DEKRA Certification, Inc.
405 Glenn Dr. Suite 12,
Sterling, VA 20164
United States of America

FCC LISTED, REGISTRATION NUMBER: 2764.01

ISED LISTED REGISTRATION NUMBER: 23595-1

Test Report No:
3810ERM.008A1

Test report

USA FCC Part 15.407 (U-NII), 15.209; & CANADA RSS-210, RSS-Gen
Unlicensed National Information Infrastructure Devices. General technical requirements.
Licence-Exempt Radio Apparatus (All Frequency Bands): Category I Equipment.
General Requirements and Information for the Certification of Radio Apparatus.

(*) Identification of item tested	Automotive infotainment System
(*) Trademark	Mercedes-Benz
(*) Model and /or type reference	NTG7Q MID
Other identification of the product	FCC ID: T8GNTG7QMID IC: 6434A-NTG7QMID
(*) Features	FM/AM/DAB, USB, Bluetooth, WLAN, GNSS. HW version: D11 SW version: E329
Manufacturer	HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH BECKER-GOERING-STR. 16; 76307 KARLSBAD GERMANY
Test method requested, standard	USA FCC Part 15.407 10-1-20 Edition: Unlicensed National Information Infrastructure Devices. General technical requirements. USA FCC Part 15.209 10-1-20 Edition: Radiated emission limits; general requirements. CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 (April 2018). 789033 D02 General UNII Test Procedures New Rules v02r01 Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager Digitally signed by Domingo Galvez DN: cn=Domingo Galvez, o=DEKRA Certification Inc., ou=Regulatory Lab, email=dgalvez@dekra.com, c=US
Date of issue	11-02-2022
Report template No	FDT08_23 (*) "Data provided by the client"

Index

Acronyms

Acronym ID	Acronym Description
# of Tx Chains	Number of Transmission Chains
26Ebw	Emission Bandwidth
Avg Power	Maximum Average Conducted Output Power
DC	Duty Cycle
Freq	Frequency
Max EIRP	Maximum Burst EIRP
Mod	Modulation
Mode	MIMO Mode
Occ Ch BW	Occupied Channel Bandwidth
Operation Band	Operation Band
PSD	Power Spectrum Density
Port	Active Port
TPC	TPC

Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

DEKRA Certification Inc. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA Certification Inc.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Certification internal document PODT000.

Test case	Frequency (MHz)	U (k=2)	Units
RF Power and PSD	5150-5850	0.88	dB
Occupied Bandwidth		1.87	%
Band Edge		0.64	dB
Radiated Spurious Emission	30-180	4.27	dB
	180-1000	3.14	dB
	1000-18000	3.30	dB
	18000-40000	3.49	dB

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").

2. The sample consists of an Automotive head unit to be installed in cars with the following features: FM/AM/DAB, USB, Bluetooth, WLAN and GNSS .

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples undergoing test have been selected by: The client.

Sample S/01 is composed of the following elements:

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	3810/08	Infotainment Head Unit	NTG7Q	HBM652N4884007	08/10/2022	Element Under Test

Sample S/01 is composed of the following accessories:

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	3810/02	Harness	-	-	08/10/2022	Accessory
S/01	3810/21	SMA cable	-	-	08/10/2022	Accessory
S/01	3810/17	RJ45 to USB Ethernet Adapter	UE300	220B4P9004769	08/15/2022	Accessory
S/01	3810/19	Ethernet Cable RJ45 to RJ45	UE300	-	08/15/2022	Accessory

1. Sample S/01 was used for the test(s): All Conducted tests indicated in appendix B.

Sample S/02 is composed of the following elements:

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/02	3810/15	Infotainment Head Unit	NTG7Q	HBM652N4884012	08/15/2022	Element Under Test
S/02	3810/09	RF antenna cable	BT/WLAN	-	08/15/2022	Element Under Test
S/02	3810/10	BT/WLAN Antenna 1	LV19	-	08/15/2022	Element Under Test
S/02	3810/11	BT/WLAN Antenna 2	LV19	-	08/15/2022	Element Under Test
S/02	3810/12	BT/WLAN Antenna 3	LV19	-	08/15/2022	Element Under Test
S/02	3810/13	BT/WLAN Antenna 4	LV19	-	08/15/2022	Element Under Test

Sample S/02 is composed of the following accessories:

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/02	3810/16	Harness	-	-	08/10/2022	Accessory
S/02	3810/04	SMA cable	-	-	08/10/2022	Accessory
S/02	3810/18	RJ45 to USB Ethernet Adapter	UE300	220B4P9004769	08/15/2022	Accessory
S/02	3810/19	Ethernet Cable RJ45 to RJ45	UE300	-	08/15/2022	Accessory

2. Sample S/02 was used for the test(s): All Radiated tests indicated in appendix B.

Test sample description

<table>
<tr><td rowspan="8">Ports…… :</td><td rowspan="2">Port name and description</td><td colspan="4">Cable</td></tr>
<tr><td>Specified max length [m]</td><td>Attached during test</td><td>Shielded</td><td>Coupled to patient(3)</td></tr>
<tr><td>Car Connector A</td><td>>3m</td><td>[X]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>Car Connector B</td><td>>3m</td><td>[X]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>Display Connector CID/PIP / RVC</td><td>>3m</td><td>[X]</td><td>[X]</td><td>[ ]</td></tr>
<tr><td>USB Connector</td><td><3m</td><td>[X]</td><td>[X]</td><td>[ ]</td></tr>
<tr><td>Eth Connector</td><td>>3m</td><td>[X]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>BT/WLAN-Antenna</td><td>>3m</td><td>[X]</td><td>[X]</td><td>[ ]</td></tr>
<tr><td>Supplementary information to the ports…… :</td><td colspan="5">GNSS Antenna >3m</td></tr>
<tr><td rowspan="5">Rated power supply .....:</td><td colspan="2" rowspan="2">Voltage and Frequency</td><td colspan="4">Reference poles</td></tr>
<tr><td>L1</td><td>L2</td><td>L3</td><td>N</td><td>PE</td></tr>
<tr><td>[ ]</td><td>AC: .....</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>[ ]</td><td>AC: .....</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>[X]</td><td colspan="5">DC: .....</td></tr>
<tr><td>[ ]</td><td colspan="5">DC: 12V car battery /attenuator (9,5-15,5v normal operation)</td></tr>
<tr><td>Rated Power .....:</td><td colspan="5">12V</td></tr>
<tr><td>Clock frequencies.....:</td><td colspan="5">No data provided</td></tr>
<tr><td>Other parameters.....:</td><td colspan="5">No data provided</td></tr>
<tr><td>Software version .....:</td><td colspan="5">No data provided</td></tr>
<tr><td>Hardware version.....:</td><td colspan="5">No data provided</td></tr>
<tr><td>Dimensions in cm (W x H x D) ....:</td><td colspan="5">No data provided</td></tr>
<tr><td rowspan="4">Mounting position.....:</td><td>[ ]</td><td colspan="4">Table top equipment</td></tr>
<tr><td>[ ]</td><td colspan="4">Wall/Ceiling mounted equipment</td></tr>
<tr><td>[ ]</td><td colspan="4">Floor standing equipment</td></tr>
<tr><td>[ ]</td><td colspan="4">Hand-held equipment</td></tr>
</table>

	[X]	Other: automotive	
Modules/parts.....:	Module/parts of test item	Type	Manufacturer
	No data provided		
Accessories (not part of the test item) .....:	Description	Type	Manufacturer
	HARMANeco (with Display or headless)	HARMANeco	HARMAN
	Cable harness	harness	HARMAN
	Display	different suppliers	different versions
	BT/WLAN-Antenna	OEM-Antenna	HIRSCHMANN
Documents as provided by the applicant.....:	Description	File name	Issue date
	Technical description	Technical Description NTG7_A20 200717 SOP2 AllVariant.pdf	08/29/2022
	Testing Guide	NTG7-TestsetupScript_191209 HU+RSU_v2.0.pdf	v2.0

Copy of marking plate:

DEKRA Certification, Inc.
405 Glenn Dr. Suite 12,
Sterling, VA 20164
United States of America

Identification of the client

HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH
BECKER-GOERING-STR. 16; 76307 KARLSBAD
GERMANY

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	08-21-2022
Date (finish)	08-30-2022

Document history

Report number	Date	Description
3810ERM.008	9-20-2022	First release.
3810ERM.008A1	11-02-2022	Second release.

Modifications to the reference test report

It was introduced the following modifications in respect to the test report number 3810ERM.008 related with the same samples:

Clauses/ Sub-Clauses	Modification	Justification
Page 21: FCC 15.407 (a) / RSS-247 6.2 Power Limits. Maximum Output Power	Details about the testing method was included	Testing method was missing
Page 45: FCC 15.407 (a) / RSS-247 6.2 Maximum Power Spectral Density	Details about the testing method was included	Testing method was missing

This modification test report cancels and replaces the test report 3810ERM.008

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 20 % Max. = 75 %

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 20 % Max. = 75 %

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 20 % Max. = 75 %

Remarks and comments

The tests have been performed by the technical personnel: Lakshmi Gollamudi, Juliana Cherry, Yuri Barone, Nasir Khan and Koji Nishimoto.

List of equipment used during the test

Conducted Measurements

CONTROL NUMBER	DESCRIPTION	MANUFACTURER	MODEL	LAST CALIBRATION	NEXT CALIBRATION
1038	TS8997 TEST SYSTEM	Rohde & Schwarz	TS8997	N/A	N/A
0101	Climatic chamber	ESPEC North America	ESL-2CA	2022/02	2023/02
1107	ETHERNET SNMP THERMOMETER	HW GROUP	HWg-STE Plain	2020/09	2022/09
1313	WIRELESS MEASUREMENT SOFTWARE R&S WMS32	Rohde & Schwarz	N/A	N/A	N/A

Radiated Measurements

CONTROL NUMBER	DESCRIPTION	MANUFACTURER	MODEL	LAST CALIBRATION	NEXT CALIBRATION
0981	RF pre-amplifier 1-18 GHz	Bonn Elektronik	BLMA 0118-2A	2020/11	2022/11
0982	RF pre-amplifier 18-40 GHz	Bonn Elektronik	BLMA 1840-1M	2020/11	2022/11
1012	EMI TEST RECEIVER	Rohde & Schwarz	ESR 26	2022/04	2024/04
1014	Spectrum analyzer	Rohde & Schwarz	FSV40	2021/05	2023/05
1056	Double-ridge Waveguide Horn antenna 18-40 GHz	ETS LINDGREN	3116C	2020/01	2023/01
1057	Double-ridge Waveguide Horn antenna 1-18 GHz	ETS LINDGREN	3115	2020/06	2023/06
1065	Biconical Log antenna	ETS LINDGREN	3142E	2020/08	2023//08
1111	ETHERNET SNMP THERMOMETER	HW GROUP	HWg-STE Plain	2020/09	2022/09
1179	Semi anechoic Absorber Lined Chamber	Frankonia	SAC 3 plus “L”	N/A	N/A

Testing verdicts

Fail	F
Not applicable	N/A
Not measured	N/M
Pass	P

Summary

FCC PART 15 PARAGRAPH / RSS-247 (WIFI 5GHz) 5.25 GHz -5.35 GHz Band			
Requirement	**Test case**	**Verdict**	**Remark**
FCC 15.407 (a) / RSS 247 6.2.1	26dB Emission Bandwidth & Occupied Bandwidth	P	N/A
FCC 15.407 (a) / RSS 247 6.2.1.1	Power Limits. Maximum Output Power	P	N/A
FCC 15.407 RSS-247 6.2.1.1	Maximum Power Spectral Density	P	N/A
FCC 15.403 / RSS-247 6.2.1.2	Band-edge conducted emissions compliance (Transmitter)	P	N/A
FCC 15.407 (e) RSS-Gen 8.8	Emission limitations Conducted (Transmitter)	N/A	N/A
FCC 15.407 (b), 15.205 & 15.209 / RSS-Gen 8.9 & 8.10	Undesirable radiated emissions	P	N/A
FCC 15.407 (g) / RSS-Gen 6.11 & 8.11	Frequency Stability	N/M	Refer 1

Supplementary information and remarks:

The test set-up was made in accordance to the general provisions of ANSI C63.10: 2013 and FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated 12/14/2017

1. The compliance is checked through a description of how this requirement is met that is provided by the applicant.

Appendix A: DUT DESCRIPTION

DUT Description

The following information is provided by the client

Information	Description
Equipment type	Wi-Fi 5GHz
DFS Operating Mode	---
Antenna Specification	Equipment with only one antenna
Operating Frequency Range	5150 - 5250 MHz / 5725- 5850 MHz
Nominal Channel Bandwidth	20/ 40/ 80 MHz
Antenna type	Dedicated external antenna (single)
RF Output Power	20 dBm
Antenna gain	2.5 dBi
Supply Voltage	12 Vdc
Modulation:	OFDM (QPSK, BPSK,16QAM,64QAM,256QAM)
Communication Mode:	IP Based (Load Based)
Transmit Data Rate:	802 .11 a/n/ac Rates: IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n: MCS0-8 IEEE 802.11ac: VHT SS1 MCS 0-9 VHT SS2 MCS 0-9
Geo-location capability	No

Appendix B: Tests results. Wi-Fi 5GHz

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TEST CONDITIONS

(*): Data provided by the client.

TEST CONDITIONS	DESCRIPTION
TC#01 **(a mode)**	Power supply (V): $V_{nominal}$ = 12 Vdc Channel Bandwidth: 20 MHz Test Frequencies for Conducted/Radiated tests: UNII 1 Lowest range: 5180 MHz Middle channel: 5200 MHz Highest range: 5240 MHz UNII 3 Lowest range: 5745 MHz Middle channel: 5785 MHz Highest range: 5825 MHz
TC#02 **(n mode)**	Power supply (V): $V_{nominal}$ = 12 Vdc Channel Bandwidth: 20 MHz Test Frequencies for Conducted/Radiated tests: UNII 1 Lowest channel: 5180 MHz Middle channel: 5200 MHz Highest channel: 5240 MHz UNII 3 Lowest range: 5745 MHz Middle channel: 5785 MHz Highest range: 5825 MHz Channel Bandwidth: 40 MHz Test Frequencies for Conducted/Radiated tests: UNII 1 Lowest channel: 5190 MHz Highest channel: 5230 MHz UNII 3 Lowest channel: 5755 MHz Highest channel: 5795 MHz

TC#03 **(ac mode)**	Power supply (V): $V_{nominal}$ = 12 Vdc Channel Bandwidth: 20 MHz Test Frequencies for Conducted/Radiated tests: UNII 1 Lowest range: 5180 MHz Middle channel: 5200 MHz Highest range: 5240 MHz UNII 3 Lowest range: 5745 MHz Middle channel: 5785 MHz Highest range: 5825 MHz Channel Bandwidth:40 MHz Test Frequencies for Conducted/Radiated tests: UNII 1 Lowest channel: 5190 MHz Highest channel: 5230 MHz UNII 3 Lowest channel: 5755 MHz Highest channel: 5795 MHz Channel Bandwidth: 80 MHz Test Frequencies for Conducted/Radiated tests: UNII 1 Lowest channel: 5210 MHz UNII 3 Lowest channel: 5775 MHz

TEST FREQUENCIES (*):

Technology Tested:	WLAN (IEEE 802.11 a, n, ac) / U-NII-1 / U-NII-3	
Modes:	802.11a20: 6, 9, 12, 18, 24, 36, 48 & 54 Mbps	
	802.11n HT20: MCS0 to MCS8	
	802.11n HT40: MCS0 to MCS8	
	802.11ac VHT20: MCS0 to MCS9	
	802.11ac VHT40: MCS0 to MCS9	
	802.11ac VHT80: MCS0 to MCS9	
Setting of cores / ports:	One port.	
Beamforming:	No.	
Frequency Range:	5150 - 5250 MHz / 5725 - 5850 MHz	
Channel Spacing:	20 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Low: 36	5180
	Middle: 40	5200
	High: 48	5240
	Low: 149	5745
	Middle: 157	5785
	High: 165	5825
Channel Spacing:	40 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Low: 38	5190
	High: 46	5230
	Low: 149	5755
	High: 157	5795
Channel Spacing:	80 MHz	
Transmit Channels	Middle: 42	5210
	Middle: 153	5775

The test set-up was made in accordance to the general provisions of FCC Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017.

The EUT was tested in the following operating mode:

- Continuously transmitting with a modulated carrier at maximum power in all required channels using the supported data rates/modulations types.

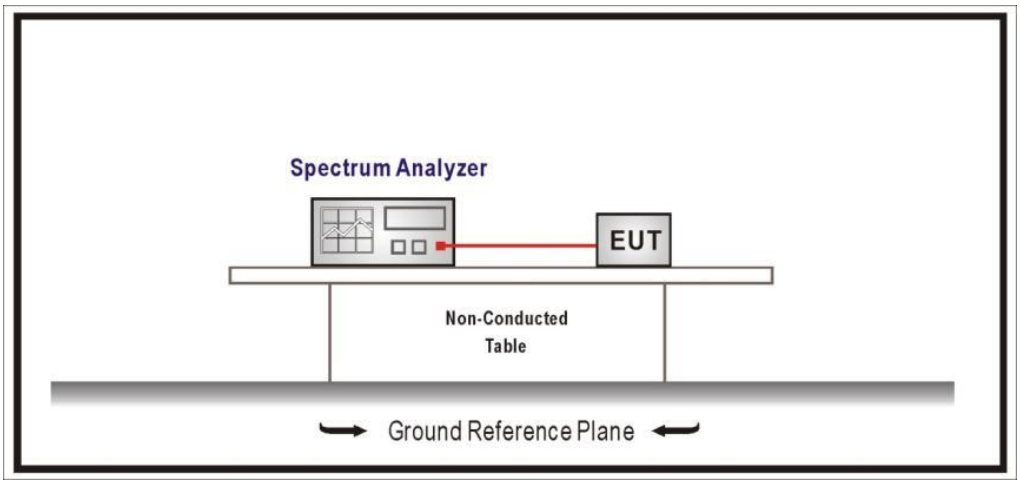
The field strength at the band edges was evaluated for each mode on the lowest and highest channels at the rated power for the channel under test.

For all modes, the EUT was configured in test mode using a software application. The application was used to enable a continuous transmission and to select the test channels as required. The client supplied instructions to configure the EUT. The customer supplied a document containing the setup instructions.

The worst cases for testing were identified for output power and spurious levels at the band edges which were selected based on preliminary testing that correspond to next data rates:

- 802.11 a20: 6 Mbps
- 802.11 n HT20: MCS0
- 802.11 n HT40: MCS0
- 802.11 ac VHT20: MCS0
- 802.11 ac VHT40: MCS0
- 802.11 ac VHT80: MCS0

CONDUCTED MEASUREMENTS:



RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency range 30-1000 MHz (Bilog antenna) and 1-18 GHz Double ridge horn antennas, and 1m for the frequency range 18 GHz- 26 GHz Double ridge horn antenna.

For radiated emissions in the range 18 - 26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360º and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

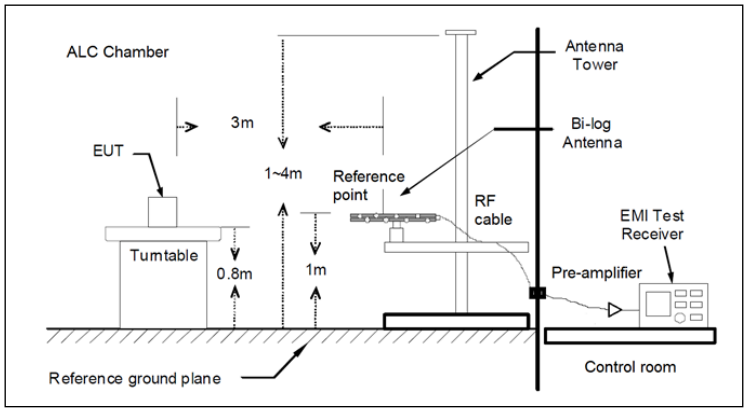


Fig A1: Radiated measurements Setup f < 1 GHz

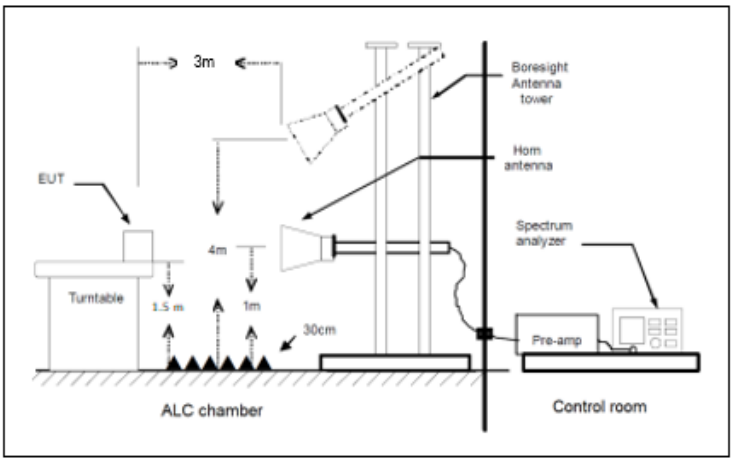


Fig A2: Radiated measurements setup f > 1-18 GHz

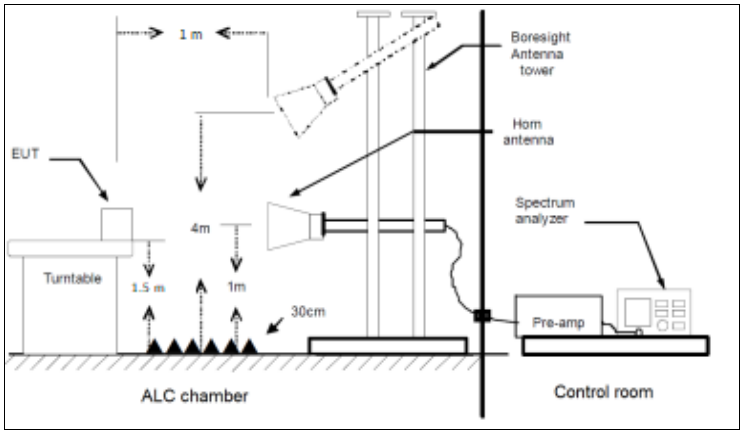


Fig A3: Radiated measurements setup f > 18 GHz

TEST CASES DETAILS

FCC 15.407 (a) / RSS-247 6.2 Power Limits. Maximum Output Power

Limits

FCC 15.407:

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).

