

Report No.: ER/2015/80132 Issue Date: Oct. 16, 2015

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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E AND INDUSTRY CANADA RSS 247 REQUIREMENT

801.11 a/b/g/n/ac WLAN and BT 4.1 Combo **Product Name:**

Module

Foxconn Brand Name: WBUB15 Model No.:

Model Difference: N/A

FCC ID: YE5-WBUB15

IC: 4613B-WBUB15

Report No.: ER/2015/80132

Issue Date: Oct. 16, 2015

FCC Rule Part: §15.407

IC Rule Part RSS-247 issue 1 May 2015

HON HAI PRECISION INDUSSTRY CO.,

LTD.

Prepared for: No.2, Zihyou St., Tucheng City, New Taipei

> City 236, Taiwan SGS Taiwan Ltd.

Electronics & Communication Laboratory

Prepared by: No.134, Wu Kung Road, New Taipei Indus-

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VERIFICATION OF COMPLIANCE

Applicant: HON HAI PRECISION INDUSSTRY CO., LTD.

No.2, Zihyou St., Tucheng City, New Taipei City 236, Taiwan

Product Name: 801.11 a/b/g/n/ac WLAN and BT 4.1 Combo Module

Brand Name: Foxconn Model No.: WBUB15

Model Difference: N/A

FCC ID: YE5-WBUB15 IC: 4613B-WBUB15 File Number: ER/2015/80132

Date of test: Oct. 01, 2015 ~ Oct. 16, 2015

Date of EUT Received: Oct. 01, 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.

Test By:	(on Li	Date:	Oct. 16, 2015
-	Aken Huang / Engineer	_	
Prepared By:	Allen Tsai	Date:	Oct. 16, 2015
Approved By:	Allen Tsai / Engineer Lung Chang Jim Chang / Asst. Manager	Date:	Oct. 16, 2015

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Revision History

Report Number	Revision	Description	Issue Date
ER/2015/80132	Rev.00	Initial creation of document	Oct. 16, 2015

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GENERAL INFORMATION

1.1 Product Description

General:

general.			
Product Name:	801.11 a/b/g/n/ac WLAN and BT 4.1 Combo Module		
Brand Name:	Foxconn		
Marketing Name:	N/A		
Model No.:	WBUB15		
Model Difference:	N/A		
Product SW/HW version:	7.35.143.36 / DVT		
Radio SW/HW version:	7.35.143.36 / DVT		
Test SW Version:	N/A		
RF power setting in TEST SW:	N/A		
Power Supply:	3.3Vdc form DC power supply.		

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WLAN 5GHz:

WLAN 3GHZ.					
Wi-Fi	Frequency Range	Channels	Rated Power (Avg.) / (EIRP)	Modulation Technology	
	5150~5250	4	14.47 dBm (Avg.) / 19.08 dBm (EIRP)		
11a	5250~5350	4	14.48 dBm	OFDM	
ΙΙα	5470~5725	12	14.47 dBm	OI DIVI	
	5725-5850	5	14.45 dBm		
	HT20 / VHT20 5150~5250	4	HT: 17.44 dBm (Avg.) / 24.84 dBm (EIRP) (Worst Case)		
11n /	HT20 / VHT20 5250~5350	4	HT: 17.49 dBm (Worst Case)	OFDM	
ac_20M	HT20 / VHT20 5470~5725	12	HT: 17.40 dBm (Worst Case)		
	HT20 / VHT20 5725-5850	5	HT: 17.30 dBm (Worst Case)		
	HT40 / VHT40 5150~5250	2	HT: 17.49 dBm (Avg.) / 25.11 dBm (EIRP) (Worst Case)		
11n /	HT40 / VHT40 5250~5350	2	HT: 17.49 dBm (Worst Case)	OFDM	
ac_40M	HT40 / VHT40 5470~5725	6	HT: 17.44 dBm (Worst Case)		
	HT40 / VHT40 5725-5850	2	HT: 17.16 dBm (Worst Case)		
	VHT80 5150~5250	1	15.60 dBm (Avg.) / 23.22 dBm (EIRP)		
11ac_80M	VHT80 5250~5350	1	15.48 dBm	OFDM	
1140_00W	VHT80 5470~5725	3	11.41 dBm	OI DIVI	
	VHT80 5725-5850	1	13.00 dBm		

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Antenna Designation	PIFA Antenna Main: Part No.: N/A, Supplier: N/A 5GHz Gain: 4.61dBi (5150MHz-5250MHz) 5GHz Gain: 4.61dBi (5250MHz-5350MHz) 5GHz Gain: 4.36dBi (5470MHz-5725MHz) 5GHz Gain: 3.42dBi (5725MHz-5850MHz) Aux: Part No.: N/A, Supplier: N/A 5GHz Gain: 3.03dBi (5150MHz-5250MHz) 5GHz Gain: 3.03dBi (5250MHz-5350MHz) 5GHz Gain: 4.45dBi (5470MHz-5725MHz)
Modulation type	5GHz Gain: 3.20dBi (5725MHz-5850MHz) 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only
Transition Rate:	802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 - 144.4Mbps 802.11 n_40MHz: 13.5 - 300Mbps 802.11 ac_20MHz: 6.5 -144.4Mbps 802.11 ac_40MHz: 13.5 -300Mbps 802.11 ac_80MHz: 29.3 - 650Mbps

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1.2 Product Feature of Equipment Under Test

The equipment under Test (Hereafter Called: EUT) is 801.11 a/b/g/n/ac WLAN and BT 4.1 Combo Module, Wi-Fi 802,11abon & ac with Bluetooth features, and below is details of information

Product Feature		
Product Name:	801.11 a/b/g/n/ac WLAN and BT 4.1 Combo Module	
Brand Name:	Foxconn	
Marketing Name:	N/A	
Model No.:	WBUB15	
Model Difference:	N/A	
FCC ID:	YE5-WBUB15	
IC:	4613B-WBUB15	
Wi-Fi Specification	802.11a/b/g/n/ac	
Bluetooth Version	V4.0 dual mode	

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 662911 D01 Multiple Transmitter Output

FCC KDB 644545 D03 Guidance for IEEE 802.11ac v01

RSS-247 issue 1 May 2015

RSS-Gen issue4 Nov. 2014

ANSI C63.10:2013

Note:

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

1.4 Test Facility

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

FCC Registration Numbers are: 990257

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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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 §15.207. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Radiated Emissions

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

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2.4 Measurement Results Explanation Example For all conducted test items:

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

The spectrum analyzer offset is derived from RF cable loss and attenuator factor. Following shows an offset computation example with cable loss 1.8dB, and 10dB attenuator.

SISO mode offset

= RF cable loss (dB)+ attenuation factor(dB)=11.8(dB)

MIMO mode offset

= RF cable loss (dB)+ attenuation factor(dB)+ 10 log(Nant) dB =14.9(dB)

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2.5 Configuration of Tested System

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

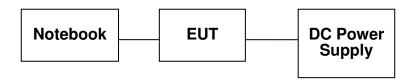


Table 2-1 Equipment Used in Tested System

Ite m	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	N/A	Un-shield
3.	Notebook	Lenovo	L412	LR-957X7	shield	Un-shield

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SUMMARY OF TEST RESULT

FCC Rules	IC Rules	Description Of Test	Result
§15.207	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	RSS-247 §6.2.1~ 4 (1) RSS-Gen §6.6	26 dB & 6dB & 99% Emission Bandwidth	Compliant
§15.407(a)	RSS-247 §6.2.1~ 4 (1)	Maximum Conducted Output Power	Compliant
§15.407(a)	RSS-247 §6.2.1~ 4 (1)	Power Spectral Density	Compliant
§15.407(b)	RSS-247 §6.2.1~ 4 (2)	Undesirable Radiated Emissions	Compliant
§15.407(c)	RSS-247 §6.4	Transmission in case of Absence of Information	Compliant
§15.407(g)	RSS-Gen §6.11	Frequency Stability	Compliant
§15.203 §15.407(a)	RSS- Gen §6.7 RSS- Gen §8.3	Antenna Requirement	Compliant

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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

<u> </u>					
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

provided for 662:114; 662:1111_11126; 662:1146_111126					
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	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac_VHT80

1				
	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

_		,	-, <u></u>	_
	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

ao o o	
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:

TIABIATES E	RADIATED EINISSION TEST.						
RADIATED EMISSION TEST (BELOW 1 GHz)							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT	
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	MAIN	
802.11ac_VHT80	5210	42	42	OFDM	MCS8	MIMO	
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MAIN	
802.11ac_VHT80	5290	58	58	OFDM	MCS8	MIMO	
802.11a	5500~5720	100 to 140	100,116,140	OFDM	6	MAIN	
802.11ac_VHT80	5530~5690	106 to 138	106,122,138	OFDM	MCS8	MIMO	
802.11a	5745~5825	149 to 165	149,157,165	OFDM	6	MAIN	
802.11ac_VHT80	5775	155	155	OFDM	MCS8	MIMO	
	RADI	ATED EMISS	SION TEST (A	BOVE 1 GHz)			
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT	
802.11a	F100 F040	00 += 40	00 44 40	OFDM	6	MAIN	
802.11n_HT20	5180~5240	36 to 48	36,44,48	OFDM	MCS8	MIMO	
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO	
802.11ac_VHT80	5210	42	42	OFDM	MCS8	MIMO	
802.11a	E000 - E000	52 to 64	E0 60 64	OFDM	6	MAIN	
802.11n_HT20	5260~5320	52 (0 64	52,60,64	OFDM	MCS8	MIMO	
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO	
802.11ac_VHT80	5290	58	58	OFDM	MCS8	MIMO	

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MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5500~5720	100 to 144	100 116 140	OFDM	6	MAIN
802.11n_HT20	5500~5720	100 (0 144	100,116,140	OFDM	MCS8	MIMO
802.11n_HT40	5510~5710	102 to 142	102,110,134	OFDM	MCS8	MIMO
802.11ac_VHT80	5530~5690	106 to 138	106,122,138	OFDM	MCS8	MIMO
802.11a	5745~5825	149 to 165	149,157,165	OFDM	6	MAIN
802.11n_HT20	3743~3623	149 (0 165	149,137,163	OFDM	MCS8	MIMO
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS8	MIMO
802.11ac_VHT80	5775	155	155	OFDM	MCS8	MIMO

Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n/ac WLAN Transmitter for channel Low, Mid and High, the worst case E2 position was reported.

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ANTENNA PORT CONDUCTED MEASUREMENT:

	CONDUCTED TEST					
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a				OFDM	6	MAIN
802.11ac_HT20 802.11ac_VHT20	5180~5240	36 to 48	36,44,48	OFDM	MCS8	MIMO
802.11ac_HT40 802.11ac_VHT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO
802.11ac_VHT80	5210	42	42	OFDM	MCS8	MIMO
802.11a				OFDM	6	MAIN
802.11ac_HT20 802.11ac_VHT20	5260~5320	52 to 64	52,60,64	OFDM	MCS8	MIMO
802.11ac_HT40 802.11ac_VHT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO
802.11ac_VHT80	5290	58	58	OFDM	MCS8	MIMO
802.11a				OFDM	6	MAIN
802.11ac_HT20 802.11ac_VHT20	5500~5720	100 to 144	100,116,140,144	OFDM	MCS8	MIMO
802.11ac_HT40 802.11ac_VHT40	5510~5710	102 to 142	102,110,134,142	OFDM	MCS8	MIMO
802.11ac_VHT80	5530~5690	106 to 138	106,122,138	OFDM	MCS8	MIMO
802.11a				OFDM	6	MAIN
802.11ac_HT20 802.11ac_VHT20	5745~5825	149 to 165	149,157,165	OFDM	MCS8	MIMO
802.11ac_HT40 802.11ac_VHT40	5755~5795	151 to 159	151,159	OFDM	MCS8	MIMO
802.11ac_VHT80	5775	155	155	OFDM	MCS8	MIMO

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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:

	30MHz - 180MHz: +/- 3.37dB	
Measurement uncertainty	180MHz -417MHz: +/- 3.19dB	
(Polarization : Vertical)	0.417GHz-1GHz: +/- 3.19dB	
	1GHz - 18GHz: +/- 4.04dB	
	18GHz - 40GHz: +/- 4.04dB	

	30MHz - 167MHz: +/- 4.22dB	
Measurement uncertainty	167MHz -500MHz: +/- 3.44dB	
(Polarization : Horizontal)	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	Limits dB(uV)		
MHz	Quasi-peak	Average	
0.15 to 0.50	66 to 56	56 to 46	
0.50 to 5	56	46	
5 to 30	60	50	

Note

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

6.2. Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
EMI Test Receiver	R&S	ESCI7	100760	05/04/2015	05/03/2016
LISN	SCHWARZ BECK	NSLK 8127	8127-649	05/15/2015	05/14/2016
LISN	FCC	FCC-LISN-50/250- 25-2-01	04034	03/13/2015	03/12/2016
Coaxial Cables	N/A	WK CE Cable	N/A	11/26/2014	11/25/2015

6.3. EUT Setup

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

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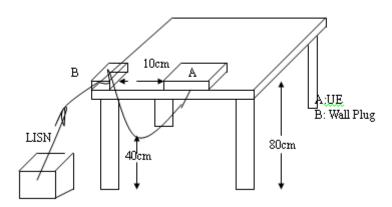
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6.4. Test SET-UP



6.5. Measurement Procedure

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

6.6. Measurement Result

N/A, This device is powered from power supply.

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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:

Duty Cycle = Ton / (Ton+Toff)

Measurement Procedure:

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

Duty Cycle:

	Duty Cycle (%)	Duty Factor (dB)
802.11a	95.10	0.22
802.11n_20	95.20	0.21
802.11ac_20	98.50	0.07
802.11n_40	90.40	0.44
802.11ac_40	96.90	0.14
802.11ac_80	94.00	0.27

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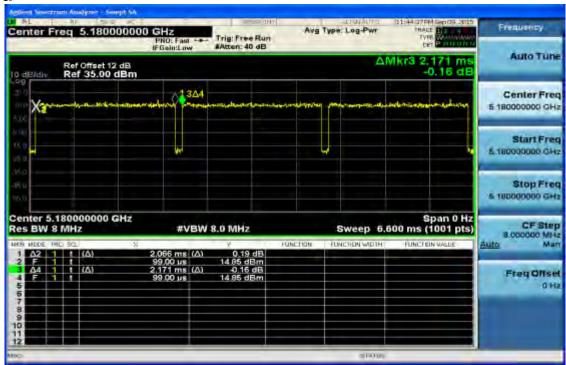
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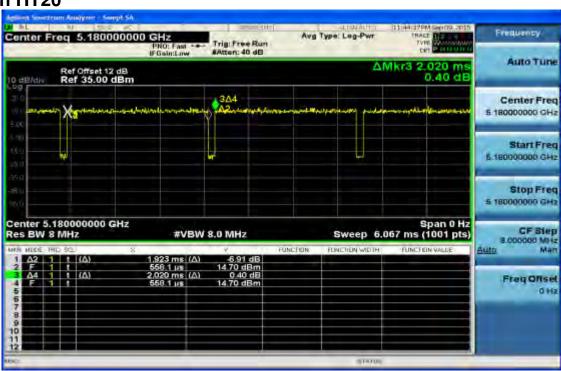
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DUTY CYCLE TEST SIGNAL Measurement Result 802.11a



802.11n HT20



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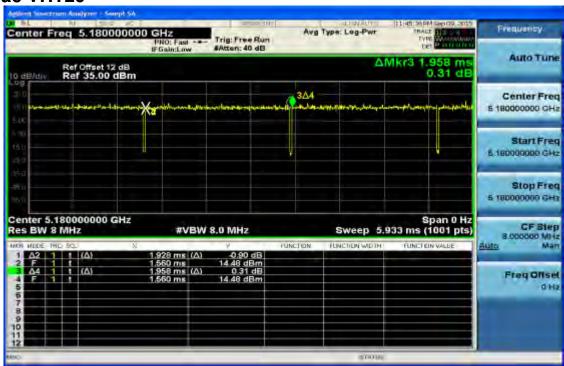
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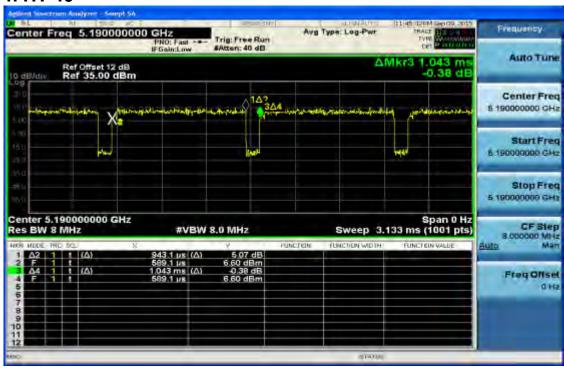
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802.11ac VHT20



802.11 n HT 40



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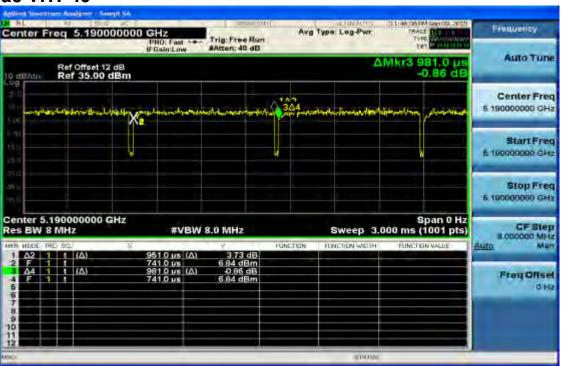
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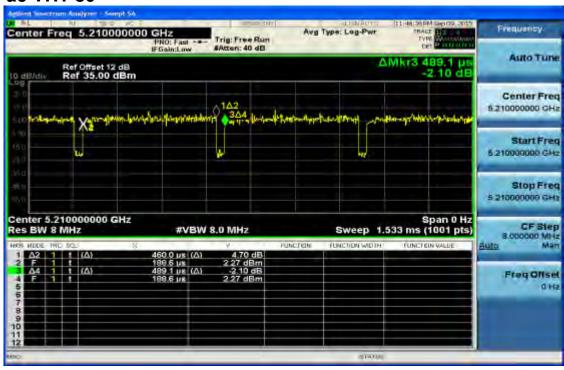
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802.11 ac VHT 40



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.

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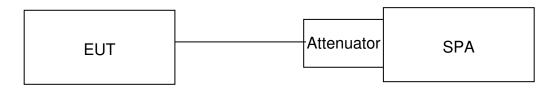
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8.3 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/02/2015	01/01/2016
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2015	01/01/2016
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2015	01/01/2016

8.4 Test Set-up



8.5 Measurement Result 26dB Bandwidth

802.11a Main

002.11a_Wall1				
Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)		
5180	21.58	13.341		
5220	21.36	13.296		
5240	21.36	13.296		
5260	21.74	13.373		
5300	21.60	13.345		
5320	21.59	13.343		
5500	21.42	13.308		
5580	21.53	13.330		
5700	21.73	13.371		

802.11a Aux

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5180	21.48	13.320
5220	21.34	13.292
5240	21.56	13.336
5260	21.40	13.304
5300	21.44	13.312
5320	21.56	13.336
5500	21.54	13.332
5580	21.43	13.310
5700	21.55	13.334

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802.11n HT20 Main

002.1111_11120_Wall1				
Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)		
5180	21.46	13.316		
5220	21.49	13.322		
5240	21.61	13.347		
5260	21.45	13.314		
5300	21.47	13.318		
5320	21.70	13.365		
5500	21.83	13.391		
5580	21.47	13.318		
5700	21.86	13.397		

802.11n HT20 Aux

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5180	21.55	13.334
5220	21.90	13.404
5240	21.63	13.351
5260	21.46	13.316
5300	21.82	13.389
5320	21.74	13.373
5500	21.83	13.391
5580	21.77	13.379
5700	21.91	13.406

802.11n HT40 Main

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5190	39.93	16.013
5230	40.46	16.070
5270	39.98	16.018
5310	40.21	16.043
5510	40.41	16.065
5550	40.05	16.026
5670	40.69	16.095

802.11n HT40 Aux

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5190	40.55	16.080
5230	39.96	16.016
5270	40.38	16.062
5310	40.73	16.099
5510	40.29	16.052
5550	40.12	16.034
5670	40.73	16.099

802.11ac VHT80 Main

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5210	80.93	19.081
5290	80.62	19.064
5530	80.69	19.068

802.11ac VHT80 Aux

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5210	85.62	19.326
5290	85.41	19.315
5530	80.22	19.043

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99% Bandwidth

802.11a Main

802.11a Aux

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5180	16.491	12.172
5220	16.632	12.209
5240	16.616	12.205
5260	16.523	12.181
5300	16.483	12.170
5320	16.525	12.181
5500	16.549	12.188
5580	16.485	12.171
5700	16.609	12.203

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5180	16.394	12.147
5220	16.646	12.213
5240	16.576	12.195
5260	16.588	12.198
5300	16.538	12.185
5320	16.555	12.189
5500	16.538	12.185
5580	16.562	12.191
5700	16.568	12.193

802.11n HT20 Main

802.11n_HT20_Aux

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5180	17.673	12.473
5220	17.833	12.512
5240	17.752	12.492
5260	17.835	12.513
5300	17.577	12.449
5320	17.822	12.510
5500	17.817	12.508
5580	17.760	12.494
5700	17.750	12.492

	<u> </u>	
Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5180	17.835	12.513
5220	17.801	12.504
5240	17.814	12.508
5260	17.824	12.510
5300	17.646	12.466
5320	17.783	12.500
5500	17.797	12.503
5580	17.819	12.509
5700	17.988	12.550

802.11n HT40 Main

802.11n HT40 Aux

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5190	35.720	15.529
5230	36.233	15.591
5270	36.302	15.599
5310	36.310	15.600
5510	36.343	15.604
5550	36.270	15.595
5670	36.325	15.602

Frequency	99% Bandwidth	10 Log (B)
(MHz)	(MHz)	(dB)
5190	36.344	15.604
5230	36.251	15.593
5270	36.206	15.588
5310	36.341	15.604
5510	36.408	15.612
5550	36.221	15.590
5670	36.385	15.609

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802.11ac VHT80 Main

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5210	75.266	18.766
5290	75.562	18.783
5530	75.779	18.795

802.11ac _VHT80_Aux

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5210	74.890	18.744
5290	74.841	18.741
5530	75.163	18.760

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

802.11a Main

6dB Bandwidth 10 Log (B) Frequency (MHz) (MHz) (dB) 5745 16.37 12.140 5785 16.37 12.140 5825 16.36 12.138

802.11a Aux

<u> </u>		
Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	16.38	12.143
5785	16.38	12.143
5825	16.35	12.135

802.11n HT20 Main

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	17.61	12.458
5785	17.57	12.448
5825	17.59	12.453

802.11n HT20 Aux

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	17.61	12.458
5785	17.61	12.458
5825	17.56	12.445

802.11n HT40 Main

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5755	36.00	15.563
5795	36.34	15.604

802.11n_HT40_Aux

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5755	36.08	15.573
5795	36.04	15.568

802.11ac VHT80 Main

Frequency	6dB Bandwidth	10 Log (B)
(MHz)	(MHz)	(dB)
5775	76.02	18.809

802.11ac VHT80 Aux

Frequency	6dB Bandwidth	10 Log (B)
(MHz)	(MHz)	(dB)
5775	75.94	18.805

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6dB Bandwidth (5725 MHz~ 5850 MHz) measure with Average detector for IC

802.11a Main

6dB Bandwidth 10 Log (B) Frequency (MHz) (MHz) (dB) 5745 16.37 12.140 5785 16.37 12.140 5825 16.36 12.138

802.11a Aux

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	16.38	12.143
5785	16.38	12.143
5825	16.35	12.135

802.11n HT20 Main

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	17.61	12.458
5785	17.57	12.448
5825	17.59	12.453

802.11n HT20 Aux

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	17.61	12.458
5785	17.61	12.458
5825	17.56	12.445

802.11n HT40 Main

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5755	36.00	15.563
5795	36.34	15.604

802.11n_HT40_Aux

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5755	36.08	15.573
5795	36.04	15.568

802.11ac VHT80 Main

Frequency	6dB Bandwidth	10 Log (B)
(MHz)	(MHz)	(dB)
5775	76.02	18.809

802.11ac VHT80 Aux

Frequency	6dB Bandwidth	10 Log (B)
(MHz)	(MHz)	(dB)
5775	75.94	18.805

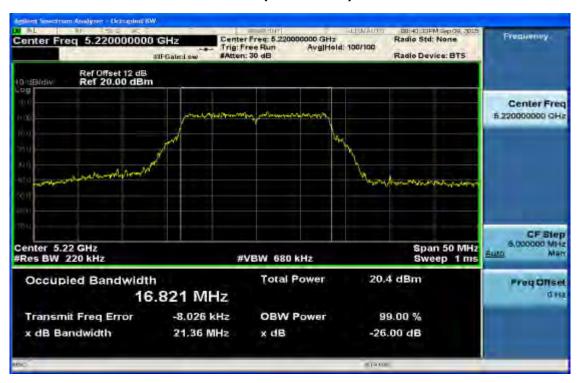
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26dB Band Width Test Data CH-Mid (5220MHz)



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



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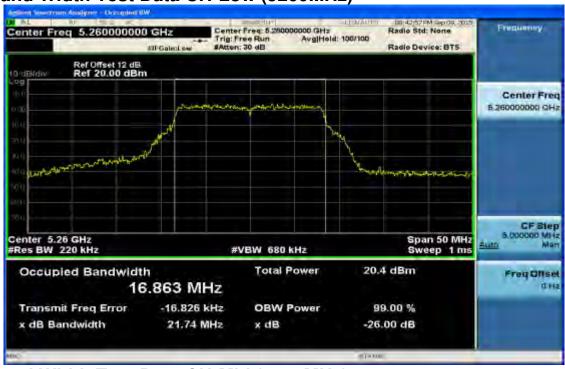
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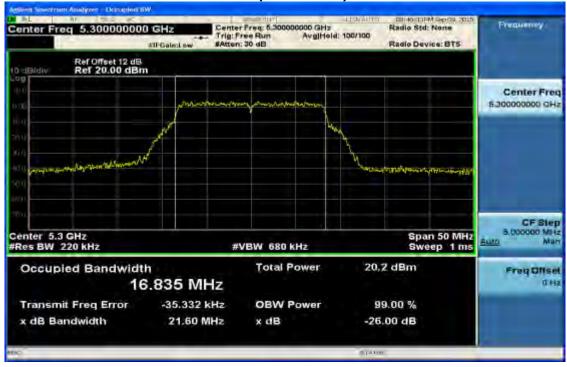
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802.11a, 5250~5350 MHz (Main) 26dB Band Width Test Data CH-Low (5260MHz)



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



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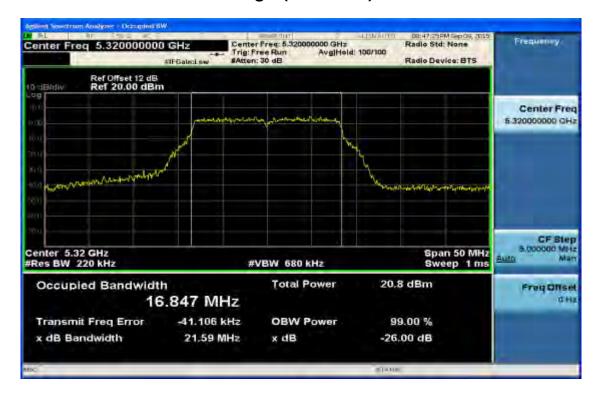
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26dB Band Width Test Data CH-High (5320MHz)



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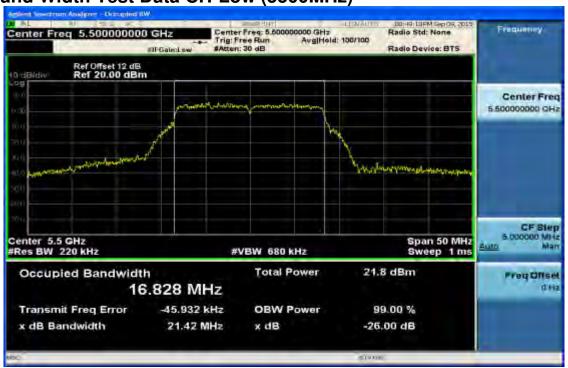
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802.11a, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5500MHz)



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



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



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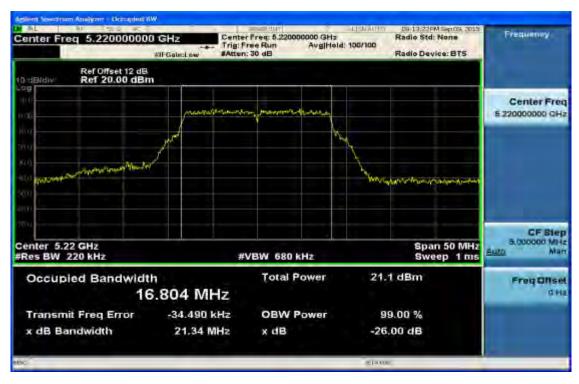
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802.11a, 5150~5250 MHz (Aux) 26dB Band Width Test Data CH-Low (5180MHz)



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



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



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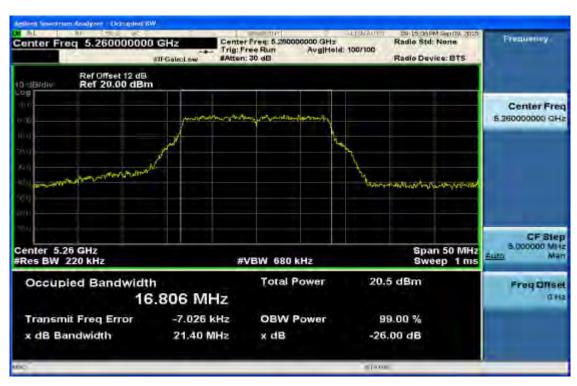
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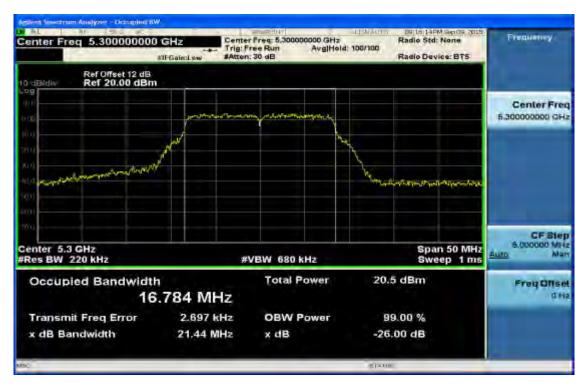
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802.11a, 5250~5350 MHz (Aux) 26dB Band Width Test Data CH-Low (5260MHz)



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



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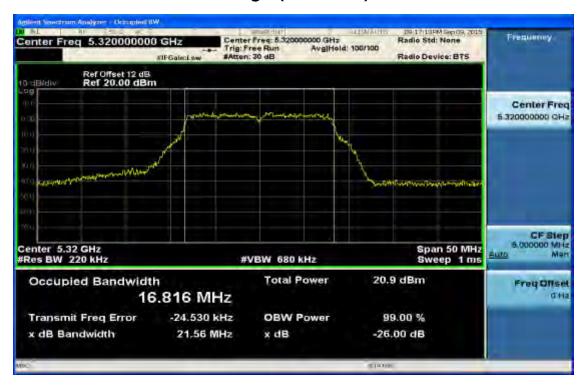
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26dB Band Width Test Data CH-High (5320MHz)



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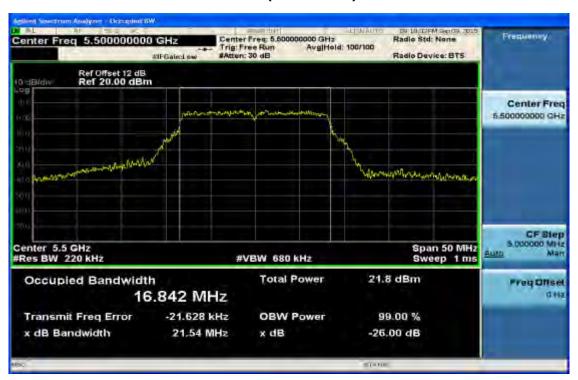
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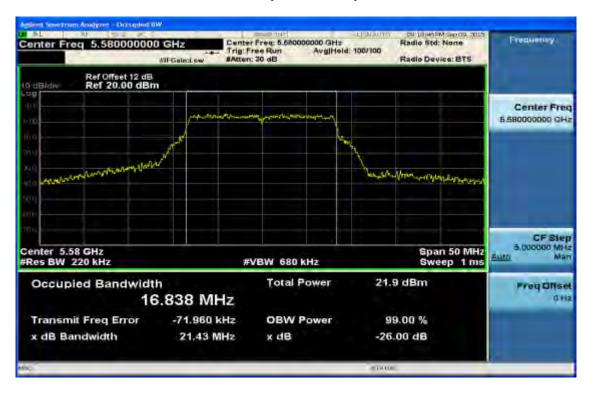
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802.11a, 5470~5725 MHz (Aux) 26dB Band Width Test Data CH-Low (5500MHz)



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



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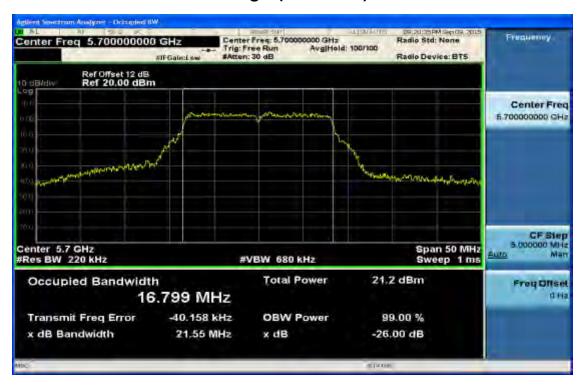
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26dB Band Width Test Data CH-High (5700MHz)



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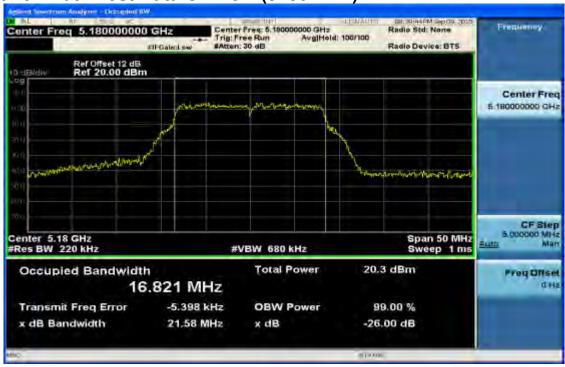
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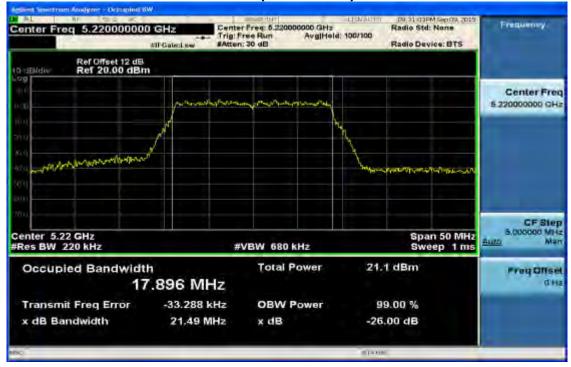
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802.11n HT20, 5150~5250 MHz (Main) 26dB Band Width Test Data CH-Low (5180 MHz)



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



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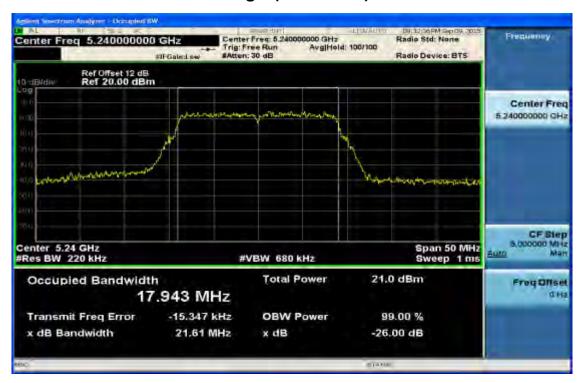
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26dB Band Width Test Data CH-High (5240 MHz)



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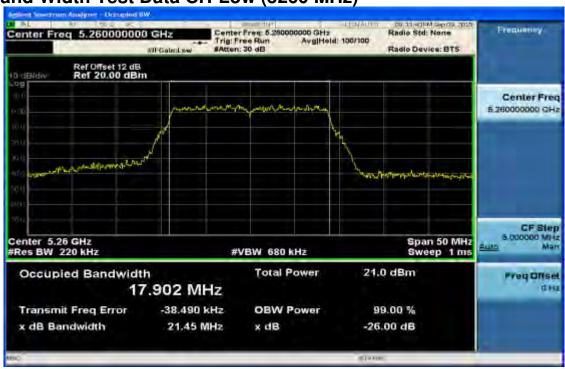
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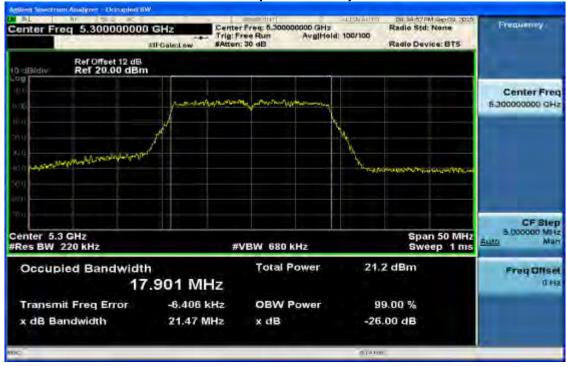
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802.11n HT20, 5250~5350 MHz (Main) 26dB Band Width Test Data CH-Low (5260 MHz)



