RF TEST REPORT

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

Report No.: FCC_RF_SL14071801-RUC-010A1_UNII
Supersede Report No.: None

Applicant	:	Ruckus Wireless, Inc.
Product Name	:	Access Point
Model No.	:	R600
Test Standard	:	47 CFR 15.407
Test Method	:	ANSI C63.10: 2009 789033 D02 General UNII Test Procedures New Rules v01
FCC ID	:	S9GR600
IC ID	:	5912A-R600
Dates of test	:	10/16/2014 – 11/07/2014
Issue Date	:	11/26/2014
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:	
David Zhang	N. Molaei G.
David Zhang	**Nima Molaei**
Test Engineer	Engineer Reviewer

Issued By:
SIEMIC Laboratories
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ilac-MRA
A2LA ACCREDITED
TESTING CERT # 2742-01

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

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1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC_RF_SL14071801-RUC-010A1_UNII	None	Original	11/26/2014

2 Executive Summary

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

Company: Ruckus Wireless, Inc.
Product: Access Point
Model: R600

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	:	Ruckus Wireless, Inc.
Applicant Address	:	350 West Java Drive, Sunnyvale, California 94089 U.S.A
Manufacturer Name	:	Ruckus Wireless, Inc.
Manufacturer Address	:	350 West Java Drive, Sunnyvale, California 94089 U.S.A

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.	:	R600
Trade Name	:	Ruckus
Serial No.	:	141406000029
Host Model No.	:	N/A
Input Power	:	48VDC (PoE) and 12 VDC (AC/DC Adapter)
Power Adapter Manu/Model	:	N/A
Power Adapter SN	:	N/A
Hardware version	:	N/A
Software version	:	N/A
Date of EUT received	:	08/10/2014
Equipment Class/ Category	:	DTS, UNII
Clock Frequencies	:	N/A
Port/Connectors	:	PoE, Ethernet, Console

6.2 Radio Description

Radio Type	802.11b	802.11g	802.11a	802.11n-20M	802.11n-40M	802.11ac-80M
Operating Frequency	2412-2462MHz	2412-2462MHz	5180-5320MHz 5500-5700MHz 5745-5825MHz	2412-2462MHz 5180-5320MHz 5500-5700MHz 5745-5825MHz	2422-2452MHz 5190-5310MHz 5510-5670MHz 5755-5795MHz	5210MHz, 5290MHz 5530MHz, 5610MHz 5775MHz
Modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)
Channel Spacing	5MHz	5MHz	20MHz	5MHz(2.4GHz), 20MHz (5GHz)	40MHz	80MHz
Number of Channels	11	11	19	11(2.4GH) 19 (5GHz)	9(2.4GH) 9(5GHz)	5
Antenna Type	Internal Patch Antenna					
Antenna Gain (Peak)	1 dBi (2.4GHz), 3 dBi (5 GHz)					
Antenna Connector Type	SMA					
Note	EUT has 3 antenna, 1 antenna is in horizontal polarity, and 2 antennas in vertical polarity. The 802.11b/g/a is in CDD mode with all 3 antenna transmit simultaneously. Since they're in 90 deg phase shift between the horizontal and vertical antenna, for radiated limit, the result from different polarization antenna will not be combined. So only the result for 2 vertical poparity antennas will be combined for MIMO mode.For cross-polarized antenna, the total gain—including array gain—is computed separately for each of the two (or three) polarizations using the procedures presented in this document. The highest of the total gains shall apply. For this case, the highest of the total gain will be the directional gain of 2 vertical antennas. For conducted limit like power and psd, the result from all 3 chains will be summed. For 802.11b/g/a mode under CDD mode, the array gain for power will be 0 and for PSD will be 10 log (Nant/Nss) dB to be calculated separately for horizontal and vertical polarity.Reference to the following KDB for clarification. 662911 D01 Multiple Transmitter Output v02r01 662911 D02 MIMO with Cross-Polarized Antennas v01					

EUT ART Power level setting

Mode	Frequency (MHz)	ART Power setting	Mode	Frequency (MHz)	ART Power setting
802.11-b	2412	22	802.11-a	5260	18.5
802.11-b	2437	22	802.11-a	5300	18
802.11-b	2462	22	802.11-a	5320	18
802.11-g	2412	22	802.11-n-20	5260	18
802.11-g	2437	22	802.11-n-20	5300	18
802.11-g	2462	22	802.11-n-20	5320	16
802.11-n-20	2412	21	802.11-n-40	5270	20
802.11-n-20	2437	22	802.11-n-40	5310	20
802.11-n-20	2462	22	802.11-ac-80	5290	20
802.11-n-40	2422	18			
802.11-n-40	2437	22			
802.11-n-40	2452	22			
802.11-a	5180	22	802.11-a	5500	18
802.11-a	5220	22	802.11-a	5580	19
802.11-a	5240	22	802.11-a	5700	19
802.11-n-20	5180	20	802.11-n-20	5500	18
802.11-n-20	5220	22	802.11-n-20	5580	19
802.11-n-20	5240	22	802.11-n-20	5700	19
802.11-n-40	5190	16.5	802.11-n-40	5510	20
802.11-n-40	5230	22	802.11-n-40	5590	20
802.11-ac-80	5210	14	802.11-n-40	5670	20
			802.11-ac-80	5530	20
802.11-a	5745	22	802.11-ac-80	5610	20
802.11-a	5785	22			
802.11-a	5825	22			
802.11-n-20	5745	22			
802.11-n-20	5785	22			
802.11-n-20	5825	22			
802.11-n-40	5755	22			
802.11-n-40	5795	22			
802.11-ac-80	5775	22			

6.3 EUT Photos - External

Top View

Bottom View

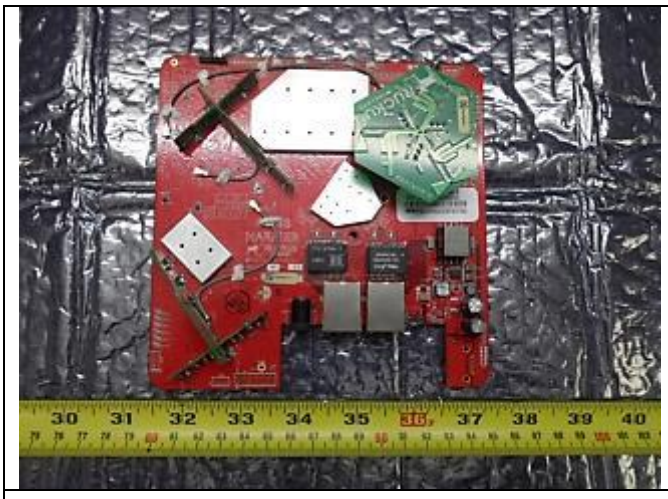
Front View

Rear View

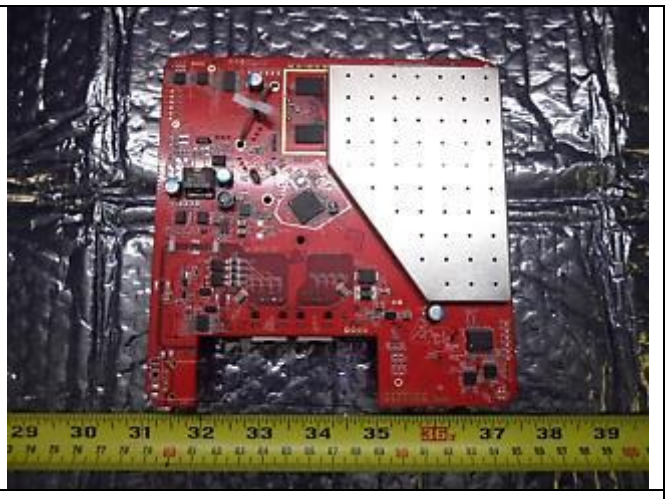
Left Side View

Right Side View

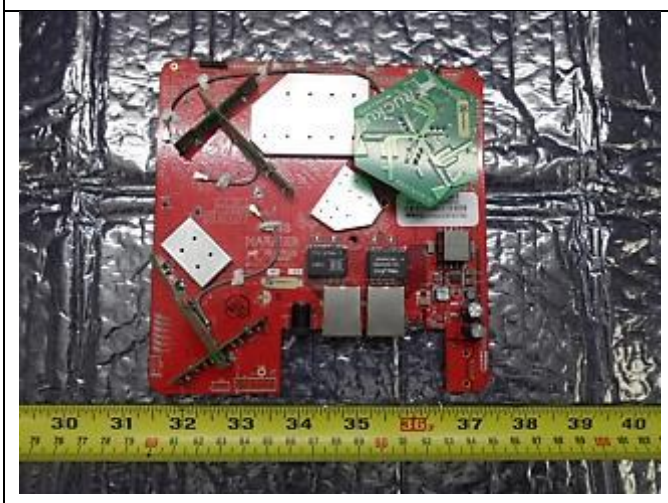
6.4 EUT Photos - Internal



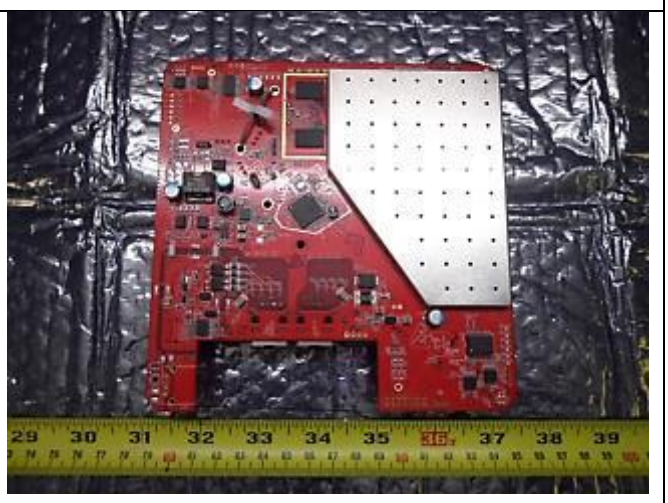
Main PCBA Board Top View



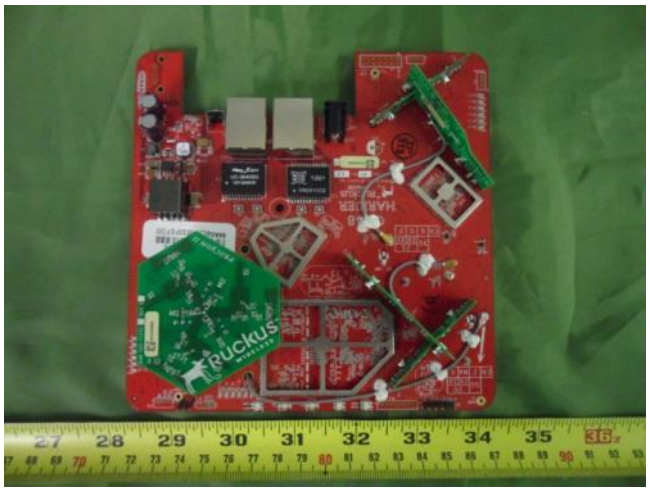
Main PCBA Board Bottom View



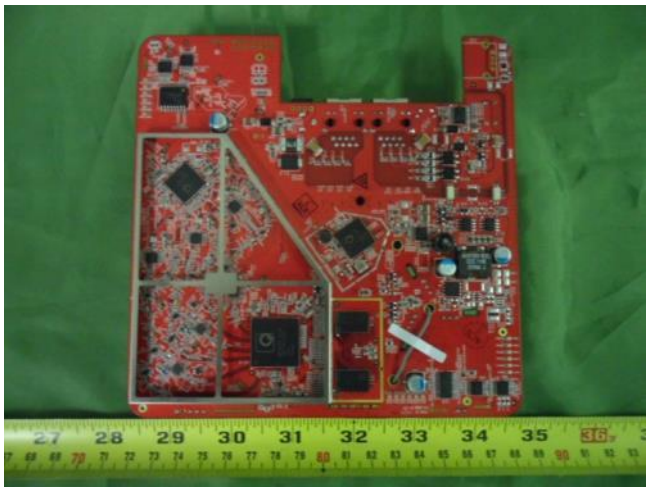
Main PCBA Board Top View



Main PCBA Board Bottom View

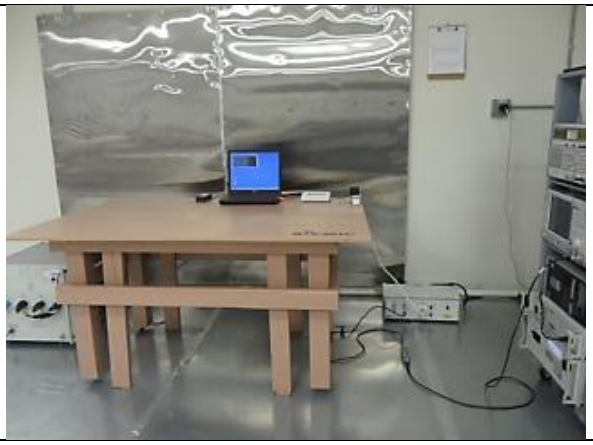


Main PCBA Board-without shielding Top View

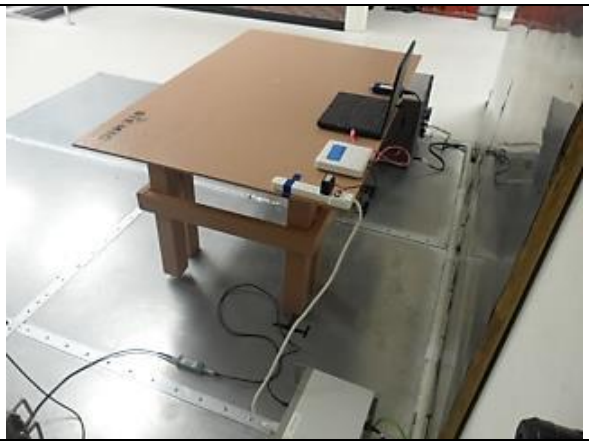


Main PCBA Board-without shielding Bottom View

6.5 EUT Test Setup Photos

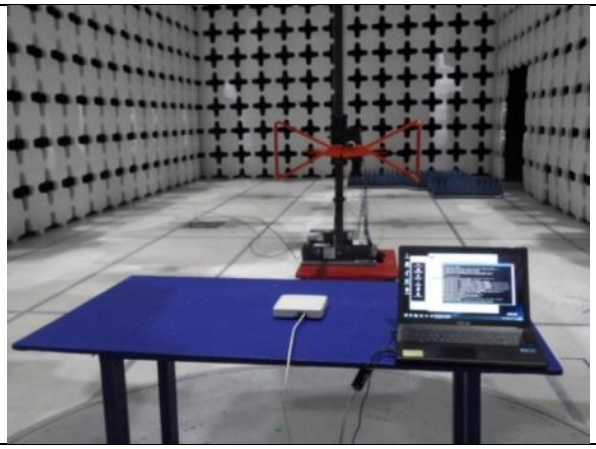


AC Line Conducted Emissions – Front View



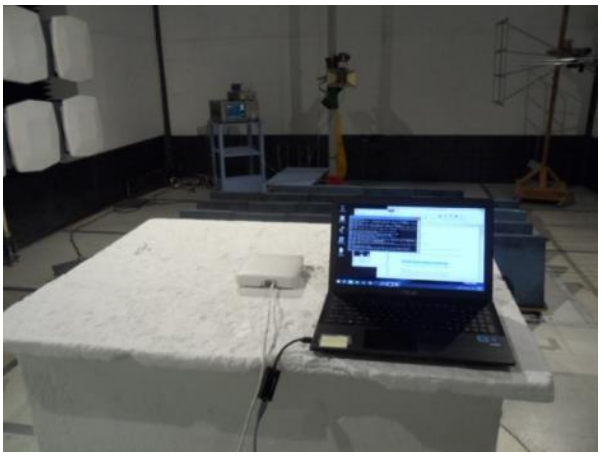
AC Line Conducted Emissions – Rear View

Radiated Emissions (<1GHz) – Front View



Radiated Emissions (<1GHz) – Rear View

Radiated Emissions (>1GHz) – Front View



Radiated Emissions (>1GHz) – Rear View

Radiated Emissions (>18GHz) – Front View

Radiated Emissions (>18GHz) – Rear View

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Supporting Equipment Description	Model	Serial Number	Manufacturer	Note
1	Laptop	PP01L Latitude C610	CN-06P823-48643-37P-4153	Dell	-
2	EUT power Supply	HK-AD-120A100-US	740-64190-011	Ruckus	-

7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
-	-	-	-	-	-	-	-

7.3 Test Software Description

Test Item	Software	Description
RF Testing	Command Line in windows	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 C63.10 – 2009 789033 D02 General UNII Test Procedures New Rules v01	☒ Pass ☐ N/A
AC Conducted Emissions Voltage	FCC	15.207(a)	ANSI C63.10 – 2009	☒ 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 v01	☒ Pass ☐ N/A
Maximum conducted Output Power	FCC	15.407 (a) (2)	789033 D02 General UNII Test Procedures New Rules v01	☒ 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 C63.10 – 2009 789033 D02 General UNII Test Procedures New Rules v01	☒ Pass ☐ N/A
Power Spectral Density	FCC	15.407 (a) (2)	789033 D02 General UNII Test Procedures New Rules v01	☒ 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.			

9 Measurement Uncertainty

Emissions			
Test Item	**Frequency Range**	**Description**	**Uncertainty**
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

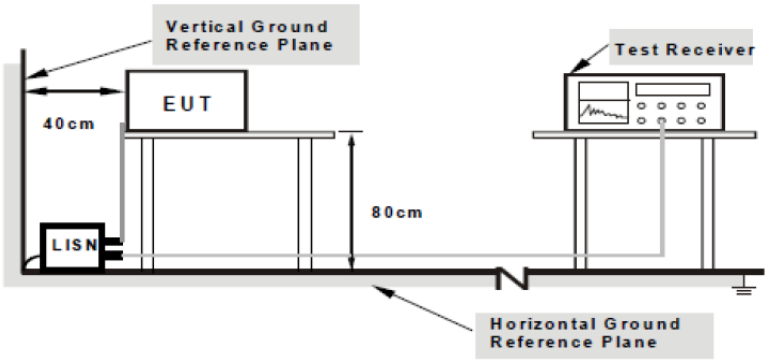
10 Measurements, Examination and Derived Results

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.	☒

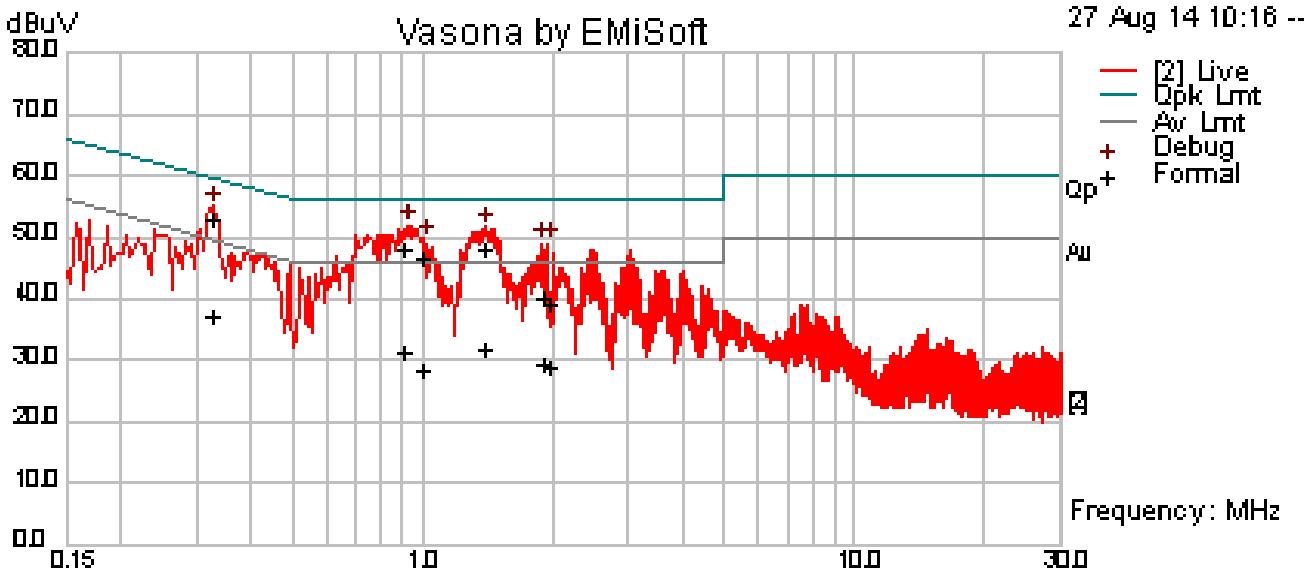
Test Setup	 Note: 1.Support units were connected to second LISN. 2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.
Procedure	- The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m 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

Conducted Emission Test Results (Line)

Test specification:	Conducted Emissions			
Environmental Conditions:	Temp(°C):	22	Result:	☒ Pass ☐ Fail
	Humidity (%):	40		
	Atmospheric(mbar):	1022		
Mains Power:	120Vac, 60Hz			
Tested by:	George Arias			
Test Date:	08/27/2014			
Remarks	With AC/DC adatper			

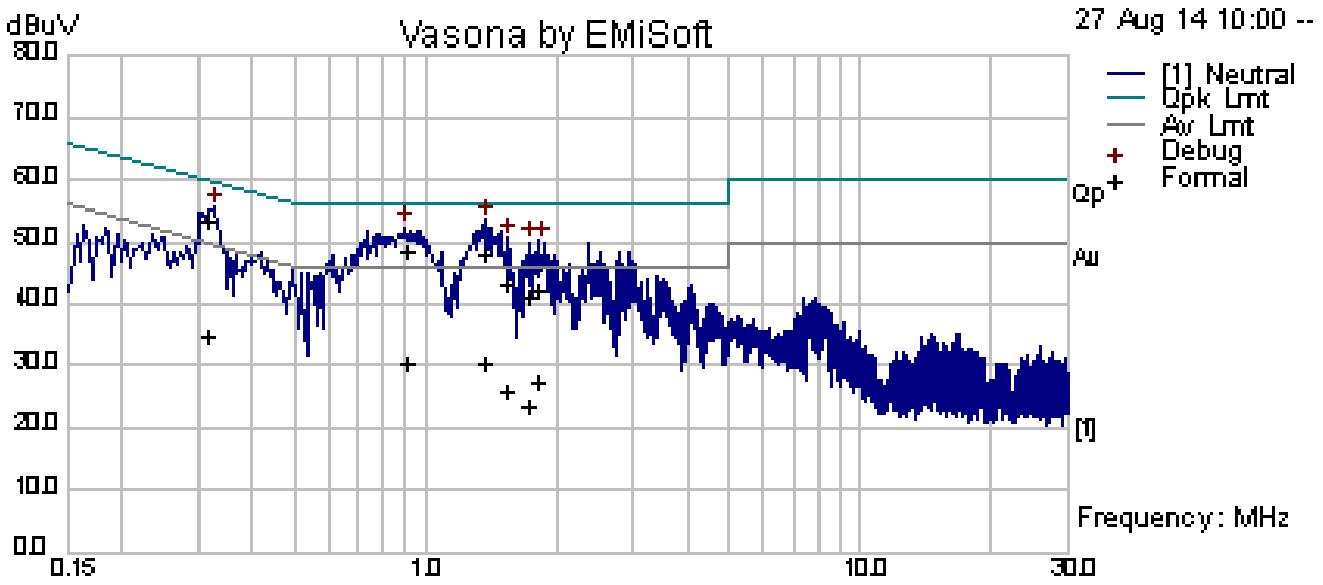


Live Line Plot at 120Vac, 60Hz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Measurement Type	Line	Limit (dBuV)	Margin (dB)	Pass /Fail
0.32	42.42	10.01	0.71	53.13	Quasi Peak	Line	59.59	-6.46	Pass
0.90	37.40	10.01	0.77	48.19	Quasi Peak	Line	56.00	-7.81	Pass
1.40	36.95	10.02	0.85	47.83	Quasi Peak	Line	56.00	-8.17	Pass
0.99	35.60	10.02	0.78	46.40	Quasi Peak	Line	56.00	-9.60	Pass
1.90	29.11	10.02	0.93	40.06	Quasi Peak	Line	56.00	-15.94	Pass
1.96	28.17	10.02	0.94	39.13	Quasi Peak	Line	56.00	-16.87	Pass
0.32	26.32	10.01	0.71	37.04	Average	Line	49.59	-12.55	Pass
1.40	21.03	10.02	0.85	31.90	Average	Line	46.00	-14.10	Pass
0.90	20.41	10.01	0.77	31.20	Average	Line	46.00	-14.80	Pass
1.90	18.60	10.02	0.93	29.56	Average	Line	46.00	-16.44	Pass
1.96	18.04	10.02	0.94	29.00	Average	Line	46.00	-17.00	Pass
0.99	17.54	10.02	0.78	28.33	Average	Line	46.00	-17.67	Pass

Conducted Emission Test Results (Neutral)

Test specification:	Conducted Emissions			
Environmental Conditions:	Temp(°C):	22	Result:	☒ Pass ☐ Fail
	Humidity (%):	40		
	Atmospheric(mbar):	1022		
Mains Power:	120Vac, 60Hz			
Tested by:	George Arias			
Test Date:	08/27/2014			
Remarks	With AC/DC adatper			



Neutral Line@ 120Vac, 60Hz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Measurement Type	Line	Limit (dBuV)	Margin (dB)	Pass /Fail
0.31	42.57	10.00	0.71	53.29	Quasi Peak	Neutral	59.87	-6.59	Pass
0.90	37.72	10.01	0.77	48.51	Quasi Peak	Neutral	56.00	-7.49	Pass
1.36	37.21	10.02	0.85	48.08	Quasi Peak	Neutral	56.00	-7.92	Pass
1.54	32.39	10.02	0.88	43.29	Quasi Peak	Neutral	56.00	-12.71	Pass
1.82	31.10	10.02	0.92	42.04	Quasi Peak	Neutral	56.00	-13.96	Pass
1.74	30.13	10.02	0.91	41.06	Quasi Peak	Neutral	56.00	-14.94	Pass
0.31	23.97	10.00	0.71	34.68	Average	Neutral	49.87	-15.19	Pass
1.36	19.55	10.02	0.85	30.42	Average	Neutral	46.00	-15.58	Pass
0.90	19.47	10.01	0.77	30.26	Average	Neutral	46.00	-15.74	Pass
1.82	16.64	10.02	0.92	27.58	Average	Neutral	46.00	-18.42	Pass
1.54	15.35	10.02	0.88	26.25	Average	Neutral	46.00	-19.75	Pass
1.74	12.58	10.02	0.91	23.51	Average	Neutral	46.00	-22.49	Pass

Note: The results above show only the worst case.

10.2 26 dB & 6dB 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.	☐
	e)	Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.	☐
Test Setup			
Test Procedure	789033 D02 General UNII Test Procedures New Rules v01 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. o Set RBW = around 1% of emission bandwidth o Set VBW > RBW o Detector = Peak o Trace mode = max hold - Capture the plot. - Repeat above steps for different test channel and other modulation type. 6 dB Minimum emission bandwidth measurement procedure (for 5.725-5.85 GHz) - Allow the trace to stabilize. - Use the spectrum analyzer built-in measurement function to determine the 6dB BW. o Set RBW = 100 KHz o Set VBW ≥ 3 x RBW o Detector = Peak o Trace mode = max hold o Sweep = auto couple - Capture the plot. - Repeat above steps for different test channel and other modulation type.		
Test Date	11/04/2014	Environmental condition	Temperature 23°C Relative Humidity 42% Atmospheric Pressure 1021mbar
Remark	N/A		
Result	☒ Pass ☐ Fail		

Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
26 dB Emission Bandwidth	1% of 26 dB EBW	>RBW	>EBW	PK	Auto	Maxhold	-
6 dB Bandwidth	100 KHz	≥3 x RBW	1.5 - 5 times of OBW	PK	Auto	Maxhold	-

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

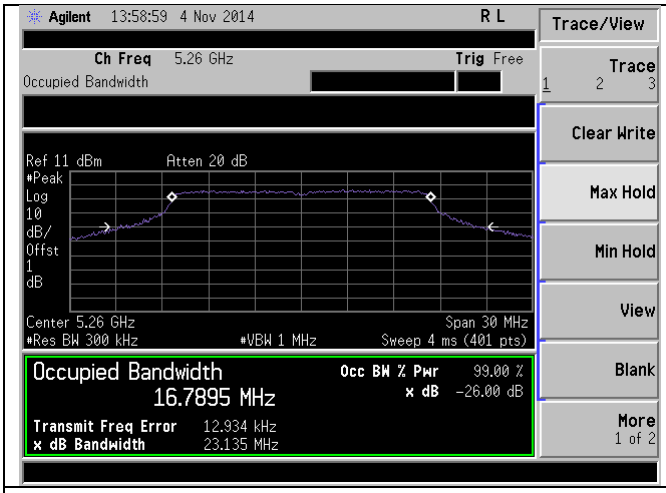
26dB Bandwidth measurement result for 5.2GHz

Type	Test mode	Freq (MHz)	CH	Result (MHz)	Power calculation (dBm) 11 dBm+10 log B
26dB BW	802.11a	5260	Low	23.135	24.64
26dB BW	802.11a	5300	Mid	24.056	24.81
26dB BW	802.11a	5320	High	23.642	24.74
26dB BW	802.11n-20	5260	Low	23.310	24.68
26dB BW	802.11n-20	5300	Mid	23.163	24.65
26dB BW	802.11n-20	5320	High	23.954	24.79
26dB BW	802.11n-40	5270	Low	44.574	27.49
26dB BW	802.11n-40	5310	High	46.454	27.67
26dB BW	802.11ac-80	5290	Mid	88.696	30.48

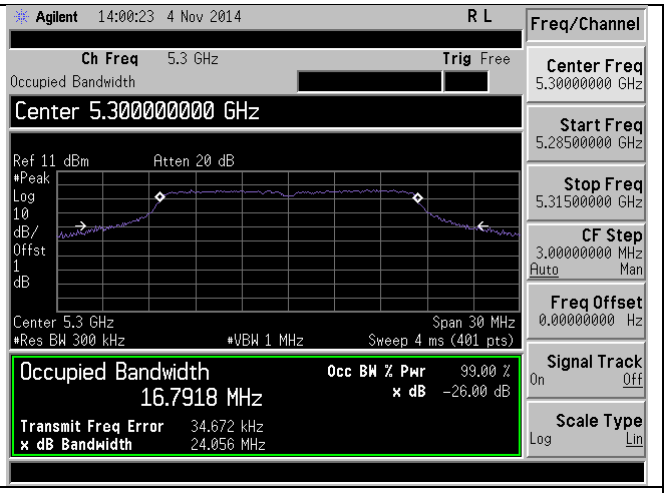
26dB Bandwidth measurement result for 5.5GHz

Type	Test mode	Freq (MHz)	CH	Result (MHz)	Power calculation (dBm) 11 dBm+10 log B
26dB BW	802.11a	5500	Low	22.813	24.58
26dB BW	802.11a	5580	Mid	23.721	24.75
26dB BW	802.11a	5700	High	21.796	24.38
26dB BW	802.11n-20	5500	Low	23.757	24.76
26dB BW	802.11n-20	5580	Mid	24.564	24.90
26dB BW	802.11n-20	5700	High	23.203	24.66
26dB BW	802.11n-40	5510	Low	46.365	27.66
26dB BW	802.11n-40	5590	Mid	49.111	27.91
26dB BW	802.11n-40	5670	High	45.293	27.56
26dB BW	802.11ac-80	5530	Low	86.430	30.37
26dB BW	802.11ac-80	5610	High	85.957	30.34

