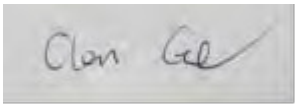
RF TEST REPORT

SIEMIC
GLOBAL TESTING & CERTIFICATIONS
YOUR CHOICE FOR- TCB FCB CB NB CAB RCB

Report No.: FCC_RF_SL16040101-AER-001A1_UNII _Rev 1.0
Supersede Report No.: None

Applicant	:	Aerohive Networks, Inc.
Product Name	:	Access Point
Model No.	:	AP245X
Test Standard	:	47 CFR 15.407
Test Method	:	ANSI C63.4: 2014 789033 D02 General UNII Test Procedures New Rules v01r02
FCC ID	:	WBV-AP245
IC ID	:	7774A-AP245
Dates of test	:	06/13/2016 – 06/20/2016
Issue Date	:	07/08/2016
Test Result	:	☒ Pass ☐ Fail
Equipment complied with the specification [X] Equipment did not comply with the specification [ ]		

This Test Report is Issued Under the Authority of:	
	
Rachana Khanduri	**Chen Ge**
Test Engineer	Engineer Reviewer
This test report may be reproduced in full only **Test result presented in this test report is applicable to the tested sample only**	

Issued By:
SIEMIC Laboratories
775 Montague Expressway, Milpitas, 95035 CA

Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC, RF/Wireless, Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless, Telecom
Taiwan	BSMI, NCC, NIST	EMC, RF, Telecom, Safety
Hong Kong	OFTA, NIST	RF/Wireless, Telecom
Australia	NATA, NIST	EMC, RF, Telecom, Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF, Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC, RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom, Safety
Israel	MOC, NIST	EMC, RF, Telecom, Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC, RF, Telecom
Canada	IC FCB, NIST	EMC, RF, Telecom
Singapore	iDA, NIST	EMC, RF, Telecom
EU	NB	EMC & R&TTE Directive
Japan	MIC (RCB 208)	RF, Telecom
Hong Kong	OFTA (US002)	RF, Telecom

CONTENTS

1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC_RF_SL16040101-AER-001A1_UNII	None	Original	06/23/2016
FCC_RF_SL16040101-AER-001A1_UNII_Rev 1.0	Rev 1.0	Updated Radio Description	07/08/2016

2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: Aerohive Networks, Inc.
Product: Access Point
Model: AP245X

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1st page.

3 Customer information

Applicant Name	:	Aerohive Networks, Inc.
Applicant Address	:	1011 McCarthy Blvd, Milpitas, CA 95035, California, United States
Manufacturer Name	:	Aerohive Networks, Inc.
Manufacturer Address	:	1011 McCarthy Blvd, Milpitas, CA 95035, California, United States

4 Test site information

Lab performing tests	SIEMIC Laboratories
Lab Address	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	881796
IC Test Site No.	4842D-2
VCCI Test Site No.	A0133

5 Modification

Index	Item	Description	Note
-	-	-	-

6 EUT Information

6.1 EUT Description

Product Name	Access Point
Model No.	AP245X
Trade Name	Aerohive
Serial No.	N/A
Host Model No.	N/A
Input Power	100-240V, 50/60Hz
Power Adapter Manu/Model	Microsemi 9001GR
Power Adapter SN	C15336594000002605
Product Hardware version	1
Product Software version	HIVEOS 7.0r1
Radio Hardware version	1
Radio Software version	HIVEOS 7.0r1
Test Software version	N/A
Date of EUT received	05/07/2016
Equipment Class/ Category	DTS, UNII
Clock Frequencies	N/A
Port/Connectors	PoE, Ethernet

6.2 Radio Description

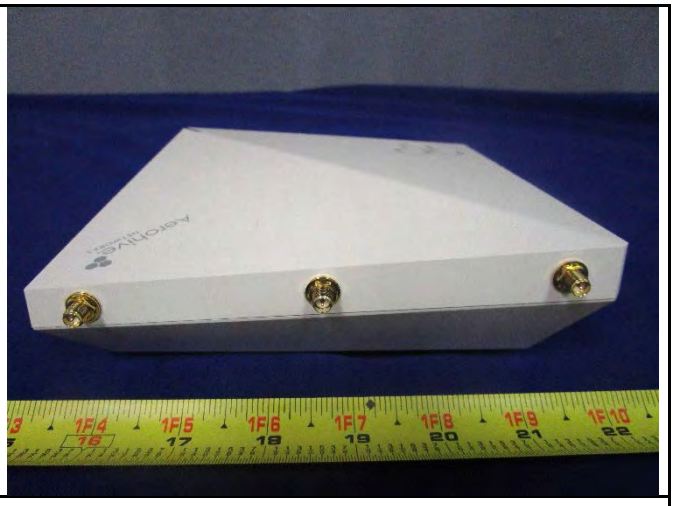
Radio Type	802.11a	802.11n/ac-20M	802.11n/ac-40M	802.11ac-80M
Operating Frequency	5260-5320MHz 5500-5700MHz	5240-5320MHz 5500-5700MHz	5270-5310MHz 5510-5670MHz	5290MHz 5530MHZ, 5610MHz,
Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Spacing	20MHz	20MHz	40MHz	80MHz
Number of Channels	15	15	7	3
Antenna Type	Omnidirectional Antenna			
Antenna Gain (Peak)	5.7 dBi (5GHz)			
Antenna Connector Type	U.FL connector			
Note	EUT has two Omnidirectional Antenna, low gain Omnidirectional Antenna (2dBi) and high gain Omnidirectional Antenna (5.7dBi). But testing is done with high gain Omnidirectional Antenna (5.7dBi).			

EUT Power level setting

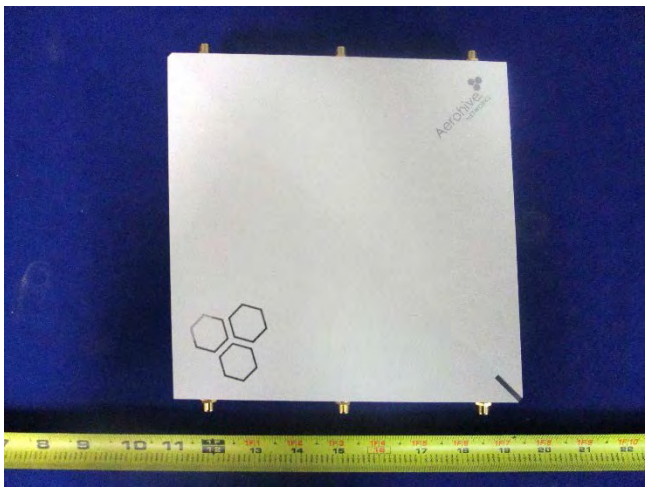
Mode	Frequency	Power Setting
802.11-a	5260	60
802.11-a	5280	60
802.11-a	5320	60
802.11-n-20	5260	60
802.11-n-20	5280	60
802.11-n-20	5320	60
802.11-n-40	5270	60
802.11-n-40	5310	60
802.11-ac-80	5290	60
802.11-a	5500	60
802.11-a	5580	60
802.11-a	5700	60
802.11-n-20	5500	60
802.11-n-20	5580	60
802.11-n-20	5700	60
802.11-n-40	5510	60
802.11-n-40	5590	60
802.11-n-40	5670	60
802.11-ac-80	5530	60
802.11-ac-80	5610	60

6.3 EUT Photos – External

EUT - Front View

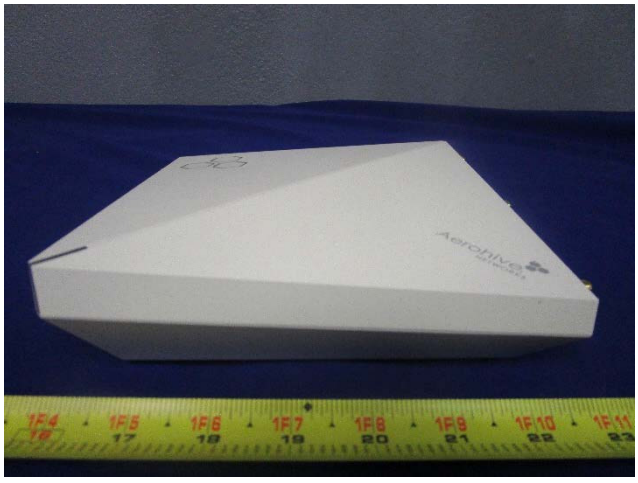


EUT – Rear View

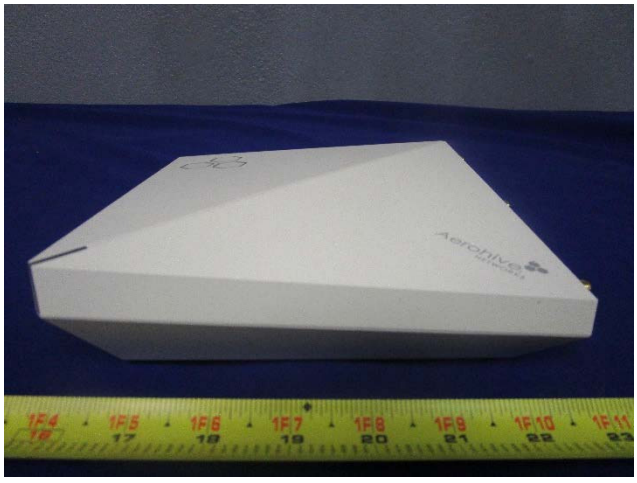


EUT - Top View

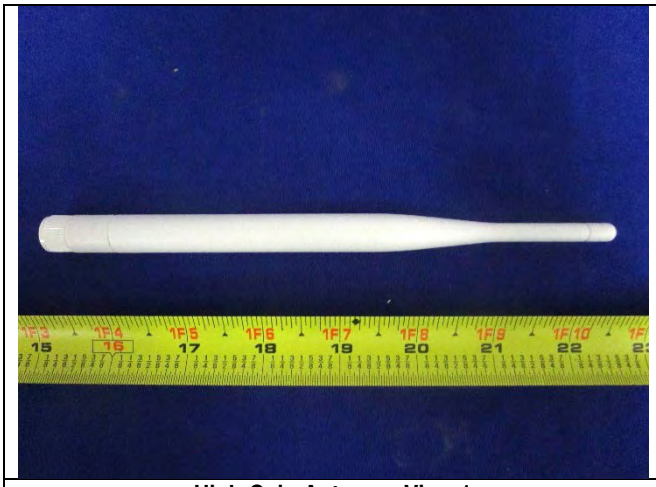
EUT – Bottom View



EUT – Left Side View

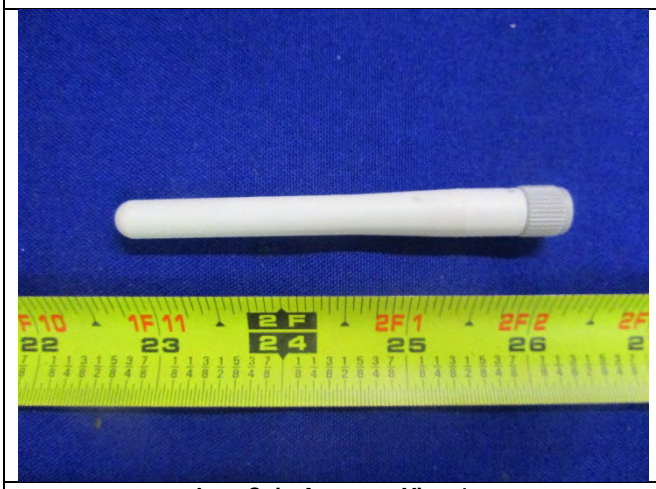


EUT – Right Side View

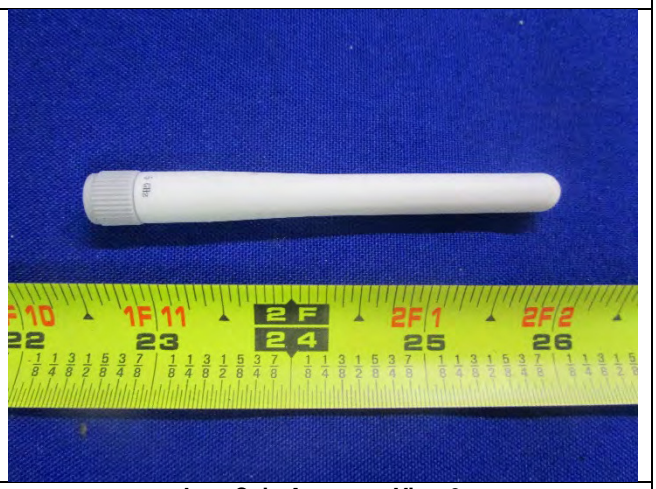


High Gain Antenna- View 1

High Gain Antenna –View 2



Low Gain Antenna- View 1

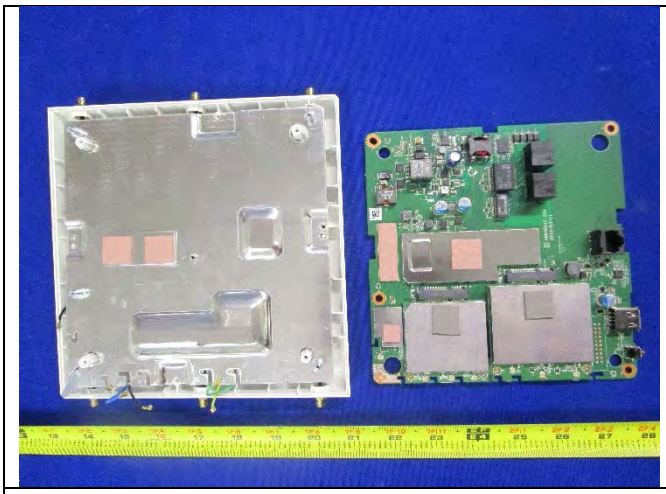


Low Gain Antenna –View 2

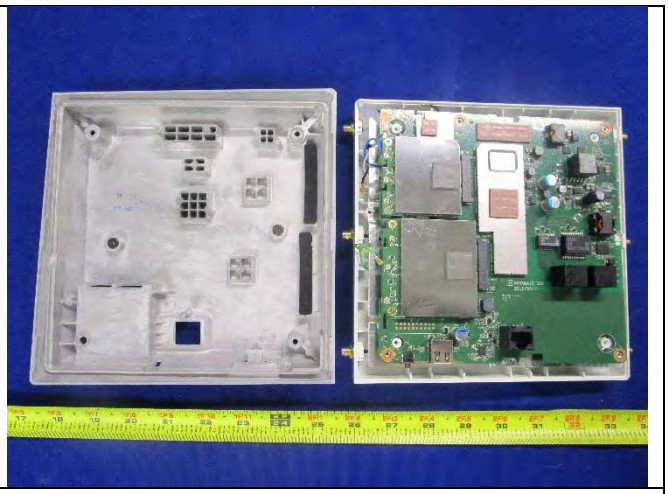
Support Equipment Power Supply Top View

Support Equipment Power Supply Bottom View

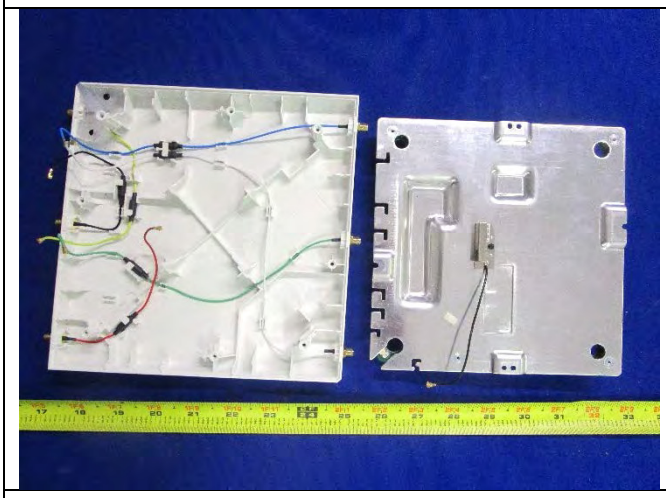
6.4 EUT Photos – Internal



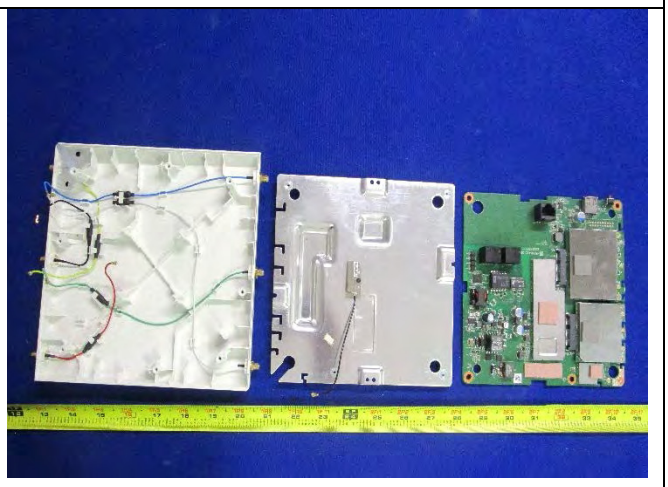
EUT: Cover Off View 1



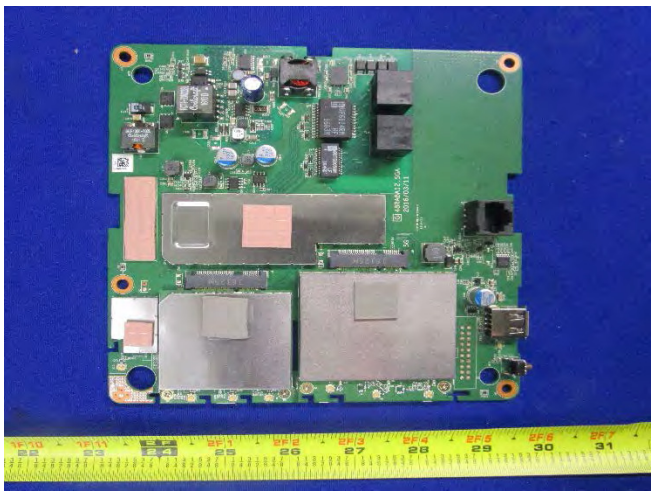
EUT: Cover Off View 2



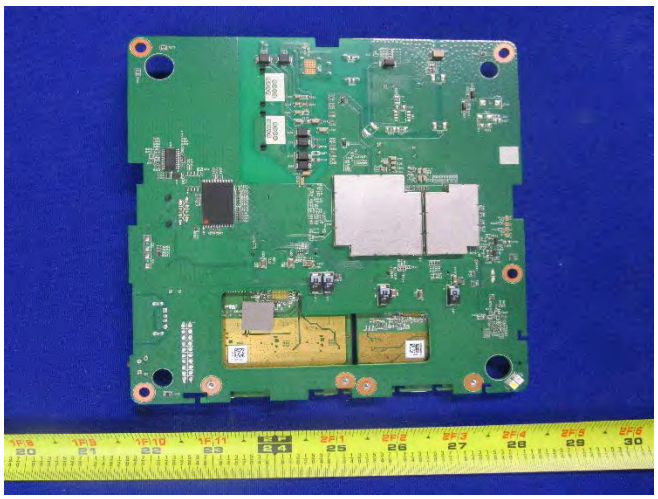
EUT: Cover Off View 3



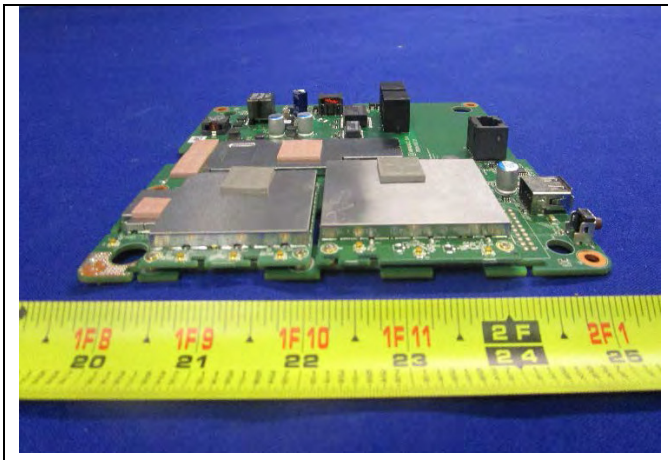
EUT: Cover Off View 4



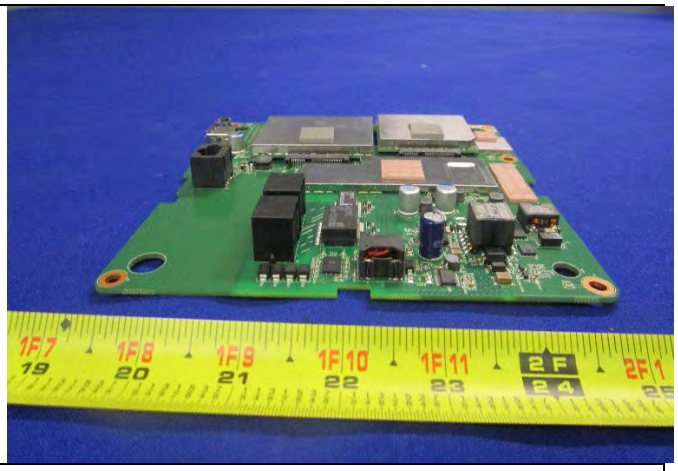
PCBA Top View



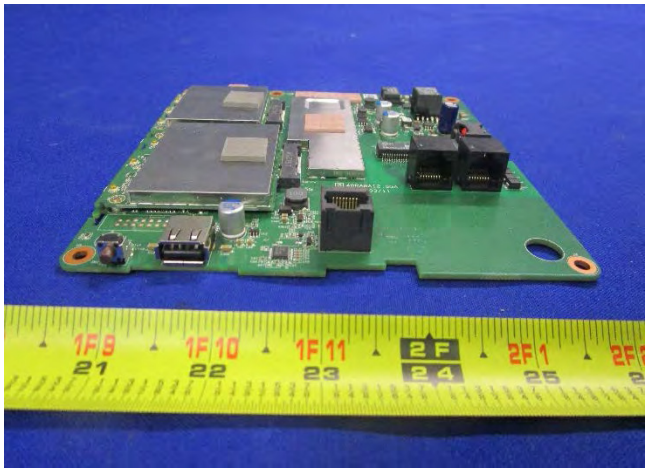
PCBA Bottom View



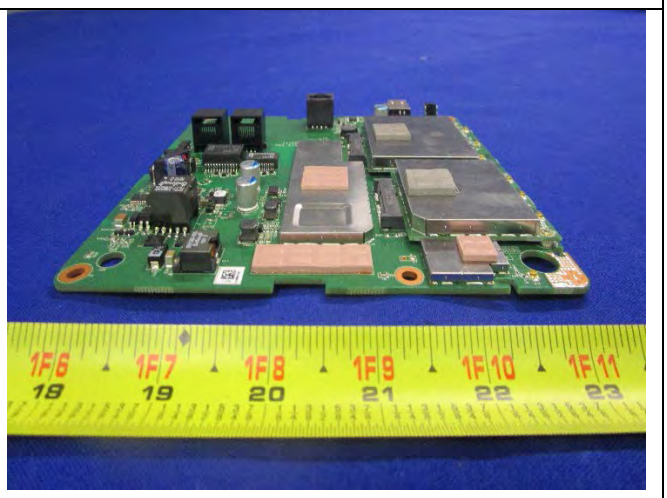
PCBA Front View



PCBA Rear View

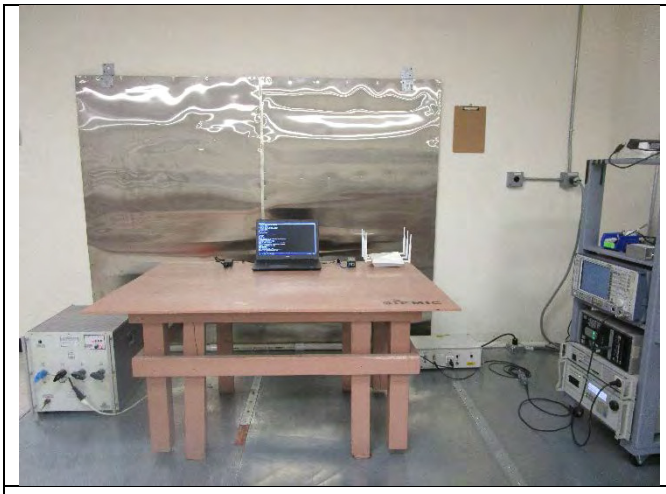


PCBA Left-Side View

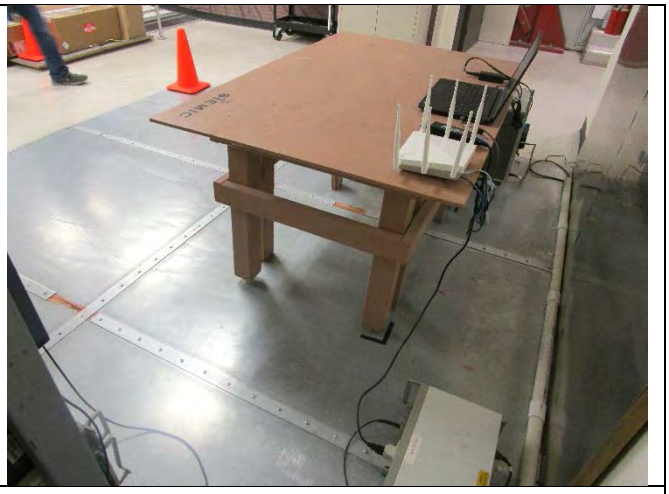


PCBA Right-Side View

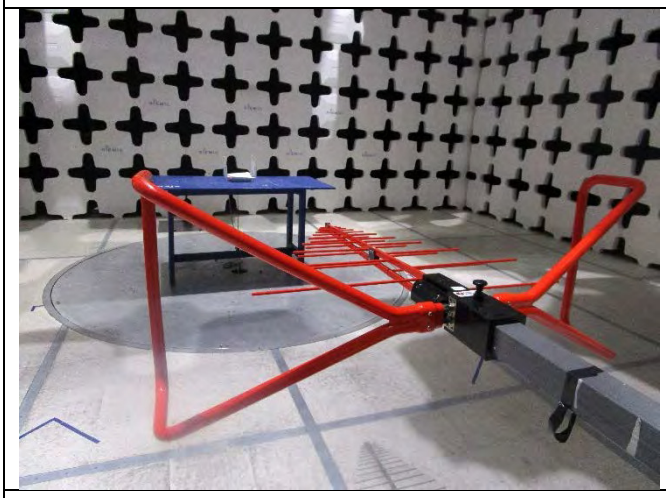
6.5 EUT Test Setup Photos



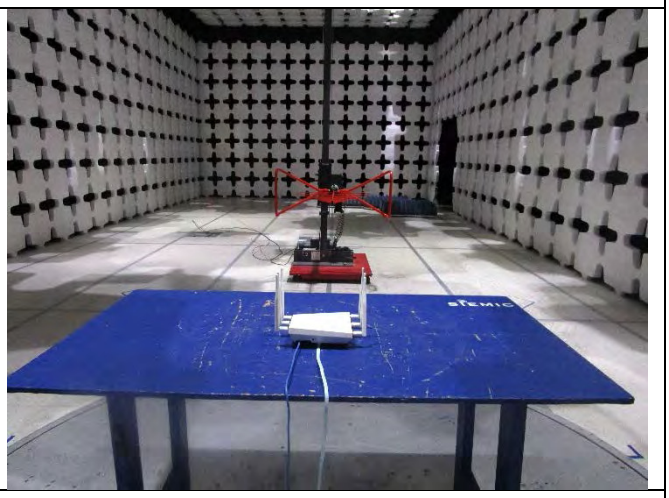
AC Line Conducted Emissions – Front View



AC Line Conducted Emissions – Rear View



Radiated Emissions (<1GHz) – Front View



Radiated Emissions (<1GHz) – Rear View

Radiated Emissions (>1GHz) – Front View

Radiated Emissions (>1GHz) – Rear View

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Supporting Equipment Description	Model	Serial Number	Manufacturer	Note
1	Laptop	Latitude 3550	N/A	Dell	-

7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
RJ45	EUT	RJ45	POE	RJ45	2	Unshielded	-
RJ45	EUT	RJ45	Laptop	USB	3	Unshielded	-

7.3 Test Software Description

Test Item	Software	Description
RF Testing	Tera Term	Set the EUT to transmit continuously in diferent test mode

8 Test Summary

Test Item	Test standard		Test Method/Procedure	Pass / Fail
Restricted Band of Operation	FCC	15.205	ANSI C63.4 – 2014 789033 D02 General UNII Test Procedures New Rules v01r02	☒ Pass ☐ N/A
AC Conducted Emissions Voltage	FCC	15.207(a)	ANSI C63.4 – 2014	☒ Pass ☐ N/A

Test Item	Test standard		Test Method/Procedure	Pass / Fail
26 & 6 dB Emission Bandwidth	FCC	15.407 (a) (2)	789033 D02 General UNII Test Procedures New Rules v01r02	☒ Pass ☐ N/A
Maximum conducted Output Power	FCC	15.407 (a) (2)	789033 D02 General UNII Test Procedures New Rules v01r02	☒ Pass ☐ N/A
Power reduction (Antenna Gain > 6 dBi)	FCC	15.407 (a) (2)	-	☐ Pass ☒ N/A
Band Edge and Radiated Spurious Emissions	FCC	15.407(b)(2), 15.407(b)(6)	ANSI C63.4 – 2014 789033 D02 General UNII Test Procedures New Rules v01r02	☒ Pass ☐ N/A
Power Spectral Density	FCC	15.407 (a) (2)	789033 D02 General UNII Test Procedures New Rules v01r02	☒ Pass ☐ N/A
Frequency Stability	FCC	15.407 (g)	-	☐ Pass ☒ N/A
Transmit Power Control (TPC)	FCC	15.407 (h)(1)	-	☐ Pass ☒ N/A
User Manual	FCC	-	-	☒ Pass ☐ N/A
Remark	1. All measurement uncertainties are not taken into consideration for all presented test result. 2. The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual. 3. The device is operating at near 98% duty cycle.			
Note	Test Setup is same for Beamforming and Non-Beamforming mode. Only, limits are different for Beamforming and Non-Beamforming mode.			