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



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



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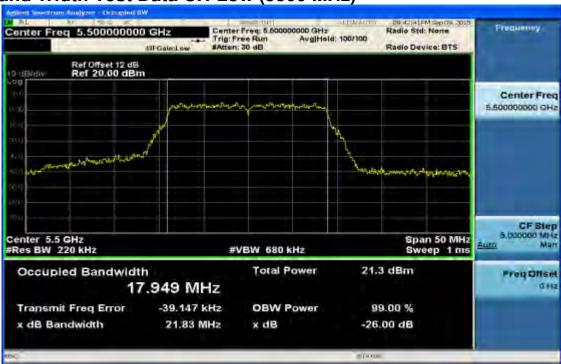
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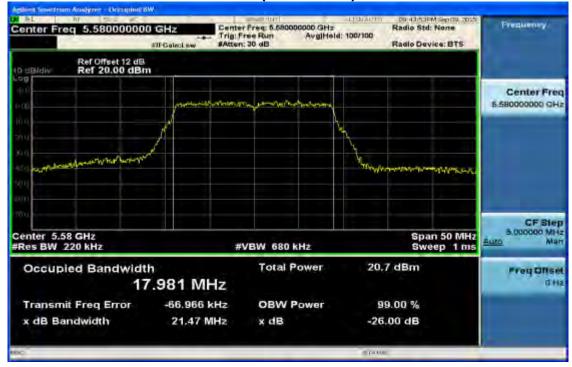
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802.11n HT20, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5500 MHz)



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



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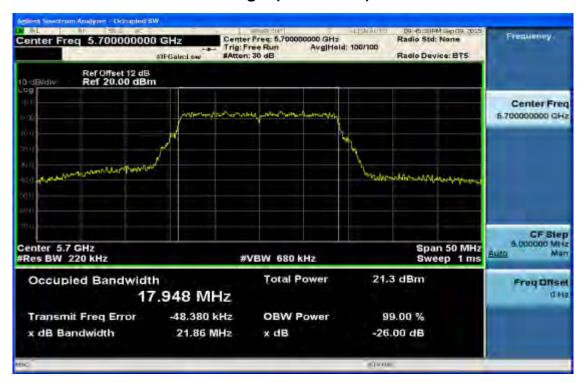
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26dB Band Width Test Data CH-High (5700 MHz)



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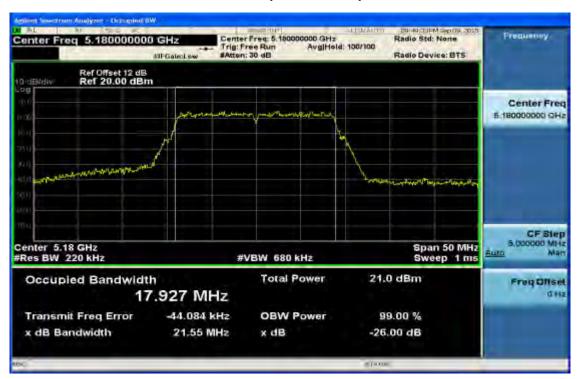
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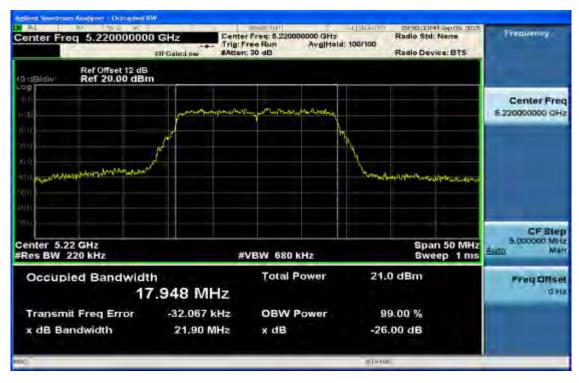
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802.11n HT20, 5150~5250 MHz (Aux) 26dB Band Width Test Data CH-Low (5180 MHz)



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



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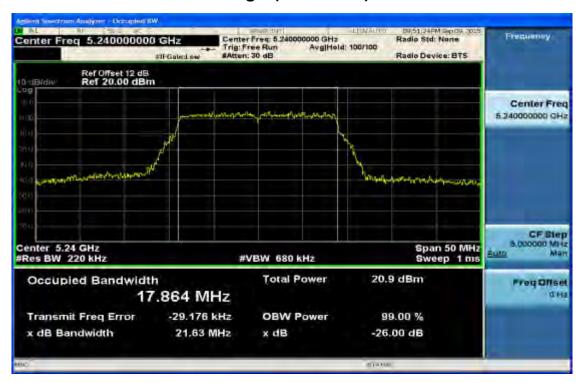
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26dB Band Width Test Data CH-High (5240 MHz)



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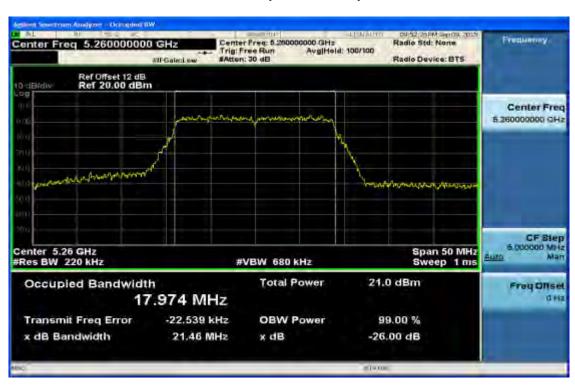
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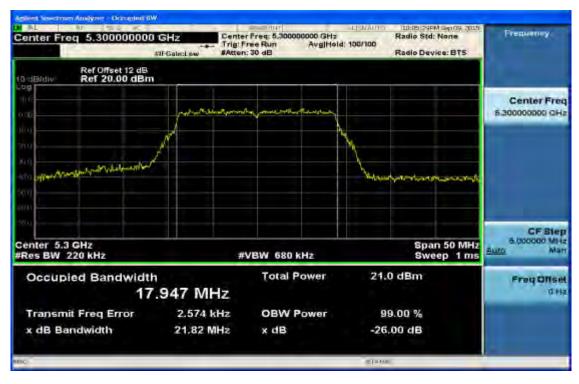
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802.11n HT20, 5250~5350 MHz (Aux) 26dB Band Width Test Data CH-Low (5260 MHz)



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



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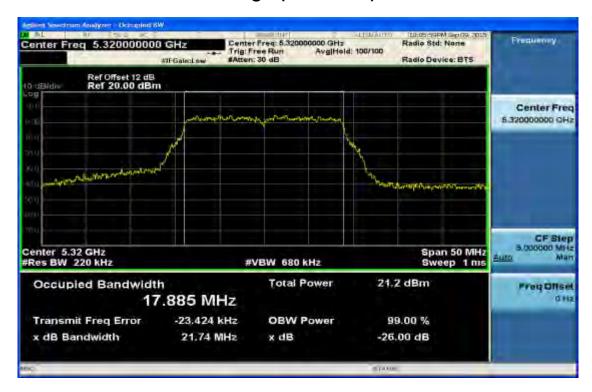
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26dB Band Width Test Data CH-High (5320 MHz)



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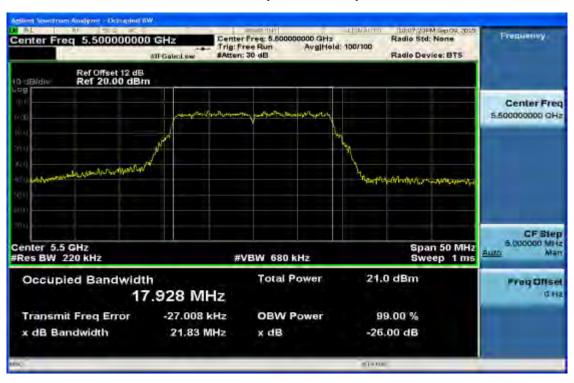
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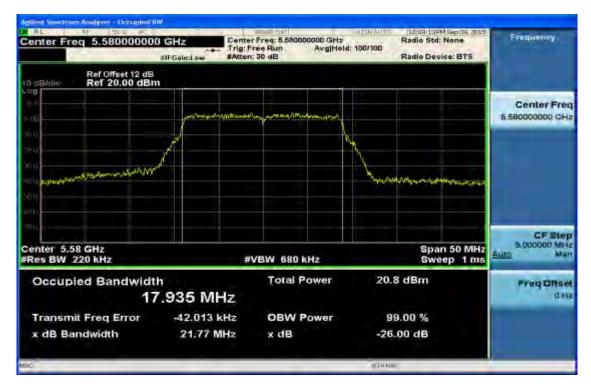
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802.11n HT20, 5470~5725 MHz (Aux) 26dB Band Width Test Data CH-Low (5500 MHz)



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



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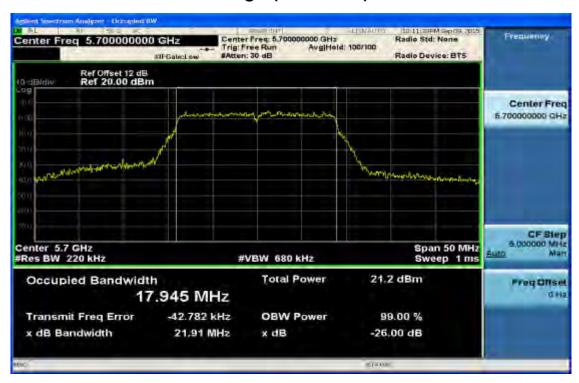
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26dB Band Width Test Data CH-High (5700 MHz)



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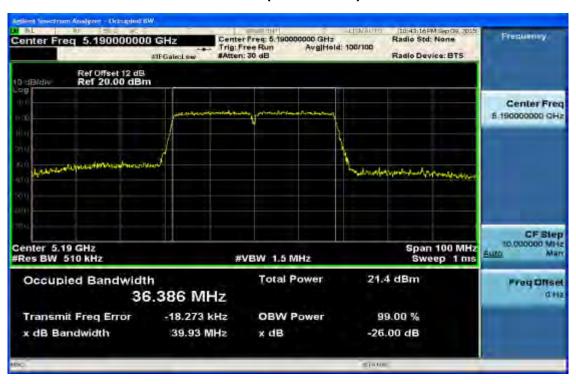
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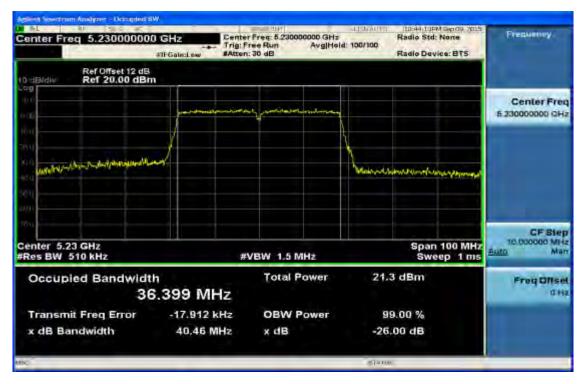
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802.11n HT40, 5150~5250 MHz (Main) 26dB Band Width Test Data CH-Low (5190 MHz)



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



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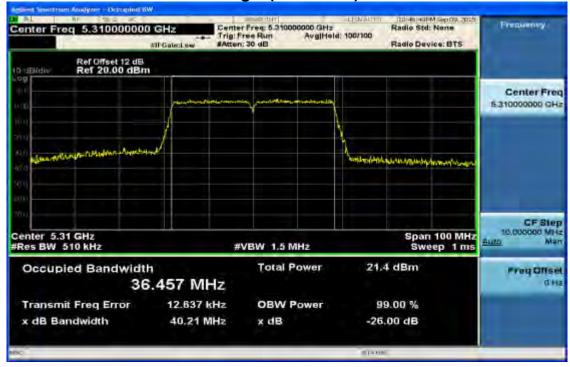
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802.11n HT40, 5250~5350 MHz (Main) 26dB Band Width Test Data CH-Low (5270 MHz)



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



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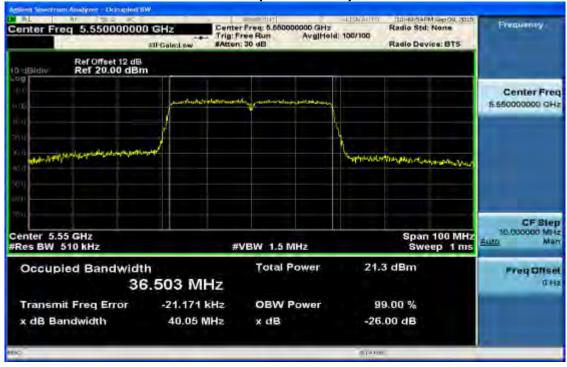
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802.11n HT40, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5510 MHz)



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



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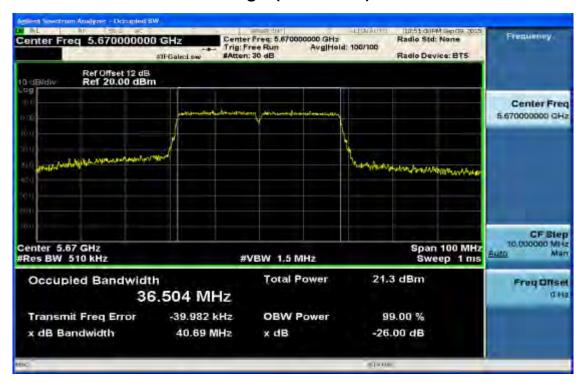
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26dB Band Width Test Data CH-High (5670 MHz)



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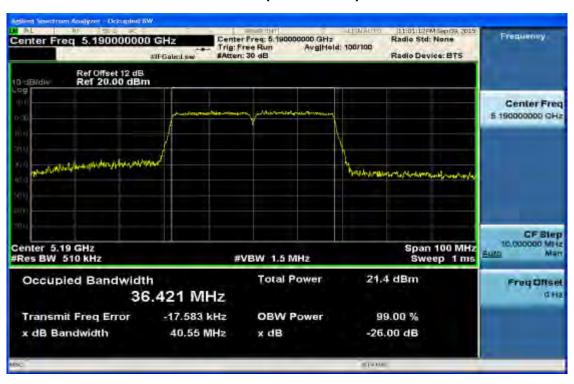
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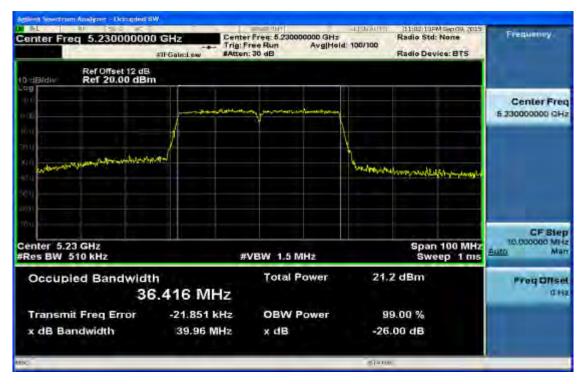
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802.11n HT40, 5150~5250 MHz (Aux) 26dB Band Width Test Data CH-Low (5190 MHz)



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



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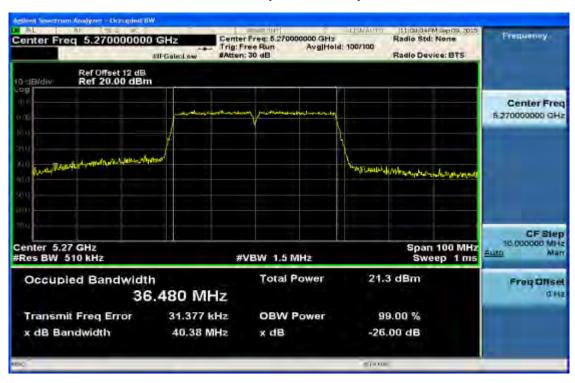
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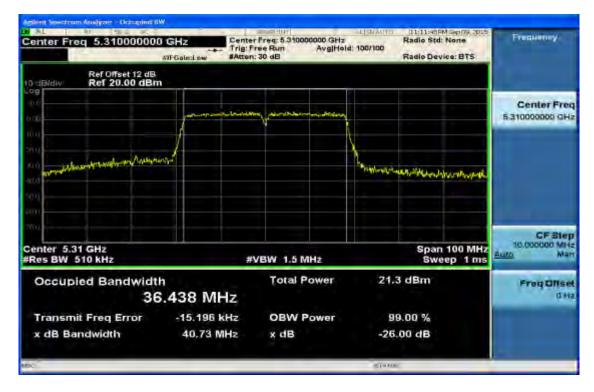
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802.11n HT40, 5250~5350 MHz (Aux) 26dB Band Width Test Data CH-Low (5270 MHz)



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



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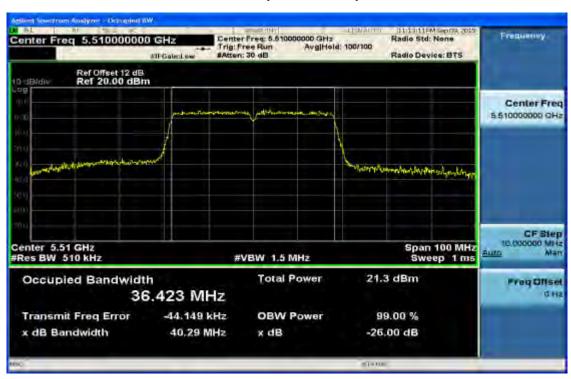
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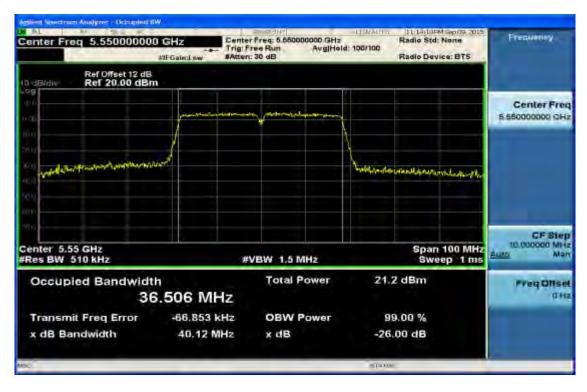
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802.11n HT40, 5470~5725 MHz (Aux) 26dB Band Width Test Data CH-Low (5510 MHz)



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



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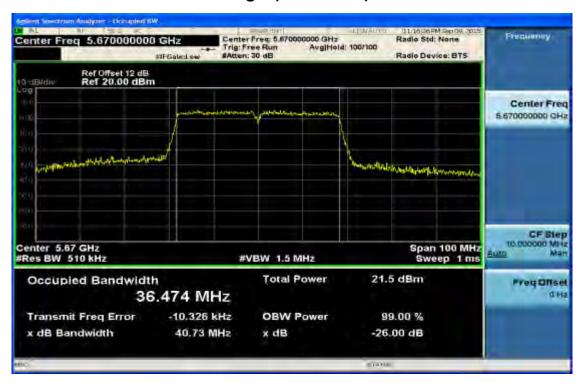
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26dB Band Width Test Data CH-High (5670 MHz)



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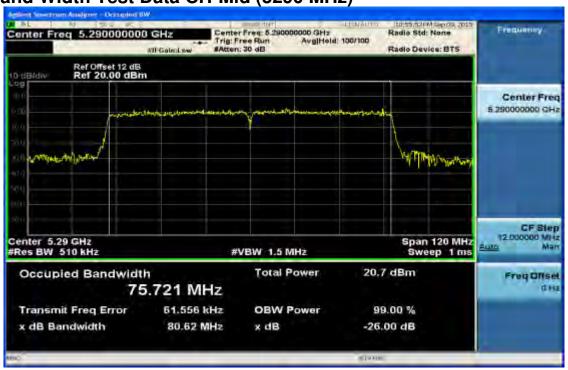
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802.11ac VHT80, 5150~5250 MHz (Main) 26dB Band Width Test Data CH-Mid (5210 MHz)



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



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



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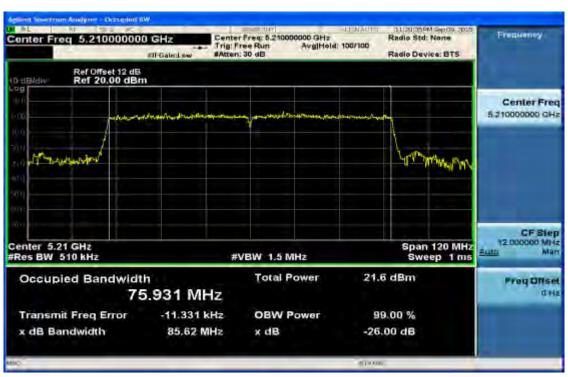
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802.11ac VHT80, 5150~5250 MHz (Aux) 26dB Band Width Test Data CH-Mid (5210 MHz)



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



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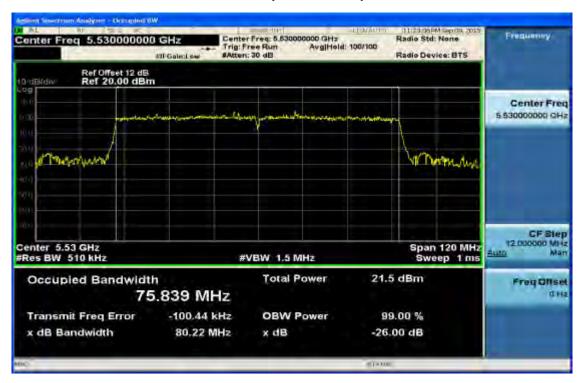
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802.11ac VHT80, 5470~5725 MHz (Aux) 26dB Band Width Test Data CH-Low (5530 MHz)



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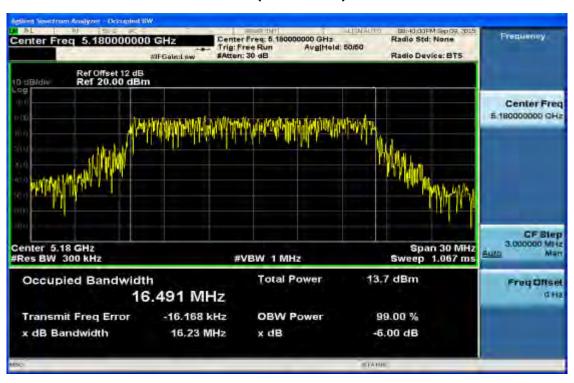
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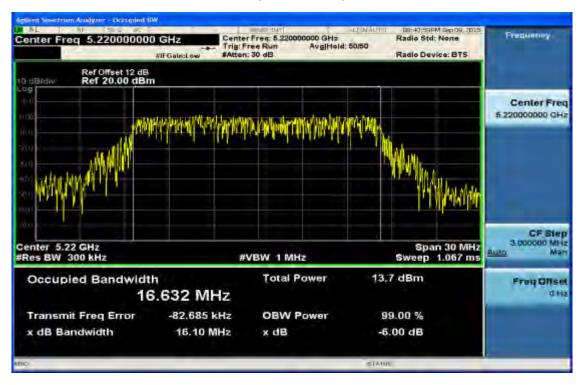
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802.11a, 5150~5250 MHz (Main) 99% Band Width Test Data CH-Low (5180MHz)



99% Band Width Test Data CH-Mid (5220MHz)



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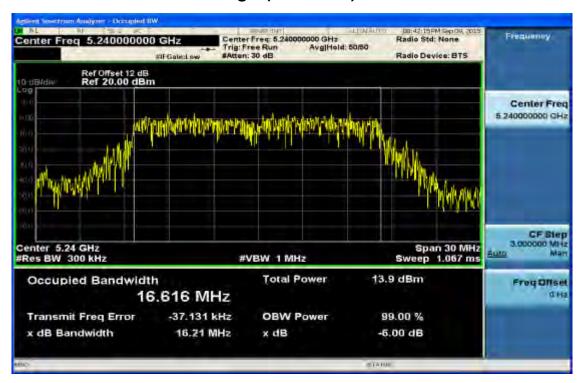
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99% Band Width Test Data CH-High (5240MHz)



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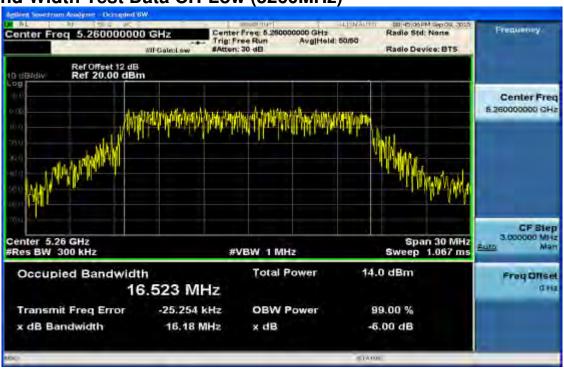
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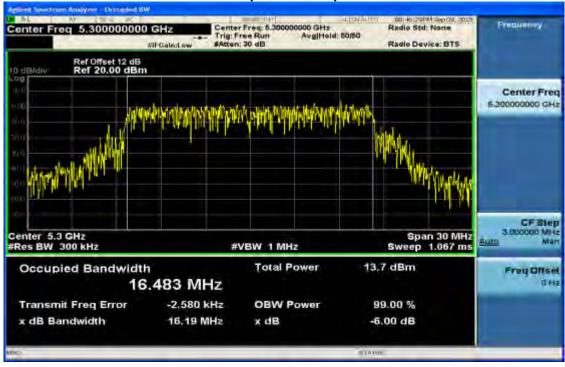
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802.11a, 5250~5350 MHz (Main) 99% Band Width Test Data CH-Low (5260MHz)



99% Band Width Test Data CH-Mid (5300MHz)



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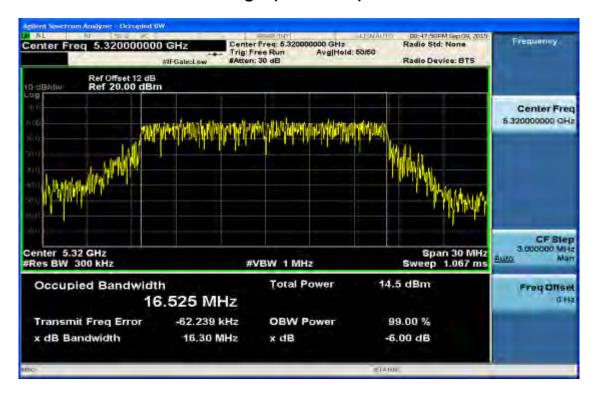
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99% Band Width Test Data CH-High (5320MHz)



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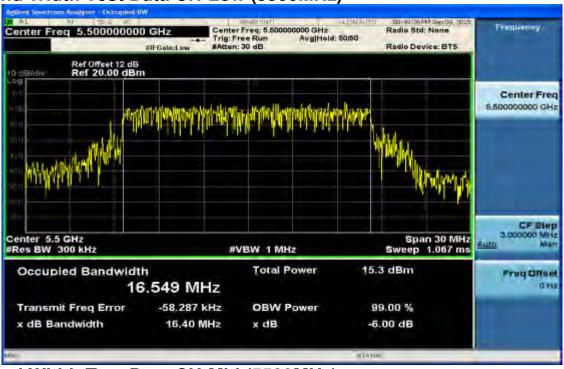
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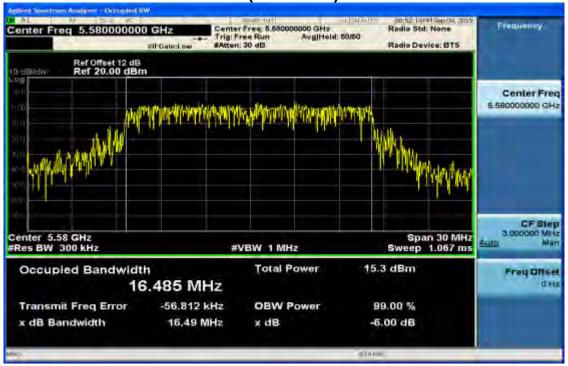
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802.11a, 5470~5725 MHz (Main) 99% Band Width Test Data CH-Low (5500MHz)



99% Band Width Test Data CH-Mid (5580MHz)



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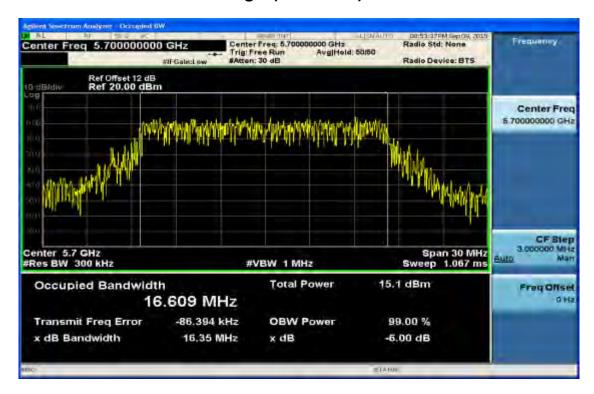
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99% Band Width Test Data CH-High (5700MHz)



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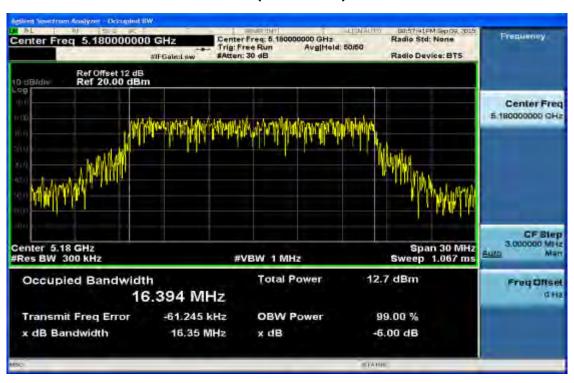
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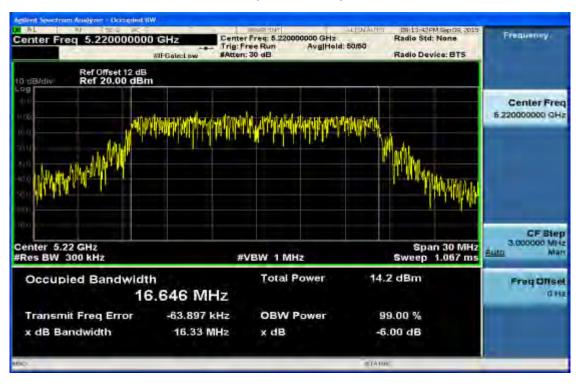
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802.11a, 5150~5250 MHz (Aux) 99% Band Width Test Data CH-Low (5180MHz)



99% Band Width Test Data CH-Mid (5220MHz)



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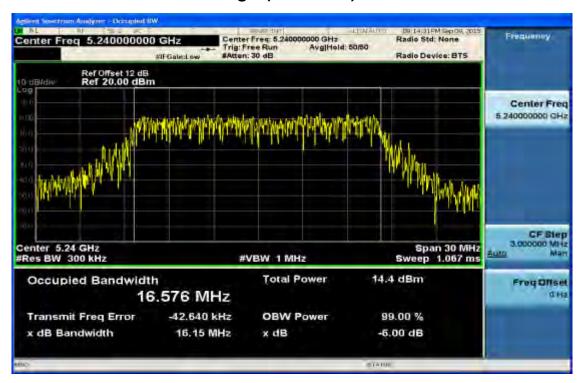
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99% Band Width Test Data CH-High (5240MHz)



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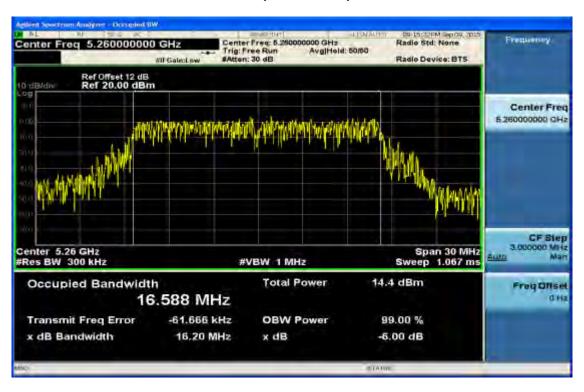
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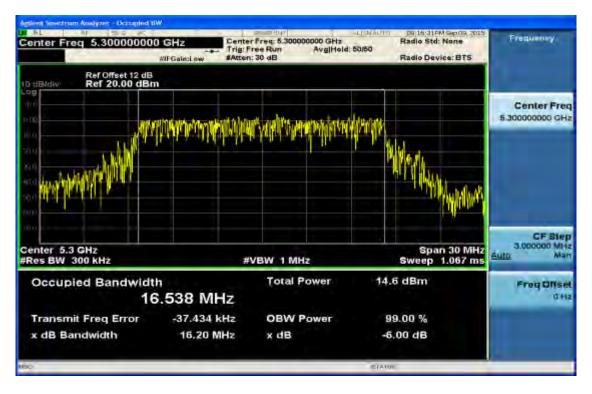
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802.11a, 5250~5350 MHz (Aux) 99% Band Width Test Data CH-Low (5260MHz)



99% Band Width Test Data CH-Mid (5300MHz)



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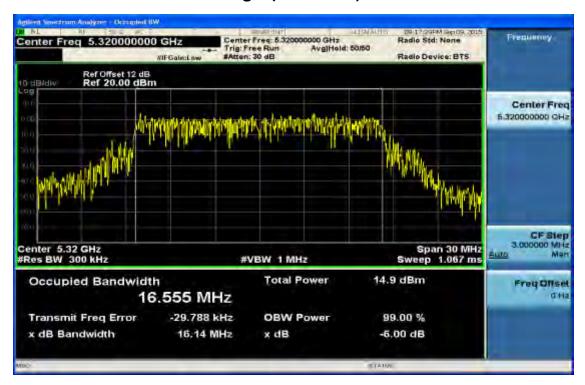
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99% Band Width Test Data CH-High (5320MHz)



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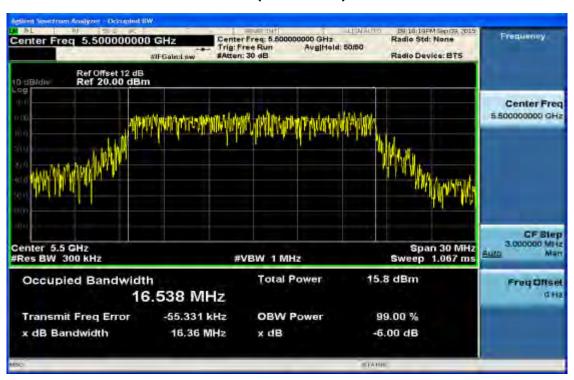
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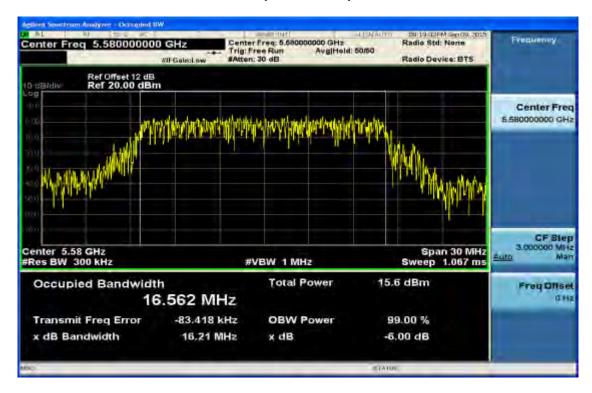
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802.11a, 5470~5725 MHz (Aux) 99% Band Width Test Data CH-Low (5500MHz)



99% Band Width Test Data CH-Mid (5580MHz)



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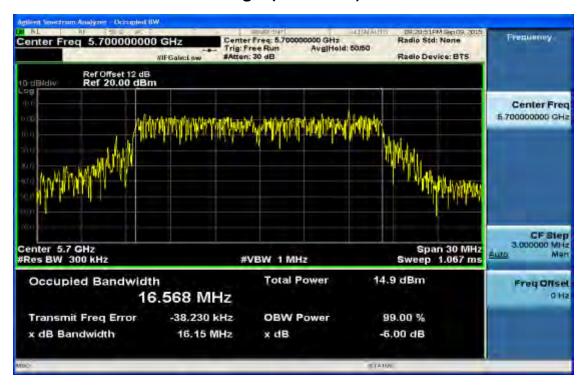
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99% Band Width Test Data CH-High (5700MHz)



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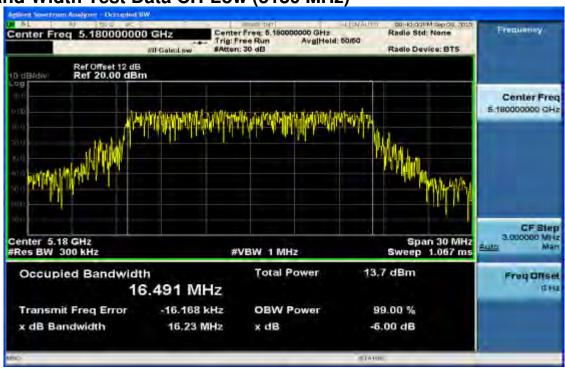
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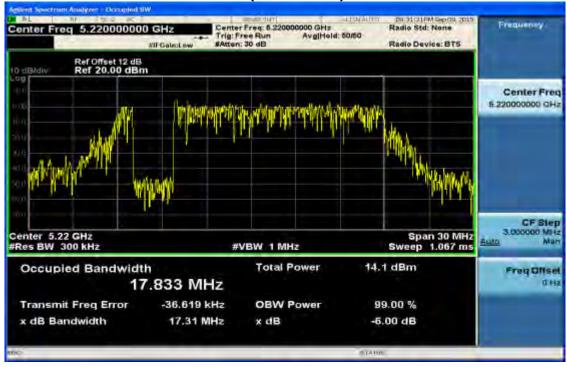
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802.11n HT20, 5150~5250 MHz (Main) 99% Band Width Test Data CH-Low (5180 MHz)



99% Band Width Test Data CH-Mid (5220 MHz)



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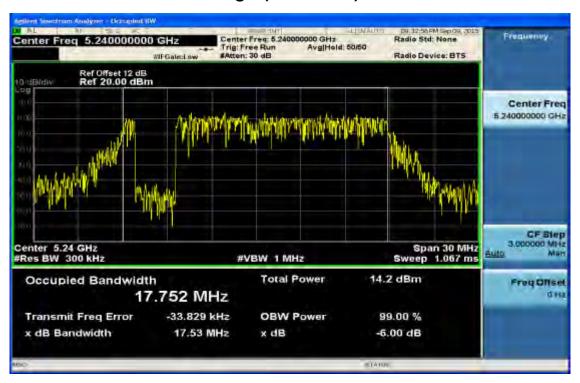
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99% Band Width Test Data CH-High (5240 MHz)