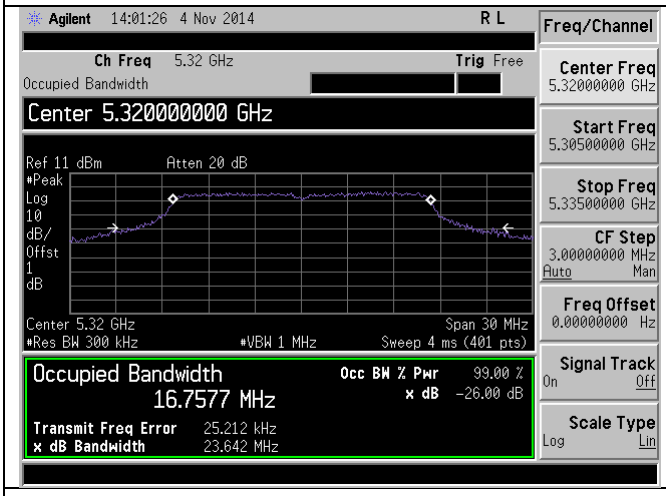
26dB Bandwidth Test Plots



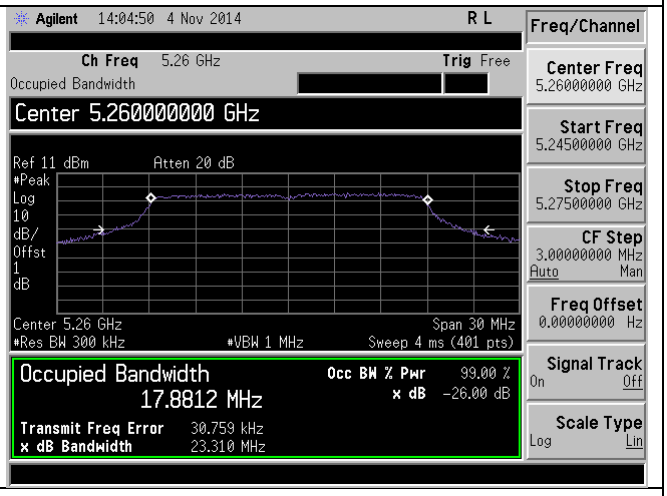
26dB BW -802.11a 5260MHz



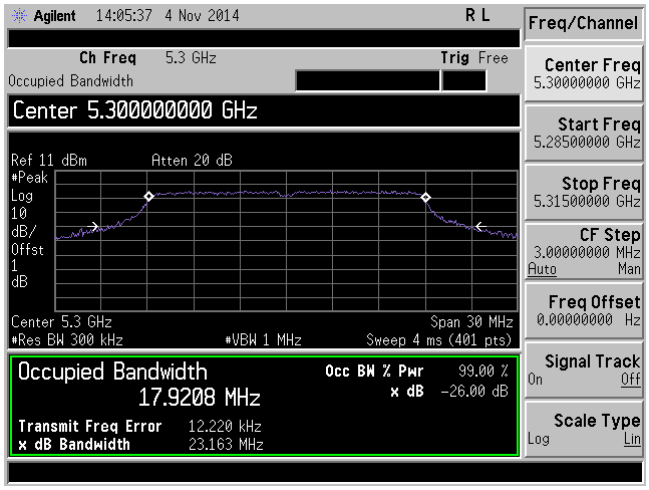
26dB BW -802.11a 5300MHz



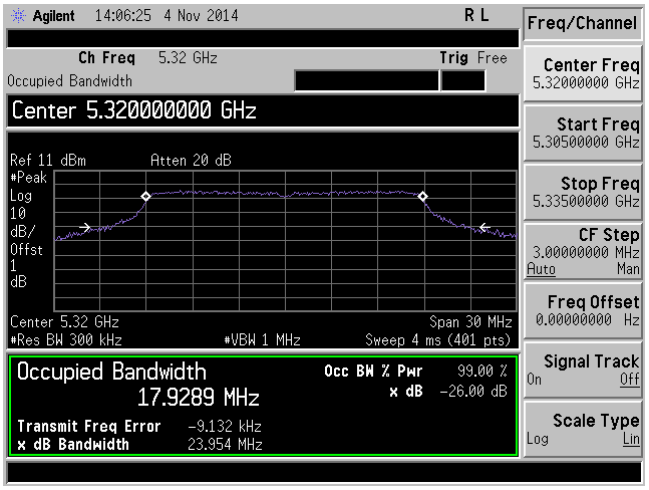
26dB BW -802.11a 5320MHz



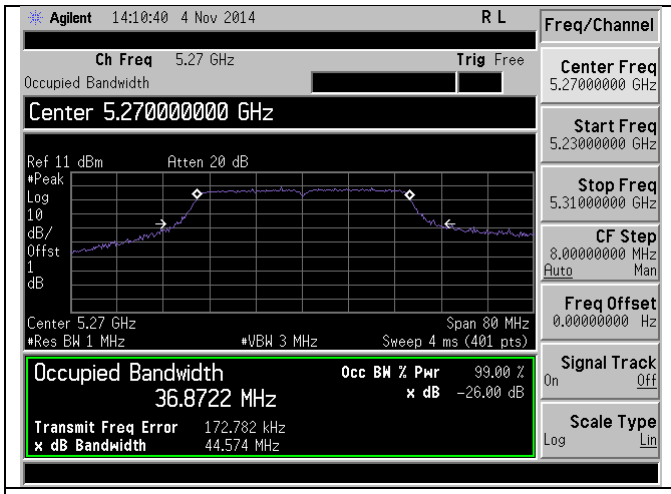
26dB BW -802.11n-20M 5260MHz



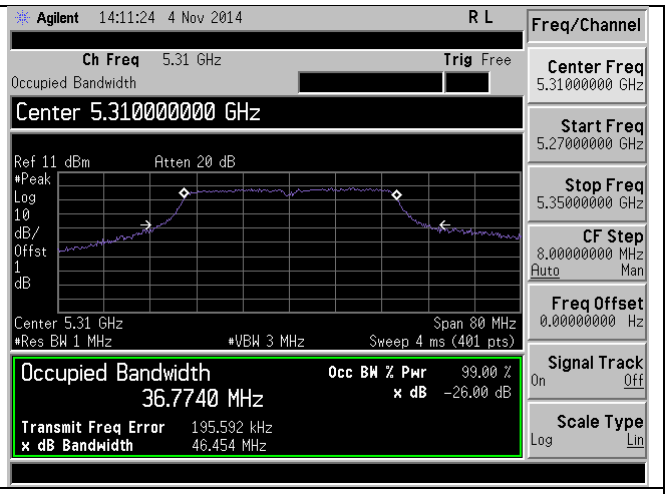
26dB BW -802.11n-20M 5300MHz



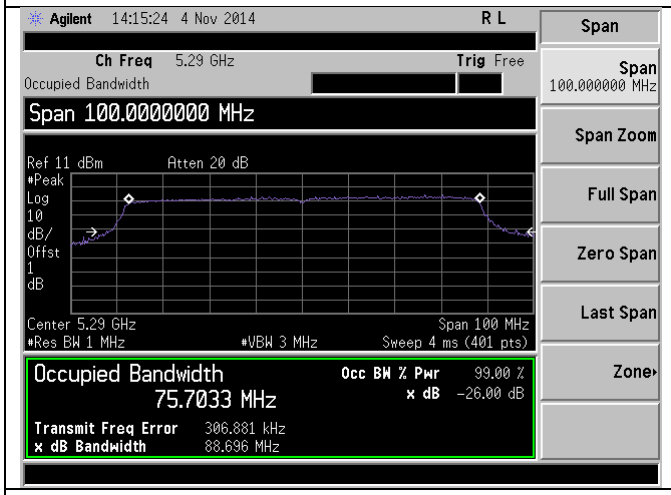
26dB BW -802.11n-20M 5320MHz



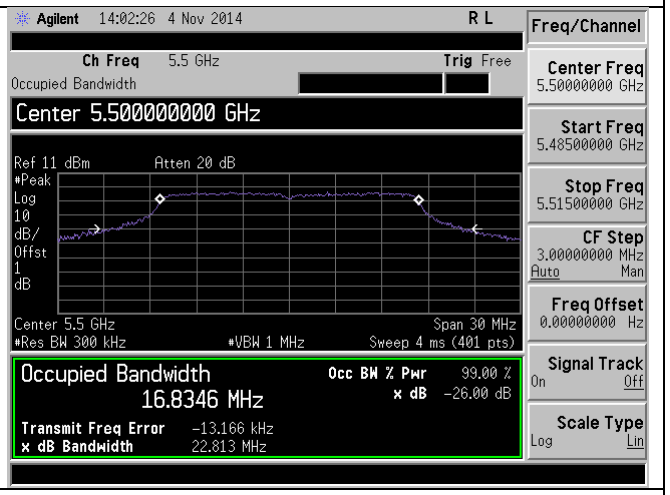
26dB BW -802.11n-40M 5270MHz



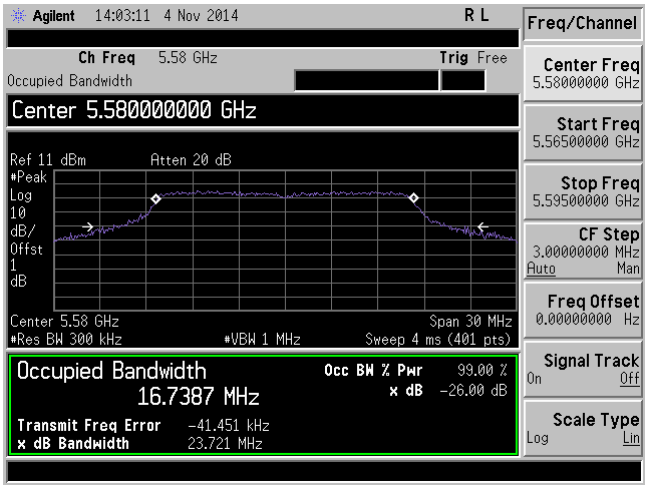
26dB BW -802.11n-40M 5310MHz



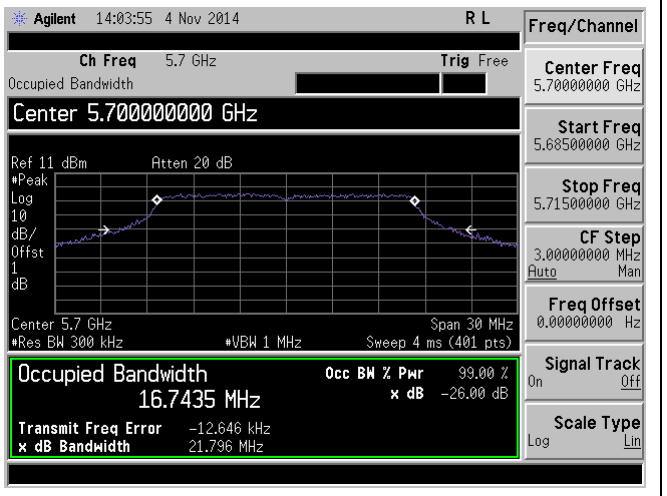
26dB BW -802.11ac-80M 5290MHz



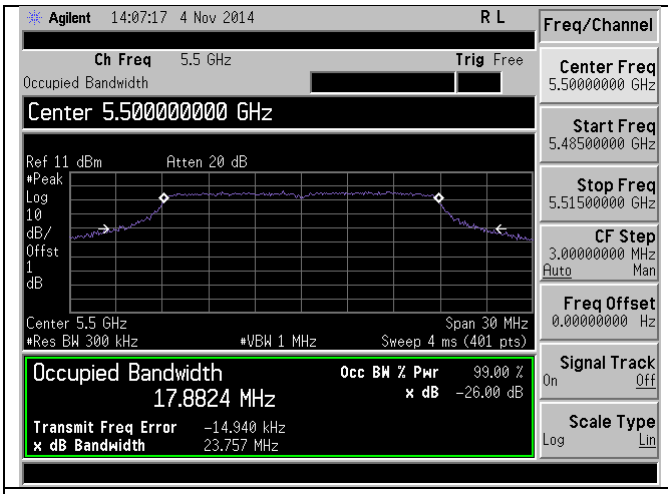
26dB BW -802.11a 5500MHz



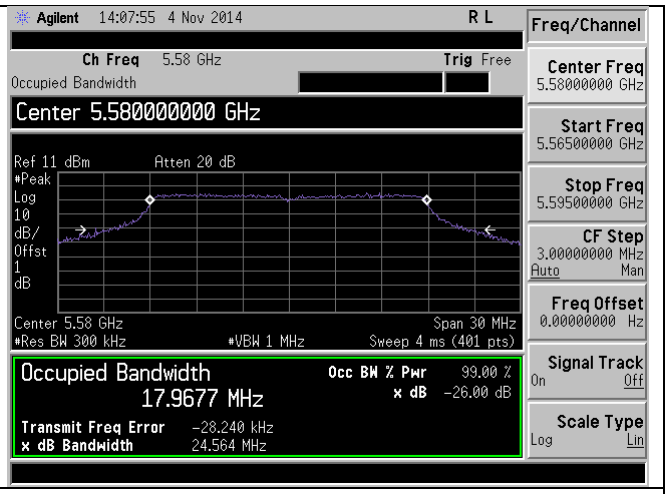
26dB BW -802.11a 5580MHz



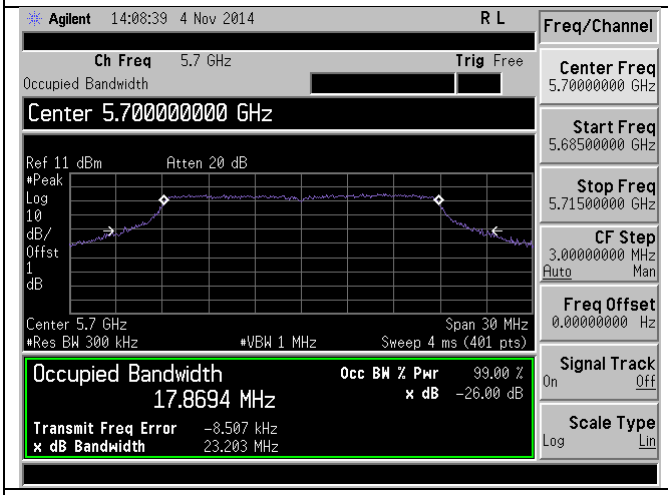
26dB BW -802.11a 5700MHz



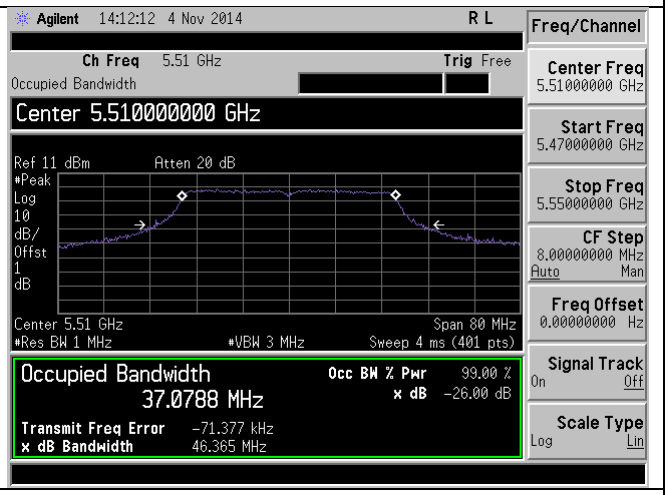
26dB BW -802.11n-20M 5500MHz



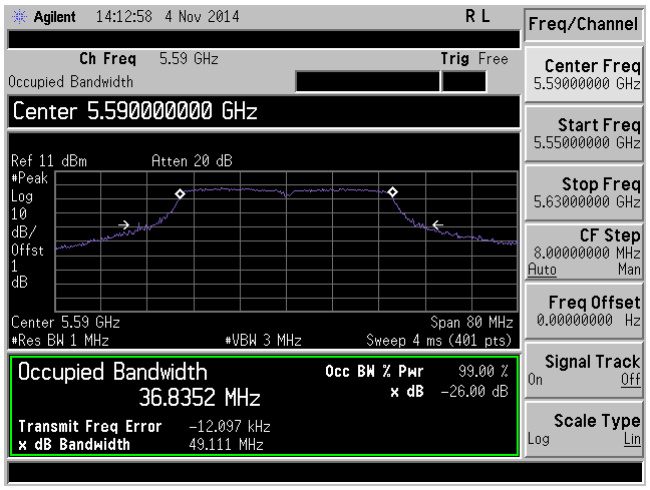
26dB BW -802.11n-20M 5580MHz



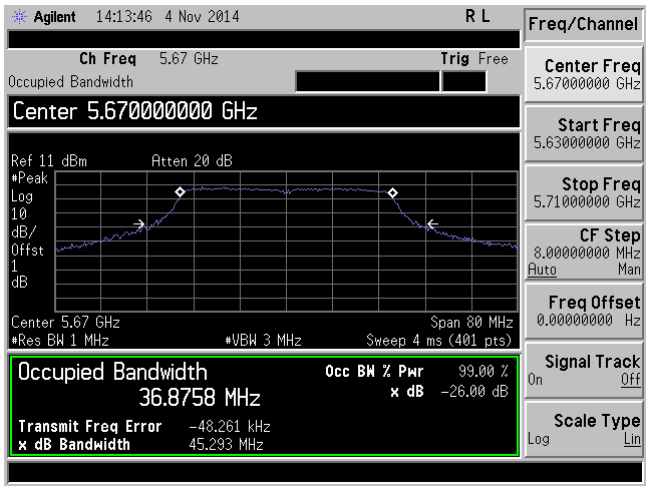
26dB BW -802.11n-20M 5700MHz



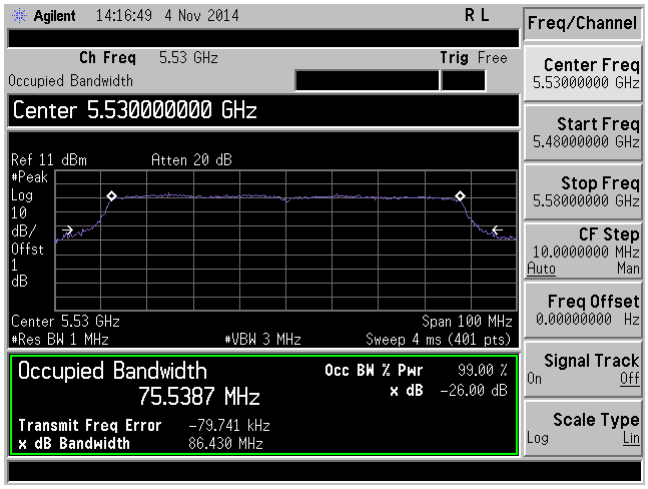
26dB BW -802.11n-40M 5510MHz



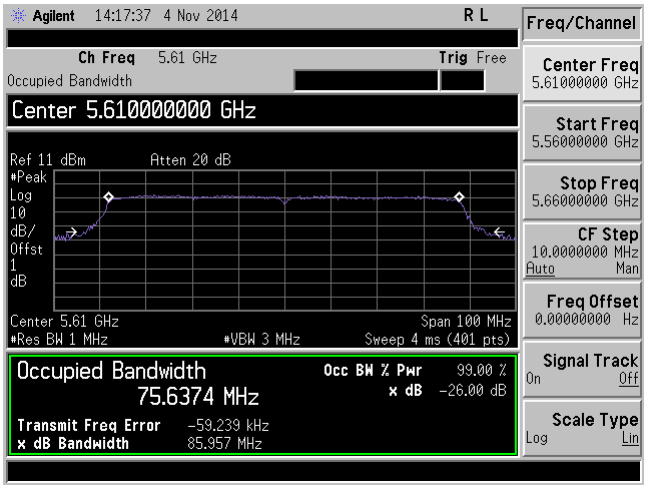
26dB BW -802.11n-40M 5590MHz



26dB BW -802.11n-40M 5670MHz



26dB & 99% BW -802.11n-40M 5590MHz



26dB & 99% BW -802.11n-40M 5670MHz

10.3 Peak 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 v01 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	11/04/2014	Environmental condition	Temperature Relative Humidity Atmospheric Pressure	23°C 44% 1021mbar
Remark	-			
Result	☒ Pass ☐ Fail			

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Output Power measurement result for 5.2GHz

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)				Limit (dBm)	Result
				Chain0	Chain1	Chain2	Combined Power		
Output Power	802.11a	5260	Low	17.98	17.24	17.22	22.27	≤24	Pass
Output Power	802.11a	5300	Mid	17.86	16.8	16.95	22.00	≤24	Pass
Output Power	802.11a	5320	High	18.09	16.95	16.98	22.14	≤24	Pass
Output Power	802.11n-20	5260	Low	17.48	16.79	16.84	21.82	≤24	Pass
Output Power	802.11n-20	5300	Mid	17.87	16.92	16.95	22.04	≤24	Pass
Output Power	802.11n-20	5320	High	18.17	16.98	16.98	22.19	≤24	Pass
Output Power	802.11n-40	5270	Low	19.46	19.12	18.90	23.94	≤24	Pass
Output Power	802.11n-40	5310	High	19.66	18.83	19.03	23.96	≤24	Pass
Output Power	802.11ac-80	5290	Mid	19.60	18.60	18.82	23.80	≤24	Pass

Output Power measurement result for 5.5GHz

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)				Limit (dBm)	Result
				Chain0	Chain1	Chain2	Combined Power		
Output power	802.11a	5500	Low	16.82	16.90	16.43	21.49	≤24	Pass
Output power	802.11a	5580	Mid	17.32	15.95	15.99	21.24	≤24	Pass
Output power	802.11a	5700	High	17.66	16.42	16.95	21.81	≤24	Pass
Output power	802.11n-20	5500	Low	16.84	16.96	16.96	21.69	≤24	Pass
Output power	802.11n-20	5580	Mid	17.21	15.94	15.96	21.18	≤24	Pass
Output power	802.11n-20	5700	High	18.34	17.02	17.05	22.29	≤24	Pass
Output power	802.11n-40	5510	Low	18.80	18.45	19.42	23.68	≤24	Pass
Output power	802.11n-40	5590	Mid	19.19	18.02	18.07	23.23	≤24	Pass
Output power	802.11n-40	5670	High	19.76	18.07	18.06	23.48	≤24	Pass
Output power	802.11ac-80	5530	Low	18.67	18.00	18.87	23.30	≤24	Pass
Output power	802.11ac-80	5610	High	18.34	16.74	16.63	22.08	≤24	Pass

10.4 Band Edge

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	b)(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.	☐
	b)(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.	☒
	b)(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.	☒
	b)(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.	☐

Test Setup			
Test Procedure	789033 D02 General UNII Test Procedures New Rules v01 Band Edge measurement procedure (Integration Method) - Set analyzer center frequency to the frequency of the emission to be measured. - Set the span to 2 MHz. - Set RBW = 100 kHz - Set VBW ⩾ 3 · RBW - Detector = RMS - Averaging type = power - Sweep time = auto - Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, the number of traces shall be increased by a factor of 1/x, where x is the duty cycle. For example, with 50 percent duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e.,100 percent duty cycle—rather than turning on and off with the transmit cycle, at least 100 traces shall be averaged.)		
Test Date	11/04/2014	Environmental condition	Temperature 22°C Relative Humidity 46% Atmospheric Pressure 1020mbar
Remark	-		
Result	☒ Pass ☐ Fail		

Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
Band Edge	100KHz	⩾ 3 · RBW	2MHz	RMS	Auto	Average	-

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Band Edge measurement result

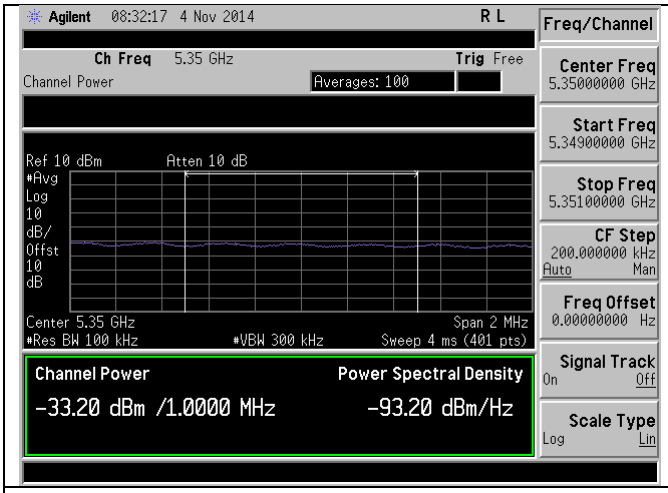
Mode	Edge Frequency (MHz)	Test Frequency (MHz)	Chain	Total Gain (dBi)	Measured Level (dBm/MHz)	Chain reduction 10 log(NANT) dB	Corrected Level (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
11a	5350	5320	0	3	-33.2	0	-30.2	-27	-3.20
11a			1	3	-36.31	0	-33.31	-27	-6.31
11a			2	3	-36.77	0	-33.77	-27	-6.77
11a	5470	5500	0	3	-41.41	0	-38.41	-27	-11.41
11a			1	3	-43.01	0	-40.01	-27	-13.01
11a			2	3	-43.00	0	-40.00	-27	-13.00
11a	5725	5700	0	3	-36.53	0	-33.53	-27	-6.53
11a			1	3	-38.78	0	-35.78	-27	-8.78
11a			2	3	-39.85	0	-36.85	-27	-9.85

Mode	Edge Frequency (MHz)	Test Frequency (MHz)	Chain	Total Gain (dBi)	Measured Level (dBm/MHz)	Chain reduction 10 log(NANT) dB	Corrected Level (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
11n-20M	5350	5320	0	3	-36.75	0	-33.75	-27	-6.75
11n-20M			1	6	-36.05	3	-27.05	-27	-0.05
11n-20M			2	6	-36.19	3	-27.19	-27	-0.19
11n-20M	5470	5500	0	3	-41.15	0	-38.15	-27	-11.15
11n-20M			1	6	-38.74	3	-29.74	-27	-2.74
11n-20M			2	6	-38.79	3	-29.79	-27	-2.79
11n-20M	5725	5700	0	3	-34.55	0	-31.55	-27	-4.55
11n-20M			1	6	-37.18	3	-28.18	-27	-1.18
11n-20M			2	6	-36.91	3	-27.91	-27	-0.91

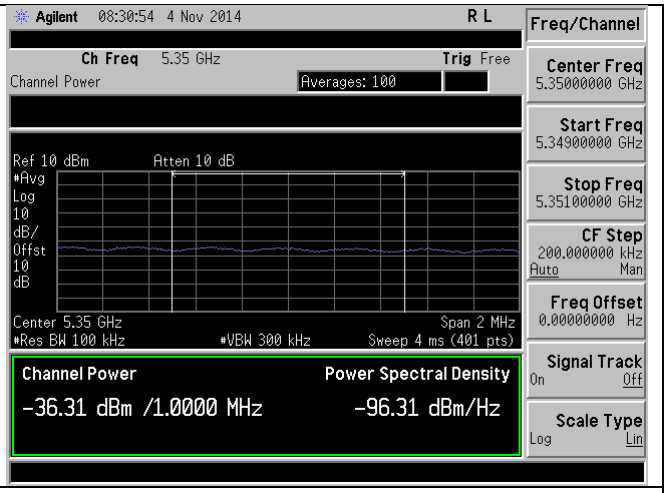
Mode	Edge Frequency (MHz)	Test Frequency (MHz)	Chain	Total Gain (dBi)	Measured Level (dBm/MHz)	Chain reduction 10 log(NANT) dB	Corrected Level (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
11n-40M	5350	5310	0	3	-35.71	0	-32.71	-27	-5.71
11n-40M			1	6	-36.19	3	-27.19	-27	-0.19
11n-40M			2	6	-36.15	3	-27.15	-27	-0.15
11n-40M	5470	5510	0	3	-35.86	0	-32.86	-27	-5.86
11n-40M			1	6	-38.23	3	-29.23	-27	-2.23
11n-40M			2	6	-36.33	3	-27.33	-27	-0.33
11n-40M	5725	5670	0	3	-40.58	0	-37.58	-27	-10.58
11n-40M			1	6	-41.01	3	-32.01	-27	-5.01
11n-40M			2	6	-41.29	3	-32.29	-27	-5.29

Mode	Edge Frequency (MHz)	Test Frequency (MHz)	Chain	Total Gain (dBi)	Measured Level (dBm/MHz)	Chain reduction 10 log(NANT) dB	Corrected Level (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
11ac-80M	5350	5290	0	3	-44.95	0	-41.95	-27	-14.95
11ac-80M			1	6	-46.52	3	-37.52	-27	-10.52
11ac-80M			2	6	-46.49	3	-37.49	-27	-10.49
11ac-80M	5470	5530	0	3	-35.35	0	-32.35	-27	-5.35
11ac-80M			1	6	-36.62	3	-27.62	-27	-0.62
11ac-80M			2	6	-37.52	3	-28.52	-27	-1.52
11ac-80M	5725	5610	0	3	-33.62	0	-30.62	-27	-3.62
11ac-80M			1	6	-37.42	3	-28.42	-27	-1.42
11ac-80M			2	6	-36.53	3	-27.53	-27	-0.53

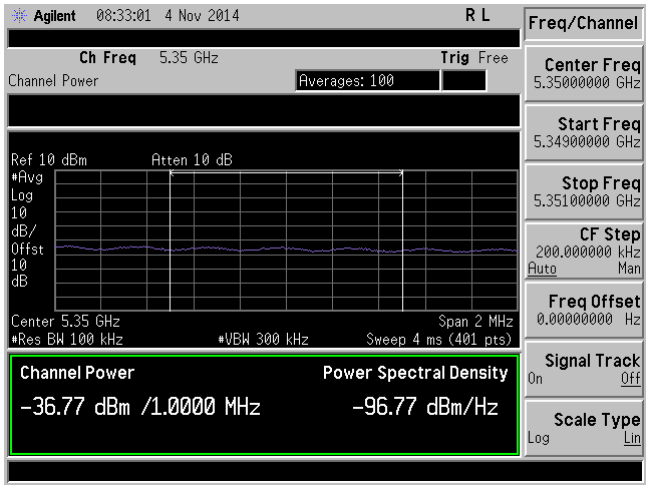
Test Plots



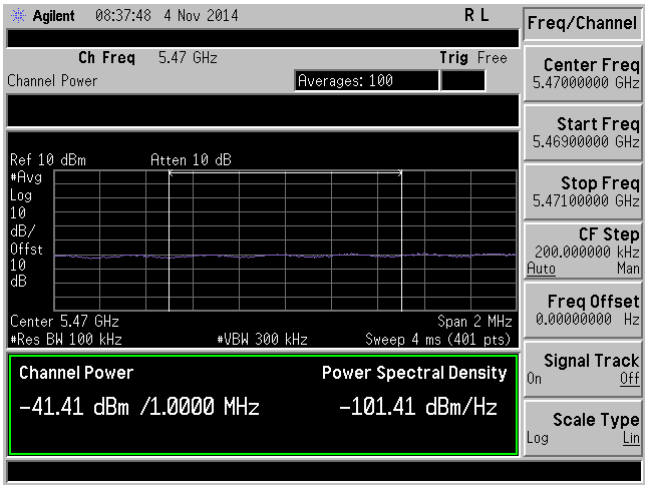
Band Edge-5350M-802.11a@5320M-Chain0



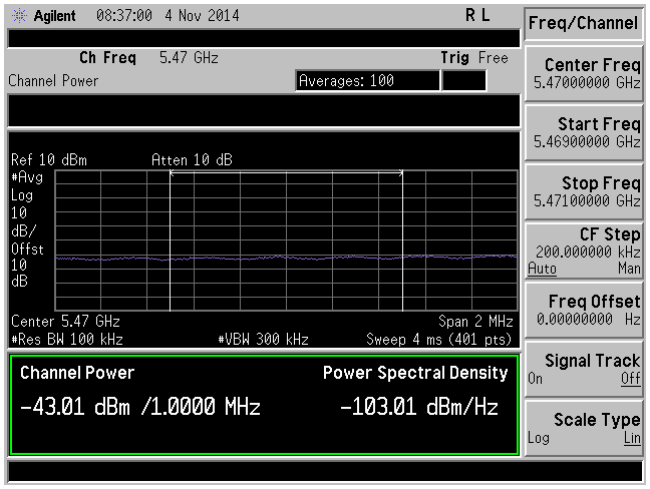
Band Edge-5350M-802.11a@5320M-Chain1



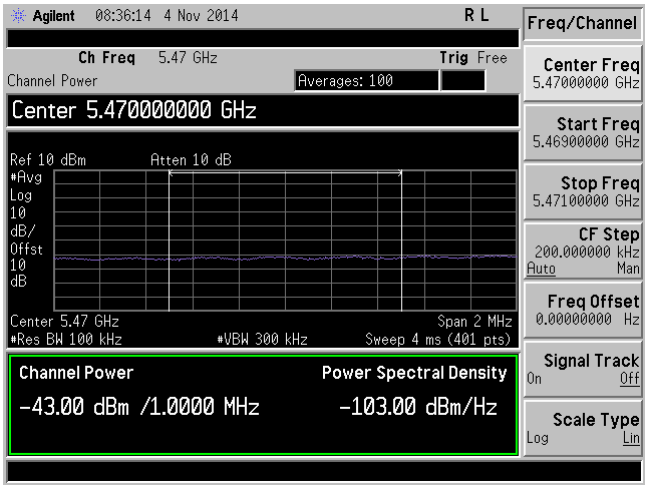
Band Edge-5350M-802.11a@5320M-Chain2



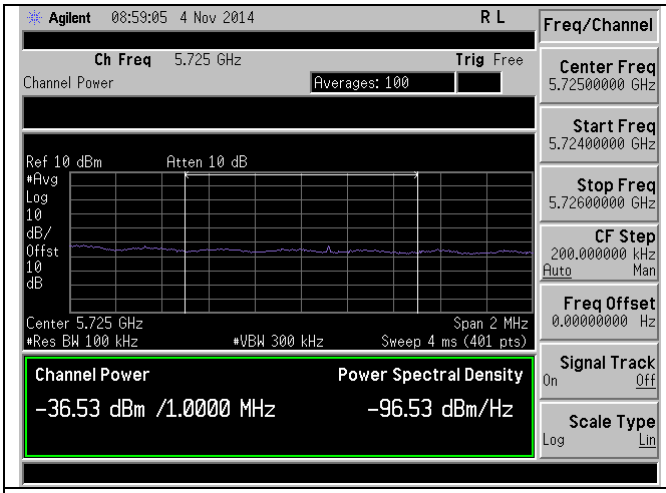
Band Edge-5470M-802.11a@5500M-Chain0



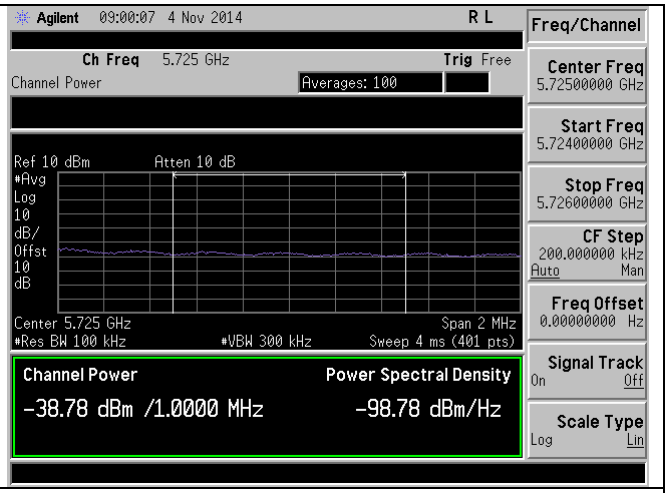
Band Edge-5470M-802.11a@5500M-Chain1



Band Edge-5470M-802.11a@5500M-Chain2



Band Edge-5725M-802.11a@5700M-Chain0



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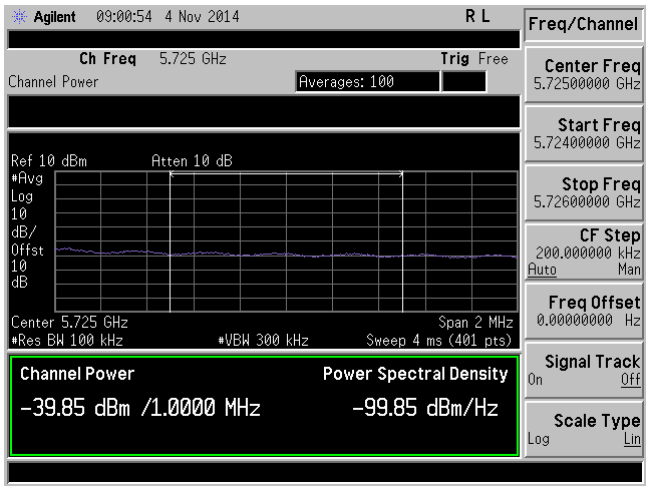

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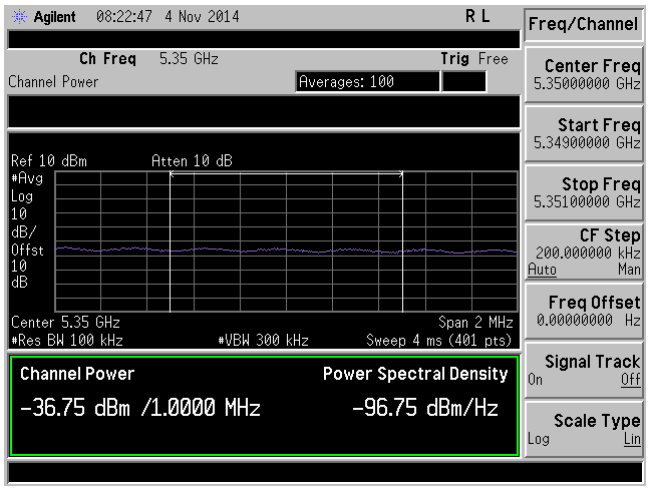
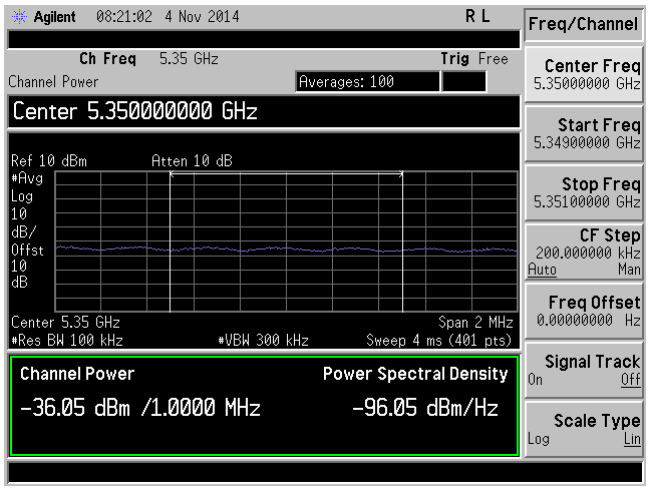


Band Edge-5350M-802.11n-20M@5320M-Chain0



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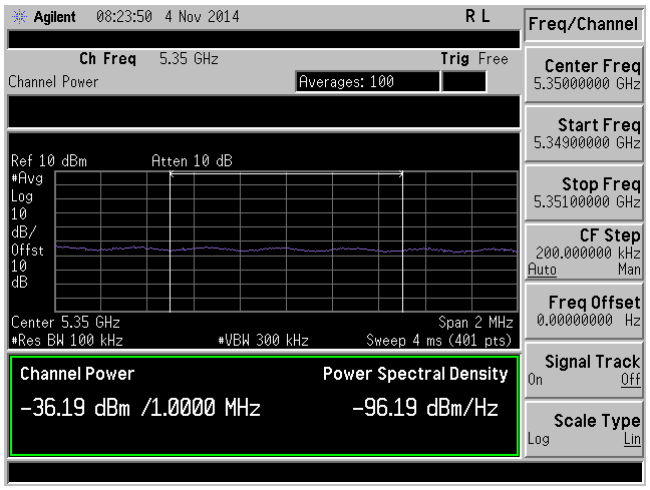

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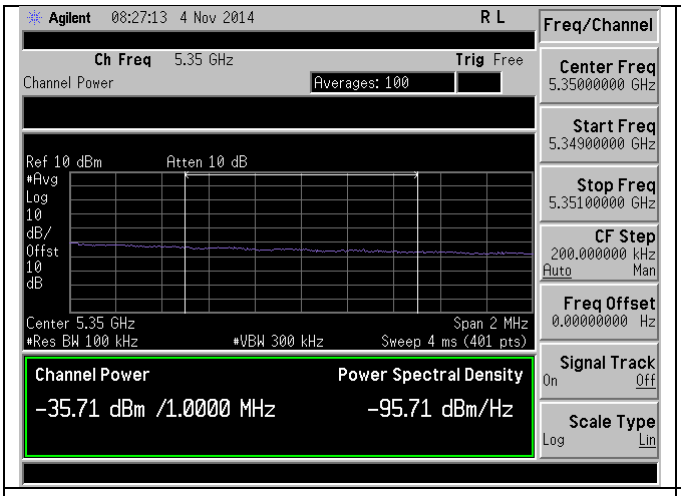

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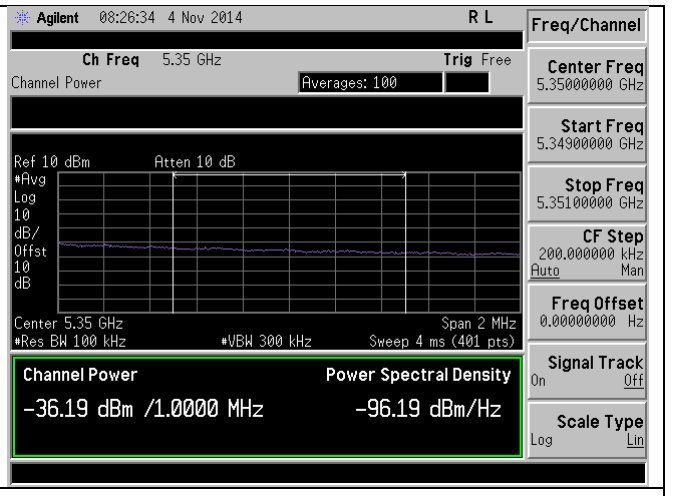

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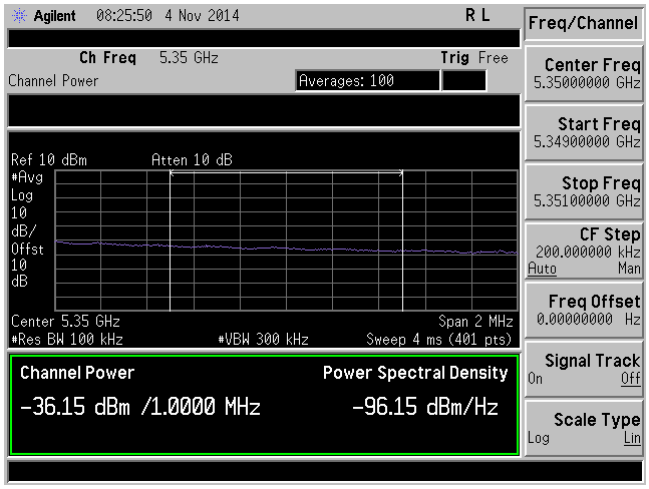

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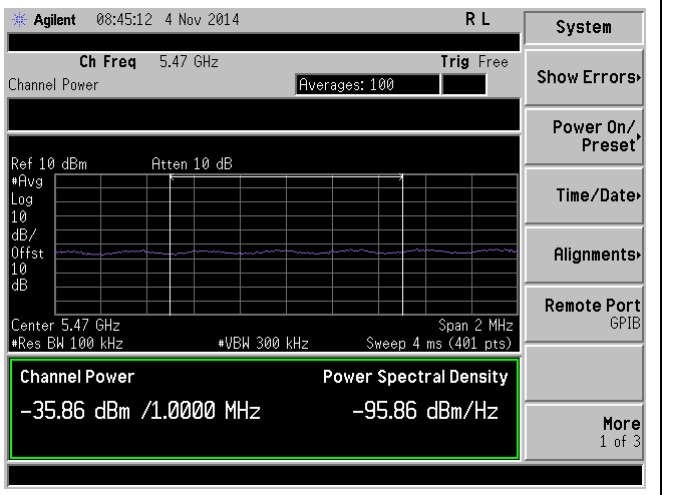

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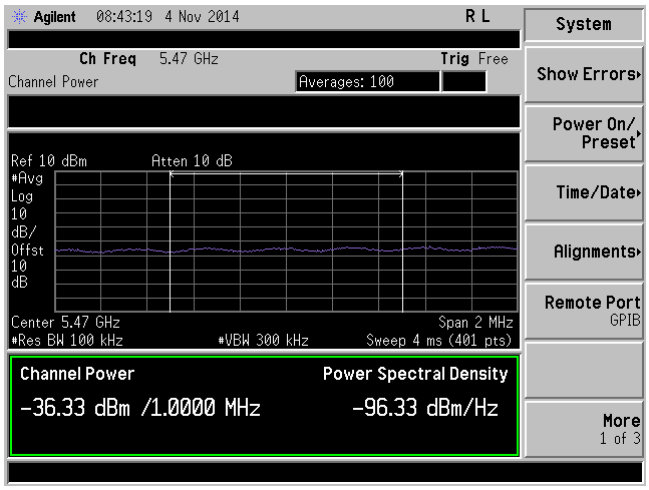
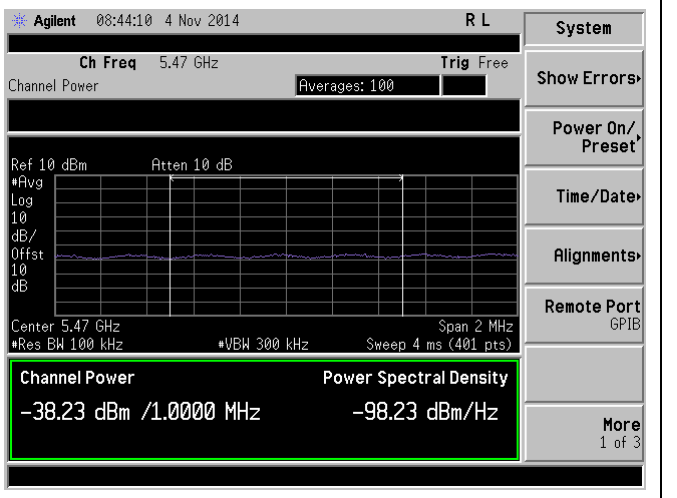


Band Edge-5470M-802.11n-40M@5510M-Chain1



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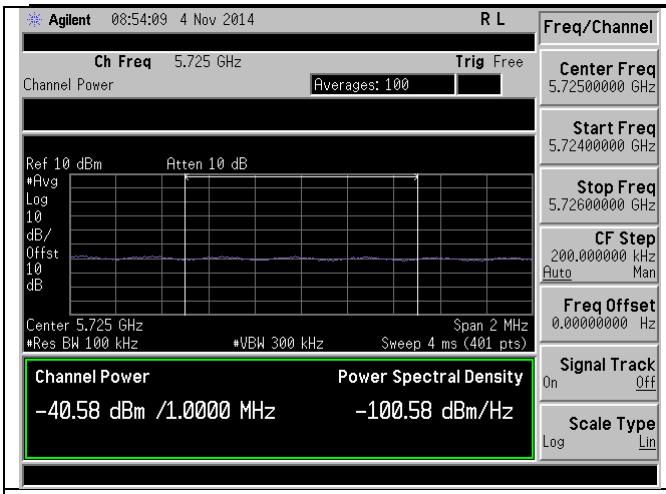

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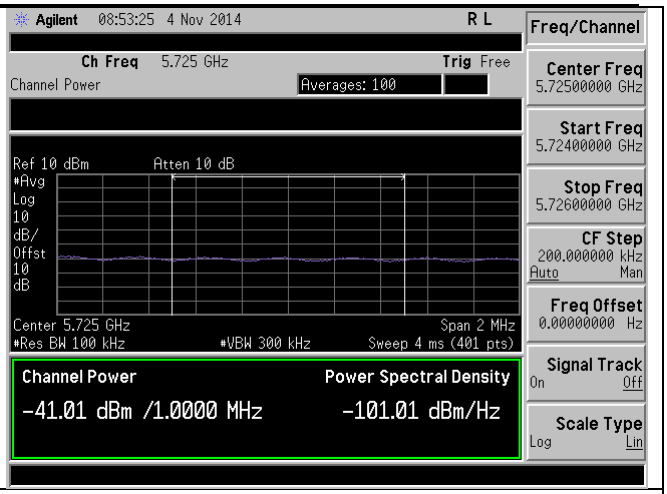

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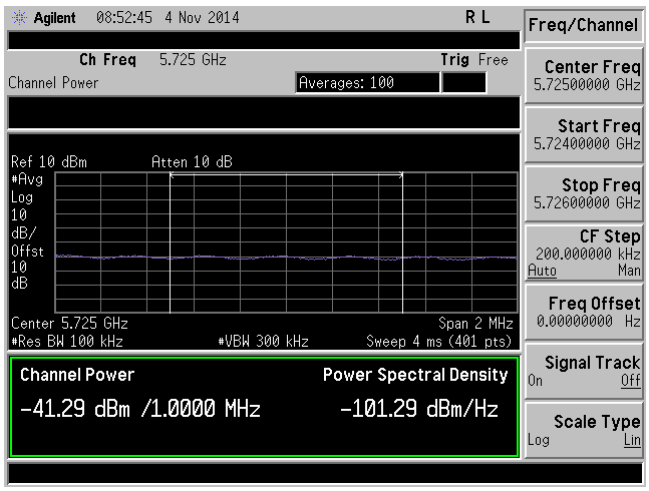
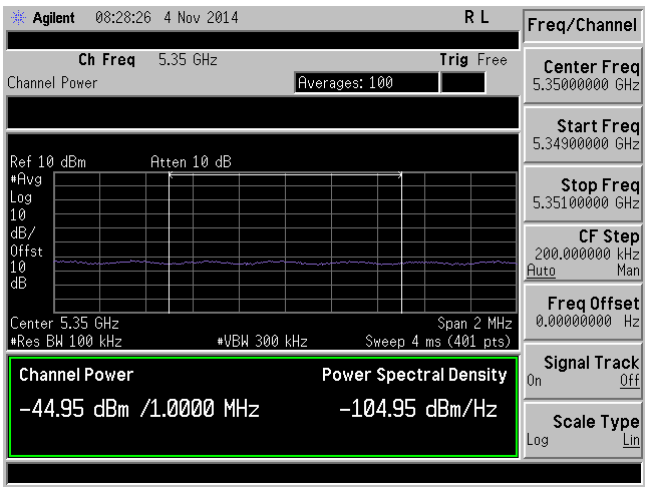
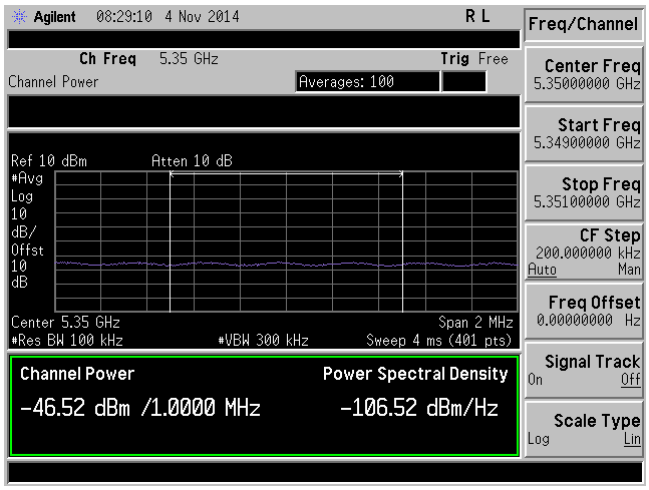


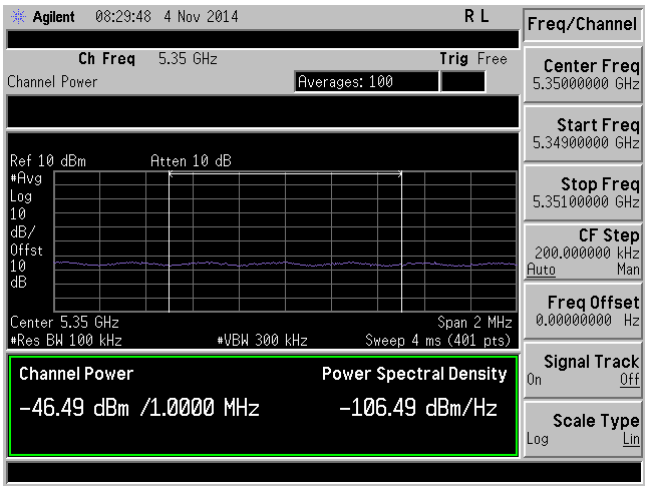
Band Edge-5725M-802.11n-40M@5670M-Chain2



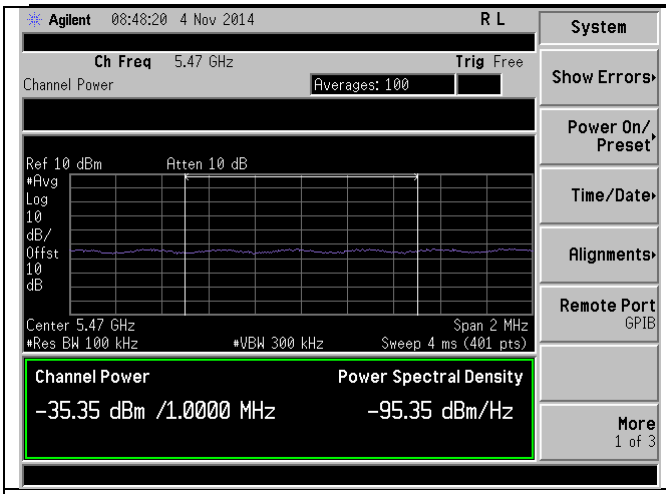
Band Edge-5350M-802.11ac-80M@5290M-Chain0



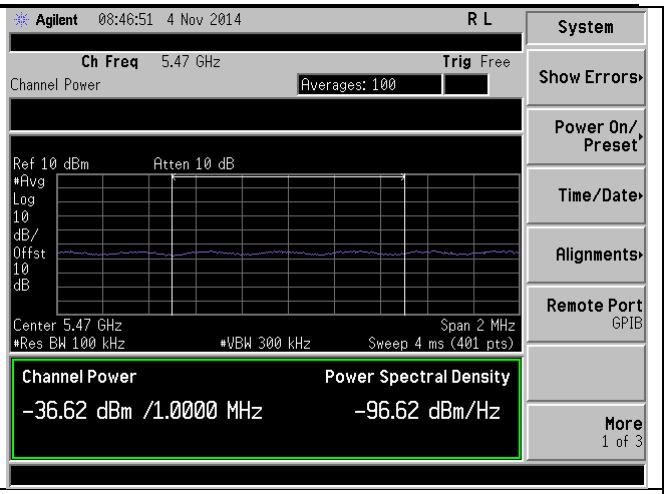
Band Edge-5350M-802.11ac-80M@5290M-Chain1