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

For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RSS-247:

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For devices other than devices installed in vehicles:

For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW (23 dBm) or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

For the 5.25-5.35 GHz, 5.470-5.6 GHz, and 5.650-5.725 GHz bands, the maximum conducted output power shall not exceed 250 mW (24 dBm) or 11 + 10 log10B, dBm, whichever power is less. The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less

For the band 5.725-5.850 GHz, the maximum conducted output power shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measured according to ANSI C63.10, Section 11.9.2.3.2 Method AVGPM-G

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power.

As Per KDB 662911 D01 Multiple Transmitter Output v02r01, for 802.11ax BF mode the directional gain for 2TX Antennas are calcularеted as follows:

Directional Gain: = Antenna gain + 10log(NANT)

Modulation: 802.11a (OFDM 6 Mbit/s)

Results

Freq (MHz)	Avg Power (dBm)	Max EIRP (dBm)
5180.00000	12.2	14.7
5200.00000	12.8	15.3
5240.00000	12.8	15.3
5745.00000	15.5	18.0
5785.00000	15.4	17.9
5825.00000	14.4	16.9

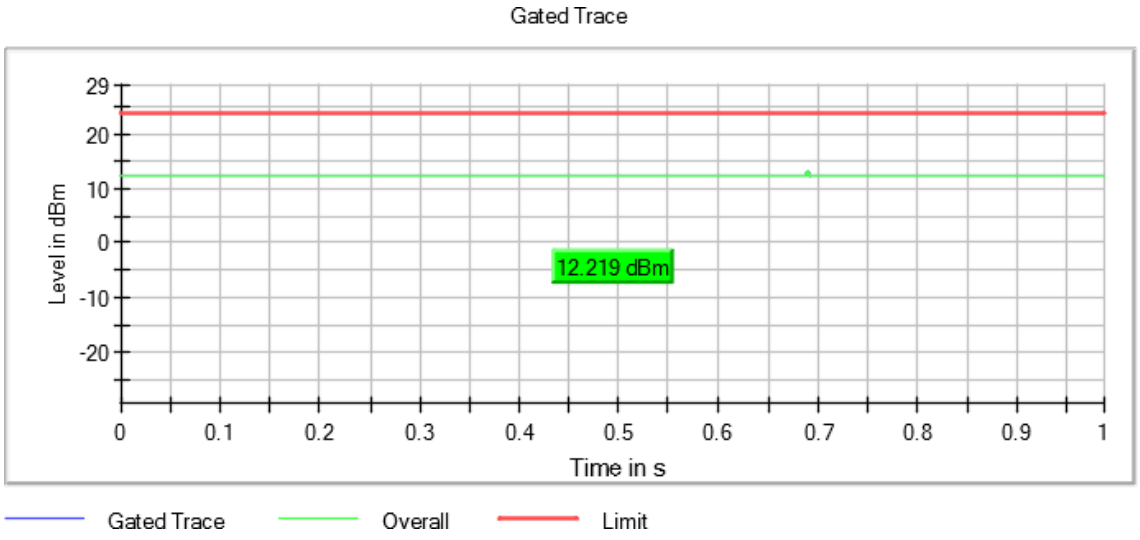
Verdict

Pass

Attachments

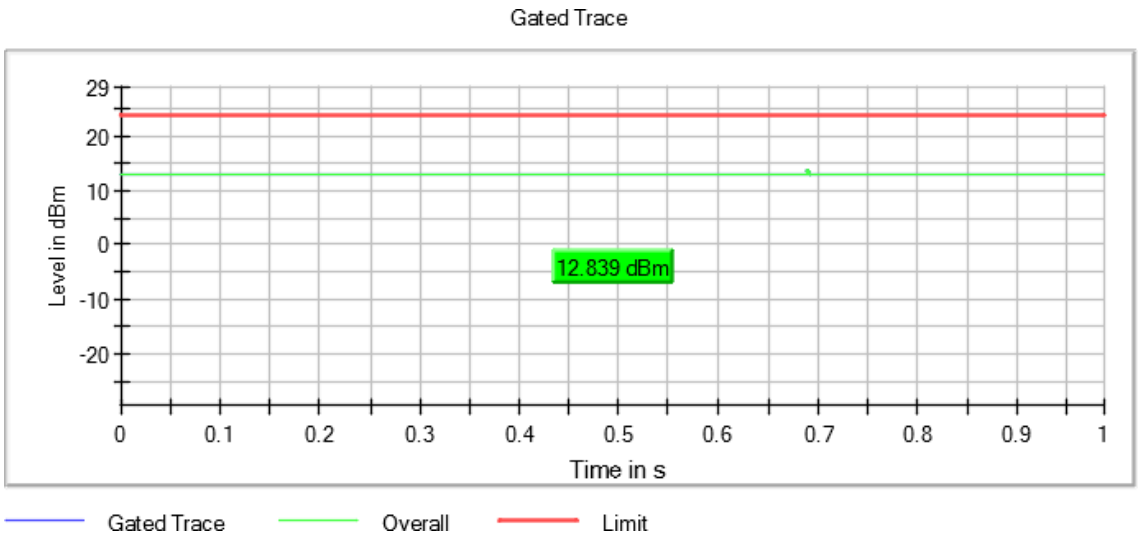
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



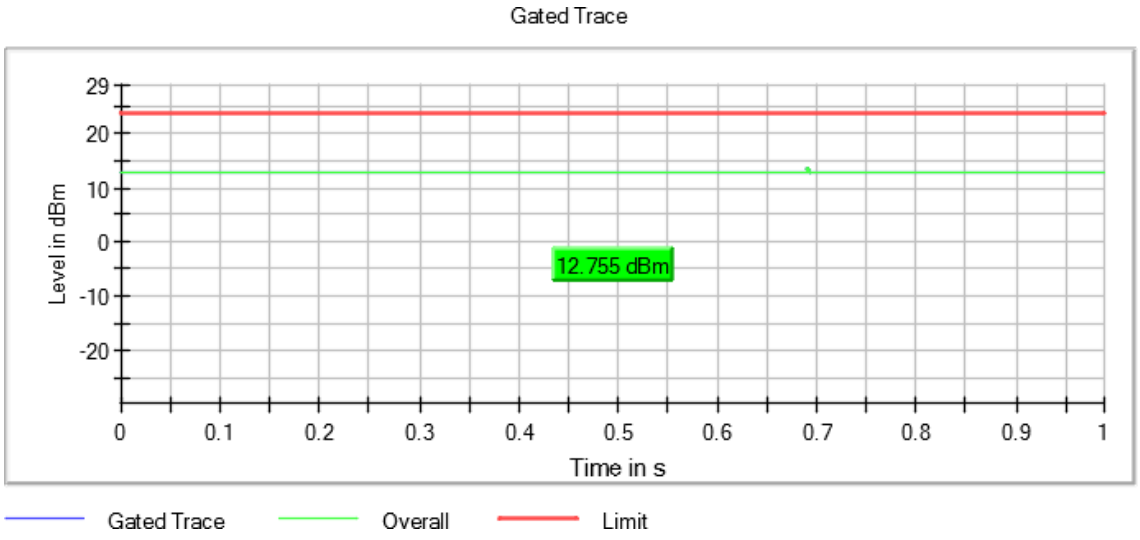
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



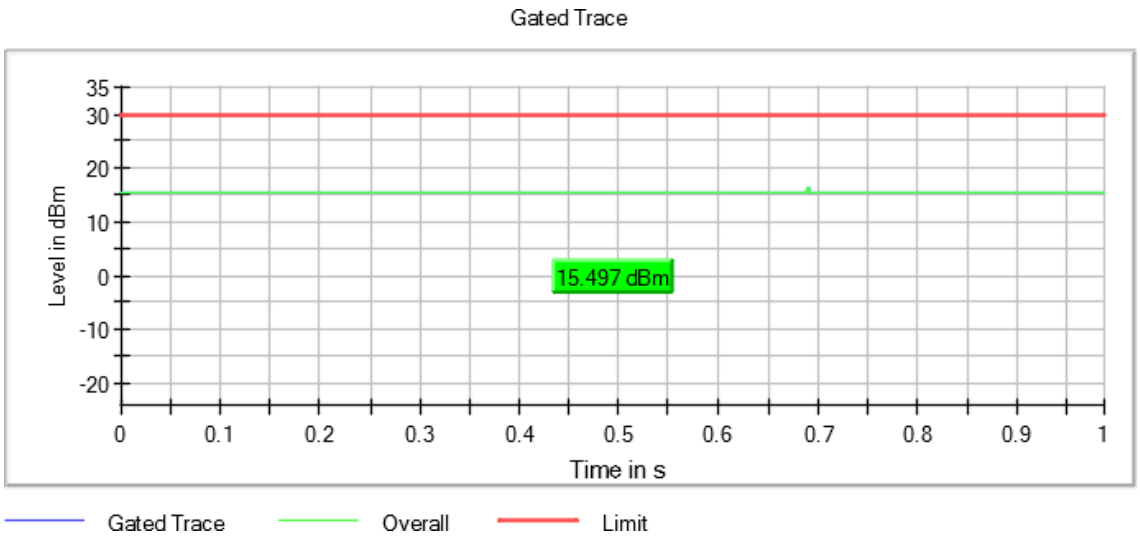
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



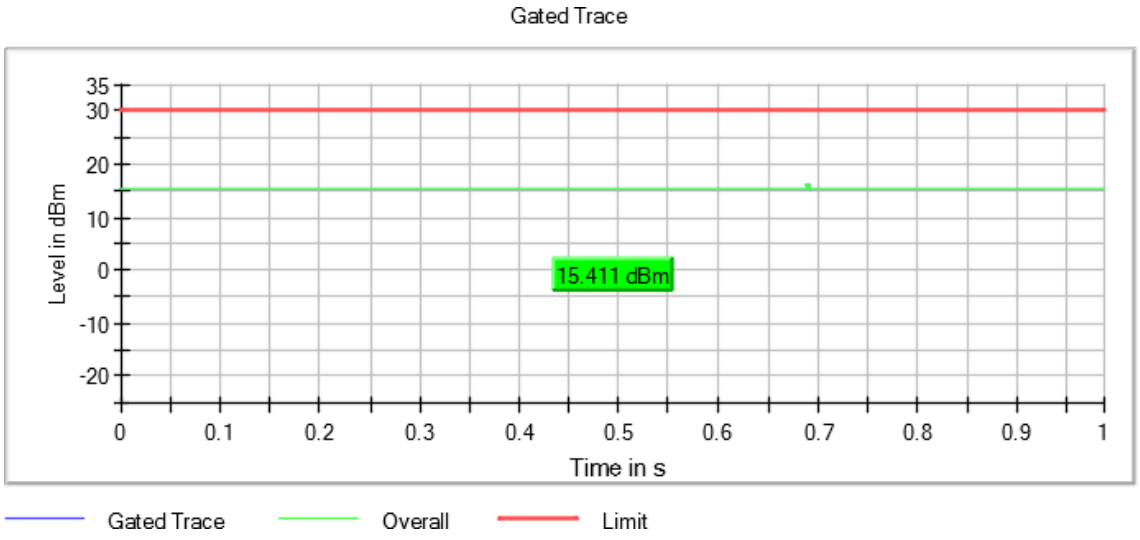
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



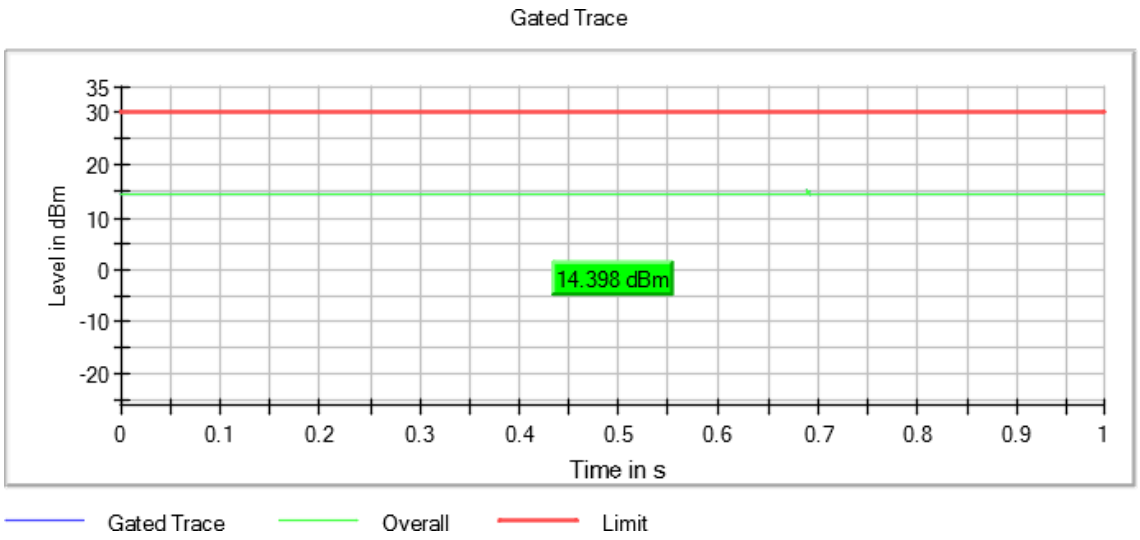
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)
Results

10	Avg Power (dBm)	Max EIRP (dBm)
5180.00000	12.2	14.7
5180.00000	12.2	14.7
5200.00000	12.9	15.4
5200.00000	12.9	15.4
5240.00000	12.9	15.4
5240.00000	12.9	15.4
5745.00000	15.5	18.0
5745.00000	15.5	18.0
5785.00000	15.3	17.8
5785.00000	15.3	17.8
5825.00000	14.4	16.9
5825.00000	14.4	16.9

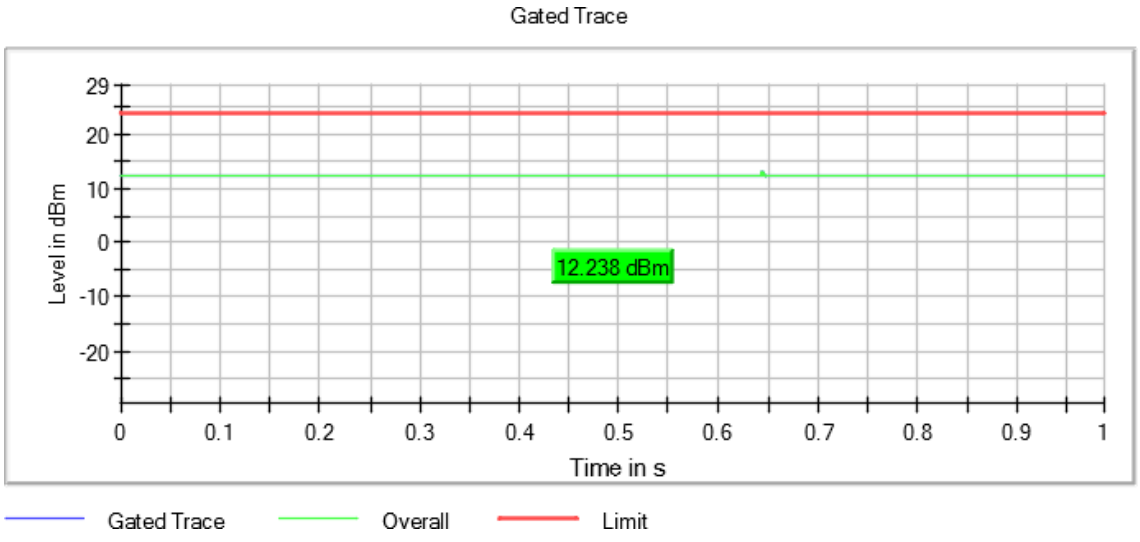
Verdict

Pass

Attachments

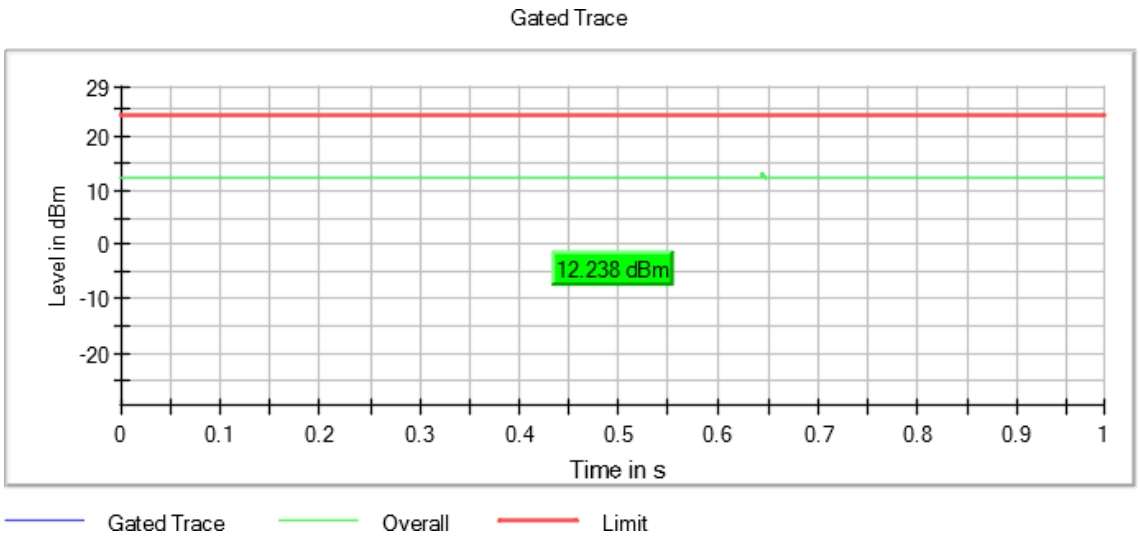
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



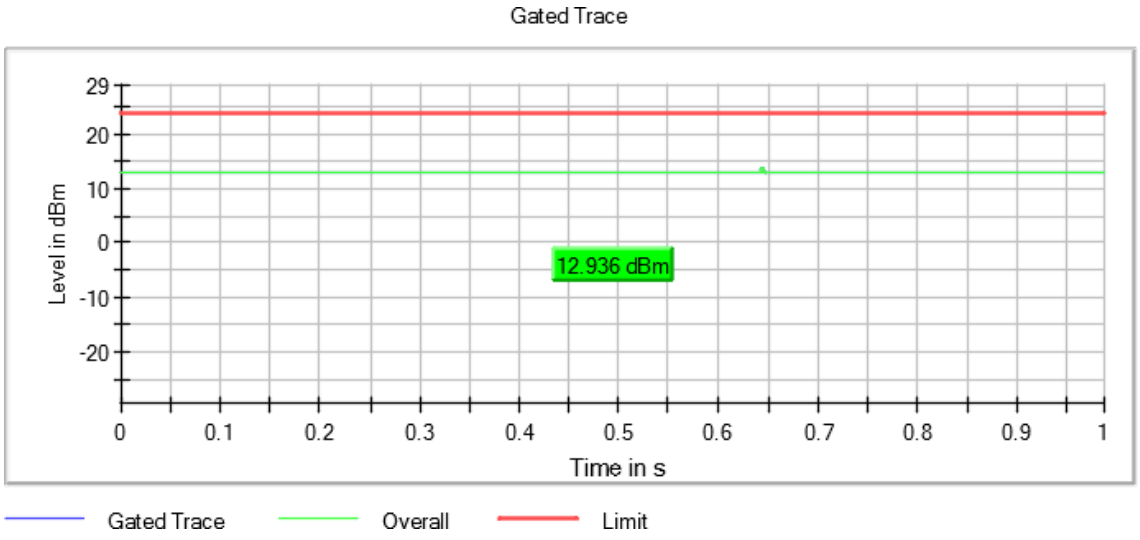
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



