

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

OF

**Product Name:** Tablet PC  
**Brand Name:** hp  
**Model No.:** HSTNN-Q93C  
**FCC ID:** B94HNQ93CSPN  
**Report No.:** E2/2015/30062  
**Issue Date:** Apr. 30, 2015  
**FCC Rule Part:** §15.407

**Prepared for:** Hewlett-Packard Company  
 1501 Page Mill Road, M/S1419, Palo Alto, CA  
 94304, United States

**Prepared by:** SGS Taiwan Ltd.  
 Electronics & Communication Laboratory  
 No.2, Keji 1st Rd., Guishan District, Taoyuan  
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## VERIFICATION OF COMPLIANCE

**Applicant:** Hewlett-Packard Company  
 1501 Page Mill Road, M/S1419, Palo Alto, CA, 94304, United States

**Product Name:** Tablet PC

**Brand Name:** hp

**Model No.:** HSTNN-Q93C

**FCC ID:** B94HNQ93CSPN

**File Number:** E2/2015/30062

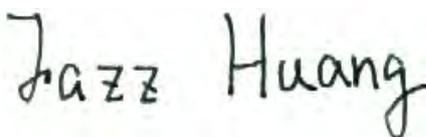
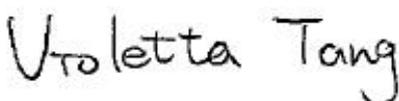
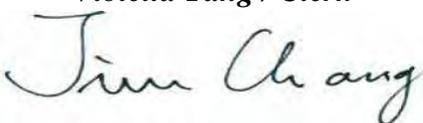
**Date of test:** Mar. 16, 2015 ~ Apr. 29, 2015

**Date of EUT Received:** Mar. 16, 2015

**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.

<b>Test By:</b>	 <hr style="border: 0; border-top: 1px solid black;"/> Jazz Huang / Asst. Supervisor	<b>Date:</b>	Apr. 30, 2015
<b>Prepared By:</b>	 <hr style="border: 0; border-top: 1px solid black;"/> Violetta Tang / Clerk	<b>Date:</b>	Apr. 30, 2015
<b>Approved By:</b>	 <hr style="border: 0; border-top: 1px solid black;"/> Jim Chang / Asst. Manager	<b>Date:</b>	Apr. 30, 2015

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## Revision History

Report Number	Revision	Description	Issue Date
E2/2015/30062	Rev.00	Initial creation of document	Apr. 30, 2015

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# 1. GENERAL INFORMATION

## 1.1 Product Description

General:

Product Name:	Tablet PC	
Brand Name:	hp	
Model No.:	HSTNN-Q93C	
Product SW/HW version	Win 8.1 / 1.0	
Radio SW/HW version	7.7.2.0 / 1.0	
Power Supply:	3.8Vdc form Rechargeable Li-ion Battery or 5.25V from AC/DC Adapter	
	Battery:	1. Model No.: HSTNH-C408M-SD, Supplier: Dynapack
		2. Model No.: HSTNH-C408M-SS, Supplier: SDI (SQ)
	Adapter:	1. Model No.: TPN-AA01, Supplier: AcBel
		2. Model No.: TPN-DA01, Supplier: Delta
		3. Model No.: TPN-LA01, Supplier: Lite-On

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WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Rated Power (Avg.)	Modulation Technology
11a	5150~5250	4	12.41dBm	OFDM
	5250~5350	4	12.41dBm	
	5470~5725	12	12.39dBm	
	5725-5850	5	12.45dBm	
11n / ac	HT20 / VHT20 5150~5250	4	VHT: 12.37dBm (Worst Case)	OFDM
	HT20 / VHT20 5250~5350	4	VHT: 12.41dBm (Worst Case)	
	HT20 / VHT20 5470~5725	12	VHT: 12.39dBm (Worst Case)	
	HT20 / VHT20 5725-5850	5	VHT: 12.45dBm (Worst Case)	
11n / ac	HT40 / VHT40 5150~5250	2	VHT: 12.44dBm (Worst Case)	OFDM
	HT40 / VHT40 5250~5350	2	VHT: 12.36dBm (Worst Case)	
	HT40 / VHT40 5470~5725	6	VHT: 12.46dBm (Worst Case)	
	HT40 / VHT40 5725-5850	2	VHT: 12.44dBm (Worst Case)	
11ac	VHT80 5150~5250	1	12.22dBm	OFDM
	VHT80 5250~5350	1	12.03dBm	
	VHT80 5470~5725	3	12.11dBm	
	VHT80 5725-5850	1	12.34dBm	

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<p>Antenna Designation</p>	<p>PIFA Antenna          Main:          Part No.: DQ6R15GAV00, Supplier: Wistron Neweb Corp          5GHz Gain: -4.47dBi (5150MHz-5250MHz)          5GHz Gain: -4.48dBi (5250MHz-5350MHz)          5GHz Gain: -2.13dBi (5470MHz-5725MHz)          5GHz Gain: -3.57dBi (5725MHz-5850MHz)          Aux:          Part No.: DQ6R15GAW00, Supplier: Wistron Neweb Corp          5GHz Gain: -0.51dBi (5150MHz-5250MHz)          5GHz Gain: -0.64dBi (5250MHz-5350MHz)          5GHz Gain: -0.44dBi (5470MHz-5725MHz)          5GHz Gain: -2.09dBi (5725MHz-5850MHz)</p>
<p>Modulation type</p>	<p>64QAM, 16QAM, QPSK, BPSK for OFDM</p>
<p>Transition Rate:</p>	<p>802.11 a: 6/9/12/18/24/36/48/54 Mbps          802.11 n_20MHz: 6.5 – 65Mbps          802.11 n_40MHz: 13.5 – 135Mbps          802.11 ac_20MHz: 6.5 – 65Mbps          802.11 ac_40MHz: 13.5 – 135Mbps          802.11 ac_80MHz: 29.3 – 292.5Mbps</p>

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## 1.2 Product Feature of Equipment Under Test

The equipment under Test (Hereafter Called: EUT) is Tablet PC supporting Wi-Fi 802.11abgn & ac, Bluetooth with NFC features, and below is details of information.

Product Feature	
Product Name:	Tablet PC
Brand Name:	hp
Model No.:	HSTNN-Q93C
FCC ID	B94HNQ93CSPN
Wi-Fi Specification	802.11a/b/g/n/ac
Bluetooth Version	V4.0 dual mode + HS
NFC Specification	NFC

**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 v01

FCC KDB 662311 D01 Multiple Transmitter Output

FCC KDB 644545 D03 Guidance for IEEE 802.11ac v01

ANSI C63.10:2013

Note:

1. All test items have been performed and record as per the above standards.
2. The composite system is compliance with FCC Subpart B is authorized under the certification procedure.
3. The EUT was placed 1.5m height for frequency above 1GHz in accordance with ANSI C63.10:2013.

### 1.4 Test Facility

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

FCC Registration Numbers are: 628985

Canada Registration Number: 4620A-5

### 1.5 Special Accessories

There are no special accessories used while test was conducted.

### 1.6 Equipment Modifications

There was no modification incorporated into the EUT.

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## 2. SYSTEM TEST CONFIGURATION

### 2.1 EUT Configuration

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

### 2.2 EUT Exercise

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

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz,. The CISPR Quasi-Peak and Average detector mode is employed according to §15.107. 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 a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.

### 2.4 Measurement Results Explanation Example

#### For all conducted test items:

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

#### Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor. Following shows an offset computation example with cable loss 802.11a: 2.25dB, 802.11ac\_VHT20/40: 2.32dB, 802.11ac\_VHT80: 2.54dB and 10dB attenuator.

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## 2.5 Configuration of Tested System

**Fig. 2-1 Radiated Emission**



**Fig. 2-2 Conducted (Antenna Port) 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	DRTU	N/A	N/A	N/A	N/A
2.	DC Power Supply	Agilent	E3634A	MY53180030	Shield	Un-shield

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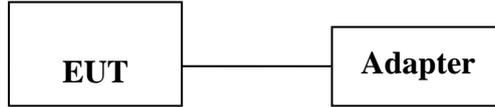
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**Fig. 2-3 AC Power Line Conducted Emission**



**Table 2-2 Equipment Used in Tested System**

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	DRTU	N/A	N/A	N/A	N/A

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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	144	5720 MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	126	5630 MHz
110	5590 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac\_VHT80

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
106	5530 MHz	138	5690 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 802.11ac yields the highest reading that generates the highest emission. Therefore, 802.11ac as the mode of test configuration is chosen to carry out the relevantly mandatory test items.

#### RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	44	OFDM	6	AUX
802.11ac_VHT80	5210	42	42	OFDM	MCS0	AUX
802.11a	5260~5320	52 to 64	60	OFDM	6	AUX
802.11ac_VHT80	5290	58	58	OFDM	MCS0	AUX
802.11a	5500~5700	100 to 140	116	OFDM	6	AUX
802.11ac_VHT80	5530~5690	106 to 138	122	OFDM	MCS0	AUX
802.11a	5745~5825	149 to 165	157	OFDM	6	AUX
802.11ac_VHT80	5775	155	155	OFDM	MCS0	AUX
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	6	AUX
802.11ac_VHT20				OFDM	MCS0	AUX
802.11ac_VHT40	5190~5230	38 to 46	38,46	OFDM	MCS0	AUX
802.11ac_VHT80	5210	42	42	OFDM	MCS0	AUX
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	AUX
802.11ac_VHT20				OFDM	MCS0	AUX
802.11ac_VHT40	5270~5310	54 to 62	54,62	OFDM	MCS0	AUX
802.11ac_VHT80	5290	58	58	OFDM	MCS0	AUX

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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	100,116,140,144	OFDM	6	AUX
802.11ac_VHT20				OFDM	MCS0	AUX
802.11ac_VHT40	5510~5710	102 to 142	102,110,134,142	OFDM	MCS0	AUX
802.11ac_VHT80	5530~5690	106 to 138	106,122,138	OFDM	MCS0	AUX
802.11a	5745~5825	149 to 165	149,157,165	OFDM	6	AUX
802.11ac_VHT20				OFDM	MCS0	AUX
802.11ac_VHT40	5755~5795	151 to 159	151,159	OFDM	MCS0	AUX
802.11ac_VHT80	5775	155	155	OFDM	MCS0	AUX

**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	6	AUX
802.11ac_HT20 802.11ac_VHT20				OFDM	MCS0	AUX
802.11ac_HT40 802.11ac_VHT40	5190~5230	38 to 46	38,46	OFDM	MCS0	AUX
802.11ac_VHT80	5210	42	42	OFDM	MCS0	AUX
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	AUX
802.11ac_HT20 802.11ac_VHT20				OFDM	MCS0	AUX
802.11ac_HT40 802.11ac_VHT40	5270~5310	54 to 62	54,62	OFDM	MCS0	AUX
802.11ac_VHT80	5290	58	58	OFDM	MCS0	AUX
802.11a	5500~5720	100 to 144	100,116,140,144	OFDM	6	AUX
802.11ac_HT20 802.11ac_VHT20				OFDM	MCS0	AUX
802.11ac_HT40 802.11ac_VHT40	5510~5710	102 to 142	102,110,134,142	OFDM	MCS0	AUX
802.11ac_VHT80	5530~5690	106 to 138	106,122,138	OFDM	MCS0	AUX
802.11a	5745~5825	149 to 165	149,157,165	OFDM	6	AUX
802.11ac_HT20 802.11ac_VHT20				OFDM	MCS0	AUX
802.11ac_HT40 802.11ac_VHT40	5755~5795	151 to 159	151,159	OFDM	MCS0	AUX
802.11ac_VHT80	5775	155	155	OFDM	MCS0	AUX

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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> )	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> )	30MHz - 167MHz: +/- 4.22dB
	167MHz - 500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

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

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## 6. CONDUCTED EMISSION TEST

### 6.1. Standard Applicable

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

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

Note

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

### 6.2. Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCI 3	101311	06/20/2014	06/19/2015
Coaxial Cables	N/A	N30N30-1042-150c m	N/A	01/06/2015	01/07/2016
LISN	Schwarzbeck	NSLK 8127	8127-648	06/10/2014	06/09/2015
LISN	Rolf-Heine	NNB-2/16Z	99012	03/26/2014	03/25/2015
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

### 6.3. EUT Setup

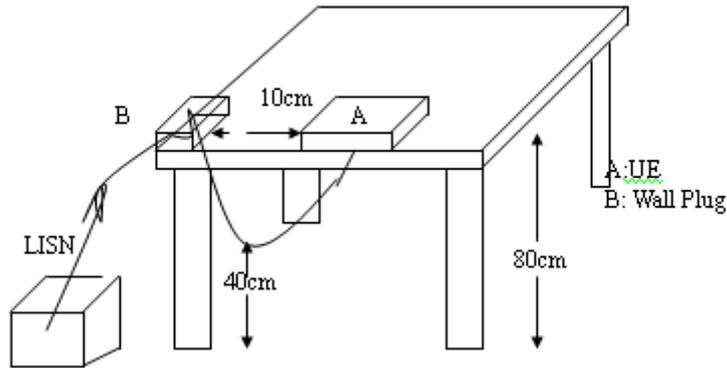
- The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
- The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- The LISN was connected with 120Vac/60Hz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

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### 6.4. Test SET-UP



### 6.5. Measurement Procedure

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

### 6.6. Measurement Result

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

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

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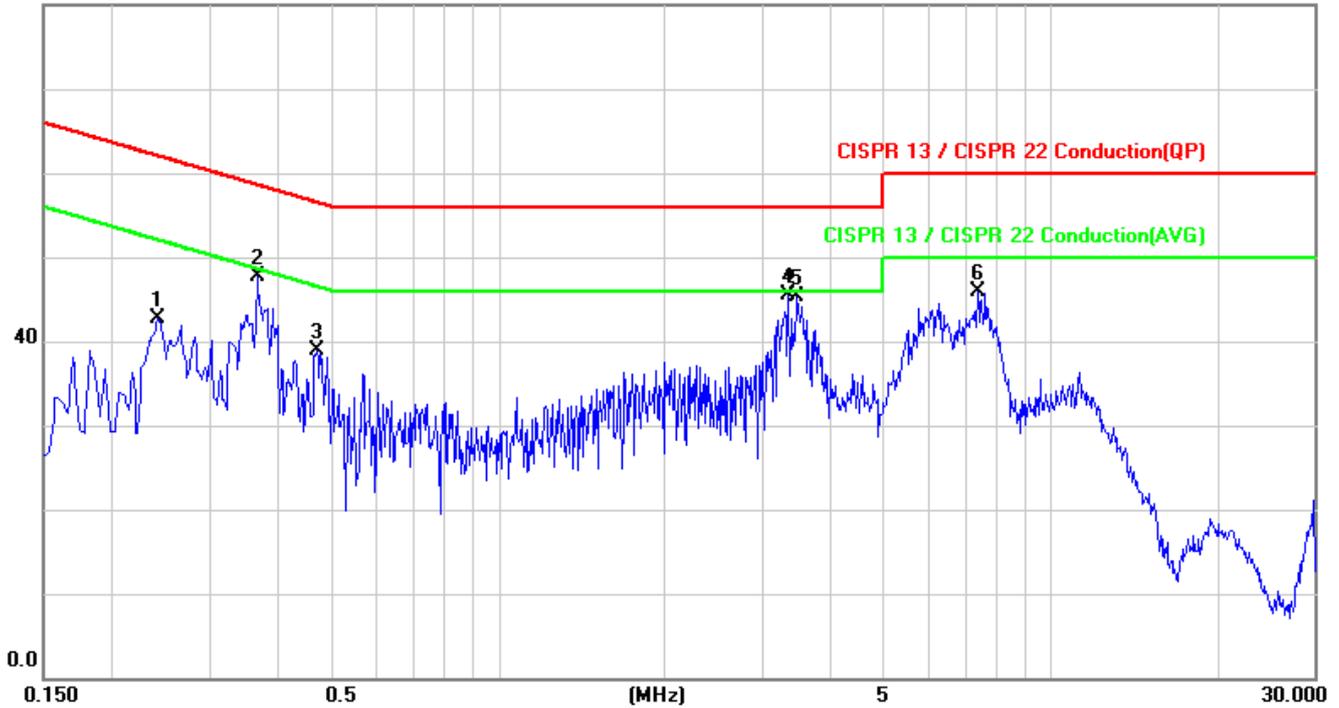
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### AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation mode			Test Date:	Apr. 10, 2015
Temperature:	20	Humidity:	64 %	Test By:	Ashton
Adapter Model No.:	TPN-AA01				

80.0 dBuV



No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Comment
		(MHz)	dBuV	(dB)	(dBuV)	(dBuV)	(dB)		
1		0.2420	42.53	0.10	42.63	62.03	-19.40	peak	
2		0.3660	47.52	0.15	47.67	58.59	-10.92	peak	
3		0.4700	38.63	0.21	38.84	56.51	-17.67	peak	
4	*	3.3620	44.84	0.60	45.44	56.00	-10.56	peak	
5		3.4740	44.75	0.60	45.35	56.00	-10.65	peak	
6		7.4020	45.27	0.65	45.92	60.00	-14.08	peak	

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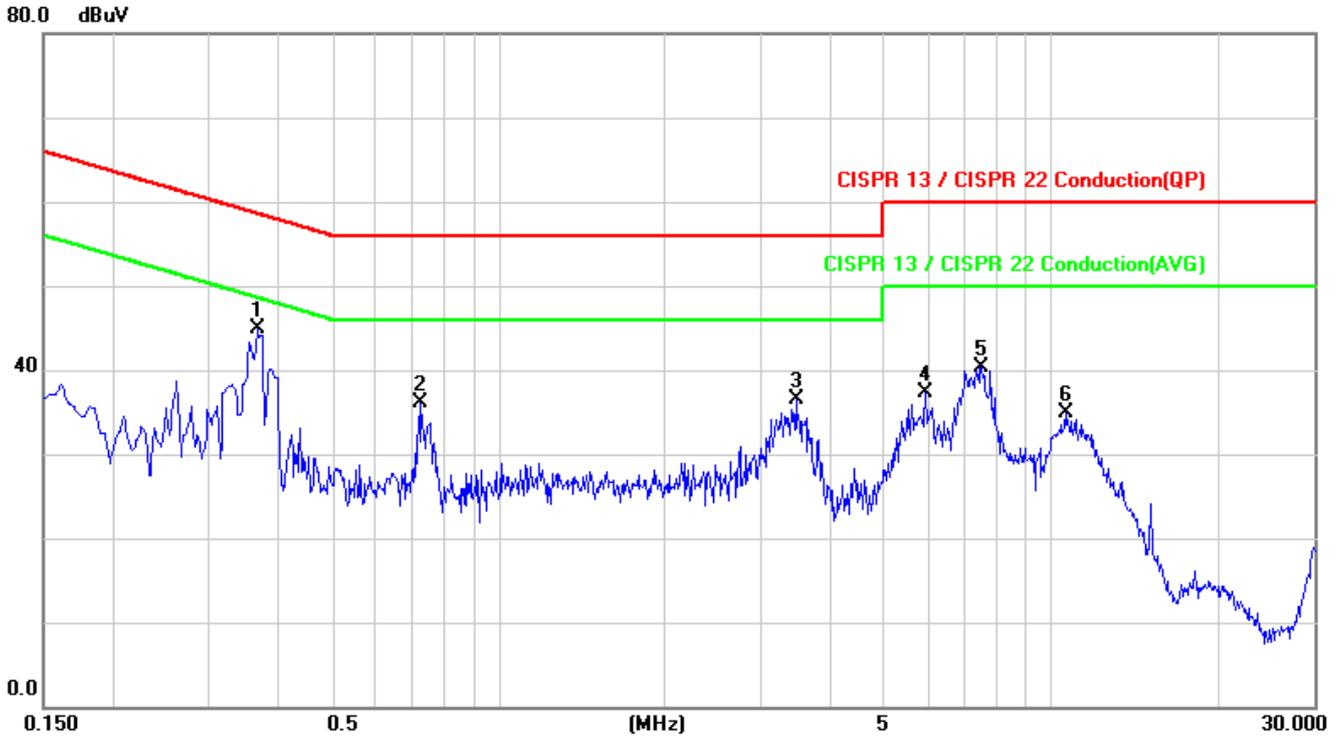
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No.	Mk.	Freq. (MHz)	Reading dBuV	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	*	0.3660	44.81	0.16	44.97	58.59	-13.62	peak	
2		0.7260	35.72	0.33	36.05	56.00	-19.95	peak	
3		3.4620	35.82	0.60	36.42	56.00	-19.58	peak	
4		5.9420	36.59	0.63	37.22	60.00	-22.78	peak	
5		7.5140	39.71	0.66	40.37	60.00	-19.63	peak	
6		10.6620	34.14	0.68	34.82	60.00	-25.18	peak	

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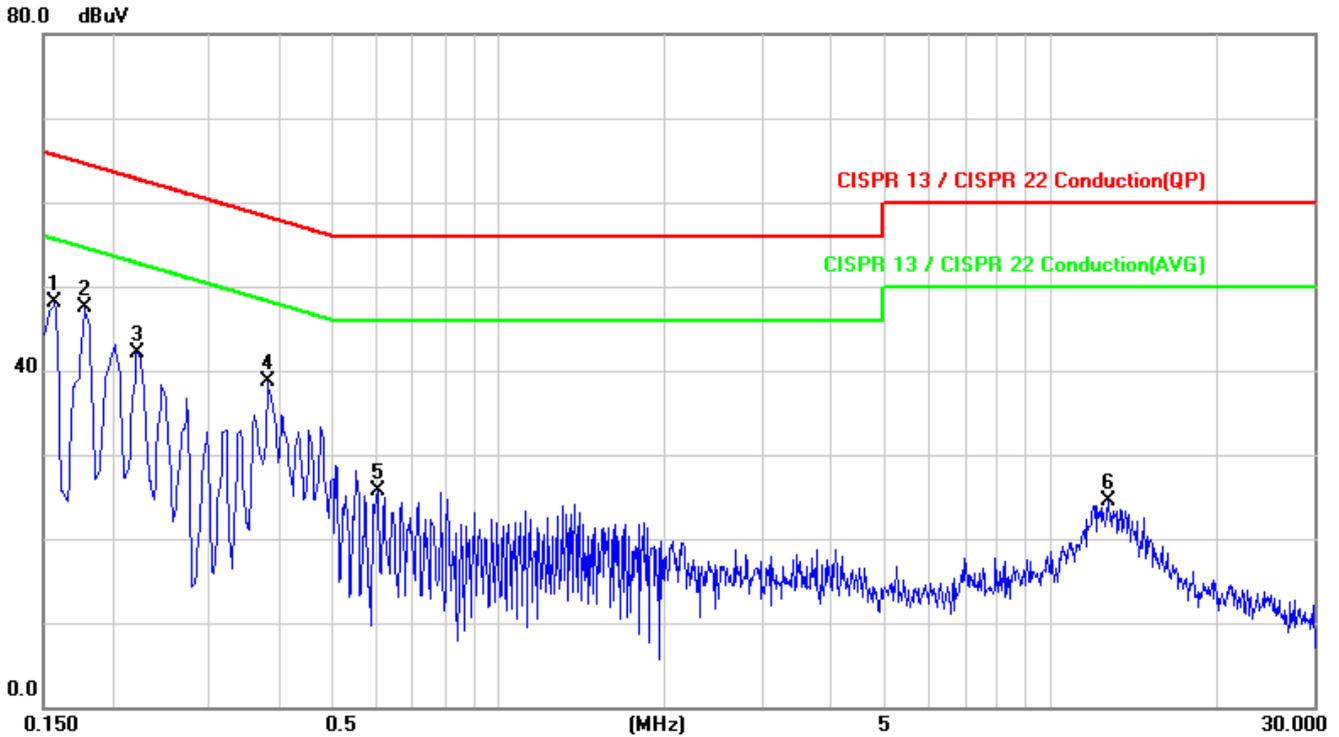
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Operation Mode:	Operation mode			Test Date:	Apr. 10, 2015
Temperature:	20	Humidity:	64 %	Test By:	Ashton
Adapter Model No.:	TPN-DA01				



No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Comment
		(MHz)	dBuV	(dB)	(dBuV)	(dBuV)	(dB)		
1		0.1580	48.00	0.09	48.09	65.57	-17.48	peak	
2	*	0.1780	47.38	0.10	47.48	64.58	-17.10	peak	
3		0.2220	42.02	0.10	42.12	62.74	-20.62	peak	
4		0.3820	38.54	0.17	38.71	58.24	-19.53	peak	
5		0.6060	25.40	0.26	25.66	56.00	-30.34	peak	
6		12.7180	23.82	0.64	24.46	60.00	-35.54	peak	

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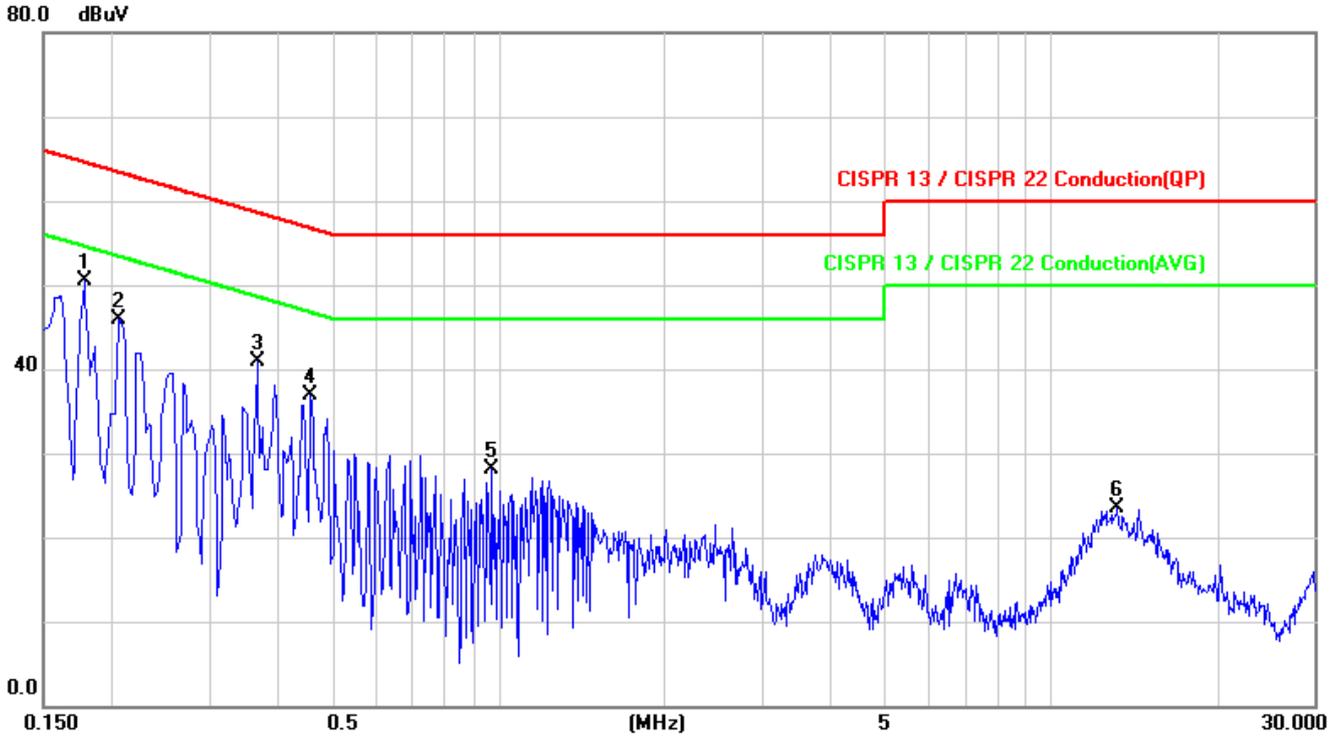
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No.	Mk.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	*	0.1780	50.39	0.10	50.49	64.58	-14.09	peak	
2		0.2060	45.87	0.09	45.96	63.37	-17.41	peak	
3		0.3660	40.72	0.16	40.88	58.59	-17.71	peak	
4		0.4580	36.77	0.21	36.98	56.73	-19.75	peak	
5		0.9780	27.75	0.42	28.17	56.00	-27.83	peak	
6		13.2140	22.81	0.64	23.45	60.00	-36.55	peak	

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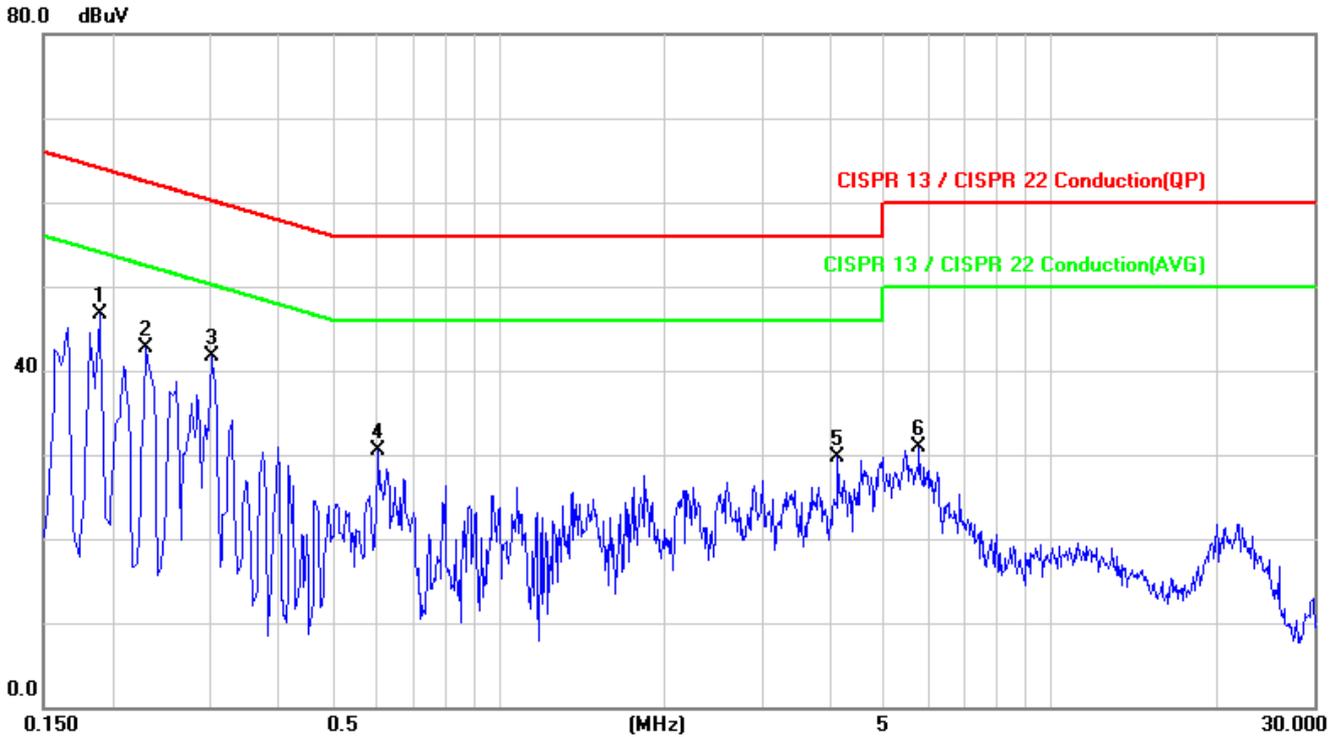
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Operation Mode:	Operation mode			Test Date:	Apr. 10, 2015
Temperature:	20	Humidity:	64 %	Test By:	Ashton
Adapter Model No.:	TPN-LA01				



No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Comment
		(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)		
1	*	0.1900	46.71	0.09	46.80	64.04	-17.24	peak	
2		0.2300	42.63	0.10	42.73	62.45	-19.72	peak	
3		0.3020	41.61	0.13	41.74	60.19	-18.45	peak	
4		0.6060	30.31	0.26	30.57	56.00	-25.43	peak	
5		4.1140	29.09	0.61	29.70	56.00	-26.30	peak	
6		5.8020	30.32	0.62	30.94	60.00	-29.06	peak	

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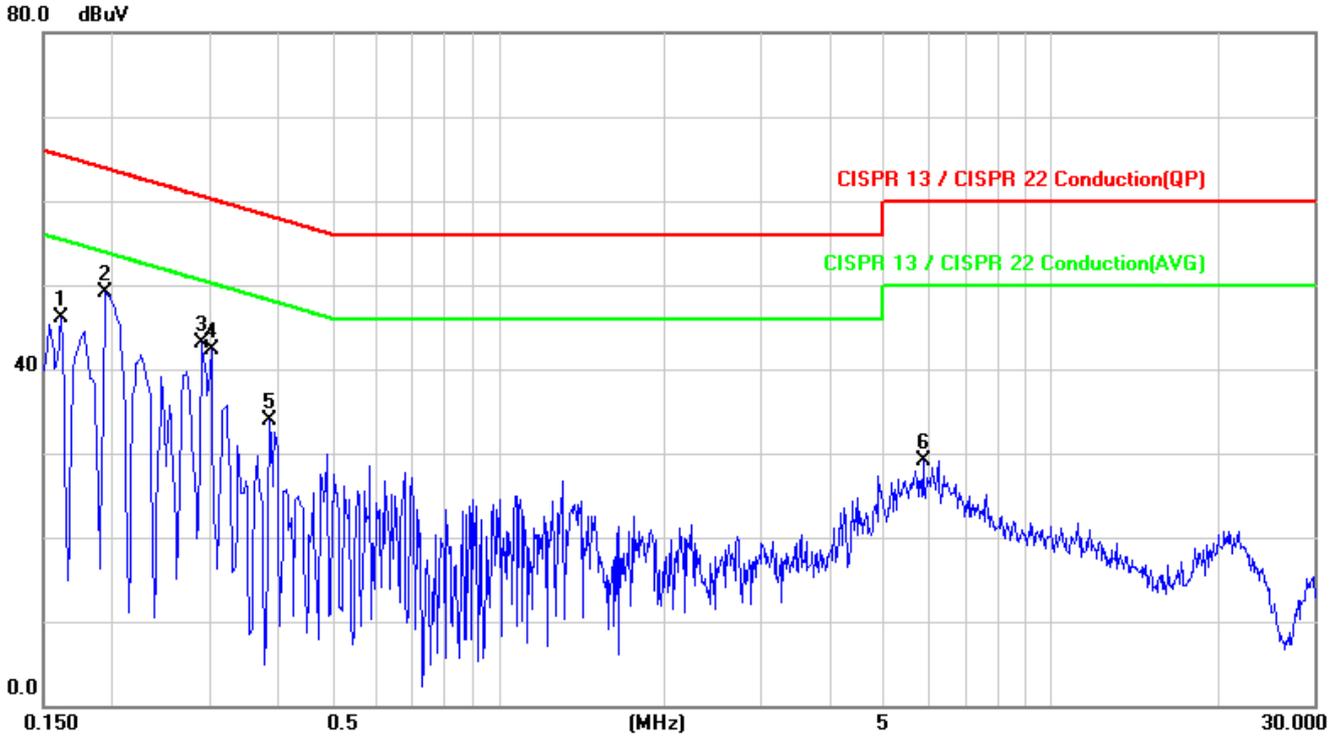
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No.	Mk.	Freq. (MHz)	Reading dBuV	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1		0.1620	46.02	0.09	46.11	65.36	-19.25	peak	
2	*	0.1940	49.05	0.09	49.14	63.86	-14.72	peak	
3		0.2900	42.97	0.13	43.10	60.52	-17.42	peak	
4		0.3020	42.17	0.13	42.30	60.19	-17.89	peak	
5		0.3860	33.64	0.17	33.81	58.15	-24.34	peak	
6		5.8860	28.45	0.62	29.07	60.00	-30.93	peak	

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## 7. DUTY CYCLE TEST SIGNAL

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

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

### Formula:

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

### Measurement Procedure:

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

Duty Cycle:

	Duty Cycle	Duty Fator (dB)
802.11a	98.3%	0.08
802.11ac_20	98.2%	0.08
802.11ac_40	96.5%	0.15
802.11ac_80	91.8%	0.37

$$\text{Duty Cycle Factor: } 10 * \log (1/0.983) = 0.08$$

$$\text{Duty Cycle Factor: } 10 * \log (1/0.982) = 0.08$$

$$\text{Duty Cycle Factor: } 10 * \log (1/0.965) = 0.15$$

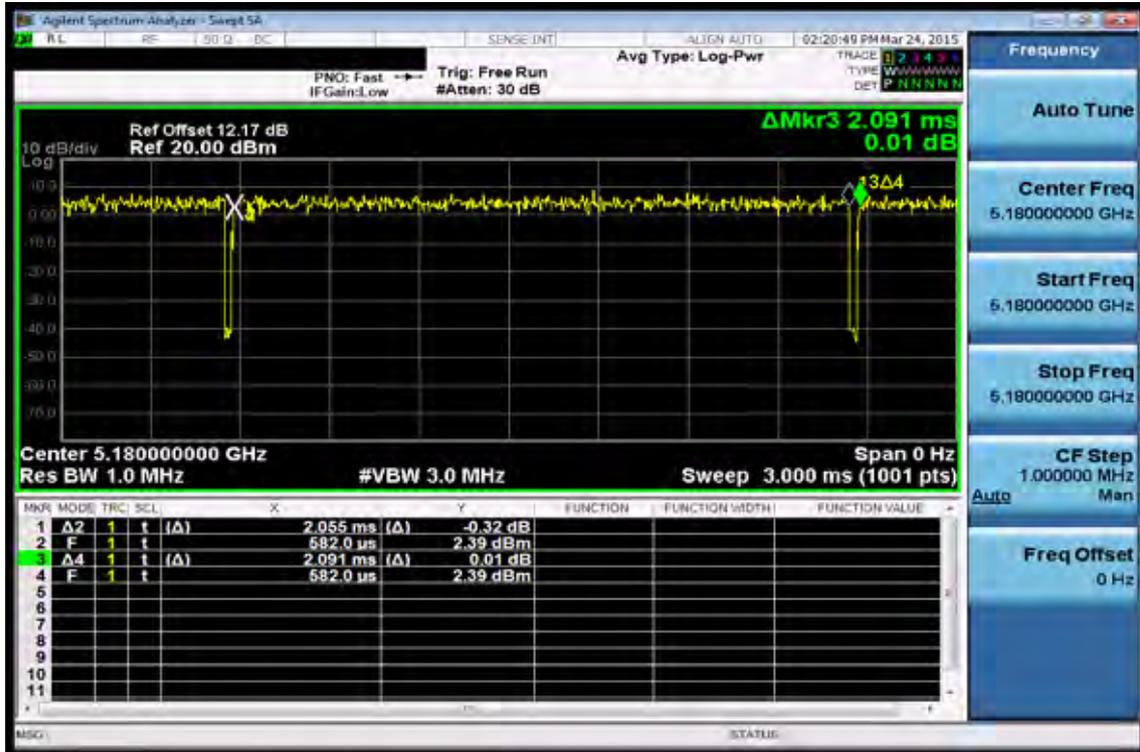
$$\text{Duty Cycle Factor: } 10 * \log (1/0.918) = 0.37$$

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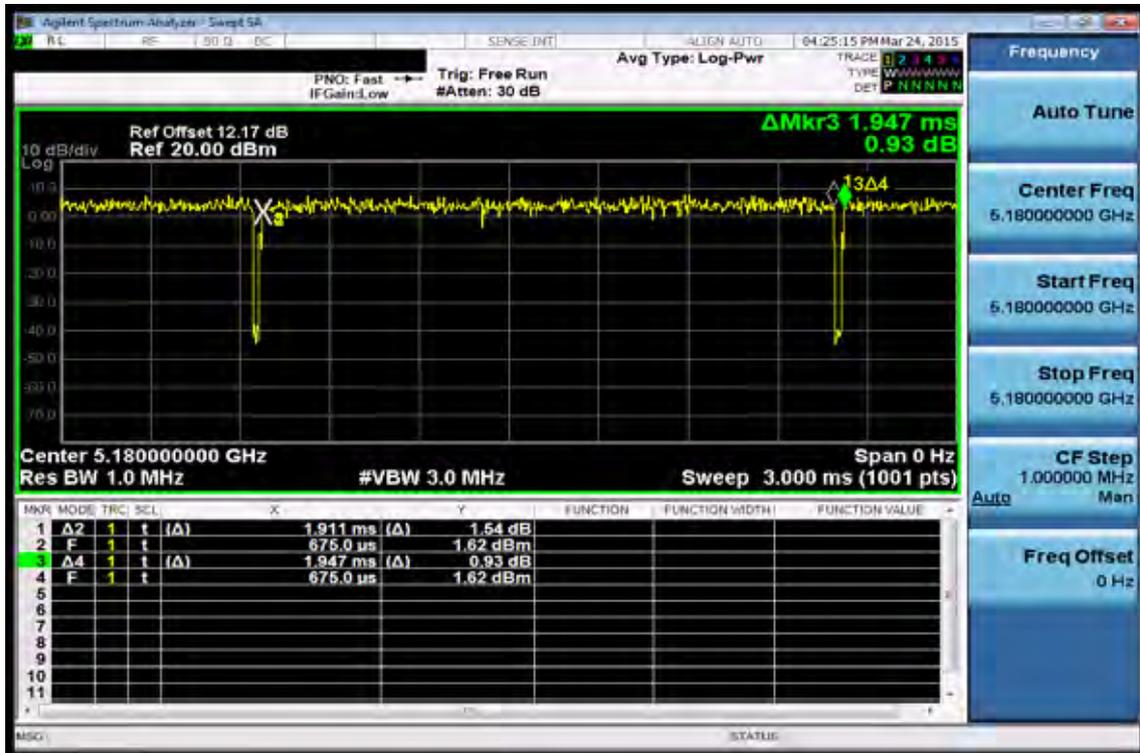
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## DUTY CYCLE TEST SIGNAL Measurement Result 802.11a



## 802.11ac VHT20



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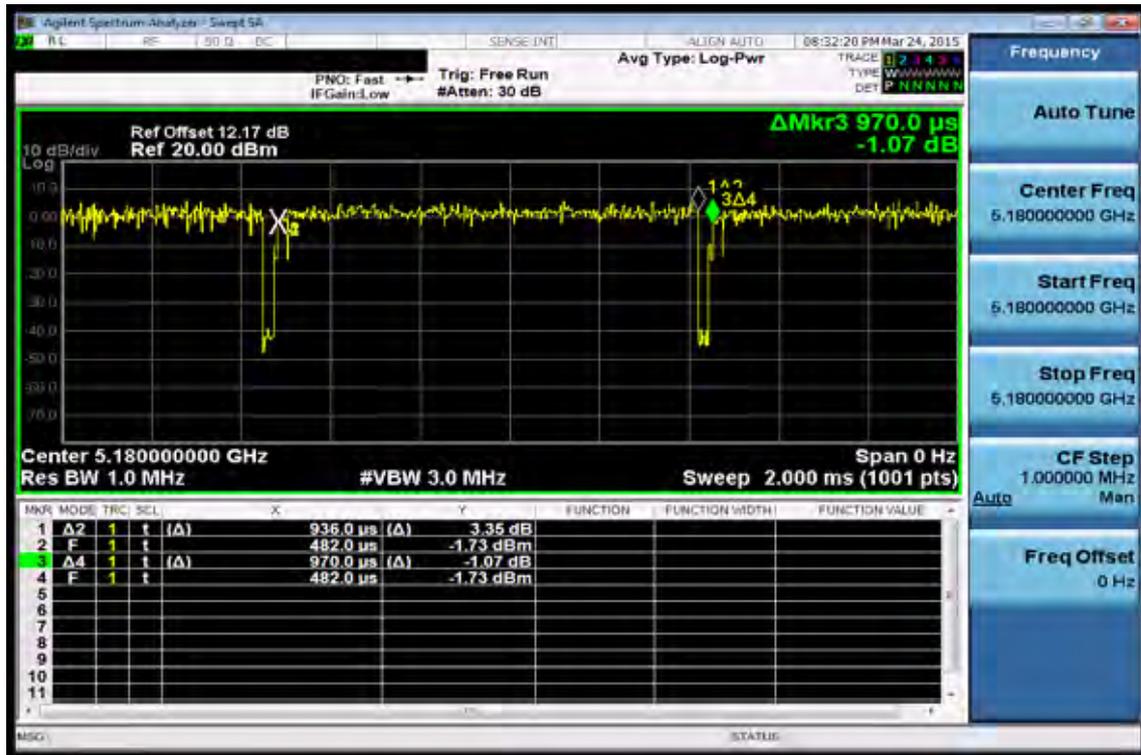
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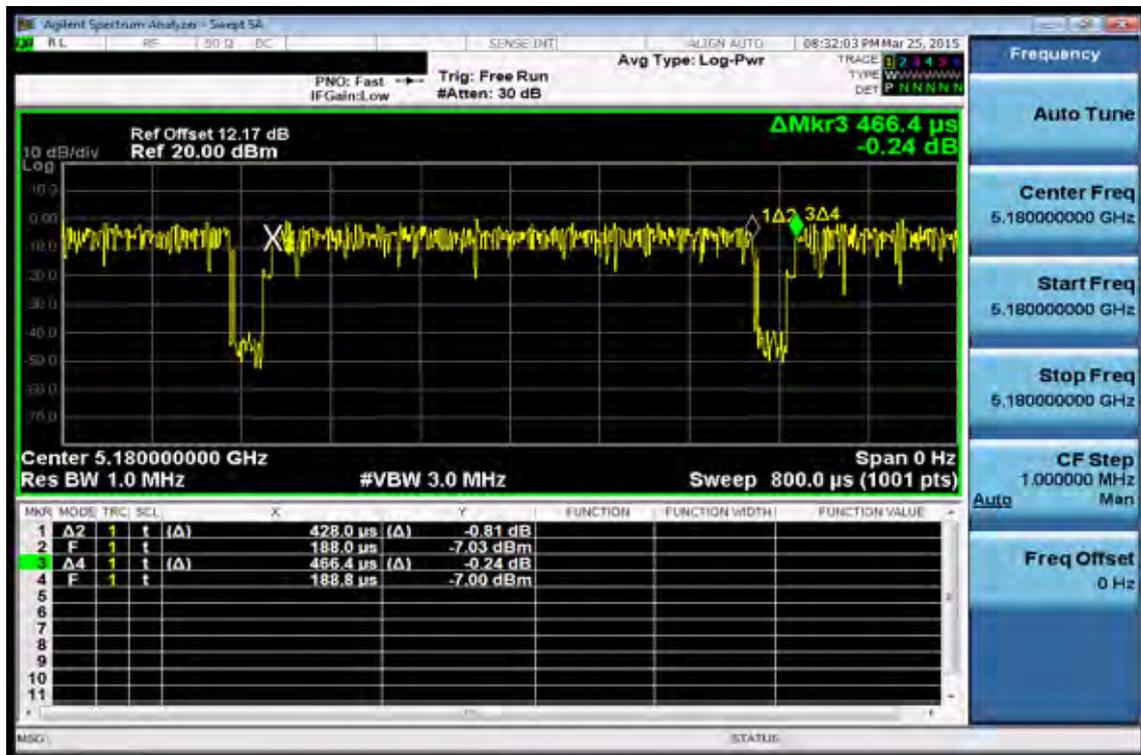
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802.11 ac VHT 40



802.11 ac VHT 80



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

### 8.1 Standard Applicable

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

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

### 8.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.
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.

#### NOTE:

802.11a / 802.11 ac\_VHT20

For CH144 (UNII-2C ) = 5725MHz - Market 2

For CH144 (UNII-3 Band) = Market 3 – 5725MHz

802.11 ac\_VHT40

For CH142 (UNII-2C ) = 5725MHz - Market 2

For CH142 (UNII-3 Band) = Market 3 – 5725MHz

802.11 ac\_VHT80

For CH138 (UNII-2C ) = 5725MHz - Market 1

For CH138 (UNII-3 Band) = Market 3 – 5725MHz

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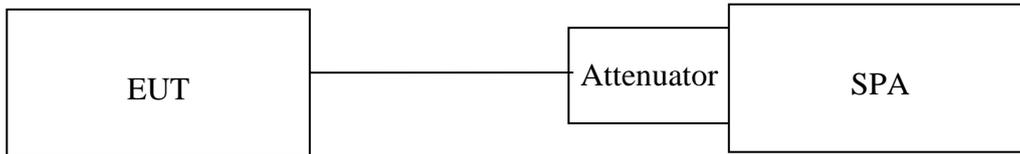
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### 8.3 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	N9010A	MY53400256	10/15/2014	10/14/2015
DC Block	PASTERNAK	PE8210	RF29	12/19/2014	12/18/2015
Attenuator	WOKEN	218FS-10	RF23	12/19/2014	12/18/2015
Splitter	Marvelous	MVE8576	RF37	12/19/2014	12/18/2015
Splitter	Marvelous	MVE8576	RF38	12/19/2014	12/18/2015
Attenuator	WOKEN	6SR1211	RF41	12/19/2014	12/18/2015

### 8.4 Test Set-up



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**8.5 Measurement Result**  
**26dB Bandwidth**

802.11a

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5180	22.740	13.57
5220	22.150	13.45
5240	22.060	13.44
5260	25.990	14.15
5300	23.190	13.65
5320	22.860	13.59
5500	22.700	13.56
5580	22.980	13.61
5700	20.130	13.04
5720 (UNII-2C)	15.600	11.93
5720 (UNII-3)	5.550	7.44

802.11ac\_VHT20

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5180	24.380	13.87
5220	23.730	13.75
5240	24.000	13.80
5260	24.250	13.85
5300	24.300	13.86
5320	24.810	13.95
5500	24.670	13.92
5580	24.720	13.93
5700	24.120	13.82
5720 (UNII-2C)	16.200	12.10
5720 (UNII-3)	5.600	7.48

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802.11ac\_VHT40

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5190	43.170	16.35
5230	43.520	16.39
5270	43.530	16.39
5310	43.590	16.39
5510	43.590	16.39
5550	43.540	16.39
5670	43.750	16.41
5710 (UNII-2C)	35.700	15.53
5710 (UNII-3)	5.700	7.56

802.11ac\_VHT80

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5210	80.500	19.06
5290	80.810	19.07
5530	80.870	19.08
5610	99.400	19.97
5690 (UNII-2C)	75.060	18.75
5690 (UNII-3)	5.460	7.37

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**6dB Bandwidth (5725 MHz~ 5850 MHz)**

802.11a

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	15.150	11.80
5785	15.060	11.78
5825	15.150	11.80

802.11ac\_VHT20

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	15.130	11.80
5785	15.090	11.79
5825	15.160	11.81

802.11ac\_VHT40

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5755	35.140	15.46
5795	35.180	15.46

802.11ac\_VHT80

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5775	75.280	18.77

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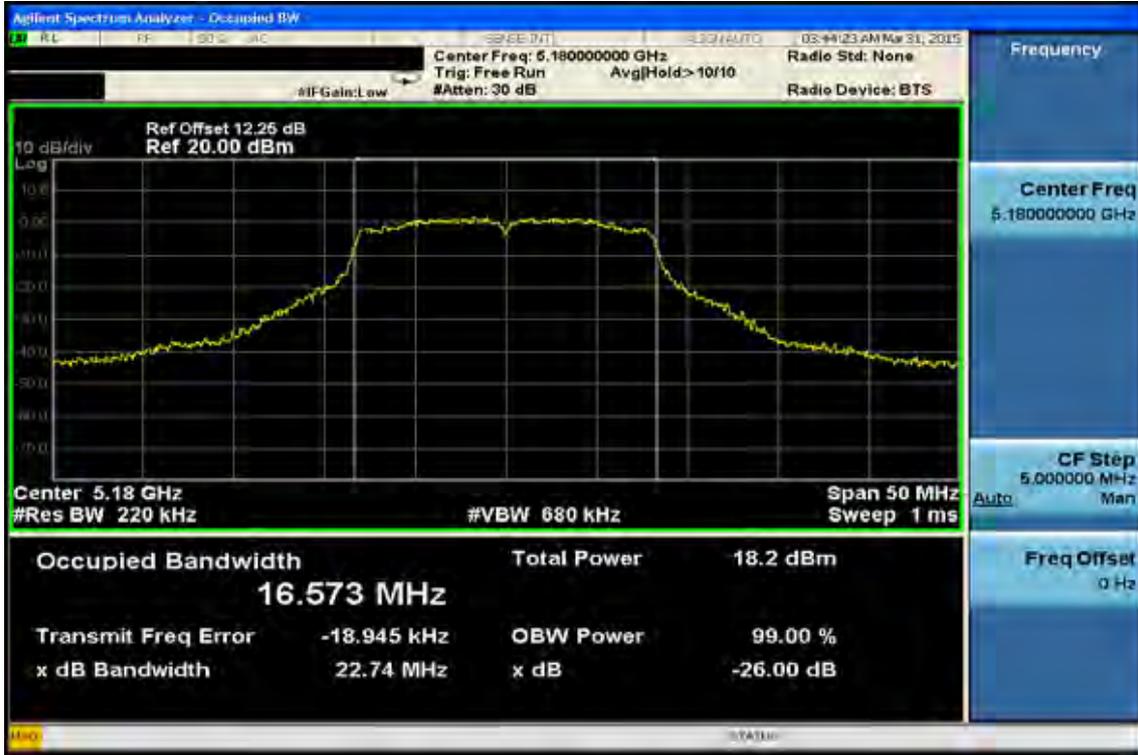
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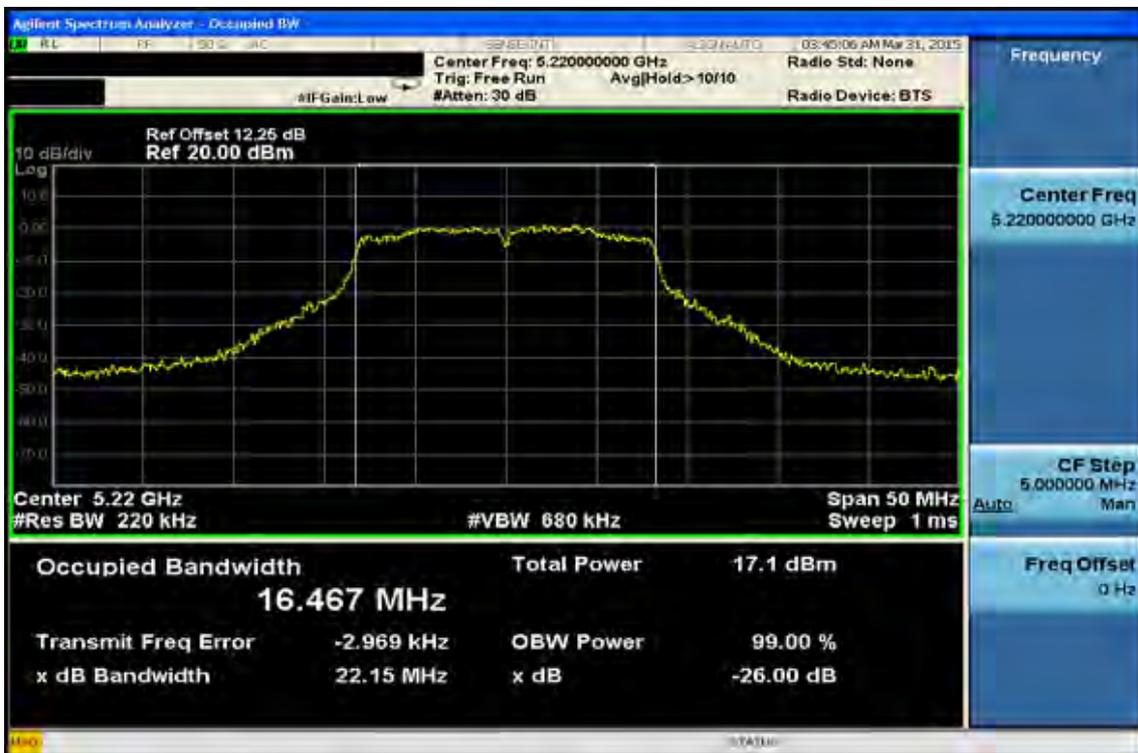
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802.11a, 5150~5250 MHz  
 26dB Band Width Test Data CH-Low (5180MHz)