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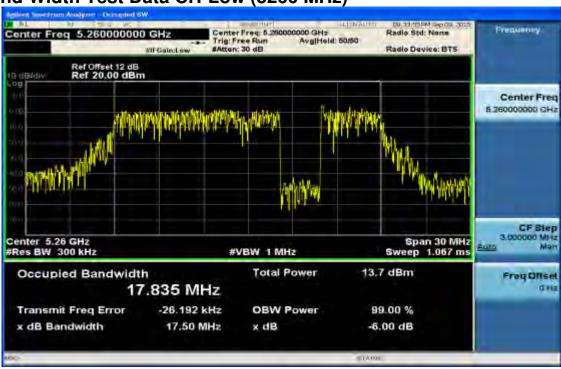
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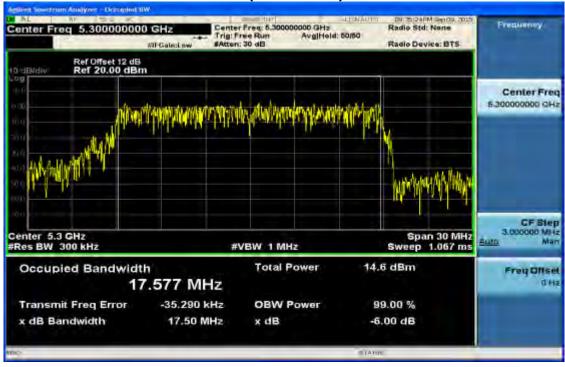
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802.11n HT20, 5250~5350 MHz (Main) 99% Band Width Test Data CH-Low (5260 MHz)



99% Band Width Test Data CH-Mid (5300 MHz)



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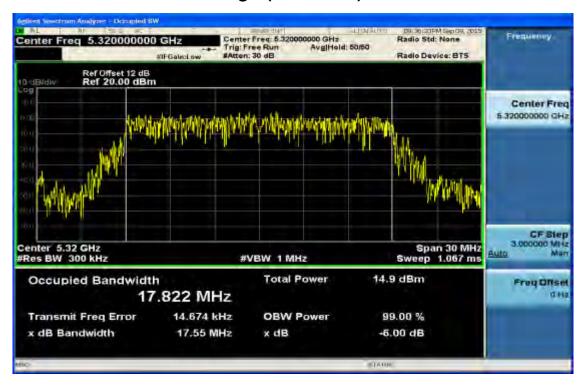
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99% Band Width Test Data CH-High (5320 MHz)



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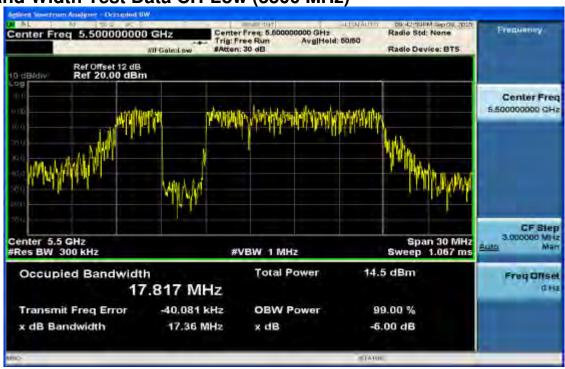
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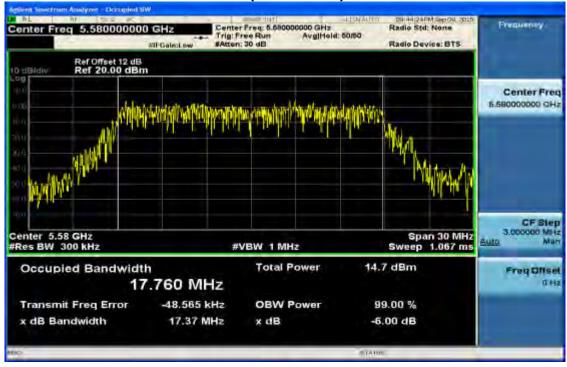
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802.11n HT20, 5470~5725 MHz (Main) 99% Band Width Test Data CH-Low (5500 MHz)



99% Band Width Test Data CH-Mid (5580 MHz)



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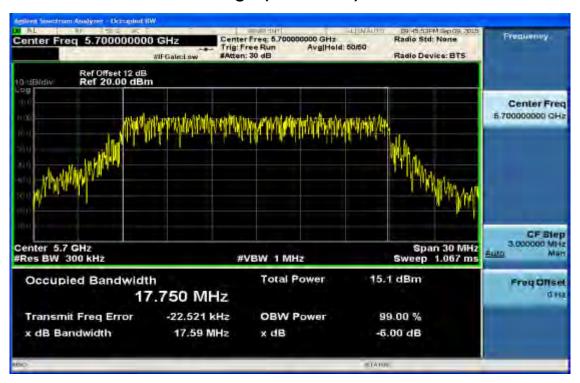
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99% Band Width Test Data CH-High (5700 MHz)



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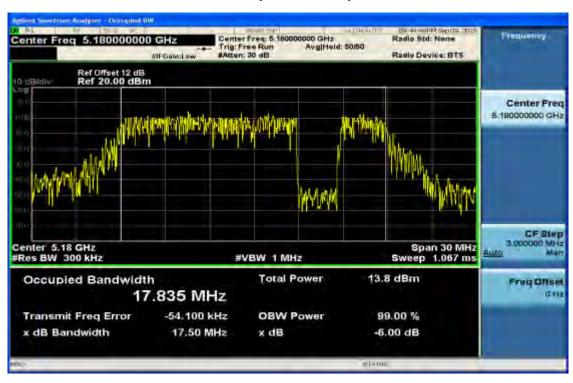
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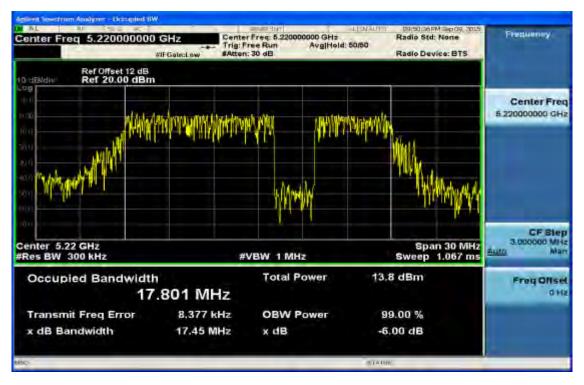
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802.11n HT20, 5150~5250 MHz (Aux) 99% Band Width Test Data CH-Low (5180 MHz)



99% Band Width Test Data CH-Mid (5220 MHz)



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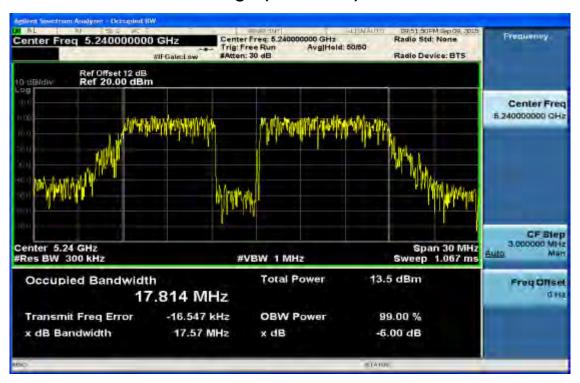
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99% Band Width Test Data CH-High (5240 MHz)



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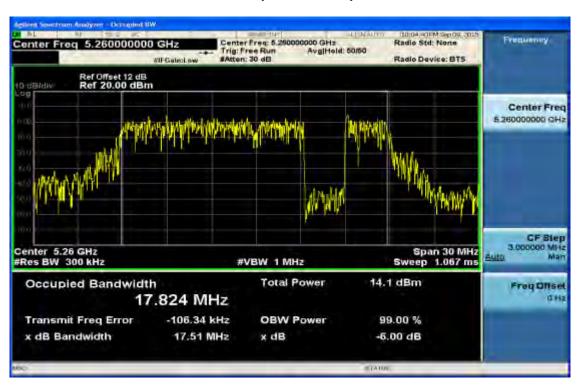
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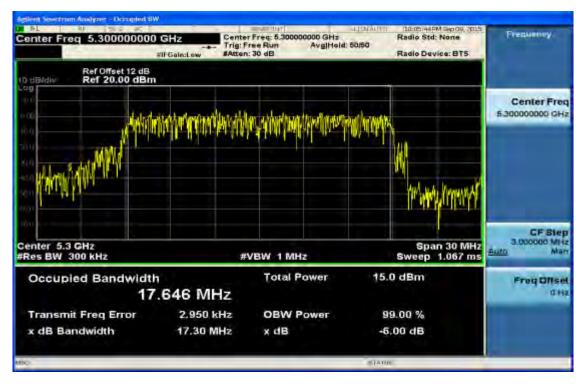
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802.11n HT20, 5250~5350 MHz (Aux) 99% Band Width Test Data CH-Low (5260 MHz)



99% Band Width Test Data CH-Mid (5300 MHz)



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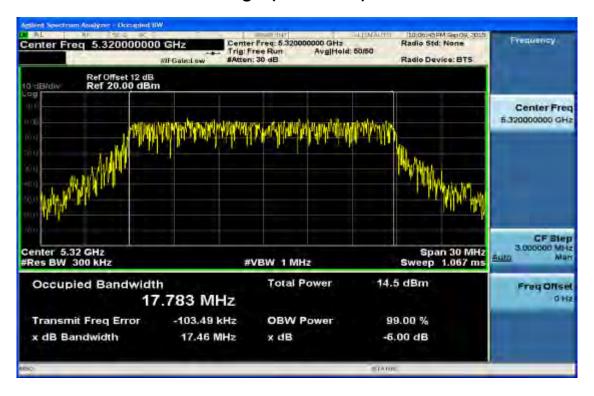
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99% Band Width Test Data CH-High (5320 MHz)



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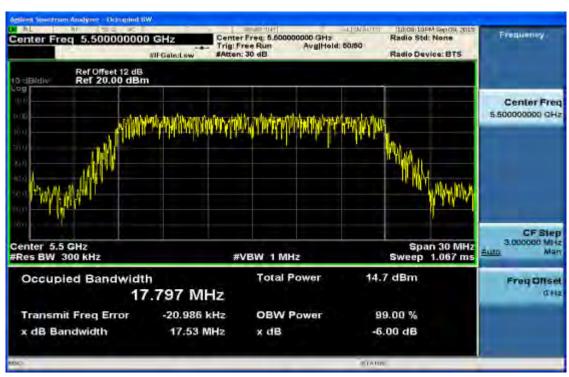
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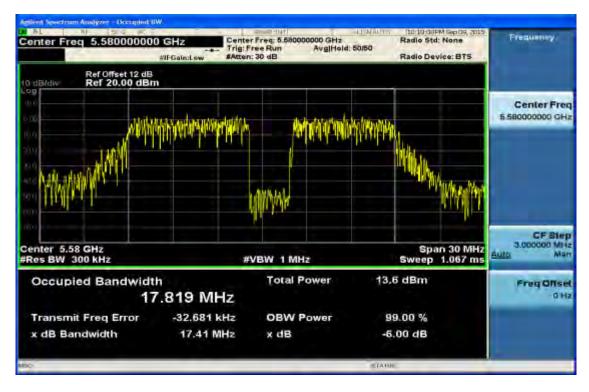
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802.11n HT20, 5470~5725 MHz (Aux) 99% Band Width Test Data CH-Low (5500 MHz)



99% Band Width Test Data CH-Mid (5580 MHz)



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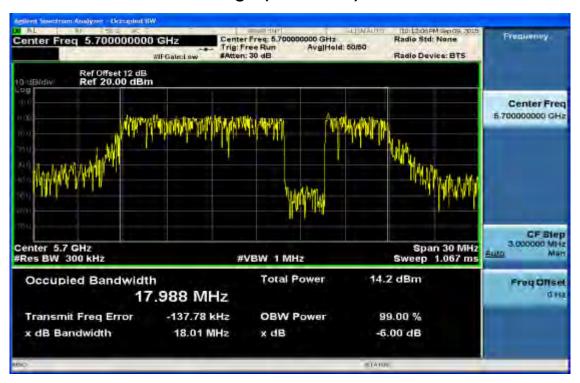
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99% Band Width Test Data CH-High (5700 MHz)



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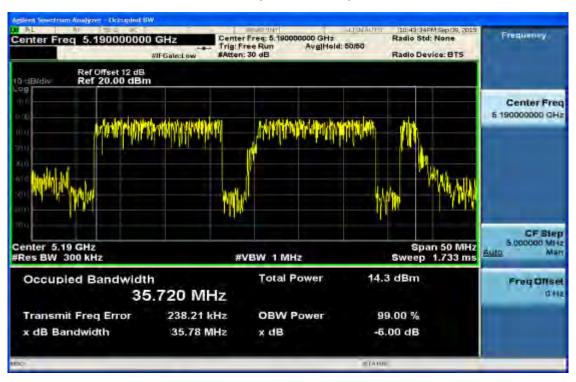
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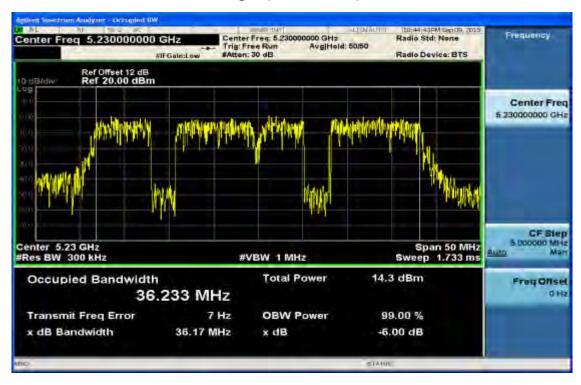
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802.11n HT40, 5150~5250 MHz (Main) 99% Band Width Test Data CH-Low (5190 MHz)



99% Band Width Test Data CH-High (5230 MHz)



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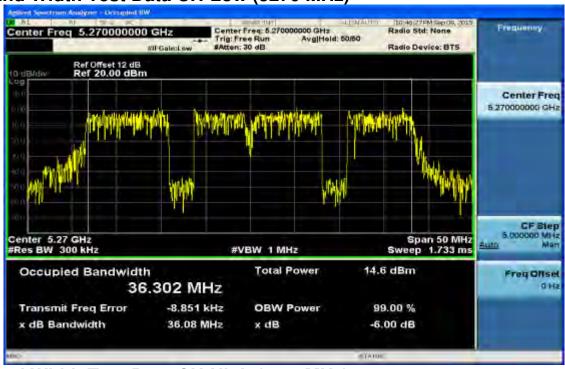
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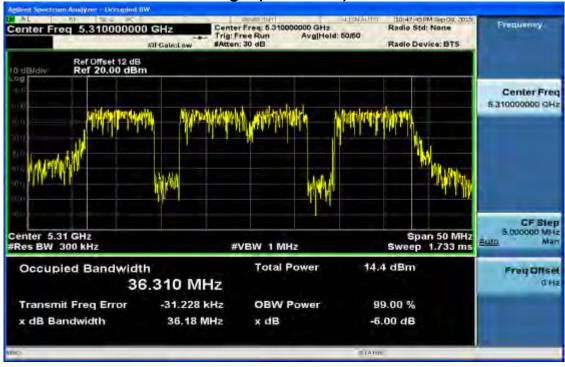
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802.11n HT40, 5250~5350 MHz (Main) 99% Band Width Test Data CH-Low (5270 MHz)



99% Band Width Test Data CH-High (5310MHz)



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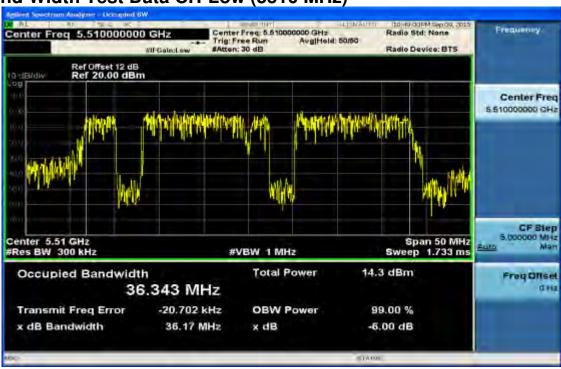
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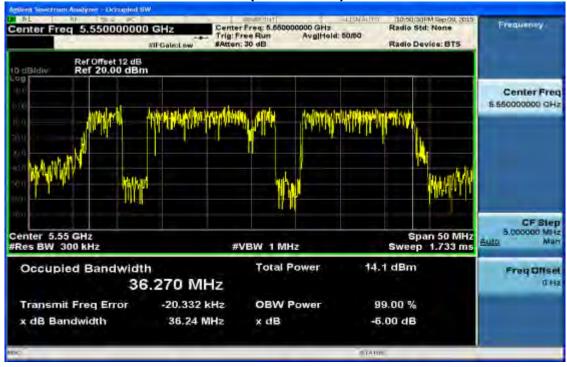
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802.11n HT40, 5470~5725 MHz (Main) 99% Band Width Test Data CH-Low (5510 MHz)



99% Band Width Test Data CH-Mid (5550 MHz)



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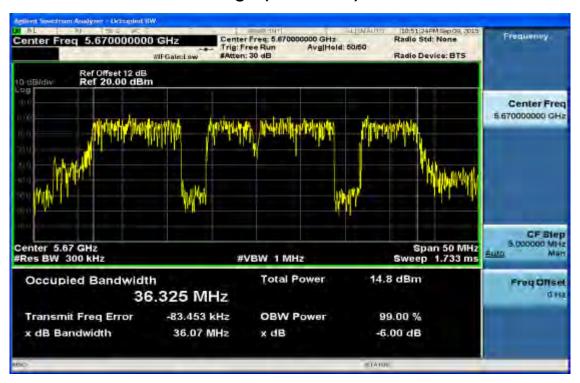
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99% Band Width Test Data CH-High (5670 MHz)



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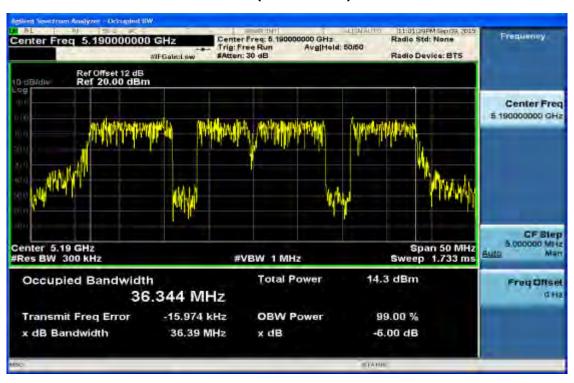
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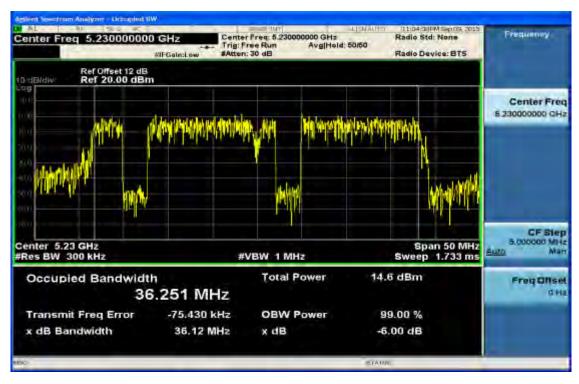
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802.11n HT40, 5150~5250 MHz (Aux) 99% Band Width Test Data CH-Low (5190 MHz)



99% Band Width Test Data CH-High (5230 MHz)



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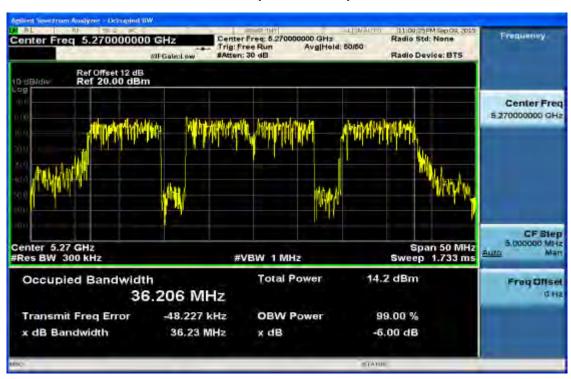
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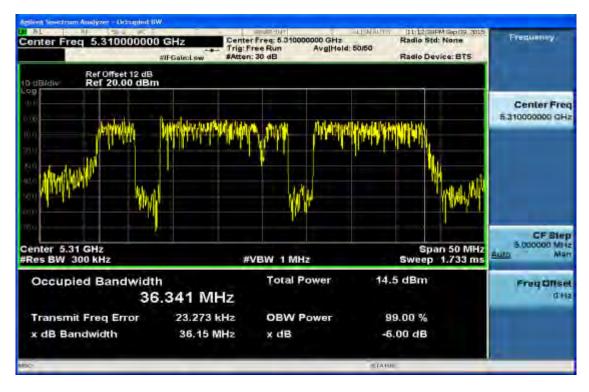
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802.11n HT40, 5250~5350 MHz (Aux) 99% Band Width Test Data CH-Low (5270 MHz)



99% Band Width Test Data CH-High (5310MHz)



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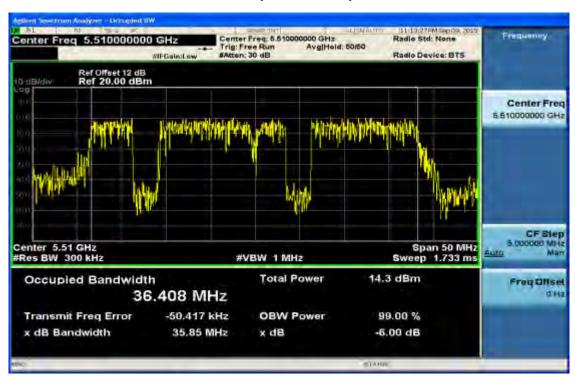
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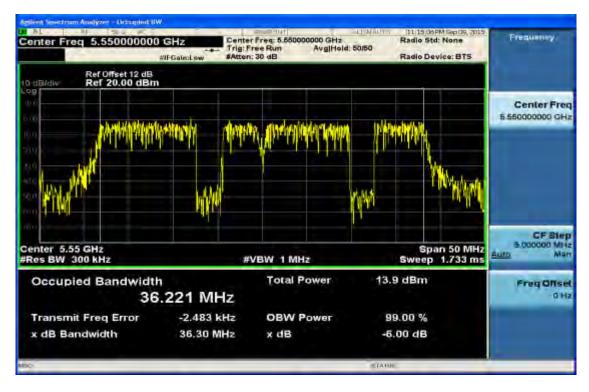
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802.11n HT40, 5470~5725 MHz (Aux) 99% Band Width Test Data CH-Low (5510 MHz)



99% Band Width Test Data CH-Mid (5550 MHz)



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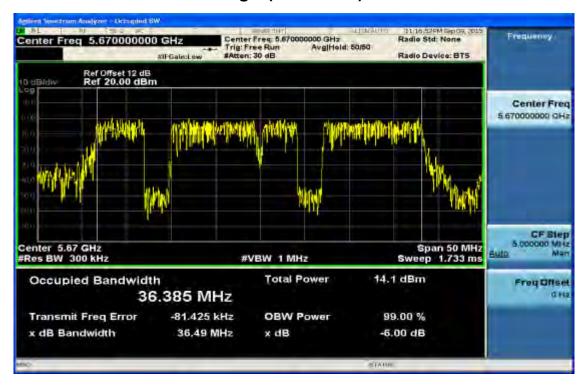
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99% Band Width Test Data CH-High (5670 MHz)



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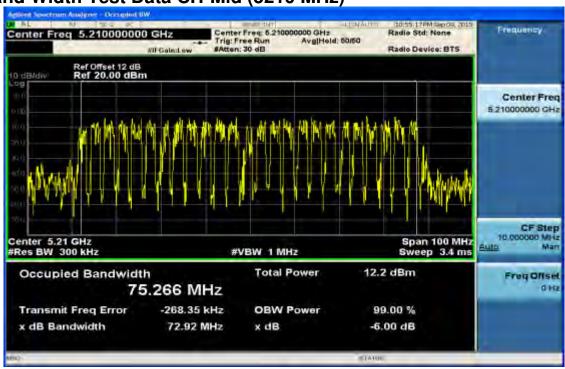
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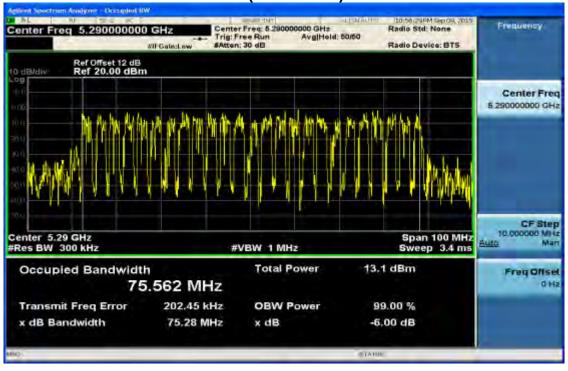
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802.11ac VHT80, 5150~5250 MHz (Main) 99% Band Width Test Data CH-Mid (5210 MHz)



802.11ac VHT80, 5250~5350 MHz 99% Band Width Test Data CH-Mid (5290 MHz)



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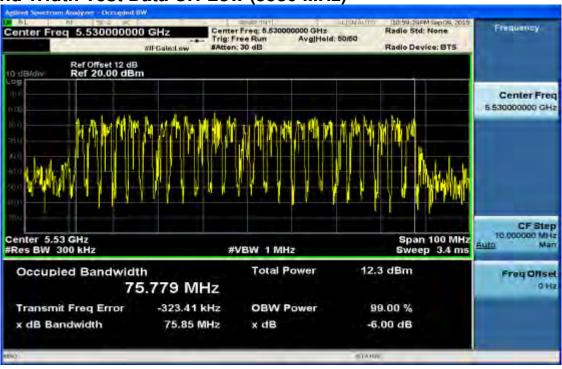
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802.11ac VHT80, 5470~5725 MHz (Main) 99% Band Width Test Data CH-Low (5530 MHz)



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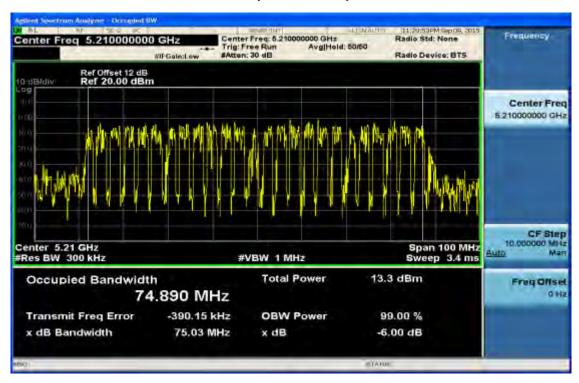
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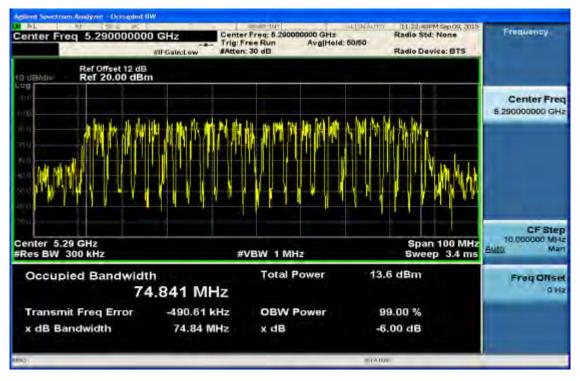
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802.11ac VHT80, 5150~5250 MHz (Aux) 99% Band Width Test Data CH-Mid (5210 MHz)



802.11ac VHT80, 5250~5350 MHz 99% Band Width Test Data CH-Mid (5290 MHz)



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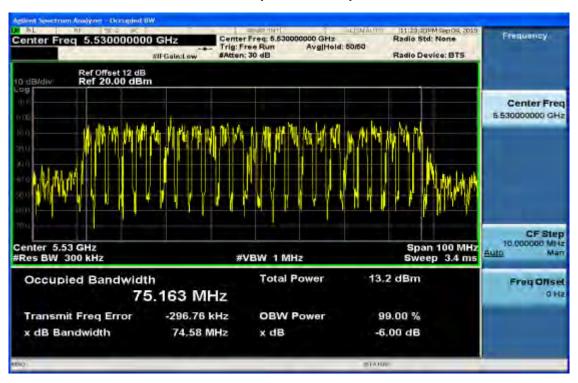
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802.11ac VHT80, 5470~5725 MHz (Aux) 99% Band Width Test Data CH-Low (5530 MHz)



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6dB Band Width measure with Peak detector for FCC 802.11a, 5725~5850 MHz (Main)

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



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



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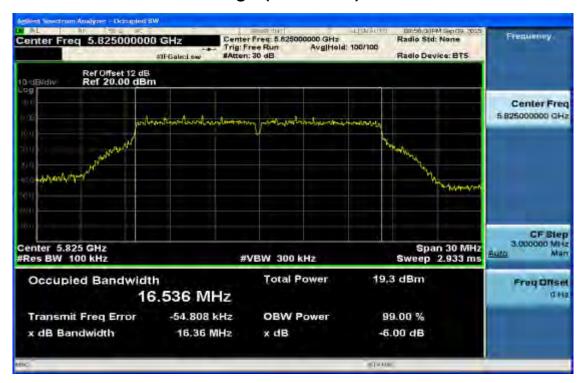
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6dB Band Width Test Data CH-High (5825 MHz)



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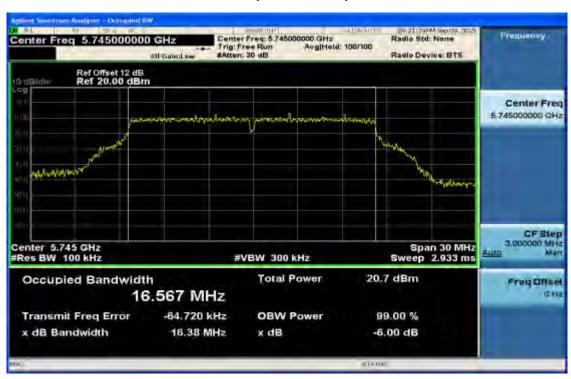
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802.11a, 5725~5850 MHz (Aux) 6dB Band Width Test Data CH-Low (5745 MHz)



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



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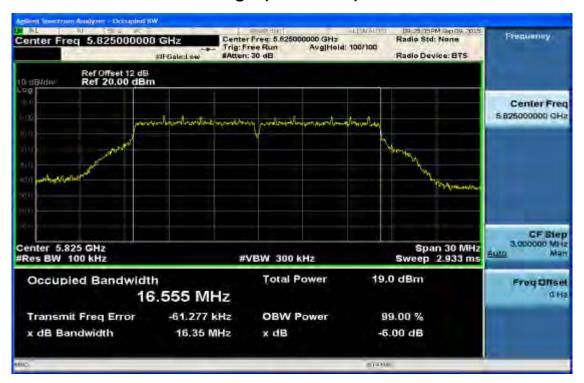
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6dB Band Width Test Data CH-High (5825 MHz)



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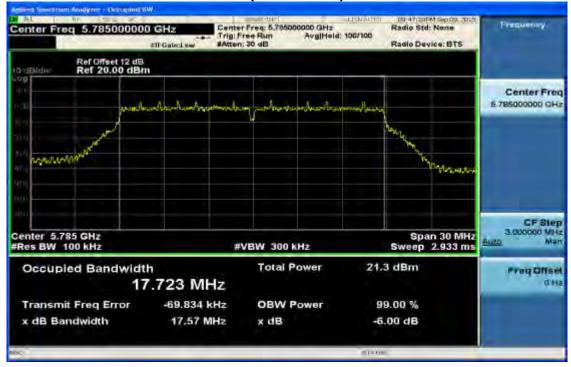
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802.11n HT20, 5725~5850 MHz (Main) 6dB Band Width Test Data CH-Low (5745 MHz)



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



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



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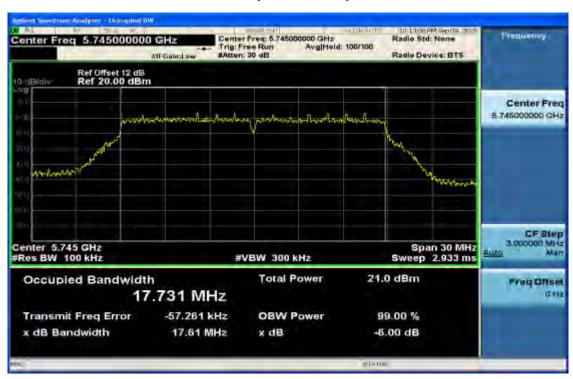
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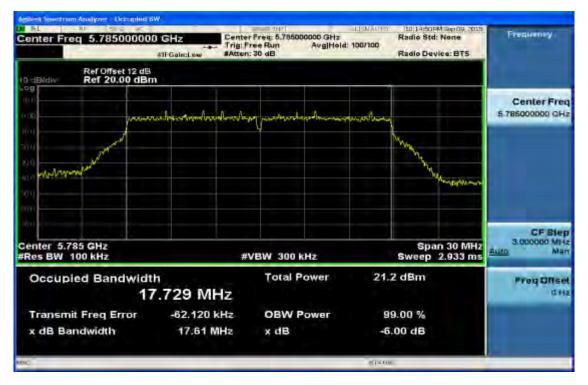
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802.11n HT20, 5725~5850 MHz (Aux) 6dB Band Width Test Data CH-Low (5745 MHz)



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



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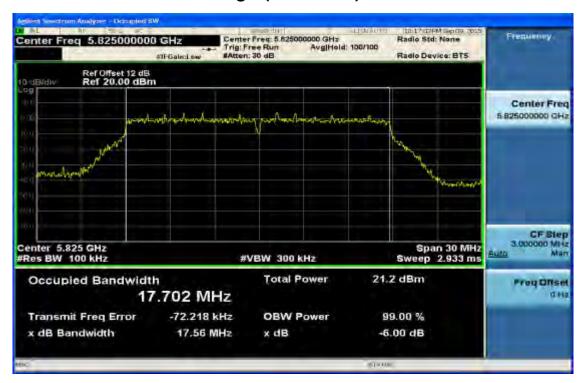
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6dB Band Width Test Data CH-High (5825 MHz)



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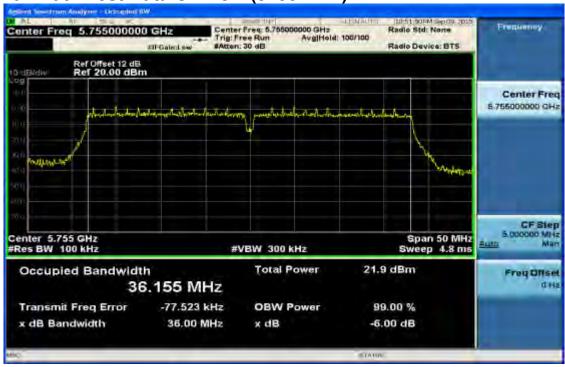
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802.11n HT40, 5725~5850 MHz (Main) 6dB Band Width Test Data CH-Low (5755 MHz)



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



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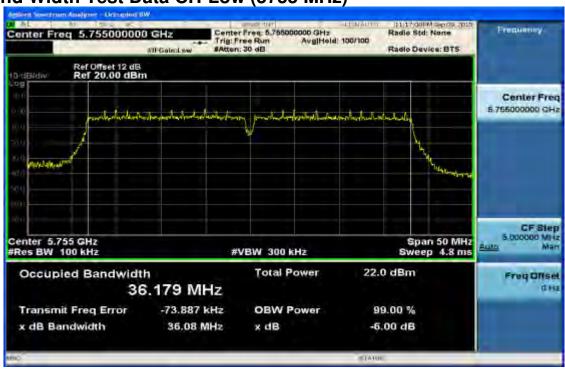
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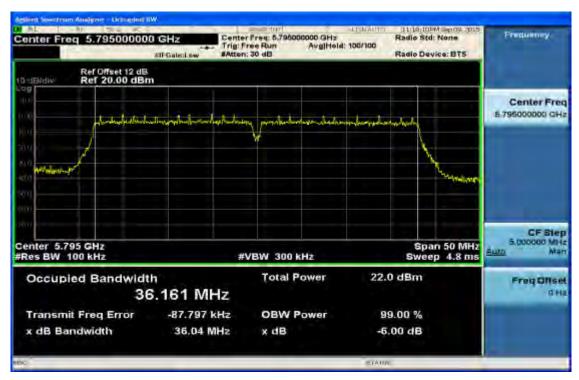
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802.11n HT40, 5725~5850 MHz (Aux) 6dB Band Width Test Data CH-Low (5755 MHz)



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



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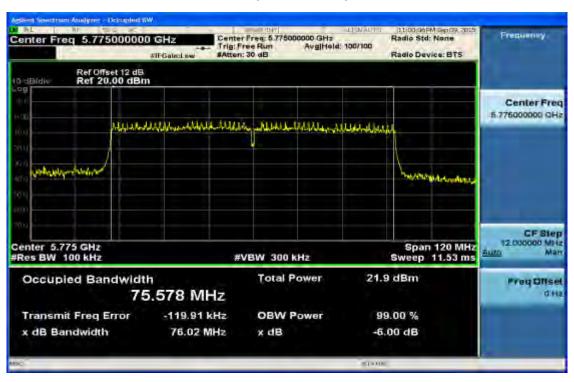
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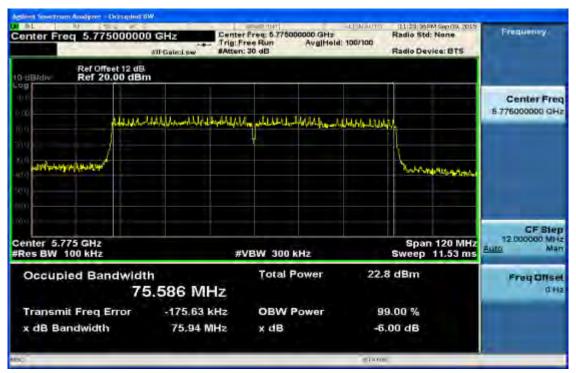
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802.11ac VHT80, 5725~5850 MHz (Main) 6dB Band Width Test Data CH-Low (5775 MHz)



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



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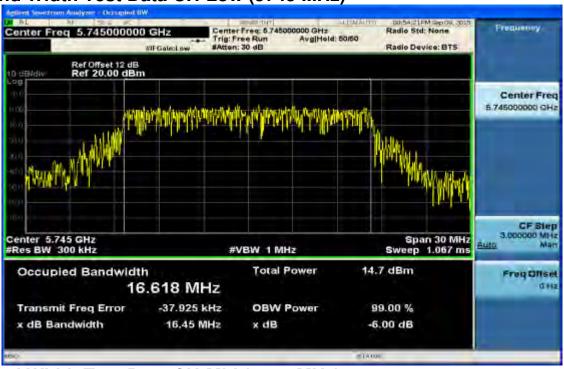