9 Measurement Uncertainty

Emissions			
Test Item	**Frequency Range**	**Description**	**Uncertainty**
AC Conducted Emissions	150KHz – 30MHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2	±3.5dB
Band Edge and Radiated Spurious Emissions	30MHz – 1GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
Band Edge and Radiated Spurious Emissions	1GHz – 40GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+4.3dB/-4.1dB

10 Measurements, Examination and Derived Results

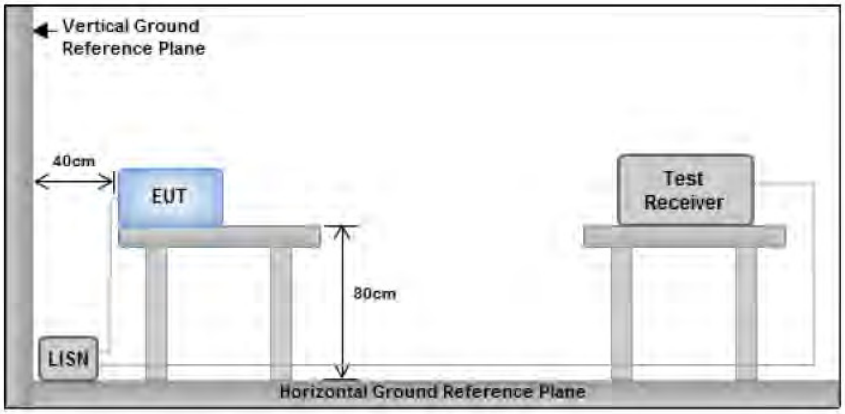
10.1 Conducted Emissions

Conducted Emission Limit

Frequency ranges (MHz)	Limit (dBuV)	
	QP	Average
0.15 ~ 0.5	66 – 56	56 – 46
0.5 ~ 5	56	46
5 ~ 30	60	50

Spec	Item	Requirement	Applicable
47CFR§15.207	a)	For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequency ranges.	☒

Test Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

Procedure

- The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in Annex B.
- The power supply for the EUT was fed through a 50Ω/50μH EUT LISN, connected to filtered mains.
- The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.
- All other supporting equipment was powered separately from another main supply.

Remark	EUT tested with AC 120V 60Hz
Result	☒ Pass ☐ Fail

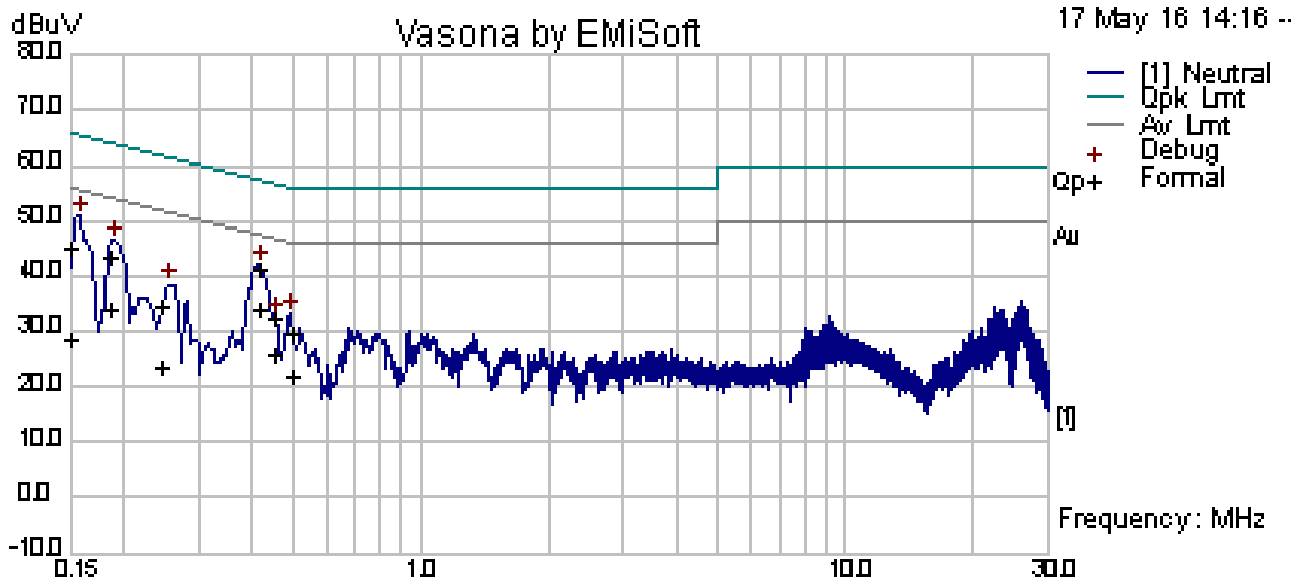
Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by *Rachana Khanduri* at *Conducted Emission Test Site*.

Conducted Emission Test Results

Test specification:	Conducted Emissions			
Environmental Conditions:	Temp(°C):	21	Result:	☒ Pass ☐ Fail
	Humidity (%):	42		
	Atmospheric(mbar):	1021		
Mains Power:	120Vac, 60Hz			
Tested by:	Rachana Khanduri			
Test Date:	05/17/2016			
Remarks	AC Line @ Neutral			

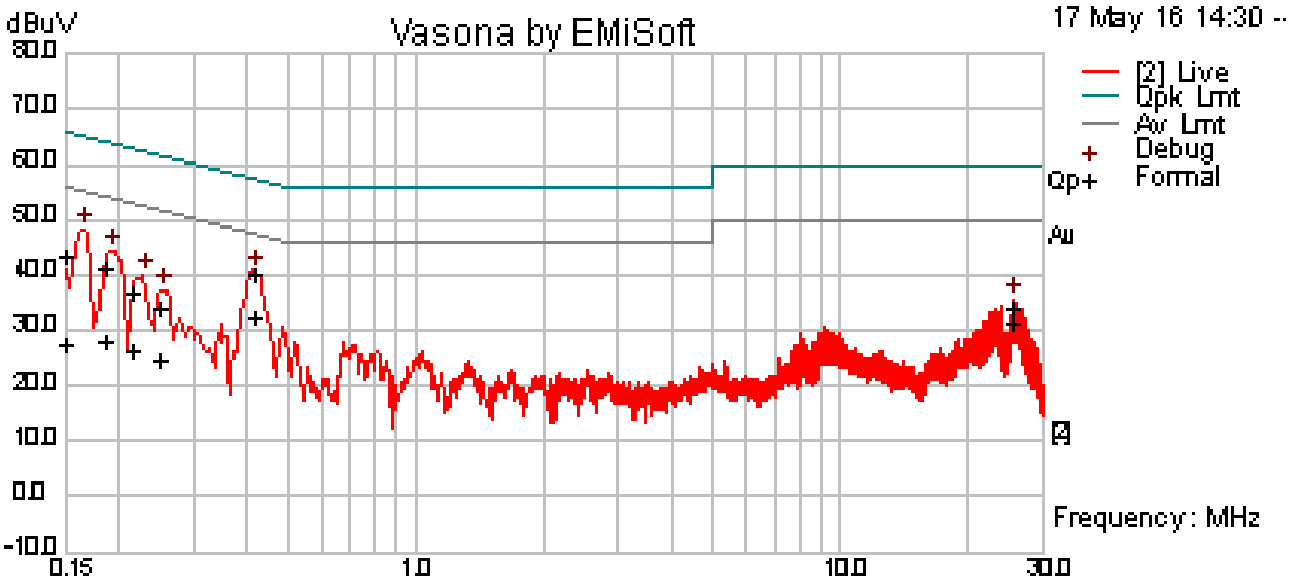


Neutral Plot at 120Vac, 60Hz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Measurement Type	Line	Limit (dBuV)	Margin (dB)	Pass /Fail
0.15	33.20	10.00	1.80	45.00	Quasi Peak	Neutral	66.00	-21.00	Pass
0.42	30.83	10.01	0.74	41.58	Quasi Peak	Neutral	57.54	-15.96	Pass
0.19	32.20	10.00	1.42	43.62	Quasi Peak	Neutral	64.21	-20.59	Pass
0.50	18.82	10.01	0.68	29.51	Quasi Peak	Neutral	56.04	-26.53	Pass
0.25	23.35	10.00	1.08	34.43	Quasi Peak	Neutral	61.91	-27.47	Pass
0.45	22.03	10.01	0.71	32.75	Quasi Peak	Neutral	56.85	-24.10	Pass
0.15	16.60	10.00	1.80	28.41	Average	Neutral	56.00	-27.59	Pass
0.42	23.29	10.01	0.74	34.03	Average	Neutral	47.54	-13.51	Pass
0.19	22.59	10.00	1.42	34.01	Average	Neutral	54.21	-20.21	Pass
0.50	11.38	10.01	0.68	22.07	Average	Neutral	46.04	-23.97	Pass
0.25	12.49	10.00	1.08	23.57	Average	Neutral	51.91	-28.33	Pass
0.45	15.2	10.01	0.71	25.92	Average	Neutral	46.85	-20.93	Pass

Conducted Emission Test Results

Test specification:	Conducted Emissions			
Environmental Conditions:	Temp(°C):	21	Result:	☒ Pass ☐ Fail
	Humidity (%):	42		
	Atmospheric(mbar):	1021		
Mains Power:	120Vac, 60Hz			
Tested by:	Rachana Khanduri			
Test Date:	05/17/2016			
Remarks	AC Line @ Line			



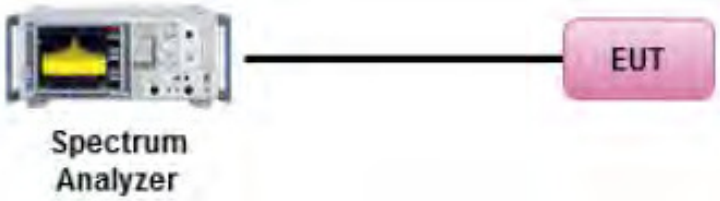
Line Plot at 120Vac, 60Hz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Measurement Type	Line	Limit (dBuV)	Margin (dB)	Pass /Fail
0.41	29.36	10.01	0.74	40.11	Quasi Peak	Live	57.55	-17.44	Pass
0.15	31.48	10.00	1.80	43.28	Quasi Peak	Live	66.00	-22.72	Pass
0.18	29.71	10.00	1.43	41.15	Quasi Peak	Live	64.29	-23.14	Pass
0.21	25.52	10.00	1.23	36.75	Quasi Peak	Live	63.02	-26.27	Pass
0.25	23.32	10.00	1.06	34.38	Quasi Peak	Live	61.77	-27.39	Pass
25.49	23.16	10.08	0.78	34.01	Quasi Peak	Live	60.00	-25.99	Pass
0.41	21.97	10.01	0.74	32.72	Average	Live	47.55	-14.83	Pass
0.15	15.49	10.00	1.80	27.30	Average	Live	56.00	-28.70	Pass
0.18	16.43	10.00	1.43	27.86	Average	Live	54.29	-26.43	Pass
0.21	15.37	10.00	1.23	26.60	Average	Live	53.02	-26.42	Pass
0.25	13.55	10.00	1.06	24.61	Average	Live	51.77	-27.16	Pass
25.49	20.47	10.08	0.78	31.33	Average	Live	50	-18.67	Pass

Note: The results above show only the worst case.

10.2 26 dB Bandwidth

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	-	26 dB Emission BW: Report only for reference.	☒
	a) (2)	26 dB Emission BW: Report only for power limit calculation.	☐
Test Setup			

Test Procedure	789033 D02 General UNII Test Procedures New Rules v01r02
	
	26dB Emission bandwidth measurement procedure (Other than 5.725-5.85 GHz)
	- Allow the trace to stabilize.
	- Use the spectrum analyzer built-in measurement function to determine the 26dB BW.
	  ○ Set RBW = around 1% of emission bandwidth
	  ○ Set VBW > RBW
	  ○ Detector = Peak
	  ○ Trace mode = max hold
	- Capture the plot.
	- Repeat above steps for different test channel and other modulation type.		

Test Date	06/15/2016	Environmental condition	Temperature 23°C Relative Humidity 42% Atmospheric Pressure 1021mbar
Remark	N/A		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes ☐ N/A
Test Plot ☒ Yes ☐ N/A

Test was done by *Rachana Khanduri* at *RF Test Site*.

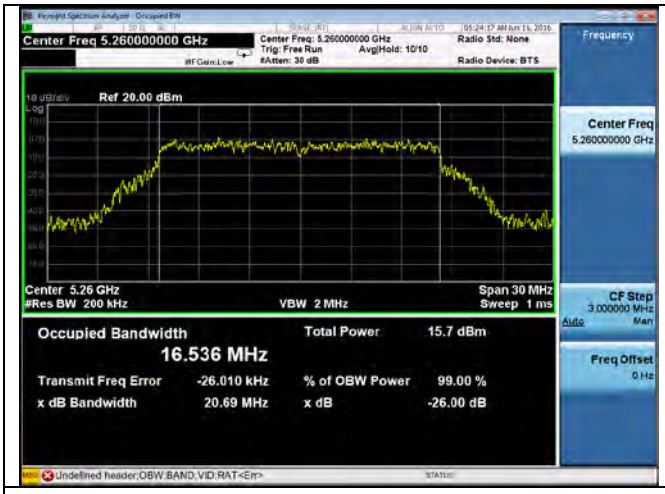
26dB Bandwidth measurement result for 5.3GHz

Type	Test mode	Freq (MHz)	CH	Result (MHz)
26dB BW	802.11a	5260	Low	20.69
26dB BW	802.11a	5280	Mid	20.41
26dB BW	802.11a	5320	High	20.67
26dB BW	802.11n-20	5260	Low	21.29
26dB BW	802.11n-20	5280	Mid	20.97
26dB BW	802.11n-20	5320	High	20.81
26dB BW	802.11n-40	5270	Low	38.86
26dB BW	802.11n-40	5310	High	39.07
26dB BW	802.11ac-80	5290	Mid	79.10

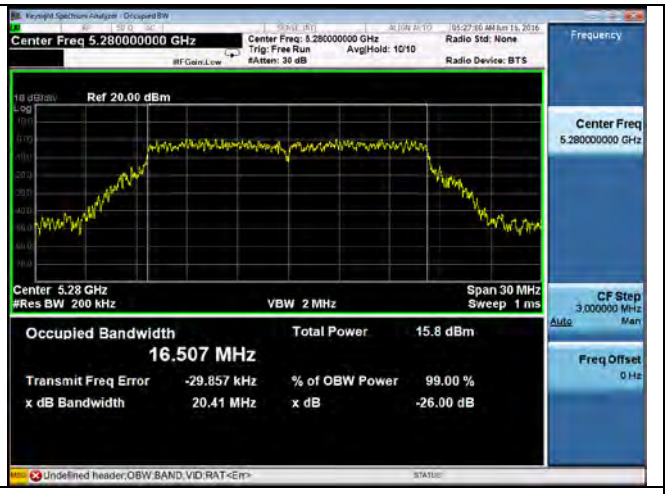
26dB Bandwidth measurement result for 5.5GHz

Type	Test mode	Freq (MHz)	CH	Result (MHz)
26dB BW	802.11a	5500	Low	20.49
26dB BW	802.11a	5580	Mid	20.74
26dB BW	802.11a	5700	High	20.33
26dB BW	802.11n-20	5500	Low	20.97
26dB BW	802.11n-20	5580	Mid	21.16
26dB BW	802.11n-20	5700	High	20.96
26dB BW	802.11n-40	5510	Low	39.10
26dB BW	802.11n-40	5590	Mid	38.92
26dB BW	802.11n-40	5670	High	39.31
26dB BW	802.11ac-80	5530	Low	79.93
26dB BW	802.11ac-80	5610	High	79.91

