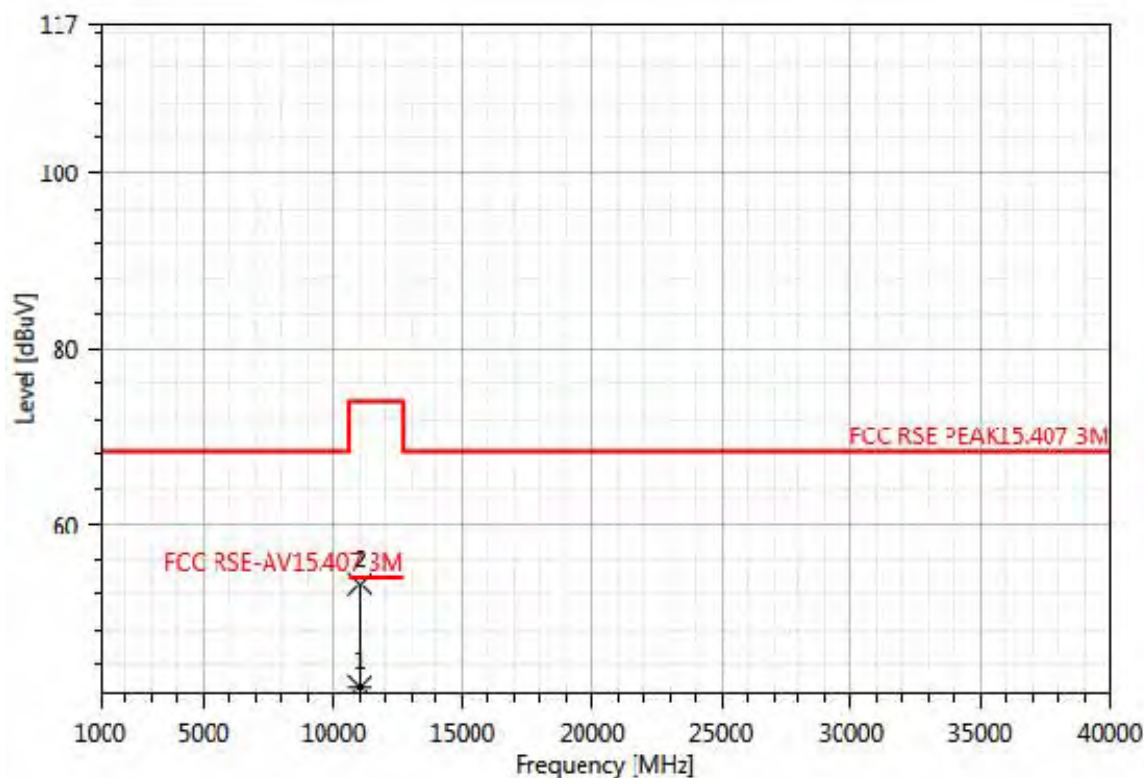
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## Radiated Spurious Emission Measurement Result 802.11n HT40, 5470~5725 MHz

Operation Mode :	802.11n40B3	Test Date :	08/17/2016
Fundamental Frequency :	5510 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11020.00	H	Average	41.52	21.36	20.16	54.00	-12.48
11020.00	H	Peak	53.18	33.02	20.16	74.00	-20.82

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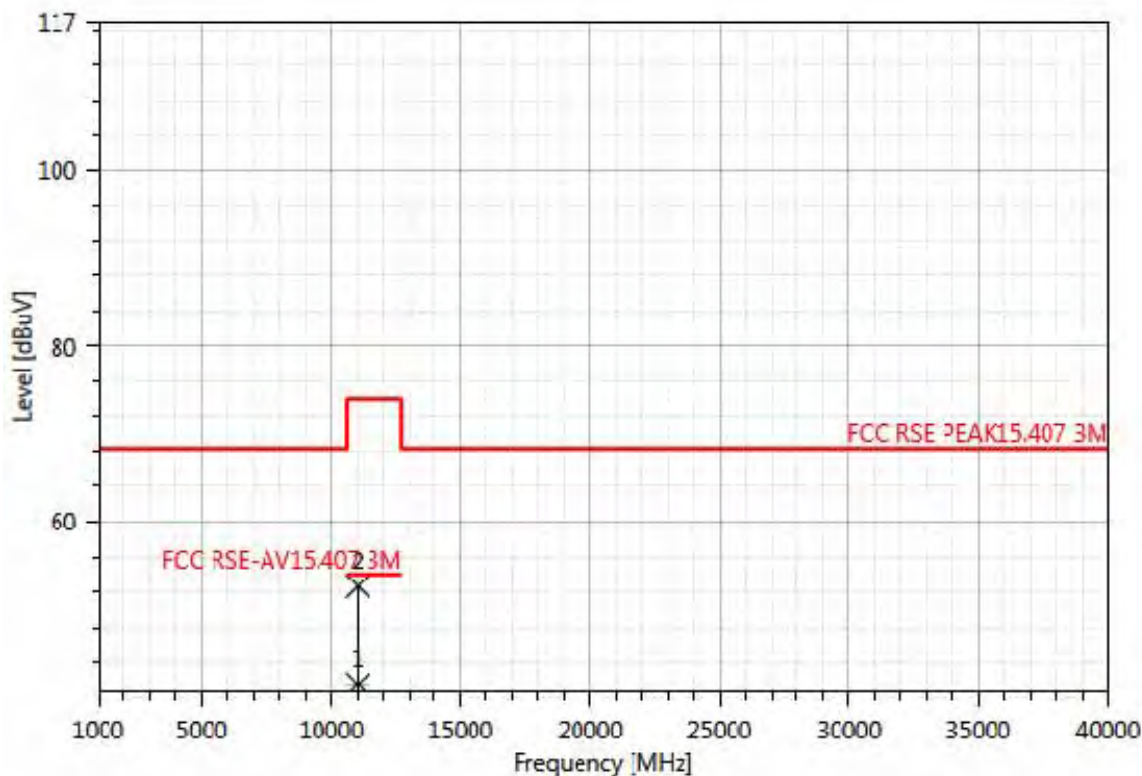
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Operation Mode : 802.11n40B3  
 Fundamental Frequency : 5510 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11020.00	H	Average	41.45	21.29	20.16	54.00	-12.55
11020.00	H	Peak	52.66	32.50	20.16	74.00	-21.34

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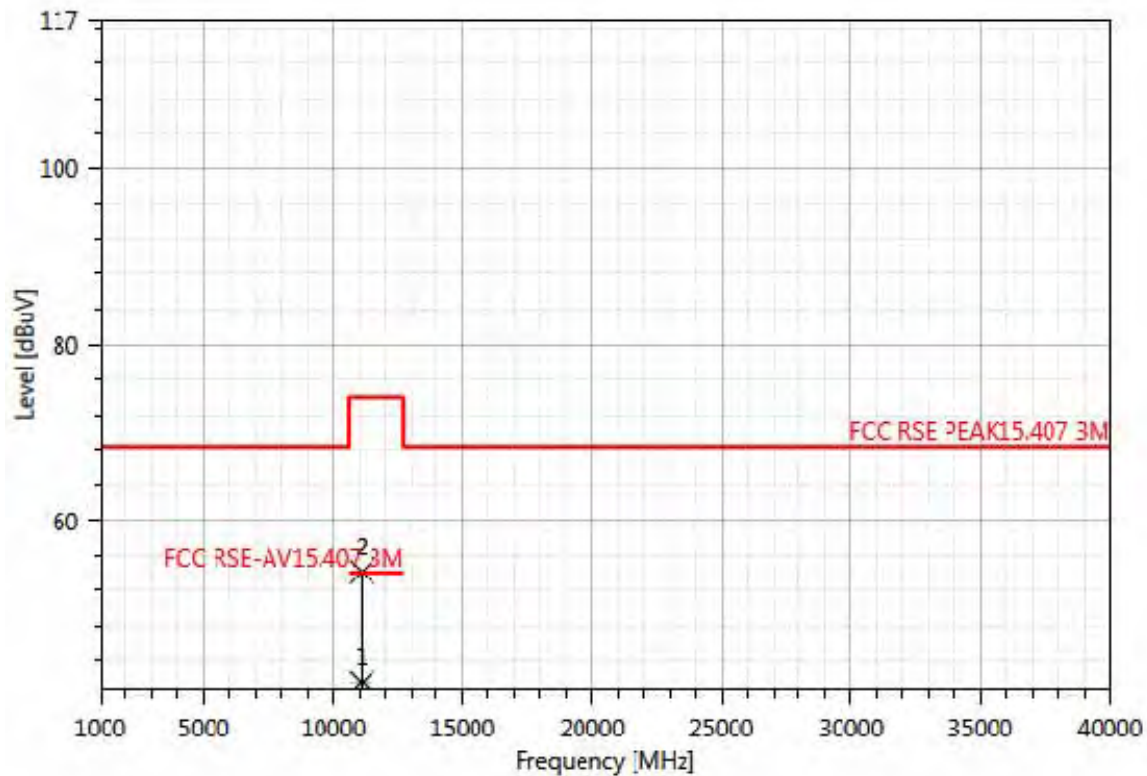
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Operation Mode : 802.11n40B3  
 Fundamental Frequency : 5550 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS		@ 3m	
		QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
11100.00	H	Average	41.48	21.16	20.32	54.00	-12.52
11100.00	H	Peak	54.08	33.76	20.32	74.00	-19.92

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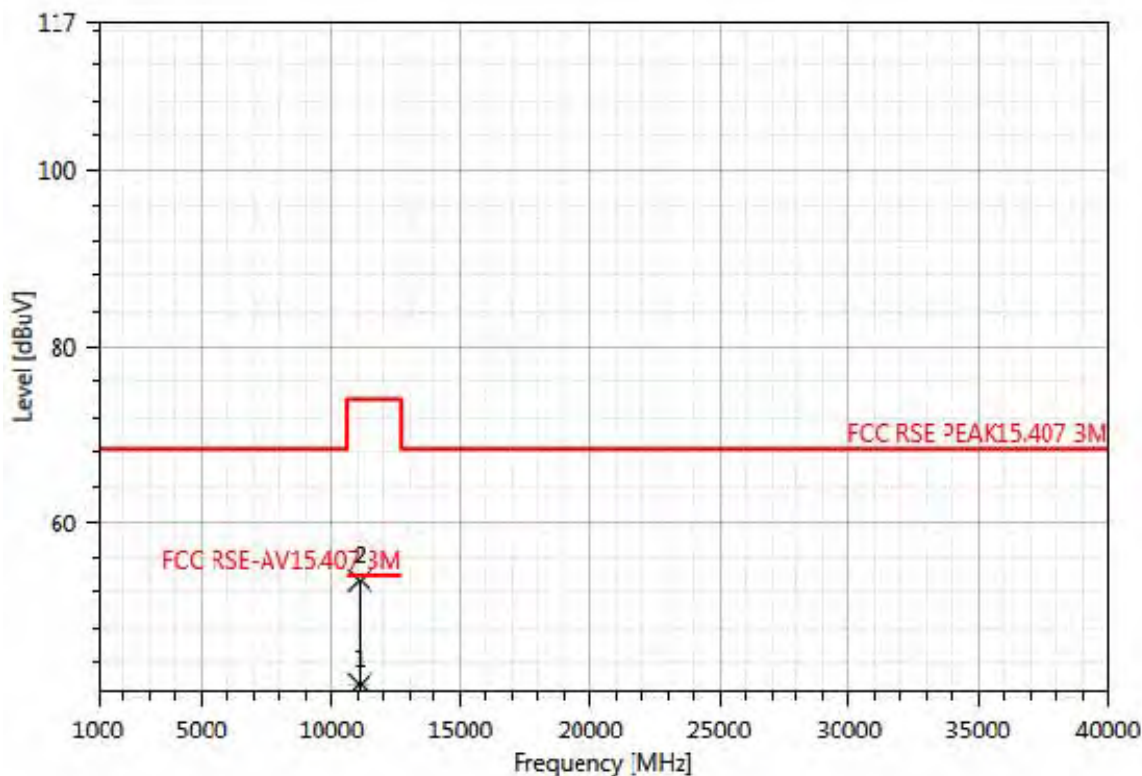
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Operation Mode : 802.11n40B3  
 Fundamental Frequency : 5550 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS		@ 3m	
		QP/AV/PK	dBμV/m	dBμV/m	dB	dBμV/m	dB
11100.00	H	Average	41.48	21.16	20.32	54.00	-12.52
11100.00	H	Peak	53.33	33.01	20.32	74.00	-20.67