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



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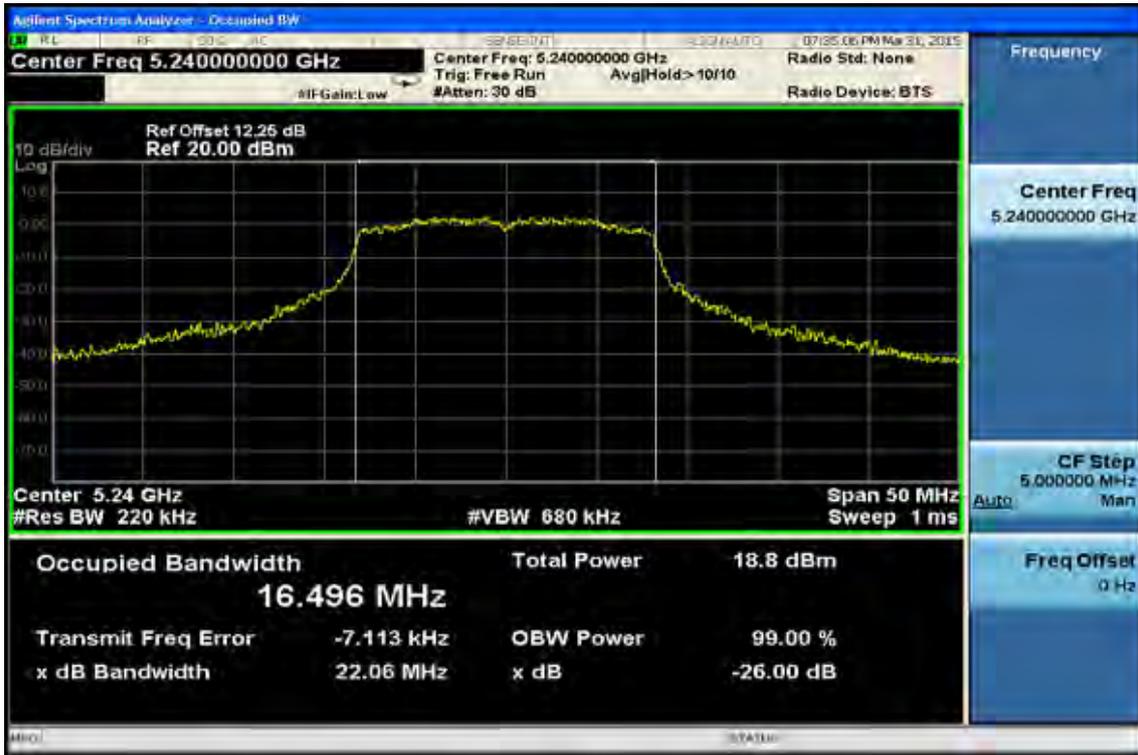
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26dB Band Width Test Data CH-High (5240MHz)



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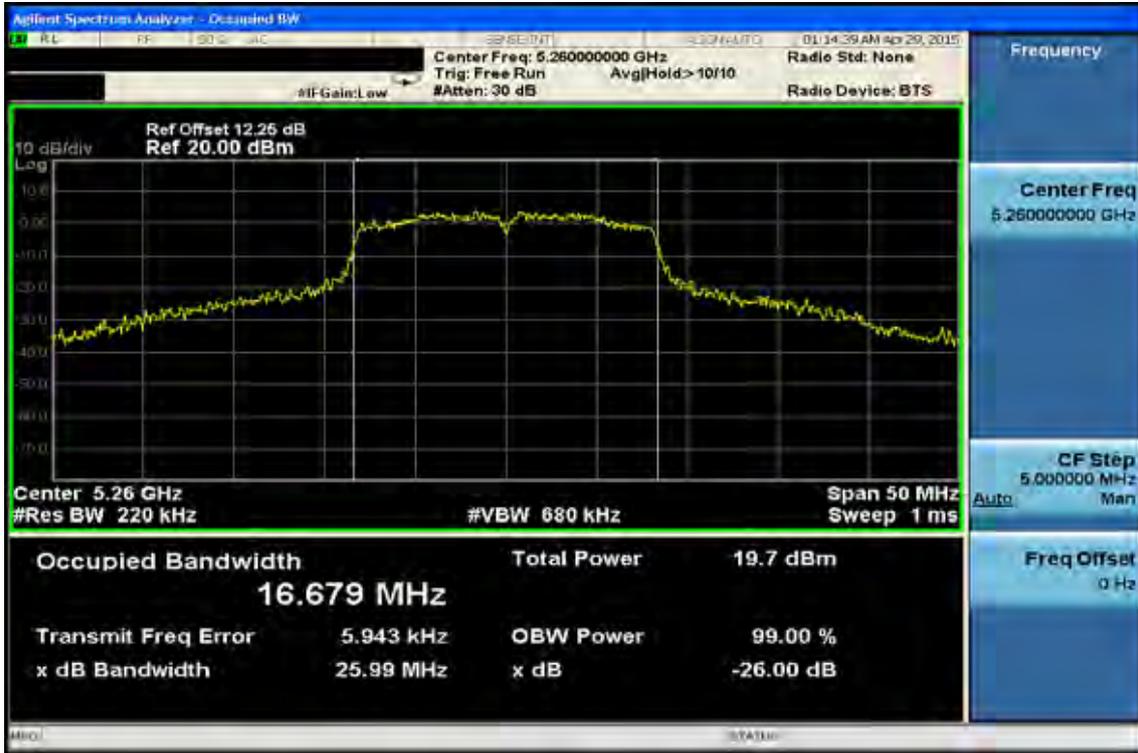
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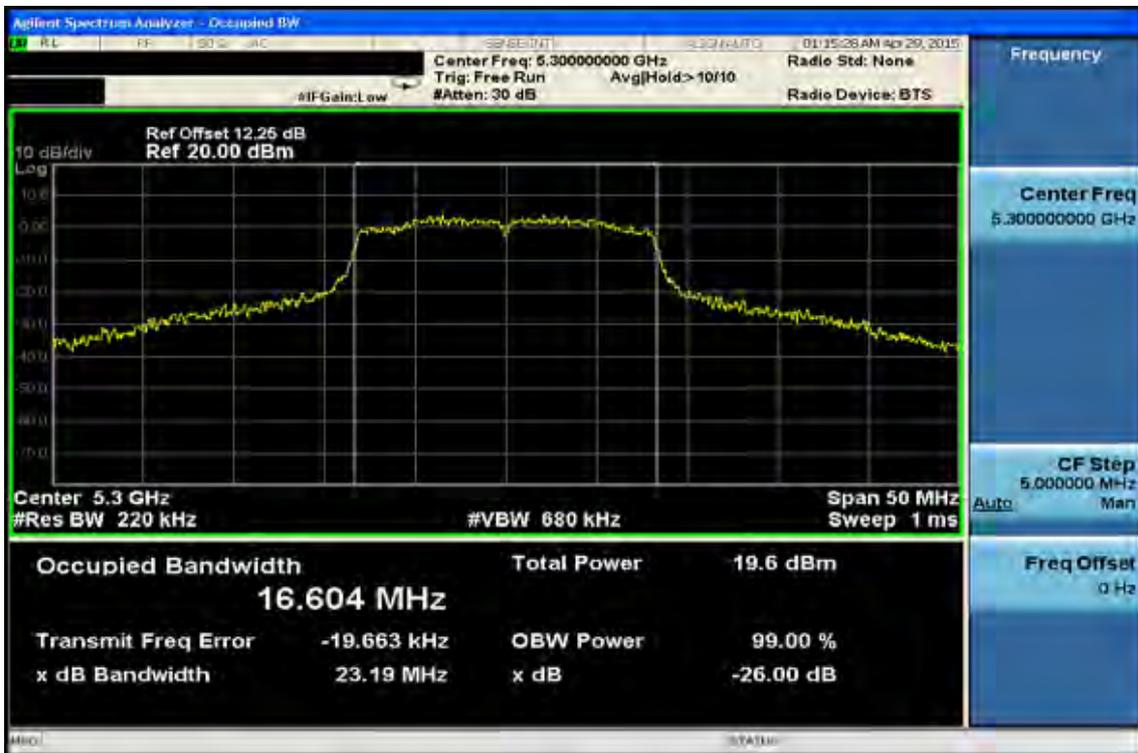
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**802.11a, 5250~5350 MHz**  
**26dB Band Width Test Data CH-Low (5260MHz)**



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



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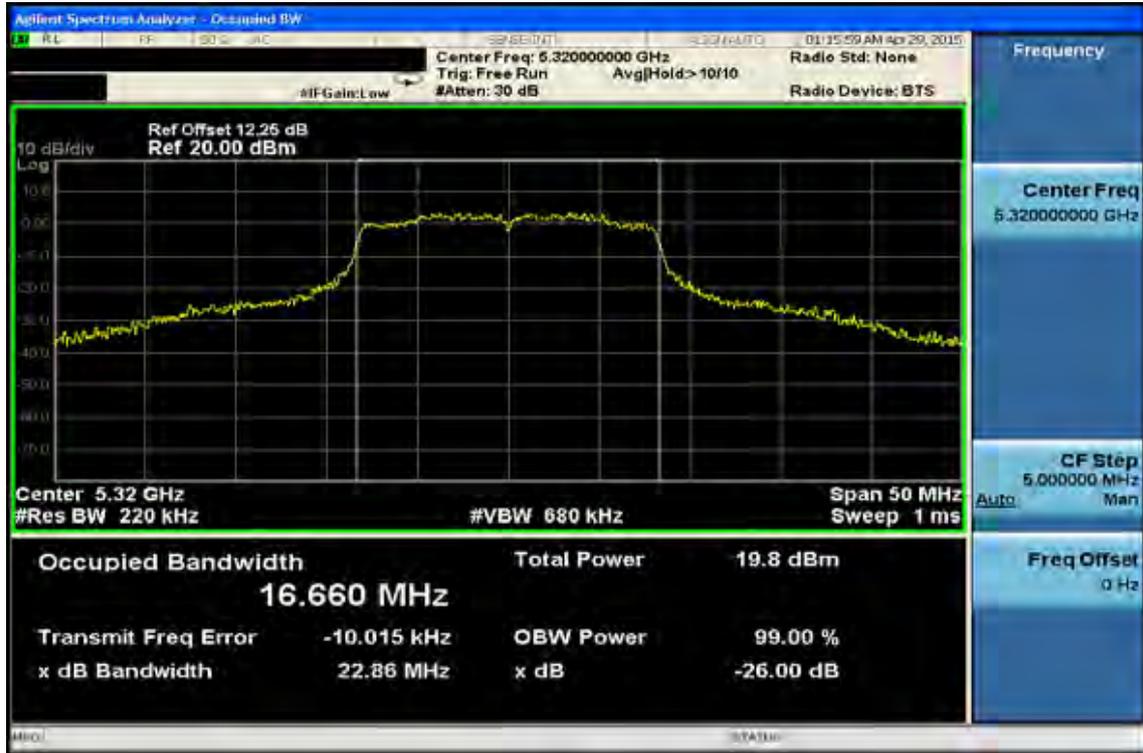
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26dB Band Width Test Data CH-High (5320MHz)



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



### 26dB Band Width Test Data CH-High (5720MHz)



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**802.11ac VHT20, 5150~5250 MHz**  
**26dB Band Width Test Data CH-Low (5180 MHz)**



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

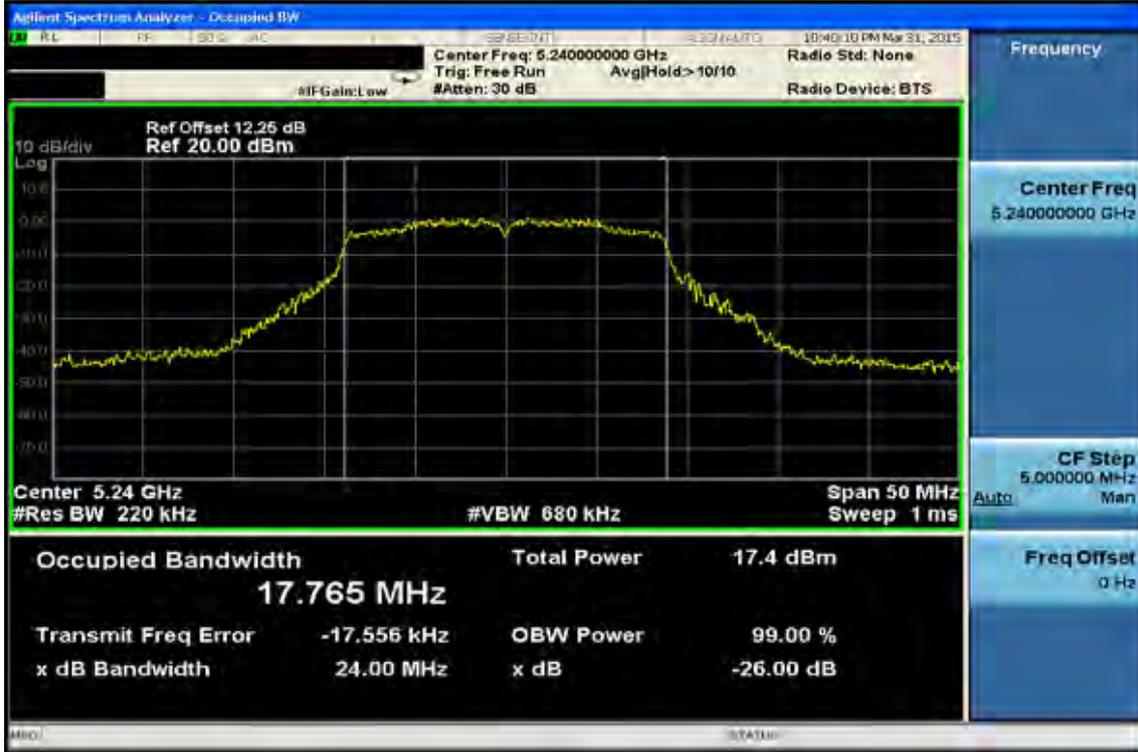


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### 26dB Band Width Test Data CH-High (5240 MHz)



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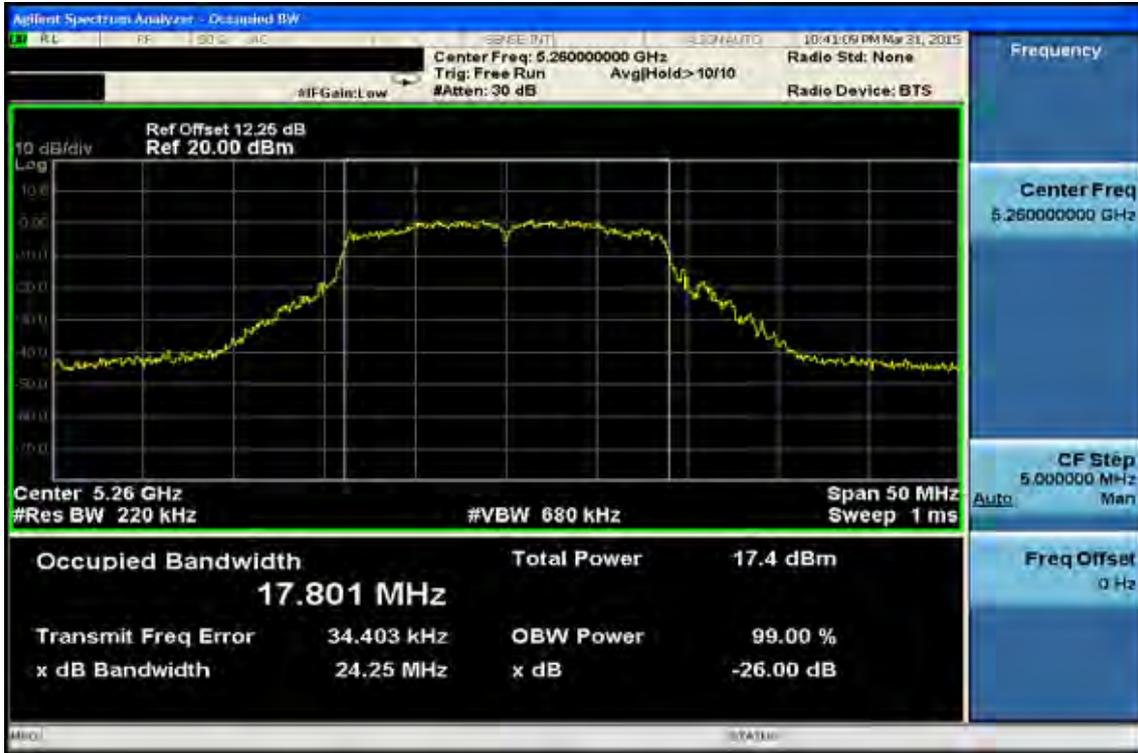
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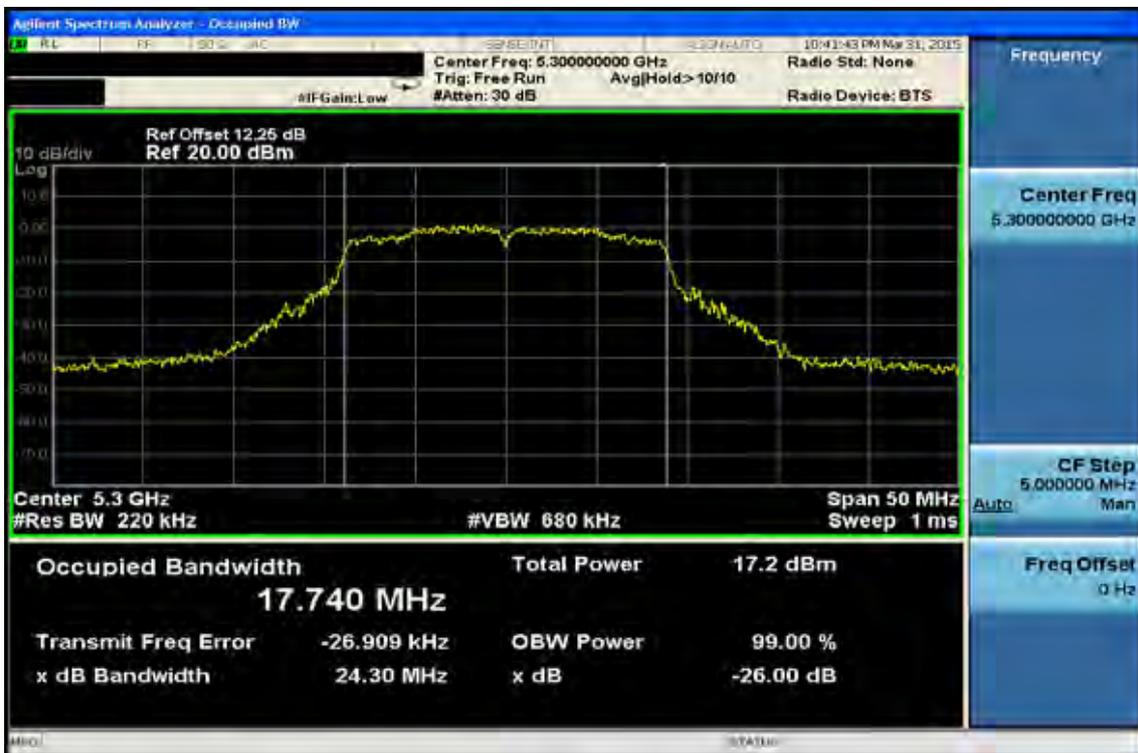
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**802.11ac VHT20, 5250~5350 MHz**  
**26dB Band Width Test Data CH-Low (5260 MHz)**



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



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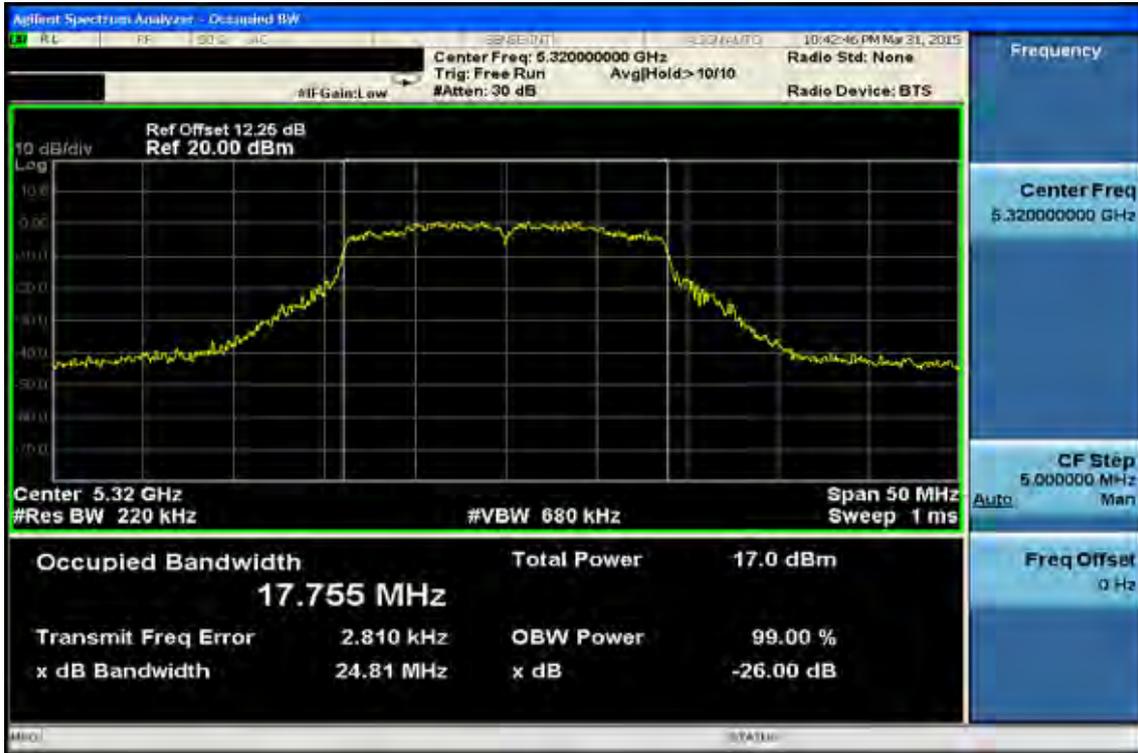
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26dB Band Width Test Data CH-High (5320 MHz)



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**802.11n VHT20, 5470~5725 MHz**  
**26dB Band Width Test Data CH-Low (5500 MHz)**



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



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



26dB Band Width Test Data CH-High (5720 MHz)



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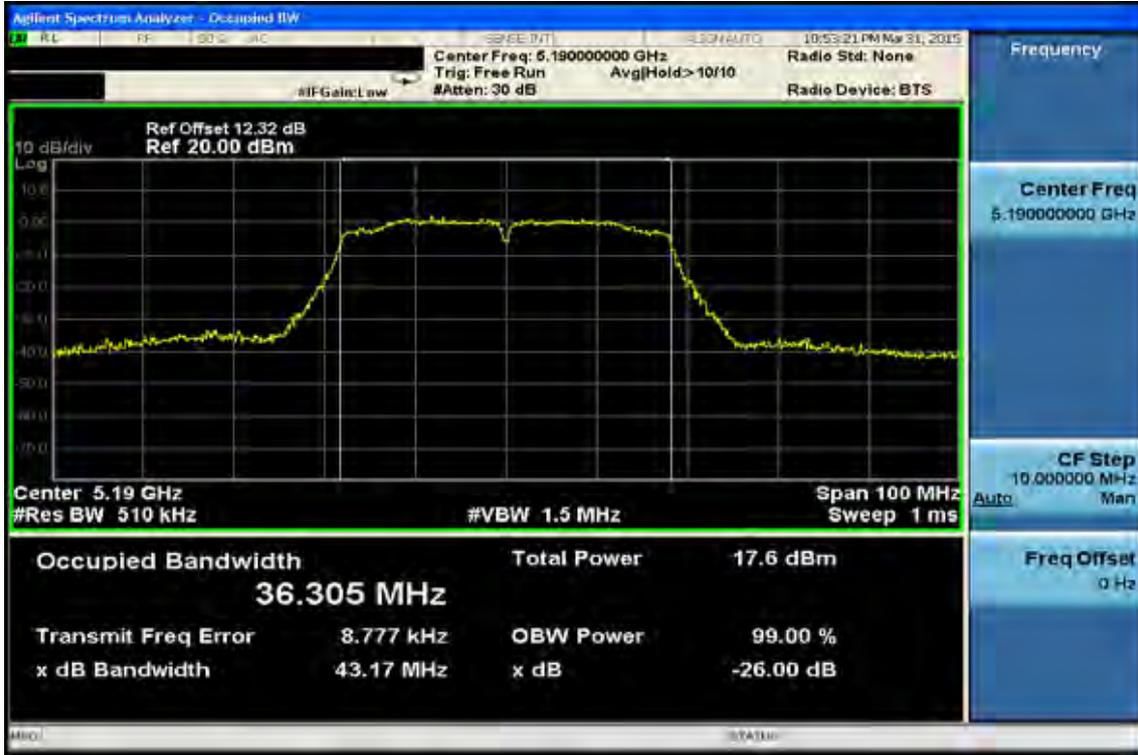
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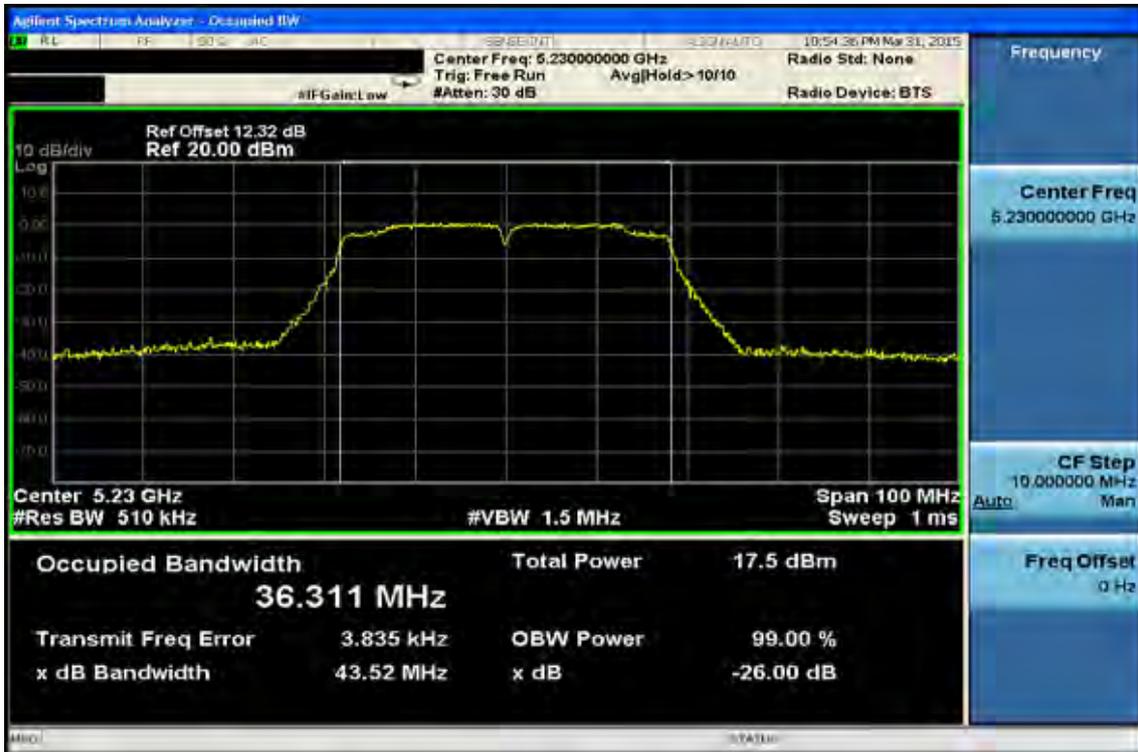
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802.11ac VHT40, 5150~5250 MHz  
 26dB Band Width Test Data CH-Low (5190 MHz)



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

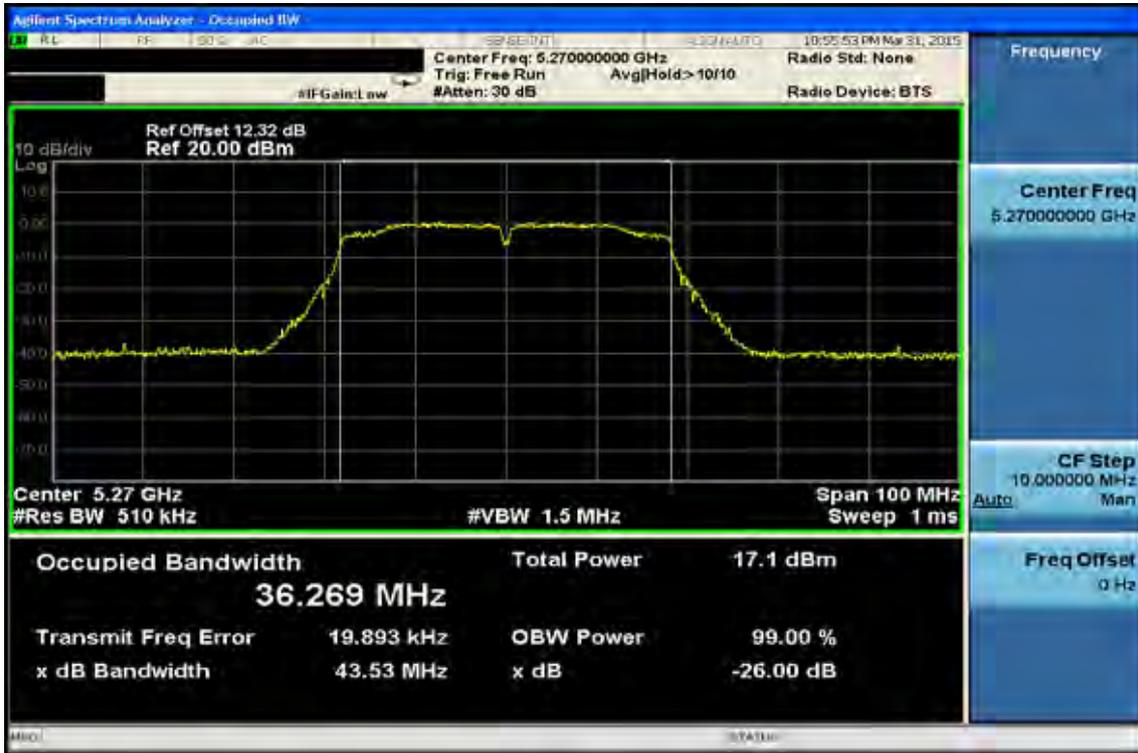


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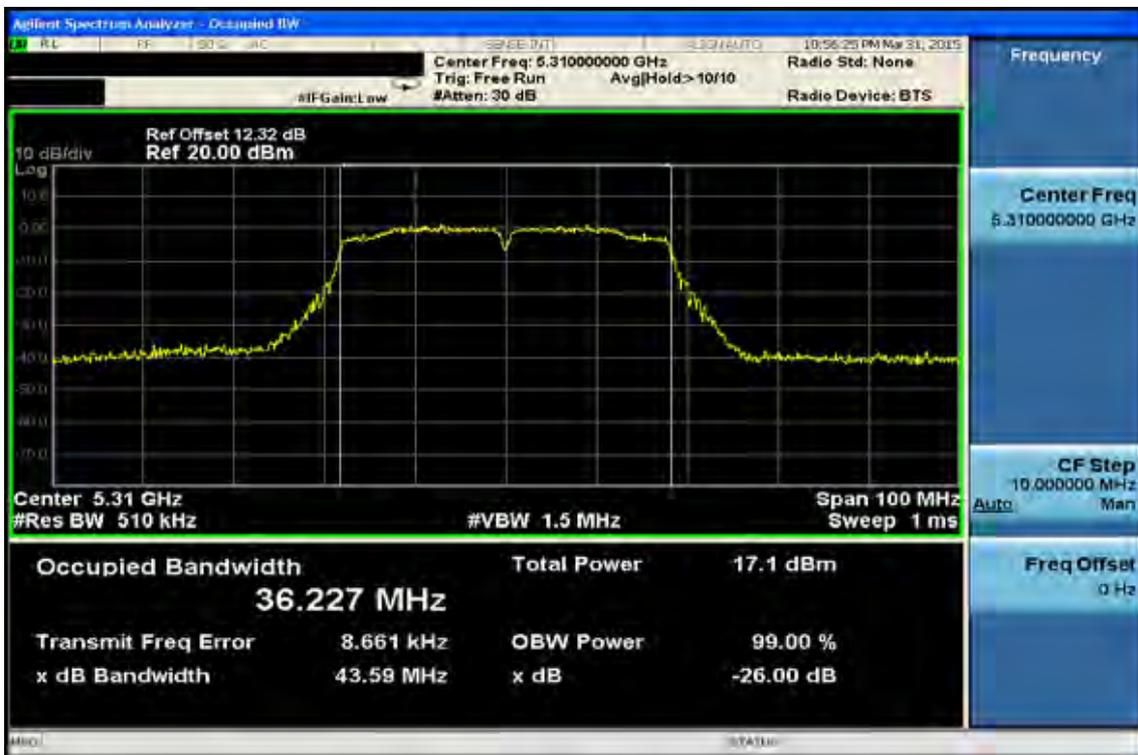
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**802.11ac VHT40, 5250~5350 MHz**  
**26dB Band Width Test Data CH-Low (5270 MHz)**



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



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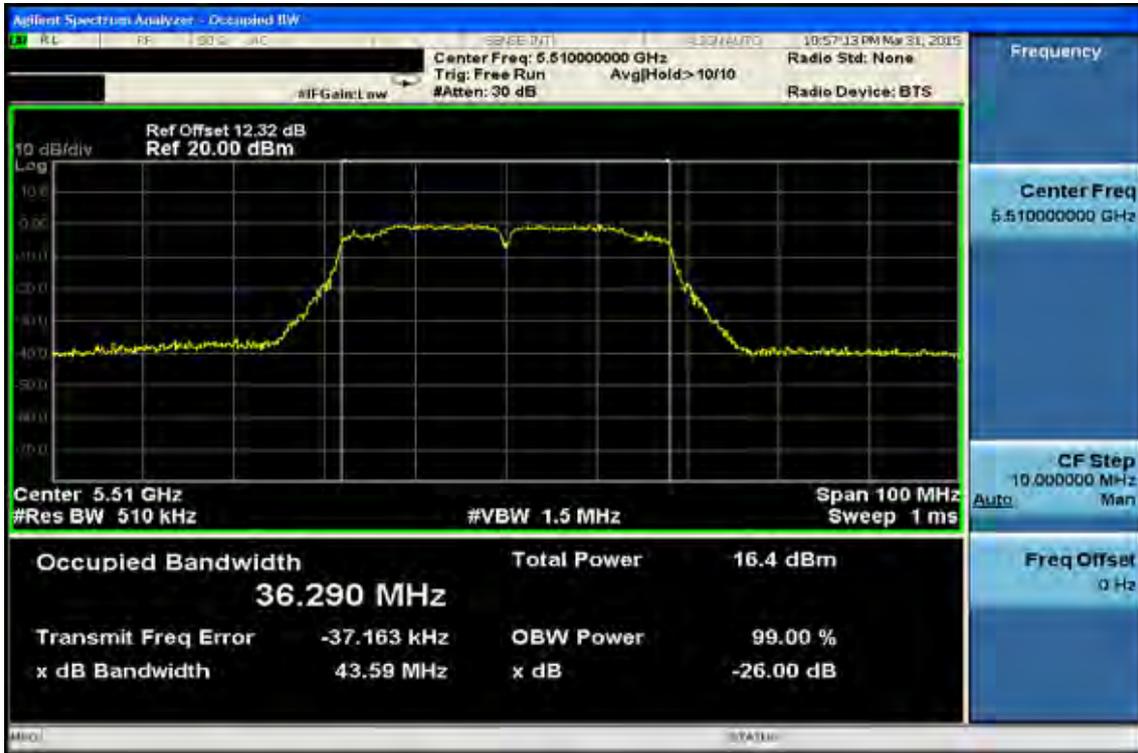
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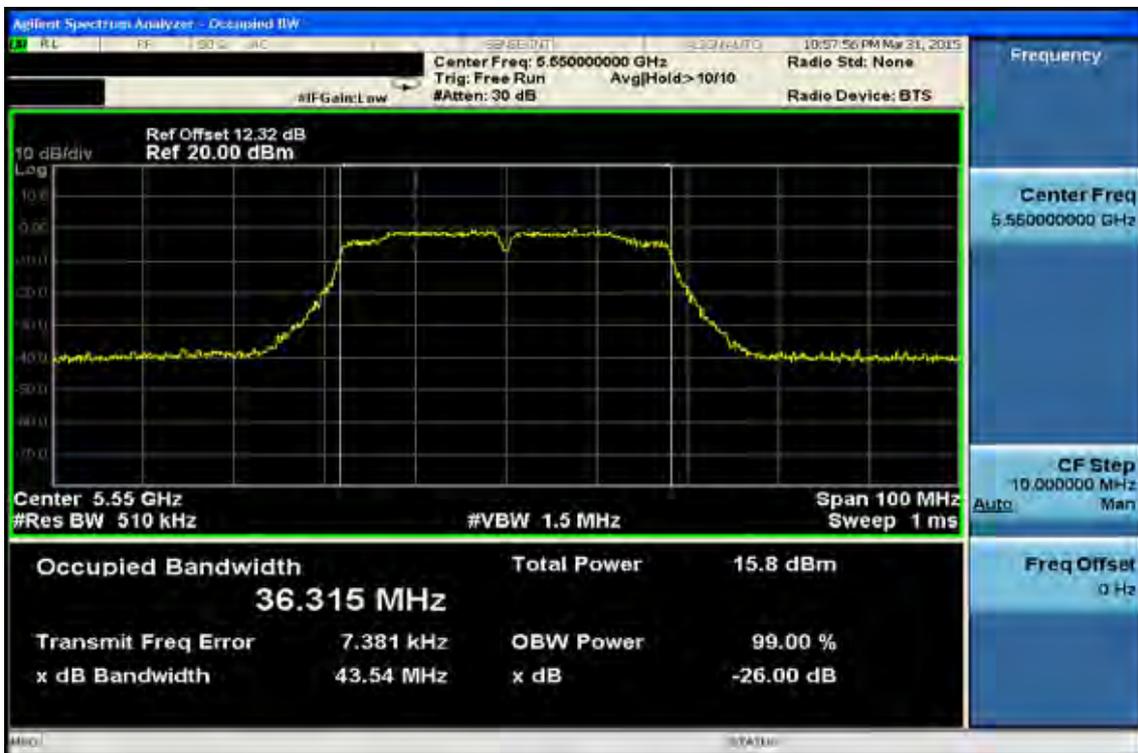
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**802.11ac VHT40, 5470~5725 MHz**  
**26dB Band Width Test Data CH-Low (5510 MHz)**



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



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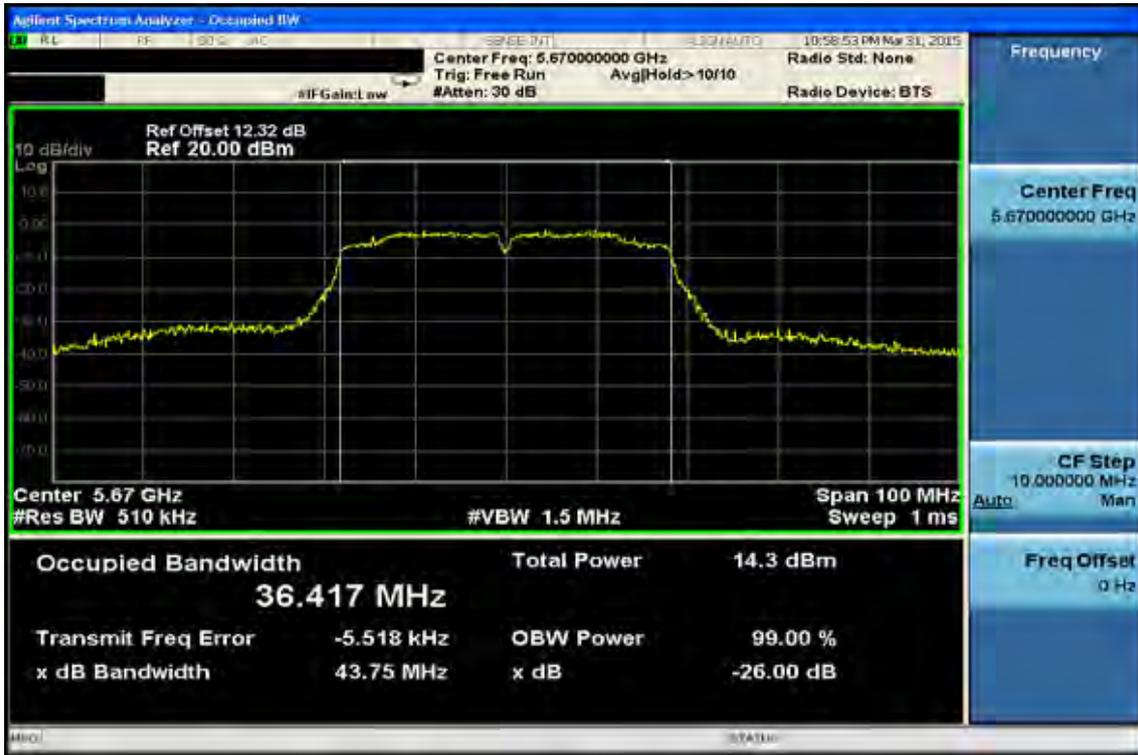
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### 26dB Band Width Test Data CH-High (5670 MHz)



### 26dB Band Width Test Data CH-High (5710 MHz)



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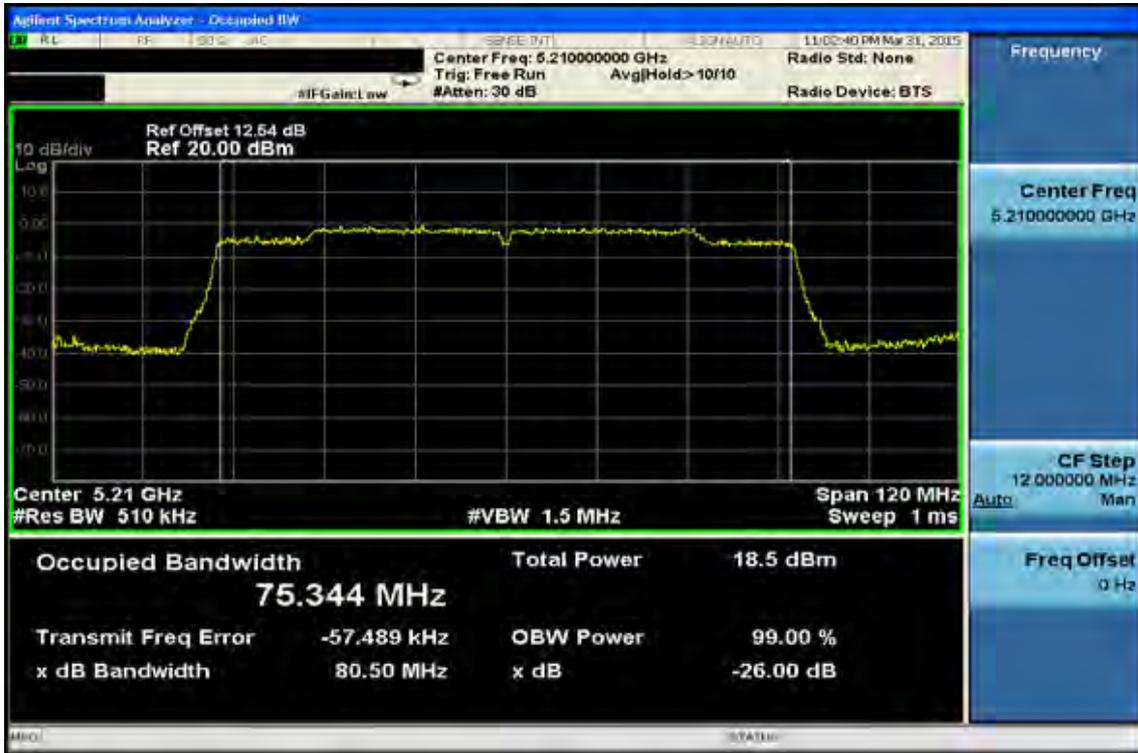
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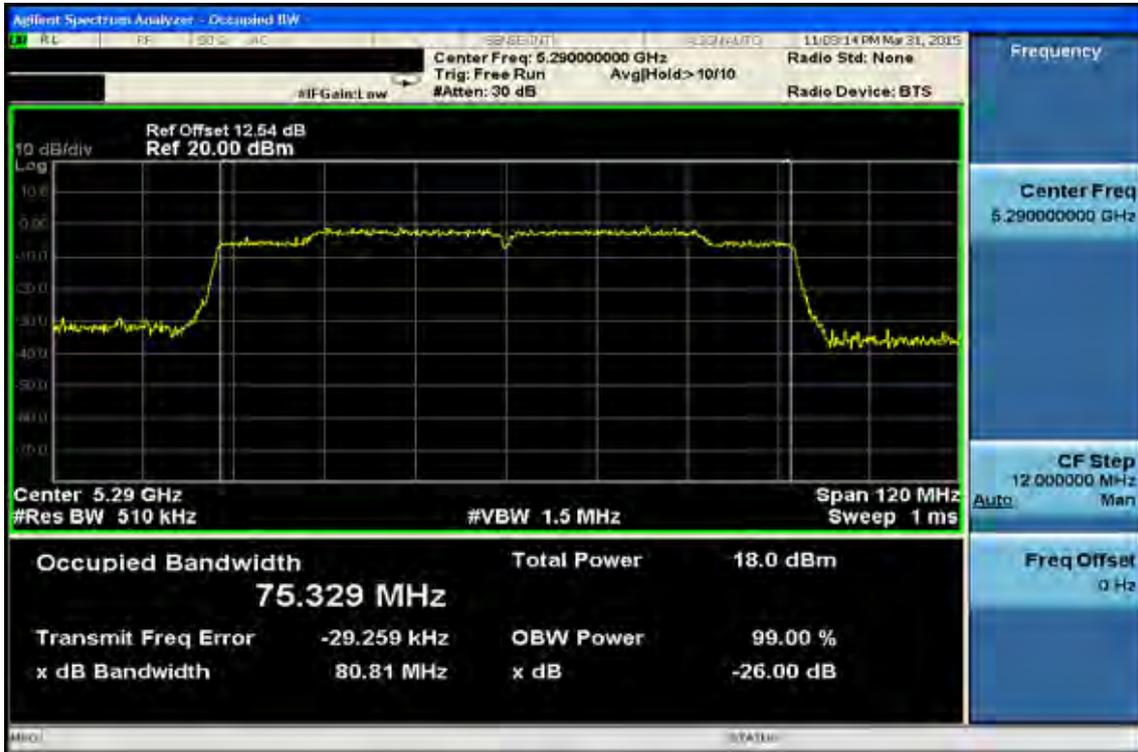
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**802.11ac VHT80, 5150~5250 MHz**  
**26dB Band Width Test Data CH-Mid (5210 MHz)**



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

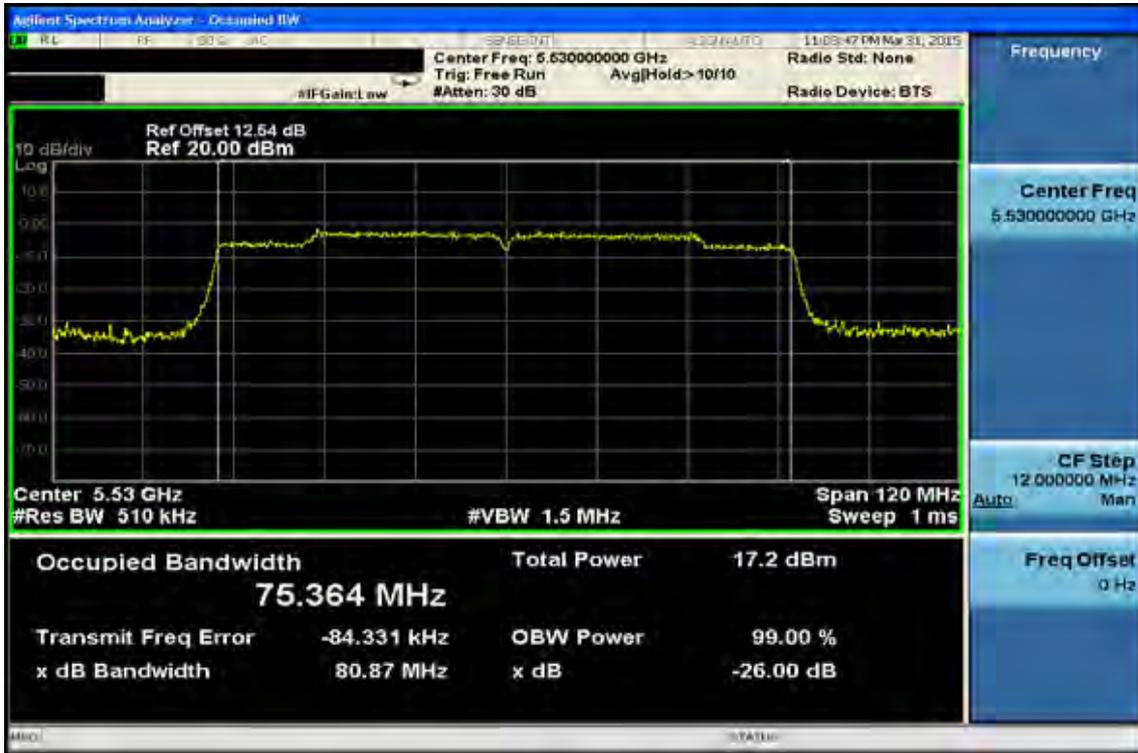


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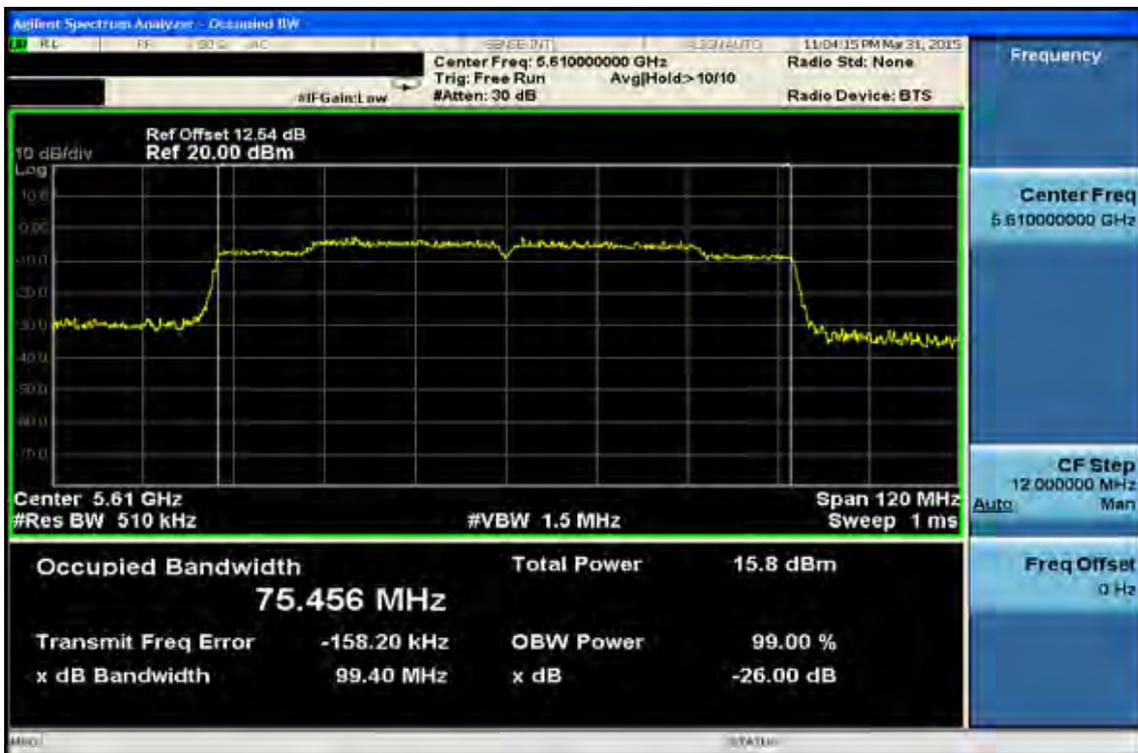
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**802.11ac VHT80, 5470~5725 MHz**  
**26dB Band Width Test Data CH-Low (5530 MHz)**



**26dB Band Width Test Data CH-Mid (5610 MHz)**



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26dB Band Width Test Data CH-High (5690 MHz)