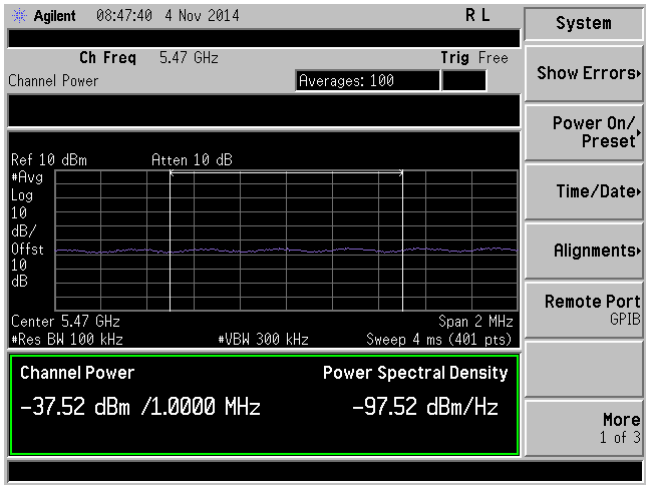
Band Edge-5350M-802.11ac-80M@5290M-Chain2



Band Edge-5470M-802.11ac-80M@5530M-Chain0



Band Edge-5470M-802.11ac-80M@5530M-Chain1



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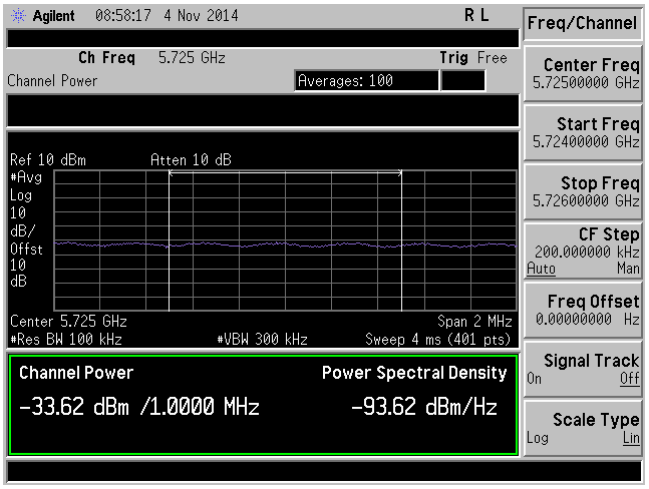
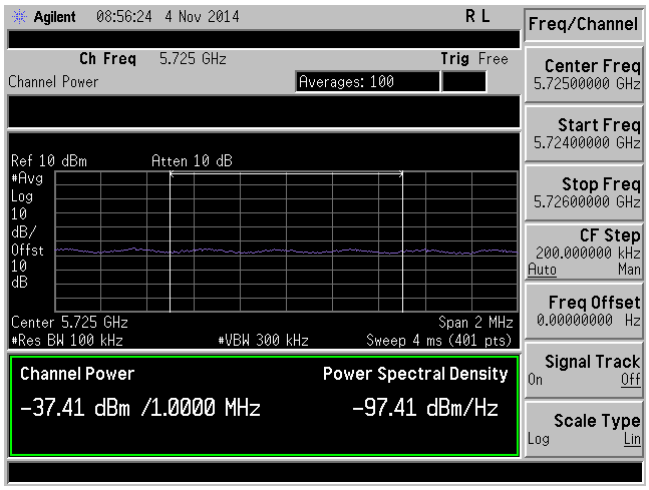
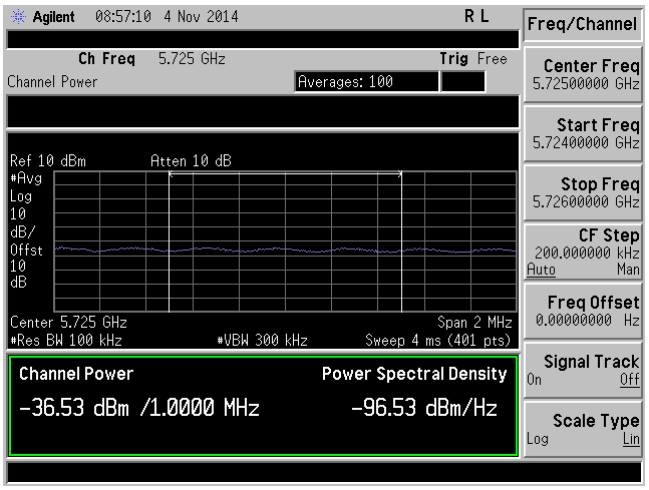


Band Edge-5725M-802.11ac-80M@5610M-Chain0



Band Edge-5725M-802.11ac-80M@5610M-Chain1



Band Edge-5725M-802.11ac-80M@5610M-Chain2

10.5 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 v01, 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	11/04/2014	Environmental condition	Temperature Relative Humidity Atmospheric Pressure	22ºC 46% 1020mbar
Remark	-			
Result	☒ Pass ☐ Fail			

Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
PSD	1MHz	≥3MHz	>EBW	RMS	Auto	Average	-

Test Data ☒ Yes ☐ N/A

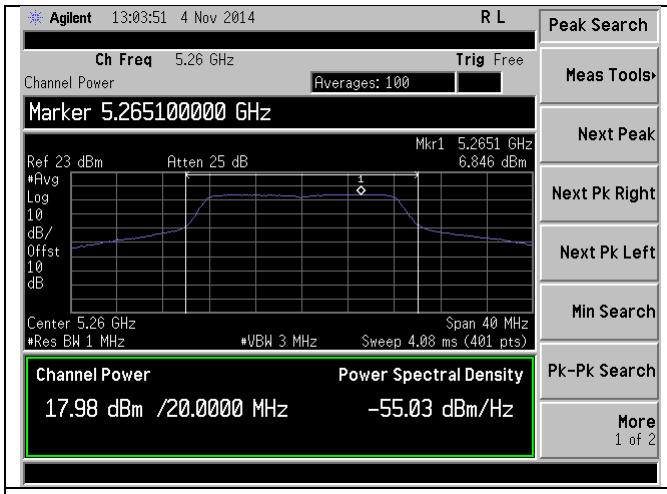
Test Plot ☒ Yes (See below) ☐ N/A

PSD measurement result

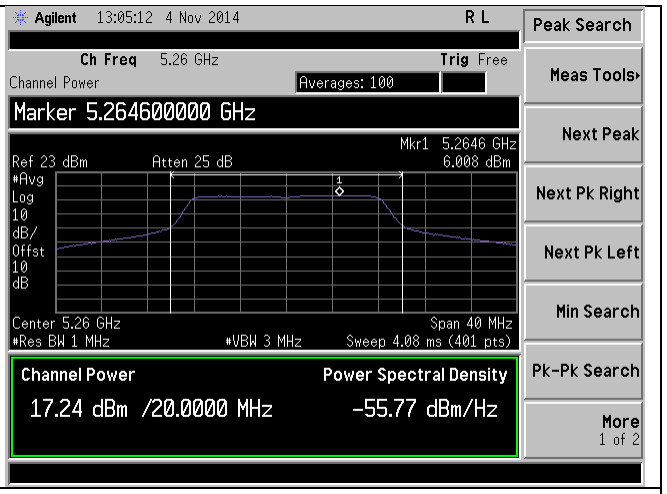
Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)				Limit (dBm/MHz)	Result
				Chain0	Chain1	Chain2	Combined Power		
PSD	802.11a	5260	Low	6.846	6.008	5.677	10.98	≤11	Pass
PSD	802.11a	5300	Mid	6.686	5.533	5.734	10.79	≤11	Pass
PSD	802.11a	5320	High	6.961	5.718	5.699	10.94	≤11	Pass
PSD	802.11n-20	5260	Low	6.143	5.382	5.501	10.46	≤11	Pass
PSD	802.11n-20	5300	Mid	6.612	5.427	5.414	10.63	≤11	Pass
PSD	802.11n-20	5320	High	6.921	5.383	5.417	10.74	≤11	Pass
PSD	802.11n-40	5270	Low	5.073	4.654	4.469	9.51	≤11	Pass
PSD	802.11n-40	5310	High	6.453	5.354	5.685	10.63	≤11	Pass
PSD	802.11ac-80	5290	Mid	3.385	2.448	2.817	7.67	≤11	Pass

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)				Limit (dBm/MHz)	Result
				Chain0	Chain1	Chain2	Combined Power		
PSD	802.11a	5500	Low	5.670	5.921	5.495	10.47	≤11	Pass
PSD	802.11a	5580	Mid	6.390	4.690	4.928	10.17	≤11	Pass
PSD	802.11a	5700	High	6.626	5.438	6.064	10.84	≤11	Pass
PSD	802.11n-20	5500	Low	5.435	5.548	5.561	10.29	≤11	Pass
PSD	802.11n-20	5580	Mid	5.716	4.782	4.763	9.88	≤11	Pass
PSD	802.11n-20	5700	High	6.777	5.803	5.819	10.93	≤11	Pass
PSD	802.11n-40	5510	Low	5.056	5.054	5.060	9.83	≤11	Pass
PSD	802.11n-40	5590	Mid	4.836	3.905	3.955	9.02	≤11	Pass
PSD	802.11n-40	5670	High	5.426	3.963	4.017	9.29	≤11	Pass
PSD	802.11ac-80	5530	Low	2.200	2.016	1.926	6.82	≤11	Pass
PSD	802.11ac-80	5610	High	0.902	-0.503	-0.708	4.73	≤11	Pass

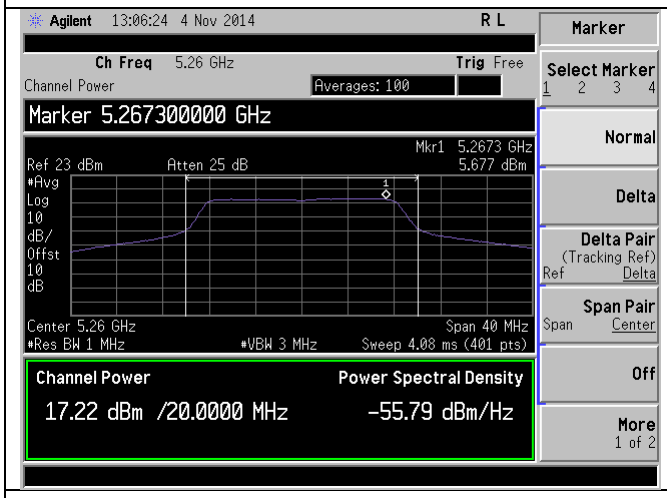
Test Plots



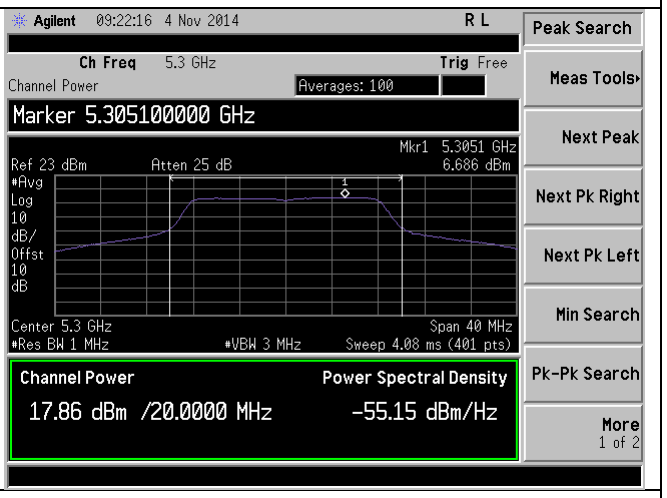
PSD-802.11a-5260M-chain0



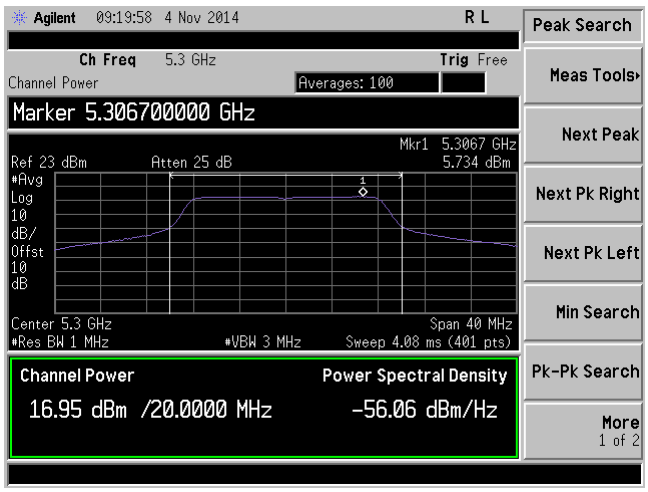
PSD-802.11a-5260M-chain1



PSD-802.11a-5260M-chain2



PSD-802.11a-5300M-chain0



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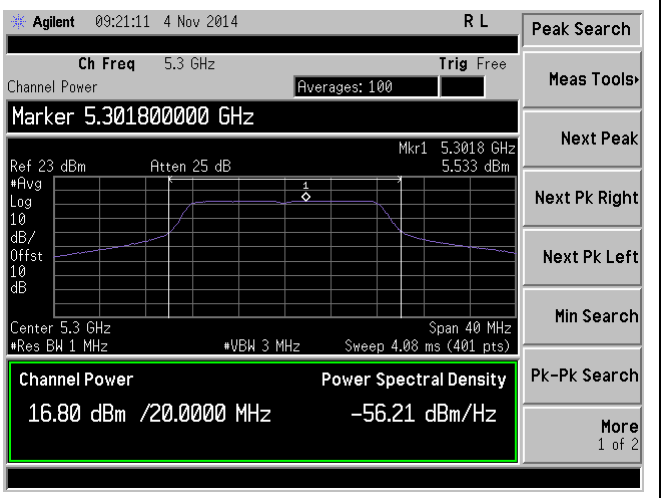

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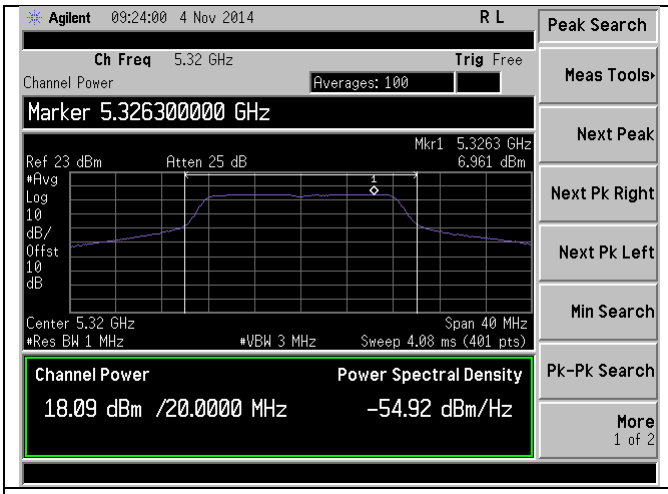

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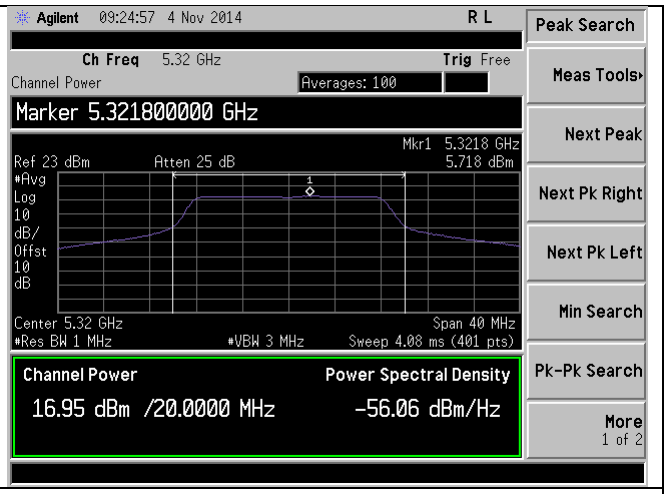

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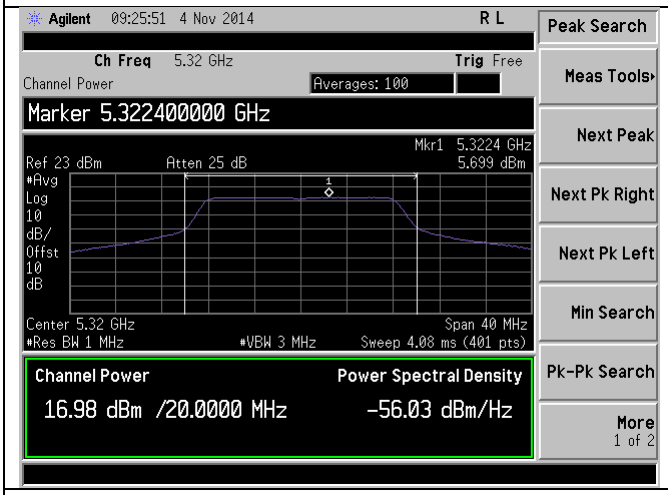

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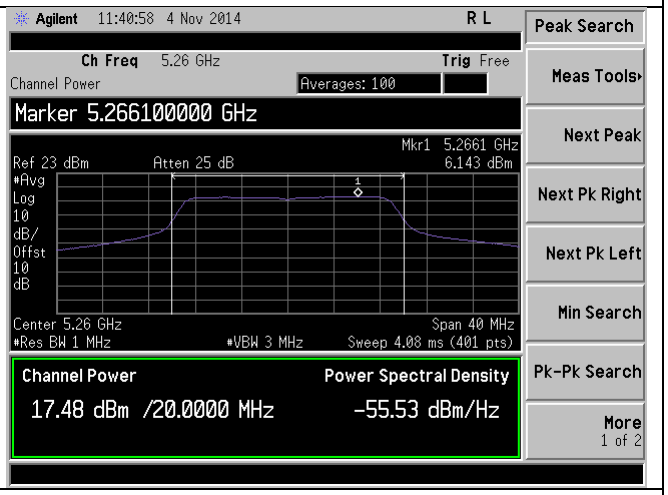

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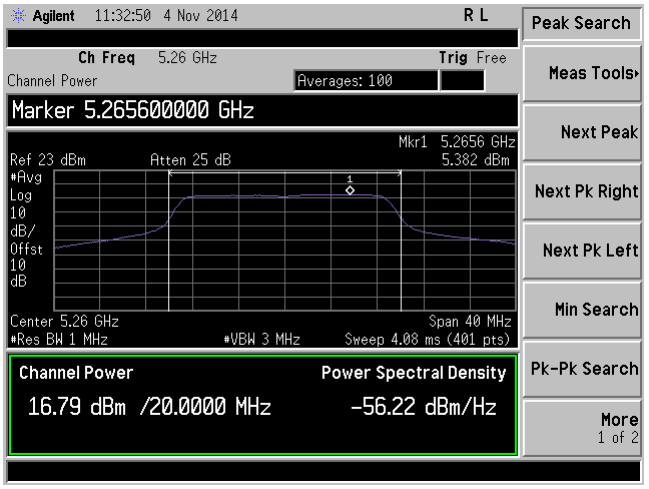

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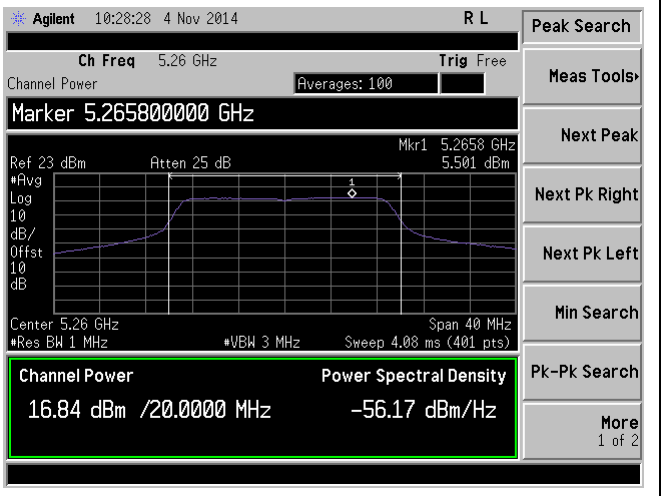

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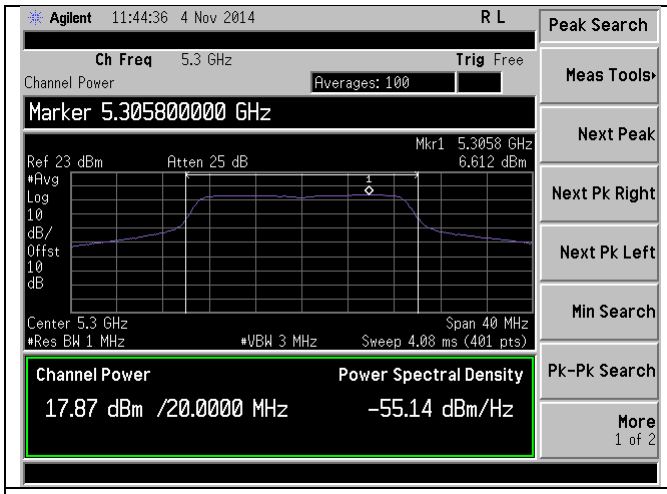

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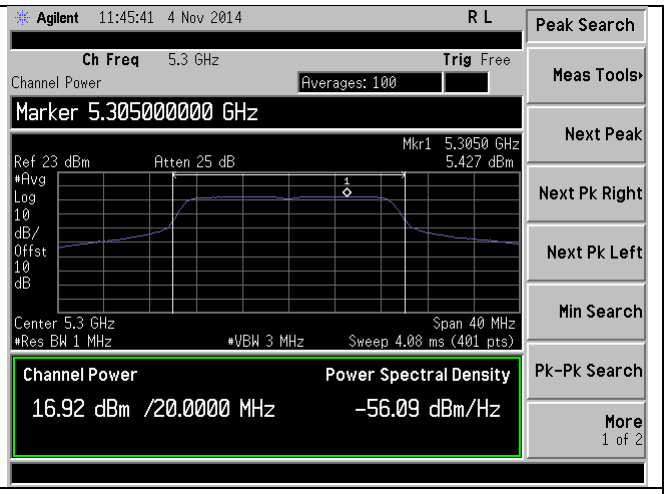

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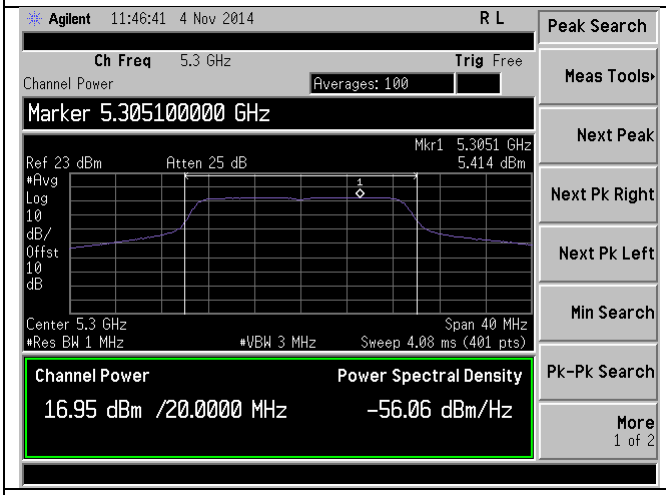

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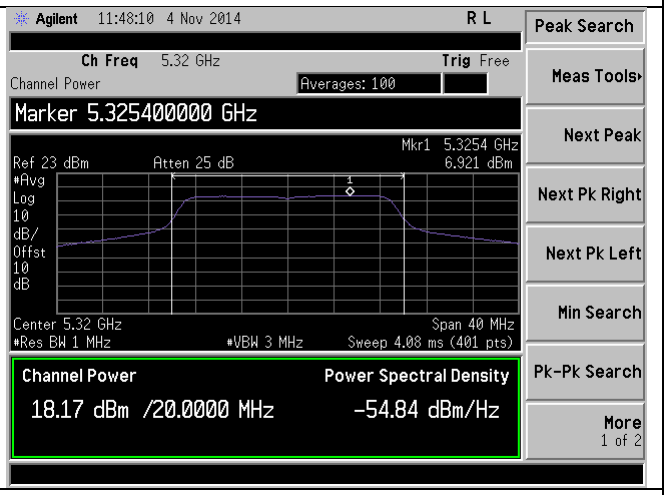

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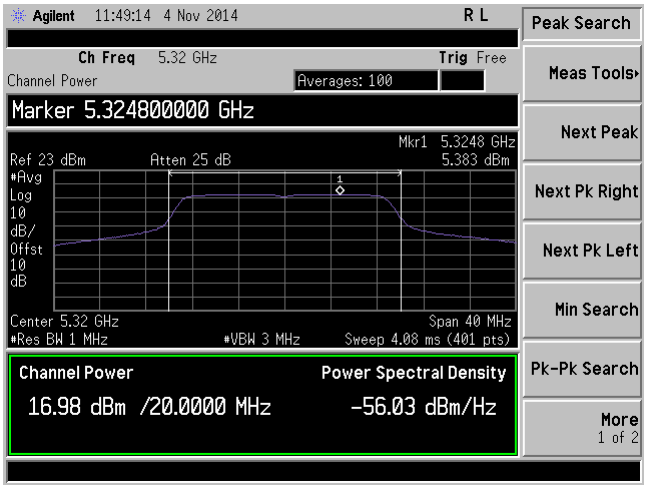

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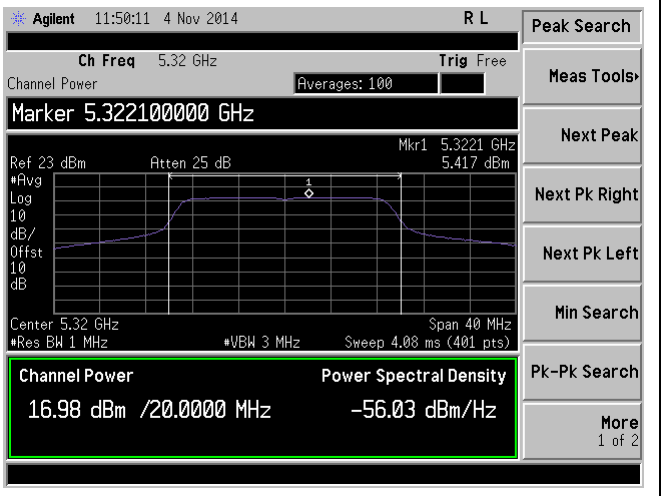

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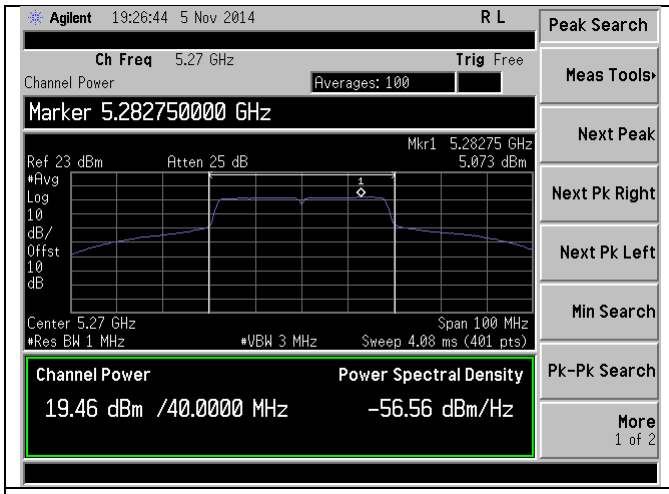

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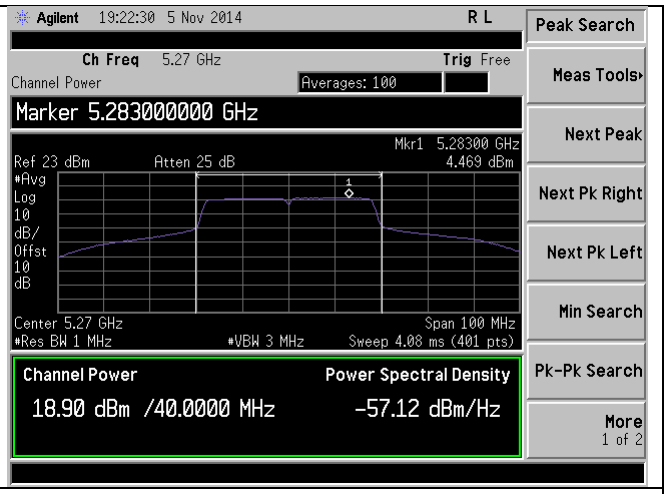

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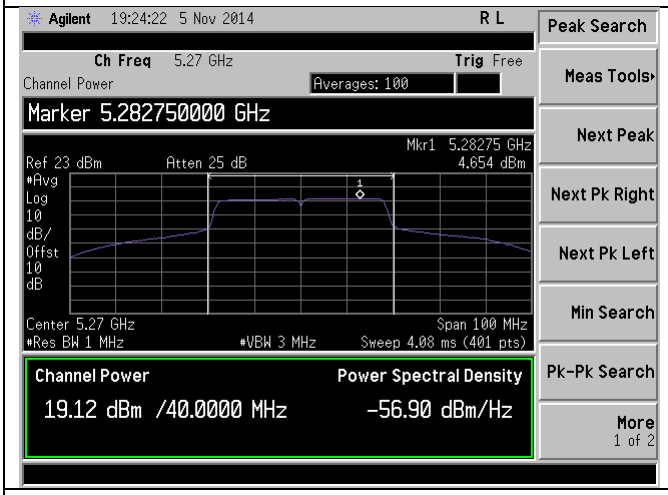
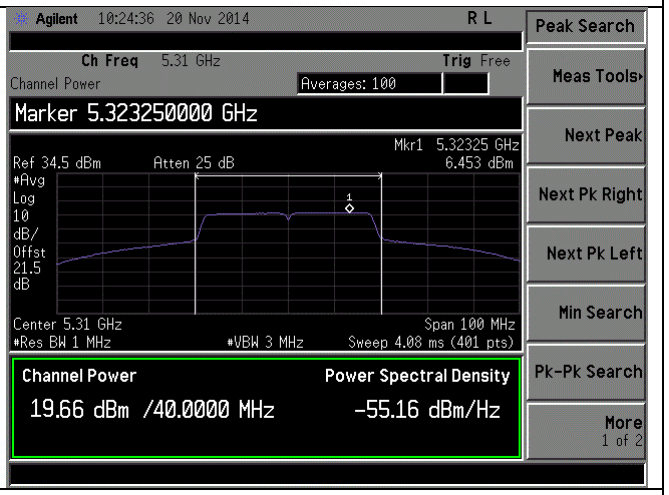


PSD-802.11n-40M-5270M-chain2



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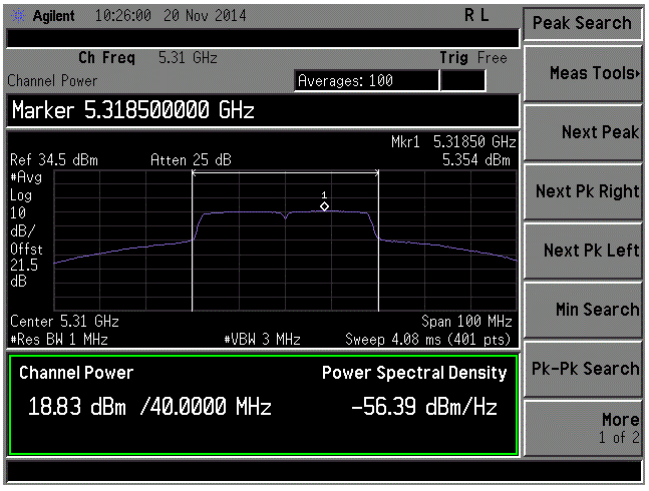

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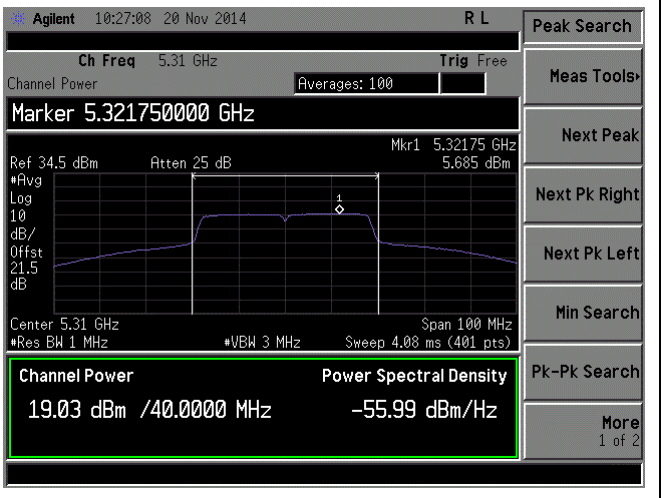

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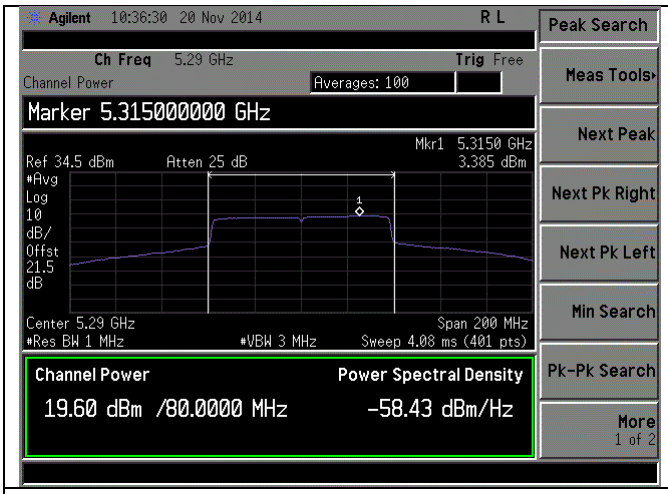
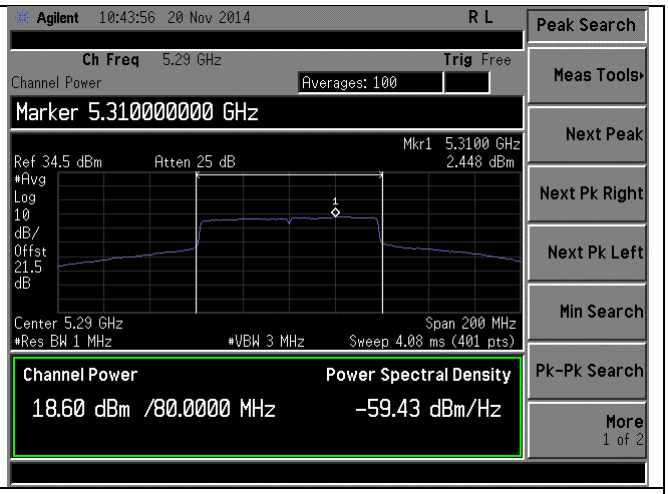


PSD-802.11ac-80M-5290M-chain0



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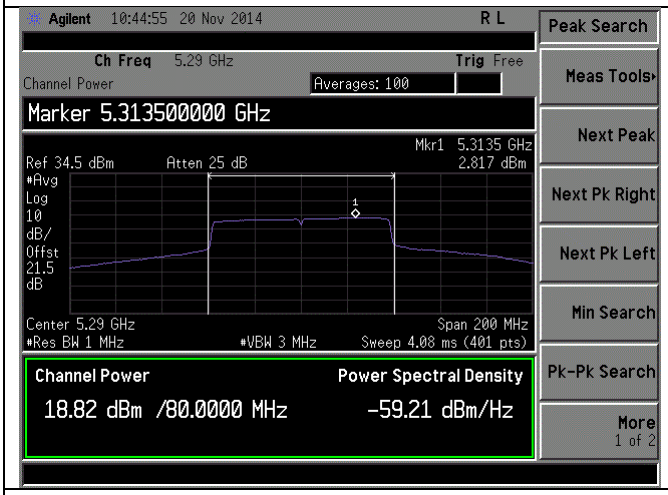

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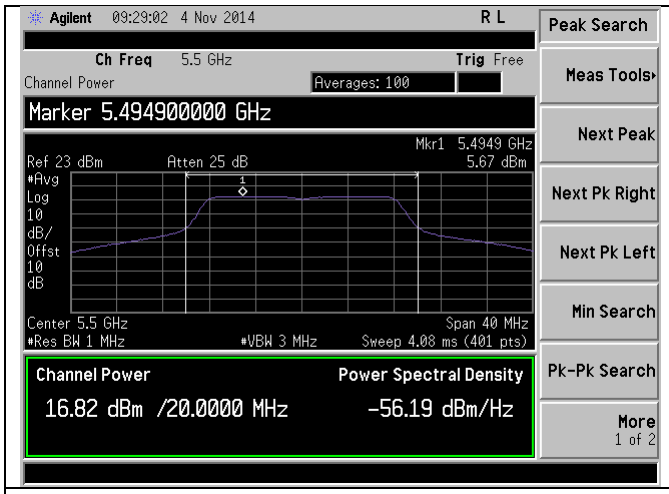

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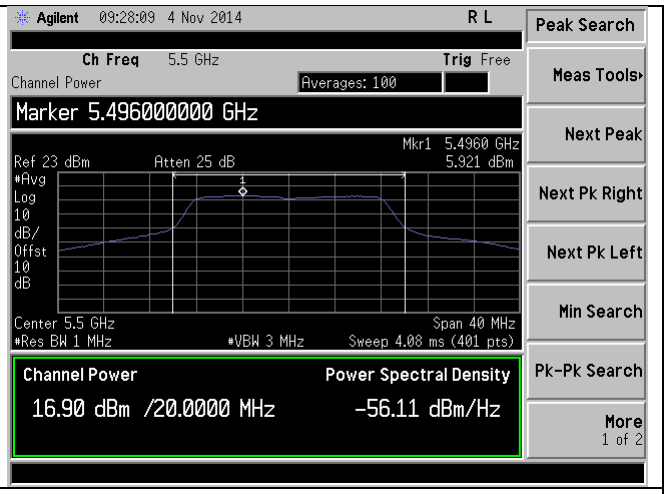

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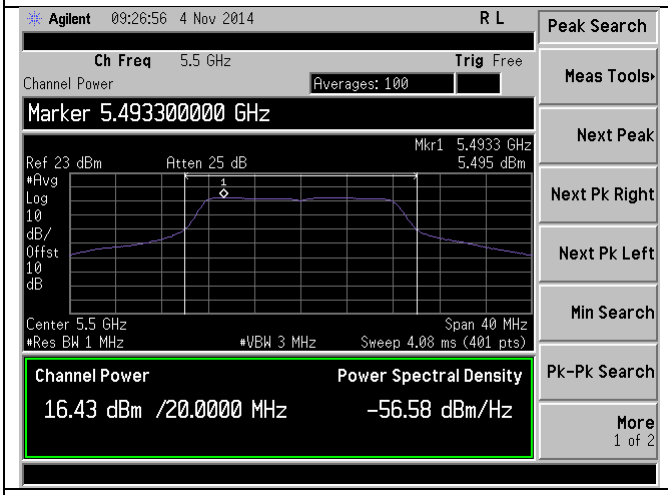

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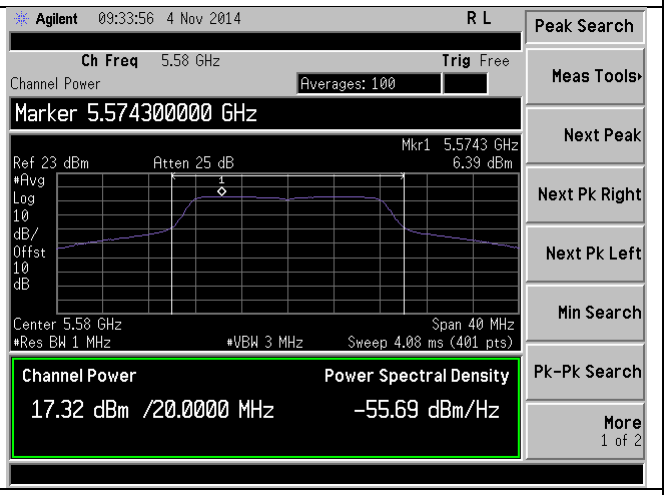

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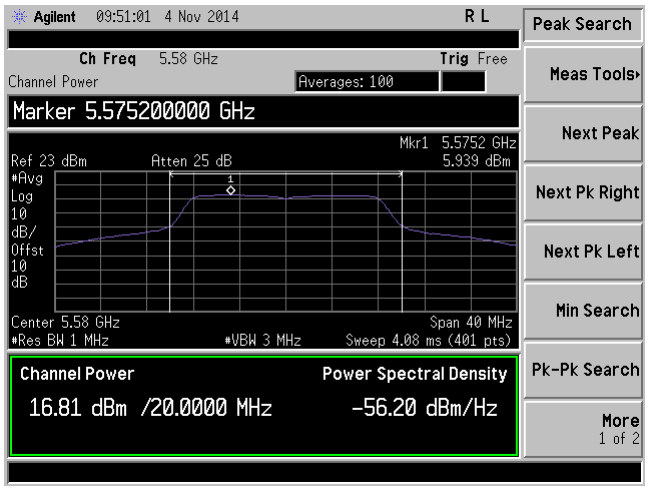

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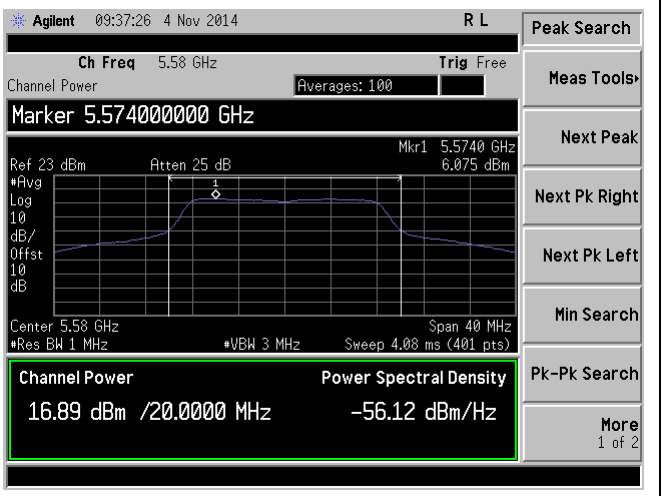

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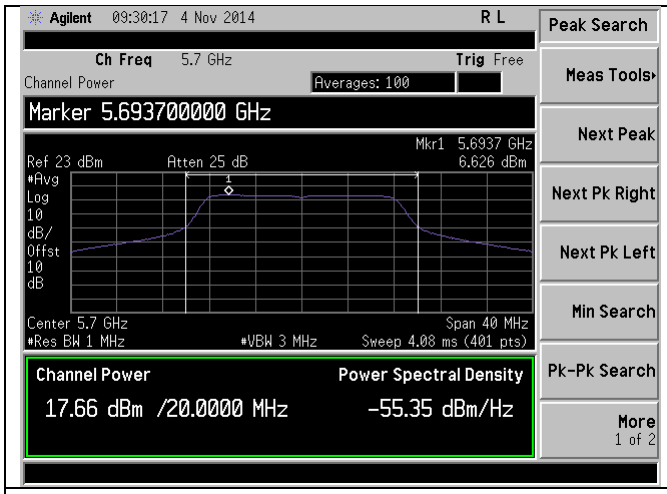