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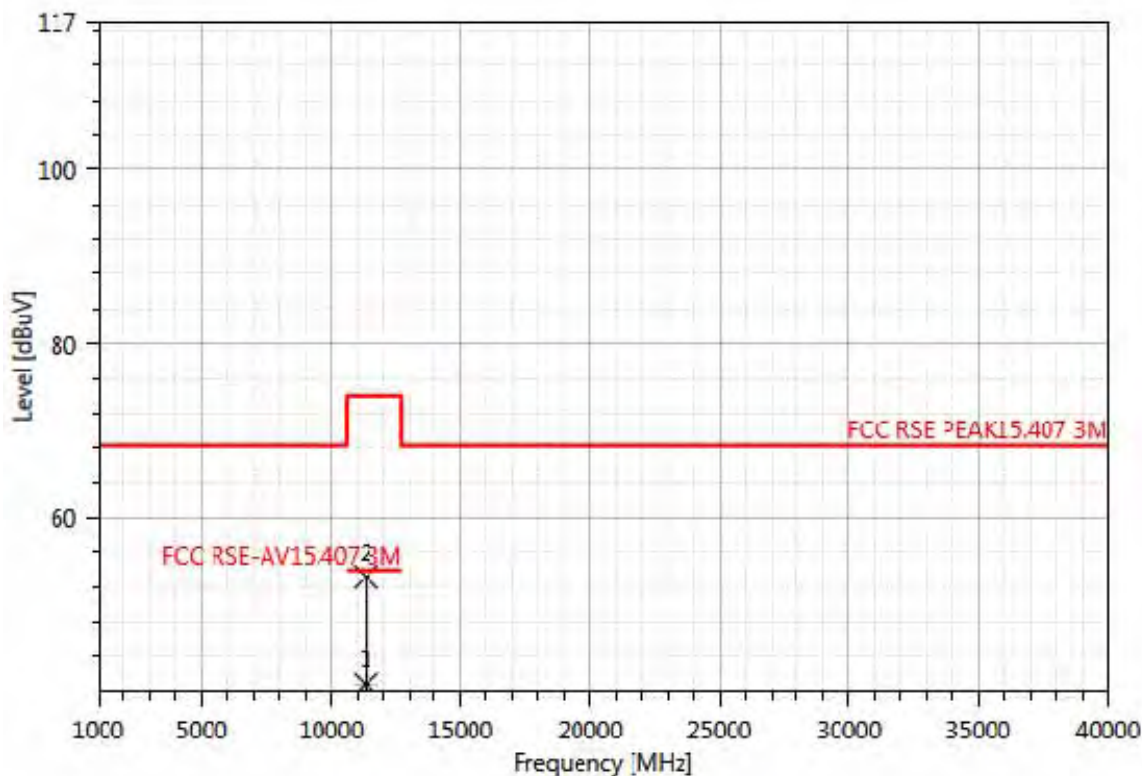
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Operation Mode : 802.11n40B3  
 Fundamental Frequency : 5670 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11340.00	H	Average	40.84	20.46	20.38	54.00	-13.16
11340.00	H	Peak	53.19	32.81	20.38	74.00	-20.81

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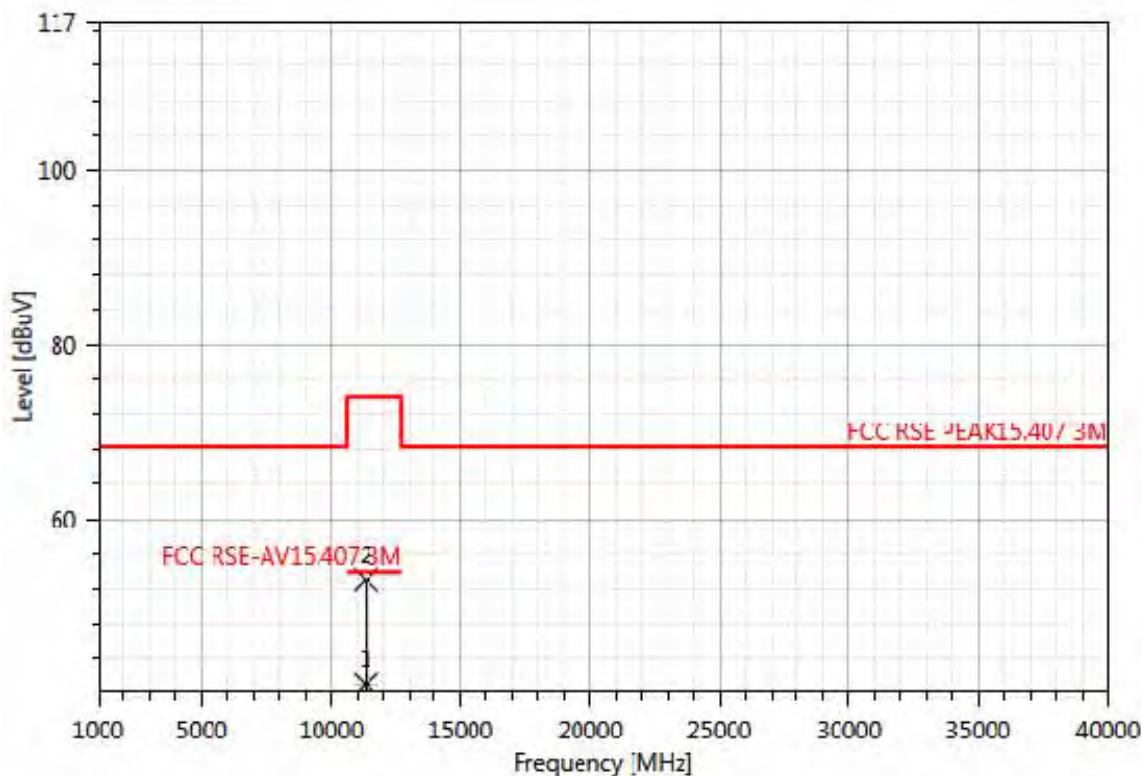
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Operation Mode : 802.11n40B3  
 Fundamental Frequency : 5670 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS		@ 3m	
		QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
11340.00	H	Average	41.06	20.68	20.38	54.00	-12.94
11340.00	H	Peak	53.05	32.67	20.38	74.00	-20.95

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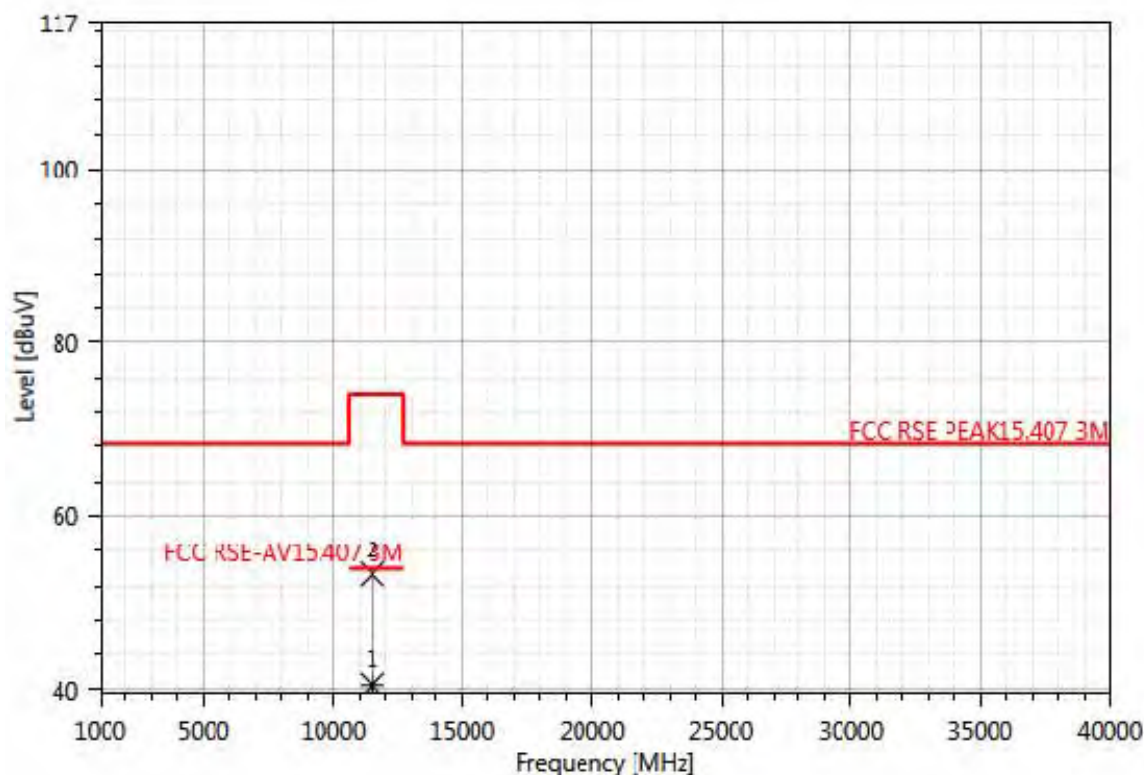
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## Radiated Spurious Emission Measurement Result 802.11n HT40, 5725~5850 MHz

Operation Mode :	802.11n40B4	Test Date :	08/17/2016
Fundamental Frequency :	5755 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11510.00	H	Average	40.53	20.14	20.39	54.00	-13.47
11510.00	H	Peak	53.36	32.98	20.39	74.00	-20.64