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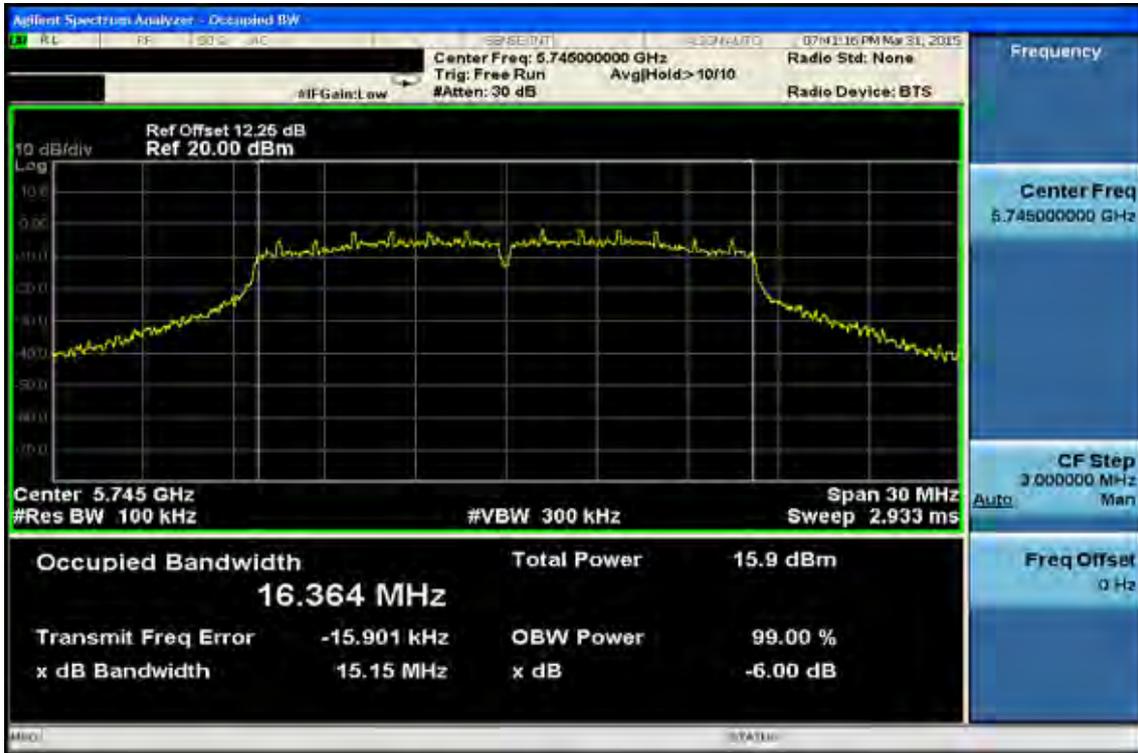
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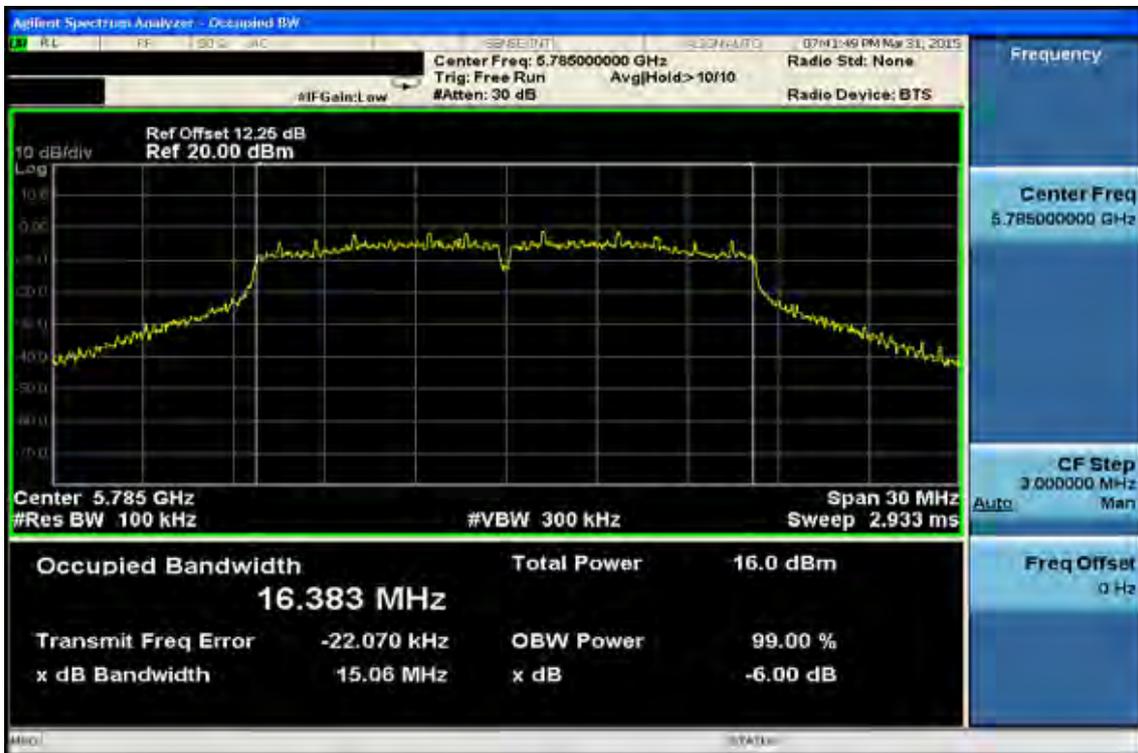
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802.11a, 5725~5850 MHz  
 6dB Band Width Test Data CH-Low (5745 MHz)



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

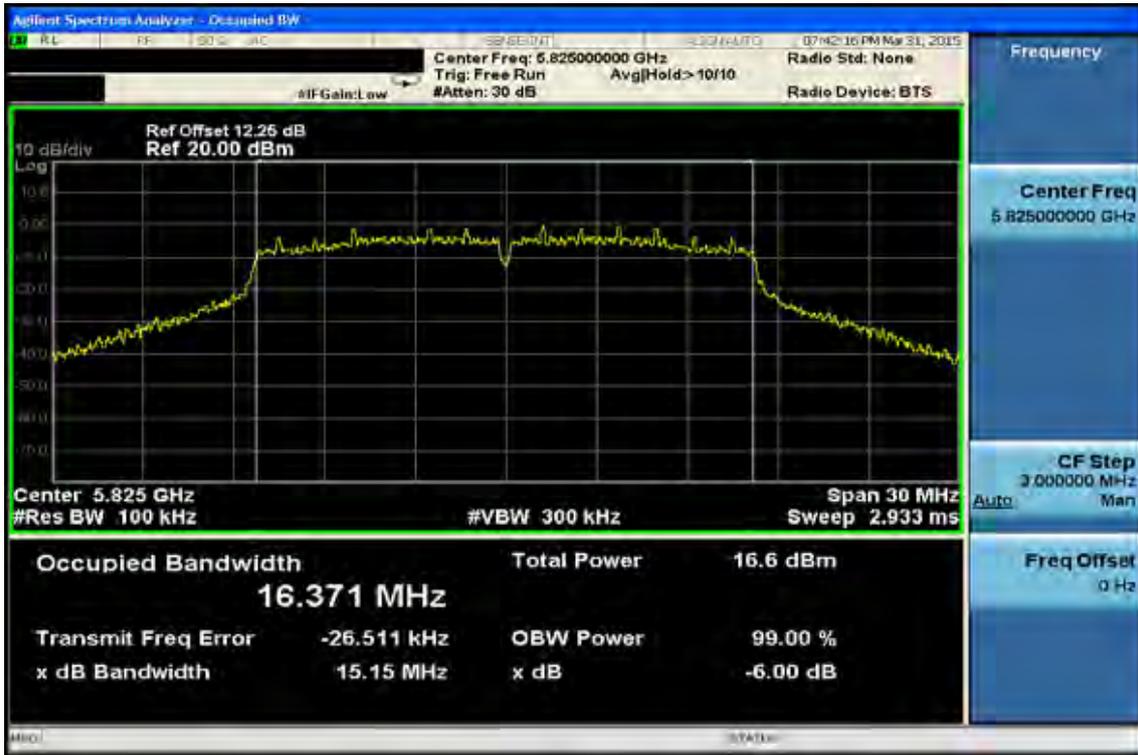


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6dB Band Width Test Data CH-High (5825 MHz)



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**802.11ac VHT20, 5725~5850 MHz**  
**6dB Band Width Test Data CH-Low (5745 MHz)**



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



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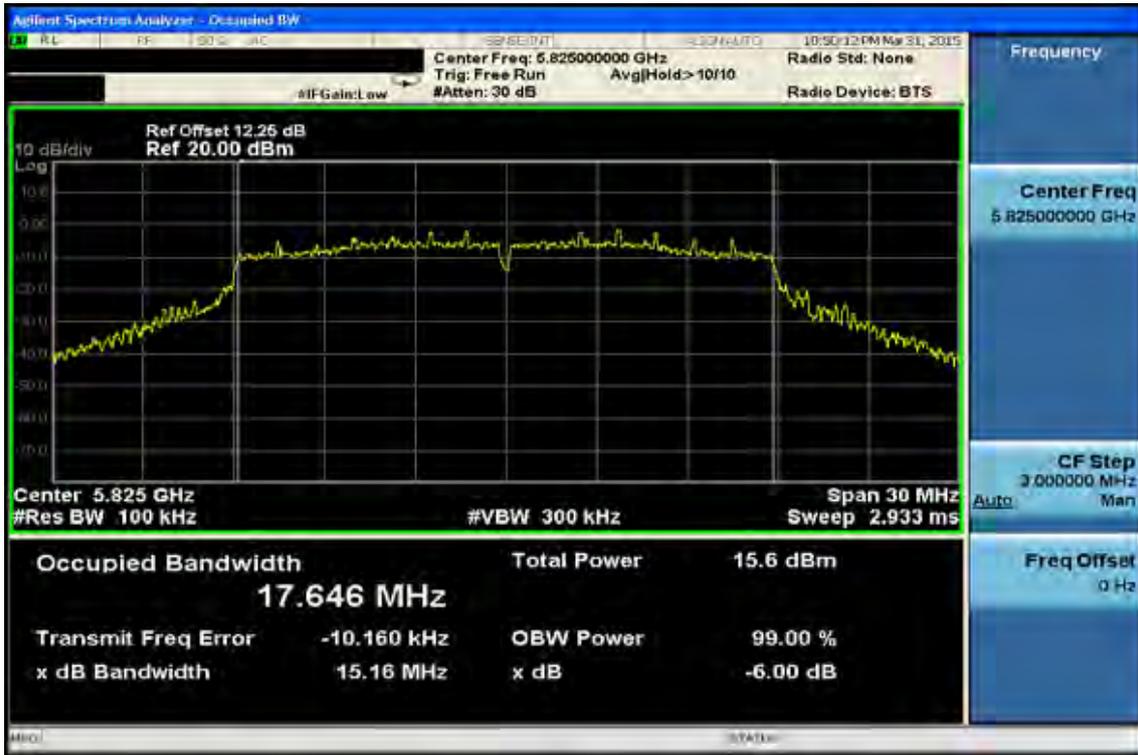
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6dB Band Width Test Data CH-High (5825 MHz)



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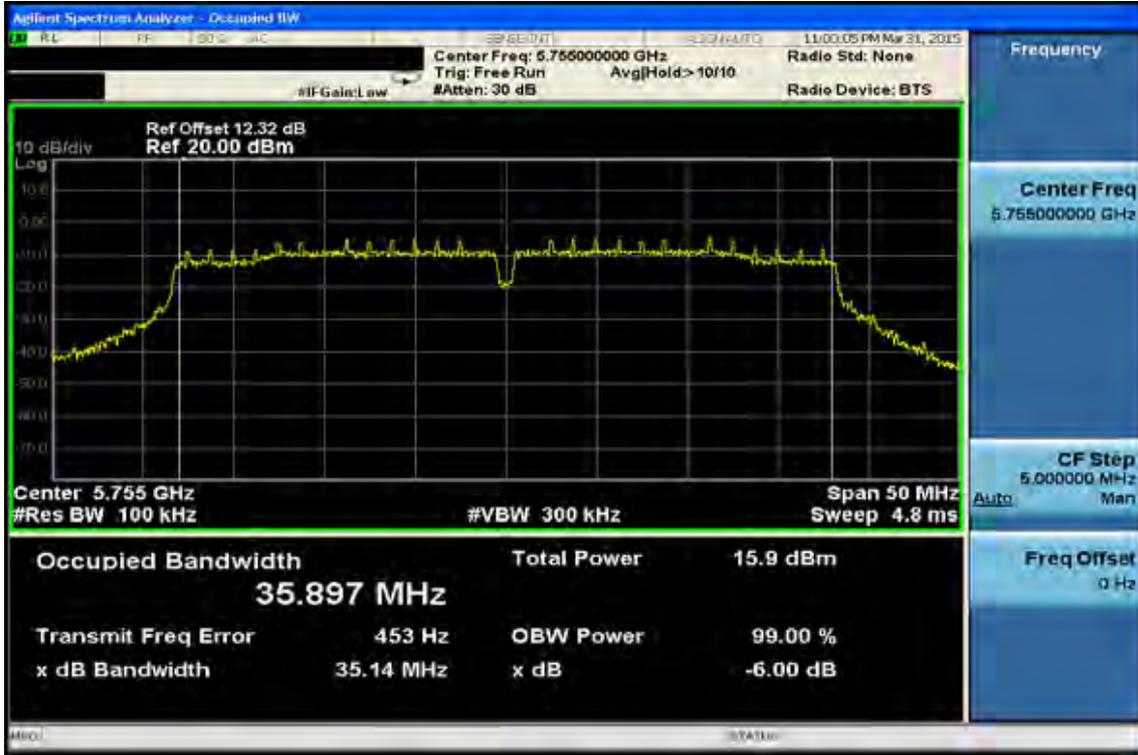
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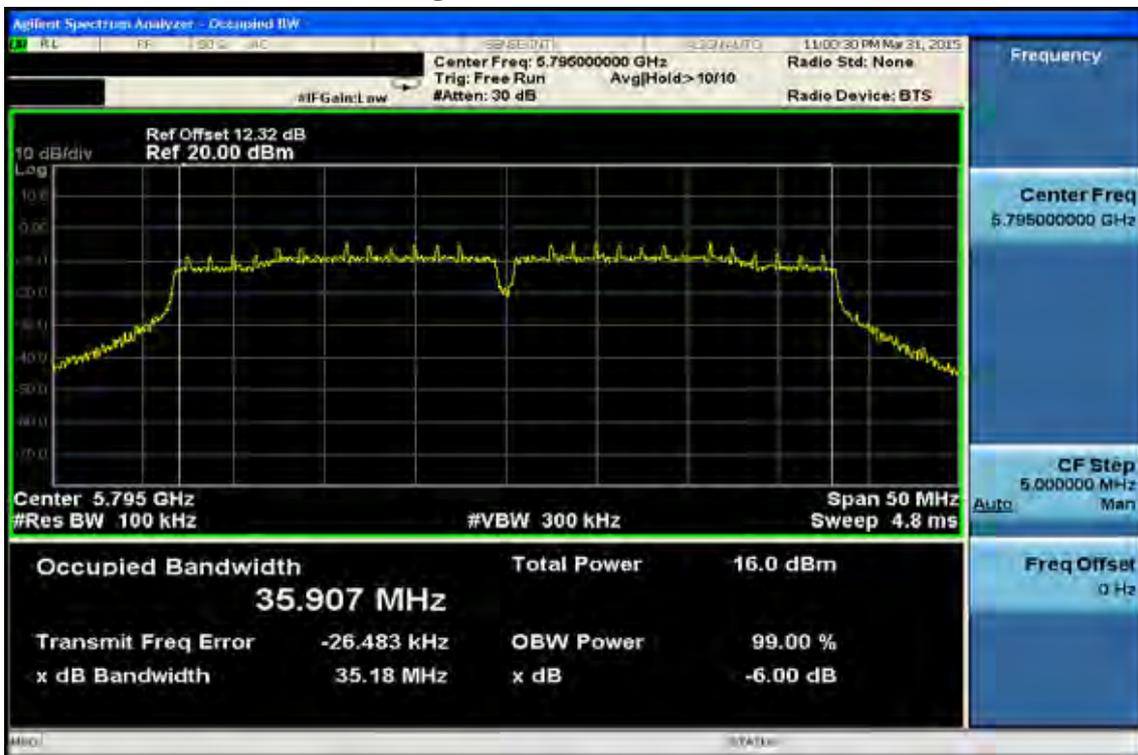
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**802.11ac VHT40, 5725~5850 MHz**  
**6dB Band Width Test Data CH-Low (5755 MHz)**



**6dB Band Width Test Data CH-High (5795 MHz)**



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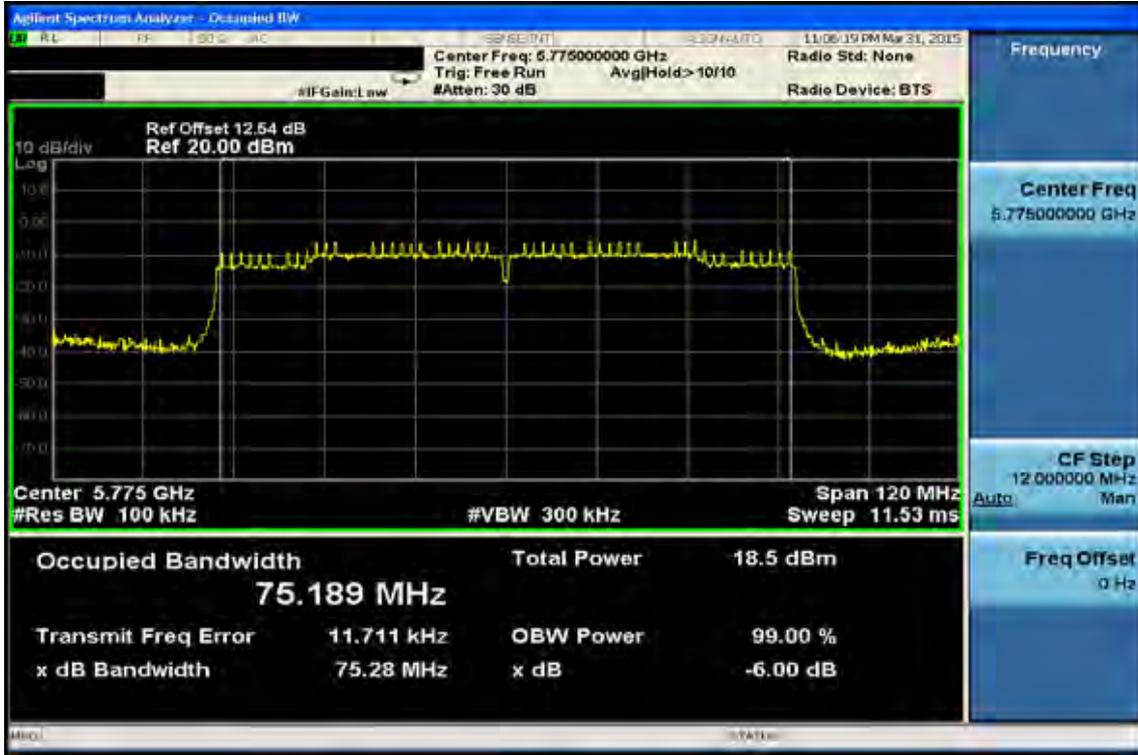
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**802.11ac VHT80, 5725~5850 MHz**  
**6dB Band Width Test Data CH-Low (5775 MHz)**



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## 9. MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

### 9.1 Standard Applicable

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

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

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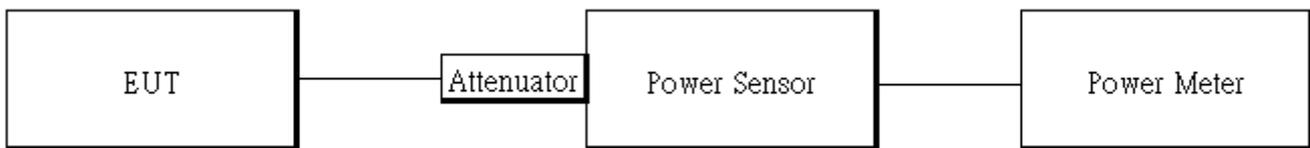
**9.2 Measurement Procedure**

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 v01.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter
4. Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
5. Record the max. reading and add 10 log(1/duty cycle).
6. Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

**9.3 Measurement Equipment Used**

Refer to section 8.3 for details.

**9.4 Test Set-up**



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### 9.5 Measurement Result

#### 802.11a

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	12.33	17.100	23.98	PASS
44	5220	<b>12.41</b>	<b>17.418</b>	23.98	PASS
48	5240	12.36	17.219	23.98	PASS
52	5260	12.36	17.219	23.98 or 11+10log(B) =25.15	PASS
60	5300	<b>12.41</b>	<b>17.418</b>	23.98 or 11+10log(B) =24.65	PASS
64	5320	12.21	16.634	23.98 or 11+10log(B) =24.59	PASS
100	5500	12.29	16.943	23.98 or 11+10log(B) =24.56	PASS
116	5580	12.28	16.904	23.98 or 11+10log(B) =24.61	PASS
140	5700	<b>12.39</b>	<b>17.338</b>	23.98 or 11+10log(B) =24.04	PASS
144	5720 (UNII-2C)	9.21	8.337	23.98 or 11+10log(B) =22.93	PASS
144	5720 (UNII-3)	3.27	2.123	30	PASS
149	5745	12.39	17.338	30	PASS
157	5785	<b>12.45</b>	<b>17.579</b>	30	PASS
165	5825	12.42	17.458	30	PASS

#### 802.11ac\_VHT20

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	12.35	17.179	23.98	PASS
44	5220	<b>12.37</b>	<b>17.258</b>	23.98	PASS
48	5240	12.35	17.179	23.98	PASS
52	5260	12.34	17.140	23.98 or 11+10log(B) =24.85	PASS
60	5300	<b>12.41</b>	<b>17.418</b>	23.98 or 11+10log(B) =24.86	PASS
64	5320	12.22	16.672	23.98 or 11+10log(B) =24.95	PASS
100	5500	12.31	17.022	23.98 or 11+10log(B) =24.92	PASS
116	5580	12.27	16.866	23.98 or 11+10log(B) =24.93	PASS
140	5700	<b>12.39</b>	<b>17.338</b>	23.98 or 11+10log(B) =24.82	PASS
144	5720 (UNII-2C)	9.10	8.128	23.98 or 11+10log(B) =23.10	PASS
144	5720 (UNII-3)	3.14	2.061	30	PASS
149	5745	12.38	17.298	30	PASS
157	5785	<b>12.45</b>	<b>17.579</b>	30	PASS
165	5825	12.40	17.378	30	PASS

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802.11ac\_VHT40

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	<b>12.44</b>	<b>17.539</b>	23.98	PASS
46	5230	12.34	17.140	23.98	PASS
54	5270	<b>12.36</b>	<b>17.219</b>	23.98 or $11+10\log(B) = 27.39$	PASS
62	5310	12.05	16.032	23.98 or $11+10\log(B) = 27.39$	PASS
102	5510	12.33	17.100	23.98 or $11+10\log(B) = 27.39$	PASS
110	5550	<b>12.46</b>	<b>17.620</b>	23.98 or $11+10\log(B) = 27.39$	PASS
134	5670	12.45	17.579	23.98 or $11+10\log(B) = 27.41$	PASS
142	5710 (UNII-2C)	4.37	2.735	23.98 or $11+10\log(B) = 26.53$	PASS
142	5710 (UNII-3)	0.70	1.175	30	PASS
151	5755	<b>12.44</b>	<b>17.539</b>	30	PASS
159	5795	12.39	17.338	30	PASS

802.11ac\_VHT80

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
42	5210	<b>12.22</b>	<b>16.672</b>	23.98	PASS
58	5290	<b>12.03</b>	<b>15.959</b>	23.98 or $11+10\log(B) = 30.07$	PASS
106	5530	12.19	16.558	23.98 or $11+10\log(B) = 30.08$	PASS
122	5610	<b>12.11</b>	<b>16.255</b>	23.98 or $11+10\log(B) = 30.97$	PASS
138	5690 (UNII-2C)	9.15	8.222	23.98 or $11+10\log(B) = 29.75$	PASS
138	5690 (UNII-3)	0.67	1.167	30	PASS
155	5775	<b>12.34</b>	<b>17.140</b>	30	PASS

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## 10. PEAK POWER SPECTRAL DENSITY

### 10.1 Standard Applicable

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

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

### 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 v01.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
4. **For U-NII1, U-NII-2A, U-NII-2C Band:**

Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)

**For U-NII-3 Band:**

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

5. User the cursor on spectrum to peak search the highest level of trace
6. Record the max. reading and add 10 log(1/duty cycle).
7. Repeat above procedures until all default test channel (low, middle, and high) was complete.

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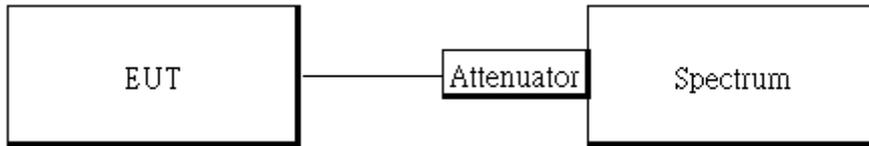
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### 10.3 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	N9010A	MY53400256	10/15/2014	10/14/2015
DC Block	PASTERNAK	PE8210	RF29	12/19/2014	12/18/2015
Attenuator	WOKEN	218FS-10	RF23	12/19/2014	12/18/2015
Attenuator	WOKEN	6SR1211	RF41	12/19/2014	12/18/2015

### 10.4 Test Set-up



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10.5 Measurement Result

802.11a

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5180	-2.63	11.00	-13.63
5220	-2.48	11.00	-13.48
5240	-2.05	11.00	-13.05
5260	-3.03	11.00	-14.03
5300	-2.92	11.00	-13.92
5320	-2.49	11.00	-13.49
5500	-3.11	11.00	-14.11
5580	-3.95	11.00	-14.95
5700	-4.96	11.00	-15.96
5720 (UNII-2C)	-0.83	11.00	-11.83
5720 (UNII-3)	-1.49	30.00	-31.49
5745	-4.37	30.00	-34.37
5785	-4.08	30.00	-34.08

802.11ac VHT20

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5180	-2.63	11.00	-13.63
5220	-2.39	11.00	-13.39
5240	-2.23	11.00	-13.23
5260	-3.16	11.00	-14.16
5300	-3.04	11.00	-14.04
5320	-2.93	11.00	-13.93
5500	-3.48	11.00	-14.48
5580	-4.32	11.00	-15.32
5700	-5.56	11.00	-16.56
5700 (UNII-2C)	-0.14	11.00	-11.14
5700 (UNII-3)	-1.46	30.00	-31.46
5745	-4.79	30.00	-34.79
5785	-3.87	30.00	-33.87

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802.11ac VHT40

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5190	-5.61	11	-16.61
5230	-5.40	11	-16.40
5270	-5.91	11	-16.91
5310	-5.59	11	-16.59
5510	-6.61	11	-17.61
5550	-7.75	11	-18.75
5670	-8.27	11	-19.27
5690 (UNII-2C)	-3.28	11	-14.28
5690 (UNII-3)	-8.12	30	-38.12
5755	-7.25	30	-37.25
5795	-6.64	30	-36.64

802.11ac VHT80

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5210	-8.07	11	-19.07
5290	-8.12	11	-19.12
5530	-8.91	11	-19.91
5610	-10.29	11	-21.29
5690 (UNII-2C)	-7.78	11	-18.78
5690 (UNII-3)	-12.50	30	-42.50
5775	-8.46	30	-38.46

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



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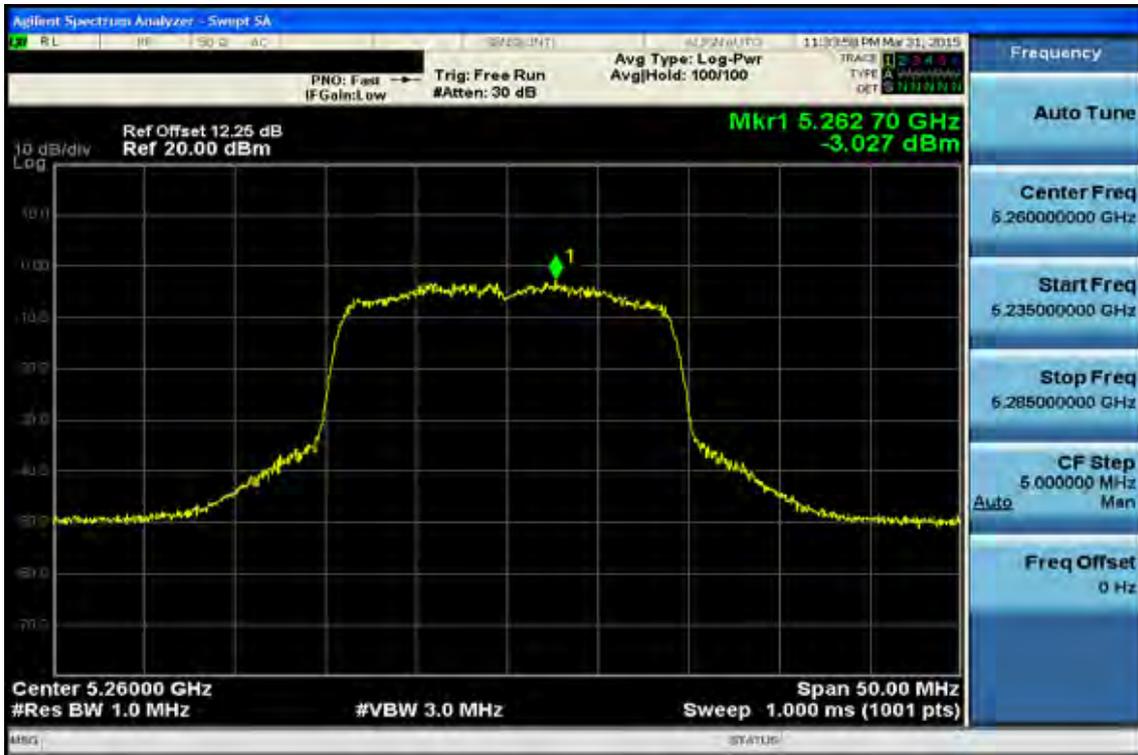
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802.11a, 5250~5350 MHz

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



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



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



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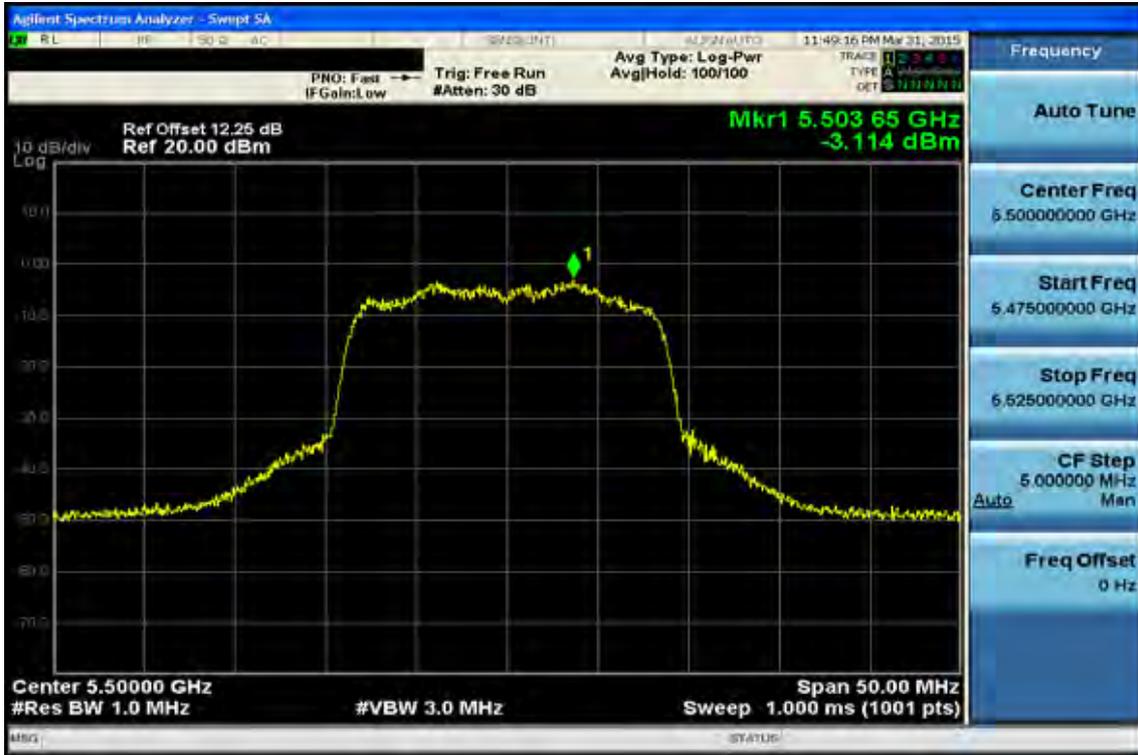
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802.11a, 5470~5725 MHz

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



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



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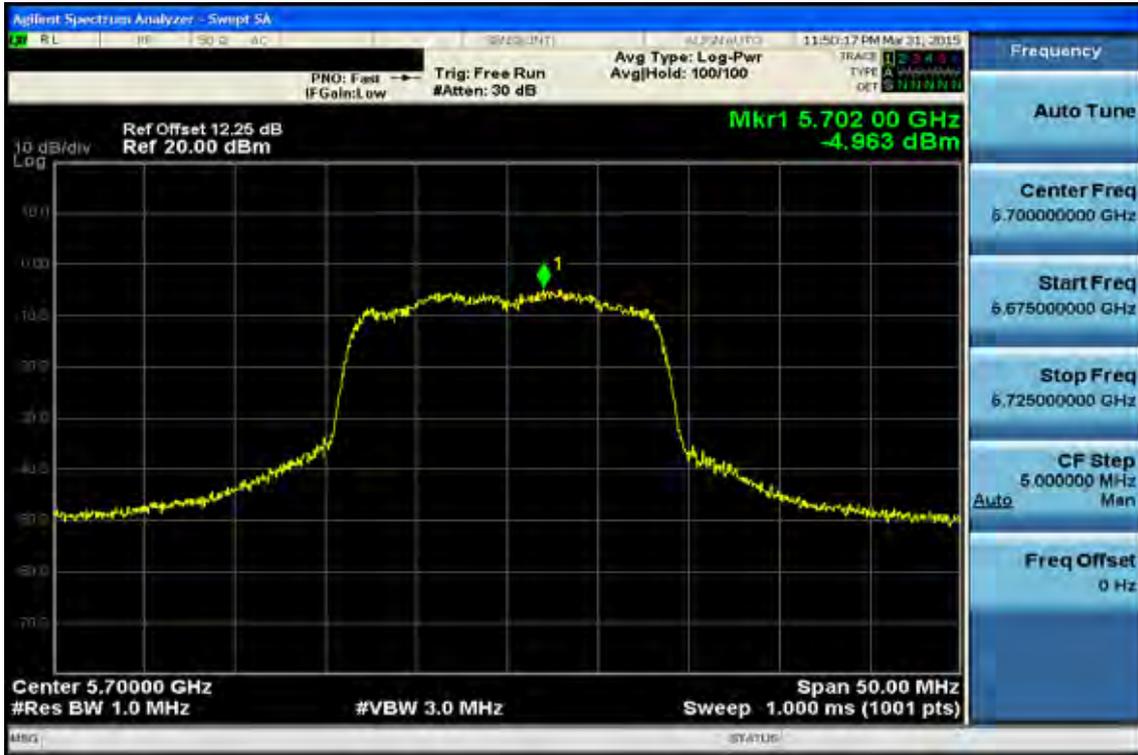
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Peak Power Spectral Density Data Plot (CH High 5700 MHz)



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



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



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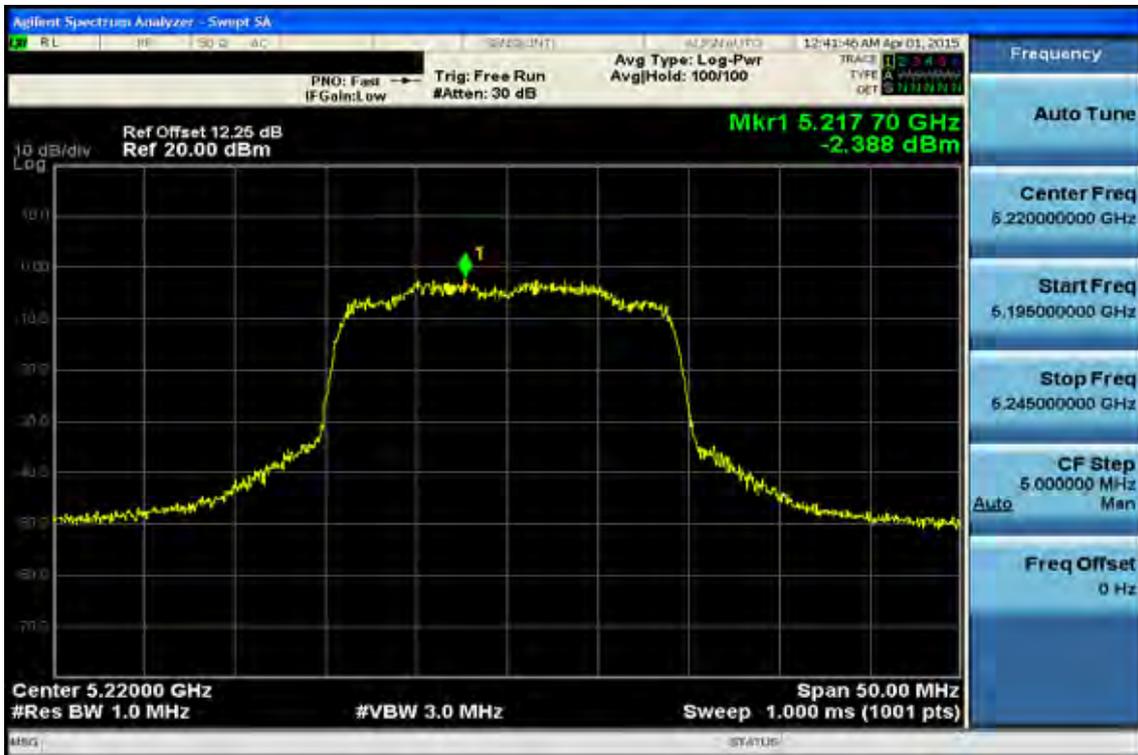
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**802.11ac VHT20, 5150~5250 MHz**  
**Peak Power Spectral Density Data Plot (CH Low 5180 MHz)**



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



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



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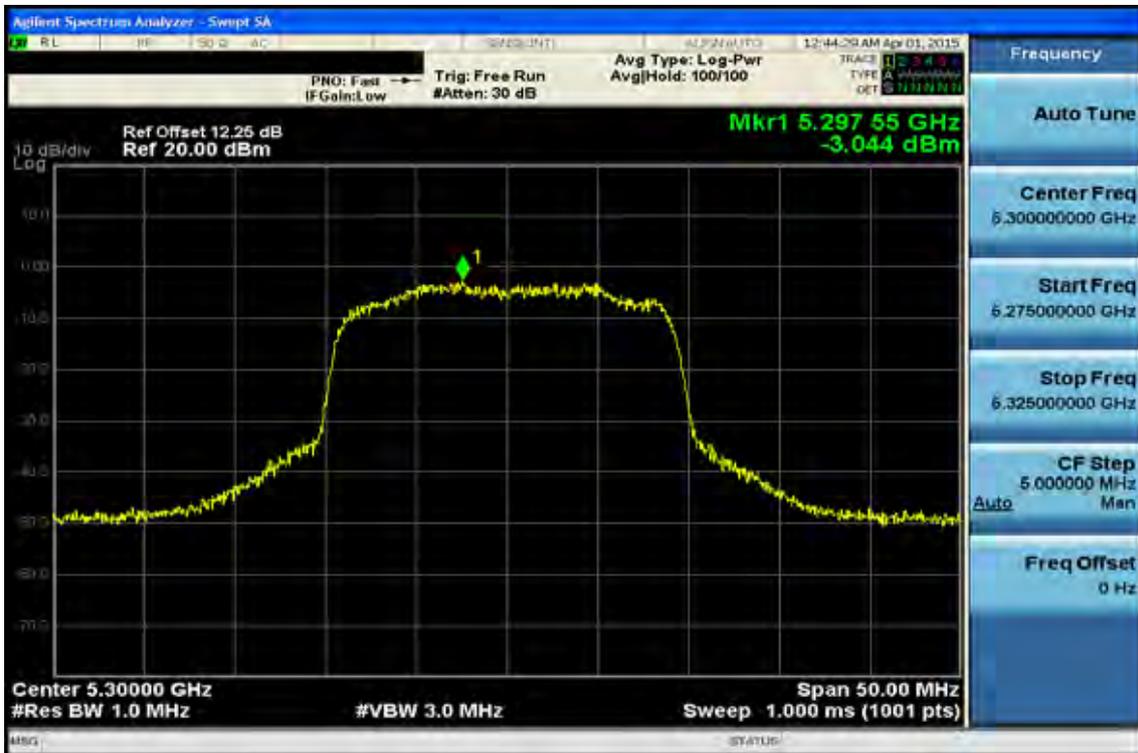
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**802.11ac VHT20, 5250~5350 MHz**  
**Peak Power Spectral Density Data Plot (CH Low 5260MHz)**



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



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



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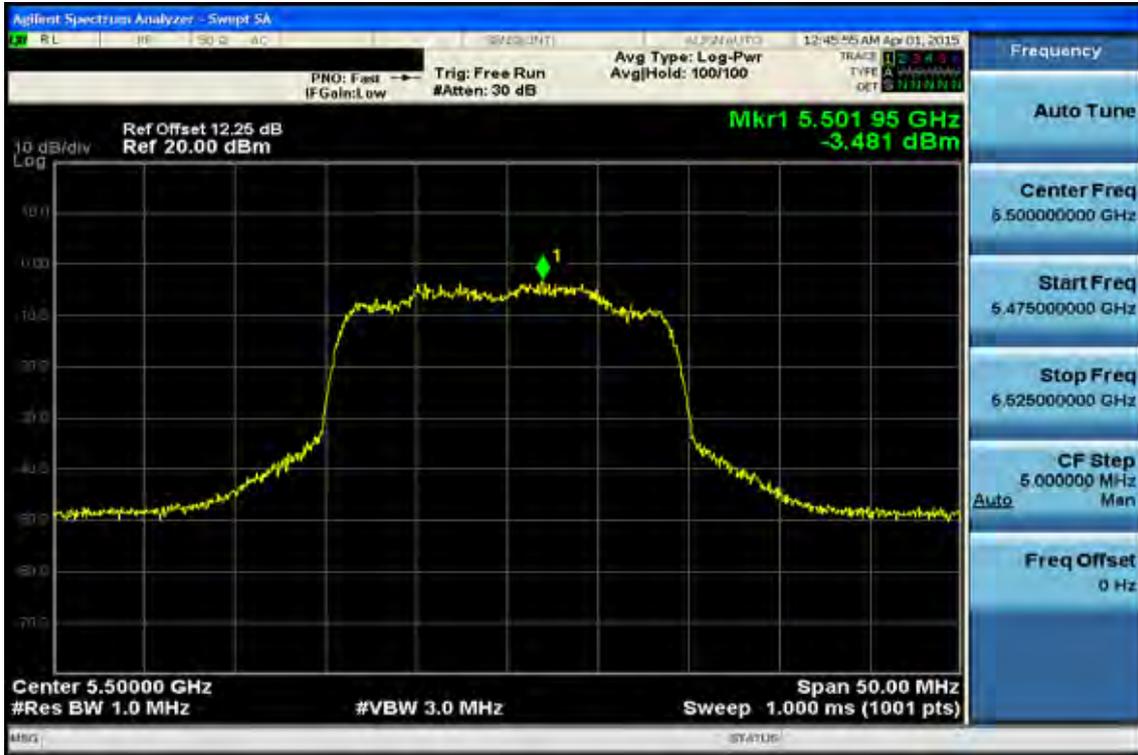
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**802.11ac VHT20, 5470~5725 MHz**  
**Peak Power Spectral Density Data Plot (CH Low 5500 MHz)**



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



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



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



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**802.11ac VHT20, 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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**802.11ac VHT40, 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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**802.11ac VHT40, 5250~5350 MHz**  
**Peak Power Spectral Density Data Plot (CH Low 5270 MHz)**



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



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



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



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



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



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**802.11ac VHT40, 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)**



**Peak Power Spectral Density Data Plot (CH Mid 5610 MHz)**



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



802.11ac VHT80, 5725~5850 MHz

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



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## 11. UNDESIRABLE RADIATED EMISSION MEASUREMENT1

### 11.1 Standard Applicable

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

1. For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
2. For transmitters operating in the 5.25-5.35 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.
3. For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
4. For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

APPLICABLE TO	LIMIT	
FCC KDB 789033 D02 General UNII Test Procedures New Rules v01	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)

$EIRP = (E \cdot d)^2 / 30$ , 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 (dBμ V/m) = 20 log Emission level (dBμ V/m)

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## 11.2 Measurement Equipment Used

SGS 966 Chamber No.C					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESU 40	100363	04/09/2015	04/08/2016
Loop Antenna	ETS-Lindgren	6502	00143303	12/09/2014	12/08/2015
Broadband Antenna	TESEQ	CBL 6112D	35240	12/05/2014	12/04/2015
Horn Antenna	ETS-Lindgren	3117	00143272	12/08/2014	12/07/2015
Horn Antenna	ETS-Lindgren	3160-09	00117911	11/13/2014	11/12/2015
Horn Antenna	ETS-Lindgren	3160-10	00117783	11/13/2014	11/12/2015
Pre Amplifier	EMC Instruments	EMC330	980096	12/19/2014	12/18/2015
Pre Amplifier	EMC Instruments	EMC0011830	980199	12/19/2014	12/18/2015
Pre Amplifier	R&S	SCU-18	10204	12/19/2014	12/18/2015
Pre Amplifier	R&S	SCU-26	100780	12/19/2014	12/18/2015
Pre Amplifier	R&S	SCU-40	100356	12/19/2014	12/18/2015
Pre Amplifier	EMC Instruments	EMC184045B	980135	12/19/2014	12/18/2015
Coaxial Cable	Huber+Suhner	RG 214/U	966Rx 9K-30M	12/19/2014	12/18/2015
Coaxial Cable	Huber+Suhner	RG 214/U SUCOFLEX 104	966Rx 30M-3G	12/19/2014	12/18/2015
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Rx 1G-18G	12/19/2014	12/18/2015
Coaxial Cable	Huber+Suhner	mini 141-12 SUCOFLEX 104	966Rx 18G-40G	12/19/2014	12/18/2015
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Tx 30M-18G	12/19/2014	12/18/2015
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	966Tx 18G-40G	12/19/2014	12/18/2015
Attenuator	WOKEN	218FS-10	RF27	12/19/2014	12/18/2015
Site NSA	SGS	966 Chamber C	SAC-C	03/04/2015	03/03/2016
Site VSWR	SGS	966 Chamber C	SAC-C	03/04/2015	03/03/2016
DC Power Supply	HOLA	DP-3003	D7070035	05/31/2014	05/30/2015
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.
Test Software	World-Pallas	Dr. E	V 3.0 Lite	N.C.R.	N.C.R.

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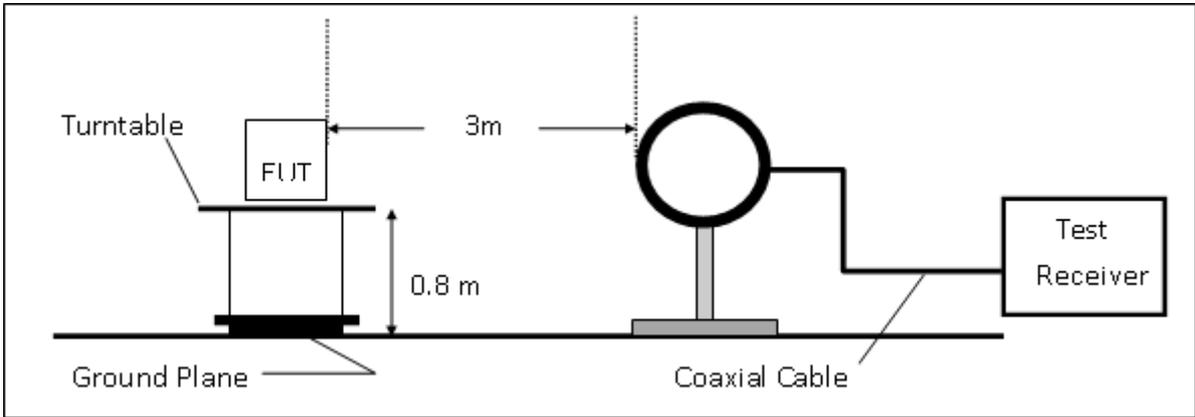
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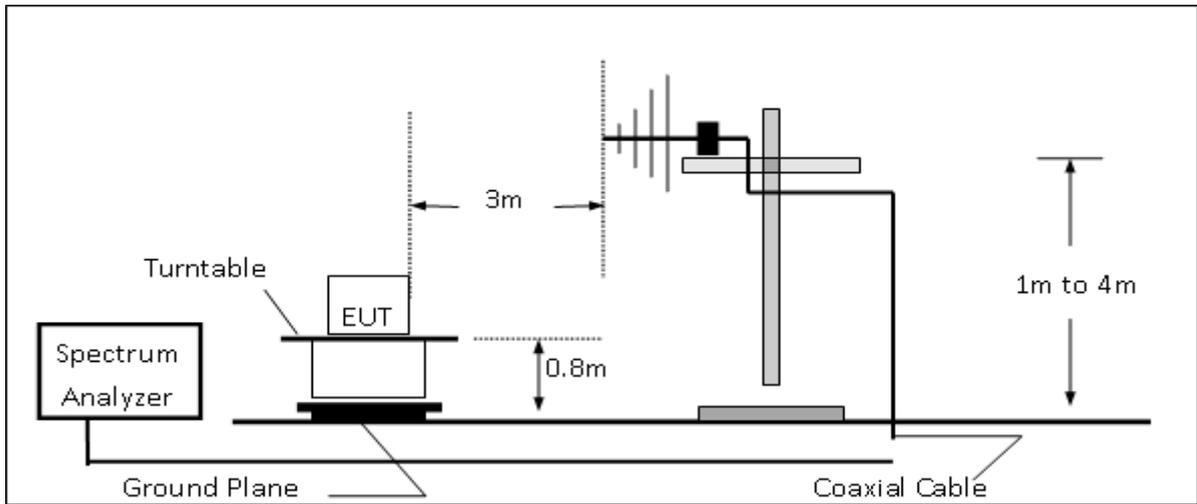
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11.3 Test SET-UP

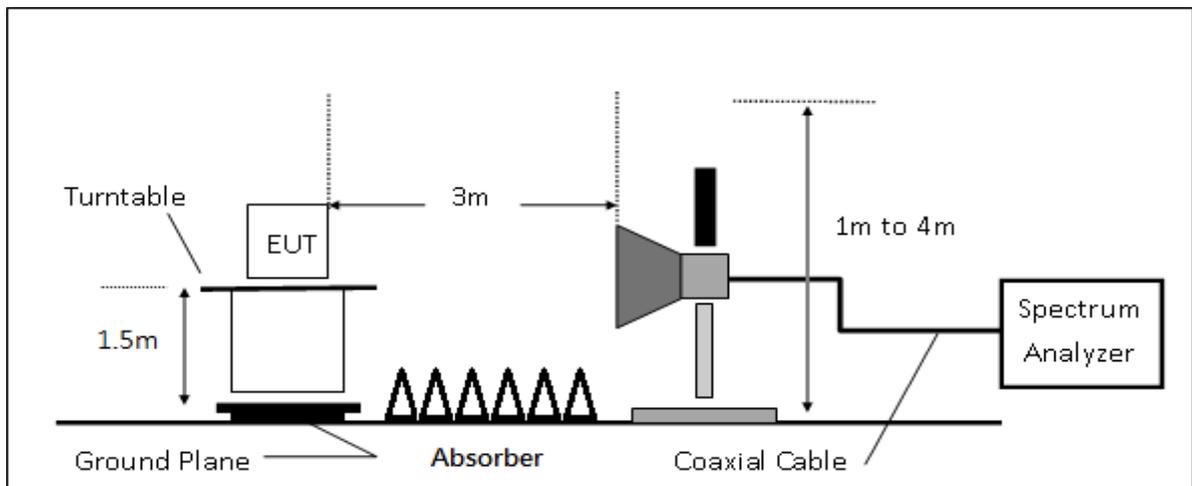
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(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 v01.
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	

$$\text{Actual FS(dB}\mu\text{V/m)} = \text{SPA. Reading level(dB}\mu\text{V)} + \text{Factor(dB)}$$

$$\text{Factor(dB)} = \text{Antenna Factor(dB}\mu\text{V/m)} + \text{Cable Loss(dB)} - \text{Pre\_Amplifier Gain(dB)}$$

**Note :**

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

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

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

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

## 11.7 Measurement Result

Refer to attach tabular data sheets.