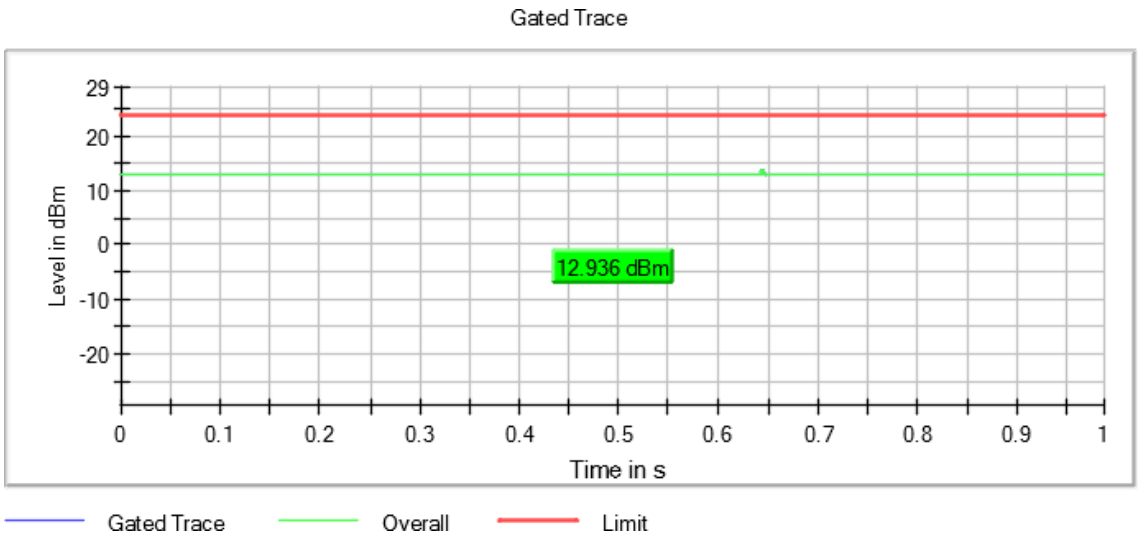
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



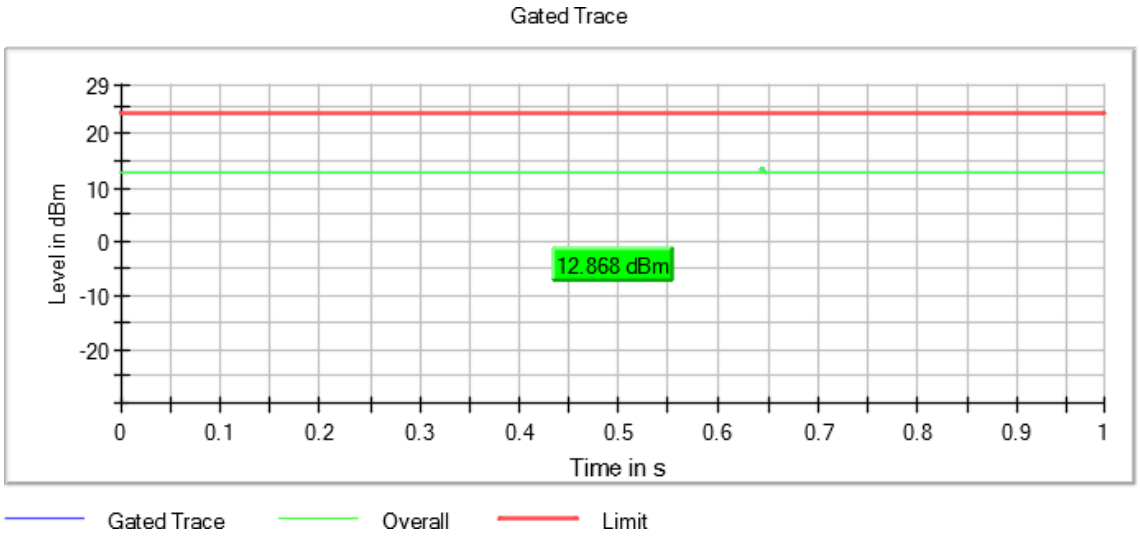
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



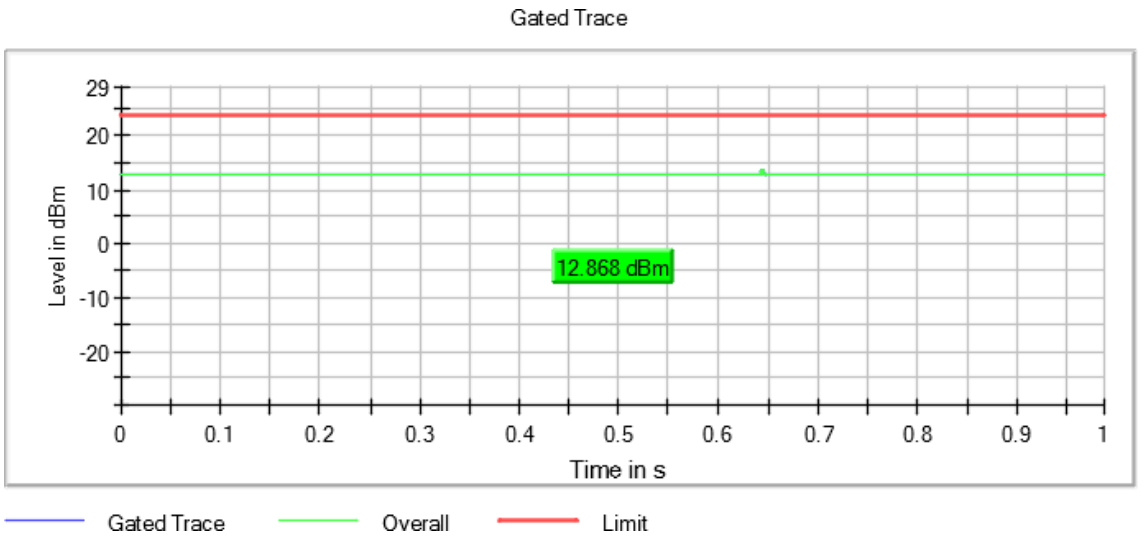
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



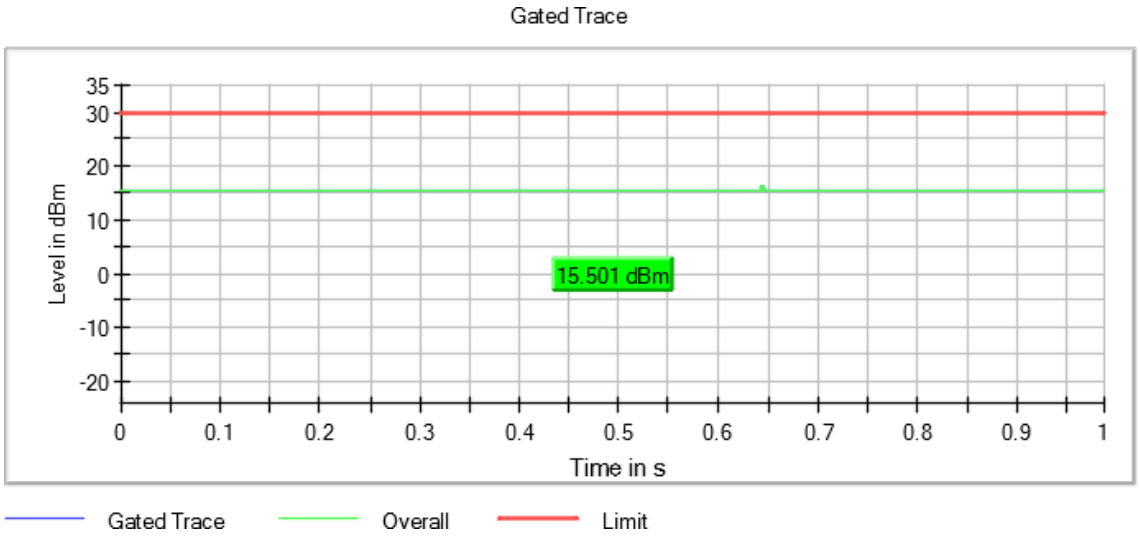
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



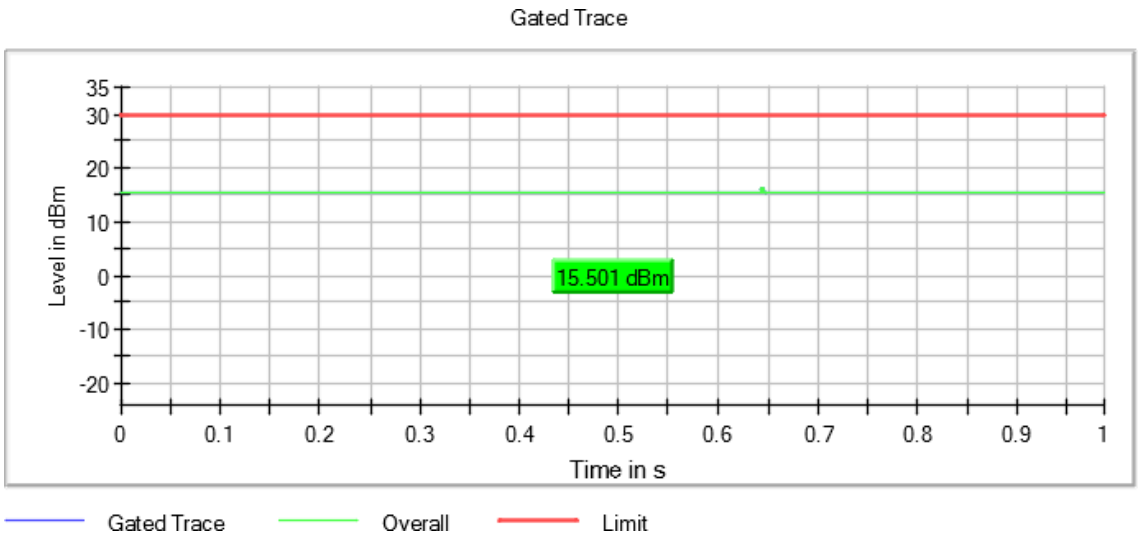
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



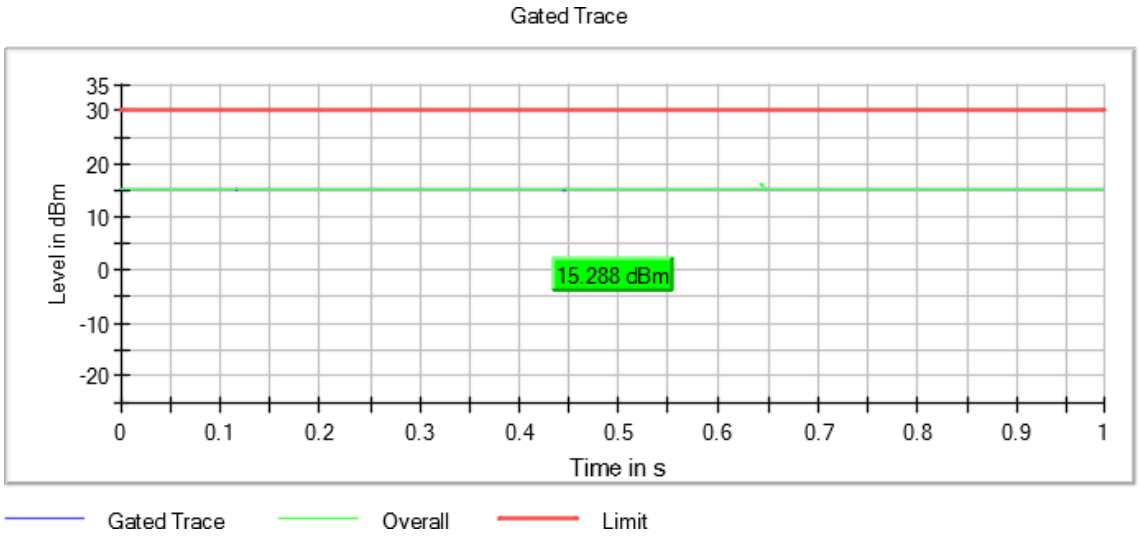
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



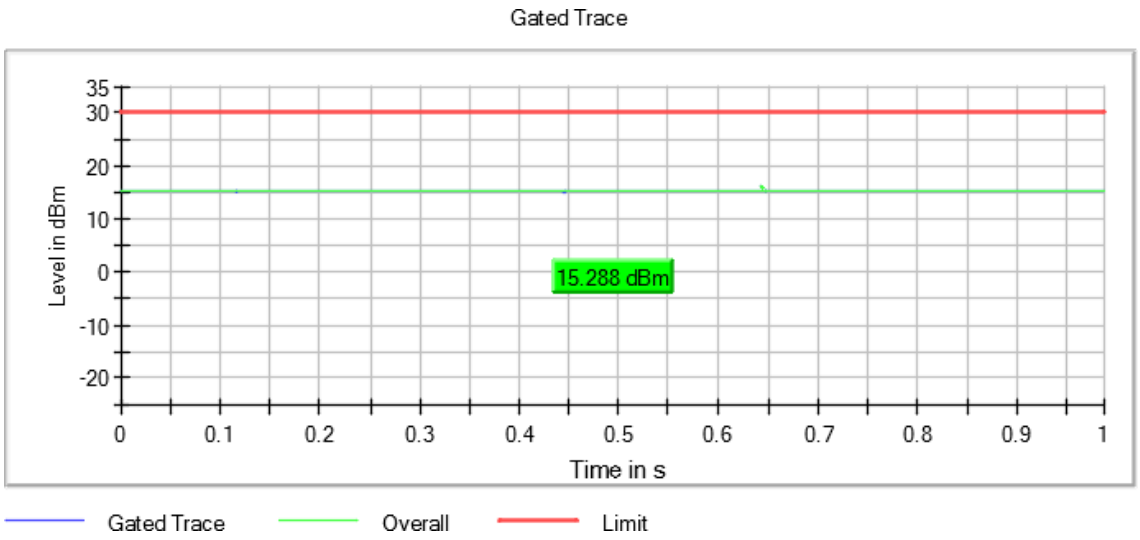
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



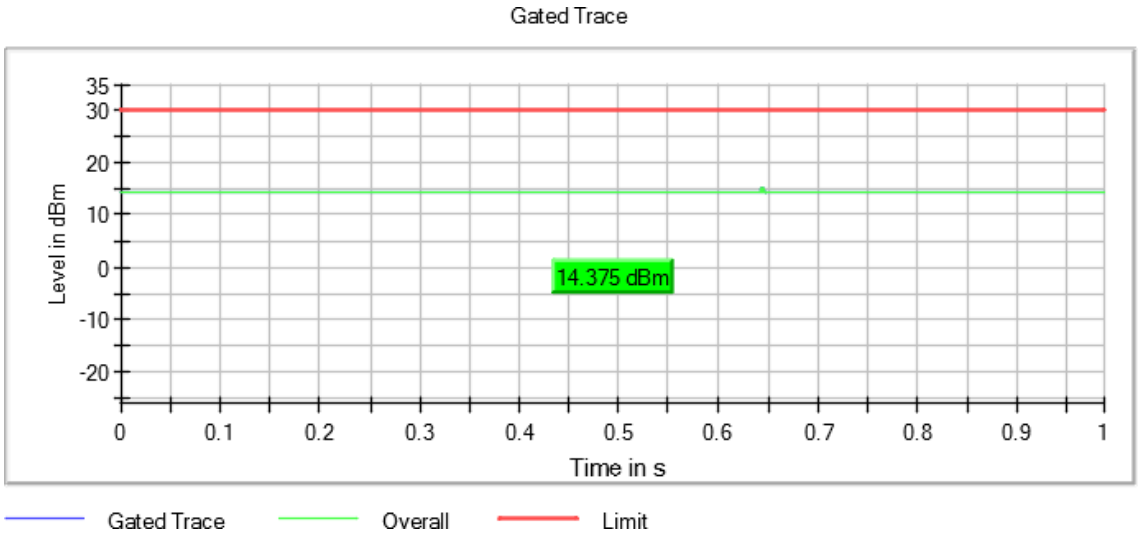
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



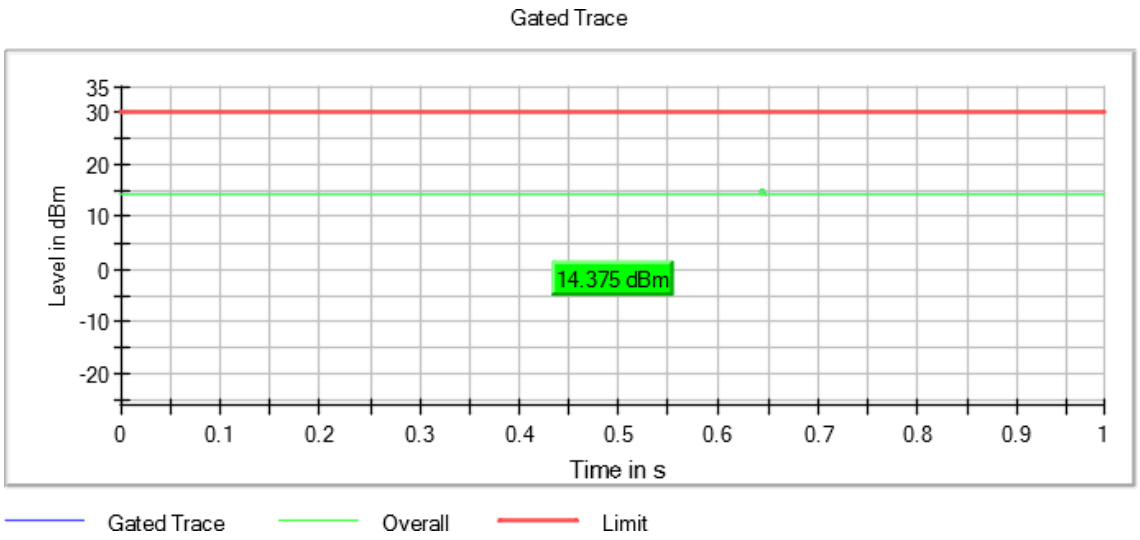
Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Modulation: 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

Results

Freq (MHz)	Avg Power (dBm)	Max EIRP (dBm)
5190.00000	10.8	13.3
5230.00000	12.9	15.4
5755.00000	15.3	17.8
5795.00000	15.2	17.7

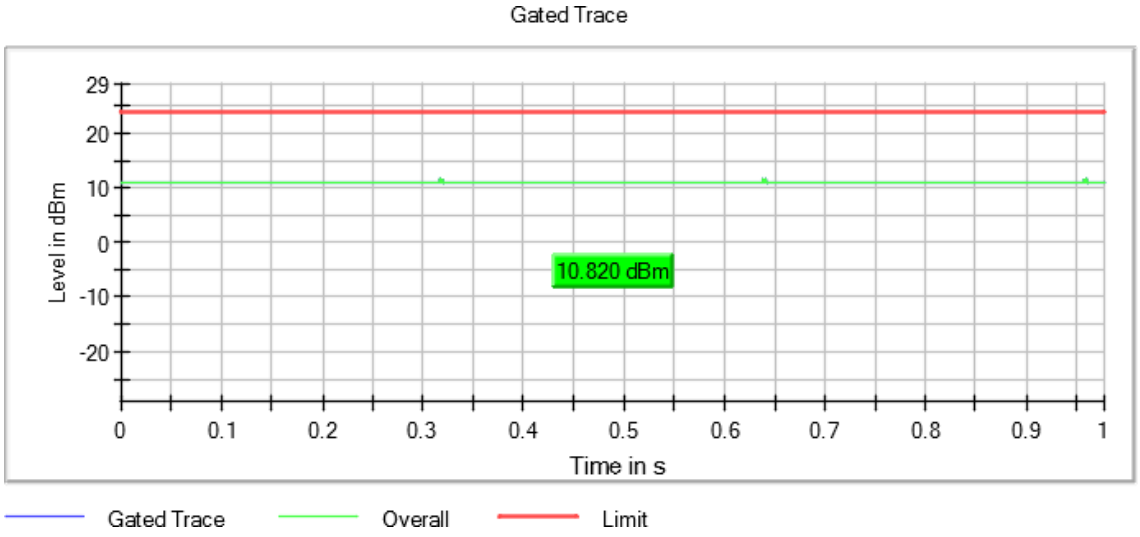
Verdict

Pass

Attachments

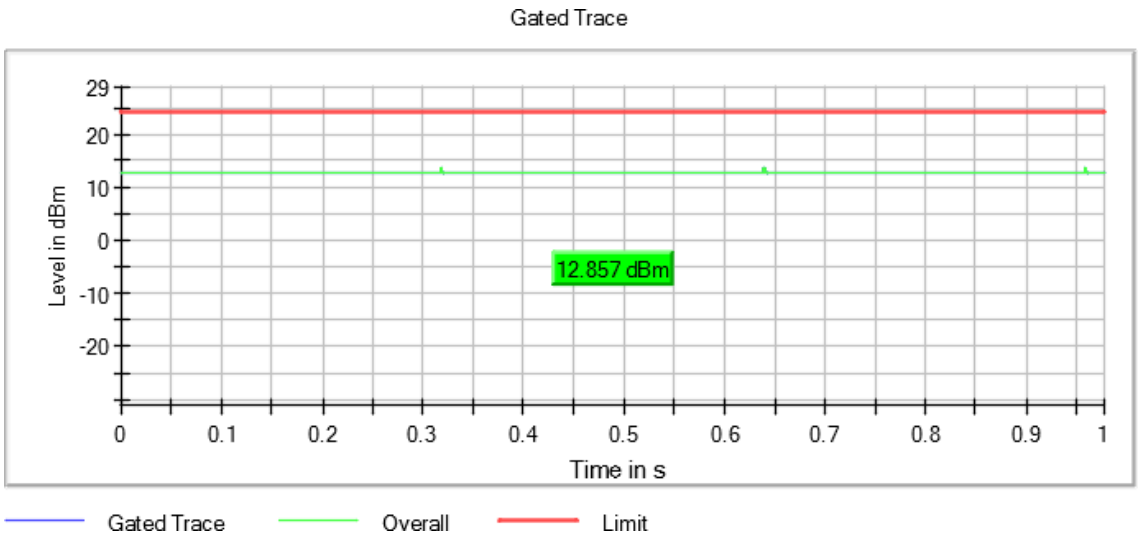
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