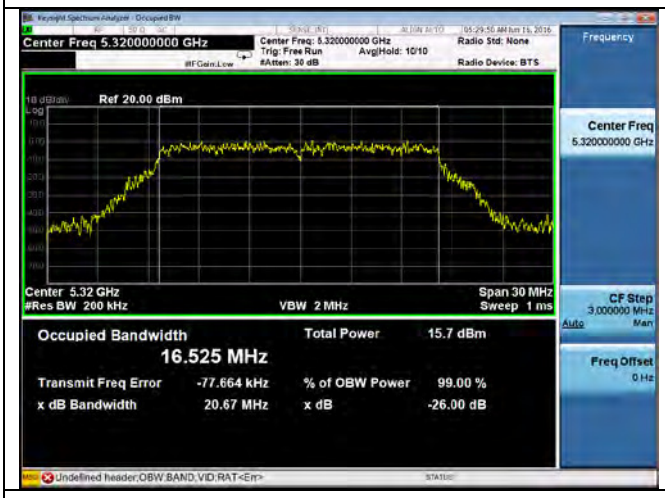
26dB Bandwidth Test Plots



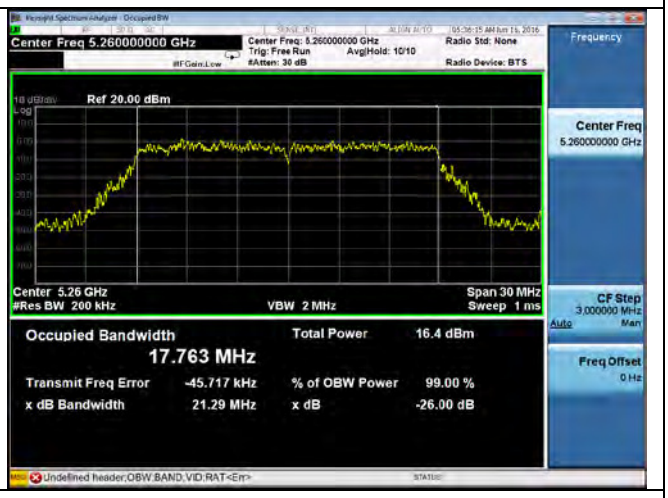
26dB BW -802.11a 5260MHz



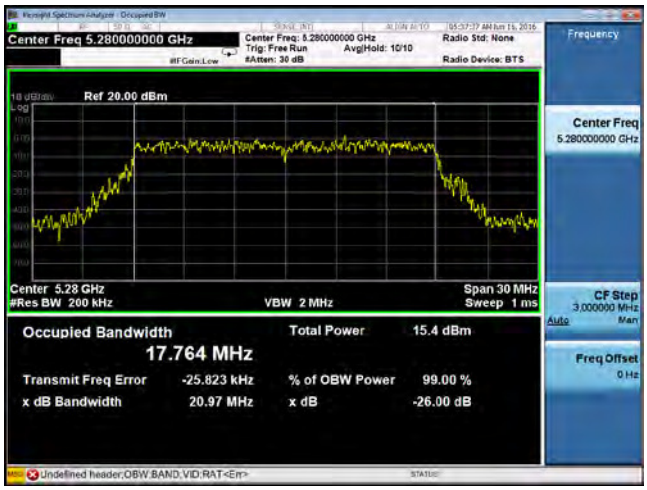
26dB BW -802.11a 5280MHz



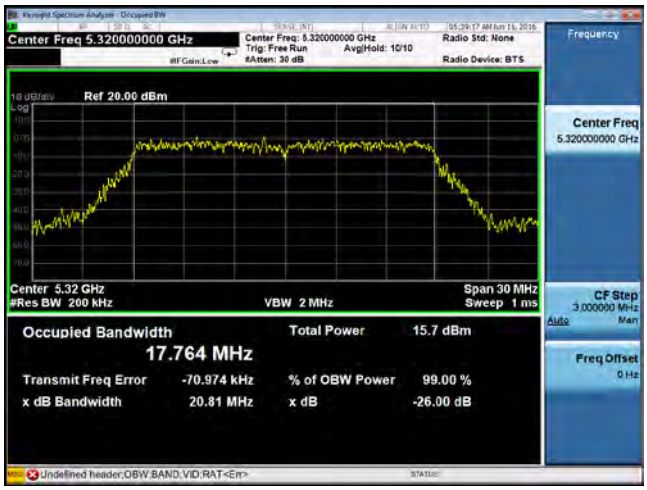
26dB BW -802.11a 5320MHz



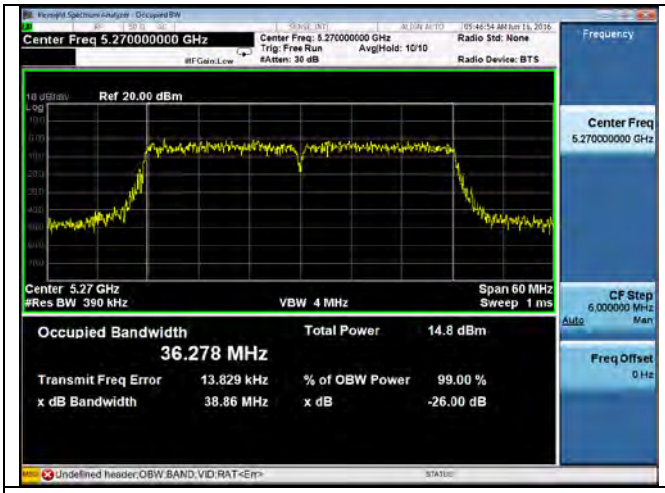
26dB BW -802.11n-20M 5260MHz



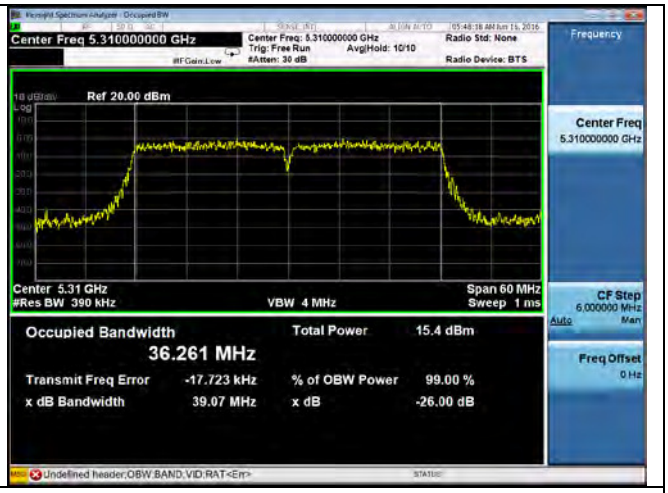
26dB BW -802.11n-20M 5280MHz



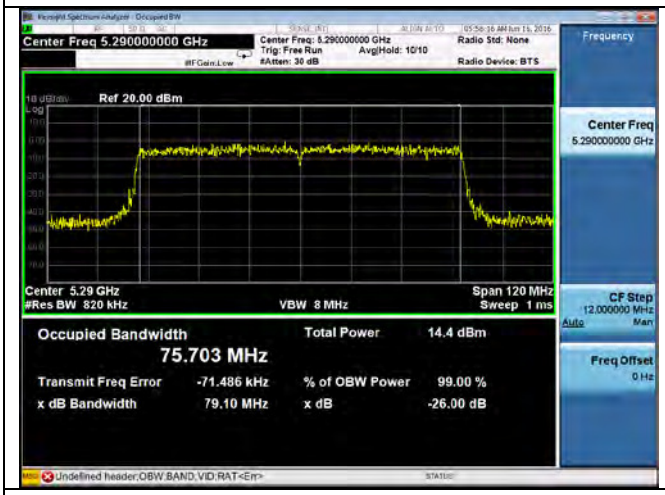
26dB BW -802.11n-20M 5320MHz



26dB BW -802.11n-40M 5270MHz

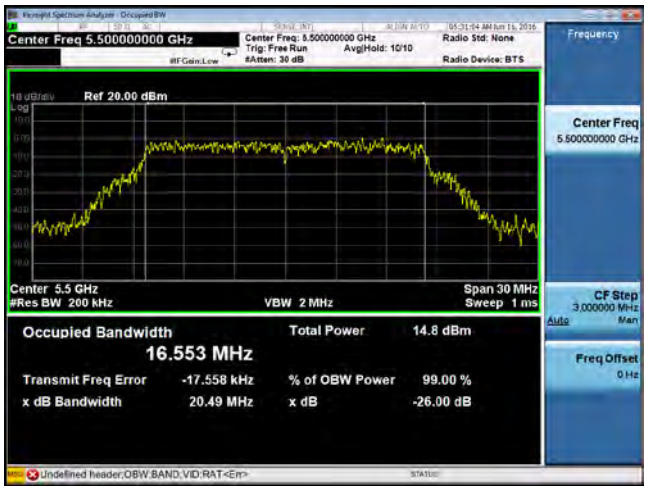


26dB BW -802.11n-40M 5310MHz

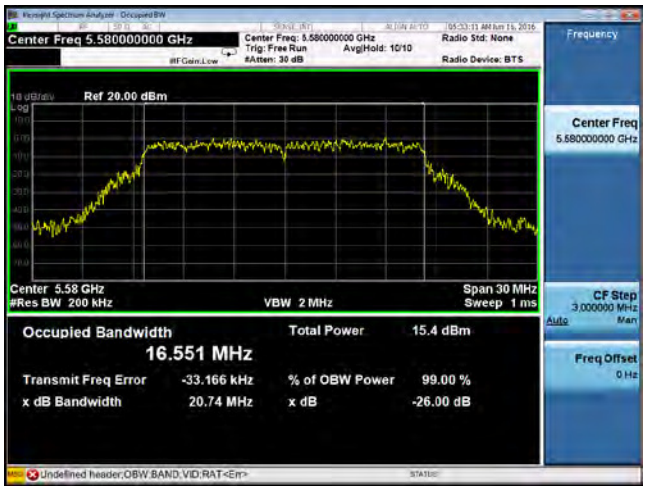


26dB BW -802.11ac-80M 5290MHz

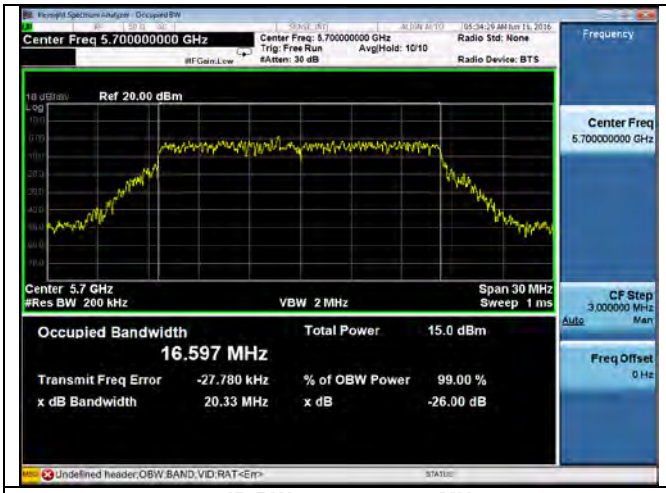
-



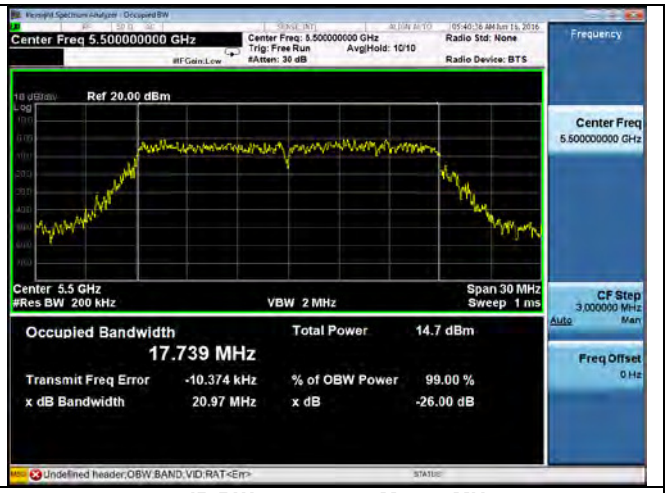
26dB BW -802.11a 5500MHz



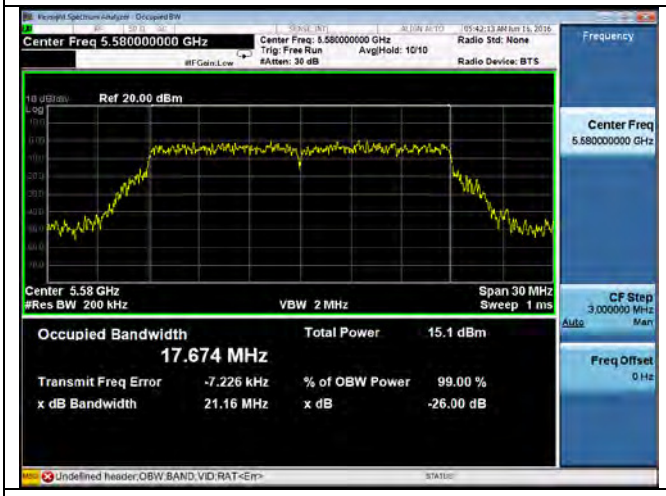
26dB BW -802.11a 5580MHz



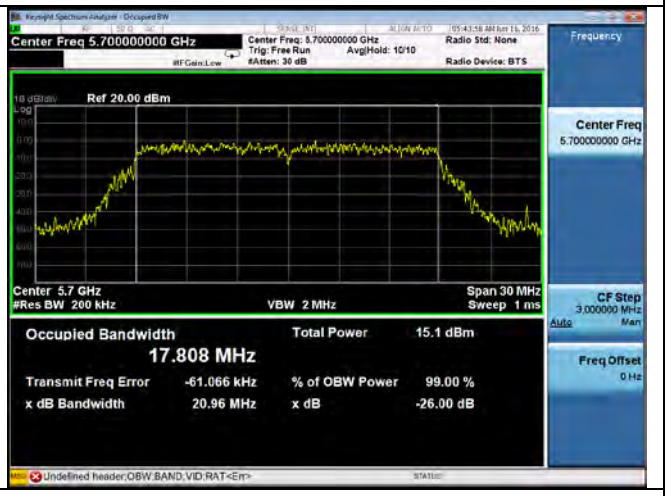
26dB BW -802.11a 5700MHz



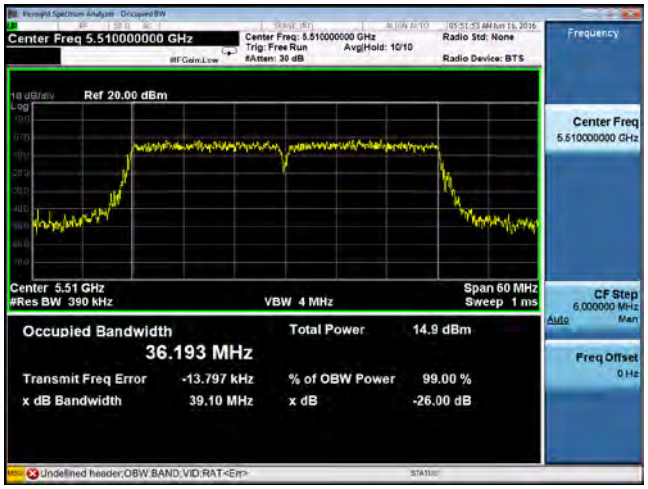
26dB BW -802.11n-20M 5500MHz



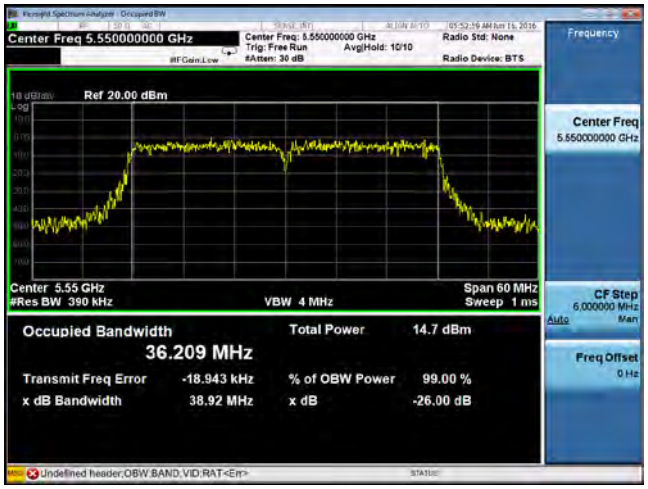
26dB BW -802.11n-20M 5580MHz



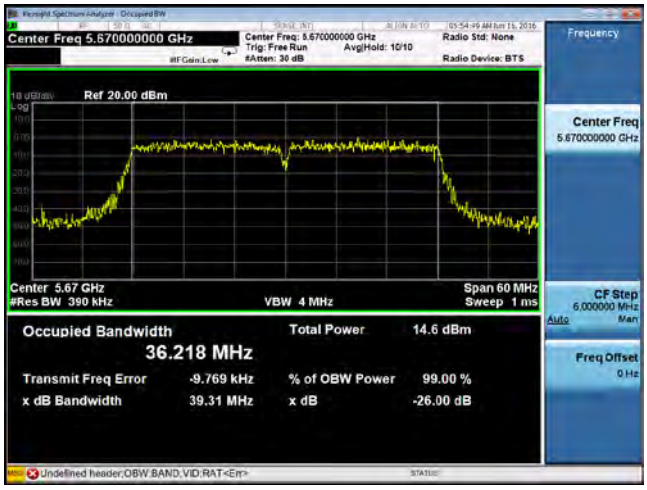
26dB BW -802.11n-20M 5700MHz



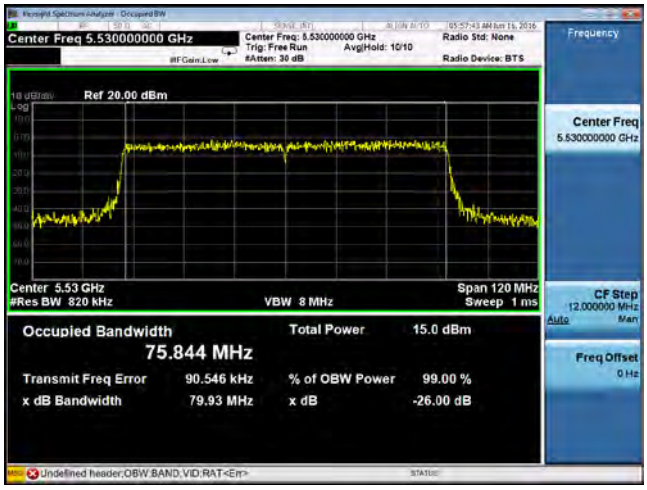
26dB BW -802.11n-40M 5510MHz



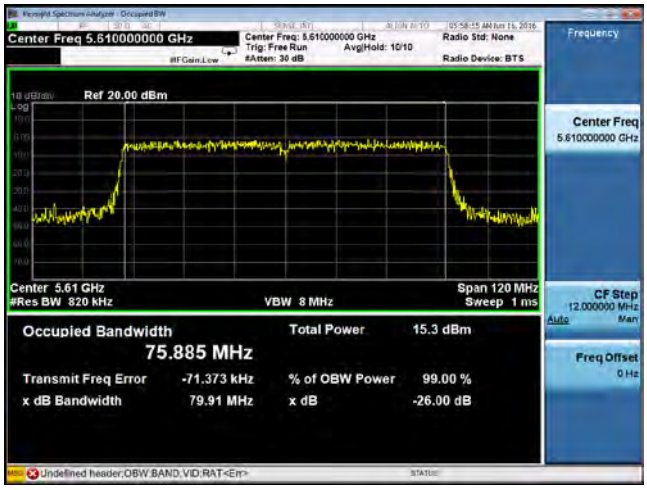
26dB BW -802.11n-40M 5550MHz



26dB BW -802.11n-40M 5670MHz



26dB BW -802.11ac-80M 5530MHz



26dB BW -802.11ac-80M 5610MHz

10.3 Output Power

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	a)(1)(i)	For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).	☐
	a)(1)(ii)	For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.	☐
	a)(1)(iii)	For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.	☐
	a)(1)(iv)	For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.	☐
	a)(2)	For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz.	☒
	a)(3)	For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.	☒

Test Setup				
Test Procedure	789033 D02 General UNII Test Procedures New Rules v01r02 Measurement using a Power Meter (PM) Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required. - Connect EUT's RF output power to power meter - Set EUT to be continuous transmission mode - Measurement the average output power using power meter and record the result - Repeat above steps for different test channel and other modulation type.			
Test Date	06/20/2016	Environmental condition	Temperature Relative Humidity Atmospheric Pressure	21°C 40% 1019mbar
Remark	Directional Gain = G_{ANT} + 10*log(N_{ANT}) dBi Antenna Gain (G_{ANT}) = 5.7dBi N_{ANT} = 3			
Result	☒ Pass ☐ Fail			

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Test was done by *Rachana Khanduri* at *RF Test Site*.

Output Power measurement result for 5.3GHz

For Non-Beamforming

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)				Limit (dBm)	Result
				Chain 1	Chain 2	Chain 3	Combined Power		
Output power	802.11a	5260	Low	13.56	10.92	11.29	16.86	24	Pass
Output power	802.11a	5280	Mid	13.46	10.83	11.41	16.82	24	Pass
Output power	802.11a	5320	High	13.30	11.03	11.42	16.81	24	Pass
Output power	802.11n-20M	5260	Low	13.37	11.67	13.14	17.56	24	Pass
Output power	802.11n-20M	5280	Mid	13.44	11.72	13.12	17.59	24	Pass
Output power	802.11n-20M	5320	High	13.20	11.44	13.10	17.42	24	Pass
Output power	802.11n-40M	5270	Low	12.22	11.57	13.84	17.42	24	Pass
Output power	802.11n-40M	5310	High	12.82	11.25	13.57	17.42	24	Pass
Output power	802.11ac-80M	5290	-	12.57	11.89	13.2	17.36	24	Pass

For Beamforming

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)				Limit (dBm)	Result
				Chain 1	Chain 2	Chain 3	Combined Power		
Output power	802.11a	5260	Low	13.56	10.92	11.29	16.86	19.53	Pass
Output power	802.11a	5280	Mid	13.46	10.83	11.41	16.82	19.53	Pass
Output power	802.11a	5320	High	13.30	11.03	11.42	16.81	19.53	Pass
Output power	802.11n-20M	5260	Low	13.37	11.67	13.14	17.56	19.53	Pass
Output power	802.11n-20M	5280	Mid	13.44	11.72	13.12	17.59	19.53	Pass
Output power	802.11n-20M	5320	High	13.20	11.44	13.10	17.42	19.53	Pass
Output power	802.11n-40M	5270	Low	12.22	11.57	13.84	17.42	19.53	Pass
Output power	802.11n-40M	5310	High	12.82	11.25	13.57	17.42	19.53	Pass
Output power	802.11ac-80M	5290	-	12.57	11.89	13.2	17.36	19.53	Pass
Note	Directional Gain = 5.7 + 10* log(3) = 10.47dBi Directional Gain is greater than 6dBi. So, Limit = 24- 4.47 = 19.53dBm								

Output Power measurement result for 5.5GHz

For Non-Beamforming

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)				Limit (dBm)	Result
				Chain 1	Chain 2	Chain 3	Combined Power		
Output power	802.11a	5500	Low	13.04	11.76	12.28	17.16	24	Pass
Output power	802.11a	5580	Mid	13.08	12.05	12.56	17.35	24	Pass
Output power	802.11a	5700	High	13.26	12.39	12.73	17.58	24	Pass
Output power	802.11n-20M	5500	Low	12.89	12.79	12.99	17.66	24	Pass
Output power	802.11n-20M	5580	Mid	13.07	12.66	12.97	17.67	24	Pass
Output power	802.11n-20M	5700	High	13.13	12.19	13.23	17.65	24	Pass
Output power	802.11n-40M	5510	Low	12.80	12.24	12.69	17.35	24	Pass
Output power	802.11n-40M	5550	Mid	12.81	12.13	12.68	17.32	24	Pass
Output power	802.11n-40M	5670	High	12.86	12.12	13.53	17.65	24	Pass
Output power	802.11ac-80M	5530	Low	13.27	12.80	13.23	17.88	24	Pass
Output power	802.11ac-80M	5610	High	13.70	12.36	13.40	17.96	24	Pass

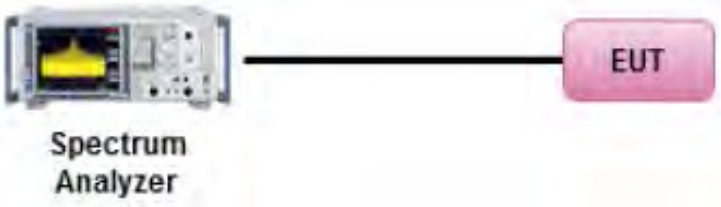
For Beamforming

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)				Limit (dBm)	Result
				Chain 1	Chain 2	Chain 3	Combined Power		
Output power	802.11a	5500	Low	13.04	11.76	12.28	17.16	19.53	Pass
Output power	802.11a	5580	Mid	13.08	12.05	12.56	17.35	19.53	Pass
Output power	802.11a	5700	High	13.26	12.39	12.73	17.58	19.53	Pass
Output power	802.11n-20M	5500	Low	12.89	12.79	12.99	17.66	19.53	Pass
Output power	802.11n-20M	5580	Mid	13.07	12.66	12.97	17.67	19.53	Pass
Output power	802.11n-20M	5700	High	13.13	12.19	13.23	17.65	19.53	Pass
Output power	802.11n-40M	5510	Low	12.80	12.24	12.69	17.35	19.53	Pass
Output power	802.11n-40M	5550	Mid	12.81	12.13	12.68	17.32	19.53	Pass
Output power	802.11n-40M	5670	High	12.86	12.12	13.53	17.65	19.53	Pass
Output power	802.11ac-80M	5530	Low	13.27	12.80	13.23	17.88	19.53	Pass
Output power	802.11ac-80M	5610	High	13.70	12.36	13.40	17.96	19.53	Pass
Note	Directional Gain = 5.7 + 10* log(3) = 10.47dBi Directional Gain is greater than 6dBi. So, Limit = 24- 4.47 = 19.53dBm								

10.4 Peak Spectral Density

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	a)(1)(i)	For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.	☐
	a)(1)(ii)	For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.	☐
	a)(2)	For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.	☒
	a)(3)	For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.	☒

Test Setup				
Test Procedure	789033 D02 General UNII Test Procedures New Rules v01r02, II.F. Method SA-1 Maximum spectral density measurement procedure - Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal. - Set RBW = 1 MHz - Set VBW ⩾ 3 MHz - Detector = RMS. - Sweep time = auto couple. - Trace mode = max hold. - Trace average at least 100 traces in power averaging - Use the peak marker function to determine the maximum amplitude level within the RBW. Apply correction to the result if different RBW is used.			
Test Date	06/16/2016	Environmental condition	Temperature Relative Humidity Atmospheric Pressure	22ºC 42% 1020mbar
Remark	Directional Gain = G_{ANT} + 10*log(N_{ANT}) dBi Antenna Gain (G_{ANT}) = 5.7dBi N_{ANT} = 3			
Result	☒ Pass ☐ Fail			

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by *Rachana Khanduri* at *RF Test Site*.

PSD measurement result for 5.3GHz

For Non-Beamforming

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)				Limit (dBm)	Result
				Chain 1	Chain 2	Chain 3	Combined		
PSD	802.11a	5260	Low	1.70	0.13	1.25	5.85	11	Pass
PSD	802.11a	5280	Mid	1.75	0.08	1.02	5.77	11	Pass
PSD	802.11a	5320	High	1.64	-0.33	0.87	5.57	11	Pass
PSD	802.11n-20	5260	Low	1.73	-0.24	0.98	5.67	11	Pass
PSD	802.11n-20	5280	Mid	1.31	-0.13	1.04	5.55	11	Pass
PSD	802.11n-20	5320	High	1.35	-0.64	0.48	5.24	11	Pass
PSD	802.11n-40	5270	Low	-2.36	-3.34	-1.77	2.33	11	Pass
PSD	802.11n-40	5310	High	-2.09	-3.66	-1.37	2.50	11	Pass
PSD	802.11ac-80	5290	High	-5.32	-6.31	-5.04	-0.75	11	Pass

For Beamforming

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)				Limit (dBm)	Result
				Chain 1	Chain 2	Chain 3	Combined		
PSD	802.11a	5260	Low	1.70	0.13	1.25	5.85	6.53	Pass
PSD	802.11a	5280	Mid	1.75	0.08	1.02	5.77	6.53	Pass
PSD	802.11a	5320	High	1.64	-0.33	0.87	5.57	6.53	Pass
PSD	802.11n-20	5260	Low	1.73	-0.24	0.98	5.67	6.53	Pass
PSD	802.11n-20	5280	Mid	1.31	-0.13	1.04	5.55	6.53	Pass
PSD	802.11n-20	5320	High	1.35	-0.64	0.48	5.24	6.53	Pass
PSD	802.11n-40	5270	Low	-2.36	-3.34	-1.77	2.33	6.53	Pass
PSD	802.11n-40	5310	High	-2.09	-3.66	-1.37	2.50	6.53	Pass
PSD	802.11ac-80	5290	High	-5.32	-6.31	-5.04	-0.75	6.53	Pass
Note	Directional Gain = 5.7 + 10* log(3) = 10.47dBi Directional Gain is greater than 6dBi. So, Limit = 11- 4.47 = 6.53dBm								

PSD measurement result for 5.5GHz

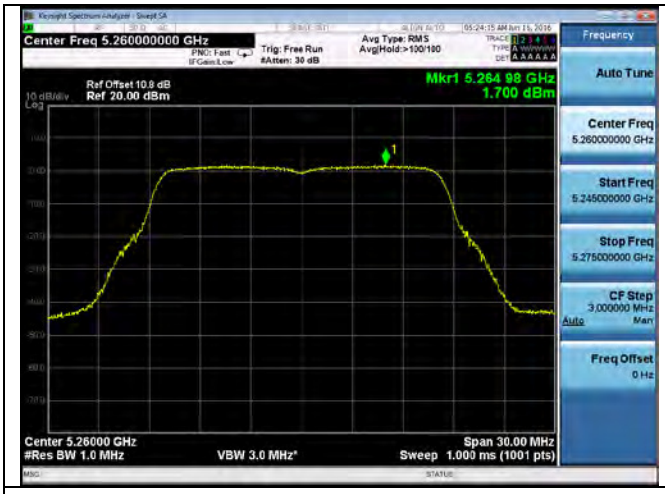
For Non-Beamforming

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)				Limit (dBm/MHz)	Result
				Chain 1	Chain 2	Chain 3	Combined PSD		
PSD	802.11a	5500	Low	1.03	0.71	1.18	5.75	11	Pass
PSD	802.11a	5580	Mid	1.26	0.62	0.69	5.64	11	Pass
PSD	802.11a	5700	High	0.97	0.23	0.93	5.49	11	Pass
PSD	802.11n-20	5500	Low	0.65	0.59	0.91	5.49	11	Pass
PSD	802.11n-20	5580	Mid	1.07	0.09	0.35	5.29	11	Pass
PSD	802.11n-20	5700	High	0.69	-0.24	0.61	5.14	11	Pass
PSD	802.11n-40	5510	Low	-2.17	-3.18	-2.75	2.09	11	Pass
PSD	802.11n-40	5550	Mid	-2.24	-3.13	-2.76	2.08	11	Pass
PSD	802.11n-40	5670	High	-2.53	-3.11	-2.56	2.05	11	Pass
PSD	802.11ac-80	5530	Low	-5.14	-5.56	-5.02	-0.46	11	Pass
PSD	802.11ac-80	5610	High	-4.79	-6.03	-5.00	-0.47	11	Pass

For Beamforming

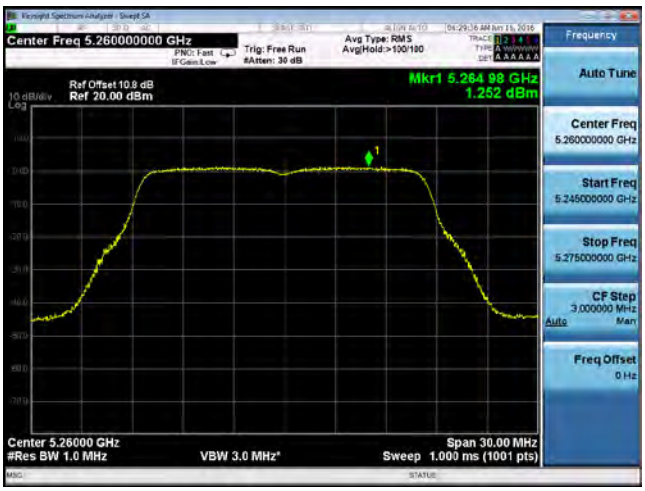
Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)				Limit (dBm/MHz)	Result
				Chain 1	Chain 2	Chain 3	Combined PSD		
PSD	802.11a	5500	Low	1.03	0.71	1.18	5.75	6.53	Pass
PSD	802.11a	5580	Mid	1.26	0.62	0.69	5.64	6.53	Pass
PSD	802.11a	5700	High	0.97	0.23	0.93	5.49	6.53	Pass
PSD	802.11n-20	5500	Low	0.65	0.59	0.91	5.49	6.53	Pass
PSD	802.11n-20	5580	Mid	1.07	0.09	0.35	5.29	6.53	Pass
PSD	802.11n-20	5700	High	0.69	-0.24	0.61	5.14	6.53	Pass
PSD	802.11n-40	5510	Low	-2.17	-3.18	-2.75	2.09	6.53	Pass
PSD	802.11n-40	5550	Mid	-2.24	-3.13	-2.76	2.08	6.53	Pass
PSD	802.11n-40	5670	High	-2.53	-3.11	-2.56	2.05	6.53	Pass
PSD	802.11ac-80	5530	Low	-5.14	-5.56	-5.02	-0.46	6.53	Pass
PSD	802.11ac-80	5610	High	-4.79	-6.03	-5.00	-0.47	6.53	Pass
Note	Directional Gain = 5.7 + 10* log(3) = 10.47dBi Directional Gain is greater than 6dBi. So, Limit = 11- 4.47 = 6.53dBm								