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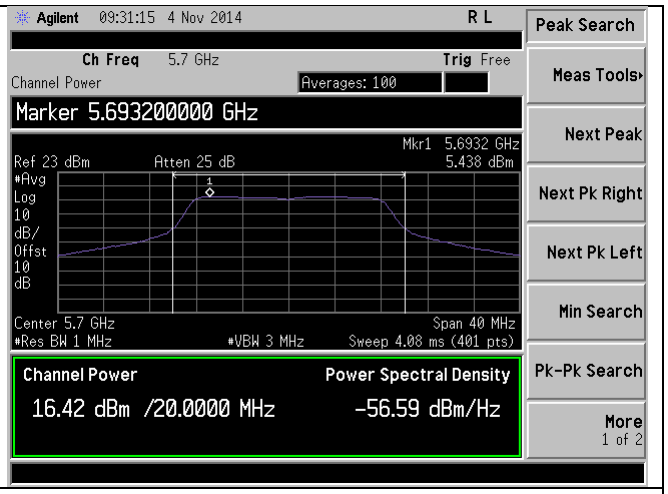

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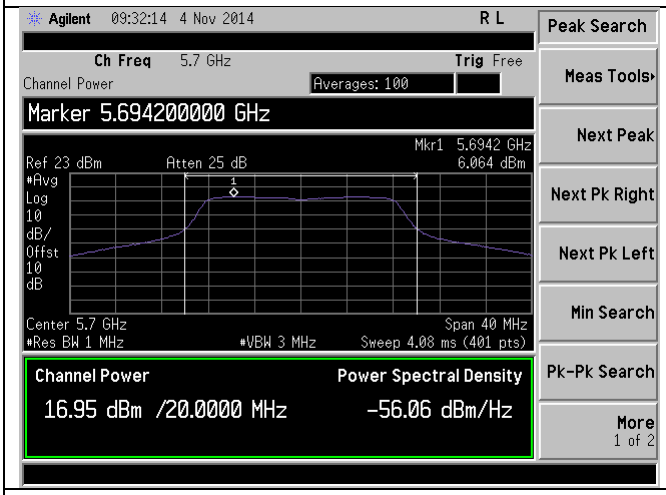

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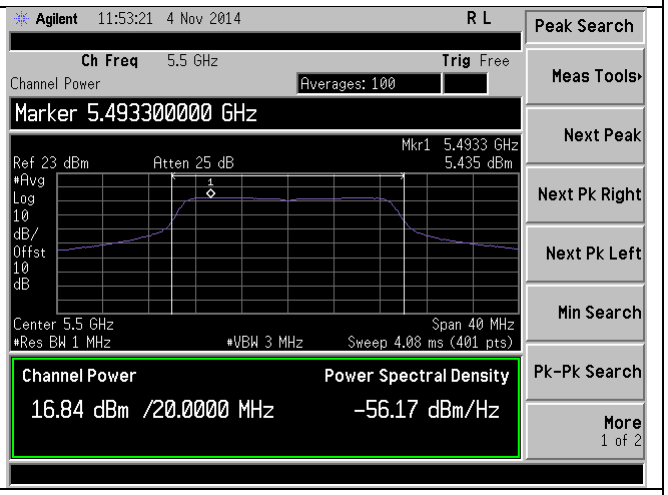

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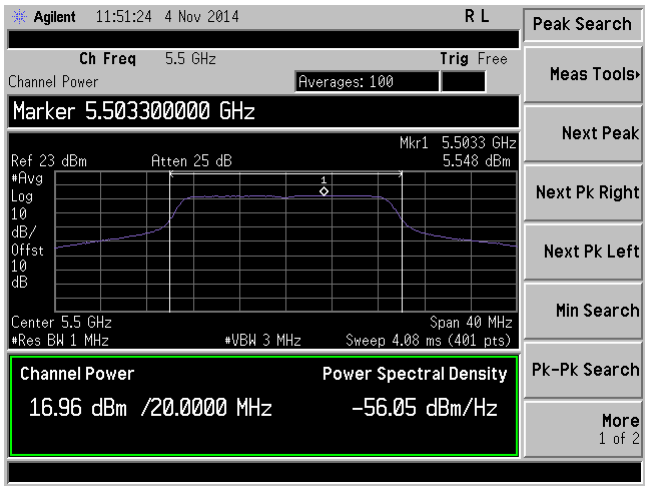

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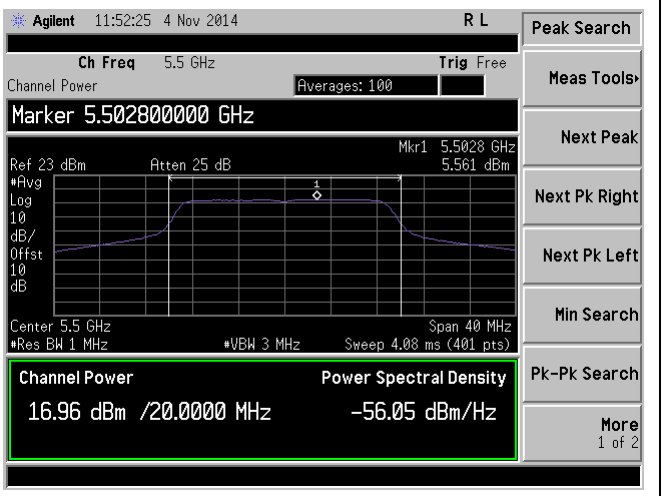

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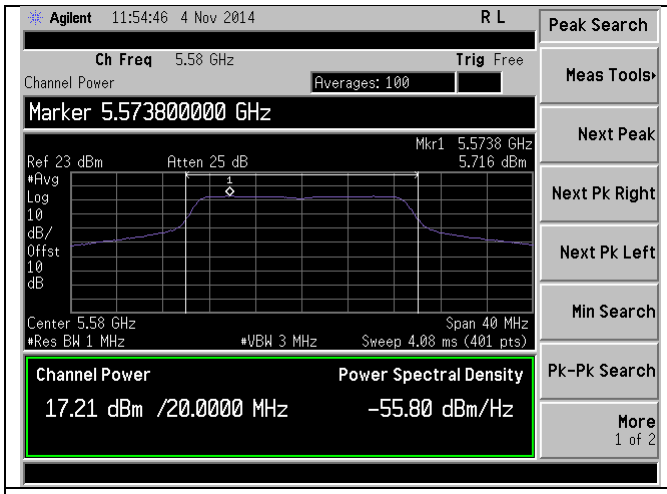

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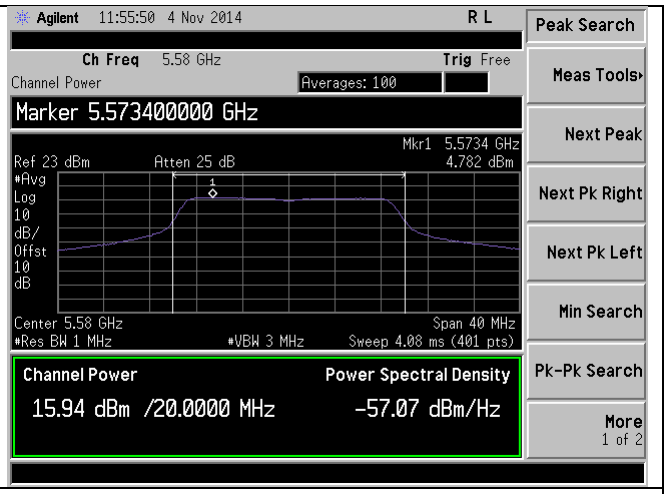

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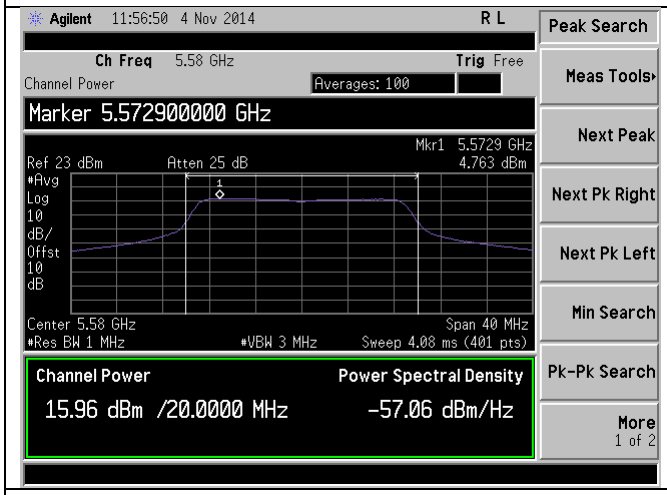

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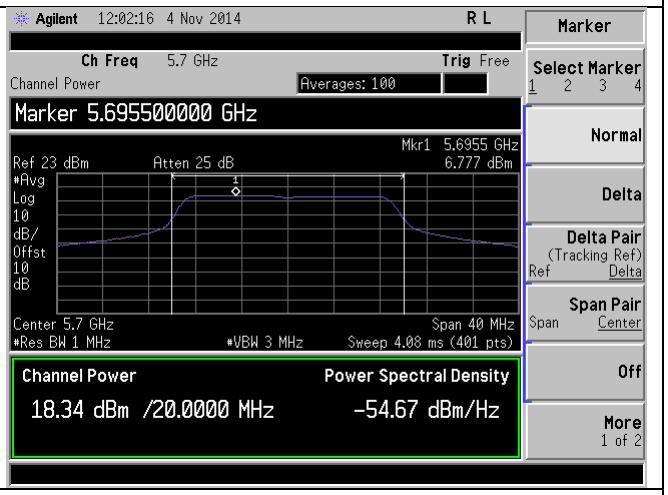

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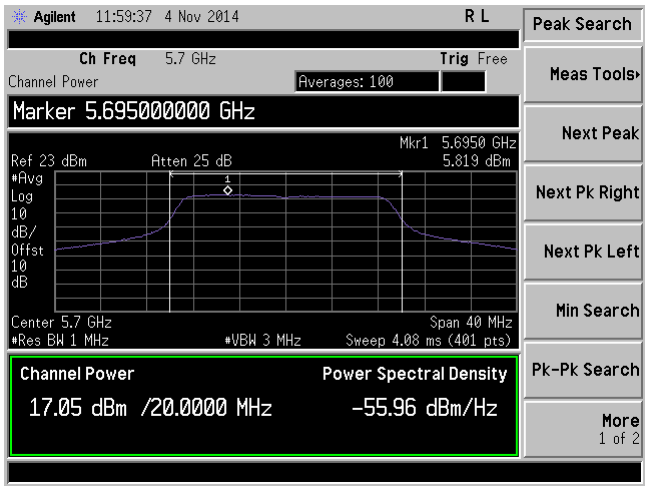

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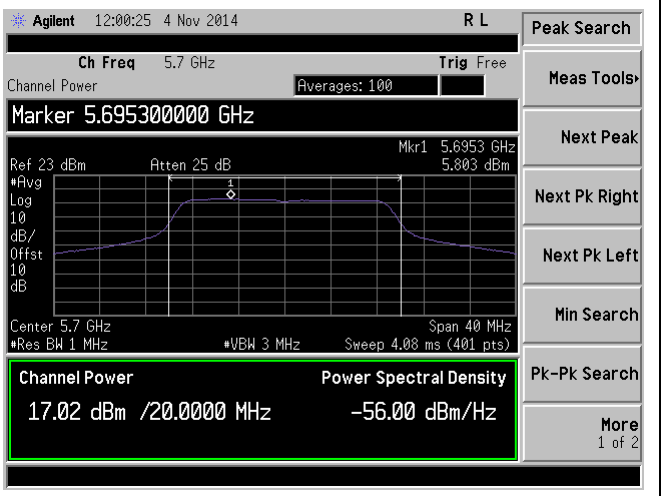

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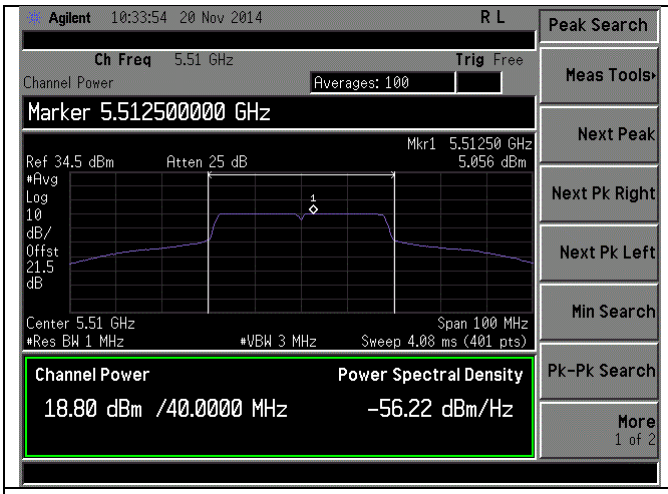

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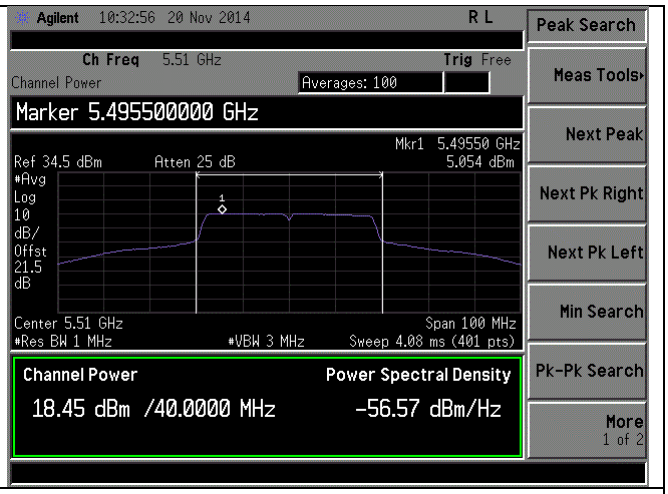

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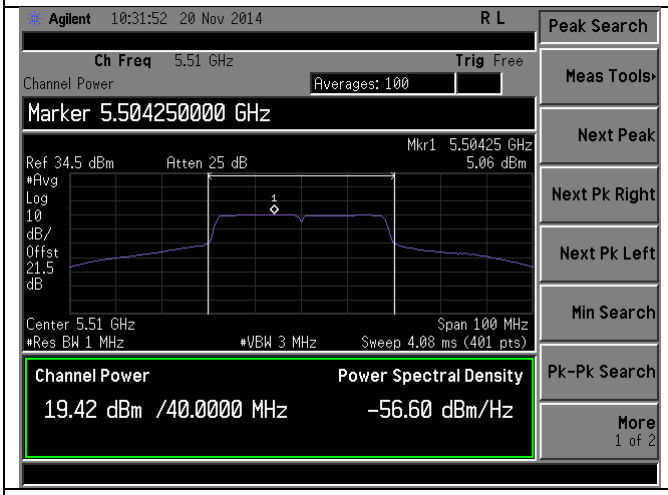

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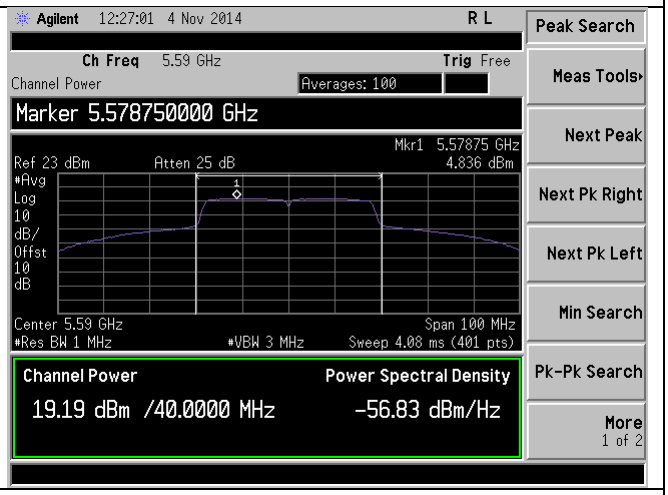

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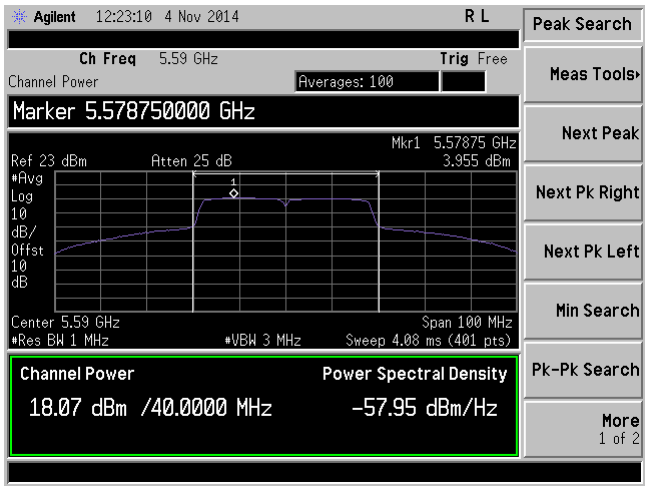

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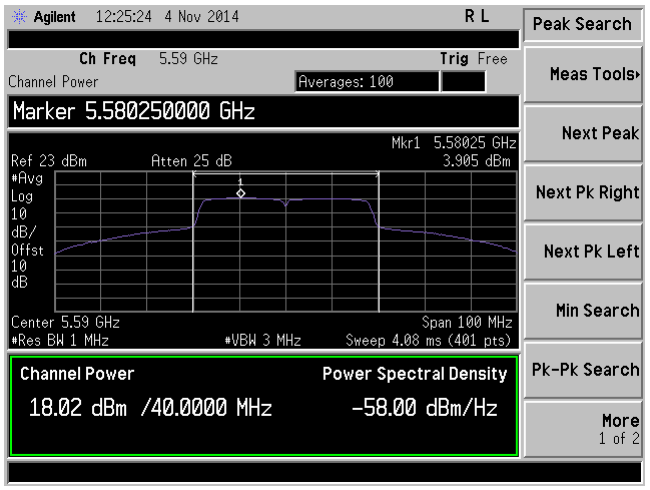

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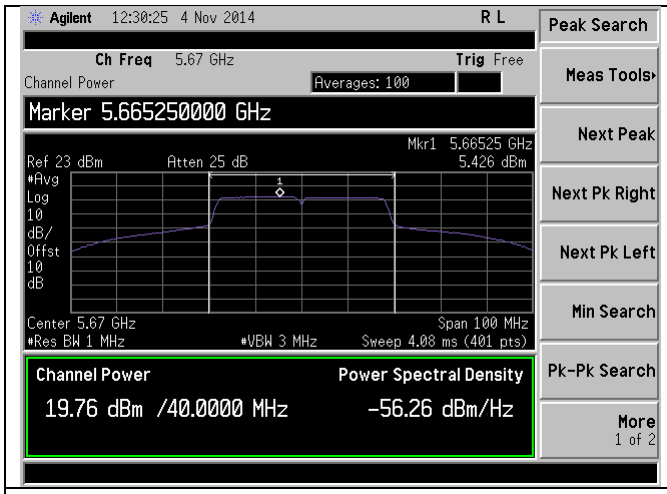

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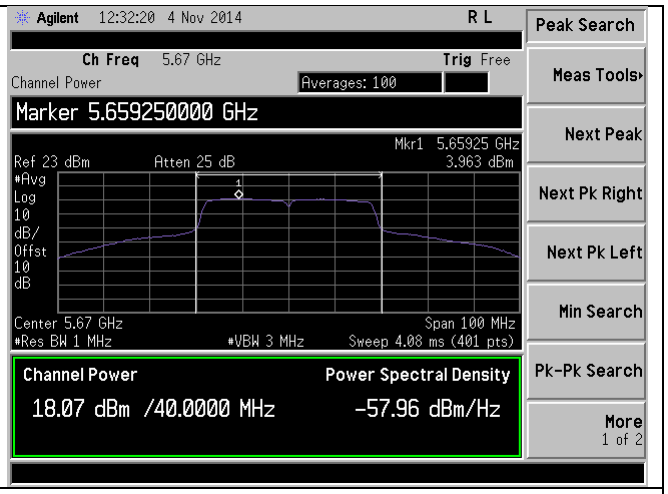

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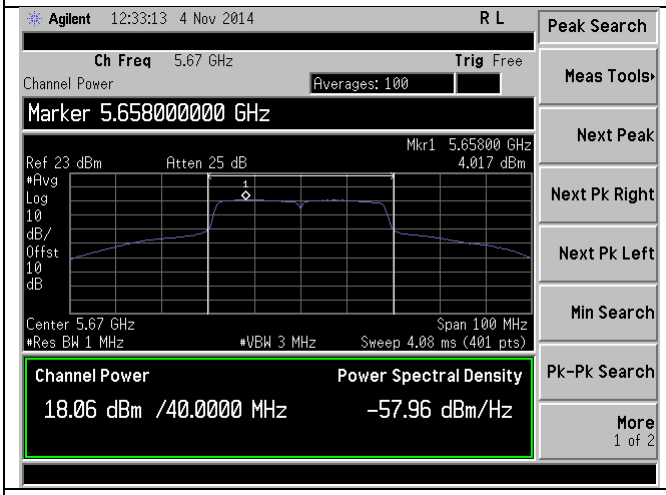

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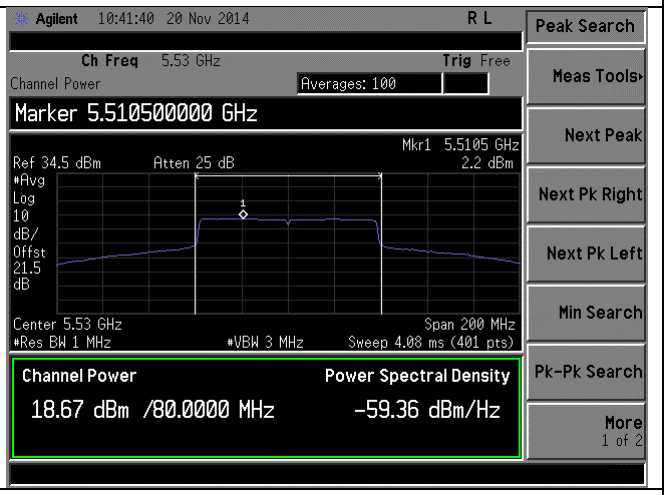

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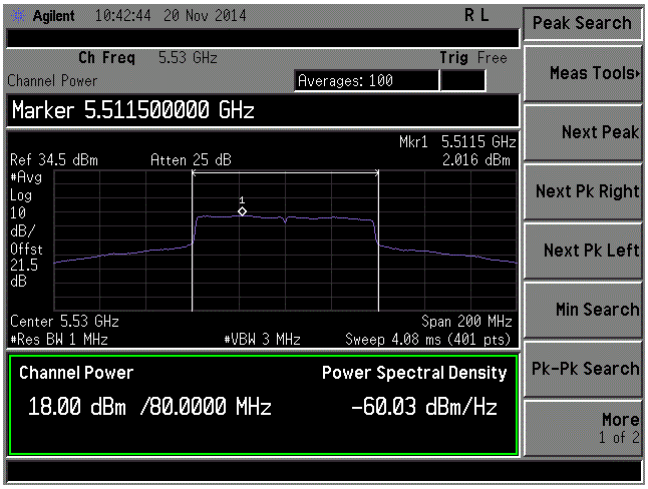

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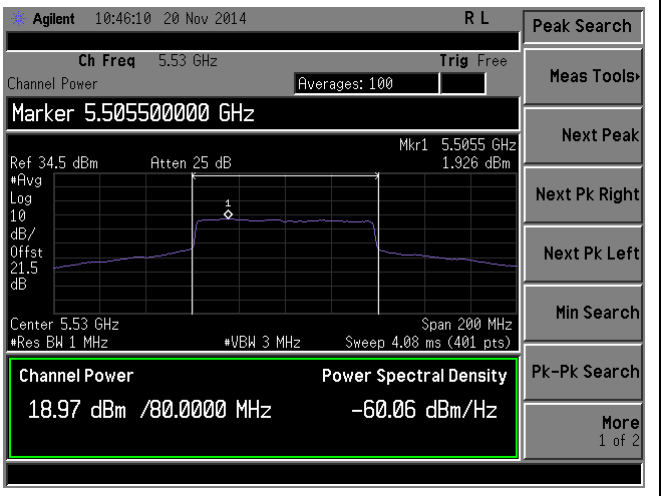

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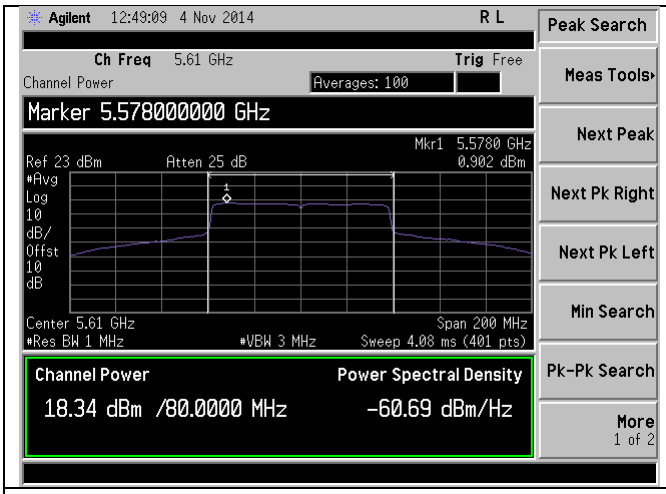
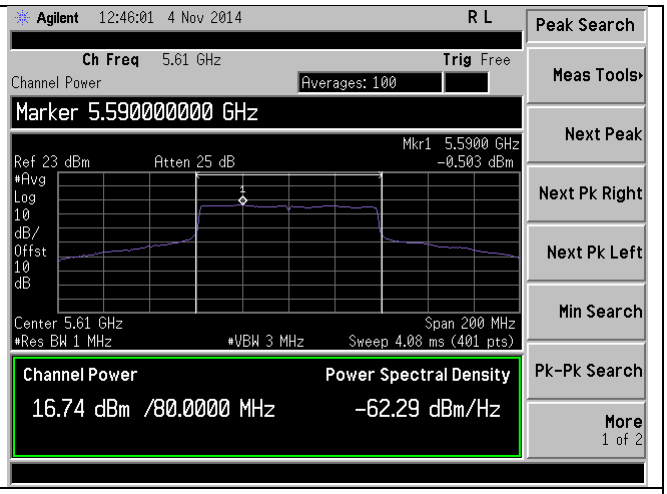
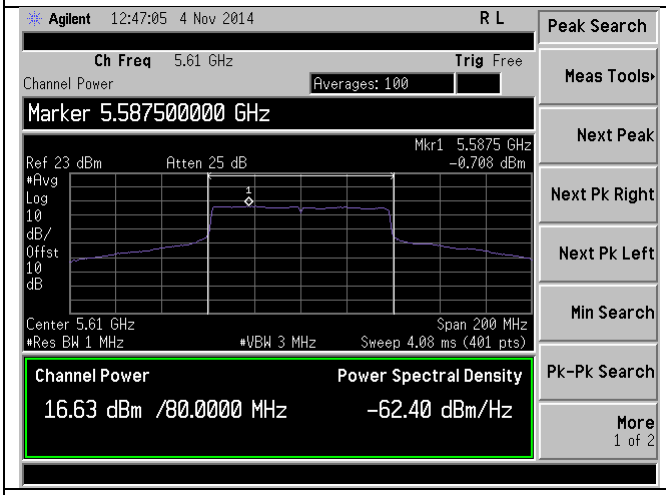


PSD-802.11ac-80M-5610M-chain0



PSD-802.11ac-80M-5610M-chain1



PSD-802.11ac-80M-5610M-chain2

10.6 Conducted Spurious Emissions

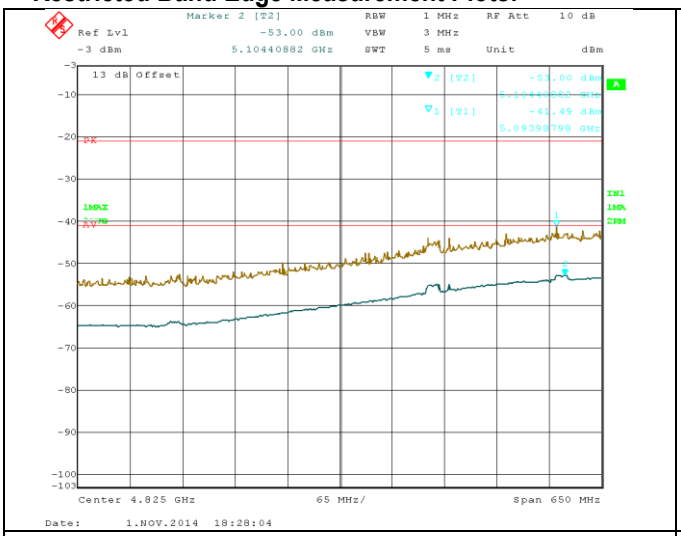
Requirement(s):

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.	☒
	-	Restricted band, emission must also comply with the radiated emission limits specified in 15.209	☒
Test Setup			
Procedure	The unwanted emission limits in both the restricted and non-restricted bands are based on radiated measurements; however, as an alternative, antenna-port conducted measurements in conjunction with cabinet emissions tests will be permitted to demonstrate compliance provided that the following steps are performed: - (i) Cabinet emissions measurements. A radiated test shall be performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna may be replaced by a termination matching the nominal impedance of the antenna. - (ii) Impedance matching. Conducted tests shall be performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT. - (iii) EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater.		
Remark	-		
Result	☒ Pass ☐ Fail		

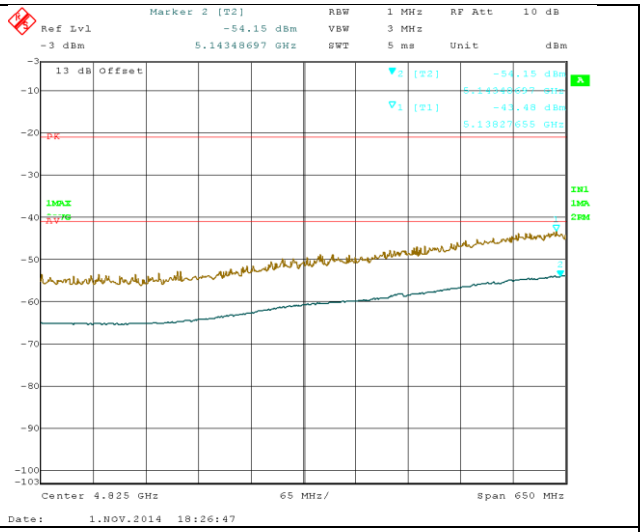
Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Restricted Band Edge Measurement Plots:



Restricted Band-5150M-802.11a@5260M-chain0



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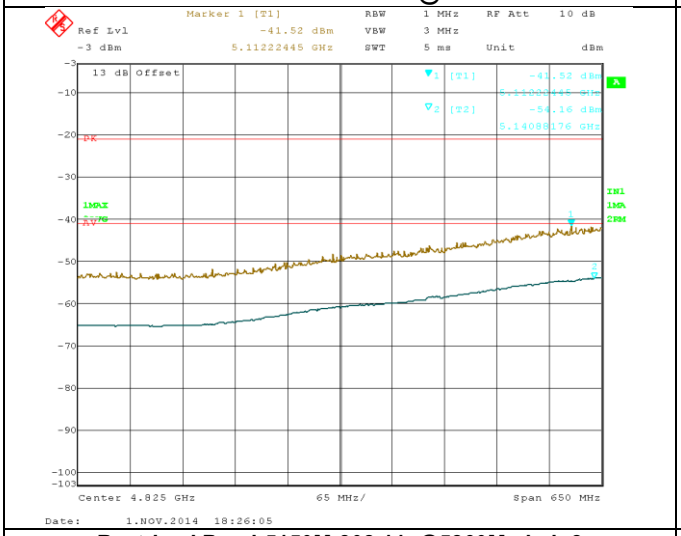
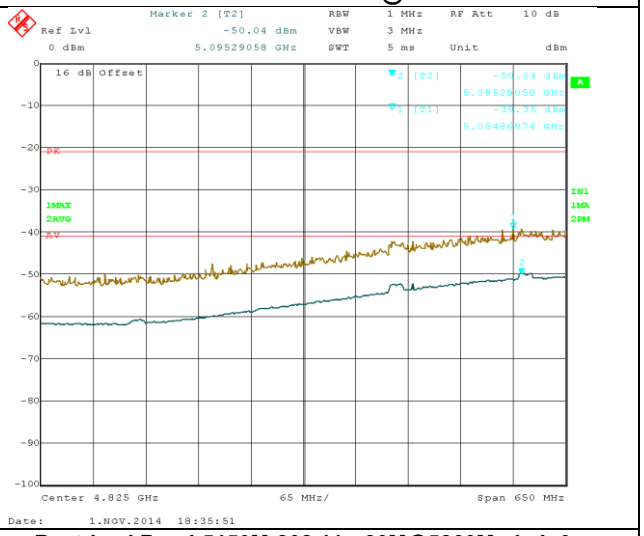
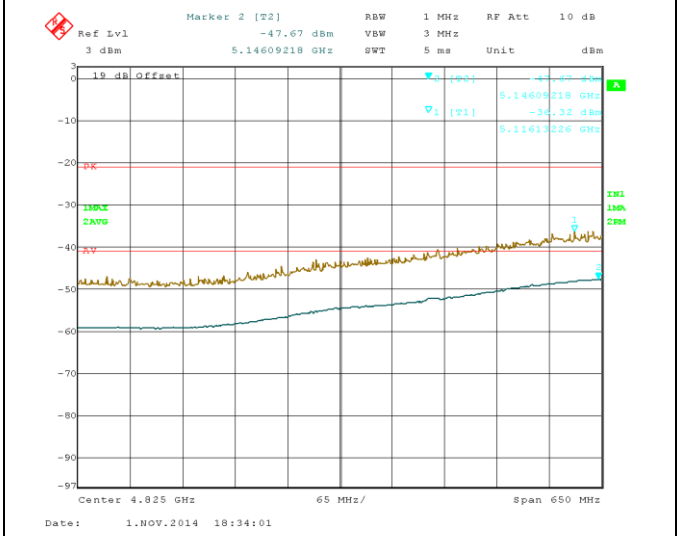


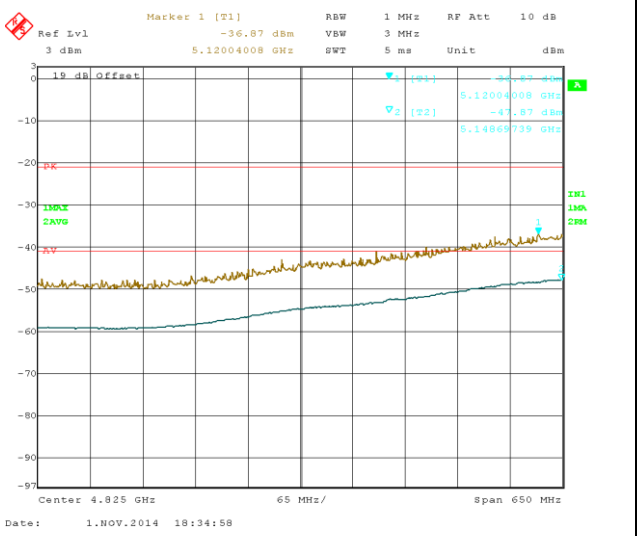
Restricted Band-5150M-802.11a@5260M-chain2



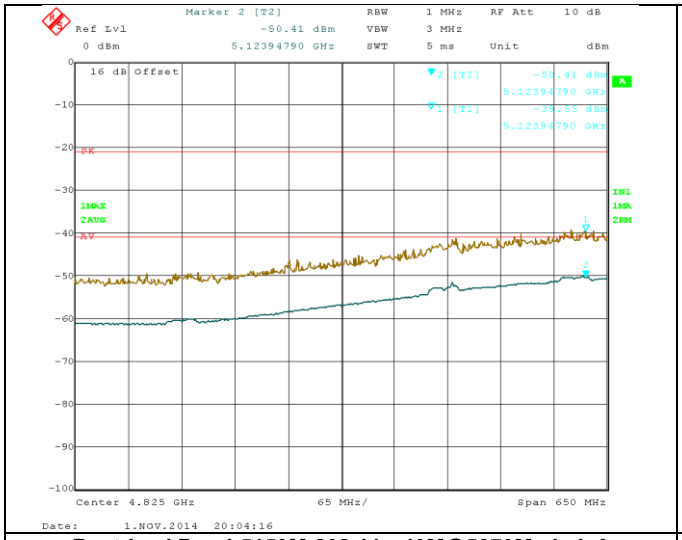
Restricted Band-5150M-802.11n-20M@5260M-chain0



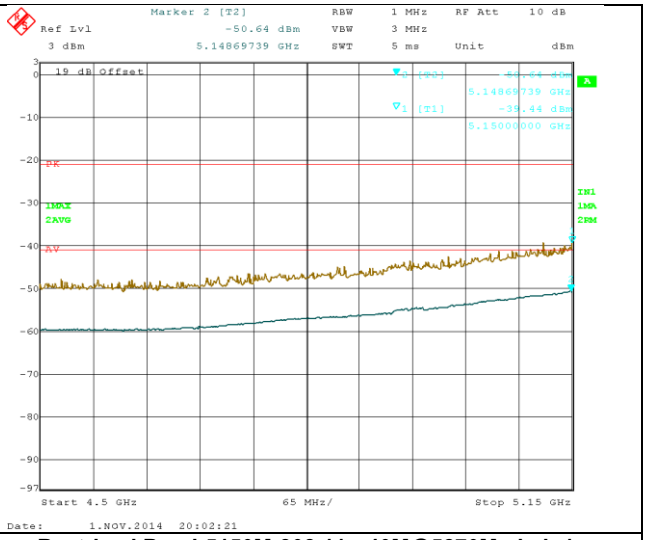
Restricted Band-5150M-802.11n-20M@5260M-chain1



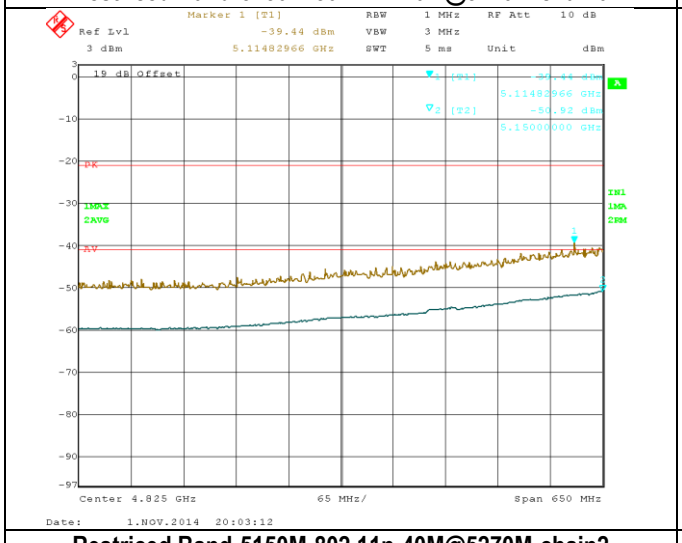
Restricted Band-5150M-802.11n-20M@5260M-chain2



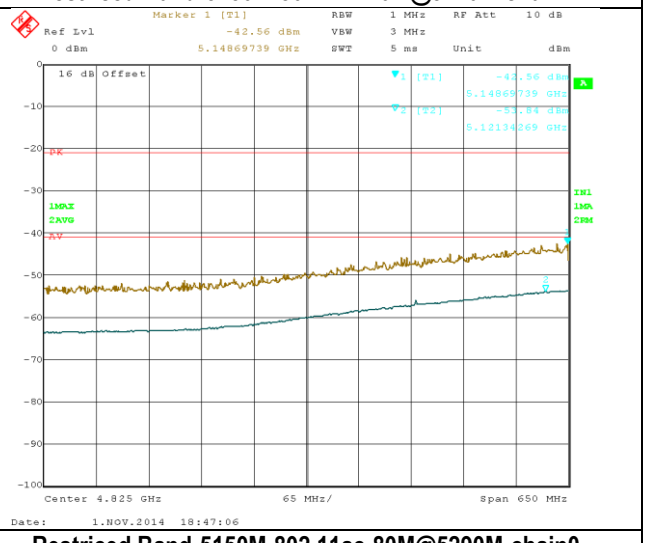
Restriced Band-5150M-802.11n-40M@5270M-chain0



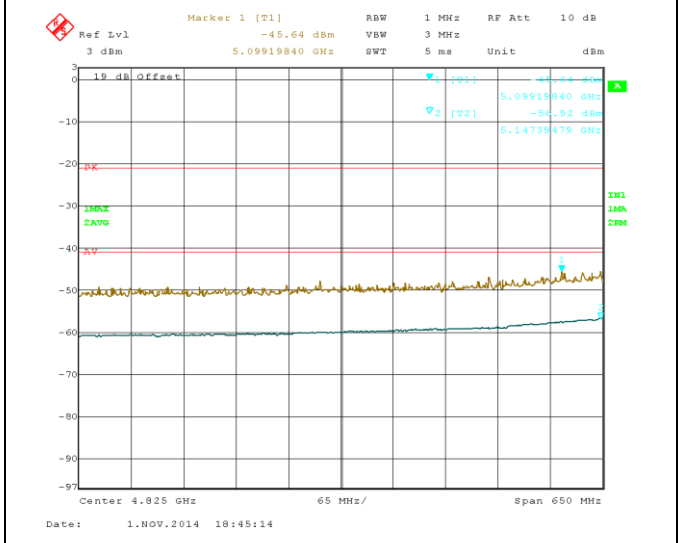
Restriced Band-5150M-802.11n-40M@5270M-chain1



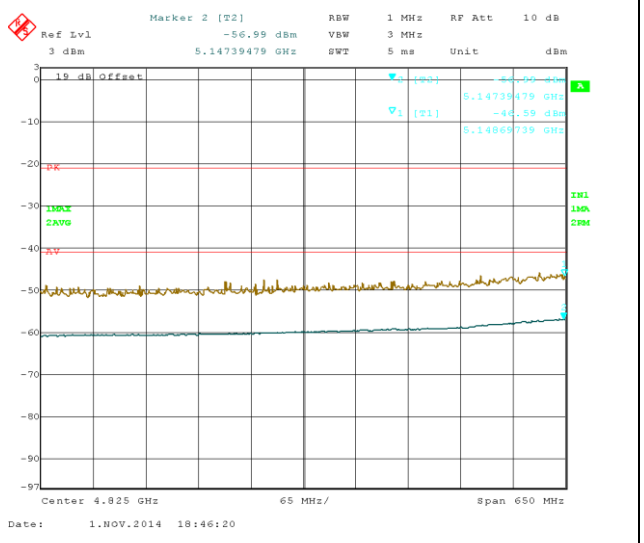
Restriced Band-5150M-802.11n-40M@5270M-chain2