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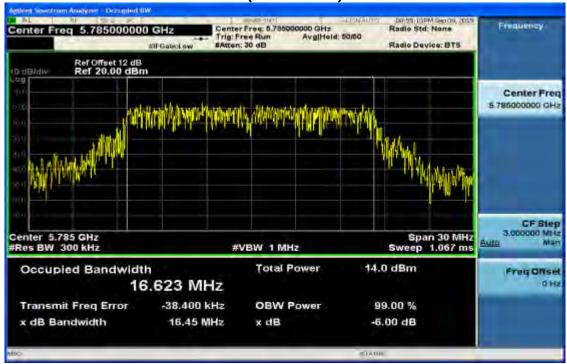
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6dB Band Width measure with Average detector for IC 802.11a, 5725~5850 MHz (Main)

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



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



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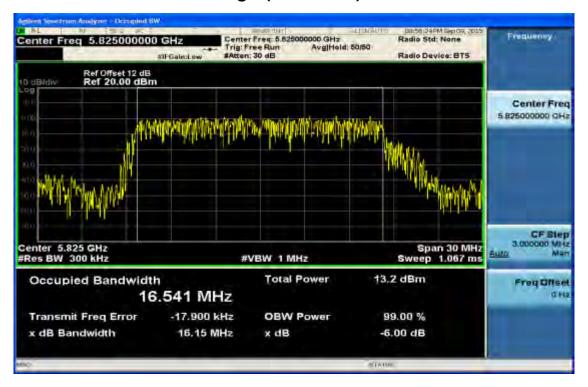
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6dB Band Width Test Data CH-High (5825 MHz)



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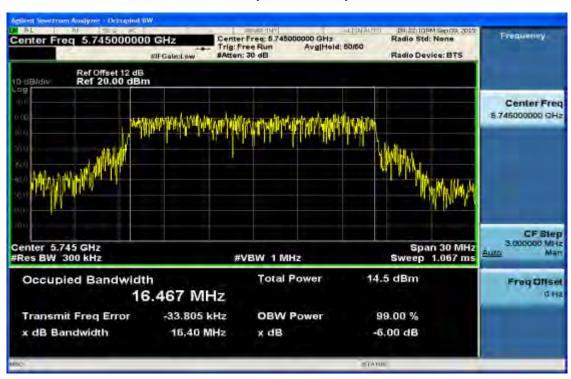
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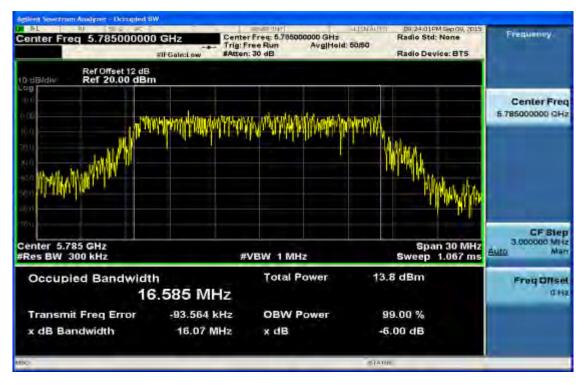
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802.11a, 5725~5850 MHz (Aux) 6dB Band Width Test Data CH-Low (5745 MHz)



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



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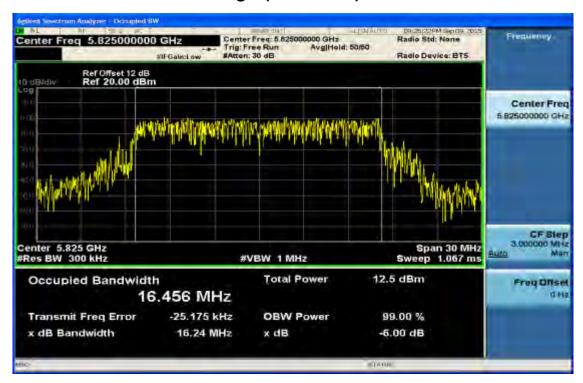
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6dB Band Width Test Data CH-High (5825 MHz)



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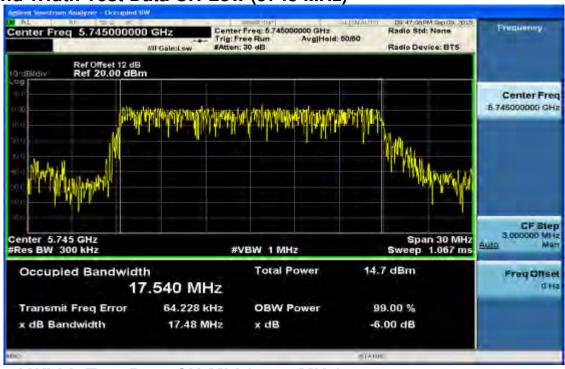
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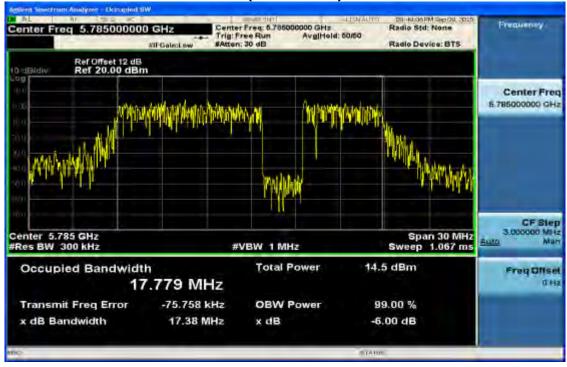
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802.11n HT20, 5725~5850 MHz (Main) 6dB Band Width Test Data CH-Low (5745 MHz)



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



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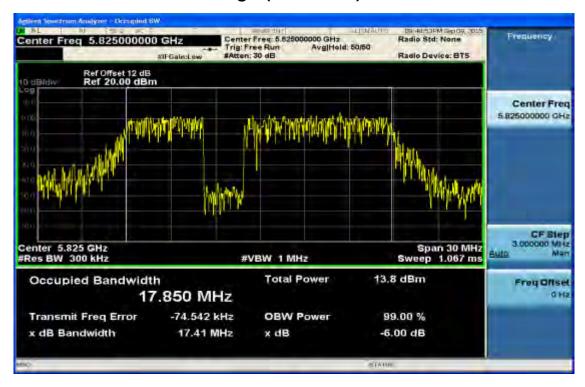
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6dB Band Width Test Data CH-High (5825 MHz)



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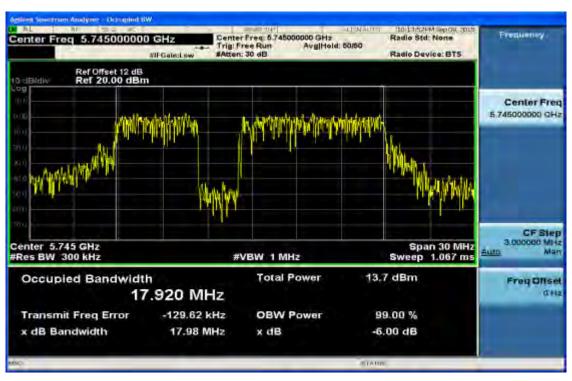
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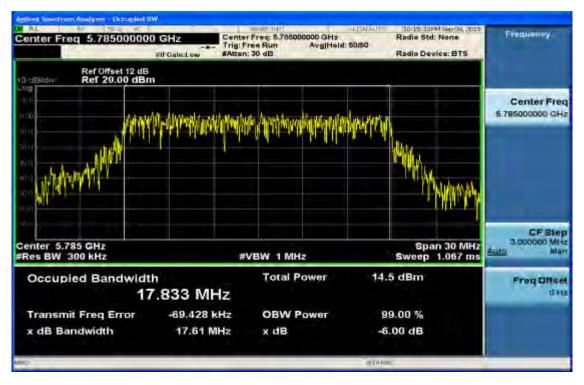
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802.11n HT20, 5725~5850 MHz (Aux) 6dB Band Width Test Data CH-Low (5745 MHz)



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



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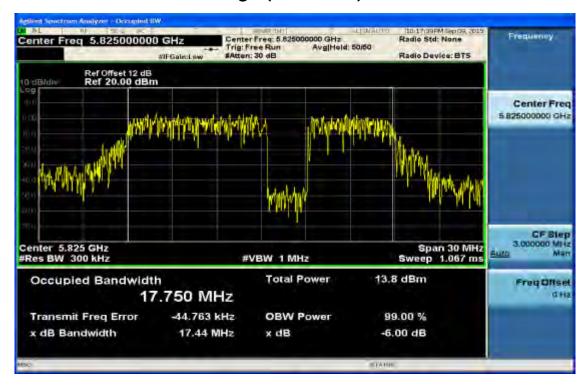
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6dB Band Width Test Data CH-High (5825 MHz)



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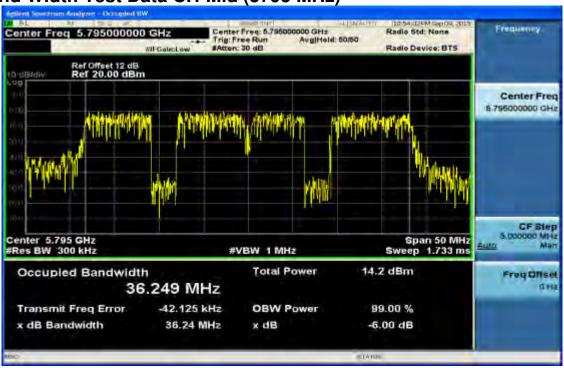


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802.11n_HT40, 5725~5850 MHz (Main) 6dB Band Width Test Data CH-Low (5755 MHz)

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



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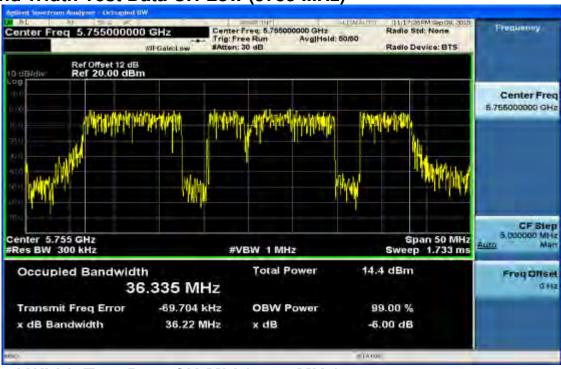
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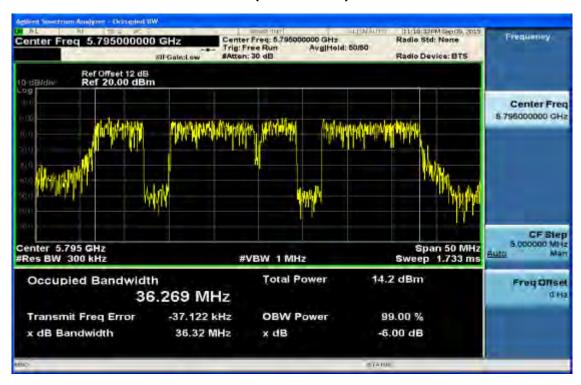
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802.11n HT40, 5725~5850 MHz (Aux) 6dB Band Width Test Data CH-Low (5755 MHz)



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



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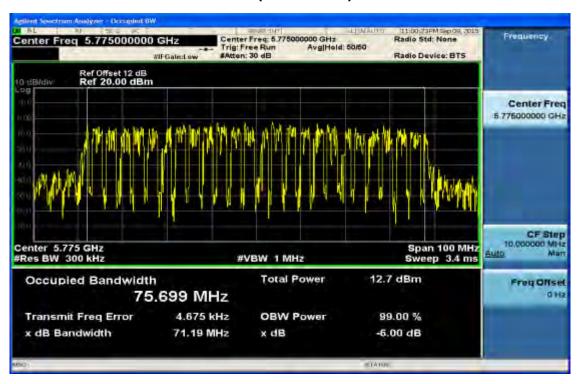
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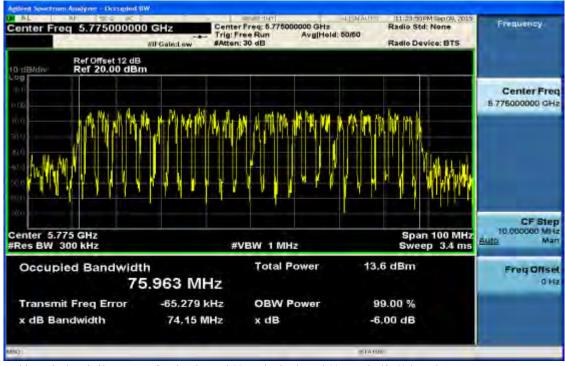
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802.11ac VHT80, 5725~5850 MHz (Main) 6dB Band Width Test Data CH-Low (5775 MHz)



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



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MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

Standard Applicable

FCC

OPERZTION Band	EUT CATEGORY	LIMIT
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U-NII-1

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

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

FCC

100		
	Effective Legacy Gain (dBi)	Limit
UNII-1	4.61+3.01=7.62dBi	23.98dBm – (7.62– 6 dBi) = 22.36dBm
UNII-2A	4.61+3.01=7.62dBi	23.98dBm – (7.62– 6 dBi) = 22.36dBm
U-NII-2C	4.45+3.01=7.46dBi	23.98dBm – (7.46– 6 dBi) = 22.52dBm
U-NII-3	3.42+3.01=6.43dBi	30 dBm – (6.43– 6 dBi) = 29.57dBm

IC

	Effective Legacy Gain (dBi)	Limit
UNII-2A	4.61+3.01=7.62dBi	23.98dBm – (7.62– 6 dBi) = 22.36dBm
U-NII-2C	4.45+3.01=7.46dBi	23.98dBm – (7.46– 6 dBi) = 22.52dBm
U-NII-3	3.42+3.01=6.43dBi	30 dBm – (6.43– 6 dBi) = 29.57dBm

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

9.2 Measurement Procedure

- Place the EUT on the table and set it in transmitting mode.
- The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01. 2.
- Remove the antenna from the EUT and then connect a low loss RF cable from the an-3. tenna port to the power meter
- Power Meter is used as the auxiliary test equipment to conduct the output power meas-4. urement.
- Record the max. reading and add 10 log(1/duty cycle).
- Repeat above procedures until all frequency (low, middle, and high channel) measured 6. were complete.

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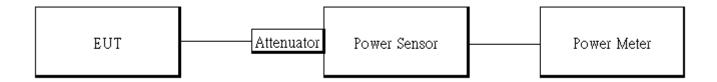
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9.3 Measurement Equipment Used

Refer to section 8.3 for details.

	Conducte	ed Emission	Test Site		
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Power Meter	Anritsu	ML2495A	1005007	12/20/2014	12/19/2015
Power Sensor	Anritsu	MA2411B	917032	12/20/2014	12/19/2015
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/02/2015	01/01/2016
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2015	01/01/2016
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2015	01/01/2016

9.4 Test Set-up



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Measurement Result

FCC

802.11a Main

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	14.47	27.990		23.98		PASS
44	5220	14.46	27.925		23.98		PASS
48	5240	14.43	27.733		23.98		PASS
52	5260	14.41	27.606	23.98	or 11+10log(B)	24.37	PASS
60	5300	14.48	28.054	23.98	or 11+10log(B)	24.34	PASS
64	5320	14.40	27.542	23.98	or 11+10log(B)	24.34	PASS
100	5500	14.42	27.669	23.98	or 11+10log(B)	24.31	PASS
116	5580	14.43	27.733	23.98	or 11+10log(B)	24.33	PASS
140	5700	14.47	27.990	23.98	or 11+10log(B)	24.37	PASS
149	5745	14.42	27.669		30		PASS
157	5785	14.39	27.479		30		PASS
165	5825	14.45	27.861		30		PASS

802.11n_HT20_MIMO

СН	Frequency (MHz)		E POWER 3m)	TOTAL POWER	TOTAL POWER	REQUIRED LIMIT (dBm)			RESULT
	(IVII 12 <i>)</i>	CHAIN 0	CHAIN 1	(dBm)	(mW)				
36	5180	15.51	12.99	17.44	55.470		22.36		PASS
44	5220	15.16	12.98	17.22	52.670		22.36		PASS
48	5240	15.17	12.88	17.18	52.294		22.36		PASS
52	5260	15.43	13.25	17.49	56.049	22.36	or 11+10log(B)	24.31	PASS
60	5300	15.23	13.4	17.42	55.220	22.36	or 11+10log(B)	24.32	PASS
64	5320	15.24	13.55	17.49	56.066	22.36	or 11+10log(B)	24.36	PASS
100	5500	14.38	14.39	17.40	54.895	22.52	or 11+10log(B)	24.39	PASS
116	5580	13.85	14.49	17.19	52.385	22.52	or 11+10log(B)	24.32	PASS
140	5700	13.82	14.90	17.40	55.002	22.52	or 11+10log(B)	24.40	PASS
149	5745	13.93	14.62	17.30	53.691		29.57		PASS
157	5785	13.86	14.55	17.23	52.832		29.57		PASS
165	5825	13.97	14.53	17.27	53.325		29.57		PASS

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802.11n HT40 MIMO

СН	CH Frequency		AVERAGE POWER (dBm)		TOTAL POWER	REQUIRED LIMIT			RESULT
	(MHz)	CHAIN 0	CHAIN 1	(dBm)	(mW)	(dBm)			
38	5190	14.89	12.73	16.95	49.582		22.36		PASS
46	5230	15.58	12.99	17.49	56.048		22.36		PASS
54	5270	15.28	13.19	17.37	54.574	22.36	or 11+10log(B)	27.02	PASS
62	5310	15.18	13.07	17.26	53.238	22.36	or 11+10log(B)	27.04	PASS
102	5510	12.15	12.22	15.20	33.078	22.52	or 11+10log(B)	27.05	PASS
110	5550	14.28	14.44	17.37	54.589	22.52	or 11+10log(B)	27.03	PASS
134	5670	14.05	14.77	17.44	55.401	22.52	or 11+10log(B)	27.09	PASS
151	5755	10.47	11.26	13.89	24.509		29.57		PASS
159	5795	13.84	14.43	17.16	51.943		29.57		PASS

802.11ac VHT20 MIMO

СН	CH Frequency (MHz)		AVERAGE POWER (dBm)		TOTAL TOTAL POWER		REQUIRED LIMIT		
	(IVIFIZ)	CHAIN 0 CHAIN 1 (dBm) (m		(mW)					
36	5180	15.12	12.58	17.04	50.622		22.36		PASS
44	5220	15.12	12.81	17.13	51.607		22.36		PASS
48	5240	15.16	12.89	17.18	52.263		22.36		PASS
52	5260	15.26	13.03	17.30	53.665	22.36	or 11+10log(B)	24.31	PASS
60	5300	15.21	13.33	17.38	54.717	22.36	or 11+10log(B)	24.32	PASS
64	5320	14.95	13.02	17.10	51.306	22.36	or 11+10log(B)	24.36	PASS
100	5500	14.43	14.26	17.36	54.402	22.52	or 11+10log(B)	24.39	PASS
116	5580	13.76	14.51	17.16	52.017	22.52	or 11+10log(B)	24.32	PASS
140	5700	13.73	14.89	17.36	54.437	22.52	or 11+10log(B)	24.40	PASS
149	5745	13.87	14.51	17.21	52.627		29.57		PASS
157	5785	13.68	14.49	17.11	51.454		29.57		PASS
165	5825	13.72	14.62	17.20	52.524		29.57		PASS

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802.11ac_VHT40_MIMO

СН	Frequency		E POWER 3m)	TOTAL POWER	TOTAL POWER	REQUIRED LIMIT (dBm)		RESULT	
	(MHz)	CHAIN 0	CHAIN 1	(dBm)	(mW)				
38	5190	14.97	12.54	16.93	49.352		22.36		PASS
46	5230	15.5	13.11	17.48	55.946		22.36		PASS
54	5270	15.45	13.24	17.49	56.161	22.36	or 11+10log(B)	27.02	PASS
62	5310	15.09	13.16	17.24	52.986	22.36	or 11+10log(B)	27.04	PASS
102	5510	12.16	12.14	15.16	32.812	22.52	or 11+10log(B)	27.05	PASS
110	5550	14.23	14.34	17.30	53.649	22.52	or 11+10log(B)	27.03	PASS
134	5670	13.91	14.8	17.39	54.803	22.52	or 11+10log(B)	27.09	PASS
151	5755	10.55	10.95	13.76	23.795		29.57		PASS
159	5795	13.83	14.44	17.16	51.952		29.57		PASS

802.11ac VHT80 MIMO

СН	Frequency (dB		E POWER 3m)	TOTAL POWER	TOTAL POWER		REQUIRED LIMIT		RESULT
(MH	(MHz)	CHAIN 0	CHAIN 1	(dBm)	(mW)		(dBm)		
42	5210	13.54	11.36	15.60	36.272		22.36		PASS
58	5290	13.7	10.75	15.48	35.327	22.36	or 11+10log(B)	30.06	PASS
106	5530	8.29	8.5	11.41	13.825	22.52	or 11+10log(B)	30.04	PASS
155	5775	9.54	10.4	13.00	19.960		29.57		PASS

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IC

802.11a Main

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
52	5260	14.41	27.606	23.98	or 11+10log(B) =	23.18	PASS
60	5300	14.48	28.054	23.98	or 11+10log(B) =	23.17	PASS
64	5320	14.40	27.542	23.98	or 11+10log(B) =	23.18	PASS
100	5500	14.42	27.669	23.98	or 11+10log(B) =	23.19	PASS
116	5580	14.43	27.733	23.98	or 11+10log(B) =	23.17	PASS
140	5700	14.47	27.990	23.98	or 11+10log(B) =	23.20	PASS
149	5745	14.42	27.669		30		PASS
157	5785	14.39	27.479		30		PASS
165	5825	14.45	27.861		30		PASS

802.11n HT20 MIMO

СН	Frequency (MHz)	AVERAGE POWER (dBm)		TOTAL POWER POWER		REQUIRED LIMIT	RESULT
	(1011 12)	CHAIN 0	CHAIN 1	(dBm)	(mW)	(dBm)	
52	5260	15.43	13.25	17.49	56.049	22.36 or 11+10log(B) 23.51	PASS
60	5300	15.23	13.4	17.42	55.220	22.36 or 11+10log(B) 23.45	PASS
64	5320	15.24	13.55	17.49	56.066	22.36 or 11+10log(B) 23.50	PASS
100	5500	14.38	14.39	17.40	54.895	22.52 or 11+10log(B) 23.50	PASS
116	5580	13.85	14.49	17.19	52.385	22.52 or 11+10log(B) 23.49	PASS
140	5700	13.82	14.90	17.40	55.002	22.52 or 11+10log(B) 23.49	PASS
149	5745	13.93	14.62	17.30	53.691	29.57	PASS
157	5785	13.86	14.55	17.23	52.832	29.57	PASS
165	5825	13.97	14.53	17.27	53.325	29.57	PASS

802.11ac VHT20 MIMO

СН	Frequency (MHz)		E POWER Bm)	TOTAL POWE R	TOTAL POWER	WER LIMIT	
	(1411 12)	CHAIN 0	CHAIN 1	(dBm)	(mW)	(dBm)	
52	5260	15.26	13.03	17.30	53.665	22.36 or 11+10log(B) 23.51	PASS
60	5300	15.21	13.33	17.38	54.717	22.36 or 11+10log(B) 23.45	PASS
64	5320	14.95	13.02	17.10	51.306	22.36 or 11+10log(B) 23.50	PASS
100	5500	14.43	14.26	17.36	54.402	22.52 or 11+10log(B) 23.50	PASS
116	5580	13.76	14.51	17.16	52.017	22.52 or 11+10log(B) 23.49	PASS
140	5700	13.73	14.89	17.36	54.437	22.52 or 11+10log(B) 23.49	PASS
149	5745	13.87	14.51	17.21	52.627	29.57	PASS
157	5785	13.68	14.49	17.11	51.454	29.57	PASS
165	5825	13.72	14.62	17.20	52.524	29.57	PASS

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802.11n_HT40_MIMO

СН	Frequency (MHz)		E POWER Bm)	TOTAL POWER	TOTAL POWER	REQUIRED LIMIT	RESULT
	(1011 12)	CHAIN 0 CHAIN 1		(dBm) (mW)		(dBm)	
54	5270	15.28	13.19	17.37	54.574	$22.36 \text{ or } 11+10\log(B) = 26.59$	PASS
62	5310	15.18	13.07	17.26	53.238	$22.36 \text{ or } 11+10\log(B) = 26.60$	PASS
102	5510	12.15	12.22	15.20	33.078	$22.52 \text{ or } 11+10\log(B) = 26.60$	PASS
110	5550	14.28	14.44	17.37	54.589	$22.52 \text{ or } 11+10\log(B) = 26.59$	PASS
134	5670	14.05	14.77	17.44	55.401	$22.52 \text{ or } 11+10\log(B) = 26.60$	PASS
151	5755	10.47	11.26	13.89	24.509	29.57	PASS
159	5795	13.84	14.43	17.16	51.943	29.57	PASS

802.11ac VHT40 MIMO

	<u> </u>	<u> </u>					
СН	Frequency (MHz)	equency (dBm) POV		TOTAL POWER	TOTAL POWER	REQUIRED LIMIT	RESULT
	(101112)	CHAIN 0	CHAIN 1	(dBm)	(mW)	(dBm)	
54	5270	15.45	13.24	17.49	56.161	$22.36 \text{ or } 11+10\log(B) = 26.59$	PASS
62	5310	15.09	13.16	17.24	52.986	$22.36 \text{ or } 11+10\log(B) = 26.60$	PASS
102	5510	12.16	12.14	15.16	32.812	$22.52 \text{ or } 11+10\log(B) = 26.60$	PASS
110	5550	14.23	14.34	17.30	53.649	$22.52 \text{ or } 11+10\log(B) = 26.59$	PASS
134	5670	13.91	14.8	17.39	54.803	$22.52 \text{ or } 11+10\log(B) = 26.60$	PASS
151	5755	10.55	10.95	13.76	23.795	29.57	PASS
159	5795	13.83	14.44	17.16	51.952	29.57	PASS

802.11ac_VHT80_MIMO

СН	Frequency (MHz)	AVERAGE POWER (dBm)		TOTAL POWER	TOTAL POWER	REQUIRED LIMIT	RESULT
	(1411 12)	CHAIN 0	CHAIN 1	(dBm)	(mW)	(dBm)	
58	5290	13.7	10.75	15.48	35.327	$22.36 \text{ or } 11+10\log(B) = 29.74$	PASS
106	5530	8.29	8.5	11.41	13.825	$22.52 \text{ or } 11+10\log(B) = 29.76$	PASS
155	5775	9.54	10.4	13.00	19.960	29.57	PASS

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EIRP

802.11a MAIN

СН	Frequenc y (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	14.47	4.610	19.080	23.01 or 10+10log(B)=22.15	PASS
44	5220	14.46	4.610	19.070	23.01 or 10+10log(B)=22.21	PASS
48	5240	14.43	4.610	19.040	23.01 or 10+10log(B)=22.19	PASS
52	5260	14.41	4.610	19.020	30 or 17+10log(B) =29.18	PASS
60	5300	14.48	4.610	19.090	30 or 17+10log(B) =29.17	PASS
64	5320	14.40	4.610	19.010	30 or 17+10log(B) =29.18	PASS
100	5500	14.42	4.450	18.870	30 or 17+10log(B) =29.18	PASS
116	5580	14.43	4.450	18.880	30 or 17+10log(B) =29.17	PASS
140	5700	14.47	4.450	18.920	30 or 17+10log(B) =29.19	PASS

802.11n HT20 MIMO

СН	Frequenc y (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	17.44	7.620	25.061	23.01 or 10+10log(B)=22.47	PASS
44	5220	17.22	7.620	24.836	23.01 or 10+10log(B)=22.50	PASS
48	5240	17.18	7.620	24.805	23.01 or 10+10log(B)=22.49	PASS
52	5260	17.49	7.620	25.106	30 or 17+10log(B) =29.51	PASS
60	5300	17.42	7.620	25.041	30 or 17+10log(B) =29.45	PASS
64	5320	17.49	7.620	25.107	30 or 17+10log(B) =29.50	PASS
100	5500	17.40	7.460	24.855	30 or 17+10log(B) =29.50	PASS
116	5580	17.19	7.460	24.652	30 or 17+10log(B) =29.49	PASS
140	5700	17.40	7.460	24.864	30 or 17+10log(B) =29.49	PASS

802.11ac VHT20 MIMO

СН	Frequenc y (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	17.04	7.620	24.663	23.01 or 10+10log(B)=22.47	PASS
44	5220	17.13	7.620	24.747	23.01 or 10+10log(B)=22.50	PASS
48	5240	17.18	7.620	24.802	23.01 or 10+10log(B)=22.49	PASS
52	5260	17.30	7.620	24.917	30 or 17+10log(B) =29.51	PASS
60	5300	17.38	7.620	25.001	30 or 17+10log(B) =29.45	PASS
64	5320	17.10	7.620	24.722	30 or 17+10log(B) =29.50	PASS
100	5500	17.36	7.460	24.816	30 or 17+10log(B) =29.50	PASS
116	5580	17.16	7.460	24.621	30 or 17+10log(B) =29.49	PASS
140	5700	17.36	7.460	24.819	30 or 17+10log(B) =29.49	PASS

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802.11n HT40 MIMO

СН	Frequenc y (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	16.95	7.620	24.573	23.01 or 10+10log(B)=25.53	PASS
46	5230	17.49	7.620	25.106	23.01 or 10+10log(B)=25.59	PASS
54	5270	17.37	7.620	24.990	30 or 17+10log(B) =32.59	PASS
62	5310	17.26	7.620	24.882	30 or 17+10log(B) =32.60	PASS
102	5510	15.20	7.460	22.655	30 or 17+10log(B) =32.60	PASS
110	5550	17.37	7.460	24.831	30 or 17+10log(B) =32.59	PASS
134	5670	17.44	7.460	24.895	30 or 17+10log(B) =32.60	PASS

802.11ac VHT40 MIMO

СН	Frequenc y (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	16.93	7.620	24.553	23.01 or 10+10log(B)=25.53	PASS
46	5230	17.48	7.620	25.098	23.01 or 10+10log(B)=25.59	PASS
54	5270	17.49	7.620	25.114	30 or 17+10log(B) =32.59	PASS
62	5310	17.24	7.620	24.862	30 or 17+10log(B) =32.60	PASS
102	5510	15.16	7.460	22.620	30 or 17+10log(B) =32.60	PASS
110	5550	17.30	7.460	24.756	30 or 17+10log(B) =32.59	PASS
134	5670	17.39	7.460	24.848	30 or 17+10log(B) =32.60	PASS

802.11ac VHT80 MIMO

	СН	Frequenc y (MHz)	· 	Antenna Gain (dBi)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
Ì	42	5210	15.60	7.620	23.216	23.01 or 10+10log(B)=28.74	PASS
ĺ	58	5290	15.48	7.620	23.101	23.01 or 10+10log(B)=28.74	PASS
	106	5530	11.41	7.460	18.867	30 or 17+10log(B) =35.76	PASS

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10. PEAK POWER SPECTRAL DENSITY

10.1 Standard Applicable

FCC

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U-NII-1

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

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

FCC

	·	
	Effective Legacy Gain (dBi)	Limit
UNII-1	4.61+3.01=7.62dBi	17dBm – (7.62– 6 dBi) = 15.38dBm
UNII-2A	4.61+3.01=7.62dBi	11dBm – (7.62– 6 dBi) = 9.38dBm
U-NII-2C	4.45+3.01=7.46dBi	11dBm – (7.46– 6 dBi) = 9.54dBm
U-NII-3	3.42+3.01=6.43dBi	30dBm - (6.43- 6 dBi) = 29.57dBm

IC

	Effective Legacy Gain (dBi)	Limit
UNII-2A	4.61+3.01=7.62dBi	11dBm - (7.62- 6 dBi) = 9.38dBm
U-NII-2C	4.45+3.01=7.46dBi	11dBm – (7.46– 6 dBi) = 9.54dBm
U-NII-3	3.42+3.01=6.43dBi	30dBm – (6.43– 6 dBi) = 29.57dBm

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

10.2 Measurement Procedure

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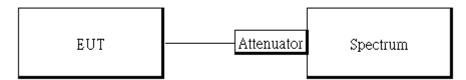
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Note: For the test of PSD at MIMO mode, the highest emission of worst case employing Measure and add 10 log (N) technical is reported on this report after the comparison between Main Antenna at single transmitting mode and Aux that yields the higher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

10.3 Measurement Equipment Used

Conducted Emission Test Site							
EQUIPMENT MFR MODEL SERIAL LAST CAL DU							
TYPE		NUMBER	NUMBER	CAL.			
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016		
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2015	01/01/2016		
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2015	01/01/2016		

10.4 Test Set-up



10.5 Measurement Result

POWER DENSITY 802.11a MODE						
Frequency	PPSD	Limit	Margin			
(MHz)	(dBm)	(dBm)	(dB)			
5180	-1.16	17	-18.16			
5220	-1.19	17	-18.19			
5240	-1.12	17	-18.12			
5260	-1.54	11	-12.54			
5300	-1.48	11	-12.48			
5320	-1.83	11	-12.83			
5500	-1.52	11	-12.52			
5580	-1.59	11	-12.59			
5700	-0.86	11	-11.86			
5745	10.99	30	-19.01			
5785	11.19	30	-18.81			
5825	11.38	30	-18.62			

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P	POWER DENSITY 802.11n HT20 MODE						
Frequency	PPSD	Limit	Margin				
(MHz)	(dBm)	(dBm)	(dB)				
5180	0.67	15.38	-14.71				
5220	0.52	15.38	-14.86				
5240	0.92	15.38	-14.46				
5260	1.62	9.38	-7.76				
5300	0.98	9.38	-8.40				
5320	1.18	9.38	-8.20				
5500	0.54	9.54	-9.00				
5580	0.93	9.54	-8.61				
5700	0.87	9.54	-8.67				
5745	11.27	29.57	-18.30				
5785	11.57	29.57	-18.00				
5825	11.35	29.57	-18.22				

P	POWER DENSITY 802.11n HT40 MODE						
Frequency	PPSD	Limit	Margin				
5190	-4.55	15.38	-19.93				
5230	-5.81	15.38	-21.19				
5270	-4.73	9.38	-14.11				
5310	-3.72	9.38	-13.10				
5510	-3.68	9.54	-13.22				
5550	-4.61	9.54	-14.15				
5670	-5.27	9.54	-14.81				
5755	8.28	29.57	-21.29				
5795	8.13	29.57	-21.44				

POWER DENSITY 802.11ac VHT80 MODE					
Frequency	PPSD	Limit	Margin		
(MHz)	(dBm)	(dBm)	(dB)		
5210	-11.31	15.38	-26.69		
5290	-10.70	9.38	-20.08		
5530	-9.82	9.54	-19.36		
5775	3.98	29.57	-25.59		

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EIRP

802.11 a					
Frequency (MHz)	PPSD (dBm / MHz)	Antenna Gain (dBi)	EIRP spectral density (dBm / MHz)	Limit (dBm / MHz)	Margin (dB)
5180	-1.16	4.61	3.45	10.00	-6.55
5220	-1.19	4.61	3.42	10.00	-6.58
5240	-1.12	4.61	3.49	10.00	-6.51

802.11 n_HT20						
Frequency (MHz)	PPSD (dBm / MHz)	Antenna Gain (dBi)	EIRP spectral density (dBm / MHz)	Limit (dBm / MHz)	Margin (dB)	
5180	0.67	7.62	8.29	10.00	-1.71	
5220	0.52	7.62	8.14	10.00	-1.86	
5240	0.92	7.62	8.54	10.00	-1.46	

802.11 n_HT40						
Frequency (MHz)	PPSD (dBm / MHz)	Antenna Gain (dBi)	EIRP spectral density (dBm / MHz)	Limit (dBm / MHz)	Margin (dB)	
5190	-4.55	7.62	3.07	10.00	-6.93	
5230	-5.81	7.62	1.81	10.00	-8.19	

802.11 n_VHT80						
Frequency (MHz)	PPSD (dBm / MHz)	Antenna Gain (dBi)	EIRP spectral density (dBm / MHz)	Limit (dBm / MHz)	Margin (dB)	
5210	-11.31	7.62	-3.69	10.00	-13.69	

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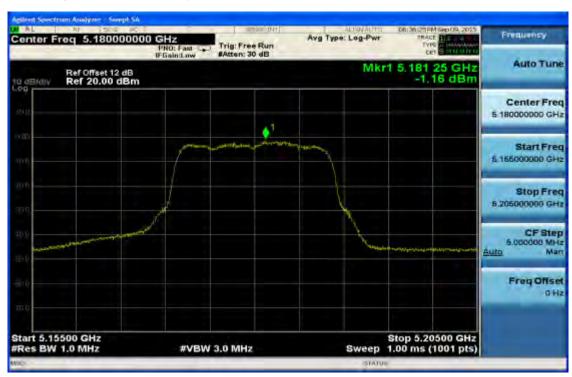
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802.11a 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