Test Plots

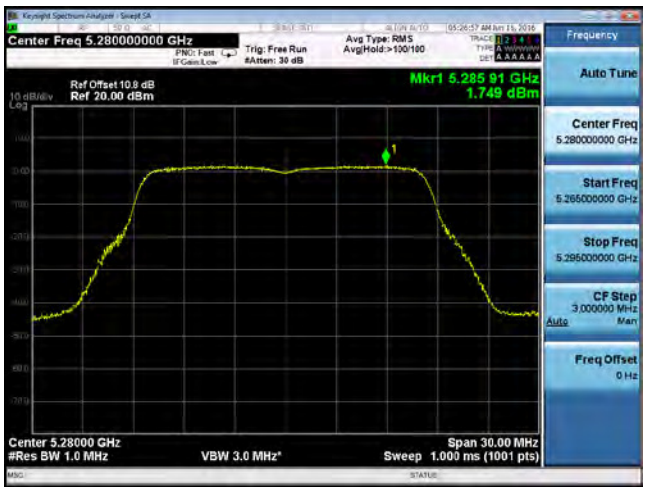


PSD-802.11a-5260M-chain1

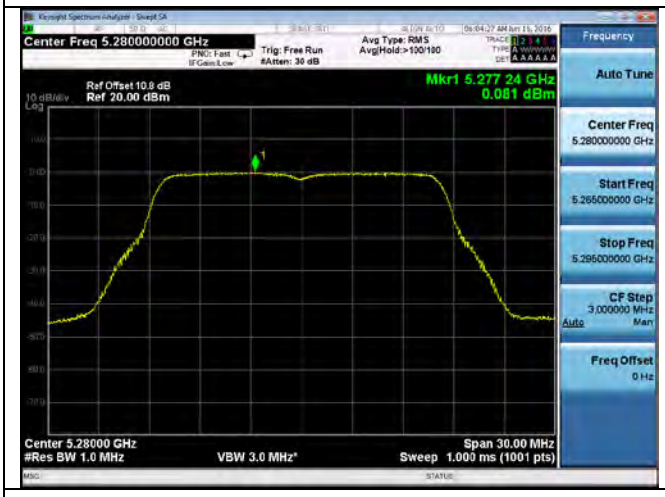
PSD-802.11a-5260M-chain2



PSD-802.11a-5260M-chain3

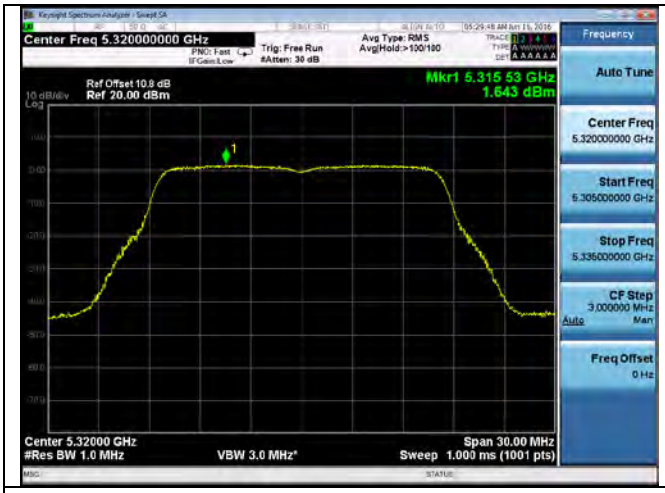


PSD-802.11a-5280M-chain1



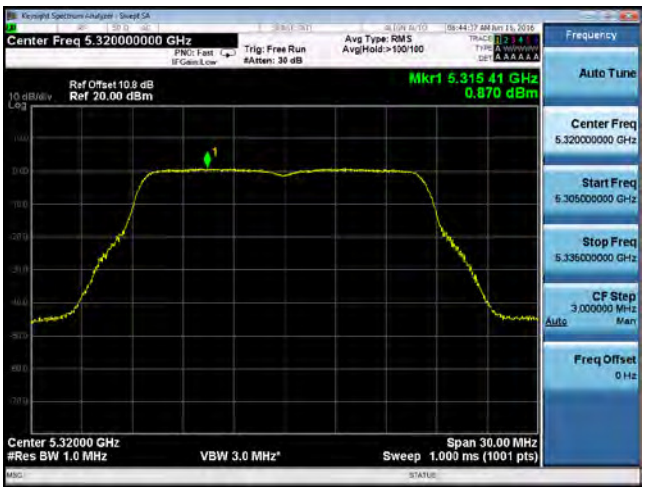
PSD-802.11a-5280M-chain2

PSD-802.11a-5280M-chain3



PSD-802.11a-5320M-chain1

PSD-802.11a-5320M-chain2



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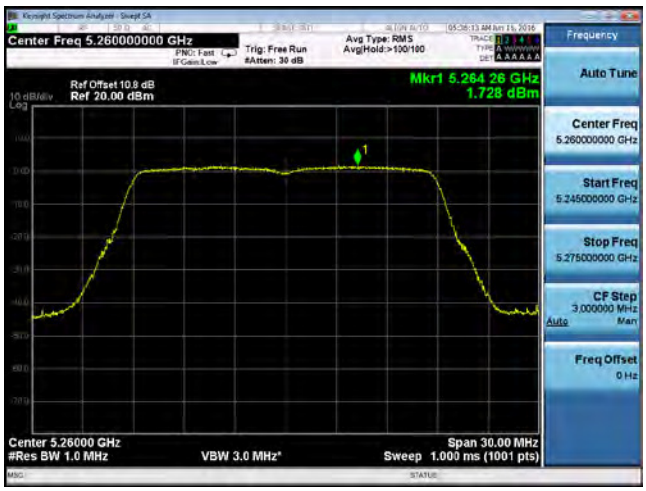
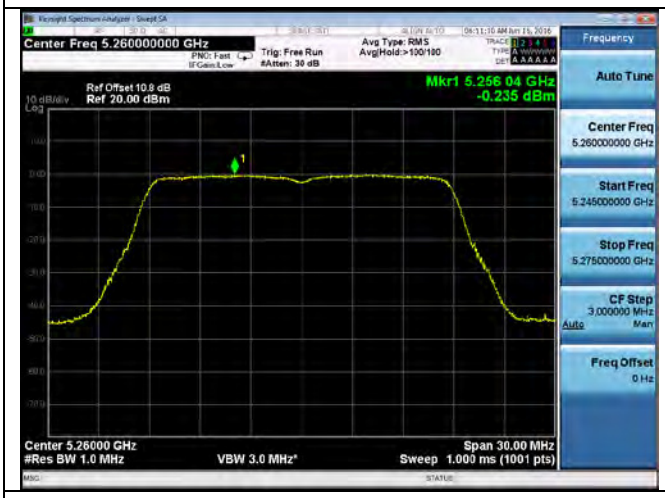
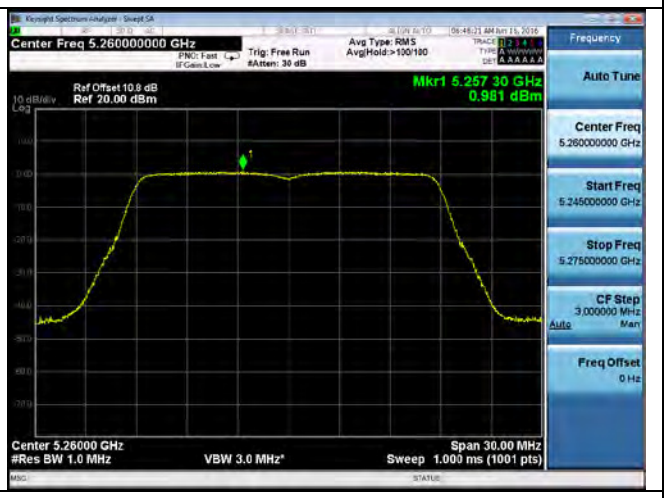


PSD-802.11n-20M -5260M-chain1



PSD-802.11n-20M -5260M-chain2



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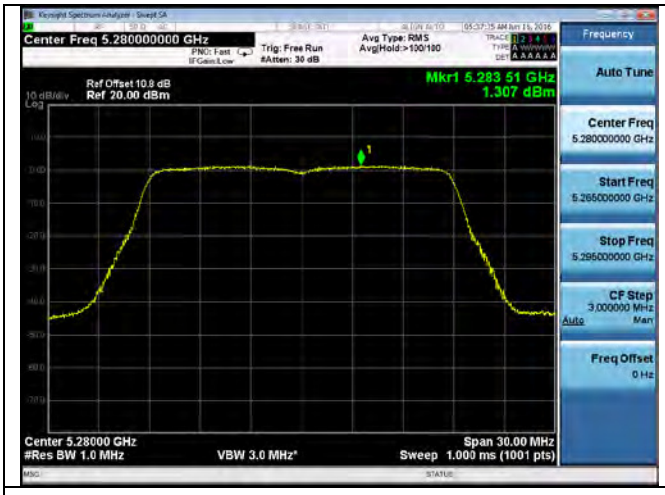
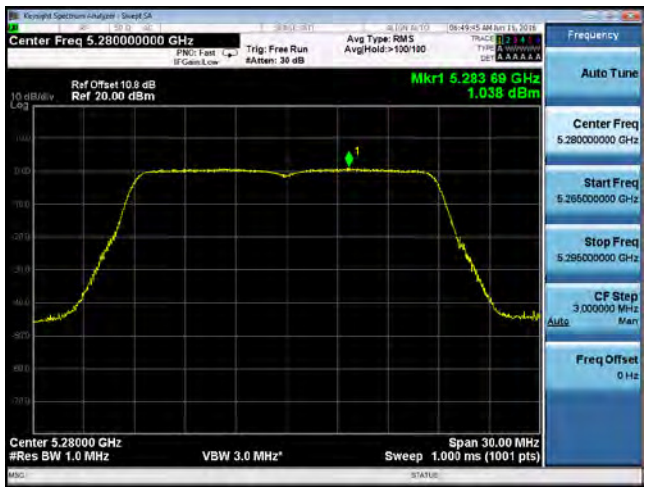


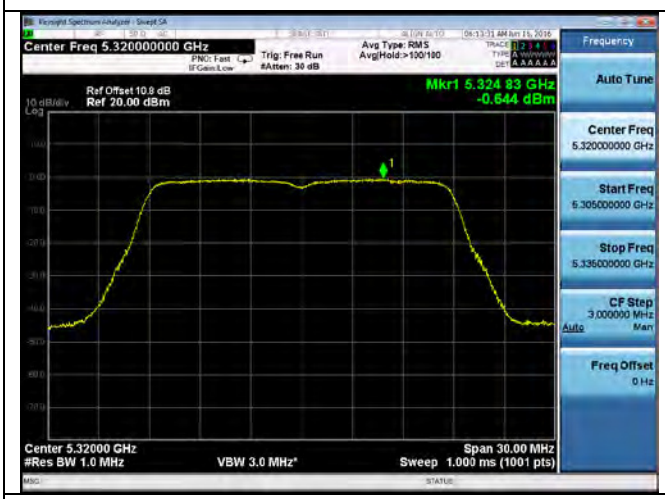
PSD-802.11n-20M-5280M-chain1

PSD-802.11n-20M-5280M-chain2

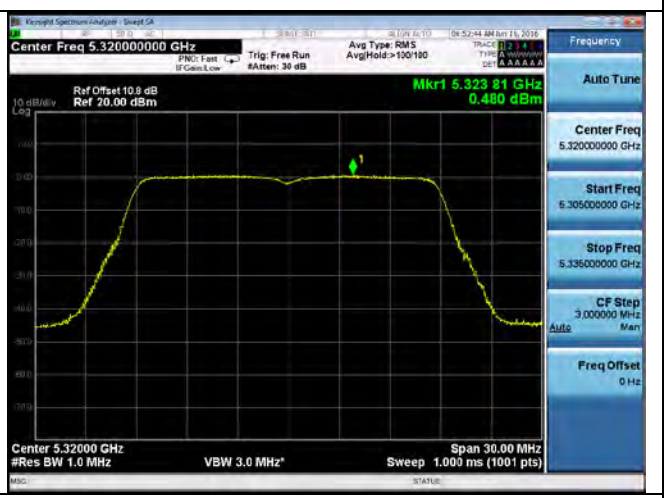


PSD-802.11n-20M-5280M-chain3

PSD-802.11n-20M-5320M-chain1



PSD-802.11n-20M-5320M-chain2



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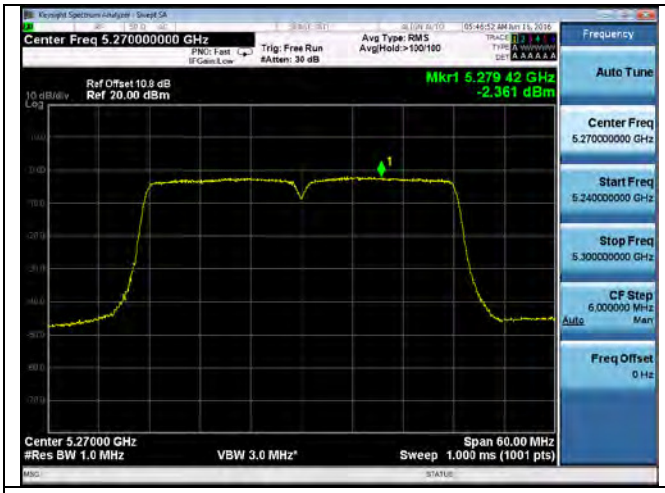
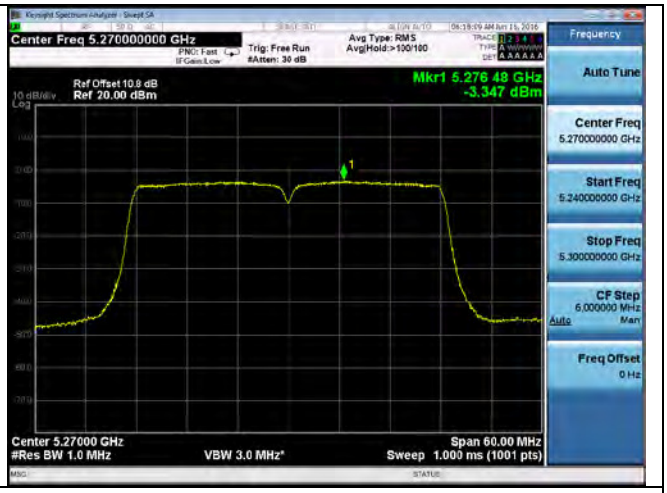
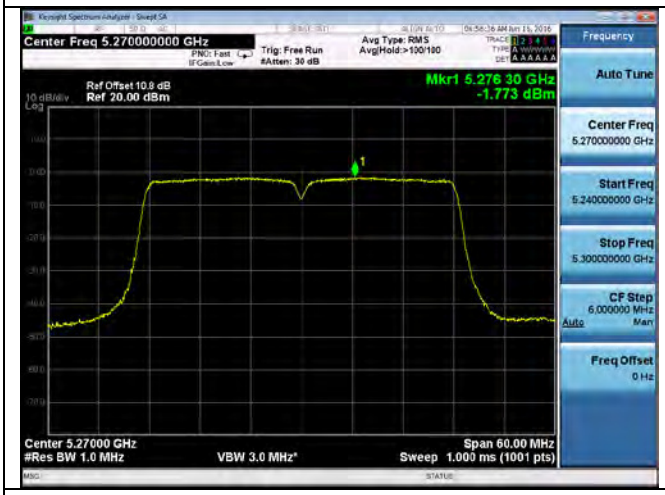


PSD-802.11n-40M-5270M-chain1

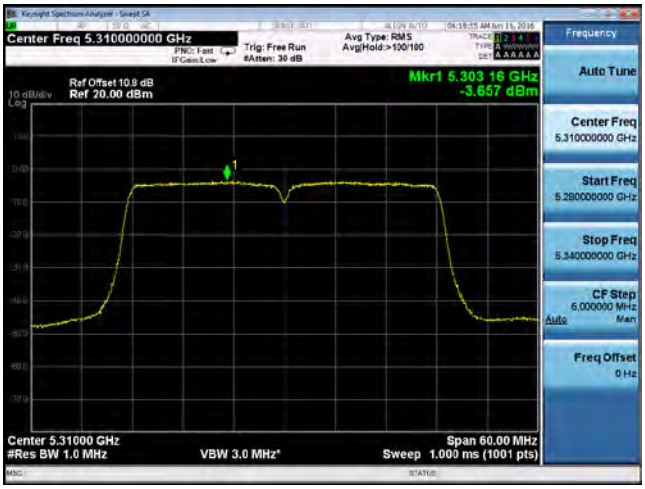


PSD-802.11n-40M-5270M-chain2



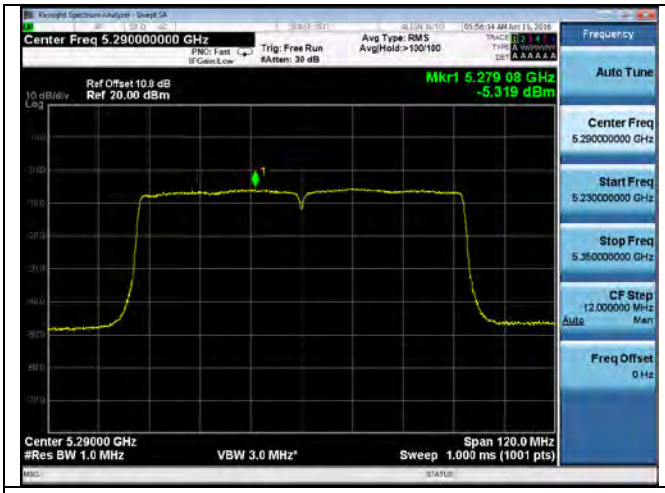
PSD-802.11n-40M-5270M-chain3

PSD-802.11n-40M-5310M-chain1

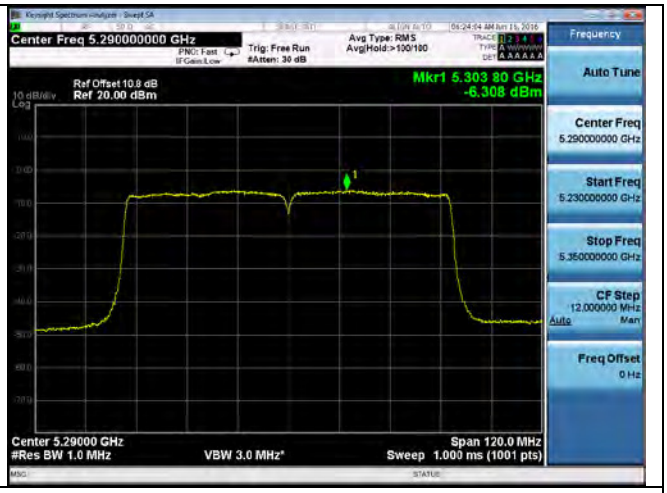


PSD-802.11n-40M-5310M-chain2

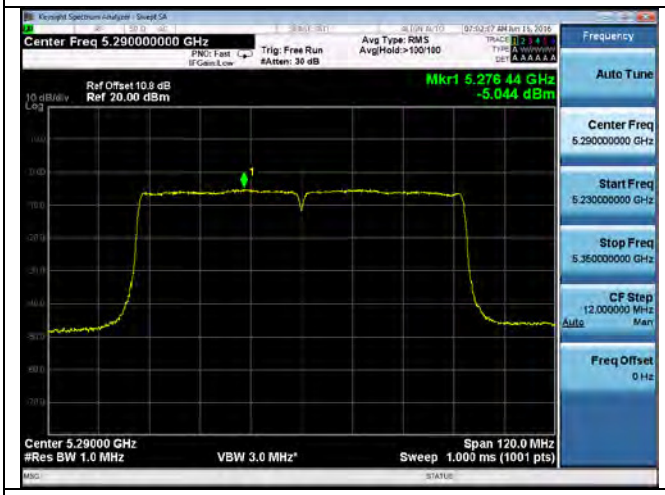
PSD-802.11n-40M-5310M-chain3



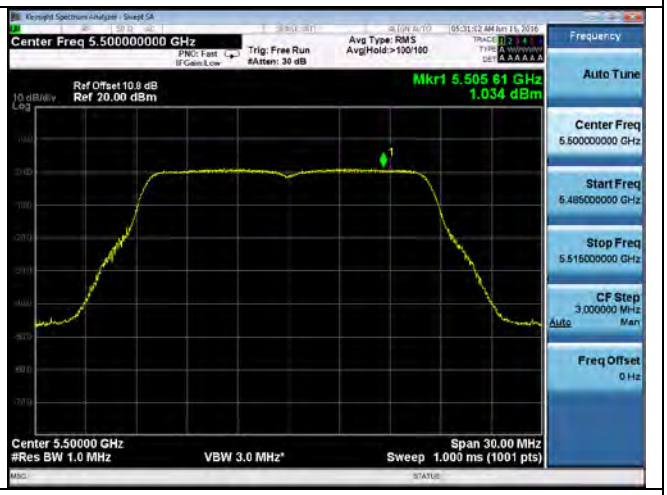
PSD-802.11ac-80M-5290M-chain1



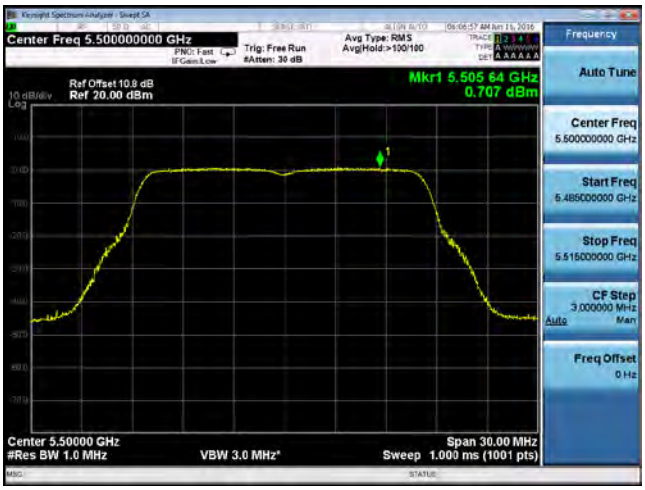
PSD-802.11ac-80M-5290M-chain2



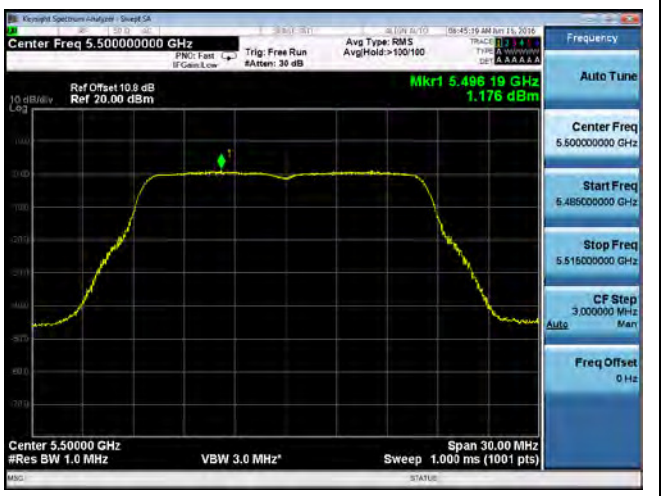
PSD-802.11ac-80M-5290M-chain3



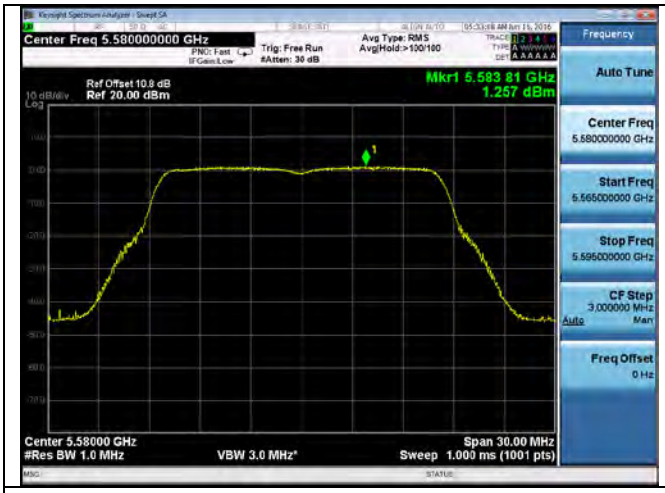
PSD-802.11a-5500M-chain1



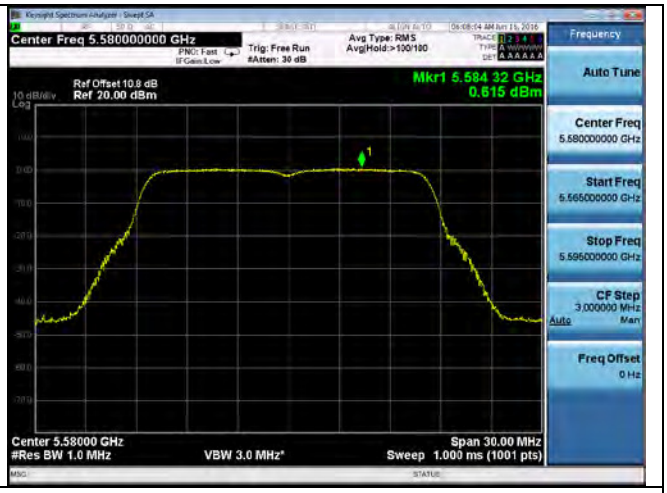
PSD-802.11a-5500M-chain2



PSD-802.11a-5500M-chain3



PSD-802.11a-5580M-chain1



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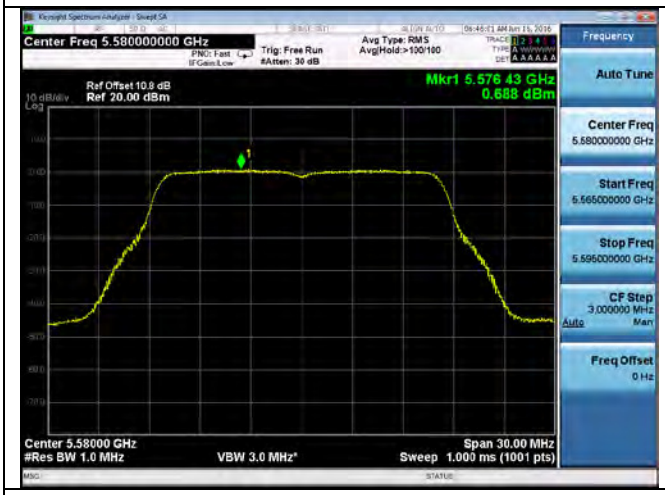
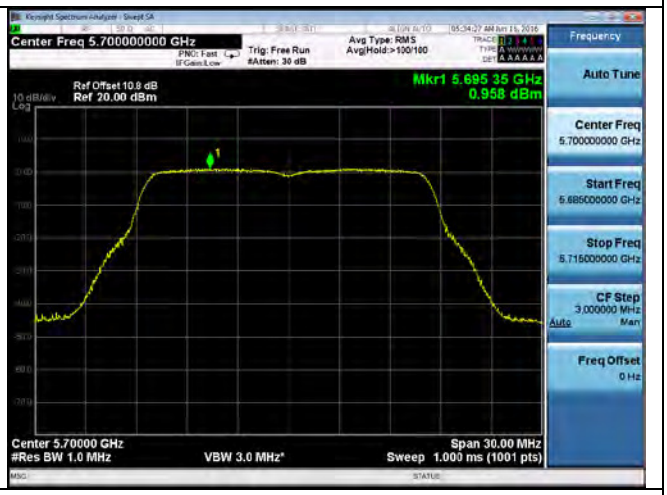
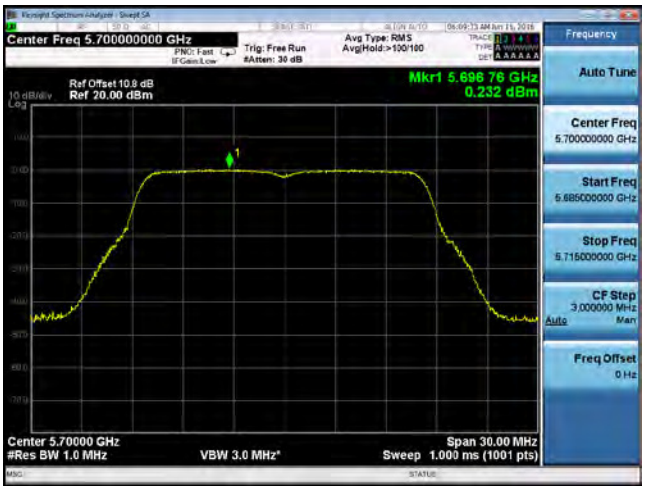