Restriced Band-5150M-802.11ac-80M@5290M-chain0



Restriced Band-5150M-802.11ac-80M@5290M-chain1



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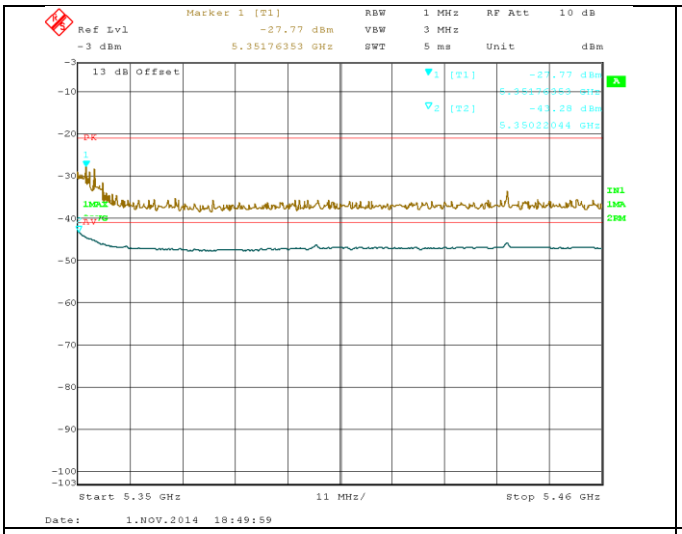

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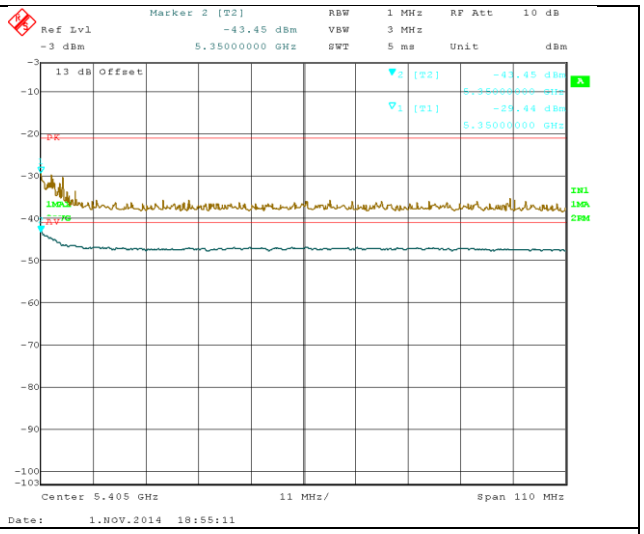

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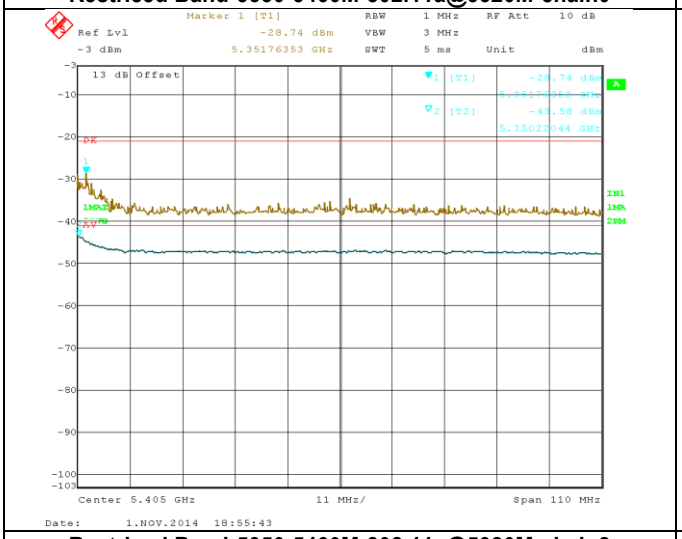

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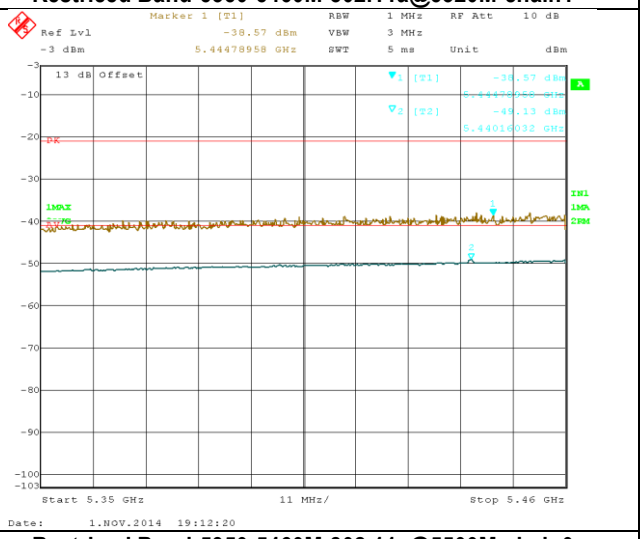

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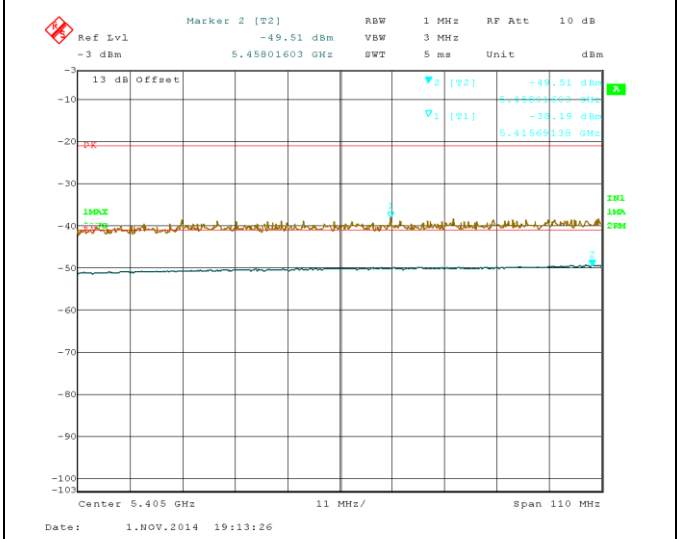

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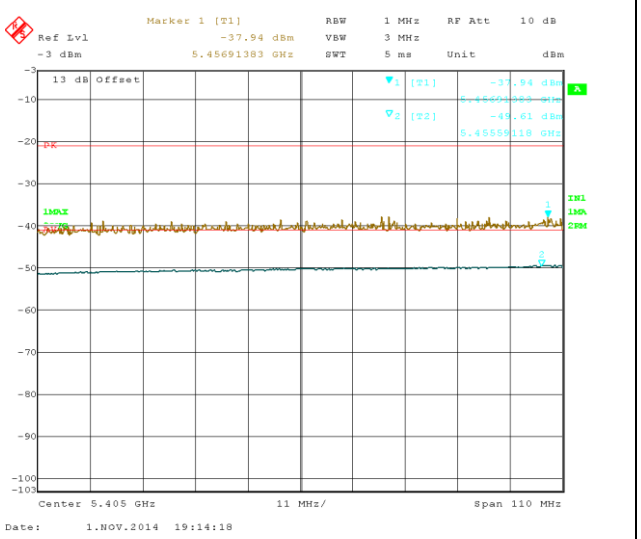

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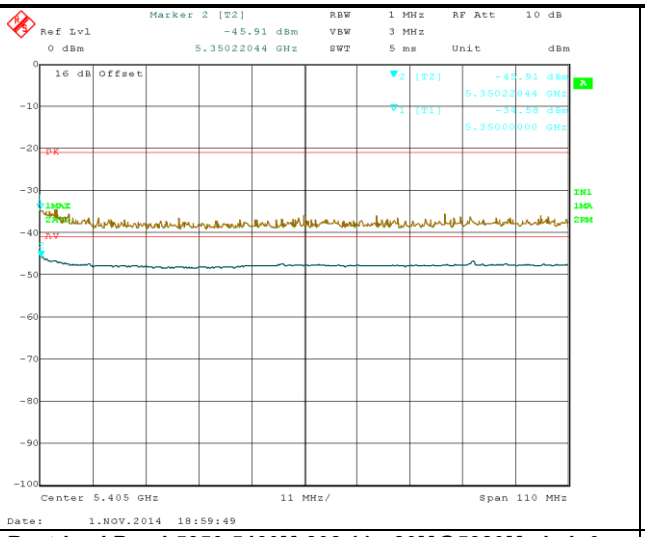

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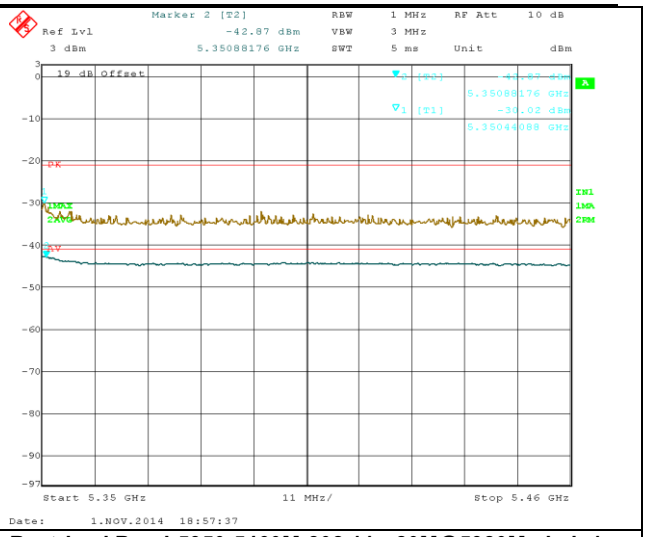

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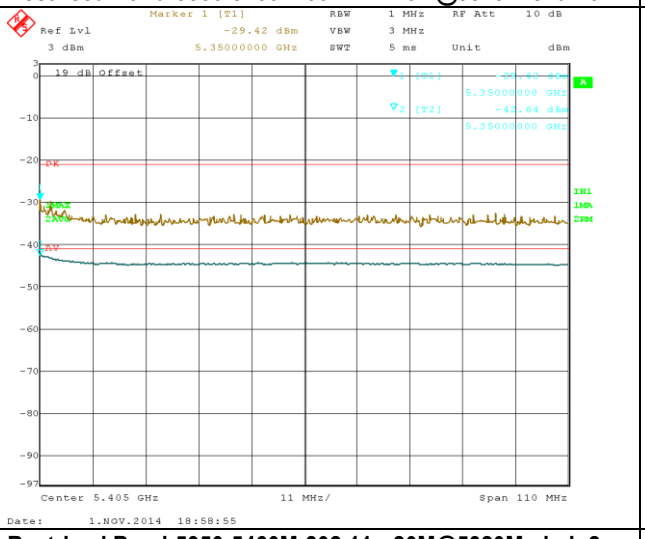

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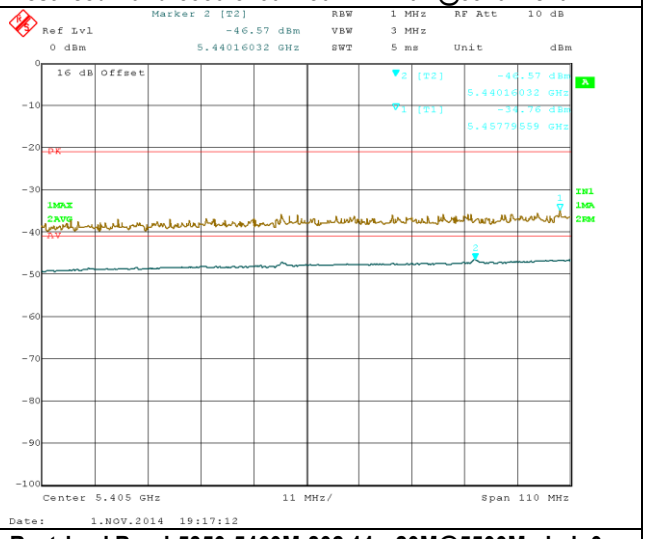

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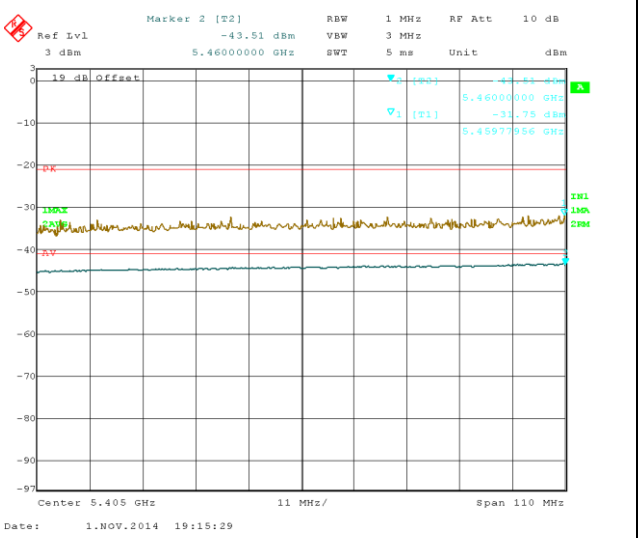

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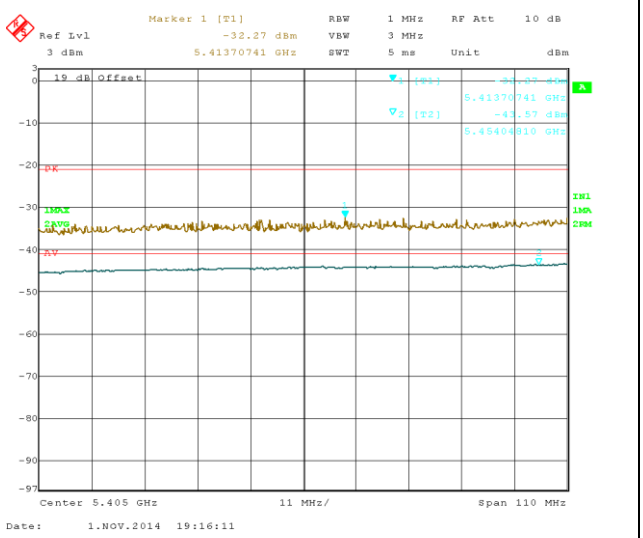

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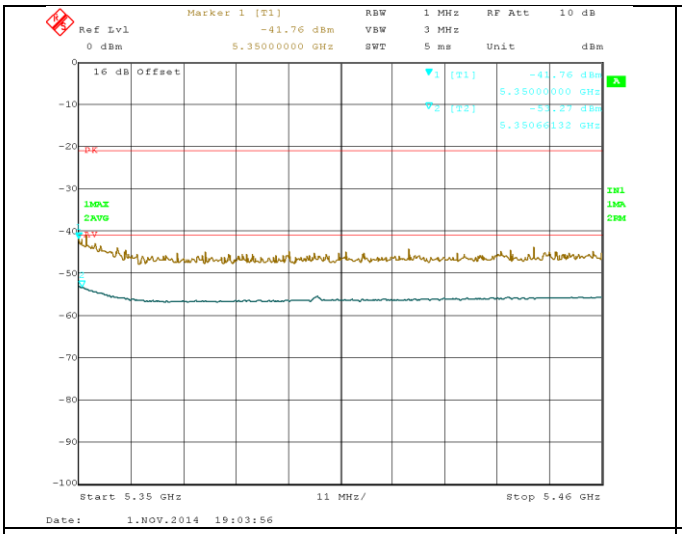

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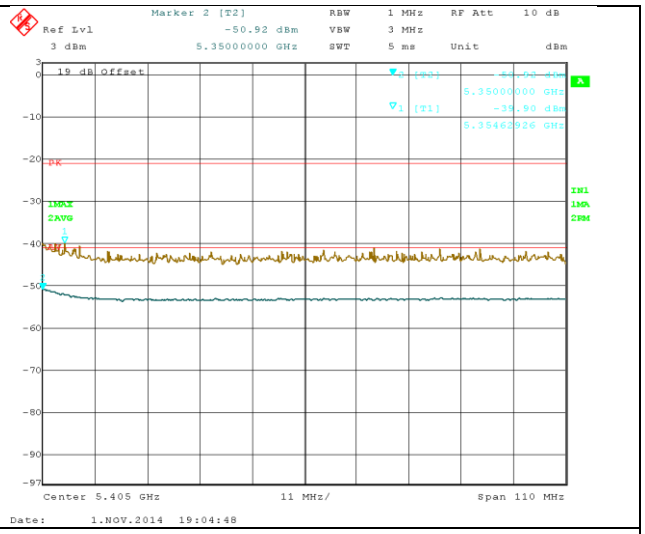

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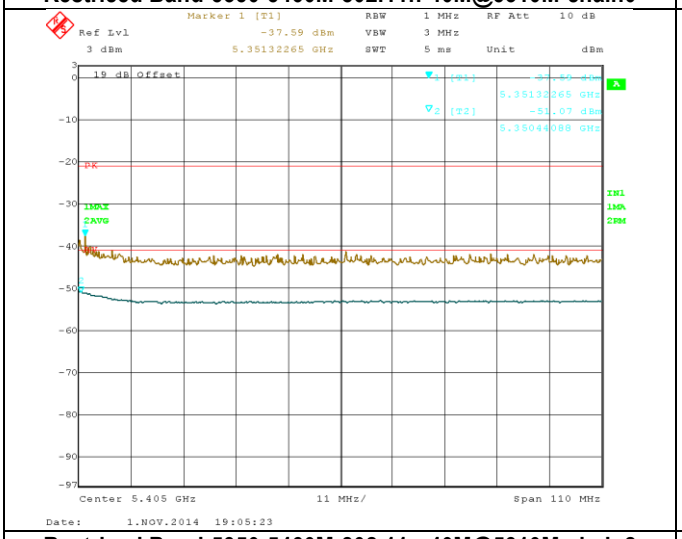

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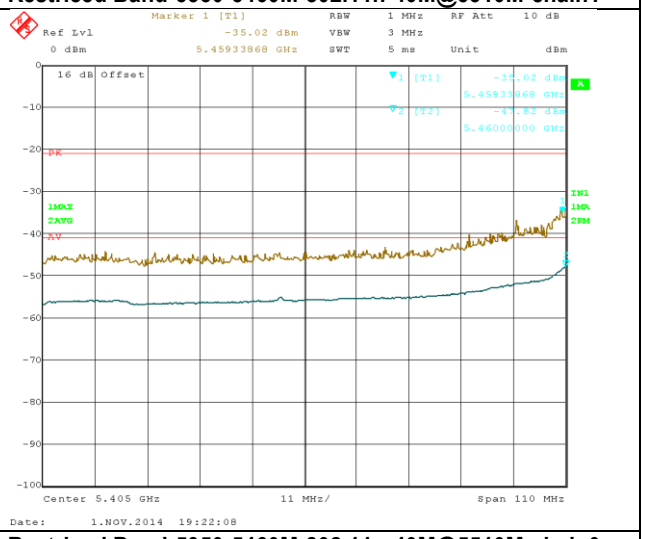
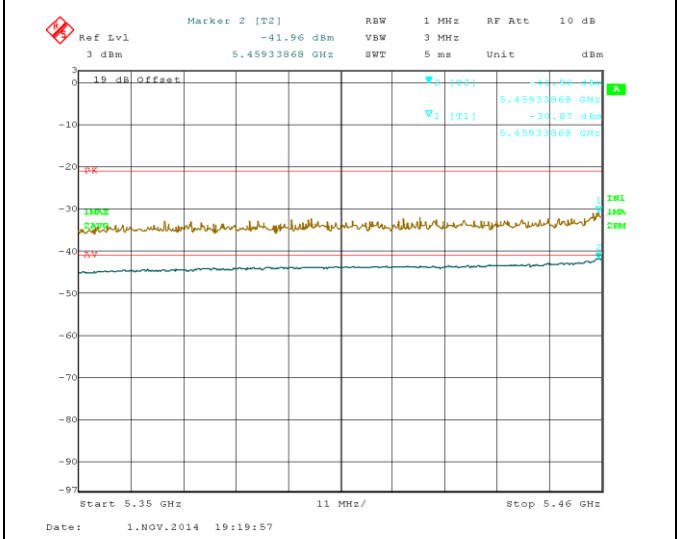


Restriced Band-5350-5460M-802.11n-40M@5510M-chain0



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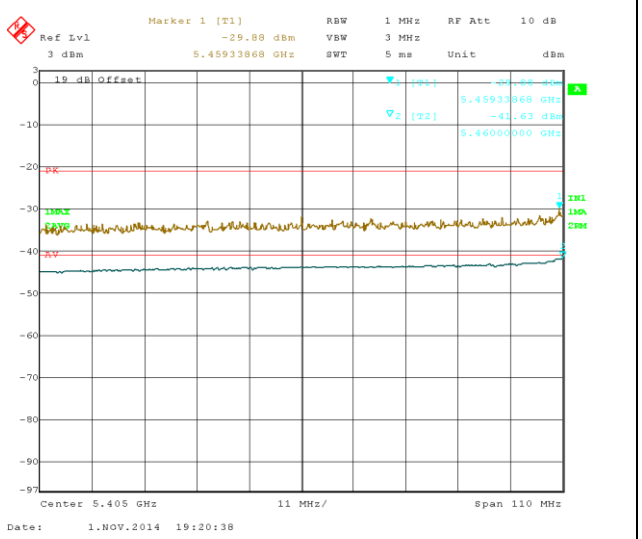

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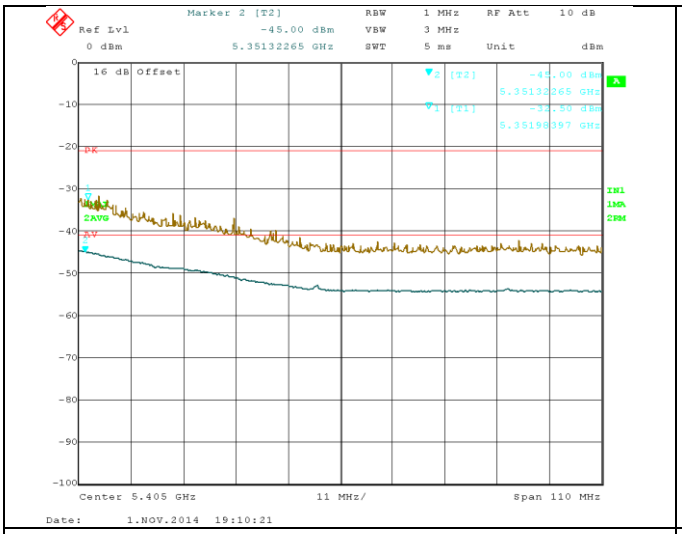
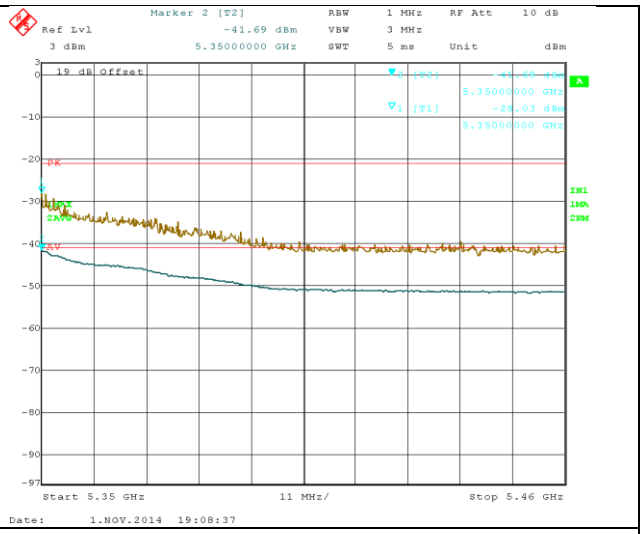
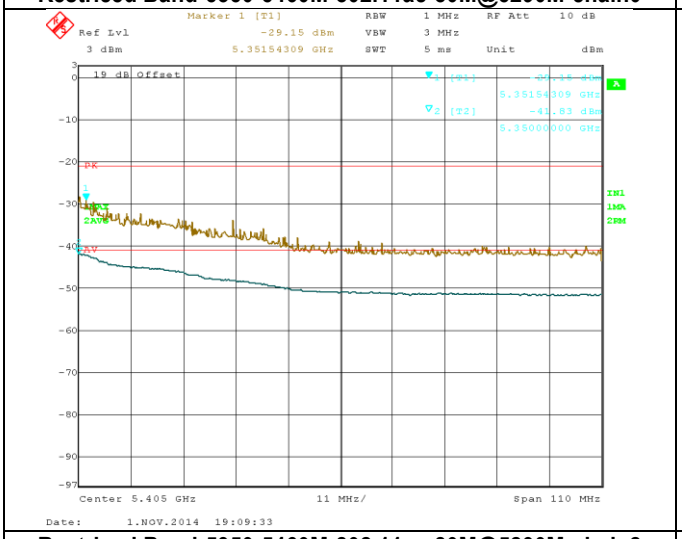


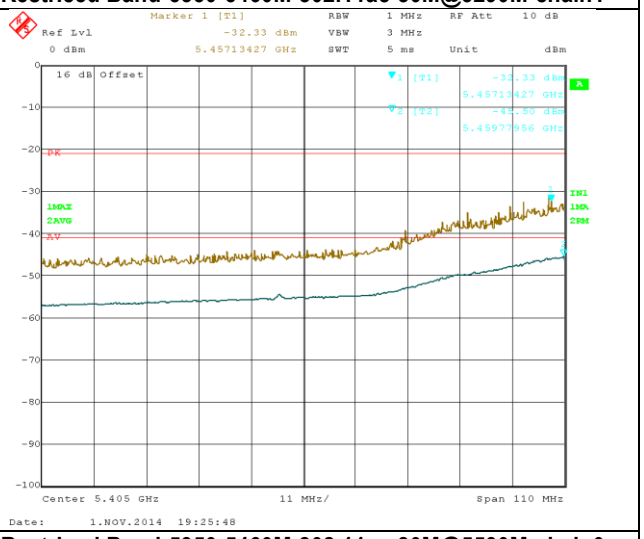
Restriced Band-5350-5460M-802.11ac-80M@5290M-chain0



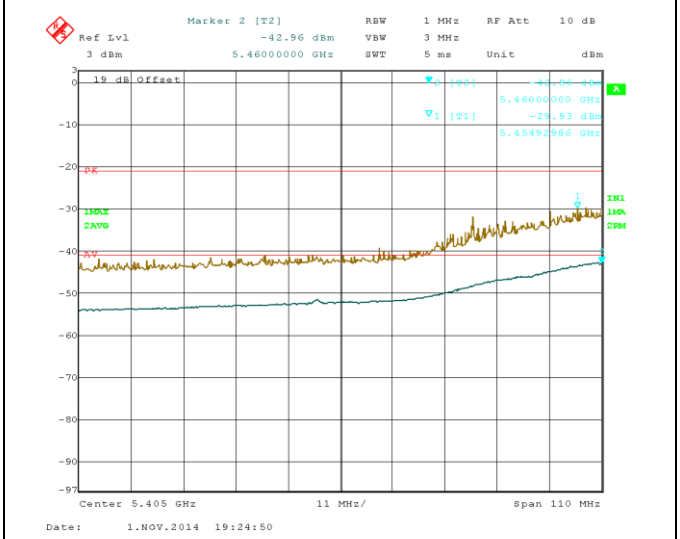
Restriced Band-5350-5460M-802.11ac-80M@5290M-chain1



Restriced Band-5350-5460M-802.11ac-80M@5290M-chain2



Restriced Band-5350-5460M-802.11ac-80M@5530M-chain0



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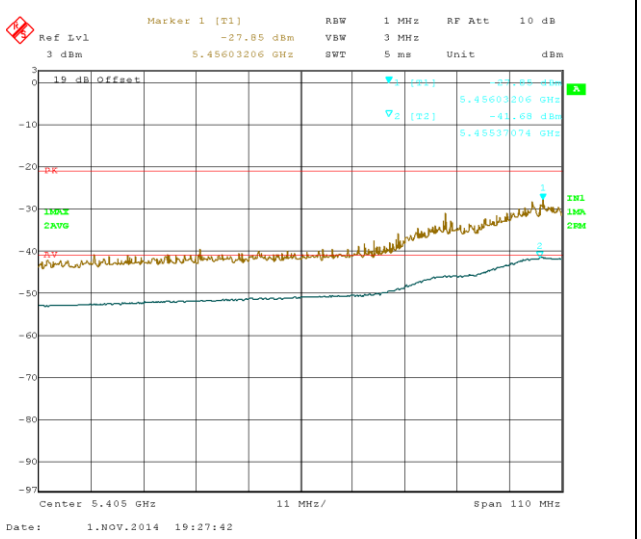
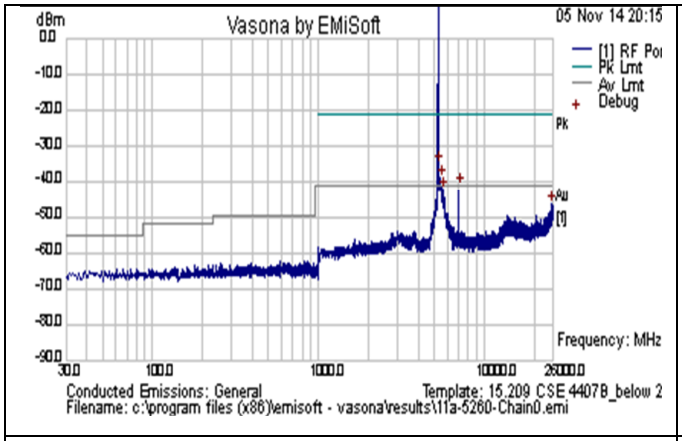
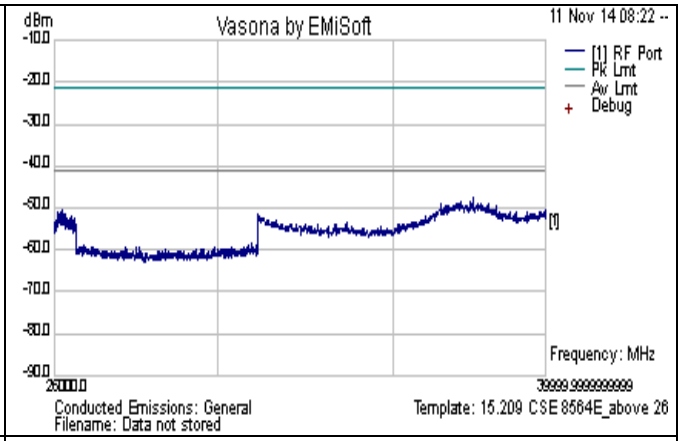


Restriced Band-5350-5460M-802.11ac-80M@5530M-chain2

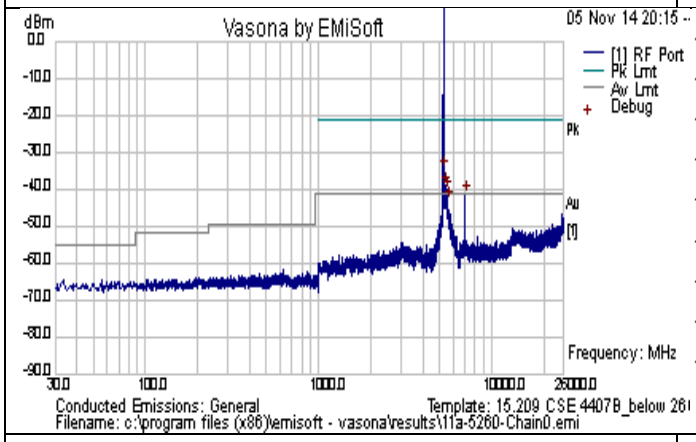
Conducted Spurious Emissions Plots:



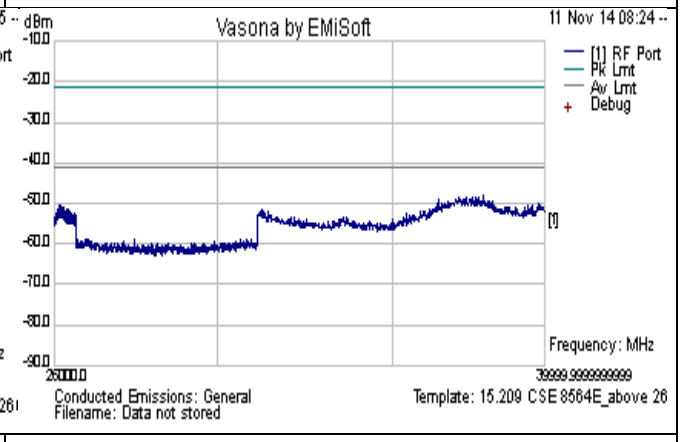
CSE-802.11a 5260MHz-below 26GHz-chain0



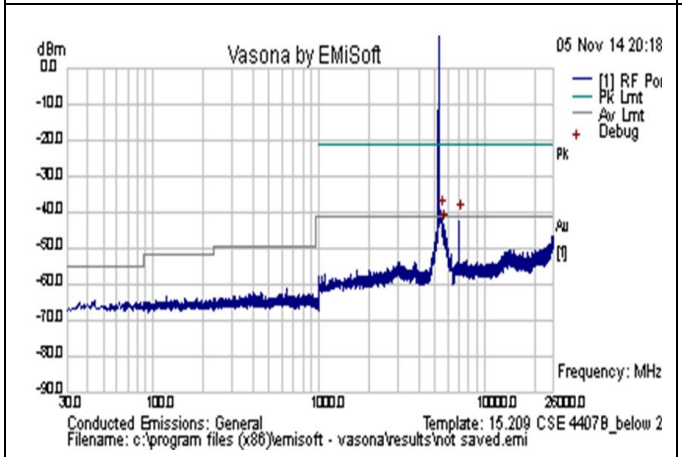
CSE-802.11a 5260MHz-above 26GHz-chain0



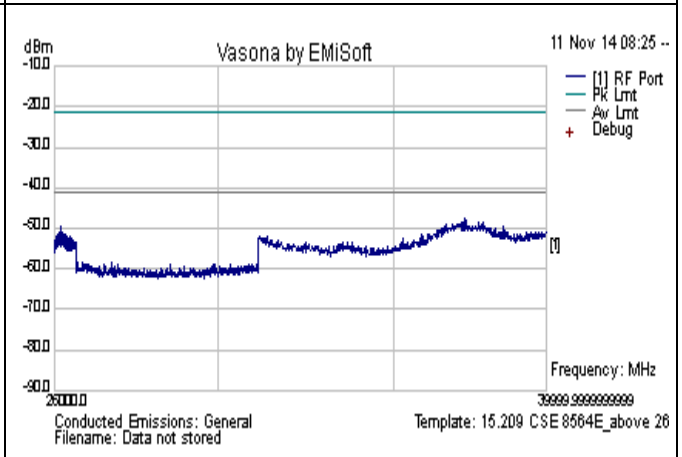
CSE-802.11a 5260MHz-below 26GHz-chain1



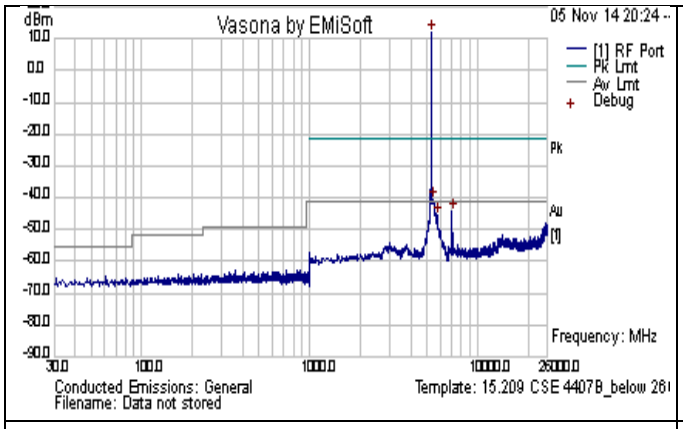
CSE-802.11a 5260MHz-above 26GHz-chain1



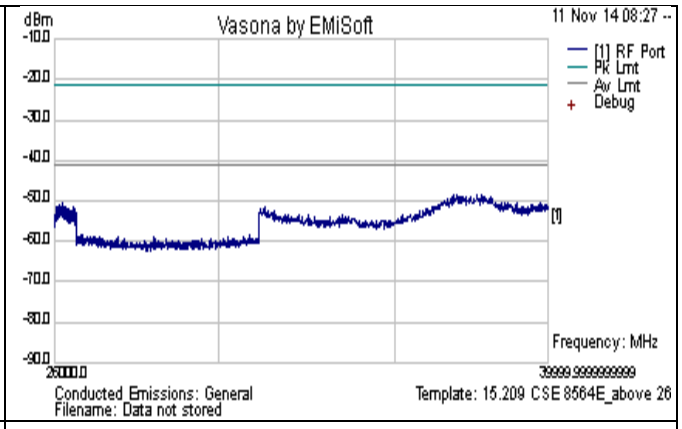
CSE-802.11a 5260MHz-below 26GHz-chain2



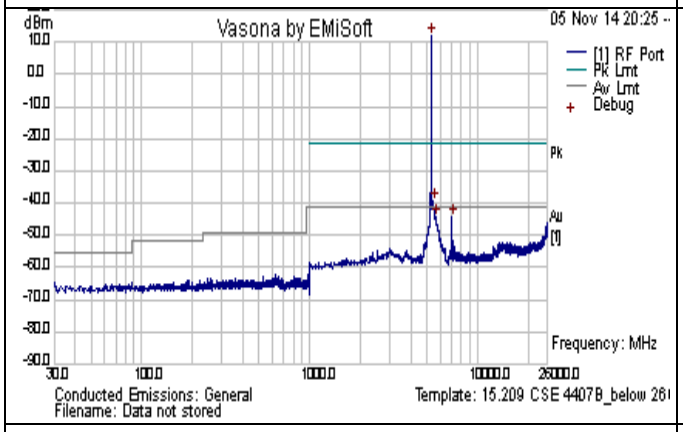
CSE-802.11a 5260MHz-above 26GHz-chain2



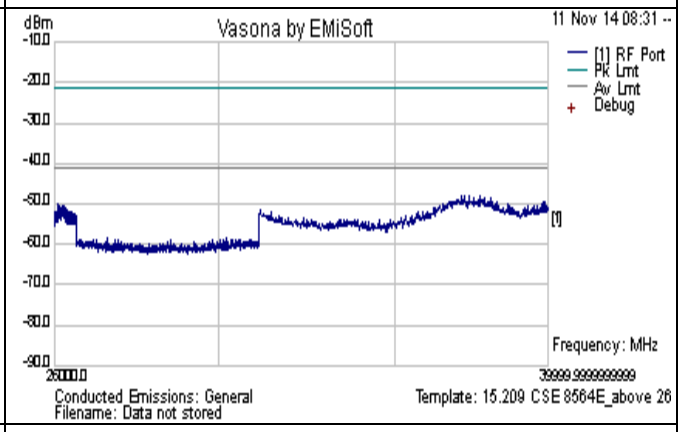
CSE-802.11a 5300MHz-below 26GHz-chain0



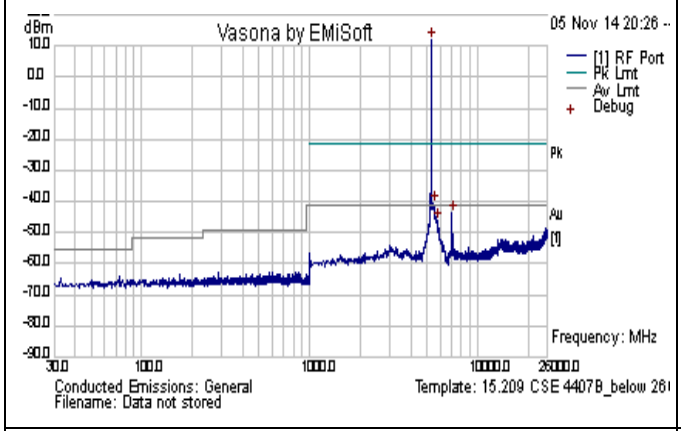
CSE-802.11a 5300MHz-above 26GHz-chain0



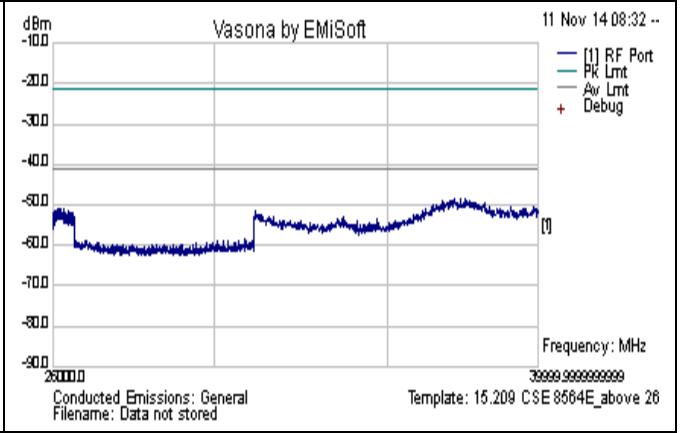
CSE-802.11a 5300MHz-below 26GHz-chain1



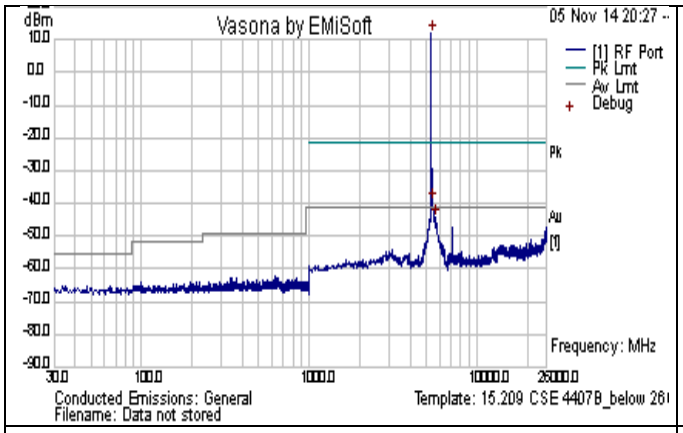
CSE-802.11a 5300MHz-above 26GHz-chain1



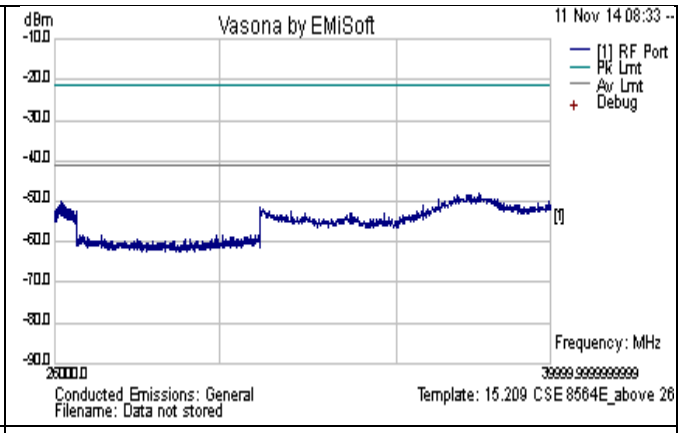
CSE-802.11a 5300MHz-below 26GHz-chain2



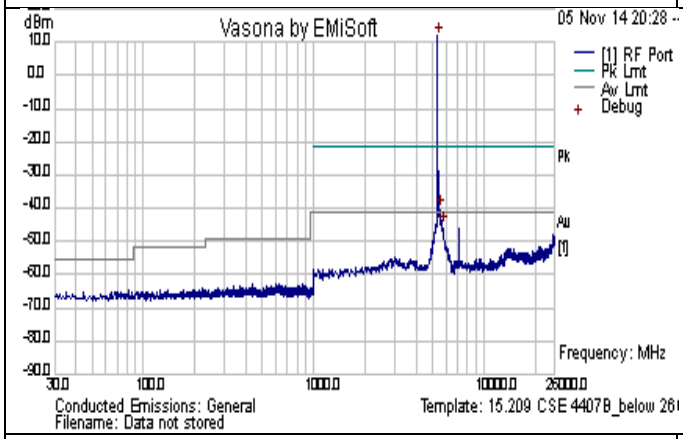
CSE-802.11a 5300MHz-above 26GHz-chain2



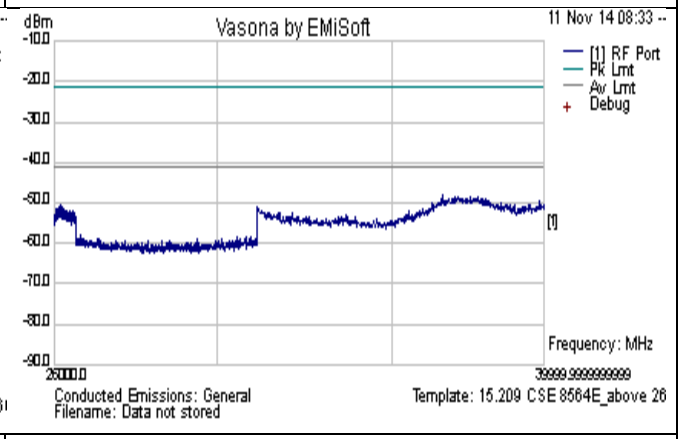
CSE-802.11a 5320MHz-below 26GHz-chain0



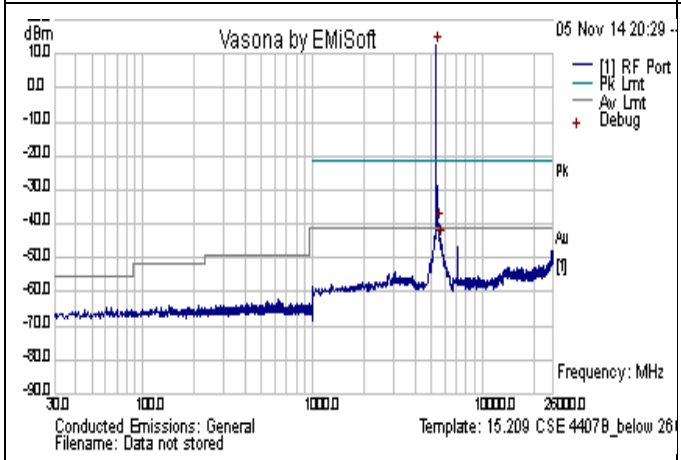
CSE-802.11a 5320MHz-above 26GHz-chain0



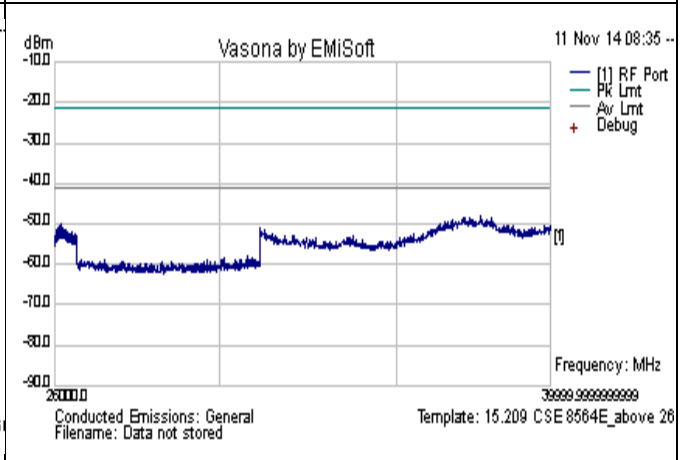
CSE-802.11a 5320MHz-below 26GHz-chain1



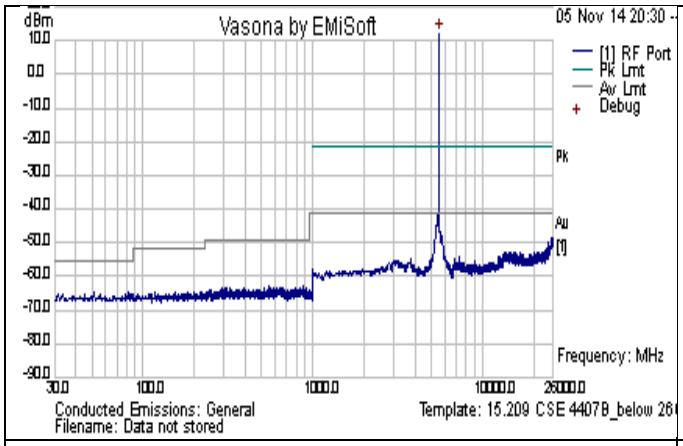
CSE-802.11a 5320MHz-above 26GHz-chain1



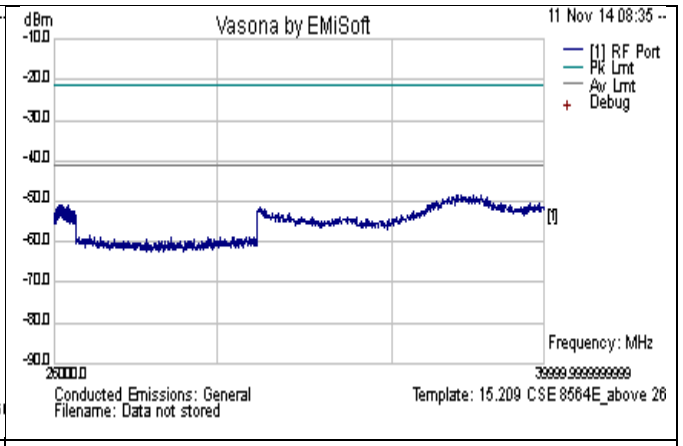
CSE-802.11a 5320MHz-below 26GHz-chain2



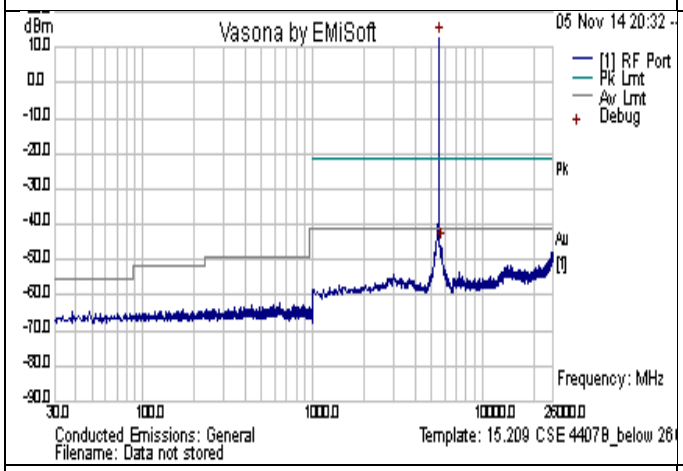
CSE-802.11a 5320MHz-above 26GHz-chain2



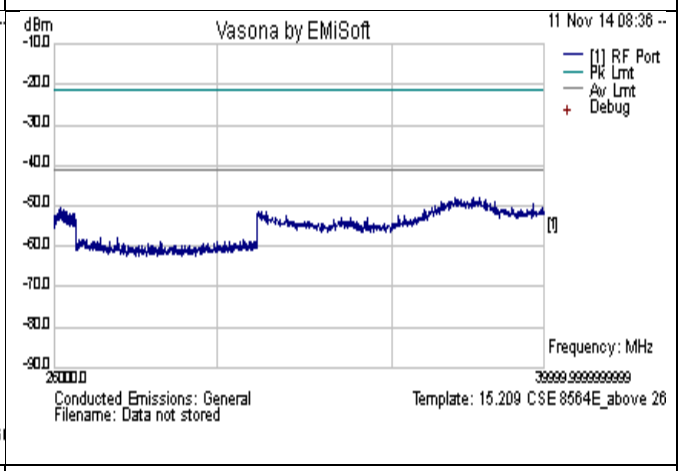
CSE-802.11a 5500MHz-below 26GHz-chain0



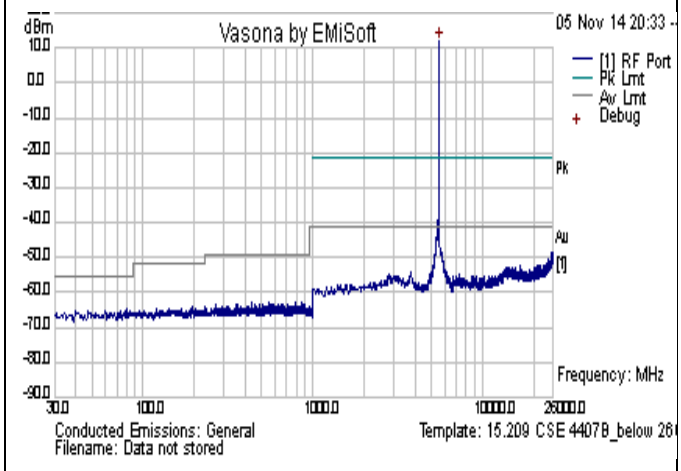
CSE-802.11a 5500MHz-above 26GHz-chain0



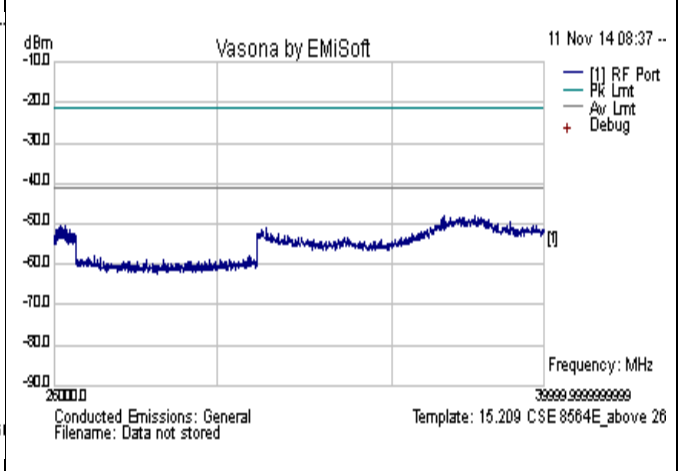
CSE-802.11a 5500MHz-below 26GHz-chain1



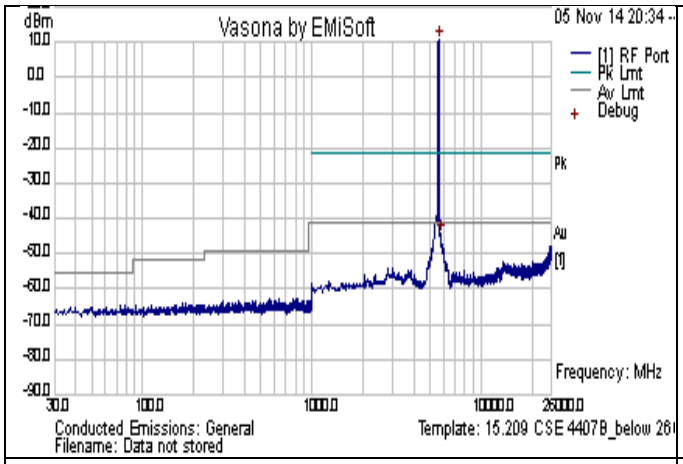
CSE-802.11a 5500MHz-above 26GHz-chain1



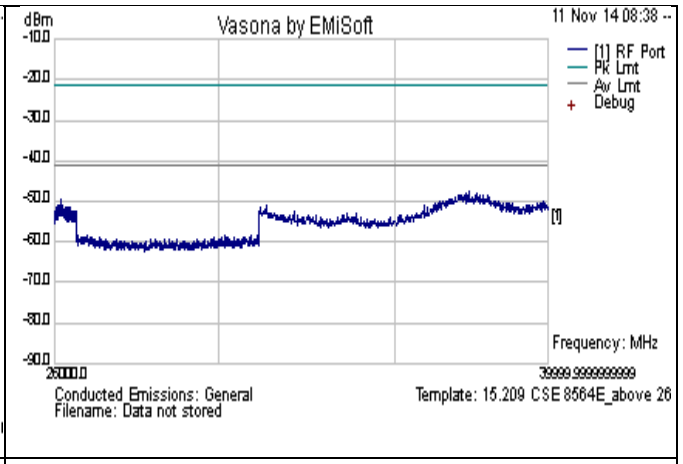
CSE-802.11a 5500MHz-below 26GHz-chain2



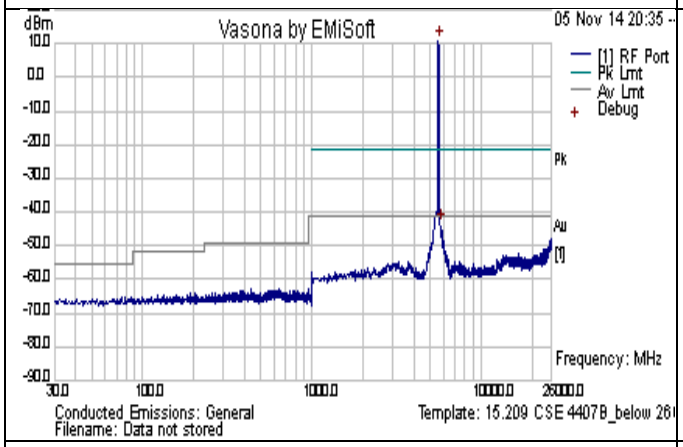
CSE-802.11a 5500MHz-above 26GHz-chain2



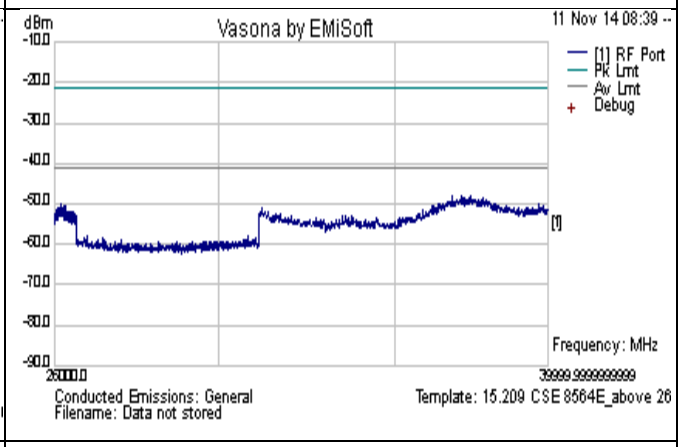
CSE-802.11a 5580MHz-below 26GHz-chain0



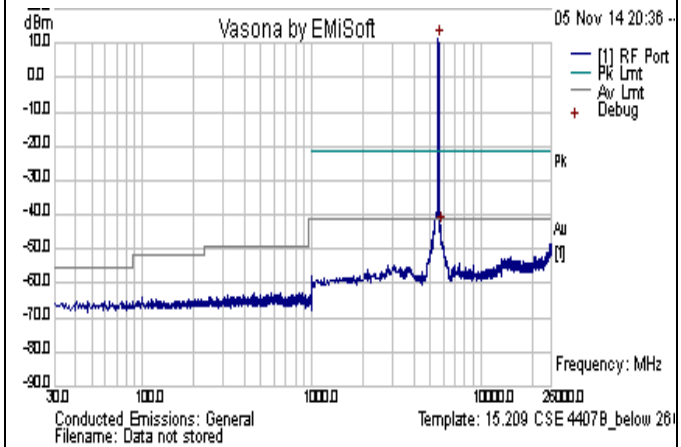
CSE-802.11a 5580MHz-above 26GHz-chain0



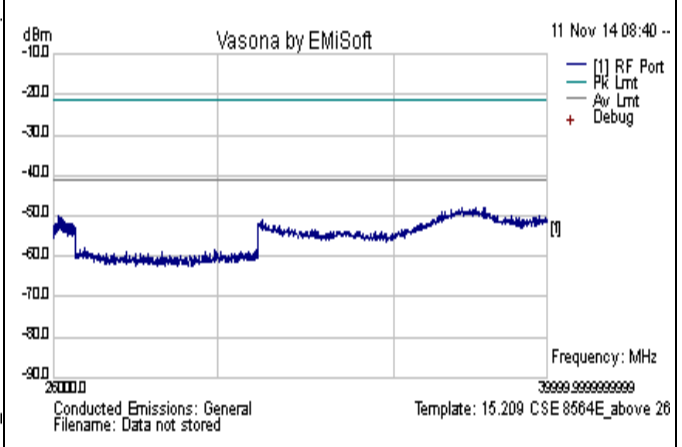
CSE-802.11a 5580MHz-below 26GHz-chain1



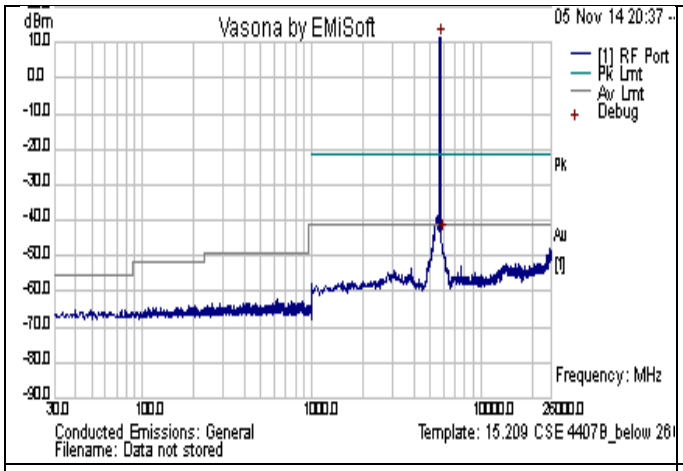
CSE-802.11a 5580MHz-above 26GHz-chain1



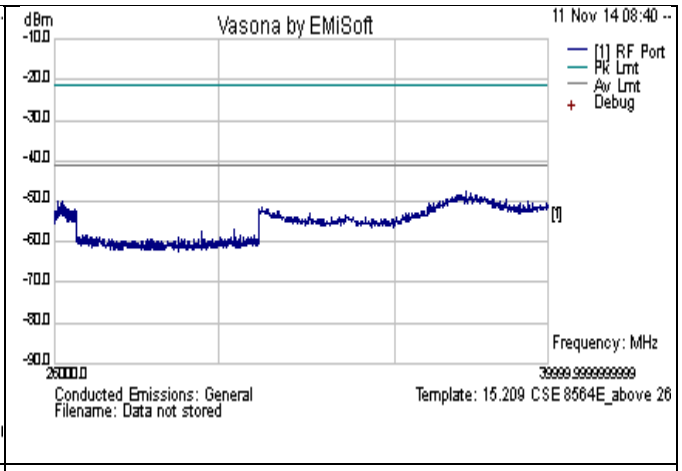
CSE-802.11a 5580MHz-below 26GHz-chain2



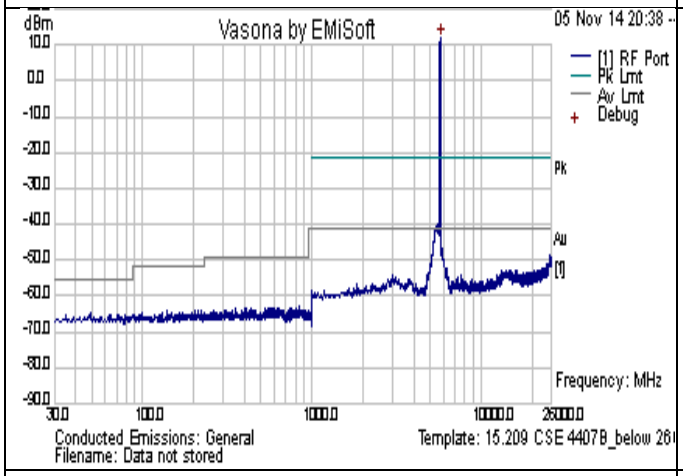
CSE-802.11a 5580MHz-above 26GHz-chain2



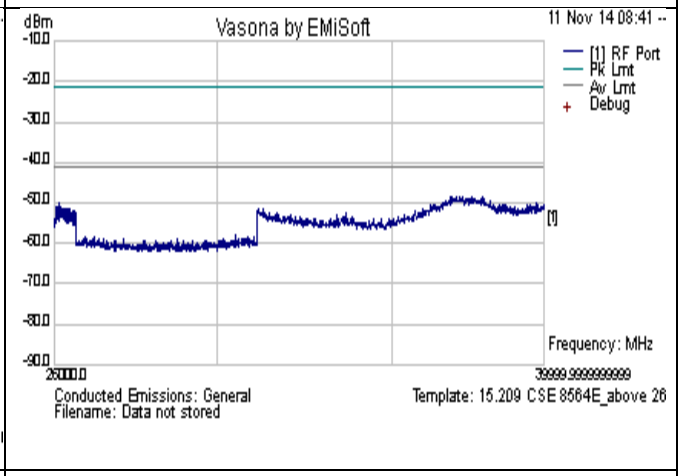
CSE-802.11a 5700MHz-below 26GHz-chain0



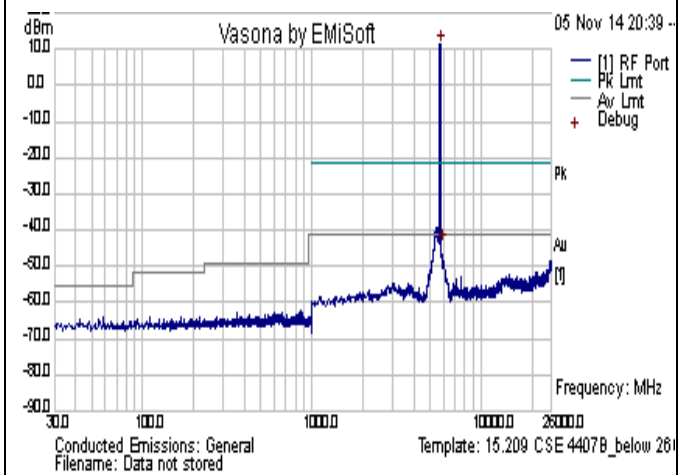
CSE-802.11a 5700MHz-above 26GHz-chain0



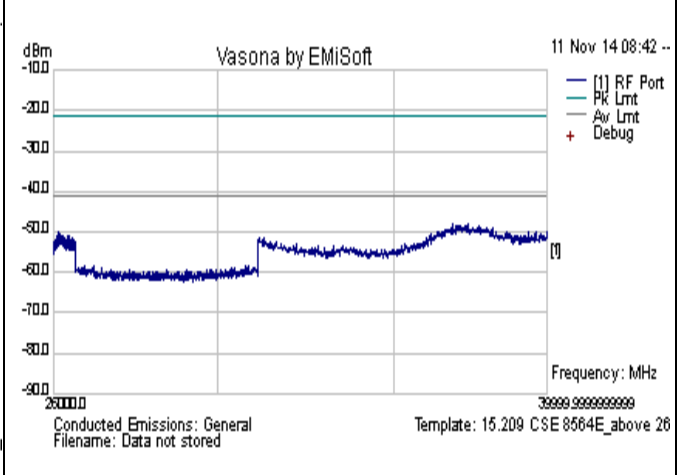
CSE-802.11a 5700MHz-below 26GHz-chain1



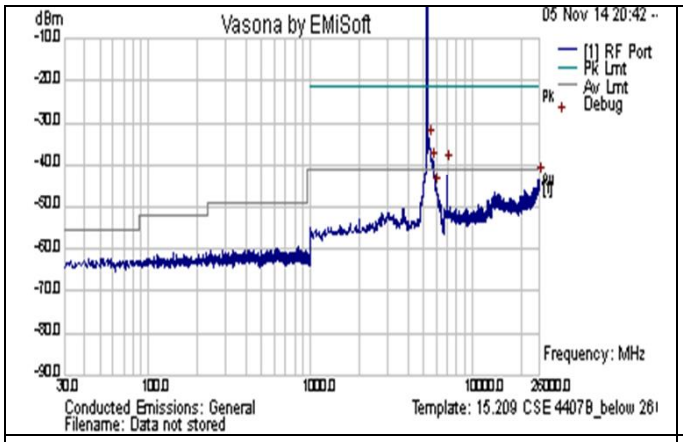
CSE-802.11a 5700MHz-above 26GHz-chain1



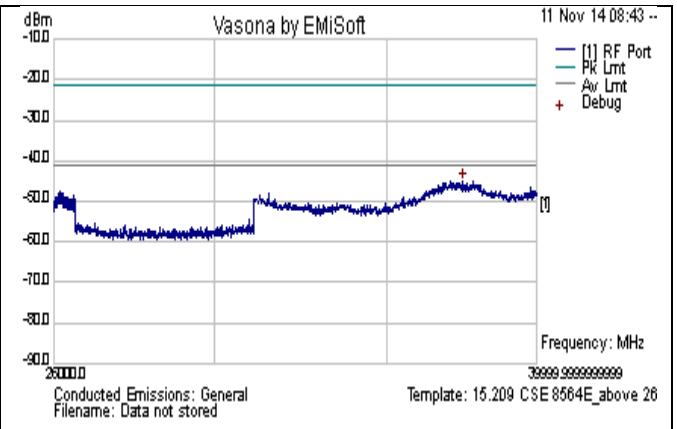
CSE-802.11a 5700MHz-below 26GHz-chain2



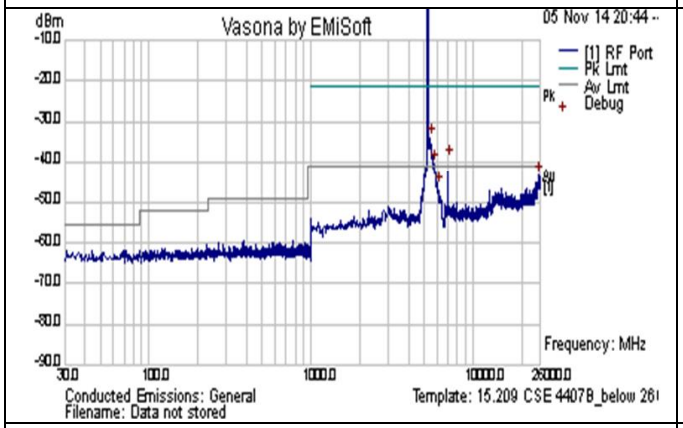
CSE-802.11a 5700MHz-above 26GHz-chain2



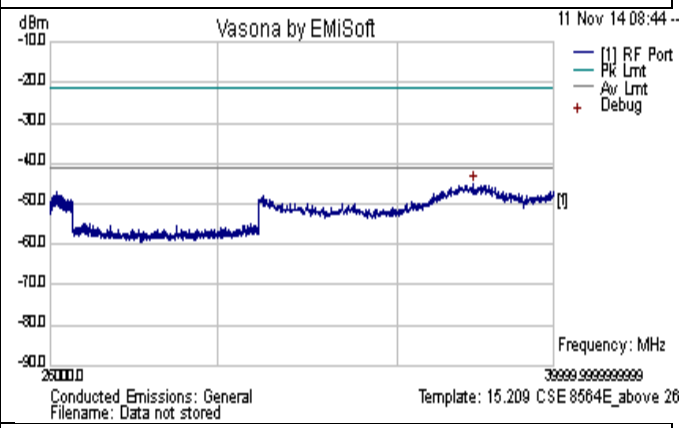
CSE-802.11n-20M-5260MHz-below 26GHz-chain0



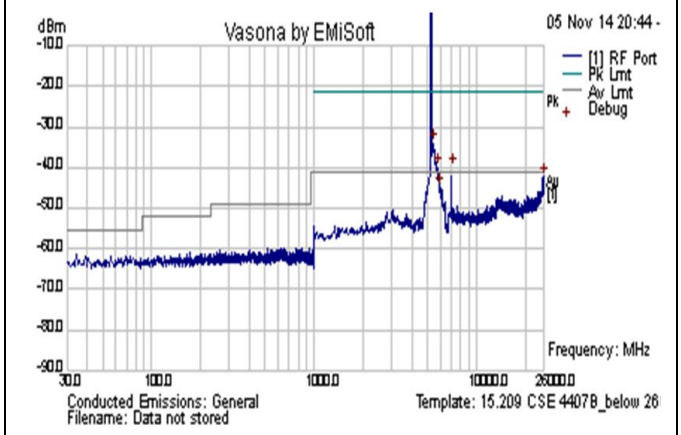
CSE-802.11n-20M-5260MHz-above 26GHz-chain0



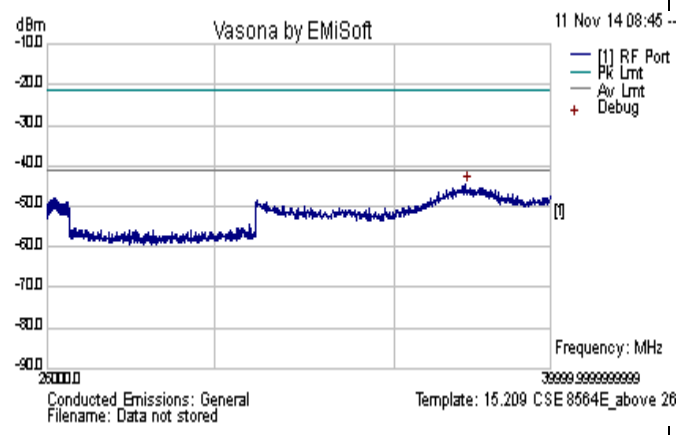
CSE-802.11n-20M-5260MHz-below 26GHz-chain1



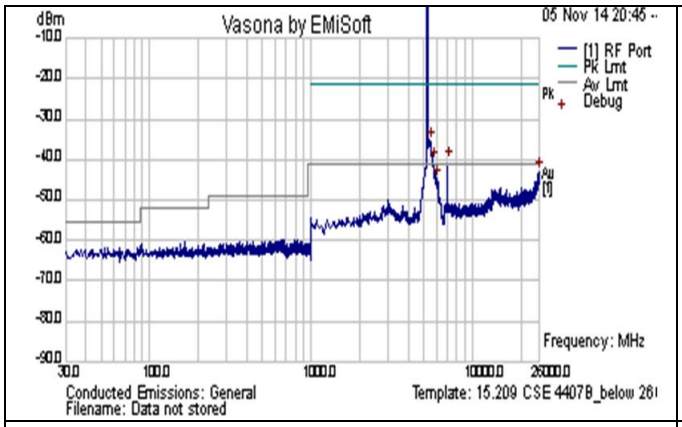
CSE-802.11n-20M-5260MHz-above 26GHz-chain1



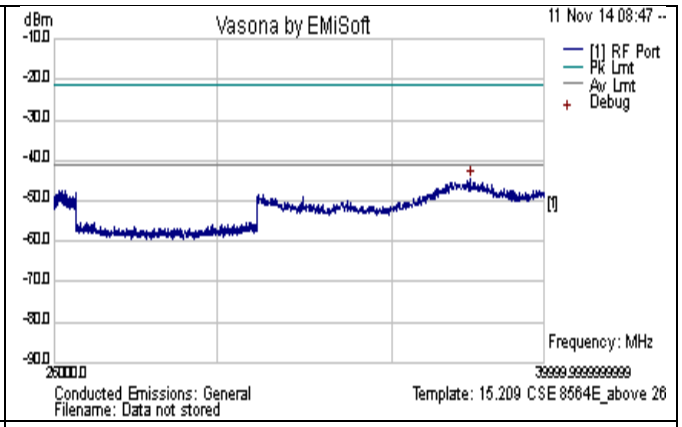
CSE-802.11n-20M-5260MHz-below 26GHz-chain2



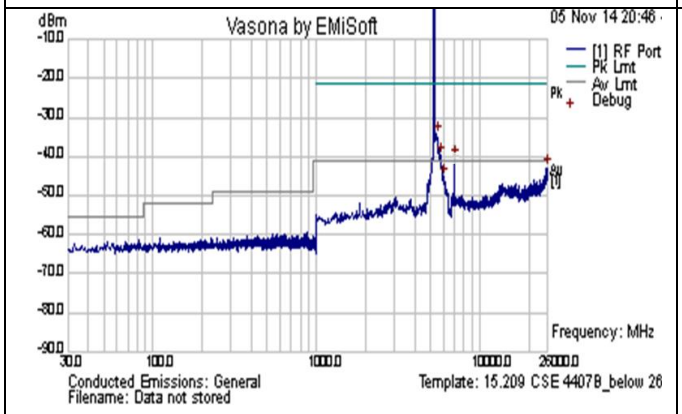
CSE-802.11n-20M-5260MHz-above 26GHz-chain2



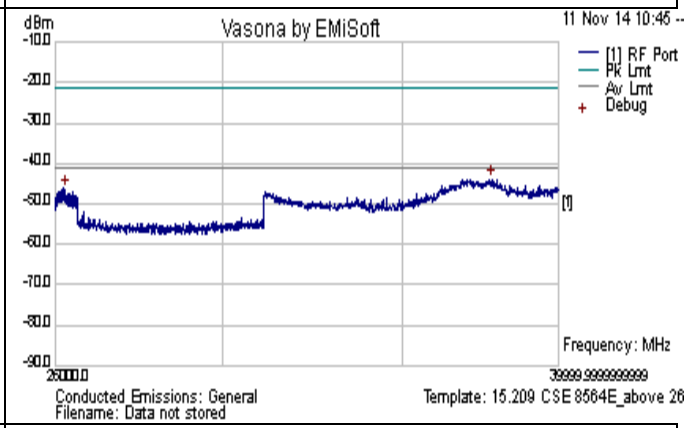
CSE-802.11n-20M-5300MHz-below 26GHz-chain0



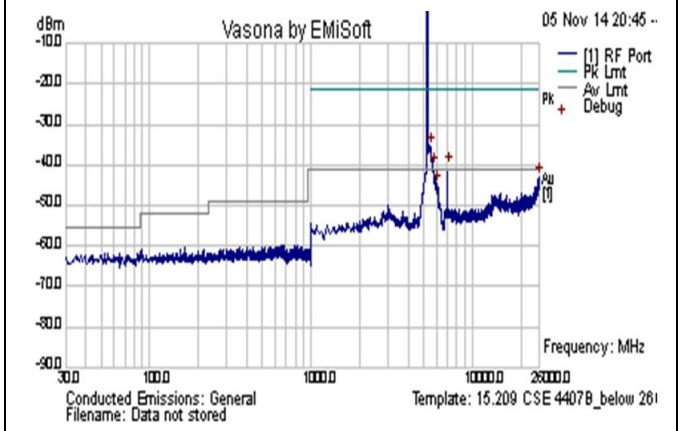
CSE-802.11n-20M-5300MHz-above 26GHz-chain0



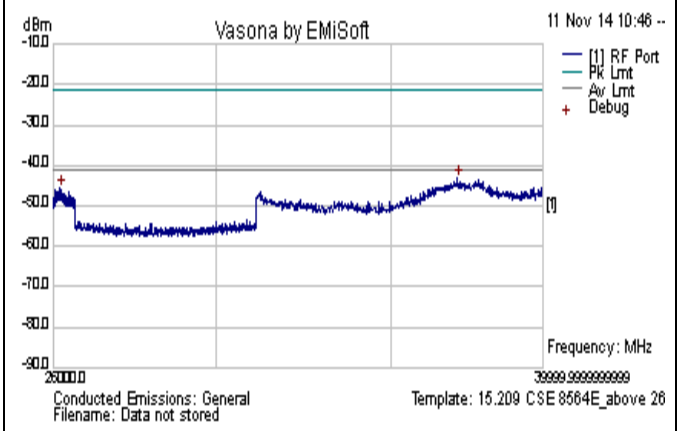
CSE-802.11n-20M-5300MHz-below 26GHz-chain1



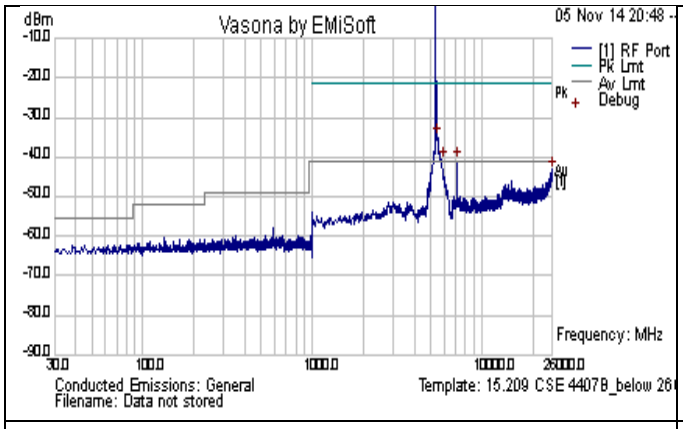
CSE-802.11n-20M-5300MHz-above 26GHz-chain1



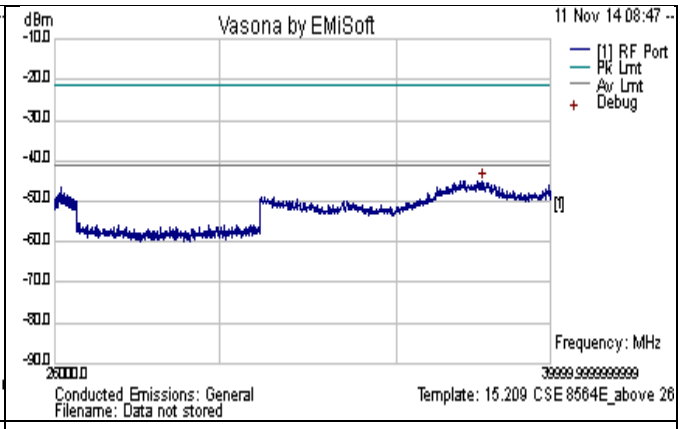
CSE-802.11n-20M-5300MHz-below 26GHz-chain2



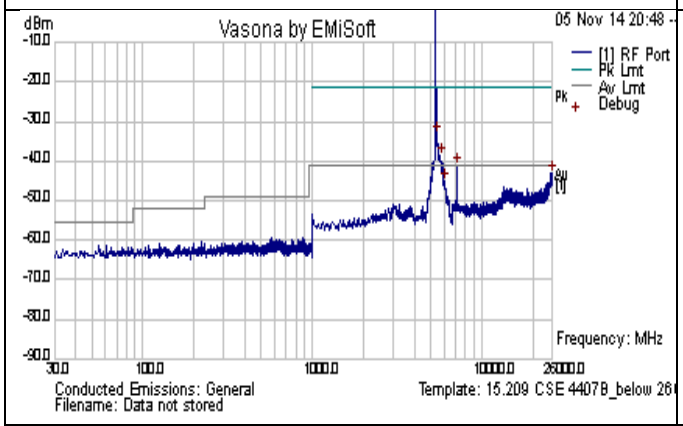
CSE-802.11n-20M-5300MHz-above 26GHz-chain2



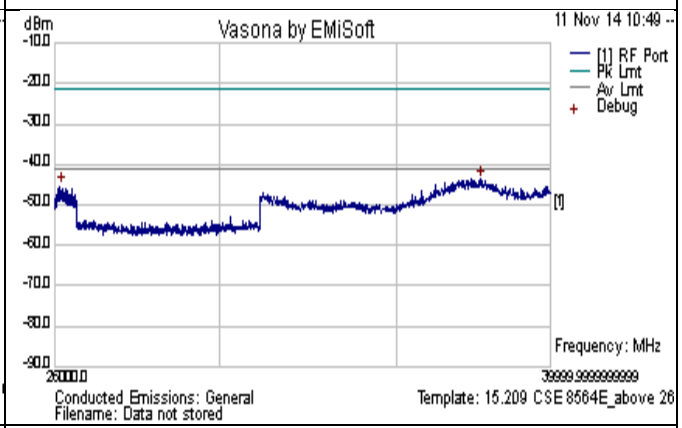
CSE-802.11n-20M-5320MHz-below 26GHz-chain0



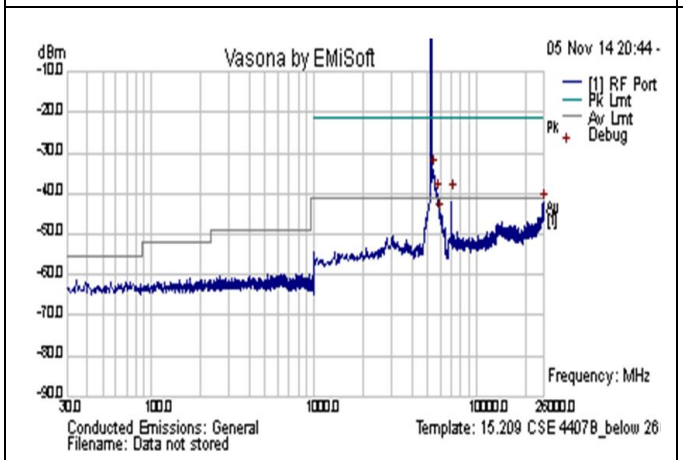
CSE-802.11n-20M-5320MHz-above 26GHz-chain0



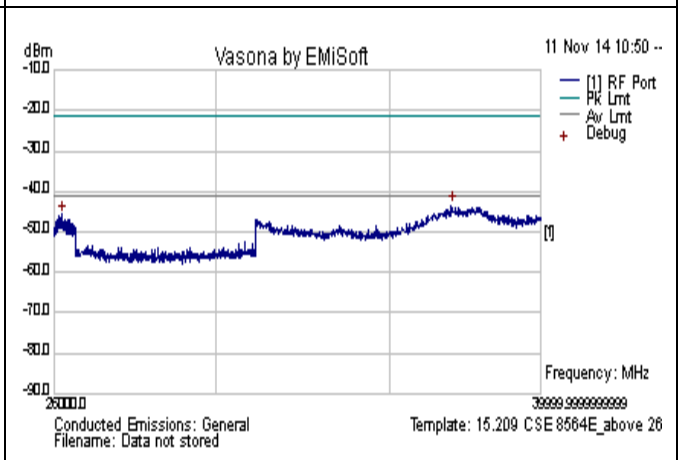
CSE-802.11n-20M-5320MHz-below 26GHz-chain1



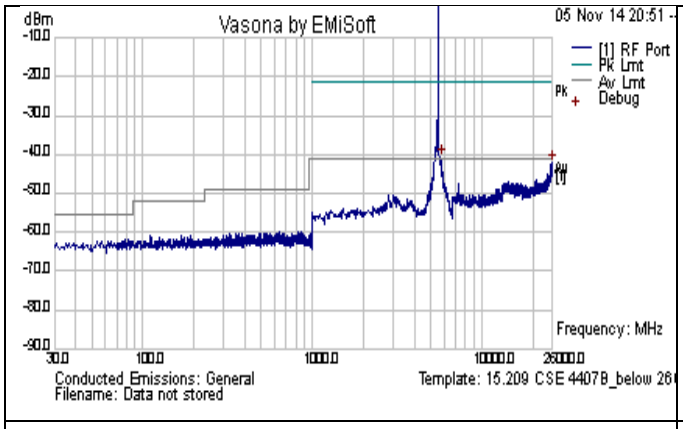
CSE-802.11n-20M-5320MHz-above 26GHz-chain1