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



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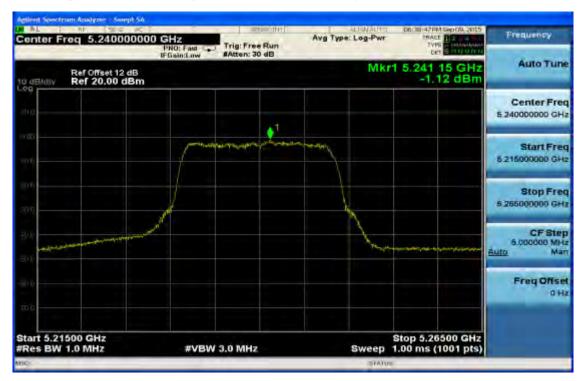
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Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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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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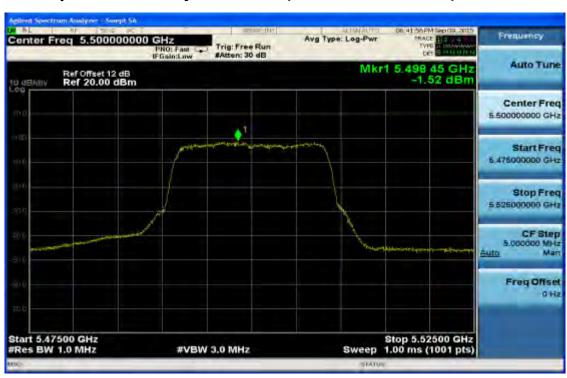
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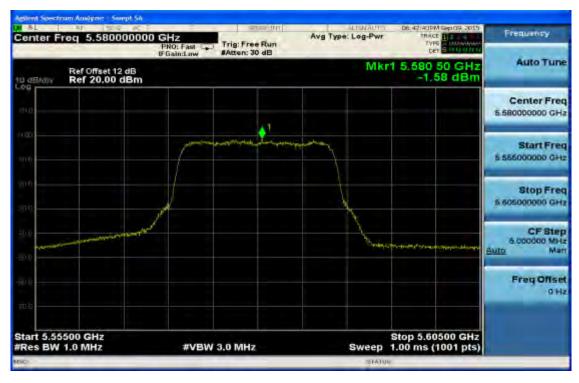
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802.11a 5470~5725 MHz Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



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



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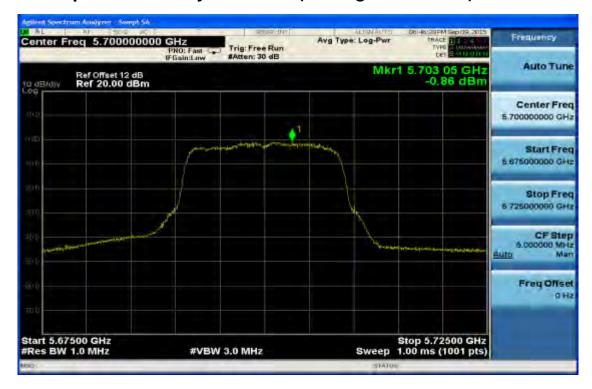
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Peak Power Spectral Density Data Plot (CH High 5700 MHz)



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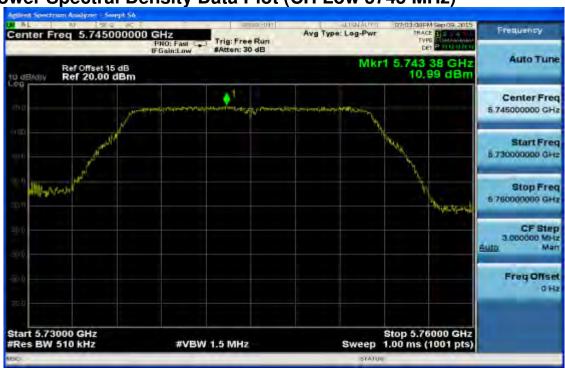
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802.11a 5725~5850 MHz Peak Power Spectral Density Data Plot (CH Low 5745 MHz)



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



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



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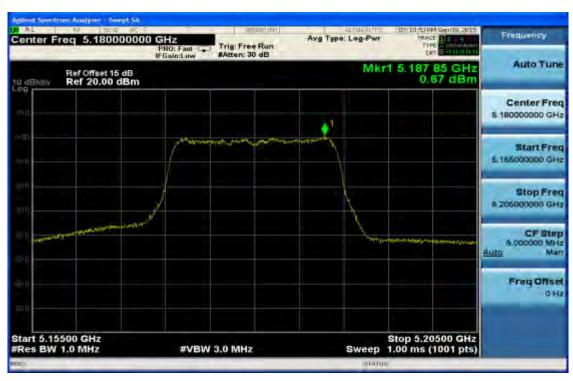
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802.11n HT20, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



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



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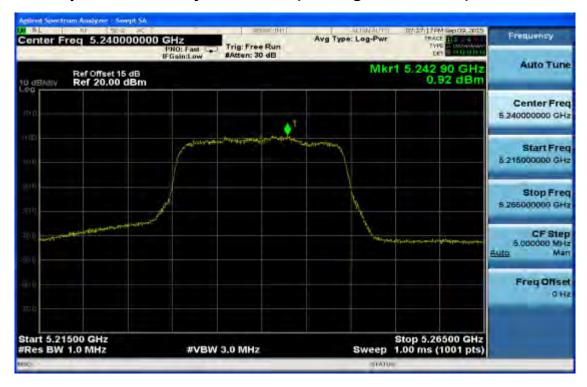
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Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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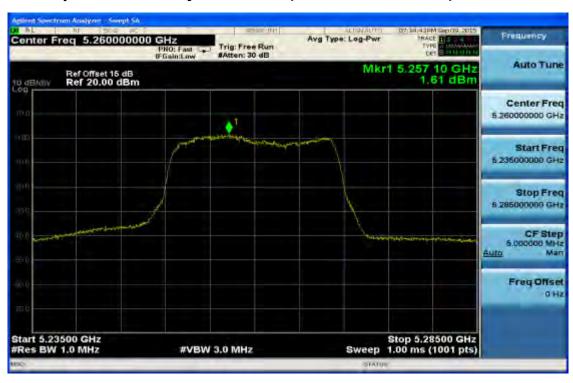
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802.11n HT20, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5260MHz)



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



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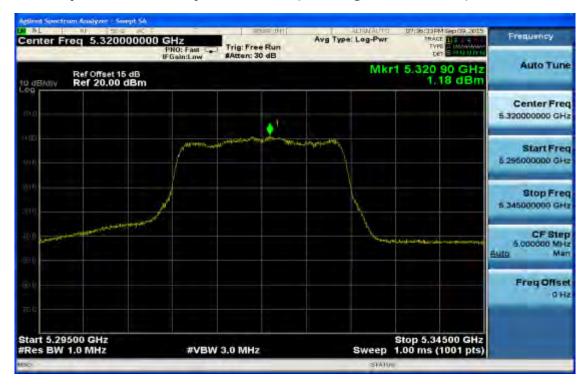
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Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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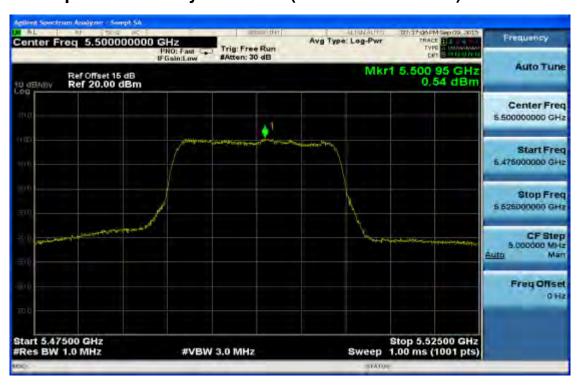
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802.11n HT20, 5470~5725 MHz Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



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



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



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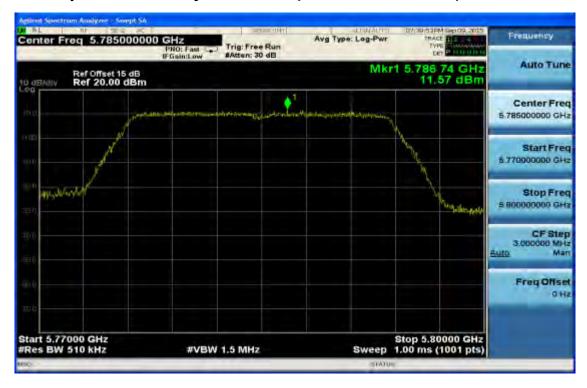
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802.11n HT20, 5725~5850 MHz Peak Power Spectral Density Data Plot (CH Low 5745 MHz)



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



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



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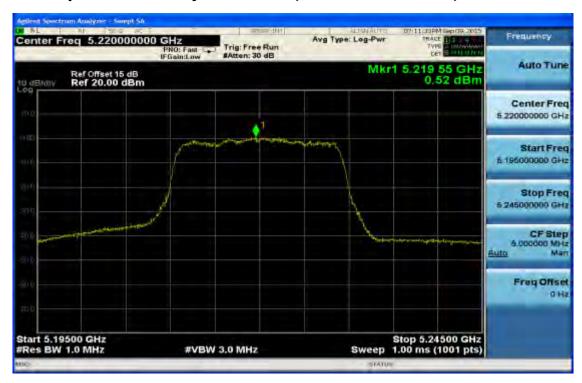
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802.11ac VHT20, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



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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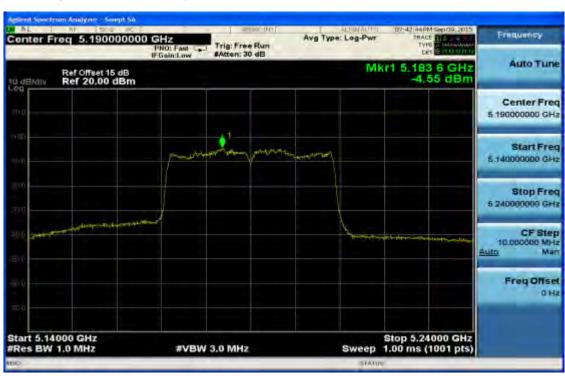
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802.11n HT40, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5190 MHz)



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



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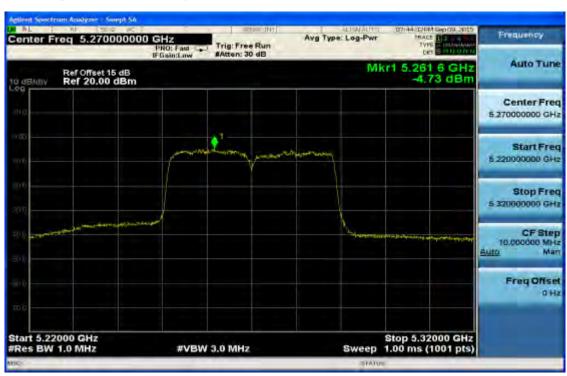
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802.11n HT40, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5270 MHz)



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



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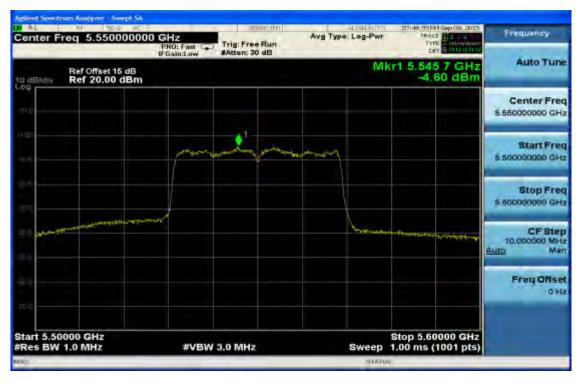
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802.11n HT40, 5470~5725 MHz Peak Power Spectral Density Data Plot (CH Low 5510 MHz)



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



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



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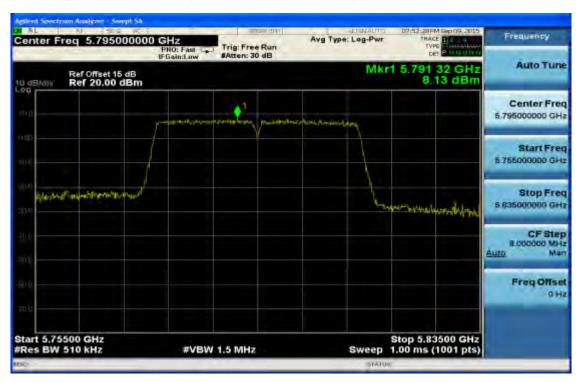
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802.11n HT40, 5725~5850 MHz Peak Power Spectral Density Data Plot (CH Low 5755 MHz)



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



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



802.11ac VHT80, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Mid 5290 MHz)



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



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



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11. UNDESIRABLE RADIATED EMISSION 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.

APPLI	CABLE TO	LIMIT			
	9033 D02 General cedures New Rules	FIELD STRENGTH AT 3m			
	v01	PK: 74 (dBμV/m)	AV 54 (dBμV/m)		
APPLICABLE TO		EIRP LIMIT	FIELD STRENGTH AT 3m		
15.407(b)(1)	RSS-247 §6.2.1 (2)				
15.407(b)(2)	RSS-247 §6.2.2 (2)	PK: -27 (dBm/MHz)	PK: 68.3 (dBμV/m)		
15.407(b)(3)	RSS-247 §6.2.3 (2)				
15.407(b)(4)	RSS-247 §6.2.4 (4)	PK: -27 (dBm/MHz) PK: -17 (dBm/MHz)	PK: 68.3 (dBμV/m) PK: 78.2 (dBμV/m)		

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

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

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

Note:

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

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11.2 Measurement Equipment Used

		SGS 966 Chamb	er No.C		
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
EMI Test Receiver	R&S	ESCI7	100760	05/04/2015	05/03/2016
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016
EXA Spectrum Ana-	Agilent	N9010A	MY50420195	12/22/2014	12/21/2015
Spectrum Analyzer	R&S	FSV-30	101398	09/23/2015	09/22/2016
Loop Antenna	ETS.LINDGREN	6502	00143303	12/9/2014	12/08/2015
Bilog Antenna	SCHWAZBECK	VULB9168	378	12/23/2014	12/22/2015
Horn antenna	ETS.LINDGREN	3117	123995	05/05/2015	05/04/2016
Horn Antenna	Schwarzbeck	BBHA9170	184	12/25/2014	12/24/2015
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	01/02/2015	01/01/2016
Pre-Amplifier	Agilent	8447D	2944A07676	01/02/2015	01/01/2016
Pre-Amplifier	Agilent	8449B	3008A00578	01/02/2015	01/01/2016
Pre-Amplifier	EMC Instruments Corp.	EMC184045	980135	01/02/2015	01/01/2016
5150-5350 Band Reject Filter	Micro-Tronics	BRM50703	1	01/02/2015	01/01/2016
5470-5725 Band Reject Filter	Micro-Tronics	BRM50704	1	01/02/2015	01/01/2016
5725-5875 Band Reject Filter	Micro-Tronics	BRM50705	1	01/02/2015	01/01/2016
1GHz High Pass Fil- ter	Micro-Tronics	HPM50108	32	01/02/2015	01/01/2016
2GHz High Pass Fil- ter	Micro-Tronics	HPM50110	36	01/02/2015	01/01/2016
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2015	01/01/2016
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	ChamPro	AM-BS-4500-B	060776-ABS	N.C.R	N.C.R
Controller	ChamPro	EM1000	060776	N.C.R	N.C.R
Low Loss Cable	Huber Suhner	966_Rx	9	01/02/2015	01/01/2016
3m Site NSA	SGS	966 chamber	N/A	07/01/2015	06/30/2016

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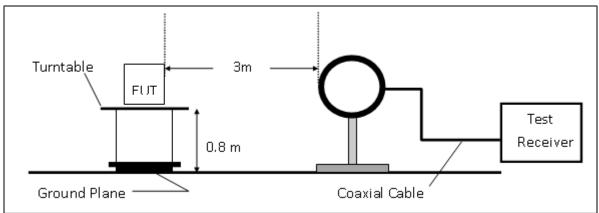


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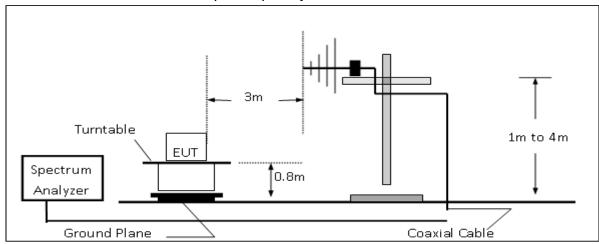
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11.3 Test SET-UP

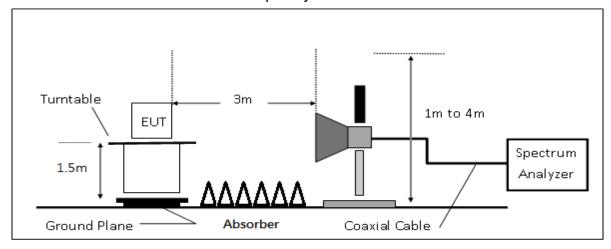
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(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

- 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.
- The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequen-3. cy> 1GHz 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 emissions.
- Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) 6. and Quasi-peak (QP) at frequency below 1 GHz.
- Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency 7. above 1 GHz.
- Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
- 9. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 10. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 11. Repeat above procedures until all frequency measured were complete.

11.5 Field Strength Calculation

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

FS = RA + AF + CL - AG

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

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

Factor(dB) = Antenna Factor(dB μ V/m) + Cable Loss(dB) – Pre Amplifier Gain(dB)

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Note:

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

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

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

11.7 **Measurement Result**

Refer to attach tabular data sheets.

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Radiated Spurious Emission Measurement Result Below 1GHz Worst-Case Data:

802.11a 5150~5250 MHz

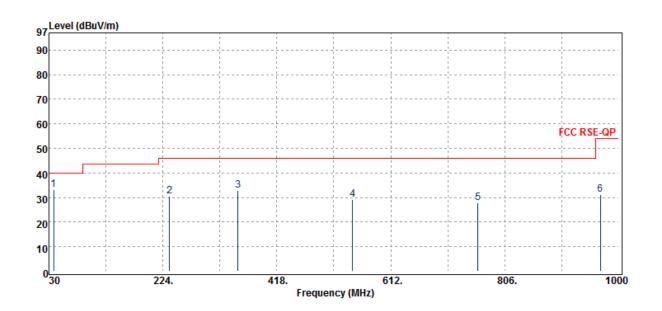
Operation Band :802.11 a

Fundamental Frequency Temp./Humi. :5180 MHz :23 deg_C / 60 RH

Test Date

Operation Mode :TX LOW Engineer :Tin

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin	
		Mode	Reading Level		FS	@3m		
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
37.76	S	Peak	43.22	-9.95	33.27	40.00	-6.73	
235.64	S	Peak	41.18	-10.56	30.62	46.00	-15.38	
352.04	S	Peak	40.00	-7.13	32.87	46.00	-13.13	
547.01	S	Peak	33.09	-4.03	29.06	46.00	-16.94	
760.41	S	Peak	26.70	1.11	27.81	46.00	-18.19	
968.96	S	Peak	27.45	3.64	31.09	54.00	-22.91	

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Report No.:ER/2015/80132 Issue Date: Oct. 16, 2015

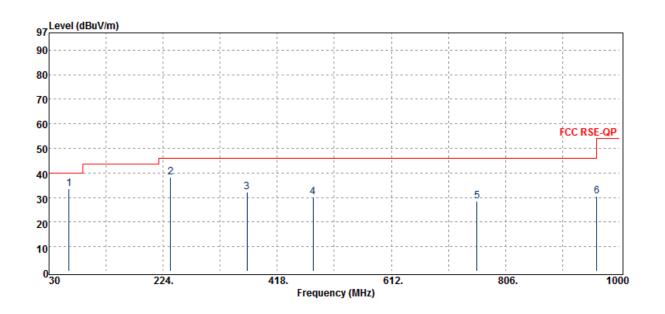
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Operation Band :802.11 a Fundamental Frequency :5180 MHz Operation Mode :TX LOW EUT Pol. :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	44.29	-10.79	33.50	40.00	-6.50
236.61	S	Peak	48.75	-10.49	38.26	46.00	-7.74
366.59	S	Peak	39.17	-6.92	32.25	46.00	-13.75
479.11	S	Peak	34.79	-4.63	30.16	46.00	-15.84
757.50	S	Peak	27.47	0.97	28.44	46.00	-17.56
961.20	S	Peak	26.88	3.68	30.56	54.00	-23.44

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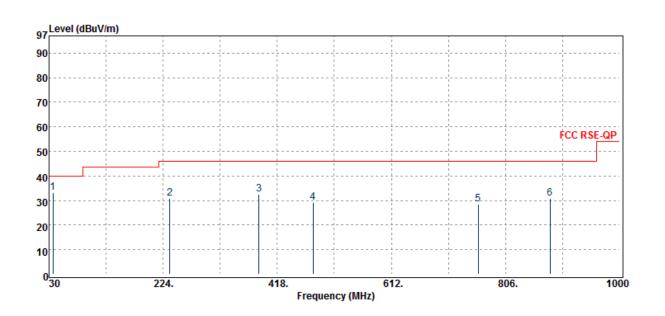
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5220 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
36.79	S	Peak	43.32	-10.03	33.29	40.00	-6.71
235.64	S	Peak	41.28	-10.56	30.72	46.00	-15.28
386.96	S	Peak	38.65	-6.20	32.45	46.00	-13.55
479.11	S	Peak	33.78	-4.63	29.15	46.00	-16.85
759.44	S	Peak	27.35	1.07	28.42	46.00	-17.58
881.66	S	Peak	28.53	2.19	30.72	46.00	-15.28

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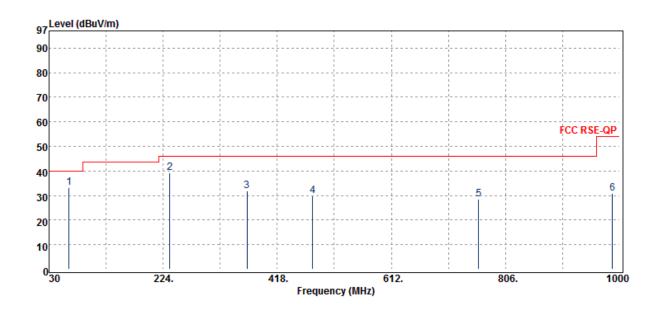
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5220 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	43.96	-10.79	33.17	40.00	-6.83
235.64	S	Peak	50.00	-10.56	39.44	46.00	-6.56
366.59	S	Peak	38.87	-6.92	31.95	46.00	-14.05
478.14	S	Peak	34.51	-4.68	29.83	46.00	-16.17
760.41	S	Peak	27.29	1.11	28.40	46.00	-17.60
987.39	S	Peak	27.44	3.38	30.82	54.00	-23.18

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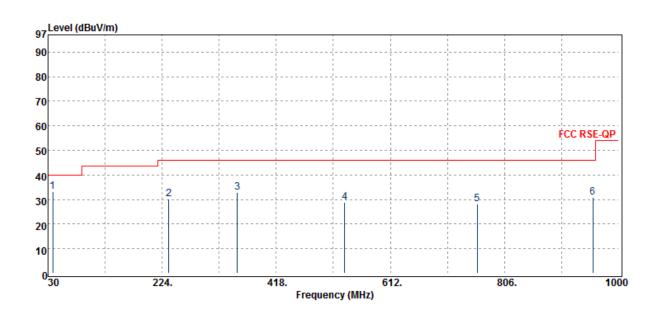
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5240 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
37.76	S	Peak	43.07	-9.95	33.12	40.00	-6.88
235.64	S	Peak	40.88	-10.56	30.32	46.00	-15.68
352.04	S	Peak	40.03	-7.13	32.90	46.00	-13.10
534.40	S	Peak	32.78	-4.00	28.78	46.00	-17.22
759.44	S	Peak	27.07	1.07	28.14	46.00	-17.86
956.35	S	Peak	27.34	3.56	30.90	46.00	-15.10

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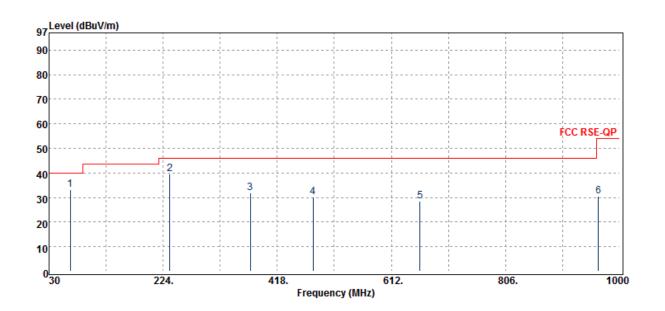
Operation Band Fundamental Frequency Operation Mode EUT Pol. :E2 Plane

:802.11 a :5240 MHz :TX HIGH

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
65.89	S	Peak	44.37	-11.07	33.30	40.00	-6.70
235.64	S	Peak	50.04	-10.56	39.48	46.00	-6.52
372.41	S	Peak	38.63	-6.73	31.90	46.00	-14.10
479.11	S	Peak	34.80	-4.63	30.17	46.00	-15.83
660.50	S	Peak	29.73	-1.12	28.61	46.00	-17.39
964.11	S	Peak	27.02	3.69	30.71	54.00	-23.29

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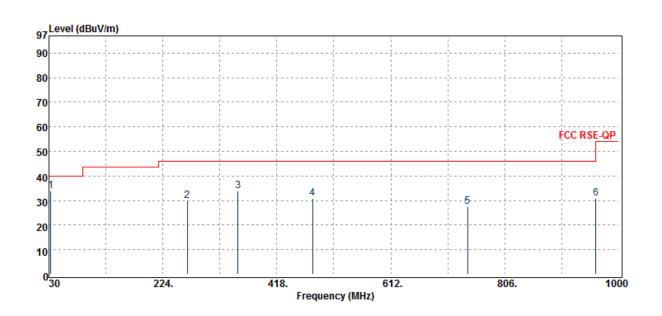
802.11ac VHT80, 5150~5250 MHz

Test Date Operation Band :802.11 ac80M

Fundamental Frequency Temp./Humi. :5210 MHz :23 deg_C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
32.91	S	Peak	44.00	-10.20	33.80	40.00	-6.20
265.71	S	Peak	39.17	-9.23	29.94	46.00	-16.06
352.04	S	Peak	41.18	-7.13	34.05	46.00	-11.95
479.11	S	Peak	35.68	-4.63	31.05	46.00	-14.95
742.95	S	Peak	27.78	-0.24	27.54	46.00	-18.46
961.20	S	Peak	27.22	3.68	30.90	54.00	-23.10

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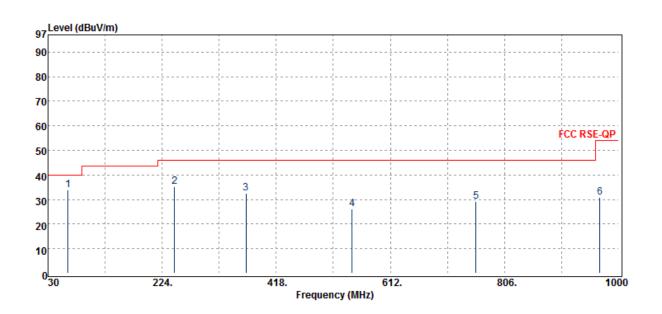
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5210 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	44.61	-10.79	33.82	40.00	-6.18
245.34	S	Peak	45.40	-10.04	35.36	46.00	-10.64
366.59	S	Peak	39.37	-6.92	32.45	46.00	-13.55
547.01	S	Peak	30.22	-4.03	26.19	46.00	-19.81
757.50	S	Peak	28.14	0.97	29.11	46.00	-16.89
967.99	S	Peak	27.34	3.66	31.00	54.00	-23.00

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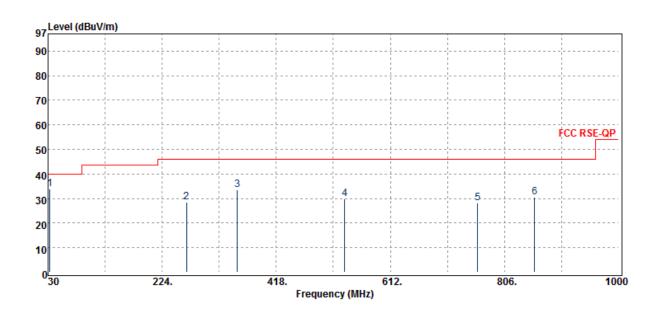
802.11a 5250~5350 MHz

Test Date **Operation Band** :802.11 a

Fundamental Frequency :5260 MHz Temp./Humi. :23 deg_C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
32.91	S	Peak	44.01	-10.20	33.81	40.00	-6.19
265.71	S	Peak	37.89	-9.23	28.66	46.00	-17.34
352.04	S	Peak	40.62	-7.13	33.49	46.00	-12.51
534.40	S	Peak	34.01	-4.00	30.01	46.00	-15.99
760.41	S	Peak	27.01	1.11	28.12	46.00	-17.88
857.41	S	Peak	28.74	1.80	30.54	46.00	-15.46

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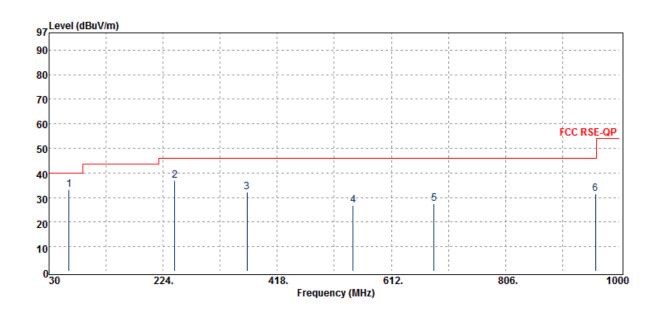
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Operation Band :802.11 a Fundamental Frequency :5260 MHz Operation Mode :TX LOW EUT Pol. :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	43.90	-10.79	33.11	40.00	-6.89
243.40	S	Peak	46.90	-10.12	36.78	46.00	-9.22
366.59	S	Peak	39.14	-6.92	32.22	46.00	-13.78
547.01	S	Peak	30.79	-4.03	26.76	46.00	-19.24
684.75	S	Peak	28.49	-0.95	27.54	46.00	-18.46
959.26	S	Peak	27.91	3.65	31.56	46.00	-14.44

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Report No.:ER/2015/80132 Issue Date: Oct. 16, 2015

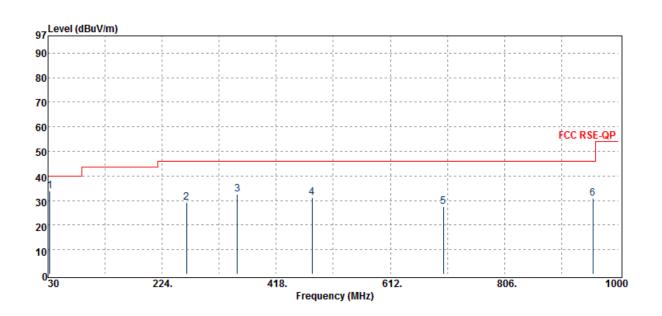
Page: 185 of 320

Operation Band :802.11 a Fundamental Frequency :5300 MHz Operation Mode :TX MID EUT Pol. :E2 Plane

Test Date Temp./Humi. :2015-10-13 :23 deg_C / 60 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
32.91	S	Peak	43.94	-10.20	33.74	40.00	-6.26
265.71	S	Peak	38.59	-9.23	29.36	46.00	-16.64
352.04	S	Peak	39.75	-7.13	32.62	46.00	-13.38
479.11	S	Peak	35.70	-4.63	31.07	46.00	-14.93
702.21	S	Peak	28.79	-1.18	27.61	46.00	-18.39
956.35	S	Peak	27.19	3.56	30.75	46.00	-15.25

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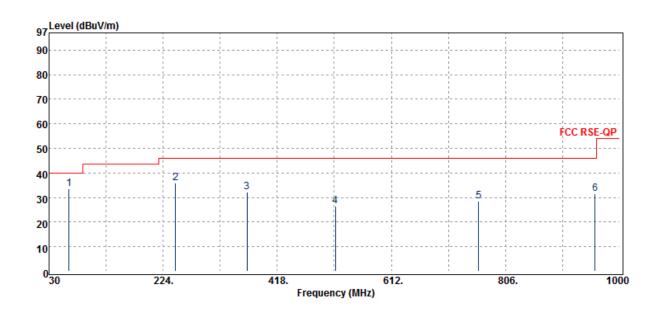
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5300 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	44.51	-10.79	33.72	40.00	-6.28
245.34	S	Peak	45.95	-10.04	35.91	46.00	-10.09
366.59	S	Peak	39.27	-6.92	32.35	46.00	-13.65
516.94	S	Peak	31.03	-4.49	26.54	46.00	-19.46
760.41	S	Peak	27.36	1.11	28.47	46.00	-17.53
958.29	S	Peak	27.82	3.62	31.44	46.00	-14.56

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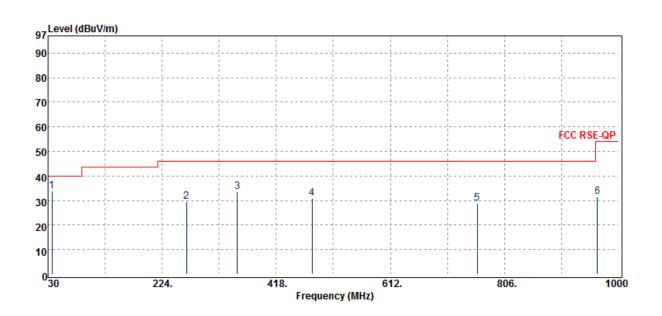
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Operation Band :802.11 a Fundamental Frequency :5320 MHz Operation Mode :TX HIGH EUT Pol. :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
36.79	S	Peak	43.99	-10.03	33.96	40.00	-6.04
265.71	S	Peak	38.78	-9.23	29.55	46.00	-16.45
352.04	S	Peak	40.73	-7.13	33.60	46.00	-12.40
479.11	S	Peak	35.53	-4.63	30.90	46.00	-15.10
759.44	S	Peak	27.64	1.07	28.71	46.00	-17.29
964.11	S	Peak	27.72	3.69	31.41	54.00	-22.59

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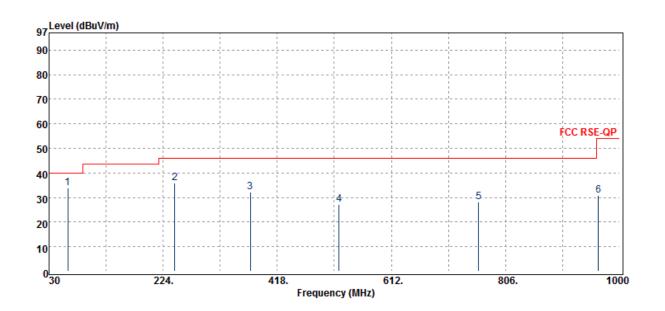
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Operation Band :802.11 a Fundamental Frequency :5320 MHz Operation Mode :TX HIGH EUT Pol. :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
62.01	S	Peak	44.40	-10.49	33.91	40.00	-6.09
243.40	S	Peak	46.05	-10.12	35.93	46.00	-10.07
372.41	S	Peak	38.84	-6.73	32.11	46.00	-13.89
522.76	S	Peak	31.46	-4.33	27.13	46.00	-18.87
760.41	S	Peak	27.02	1.11	28.13	46.00	-17.87
964.11	S	Peak	27.03	3.69	30.72	54.00	-23.28

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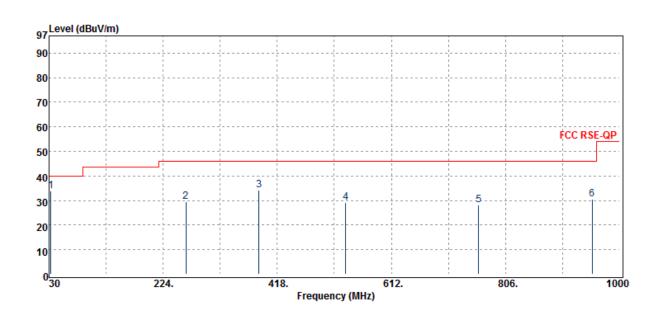
802.11ac VHT80, 5250~5350 MHz

Test Date :2015-10-13 **Operation Band** :802.11 ac80M

Fundamental Frequency Temp./Humi. :23 deg_C / 60 RH :5290 MHz

Operation Mode :TX HIGH Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
32.91	S	Peak	44.00	-10.20	33.80	40.00	-6.20
262.80	S	Peak	38.87	-9.41	29.46	46.00	-16.54
386.96	S	Peak	40.38	-6.20	34.18	46.00	-11.82
534.40	S	Peak	33.11	-4.00	29.11	46.00	-16.89
760.41	S	Peak	26.94	1.11	28.05	46.00	-17.95
953.44	S	Peak	27.11	3.45	30.56	46.00	-15.44

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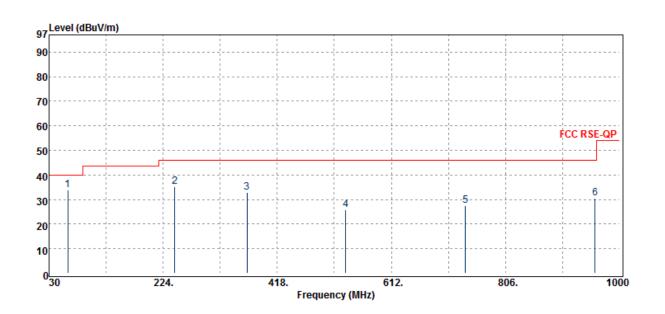
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5290 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
62.01	S	Peak	44.48	-10.49	33.99	40.00	-6.01
243.40	S	Peak	45.29	-10.12	35.17	46.00	-10.83
366.59	S	Peak	39.97	-6.92	33.05	46.00	-12.95
534.40	S	Peak	29.69	-4.00	25.69	46.00	-20.31
738.10	S	Peak	28.11	-0.52	27.59	46.00	-18.41
958.29	S	Peak	26.86	3.62	30.48	46.00	-15.52

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802.11a, 5470~5725 MHz

Operation Band :802.11 a Fundamental Frequency :5500 MHz :TX LOW

Operation Mode

EUT Pol.