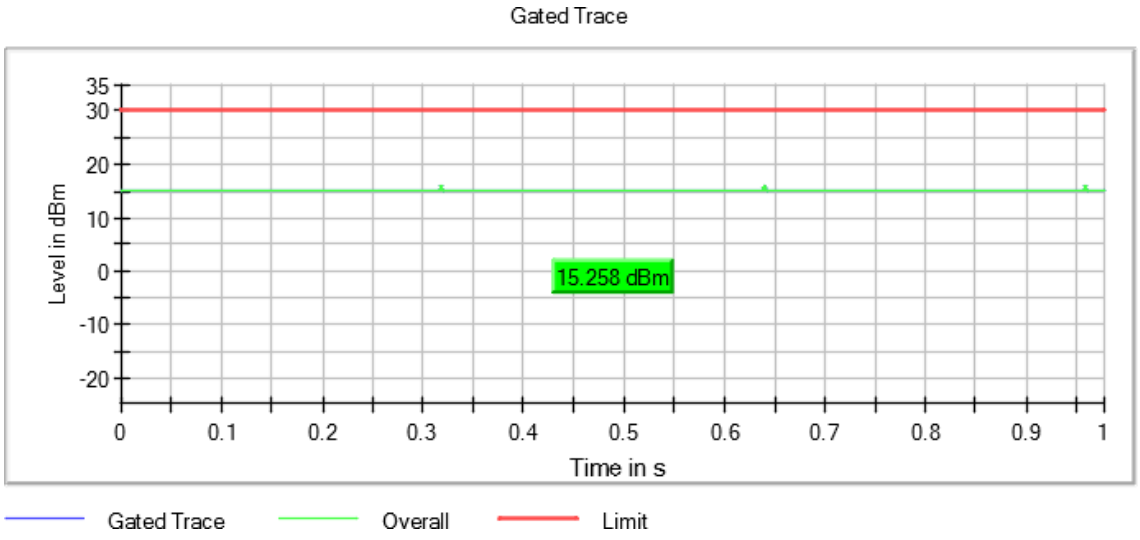
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



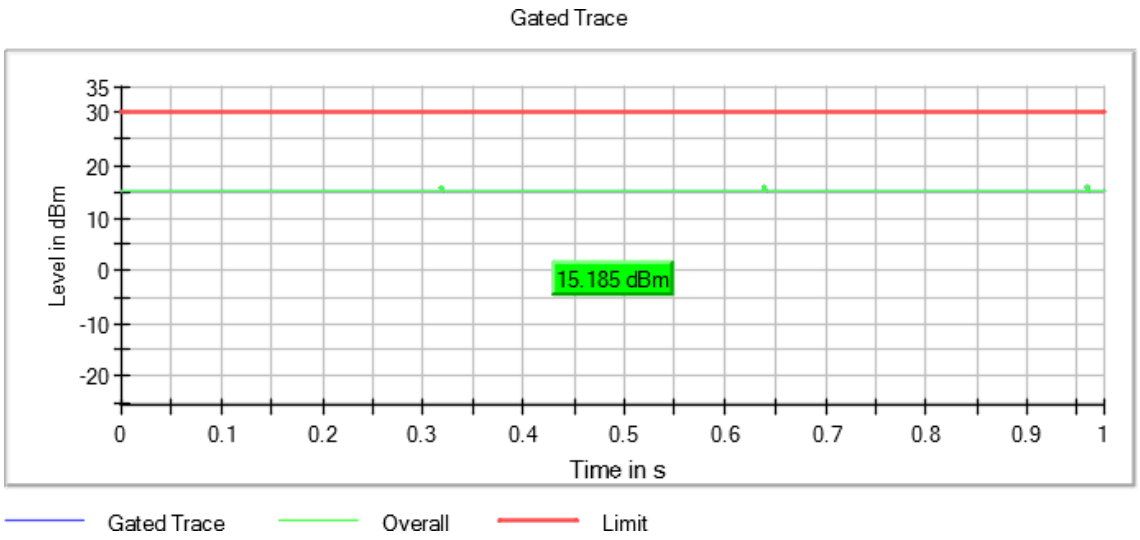
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT20 (OFDM MCS0)
Results

Freq (MHz)	Avg Power (dBm)	Max EIRP (dBm)
5180.00000	12.2	14.7
5200.00000	12.9	15.4
5240.00000	11.8	14.3
5745.00000	15.5	18.0
5785.00000	15.3	17.8
5825.00000	14.5	17.0

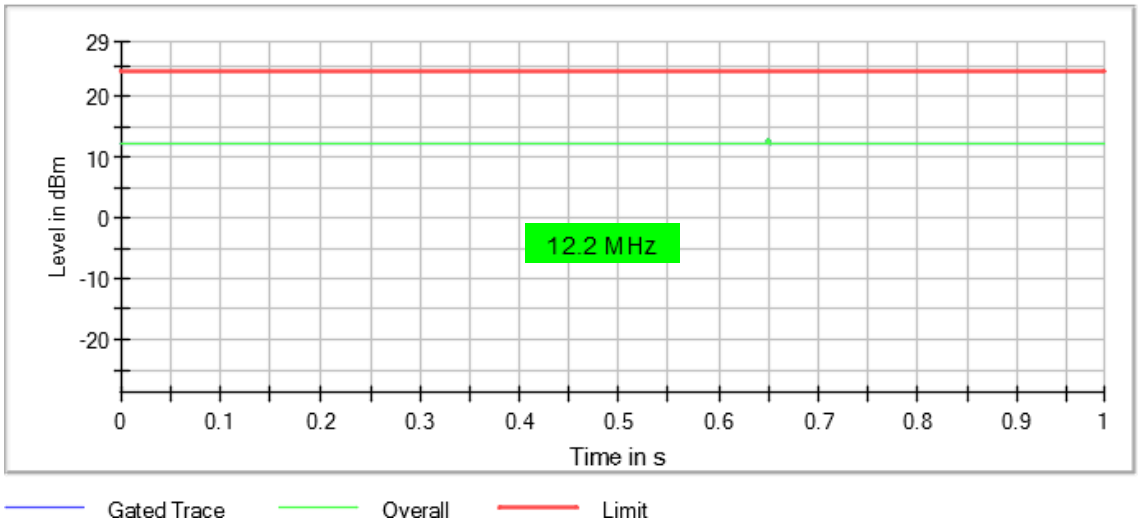
Verdict

Pass

Attachments

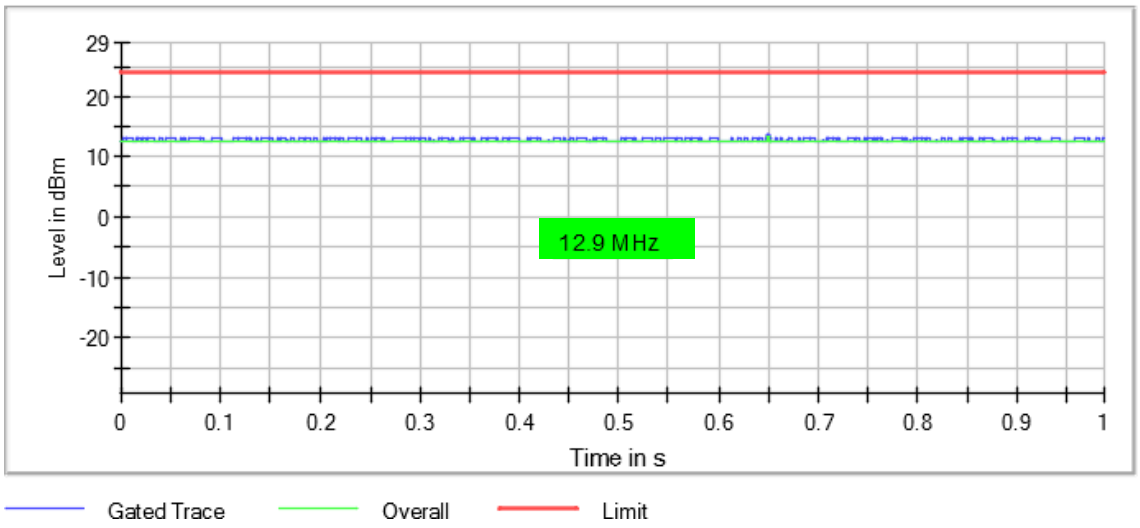
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



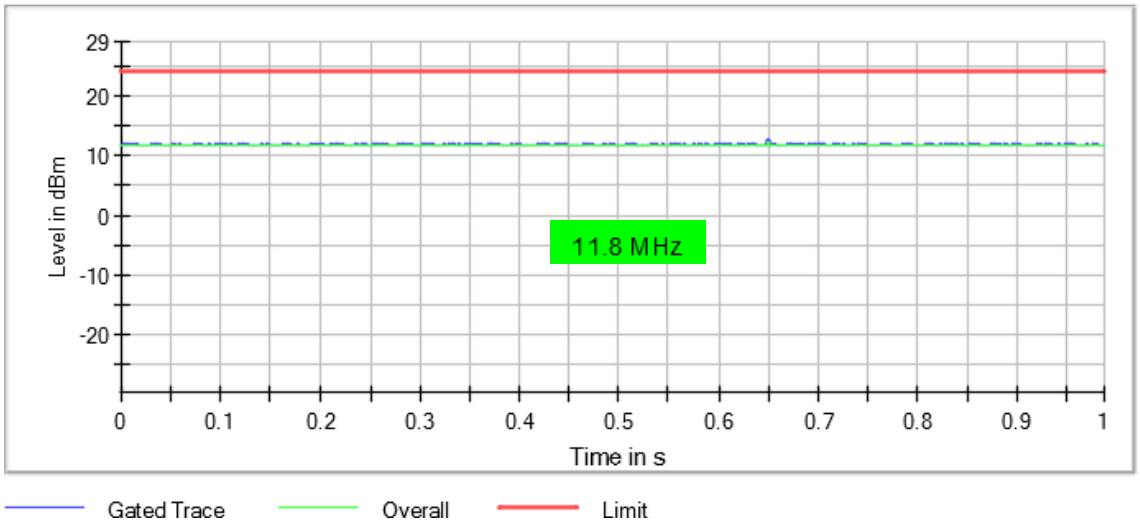
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



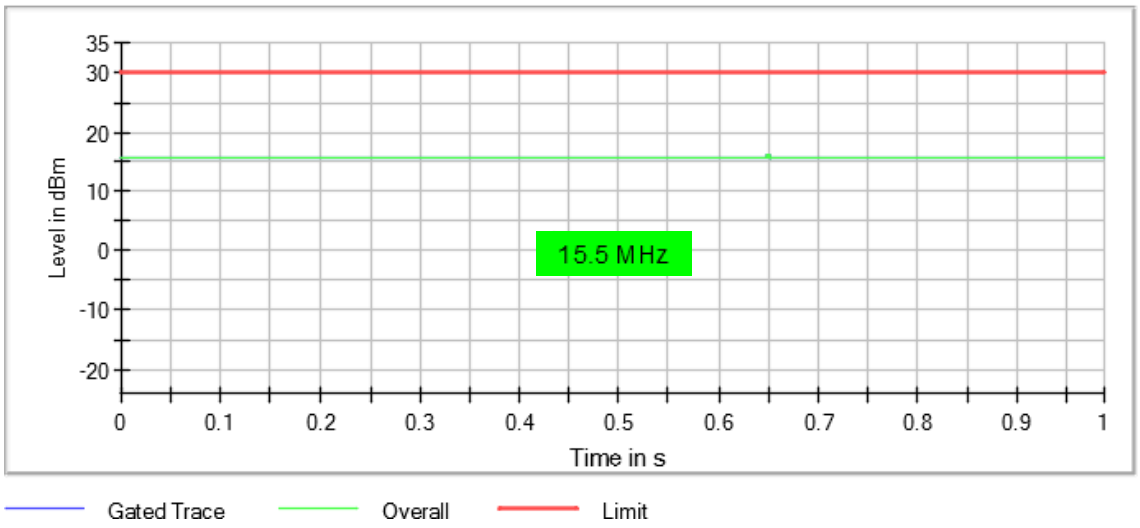
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



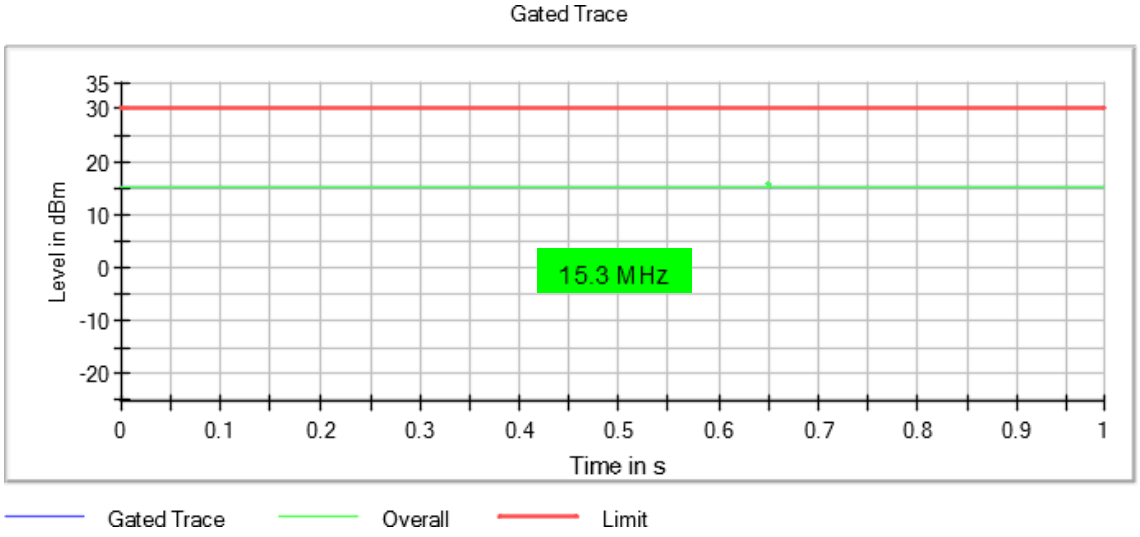
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



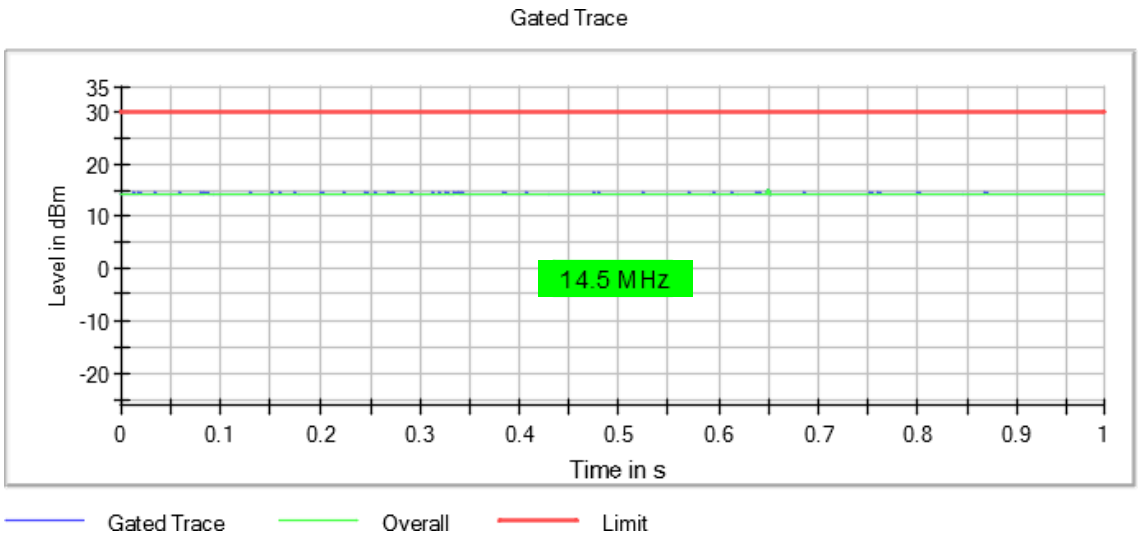
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT40 SS1 (OFDM MCS0)
Results

Freq (MHz)	Avg Power (dBm)	Max EIRP (dBm)
5190.00000	10.9	13.4
5230.00000	11.9	14.4
5755.00000	15.3	17.8
5795.00000	15.3	17.8

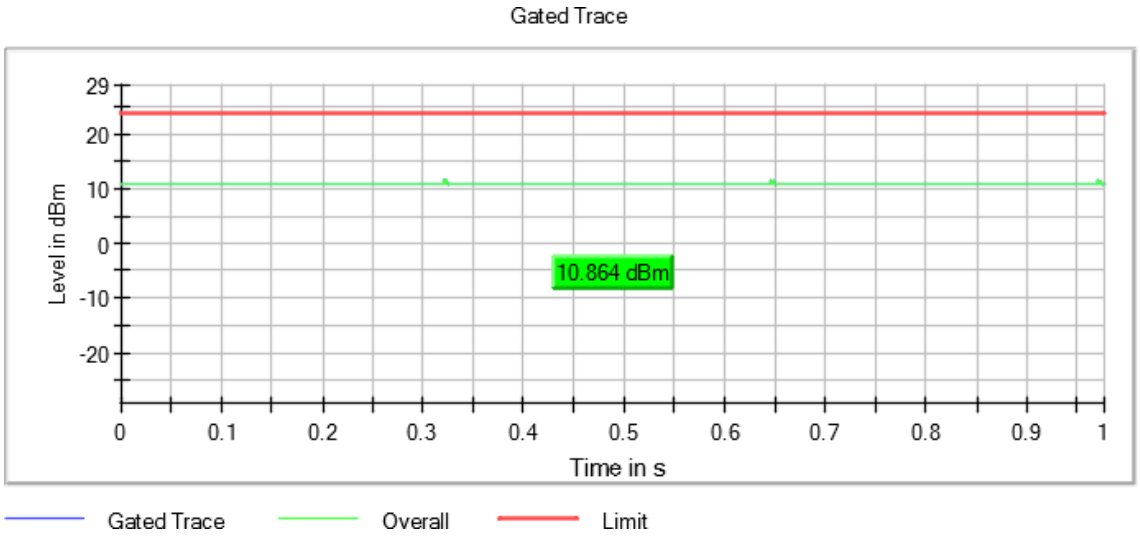
Verdict

Pass

Attachments

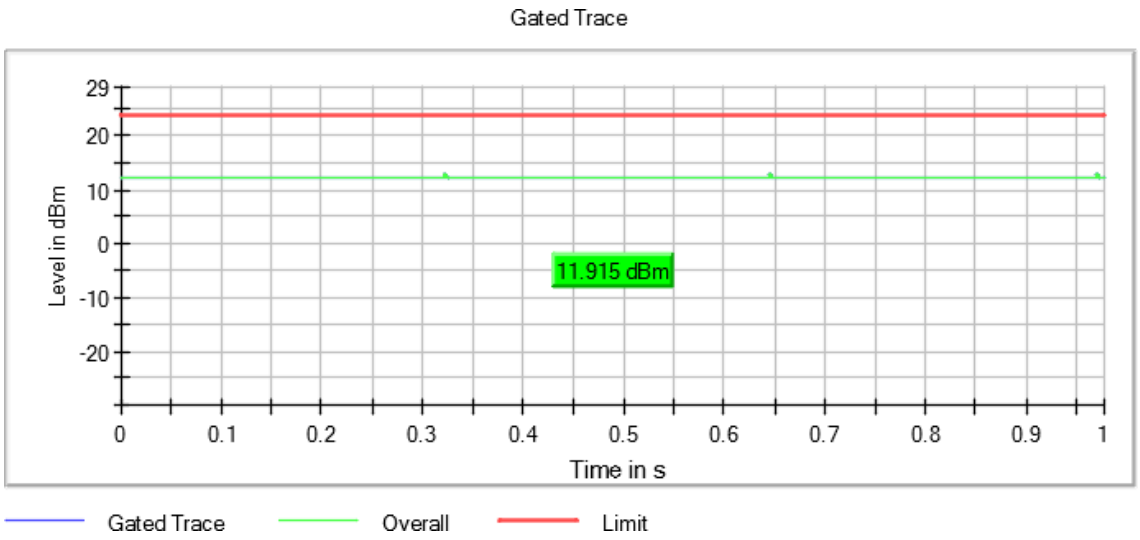
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