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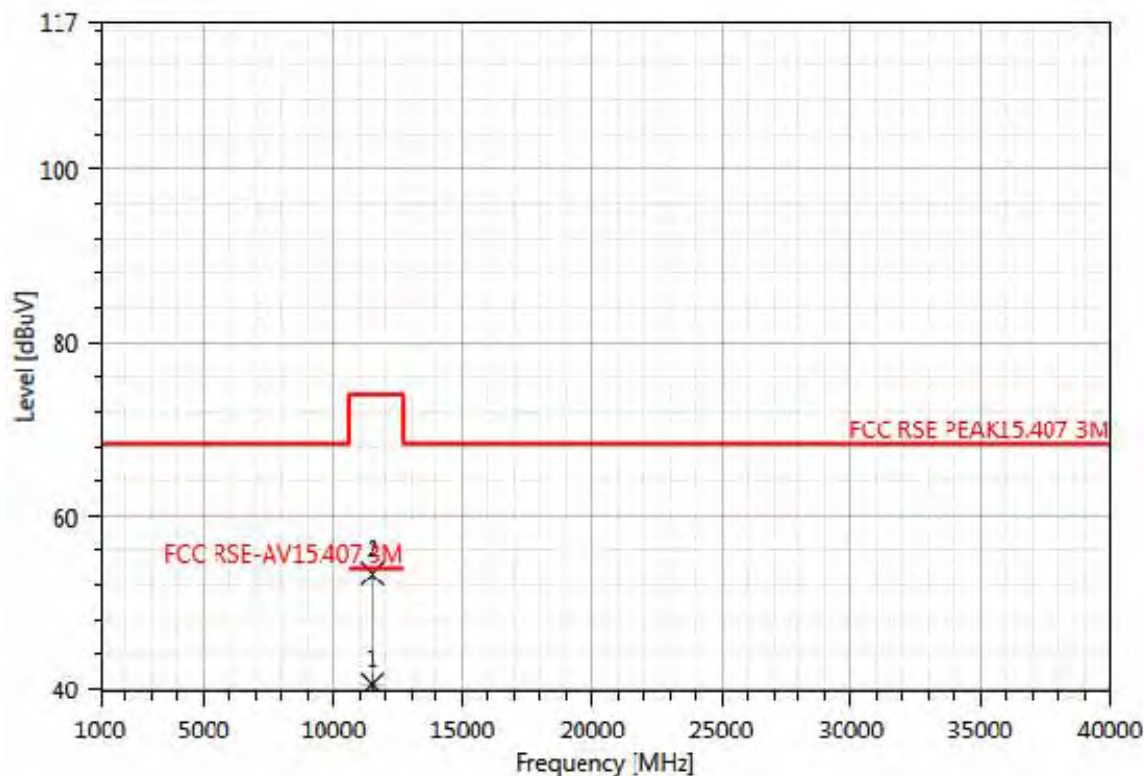
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Operation Mode : 802.11n40B4  
 Fundamental Frequency : 5755 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11510.00	H	Average	40.58	20.19	20.39	54.00	-13.42
11510.00	H	Peak	53.35	32.96	20.39	74.00	-20.65

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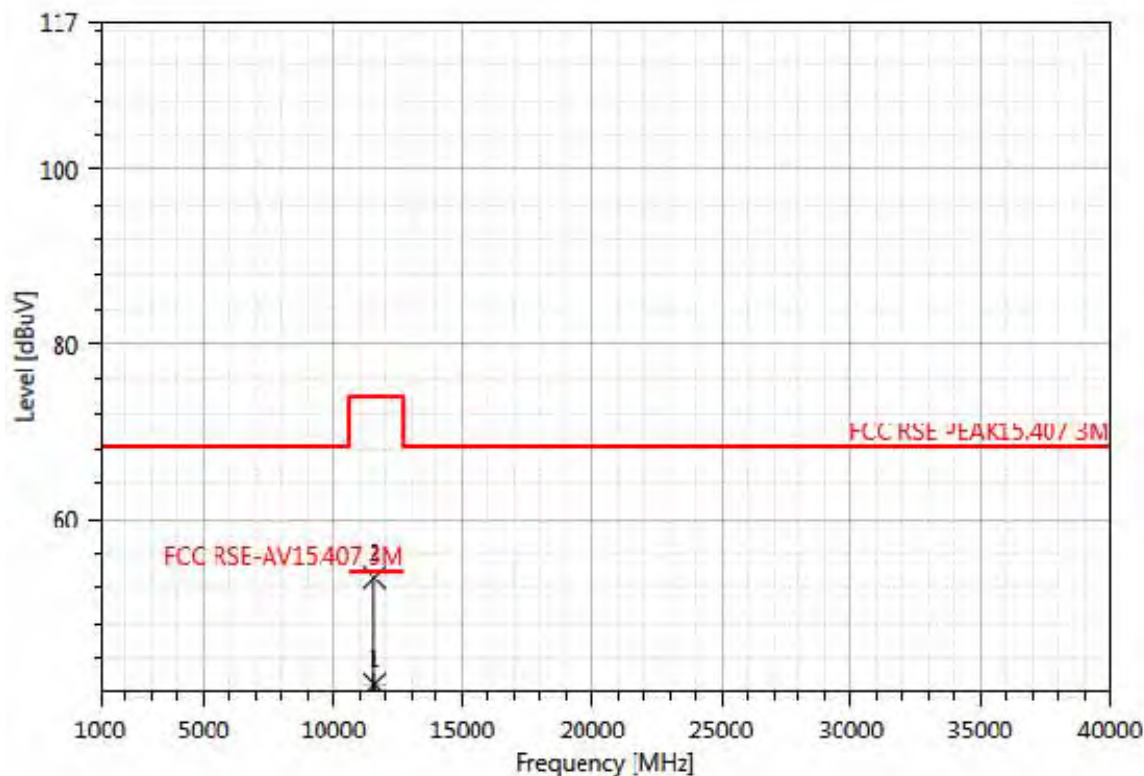
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Operation Mode : 802.11n40B4  
 Fundamental Frequency : 5795 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11590.00	H	Average	41.00	20.57	20.43	54.00	-13.00
11590.00	H	Peak	53.23	32.80	20.43	74.00	-20.77

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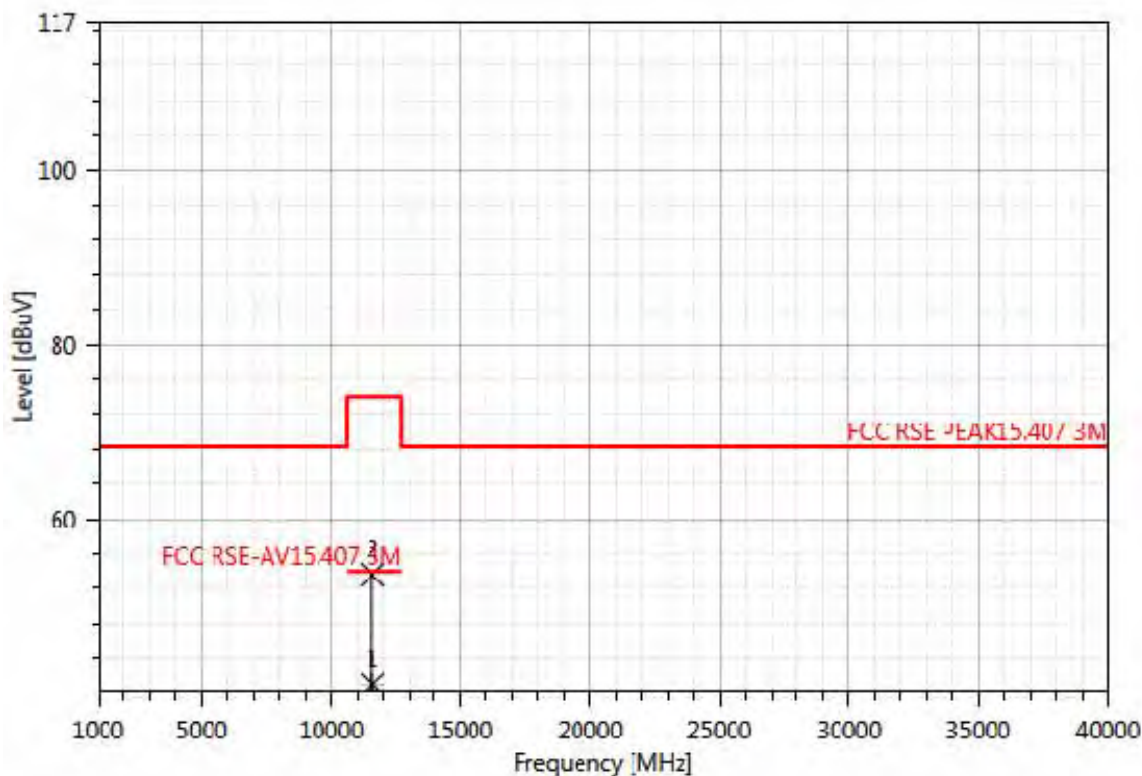
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Operation Mode : 802.11n40B4  
 Fundamental Frequency : 5795 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11590.00	H	Average	41.04	20.61	20.43	54.00	-12.96
11590.00	H	Peak	53.63	33.20	20.43	74.00	-20.37

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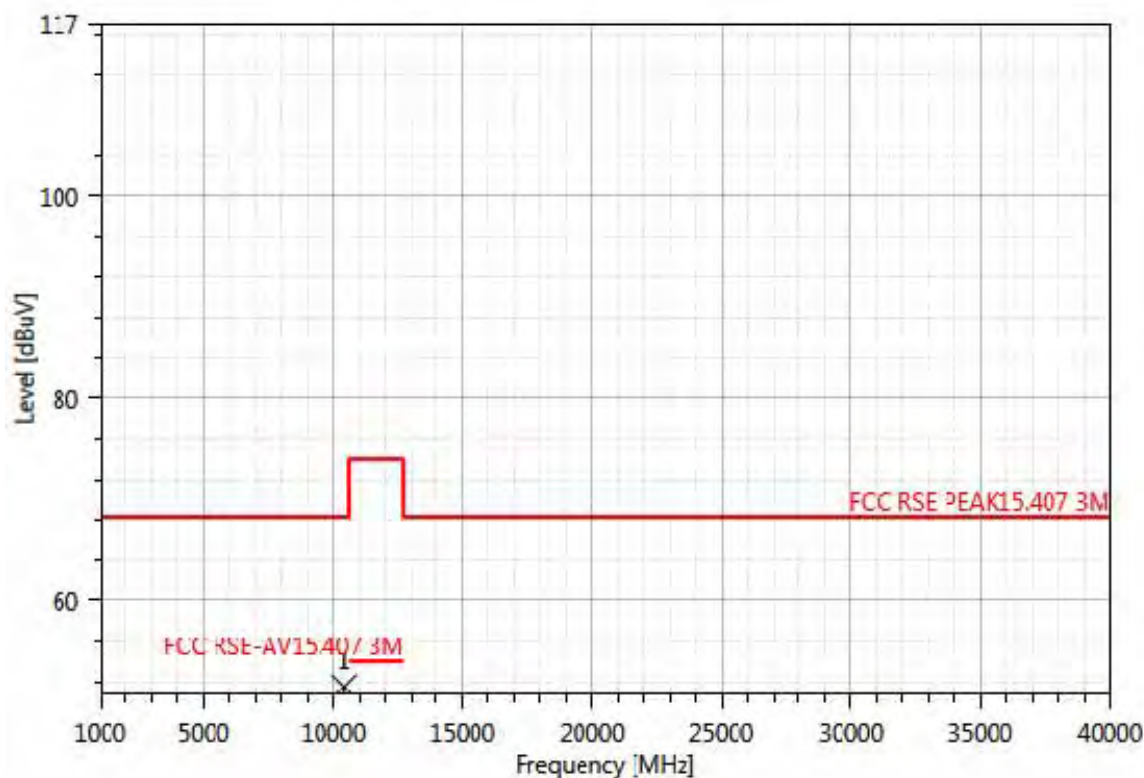
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## Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5150~5250 MHz