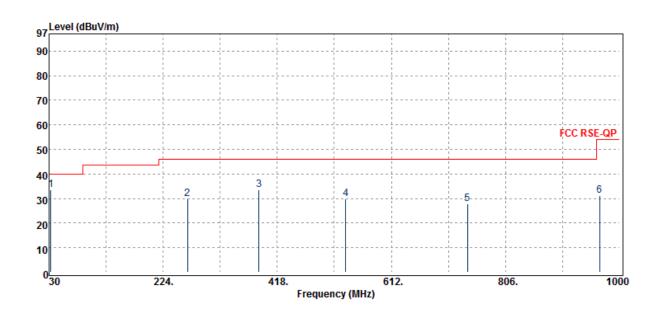
:E2 Plane

Test Date Temp./Humi. :2015-10-13

:23 deg_C / 60 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
32.91	S	Peak	43.88	-10.20	33.68	40.00	-6.32
265.71	S	Peak	39.09	-9.23	29.86	46.00	-16.14
386.96	S	Peak	39.75	-6.20	33.55	46.00	-12.45
534.40	S	Peak	34.03	-4.00	30.03	46.00	-15.97
741.01	S	Peak	28.23	-0.35	27.88	46.00	-18.12
966.05	S	Peak	27.69	3.67	31.36	54.00	-22.64

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:2015-10-13

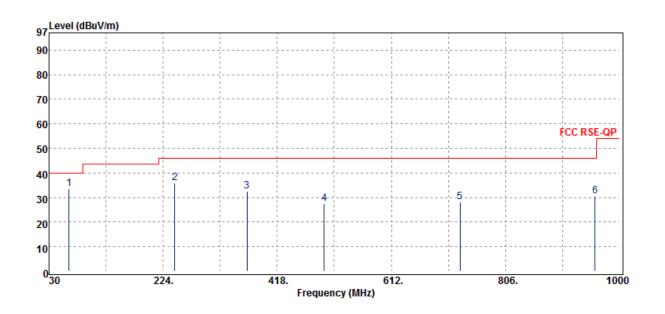
:23 deg_C / 60 RH

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Operation Band :802.11 a Fundamental Frequency :5500 MHz Operation Mode :TX LOW EUT Pol. :E2 Plane

Test Date Temp./Humi. Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	44.22	-10.79	33.43	40.00	-6.57
243.40	S	Peak	45.95	-10.12	35.83	46.00	-10.17
366.59	S	Peak	39.59	-6.92	32.67	46.00	-13.33
497.54	S	Peak	31.94	-4.35	27.59	46.00	-18.41
728.40	S	Peak	29.18	-0.93	28.25	46.00	-17.75
958.29	S	Peak	27.04	3.62	30.66	46.00	-15.34

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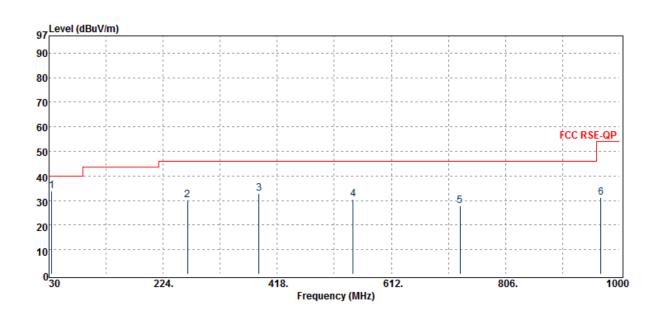
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Operation Band :802.11 a Fundamental Frequency :5580 MHz Operation Mode :TX MID EUT Pol. :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
34.85	S	Peak	44.00	-10.17	33.83	40.00	-6.17
265.71	S	Peak	39.52	-9.23	30.29	46.00	-15.71
386.96	S	Peak	39.06	-6.20	32.86	46.00	-13.14
547.01	S	Peak	34.62	-4.03	30.59	46.00	-15.41
728.40	S	Peak	28.81	-0.93	27.88	46.00	-18.12
967.99	S	Peak	27.67	3.66	31.33	54.00	-22.67

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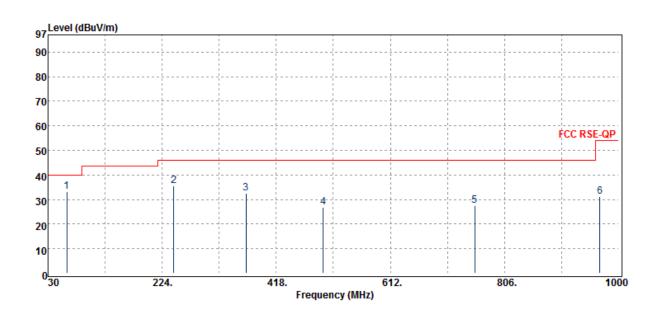
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5580 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
62.01	S	Peak	43.63	-10.49	33.14	40.00	-6.86
243.40	S	Peak	45.77	-10.12	35.65	46.00	-10.35
366.59	S	Peak	39.49	-6.92	32.57	46.00	-13.43
497.54	S	Peak	31.29	-4.35	26.94	46.00	-19.06
755.56	S	Peak	26.68	0.80	27.48	46.00	-18.52
967.99	S	Peak	27.52	3.66	31.18	54.00	-22.82

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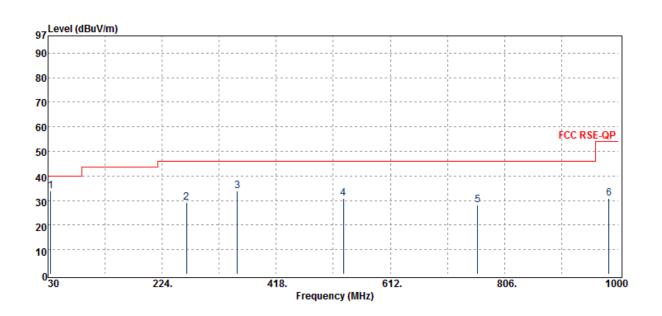
Operation Band :802.11 a Fundamental Frequency Operation Mode EUT Pol.

:5700 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
34.85	S	Peak	44.03	-10.17	33.86	40.00	-6.14
265.71	S	Peak	38.33	-9.23	29.10	46.00	-16.90
352.04	S	Peak	41.00	-7.13	33.87	46.00	-12.13
532.46	S	Peak	34.99	-4.03	30.96	46.00	-15.04
760.41	S	Peak	27.10	1.11	28.21	46.00	-17.79
983.51	S	Peak	27.55	3.38	30.93	54.00	-23.07

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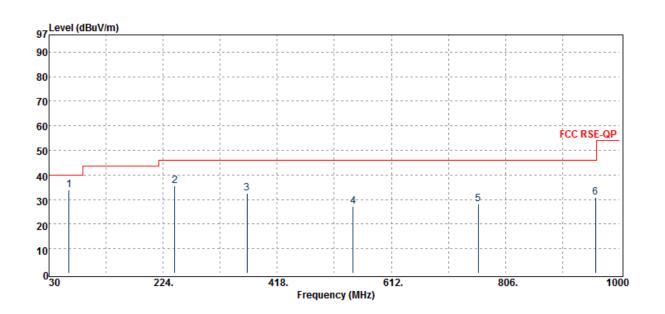
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5700 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	44.61	-10.79	33.82	40.00	-6.18
243.40	S	Peak	45.70	-10.12	35.58	46.00	-10.42
366.59	S	Peak	39.51	-6.92	32.59	46.00	-13.41
547.01	S	Peak	31.26	-4.03	27.23	46.00	-18.77
759.44	S	Peak	27.26	1.07	28.33	46.00	-17.67
959.26	S	Peak	27.37	3.65	31.02	46.00	-14.98

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802.11ac VHT80, 5470~5725 MHz

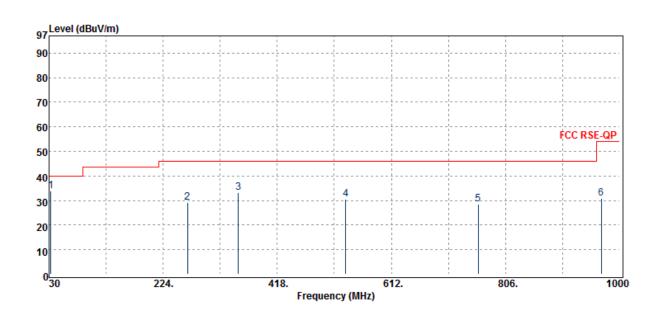
Operation Band :802.11 ac80M Fundamental Frequency :5530 MHz **Operation Mode** :TX LOW

EUT Pol. :E2 Plane

:2015-10-13 **Test Date** Temp./Humi. :23 deg_C / 60 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
32.91	S	Peak	44.18	-10.20	33.98	40.00	-6.02
265.71	S	Peak	38.49	-9.23	29.26	46.00	-16.74
352.04	S	Peak	40.50	-7.13	33.37	46.00	-12.63
534.40	S	Peak	34.59	-4.00	30.59	46.00	-15.41
759.44	S	Peak	27.37	1.07	28.44	46.00	-17.56
968.96	S	Peak	27.29	3.64	30.93	54.00	-23.07

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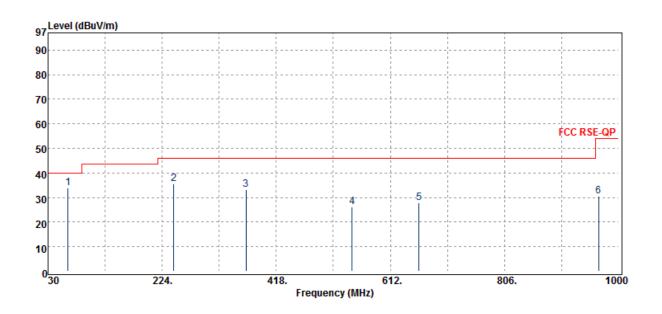
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5530 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	44.61	-10.79	33.82	40.00	-6.18
243.40	S	Peak	45.53	-10.12	35.41	46.00	-10.59
366.59	S	Peak	40.02	-6.92	33.10	46.00	-12.90
547.01	S	Peak	30.29	-4.03	26.26	46.00	-19.74
660.50	S	Peak	29.03	-1.12	27.91	46.00	-18.09
966.05	S	Peak	26.90	3.67	30.57	54.00	-23.43

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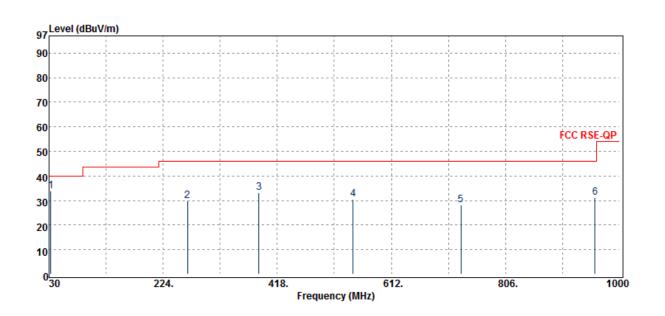
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5610 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
32.91	S	Peak	43.94	-10.20	33.74	40.00	-6.26
265.71	S	Peak	39.20	-9.23	29.97	46.00	-16.03
386.96	S	Peak	39.51	-6.20	33.31	46.00	-12.69
547.01	S	Peak	34.65	-4.03	30.62	46.00	-15.38
730.34	S	Peak	29.05	-0.88	28.17	46.00	-17.83
958.29	S	Peak	27.61	3.62	31.23	46.00	-14.77

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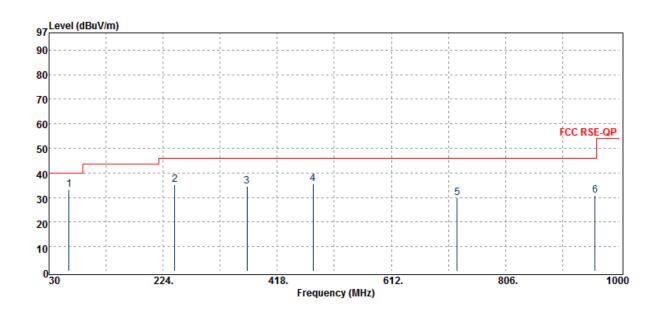
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5610 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	43.91	-10.79	33.12	40.00	-6.88
243.40	S	Peak	45.43	-10.12	35.31	46.00	-10.69
366.59	S	Peak	41.54	-6.92	34.62	46.00	-11.38
479.11	S	Peak	40.13	-4.63	35.50	46.00	-10.50
723.55	S	Peak	30.85	-1.11	29.74	46.00	-16.26
958.29	S	Peak	27.18	3.62	30.80	46.00	-15.20

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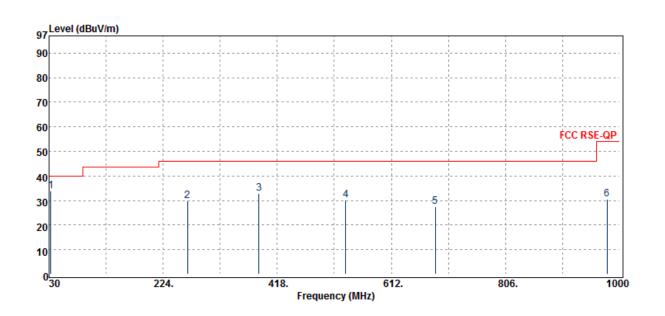
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5690 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
32.91	S	Peak	43.96	-10.20	33.76	40.00	-6.24
265.71	S	Peak	39.10	-9.23	29.87	46.00	-16.13
386.96	S	Peak	39.12	-6.20	32.92	46.00	-13.08
534.40	S	Peak	34.07	-4.00	30.07	46.00	-15.93
686.69	S	Peak	28.58	-0.89	27.69	46.00	-18.31
978.66	S	Peak	26.97	3.43	30.40	54.00	-23.60

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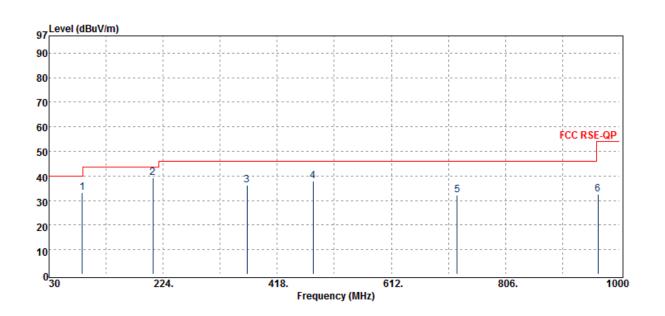
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5690 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
86.26	S	Peak	47.76	-14.70	33.06	40.00	-6.94
206.54	S	Peak	50.76	-11.38	39.38	43.50	-4.12
366.59	S	Peak	43.21	-6.92	36.29	46.00	-9.71
479.11	S	Peak	42.57	-4.63	37.94	46.00	-8.06
723.55	S	Peak	33.46	-1.11	32.35	46.00	-13.65
963.14	S	Peak	28.74	3.70	32.44	54.00	-21.56

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:23 deg_C / 60 RH

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802.11a, 5725~5850 MHz

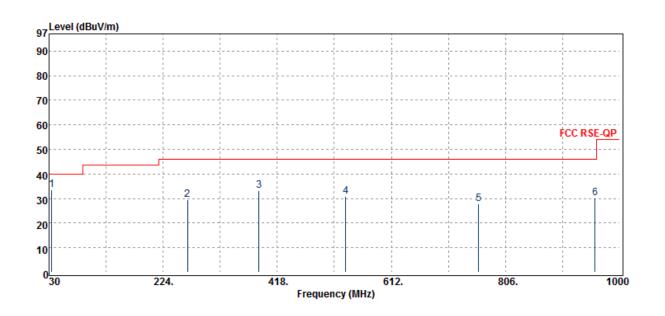
Operation Band :802.11 a Fundamental Frequency :5745 MHz

Operation Mode :TX LOW Engineer

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Test Date

Temp./Humi.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
34.85	S	Peak	43.86	-10.17	33.69	40.00	-6.31
265.71	S	Peak	38.72	-9.23	29.49	46.00	-16.51
386.96	S	Peak	39.48	-6.20	33.28	46.00	-12.72
534.40	S	Peak	34.99	-4.00	30.99	46.00	-15.01
760.41	S	Peak	26.59	1.11	27.70	46.00	-18.30
958.29	S	Peak	26.67	3.62	30.29	46.00	-15.71

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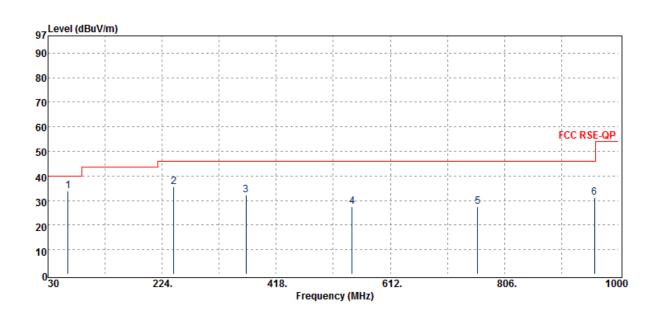
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Operation Band :802.11 a Fundamental Frequency :5745 MHz Operation Mode :TX LOW EUT Pol. :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	44.56	-10.79	33.77	40.00	-6.23
243.40	S	Peak	45.61	-10.12	35.49	46.00	-10.51
366.59	S	Peak	39.05	-6.92	32.13	46.00	-13.87
547.01	S	Peak	31.63	-4.03	27.60	46.00	-18.40
760.41	S	Peak	26.25	1.11	27.36	46.00	-18.64
959.26	S	Peak	27.43	3.65	31.08	46.00	-14.92

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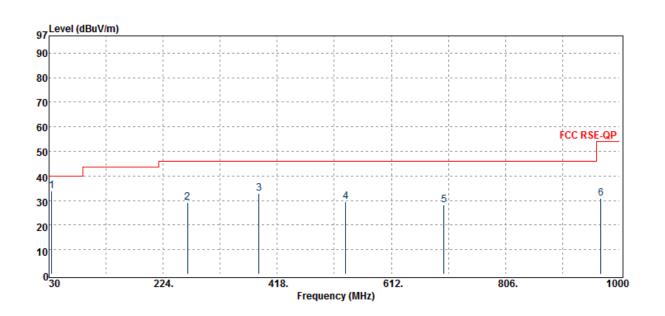
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5785 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
34.85	S	Peak	44.13	-10.17	33.96	40.00	-6.04
265.71	S	Peak	38.41	-9.23	29.18	46.00	-16.82
386.96	S	Peak	39.23	-6.20	33.03	46.00	-12.97
534.40	S	Peak	33.39	-4.00	29.39	46.00	-16.61
701.24	S	Peak	29.31	-1.15	28.16	46.00	-17.84
967.99	S	Peak	27.29	3.66	30.95	54.00	-23.05

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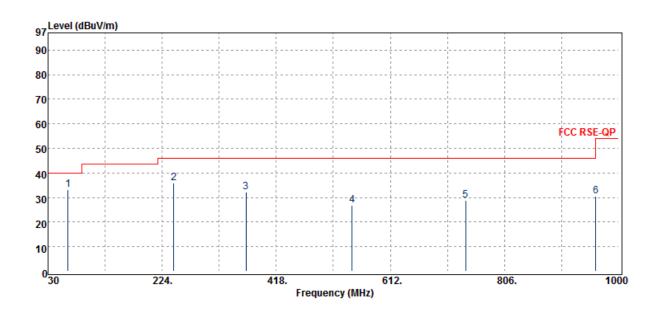
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5785 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	43.85	-10.79	33.06	40.00	-6.94
243.40	S	Peak	46.10	-10.12	35.98	46.00	-10.02
366.59	S	Peak	39.15	-6.92	32.23	46.00	-13.77
547.01	S	Peak	30.91	-4.03	26.88	46.00	-19.12
740.04	S	Peak	29.31	-0.41	28.90	46.00	-17.10
961.20	S	Peak	26.84	3.68	30.52	54.00	-23.48

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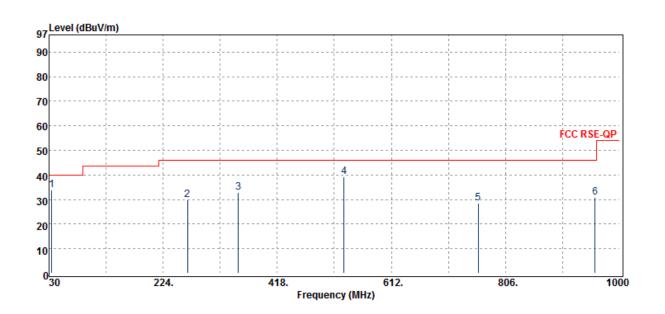
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Operation Band :802.11 a Fundamental Frequency :5825 MHz Operation Mode :TX HIGH EUT Pol. :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
34.85	S	Peak	44.01	-10.17	33.84	40.00	-6.16
265.71	S	Peak	39.07	-9.23	29.84	46.00	-16.16
352.04	S	Peak	39.93	-7.13	32.80	46.00	-13.20
531.49	S	Peak	43.22	-4.05	39.17	46.00	-6.83
759.44	S	Peak	27.57	1.07	28.64	46.00	-17.36
958.29	S	Peak	27.14	3.62	30.76	46.00	-15.24

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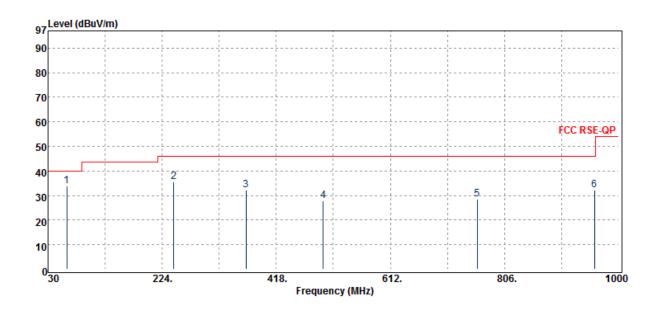
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Operation Band :802.11 a Fundamental Frequency :5825 MHz Operation Mode :TX HIGH EUT Pol. :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
62.01	S	Peak	44.39	-10.49	33.90	40.00	-6.10
243.40	S	Peak	45.69	-10.12	35.57	46.00	-10.43
366.59	S	Peak	39.04	-6.92	32.12	46.00	-13.88
497.54	S	Peak	32.23	-4.35	27.88	46.00	-18.12
759.44	S	Peak	27.31	1.07	28.38	46.00	-17.62
959.26	S	Peak	28.56	3.65	32.21	46.00	-13.79

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:2015-10-13

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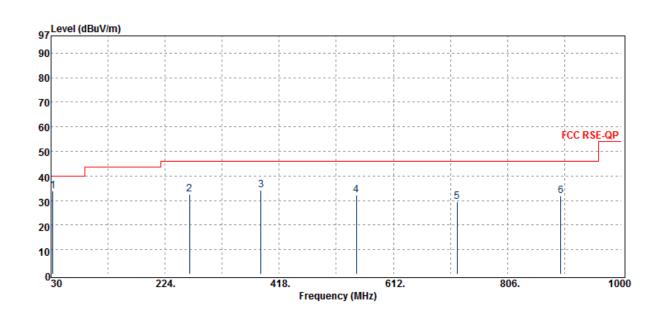
802.11ac VHT80, 5725~5850 MHz

Test Date **Operation Band** :802.11 ac80M

Fundamental Frequency Temp./Humi. :23 deg_C / 60 RH :5775 MHz

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
32.91	S	Peak	43.98	-10.20	33.78	40.00	-6.22
265.71	S	Peak	41.65	-9.23	32.42	46.00	-13.58
386.96	S	Peak	40.53	-6.20	34.33	46.00	-11.67
548.95	S	Peak	36.37	-4.05	32.32	46.00	-13.68
720.64	S	Peak	30.78	-1.26	29.52	46.00	-16.48
896.21	S	Peak	29.92	2.00	31.92	46.00	-14.08

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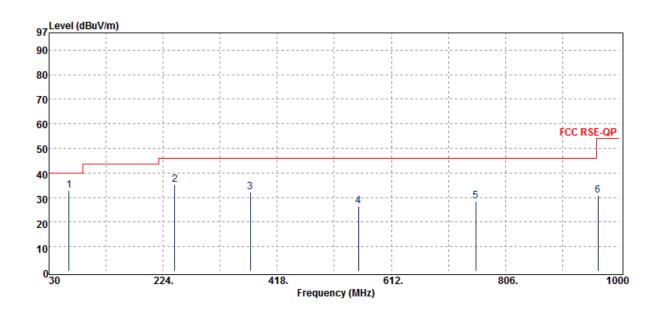
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5775 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-13 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
63.95	S	Peak	43.82	-10.79	33.03	40.00	-6.97
243.40	S	Peak	45.33	-10.12	35.21	46.00	-10.79
372.41	S	Peak	38.83	-6.73	32.10	46.00	-13.90
555.74	S	Peak	30.33	-3.95	26.38	46.00	-19.62
755.56	S	Peak	27.65	0.80	28.45	46.00	-17.55
963.14	S	Peak	27.03	3.70	30.73	54.00	-23.27

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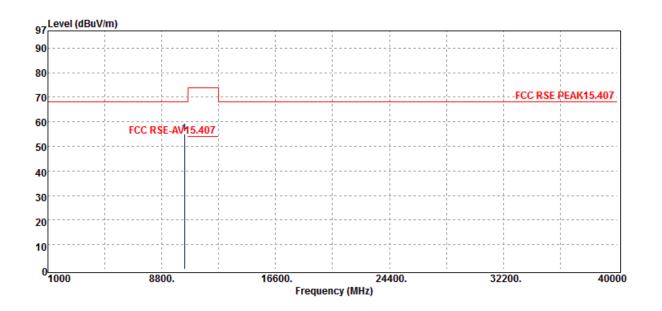
Above 1GHz Worst-Case Data: 802.11a, 5150~5250 MHz

Test Date :2015-09-10 **Operation Band** :802.11 a

Fundamental Frequency Temp./Humi. :5180 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10360.00	Н	Peak	37.44	17.65	55.09	68.30	-13.21

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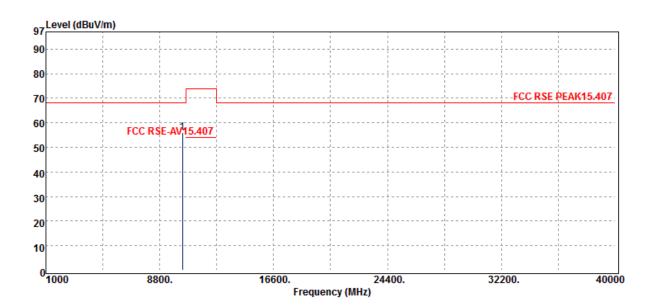
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5180 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10360.00	Н	Peak	38.35	17.65	56.00	68.30	-12.30	

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Operation Band Fundamental Frequency Operation Mode

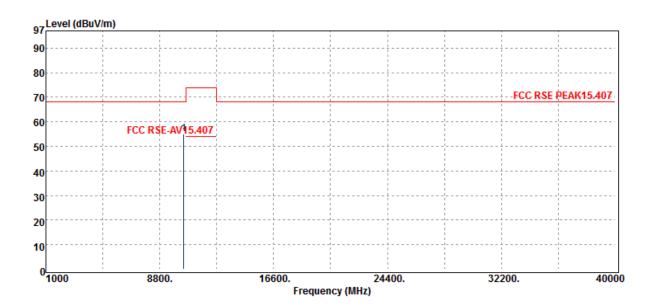
EUT Pol.

:802.11 a :5220 MHz :TX MID :E2 Plane

Test Date Temp./Humi. :2015-09-10 :23 deg_C / 60 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
 MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10440.00	Н	Peak	36.46	18.47	54.93	68.30	-13.37	

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Operation Band Fundamental Frequency Operation Mode

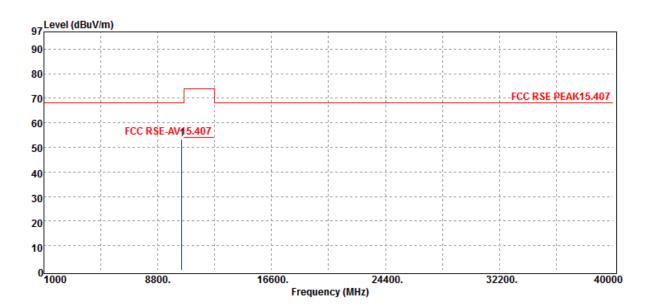
EUT Pol.

:802.11 a :5220 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10440.00	Н	Peak	34.92	18.47	53.39	68.30	-14.91	

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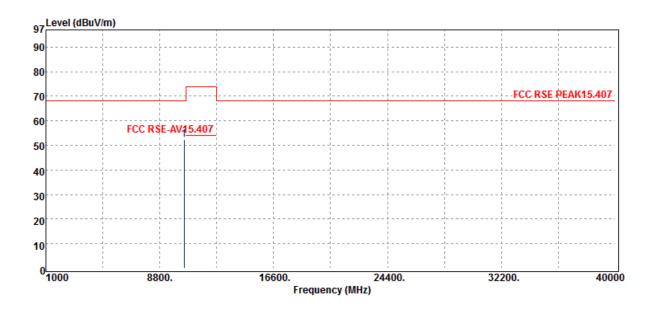
Page: 215 of 320

Operation Band :802.11 a Fundamental Frequency :5240 MHz Operation Mode :TX HIGH

EUT Pol. :E2 Plane **Test Date** :2015-09-10 Temp./Humi. :23 deg_C / 60 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10480.00	Н	Peak	34.02	18.23	52.25	68.30	-16.05	

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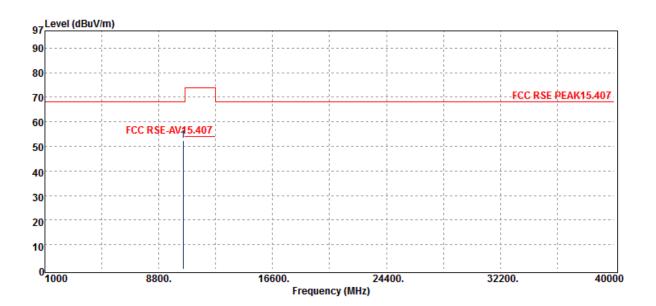
Operation Band :802.11 a Fundamental Frequency Operation Mode EUT Pol.

:5240 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10480.00	Н	Peak	34.17	18.23	52.40	68.30	-15.90	

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5150.00

FCC ID: YE5-WBUB15 IC: 4613B-WBUB15

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:VERTICAL

-21.98

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74.00

Measurement Antenna Pol.

52.02

Band edge falling to restricted band

E

:E2 Plane

Peak

Operation Band :802.11 a Test Date :2015-10-07

Fundamental Frequency :5180 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly EUT Pol.

Freq. Note Detector Spectrum Factor Actual Limit Margin FS Mode Reading Level @3m MHz F/H/E/S PK/QP/AV $dB\mu V$ dB dBµV/m $dB\mu V/m$ dB Ε -15.45 5150.00 Average 28.23 10.32 38.55 54.00

Test Date **Operation Band** :802.11 a :2015-10-07

Fundamental Frequency :5180 MHz Temp./Humi. :24 deg_C / 61 RH

10.32

Operation Mode :Band Edge LOW Engineer :Burly

41.70

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Average	29.45	10.32	39.77	54.00	-14.23
5150.00	Е	Peak	41.81	10.32	52.13	74.00	-21.87

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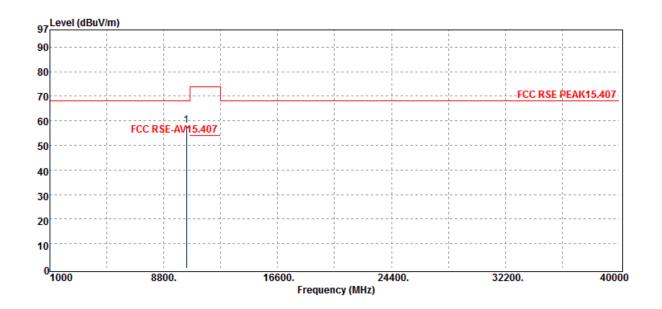
Radiated Spurious Emission Measurement Result 802.11n HT20, 5150~5250 MHz

:2015-09-10 Operation Band :802.11 n20M Test Date

Fundamental Frequency Temp./Humi. :5180 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10360.00	Н	Peak	40.52	17.65	58.17	68.30	-10.13

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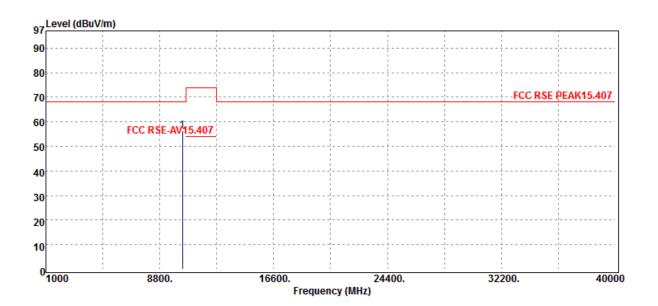
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5180 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10360.00	Н	Peak	38.63	17.65	56.28	68.30	-12.02	

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Operation Band Fundamental Frequency Operation Mode

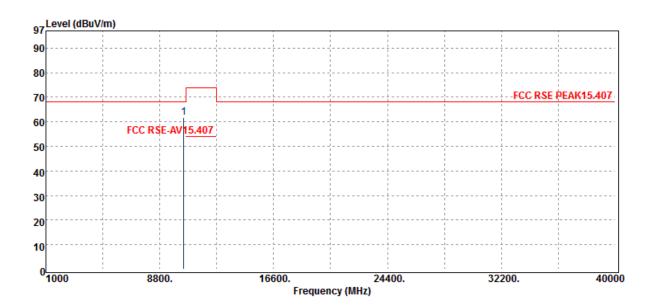
EUT Pol.

:802.11 n20M :5220 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10440.00	Н	Peak	43.16	18.47	61.63	68.30	-6.67	

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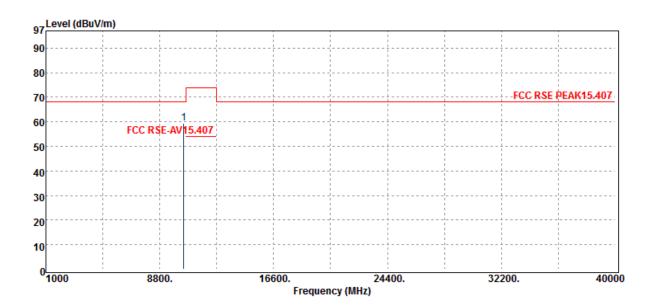
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5220 MHz :TX MID :E2 Plane

Test Date Temp./Humi. :2015-09-10 :23 deg_C / 60 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10440.00	Н	Peak	40.90	18.47	59.37	68.30	-8.93	

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Operation Band Fundamental Frequency Operation Mode

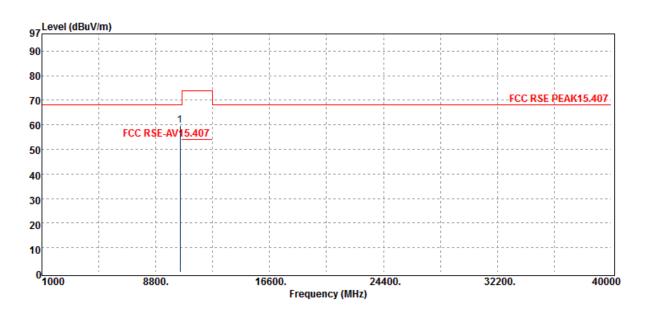
EUT Pol.

:802.11 n20M :5240 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10480.00	Н	Peak	41.63	18.23	59.86	68.30	-8.44	

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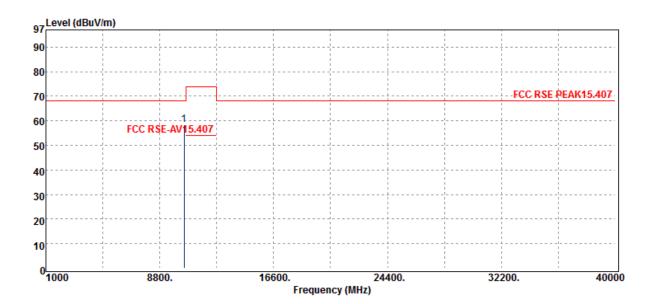
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5240 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10480.00	Н	Peak	40.24	18.23	58.47	68.30	-9.83

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Band edge falling to restricted band

Operation Band :802.11 n20 Test Date :2015-10-07

Fundamental Frequency :5180 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Average	35.01	10.32	45.33	54.00	-8.67
5150.00	Е	Peak	51.78	10.32	62.10	74.00	-11.90

Operation Band Test Date :2015-10-07 :802.11 n20

Fundamental Frequency :5180 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Average	39.84	10.32	50.16	54.00	-3.84
5150.00	E	Peak	57.66	10.32	67.98	74.00	-6.02

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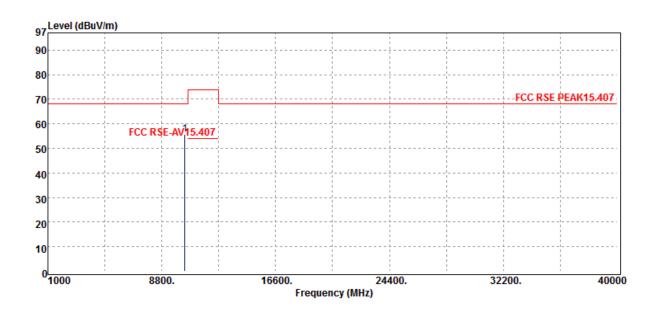
Radiated Spurious Emission Measurement Result 802.11n HT40, 5150~5250 MHz

:2015-09-10 Operation Band :802.11 n40M Test Date

Fundamental Frequency Temp./Humi. :5190 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10380.00	Н	Peak	37.62	18.00	55.62	68.30	-12.68

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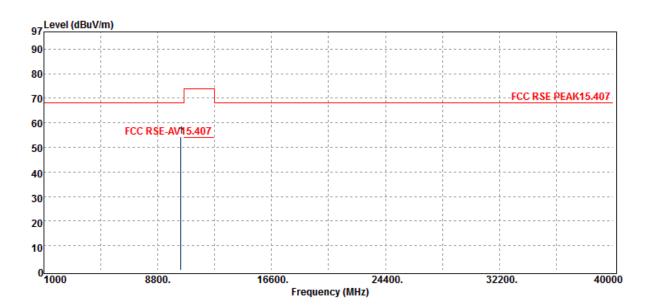
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5190 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10380.00	Н	Peak	36.26	18.00	54.26	68.30	-14.04	

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Operation Band Fundamental Frequency Operation Mode

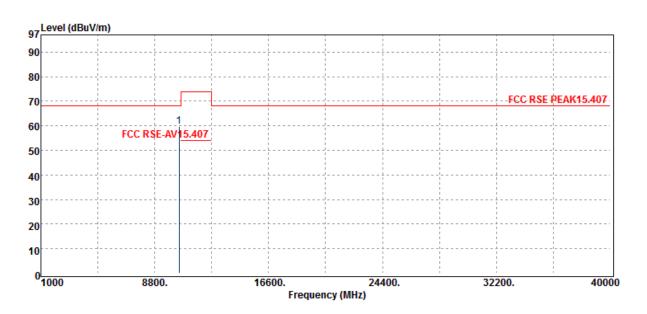
EUT Pol.