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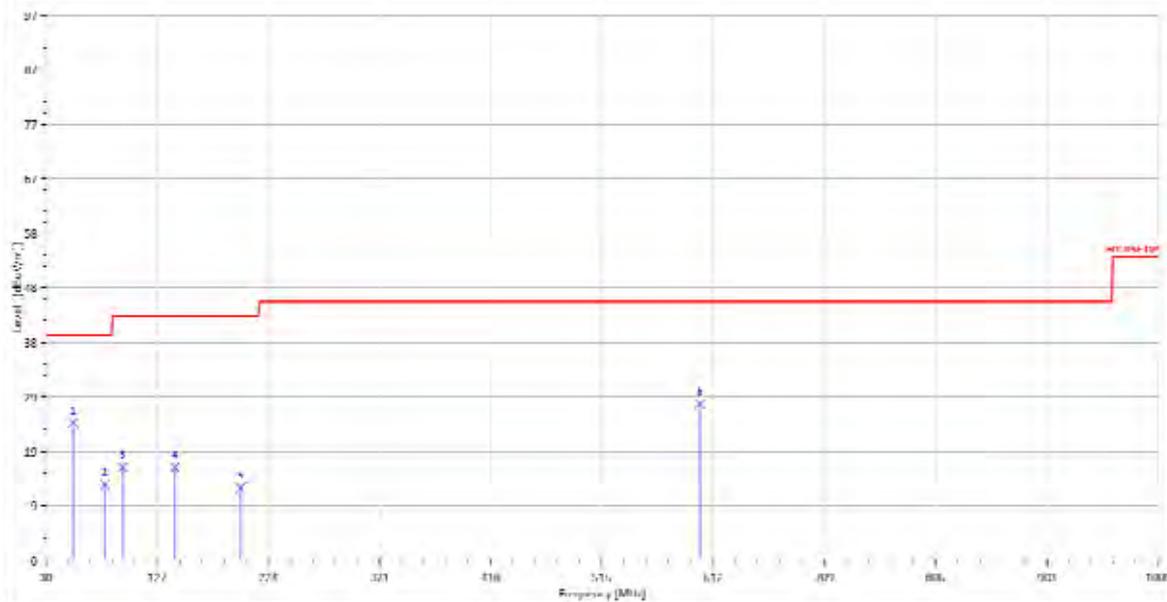
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**Radiated Spurious Emission Measurement Result**

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

**802.11a, 5150~5250 MHz**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5220 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
54.25	Peak	S	51.23	-26.79	24.44	40.00	-15.56
81.41	Peak	S	40.15	-26.71	13.45	40.00	-26.55
96.93	Peak	S	40.90	-24.36	16.53	43.50	-26.97
142.52	Peak	S	38.46	-21.92	16.54	43.50	-26.96
199.75	Peak	S	36.17	-23.28	12.89	43.50	-30.61
600.36	Peak	S	40.28	-12.45	27.82	46.00	-18.18

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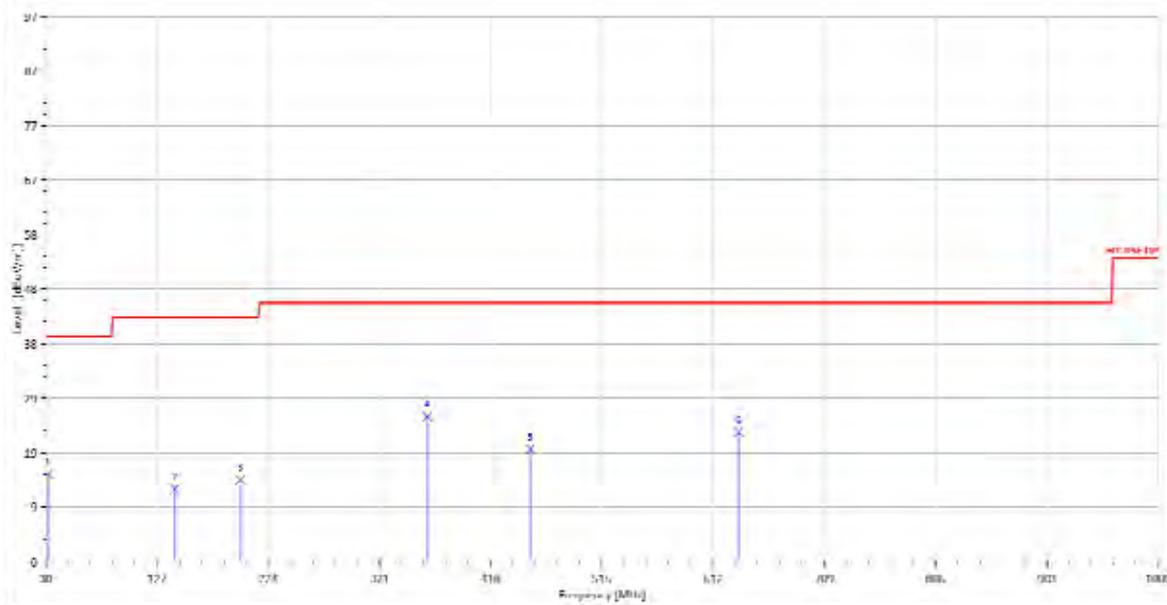
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5220 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
31.94	Peak	S	29.75	-14.17	15.58	40.00	-24.42
142.52	Peak	S	34.84	-21.92	12.92	43.50	-30.58
199.75	Peak	S	37.81	-23.28	14.53	43.50	-28.97
362.71	Peak	S	42.94	-17.11	25.83	46.00	-20.17
452.92	Peak	S	34.83	-14.83	20.00	46.00	-26.00
634.31	Peak	S	34.62	-11.62	23.00	46.00	-23.00

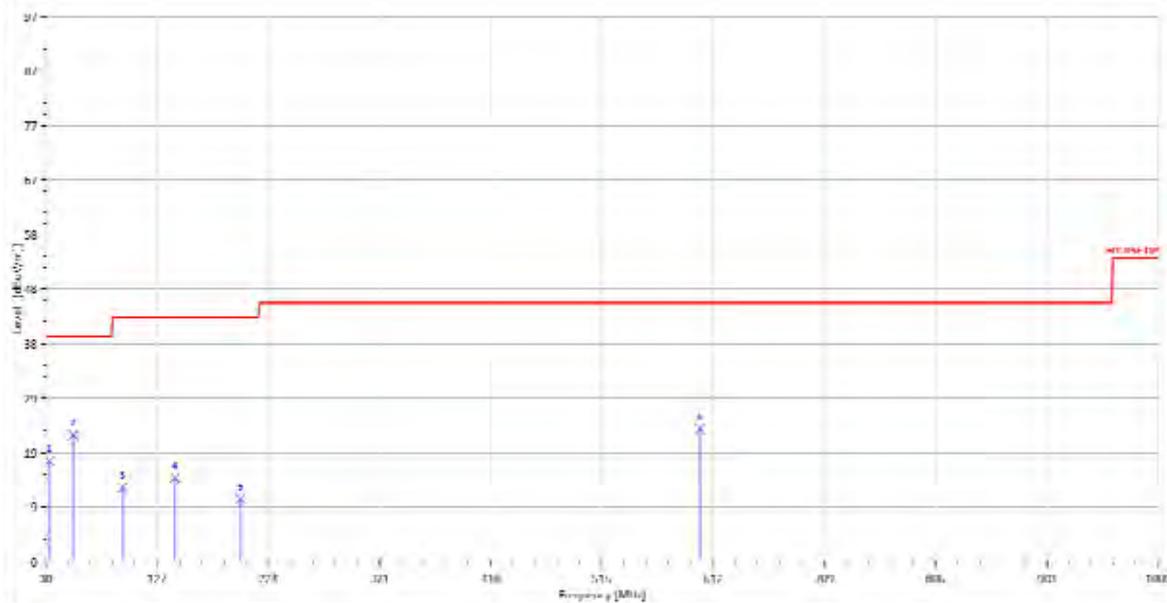
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**802.11ac VHT80, 5150~5250 MHz**

Operation Band	:802.11 ac 80M	Test Date	:2015-04-29
Fundamental Frequency	:5210 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



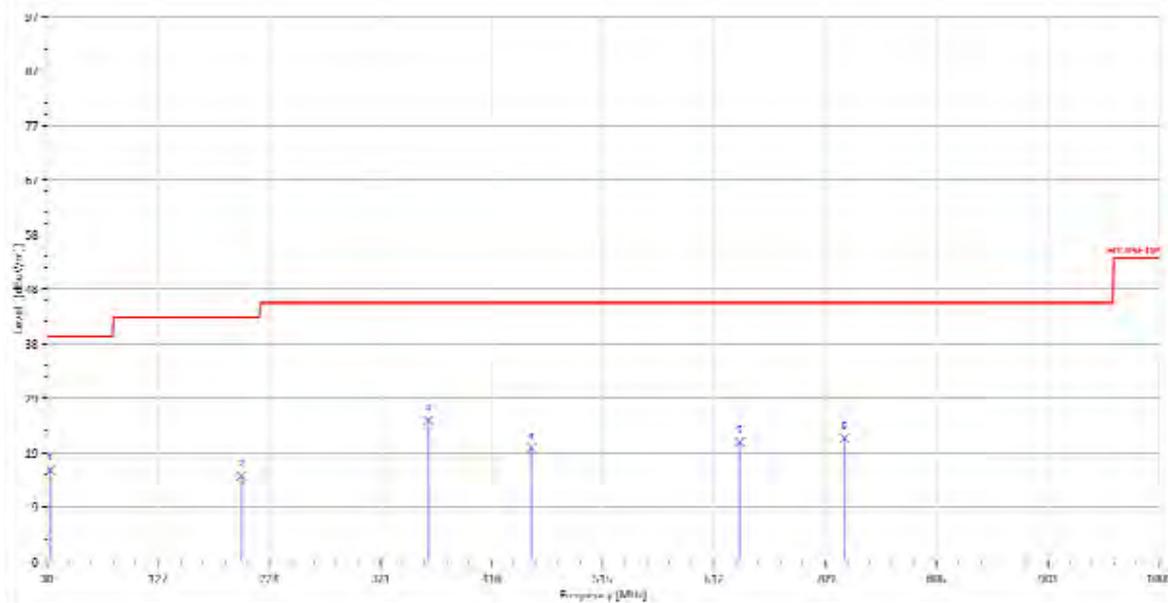
Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
32.91	Peak	S	32.61	-14.69	17.91	40.00	-22.09
54.25	Peak	S	49.34	-26.79	22.54	40.00	-17.46
96.93	Peak	S	37.53	-24.36	13.16	43.50	-30.34
142.52	Peak	S	36.79	-21.92	14.88	43.50	-28.62
199.75	Peak	S	34.44	-23.28	11.16	43.50	-32.34
600.36	Peak	S	36.05	-12.45	23.59	46.00	-22.41

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Operation Band	:802.11 ac 80M	Test Date	:2015-04-29
Fundamental Frequency	:5210 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
32.91	Peak	S	30.96	-14.69	16.26	40.00	-23.74
199.75	Peak	S	38.53	-23.28	15.26	43.50	-28.24
362.71	Peak	S	42.28	-17.11	25.17	46.00	-20.83
452.92	Peak	S	34.99	-14.83	20.16	46.00	-25.84
634.31	Peak	S	32.88	-11.62	21.25	46.00	-24.75
725.49	Peak	S	32.63	-10.71	21.92	46.00	-24.08

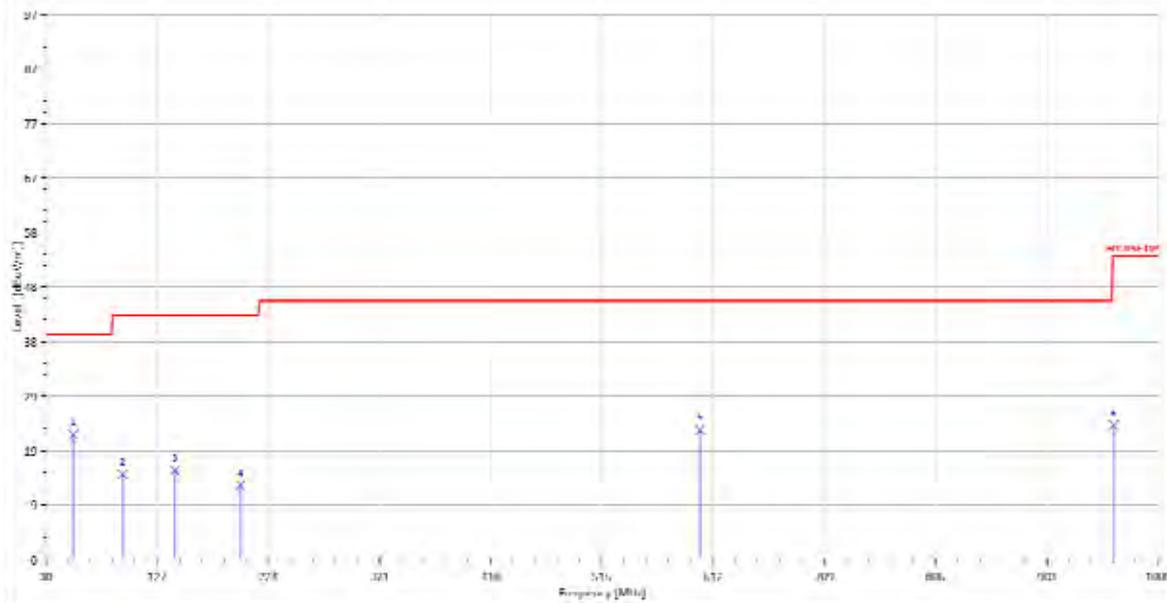
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**802.11a, 5250~5350 MHz**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5300 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
54.25	Peak	S	49.05	-26.79	22.25	40.00	-17.75
96.93	Peak	S	39.52	-24.36	15.15	43.50	-28.35
142.52	Peak	S	37.73	-21.92	15.81	43.50	-27.69
199.75	Peak	S	36.46	-23.28	13.18	43.50	-30.32
600.36	Peak	S	35.49	-12.45	23.04	46.00	-22.96
961.20	Peak	S	31.44	-7.53	23.91	54.00	-30.09

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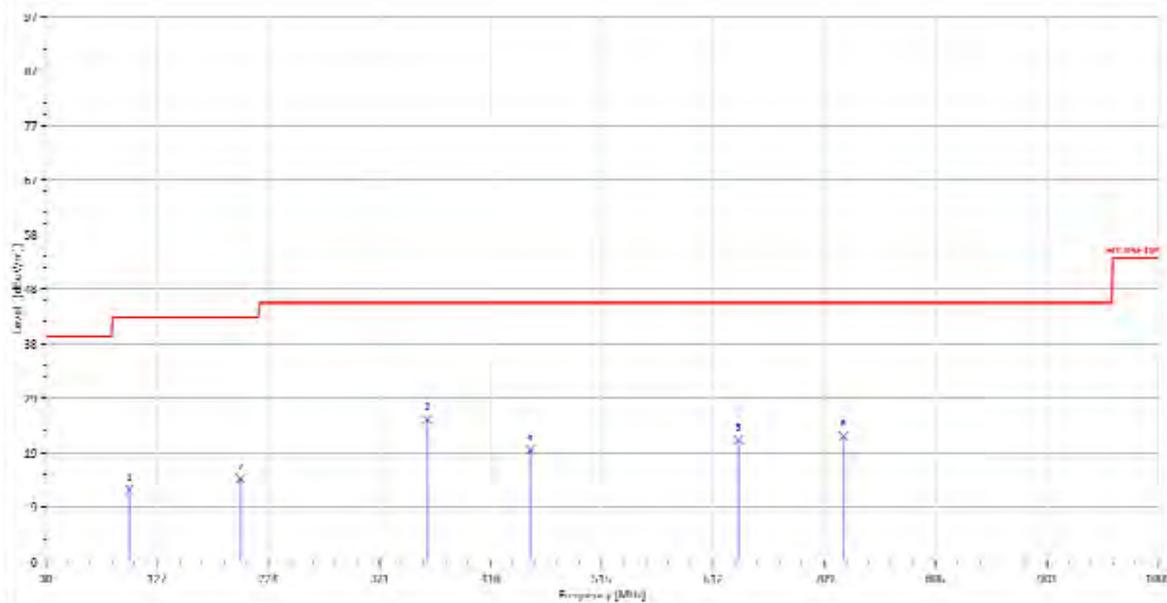
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5300 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
102.75	Peak	S	36.17	-23.39	12.77	43.50	-30.73
199.75	Peak	S	37.99	-23.28	14.71	43.50	-28.79
362.71	Peak	S	42.40	-17.11	25.28	46.00	-20.72
452.92	Peak	S	34.66	-14.83	19.84	46.00	-26.16
634.31	Peak	S	33.27	-11.62	21.64	46.00	-24.36
725.49	Peak	S	33.03	-10.71	22.32	46.00	-23.68

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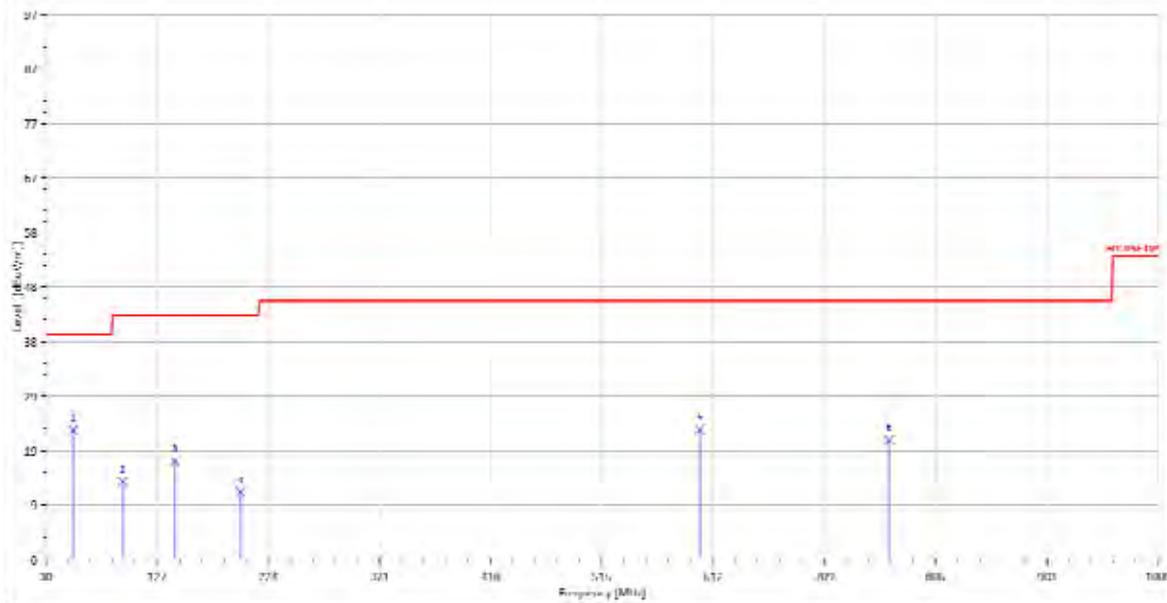
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**802.11ac VHT80, 5250~5350 MHz**

Operation Band	:802.11 ac80	Test Date	:2015-04-29
Fundamental Frequency	:5290 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
54.25	Peak	S	49.73	-26.79	22.94	40.00	-17.06
96.93	Peak	S	38.20	-24.36	13.83	43.50	-29.67
142.52	Peak	S	39.34	-21.92	17.42	43.50	-26.08
199.75	Peak	S	35.31	-23.28	12.03	43.50	-31.47
600.36	Peak	S	35.58	-12.45	23.13	46.00	-22.87
765.26	Peak	S	31.27	-9.98	21.29	46.00	-24.71

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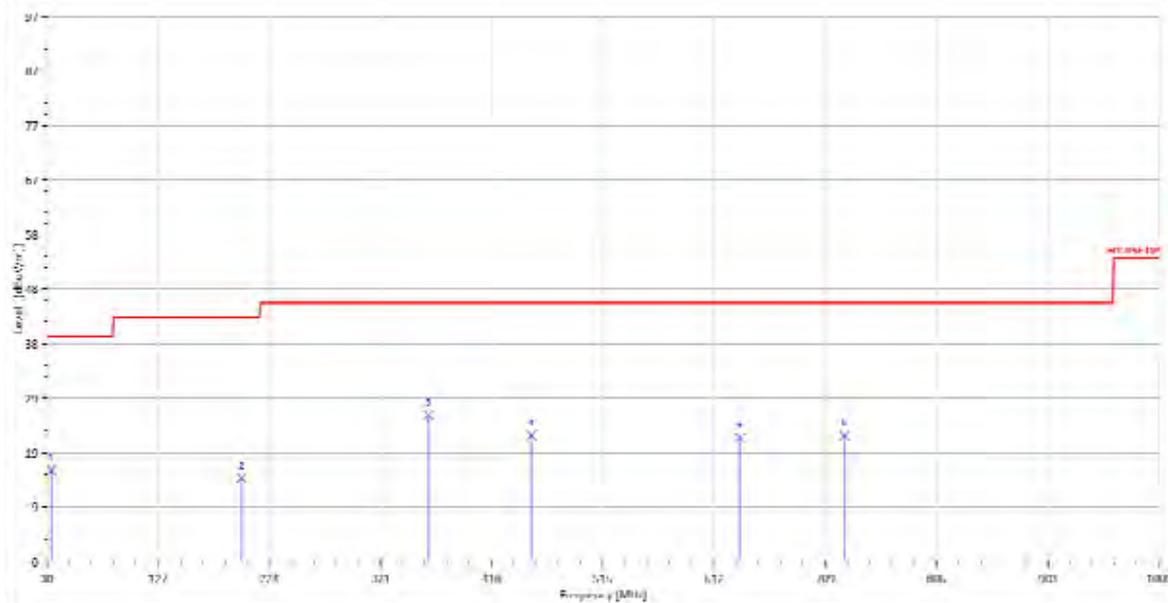
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Operation Band	:802.11 ac 80M	Test Date	:2015-04-29
Fundamental Frequency	:5290 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
33.88	Peak	S	31.44	-15.22	16.22	40.00	-23.78
199.75	Peak	S	38.12	-23.28	14.85	43.50	-28.65
362.71	Peak	S	43.20	-17.11	26.09	46.00	-19.91
452.92	Peak	S	37.34	-14.83	22.51	46.00	-23.49
634.31	Peak	S	33.72	-11.62	22.09	46.00	-23.91
725.49	Peak	S	33.18	-10.71	22.47	46.00	-23.53

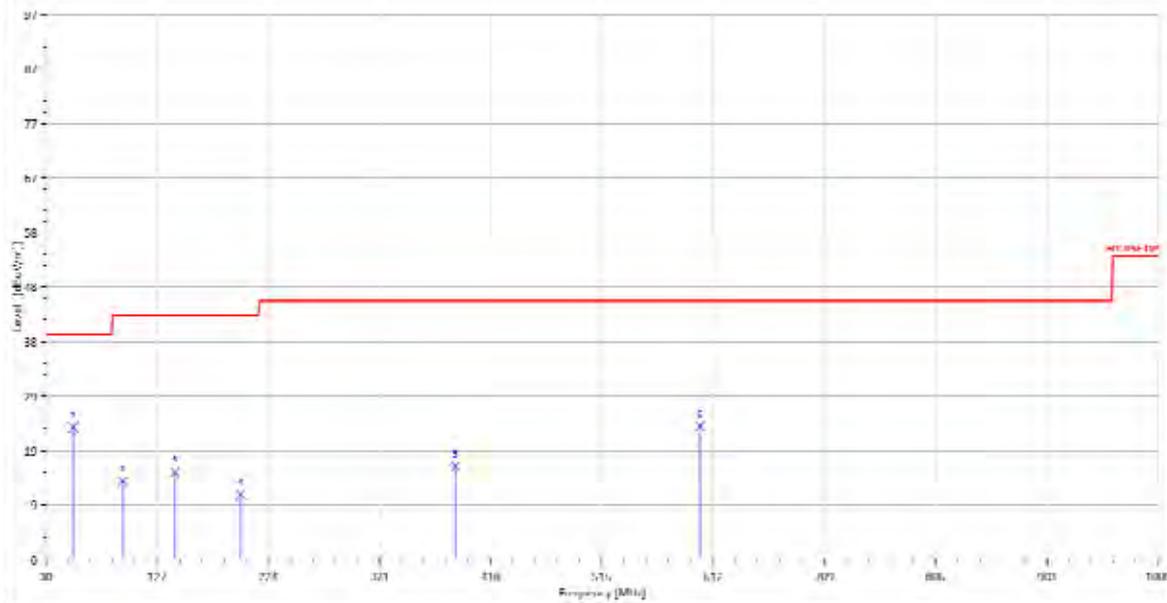
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**802.11a, 5470~5725 MHz**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5580 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
54.25	Peak	S	50.33	-26.79	23.53	40.00	-16.47
96.93	Peak	S	38.28	-24.36	13.91	43.50	-29.59
142.52	Peak	S	37.46	-21.92	15.54	43.50	-27.96
199.75	Peak	S	34.85	-23.28	11.57	43.50	-31.93
386.96	Peak	S	32.92	-16.32	16.61	46.00	-29.39
600.36	Peak	S	36.17	-12.45	23.71	46.00	-22.29

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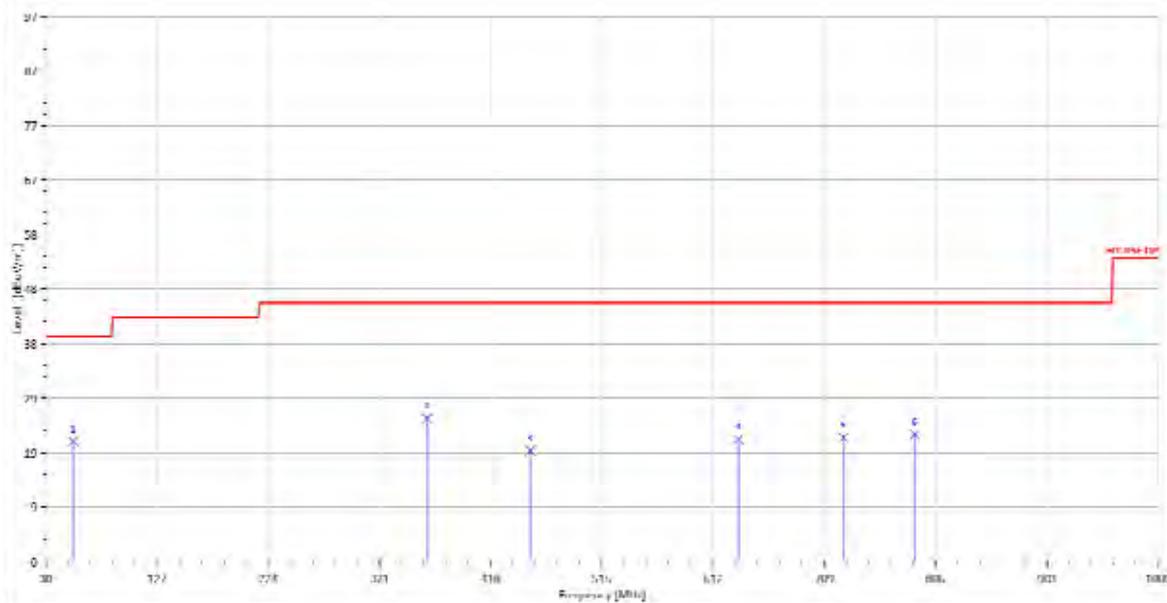
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5580 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
54.25	Peak	S	48.17	-26.79	21.38	40.00	-18.62
362.71	Peak	S	42.62	-17.11	25.51	46.00	-20.49
452.92	Peak	S	34.55	-14.83	19.72	46.00	-26.28
634.31	Peak	S	33.37	-11.62	21.74	46.00	-24.26
725.49	Peak	S	32.84	-10.71	22.13	46.00	-23.87
787.57	Peak	S	32.53	-9.93	22.60	46.00	-23.40

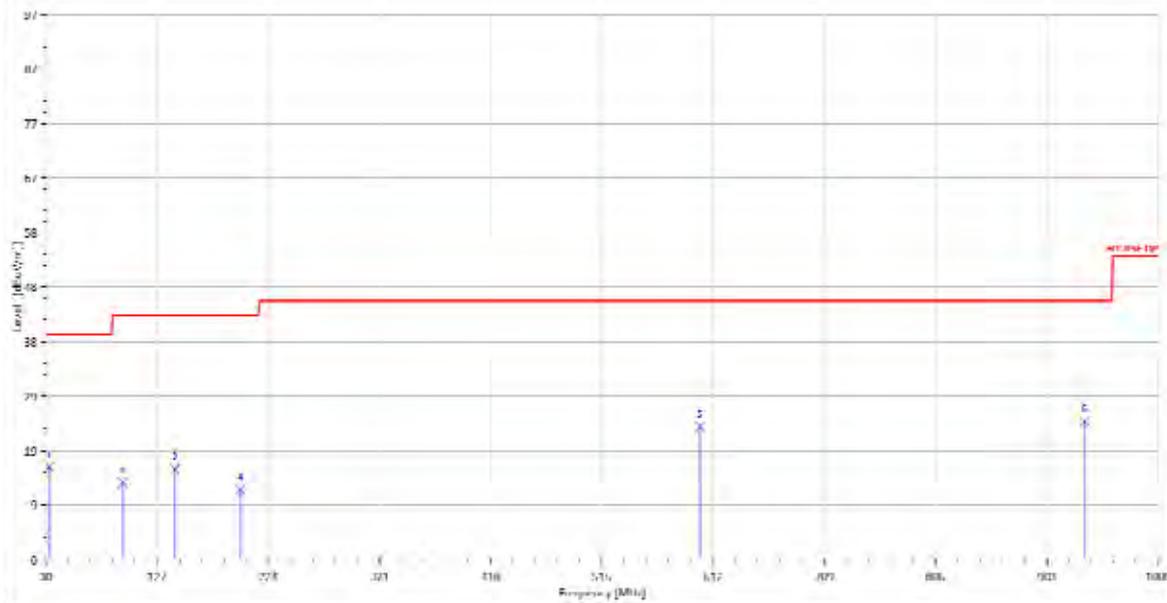
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**802.11ac VHT80, 5470~5725 MHz**

Operation Band	:802.11 ac 80M	Test Date	:2015-04-29
Fundamental Frequency	:5610 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



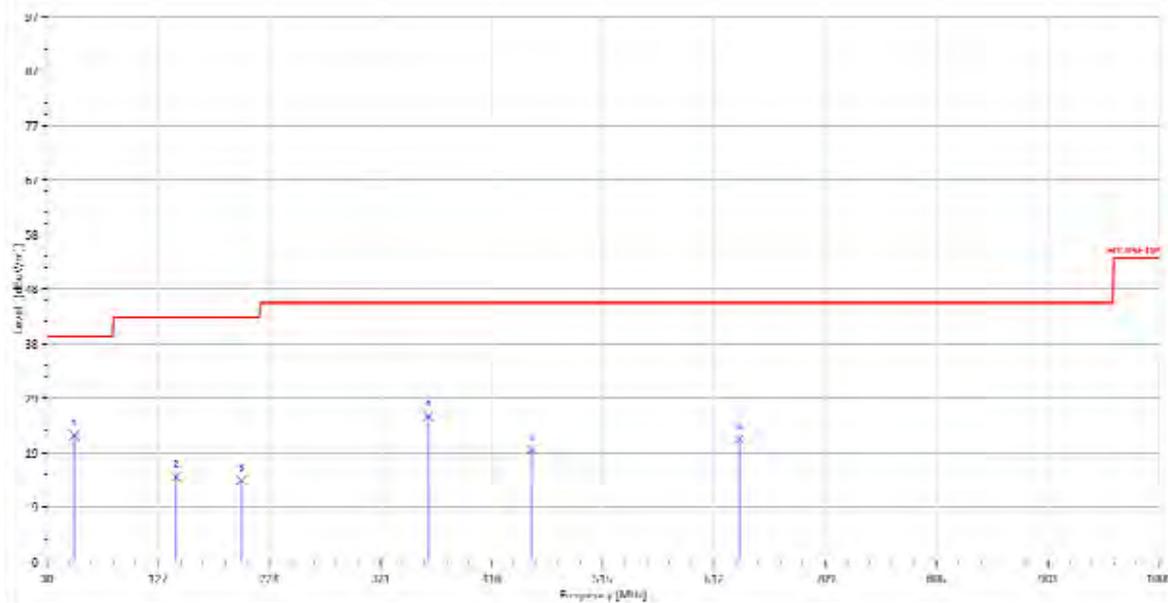
Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
32.91	Peak	S	31.16	-14.69	16.46	40.00	-23.54
96.93	Peak	S	38.01	-24.36	13.65	43.50	-29.85
142.52	Peak	S	37.99	-21.92	16.07	43.50	-27.43
199.75	Peak	S	35.70	-23.28	12.43	43.50	-31.07
600.36	Peak	S	36.08	-12.45	23.63	46.00	-22.37
935.98	Peak	S	32.15	-7.60	24.55	46.00	-21.45

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Operation Band	:802.11 ac 80M	Test Date	:2015-04-29
Fundamental Frequency	:5610 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
54.25	Peak	S	49.30	-26.79	22.51	40.00	-17.49
142.52	Peak	S	36.98	-21.92	15.06	43.50	-28.44
199.75	Peak	S	37.74	-23.28	14.46	43.50	-29.04
362.71	Peak	S	42.98	-17.11	25.87	46.00	-20.13
452.92	Peak	S	34.73	-14.83	19.90	46.00	-26.10
634.31	Peak	S	33.45	-11.62	21.82	46.00	-24.18

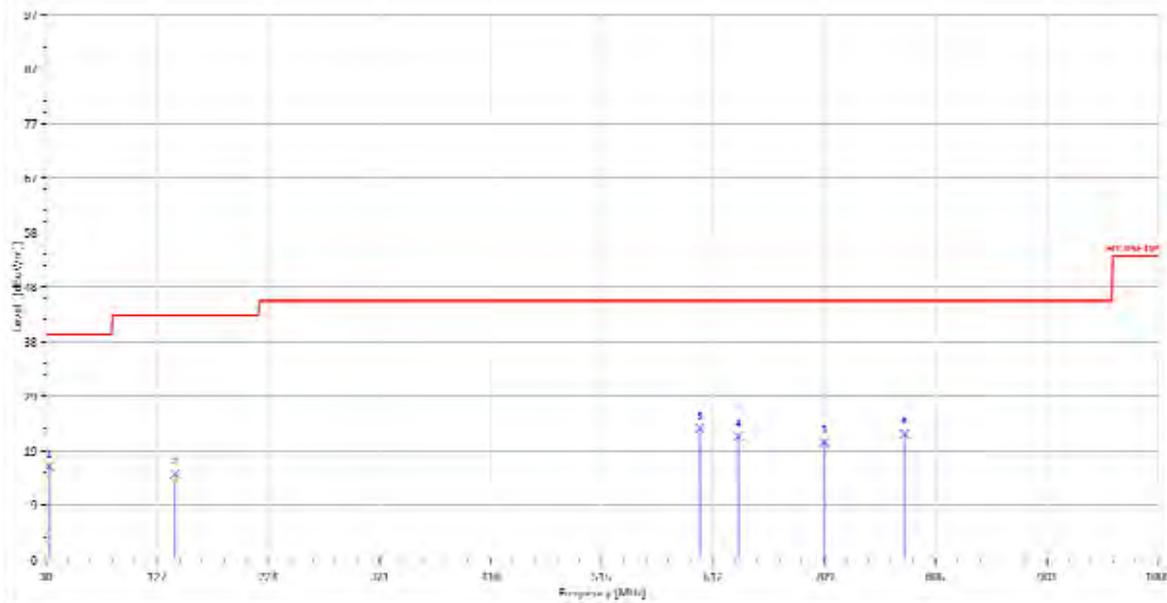
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**802.11a, 5725~5850 MHz**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5785 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
32.91	Peak	S	31.29	-14.69	16.59	40.00	-23.41
142.52	Peak	S	37.19	-21.92	15.27	43.50	-28.23
600.36	Peak	S	35.81	-12.45	23.35	46.00	-22.65
634.31	Peak	S	33.54	-11.62	21.92	46.00	-24.08
709.00	Peak	S	31.64	-10.83	20.81	46.00	-25.19
778.84	Peak	S	32.67	-10.31	22.35	46.00	-23.65

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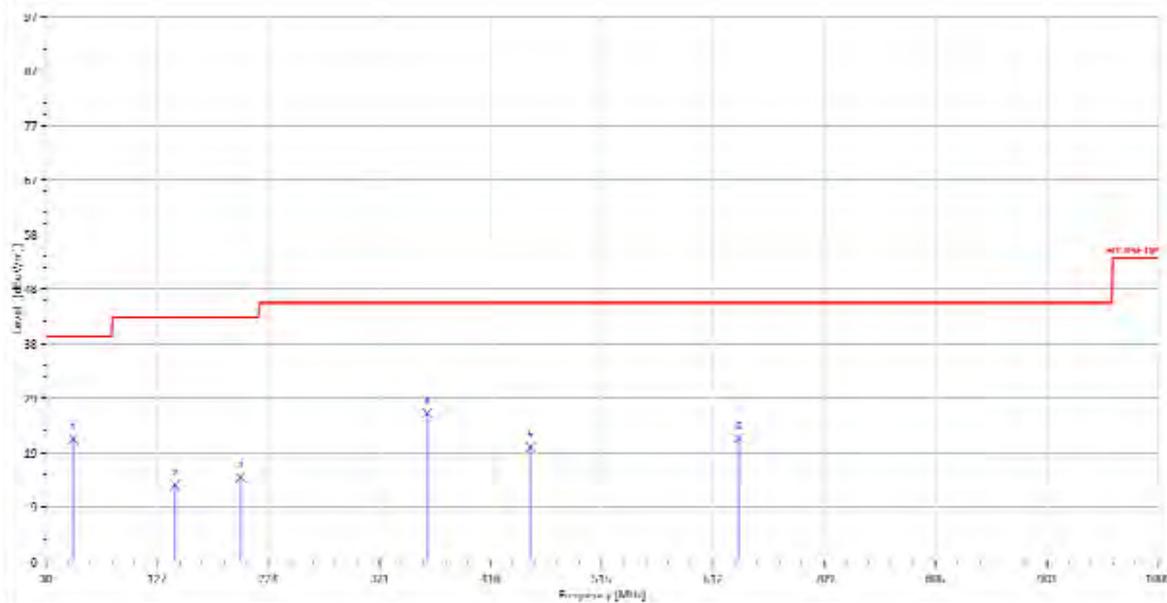
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5785 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
54.25	Peak	S	48.62	-26.79	21.82	40.00	-18.18
142.52	Peak	S	35.51	-21.92	13.59	43.50	-29.91
199.75	Peak	S	38.25	-23.28	14.98	43.50	-28.53
362.71	Peak	S	43.49	-17.11	26.38	46.00	-19.62
452.92	Peak	S	35.19	-14.83	20.36	46.00	-25.64
634.31	Peak	S	33.52	-11.62	21.89	46.00	-24.11

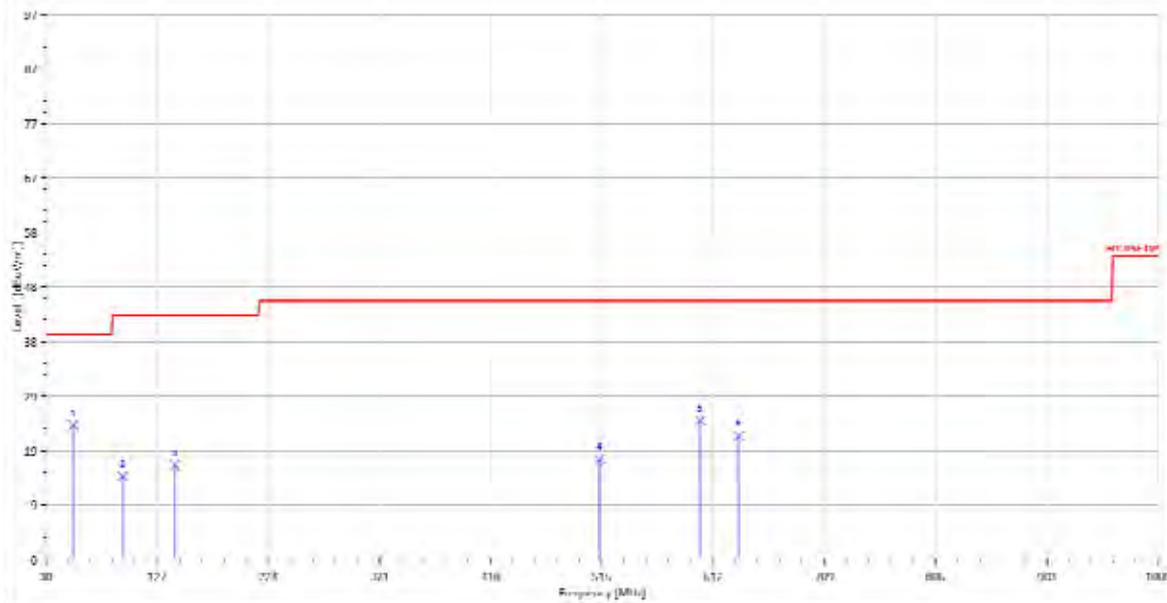
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**802.11ac VHT80, 5725~5850 MHz**

Operation Band	:802.11 ac 80M	Test Date	:2015-04-29
Fundamental Frequency	:5775 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



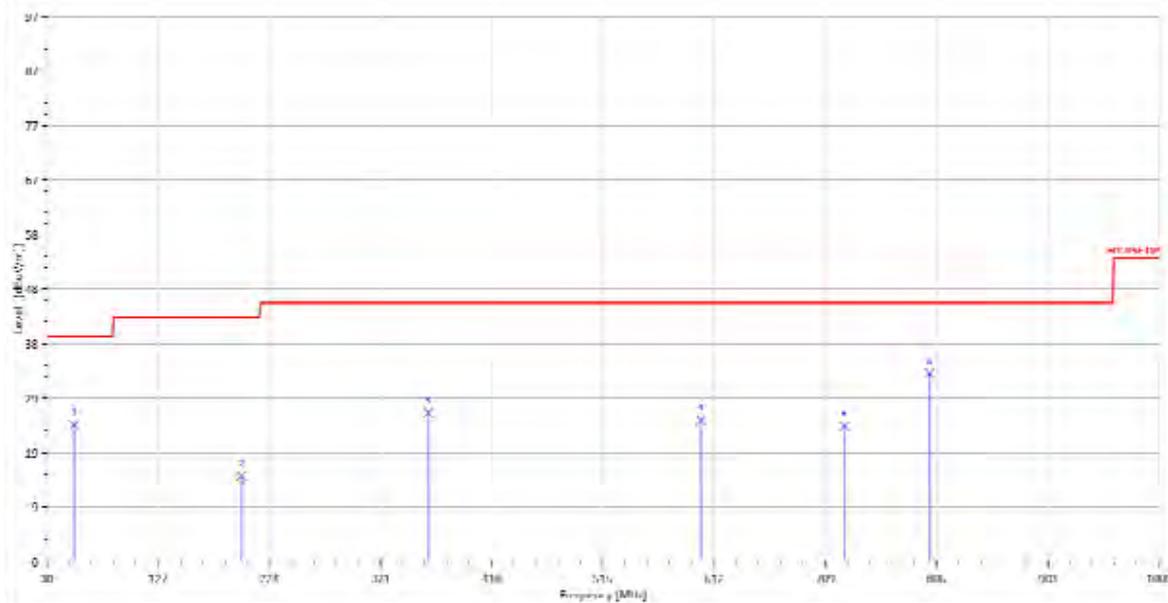
Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
54.25	Peak	S	50.71	-26.79	23.91	40.00	-16.09
96.93	Peak	S	39.13	-24.36	14.76	43.50	-28.74
142.52	Peak	S	38.71	-21.92	16.79	43.50	-26.71
513.06	Peak	S	31.58	-13.71	17.87	46.00	-28.13
600.36	Peak	S	37.18	-12.45	24.72	46.00	-21.28
634.31	Peak	S	33.62	-11.62	21.99	46.00	-24.01

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Operation Band	:802.11 ac 80M	Test Date	:2015-04-29
Fundamental Frequency	:5775 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
54.25	Peak	S	51.03	-26.79	24.24	40.00	-15.76
199.75	Peak	S	38.54	-23.28	15.27	43.50	-28.23
362.71	Peak	S	43.61	-17.11	26.50	46.00	-19.50
600.36	Peak	S	37.61	-12.45	25.16	46.00	-20.84
725.49	Peak	S	34.84	-10.71	24.14	46.00	-21.86
800.18	Peak	S	42.96	-9.49	33.46	46.00	-12.54

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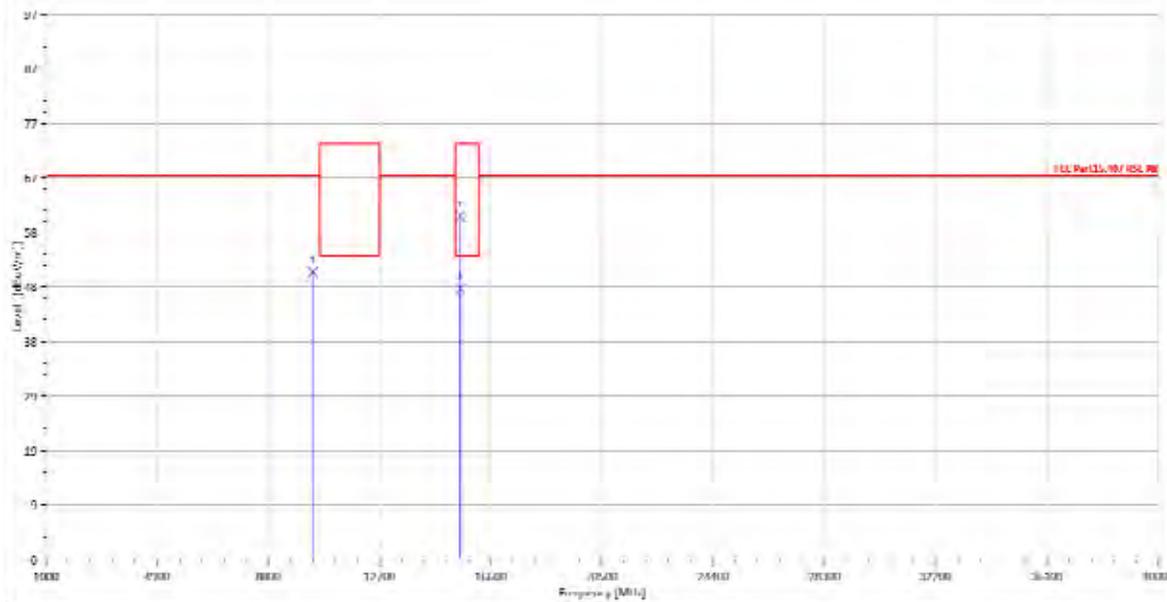
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**Above 1GHz Worst-Case Data:**

**802.11a, 5150~5250 MHz**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5180 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10360.00	Peak	H	32.15	18.94	51.09	68.30	-17.21
15540.00	Peak	H	35.27	25.80	61.07	74.00	-12.93
15540.00	Average	H	22.31	25.80	48.11	54.00	-5.89

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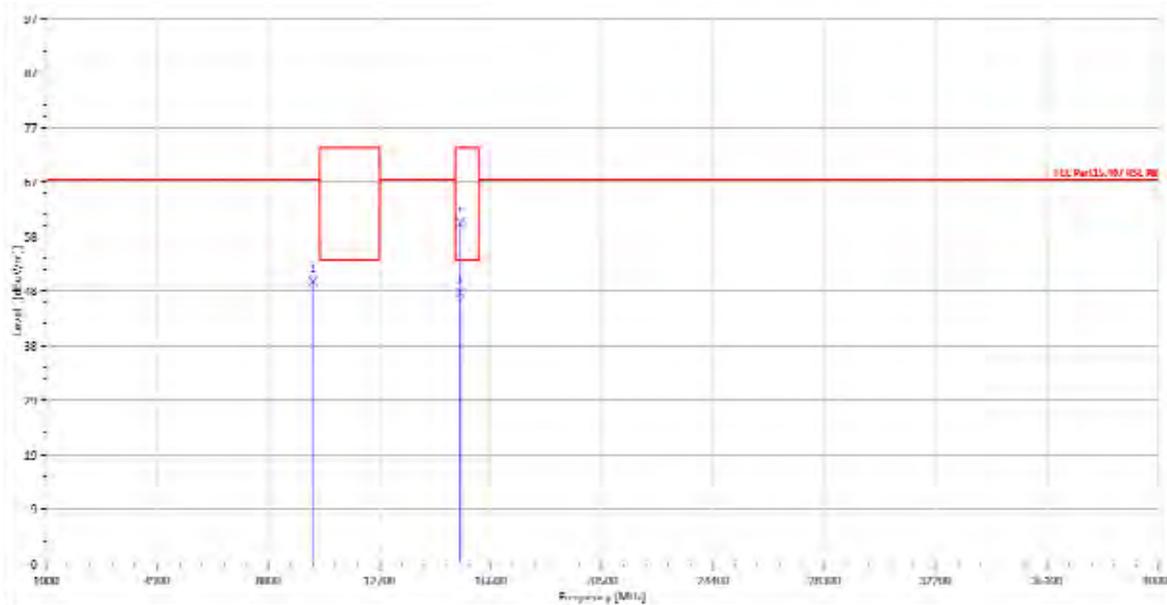
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5180 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10360.00	Peak	H	31.26	18.94	50.20	68.30	-18.10
15540.00	Peak	H	34.84	25.80	60.64	74.00	-13.37
15540.00	Average	H	22.38	25.80	48.18	54.00	-5.82

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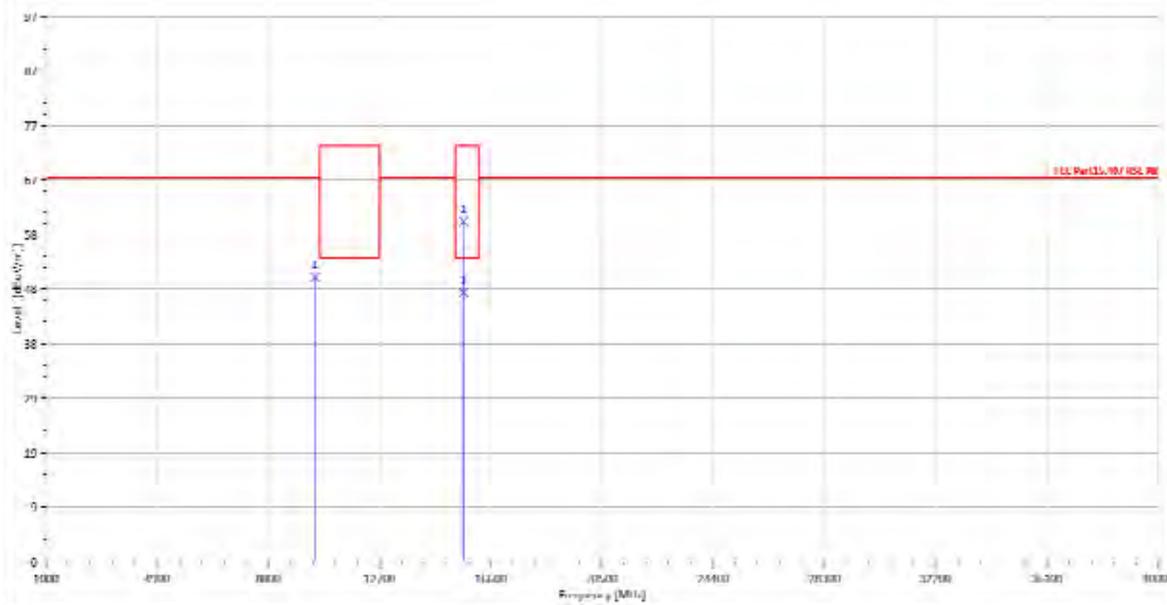
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5220 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

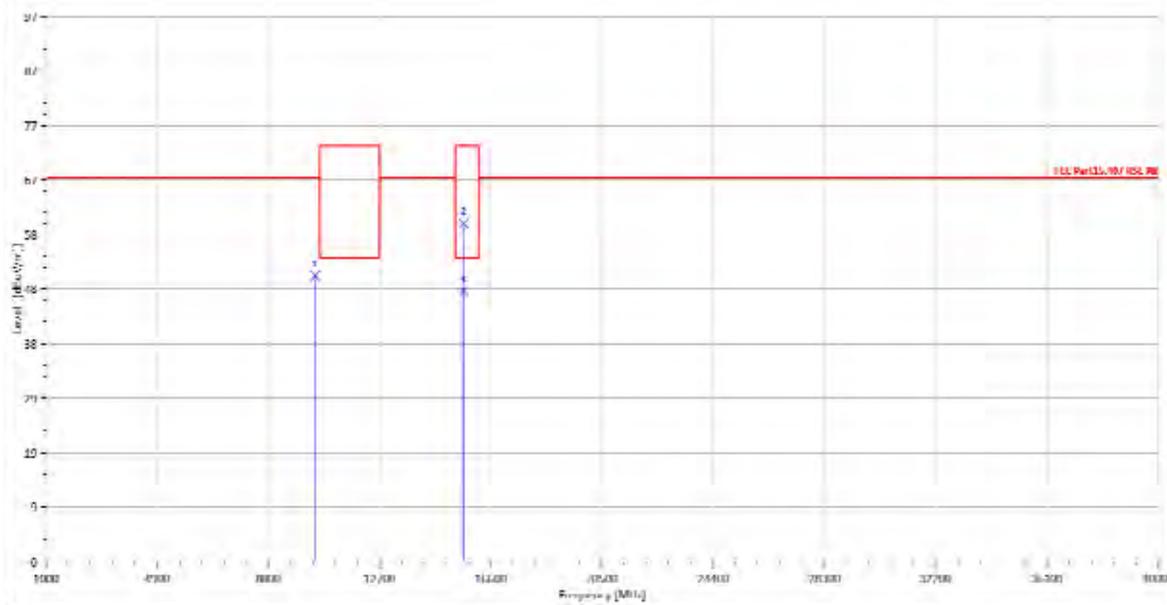


Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10440.00	Peak	H	31.61	19.03	50.63	68.30	-17.67
15660.00	Peak	H	34.43	26.06	60.49	74.00	-13.51
15660.00	Average	H	21.80	26.06	47.86	54.00	-6.14

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5220 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

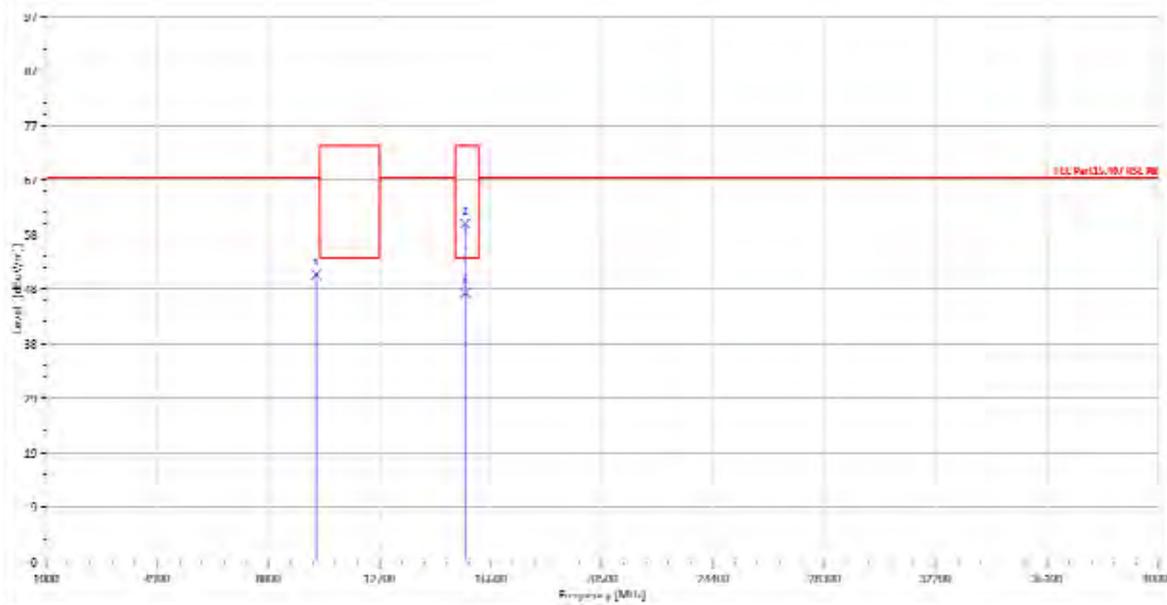


Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10440.00	Peak	H	31.71	19.03	50.74	68.30	-17.56
15660.00	Peak	H	34.06	26.06	60.12	74.00	-13.88
15660.00	Average	H	21.91	26.06	47.97	54.00	-6.03