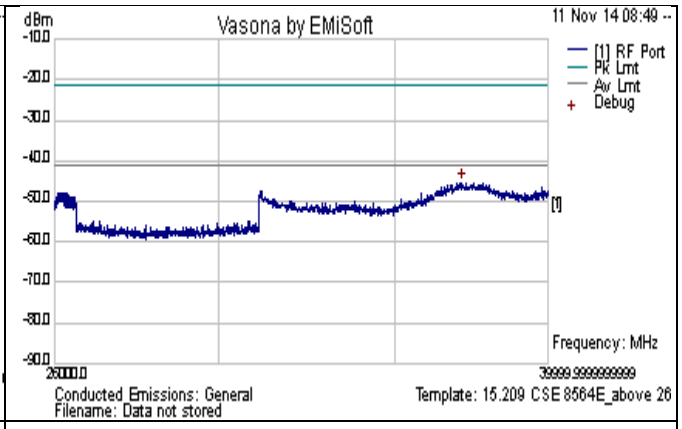
CSE-802.11n-20M-5320MHz-below 26GHz-chain2



CSE-802.11n-20M-5320MHz-above 26GHz-chain2



CSE-802.11n-20M-5500MHz-below 26GHz-chain0



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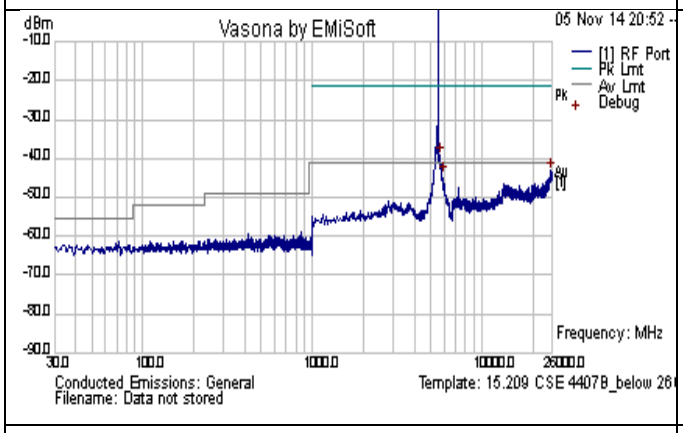
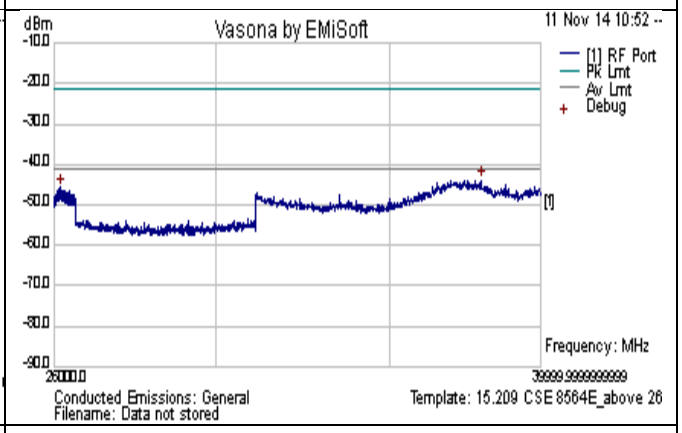
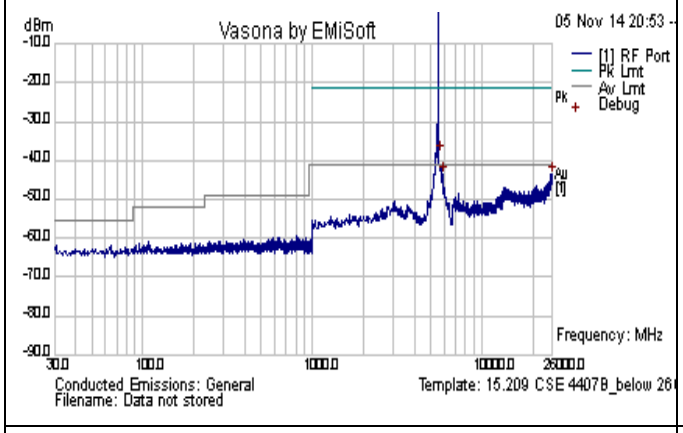


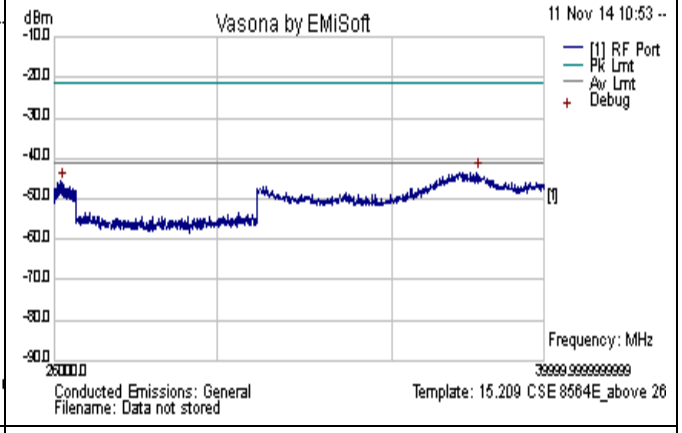
CSE-802.11n-20M-5500MHz-below 26GHz-chain1



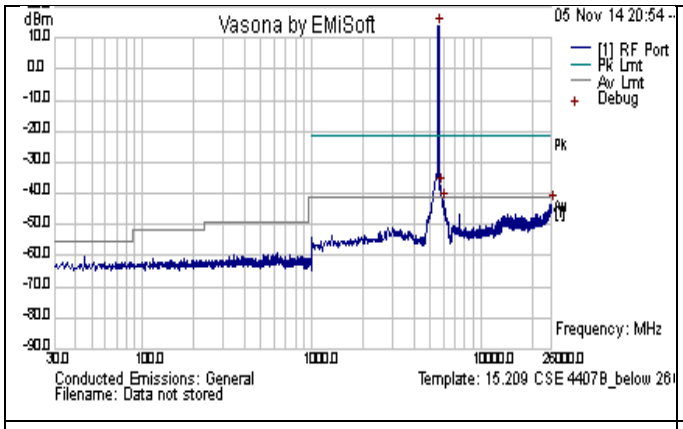
CSE-802.11n-20M-5500MHz-above 26GHz-chain1



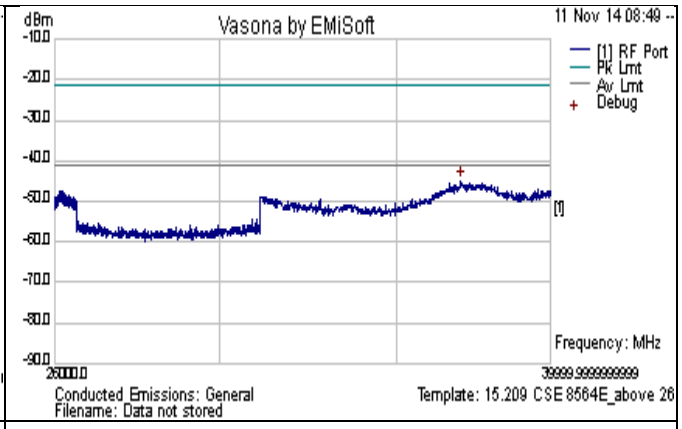
CSE-802.11n-20M-5500MHz-below 26GHz-chain2



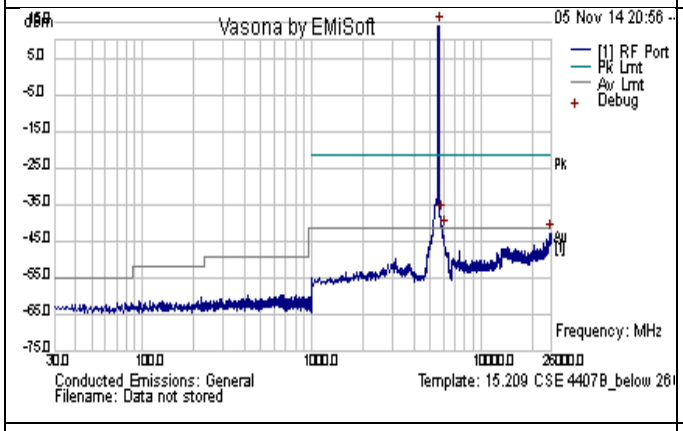
CSE-802.11n-20M-5500MHz-above 26GHz-chain2



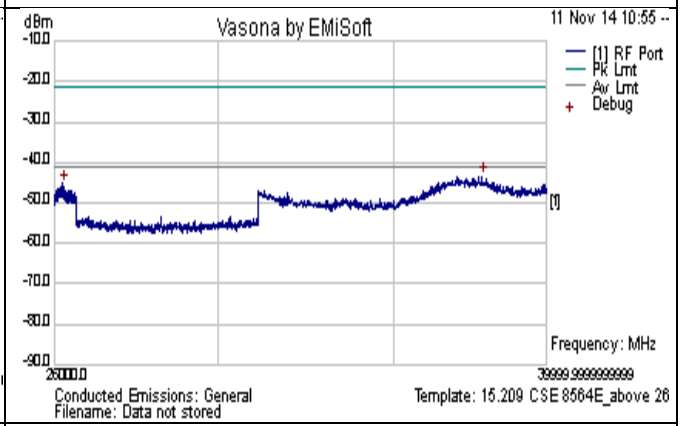
CSE-802.11n-20M-5580MHz-below 26GHz-chain0



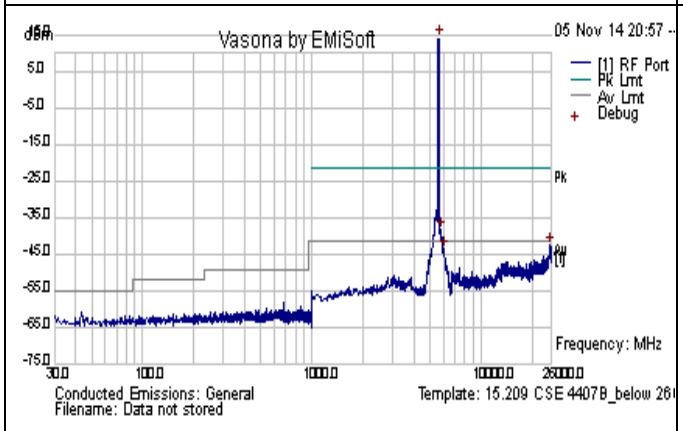
CSE-802.11n-20M-5580MHz-above 26GHz-chain0



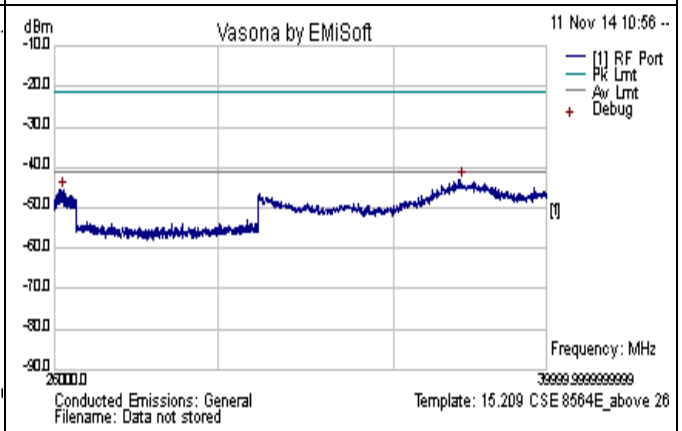
CSE-802.11n-20M-5580MHz-below 26GHz-chain1



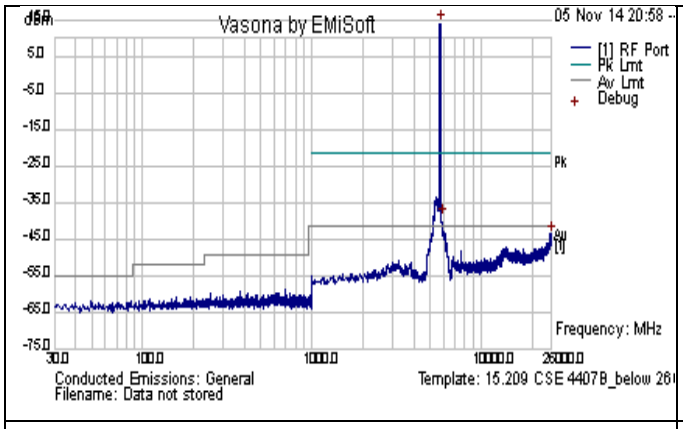
CSE-802.11-20M-5580MHz-above 26GHz-chain1



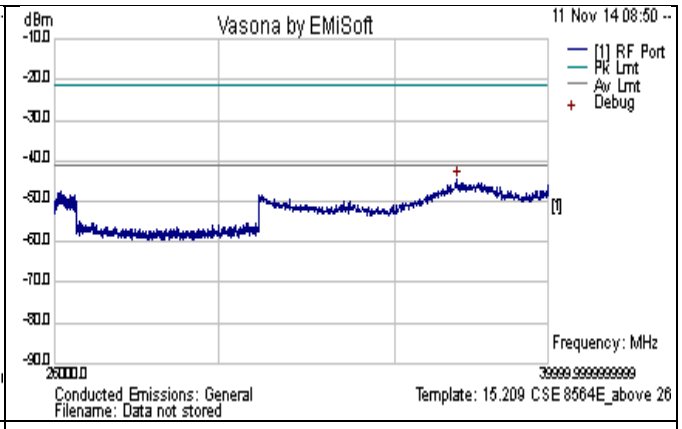
CSE-802.11n-20M-5580MHz-below 26GHz-chain2



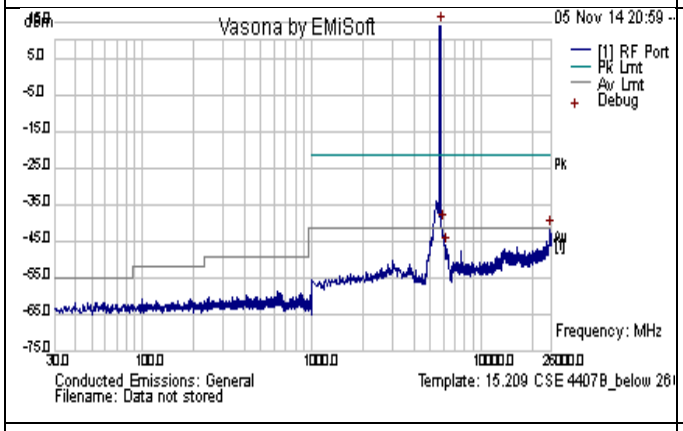
CSE-802.11n-20M-5580MHz-above 26GHz-chain2



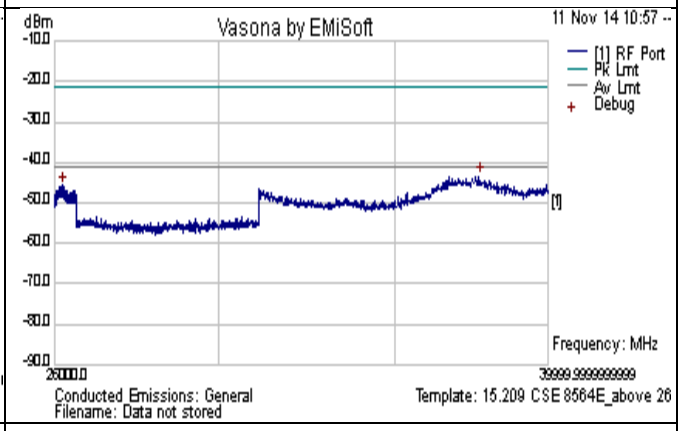
CSE-802.11n-20M-5700MHz-below 26GHz-chain0



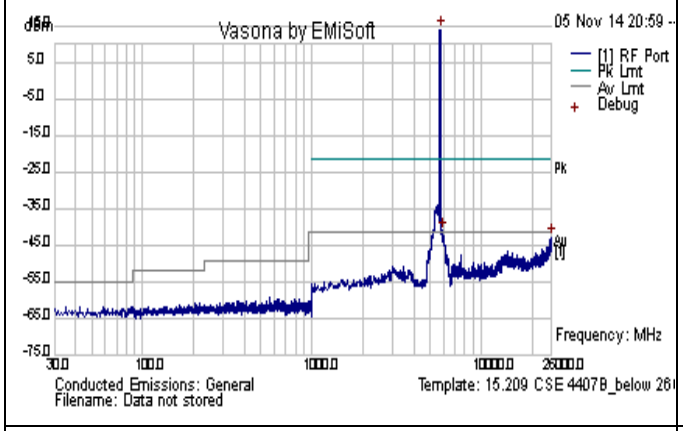
CSE-802.11n-20M-5700MHz-above 26GHz-chain0



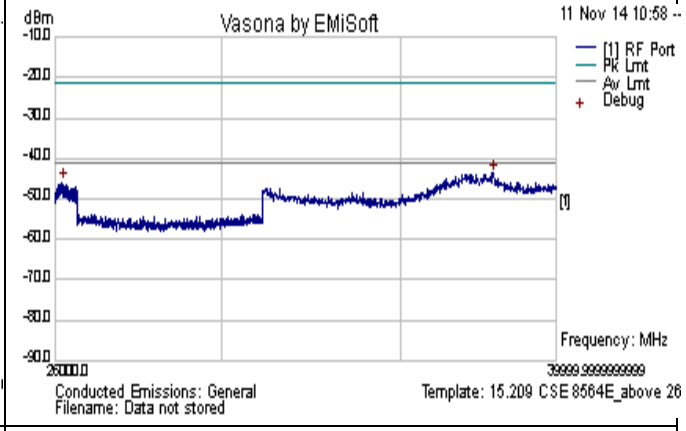
CSE-802.11n-20M-5700MHz-below 26GHz-chain1



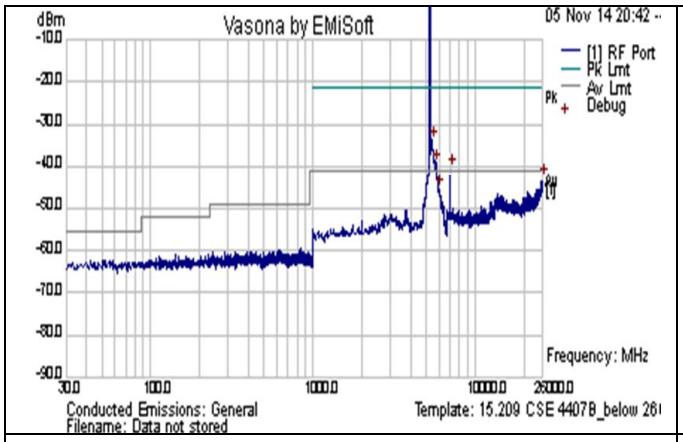
CSE-802.11n-20M-5700MHz-above 26GHz-chain1



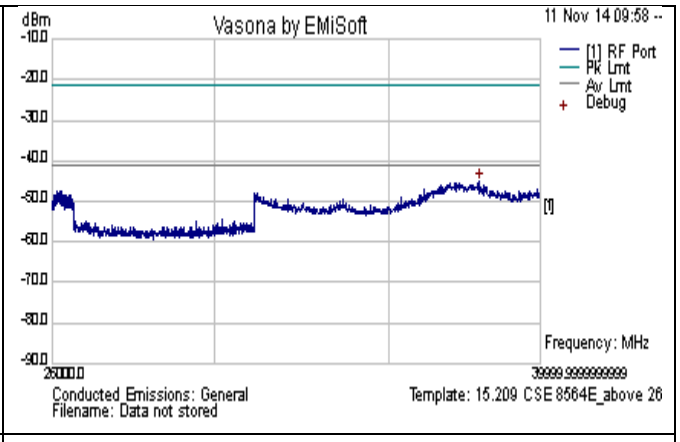
CSE-802.11n-20M-5700MHz-below 26GHz-chain2



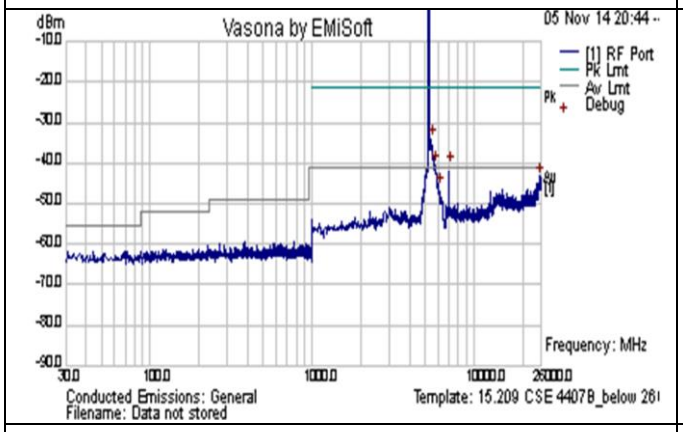
CSE-802.11n-20M-5700MHz-above 26GHz-chain2



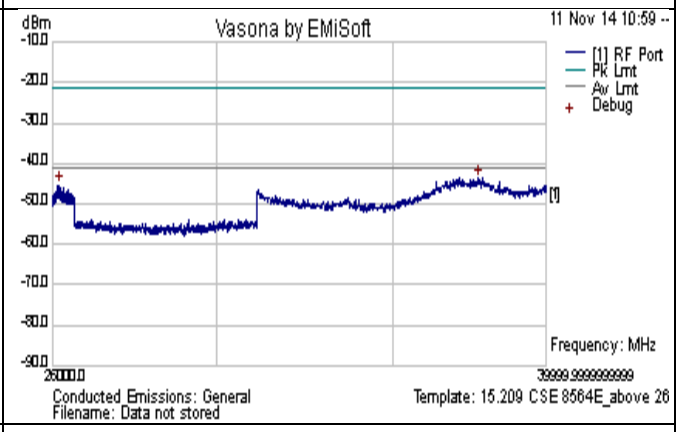
CSE-802.11n-40M-5270MHz-below 26GHz-chain0



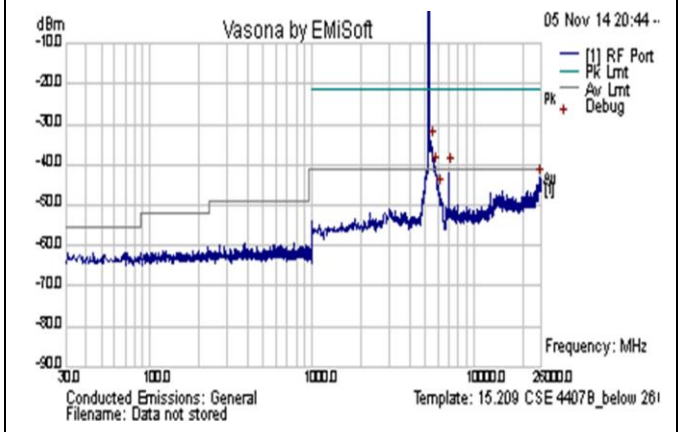
CSE-802.11n-40M-5270MHz-above 26GHz-chain0



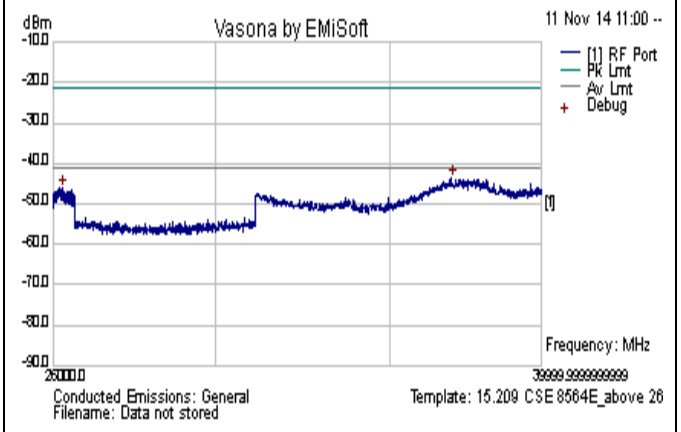
CSE-802.11n-40M-5270MHz-below 26GHz-chain1



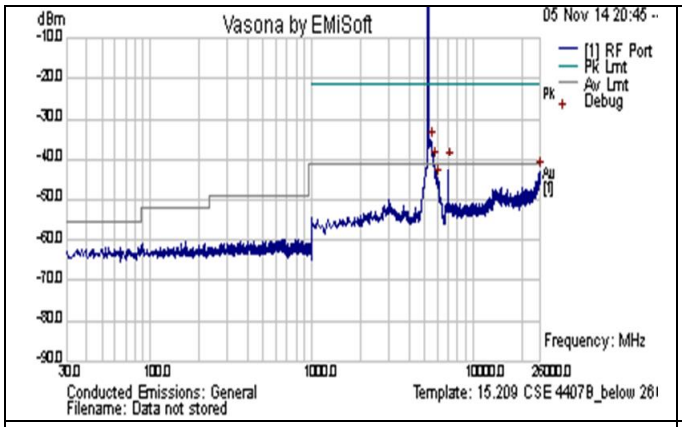
CSE-802.11n-40M-5270MHz-above 26GHz-chain1



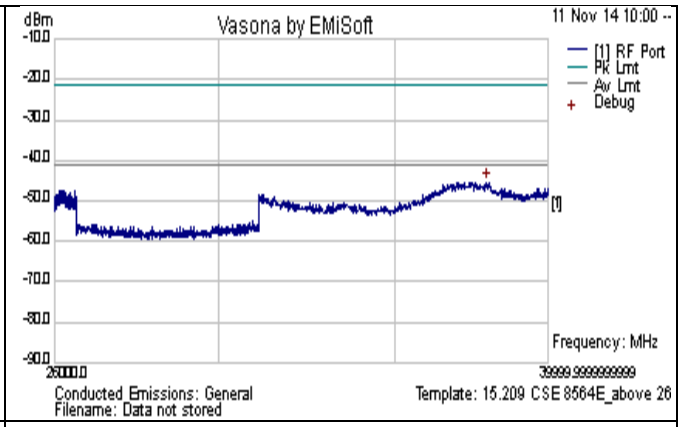
CSE-802.11n-40M-5270MHz-below 26GHz-chain2



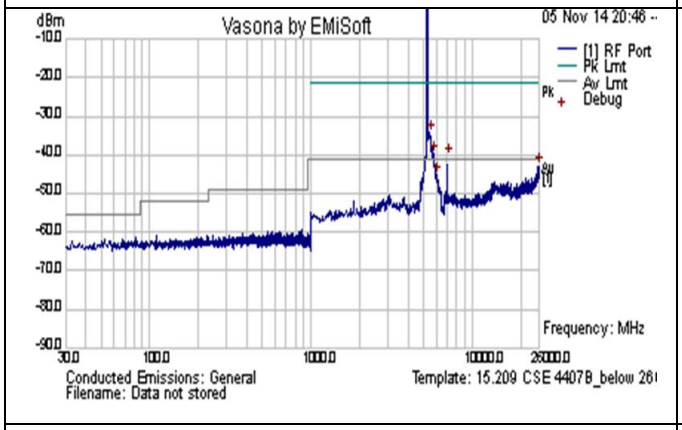
CSE-802.11n-40M-5270MHz-above 26GHz-chain2



CSE-802.11n-40M-5310MHz-below 26GHz-chain0



CSE-802.11n-40M-5310MHz-above 26GHz-chain0



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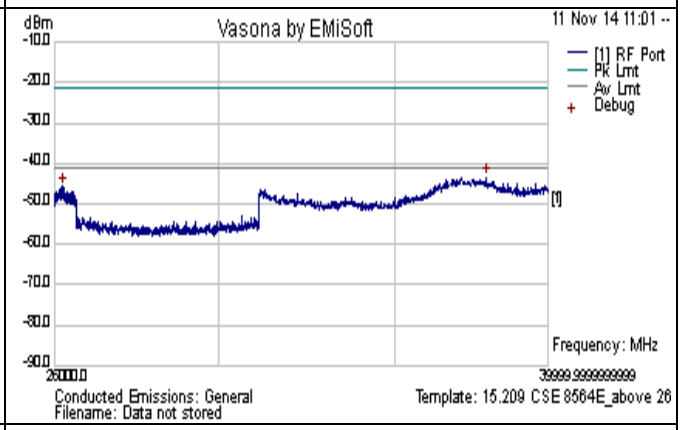

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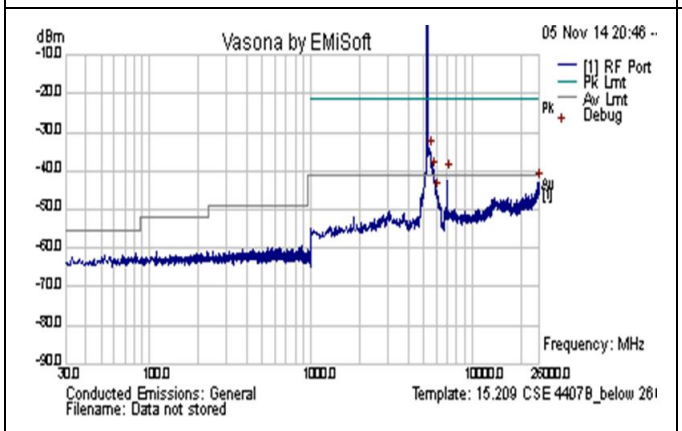

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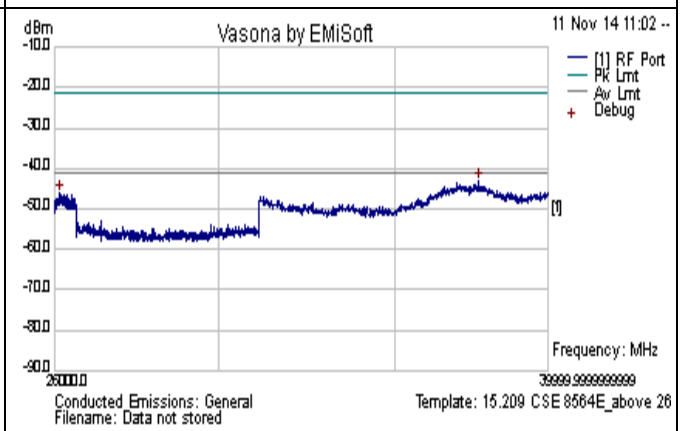

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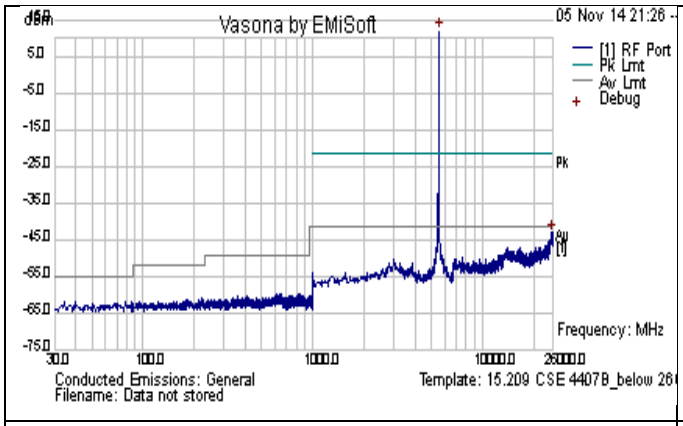

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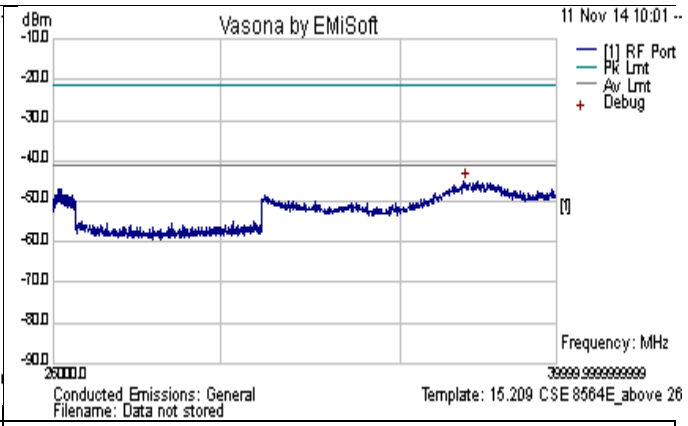

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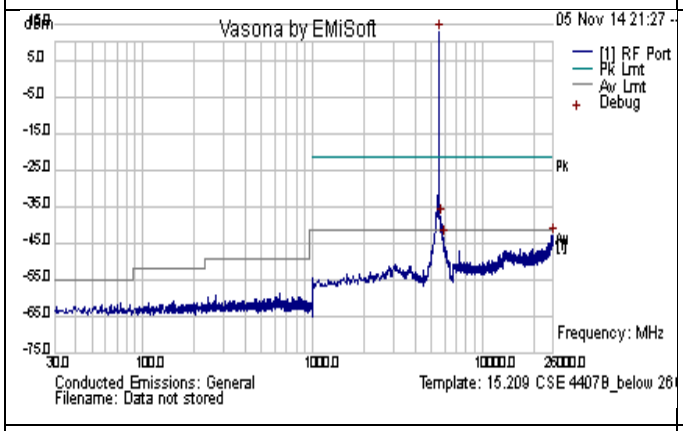
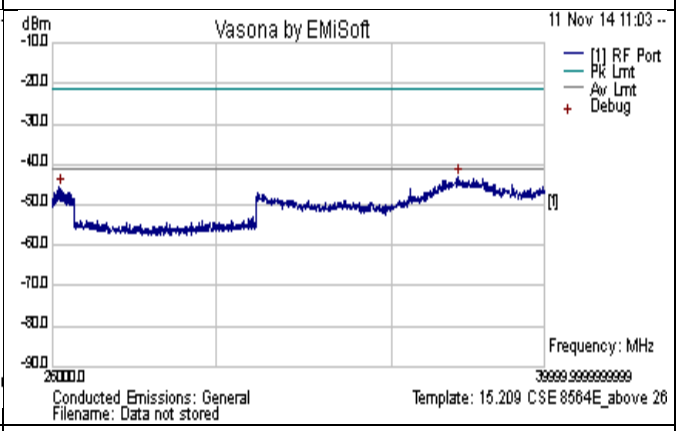
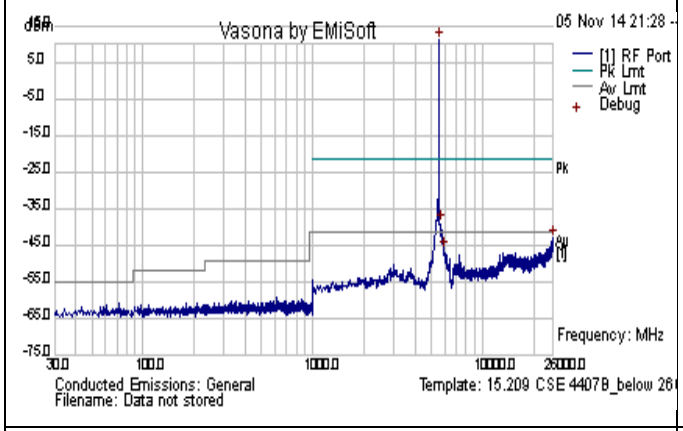


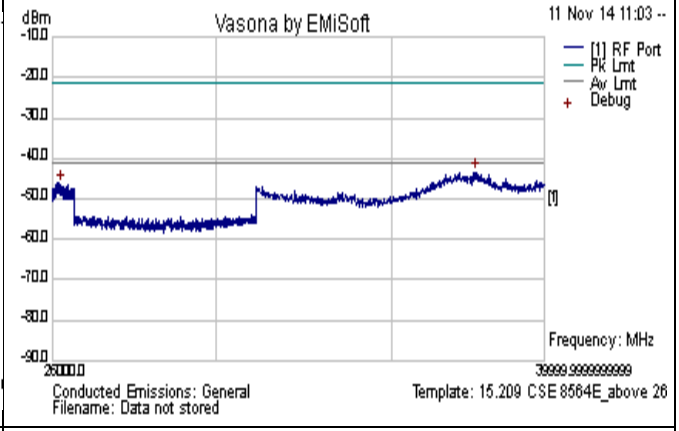
CSE-802.11n-40M-5510MHz-below 26GHz-chain1



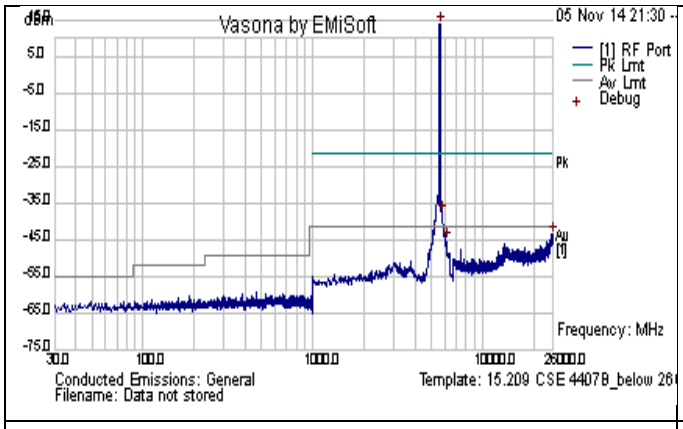
CSE-802.11n-40M-5510MHz-above 26GHz-chain1



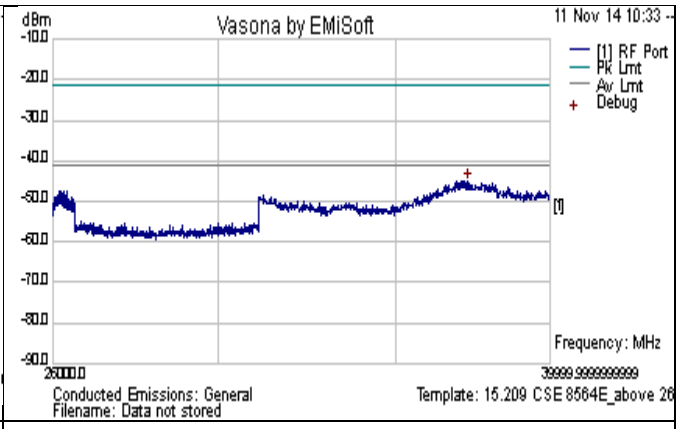
CSE-802.11n-40M-5510MHz-below 26GHz-chain2



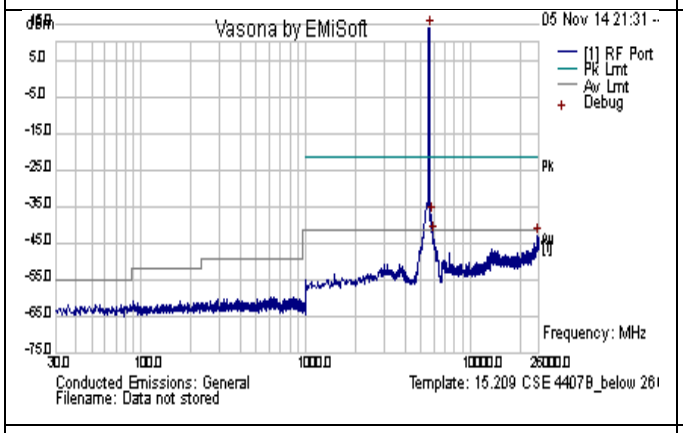
CSE-802.11n-40M-5510MHz-above 26GHz-chain2



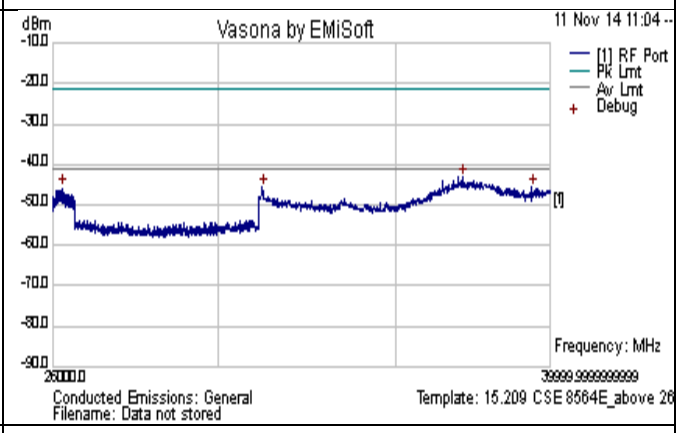
CSE-802.11n-40M-5590MHz-below 26GHz-chain0



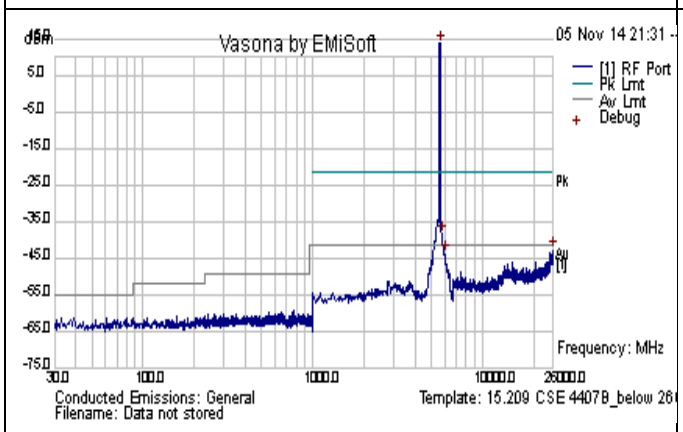
CSE-802.11n-40M-5590MHz-above 26GHz-chain0



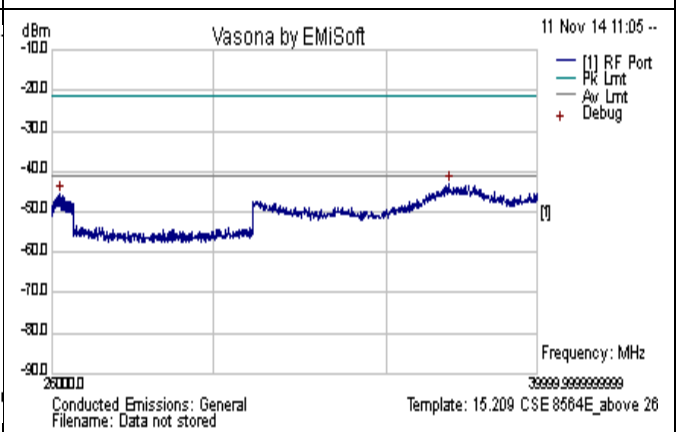
CSE-802.11n-40M-5590MHz-below 26GHz-chain1



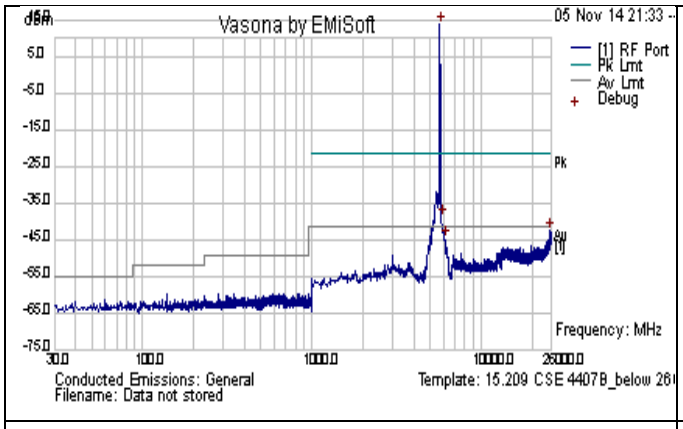
CSE-802.11n-40M-5590MHz-above 26GHz-chain1