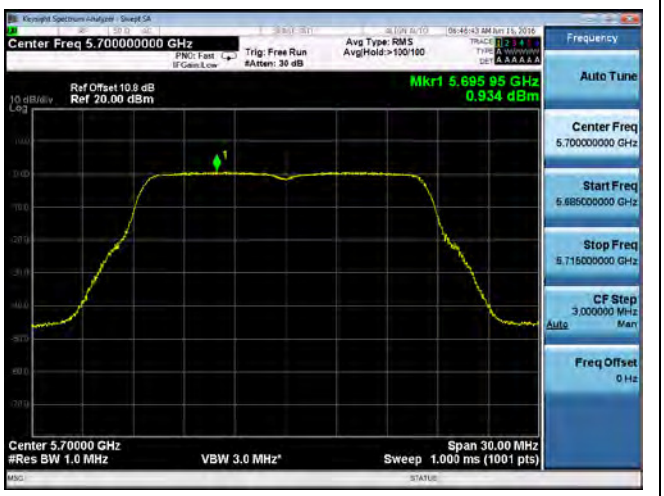
PSD-802.11a-5580M-chain3



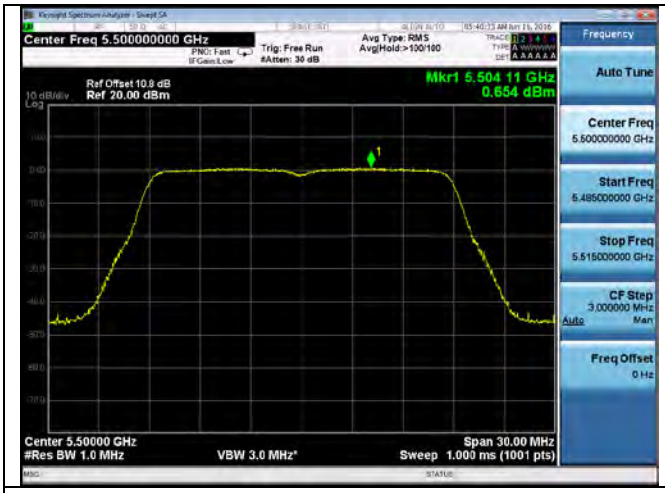
PSD-802.11a-5700M-chain1



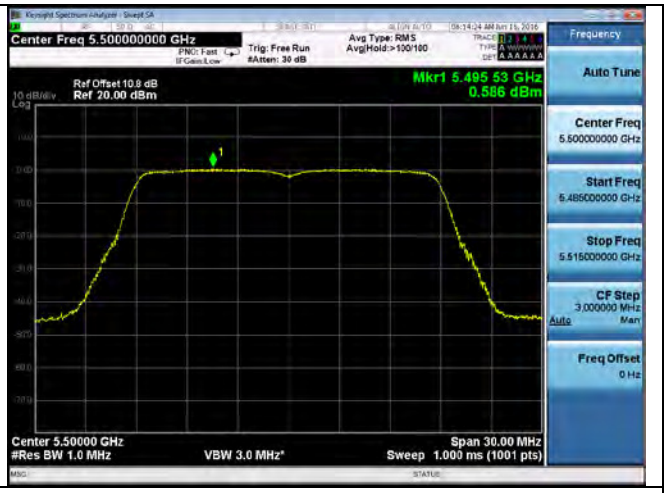
PSD-802.11a-5700M-chain2



PSD-802.11a-5700M-chain3



PSD-802.11n-20-5500M-chain1



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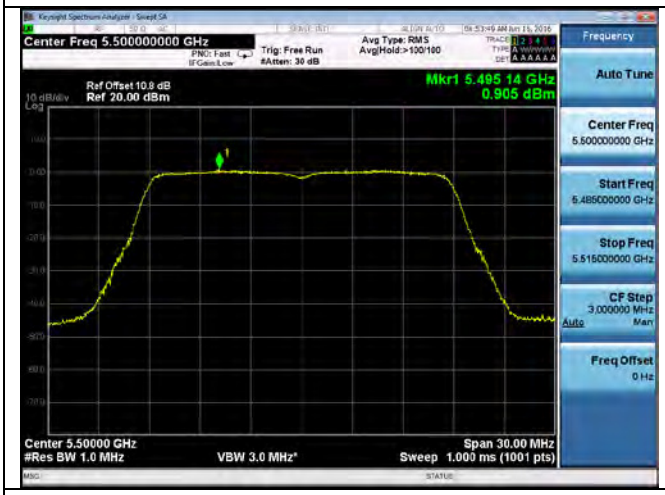
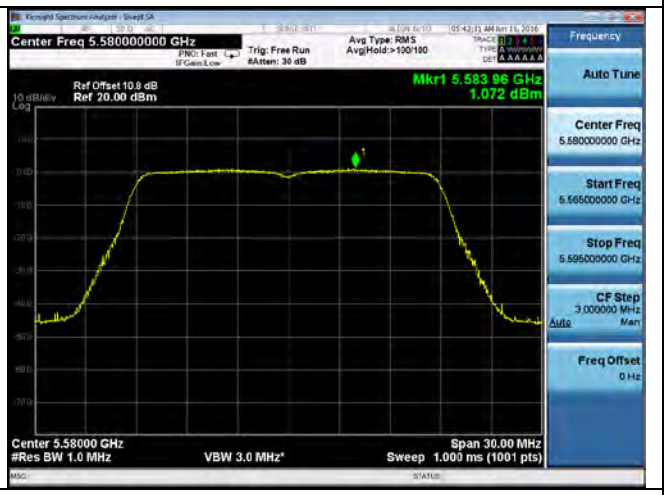
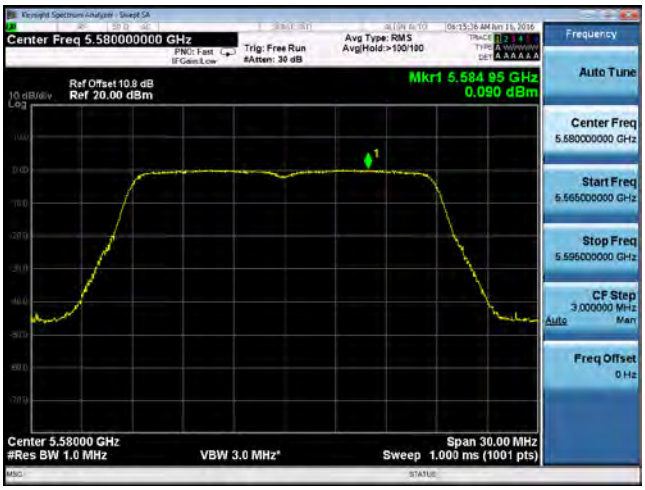


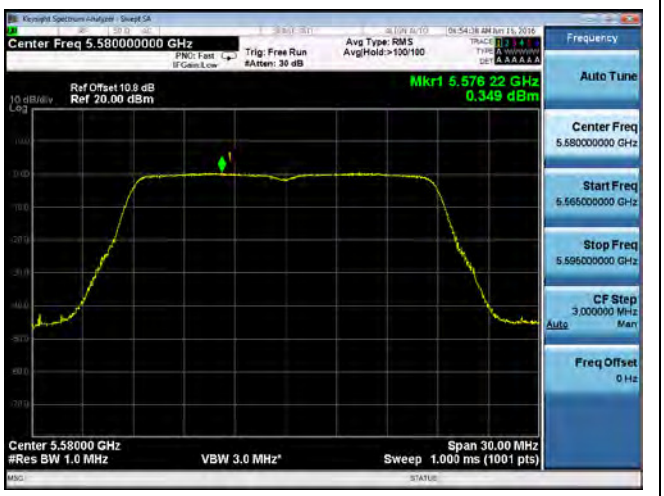
PSD-802.11n-20-5500M-chain3



PSD-802.11n-20-5580M-chain1



PSD-802.11n-20-5580M-chain2



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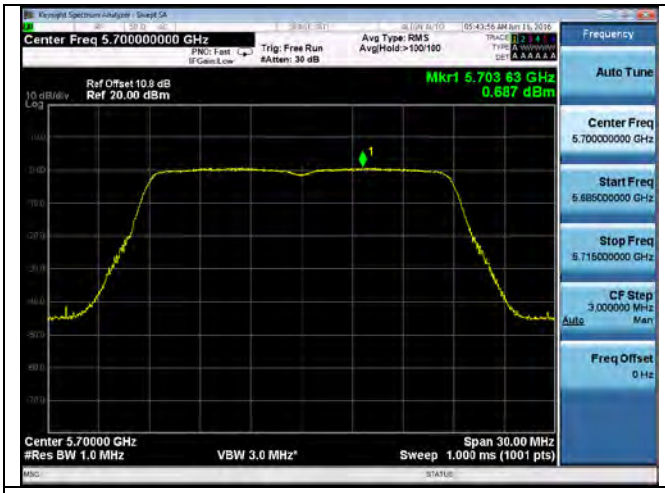

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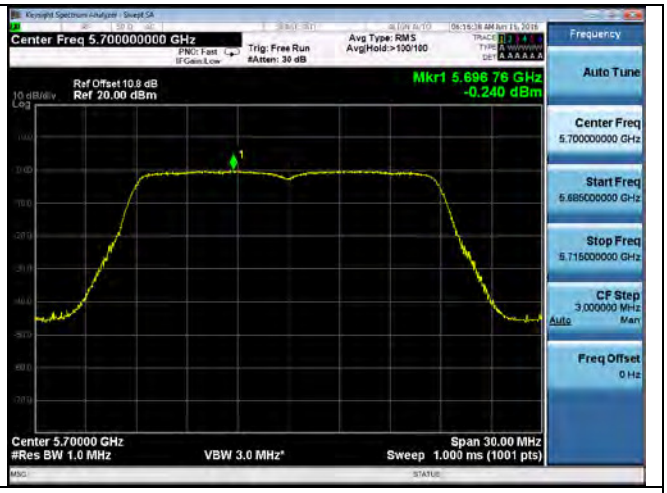
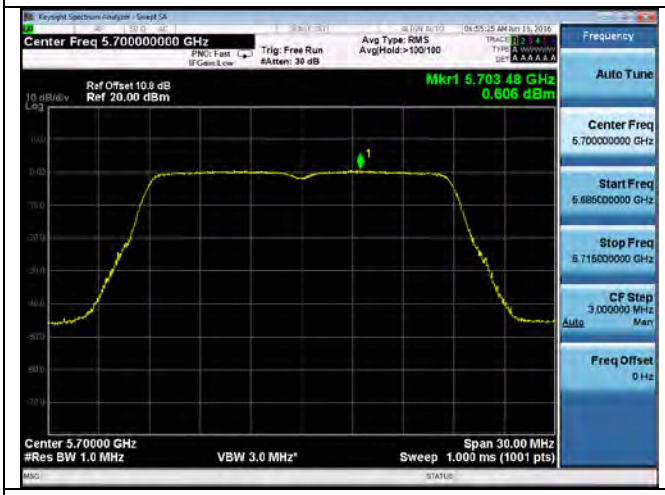
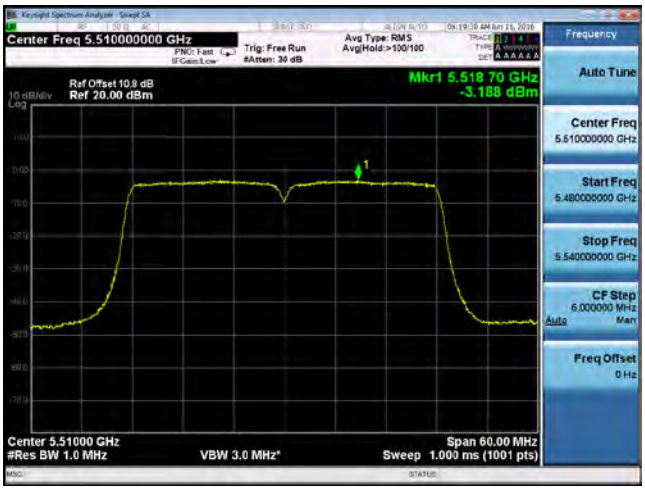


PSD-802.11n-20-5700M-chain2

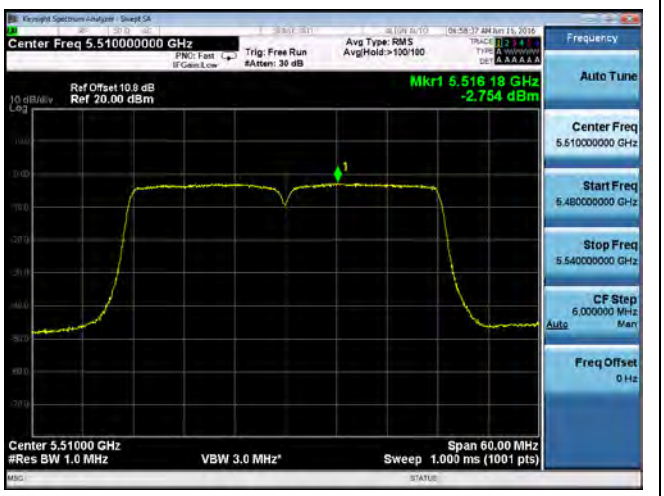


PSD-802.11n-20-5700M-chain3

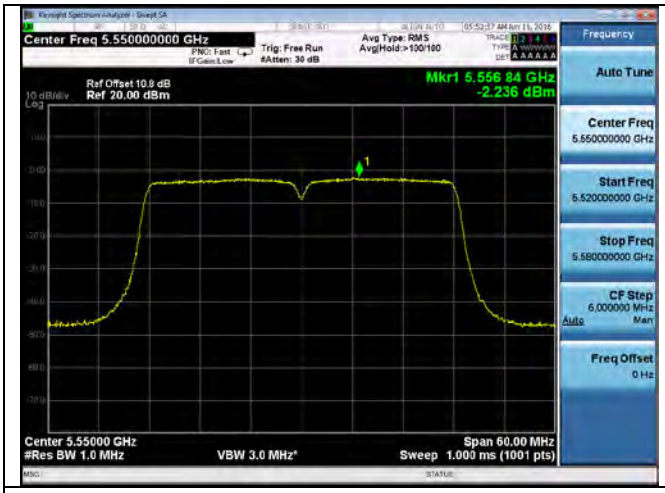
PSD-802.11n-40-5510M-chain1



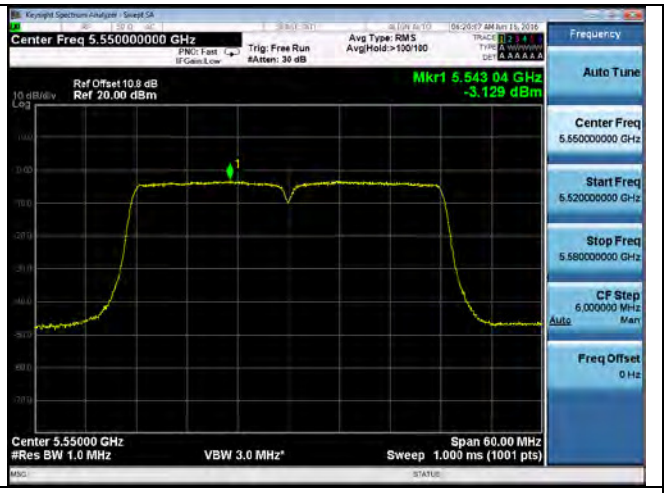
PSD-802.11n-40-5510M-chain2



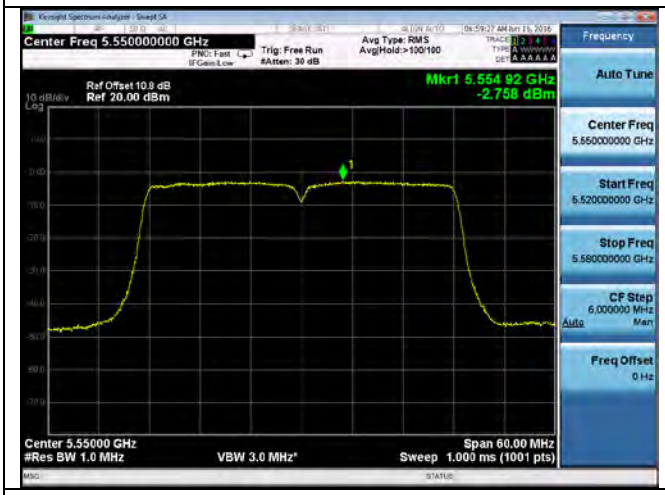
PSD-802.11n-40-5510M-chain3



PSD-802.11n-40-5550M-chain1

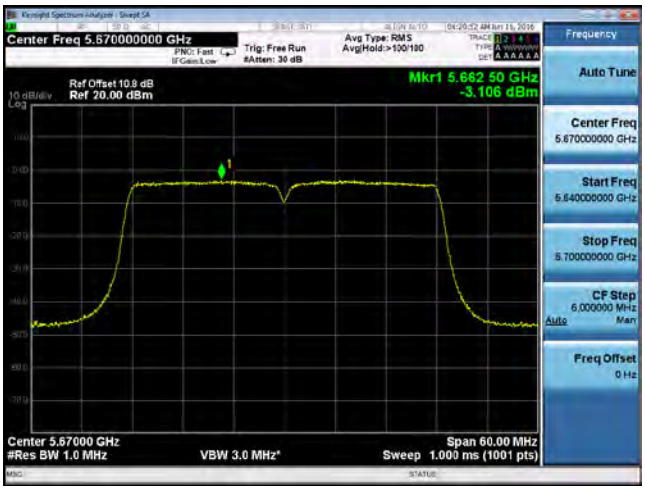


PSD-802.11n-40-5550M-chain2

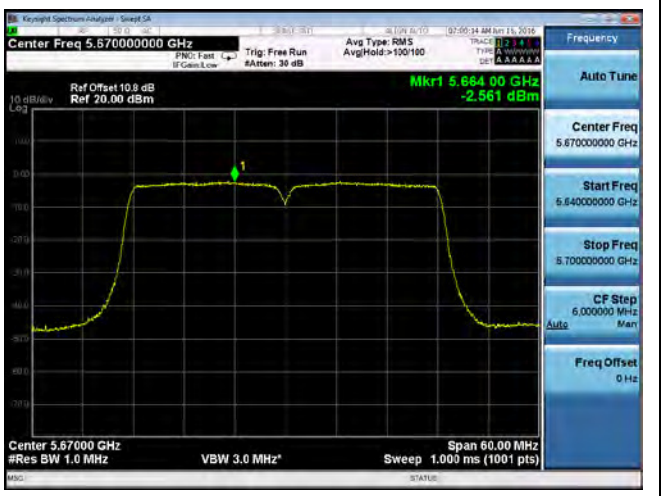


PSD-802.11n-40-5550M-chain3

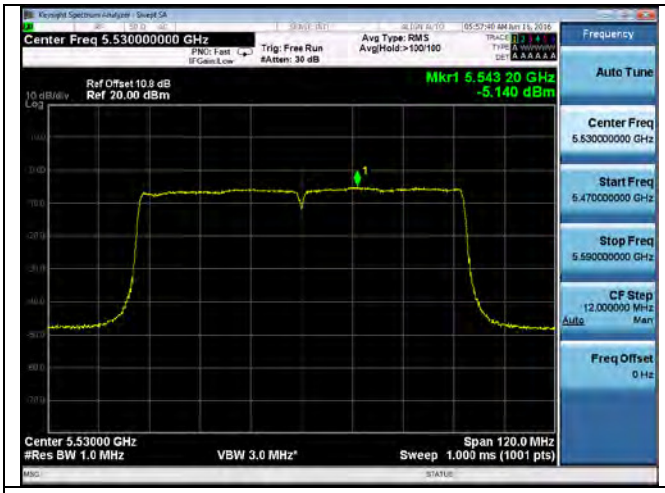
PSD-802.11n-40-5670M-chain1



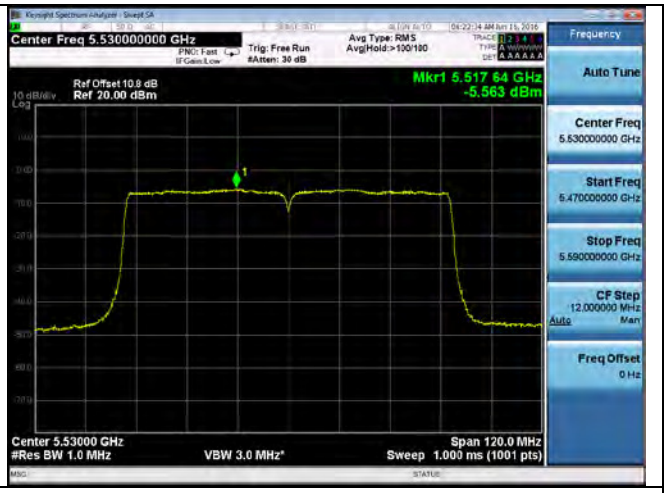
PSD-802.11n-40-5670M-chain2



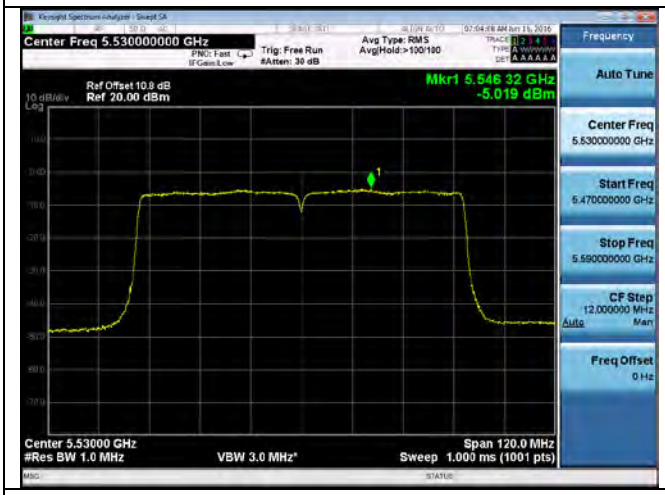
PSD-802.11n-40-5670M-chain3



PSD-802.11ac-80-5530M-chain1

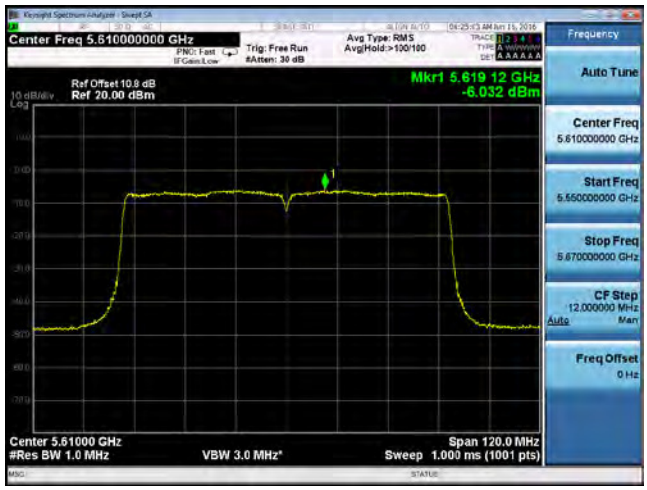


PSD-802.11ac-80-5530M-chain2

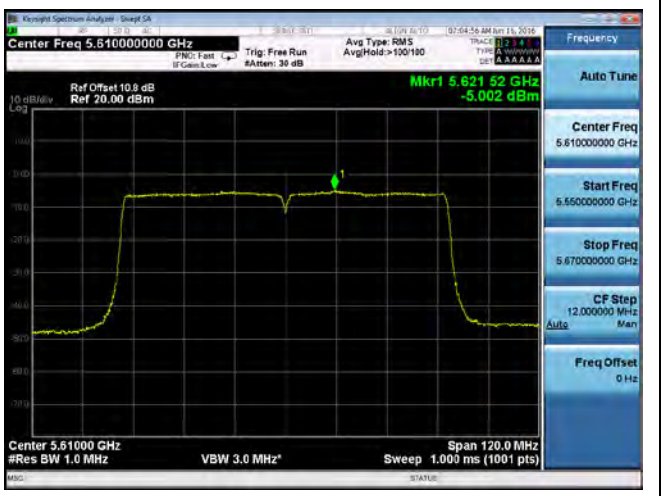


PSD-802.11ac-80-5530M-chain3

PSD-802.11ac-80-5610M-chain1



PSD-802.11ac-80-5610M-chain2



PSD-802.11ac-80-5610M-chain3

10.5 Band Edge Measurement

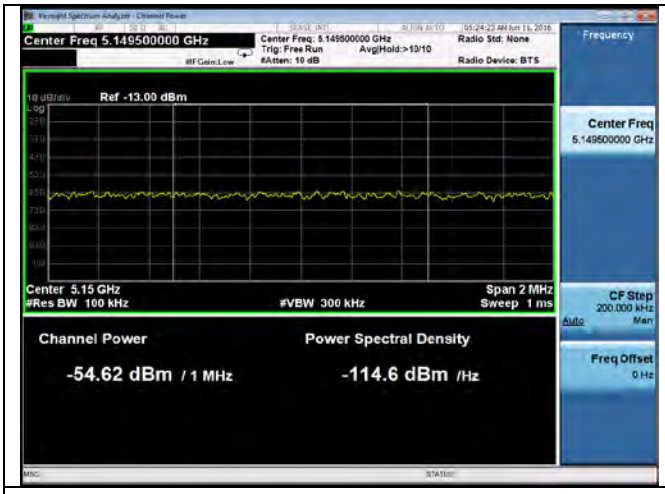
Requirement(s):

Spec	Item	Requirement	Applicable
47CFR§ 15.407(b)(2), 15.407(b)(6)	(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 EIRP 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 EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.	☒
	(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 EIRP of −27 dBm/MHz.	☒
	(4)	For transmitters operating in the 5.725-5.825 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 EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.	☐
Test Setup			
Procedure	789033 D02 General UNII Test Procedures New Rules v01r02, II.F. Method SA-1 Band Edge measurement: - For average emissions measurements, follow the procedures described in section II.G.6., "Procedures for Average Unwanted Emissions Measurements above 1000 MHz", except for the following changes: - Set RBW=100kHz - Set VBW=100kHz - Perform a band-power integration across the 1 MHz bandwidth in which the band-edge emission level is to be measured.		
Remark	Antenna gain was added to the offset.		
Result	☒ Pass ☐ Fail		

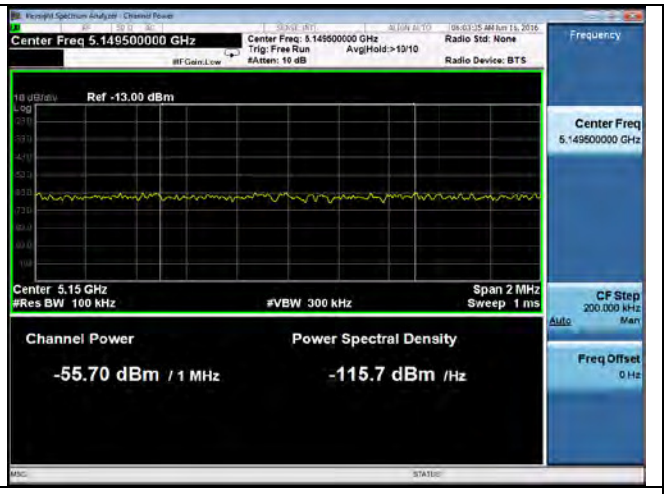
Test Data ☐ Yes (See below) ☒ N/A
Test Plot ☒ Yes (See below) ☐ N/A

Test was done by *Rachana Khanduri* at *RF Test Site*.