Operation Mode :	802.11ac80B1	Test Date :	08/17/2016
Fundamental Frequency :	5210 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBuV/m	dBuV/m	dB	dBuV/m	dB
10420.00	H	Peak	51.52	32.80	18.71	68.30	-16.78

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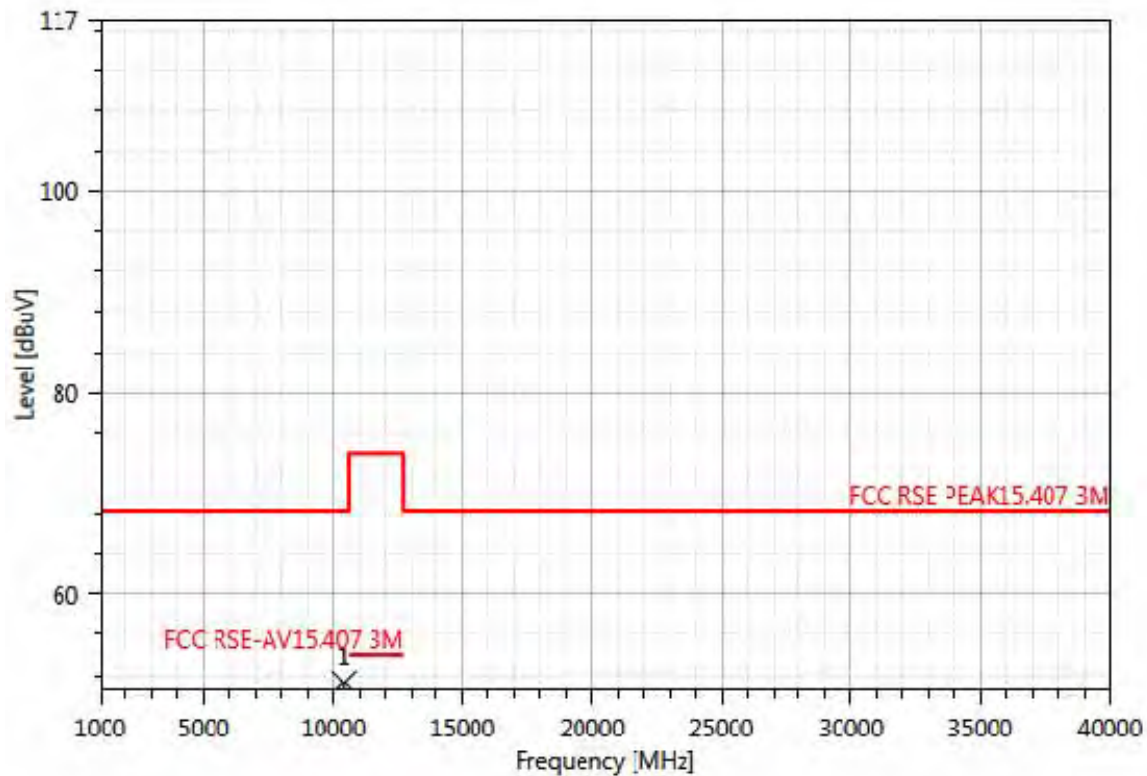
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Operation Mode :	802.11ac80B1	Test Date :	08/17/2016
Fundamental Frequency :	5210 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	HORIZONTAL



Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBμV/m	dB
10420.00	H	Peak	51.27	32.56	18.71	68.30	-17.03

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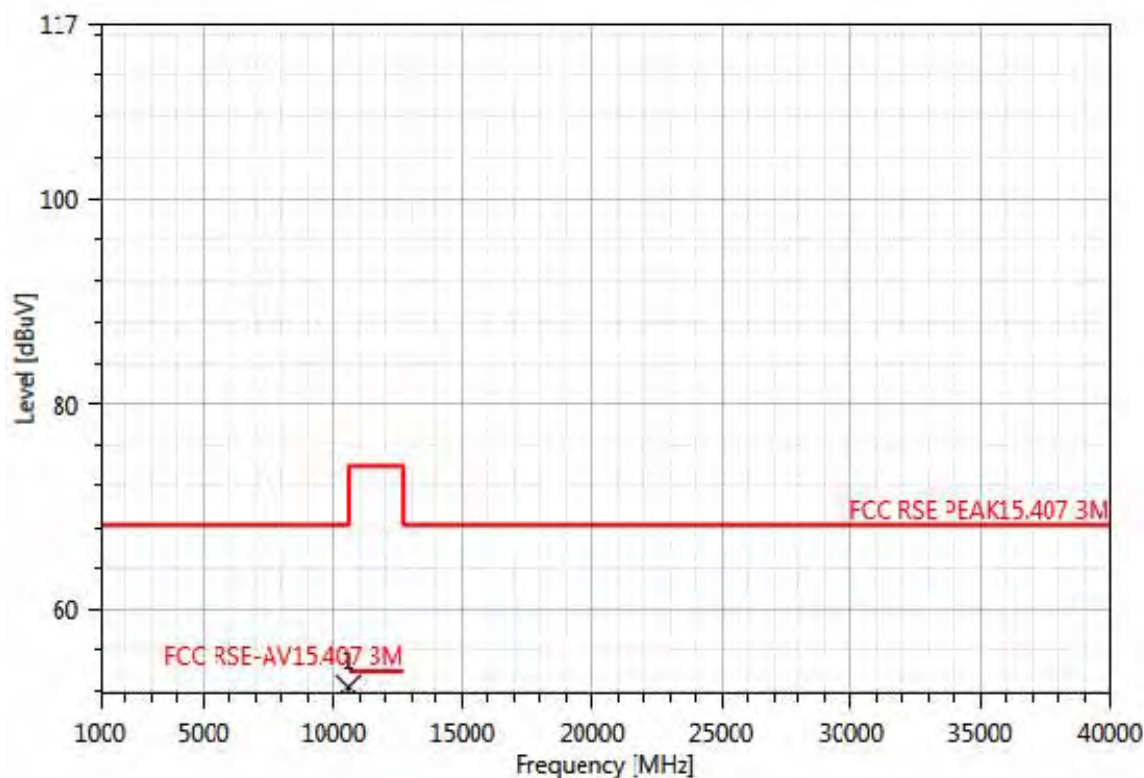
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## Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5250~5350 MHz

Operation Mode :	802.11ac80B2	Test Date :	08/17/2016
Fundamental Frequency :	5290 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH HIGH	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
10580.00	H	QP/AV/PK	52.50	33.62	18.88	68.30	-15.80

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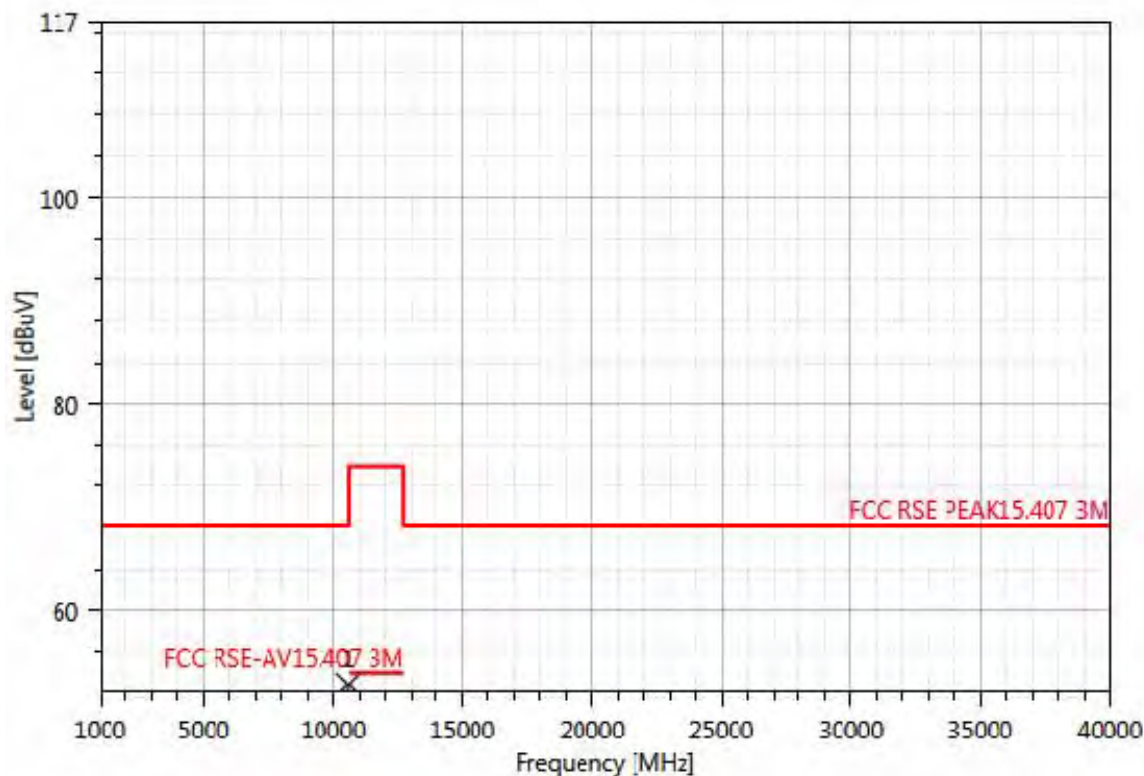
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Operation Mode :	802.11ac80B2	Test Date :	08/17/2016
Fundamental Frequency :	5290 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH HIGH	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
10580.00	H	Peak	52.83	33.96	18.88	68.30	-15.47

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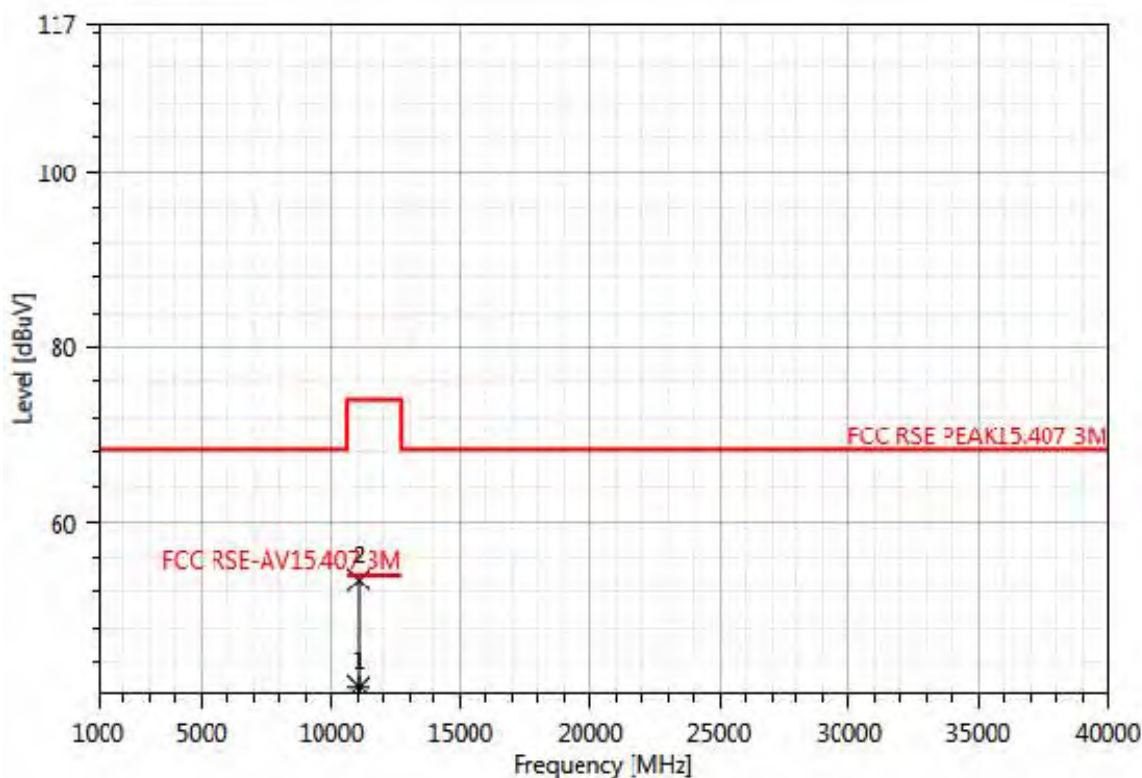
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## Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5470~5725 MHz