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5240 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



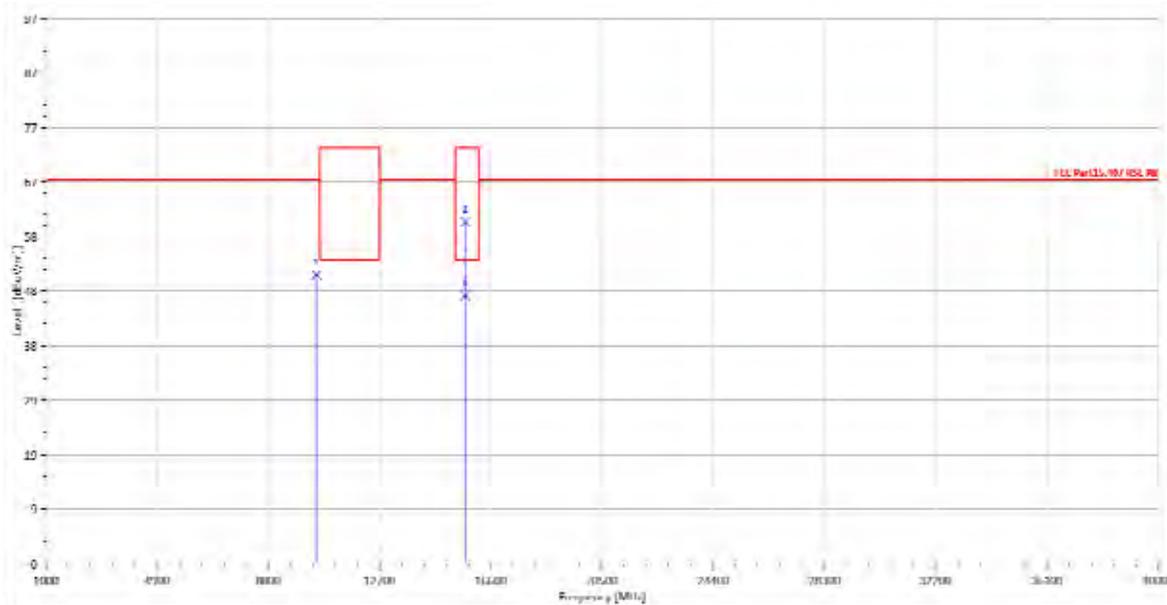
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10480.00	Peak	H	31.92	19.13	51.05	68.30	-17.25
15720.00	Peak	H	34.00	26.13	60.13	74.00	-13.87
15720.00	Average	H	21.61	26.13	47.74	54.00	-6.26

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5240 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10480.00	Peak	H	32.24	19.13	51.37	68.30	-16.93
15720.00	Peak	H	34.68	26.13	60.81	74.00	-13.19
15720.00	Average	H	21.52	26.13	47.65	54.00	-6.35

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**Band edge falling to restricted band**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5180 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	Peak	E	52.48	11.14	63.62	74.00	-10.38
5150.00	Average	E	41.24	11.14	52.38	54.00	-1.62

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5180 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5142.88	Peak	S	55.20	11.18	66.38	74.00	-7.62
5142.88	Average	S	41.17	11.18	52.35	54.00	-1.65
5150.00	Peak	E	54.19	11.14	65.33	74.00	-8.67
5150.00	Average	E	41.54	11.14	52.68	54.00	-1.32

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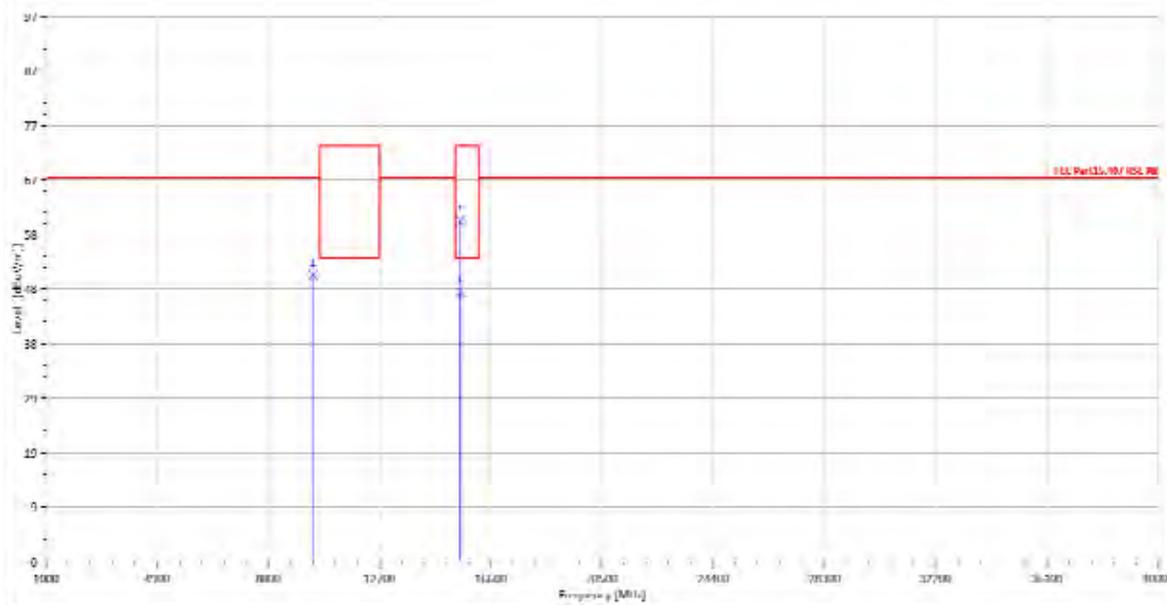
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**Radiated Spurious Emission Measurement Result 802.11ac VHT20, 5150~5250 MHz**

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5180 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



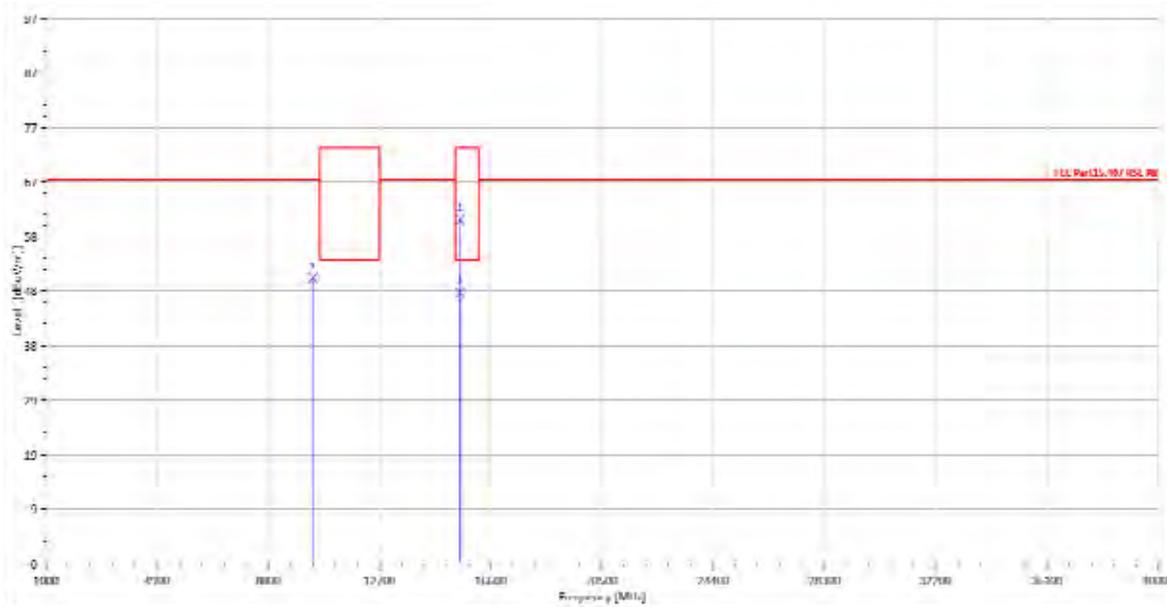
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10360.00	Peak	H	32.03	18.94	50.96	68.30	-17.34
15540.00	Peak	H	34.82	25.80	60.62	74.00	-13.38
15540.00	Average	H	22.15	25.80	47.95	54.00	-6.05

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5180 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



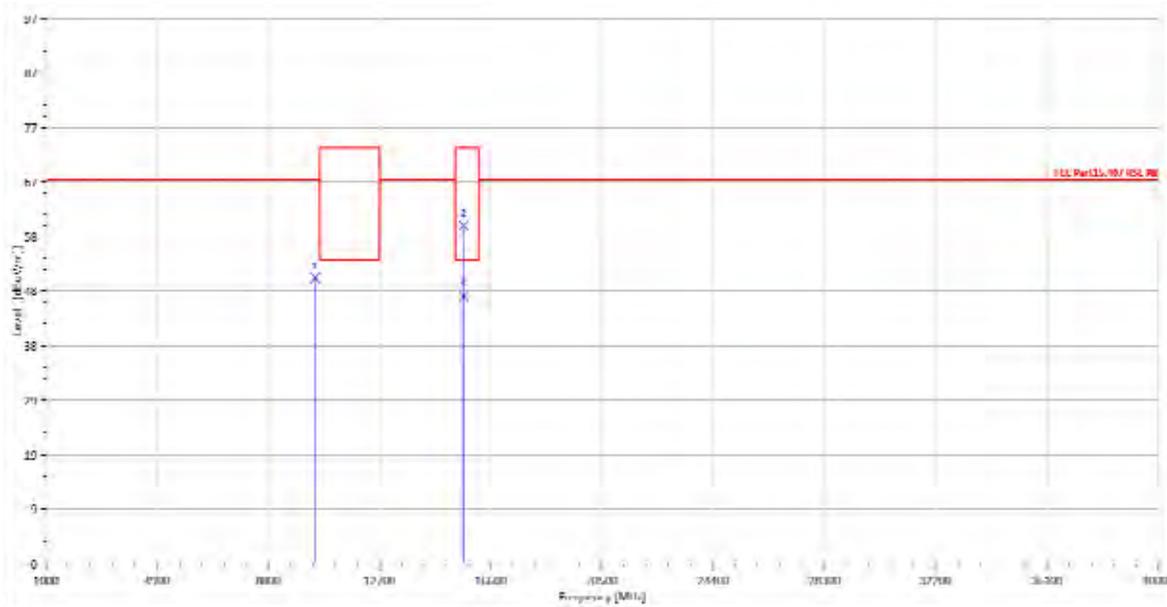
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10360.00	Peak	H	31.90	18.94	50.84	68.30	-17.46
15540.00	Peak	H	35.40	25.80	61.20	74.00	-12.80
15540.00	Average	H	22.35	25.80	48.15	54.00	-5.85

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5220 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



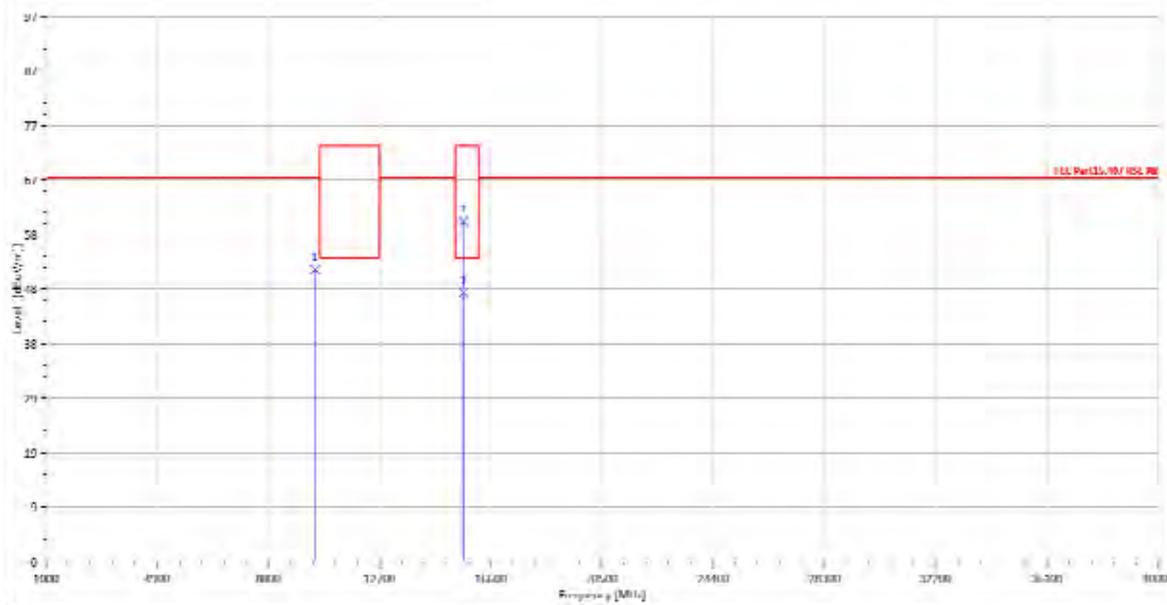
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10440.00	Peak	H	31.78	19.03	50.81	68.30	-17.49
15660.00	Peak	H	34.11	26.06	60.17	74.00	-13.83
15660.00	Average	H	21.58	26.06	47.64	54.00	-6.36

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5220 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

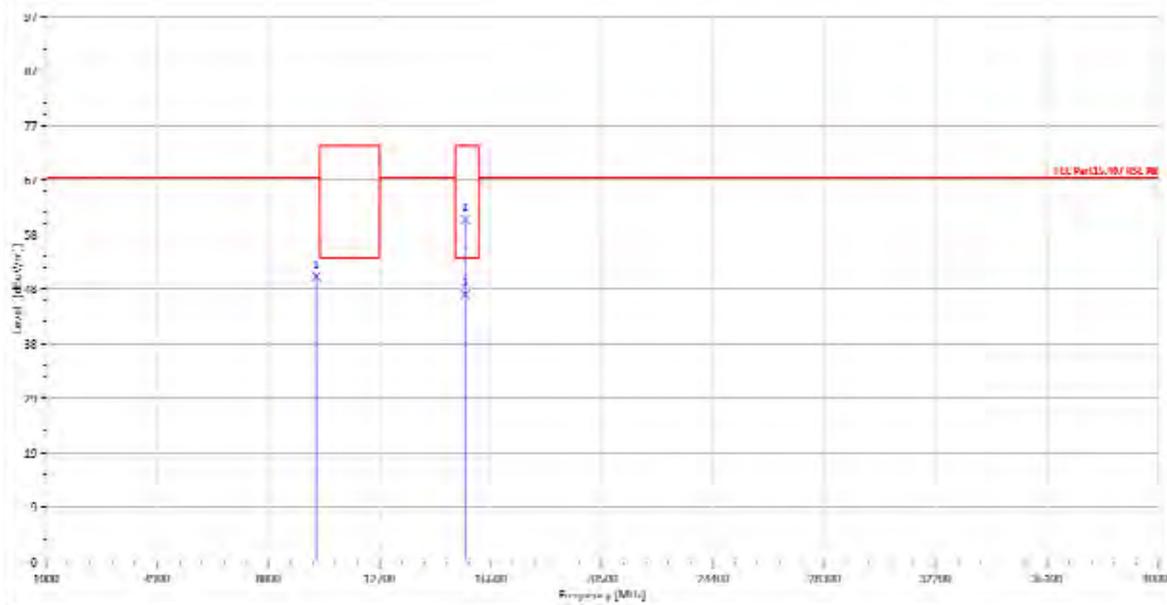


Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10440.00	Peak	H	32.89	19.03	51.91	68.30	-16.39
15660.00	Peak	H	34.47	26.06	60.53	74.00	-13.47
15660.00	Average	H	21.75	26.06	47.81	54.00	-6.19

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5240 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

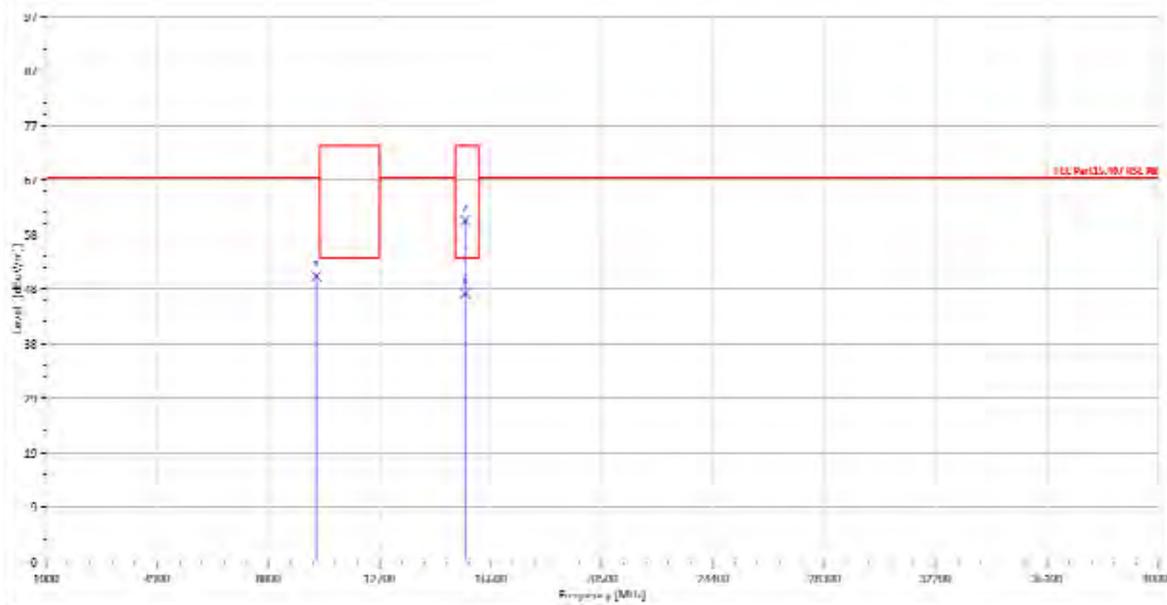


Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10480.00	Peak	H	31.56	19.13	50.69	68.30	-17.61
15720.00	Peak	H	34.71	26.13	60.84	74.00	-13.16
15720.00	Average	H	21.38	26.13	47.51	54.00	-6.49

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5240 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10480.00	Peak	H	31.60	19.13	50.73	68.30	-17.57
15720.00	Peak	H	34.54	26.13	60.67	74.00	-13.33
15720.00	Average	H	21.56	26.13	47.69	54.00	-6.31

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**Band edge falling to restricted band**

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5180 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
5116.72	Peak	S	52.58	11.13	63.72	74.00	-10.28
5116.72	Average	S	40.94	11.13	52.07	54.00	-1.93
5150.00	Peak	E	50.89	11.14	62.03	74.00	-11.97
5150.00	Average	E	41.22	11.14	52.36	54.00	-1.64

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5180 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

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

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

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

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

“---“ : denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
5150.00	Peak	E	53.14	11.14	64.28	74.00	-9.72
5150.00	Average	E	41.48	11.14	52.62	54.00	-1.38

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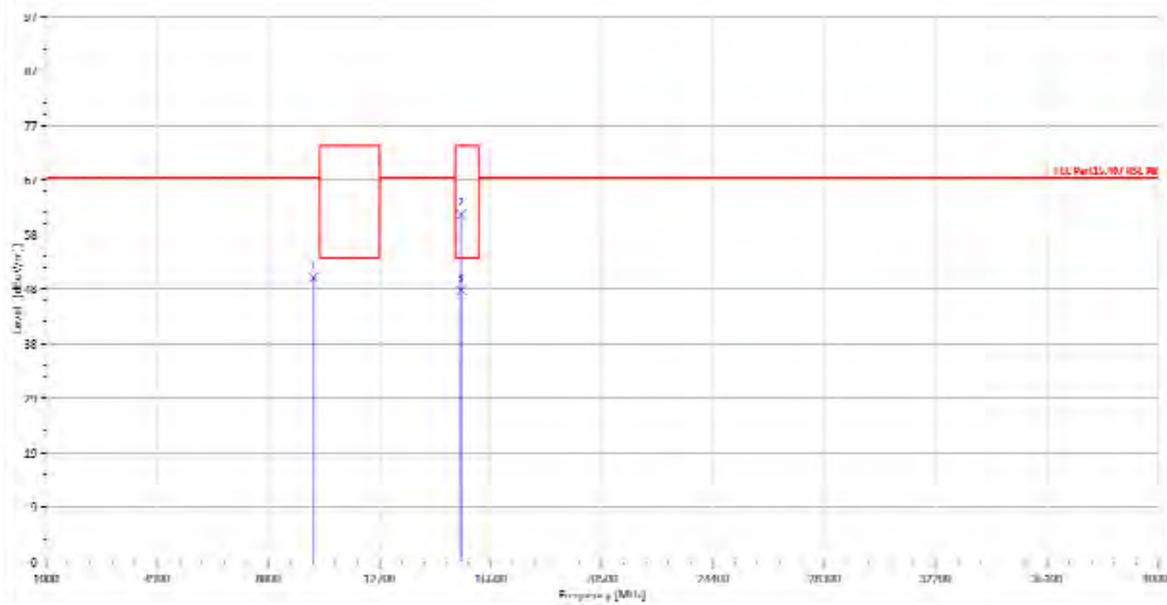
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**Radiated Spurious Emission Measurement Result 802.11ac VHT40, 5150~5250 MHz**

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5190 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10380.00	Peak	H	31.47	19.01	50.49	68.30	-17.81
15570.00	Peak	H	35.94	25.80	61.74	74.00	-12.26
15570.00	Average	H	22.51	25.80	48.31	54.00	-5.69

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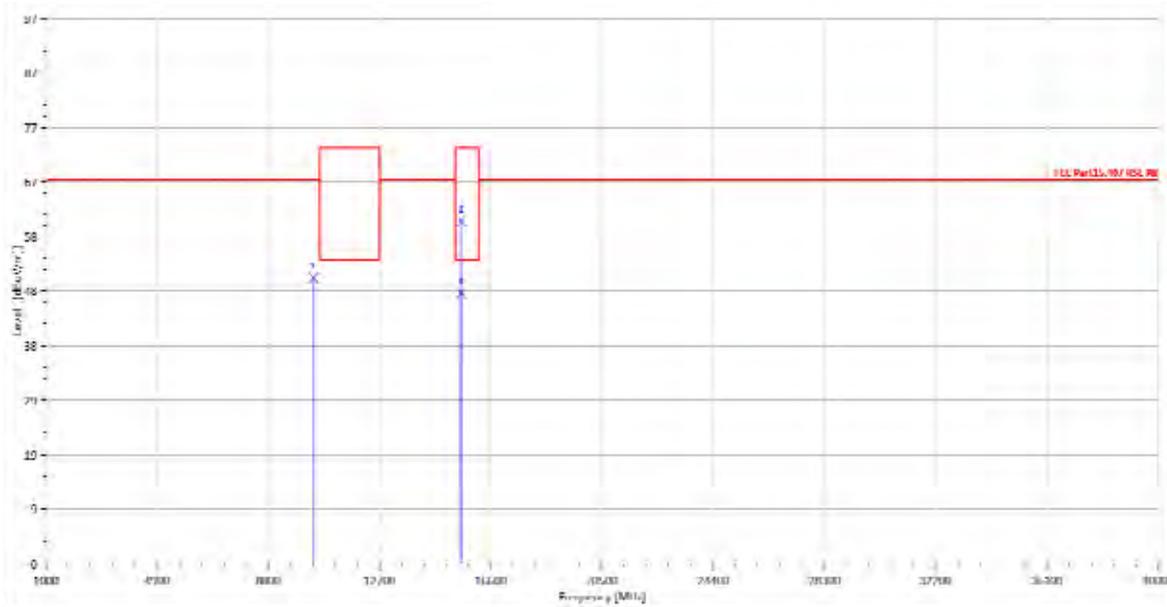
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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5190 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



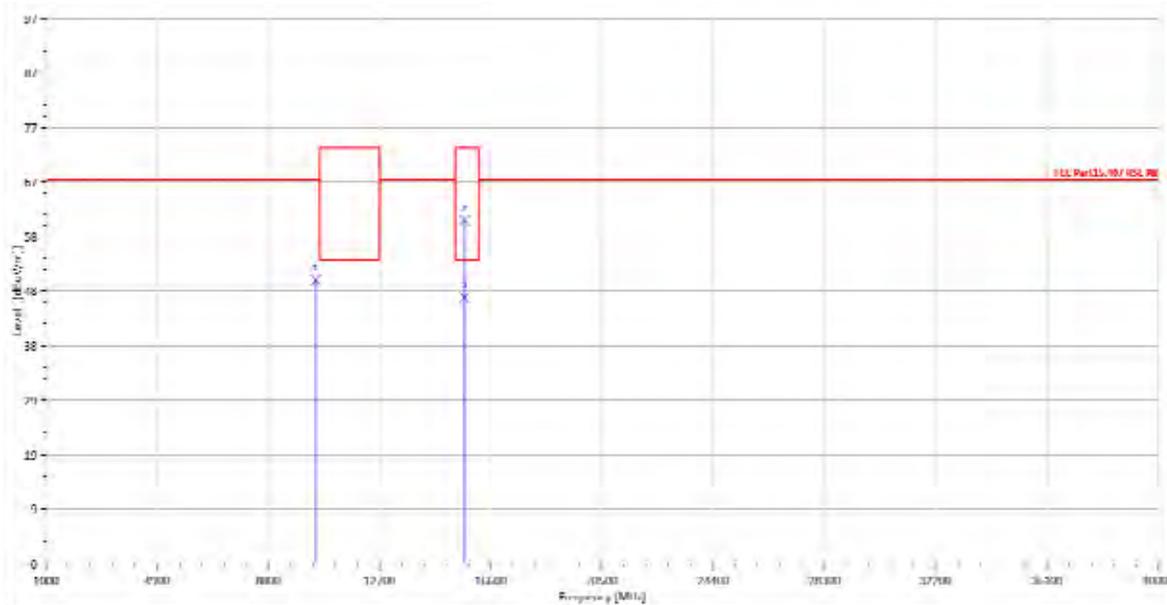
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10380.00	Peak	H	31.79	19.01	50.81	68.30	-17.49
15570.00	Peak	H	35.10	25.80	60.90	74.00	-13.10
15570.00	Average	H	22.23	25.80	48.03	54.00	-5.97

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5230 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



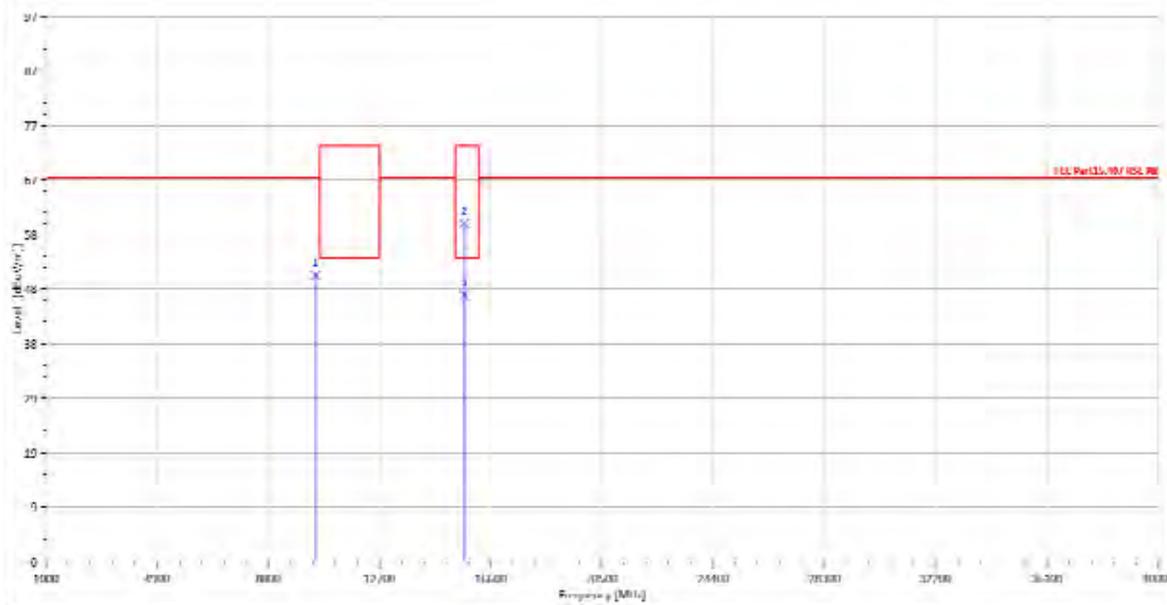
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10460.00	Peak	H	31.29	19.11	50.41	68.30	-17.89
15690.00	Peak	H	35.01	26.05	61.06	74.00	-12.94
15690.00	Average	H	21.27	26.05	47.32	54.00	-6.68

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5230 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10460.00	Peak	H	31.84	19.11	50.96	68.30	-17.34
15690.00	Peak	H	34.12	26.05	60.17	74.00	-13.83
15690.00	Average	H	21.32	26.05	47.37	54.00	-6.63

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**Band edge falling to restricted band**

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5190 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	Peak	E	54.20	11.14	65.34	74.00	-8.66
5150.00	Average	E	38.11	11.14	49.25	54.00	-4.75

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5190 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	Peak	E	53.01	11.14	64.15	74.00	-9.85
5150.00	Average	E	36.62	11.14	47.76	54.00	-6.24

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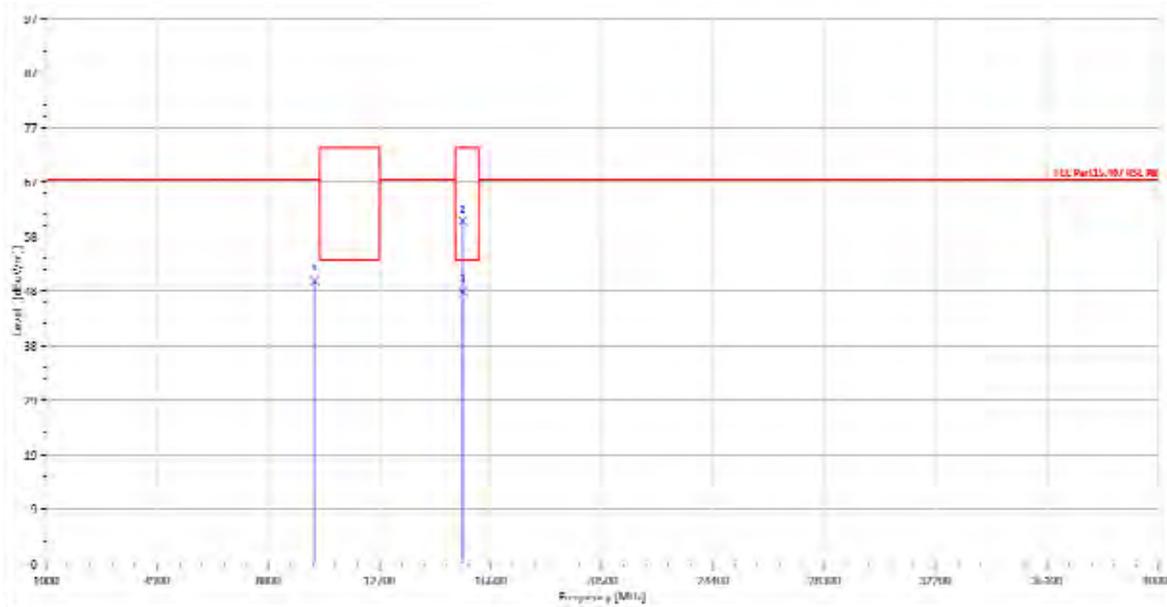
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**Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5150~5250 MHz**

Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5210 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10420.00	Peak	H	31.32	18.96	50.28	68.30	-18.02
15630.00	Peak	H	34.96	25.97	60.93	74.00	-13.08
15630.00	Average	H	22.39	25.97	48.36	54.00	-5.64

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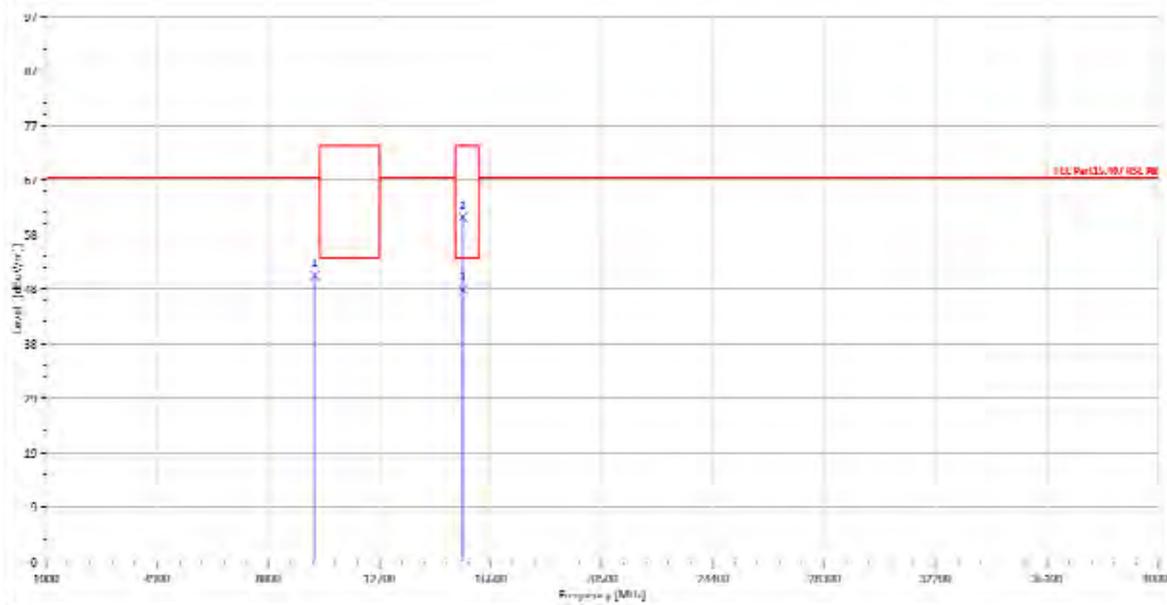
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Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5210 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
10420.00	Peak	H	31.95	18.96	50.91	68.30	-17.39
15630.00	Peak	H	35.27	25.97	61.24	74.00	-12.76
15630.00	Average	H	22.40	25.97	48.37	54.00	-5.63

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**Band edge falling to restricted band**

Operation Band	:802.11 ac 80M	Test Date	:2015-04-29
Fundamental Frequency	:5210 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5139.00	Peak	S	55.27	11.20	66.47	74.00	-7.53
5139.00	Average	S	41.47	11.20	52.67	54.00	-1.33

Operation Band	:802.11 ac 80M	Test Date	:2015-04-29
Fundamental Frequency	:5320 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	Peak	E	53.76	11.14	64.90	74.00	-9.10
5150.00	Average	E	41.59	11.14	52.73	54.00	-1.27

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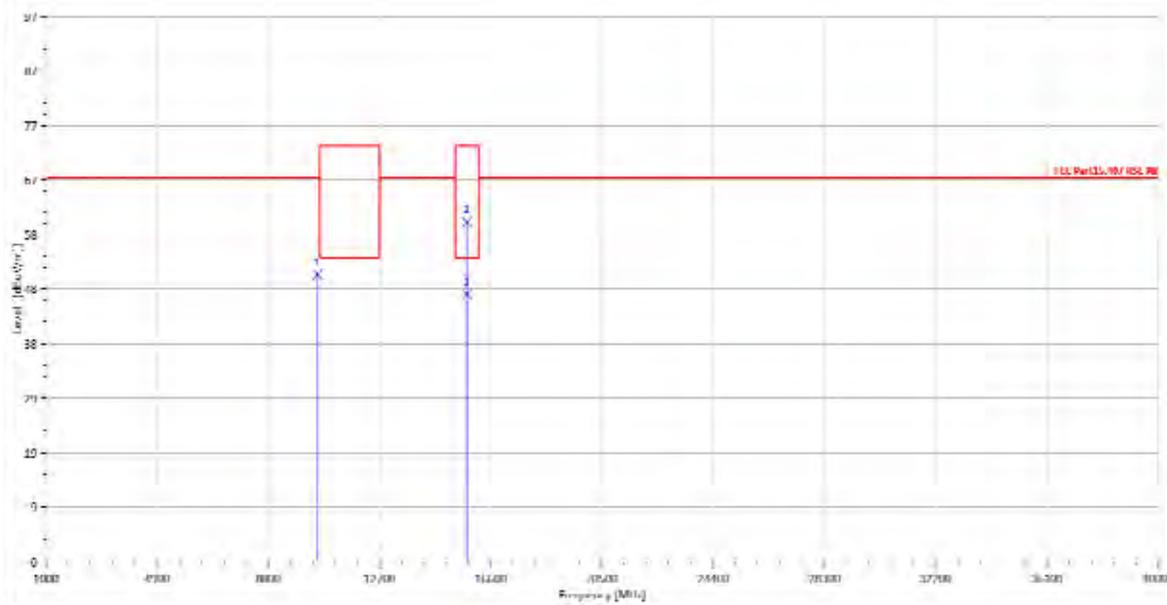
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**Radiated Spurious Emission Measurement Result 802.11a, 5250MHz-5350MHz**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5260 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

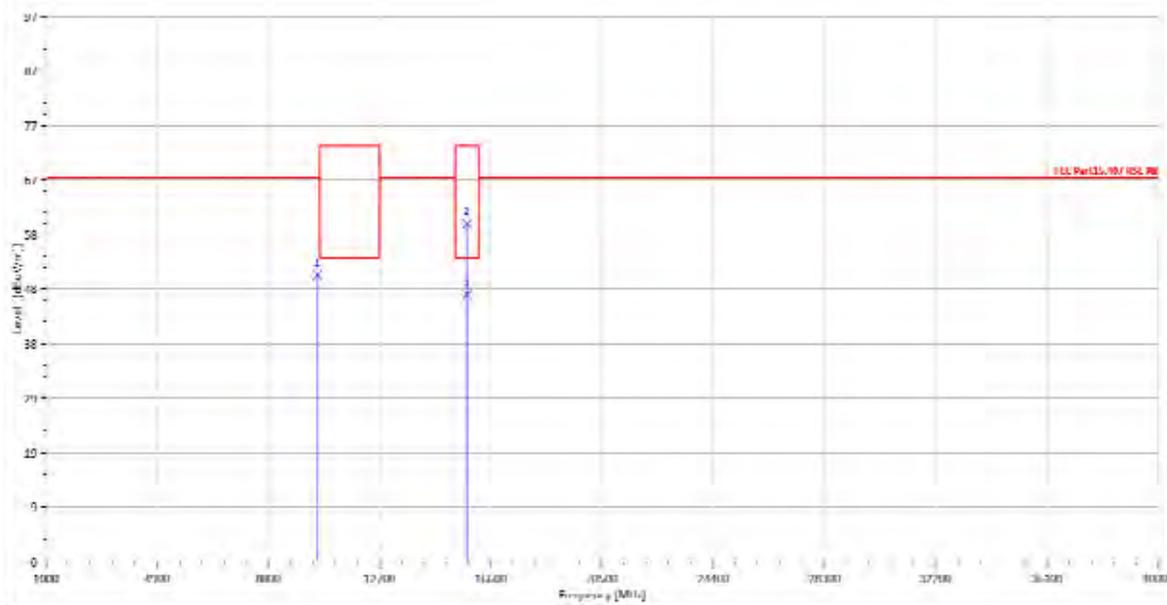


Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10520.00	Peak	H	31.81	19.25	51.06	68.30	-17.24
15780.00	Peak	H	34.10	26.25	60.35	74.00	-13.65
15780.00	Average	H	21.31	26.25	47.56	54.00	-6.44

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5260 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
10520.00	Peak	H	31.75	19.25	51.00	68.30	-17.30
15780.00	Peak	H	33.84	26.25	60.09	74.00	-13.91
15780.00	Average	H	21.21	26.25	47.46	54.00	-6.54

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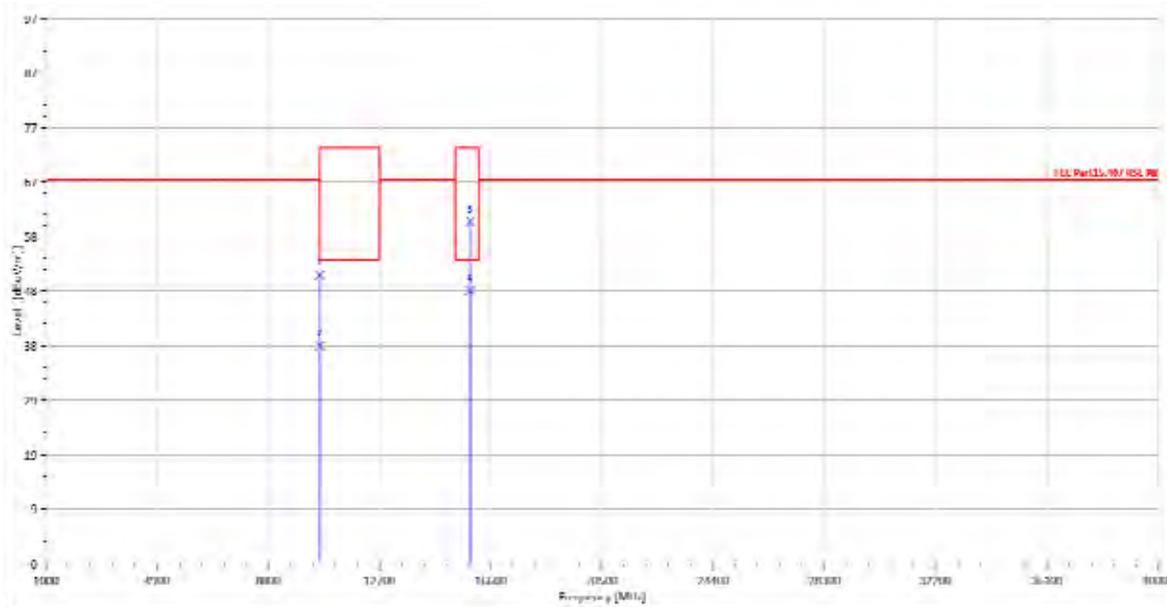
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5300 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



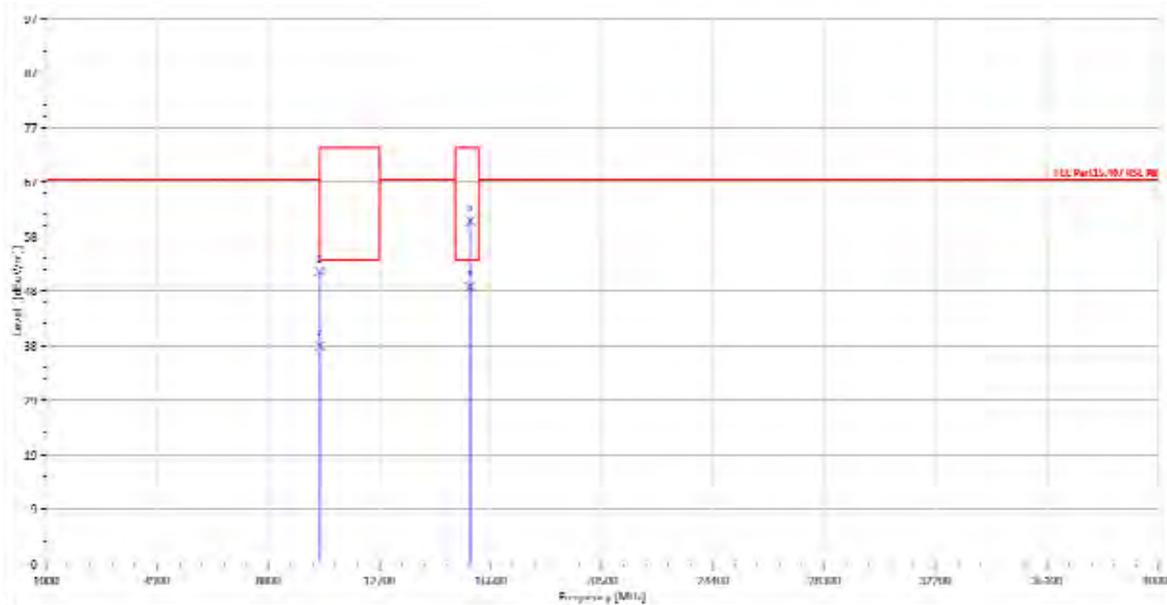
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10600.00	Peak	H	31.95	19.38	51.33	74.00	-22.67
10600.00	Average	H	19.37	19.38	38.75	54.00	-15.25
15900.00	Peak	H	34.48	26.39	60.87	74.00	-13.13
15900.00	Average	H	22.17	26.39	48.56	54.00	-5.44

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5300 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
10600.00	Peak	H	32.61	19.38	51.99	74.00	-22.01
10600.00	Average	H	19.38	19.38	38.76	54.00	-15.24
15900.00	Peak	H	34.55	26.39	60.94	74.00	-13.06
15900.00	Average	H	22.93	26.39	49.32	54.00	-4.68

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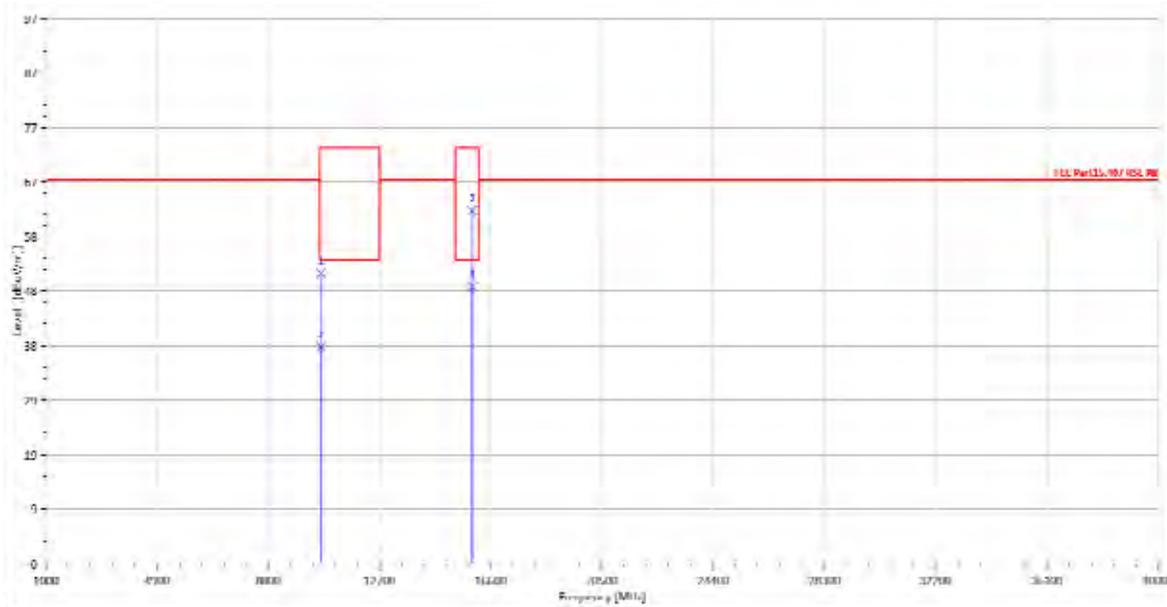
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5320 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



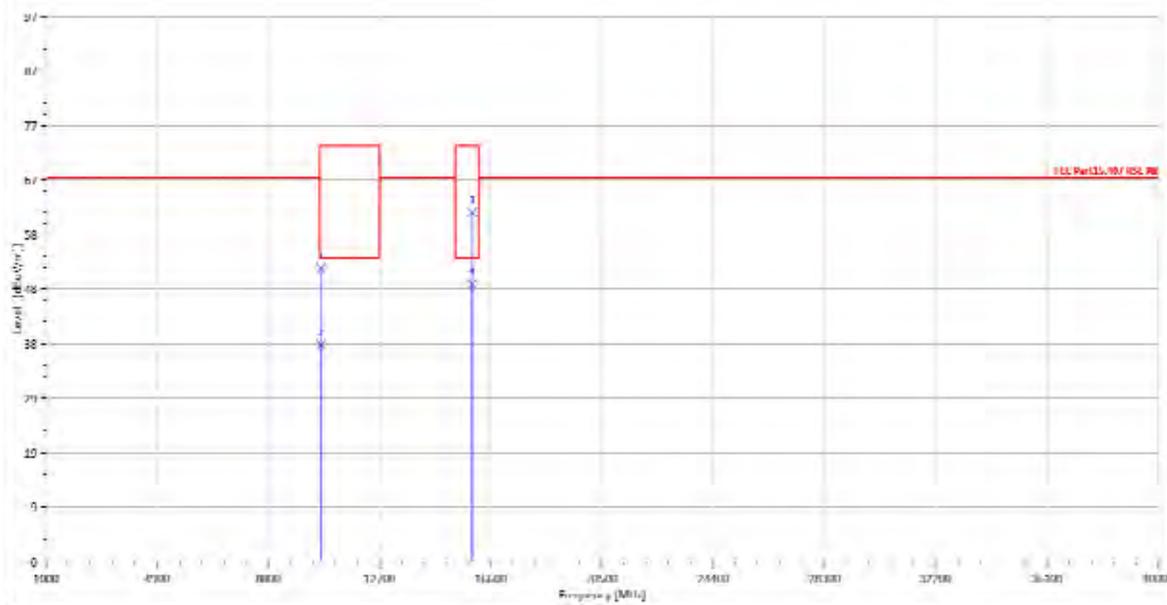
Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10640.00	Peak	H	32.33	19.28	51.61	74.00	-22.39
10640.00	Average	H	19.23	19.28	38.51	54.00	-15.49
15960.00	Peak	H	36.34	26.48	62.82	74.00	-11.18
15960.00	Average	H	22.83	26.48	49.31	54.00	-4.69

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5320 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10640.00	Peak	H	32.88	19.28	52.16	74.00	-21.84
10640.00	Average	H	19.25	19.28	38.53	54.00	-15.47
15960.00	Peak	H	35.64	26.48	62.12	74.00	-11.88
15960.00	Average	H	22.91	26.48	49.39	54.00	-4.61

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**Band edge falling to restricted band**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5320 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	Peak	E	51.73	11.30	63.03	74.00	-10.97
5350.00	Average	E	41.22	11.30	52.52	54.00	-1.48

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5320 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	Peak	E	52.43	11.30	63.73	74.00	-10.27
5350.00	Average	E	41.30	11.30	52.60	54.00	-1.40

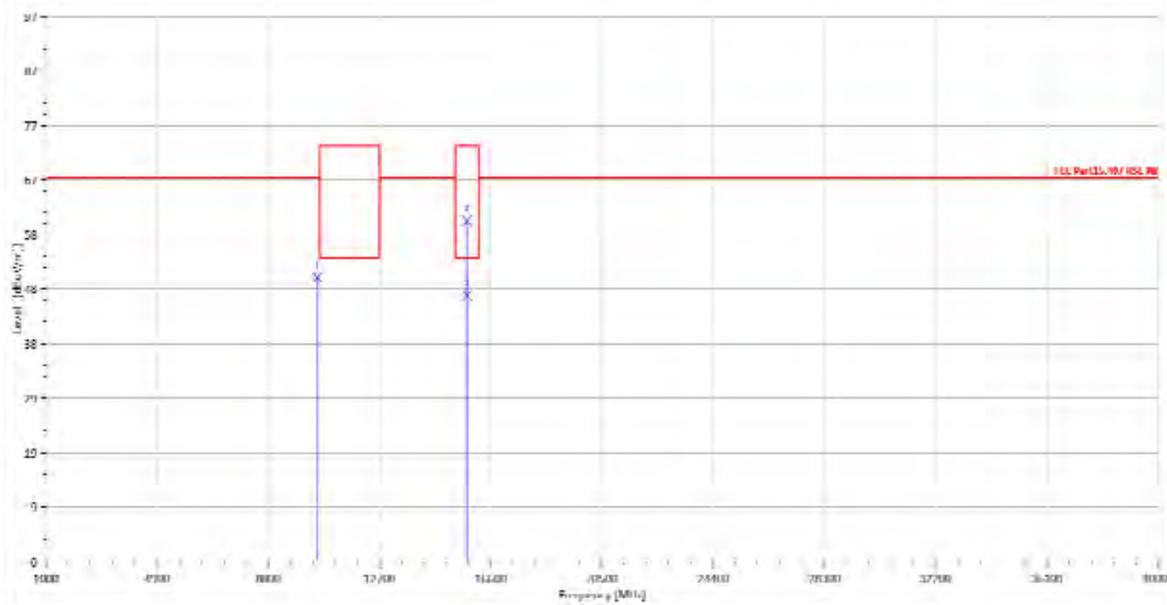
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**Radiated Spurious Emission Measurement Result 802.11ac VHT20, 5250~5350 MHz**

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5260 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