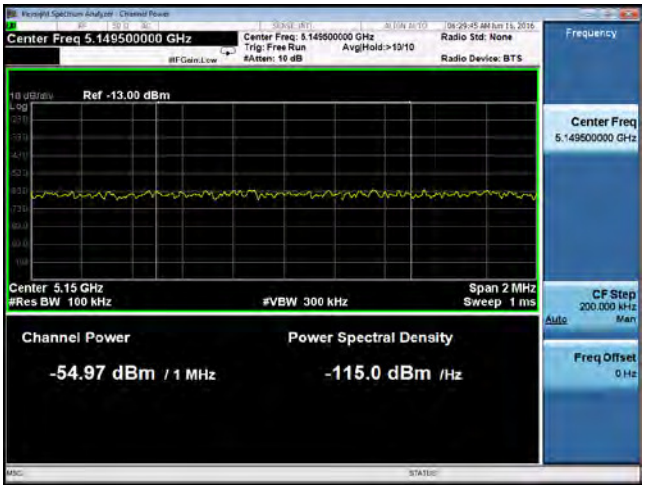
Test Plots (W53 band)



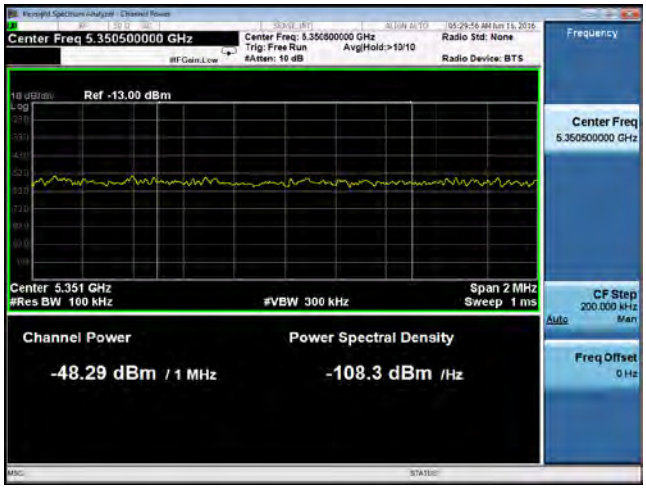
Band Edge-802.11a-5260M-chain1



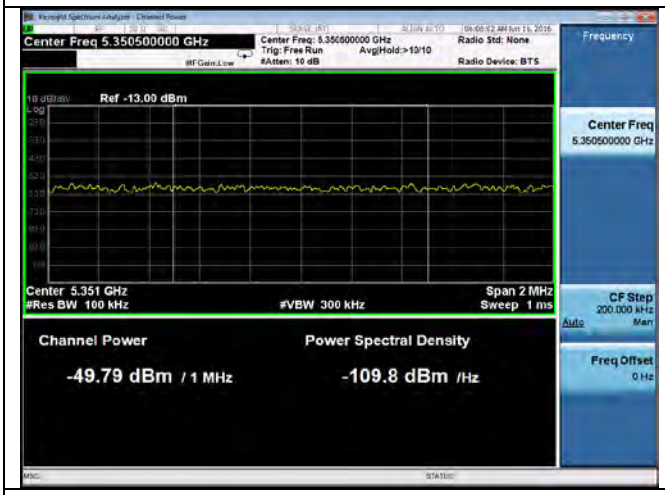
Band Edge-802.11a-5260M-chain2



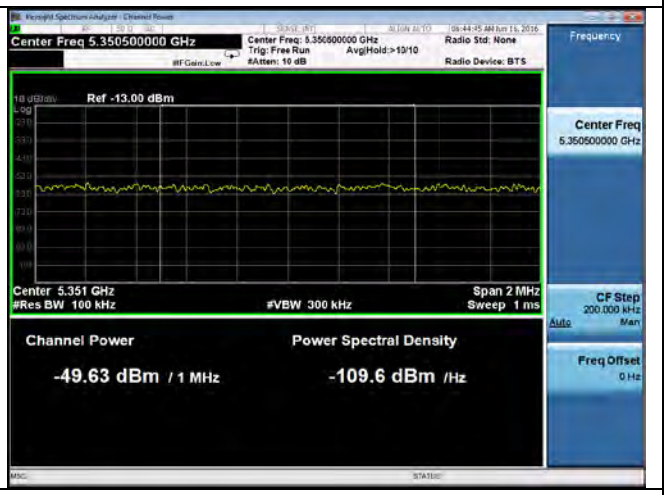
Band Edge-802.11a-5260M-chain3



Band Edge -802.11a-5320M-chain1

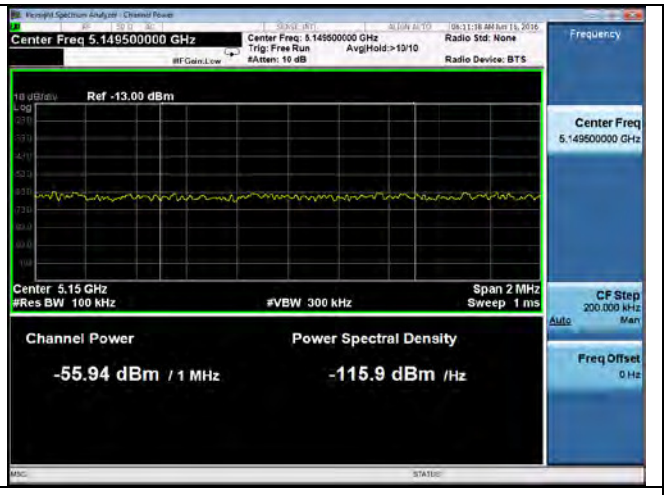


Band Edge -802.11a-5320M-chain2

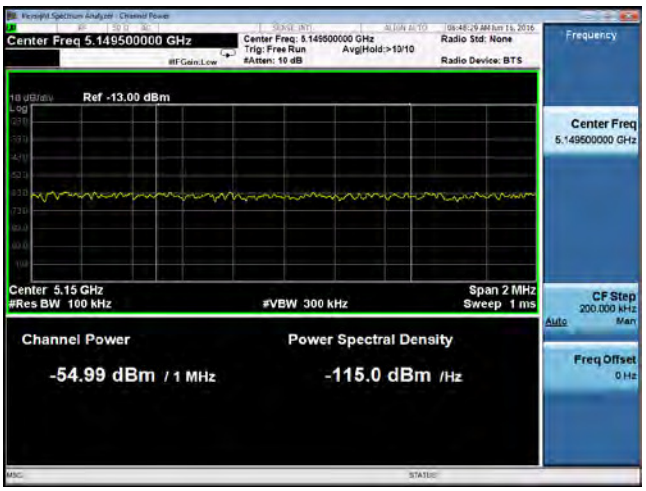


Band Edge -802.11a-5320M-chain3

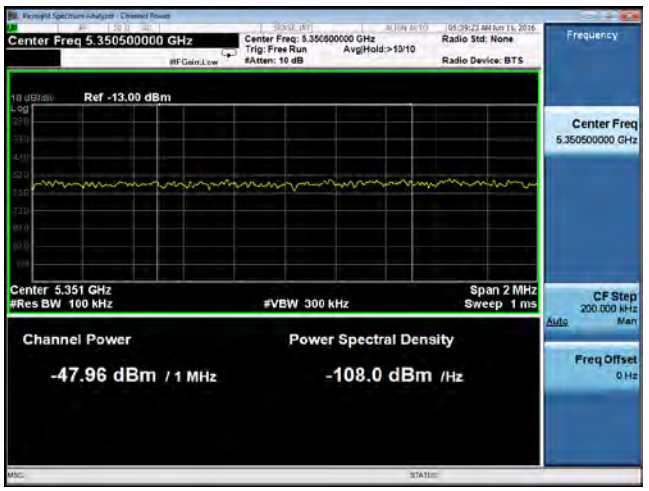
Band Edge -802.11n-20M -5260M-chain1



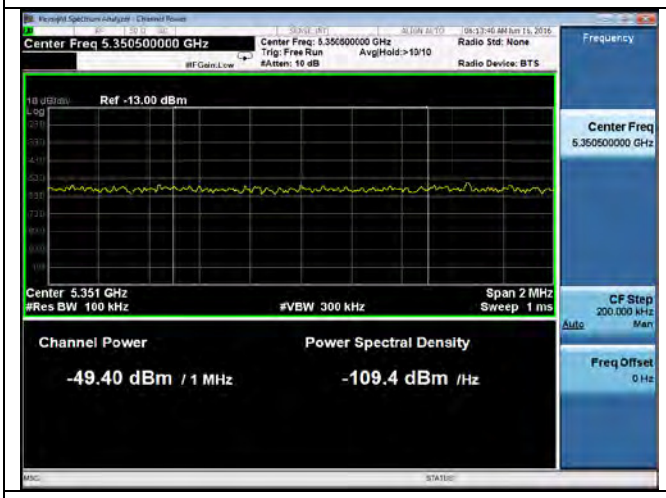
Band Edge -802.11n-20M -5260M-chain2



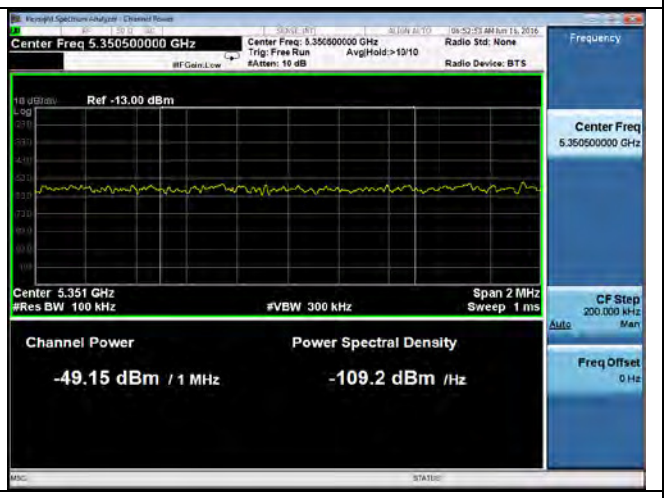
Band Edge -802.11n-20M -5260M-chain3



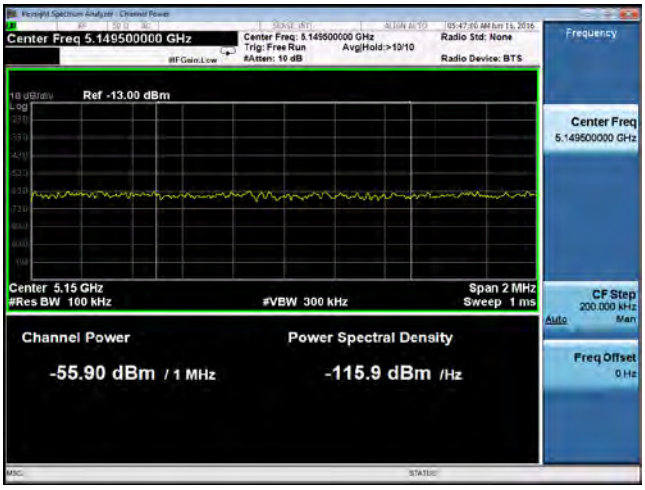
Band Edge -802.11n-20M-5320M-chain1



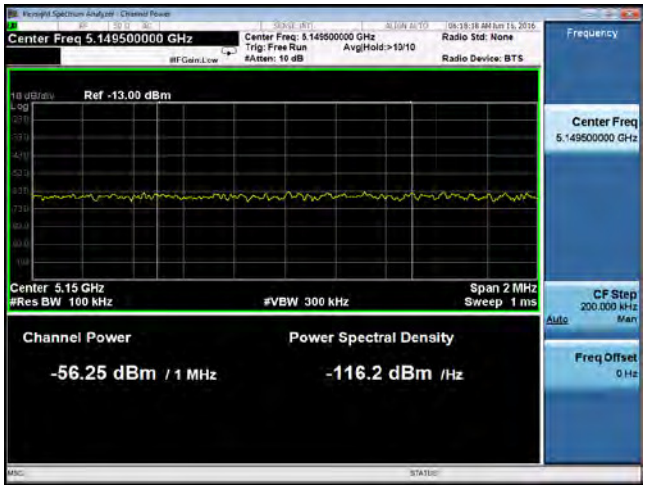
Band Edge -802.11n-20M-5320M-chain2



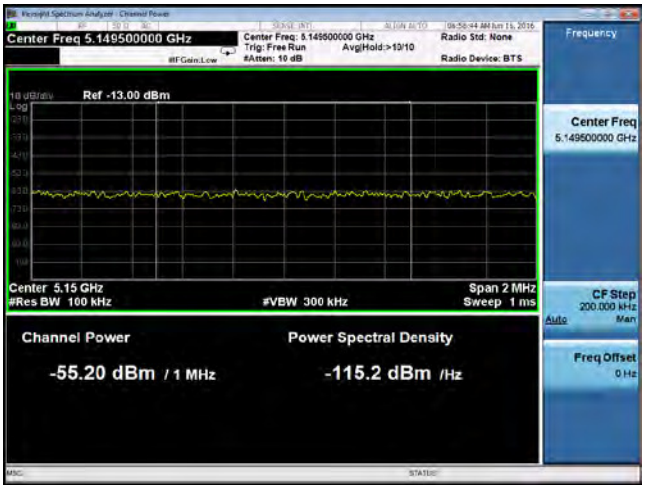
Band Edge -802.11n-20M-5320M-chain3



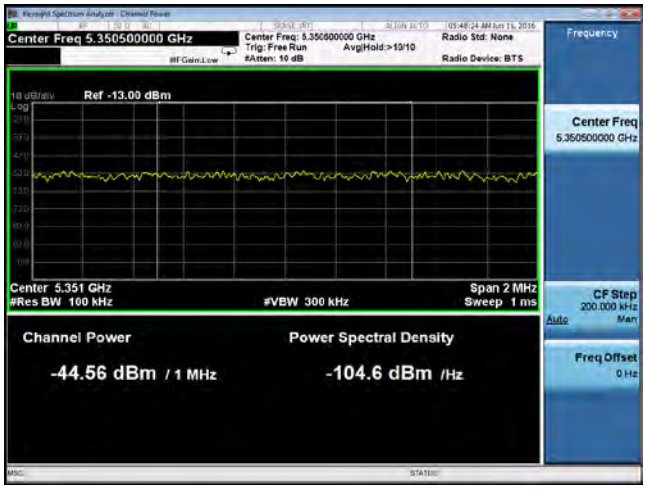
Band Edge -802.11n-40M-5270M-chain1



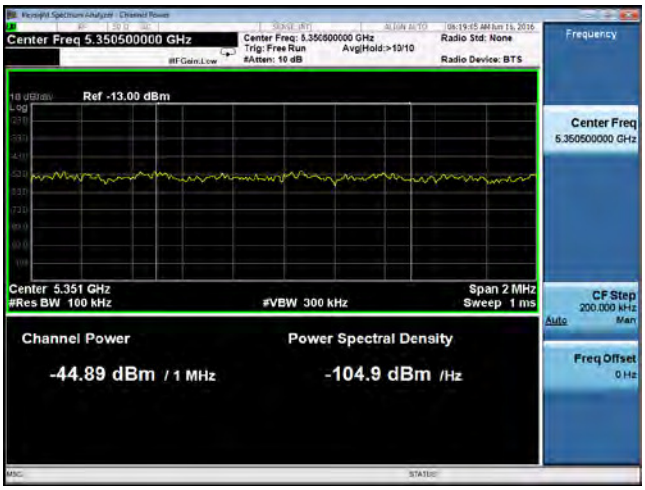
Band Edge -802.11n-40M-5270M-chain2



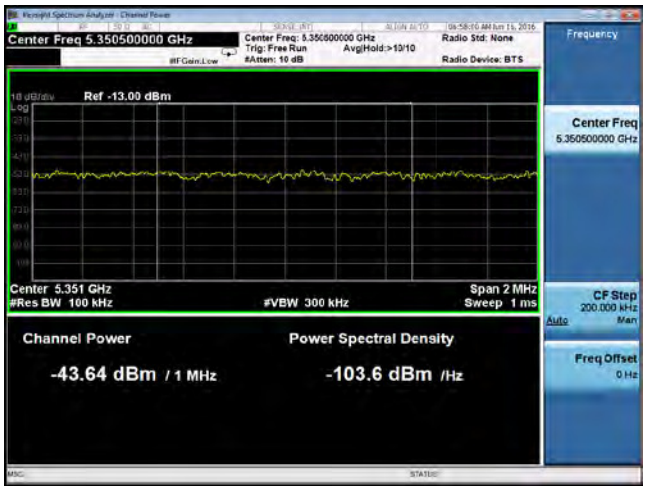
Band Edge -802.11n-40M-5270M-chain3



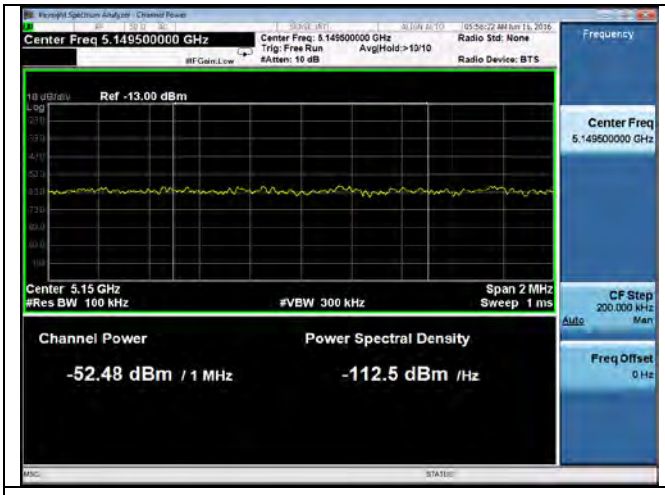
Band Edge -802.11n-40M-5310M-chain1



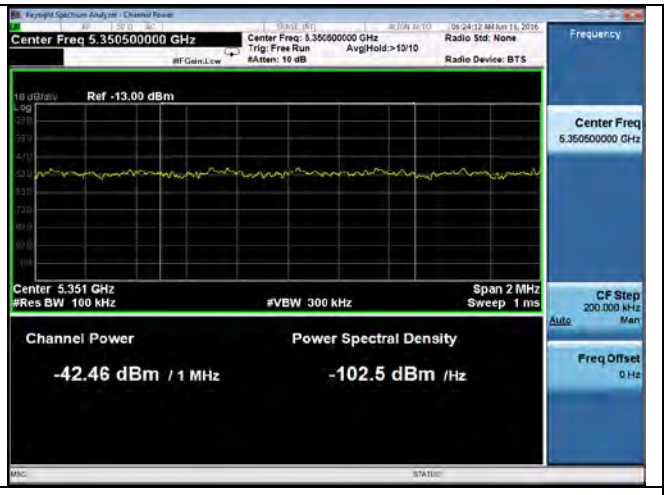
Band Edge -802.11n-40M-5310M-chain2



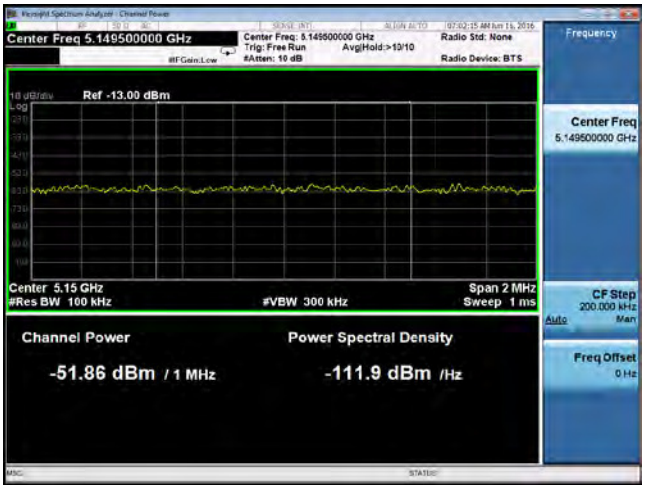
Band Edge -802.11n-40M-5310M-chain3



Band Edge -802.11ac-80M-5290M-chain1

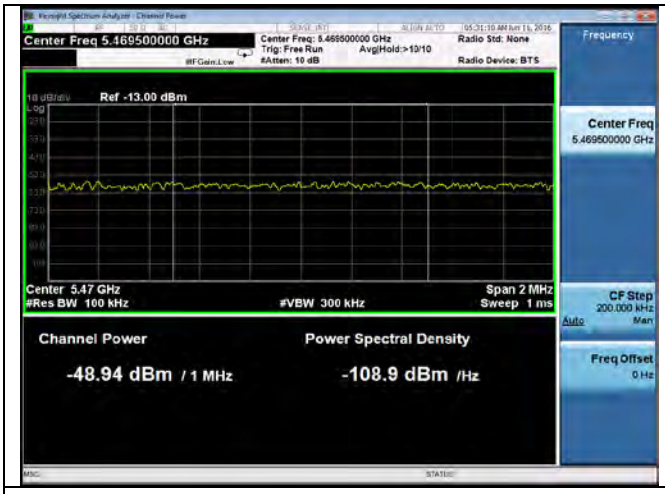


Band Edge -802.11ac-80M-5290M-chain2

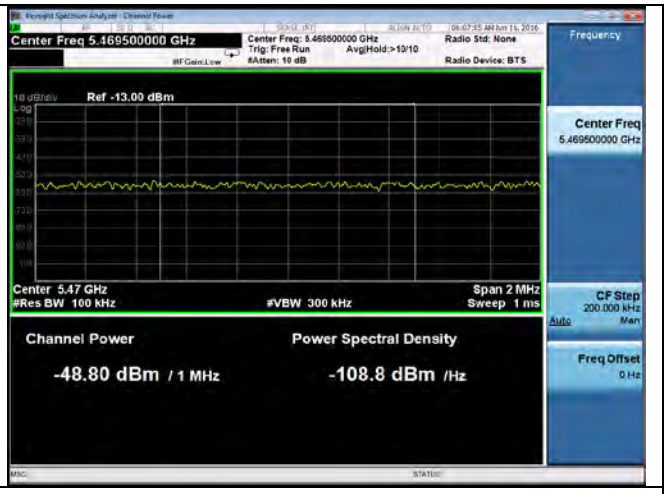


Band Edge -802.11ac-80M-5290M-chain3

W56 band:

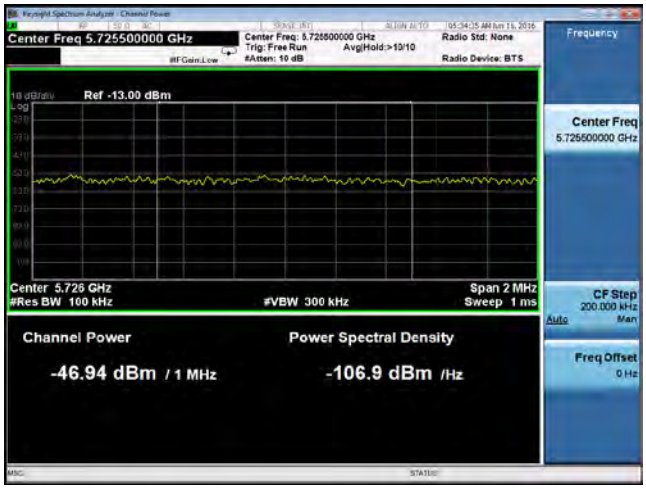


Band Edge -802.11a-5500M-chain1

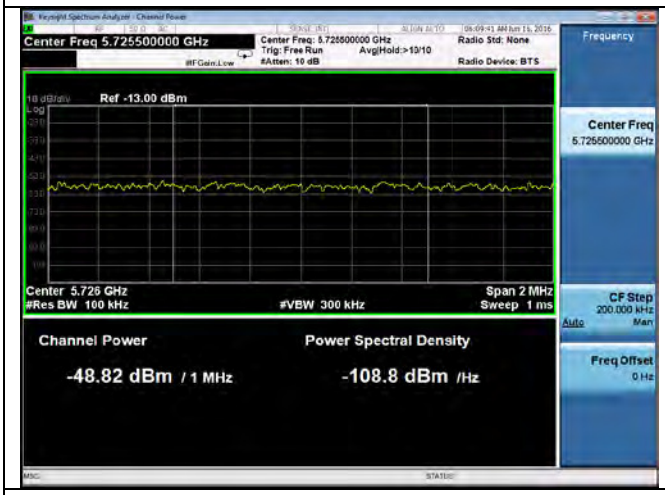


Band Edge -802.11a-5500M-chain2

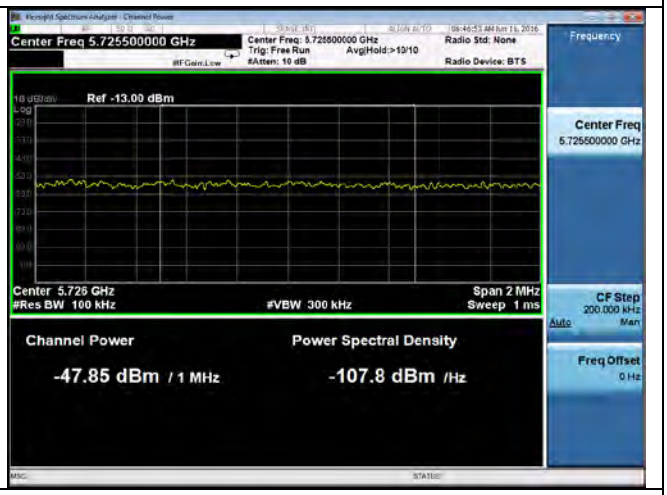
Band Edge -802.11a-5500M-chain3



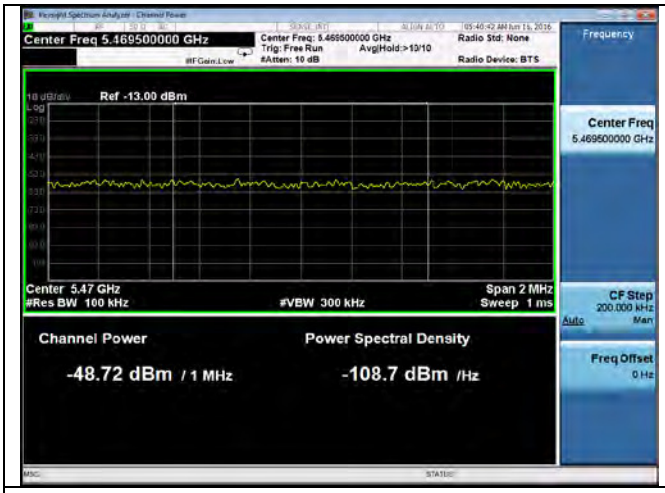
Band Edge -802.11a-5700M-chain1



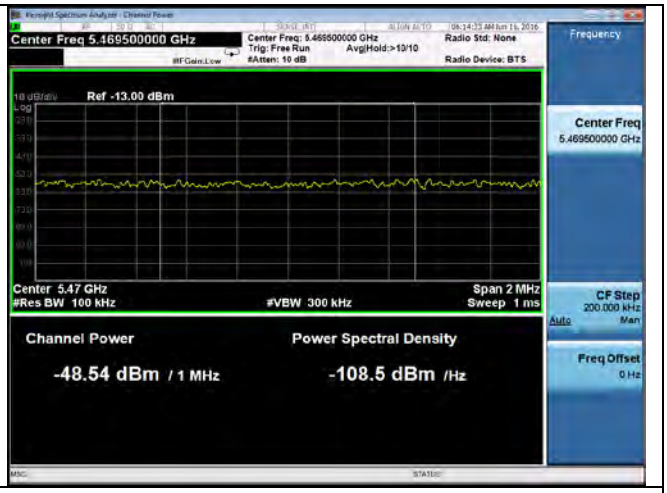
Band Edge -802.11a-5700M-chain2



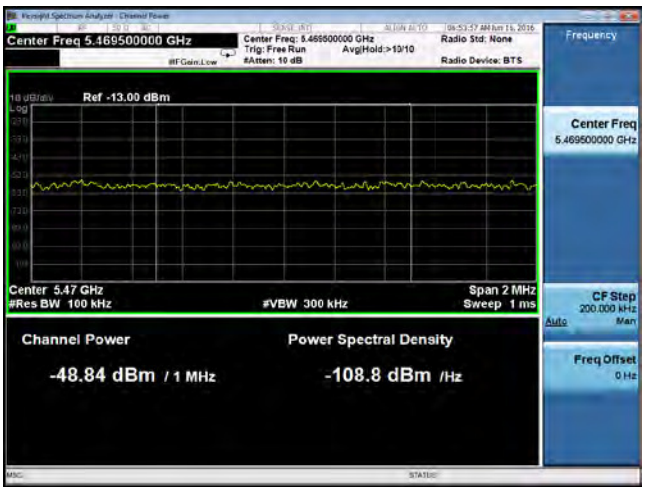
Band Edge -802.11a-5700M-chain3



Band Edge -802.11n-20M -5500M-chain1



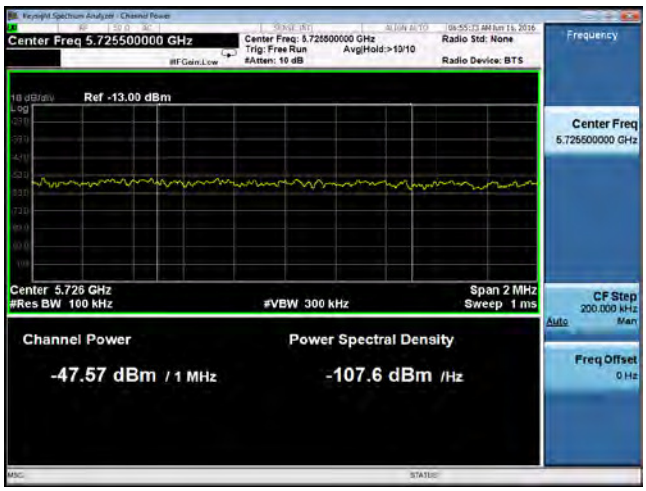
Band Edge -802.11n-20M -5500M-chain2



Band Edge -802.11n-20M -5500M-chain3

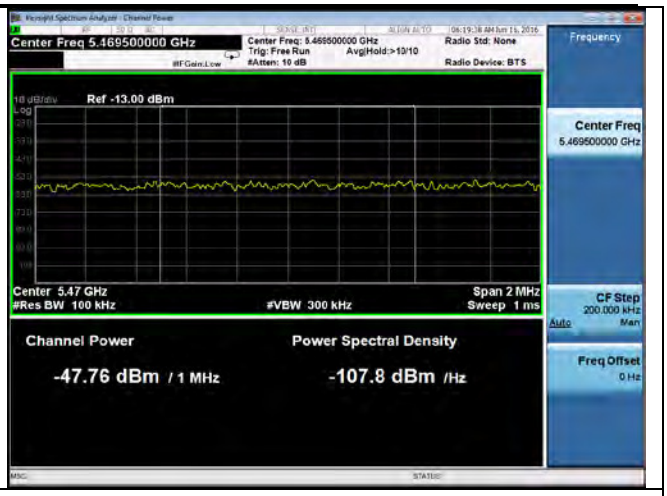
Band Edge -802.11n-20M-5700M-chain1

Band Edge -802.11n-20M-5700M-chain2

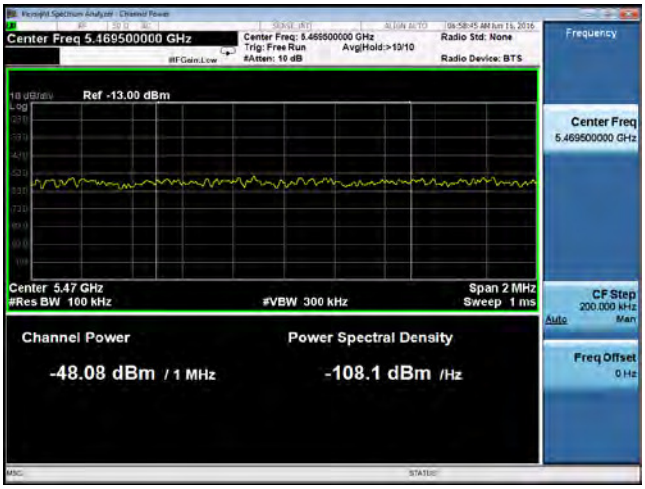


Band Edge -802.11n-20M-5700M-chain3

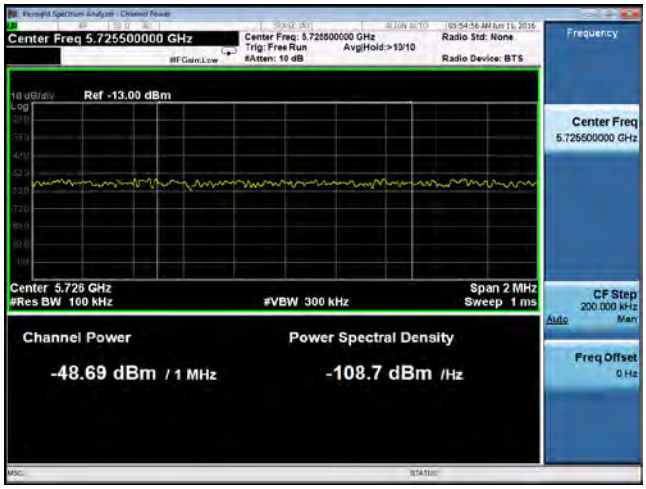
Band Edge -802.11n-40M-5510M-chain1



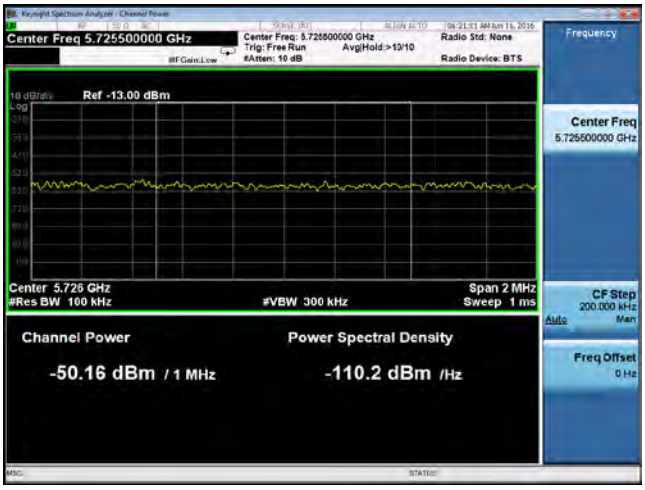
Band Edge -802.11n-40M-5510M-chain2



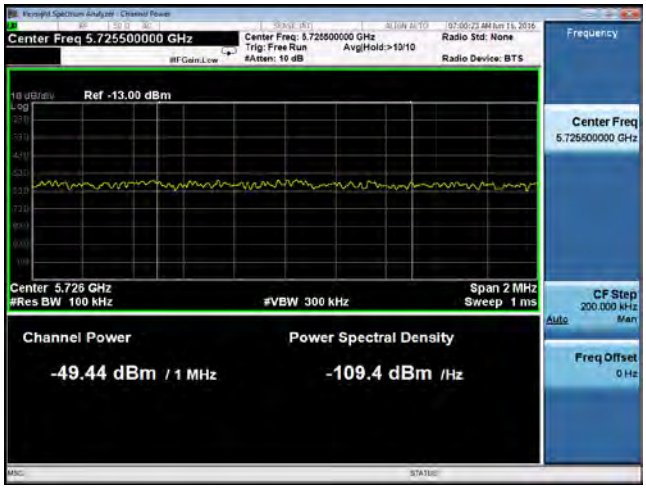
Band Edge -802.11n-40M-5510M-chain3



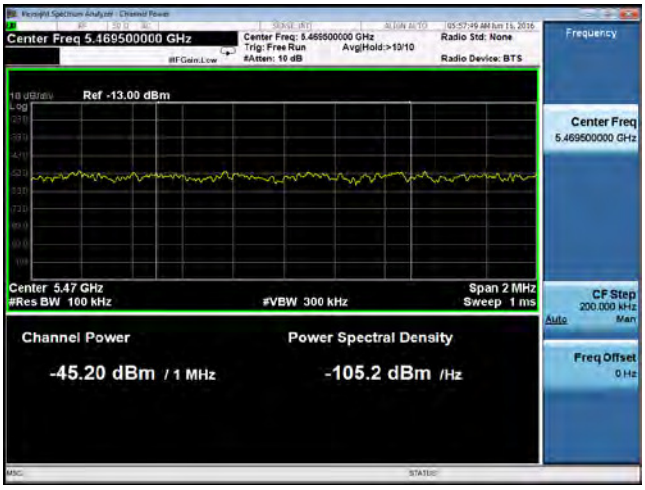
Band Edge -802.11n-40M-5670M-chain1



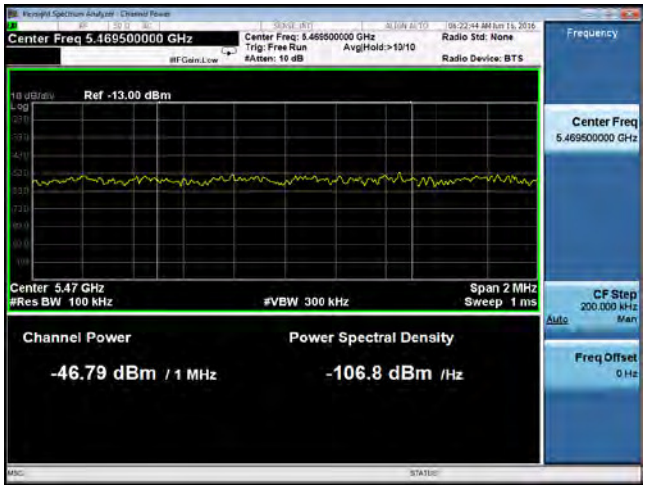
Band Edge -802.11n-40M-5670M-chain2



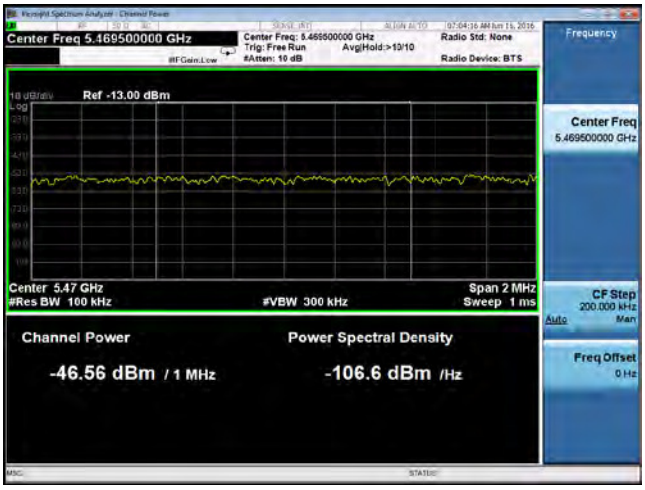
Band Edge -802.11n-40M-5670M-chain3



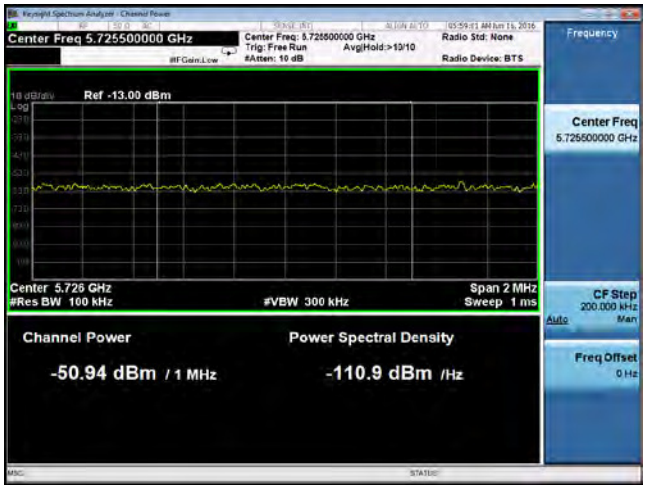
Band Edge -802.11ac-80M-5530M-chain1



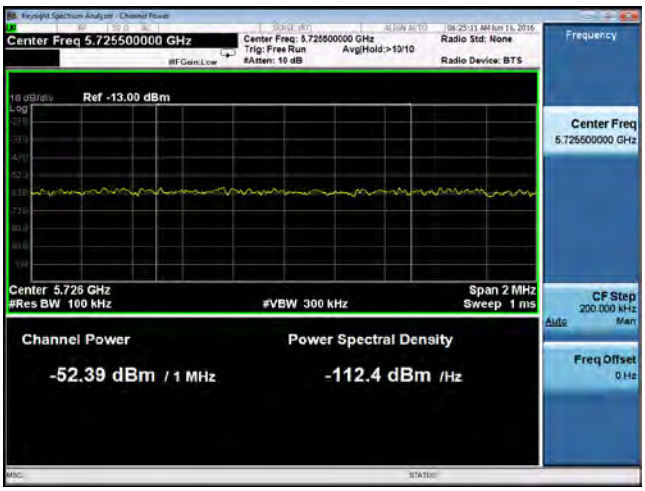
Band Edge -802.11ac-80M-5530M-chain2



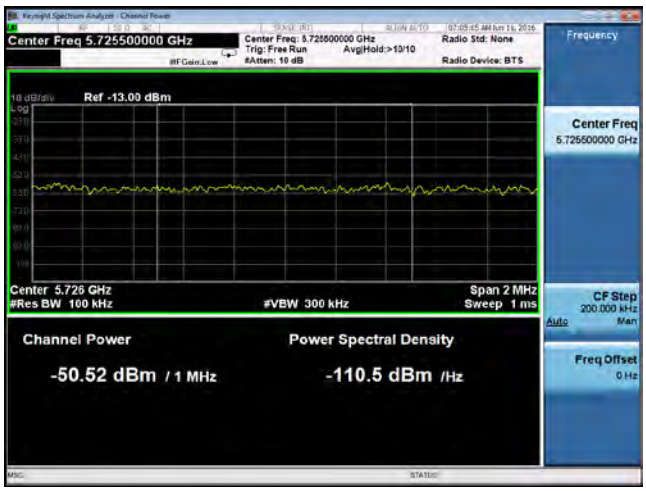
Band Edge -802.11ac-80M-5530M-chain3



Band Edge -802.11ac-80M-5610M-chain1



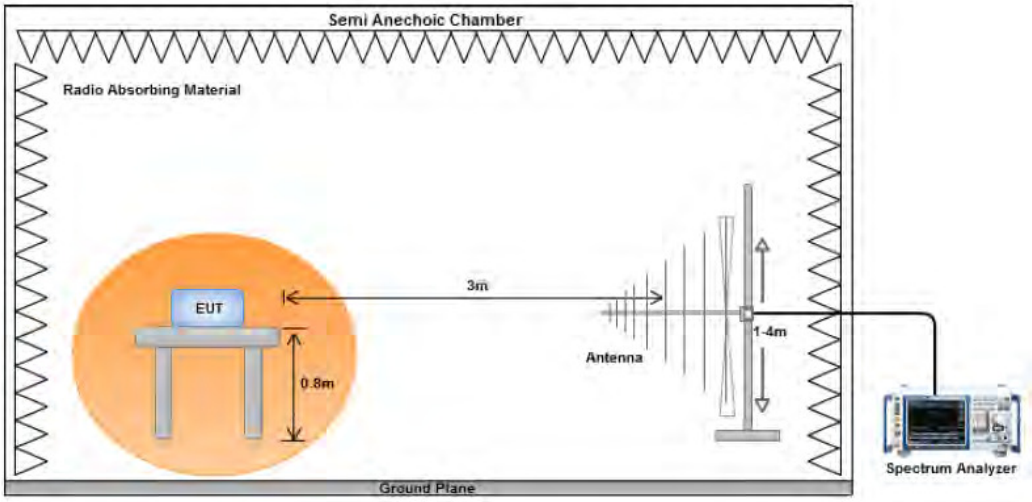
Band Edge -802.11ac-80M-5610M-chain2



Band Edge -802.11ac-80M-5610M-chain3

10.6 Radiated Spurious Emissions below 1GHz

Requirement(s):

<table>
<tr><th>Spec</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§
15.407(b)
15.209 (a)</td><td>Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges
<table>
<tr><th>Frequency range (MHz)</th><th>Field Strength (uV/m)</th></tr>
<tr><td>30 – 88</td><td>100</td></tr>
<tr><td>88 – 216</td><td>150</td></tr>
<tr><td>216 960</td><td>200</td></tr>
<tr><td>Above 960</td><td>500</td></tr>
</table></td><td>☒</td></tr>
<tr><td>Test Setup</td><td> 
</td><td></td></tr>
<tr><td>Procedure</td><td>1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
b. The EUT was then rotated to the direction that gave the maximum emission.
c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. A Quasi-peak measurement was then made for that frequency point.
4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</td><td></td></tr>
<tr><td>Remark</td><td>The EUT was scanned up to 1GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case.</td><td></td></tr>
<tr><td>Result</td><td>☒ Pass ☐ Fail</td><td></td></tr>
</table>

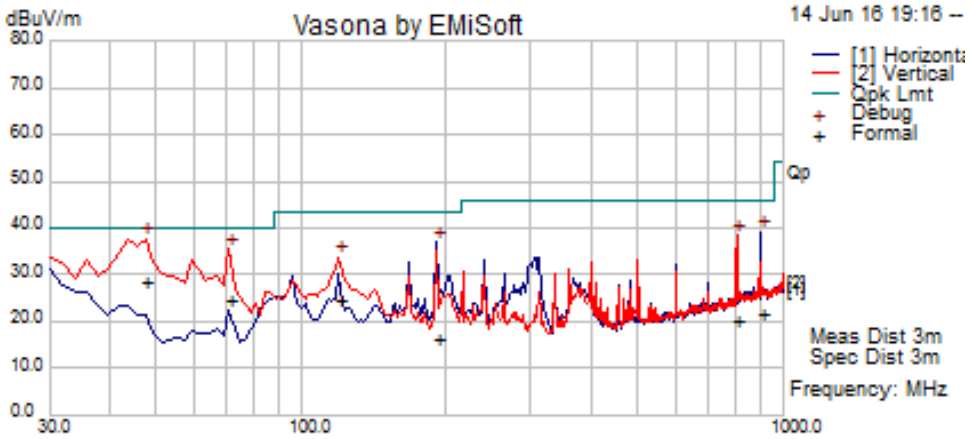
Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by *Rachana Khanduri* at *10m Chamber*.

Radiated Emission Test Results (Below 1GHz)

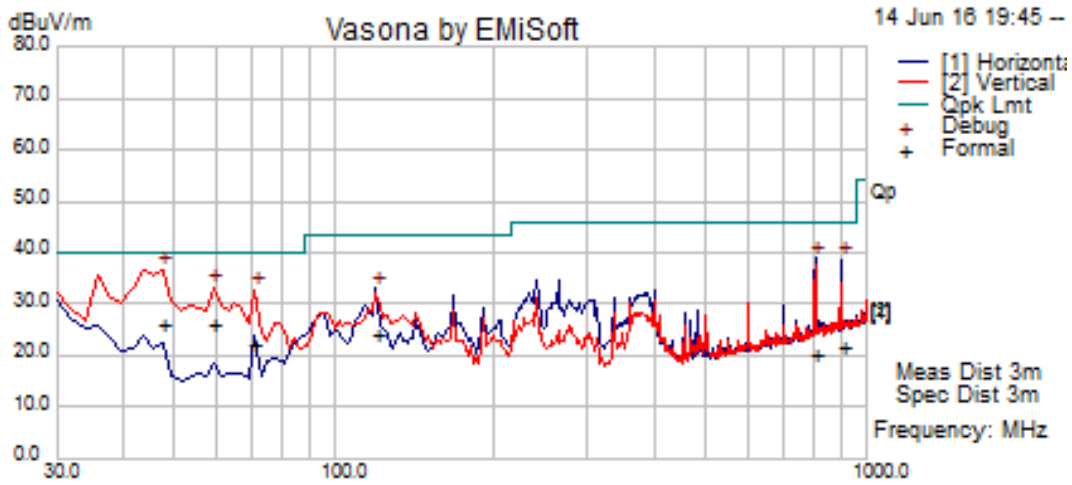
Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	26	Result	Pass
	Humidity (%)	47		
	Atmospheric (mbar):	1020		
Mains Power:	120VAC, 60Hz			
Tested by:	Rachana Khanduri			
Test Date:	06/14/2016			
Remarks:	802.11n HT40, 5550MHz			



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
47.58	55.94	1.04	-28.69	28.29	Quasi Max	V	107	147	40.00	-11.71	Pass
70.99	53.96	1.26	-30.92	24.30	Quasi Max	V	103	285	40.00	-15.70	Pass
191.46	42.15	2.02	-27.89	16.28	Quasi Max	H	219	27	43.52	-27.24	Pass
900.92	32.72	4.77	-16.00	21.49	Quasi Max	H	340	74	46.02	-24.53	Pass
801.58	32.84	4.54	-17.39	19.99	Quasi Max	H	216	140	46.02	-26.03	Pass
119.54	48.73	1.64	-25.61	24.76	Quasi Max	V	114	345	43.52	-18.76	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	26	Result	Pass
	Humidity (%)	47		
	Atmospheric (mbar):	1020		
Mains Power:	120VAC, 60Hz			
Tested by:	Rachana Khanduri			
Test Date:	06/14/2016			
Remarks:	802.11ac-80, 5610MHz			

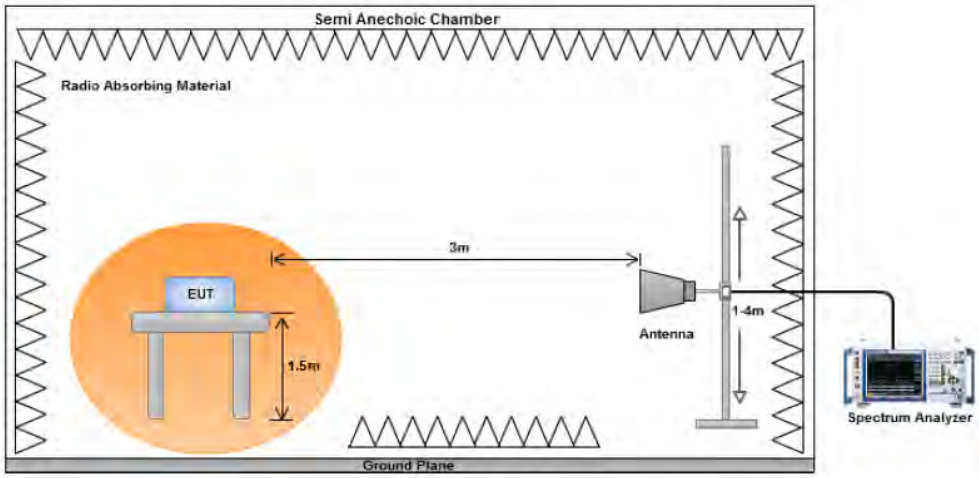


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
47.43	53.66	1.04	-28.60	26.10	Quasi Max	V	141	137	40.00	-13.90	Pass
59.31	55.78	1.18	-31.11	25.85	Quasi Max	V	120	119	40.00	-14.15	Pass
801.84	32.80	4.54	-17.39	19.96	Quasi Max	H	301	199	46.02	-26.06	Pass
70.64	51.86	1.26	-30.90	22.22	Quasi Max	V	124	80	40.00	-17.78	Pass
901.11	32.98	4.77	-16.00	21.75	Quasi Max	H	322	90	46.02	-24.27	Pass
119.54	48.04	1.64	-25.61	24.07	Quasi Max	H	173	86	43.52	-19.45	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

10.7 Radiated Spurious Emissions above 1GHz

Requirement(s):

Spec	Item	Requirement	Applicable
47CFR§ 15.407(b)(2), 15.407(b)(6)	(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 EIRP 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 EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.	☒
	(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 EIRP of −27 dBm/MHz.	☒
	(4)	For transmitters operating in the 5.725-5.825 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 EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.	☐
	(5)	Restricted band, emission must also comply with the radiated emission limits specified in 15.209	☒
Test Setup			
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. An average measurement was then made for that frequency point. 4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.		
Remark	Both horizontal and vertical polarities were investigated. The results show only the worst case.		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes (See below) ☐ N/A
Test Plot ☐ Yes (See below) ☒ N/A

Test was done by *Rachana Khanduri* at *3m Chamber*.