Operation Mode :	802.11ac80B3	Test Date :	08/17/2016
Fundamental Frequency :	5530 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH LOW	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11060.00	H	Average	41.22	20.96	20.26	54.00	-12.78
11060.00	H	Peak	53.41	33.15	20.26	74.00	-20.59

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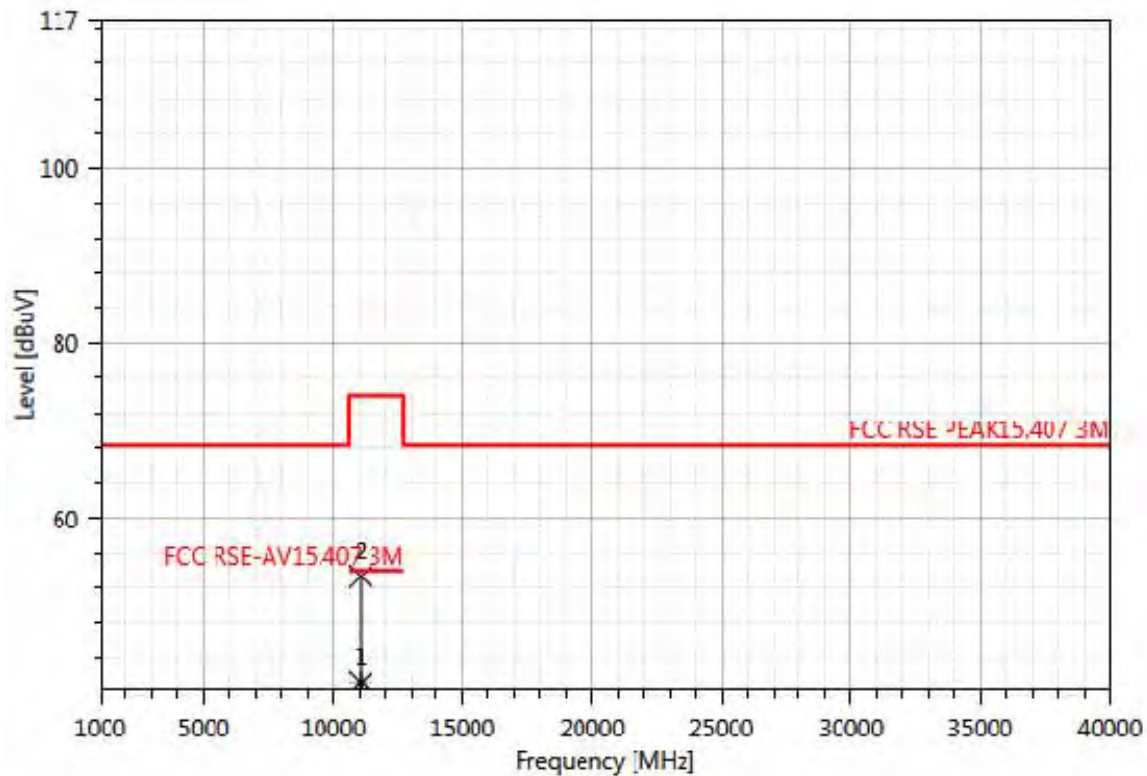
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Operation Mode : 802.11ac80B3  
 Fundamental Frequency : 5530 MHz  
 Operation Band : Tx CH LOW  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS		@ 3m	
		QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
11060.00	H	Average	41.17	20.91	20.26	54.00	-12.83
11060.00	H	Peak	53.30	33.04	20.26	74.00	-20.70

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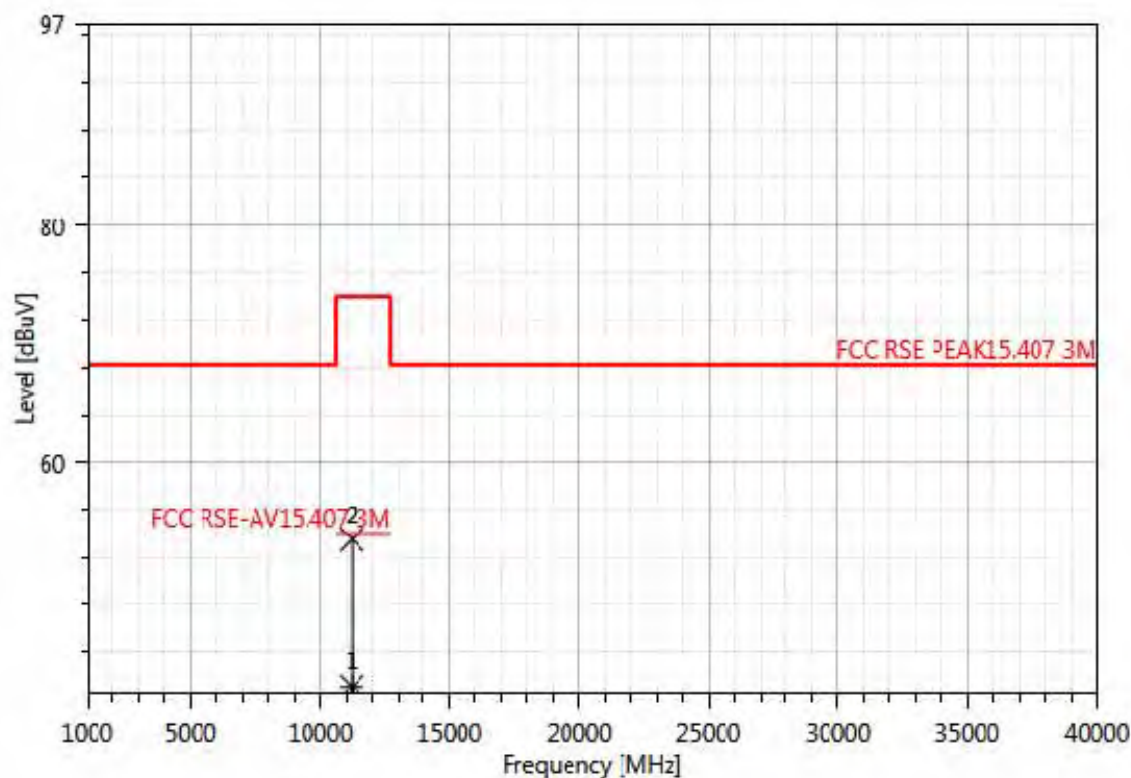
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Operation Mode : 802.11ac80B3  
Fundamental Frequency : 5610 MHz  
Operation Band : Tx CH MID  
EUT Pol. : H Plane

Test Date : 08/17/2016  
Temp. / Humi. : 21 deg\_C / 62 RH  
Test Engineer : Kane  
Measurement Antenna Pol. : VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11220.00	H	Average	41.11	20.63	20.48	54.00	-12.89
11220.00	H	Peak	53.52	33.04	20.48	74.00	-20.48

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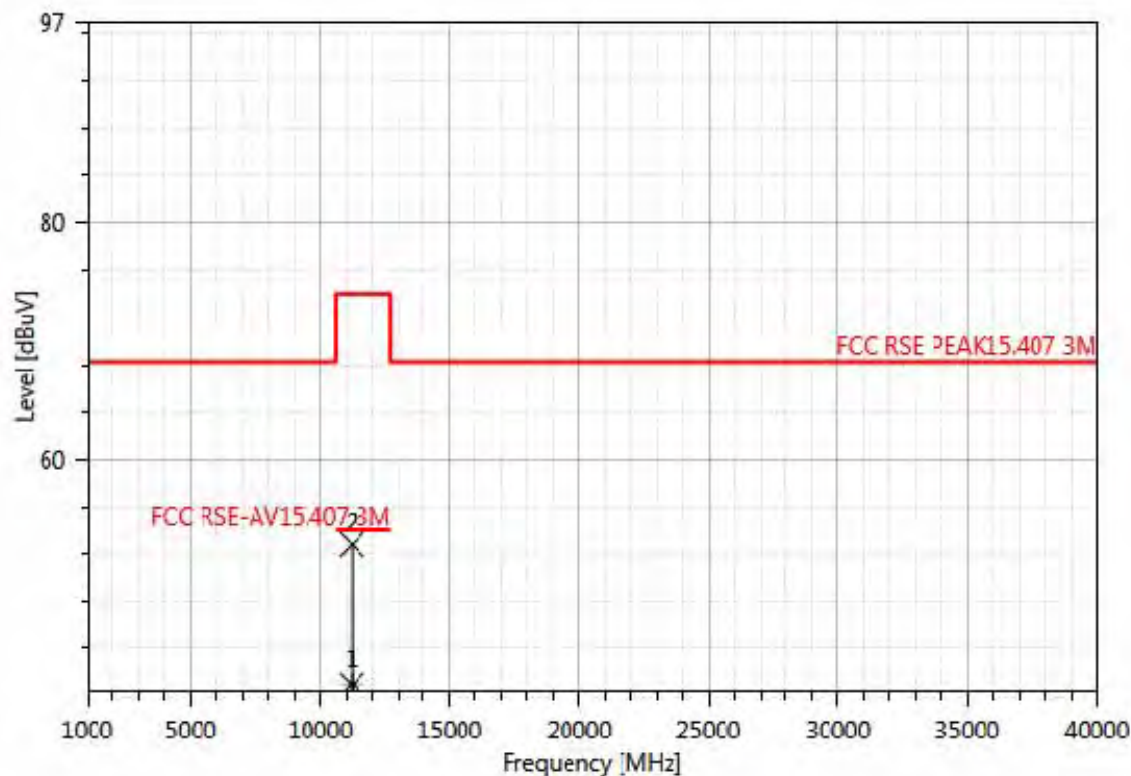
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Operation Mode : 802.11ac80B3  
 Fundamental Frequency : 5610 MHz  
 Operation Band : Tx CH MID  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS		@ 3m	
		QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
11220.00	H	Average	41.00	20.52	20.48	54.00	-13.00
11220.00	H	Peak	52.78	32.30	20.48	74.00	-21.22