:802.11 n40M :5230 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10460.00	Н	Peak	41.50	18.36	59.86	68.30	-8.44

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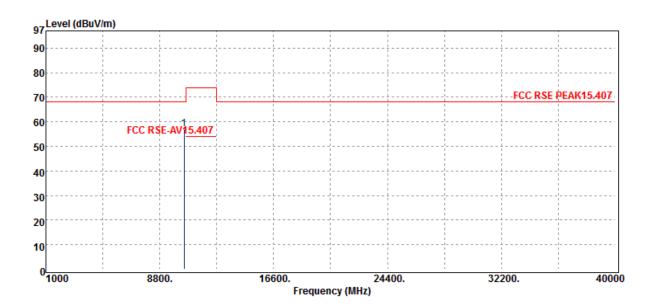
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5230 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10460.00	Н	Peak	38.65	18.36	57.01	68.30	-11.29	

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Band edge falling to restricted band

Operation Band :802.11 n40 Test Date :2015-09-18

Fundamental Frequency :5190 MHz Temp./Humi. :24 deg_C / 61 RH Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Average	35.50	10.32	45.82	54.00	-8.18
5150.00	Е	Peak	52.88	10.32	63.20	74.00	-10.80

Operation Band Test Date :802.11 n40 :2015-09-18

Fundamental Frequency :5190 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5150.00	Е	Average	41.91	10.32	52.23	54.00	-1.77
5150.00	Е	Peak	61.02	10.32	71.34	74.00	-2.66

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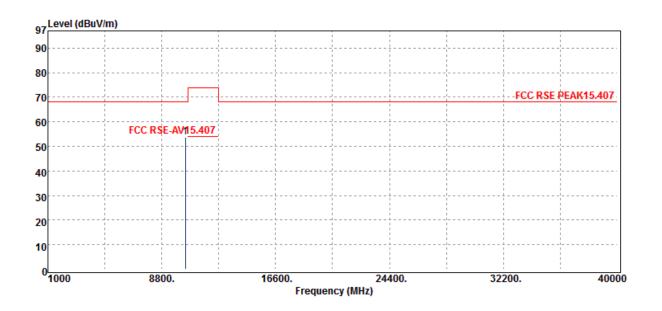
Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5150~5250 MHz

:2015-09-11 Operation Band :802.11 ac80M Test Date

Fundamental Frequency Temp./Humi. :5210 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10420.00	Н	Peak	35.16	18.60	53.76	68.30	-14.54

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Operation Band Fundamental Frequency Operation Mode

EUT Pol.

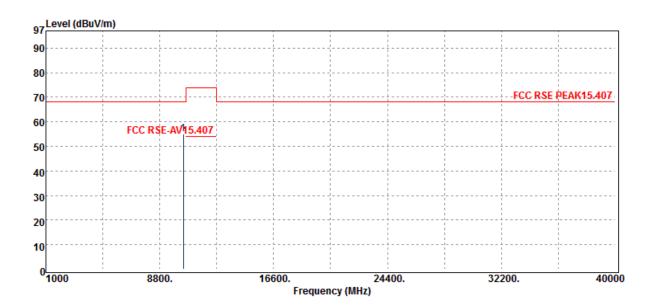
:802.11 ac80M :5210 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11

:23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10420.00	Н	Peak	36.35	18.60	54.95	68.30	-13.35	

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Band edge falling to restricted band

Operation Band :802.11 ac80M :2015-09-17 Test Date

Fundamental Frequency :5210 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5133.50	S	Average	34.89	10.31	45.20	54.00	-8.80
5133.50	S	Peak	56.63	10.31	66.94	74.00	-7.06
5150.00	E	Average	34.39	10.32	44.71	54.00	-9.29
5150.00	Е	Peak	52.47	10.32	62.79	74.00	-11.21

:2015-09-17 **Operation Band** :802.11 ac80M Test Date

Fundamental Frequency Temp./Humi. :5210 MHz :24 deg C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5132.60	S	Average	38.86	10.30	49.16	54.00	-4.84
5132.60	S	Peak	63.06	10.30	73.36	74.00	-0.64
5150.00	Е	Average	38.09	10.32	48.41	54.00	-5.59
5150.00	Е	Peak	59.43	10.32	69.75	74.00	-4.25

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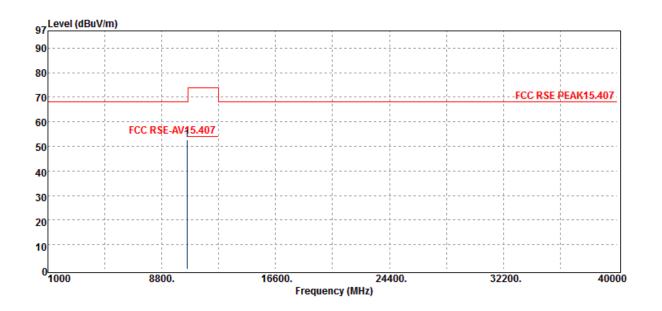
Radiated Spurious Emission Measurement Result 802.11a, 5250MHz-5350MHz

:2015-09-10 **Operation Band** :802.11 a Test Date

Fundamental Frequency Temp./Humi. :5260 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10520.00	Н	Peak	34.31	18.35	52.66	68.30	-15.64

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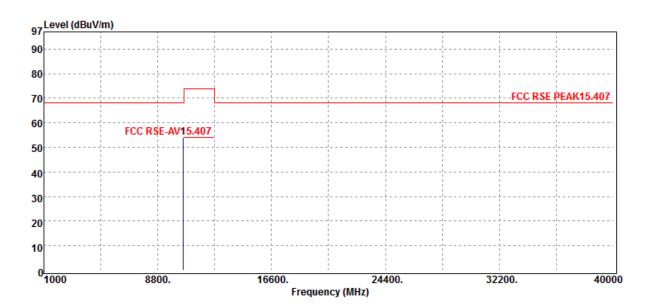
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5260 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10520.00	Н	Peak	35.85	18.35	54.20	68.30	-14.10	

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Operation Band Fundamental Frequency Operation Mode

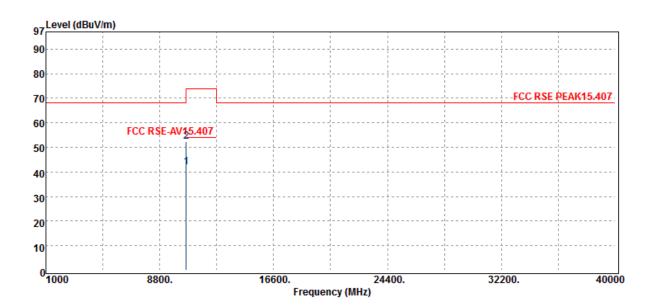
EUT Pol.

:802.11 a :5300 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10600.00	Н	Average	23.11	18.69	41.80	54.00	-12.20
10600.00	Н	Peak	33.66	18.69	52.35	74.00	-21.65

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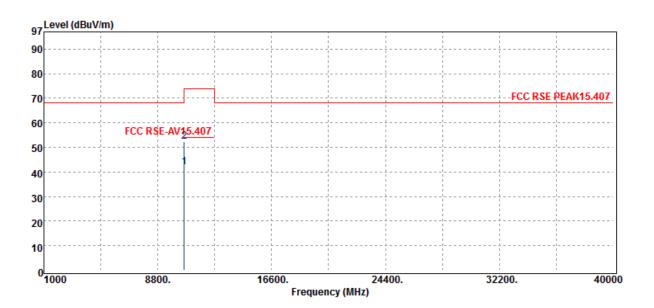
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5300 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10600.00	Н	Average	23.42	18.69	42.11	54.00	-11.89	
10600.00	Н	Peak	33.64	18.69	52.33	74.00	-21.67	

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Operation Band Fundamental Frequency Operation Mode

EUT Pol.

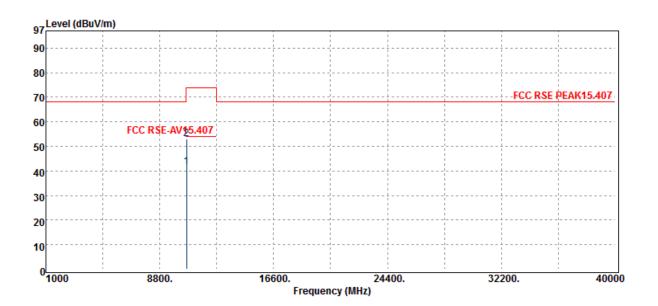
:802.11 a :5320 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10

:23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10640.00	Н	Average	22.75	19.02	41.77	54.00	-12.23
10640.00	Н	Peak	33.97	19.02	52.99	74.00	-21.01

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Operation Band :802.11 a Fundamental Frequency Operation Mode

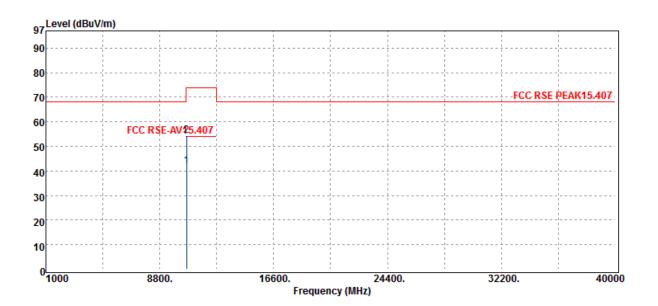
EUT Pol.

:5320 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10640.00	Н	Average	23.09	19.02	42.11	54.00	-11.89
10640.00	Н	Peak	35.45	19.02	54.47	74.00	-19.53

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Band edge falling to restricted band

Operation Band :802.11 a Test Date :2015-10-07 Fundamental Frequency :5320 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5350.00	Е	Average	28.10	10.97	39.07	54.00	-14.93
5350.00	Е	Peak	40.37	10.97	51.34	74.00	-22.66

Operation Band Test Date :2015-10-07 :802.11 a

Fundamental Frequency :5320 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin	
			Mode	Reading Level		FS	@3m		
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
	5350.00	E	Average	29.05	10.97	40.02	54.00	-13.98	
	5350.00	Е	Peak	41.82	10.97	52.79	74.00	-21.21	

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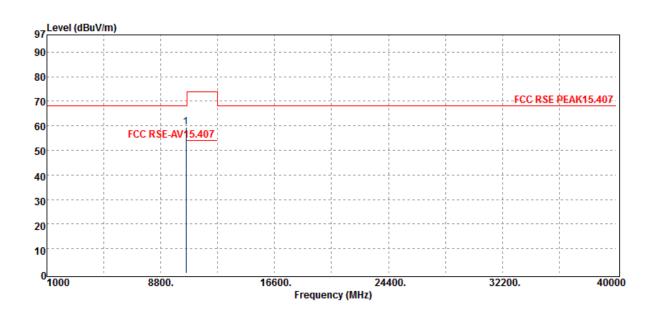
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5250~5350 MHz

Operation Band :802.11 n20M **Test Date** :2015-09-10 Fundamental Frequency :5260 MHz Temp./Humi. :23 deg_C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
								_
10520.00	Н	Peak	41.21	18.35	59.56	68.30	-8.74	

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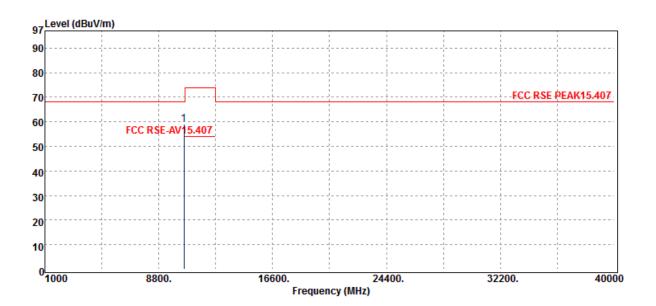
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5260 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	_
10520.0	0 H	Peak	40.62	18.35	58.97	68.30	-9.33	

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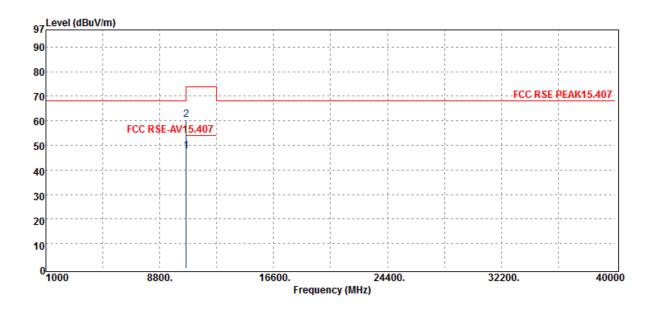
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5300 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10600.00	Н	Average	29.02	18.69	47.71	54.00	-6.29
10600.00	Н	Peak	41.65	18.69	60.34	74.00	-13.66

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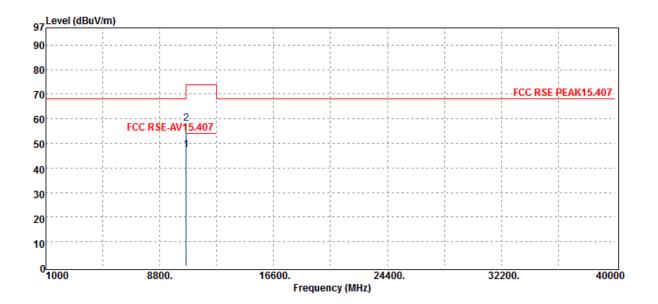
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5300 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10600.00	Н	Average	28.56	18.69	47.25	54.00	-6.75
10600.00	Н	Peak	39.53	18.69	58.22	74.00	-15.78

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Operation Band Fundamental Frequency Operation Mode

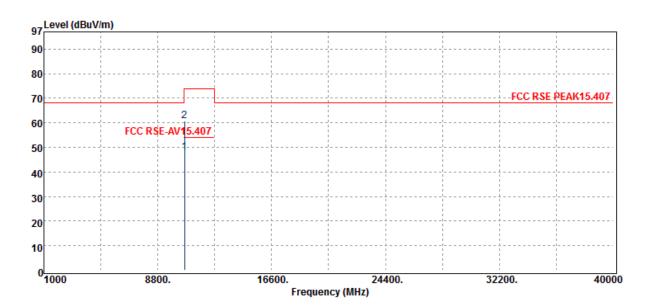
EUT Pol.

:802.11 n20M :5320 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-01 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10640.00	Н	Average	28.89	19.02	47.91	54.00	-6.09
10640.00	Н	Peak	41.70	19.02	60.72	74.00	-13.28

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Operation Band Fundamental Frequency Operation Mode

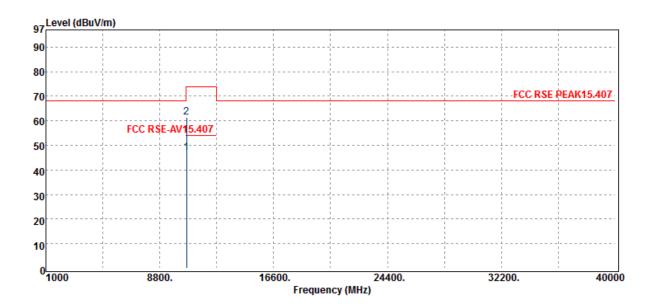
EUT Pol.

:802.11 n20M :5320 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-10-01 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10640.00	Н	Average	27.92	19.02	46.94	54.00	-7.06
10640.00	Н	Peak	42.25	19.02	61.27	74.00	-12.73

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Band edge falling to restricted band

Operation Band :802.11 n20 Test Date :2015-10-07

Fundamental Frequency :5320 MHz Temp./Humi. :24 deg_C / 61 RH Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Average	29.53	10.97	40.50	54.00	-13.50
5350.00	Е	Peak	42.82	10.97	53.79	74.00	-20.21

Operation Band Test Date :2015-10-07 :802.11 n20

Fundamental Frequency :5320 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Average	33.34	10.97	44.31	54.00	-9.69
5350.00	Е	Peak	46.96	10.97	57.93	74.00	-16.07

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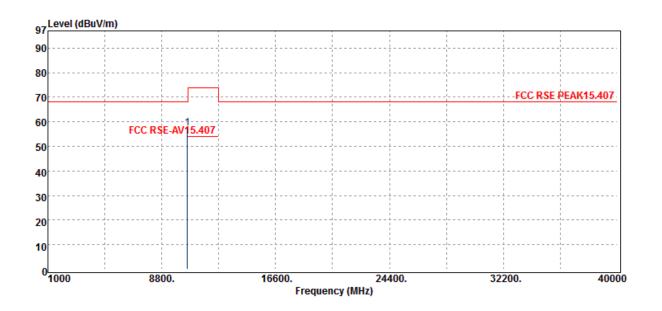
Radiated Spurious Emission Measurement Result 802.11n HT40, 5250~5350 MHz

:2015-09-10 Operation Band :802.11 n40M Test Date

Fundamental Frequency Temp./Humi. :5270 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10540.00	Н	Peak	39.04	18.45	57.49	68.30	-10.81

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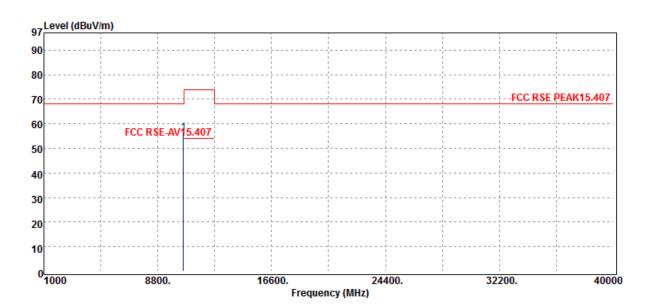
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5270 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10540.00	Н	Peak	37.82	18.45	56.27	68.30	-12.03

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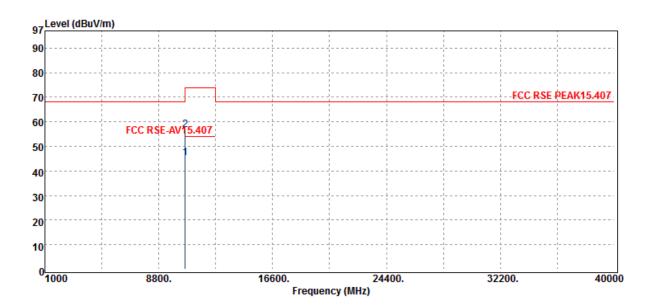
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5310 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10620.00	Н	Average	26.54	18.86	45.40	54.00	-8.60
10620.00	Н	Peak	37.79	18.86	56.65	74.00	-17.35

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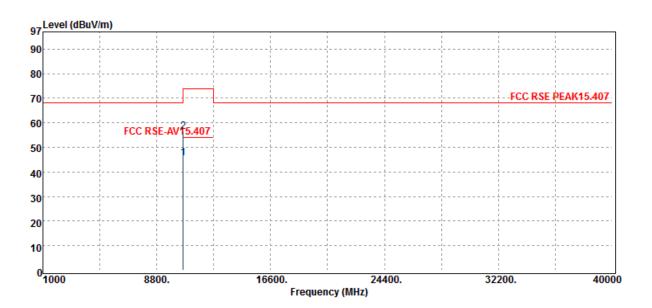
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5310 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10620.00	Н	Average	26.78	18.86	45.64	54.00	-8.36
10620.00	Н	Peak	37.70	18.86	56.56	74.00	-17.44

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Band edge falling to restricted band

Operation Band :802.11 n40 Test Date :2015-10-07

Fundamental Frequency :5310 MHz Temp./Humi. :24 deg_C / 61 RH Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Average	32.11	10.97	43.08	54.00	-10.92
5350.00	Е	Peak	48.30	10.97	59.27	74.00	-14.73

Operation Band Test Date :2015-10-07 :802.11 n40

Fundamental Frequency :5310 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Average	36.67	10.97	47.64	54.00	-6.36
5350.00	E	Peak	53.15	10.97	64.12	74.00	-9.88

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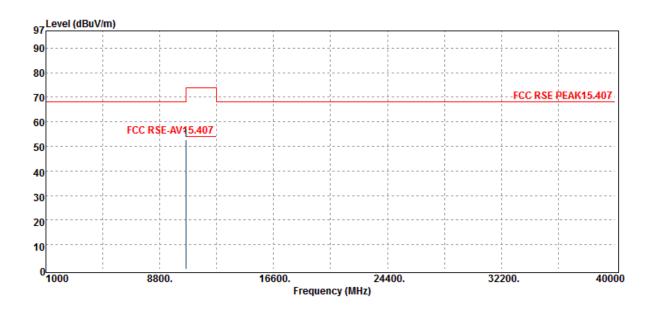
Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5250~5350 MHz

:2015-09-11 Operation Band :802.11 ac80M Test Date

Fundamental Frequency Temp./Humi. :5290 MHz :23 deg C / 60 RH

Operation Mode :TX HIGH Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10580.00	Н	Peak	34.26	18.57	52.83	68.30	-15.47

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Operation Band Fundamental Frequency Operation Mode

EUT Pol.

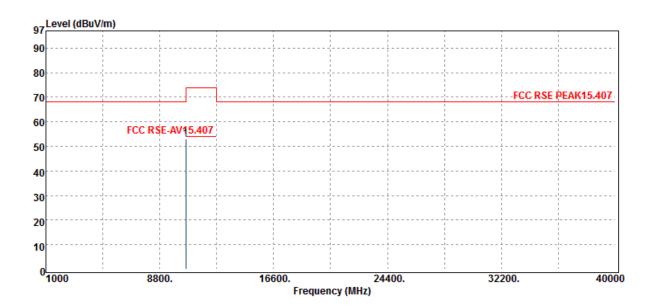
:802.11 ac80M :5290 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. :2015-09-11

:23 deg_C / 60 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
10580.00	Н	Peak	34.33	18.57	52.90	68.30	-15.40	

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Band edge falling to restricted band

Operation Band :802.11 ac80M :2015-09-17 Test Date Fundamental Frequency :5290 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Average	31.20	10.97	42.17	54.00	-11.83
5350.00	Е	Peak	53.51	10.97	64.48	74.00	-9.52
5352.80	S	Average	31.69	10.97	42.66	54.00	-11.34
5352.80	S	Peak	58.95	10.97	69.92	74.00	-4.08

Operation Band :802.11 ac80M Test Date :2015-10-07

Fundamental Frequency Temp./Humi. :5290 MHz :24 deg C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Average	34.15	10.97	45.12	54.00	-8.88
5350.00	E	Peak	58.19	10.97	69.16	74.00	-4.84
5353.00	S	Average	34.76	10.97	45.73	54.00	-8.27
5353.00	S	Peak	62.85	10.97	73.82	74.00	-0.18

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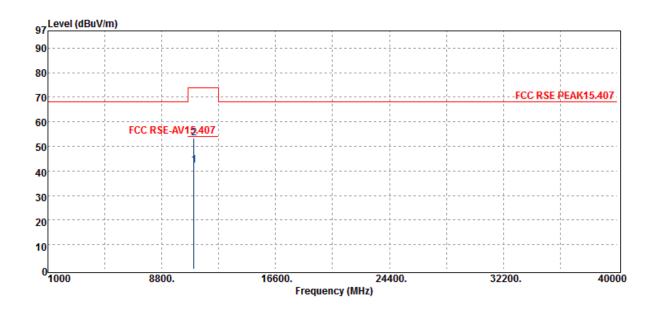
Radiated Spurious Emission Measurement Result 802.11a, 5470~5725 MHz

:2015-09-10 **Operation Band** :802.11 a Test Date

Fundamental Frequency Temp./Humi. :5500 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11000.00	Н	Average	22.54	19.82	42.36	54.00	-11.64	
11000.00	Н	Peak	33.68	19.82	53.50	74.00	-20.50	

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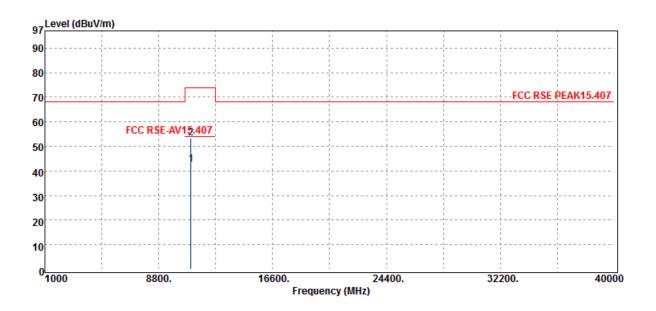
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Operation Band :802.11 a Fundamental Frequency :5500 MHz Operation Mode :TX LOW EUT Pol. :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11000.00	Н	Average	22.87	19.82	42.69	54.00	-11.31
11000.00	Н	Peak	33.42	19.82	53.24	74.00	-20.76

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Report No.:ER/2015/80132 Issue Date: Oct. 16, 2015

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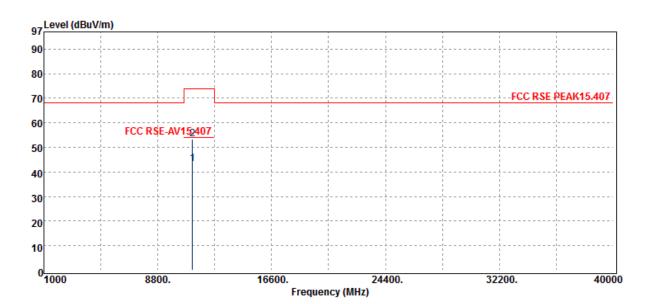
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5580 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11160.00	Н	Average	23.09	20.21	43.30	54.00	-10.70
11160.00	Н	Peak	33.07	20.21	53.28	74.00	-20.72

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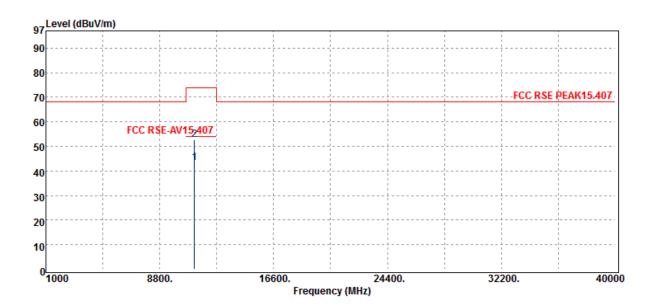
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5580 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11160.00	Н	Average	23.21	20.21	43.42	54.00	-10.58
11160.00	Н	Peak	32.36	20.21	52.57	74.00	-21.43

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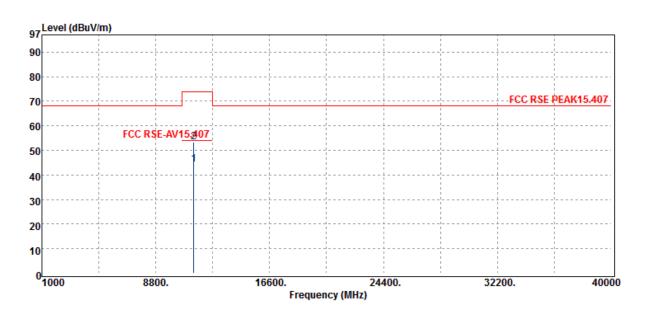
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5700 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11400.00	Н	Average	23.57	20.65	44.22	54.00	-9.78
11400.00	Н	Peak	32.73	20.65	53.38	74.00	-20.62

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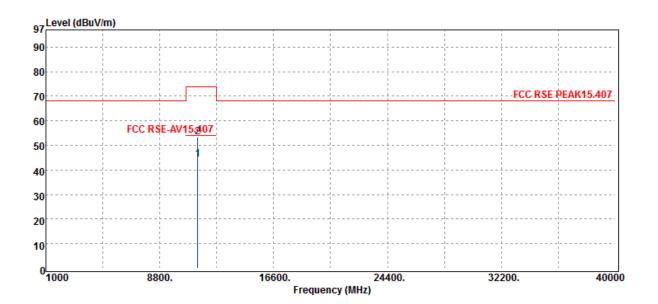
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5700 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11400.00	Н	Average	23.79	20.65	44.44	54.00	-9.56
11400.00	Н	Peak	32.83	20.65	53.48	74.00	-20.52

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Band edge falling to restricted band

Operation Band :802.11 a Test Date :2015-10-07 Fundamental Frequency :5500 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5460.00	Е	Average	32.60	10.89	43.49	54.00	-10.51
5460.00	Е	Peak	44.58	10.89	55.47	74.00	-18.53
5470.00	Е	Peak	46.09	10.91	57.00	68.30	-11.30

Operation Band Test Date :802.11 a :2015-10-07

Fundamental Frequency :5500 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin	
		Mode	Reading Level		FS	@3m		
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
5460.00	Е	Average	32.82	10.89	43.71	54.00	-10.29	
5460.00	Е	Peak	44.96	10.89	55.85	74.00	-18.15	
5470.00	Е	Peak	47.10	10.91	58.01	74.00	-15.99	

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Operation Band :802.11 a Test Date :2015-10-07

Fundamental Frequency :5700 MHz Temp./Humi. :24 deg_C / 61 RH Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725 00	F	Peak	48 64	11.04	59.68	68.30	-8.62

Operation Band Test Date :2015-10-07 :802.11 a

Fundamental Frequency :5700 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725.00	Е	Peak	47.34	11.04	58.38	68.30	-9.92

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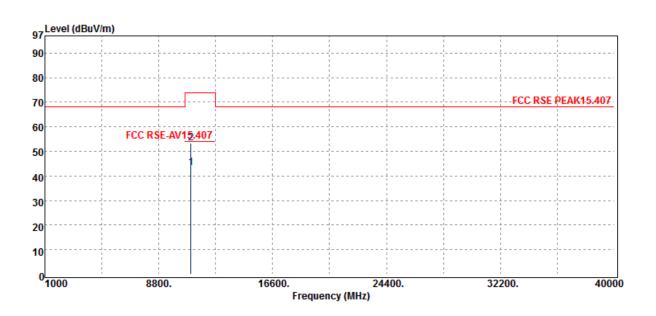
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5470~5725 MHz

Operation Band **Test Date** :802.11 n20M :2015-09-10

Fundamental Frequency :5500 MHz Temp./Humi. :23 deg_C / 60 RH Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11000.00	Н	Average	23.41	19.82	43.23	54.00	-10.77
11000.00	Н	Peak	33.59	19.82	53.41	74.00	-20.59

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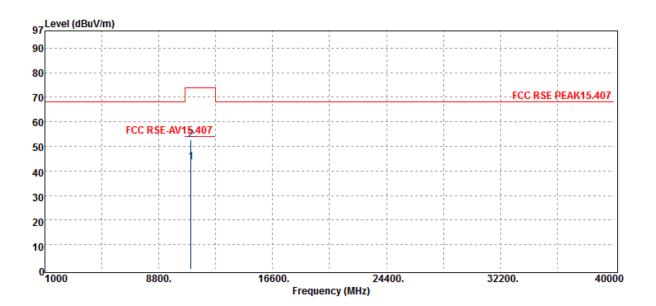
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5500 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11000.00	Н	Average	23.86	19.82	43.68	54.00	-10.32
11000.00	Н	Peak	33.04	19.82	52.86	74.00	-21.14

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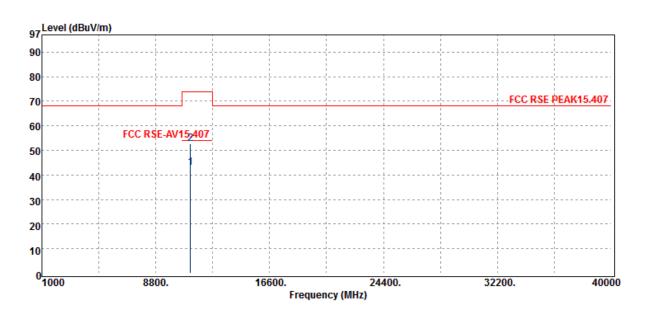
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5580 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11160.00	Н	Average	22.59	20.21	42.80	54.00	-11.20
11160.00	Н	Peak	32.46	20.21	52.67	74.00	-21.33

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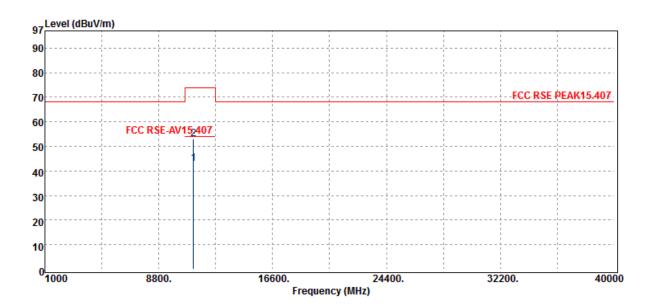
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5580 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11160.00	Н	Average	22.75	20.21	42.96	54.00	-11.04
11160.00	Н	Peak	32.69	20.21	52.90	74.00	-21.10

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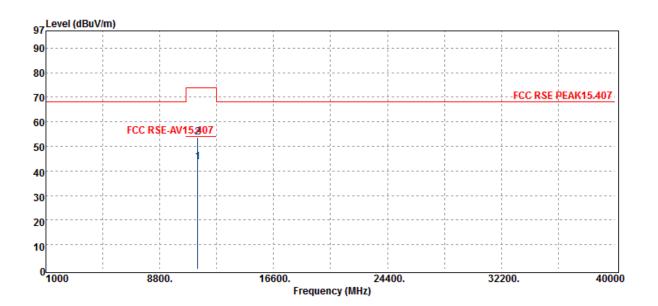
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5700 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11400.00	Н	Average	23.15	20.65	43.80	54.00	-10.20
11400.00	Н	Peak	33.02	20.65	53.67	74.00	-20.33

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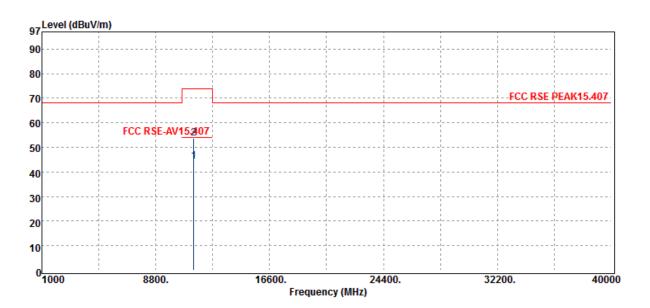
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5700 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11400.00	Н	Average	23.69	20.65	44.34	54.00	-9.66
11400.00	Н	Peak	33.13	20.65	53.78	74.00	-20.22

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Band edge falling to restricted band

Operation Band :802.11 n20 Test Date :2015-10-07

Fundamental Frequency :5500 MHz Temp./Humi. :24 deg_C / 61 RH Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5460.00	E	Average	32.49	10.89	43.38	54.00	-10.62
5460.00	E	Peak	48.92	10.89	59.81	74.00	-14.19
5470.00	Е	Peak	51.96	10.91	62.87	68.30	-5.43

Operation Band :802.11 n20 Test Date :2015-10-07

Fundamental Frequency :5500 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5460.00	E	Average	36.52	10.89	47.41	54.00	-6.59
5460.00	Е	Peak	52.82	10.89	63.71	74.00	-10.29
5470.00	Е	Peak	56.61	10.91	67.52	68.30	-0.78

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Operation Band :802.11 n20 Test Date :2015-10-07

Fundamental Frequency :5700 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725.00	Е	Peak	46.17	11.04	57.21	68.30	-11.09

Operation Band :802.11 n20 **Test Date** :2015-10-07

Fundamental Frequency :5700 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	51.31	11.04	62.35	68.30	-5.95

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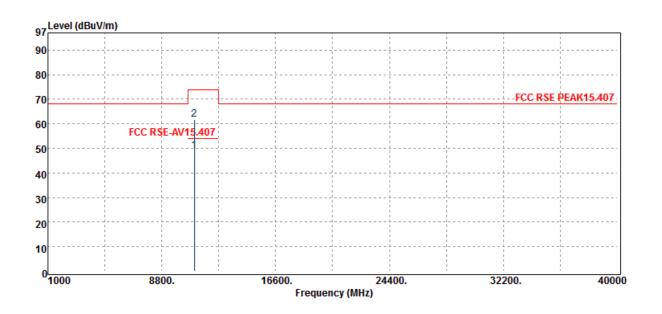
Radiated Spurious Emission Measurement Result 802.11n HT40, 5470~5725 MHz

:2015-09-10 **Operation Band** :802.11 n40M Test Date

Fundamental Frequency Temp./Humi. :5510 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11020.00	Н	Average	29.34	19.81	49.15	54.00	-4.85	
11020.00	Н	Peak	42.11	19.81	61.92	74.00	-12.08	

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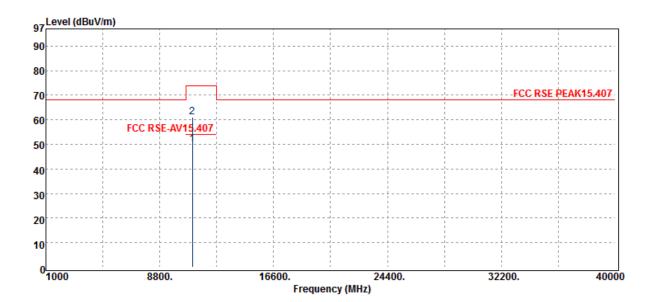
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5510 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11020.00	Н	Average	30.33	19.81	50.14	54.00	-3.86	
11020.00	Н	Peak	41.32	19.81	61.13	74.00	-12.87	

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Operation Band Fundamental Frequency Operation Mode

EUT Pol.

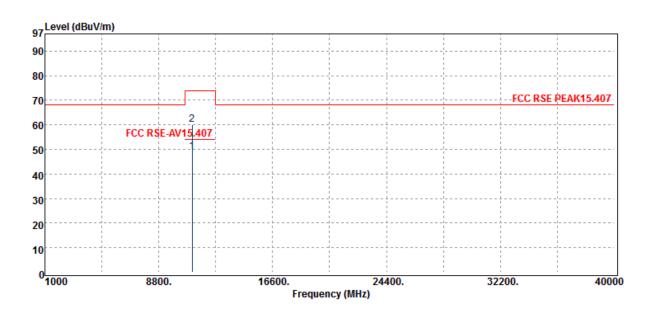
:802.11 n40M :5550 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10

:23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11100.00	Н	Average	28.88	20.23	49.11	54.00	-4.89
11100.00	Н	Peak	39.91	20.23	60.14	74.00	-13.86

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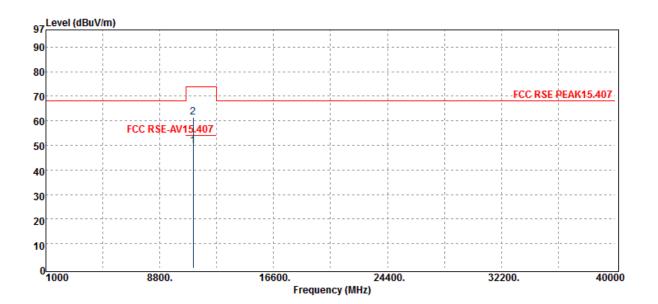
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5550 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-10 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11100.00	Н	Average	29.54	20.23	49.77	54.00	-4.23
11100.00	Н	Peak	41.19	20.23	61.42	74.00	-12.58

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Operation Band Fundamental Frequency Operation Mode

EUT Pol.