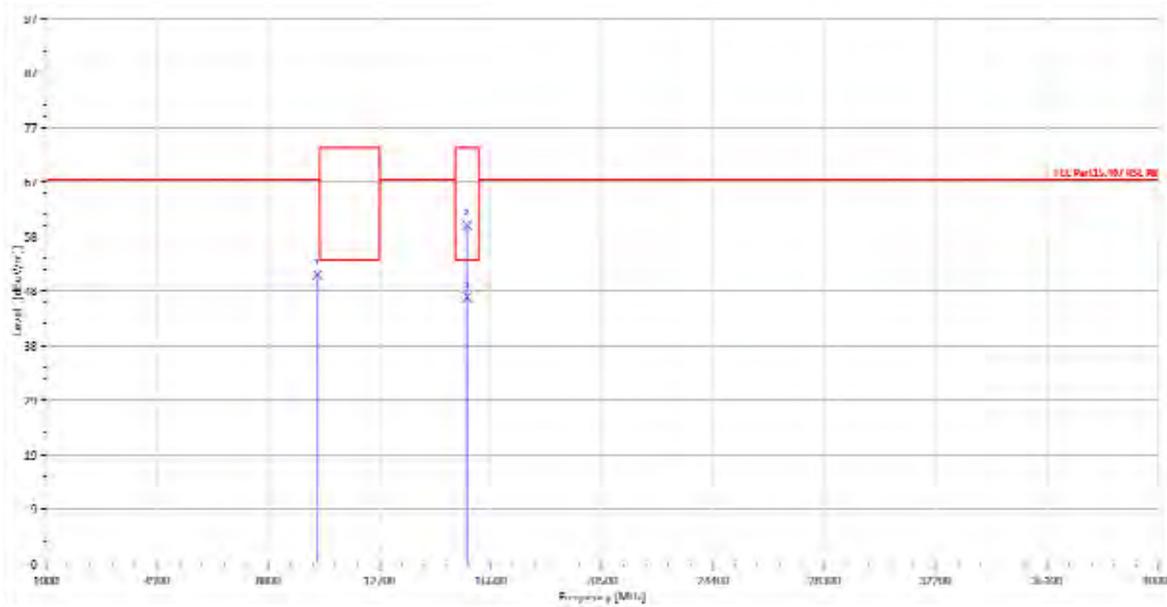
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10520.00	Peak	H	31.27	19.25	50.52	68.30	-17.78
15780.00	Peak	H	34.34	26.25	60.59	74.00	-13.41
15780.00	Average	H	21.07	26.25	47.32	54.00	-6.68

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5260 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10520.00	Peak	H	32.14	19.25	51.39	68.30	-16.91
15780.00	Peak	H	33.95	26.25	60.21	74.00	-13.79
15780.00	Average	H	21.16	26.25	47.41	54.00	-6.59

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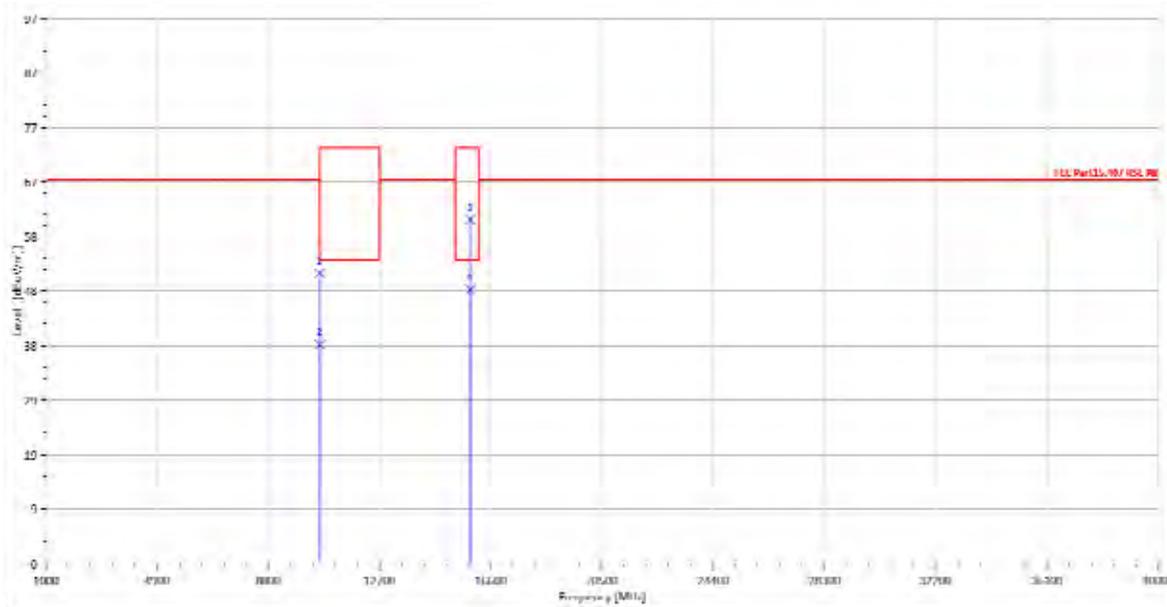
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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5300 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



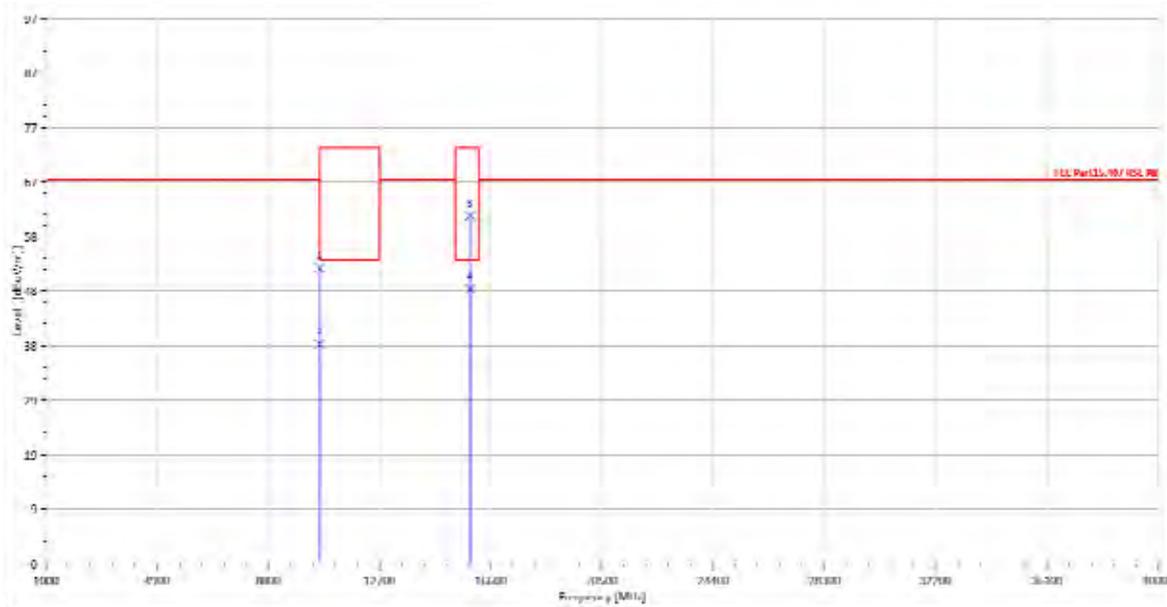
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
10600.00	Peak	H	32.29	19.38	51.66	74.00	-22.34
10600.00	Average	H	19.58	19.38	38.96	54.00	-15.04
15900.00	Peak	H	34.81	26.39	61.20	74.00	-12.80
15900.00	Average	H	22.30	26.39	48.69	54.00	-5.31

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5300 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



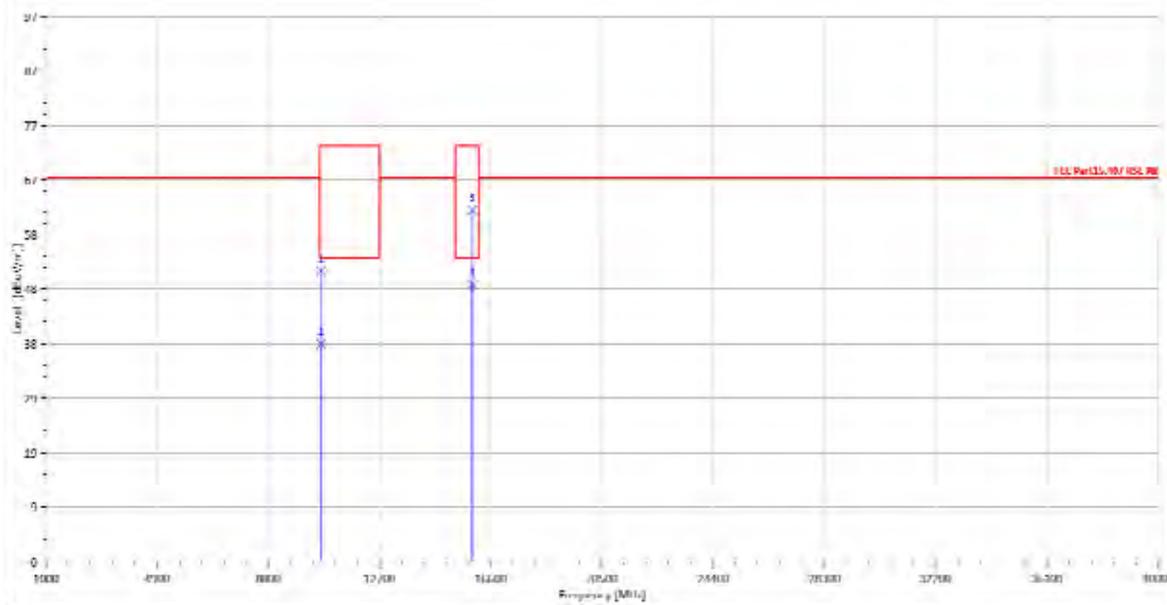
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10600.00	Peak	H	33.19	19.38	52.57	74.00	-21.43
10600.00	Average	H	19.65	19.38	39.03	54.00	-14.97
15900.00	Peak	H	35.48	26.39	61.87	74.00	-12.13
15900.00	Average	H	22.43	26.39	48.82	54.00	-5.18

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5320 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



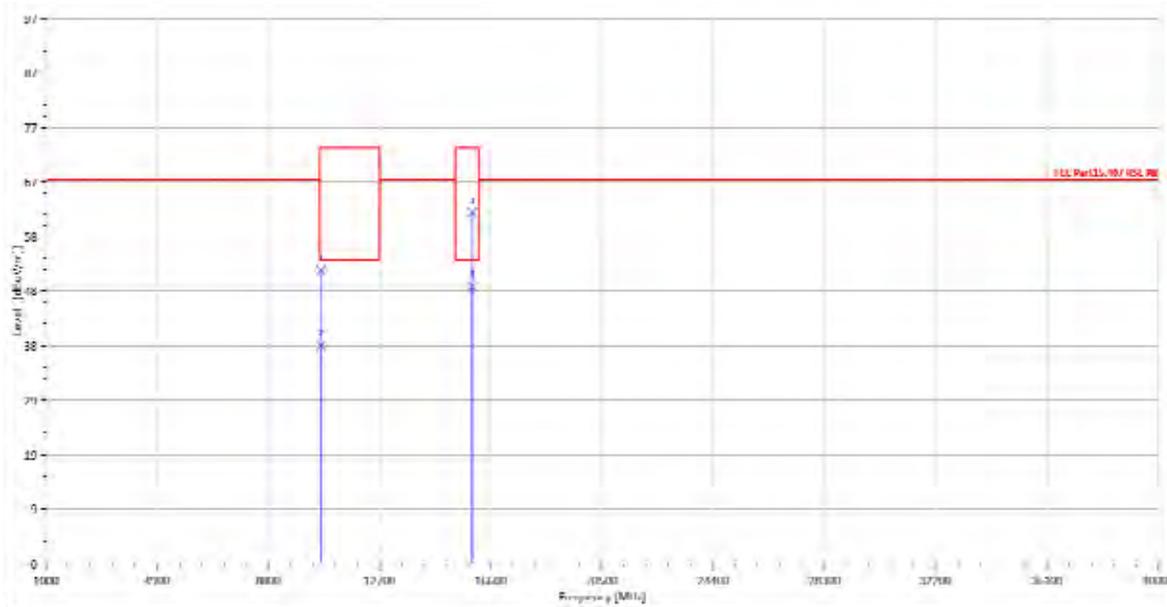
Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10640.00	Peak	H	32.43	19.28	51.71	74.00	-22.29
10640.00	Average	H	19.43	19.28	38.71	54.00	-15.29
15960.00	Peak	H	36.00	26.48	62.48	74.00	-11.52
15960.00	Average	H	22.88	26.48	49.36	54.00	-4.64

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5320 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10640.00	Peak	H	32.90	19.28	52.18	74.00	-21.82
10640.00	Average	H	19.47	19.28	38.75	54.00	-15.25
15960.00	Peak	H	35.93	26.48	62.41	74.00	-11.59
15960.00	Average	H	22.85	26.48	49.33	54.00	-4.67

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**Band edge falling to restricted band**

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5320 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	Peak	E	52.92	11.30	64.22	74.00	-9.78
5350.00	Average	E	41.43	11.30	52.73	54.00	-1.27

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5320 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	Peak	E	52.76	11.30	64.07	74.00	-9.93
5350.00	Average	E	41.57	11.30	52.87	54.00	-1.13

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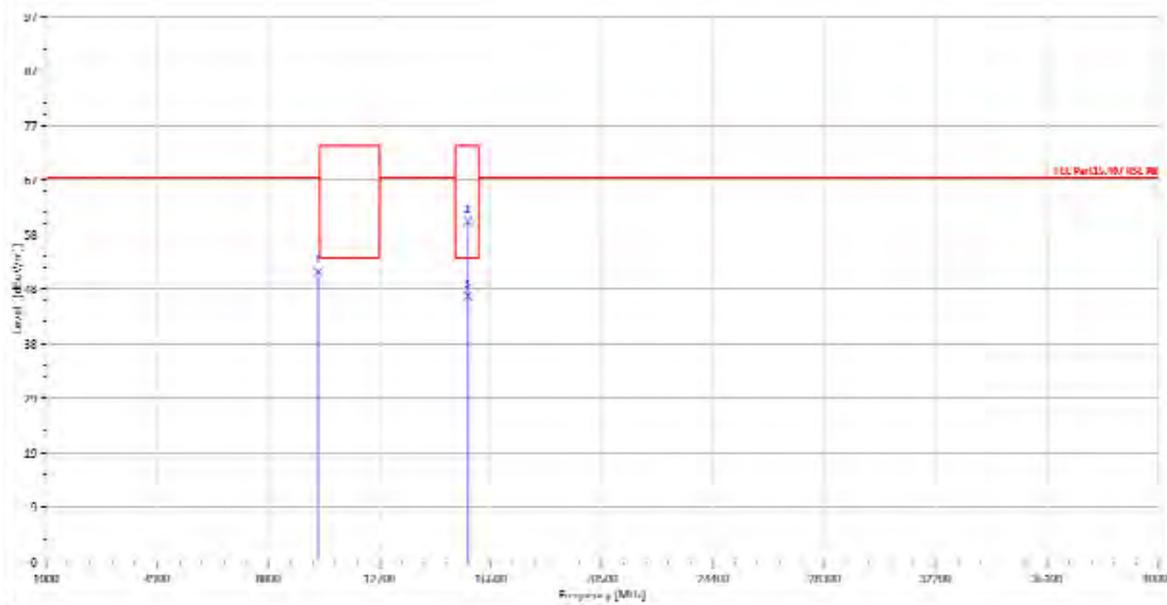
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**Radiated Spurious Emission Measurement Result 802.11ac VHT40, 5250~5350 MHz**

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5270 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

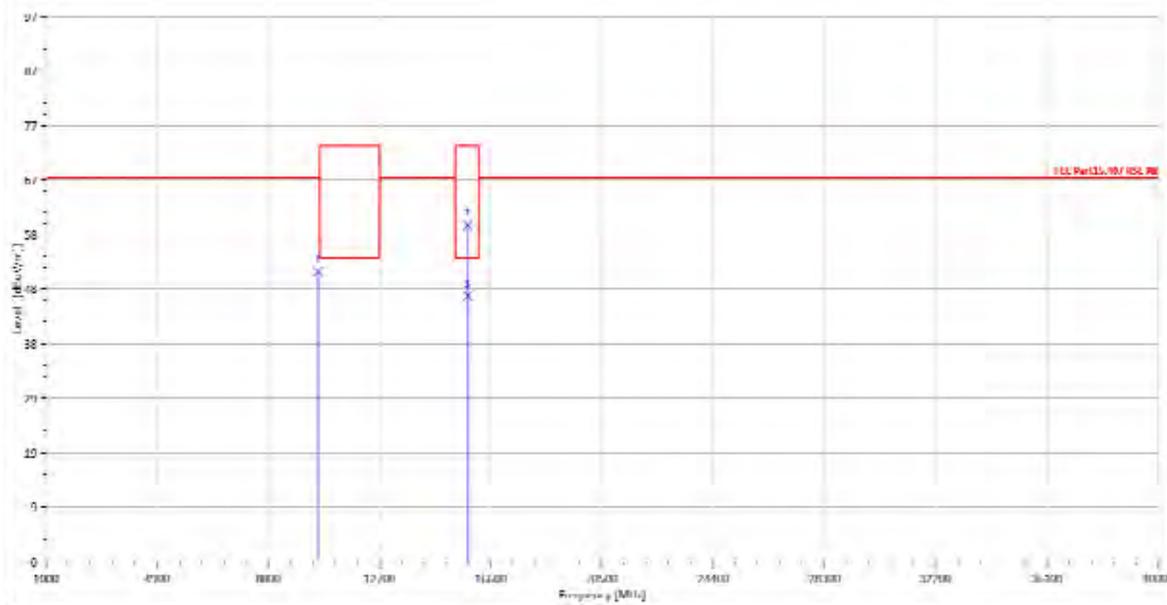


Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10540.00	Peak	H	32.34	19.13	51.48	68.30	-16.82
15810.00	Peak	H	34.19	26.30	60.49	74.00	-13.51
15810.00	Average	H	20.95	26.30	47.25	54.00	-6.75

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5270 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

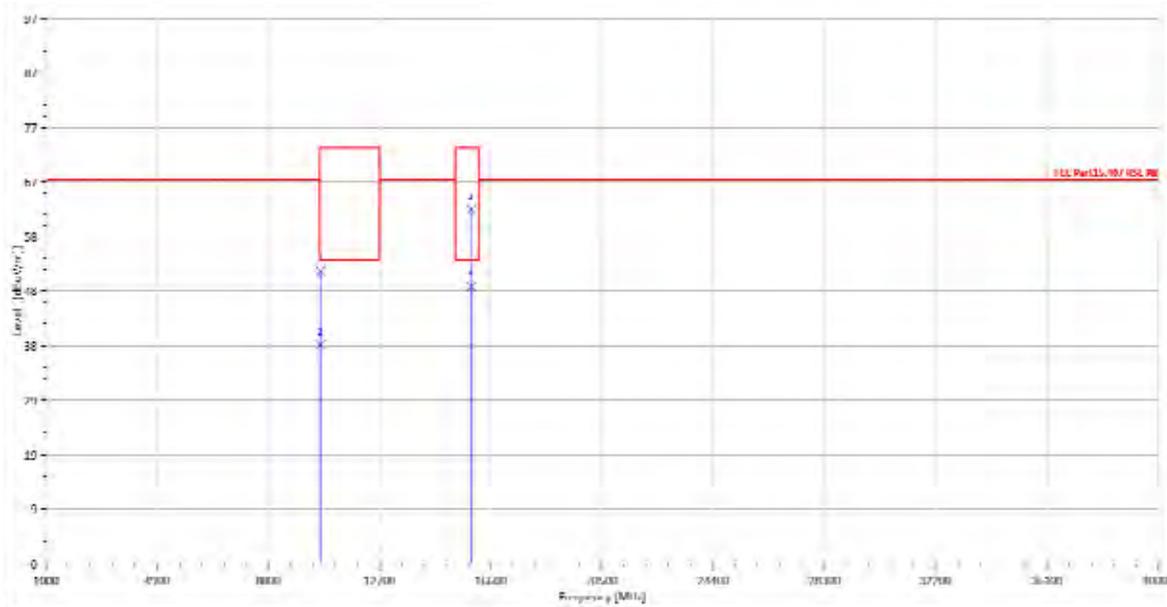


Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10540.00	Peak	H	32.39	19.13	51.52	68.30	-16.78
15810.00	Peak	H	33.58	26.30	59.88	74.00	-14.12
15810.00	Average	H	20.98	26.30	47.28	54.00	-6.72

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5310 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

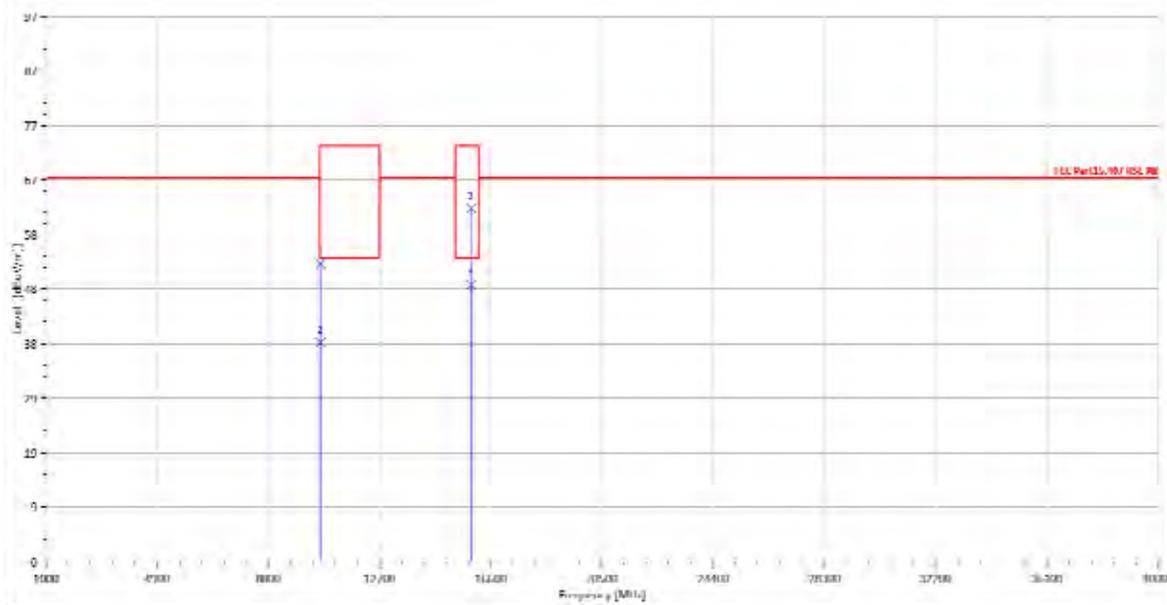


Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10620.00	Peak	H	32.70	19.38	52.08	74.00	-21.92
10620.00	Average	H	19.55	19.38	38.93	54.00	-15.07
15930.00	Peak	H	36.55	26.50	63.05	74.00	-10.95
15930.00	Average	H	22.80	26.50	49.30	54.00	-4.70

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5310 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode PK/QP/AV	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10620.00	Peak	H	33.69	19.38	53.07	74.00	-20.93
10620.00	Average	H	19.57	19.38	38.95	54.00	-15.05
15930.00	Peak	H	36.33	26.50	62.83	74.00	-11.17
15930.00	Average	H	22.79	26.50	49.29	54.00	-4.71

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**Band edge falling to restricted band**

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5310 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	Peak	E	55.87	11.30	67.17	74.00	-6.83
5350.00	Average	E	40.86	11.30	52.16	54.00	-1.84

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5310 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	Peak	E	52.62	11.30	63.92	74.00	-10.08
5350.00	Average	E	39.11	11.30	50.41	54.00	-3.59

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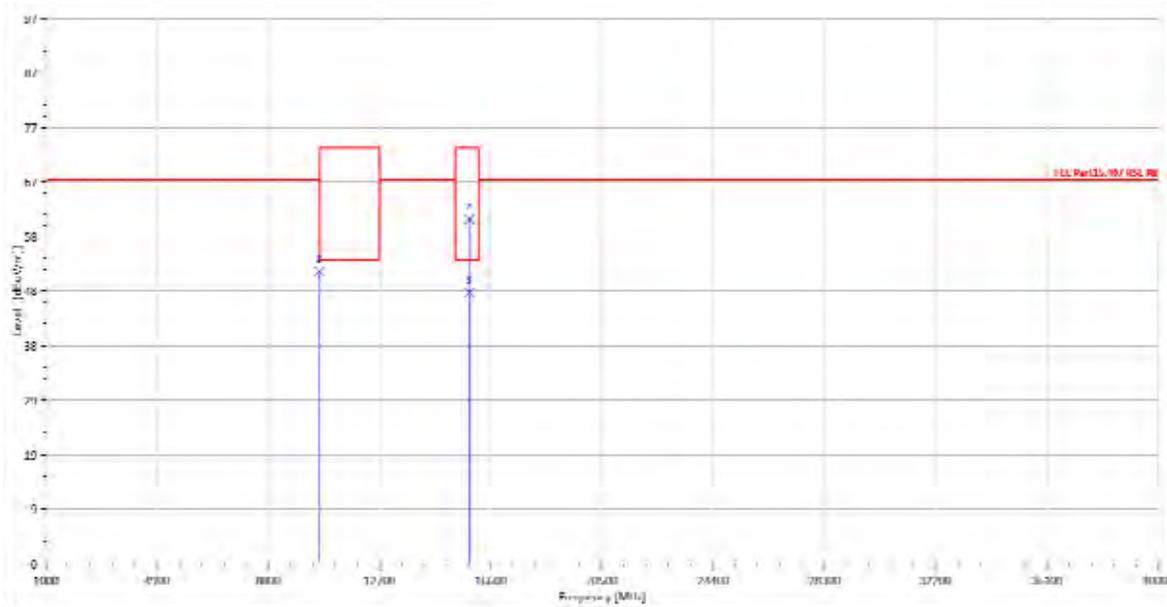
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**Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5250~5350 MHz**

Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5290 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10580.00	Peak	H	32.71	19.29	52.00	68.30	-16.30
15870.00	Peak	H	34.86	26.42	61.27	74.00	-12.73
15870.00	Average	H	21.81	26.42	48.23	54.00	-5.77

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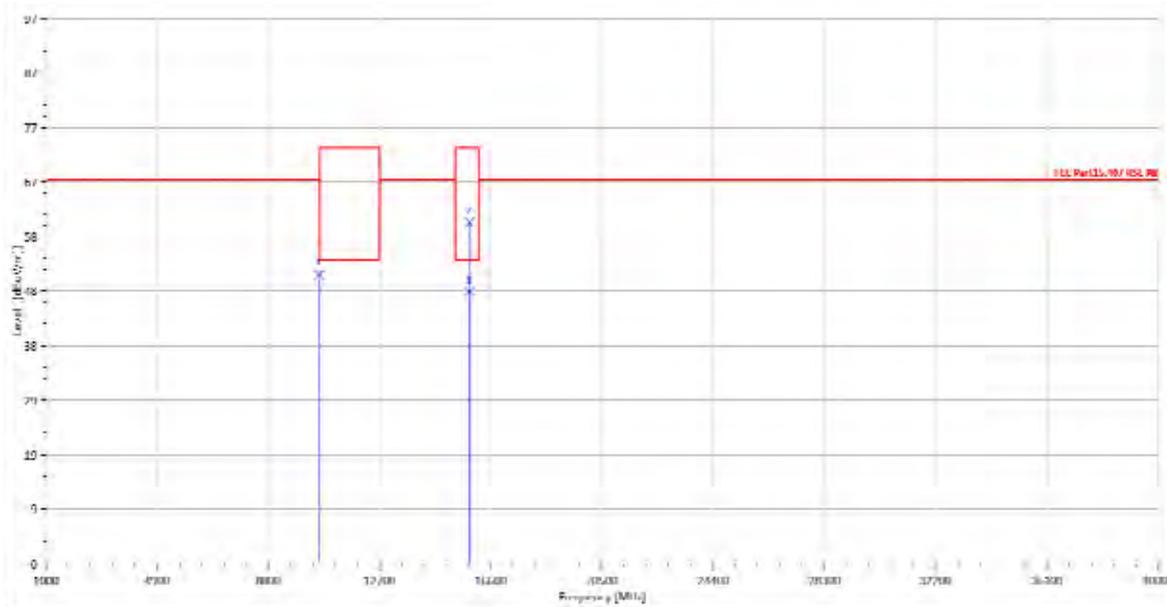
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Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5290 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
10580.00	Peak	H	32.10	19.29	51.39	68.30	-16.91
15870.00	Peak	H	34.27	26.42	60.68	74.00	-13.32
15870.00	Average	H	21.93	26.42	48.35	54.00	-5.65

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**Band edge falling to restricted band**

Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5290 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	Peak	E	58.87	11.30	70.17	74.00	-3.83
5350.00	Average	E	41.52	11.30	52.82	54.00	-1.18
5358.40	Peak	S	60.74	11.30	72.04	74.00	-1.96
5358.40	Average	S	41.29	11.30	52.59	54.00	-1.41

Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5290 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	Peak	E	54.74	11.30	66.05	74.00	-7.95
5350.00	Average	E	39.70	11.30	51.00	54.00	-3.00
5358.30	Peak	S	57.26	11.30	68.56	74.00	-5.44
5358.30	Average	S	39.64	11.30	50.94	54.00	-3.06

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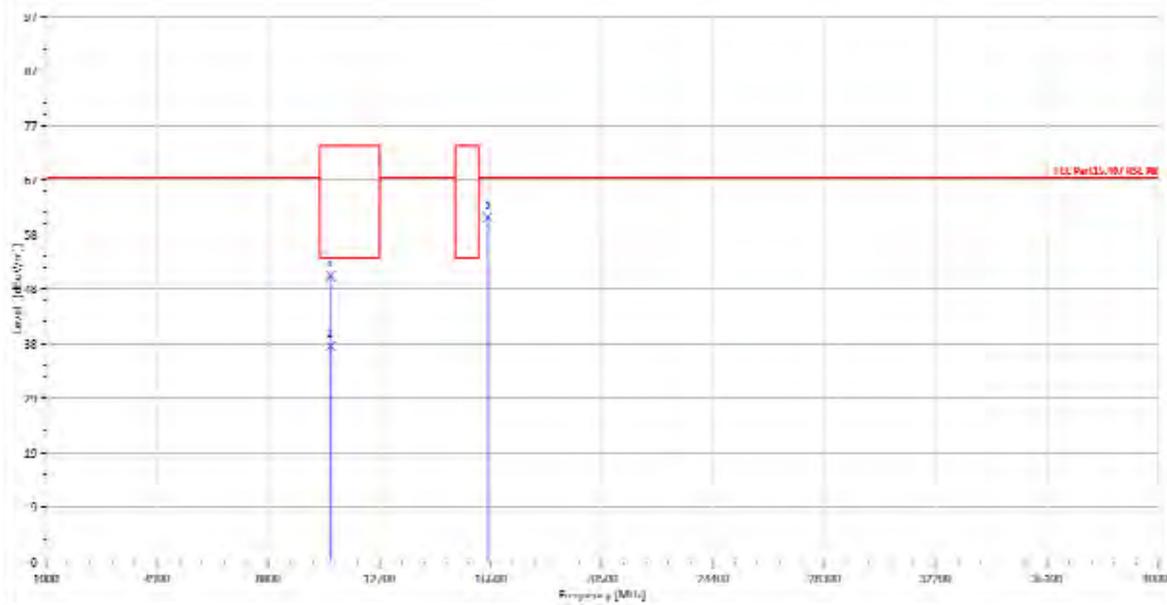
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**Radiated Spurious Emission Measurement Result 802.11a, 5470~5725 MHz**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5500 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



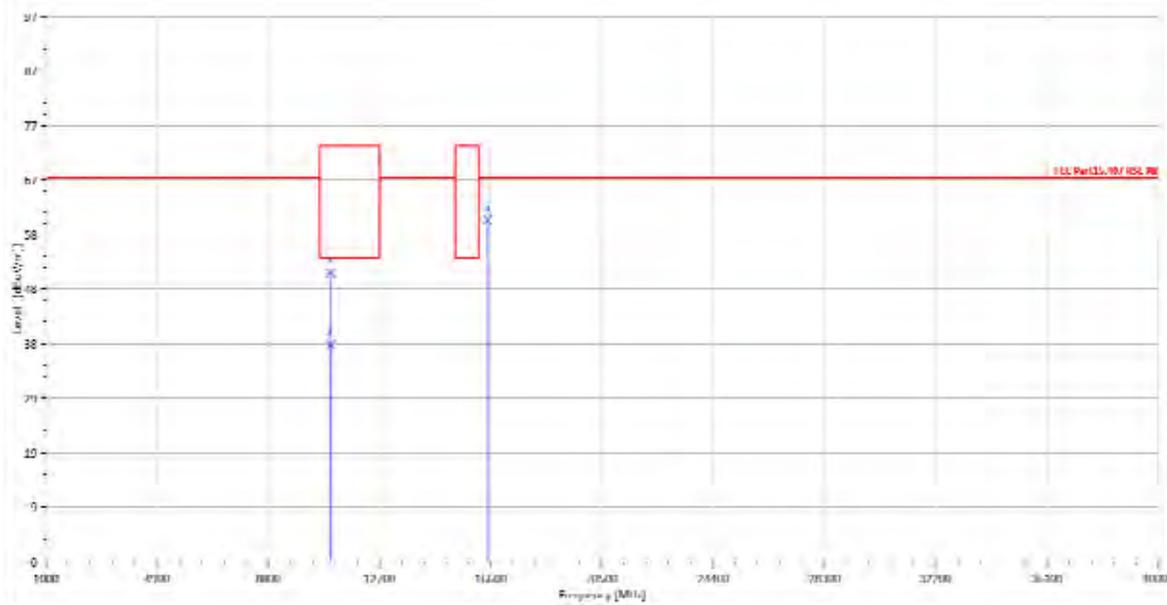
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11000.00	Peak	H	30.78	20.02	50.79	74.00	-23.21
11000.00	Average	H	18.32	20.02	38.34	54.00	-15.66
16500.00	Peak	H	34.07	27.16	61.23	68.30	-7.07

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5500 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

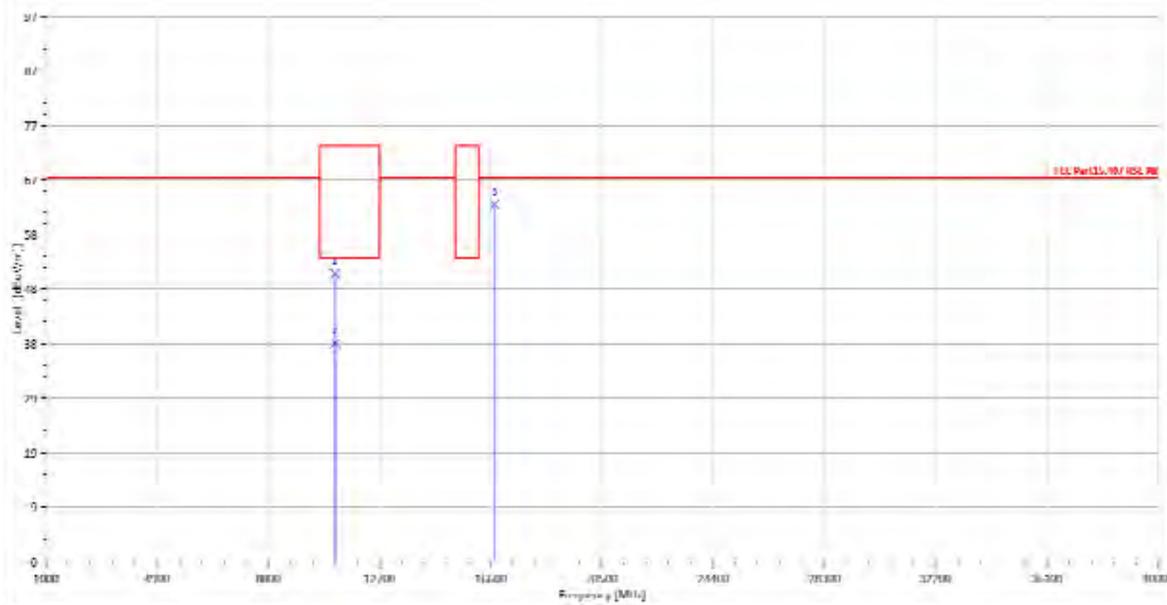


Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11000.00	Peak	H	31.38	20.02	51.39	74.00	-22.61
11000.00	Average	H	18.56	20.02	38.58	54.00	-15.42
16500.00	Peak	H	33.58	27.16	60.75	68.30	-7.55

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5580 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



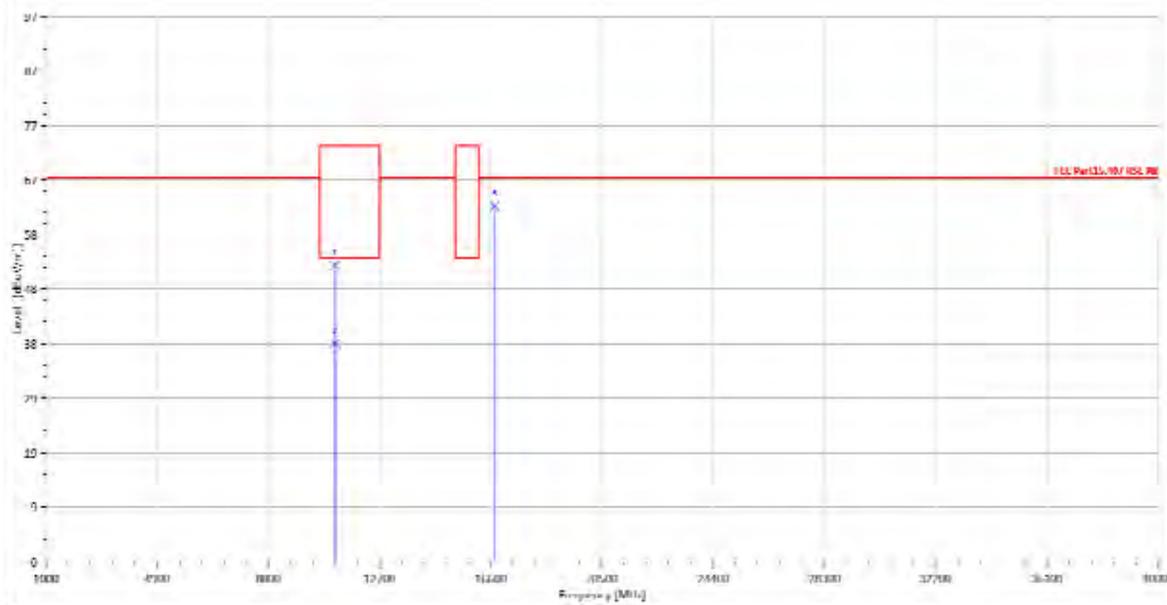
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11160.00	Peak	H	30.80	20.38	51.18	74.00	-22.82
11160.00	Average	H	18.43	20.38	38.81	54.00	-15.19
16740.00	Peak	H	35.80	27.79	63.59	68.30	-4.71

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5580 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

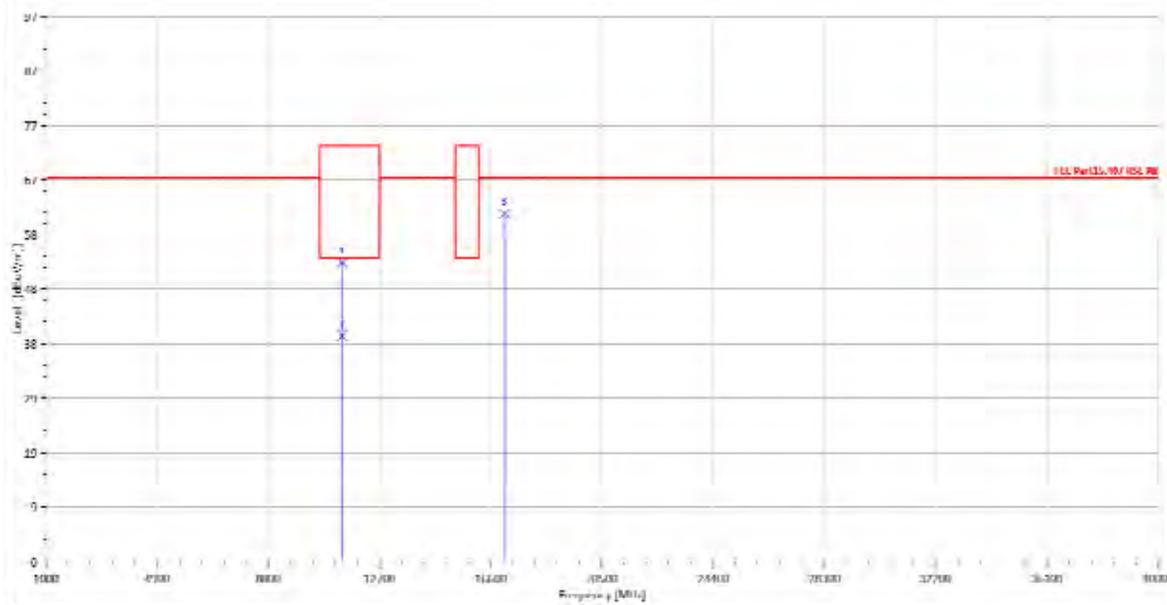


Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11160.00	Peak	H	32.35	20.38	52.73	74.00	-21.27
11160.00	Average	H	18.43	20.38	38.81	54.00	-15.19
16740.00	Peak	H	35.50	27.79	63.29	68.30	-5.01

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5700 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



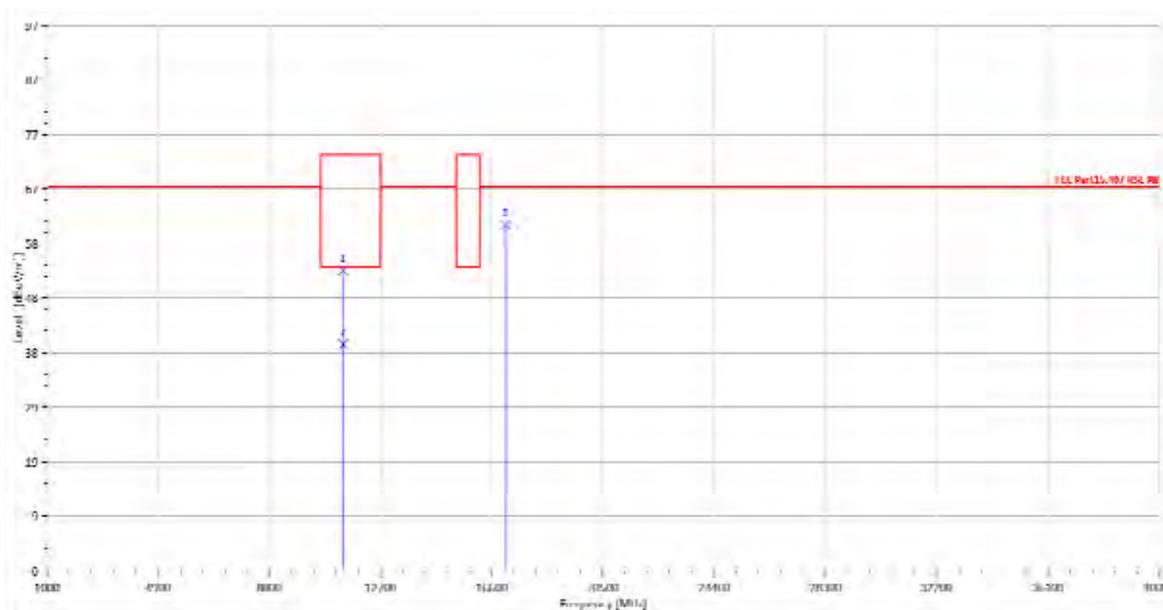
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11400.00	Peak	H	32.42	20.81	53.23	74.00	-20.77
11400.00	Average	H	19.35	20.81	40.16	54.00	-13.84
17100.00	Peak	H	33.62	28.26	61.88	68.30	-6.42

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5700 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11400.00	Peak	H	32.57	20.81	53.38	74.00	-20.62
11400.00	Average	H	19.42	20.81	40.23	54.00	-13.77
17100.00	Peak	H	33.18	28.26	61.44	68.30	-6.86

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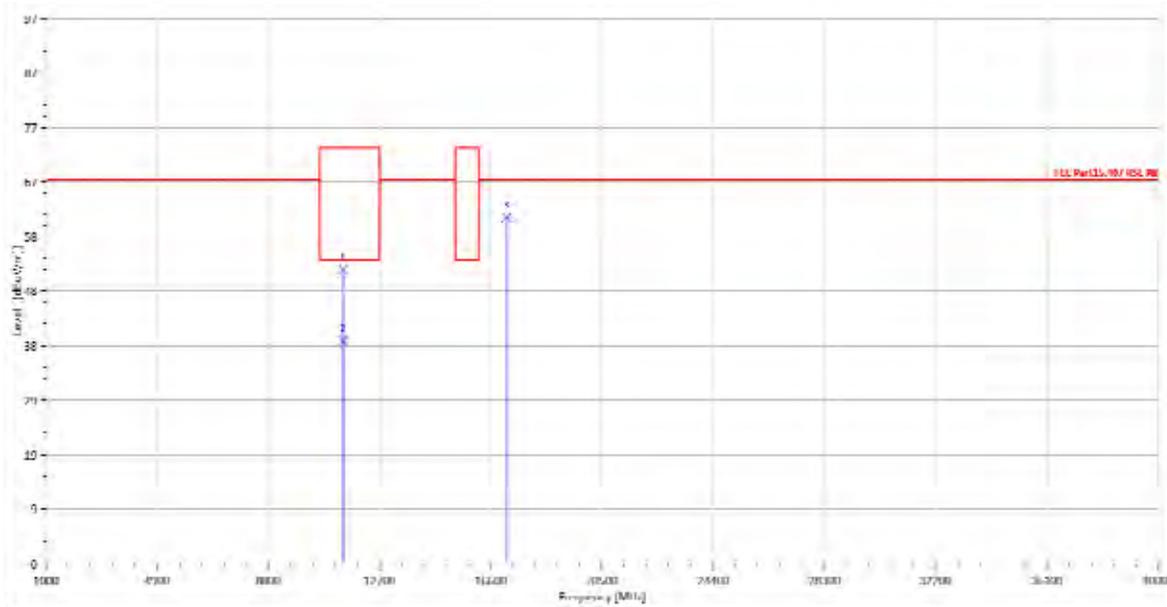
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5720 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



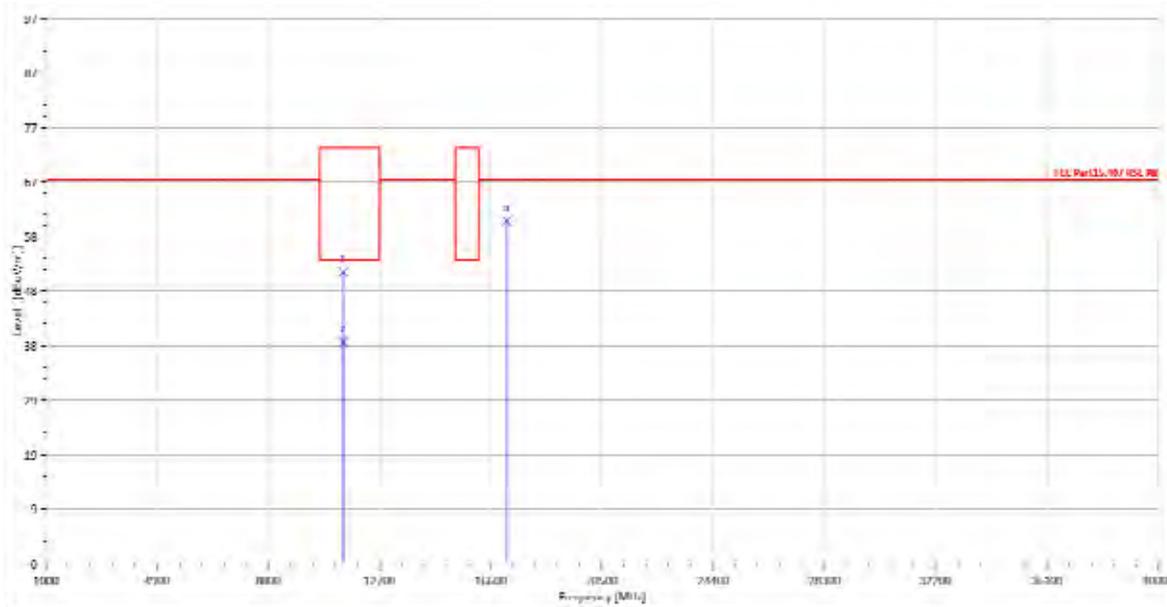
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11440.00	Peak	H	31.48	20.87	52.35	74.00	-21.65
11440.00	Average	H	18.79	20.87	39.66	54.00	-14.34
17160.00	Peak	H	33.61	27.99	61.59	68.30	-6.71

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5720 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11440.00	Peak	H	30.94	20.87	51.81	74.00	-22.19
11440.00	Average	H	18.62	20.87	39.49	54.00	-14.51
17160.00	Peak	H	32.97	27.99	60.95	68.30	-7.35

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**Band edge falling to restricted band**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5500 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Peak	E	52.19	11.46	63.65	74.00	-10.35
5460.00	Average	E	41.24	11.46	52.70	54.00	-1.30
5468.60	Peak	S	55.09	11.46	66.55	68.30	-1.75
5470.00	Peak	E	52.50	11.46	63.96	68.30	-4.34

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5500 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Peak	E	52.83	11.46	64.30	74.00	-9.70
5460.00	Average	E	41.29	11.46	52.75	54.00	-1.25
5468.60	Peak	S	55.22	11.46	66.67	68.30	-1.63
5470.00	Peak	E	52.50	11.46	63.96	68.30	-4.34

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5700 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5725.00	Peak	E	53.01	12.27	65.27	68.30	-3.03
5726.48	Peak	S	54.96	12.27	67.23	68.30	-1.07

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5700 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5725.00	Peak	E	52.71	12.27	64.98	68.30	-3.32
5729.00	Peak	S	53.88	12.29	66.17	68.30	-2.13

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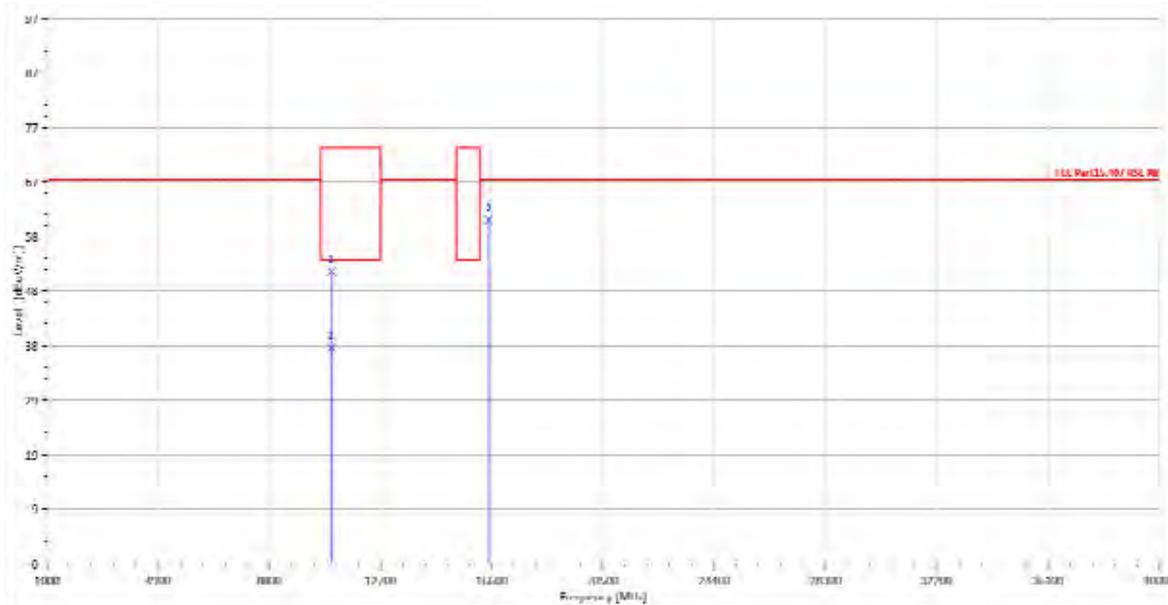
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**Radiated Spurious Emission Measurement Result 802.11ac VHT20, 5470~5725 MHz**

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5500 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11000.00	Peak	H	31.98	20.02	52.00	74.00	-22.00
11000.00	Average	H	18.40	20.02	38.42	54.00	-15.58
16500.00	Peak	H	34.02	27.16	61.18	68.30	-7.12

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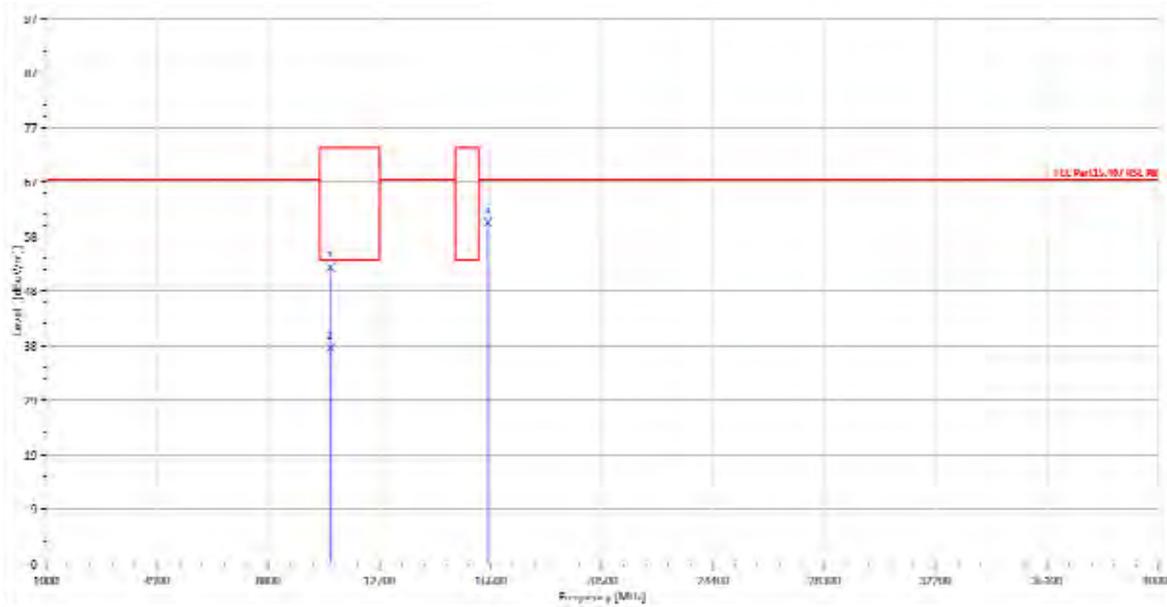
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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5500 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