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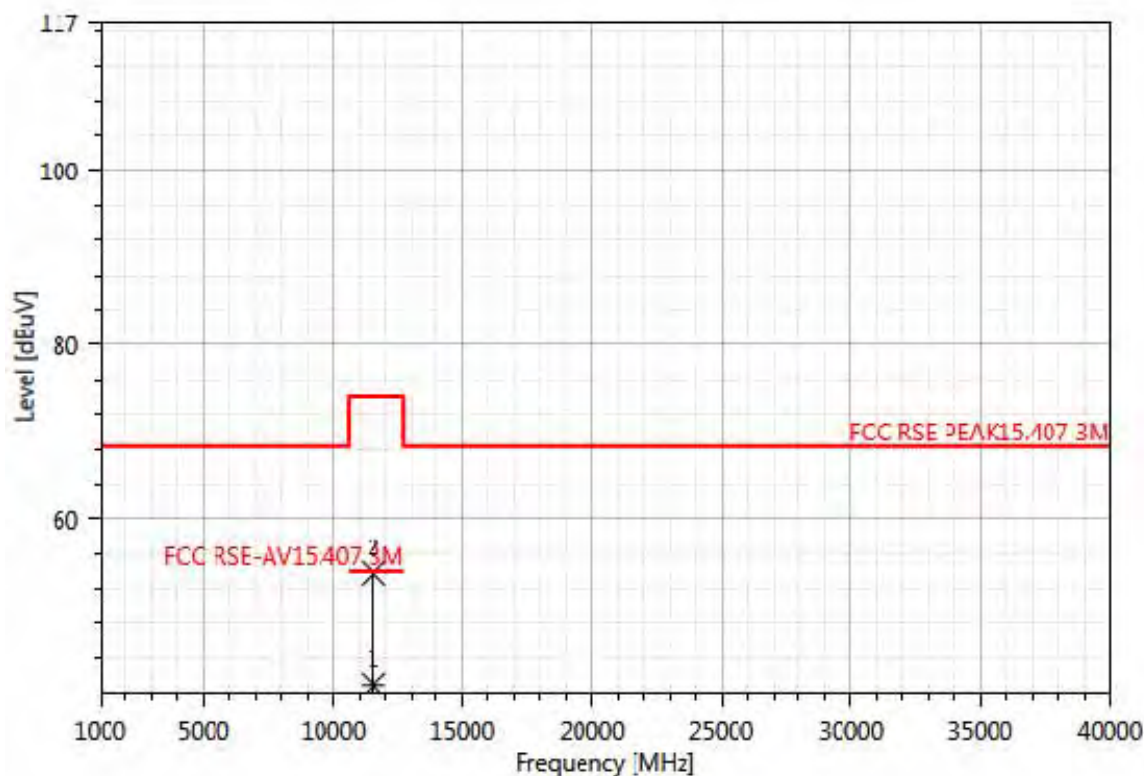
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## Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5725~5850 MHz

Operation Mode :	802.11ac80B4	Test Date :	08/17/2016
Fundamental Frequency :	5775 MHz	Temp. / Humi. :	21 deg_C / 62 RH
Operation Band :	Tx CH HIGH	Test Engineer :	Kane
EUT Pol. :	H Plane	Measurement Antenna Pol. :	VERTICAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11550.00	H	Average	40.94	20.42	20.52	54.00	-13.06
11550.00	H	Peak	53.79	33.27	20.52	74.00	-20.21

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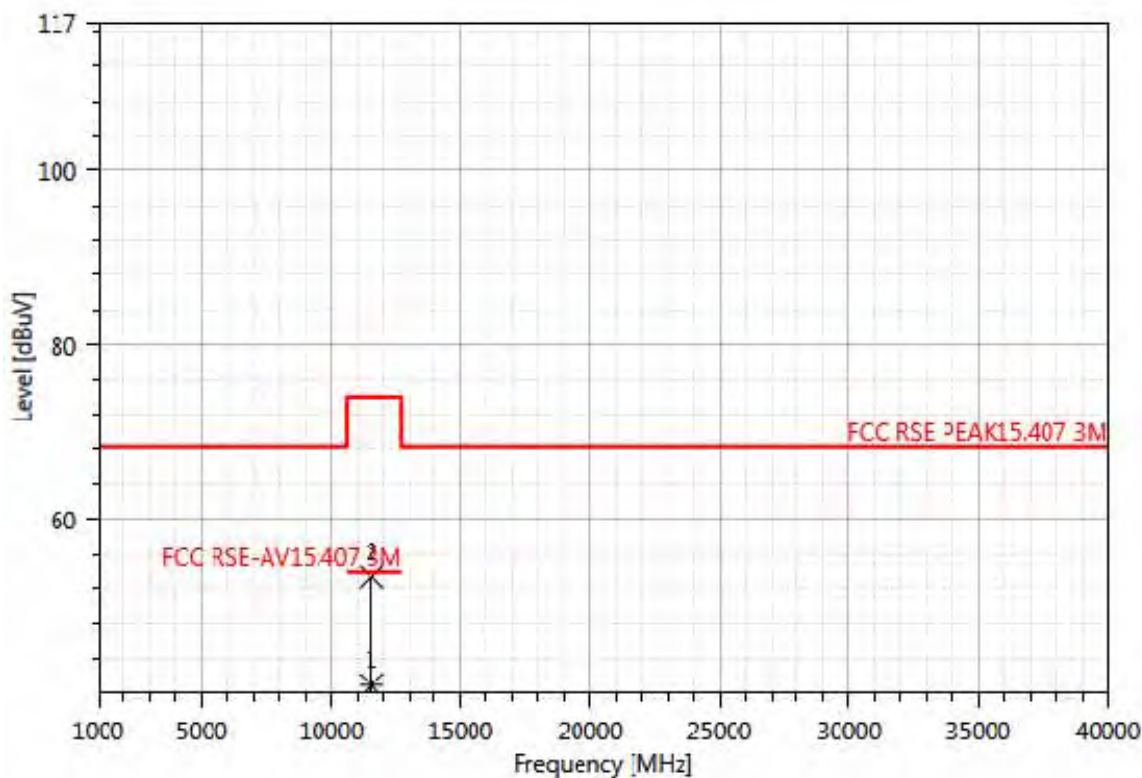
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Operation Mode : 802.11ac80B4  
 Fundamental Frequency : 5775 MHz  
 Operation Band : Tx CH HIGH  
 EUT Pol. : H Plane

Test Date : 08/17/2016  
 Temp. / Humi. : 21 deg\_C / 62 RH  
 Test Engineer : Kane  
 Measurement Antenna Pol. : HORIZONTAL



Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level	FS	dB	@ 3m	dB
11550.00	H	Average	40.89	20.37	20.52	54.00	-13.11
11550.00	H	Peak	53.34	32.82	20.52	74.00	-20.66

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## Band edge falling to restricted band

### 802.11a mode

Operation Mode : 802.11aB1      Test Date : 08/10/2016  
 Fundamental Frequency : 5180 MHz      Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW      Test Engineer : Kane  
 EUT Pol. : H Plane      Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5150.00	E	Average	43.40	37.52	5.88	54.00	-10.60
5150.00	E	Peak	56.20	50.31	5.88	74.00	-17.80

Operation Mode : 802.11aB1      Test Date : 08/10/2016  
 Fundamental Frequency : 5180 MHz      Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW      Test Engineer : Kane  
 EUT Pol. : H Plane      Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5150.00	E	Average	43.46	37.58	5.88	54.00	-10.54
5150.00	E	Peak	57.52	51.64	5.88	74.00	-16.48

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Operation Mode : 802.11aB2 Test Date : 08/10/2016  
 Fundamental Frequency : 5320 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5350.00	E	Average	42.89	36.74	6.15	54.00	-11.11
5350.00	E	Peak	56.59	50.44	6.15	74.00	-17.41

Operation Mode : 802.11aB2 Test Date : 08/10/2016  
 Fundamental Frequency : 5320 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5350.00	E	Average	43.26	37.11	6.15	54.00	-10.74
5350.00	E	Peak	58.81	52.66	6.15	74.00	-15.19

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Operation Mode : 802.11aB3 Test Date : 08/10/2016  
 Fundamental Frequency : 5500 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5460.00	E	Average	42.94	36.71	6.23	54.00	-11.06
5460.00	E	Peak	55.65	49.41	6.23	74.00	-18.35

Operation Mode : 802.11aB3 Test Date : 08/10/2016  
 Fundamental Frequency : 5500 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5460.00	E	Average	43.27	37.04	6.23	54.00	-10.73
5460.00	E	Peak	56.27	50.03	6.23	74.00	-17.73

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Operation Mode : 802.11aB3 Test Date : 08/10/2016  
 Fundamental Frequency : 5500 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5470.00	E	Peak	55.33	49.06	6.26	68.30	-12.97

Operation Mode : 802.11aB3 Test Date : 08/10/2016  
 Fundamental Frequency : 5500 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5470.00	E	Peak	58.60	52.34	6.26	68.30	-9.70

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Operation Mode : 802.11aB3 Test Date : 08/10/2016  
 Fundamental Frequency : 5700 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5725.00	E	Peak	55.66	49.07	6.59	68.30	-12.64

Operation Mode : 802.11aB3 Test Date : 08/10/2016  
 Fundamental Frequency : 5700 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5725.00	E	Peak	63.84	57.25	6.59	68.30	-4.46

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Operation Mode : 802.11aB4 Test Date : 08/10/2016  
 Fundamental Frequency : 5745 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5650.00	E	Peak	55.87	49.39	6.48	68.23	-12.36
5700.00	E	Peak	56.06	49.39	6.68	105.23	-49.17
5720.00	E	Peak	58.03	51.43	6.60	110.83	-52.80
5725.00	E	Peak	66.22	59.63	6.59	122.23	-56.01

Operation Mode : 802.11aB4 Test Date : 08/10/2016  
 Fundamental Frequency : 5745 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5650.00	E	Peak	55.93	49.45	6.48	68.23	-12.30
5700.00	E	Peak	55.70	49.02	6.68	105.23	-49.53
5720.00	E	Peak	60.79	54.19	6.60	110.83	-50.04
5725.00	E	Peak	65.60	59.01	6.59	122.23	-56.63

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Operation Mode : 802.11aB4 Test Date : 08/10/2016  
 Fundamental Frequency : 5825 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5850.00	E	Peak	58.45	51.16	7.28	122.23	-63.78
5855.00	E	Peak	56.89	49.57	7.32	110.83	-53.94
5875.00	E	Peak	57.17	49.80	7.37	105.23	-48.06
5925.00	E	Peak	57.97	50.58	7.39	68.23	-10.26

Operation Mode : 802.11aB4 Test Date : 08/10/2016  
 Fundamental Frequency : 5825 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5850.00	E	Peak	60.30	53.02	7.28	122.23	-61.93
5855.00	E	Peak	58.70	51.38	7.32	110.83	-52.13
5875.00	E	Peak	56.87	49.50	7.37	105.23	-48.36
5925.00	E	Peak	58.84	51.45	7.39	68.23	-9.39

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## 802.11n20 HT mode

Operation Mode : 802.11n20B1 Test Date : 08/10/2016  
 Fundamental Frequency : 5180 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5150.00	E	Average	43.43	37.55	5.88	54.00	-10.57
5150.00	E	Peak	59.57	53.69	5.88	74.00	-14.43

Operation Mode : 802.11n20B1 Test Date : 08/10/2016  
 Fundamental Frequency : 5180 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5150.00	E	Average	43.81	37.93	5.88	54.00	-10.19
5150.00	E	Peak	60.67	54.78	5.88	74.00	-13.33

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Operation Mode : 802.11n20B2 Test Date : 08/10/2016  
 Fundamental Frequency : 5320 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5350.00	E	Average	43.43	37.28	6.15	54.00	-10.57
5350.00	E	Peak	64.88	58.73	6.15	74.00	-9.12