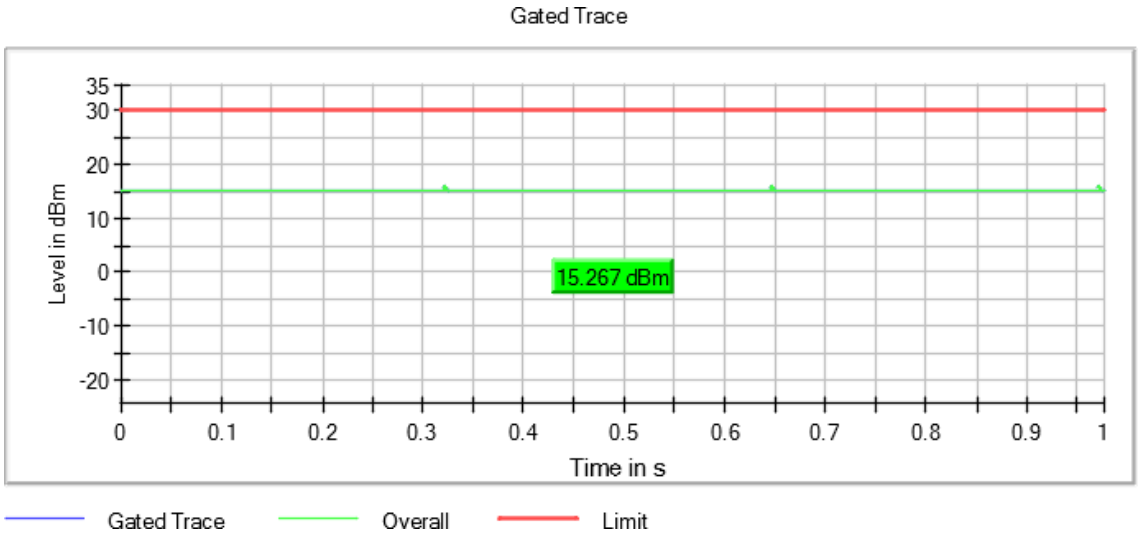
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



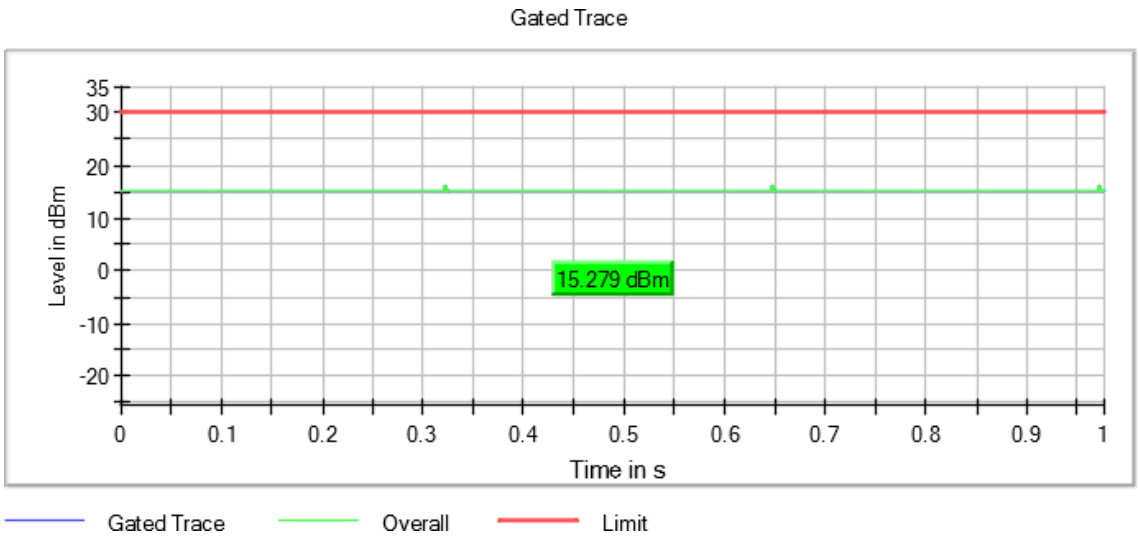
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT80 SS1 (OFDM MCS0)
Results

Freq (MHz)	Avg Power (dBm)	Max EIRP (dBm)
5210.00000	10.1	12.6
5775.00000	14.6	17.1

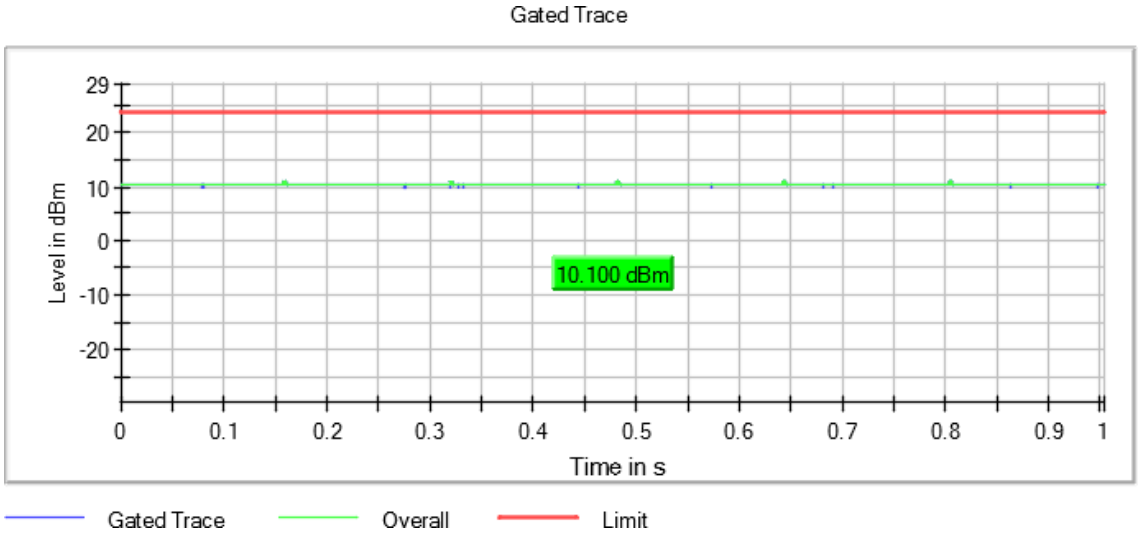
Verdict

Pass

Attachments

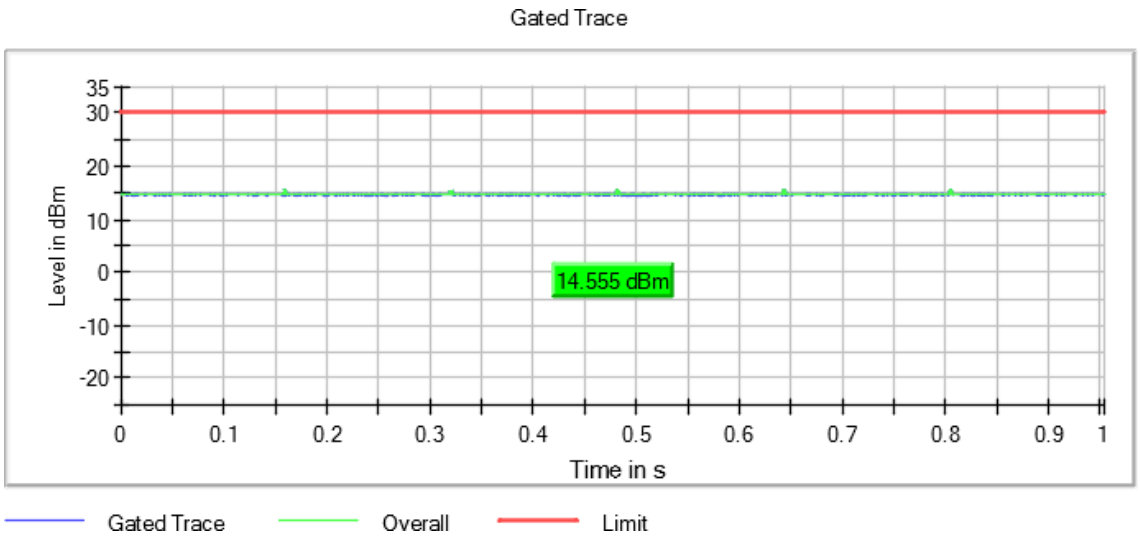
Active Port = 1, Frequency MHz = 5210.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5775.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Measurement Setup

Setting	Instrument Value
Measurement Time	1.000 s
Points	1000000
Time resolution	1.000 µs

FCC 15.407 (a) / RSS-247 6.2 Maximum Power Spectral Density

Limits

FCC 15.407:

The maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RSS-247:

In band 5.15-5.25 GHz, the e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

For the band 5.725-5.850 GHz, the output power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measured according to ANSI C63.10, Section 11.9.2.3.2 Method AVGPM-G

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power.

As Per KDB 662911 D01 Multiple Transmitter Output v02r01, for 802.11ac and ax Beam forming mode the directional gain for 2 TX antennas are calcularеted as follows:

Directional Gain = Antenna gain + 10log(NANT)

Modulation: 802.11a (OFDM 6 Mbit/s)
Results

Freq (MHz)	Freq (MHz)	PSD (dBm)
5180.00000	5177.227723	1.40
5200.00000	5202.772277	1.89
5240.00000	5242.376238	1.88
5745.00000	5747.574257	2.32
5785.00000	5792.524752	2.39
5825.00000	5832.524752	1.67

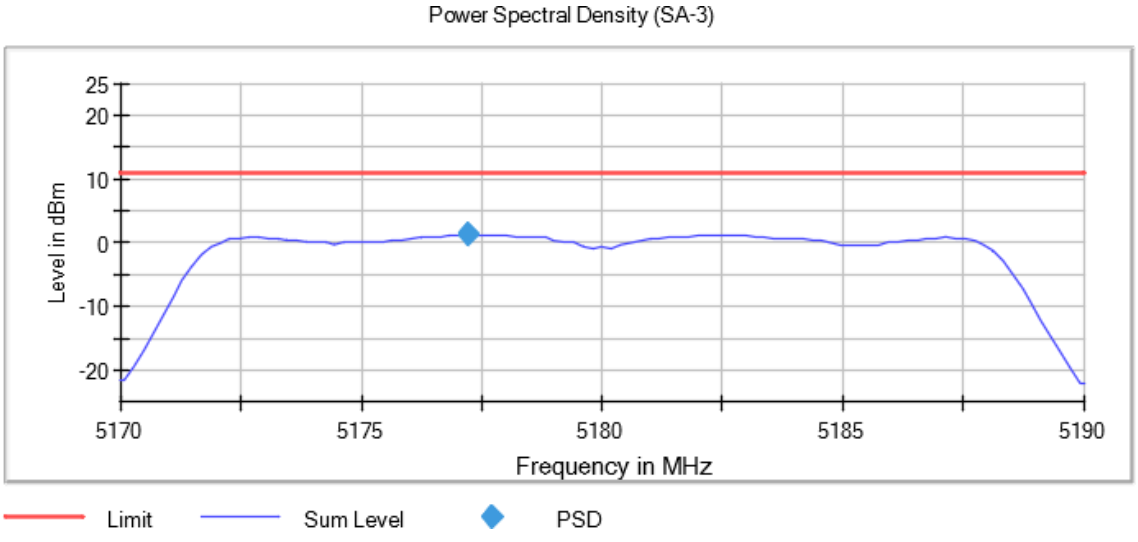
Verdict

Pass

Attachments

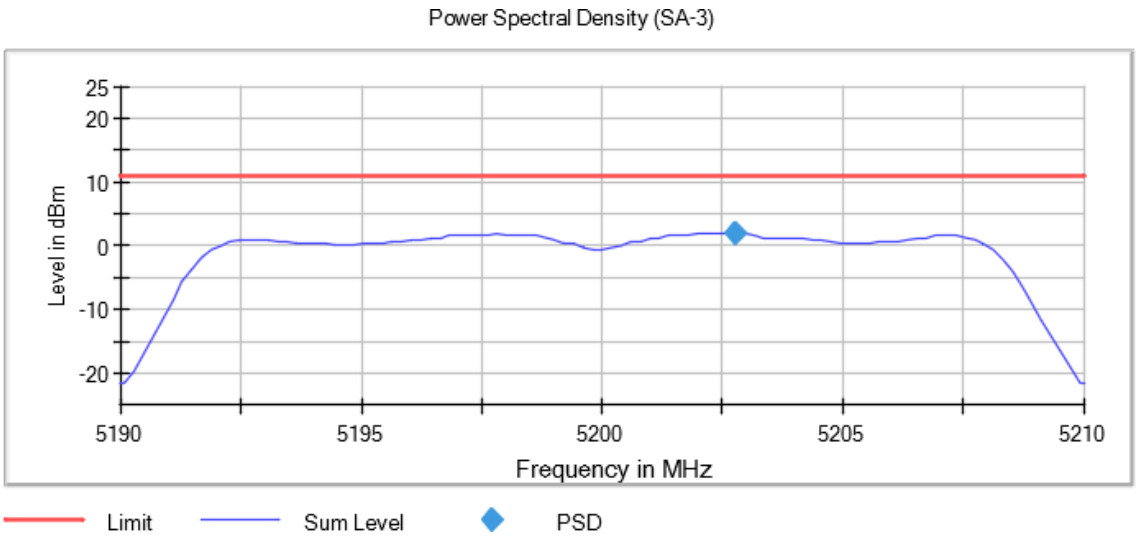
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



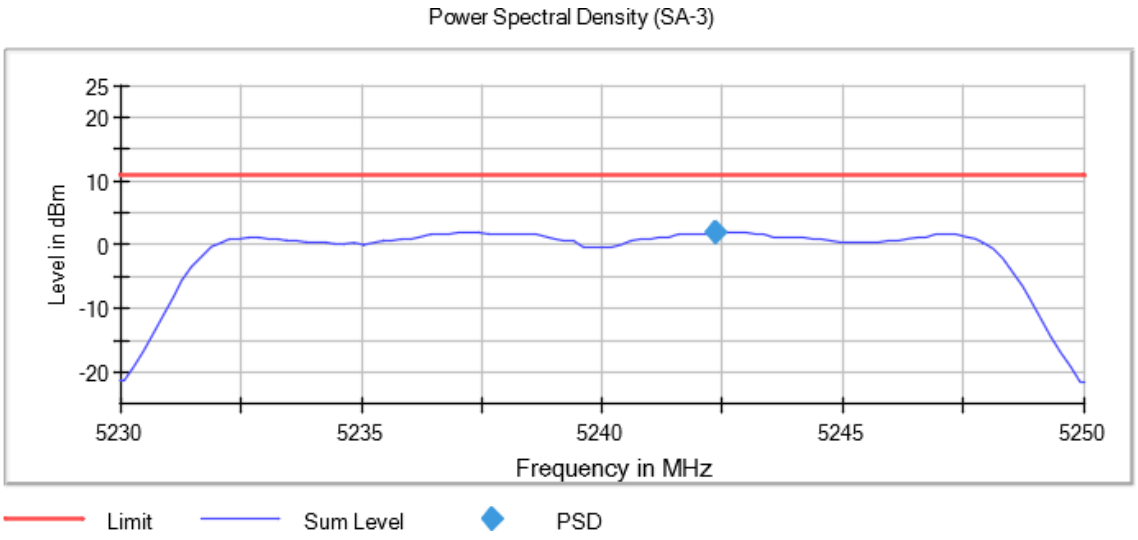
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



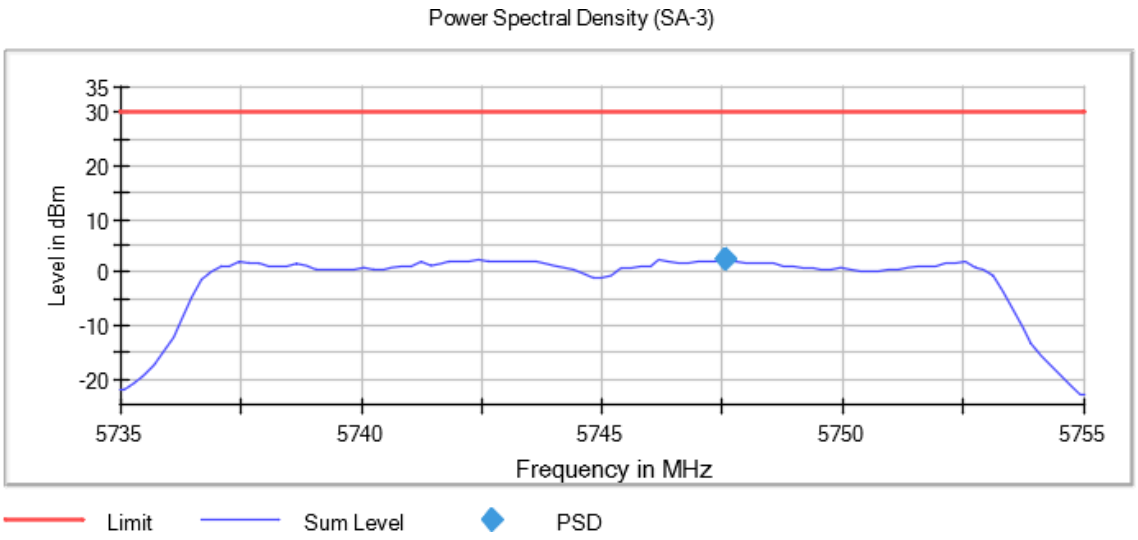
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



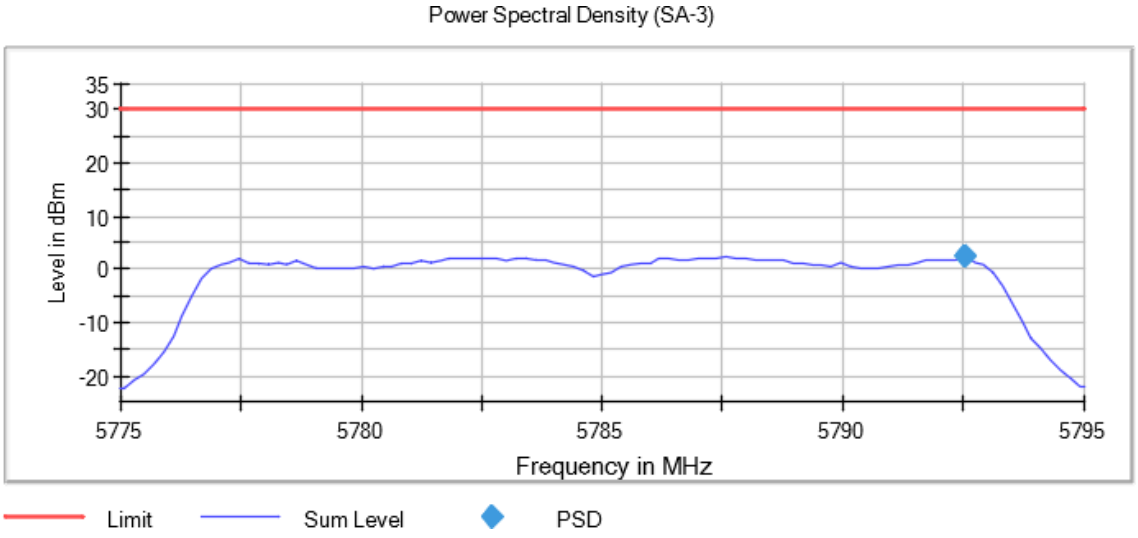
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



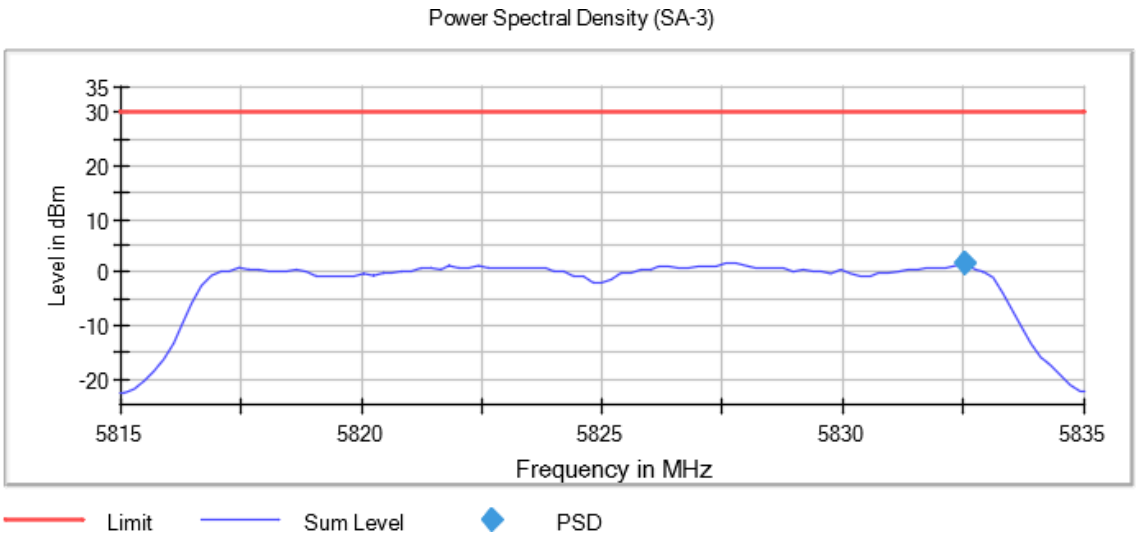
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11a (OFDM 6 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Results