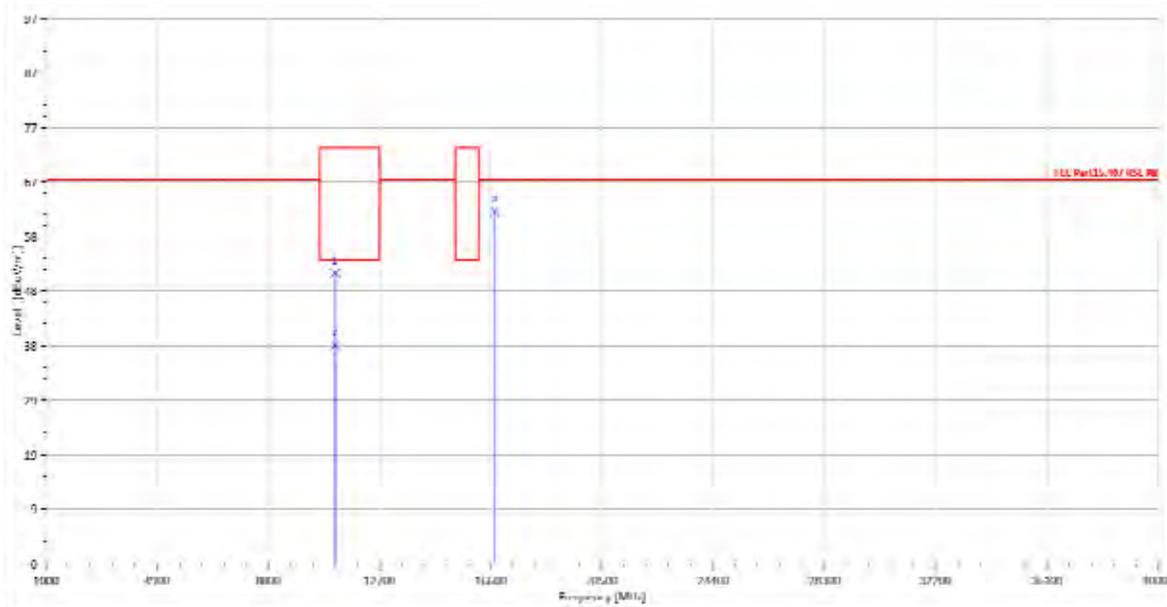
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11000.00	Peak	H	32.75	20.02	52.77	74.00	-21.23
11000.00	Average	H	18.41	20.02	38.43	54.00	-15.57
16500.00	Peak	H	33.54	27.16	60.71	68.30	-7.59

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5580 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



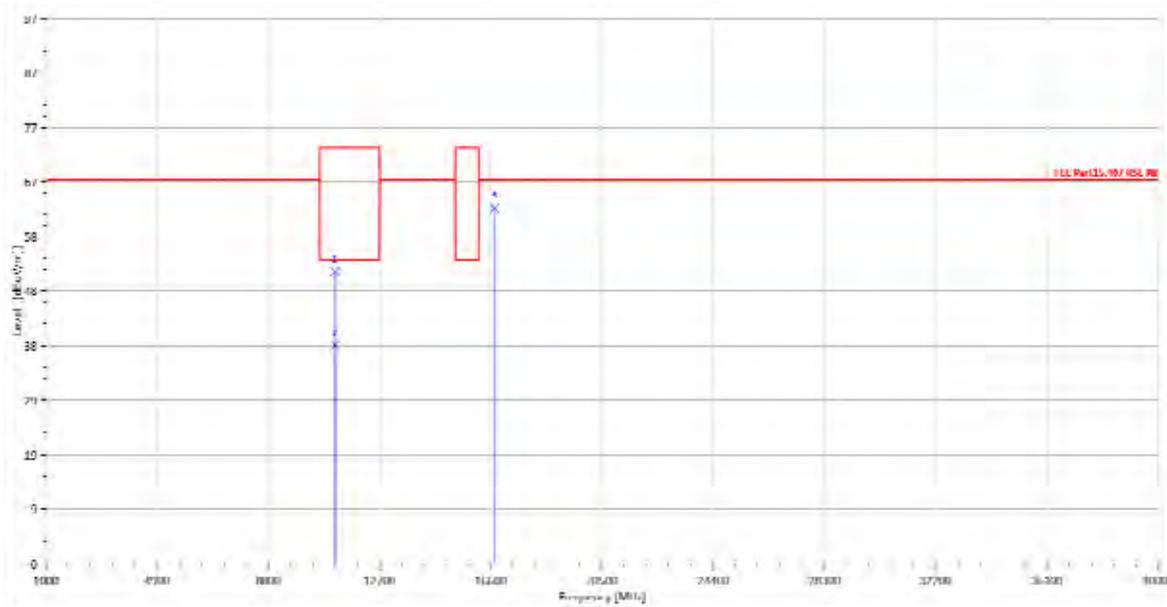
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11160.00	Peak	H	31.32	20.38	51.70	74.00	-22.30
11160.00	Average	H	18.45	20.38	38.83	54.00	-15.17
16740.00	Peak	H	34.90	27.79	62.69	68.30	-5.61

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5580 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



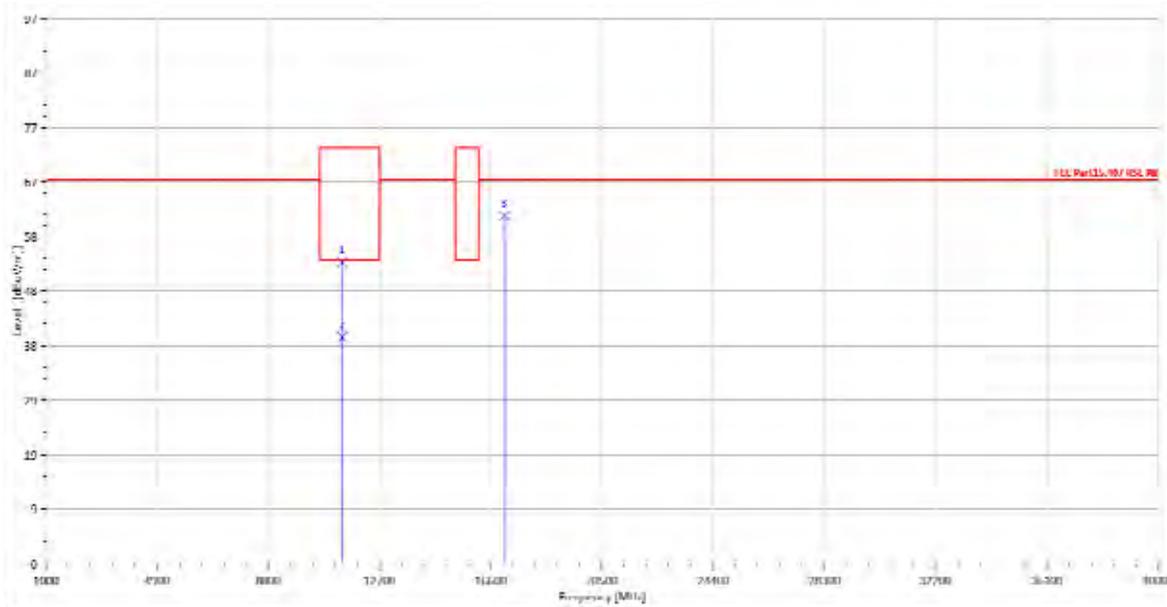
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11160.00	Peak	H	31.58	20.38	51.96	74.00	-22.04
11160.00	Average	H	18.49	20.38	38.87	54.00	-15.13
16740.00	Peak	H	35.47	27.79	63.26	68.30	-5.04

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5700 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11400.00	Peak	H	32.75	20.81	53.56	74.00	-20.44
11400.00	Average	H	19.43	20.81	40.24	54.00	-13.76
17100.00	Peak	H	33.60	28.26	61.85	68.30	-6.45

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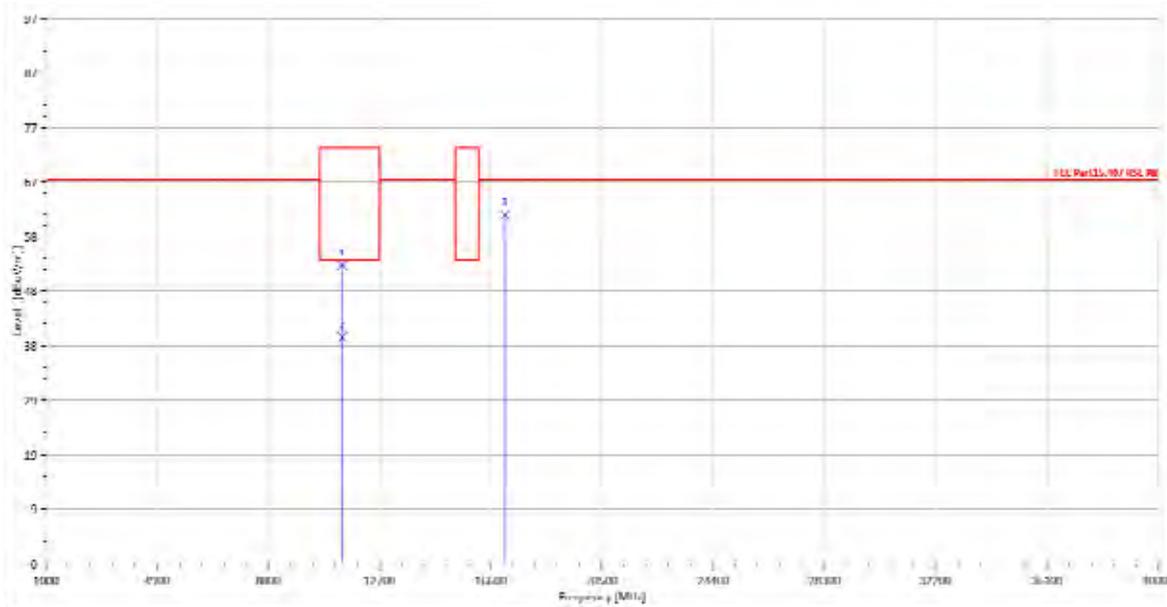
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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5700 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11400.00	Peak	H	32.34	20.81	53.15	74.00	-20.85
11400.00	Average	H	19.42	20.81	40.23	54.00	-13.77
17100.00	Peak	H	33.72	28.26	61.98	68.30	-6.32

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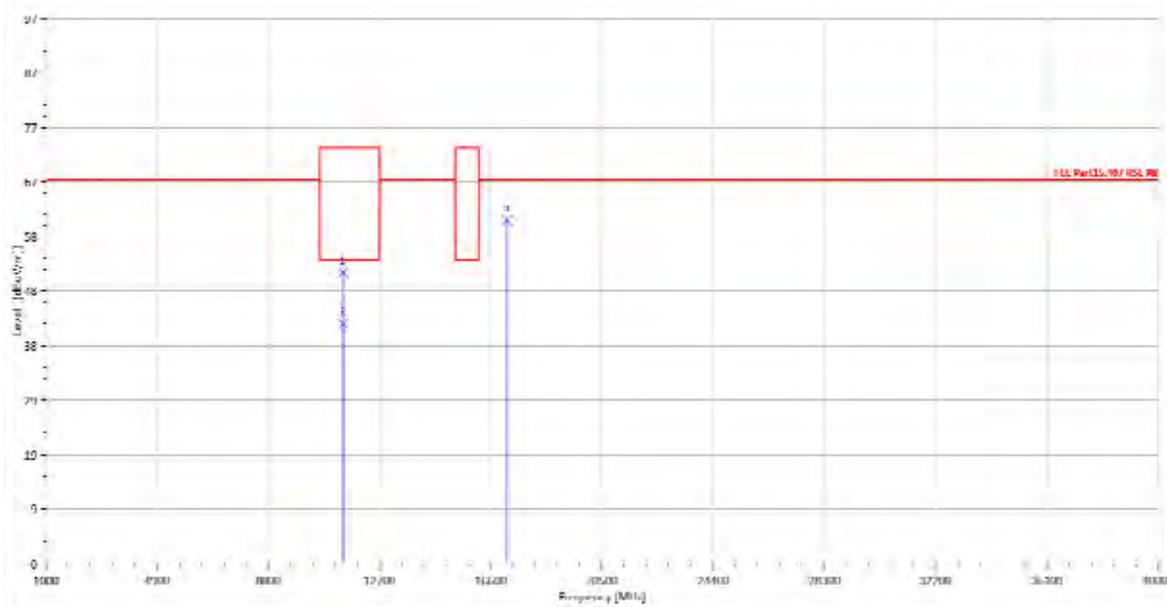
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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5720 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



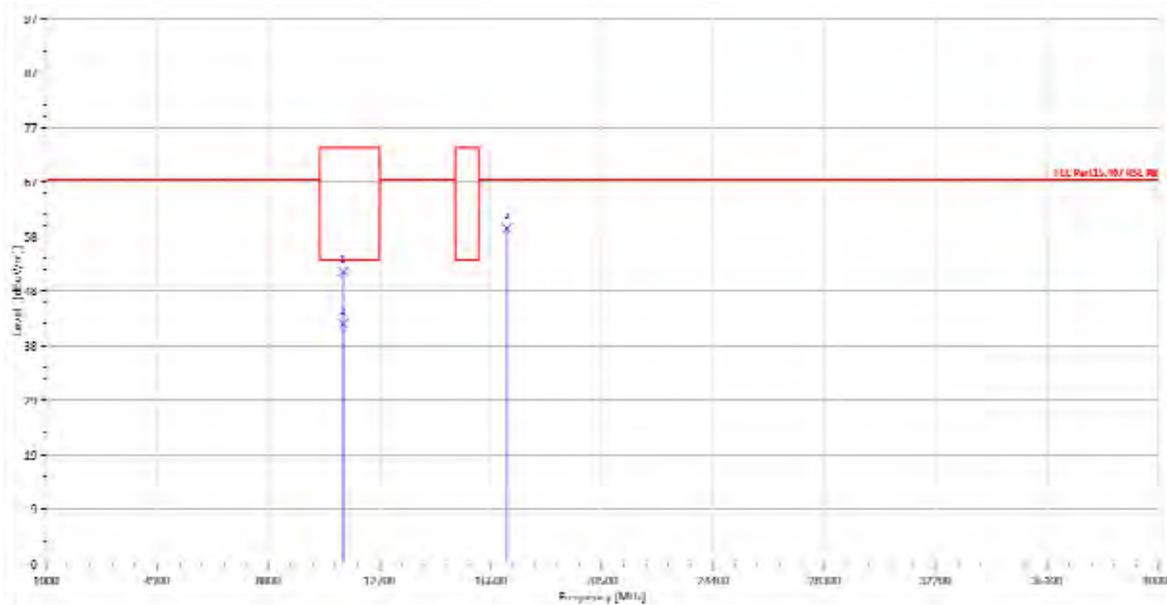
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11440.00	Peak	H	30.87	20.87	51.73	74.00	-22.27
11440.00	Average	H	21.87	20.87	42.74	54.00	-11.26
17160.00	Peak	H	33.06	27.99	61.05	68.30	-7.25

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5720 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
11440.00	Peak	H	31.08	20.87	51.95	74.00	-22.05
11440.00	Average	H	21.83	20.87	42.70	54.00	-11.30
17160.00	Peak	H	31.66	27.99	59.64	68.30	-8.66

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**Band edge falling to restricted band**

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5500 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Peak	E	53.11	11.46	64.57	74.00	-9.43
5460.00	Average	E	41.24	11.46	52.70	54.00	-1.30
5468.60	Peak	S	54.81	11.46	66.27	68.30	-2.03
5470.00	Peak	E	54.67	11.46	66.13	68.30	-2.17

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5500 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Peak	E	52.09	11.46	63.55	74.00	-10.45
5460.00	Average	E	41.27	11.46	52.73	54.00	-1.27
5470.00	Peak	E	54.29	11.46	65.75	68.30	-2.55

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5700 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	E	53.62	12.27	65.89	68.30	-2.41

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5700 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	E	51.54	12.27	63.81	68.30	-4.49
5725.76	Peak	S	52.63	12.27	64.90	68.30	-3.40

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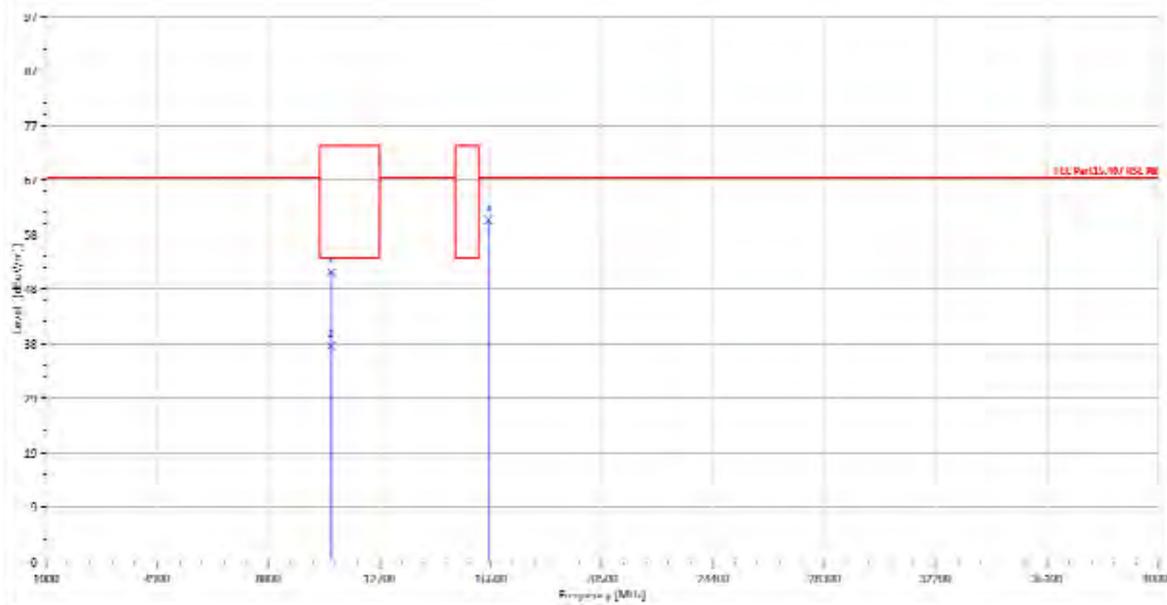
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**Radiated Spurious Emission Measurement Result 802.11ac VHT40, 5470~5725 MHz**

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5510 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11020.00	Peak	H	31.38	20.04	51.43	74.00	-22.57
11020.00	Average	H	18.34	20.04	38.38	54.00	-15.62
16530.00	Peak	H	33.47	27.29	60.76	68.30	-7.54

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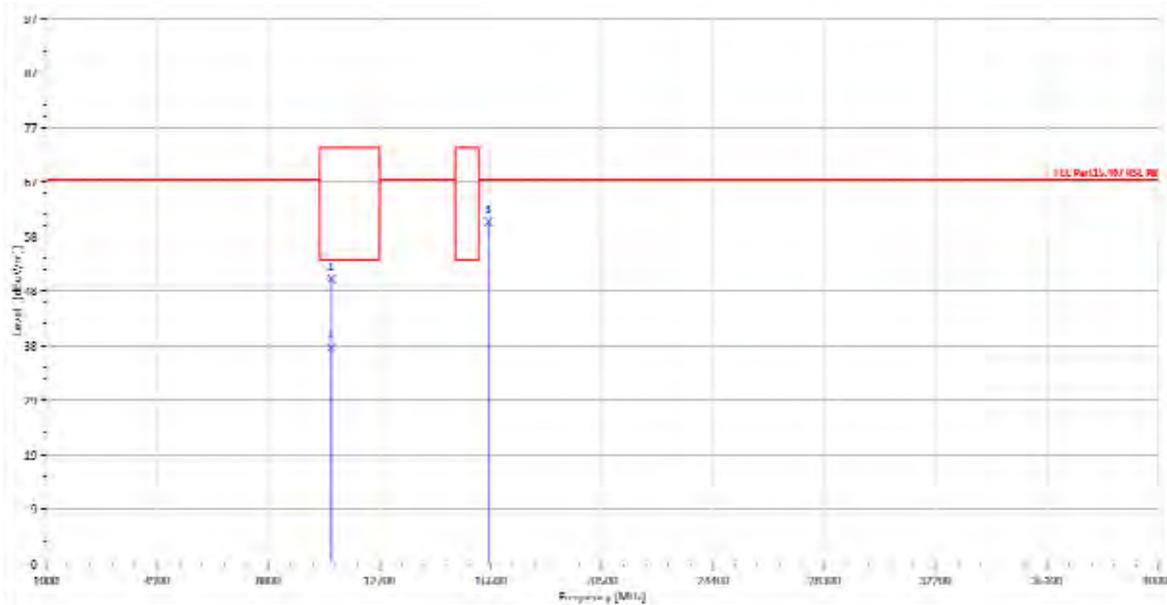
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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5510 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



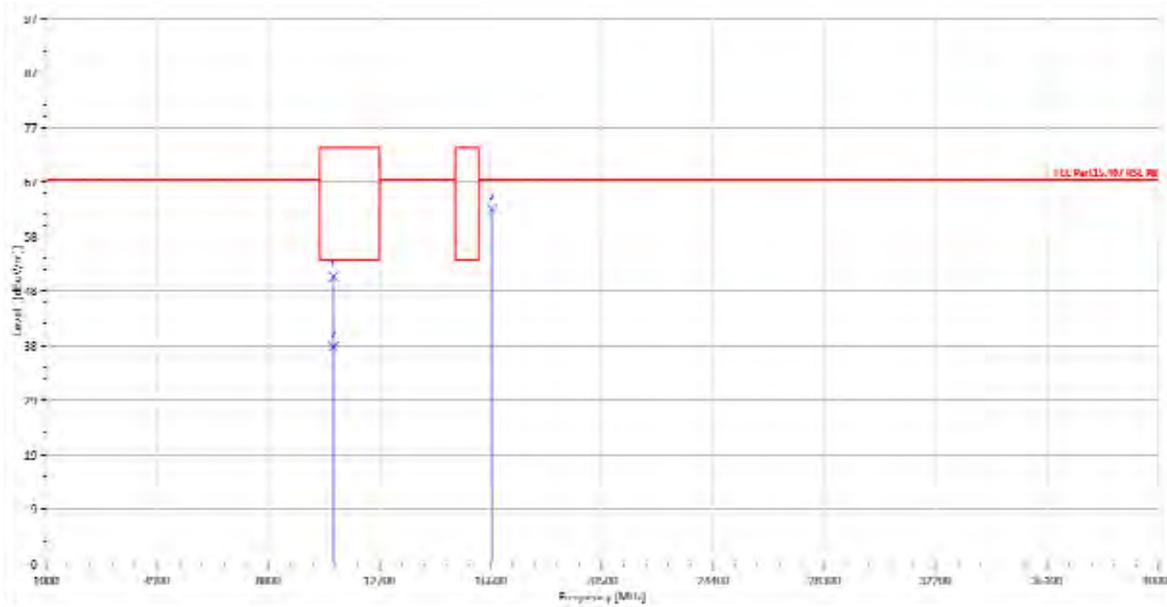
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11020.00	Peak	H	30.63	20.04	50.67	74.00	-23.33
11020.00	Average	H	18.39	20.04	38.43	54.00	-15.57
16530.00	Peak	H	33.54	27.29	60.84	68.30	-7.46

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5550 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



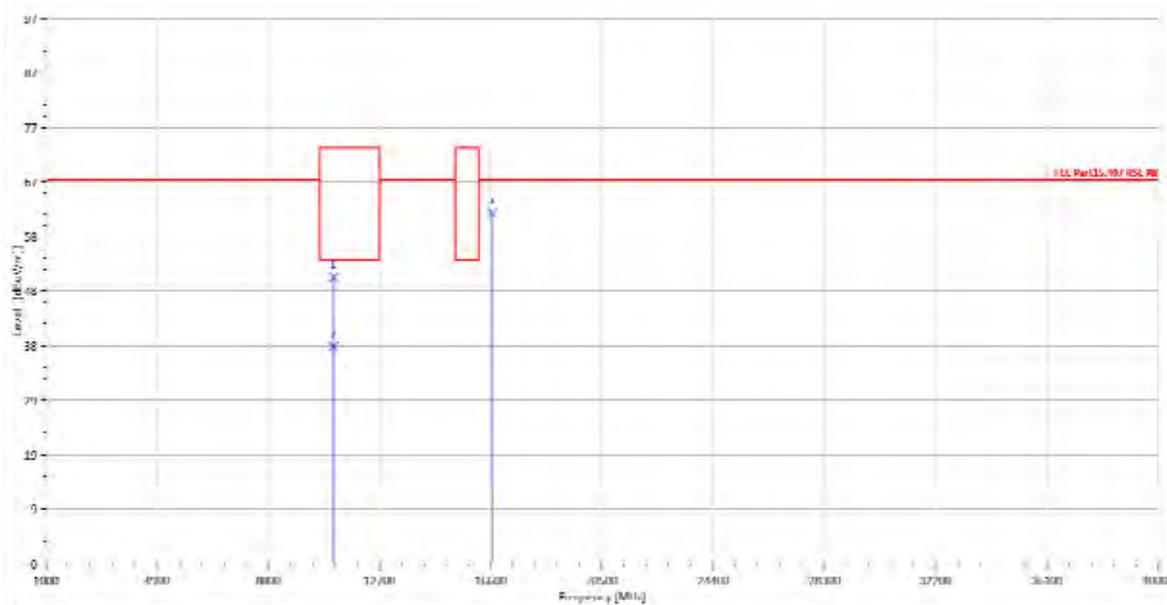
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
11100.00	Peak	H	30.83	20.21	51.03	74.00	-22.97
11100.00	Average	H	18.33	20.21	38.54	54.00	-15.46
16650.00	Peak	H	35.54	27.54	63.08	68.30	-5.22

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5550 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



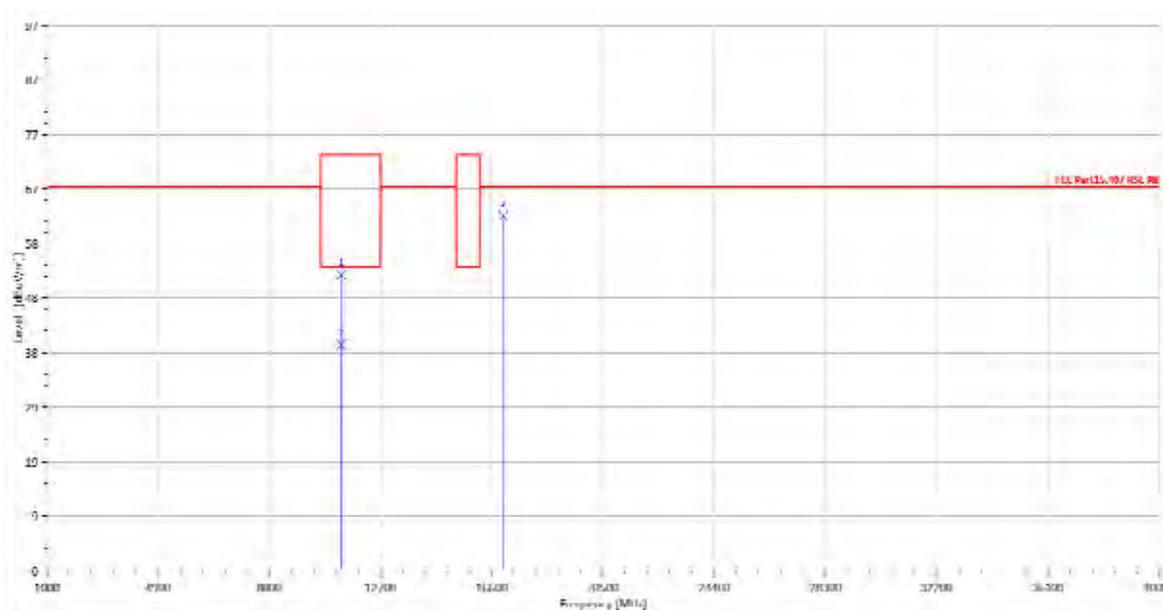
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11100.00	Peak	H	30.69	20.21	50.90	74.00	-23.10
11100.00	Average	H	18.37	20.21	38.58	54.00	-15.42
16650.00	Peak	H	34.77	27.54	62.31	68.30	-5.99

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5670 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11340.00	Peak	H	31.98	20.61	52.59	74.00	-21.41
11340.00	Average	H	19.55	20.61	40.16	54.00	-13.84
17010.00	Peak	H	34.85	28.28	63.13	68.30	-5.17

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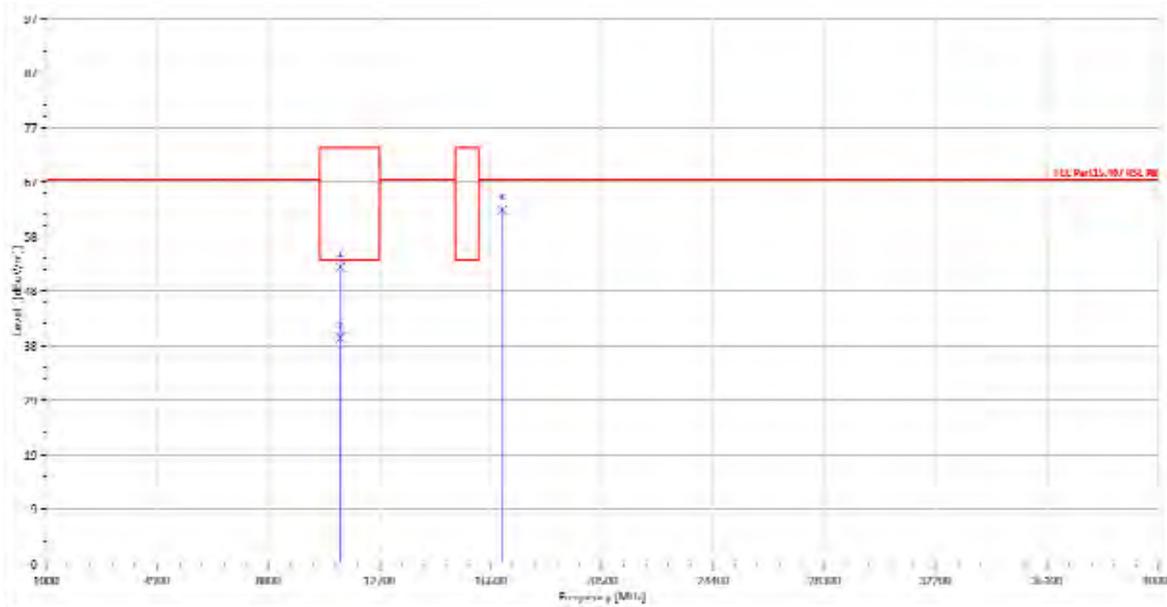
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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5670 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



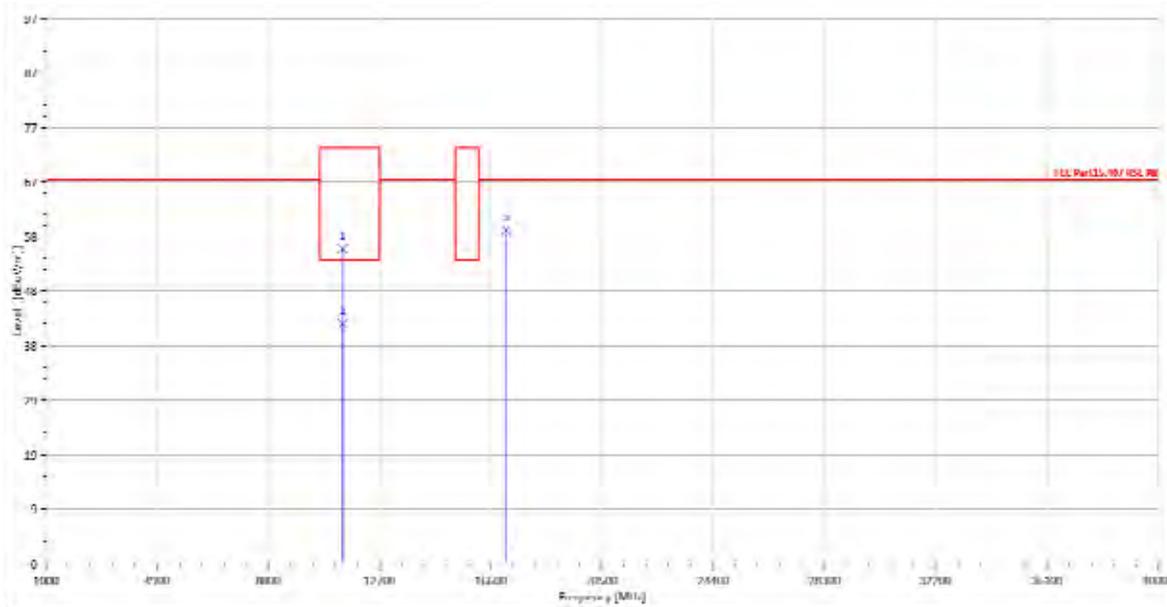
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
11340.00	Peak	H	32.19	20.61	52.80	74.00	-21.20
11340.00	Average	H	19.56	20.61	40.17	54.00	-13.83
17010.00	Peak	H	34.70	28.28	62.98	68.30	-5.32

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5710 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



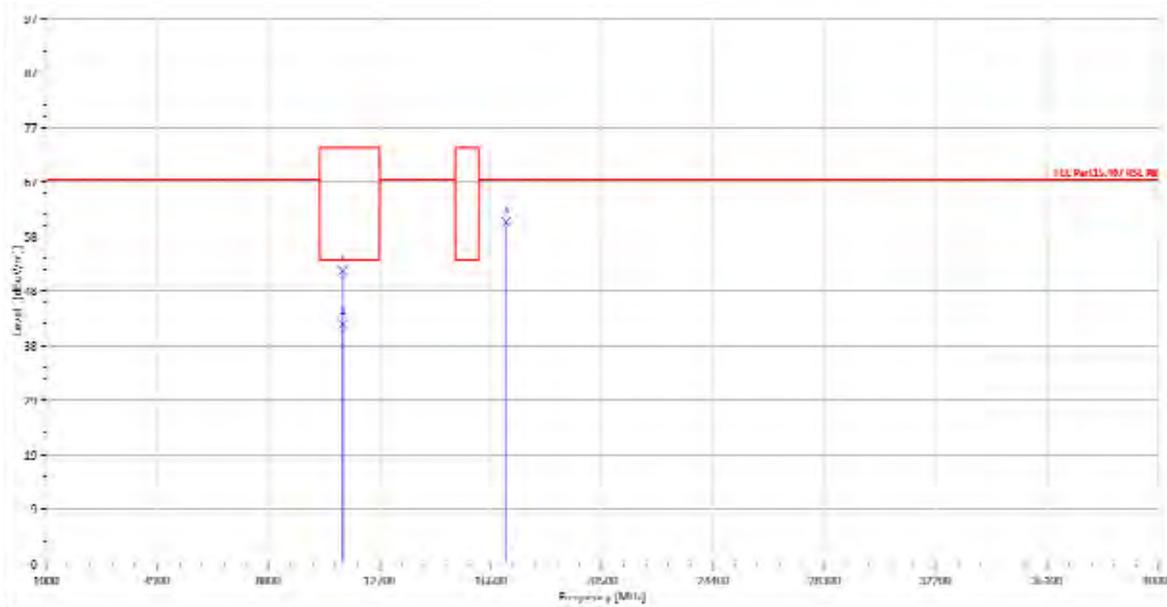
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11420.00	Peak	H	35.25	20.73	55.98	74.00	-18.02
11420.00	Average	H	21.92	20.73	42.65	54.00	-11.35
17130.00	Peak	H	31.20	28.08	59.28	68.30	-9.02

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5710 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11420.00	Peak	H	31.35	20.73	52.07	74.00	-21.93
11420.00	Average	H	21.86	20.73	42.59	54.00	-11.41
17130.00	Peak	H	32.65	28.08	60.73	68.30	-7.57

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**Band edge falling to restricted band**

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5510 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Peak	E	52.61	11.46	64.08	74.00	-9.92
5460.00	Average	E	34.85	11.46	46.31	54.00	-7.69
5470.00	Peak	E	54.99	11.46	66.44	68.30	-1.86

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5510 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

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

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

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

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

“---” : denotes Noise Floor.

The trace on RE (radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Peak	E	47.88	11.46	59.34	74.00	-14.66
5460.00	Average	E	31.22	11.46	42.68	54.00	-11.32
5468.40	Peak	S	55.55	11.46	67.00	68.30	-1.30
5470.00	Peak	E	54.32	11.46	65.78	68.30	-2.52

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5670 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	H	51.98	12.27	64.25	68.30	-4.05

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5670 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	E	51.34	12.27	63.61	68.30	-4.69

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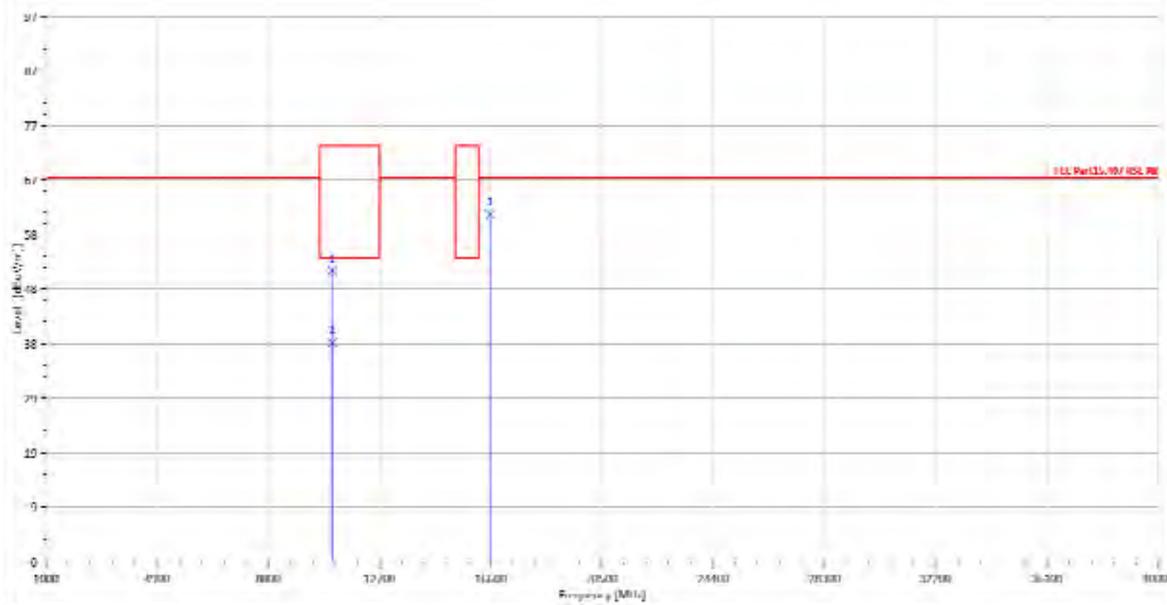
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**Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5470~5725 MHz**

Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5530 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



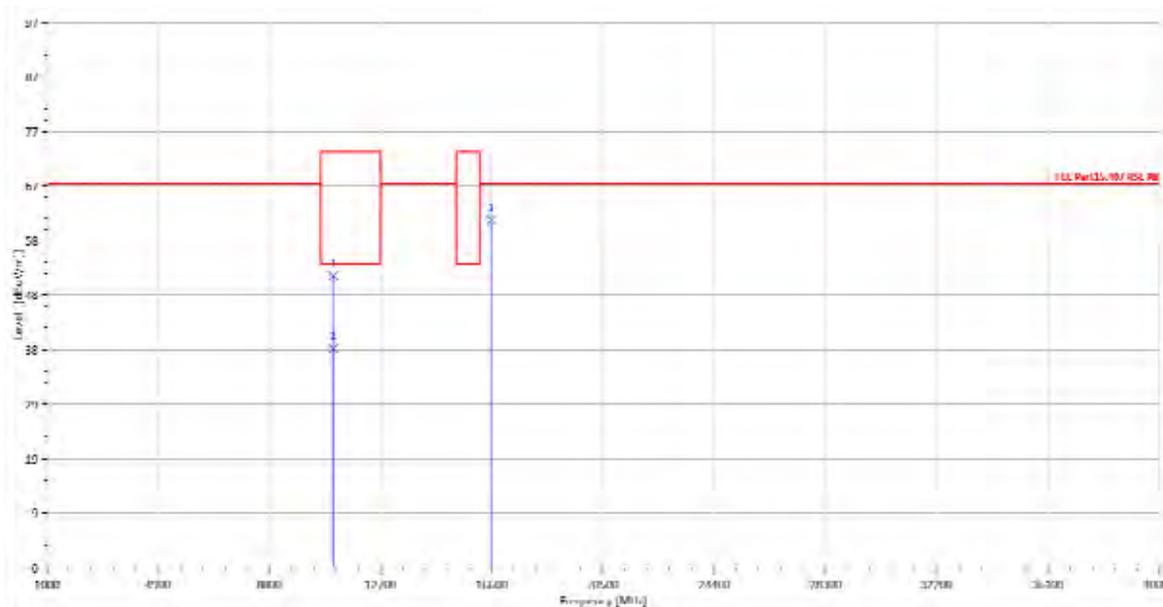
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11060.00	Peak	H	31.62	20.14	51.76	74.00	-22.24
11060.00	Average	H	18.79	20.14	38.93	54.00	-15.07
16590.00	Peak	H	34.43	27.33	61.76	68.30	-6.54

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Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5530 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11060.00	Peak	H	31.71	20.14	51.85	74.00	-22.15
11060.00	Average	H	18.81	20.14	38.95	54.00	-15.05
16590.00	Peak	H	34.46	27.33	61.79	68.30	-6.51

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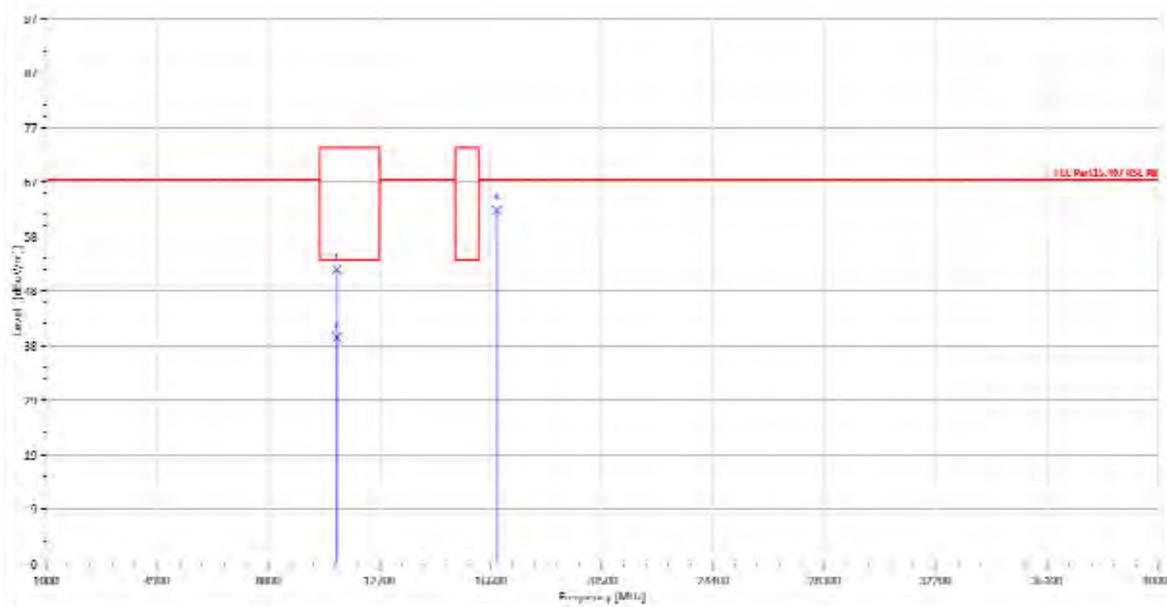
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Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5610 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



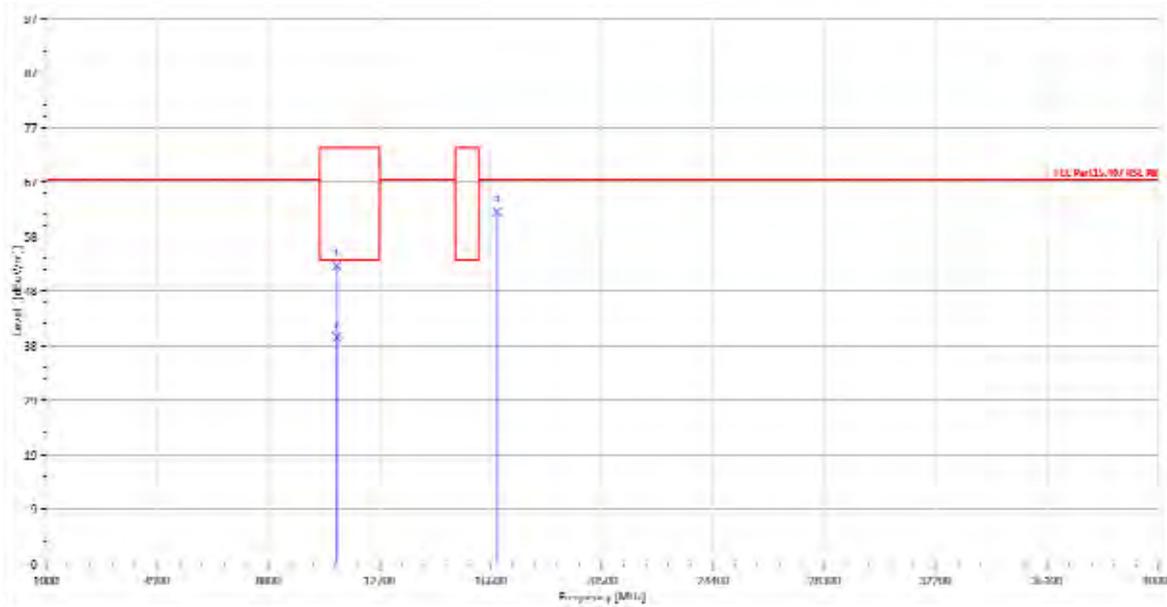
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11220.00	Peak	H	31.92	20.39	52.31	74.00	-21.69
11220.00	Average	H	19.82	20.39	40.21	54.00	-13.79
16830.00	Peak	H	35.05	27.86	62.91	68.30	-5.39

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Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5610 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



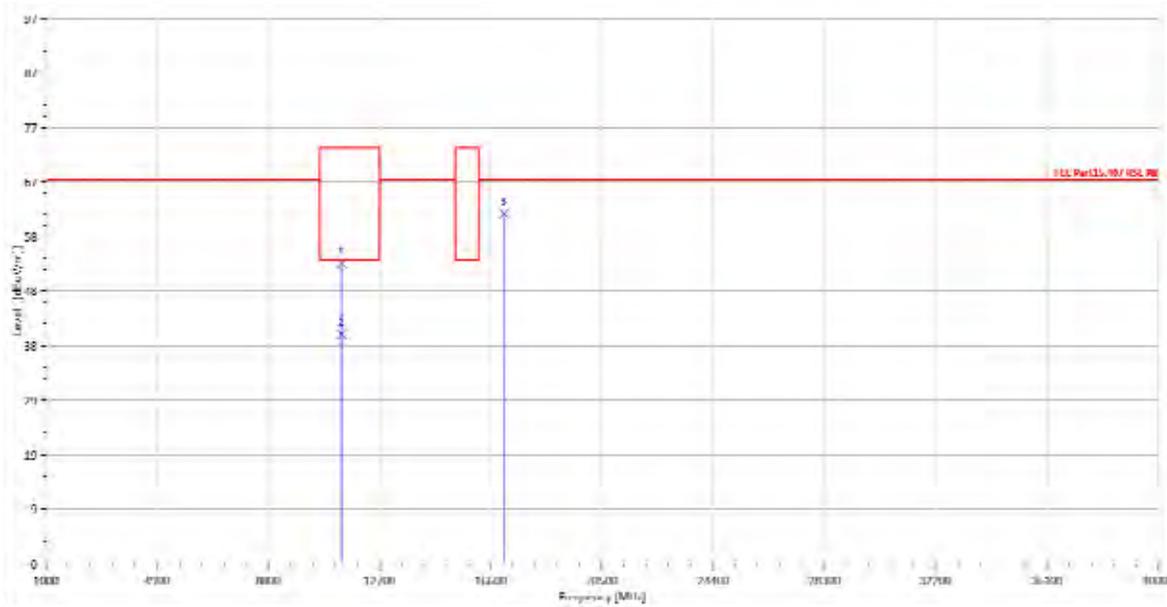
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11220.00	Peak	H	32.61	20.39	53.01	74.00	-20.99
11220.00	Average	H	19.85	20.39	40.24	54.00	-13.76
16830.00	Peak	H	34.75	27.86	62.62	68.30	-5.68

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Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5690 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



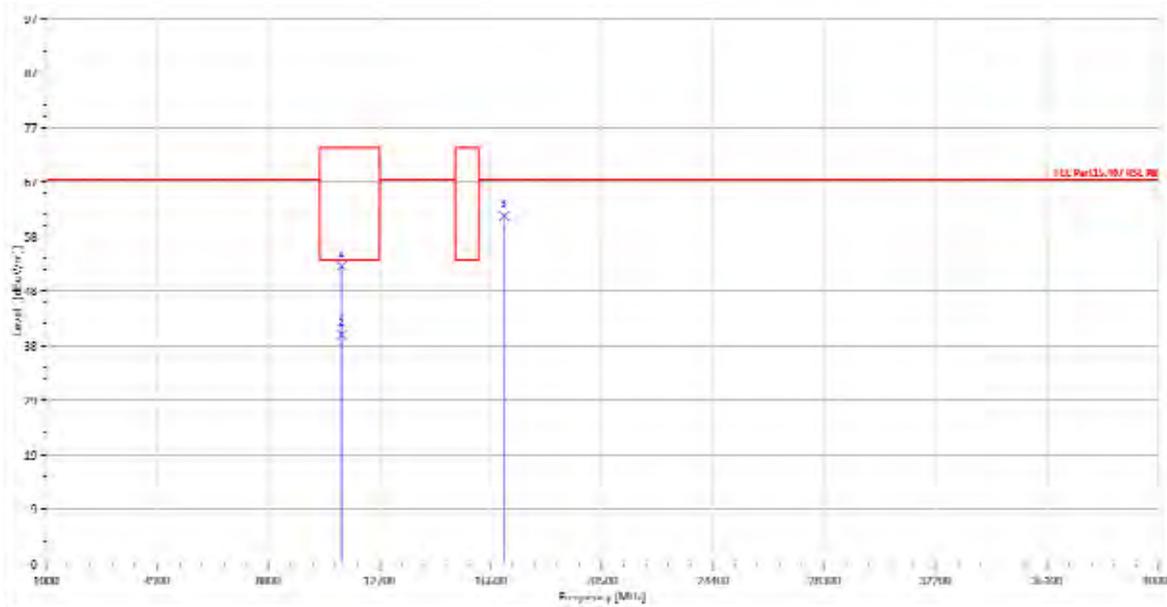
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
11380.00	Peak	H	32.57	20.84	53.41	74.00	-20.59
11380.00	Average	H	19.92	20.84	40.76	54.00	-13.24
17070.00	Peak	H	34.04	28.21	62.25	68.30	-6.05

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Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5690 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11380.00	Peak	H	32.06	20.84	52.90	74.00	-21.10
11380.00	Average	H	19.86	20.84	40.70	54.00	-13.30
17070.00	Peak	H	33.61	28.21	61.83	68.30	-6.47

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**Band edge falling to restricted band**

Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5530 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Peak	E	55.27	11.46	66.73	74.00	-7.27
5460.00	Average	E	35.66	11.46	47.12	54.00	-6.88
5464.50	Peak	S	55.35	11.46	66.81	68.30	-1.49
5470.00	Peak	E	52.34	11.46	63.80	68.30	-4.51

Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5530 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

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

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

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

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

“---“ : denotes Noise Floor.

The trace on RE (radiation emission) plot is as colored blue, and the detection manner we’ve employed is peak detector.