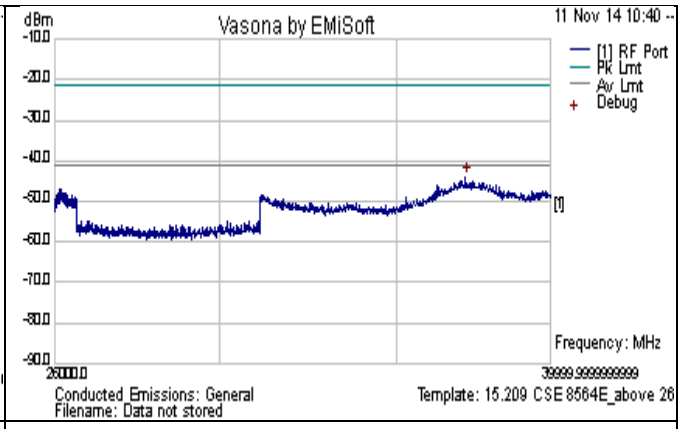
CSE-802.11n-40M-5590MHz-below 26GHz-chain2



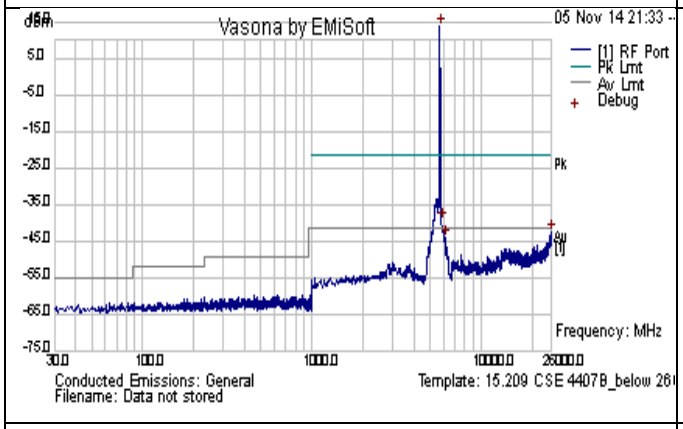
CSE-802.11n-40M-5590MHz-above 26GHz-chain2



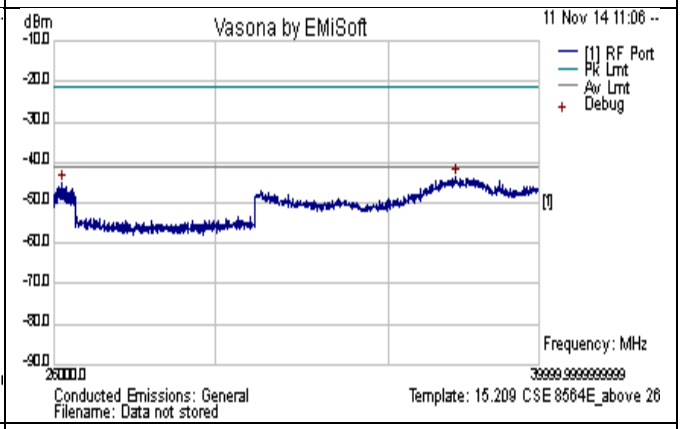
CSE-802.11n-40M-5670MHz-below 26GHz-chain0



CSE-802.11n-40M-5670MHz-above 26GHz-chain0



CSE-802.11n-40M-5670MHz-below 26GHz-chain1



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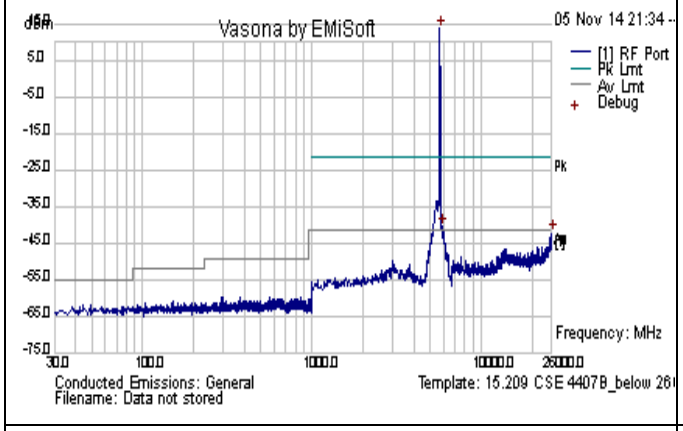
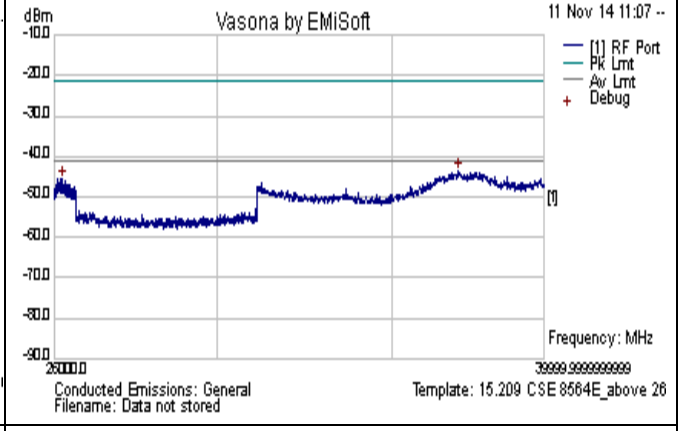
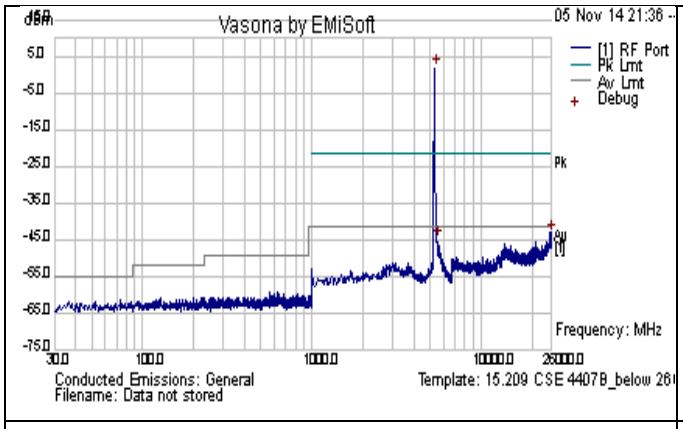


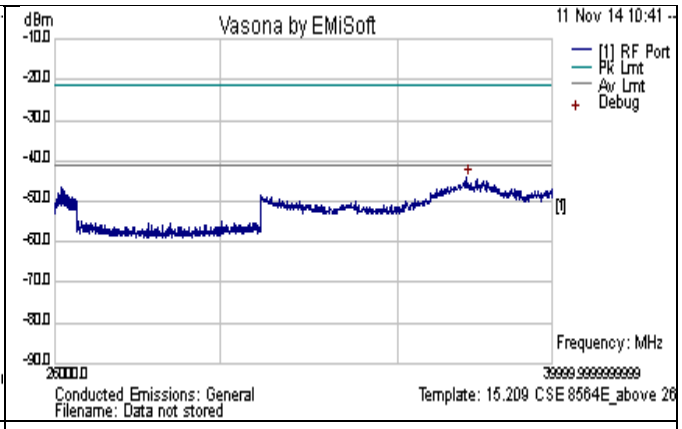
CSE-802.11n-40M-5670MHz-below 26GHz-chain2



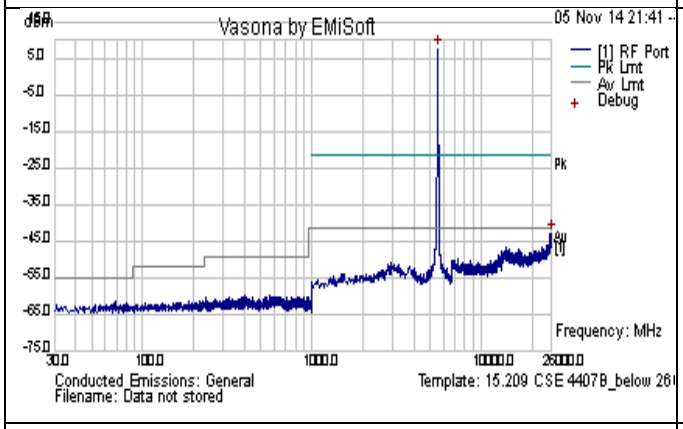
CSE-802.11n-40M-5670MHz-above 26GHz-chain2



CSE-802.11ac-80M-5290MHz-below 26GHz-chain0



CSE-802.11ac-80M-5290MHz-above 26GHz-chain0



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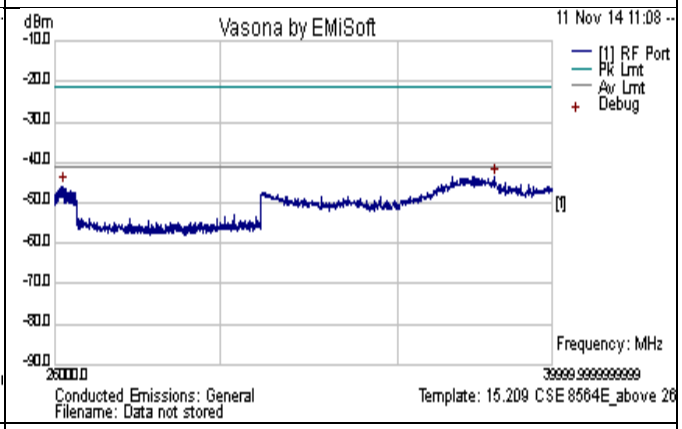

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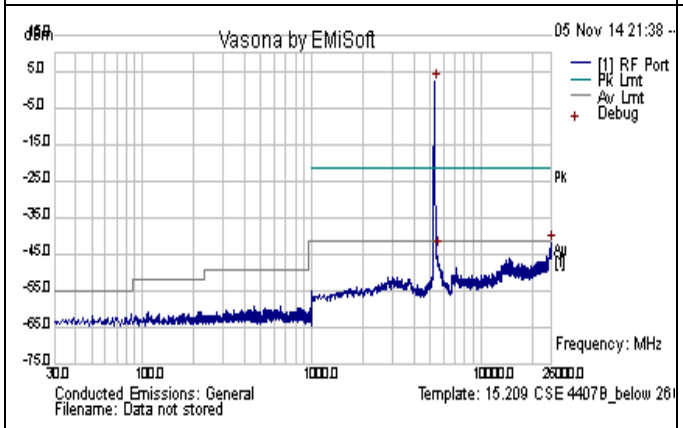
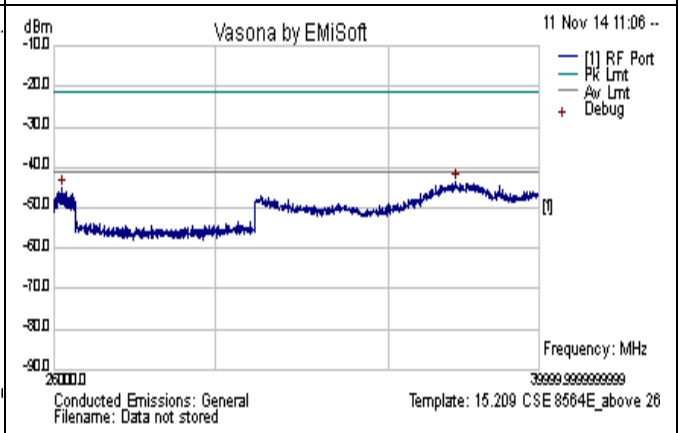
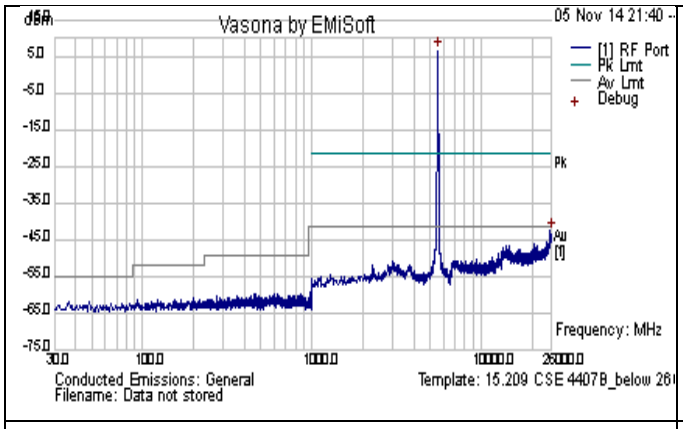


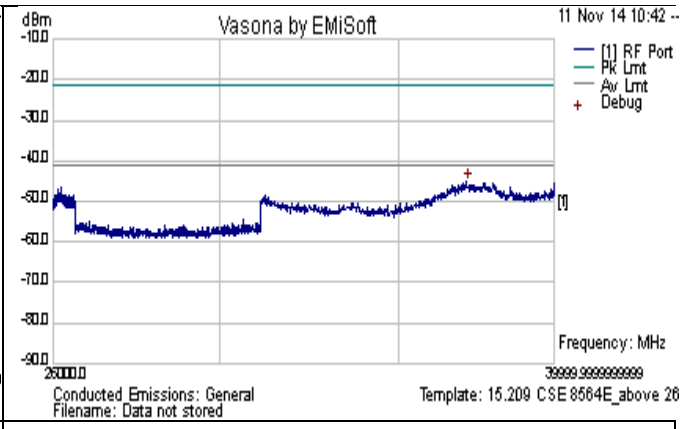
CSE-802.11ac-80M-5290MHz-below 26GHz-chain2



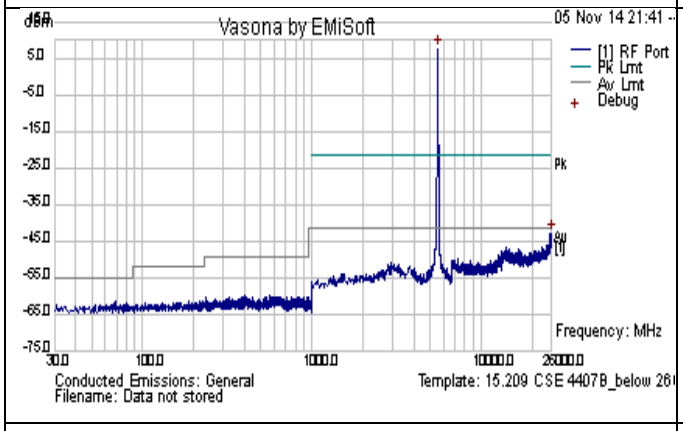
CSE-802.11ac-80M-5290MHz-above 26GHz-chain2



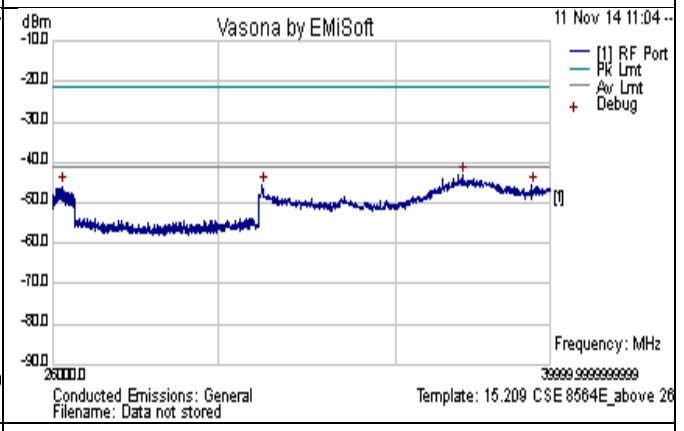
CSE-802.11ac-80M-5530MHz-below 26GHz-chain0



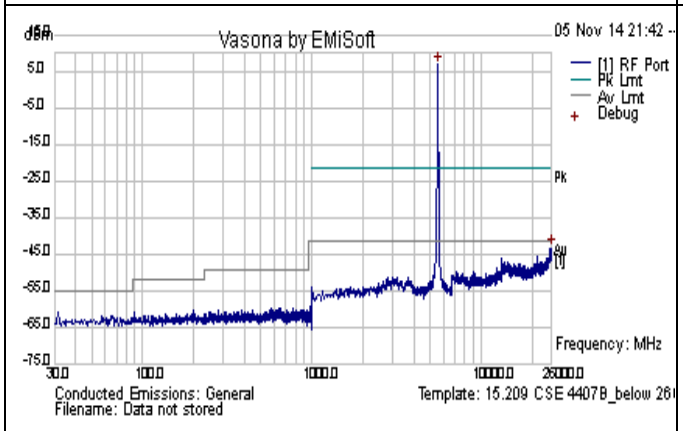
CSE-802.11ac-80M-5530MHz-above 26GHz-chain0



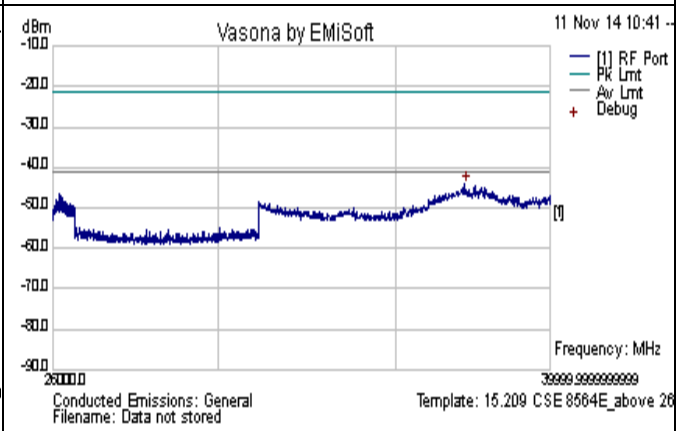
CSE-802.11ac-80M-5530MHz-below 26GHz-chain1



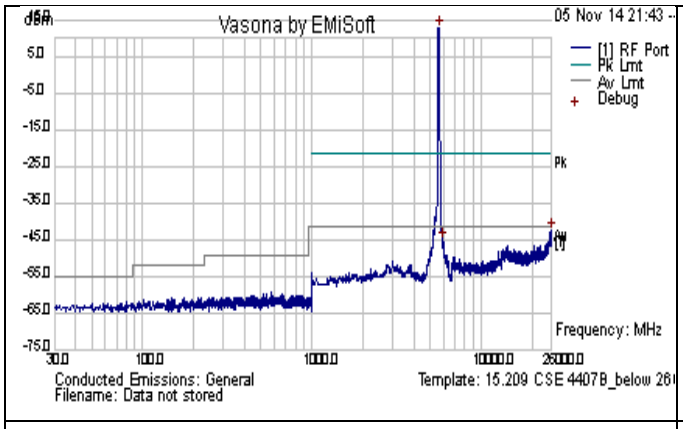
CSE-802.11ac-80M-5530MHz-above 26GHz-chain1



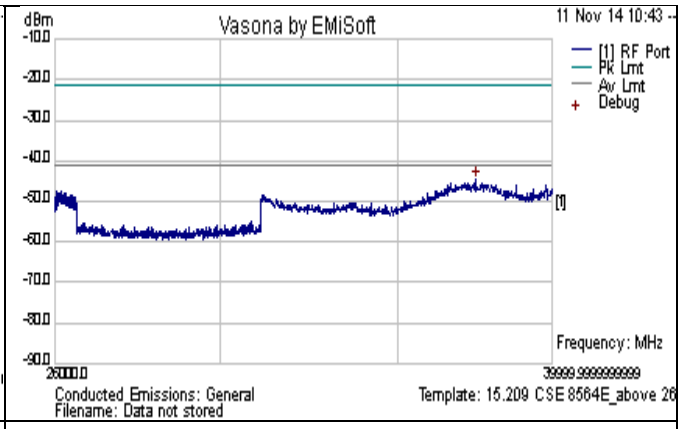
CSE-802.11ac-80M-5530MHz-below 26GHz-chain2



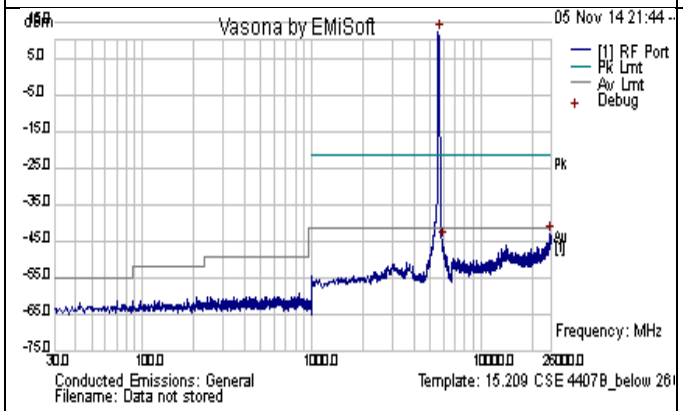
CSE-802.11ac-80M-5530MHz-above 26GHz-chain2



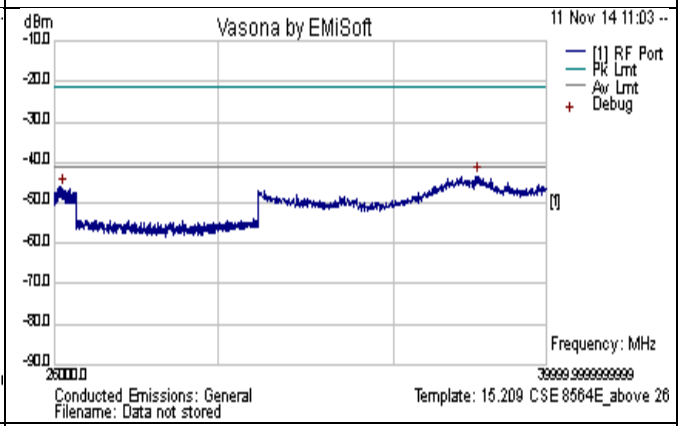
CSE-802.11ac-80M-5610MHz-below 26GHz-chain0



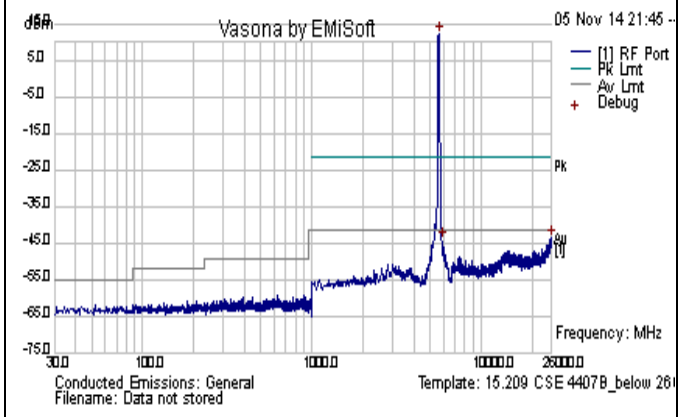
CSE-802.11ac-80M-5610MHz-above 26GHz-chain0



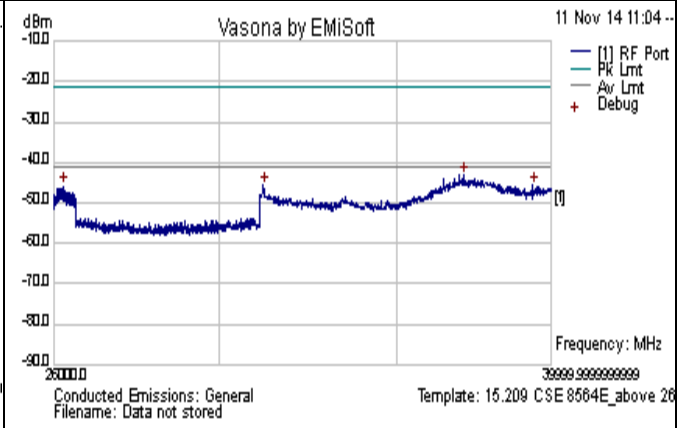
CSE-802.11ac-80M-5610MHz-below 26GHz-chain1



CSE-802.11ac-80M-5610MHz-above 26GHz-chain1



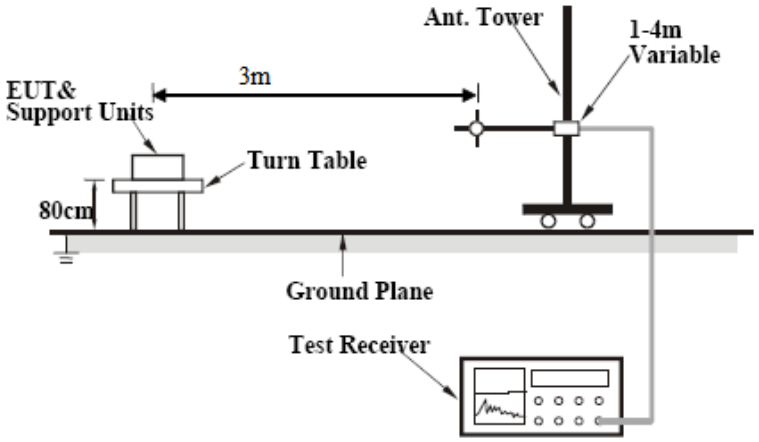
CSE-802.11ac-80M-5610MHz-below 26GHz-chain2



CSE-802.11ac-80M-5610MHz-above 26GHz-chain2

10.7 Radiated Emissions below 1GHz

Requirement(s):

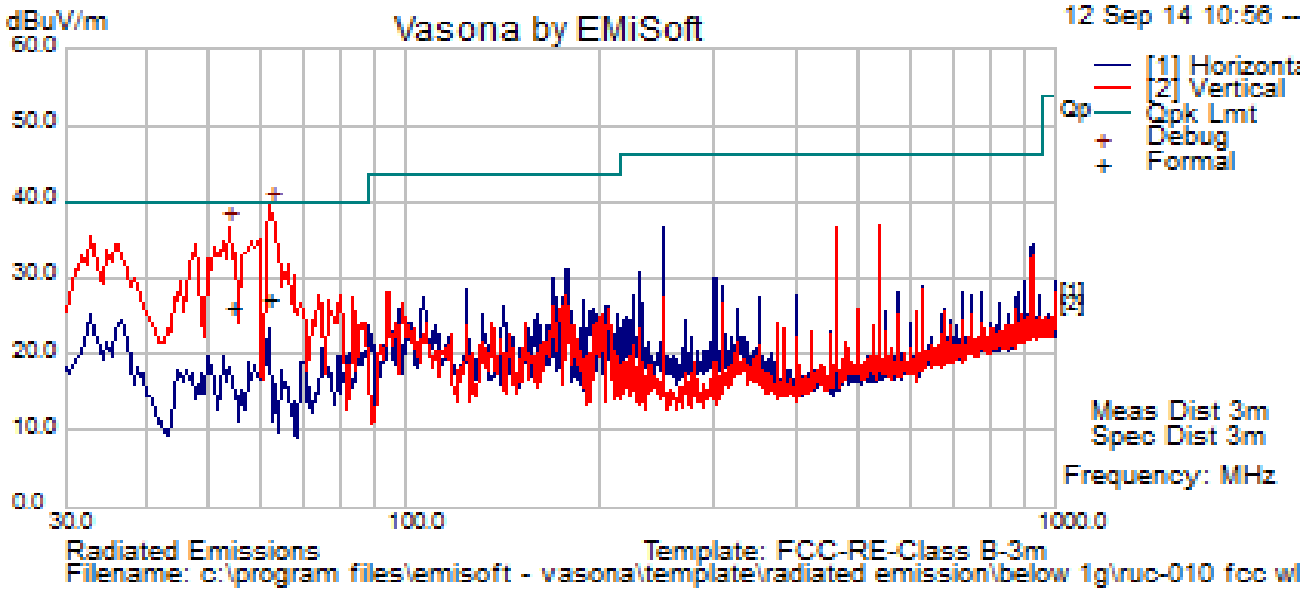
<table>
<tr><th>Spec</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§
15.407(b)
15.209 (a)</td><td>Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following 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></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></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></tr>
<tr><td>Result</td><td>☒ Pass ☐ Fail</td></tr>
</table>

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Radiated Emission Test Results (Below 1GHz)

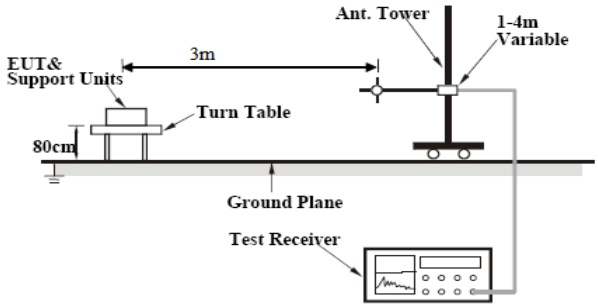
Test specification	below 1GHz			
Environmental Conditions:	Temp (°C):	26.1	Result	Pass
	Humidity (%)	47.5		
	Atmospheric (mbar):	1020		
Mains Power:	120VAC, 60Hz			
Tested by:	Teody Manansala			
Test Date:	Sep 12th, 2014			
Remarks:	N/A			



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
61.80	57.17	1.31	-31.34	27.14	Quasi Max	V	270.00	151.00	40.00	-12.86	Pass
53.88	56.09	1.21	-31.33	25.98	Quasi Max	V	166.00	296.00	40.00	-14.02	Pass

10.8 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	The EUT was scanned up to 40GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case.		
Result	☒ Pass ☐ Fail		

Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
Radiated Spurious Emission	1MHz	3MHz	1GHz - 25 GHz	Peak	Auto	Max hold	PK Measurement
Radiated Spurious Emission	1MHz	10Hz	1GHz - 25 GHz	Peak	Auto	Max hold	Ave Measurement

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

Radiated Emission Test Results (Above 1GHz)

Above 1GHz-40GHz – 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
17948.46	39.59	7.01	14.29	60.89	Peak Max	V	258.00	176.00	74.00	-13.11	Pass
17948.46	26.80	7.01	14.29	48.10	Average Max	V	258.00	176.00	54.00	-5.90	Pass
8493.00	40.51	4.04	5.40	49.95	Peak Max	H	219.00	260.00	74.00	-24.05	Pass
8493.00	27.40	4.04	5.40	36.84	Average Max	H	219.00	260.00	54.00	-17.16	Pass

Above 1GHz-40GHz – 802.11a – 5300MHz

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
12005.79	41.29	5.34	6.54	53.17	Peak Max	V	123.00	81.00	74.00	-20.83	Pass
12005.79	27.89	5.34	6.54	39.77	Average Max	V	123.00	81.00	54.00	-14.23	Pass
7450.05	41.39	4.32	3.54	49.25	Peak Max	H	111.00	140.00	74.00	-24.75	Pass
7450.05	28.40	4.32	3.54	36.26	Average Max	H	111.00	140.00	54.00	-17.74	Pass

Above 1GHz-40GHz – 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
17913.08	39.48	7.00	14.17	60.66	Peak Max	V	199.00	205.00	74.00	-13.34	Pass
17913.08	26.76	7.00	14.17	47.94	Average Max	V	199.00	205.00	54.00	-6.06	Pass
12060.02	41.19	5.36	6.51	53.06	Peak Max	V	348.00	85.00	74.00	-20.94	Pass
12060.02	28.13	5.36	6.51	40.00	Average Max	V	348.00	85.00	54.00	-14.00	Pass

Above 1GHz-40GHz – 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
12484.08	41.56	5.51	6.25	53.32	Peak Max	H	163.00	291.00	74.00	-20.68	Pass
12484.08	28.39	5.51	6.25	40.15	Average Max	H	163.00	291.00	54.00	-13.85	Pass
7647.81	40.44	4.20	3.87	48.52	Peak Max	V	236.00	277.00	74.00	-25.48	Pass
7647.81	27.64	4.20	3.87	35.71	Average Max	V	236.00	277.00	54.00	-18.29	Pass

Above 1GHz-40GHz – 802.11n-20M – 5300MHz

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
17957.32	39.96	7.01	14.32	61.29	Peak Max	H	214.00	270.00	74.00	-12.71	Pass
17957.32	26.73	7.01	14.32	48.06	Average Max	H	214.00	270.00	54.00	-5.94	Pass
2802.00	35.64	2.22	-2.50	35.35	Peak Max	V	112.00	186.00	74.00	-38.65	Pass
2802.00	22.07	2.22	-2.50	21.78	Average Max	V	112.00	186.00	54.00	-32.22	Pass

Above 1GHz-40GHz – 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
18001.35	53.55	7.02	0.00	60.57	Peak Max	H	117.00	351.00	74.00	-13.43	Pass
18001.35	41.18	7.02	0.00	48.19	Average Max	H	117.00	351.00	54.00	-5.81	Pass
3894.77	37.14	2.83	-0.38	39.59	Peak Max	H	102.00	312.00	74.00	-34.41	Pass
3894.77	23.80	2.83	-0.38	26.25	Average Max	H	102.00	312.00	54.00	-27.75	Pass

Above 1GHz-40GHz – 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
3877.90	37.66	2.82	-0.41	40.07	Peak Max	H	310.00	316.00	74.00	-33.93	Pass
3877.90	23.75	2.82	-0.41	26.16	Average Max	H	310.00	316.00	54.00	-27.84	Pass
7523.59	41.25	4.28	3.67	49.20	Peak Max	H	287.00	179.00	74.00	-24.80	Pass
7523.59	28.19	4.28	3.67	36.14	Average Max	H	287.00	179.00	54.00	-17.86	Pass

Above 1GHz-40GHz – 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
8410.07	40.13	4.04	5.24	49.40	Peak Max	V	239.00	301.00	74.00	-24.60	Pass
8410.07	27.09	4.04	5.24	36.36	Average Max	V	239.00	301.00	54.00	-17.64	Pass
4090.71	35.96	2.92	-0.20	38.68	Peak Max	V	293.00	151.00	74.00	-35.32	Pass
4090.71	23.07	2.92	-0.20	25.79	Average Max	V	293.00	151.00	54.00	-28.21	Pass

Above 1GHz-40GHz – 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
2848.18	35.77	2.23	-2.39	35.60	Peak Max	V	100.00	128.00	74.00	-38.40	Pass
2848.18	22.77	2.23	-2.39	22.60	Average Max	V	100.00	128.00	54.00	-31.40	Pass
4600.26	36.60	3.11	-0.16	39.55	Peak Max	H	212.00	331.00	74.00	-34.45	Pass
4600.26	23.39	3.11	-0.16	26.34	Average Max	H	212.00	331.00	54.00	-27.66	Pass

Above 1GHz-40GHz – 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
3998.99	36.58	2.89	-0.18	39.29	Peak Max	H	318.00	342.00	74.00	-34.71	Pass
3998.99	23.45	2.89	-0.18	26.16	Average Max	H	318.00	342.00	54.00	-27.84	Pass
12149.39	40.39	5.39	6.45	52.23	Peak Max	V	196.00	159.00	74.00	-21.77	Pass
12149.39	27.55	5.39	6.45	39.40	Average Max	V	196.00	159.00	54.00	-14.60	Pass

Above 1GHz-40GHz – 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
4981.46	38.03	3.23	0.33	41.59	Peak Max	V	280.00	325.00	74.00	-32.41	Pass
4981.46	25.21	3.23	0.33	28.77	Average Max	V	280.00	325.00	54.00	-25.23	Pass
2746.44	36.45	2.21	-2.64	36.01	Peak Max	H	126.00	310.00	74.00	-37.99	Pass
2746.44	22.23	2.21	-2.64	21.79	Average Max	H	126.00	310.00	54.00	-32.21	Pass

Above 1GHz-40GHz – 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
3763.61	37.37	2.75	-0.63	39.49	Peak Max	V	252.00	4.00	74.00	-34.51	Pass
3763.61	24.25	2.75	-0.63	26.37	Average Max	V	252.00	4.00	54.00	-27.63	Pass
1410.66	35.06	1.35	-6.42	29.99	Peak Max	H	141.00	21.00	74.00	-44.01	Pass
1410.66	21.66	1.35	-6.42	16.59	Average Max	H	141.00	21.00	54.00	-37.41	Pass

Above 1GHz-40GHz – 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
11912.48	41.59	5.31	6.42	53.32	Peak Max	V	122.00	96.00	74.00	-20.68	Pass
11912.48	28.33	5.31	6.42	40.06	Average Max	V	122.00	96.00	54.00	-13.94	Pass
8256.86	40.47	4.02	4.95	49.44	Peak Max	H	181.00	98.00	74.00	-24.56	Pass
8256.86	27.75	4.02	4.95	36.71	Average Max	H	181.00	98.00	54.00	-17.29	Pass

Above 1GHz-40GHz – 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
12319.53	41.27	5.45	6.35	53.07	Peak Max	V	307.00	121.00	74.00	-20.93	Pass
12319.53	28.22	5.45	6.35	40.02	Average Max	V	307.00	121.00	54.00	-13.98	Pass
3929.51	36.75	2.85	-0.31	39.29	Peak Max	H	340.00	86.00	74.00	-34.71	Pass
3929.51	23.59	2.85	-0.31	26.13	Average Max	H	340.00	86.00	54.00	-27.87	Pass

Above 1GHz-40GHz – 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
11653.38	41.13	5.22	6.05	52.39	Peak Max	V	105.00	229.00	74.00	-21.61	Pass
11653.38	28.19	5.22	6.05	39.46	Average Max	V	105.00	229.00	54.00	-14.54	Pass
8340.96	40.51	4.03	5.11	49.65	Peak Max	H	248.00	249.00	74.00	-24.35	Pass
8340.96	27.87	4.03	5.11	37.01	Average Max	H	248.00	249.00	54.00	-16.99	Pass

Above 1GHz-40GHz – 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
11588.04	41.79	5.19	5.95	52.94	Peak Max	H	118.00	58.00	74.00	-21.06	Pass
11588.04	28.19	5.19	5.95	39.34	Average Max	H	118.00	58.00	54.00	-14.66	Pass
3886.55	37.01	2.82	-0.39	39.44	Peak Max	V	145.00	32.00	74.00	-34.56	Pass
3886.55	23.90	2.82	-0.39	26.33	Average Max	V	145.00	32.00	54.00	-27.67	Pass

Above 1GHz-40GHz – 802.11n-40M – 5590MHz

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
12061.25	40.92	5.36	6.51	52.79	Peak Max	V	99.00	204.00	74.00	-21.21	Pass
12061.25	28.16	5.36	6.51	40.02	Average Max	V	99.00	204.00	54.00	-13.98	Pass
5080.83	40.20	3.27	0.45	43.91	Peak Max	V	203.00	131.00	74.00	-30.09	Pass
5080.83	27.26	3.27	0.45	30.98	Average Max	V	203.00	131.00	54.00	-23.02	Pass

Above 1GHz-40GHz – 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
12063.34	40.92	5.36	6.50	52.79	Peak Max	V	130.00	94.00	74.00	-21.21	Pass
12063.34	28.19	5.36	6.50	40.05	Average Max	V	130.00	94.00	54.00	-13.95	Pass
7566.68	40.85	4.25	3.74	48.84	Peak Max	H	186.00	97.00	74.00	-25.16	Pass
7566.68	27.93	4.25	3.74	35.92	Average Max	H	186.00	97.00	54.00	-18.08	Pass

Above 1GHz-40GHz – 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
12265.26	40.62	5.43	6.38	52.43	Peak Max	V	239.00	270.00	74.00	-21.57	Pass
12265.26	27.84	5.43	6.38	39.65	Average Max	V	239.00	270.00	54.00	-14.35	Pass
7417.12	41.26	4.34	3.48	49.08	Peak Max	H	230.00	166.00	74.00	-24.92	Pass
7417.12	28.30	4.34	3.48	36.12	Average Max	H	230.00	166.00	54.00	-17.88	Pass

Above 1GHz-40GHz – 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
12111.27	40.66	5.38	6.47	52.52	Peak Max	V	203.00	50.00	74.00	-21.48	Pass
12111.27	27.84	5.38	6.47	39.69	Average Max	V	203.00	50.00	54.00	-14.31	Pass
4176.67	35.81	2.96	-0.22	38.55	Peak Max	H	171.00	137.00	74.00	-35.45	Pass
4176.67	23.27	2.96	-0.22	26.00	Average Max	H	171.00	137.00	54.00	-28.00	Pass

Above 1GHz-25GHz- Collocation testing (2.4GHz WLAN & 5GHz WLAN on the main-board transmitting simultaneously)

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
10629.33	36.41	5.05	5.98	47.43	Peak Max	V	148.00	4.00	74.00	-26.57	Pass
10629.33	23.74	5.05	5.98	34.77	Average Max	V	148.00	4.00	54.00	-19.23	Pass
1262.42	58.40	1.24	-6.42	53.23	Peak Max	H	173.00	184.00	68.30	-15.07	Pass
3791.20	39.39	2.82	-0.20	42.02	Peak Max	H	174.00	308.00	74.00	-31.98	Pass
3791.20	25.69	2.82	-0.20	28.31	Average Max	H	174.00	308.00	54.00	-25.69	Pass

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Conducted Emissions						
R & S Receiver	ESIB 40	100179	04/20/2014	1 Year	04/20/2015	☑
R&S LISN	ESH2-Z5	861741/013	05/18/2014	1 Year	05/18/2015	☑
CHASE LISN	MN2050B	1018	07/24/2014	1 Year	07/24/2015	☑
Sekonic Hygro Hermograph	ST-50	HE01-000092	05/25/2014	1 Year	05/25/2015	☑
Radiated Emissions						
R & S Receiver	ESL6	100178	03/01/2014	1 Year	03/01/2015	☑
R & S Receiver	ESIB 40	100179	04/20/2014	1 Year	04/20/2015	☑
ETS-Lingren Loop Antenna	6512	00049120	05/13/2014	1 Year	05/13/2015	☐
Bi-Log antenna (30MHz~2GHz)	JB1	A030702	07/03/2014	1 Year	07/03/2015	☑
Horn Antenna (1-26.5GHz)	3115	10SL0059	04/26/2014	1 Year	04/26/2015	☑
Horn Antenna (18-40 GHz)	AH-840	101013	04/23/2014	1 Year	04/23/2015	☑
Pre-Amplifier (1-26.5GHz)	8449B	3008A00715	05/30/2014	1 Year	05/30/2015	☑
Microwave Preamplifier (18-40 GHz)	PA-840	181251	05/30/2014	1 Year	05/30/2015	☑
3 Meters SAC	3M	N/A	10/13/2014	1 Year	10/13/2015	☑
10 Meters SAC	10M	N/A	06/05/2014	1 Year	06/05/2015	☑
Sekonic Hygro Hermograph	ST-50	HE01-000092	05/25/2014	1 Year	05/25/2015	☑
RF Conducted Measurement						
Spectrum Analyzer	N9010A	MY50210206	05/30/2014	1 Year	05/30/2015	☑
Spectrum Analyzer	E4407B	US88441016	05/31/2014	1 Year	05/31/2015	☐
R & S Receiver	ESIB 40	100179	04/20/2014	1 Year	04/20/2015	☑

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