Freq (MHz)	Freq (MHz)	PSD (dBm)
5180.00000	5177.227723	1.29
5200.00000	5202.376238	1.90
5240.00000	5242.376238	1.86
5745.00000	5747.574257	2.54
5785.00000	5787.574257	2.68
5825.00000	5827.574257	1.80

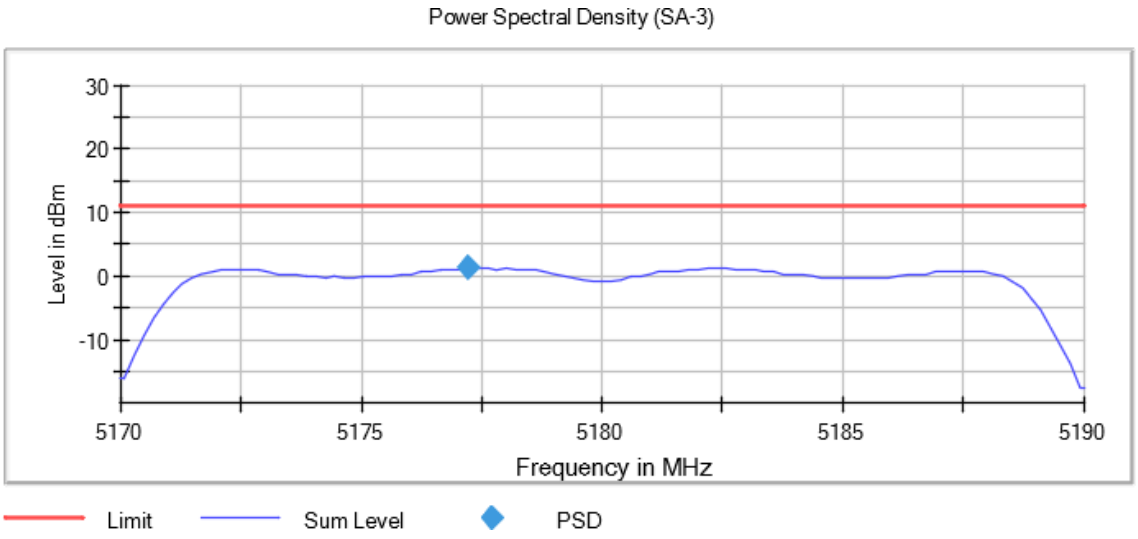
Verdict

Pass

Attachments

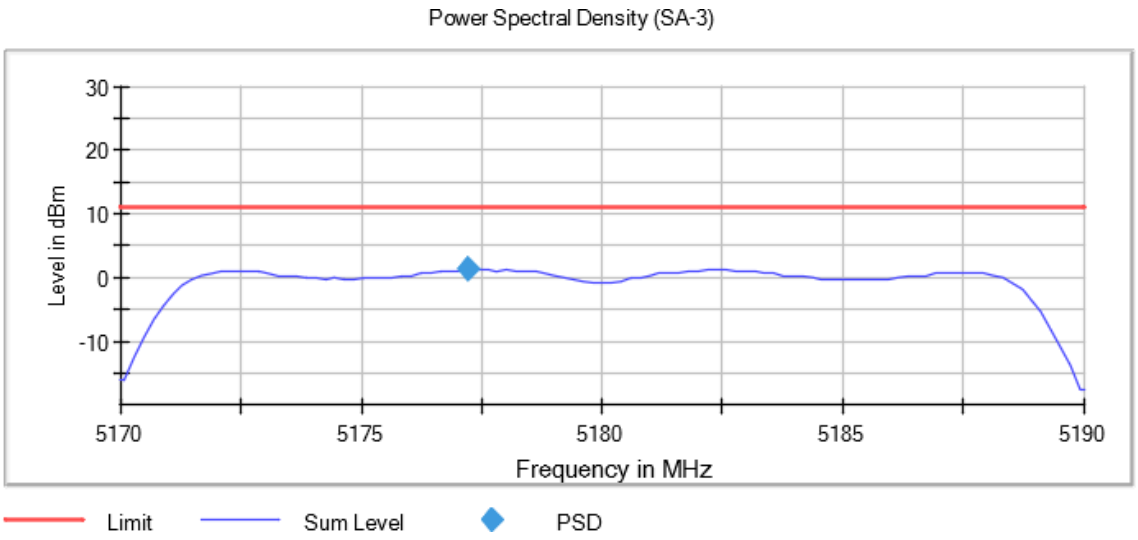
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



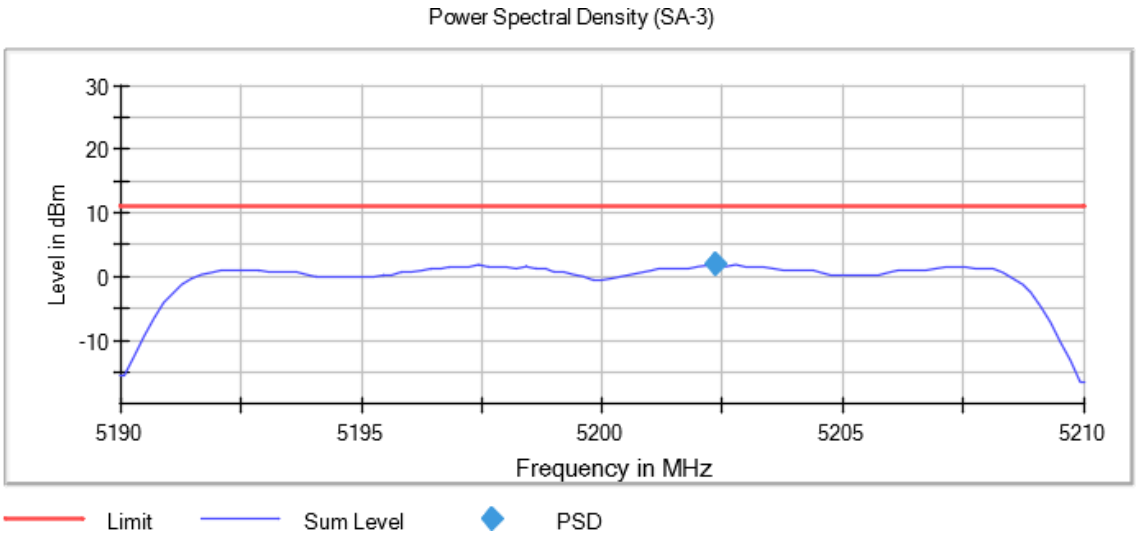
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



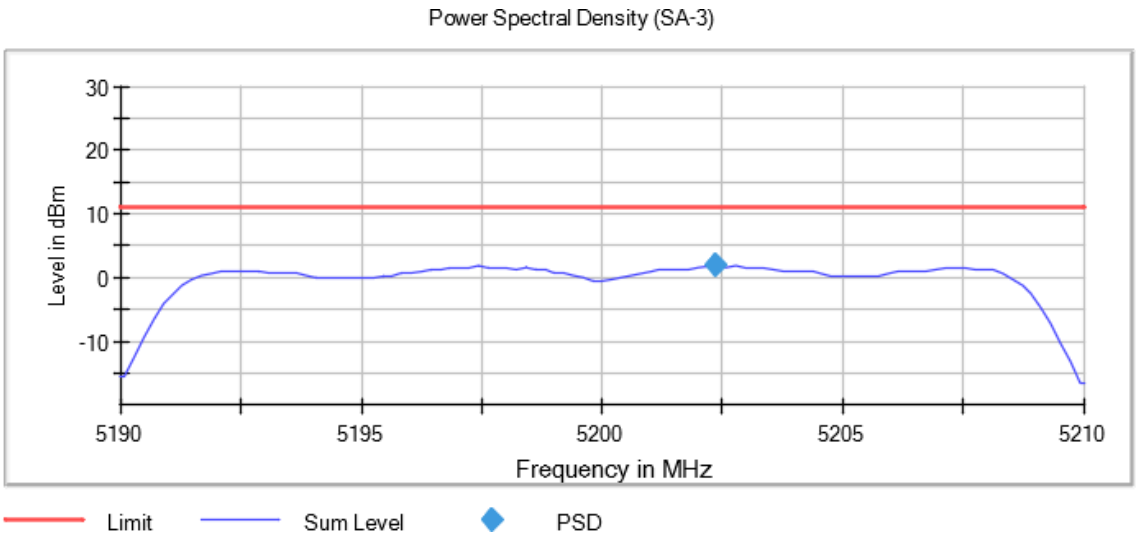
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



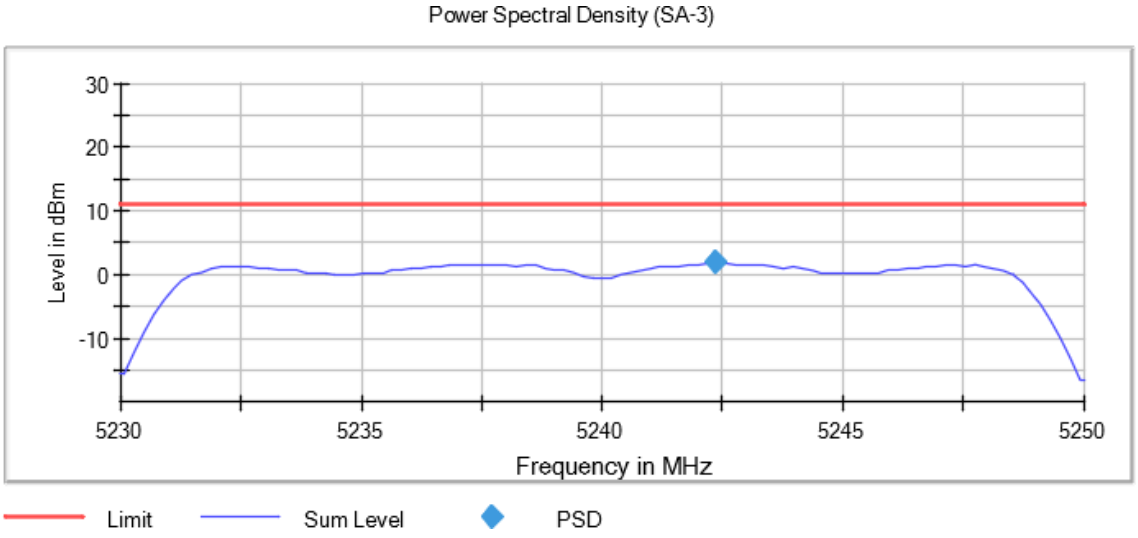
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



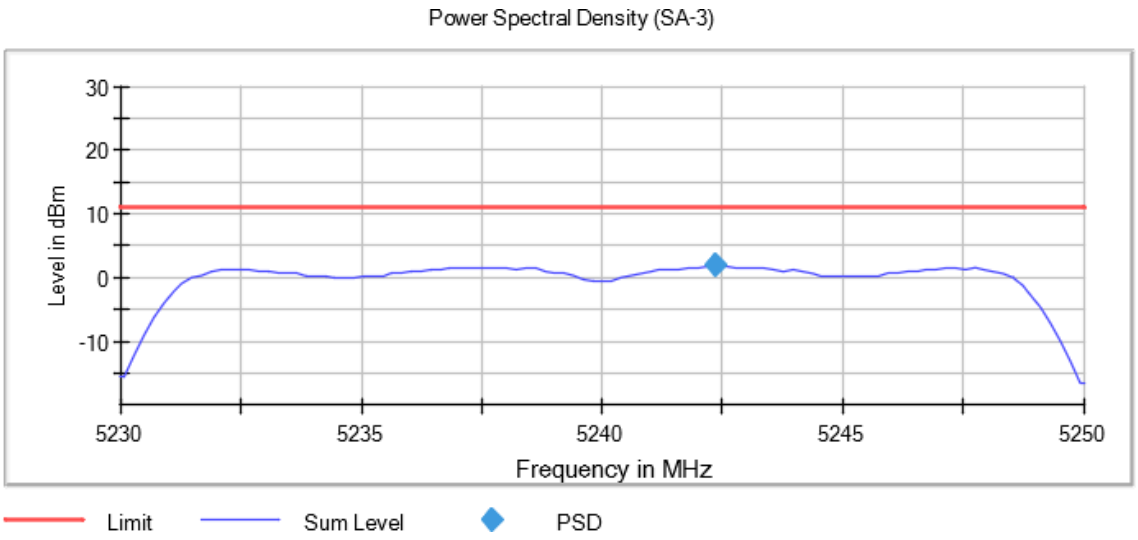
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



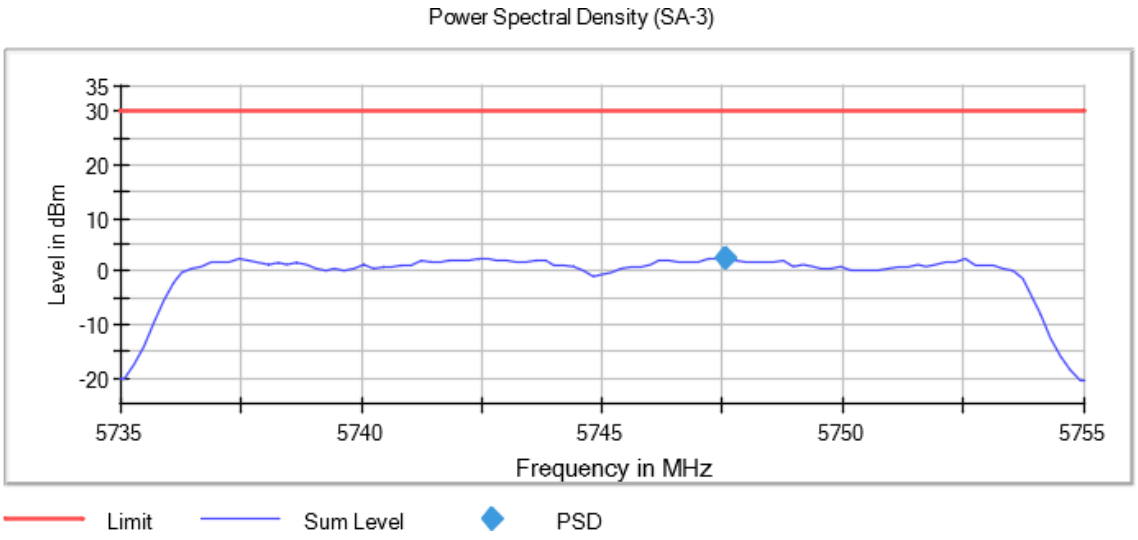
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



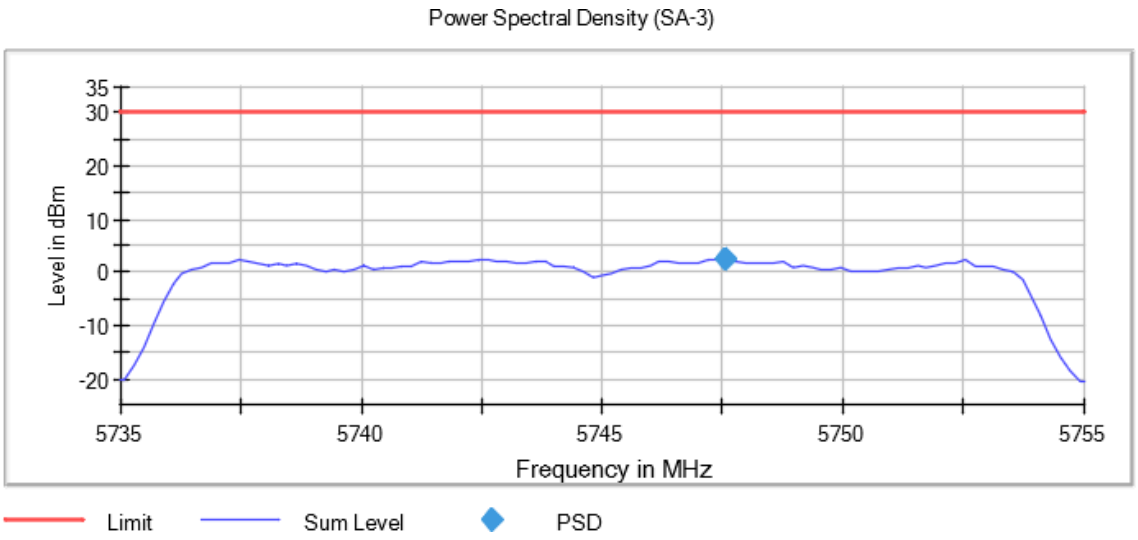
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



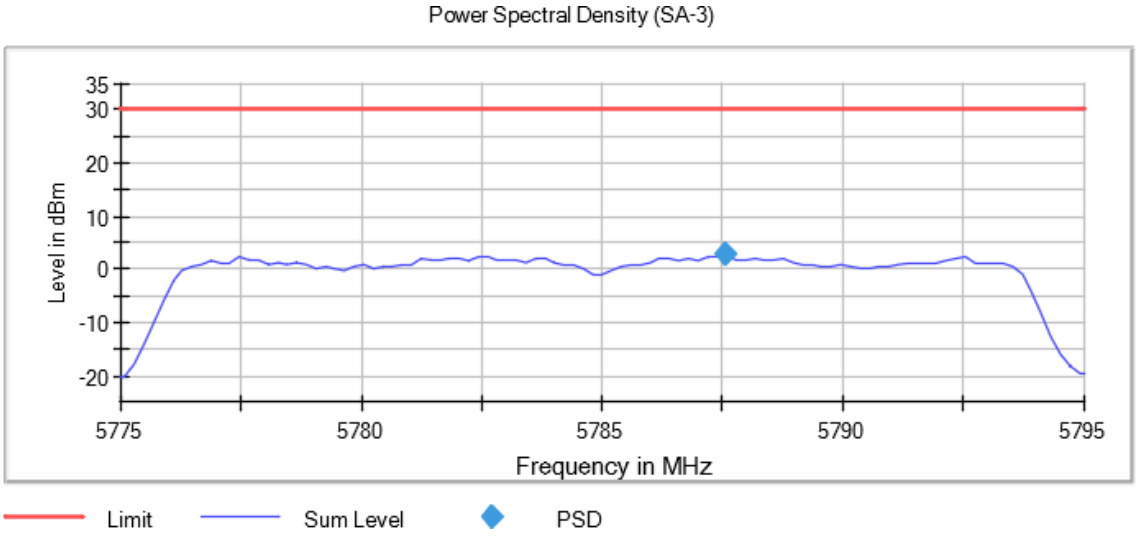
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



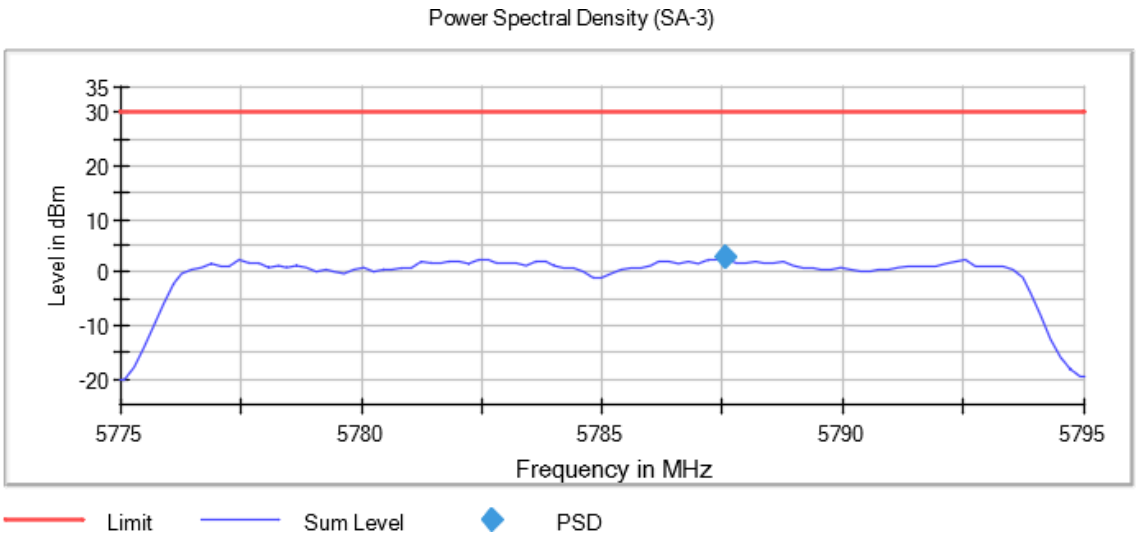
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