Operation Mode : 802.11n20B2 Test Date : 08/10/2016  
 Fundamental Frequency : 5320 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5350.00	E	Average	44.18	38.03	6.15	54.00	-9.82
5350.00	E	Peak	63.78	57.63	6.15	74.00	-10.22
5354.64	S	Average	44.05	37.93	6.12	54.00	-9.95
5354.64	S	Peak	65.13	59.01	6.12	74.00	-8.87

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Operation Mode : 802.11n20B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5500 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5460.00	E	Average	43.38	37.15	6.23	54.00	-10.62
5460.00	E	Peak	56.76	50.53	6.23	74.00	-17.24

Operation Mode : 802.11n20B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5500 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5460.00	E	Average	43.88	37.65	6.23	54.00	-10.12
5460.00	E	Peak	57.26	51.02	6.23	74.00	-16.74

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 Fundamental Frequency : 5500 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5470.00	E	Peak	60.28	54.01	6.26	68.30	-8.02

Operation Mode : 802.11n20B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5500 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5470.00	E	Peak	62.34	56.08	6.26	68.30	-5.96

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 Fundamental Frequency : 5700 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5725.00	E	Peak	58.88	52.29	6.59	68.30	-9.42

Operation Mode : 802.11n20B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5700 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5725.00	E	Peak	63.40	56.81	6.59	68.30	-4.90

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Operation Mode : 802.11n20B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5745 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5650.00	E	Peak	55.66	49.17	6.48	68.23	-12.57
5700.00	E	Peak	56.22	49.55	6.68	105.23	-49.01
5720.00	E	Peak	62.28	55.68	6.60	110.83	-48.55
5725.00	E	Peak	68.78	62.19	6.59	122.23	-53.45

Operation Mode : 802.11n20B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5745 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5650.00	E	Peak	55.44	48.96	6.48	68.23	-12.79
5700.00	E	Peak	56.61	49.93	6.68	105.23	-48.62
5720.00	E	Peak	64.90	58.30	6.60	110.83	-45.93
5725.00	E	Peak	69.10	62.51	6.59	122.23	-53.13

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Operation Mode : 802.11n20B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5825 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5850.00	E	Peak	62.51	55.23	7.28	122.23	-59.72
5855.00	E	Peak	58.24	50.92	7.32	110.83	-52.59
5875.00	E	Peak	57.11	49.74	7.37	105.23	-48.12
5925.00	E	Peak	58.31	50.92	7.39	68.23	-9.92

Operation Mode : 802.11n20B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5825 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5850.00	E	Peak	64.64	57.36	7.28	122.23	-57.59
5855.00	E	Peak	60.69	53.37	7.32	110.83	-50.14
5875.00	E	Peak	57.46	50.09	7.37	105.23	-47.77
5925.00	E	Peak	57.99	50.60	7.39	68.23	-10.24

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## 802.11n40 HT mode

Operation Mode : 802.11n40B1 Test Date : 08/10/2016  
 Fundamental Frequency : 5190 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5150.00	E	Average	45.33	39.45	5.88	54.00	-8.67
5150.00	E	Peak	60.11	54.23	5.88	74.00	-13.89

Operation Mode : 802.11n40B1 Test Date : 08/10/2016  
 Fundamental Frequency : 5190 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5150.00	E	Average	46.50	40.62	5.88	54.00	-7.50
5150.00	E	Peak	65.00	59.11	5.88	74.00	-9.00

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Operation Mode : 802.11n40B2 Test Date : 08/10/2016  
 Fundamental Frequency : 5310 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5350.00	E	Average	43.66	37.51	6.15	54.00	-10.34
5350.00	E	Peak	57.79	51.64	6.15	74.00	-16.21

Operation Mode : 802.11n40B2 Test Date : 08/10/2016  
 Fundamental Frequency : 5310 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5350.00	E	Average	44.41	38.26	6.15	54.00	-9.59
5350.00	E	Peak	61.65	55.50	6.15	74.00	-12.35

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Operation Mode : 802.11n40B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5510 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5460.00	E	Average	45.91	39.68	6.23	54.00	-8.09
5460.00	E	Peak	65.35	59.12	6.23	74.00	-8.65

Operation Mode : 802.11n40B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5510 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5460.00	E	Average	47.14	40.91	6.23	54.00	-6.86
5460.00	E	Peak	64.40	58.16	6.23	74.00	-9.60

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Operation Mode : 802.11n40B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5510 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5470.00	E	Peak	64.50	58.23	6.26	68.30	-3.80

Operation Mode : 802.11n40B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5510 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5470.00	E	Peak	67.47	61.21	6.26	68.30	-0.83

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Operation Mode : 802.11n40B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5670 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5725.00	E	Peak	57.04	50.45	6.59	68.30	-11.26

Operation Mode : 802.11n40B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5670 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5725.00	E	Peak	57.60	51.01	6.59	68.30	-10.70

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Operation Mode : 802.11n40B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5755 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5650.00	E	Peak	56.44	49.96	6.48	68.23	-11.79
5700.00	E	Peak	57.17	50.50	6.68	105.23	-48.06
5720.00	E	Peak	68.07	61.47	6.60	110.83	-42.76
5725.00	E	Peak	69.36	62.76	6.59	122.23	-52.87

Operation Mode : 802.11n40B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5755 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5650.00	E	Peak	57.42	50.93	6.48	68.23	-10.81
5700.00	E	Peak	62.47	55.79	6.68	105.23	-42.76
5720.00	E	Peak	71.89	65.29	6.60	110.83	-38.94
5725.00	E	Peak	75.19	68.60	6.59	122.23	-47.04

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Operation Mode : 802.11n40B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5795 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5850.00	E	Peak	57.70	50.41	7.28	122.23	-64.53
5855.00	E	Peak	57.89	50.57	7.32	110.83	-52.94
5875.00	E	Peak	58.28	50.91	7.37	105.23	-46.95
5925.00	E	Peak	58.38	50.99	7.39	68.23	-9.85

Operation Mode : 802.11n40B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5795 MHz Temp. / Humi. : 21 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5850.00	E	Peak	58.34	51.06	7.28	122.23	-63.89
5855.00	E	Peak	59.52	52.20	7.32	110.83	-51.31
5875.00	E	Peak	57.88	50.51	7.37	105.23	-47.35
5925.00	E	Peak	57.95	50.56	7.39	68.23	-10.28

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## 802.11ac80 VHT mode

Operation Mode : 802.11ac80B1 Test Date : 08/10/2016  
 Fundamental Frequency : 5210 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5150.00	E	Average	45.06	39.18	5.88	54.00	-8.94
5150.00	E	Peak	64.09	58.21	5.88	74.00	-9.91

Operation Mode : 802.11ac80B1 Test Date : 08/10/2016  
 Fundamental Frequency : 5210 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5150.00	E	Average	44.67	38.79	5.88	54.00	-9.33
5150.00	E	Peak	62.20	56.32	5.88	74.00	-11.80

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Operation Mode : 802.11ac80B2 Test Date : 08/10/2016  
 Fundamental Frequency : 5290 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5350.00	E	Average	45.21	39.06	6.15	54.00	-8.79
5350.00	E	Peak	67.23	61.08	6.15	74.00	-6.77

Operation Mode : 802.11ac80B2 Test Date : 08/10/2016  
 Fundamental Frequency : 5290 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5350.00	E	Average	45.74	39.59	6.15	54.00	-8.26
5350.00	E	Peak	69.71	63.56	6.15	74.00	-4.29

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Operation Mode : 802.11ac80B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5530 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5457.00	S	Average	47.11	40.89	6.22	54.00	-6.89
5457.00	S	Peak	65.73	59.51	6.22	74.00	-8.27
5460.00	E	Average	47.22	40.99	6.23	54.00	-6.78
5460.00	E	Peak	63.61	57.37	6.23	74.00	-10.39

Operation Mode : 802.11ac80B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5530 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5460.00	E	Average	48.61	42.38	6.23	54.00	-5.39
5460.00	E	Peak	64.52	58.29	6.23	74.00	-9.48

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Operation Mode : 802.11ac80B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5530 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5469.60	E	Peak	66.30	60.04	6.26	68.30	-2.00
5470.00	E	Peak	64.49	58.22	6.26	68.30	-3.81

Operation Mode : 802.11ac80B3 Test Date : 08/10/2016  
 Fundamental Frequency : 5530 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor Mode	Actual Reading Level	Spectrum FS	Factor	Limit @ 3m	Margin
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5469.70	E	Peak	67.28	61.01	6.26	68.30	-1.02
5470.00	E	Peak	66.58	60.31	6.26	68.30	-1.72

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Operation Mode : 802.11ac80B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5775 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5650.00	E	Peak	58.70	52.22	6.48	68.23	-9.53
5700.00	E	Peak	58.75	52.07	6.68	105.23	-46.48
5720.00	E	Peak	65.70	59.10	6.60	110.83	-45.13
5725.00	E	Peak	64.59	58.00	6.59	122.23	-57.64

Operation Mode : 802.11ac80B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5775 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH LOW Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5650.00	E	Peak	63.14	56.66	6.48	68.23	-5.09
5700.00	E	Peak	65.68	59.01	6.68	105.23	-39.55
5720.00	E	Peak	68.71	62.11	6.60	110.83	-42.12
5725.00	E	Peak	68.59	62.00	6.59	122.23	-53.64

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Operation Mode : 802.11ac80B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5775 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : VERTICAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5850.00	E	Peak	58.16	50.88	7.28	122.23	-64.07
5855.00	E	Peak	57.56	50.24	7.32	110.83	-53.27
5875.00	E	Peak	58.10	50.73	7.37	105.23	-47.13
5925.00	E	Peak	57.65	50.26	7.39	68.23	-10.58

Operation Mode : 802.11ac80B4 Test Date : 08/10/2016  
 Fundamental Frequency : 5775 MHz Temp. / Humi. : 23 deg\_C / 62 RH  
 Operation Band : Bandedge CH HIGH Test Engineer : Kane  
 EUT Pol. : H Plane Measurement Antenna Pol. : HORIZONTAL

Freq.	Note	Decetor	Actual	Spectrum	Factor	Limit	Margin
		Mode	Reading Level	FS		@ 3m	
MHz	F/H/E/S	QP/AV/PK	dBμV/m	dBμV/m	dB	dBuV/m	dB
5850.00	E	Peak	62.08	54.80	7.28	122.23	-60.15
5855.00	E	Peak	62.32	55.00	7.32	110.83	-48.51
5875.00	E	Peak	61.54	54.17	7.37	105.23	-43.69
5925.00	E	Peak	59.21	51.82	7.39	68.23	-9.02

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## 12. TRANSMISSION IN THE ABSENCE OF DATA