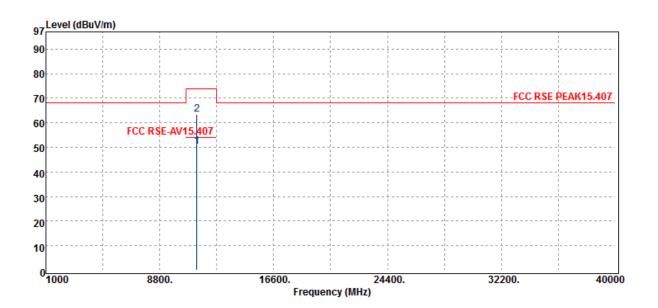
:802.11 n40M :5670 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11

:23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11340.00	Н	Average	29.80	20.64	50.44	54.00	-3.56	
11340.00	Н	Peak	42.88	20.64	63.52	74.00	-10.48	

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Operation Band Fundamental Frequency Operation Mode

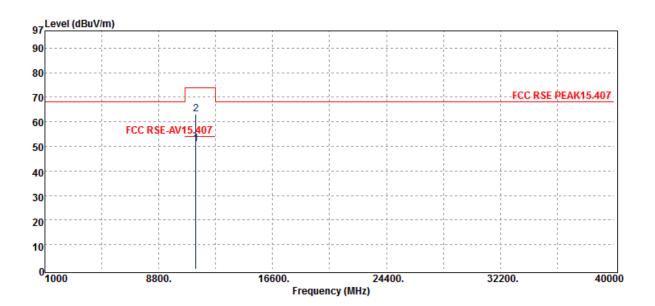
EUT Pol.

:802.11 n40M :5670 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11340.00	Н	Average	30.32	20.64	50.96	54.00	-3.04
11340.00	Н	Peak	42.45	20.64	63.09	74.00	-10.91

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Band edge falling to restricted band

Operation Band :802.11 n40 Test Date :2015-09-17 Fundamental Frequency :5510 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5459.28	S	Average	31.20	10.89	42.09	54.00	-11.91
5459.28	S	Peak	49.86	10.89	60.75	74.00	-13.25
5460.00	Е	Average	30.05	10.89	40.94	54.00	-13.06
5460.00	Е	Peak	47.86	10.89	58.75	74.00	-15.25
5470.00	Е	Peak	49.01	10.91	59.92	68.30	-8.38

Operation Band Test Date :802.11 n40 :2015-10-07

Fundamental Frequency :5510 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5460.00	Е	Average	33.57	10.89	44.46	54.00	-9.54
5460.00	Е	Peak	52.52	10.89	63.41	74.00	-10.59
5470.00	Е	Peak	55.75	10.91	66.66	68.30	-1.64

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:2015-09-17 Operation Band :802.11 n40 Test Date

Fundamental Frequency :5670 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	48.16	11.04	59.20	68.30	-9.10
5729.60	S	Peak	49.16	11.04	60.20	68.30	-8.10

Operation Band Test Date :2015-10-07 :802.11 n40

Fundamental Frequency :5670 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725.00	Е	Peak	51.01	11.04	62.05	68.30	-6.25

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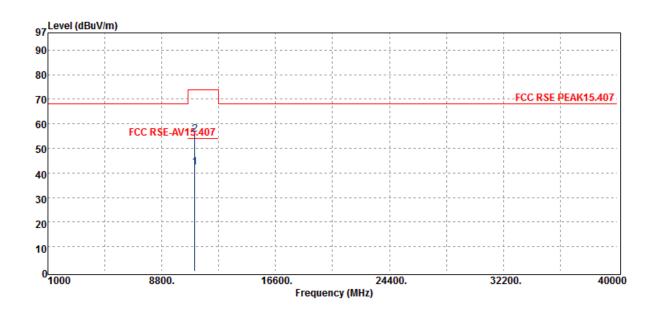
Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5470~5725 MHz

:802.11 ac80M :2015-09-11 **Operation Band** Test Date

Fundamental Frequency Temp./Humi. :5530 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11060.00	Н	Average	22.55	19.78	42.33	54.00	-11.67	
11060.00	Н	Peak	36.02	19.78	55.80	74.00	-18.20	

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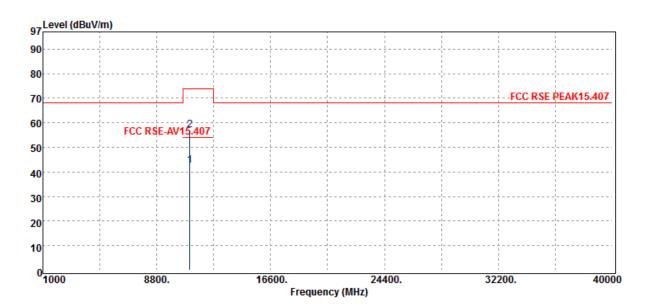
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5530 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11060.00	Н	Average	22.86	19.78	42.64	54.00	-11.36
11060.00	Н	Peak	37.32	19.78	57.10	74.00	-16.90

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Operation Band Fundamental Frequency Operation Mode

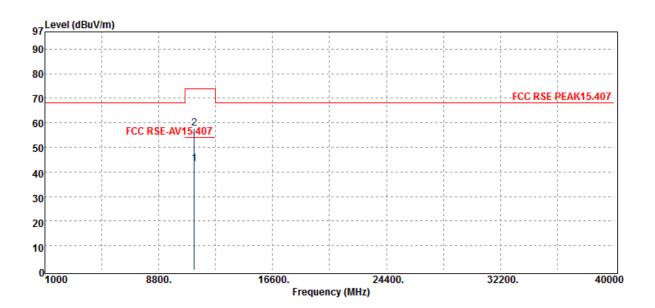
EUT Pol.

:802.11 ac80M :5610 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11220.00	Н	Average	23.02	20.34	43.36	54.00	-10.64
11220.00	Н	Peak	37.32	20.34	57.66	74.00	-16.34

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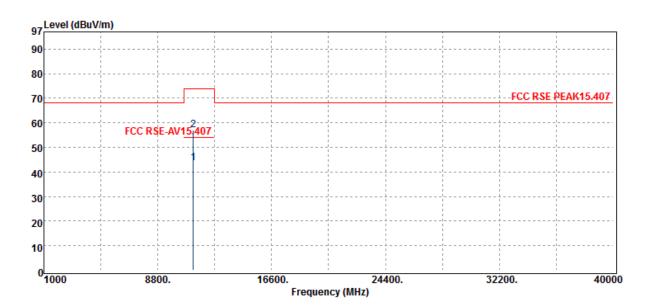
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5610 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11220.00	Н	Average	23.41	20.34	43.75	54.00	-10.25	
11220.00	Н	Peak	36.68	20.34	57.02	74.00	-16.98	

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Operation Band Fundamental Frequency Operation Mode

EUT Pol.

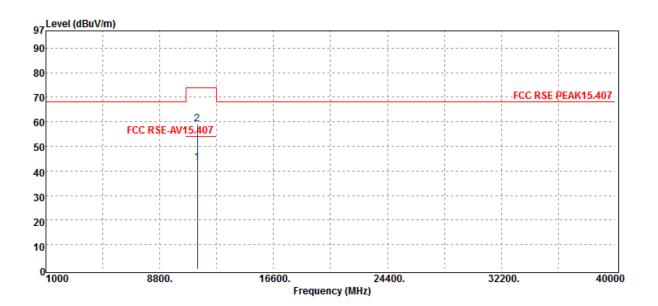
:802.11 ac80M :5690 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. :2015-09-11

:23 deg_C / 60 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11380.00	Н	Average	22.65	20.70	43.35	54.00	-10.65
11380.00	Н	Peak	38.43	20.70	59.13	74.00	-14.87

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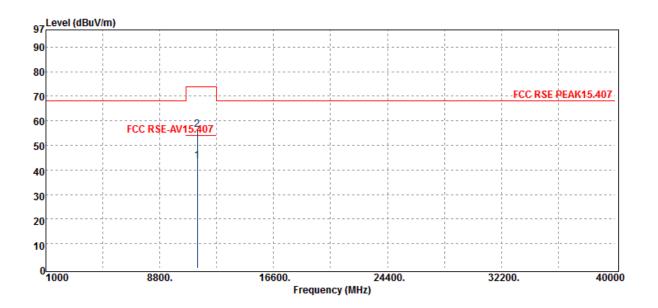
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 ac80M :5690 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. :2015-09-11 :23 deg_C / 60 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11380.00	Н	Average	22.87	20.70	43.57	54.00	-10.43
11380.00	Н	Peak	35.70	20.70	56.40	74.00	-17.60

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Band edge falling to restricted band

Operation Band :802.11 ac80M :2015-09-17 Test Date

Fundamental Frequency :5530 MHz Temp./Humi. :24 deg_C / 61 RH Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5453.80	S	Average	29.81	10.88	40.69	54.00	-13.31
5453.80	S	Peak	49.26	10.88	60.14	74.00	-13.86
5460.00	Е	Average	28.58	10.89	39.47	54.00	-14.53
5460.00	Е	Peak	43.41	10.89	54.30	74.00	-19.70
5453.80	S	Peak	49.26	10.88	60.14	68.30	-8.16
5470.00	E	Peak	41.65	10.91	52.56	68.30	-15.74

Operation Band Test Date :802.11 ac80M :2015-09-17

Fundamental Frequency :5530 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
	E#11/E#0		· ·	ın.		_	ID.
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5453.40	S	Average	31.49	10.89	42.38	54.00	-11.62
5453.40	S	Peak	55.74	10.89	66.63	74.00	-7.37
5460.00	Е	Average	30.79	10.89	41.68	54.00	-12.32
5460.00	Е	Peak	49.47	10.89	60.36	74.00	-13.64
5453.50	S	Peak	55.68	10.88	66.56	68.30	-1.74
5470.00	Е	Peak	47.00	10.91	57.91	68.30	-10.39

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:2015-09-17 Operation Band :802.11 ac80M Test Date

Fundamental Frequency :5775 MHz Temp./Humi. :24 deg_C / 61 RH Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :VERTICAL :E2 Plane Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5718.70	S	Peak	54.89	11.03	65.92	78.20	-12.28
5725.00	E	Peak	52.47	11.04	63.51	78.20	-14.69

Operation Band Test Date :802.11 ac80M :2015-09-18

Fundamental Frequency :5775 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin	
			Mode	Reading Level		FS	@3m		
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
	5705.40	S	Peak	57.02	10.99	68.01	68.30	-0.29	
	5725.00	Е	Peak	58.91	11.04	69.95	78.20	-8.25	

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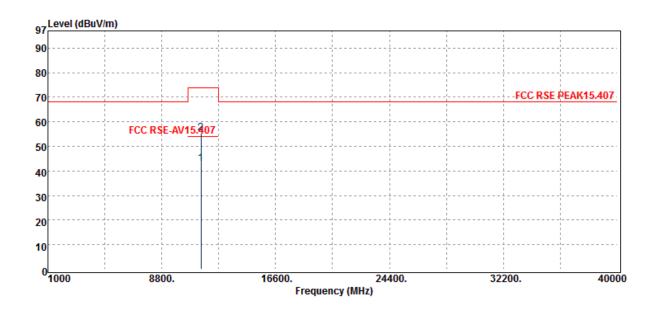
Radiated Spurious Emission Measurement Result 802.11a, 5725~5850 MHz

Operation Band Test Date :2015-09-11 :802.11 a

Fundamental Frequency Temp./Humi. :5745 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11490.00	Н	Average	22.09	20.81	42.90	54.00	-11.10	
11490.00	Н	Peak	34.67	20.81	55.48	74.00	-18.52	

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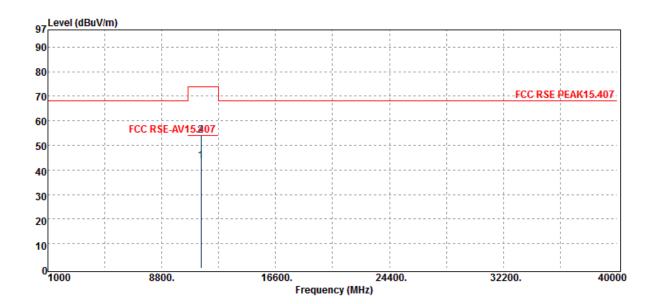
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5745 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11490.00	Н	Average	22.91	20.81	43.72	54.00	-10.28
11490.00	Н	Peak	33.36	20.81	54.17	74.00	-19.83

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Operation Band Fundamental Frequency Operation Mode

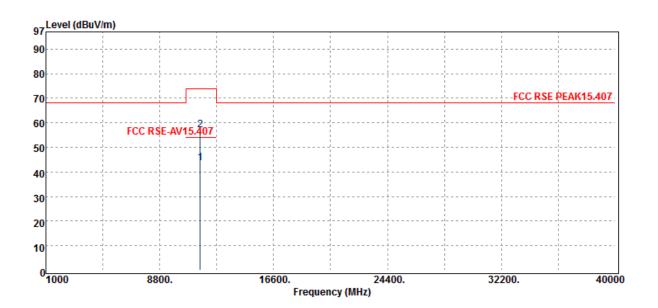
EUT Pol.

:802.11 a :5785 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11570.00	Н	Average	22.32	21.16	43.48	54.00	-10.52	
11570.00	Н	Peak	36.05	21.16	57.21	74.00	-16.79	

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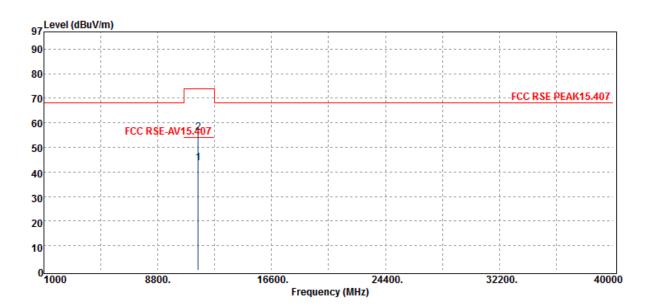
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 a :5785 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11570.00	Н	Average	22.59	21.16	43.75	54.00	-10.25
11570.00	Н	Peak	34.79	21.16	55.95	74.00	-18.05

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Operation Band Fundamental Frequency Operation Mode

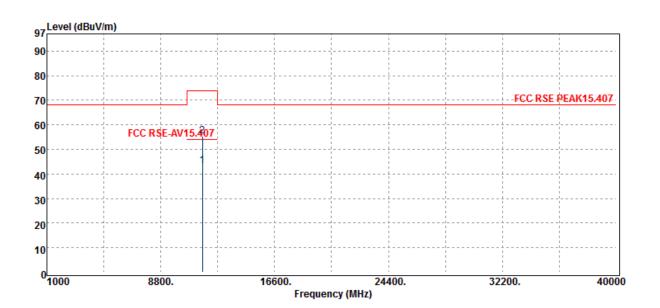
EUT Pol.

:802.11 a :5825 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. :2015-09-11

:23 deg_C / 60 RH Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11650.00	Н	Average	22.44	20.93	43.37	54.00	-10.63	
11650.00	Н	Peak	34.41	20.93	55.34	74.00	-18.66	

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Operation Band Fundamental Frequency Operation Mode

EUT Pol.

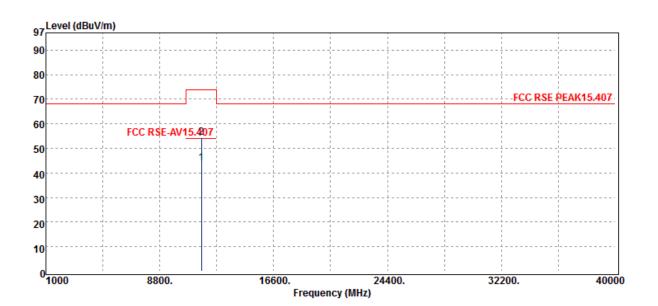
:802.11 a :5825 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. :2015-09-11 :23 deg_C / 60 RH

Engineer

Measurement Antenna Pol.

:HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11650.00	Н	Average	22.89	20.93	43.82	54.00	-10.18
11650.00	Н	Peak	33.38	20.93	54.31	74.00	-19.69

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Band edge falling to restricted band

Operation Band :802.11 a Test Date :2015-10-07

Fundamental Frequency Temp./Humi. :5745 MHz :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725.00	Е	Peak	56.34	11.04	67.38	78.20	-10.82

Operation Band Test Date :2015-10-07 :802.11 a

Fundamental Frequency :5745 MHz Temp./Humi. :24 deg C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725.00	Е	Peak	56.56	11.04	67.60	78.20	-10.60

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:802.11 a Test Date peration Band :2015-10-07

Fundamental Frequency :5825 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5850.00	Е	Peak	42.34	11.50	53.84	78.20	-24.36

Operation Band Test Date :2015-10-07 :802.11 a

Fundamental Frequency :5825 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5850.00	E	Peak	44.37	11.50	55.87	78.20	-22.33

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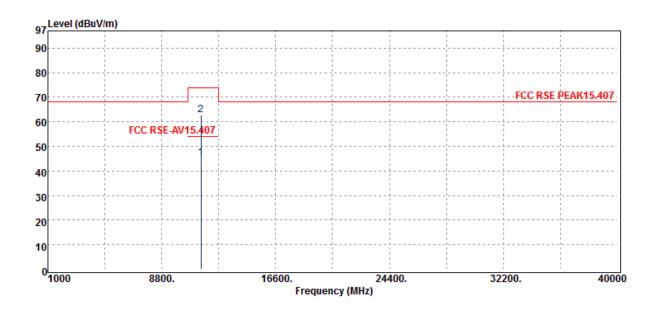
Radiated Spurious Emission Measurement Result 802.11n HT20, 5725~5850 MHz

:2015-09-11 **Operation Band** :802.11 n20M Test Date

Fundamental Frequency Temp./Humi. :5745 MHz :23 deg C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11490.00	Н	Average	24.55	20.81	45.36	54.00	-8.64	
11490.00	Н	Peak	42.10	20.81	62.91	74.00	-11.09	

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Operation Band Fundamental Frequency Operation Mode

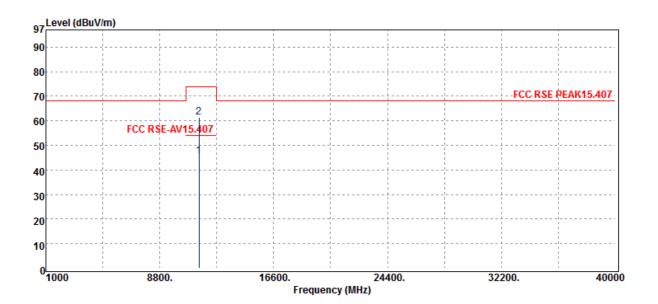
EUT Pol.

:802.11 n20M :5745 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11490.00	Н	Average	24.79	20.81	45.60	54.00	-8.40
11490.00	Н	Peak	40.69	20.81	61.50	74.00	-12.50

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Operation Band Fundamental Frequency Operation Mode

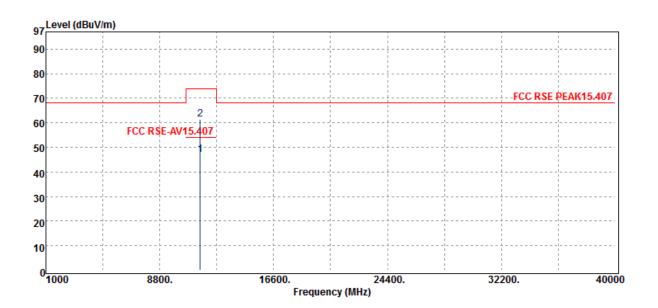
EUT Pol.

:802.11 n20M :5785 MHz :TX MID :E2 Plane

Test Date Temp./Humi. :2015-09-11 :23 deg_C / 60 RH

Engineer

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11570.00	Н	Average	25.76	21.16	46.92	54.00	-7.08
11570.00	Н	Peak	40.10	21.16	61.26	74.00	-12.74

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Operation Band Fundamental Frequency Operation Mode

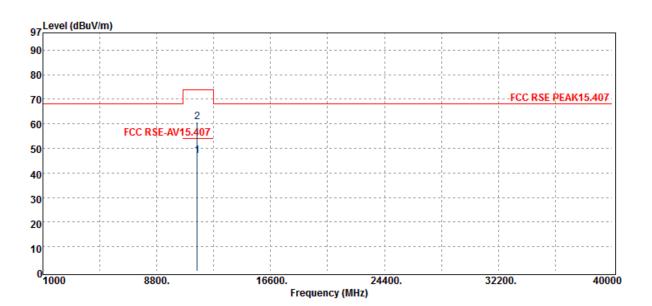
EUT Pol.

:802.11 n20M :5785 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11570.00	Н	Average	26.00	21.16	47.16	54.00	-6.84
11570.00	Н	Peak	39.64	21.16	60.80	74.00	-13.20

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Operation Band Fundamental Frequency Operation Mode

EUT Pol.

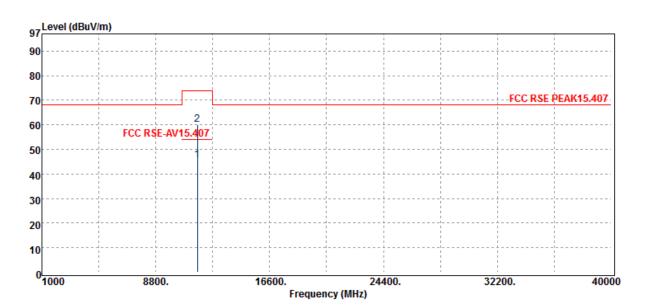
:802.11 n20M :5825 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11

:23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11650.00	Н	Average	24.67	20.93	45.60	54.00	-8.40
11650.00	Н	Peak	39.04	20.93	59.97	74.00	-14.03

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Operation Band Fundamental Frequency Operation Mode

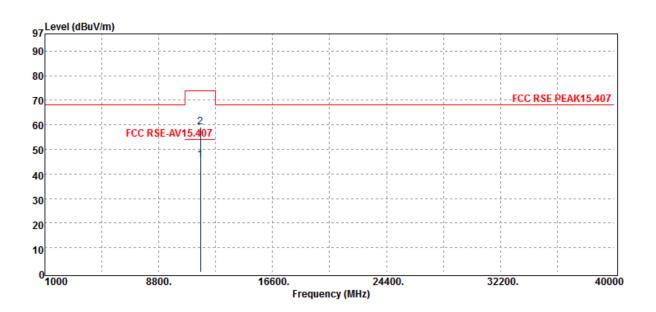
EUT Pol.

:802.11 n20M :5825 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11650.00	Н	Average	24.88	20.93	45.81	54.00	-8.19
11650.00	Н	Peak	38.07	20.93	59.00	74.00	-15.00

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Band edge falling to restricted band

Operation Band :802.11 n20 Test Date :2015-10-07

Fundamental Frequency :5745 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

Freq. Note Detector Spectrum Factor Actual Limit Margin FS Mode Reading Level @3m PK/QP/AV MHz F/H/E/S dBμV dB $dB\mu V/m$ $dB\mu V/m$ dB Ε 11.04 5725.00 Peak 54.10 65.14 78.20 -13.06

Operation Band Test Date :802.11 n20 :2015-10-07

Fundamental Frequency :5745 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725.00	Е	Peak	60.16	11.04	71.20	78.20	-7.00

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Operation Band :802.11 n20 Test Date :2015-10-07

Fundamental Frequency :5825 MHz Temp./Humi. :24 deg_C / 61 RH Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5850.00	Е	Peak	46.57	11.50	58.07	78 20	-20.13

Operation Band :802.11 n20 Test Date :2015-10-07

Fundamental Frequency :5825 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5850.00	Е	Peak	51.10	11.50	62.60	78.20	-15.60

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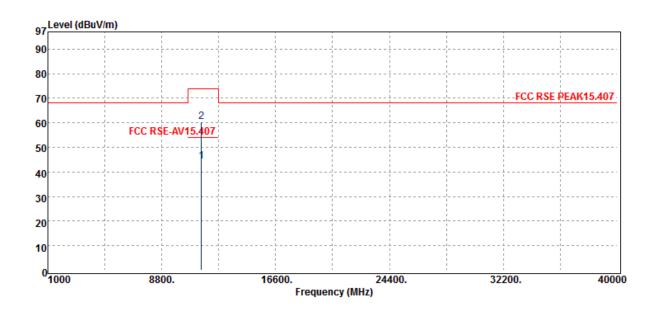
Radiated Spurious Emission Measurement Result 802.11n HT40, 5725~5850 MHz

:802.11 n40M **Operation Band Test Date** :2015-09-11

Temp./Humi. **Fundamental Frequency** :5755 MHz :23 deg_C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11510.00	Н	Average	23.21	21.03	44.24	54.00	-9.76	
11510.00	Н	Peak	39.31	21.03	60.34	74.00	-13.66	

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Operation Band Fundamental Frequency Operation Mode EUT Pol.

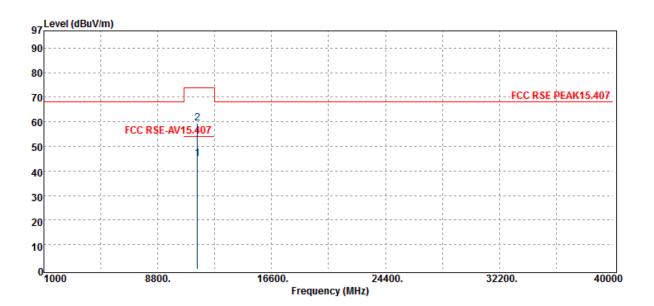
:802.11 n40M :5755 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11

:23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11510.00	Н	Average	23.88	21.03	44.91	54.00	-9.09
11510.00	Н	Peak	38.41	21.03	59.44	74.00	-14.56

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Operation Band Fundamental Frequency Operation Mode

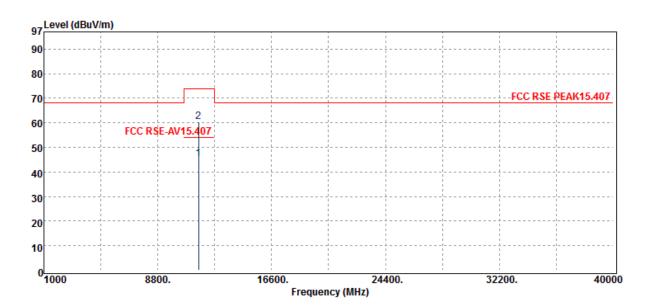
EUT Pol.

:802.11 n40M :5795 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11590.00	Н	Average	24.18	21.11	45.29	54.00	-8.71
11590.00	Н	Peak	39.27	21.11	60.38	74.00	-13.62

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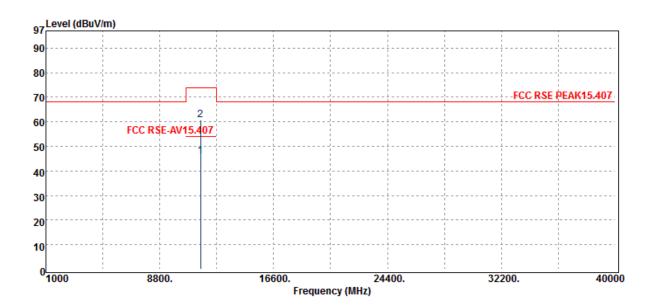
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5795 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11 :23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11590.00	Н	Average	24.91	21.11	46.02	54.00	-7.98
11590.00	Н	Peak	39.61	21.11	60.72	74.00	-13.28

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Band edge falling to restricted band

Operation Band Test Date :802.11 n40 :2015-09-17

Fundamental Frequency :5755 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
			Mode	Reading Level		FS	@3m	
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
	5719.20	S	Peak	52.40	11.03	63.43	78.20	-14.77
	5725.00	Е	Peak	48.09	11.04	59.13	78.20	-19.07

Operation Band :802.11 n40 Test Date :2015-09-18

Fundamental Frequency Temp./Humi. :5755 MHz :24 deg C / 61 RH

Operation Mode :Band Edge LOW Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5706.70	S	Peak	55.98	10.99	66.97	68.30	-1.33
5725.00	Е	Peak	56.04	11.04	67.08	78.20	-11.12

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Operation Band :802.11 n40 Test Date :2015-10-07

Fundamental Frequency :5795 MHz Temp./Humi. :24 deg_C / 61 RH Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

Freq. Note Detector Spectrum Factor Actual Limit Margin FS Mode Reading Level @3m MHz F/H/E/S PK/QP/AV $dB\mu V$ dB $dB\mu V/m$ $dB\mu V/m$ dB Ε 5850.00 Peak 43.30 11.50 54.80 78.20 -23.40

Operation Band :802.11 n40 **Test Date** :2015-10-07

Fundamental Frequency :5795 MHz Temp./Humi. :24 deg_C / 61 RH

Engineer Operation Mode :Band Edge HIGH :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5850.00	E	Peak	47.20	11.50	58.70	78.20	-19.50

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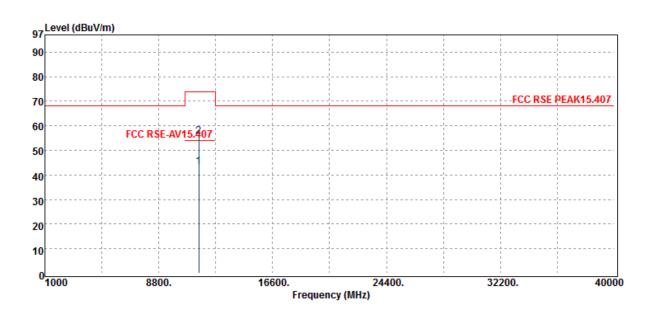
Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5725~5850 MHz

:802.11 ac80M **Operation Band Test Date** :2015-09-11

Temp./Humi. **Fundamental Frequency** :5775 MHz :23 deg_C / 60 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe	
		Mode	Reading Level		FS	@3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB	
11550.00	Н	Average	22.10	21.15	43.25	54.00	-10.75	
11550.00	Н	Peak	34.58	21.15	55.73	74.00	-18.27	

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Operation Band Fundamental Frequency Operation Mode

EUT Pol.

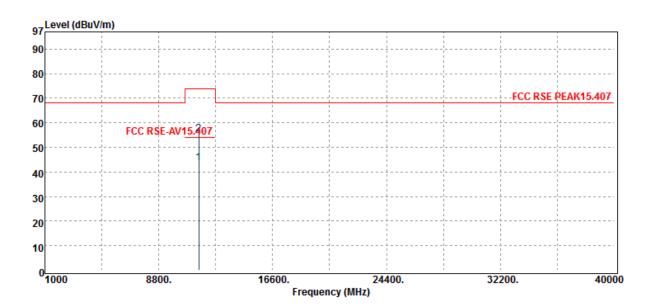
:802.11 ac80M :5775 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-09-11

:23 deg_C / 60 RH

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11550.00	Н	Average	22.33	21.15	43.48	54.00	-10.52
11550.00	Н	Peak	34.18	21.15	55.33	74.00	-18.67

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Band edge falling to restricted band

Operation Band Test Date :802.11 ac80M :2015-09-17

Fundamental Frequency :5775 MHz Temp./Humi. :24 deg_C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :VERTICAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5850.00	Е	Peak	42.32	11.50	53.82	78.20	-24.38
5859.12	S	Peak	44.97	11.51	56.48	78.20	-21.72

Operation Band :802.11 ac80M Test Date :2015-09-17

Fundamental Frequency :5775 MHz Temp./Humi. :24 deg C / 61 RH

Operation Mode :Band Edge HIGH Engineer :Burly

EUT Pol. :E2 Plane :HORIZONTAL Measurement Antenna Pol.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5850.00	E	Peak	48.96	11.50	60.46	78.20	-17.74
5859.36	S	Peak	51.29	11.51	62.80	78.20	-15.40

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12. TRANSMISSION IN THE ABSENCE OF DATA

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

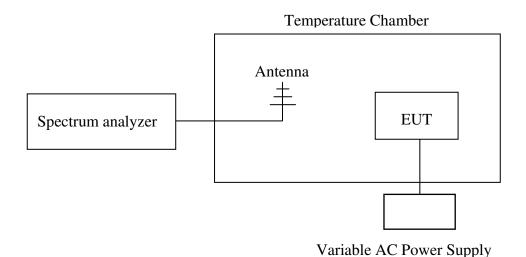
13.1 Standard Applicable

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**



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Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	
TYPE	WIFK	NUMBER	NUMBER	CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016
Temperature Chamber	TERCHY	MHG-120LF	911009	05/06/2015	05/05/2016
DC Power Supply	Agilent	E3640A	MY52410006	11/10/2014	11/09/2015

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13.5 **Measurement Result**

Operation Mode 802.11 a Test Date 2015.9.18 Temperature Test By Cooper :17

			(MHz)
36	5180	5,180.00018	-0.0000003
44	5220	5,220.00027	-0.00000005
48	5240	5,240.00024	-0.00000005
52	5260	5,260.00035	-0.00000007
60	5300	5,300.00033	-0.00000006
64	5320	5,320.00031	-0.00000006
100	5500	5,500.00028	-0.00000005
116	5580	5,580.00030	-0.00000005
140	5700	5,700.00036	-0.00000006
149	5745	5,745.00037	-0.00000006
157	5785	5,785.00042	-0.00000007
165	5825	5,825.00037	-0.00000006
36	5180	5,180.00018	-0.00000003
44	5220	5,220.00027	-0.00000005
48	5240	5,240.00024	-0.00000005
52	5260	5,260.00035	-0.00000007
60	5300	5,300.00026	-0.00000005
64	5320	5,320.00031	-0.00000006
100	5500	5,500.00027	-0.00000005
116	5580	5,580.00029	-0.00000005
140	5700	5,700.00035	-0.00000006
149	5745	5,745.00037	-0.00000006
157	5785	5,785.00041	-0.00000007
165	5825	5,825.00037	-0.00000006

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36	5180	5,180.00013	-0.0000003
44	5220	5,220.00025	-0.0000005
48	5240	5,240.00024	-0.0000005
52	5260	5,260.00035	-0.00000007
60	5300	5,300.00032	-0.00000006
64	5320	5,320.00029	-0.0000005
100	5500	5,500.00025	-0.0000005
116	5580	5,580.00028	-0.0000005
140	5700	5,700.00034	-0.0000006
149	5745	5,745.00035	-0.0000006
157	5785	5,785.00041	-0.00000007
165	5825	5,825.00038	-0.0000007

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台灣檢驗科技股份有限公司 t (886-2) 2299-3279



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Operation Mode Temperature

802.11 n_HT40

:17

Test Date 2015.9.18 Test By Cooper

38	5190	5,189.99960	0.00000008
46	5230	5,229.99988	0.00000002
54	5270	5,269.99986	0.0000003
62	5310	5,309.99991	0.00000002
102	5510	5,509.99994	0.0000001
110	5550	5,549.99992	0.0000001
134	5670	5,669.99995	0.0000001
151	5755	5,754.99996	0.0000001
159	5795	5,794.99994	0.0000001
38	5190	5,189.99958	0.00000008
46	5230	5,229.99987	0.00000002
54	5270	5,269.99985	0.00000003
62	5310	5,309.99990	0.00000002
102	5510	5,509.99994	0.0000001
110	5550	5,549.99991	0.00000002
134	5670	5,669.99995	0.0000001
151	5755	5,754.99996	0.0000001
159	5795	5,794.99994	0.00000001

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FCC ID: YE5-WBUB15 IC: 4613B-WBUB15

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38	5190	5,189.99955	0.00000009
46	5230	5,229.99987	0.00000002
54	5270	5,269.99985	0.00000003
62	5310	5,309.99990	0.00000002
102	5510	5,509.99994	0.0000001
110	5550	5,549.99991	0.00000002
134	5670	5,669.99994	0.0000001
151	5755	5,754.99996	0.0000001
159	5795	5,794.99993	0.0000001
38	5190	5,189.99963	0.00000007
46	5230	5,229.99988	0.00000002
54	5270	5,269.99987	0.00000002
62	5310	5,309.99991	0.00000002
102	5510	5,509.99995	0.0000001
110	5550	5,549.99992	0.0000001
134	5670	5,669.99995	0.0000001
151	5755	5,754.99997	0.0000001
159	5795	5,794.99994	0.0000001
38	5190	5,189.99962	0.00000007
46	5230	5,229.99988	0.00000002
54	5270	5,269.99986	0.00000003
62	5310	5,309.99991	0.00000002
102	5510	5,509.99994	0.0000001
110	5550	5,549.99992	0.0000001
134	5670	5,669.99995	0.0000001
151	5755	5,754.99996	0.0000001
159	5795	5,794.99994	0.0000001

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Test Date 2015.9.18 Test By Cooper

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42	5210	5,209.99995	0.00000001
58	5290	5,289.99995	0.0000001
106	5530	5,529.99994	0.0000001
155	5775	5,774.99998	0.00000000
42	5210	5,209.99994	0.0000001
58	5290	5,289.99995	0.0000001
106	5530	5,529.99994	0.0000001
155	5775	5,774.99998	0.00000000
42	5210	5,209.99993	0.0000001
58	5290	5,289.99995	0.0000001
106	5530	5,529.99993	0.0000001
155	5775	5,774.99997	0.0000001
42	5210	5,209.99995	0.0000001
58	5290	5,289.99995	0.0000001
106	5530	5,529.99995	0.0000001
155	5775	5,774.99999	0.00000000
42	5210	5,209.99995	0.0000001
58	5290	5,289.99995	0.0000001
106	5530	5,529.99994	0.0000001
155	5775	5,774.99998	0.00000000

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14. ANTENNA REQUIREMENT

14.1 Standard Applicable

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

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

14.2 Antenna Connected Construction

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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