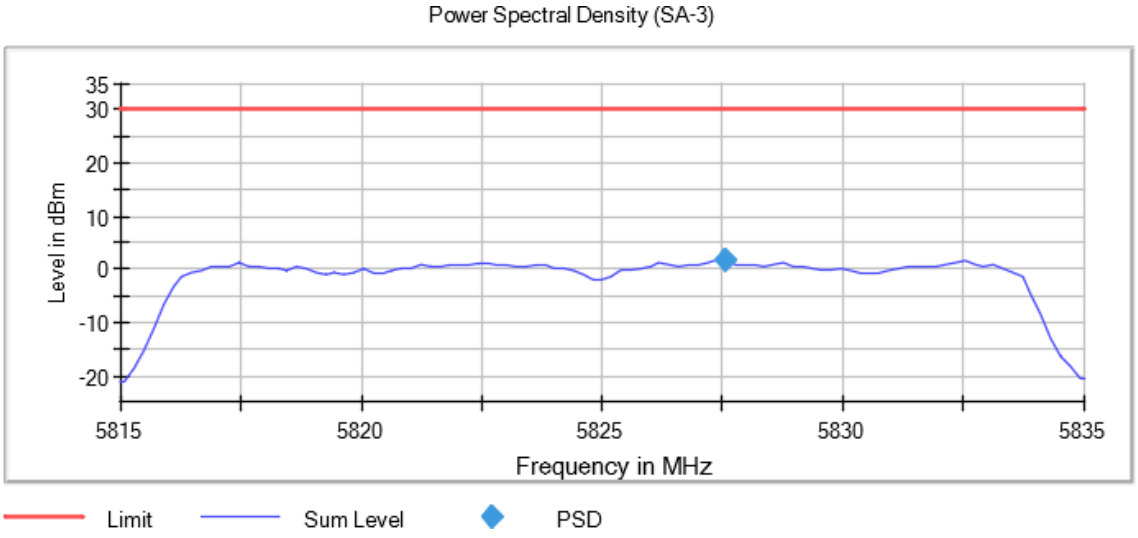
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



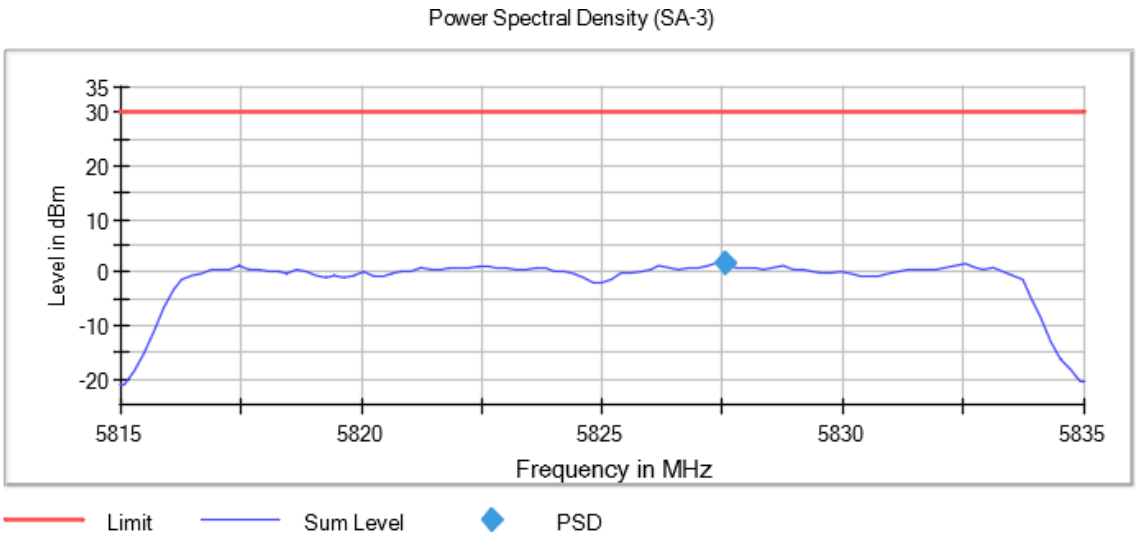
Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Modulation: 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

Results

Freq (MHz)	Freq (MHz)	PSD (dBm)
5190.00000	5205.049505	-3.12
5230.00000	5214.554455	-1.18
5755.00000	5750.125000	-0.90
5795.00000	5790.125000	-0.85

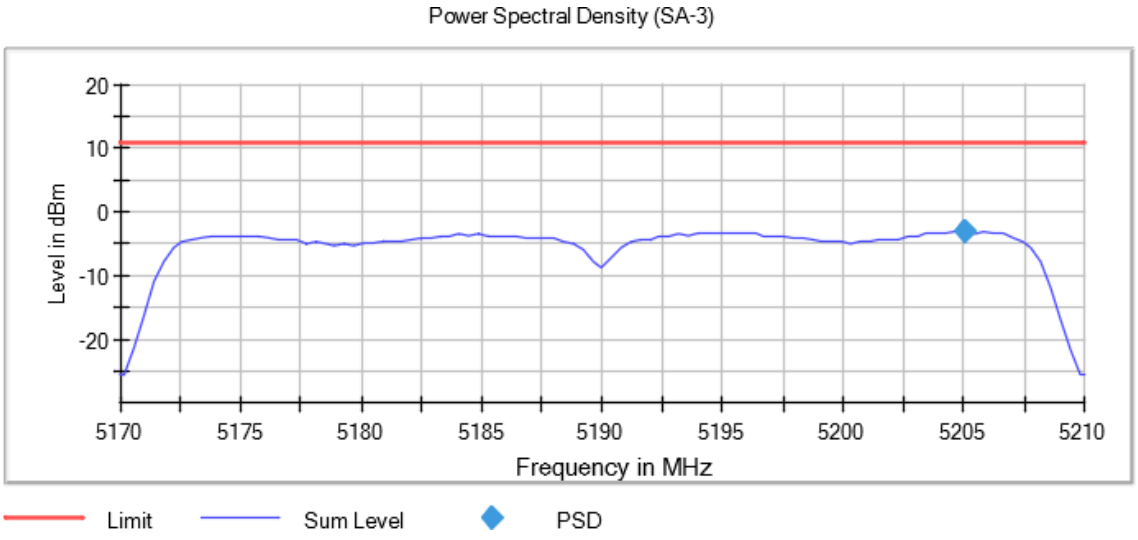
Verdict

Pass

Attachments

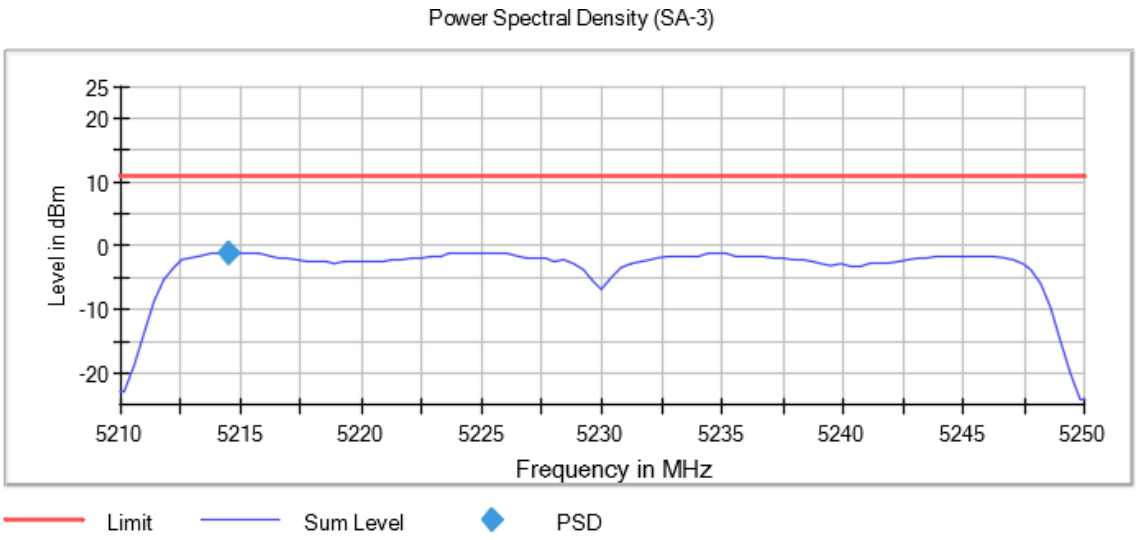
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



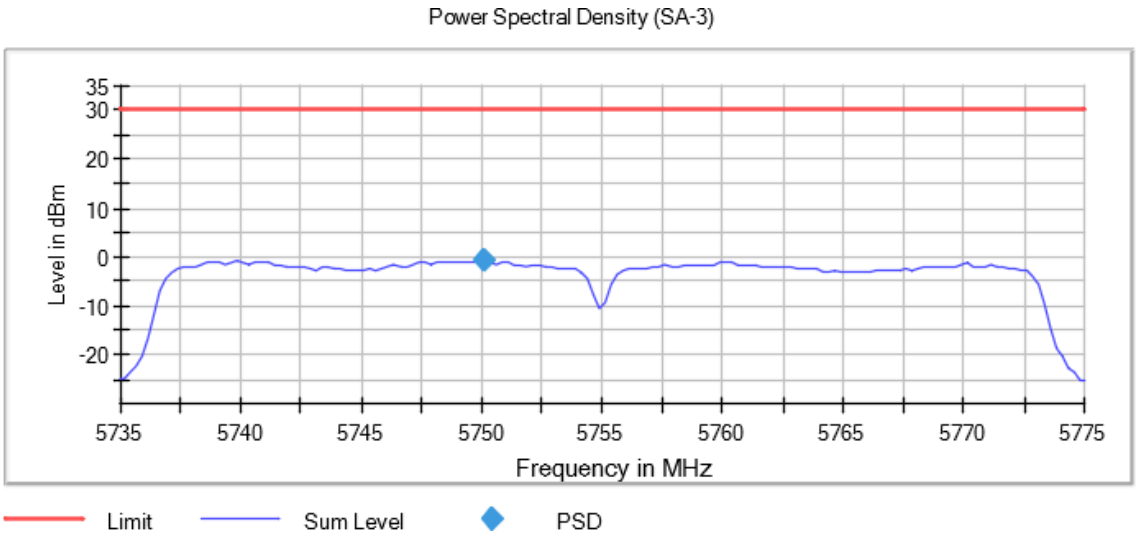
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), TPC = No, Number of Transmission Chains = 1

Images:

Modulation: 802.11ac VHT20 (OFDM MCS0)
Results

Freq (MHz)	Freq (MHz)	PSD (dBm)
5180.00000	5177.227723	1.28
5200.00000	5202.178218	2.00
5240.00000	5242.376238	0.90
5745.00000	5752.524752	2.61
5785.00000	5792.524752	2.58
5825.00000	5832.524752	2.01

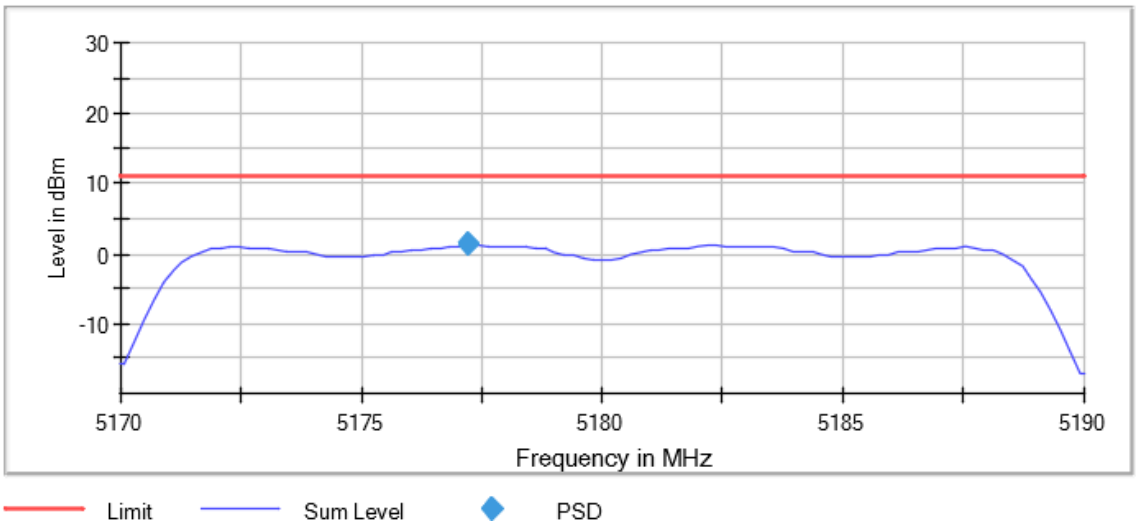
Verdict

Pass

Attachments

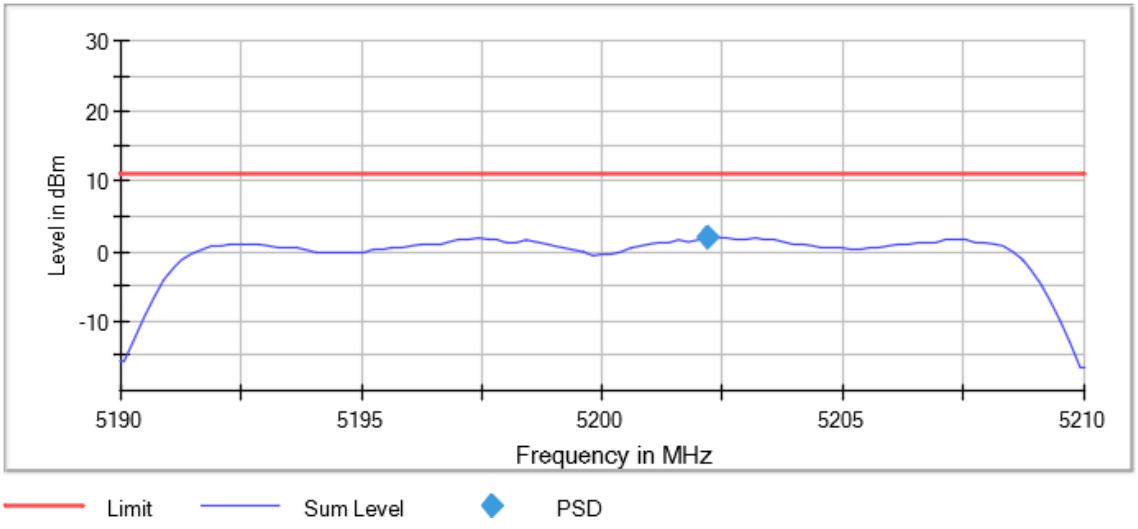
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



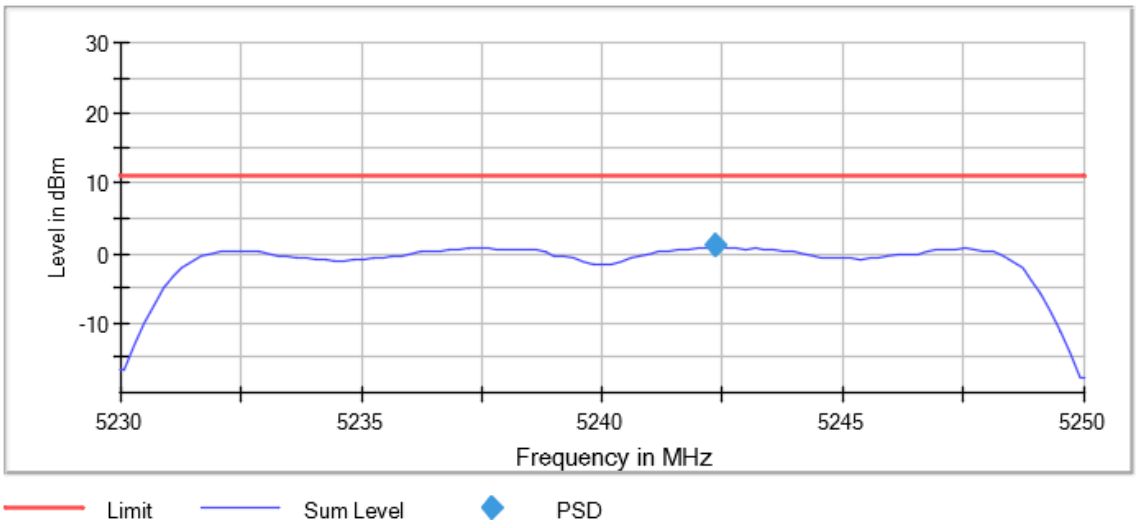
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



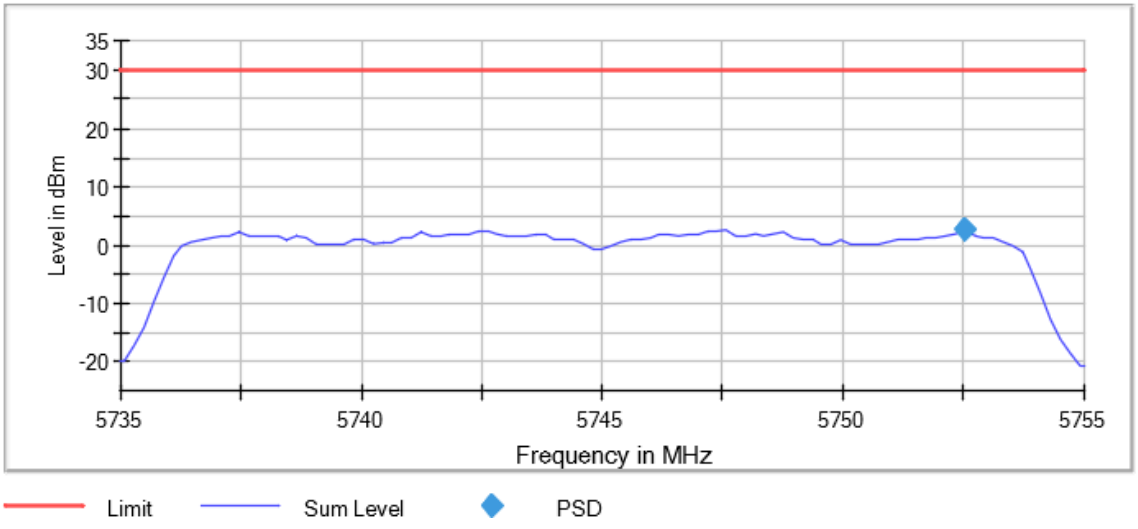
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



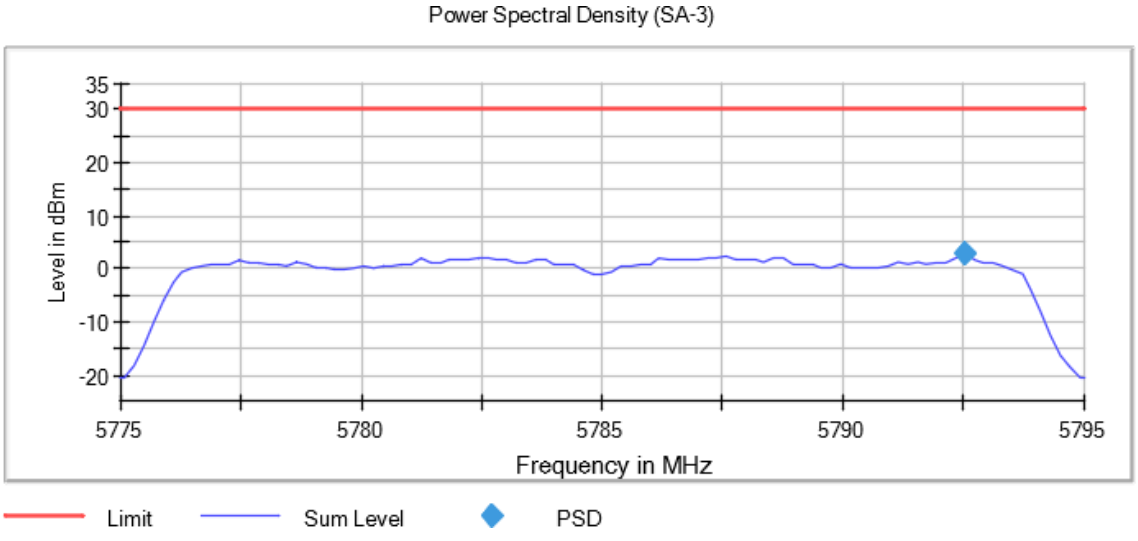
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



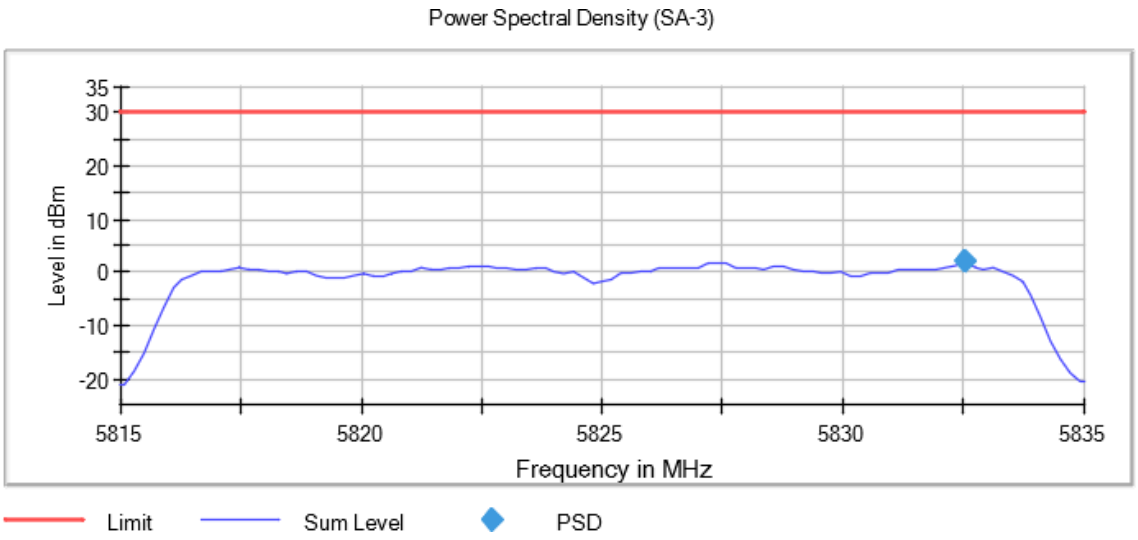
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT40 SS1 (OFDM MCS0)
Results