### 12.1 Standard Applicable

According to §15.407(c)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

### 12.2 Result

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

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## 13. FREQUENCY STABILITY

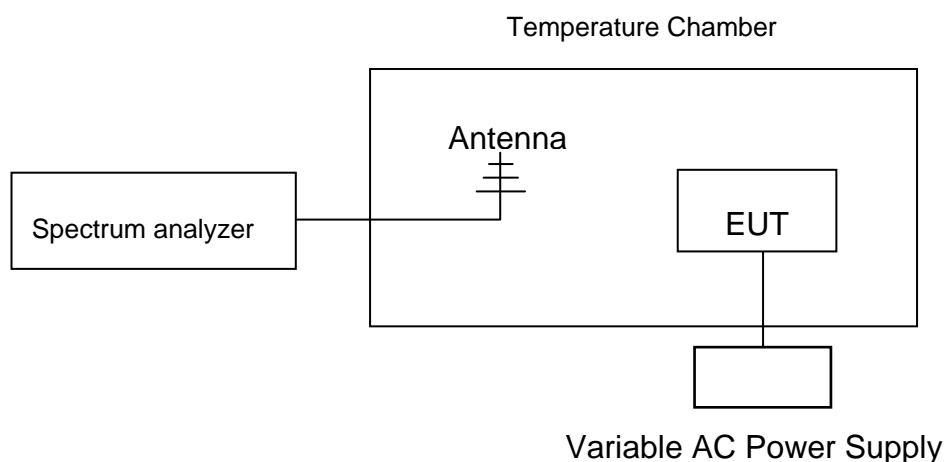
### 13.1 Standard Applicable

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

### 13.2 Measurement Procedure

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

### 13.3 Test SET-UP



### 13.4 Measurement Equipment Used:

SGS Conducted Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EXA Spectrum Analyzer	Agilent	N9030A	MY53120760	02/26/2016	02/25/2017
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2016	01/01/2017
Temperature Chamber	TERCHY	MHG-120LF	911009	05/17/2016	05/16/2017

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### 13.5 Measurement Result

Operation Mode	802.11 a	Test Date	2016.08.19
Temperature	:25	Test By	Curry
Humidity	:60 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	5.5V	36	5180	5,179.98486	0.00000292
		44	5220	5,219.98486	0.00000290
		48	5240	5,239.98486	0.00000289
		52	5260	5,259.98486	0.00000288
		60	5300	5,299.98486	0.00000286
		64	5320	5,319.98486	0.00000285
		100	5500	5,499.98486	0.00000275
		116	5580	5,579.98486	0.00000271
		140	5700	5,699.98486	0.00000266
		149	5745	5,745.00000	0.00000000
		157	5785	5,784.98486	0.00000262
		165	5825	5,824.98486	0.00000260
	4.5V	36	5180	5,179.98486	0.00000292
		44	5220	5,220.00000	0.00000000
		48	5240	5,239.98486	0.00000289
		52	5260	5,259.98486	0.00000288
		60	5300	5,299.98486	0.00000286
		64	5320	5,319.98486	0.00000285
		100	5500	5,499.98486	0.00000275
		116	5580	5,579.98486	0.00000271
		140	5700	5,699.98486	0.00000266
		149	5745	5,744.98486	0.00000263
		157	5785	5,784.98486	0.00000262
		165	5825	5,824.98486	0.00000260

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25	5V	36	5180	5,179.98486	0.00000292
		44	5220	5,219.98486	0.00000290
		48	5240	5,239.98486	0.00000289
		52	5260	5,259.98486	0.00000288
		60	5300	5,299.98486	0.00000286
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		44	5220	5,219.98486	0.00000290
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	4.5V	36	5180	5,179.98486	0.00000292
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		52	5260	5,259.98486	0.00000288
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		116	5580	5,579.98486	0.00000271
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		157	5785	5,784.98486	0.00000262
		165	5825	5,824.98486	0.00000260

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Operation Mode	802.11 n_HT40	Test Date	2016.08.19
Temperature	:17	Test By	Curry
Humidity	:65 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	5.5V	38	5190	5,190.00000	0.00000000
		46	5230	5,230.00000	0.00000000
		54	5270	5,269.97510	0.00000473
		62	5310	5,309.97510	0.00000469
		102	5510	5,509.97510	0.00000452
		110	5550	5,550.00000	0.00000000
		134	5670	5,669.97510	0.00000439
		151	5755	5,755.00000	0.00000000
		159	5795	5,794.97510	0.00000430
	4.5V	38	5190	5,189.97510	0.00000480
		46	5230	5,229.97510	0.00000476
		54	5270	5,270.00000	0.00000000
		62	5310	5,309.97510	0.00000469
		102	5510	5,509.97510	0.00000452
		110	5550	5,549.97510	0.00000449
		134	5670	5,669.97510	0.00000439
		151	5755	5,754.97510	0.00000433
		159	5795	5,794.97510	0.00000430

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25	5V	38	5190	5,190.00000	0.00000000
		46	5230	5,230.00000	0.00000000
		54	5270	5,269.97510	0.00000473
		62	5310	5,310.00000	0.00000000
		102	5510	5,509.97510	0.00000452
		110	5550	5,549.97510	0.00000449
		134	5670	5,670.00000	0.00000000
		151	5755	5,754.97510	0.00000433
		159	5795	5,794.97510	0.00000430
60	5.5V	38	5190	5,190.00000	0.00000000
		46	5230	5,230.00000	0.00000000
		54	5270	5,269.97510	0.00000473
		62	5310	5,309.97510	0.00000469
		102	5510	5,509.97510	0.00000452
		110	5550	5,550.00000	0.00000000
		134	5670	5,669.97510	0.00000439
		151	5755	5,754.97510	0.00000433
		159	5795	5,795.00000	0.00000000
	4.5V	38	5190	5,190.00000	0.00000000
		46	5230	5,230.00000	0.00000000
		54	5270	5,269.97510	0.00000473
		62	5310	5,309.97510	0.00000469
		102	5510	5,510.00000	0.00000000
		110	5550	5,549.97510	0.00000449
		134	5670	5,670.00000	0.00000000
		151	5755	5,754.97510	0.00000433
		159	5795	5,795.00000	0.00000000

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Operation Mode	802.11 ac_VHT80	Test Date	2016.08.19
Temperature	:17	Test By	Curry
Humidity	:65 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	5.5V	42	5210	5,209.95020	0.00000956
		58	5290	5,289.95020	0.00000941
		106	5530	5,529.95020	0.00000901
		122	5610	5,609.95020	0.00000888
		155	5775	5,775.00000	0.00000000
	4.5V	42	5210	5,209.95020	0.00000956
		58	5290	5,289.95020	0.00000941
		106	5530	5,529.95020	0.00000901
		122	5610	5,610.00000	0.00000000
		155	5775	5,775.00000	0.00000000
25	5V	42	5210	5,209.95020	0.00000956
		58	5290	5,290.00000	0.00000000
		106	5530	5,529.95020	0.00000901
		122	5610	5,610.00000	0.00000000
		155	5775	5,775.00000	0.00000000
60	5.5V	42	5210	5,209.95020	0.00000956
		58	5290	5,289.95020	0.00000941
		106	5530	5,529.95020	0.00000901
		122	5610	5,609.95020	0.00000888
		155	5775	5,774.95020	0.00000862
	4.5V	42	5210	5,210.00000	0.00000000
		58	5290	5,289.95020	0.00000941
		106	5530	5,529.95020	0.00000901
		122	5610	5,610.00000	0.00000000
		155	5775	5,775.00000	0.00000000

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## 14. ANTENNA REQUIREMENT

### 14.1 Standard Applicable

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

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

### 14.2 Antenna Connected Construction

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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## 15. FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### 15.1 Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-15000	/	/	1.0	30

F = frequency in MHz

\* = Plane-wave equipment power density

### Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

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## 15.2 Maximum Permissible Exposure (MPE) Evaluation (Worst Case)

### 802.11a Max. output power

#### 802.11a\_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	10.45	11.092	23.98	PASS
44	5220	MCS0	<b>10.47</b>	<b>11.143</b>	23.98	PASS
48	5240	MCS0	10.40	10.965	23.98	PASS
52	5260	MCS0	<b>11.26</b>	<b>13.366</b>	23.98 or $11+10\log(B) = 24.31$	PASS
60	5300	MCS0	11.03	12.677	23.98 or $11+10\log(B) = 24.34$	PASS
64	5320	MCS0	11.06	12.764	23.98 or $11+10\log(B) = 24.34$	PASS
100	5500	MCS0	<b>10.47</b>	<b>11.143</b>	23.98 or $11+10\log(B) = 24.35$	PASS
116	5580	MCS0	9.83	9.616	23.98 or $11+10\log(B) = 24.35$	PASS
140	5700	MCS0	9.46	8.831	23.98 or $11+10\log(B) = 24.33$	PASS
149	5745	MCS0	<b>10.27</b>	<b>10.641</b>	30	PASS
157	5785	MCS0	9.30	8.511	30	PASS
165	5825	MCS0	9.45	8.810	30	PASS

### MPE Prediction (802.11a 5150~5250)

Average output power at antenna input terminal:	<b>10.47</b>	(dBm)
Average output power at antenna input terminal:	11.142945	(mW)
Duty cycle:	<b>97.11</b>	(%)
Maximum Pav :	10.820914	(mW)
Peak Antenna gain (Maximum):	<b>2.63</b>	(dBi)
Peak Antenna gain (linear):	1.8323144	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	<b>5220</b>	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm <sup>2</sup> )
Power density at predication frequency at 20 (cm)	0.004	(mW/cm <sup>2</sup> )
<b>Measurement Result</b>		
The predicted power density level at 20 cm is 0.004 mW/cm <sup>2</sup> .		
This is below the uncontrolled exposure limit of 1 mW/cm <sup>2</sup> at 5220MHz.		

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## MPE Prediction (802.11a 5250~5350)

Average output power at antenna input terminal:	11.26	(dBm)
Average output power at antenna input terminal:	13.365955	(mW)
Duty cycle:	97.11	(%)
Maximum Pav :	12.979679	(mW)
Peak Antenna gain (Maximum):	2.28	(dBi)
Peak Antenna gain (linear):	1.6904409	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	5260	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm <sup>2</sup> )
Power density at predication frequency at 20 (cm)	0.004	(mW/cm <sup>2</sup> )
<b>Measurement Result</b>		
The predicted power density level at 20 cm is 0.004 mW/cm <sup>2</sup> .		
This is below the uncontrolled exposure limit of 1 mW/cm <sup>2</sup> at 5260MHz.		

## MPE Prediction (802.11a 5470~5725)

Average output power at antenna input terminal:	10.47	(dBm)
Average output power at antenna input terminal:	11.142945	(mW)
Duty cycle:	97.11	(%)
Maximum Pav :	10.820914	(mW)
Peak Antenna gain (Maximum):	4.08	(dBi)
Peak Antenna gain (linear):	2.5585859	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	5500	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm <sup>2</sup> )
Power density at predication frequency at 20 (cm)	0.006	(mW/cm <sup>2</sup> )
<b>Measurement Result</b>		
The predicted power density level at 20 cm is 0.006 mW/cm <sup>2</sup> .		
This is below the uncontrolled exposure limit of 1 mW/cm <sup>2</sup> at 5500MHz.		

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## MPE Prediction (802.11a 5725~5850)

Average output power at antenna input terminal:	10.27	(dBm)
Average output power at antenna input terminal:	10.64143	(mW)
Duty cycle:	97.11	(%)
Maximum Pav :	10.333893	(mW)
Peak Antenna gain (Maximum):	3.63	(dBi)
Peak Antenna gain (linear):	2.3067472	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	5745	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm <sup>2</sup> )
Power density at predication frequency at 20 (cm)	0.005	(mW/cm <sup>2</sup> )
<b>Measurement Result</b>		
The predicted power density level at 20 cm is 0.005 mW/cm <sup>2</sup> .		
This is below the uncontrolled exposure limit of 1 mW/cm <sup>2</sup> at 5745MHz.		

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