Radiated Emission Test Results (Above 1GHz)

Above 1GHz– 802.11a – 5260MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17844.74	41.33	9.45	-3.31	47.47	Peak Max	H	151	157	74	-26.53	Pass
1537.29	67.71	4.77	-29.18	43.3	Peak Max	V	143	253	74	-30.70	Pass
9219.56	43.06	7.76	-10.45	40.37	Peak Max	V	169	269	74	-33.63	Pass
17844.74	30.51	9.45	-3.31	36.65	Average Max	H	151	157	54	-17.35	Pass
1537.29	66.67	4.77	-29.18	42.27	Average Max	V	143	253	54	-11.73	Pass
9219.56	31.62	7.76	-10.45	28.93	Average Max	V	169	269	54	-25.07	Pass

Above 1GHz– 802.11a – 5280MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17888.65	41.87	9.46	-3.12	48.20	Peak Max	H	200	161	74	-25.80	Pass
9339.05	45.60	7.79	-10.43	42.97	Peak Max	V	237	304	74	-31.03	Pass
1537.41	65.25	4.77	-29.18	40.85	Peak Max	V	101	264	74	-33.16	Pass
17888.65	29.61	9.46	-3.12	35.95	Average Max	H	200	161	54	-18.05	Pass
9339.05	33.14	7.79	-10.43	30.51	Average Max	V	237	304	54	-23.49	Pass
1537.41	64.13	4.77	-29.18	39.73	Average Max	V	101	264	54	-14.27	Pass

Above 1GHz – 802.11a – 5320MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17681.05	41.47	9.43	-3.16	47.75	Peak Max	H	108	181	74	-26.25	Pass
9193.71	43.86	7.75	-10.44	41.17	Peak Max	V	173	205	74	-32.83	Pass
1537.18	64.70	4.77	-29.18	40.29	Peak Max	V	99	265	74	-33.71	Pass
17681.05	29.44	9.43	-3.16	35.72	Average Max	H	108	181	54	-18.28	Pass
9193.71	32.12	7.75	-10.44	29.43	Average Max	V	173	205	54	-24.57	Pass
1537.18	63.61	4.77	-29.18	39.21	Average Max	V	99	265	54	-14.80	Pass

Above 1GHz– 802.11n-20M – 5260MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17945.05	39.57	9.46	-3.16	45.88	Peak Max	H	197	0	74	-28.12	Pass
9628.57	41.34	7.90	-10.32	38.91	Peak Max	V	114	296	74	-35.09	Pass
7294.45	40.60	7.35	-11.50	36.45	Peak Max	V	114	0	74	-37.55	Pass
17945.05	27.55	9.46	-3.16	33.85	Average Max	H	197	0	54	-20.15	Pass
9628.57	29.94	7.90	-10.32	27.51	Average Max	V	114	296	54	-26.49	Pass
7294.45	28.62	7.35	-11.5	24.47	Average Max	V	114	0	54	-29.53	Pass

Above 1GHz- 802.11n-20M – 5280MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
12420.60	42.27	8.94	-7.22	43.99	Peak Max	V	174	195	74	-30.01	Pass
8776.81	42.24	7.64	-10.88	39.00	Peak Max	V	118	22	74	-35.00	Pass
1961.86	41.12	4.76	-27.59	18.29	Peak Max	V	101	313	74	-55.71	Pass
12420.60	30.70	8.94	-7.22	32.43	Average Max	V	174	195	54	-21.57	Pass
8776.81	30.12	7.64	-10.88	26.88	Average Max	V	118	22	54	-27.12	Pass
1961.86	30.22	4.76	-27.59	7.39	Average Max	V	101	313	54	-46.61	Pass

Above 1GHz- 802.11n-20M – 5320MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
12405.93	42.60	8.93	-7.18	44.35	Peak Max	V	159	263	74	-29.65	Pass
9754.12	41.95	7.95	-10.24	39.66	Peak Max	V	148	31	74	-34.34	Pass
1949.87	44.13	4.76	-27.78	21.12	Peak Max	V	110	1	74	-52.88	Pass
12405.93	31.20	8.93	-7.18	32.96	Average Max	V	159	263	54	-21.04	Pass
9754.12	30.07	7.95	-10.24	27.77	Average Max	V	148	31	54	-26.23	Pass
1949.87	28.57	4.76	-27.78	5.56	Average Max	V	110	1	54	-48.44	Pass

Above 1GHz- 802.11n-40M – 5270MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
11910.26	41.57	8.70	-7.17	43.10	Peak Max	H	179	288	74	-30.90	Pass
8513.25	41.60	7.57	-11.00	38.17	Peak Max	V	246	338	74	-35.83	Pass
1962.18	38.83	4.76	-27.59	16.00	Peak Max	V	221	311	74	-58.00	Pass
11910.26	30.32	8.70	-7.17	31.85	Average Max	H	179	288	54	-22.15	Pass
8513.25	30.31	7.57	-11.00	26.88	Average Max	V	246	338	54	-27.12	Pass
1962.18	29.26	4.76	-27.59	6.43	Average Max	V	221	311	54	-47.57	Pass

Above 1GHz- 802.11n-40M – 5310MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
9559.67	42.56	7.87	-10.41	40.01	Peak Max	V	143	356	74	-33.99	Pass
7169.97	41.60	7.37	-11.75	37.21	Peak Max	V	102	360	74	-36.79	Pass
1942.52	44.27	4.76	-27.89	21.14	Peak Max	V	100	285	74	-52.86	Pass
9559.67	30.38	7.87	-10.41	27.83	Average Max	V	143	356	54	-26.17	Pass
7169.97	29.14	7.37	-11.75	24.76	Average Max	V	102	360	54	-29.24	Pass
1942.52	33.93	4.76	-27.89	10.80	Average Max	V	100	285	54	-43.20	Pass

Above 1GHz- 802.11ac-80M – 5290MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
12399.02	42.28	8.93	-7.17	44.04	Peak Max	H	213	67	74	-29.96	Pass
9246.76	41.69	7.77	-10.49	38.96	Peak Max	V	163	0	74	-35.04	Pass
7638.94	41.26	7.31	-11.25	37.32	Peak Max	V	108	209	74	-36.68	Pass
12399.02	30.67	8.93	-7.17	32.43	Average Max	H	213	67	54	-21.57	Pass
9246.76	30.07	7.77	-10.49	27.34	Average Max	V	163	0	54	-26.66	Pass
7638.94	29.33	7.31	-11.25	25.39	Average Max	V	108	209	54	-28.61	Pass

Above 1GHz- 802.11a – 5500MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17750.08	41.60	9.44	-3.29	47.75	Peak Max	H	118	279	74	-26.25	Pass
8602.44	44.58	7.60	-10.86	41.32	Peak Max	V	116	149	74	-32.68	Pass
1537.35	63.69	4.77	-29.18	39.29	Peak Max	V	101	264	74	-34.71	Pass
17750.08	29.87	9.44	-3.29	36.03	Average Max	H	118	279	54	-17.97	Pass
8602.44	32.76	7.60	-10.86	29.50	Average Max	V	116	149	54	-24.50	Pass
1537.35	62.79	4.77	-29.18	38.39	Average Max	V	101	264	54	-15.61	Pass

Above 1GHz- 802.11a – 5580MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17691.22	42.52	9.43	-3.11	48.85	Peak Max	V	107	41	74	-25.16	Pass
1537.31	61.67	4.77	-29.18	37.26	Peak Max	V	100	264	74	-36.74	Pass
9780.39	43.17	7.96	-10.36	40.78	Peak Max	V	196	19	74	-33.22	Pass
17691.22	29.78	9.43	-3.11	36.11	Average Max	V	107	41	54	-17.89	Pass
1537.31	59.92	4.77	-29.18	35.52	Average Max	V	100	264	54	-18.49	Pass
9780.39	32.09	7.96	-10.36	29.69	Average Max	V	196	19	54	-24.31	Pass

Above 1GHz- 802.11a – 5700MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
17898.25	41.75	9.46	-3.08	48.13	Peak Max	H	159	17	74	-25.87	Pass
9629.08	44.16	7.90	-10.32	41.73	Peak Max	V	173	260	74	-32.27	Pass
1537.31	61.60	4.77	-29.18	37.20	Peak Max	V	101	263	74	-36.80	Pass
17898.25	29.42	9.46	-3.08	35.80	Average Max	H	159	17	54	-18.20	Pass
9629.08	32.17	7.90	-10.32	29.74	Average Max	V	173	260	54	-24.26	Pass
1537.31	60.38	4.77	-29.18	35.97	Average Max	V	101	263	54	-18.03	Pass

Above 1GHz- 802.11n-20M – 5500MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
11949.08	41.95	8.71	-7.21	43.44	Peak Max	H	159	0	74	-30.56	Pass
8463.40	42.37	7.55	-10.89	39.04	Peak Max	V	159	42	74	-34.97	Pass
1961.91	41.37	4.76	-27.59	18.53	Peak Max	V	228	332	74	-55.47	Pass
11949.08	30.65	8.71	-7.21	32.15	Average Max	H	159	0	54	-21.85	Pass
8463.40	30.37	7.55	-10.89	27.04	Average Max	V	159	42	54	-26.96	Pass
1961.91	32.86	4.76	-27.59	10.03	Average Max	V	228	332	54	-43.97	Pass

Above 1GHz- 802.11n-20M – 5580MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
12327.07	42.69	8.89	-7.26	44.32	Peak Max	V	124	299	74	-29.68	Pass
9433.87	42.08	7.82	-10.24	39.66	Peak Max	V	162	360	74	-34.34	Pass
1971.26	39.61	4.76	-27.45	16.92	Peak Max	V	236	255	74	-57.08	Pass
12327.07	30.70	8.89	-7.26	32.33	Average Max	V	124	299	54	-21.67	Pass
9433.87	30.41	7.82	-10.24	27.99	Average Max	V	162	360	54	-26.01	Pass
1971.26	28.40	4.76	-27.45	5.71	Average Max	V	236	255	54	-48.29	Pass

Above 1GHz- 802.11n-20M – 5700MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
11976.36	42.07	8.72	-7.25	43.54	Peak Max	H	176	223	74	-30.46	Pass
8464.75	42.21	7.55	-10.89	38.87	Peak Max	V	166	173	74	-35.13	Pass
2138.33	37.98	5.11	-25.50	17.60	Peak Max	V	242	286	74	-56.40	Pass
11976.36	30.40	8.72	-7.25	31.87	Average Max	H	176	223	54	-22.13	Pass
8464.75	30.38	7.55	-10.89	27.04	Average Max	V	166	173	54	-26.96	Pass
2138.33	26.77	5.11	-25.50	6.38	Average Max	V	242	286	54	-47.62	Pass

Above 1GHz- 802.11n-40M – 5510MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
12400.71	42.22	8.93	-7.17	43.99	Peak Max	V	197	89	74	-30.01	Pass
9314.42	42.33	7.79	-10.53	39.59	Peak Max	V	137	121	74	-34.41	Pass
7262.82	41.39	7.35	-11.53	37.21	Peak Max	V	106	173	74	-36.79	Pass
12400.71	30.70	8.93	-7.17	32.47	Average Max	V	197	89	54	-21.53	Pass
9314.42	30.69	7.79	-10.53	27.95	Average Max	V	137	121	54	-26.05	Pass
7262.82	29.40	7.35	-11.53	25.22	Average Max	V	106	173	54	-28.78	Pass

Above 1GHz- 802.11n-40M – 5550MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
9711.67	41.92	7.93	-10.06	39.79	Peak Max	V	150	0	74	-34.21	Pass
12423.57	41.67	8.94	-7.22	43.39	Peak Max	H	217	0	74	-30.61	Pass
6241.37	40.68	7.20	-14.84	33.04	Peak Max	V	197	278	74	-40.96	Pass
9711.67	30.13	7.93	-10.06	28.00	Average Max	V	150	0	54	-26.00	Pass
12423.57	30.41	8.94	-7.22	32.13	Average Max	H	217	0	54	-21.87	Pass
6241.37	28.80	7.20	-14.84	21.16	Average Max	V	197	278	54	-32.84	Pass

Above 1GHz- 802.11n-40M – 5670MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
12318.94	42.29	8.89	-7.28	43.90	Peak Max	H	238	154	74	-30.10	Pass
7292.58	40.49	7.35	-11.50	36.34	Peak Max	V	100	203	74	-37.66	Pass
2131.87	48.70	5.10	-25.48	28.32	Peak Max	H	100	236	74	-45.68	Pass
12318.94	30.43	8.89	-7.28	32.05	Average Max	H	238	154	54	-21.95	Pass
7292.58	28.41	7.35	-11.50	24.26	Average Max	V	100	203	54	-29.74	Pass
2131.87	36.39	5.10	-25.48	16.00	Average Max	H	100	236	54	-38.00	Pass

Above 1GHz- 802.11ac-80M – 5530MHz

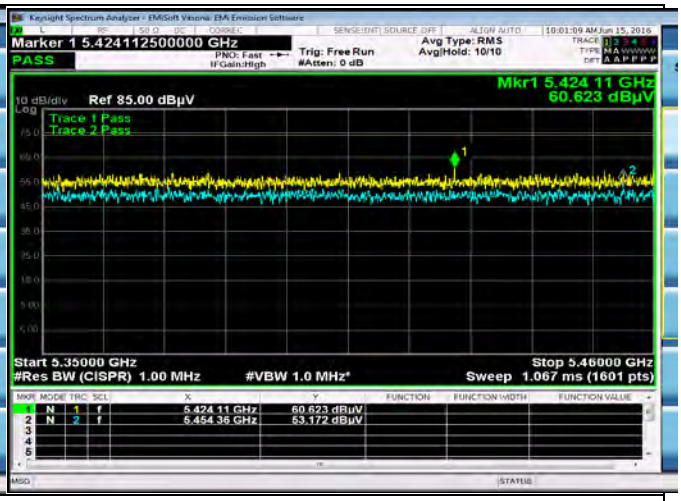
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
12492.80	43.58	8.98	-7.39	45.17	Peak Max	H	99	255	74	-28.83	Pass
6144.22	44.67	7.19	-15.05	36.81	Peak Max	H	201	215	74	-37.19	Pass
1949.67	43.05	4.76	-27.78	20.03	Peak Max	V	100	54	74	-53.97	Pass
12492.80	30.82	8.98	-7.39	32.41	Average Max	H	99	255	54	-21.59	Pass
6144.22	33.88	7.19	-15.05	26.01	Average Max	H	201	215	54	-27.99	Pass
1949.67	29.95	4.76	-27.78	6.93	Average Max	V	100	54	54	-47.07	Pass

Above 1GHz- 802.11ac-80M – 5610MHz

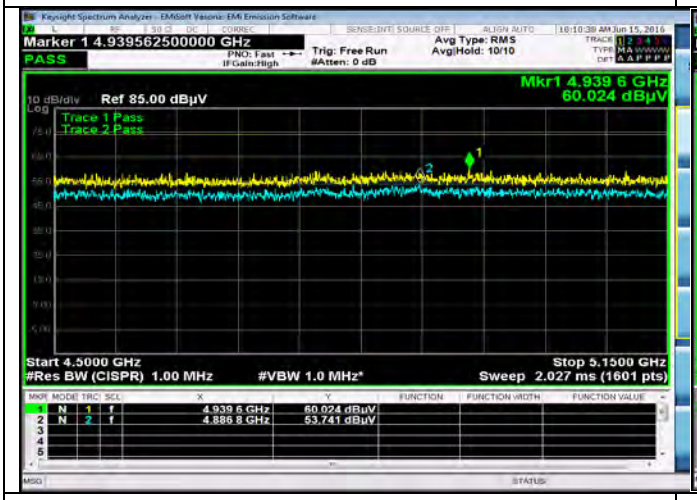
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
12404.17	41.87	8.93	-7.18	43.62	Peak Max	V	167	213	74	-30.38	Pass
8379.81	42.52	7.51	-10.67	39.35	Peak Max	V	240	27	74	-34.65	Pass
1961.84	35.85	4.76	-27.59	13.02	Peak Max	V	100	0	74	-60.99	Pass
12404.17	30.49	8.93	-7.18	32.25	Average Max	V	167	213	54	-21.75	Pass
8379.81	30.25	7.51	-10.67	27.08	Average Max	V	240	27	54	-26.92	Pass
1961.84	25.36	4.76	-27.59	2.53	Average Max	V	100	0	54	-51.47	Pass

Radiated Restricted band Measurement Plots:

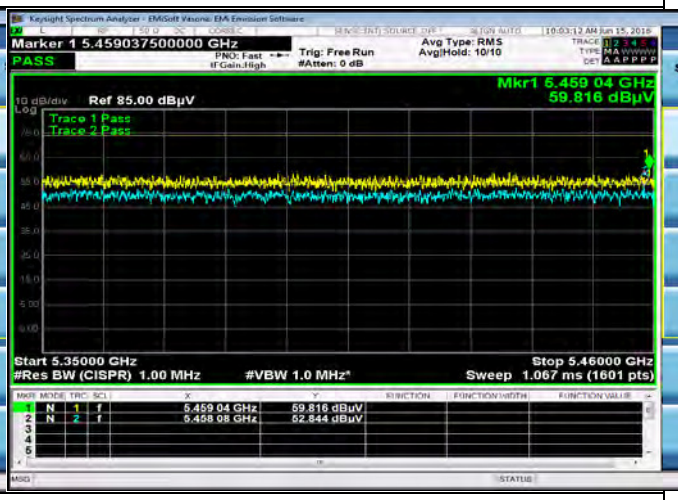
802.11a 5260M(4500-5150MHz)



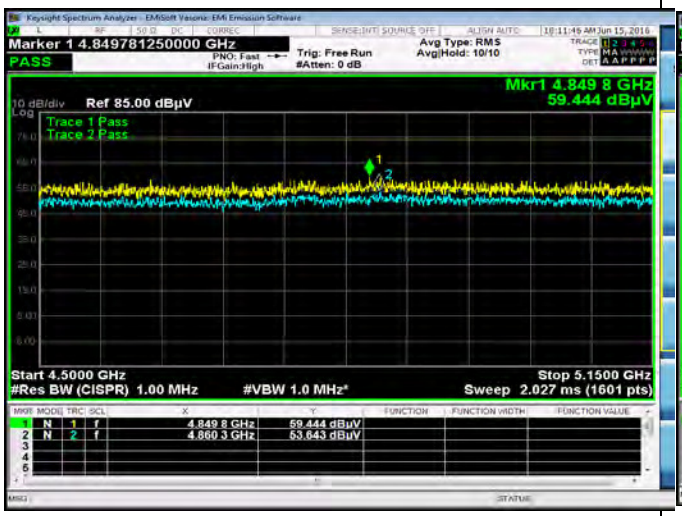
802.11a 5320M(5350-5460MHz)



802.11n-HT20 5260M(4500-5150MHz)

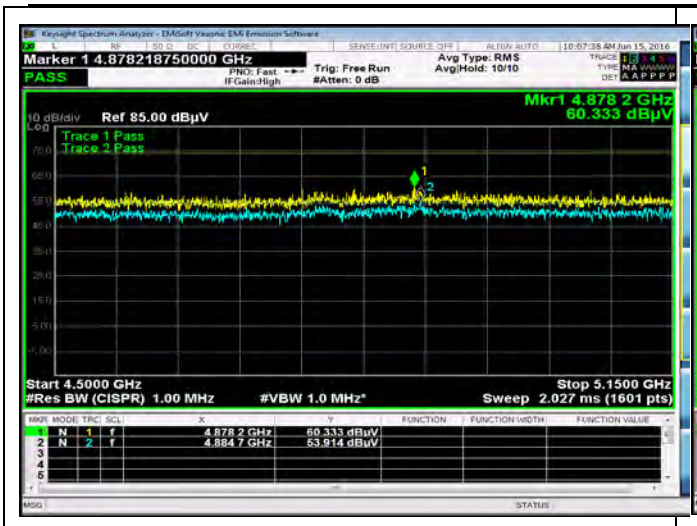


802.11n-HT20 5320M(5350-5460MHz)

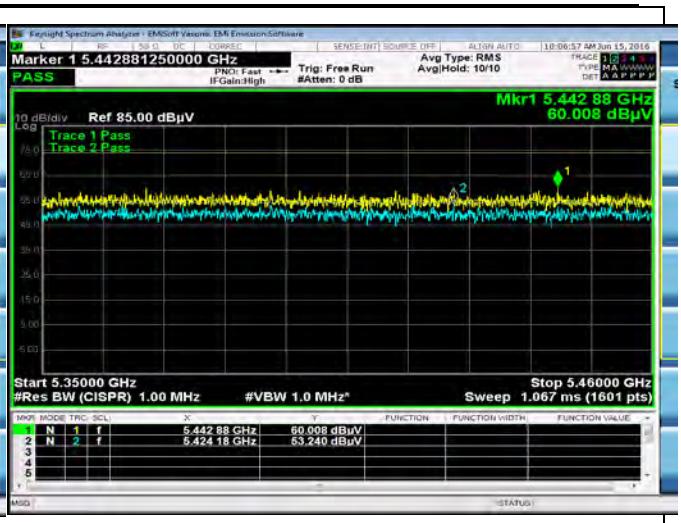


802.11n-HT40 5270M(4500-5150MHz)

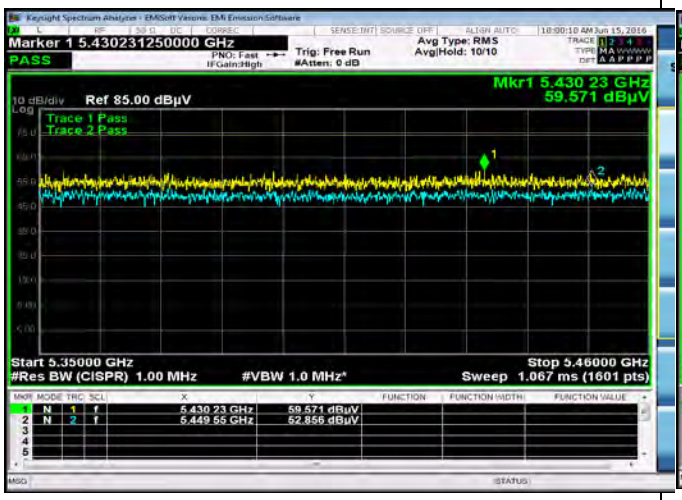
802.11n-HT40 5310M(5350-5460MHz)



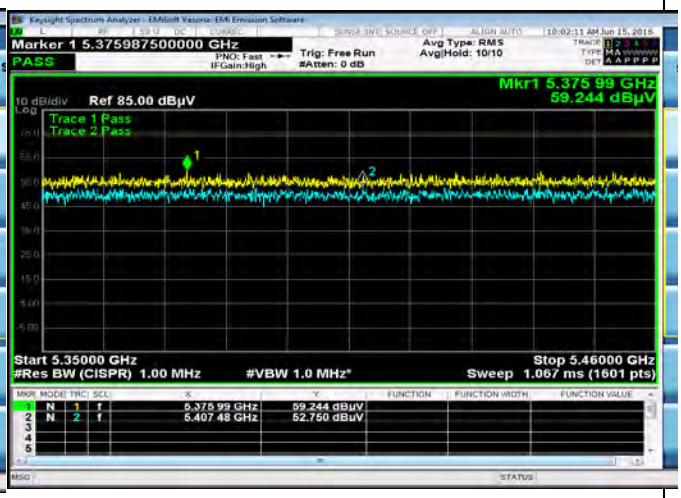
802.11ac-VHT80 5290M(4500-5150MHz)



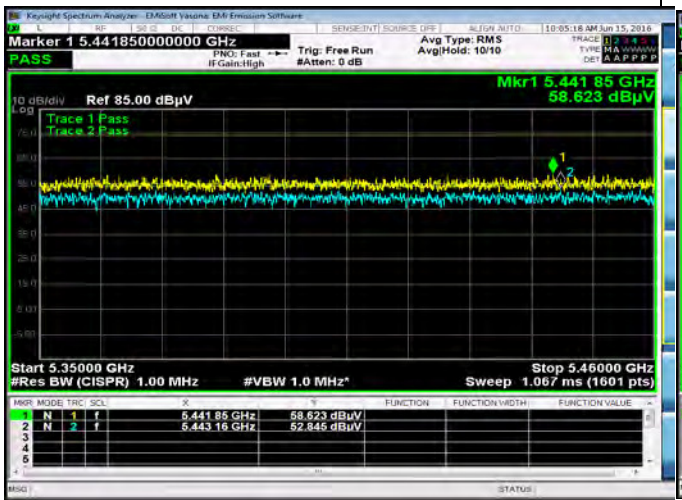
802.11ac-VHT 5290M(5350-5460MHz)



802.11a 5500M(5350-5460MHz)



802.11n-HT20 5500M(5350-5460MHz)



802.11n-HT40 5510M(5350-5460MHz)

802.11ac 5530M(5350-5460MHz)

Annex A. TEST INSTRUMENT

Instrument	Model	Manufacturer	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Conducted Emissions							
R & S Receiver	ESIB 40	Rohde & Schwarz	100179	06/08/2016	1 Year	06/08/2017	☑
CHASE LISN (9k-30MHz)	MN2050B	Chase	1018	08/07/2015	1 Year	08/07/2016	☑
Radiated Emissions							
R & S Receiver	ESIB 40	Rohde & Schwarz	100179	06/08/2016	1 Year	06/08/2017	☑
Spectrum Analyzer	N9010A	Keysight	10SL0219	08/20/2015	1 Year	08/20/2016	☑
Pre-Amplifier (1-26.5GHz)	8449B	Hewlett Packard	3008A00715	03/30/2016	1 Year	03/30/2017	☑
Preamplifier (100KHz-7GHz)	LPA-6-30	RF Bay, Inc.	11140711	02/10/2016	1 Year	02/10/2017	☑
ETS-Lingren Loop Antenna	6512	ETS-Lingren	00049120	05/12/2015	1 Year	05/12/2016	☐
Bi-Log antenna (30MHz~2GHz)	JB1	Sunol Sciences	A030702	08/15/2015	1 Year	08/15/2016	☑
Horn Antenna (1-26.5GHz)	3115	EMCO	10SL0059	08/25/2015	1 Year	08/25/2016	☑
3 Meters SAC	3M	ETS-Lingren	N/A	06/09/2016	1 Year	06/09/2017	☑
10 Meters SAC	10M	ETS-Lingren	N/A	09/05/2015	1 Year	09/05/2016	☑
RF Conducted Measurement							
Spectrum Analyzer	N9010A	Keysight	10SL0219	08/20/2015	1 Year	08/20/2016	☑
USB RF Power Sensor	7002-006	ETS-Lingren	10SL0190	09/03/2015	1 Year	09/03/2016	☑

Test Software Version

Test Item	Vendor	Software	Version
Radiated Emission	EMISoft	EMISoft Vasona	V5.0

Annex B. SIEMIC Accreditation

Accreditations	Document	Scope / Remark
ISO 17025 (A2LA)		Please see the documents for the detailed scope
ISO Guide 65 (A2LA)		Please see the documents for the detailed scope
TCB Designation		A1, A2, A3, A4, B1, B2, B3, B4, C
FCC DoC Accreditation		FCC Declaration of Conformity Accreditation
FCC Site Registration		3 meter site
FCC Site Registration		10 meter site
IC Site Registration		3 meter site
IC Site Registration		10 meter site
EU NB		**Radio & Telecommunications Terminal Equipment:** EN45001 – EN ISO/IEC 17025
		Electromagnetic Compatibility: EN45001 – EN ISO/IEC 17025
Singapore iDA CB(Certification Body)		Phase I, Phase II
Vietnam MIC CAB Accreditation		Please see the document for the detailed scope
Hong Kong OFCA		**(Phase II)** OFCA Foreign Certification Body for Radio and Telecom
		(Phase I) Conformity Assessment Body for Radio and Telecom
Industry Canada CAB		**Radio:** Scope A – All Radio Standard Specification in Category I
		Telecom: CS-03 Part I, II, V, VI, VII, VIII

Japan Recognized Certification Body Designation		**Radio**: A1. Terminal equipment for purpose of calling **Telecom**: B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law
Korea CAB Accreditation		**EMI:** KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI **EMS:** KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS
		Radio: RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68
		Telecom: President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4
Taiwan NCC CAB Recognition		LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08
Taiwan BSMI CAB Recognition		CNS 13438
Japan VCCI		R-3083: Radiation 3 meter site C-3421: Main Ports Conducted Interference Measurement T-1597: Telecommunication Ports Conducted Interference Measurement
Australia CAB Recognition		**EMC:** AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4
		Radio communications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771
		Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1
Australia NATA Recognition		AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016,AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2