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Peak	E	47.87	11.46	59.33	74.00	-14.67
5460.00	Average	E	30.30	11.46	41.77	54.00	-12.23
5464.00	Peak	S	49.30	11.46	60.76	68.30	-7.54
5470.00	Peak	E	46.81	11.46	58.26	68.30	-10.04

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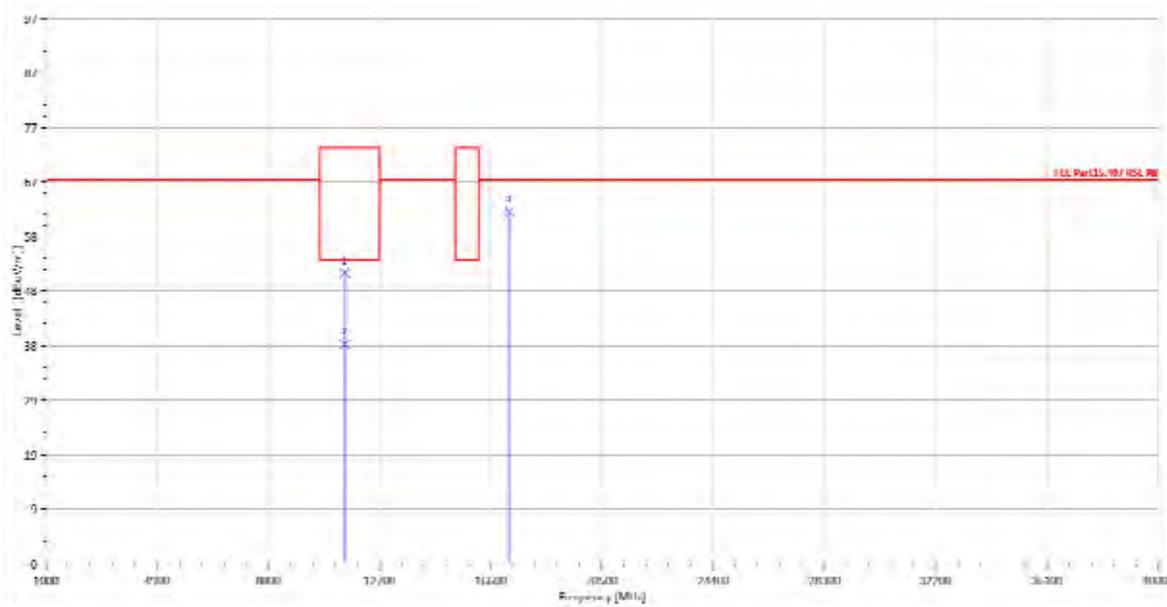
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**Radiated Spurious Emission Measurement Result 802.11a, 5725~5850 MHz**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5745 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



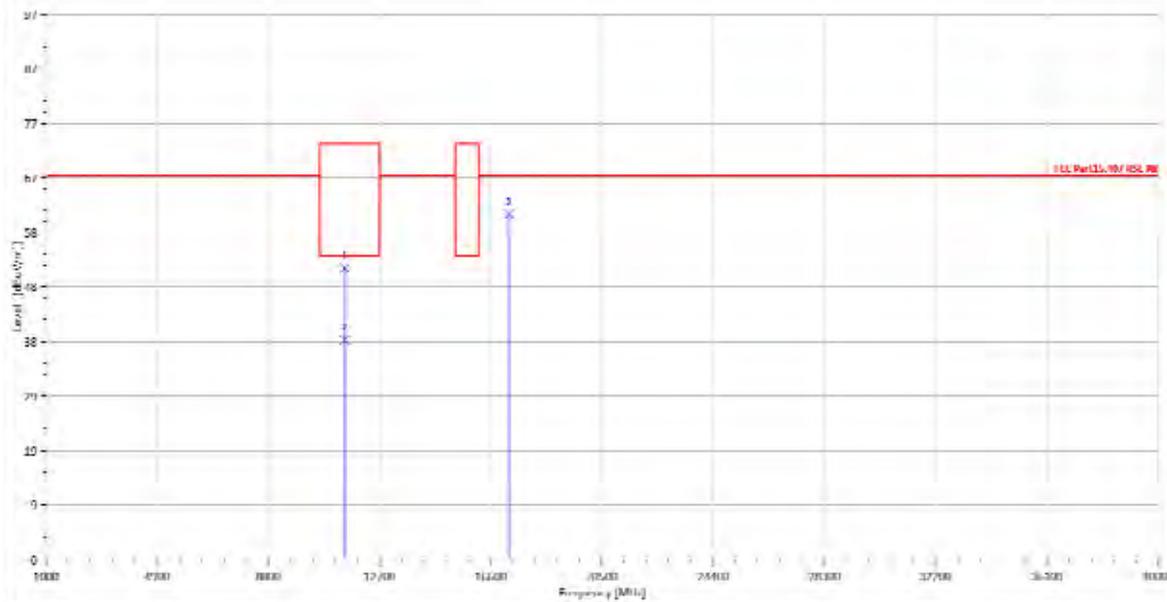
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11490.00	Peak	H	30.59	21.08	51.67	74.00	-22.33
11490.00	Average	H	17.95	21.08	39.03	54.00	-14.97
17235.00	Peak	H	34.55	28.06	62.61	68.30	-5.69

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5745 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



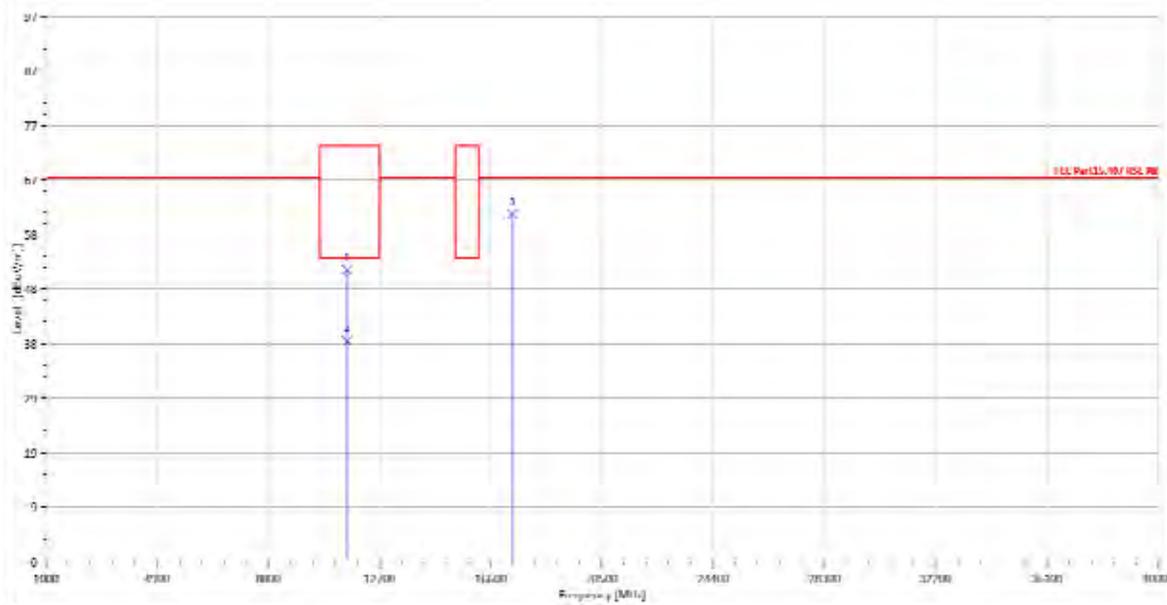
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11490.00	Peak	H	30.69	21.08	51.78	74.00	-22.22
11490.00	Average	H	17.98	21.08	39.06	54.00	-14.94
17235.00	Peak	H	33.35	28.06	61.41	68.30	-6.89

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5785 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



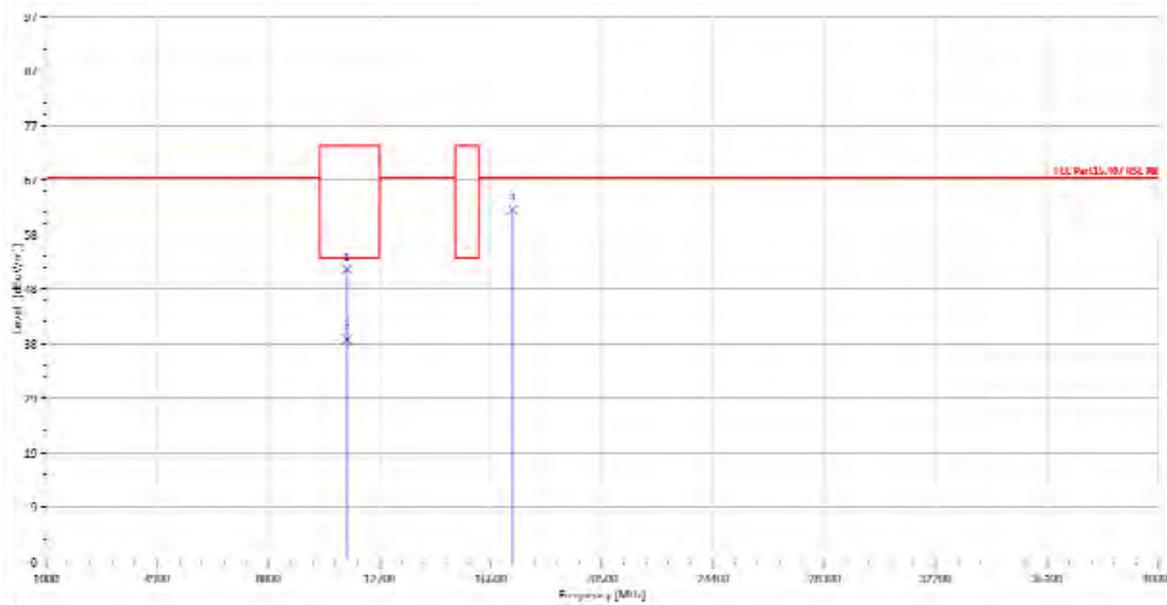
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11570.00	Peak	H	30.74	21.14	51.88	74.00	-22.12
11570.00	Average	H	18.13	21.14	39.27	54.00	-14.73
17355.00	Peak	H	33.93	27.87	61.80	68.30	-6.50

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5785 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11570.00	Peak	H	30.88	21.14	52.02	74.00	-21.98
11570.00	Average	H	18.37	21.14	39.51	54.00	-14.49
17355.00	Peak	H	34.75	27.87	62.63	68.30	-5.67

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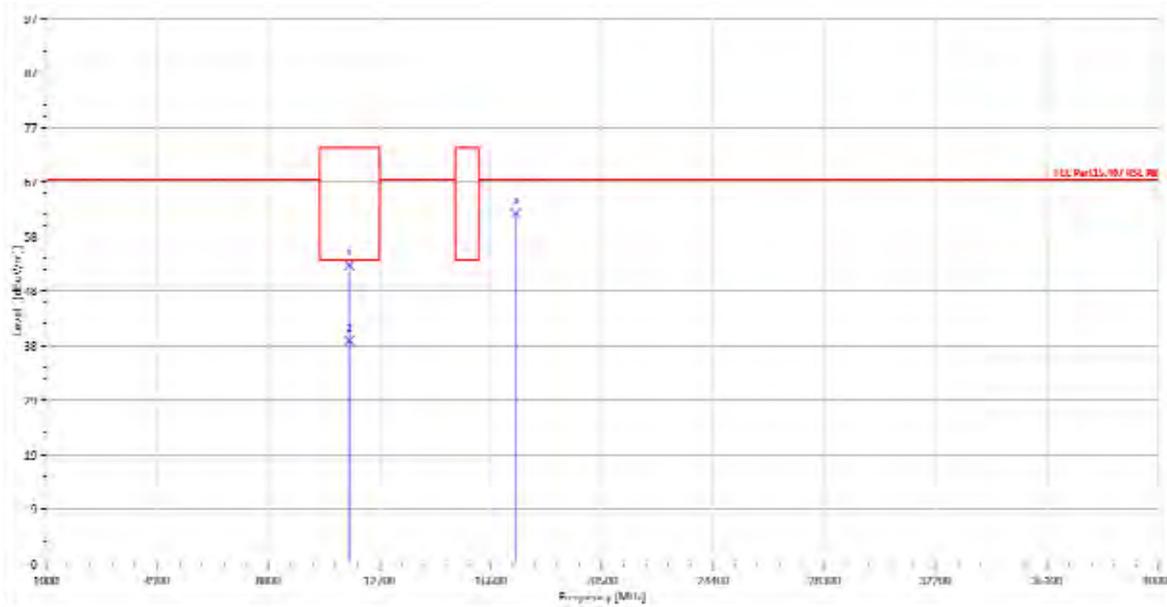
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5825 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11650.00	Peak	H	31.83	21.27	53.10	74.00	-20.90
11650.00	Average	H	18.38	21.27	39.65	54.00	-14.35
17475.00	Peak	H	34.67	27.65	62.32	68.30	-5.98

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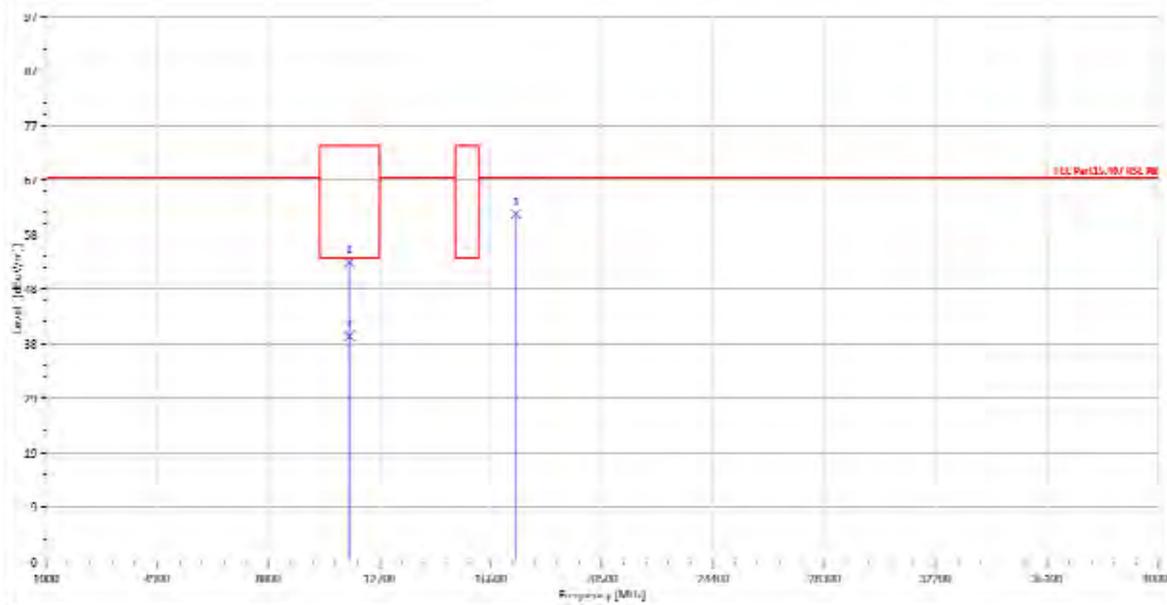
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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5825 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11650.00	Peak	H	31.97	21.27	53.24	74.00	-20.76
11650.00	Average	H	18.85	21.27	40.12	54.00	-13.88
17475.00	Peak	H	34.15	27.65	61.80	68.30	-6.50

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**Band edge falling to restricted band**

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5745 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5725.00	Peak	E	52.27	12.27	64.54	78.20	-13.66

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5745 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB
5725.00	Peak	E	53.05	12.27	65.32	78.20	-12.88

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Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5825 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5850.00	Peak	E	50.50	12.61	63.11	78.20	-15.09

Operation Band	:802.11 a	Test Date	:2015-04-29
Fundamental Frequency	:5825 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5850.00	Peak	E	50.20	12.61	62.81	78.20	-15.39

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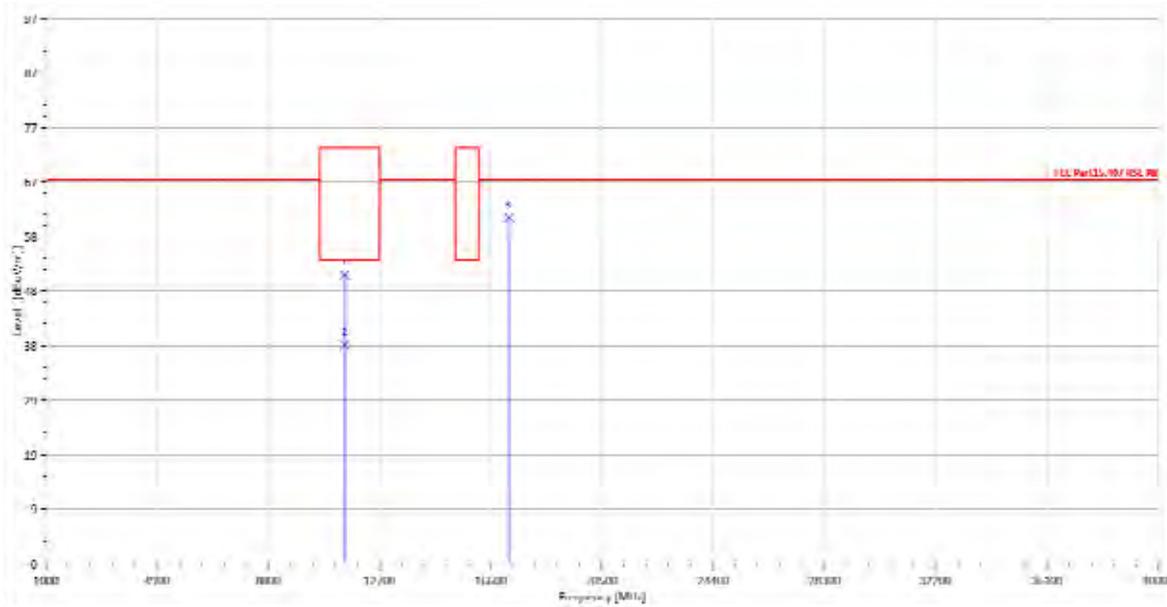
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**Radiated Spurious Emission Measurement Result 802.11ac VHT20, 5725~5850 MHz**

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5745 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11490.00	Peak	H	30.27	21.08	51.35	74.00	-22.65
11490.00	Average	H	17.82	21.08	38.90	54.00	-15.10
17235.00	Peak	H	33.54	28.06	61.59	68.30	-6.71

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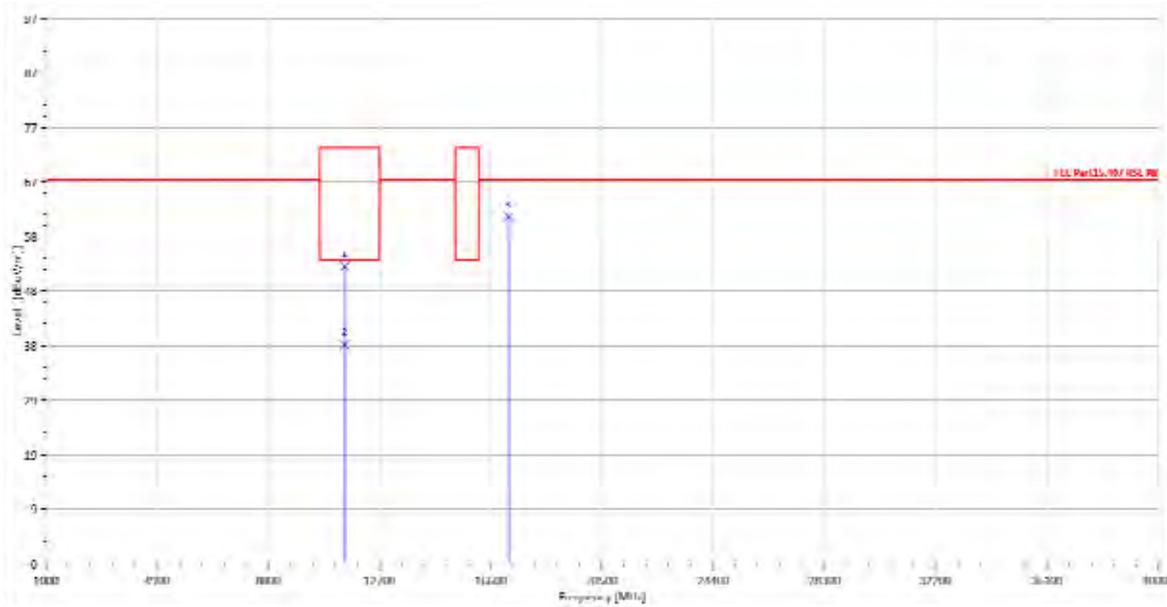
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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5745 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



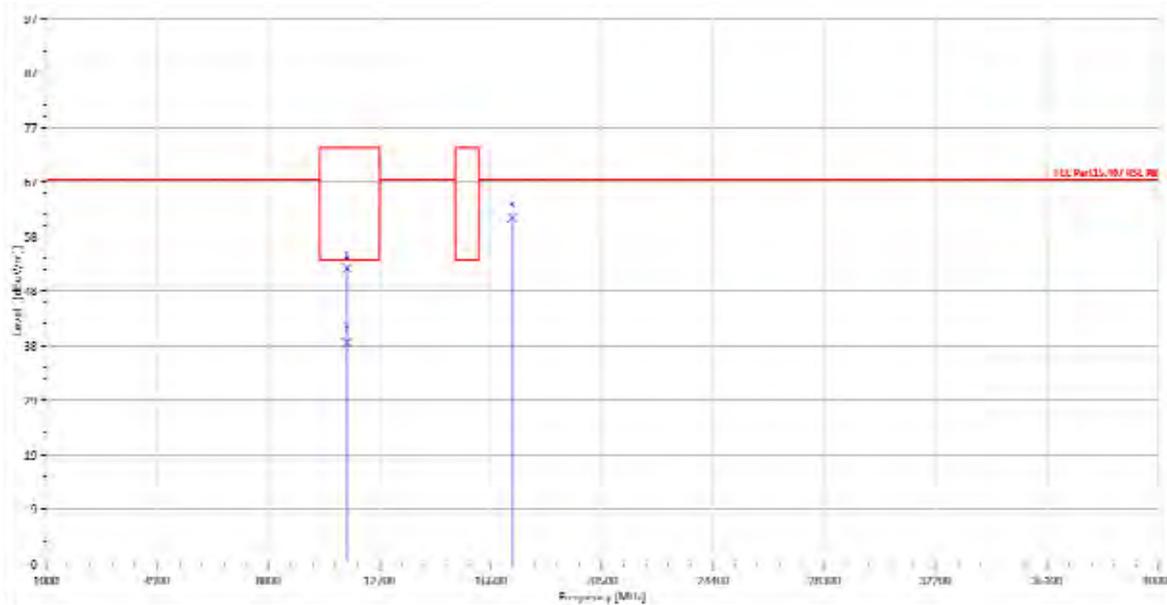
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11490.00	Peak	H	31.81	21.08	52.89	74.00	-21.11
11490.00	Average	H	17.82	21.08	38.90	54.00	-15.10
17235.00	Peak	H	33.61	28.06	61.66	68.30	-6.64

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5785 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



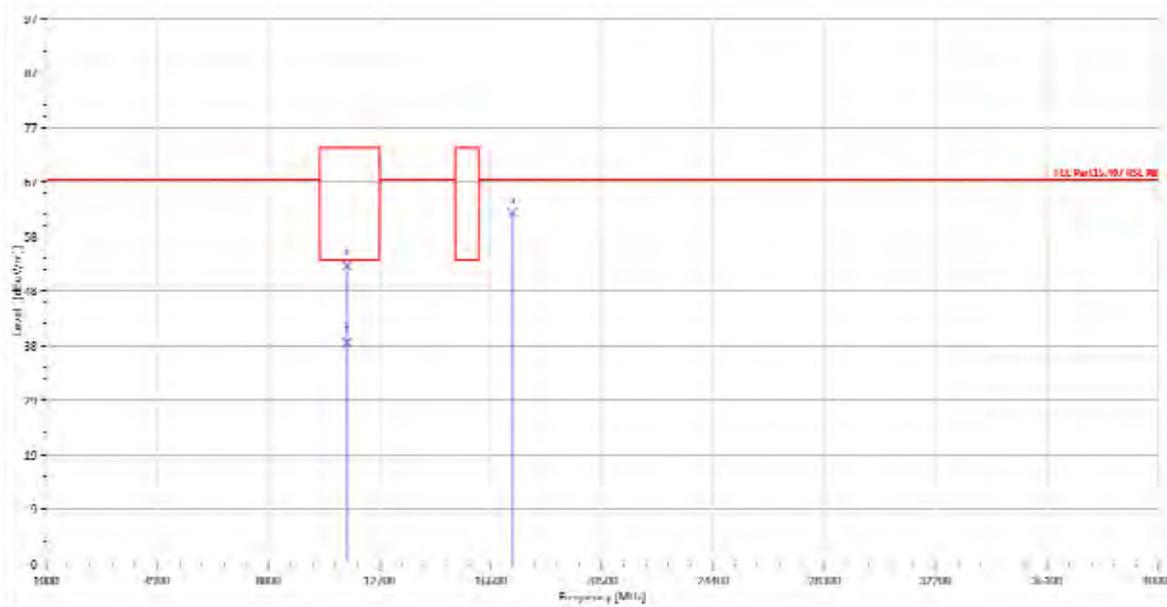
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11570.00	Peak	H	31.41	21.14	52.54	74.00	-21.46
11570.00	Average	H	18.21	21.14	39.35	54.00	-14.65
17355.00	Peak	H	33.67	27.87	61.55	68.30	-6.75

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5785 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX MID	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



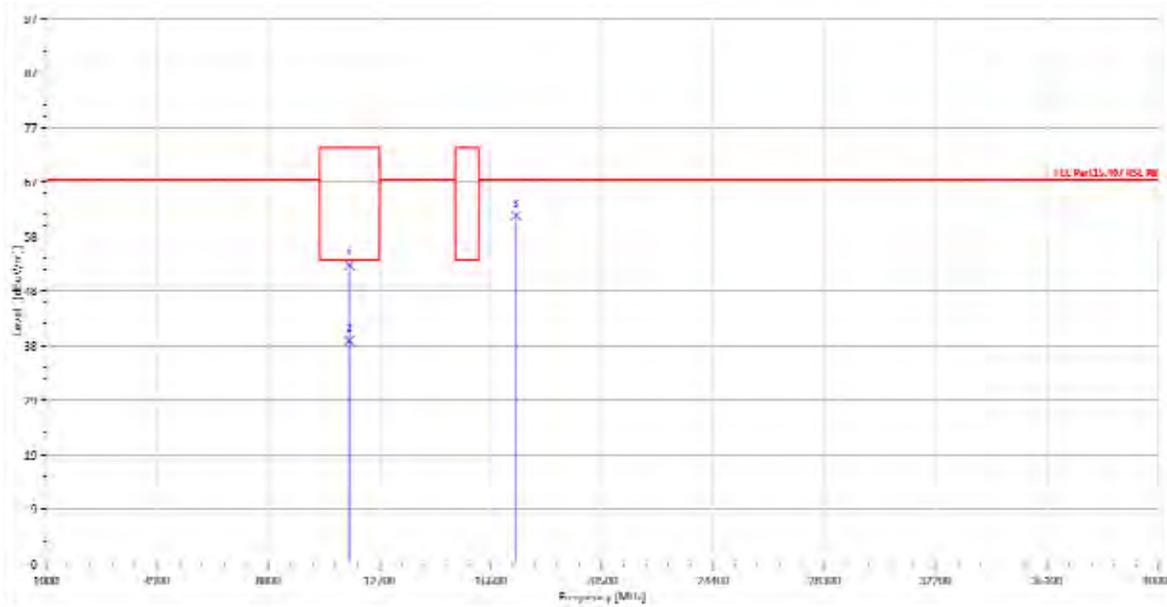
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11570.00	Peak	H	31.88	21.14	53.02	74.00	-20.98
11570.00	Average	H	18.24	21.14	39.38	54.00	-14.62
17355.00	Peak	H	34.48	27.87	62.35	68.30	-5.95

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5825 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

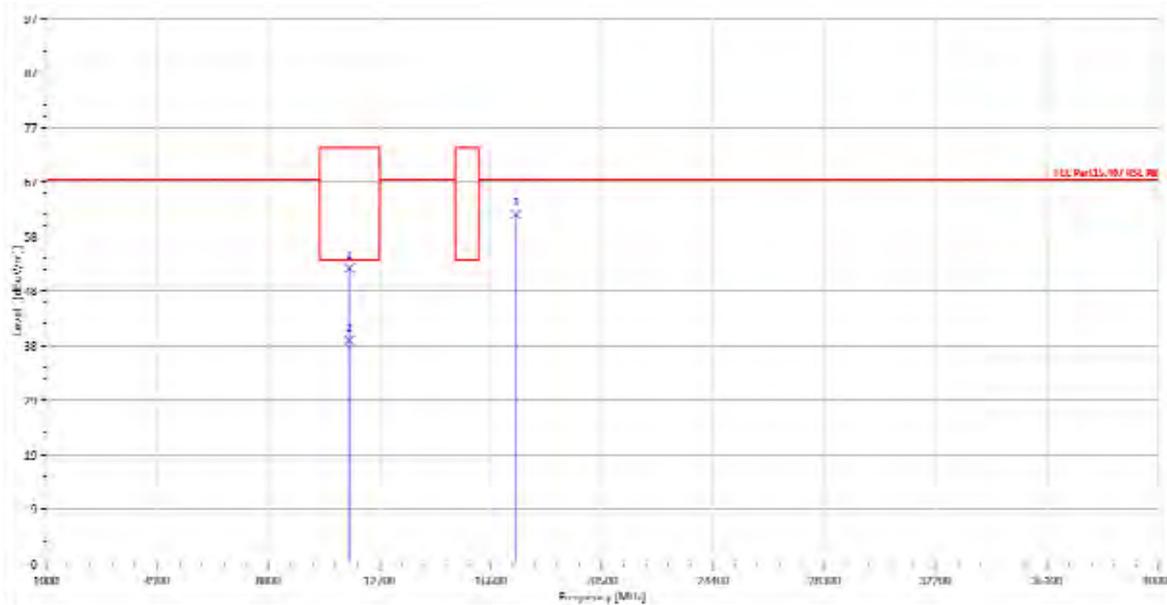


Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11650.00	Peak	H	31.86	21.27	53.13	74.00	-20.87
11650.00	Average	H	18.37	21.27	39.64	54.00	-14.36
17475.00	Peak	H	34.27	27.65	61.92	68.30	-6.38

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5825 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11650.00	Peak	H	31.26	21.27	52.54	74.00	-21.46
11650.00	Average	H	18.43	21.27	39.70	54.00	-14.30
17475.00	Peak	H	34.46	27.65	62.11	68.30	-6.19

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**Band edge falling to restricted band**

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5745 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	E	56.03	12.27	68.30	78.20	-9.90

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5745 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	E	54.54	12.27	66.81	78.20	-11.39

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Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5825 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5850.00	Peak	E	50.67	12.61	63.28	78.20	-14.92

Operation Band	:802.11 ac20M	Test Date	:2015-04-29
Fundamental Frequency	:5825 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5850.00	Peak	E	50.41	12.61	63.02	78.20	-15.18

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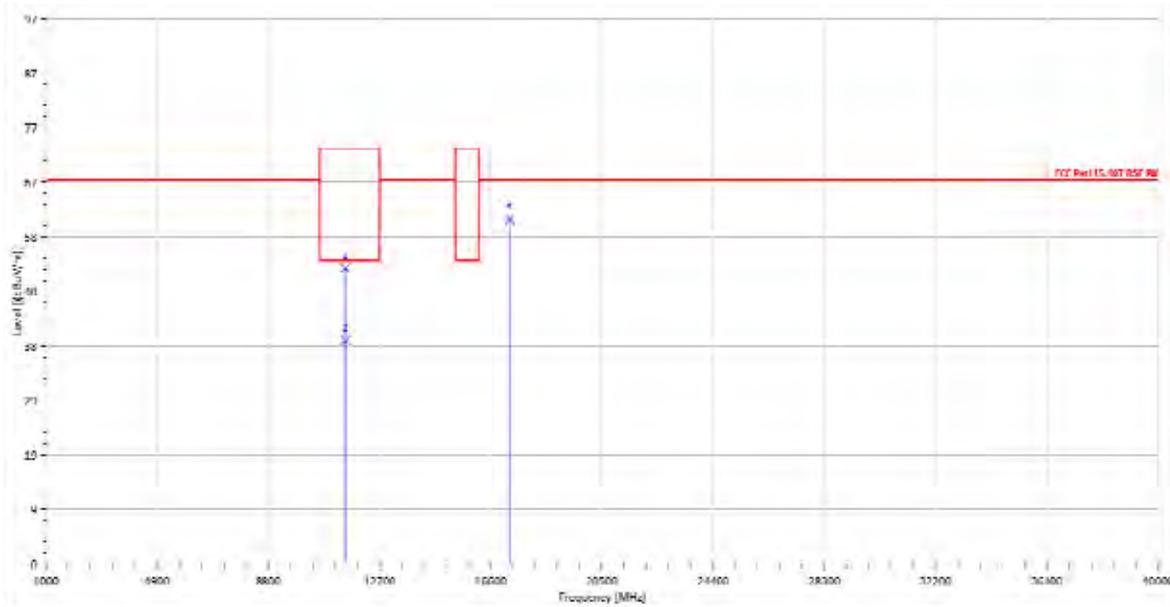
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**Radiated Spurious Emission Measurement Result 802.11ac VHT40, 5725~5850 MHz**

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5755 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11510.00	Peak	H	31.41	21.17	52.58	74.00	-21.42
11510.00	Average	H	18.57	21.17	39.74	54.00	-14.26
17265.00	Peak	H	33.54	27.82	61.36	68.30	-6.94

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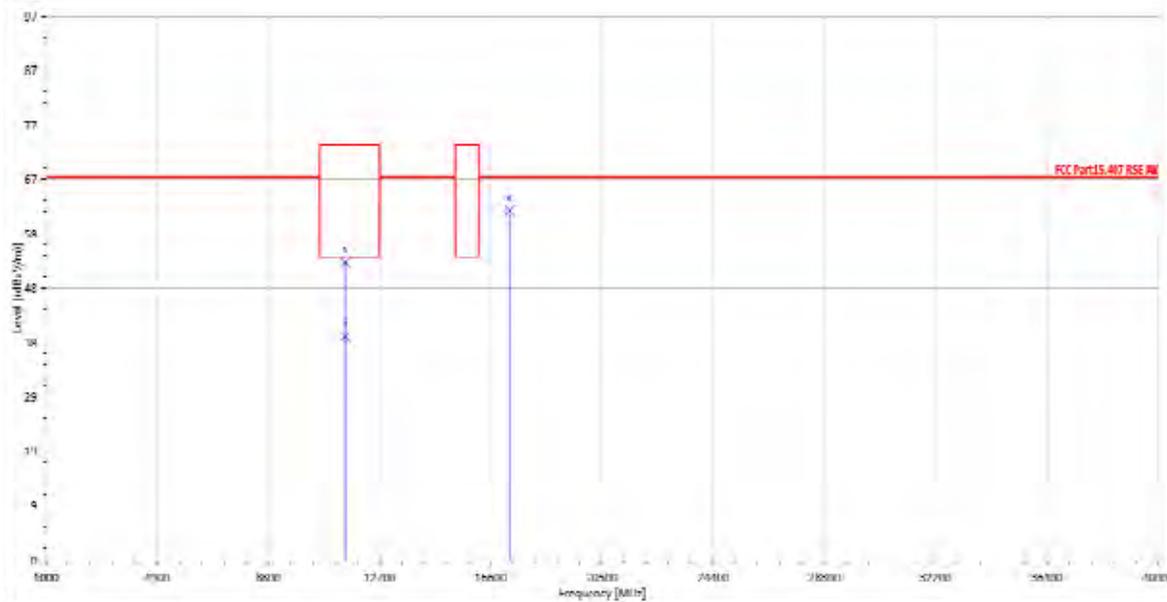
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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5755 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
11510.00	Peak	H	31.79	21.17	52.96	74.00	-21.04
11510.00	Average	H	18.59	21.17	39.76	54.00	-14.24
17265.00	Peak	H	34.41	27.82	62.24	68.30	-6.06

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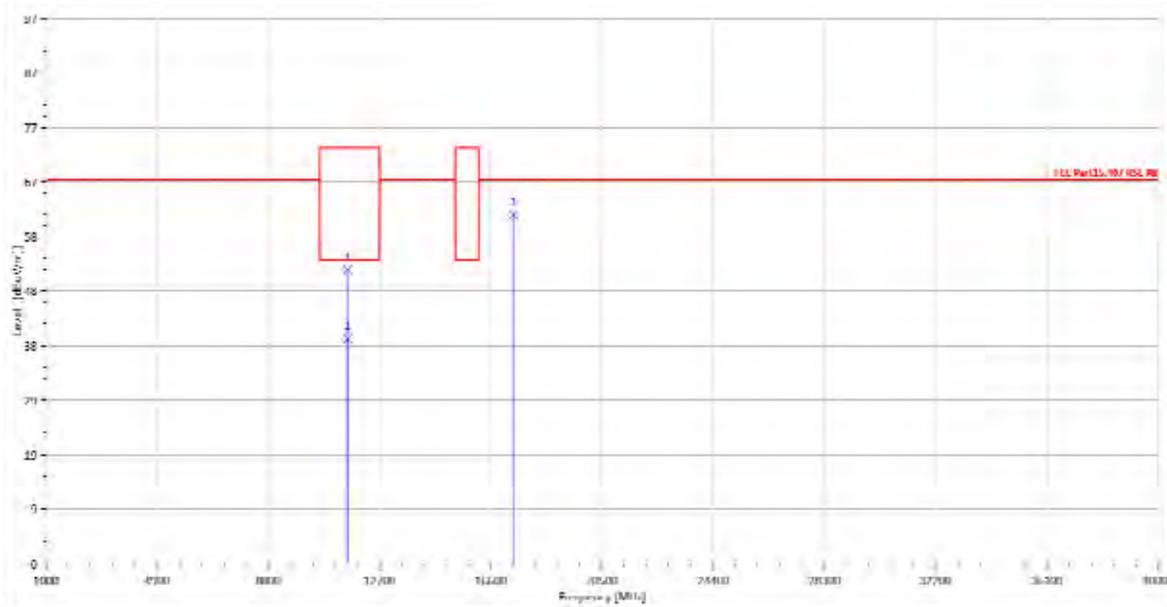
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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5795 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



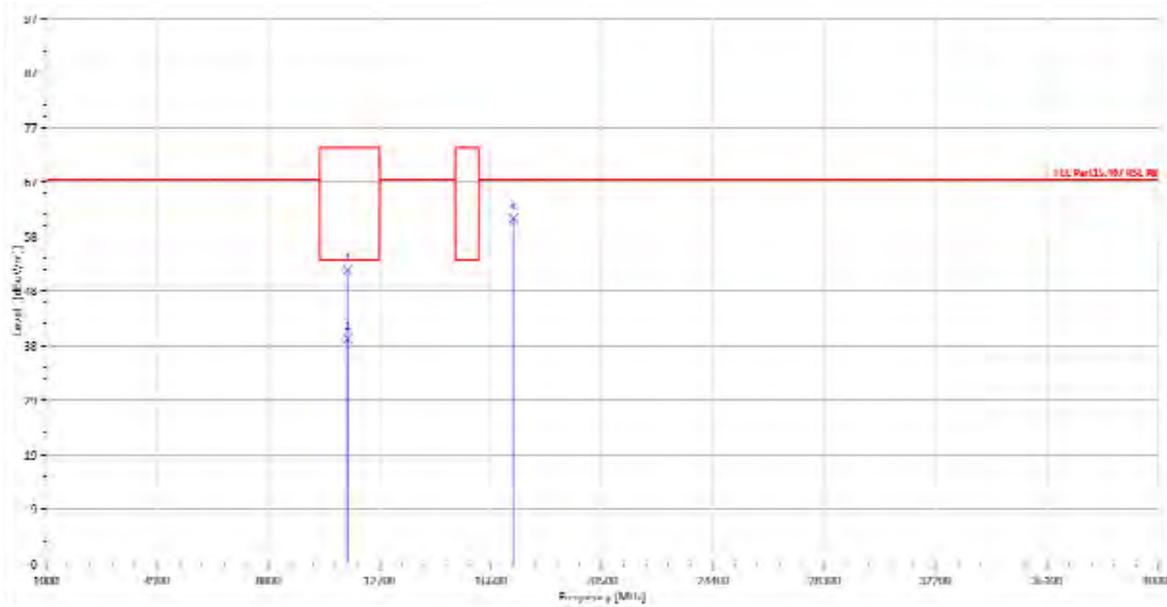
Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11590.00	Peak	H	31.00	21.28	52.28	74.00	-21.72
11590.00	Average	H	18.71	21.28	39.99	54.00	-14.01
17385.00	Peak	H	34.37	27.61	61.98	68.30	-6.32

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5795 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11590.00	Peak	H	30.95	21.28	52.22	74.00	-21.78
11590.00	Average	H	18.72	21.28	40.00	54.00	-14.00
17385.00	Peak	H	33.75	27.61	61.36	68.30	-6.94

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**Band edge falling to restricted band**

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5755 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	E	53.83	12.27	66.10	78.20	-12.10

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5755 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	E	52.74	12.27	65.01	78.20	-13.19

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Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5795 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5850.00	Peak	E	50.92	12.61	63.53	78.20	-14.67

Operation Band	:802.11 ac40M	Test Date	:2015-04-29
Fundamental Frequency	:5795 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge HIGH	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5850.00	Peak	E	51.25	12.61	63.86	78.20	-14.34

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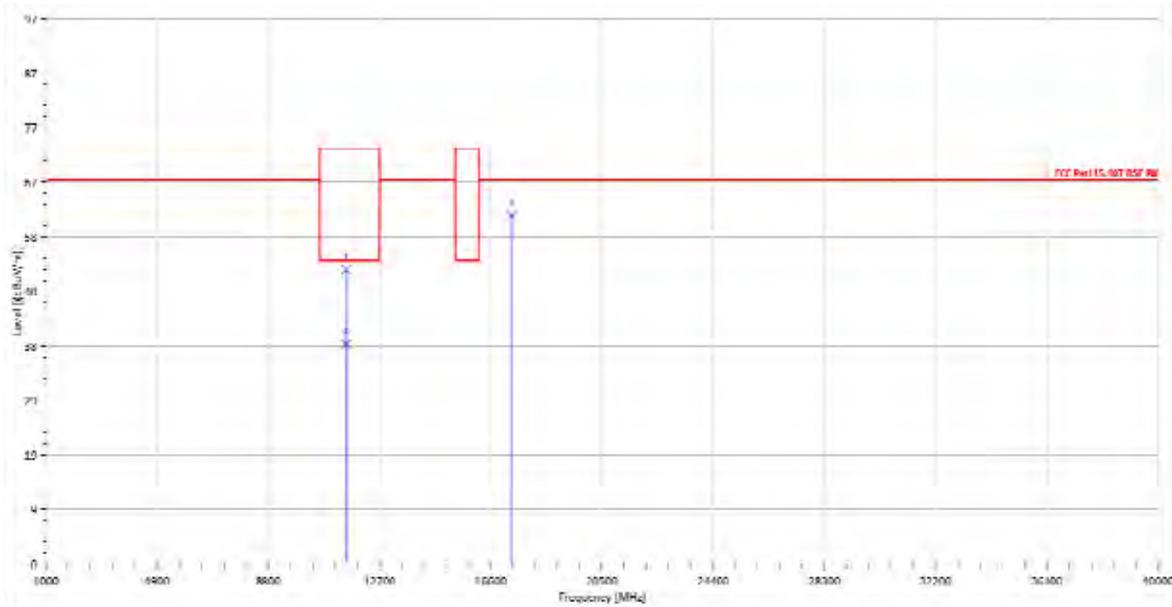
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**Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5725~5850 MHz**

Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5775 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11550.00	Peak	H	31.36	20.97	52.34	74.00	-21.66
11550.00	Average	H	18.21	20.97	39.18	54.00	-14.82
17325.00	Peak	H	34.03	28.00	62.03	68.30	-6.27

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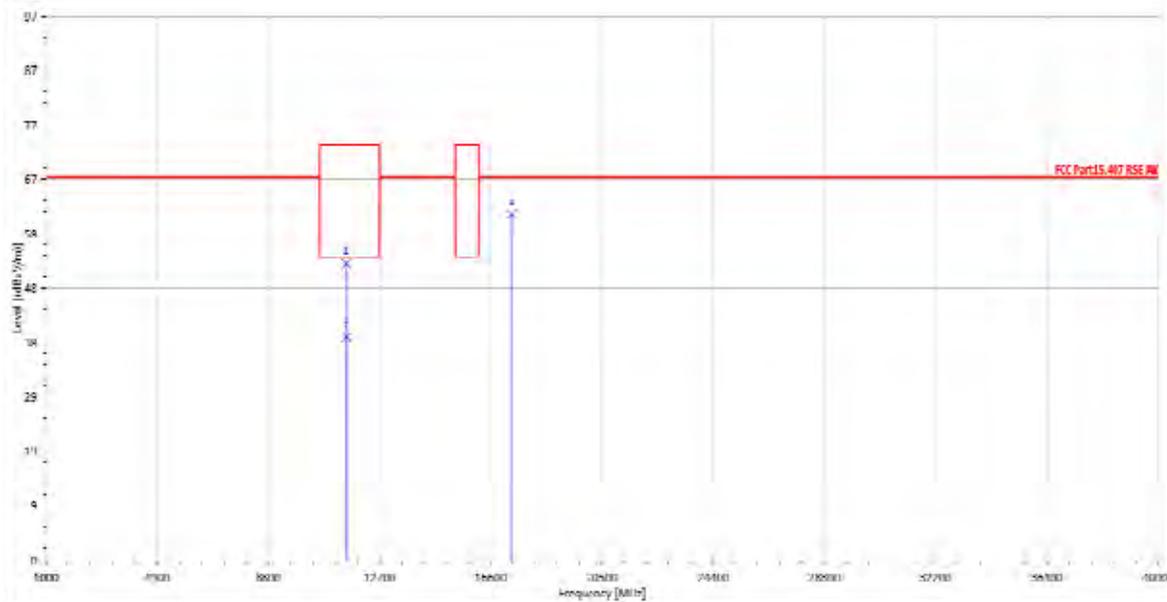
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Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5775 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Detector Mode	Note F/H/E/S	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
11550.00	Peak	H	31.82	20.97	52.80	74.00	-21.21
11550.00	Average	H	18.74	20.97	39.71	54.00	-14.29
17325.00	Peak	H	33.61	28.00	61.61	68.30	-6.69

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**Band edge falling to restricted band**

Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5775 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:VERTICAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5850.00	Peak	E	59.60	12.61	72.21	78.20	-5.99

Operation Band	:802.11 ac80M	Test Date	:2015-04-29
Fundamental Frequency	:5775 MHz	Temp./Humi.	:21.9deg_C / 69 RH
Operation Mode	:Band Edge LOW	Engineer	:Vito
EUT Pol.	:H Plane	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Detector Mode	Note	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	F/H/E/S	dBμV	dB	dBμV/m	dBμV/m	dB
5850.00	Peak	E	64.01	12.61	76.62	78.20	-1.58

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## 12. TRANSMISSION IN THE ABSENCE OF DATA

### 12.1 Standard Applicable

According to §15.407(c)

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

### 12.2 Result

No non-compliance noted:

Refer to the theory of operation.

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### 13. FREQUENCY STABILITY

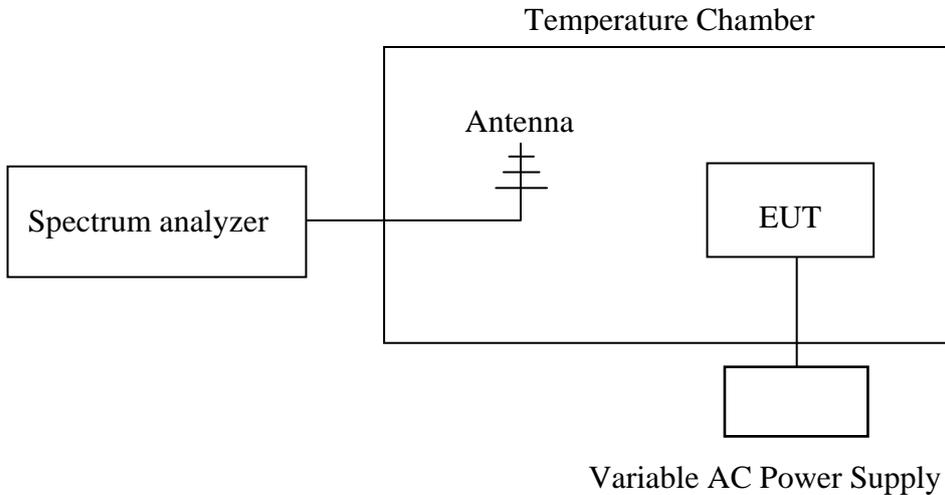
#### 13.1 Standard Applicable

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

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	N9010A	MY53400256	10/15/2014	10/14/2015
Temperature Chamber	TERCHY	MHK-120LK	1020582	06/18/2014	06/17/2015
DC Power Supply	Agilent	E3640A	MY53140006	05/31/2014	05/30/2015

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13.5 Measurement Result

Operation Mode	802.11 a	Test Date	2015.04.01
Temperature	:24	Test By	Wayne
Humidity	:62 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
5	4.35V	36	5180.0000	5,179.979320	0.0207
		44	5220.0000	5,219.978100	0.0219
		48	5240.0000	5,239.968020	0.0320
		52	5260.0000	5,259.977400	0.0226
		60	5300.0000	5,299.965100	0.0349
		64	5320.0000	5,319.980550	0.0194
		100	5500.0000	5,499.978900	0.0211
		116	5580.0000	5,579.968960	0.0310
		140	5700.0000	5,699.976970	0.0230
		144	5720.0000	5,719.975140	0.0249
		149	5745.0000	5,744.974790	0.0252
		157	5785.0000	5,784.977750	0.0222
		165	5825.0000	5,824.964720	0.0353
		3.3V	36	5180.0000	5,179.979680
	44		5220.0000	5,219.976800	0.0232
	48		5240.0000	5,239.968100	0.0319
	52		5260.0000	5,259.973500	0.0265
	60		5300.0000	5,299.964900	0.0351
	64		5320.0000	5,319.980320	0.0197
	100		5500.0000	5,499.978700	0.0213
	116		5580.0000	5,579.969160	0.0308
	140		5700.0000	5,699.977370	0.0226
	144		5720.0000	5,719.981240	0.0188
	149		5745.0000	5,744.955180	0.0448
	157		5785.0000	5,784.972580	0.0274
		165	5825.0000	5,824.964070	0.0359

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25	3.8V	36	5180.0000	5,179.977870	0.0221
		44	5220.0000	5,219.976690	0.0233
		48	5240.0000	5,239.977410	0.0226
		52	5260.0000	5,259.976110	0.0239
		60	5300.0000	5,299.977840	0.0222
		64	5320.0000	5,319.977390	0.0226
		100	5500.0000	5,499.976900	0.0231
		116	5580.0000	5,579.977950	0.0220
		140	5700.0000	5,699.975970	0.0240
		144	5720.0000	5,719.980540	0.0195
		149	5745.0000	5,744.976820	0.0232
		157	5785.0000	5,784.975530	0.0245
		165	5825.0000	5,824.977240	0.0228
		40	4.35V	36	5180.0000
44	5220.0000			5,219.978120	0.0219
48	5240.0000			5,239.974910	0.0251
52	5260.0000			5,259.971480	0.0285
60	5300.0000			5,299.973700	0.0263
64	5320.0000			5,319.976700	0.0233
100	5500.0000			5,499.975240	0.0248
116	5580.0000			5,579.972330	0.0277
140	5700.0000			5,699.974340	0.0257
144	5720.0000			5,719.979850	0.0202
149	5745.0000			5,744.973320	0.0267
157	5785.0000			5,784.971710	0.0283
165	5825.0000			5,824.970120	0.0299
3.3V	36			5180.0000	5,179.974230
	44		5220.0000	5,219.974000	0.0260
	48		5240.0000	5,239.979450	0.0206
	52		5260.0000	5,259.978280	0.0217
	60		5300.0000	5,299.979070	0.0209
	64		5320.0000	5,319.976500	0.0235
	100		5500.0000	5,499.975380	0.0246
	116		5580.0000	5,579.978910	0.0211
	140		5700.0000	5,699.974580	0.0254
	144		5720.0000	5,719.980150	0.0198
	149		5745.0000	5,744.978730	0.0213
	157		5785.0000	5,784.977670	0.0223
165	5825.0000		5,824.972790	0.0272	

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Operation Mode	802.11 ac_VHT40	Test Date	2015.04.01
Temperature	:24	Test By	Wayne
Humidity	:62 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
5	4.35V	38	5190.0000	5,189.979920	0.0201
		46	5230.0000	5,229.978470	0.0215
		54	5270.0000	5,269.987010	0.0130
		62	5310.0000	5,309.980740	0.0193
		102	5510.0000	5,509.979900	0.0201
		110	5550.0000	5,549.978750	0.0212
		134	5670.0000	5,669.976470	0.0235
		142	5710.0000	5,709.978450	0.0216
		151	5755.0000	5,754.974710	0.0253
	159	5795.0000	5,794.975250	0.0247	
	3.3V	38	5190.0000	5,189.989650	0.0103
		46	5230.0000	5,229.987260	0.0127
		54	5270.0000	5,269.986140	0.0139
		62	5310.0000	5,309.990430	0.0096
		102	5510.0000	5,509.987900	0.0121
		110	5550.0000	5,549.990140	0.0099
		134	5670.0000	5,669.987410	0.0126
		142	5710.0000	5,709.977120	0.0229
151		5755.0000	5,754.989780	0.0102	
159	5795.0000	5,794.982940	0.0171		
25	3.8V	38	5190.0000	5,189.979490	0.0205
		46	5230.0000	5,229.975140	0.0249
		54	5270.0000	5,269.974910	0.0251
		62	5310.0000	5,309.979020	0.0210
		102	5510.0000	5,509.978300	0.0217
		110	5550.0000	5,549.973140	0.0269
		134	5670.0000	5,669.977660	0.0223
		142	5710.0000	5,709.978340	0.0217
		151	5755.0000	5,754.971720	0.0283
		159	5795.0000	5,794.971540	0.0285

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40	4.35V	38	5190.0000	5,189.975120	0.0249
		46	5230.0000	5,229.976840	0.0232
		54	5270.0000	5,269.978810	0.0212
		62	5310.0000	5,309.978000	0.0220
		102	5510.0000	5,509.975120	0.0249
		110	5550.0000	5,549.974100	0.0259
		134	5670.0000	5,669.975340	0.0247
		142	5710.0000	5,709.978150	0.0219
		151	5755.0000	5,754.975260	0.0247
		159	5795.0000	5,794.975140	0.0249
	3.3V	38	5190.0000	5,189.978420	0.0216
		46	5230.0000	5,229.974790	0.0252
		54	5270.0000	5,269.973410	0.0266
		62	5310.0000	5,309.977510	0.0225
		102	5510.0000	5,509.977580	0.0224
		110	5550.0000	5,549.974950	0.0251
		134	5670.0000	5,669.973690	0.0263
		142	5710.0000	5,709.978210	0.0218
		151	5755.0000	5,754.972400	0.0276
		159	5795.0000	5,794.972210	0.0278

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Operation Mode	802.11 ac_VHT80	Test Date	2015.04.01
Temperature	:24	Test By	Wayne
Humidity	:62 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
5	4.35V	42	5210.0000	5,209.975790	0.0242
		58	5290.0000	5,289.975910	0.0241
		106	5530.0000	5,529.976280	0.0237
		122	5610.0000	5,609.975390	0.0246
		138	5690.0000	5,689.977270	0.0227
		155	5775.0000	5,774.970650	0.0293
	3.3V	42	5210.0000	5,209.975200	0.0248
		58	5290.0000	5,289.974500	0.0255
		106	5530.0000	5,529.976841	0.0232
		122	5610.0000	5,609.974180	0.0258
		138	5690.0000	5,689.979540	0.0205
		155	5775.0000	5,774.971770	0.0282
25	3.8V	42	5210.0000	5,209.978100	0.0219
		58	5290.0000	5,289.978040	0.0220
		106	5530.0000	5,529.978350	0.0216
		122	5610.0000	5,609.977510	0.0225
		138	5690.0000	5,689.972030	0.0280
		155	5775.0000	5,774.971520	0.0285
40	4.35V	42	5210.0000	5,209.980180	0.0198
		58	5290.0000	5,289.980470	0.0195
		106	5530.0000	5,529.980841	0.0192
		122	5610.0000	5,609.979510	0.0205
		138	5690.0000	5,689.980310	0.0197
		155	5775.0000	5,774.980240	0.0198
	3.3V	42	5210.0000	5,209.980510	0.0195
		58	5290.0000	5,289.980940	0.0191
		106	5530.0000	5,529.980895	0.0191
		122	5610.0000	5,609.979440	0.0206
		138	5690.0000	5,689.978970	0.0210
		155	5775.0000	5,774.979820	0.0202

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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

A PIFA antenna design is 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.

*~ End of Report ~*

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