Freq (MHz)	Freq (MHz)	PSD (dBm)
5190.00000	5205.049505	-2.56
5230.00000	5213.762376	-1.14
5755.00000	5738.875000	0.45
5795.00000	5778.875000	0.13

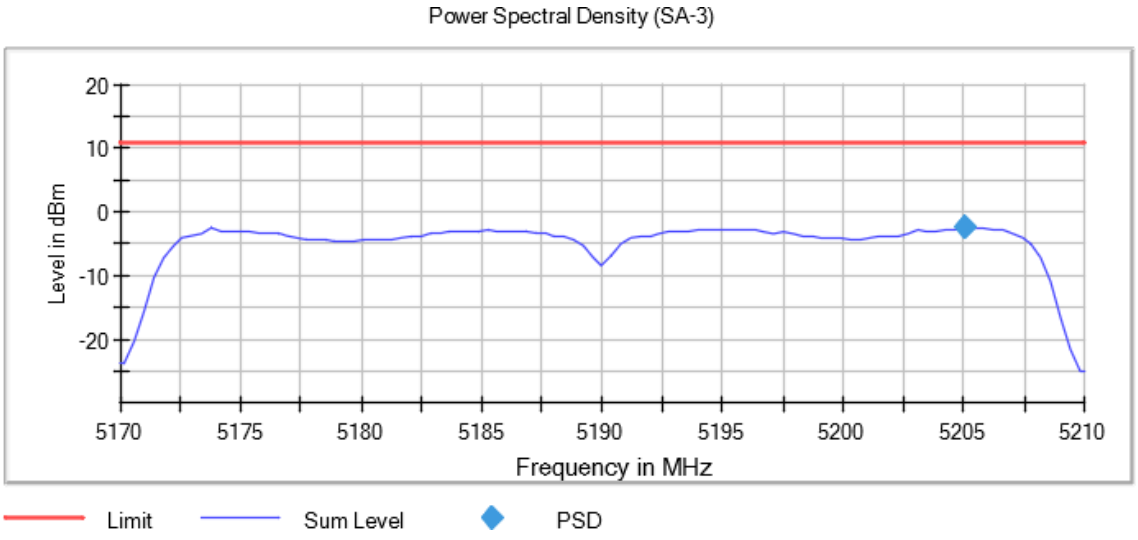
Verdict

Pass

Attachments

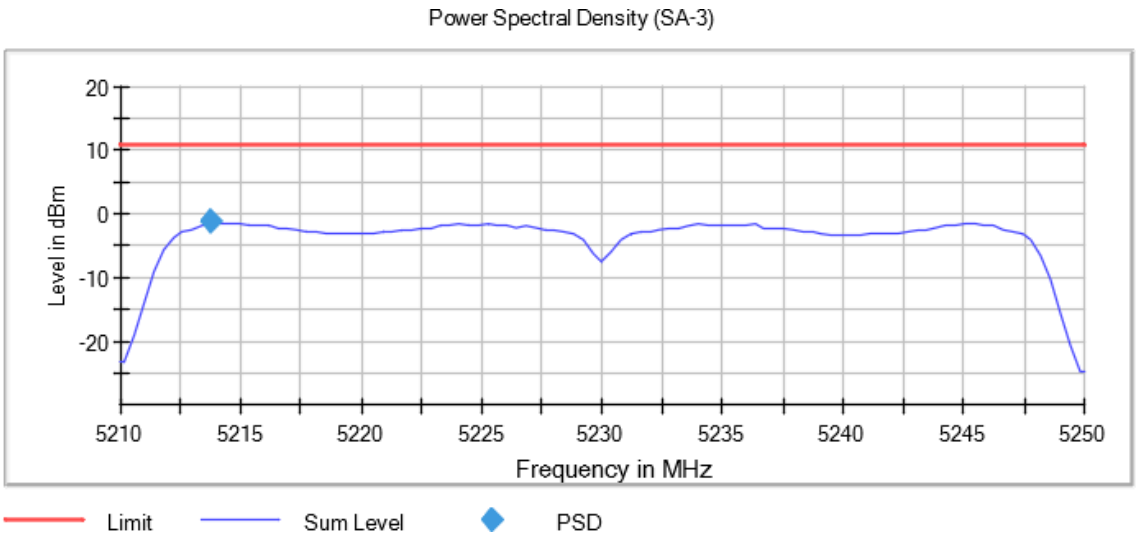
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



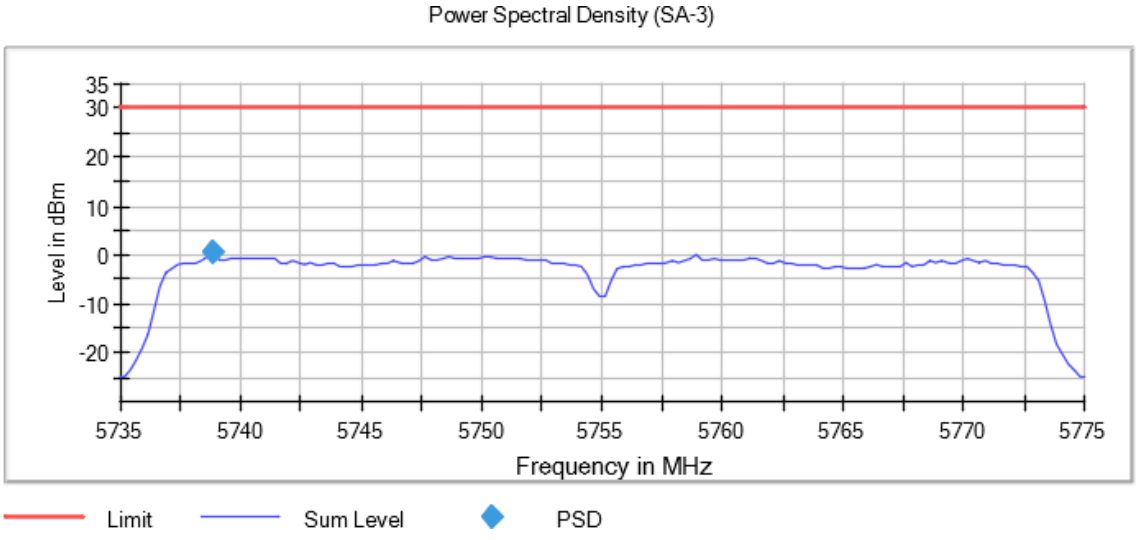
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



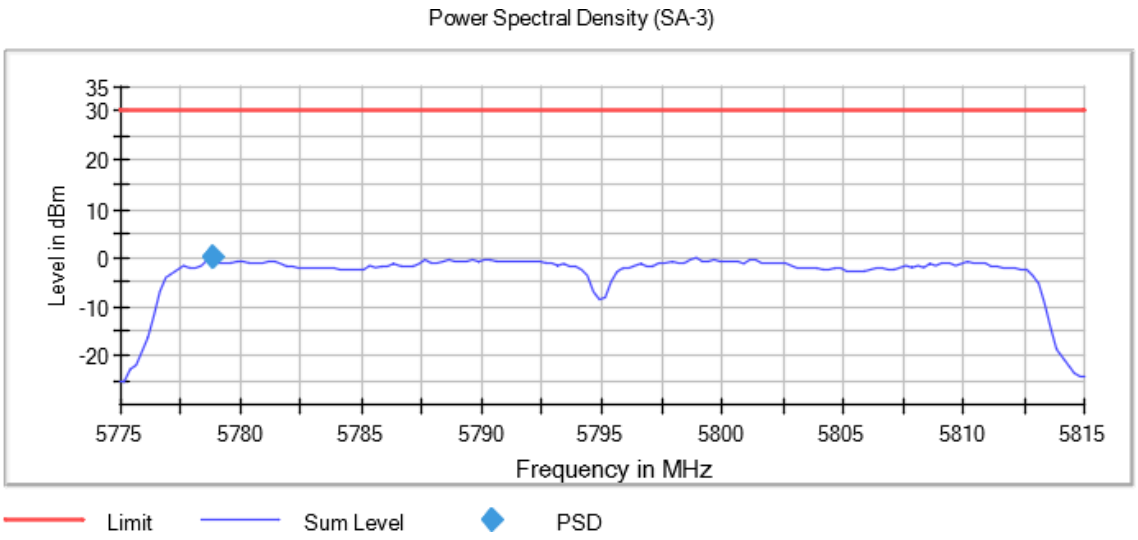
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT80 SS1 (OFDM MCS0)
Results

Port	Freq (MHz)	TPC	# of Tx Chains	Freq (MHz)	PSD (dBm)
1	5210.00000	No	1	5212.750000	-6.90
	5775.00000			5787.375000	-4.80

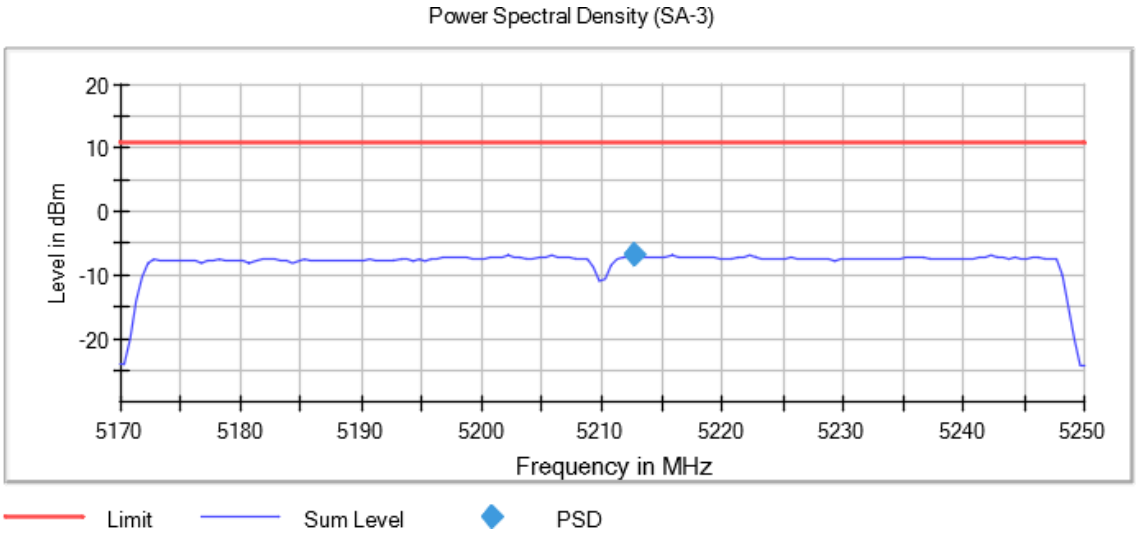
Verdict

Pass

Attachments

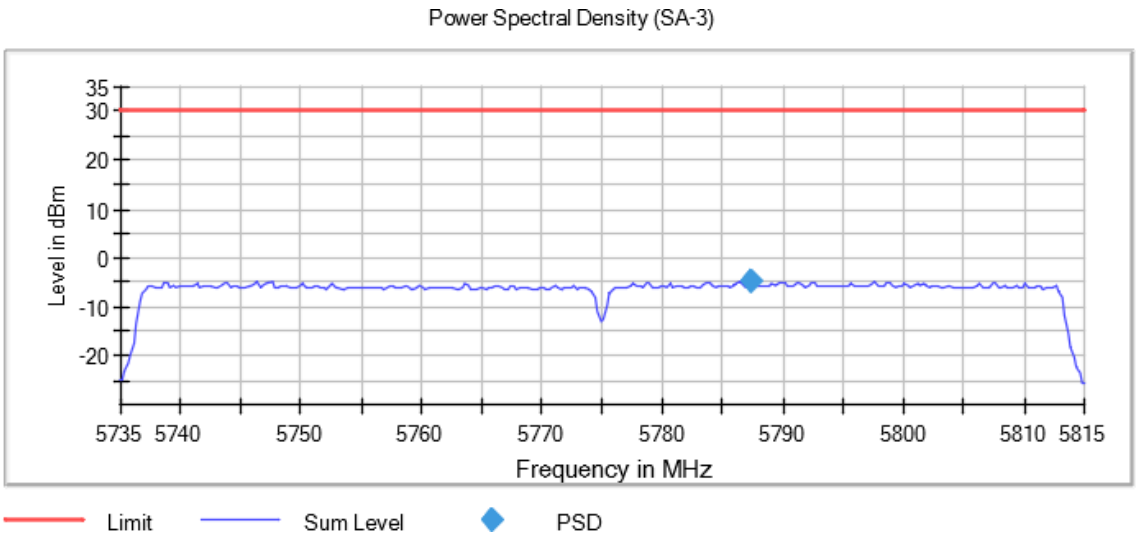
Active Port = 1, Frequency MHz = 5210.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5775.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), TPC = No, Number of Transmission Chains = 1

Images:



Measurement Setup

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.17000 GHz	5.19000 GHz	5.23000 GHz
Stop Frequency	5.19000 GHz	5.21000 GHz	5.25000 GHz
Span	20.000 MHz	20.000 MHz	20.000 MHz
RBW	1.000 MHz	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz	3.000 MHz
Sweep Points	101	101	101
Sweep time	11.000 µs	11.000 µs	11.000 µs
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	RMS	RMS	RMS
Sweep Count	0	0	0
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	13 / max. 15	15 / max. 15	13 / max. 15
Stable	3 / 3	1 / 3	3 / 3
Max Stable Difference	0.00 dB	0.00 dB	0.00 dB

Measurement Setup

	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.73500 GHz	5.77500 GHz	5.81500 GHz
Stop Frequency	5.75500 GHz	5.79500 GHz	5.83500 GHz
Span	20.000 MHz	20.000 MHz	20.000 MHz
RBW	500.000 kHz	500.000 kHz	500.000 kHz
VBW	2.000 MHz	2.000 MHz	2.000 MHz
Sweep Points	101	101	101
Sweep time	11.000 µs	11.000 µs	11.000 µs
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	RMS	RMS	RMS
Sweep Count	0	0	0
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	15 / max. 15	15 / max. 15	15 / max. 15
Stable	3 / 3	3 / 3	3 / 3
Max Stable Difference	0.00 dB	0.00 dB	0.00 dB

FCC 2.1049 / RSS-Gen 6.7 99% Occupied Bandwidth

Modulation: 802.11a (OFDM 6 Mbit/s)
Results

Freq (MHz)	Occ Ch BW (MHz)
5180.00000	16.600
5200.00000	16.700
5240.00000	16.700
5745.00000	16.700
5785.00000	16.700
5825.00000	16.700

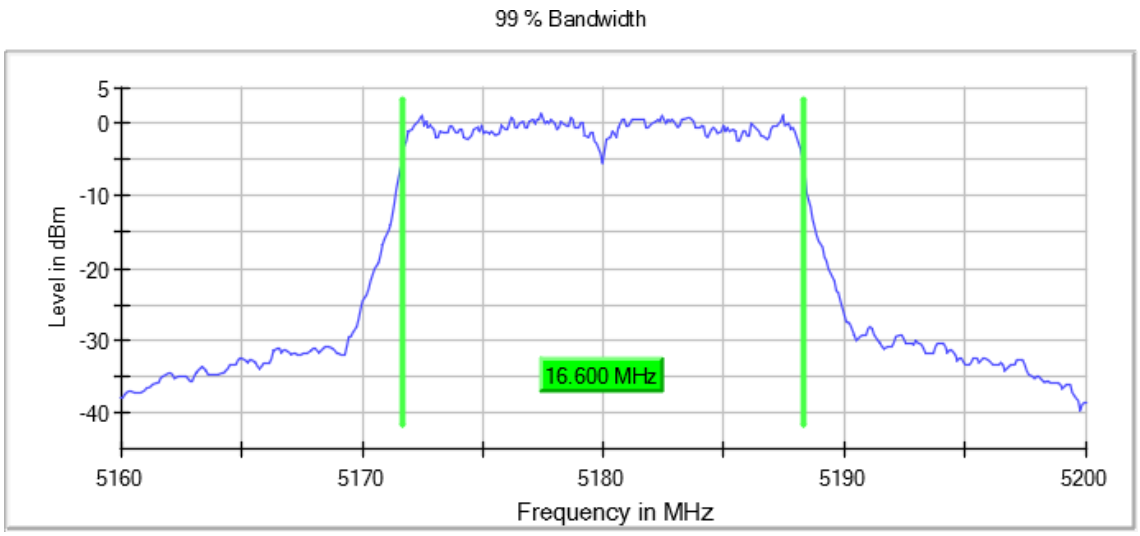
Verdict

Pass

Attachments

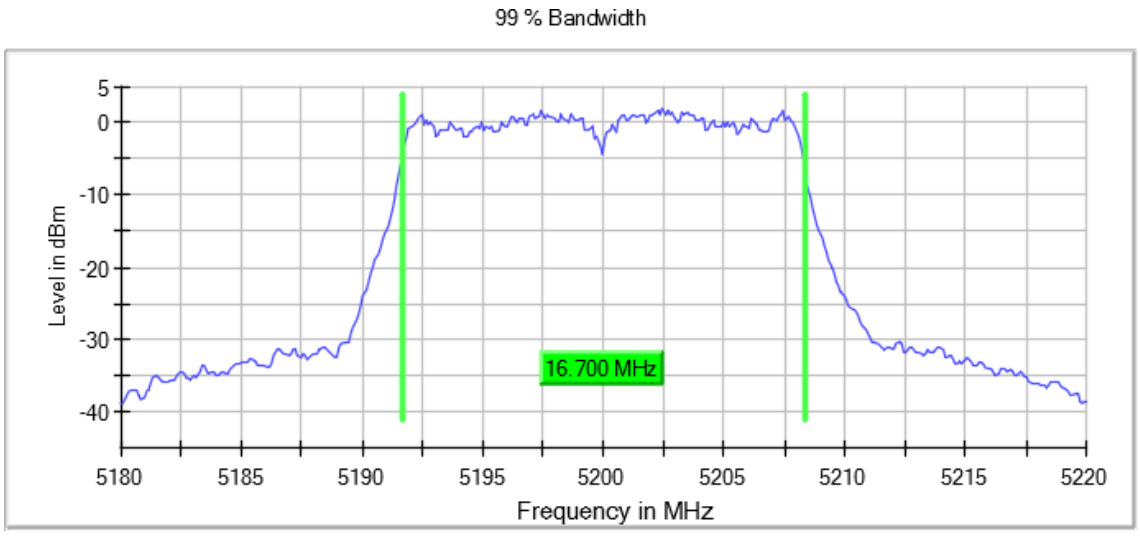
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



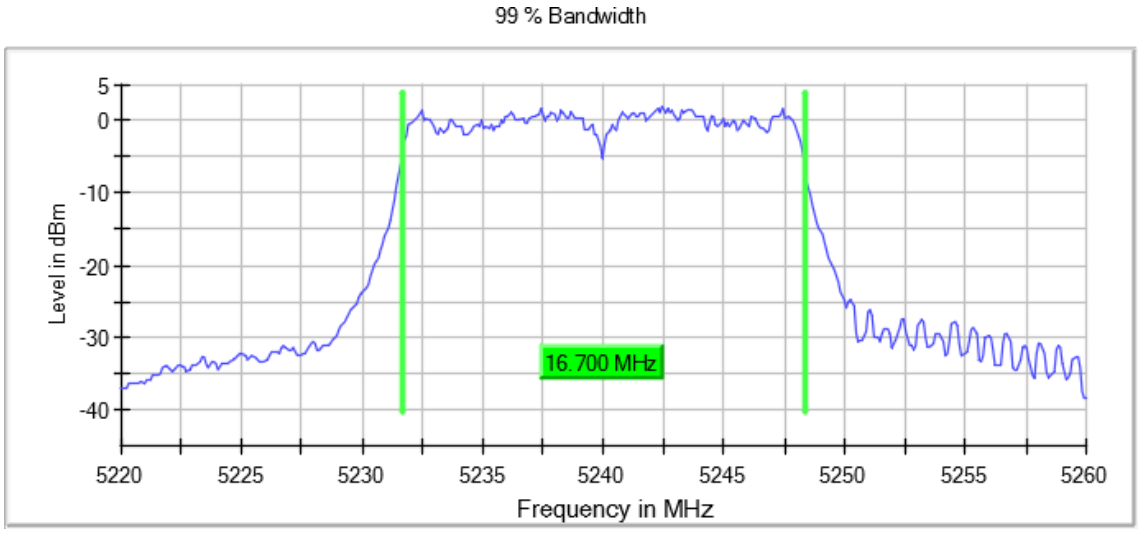
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



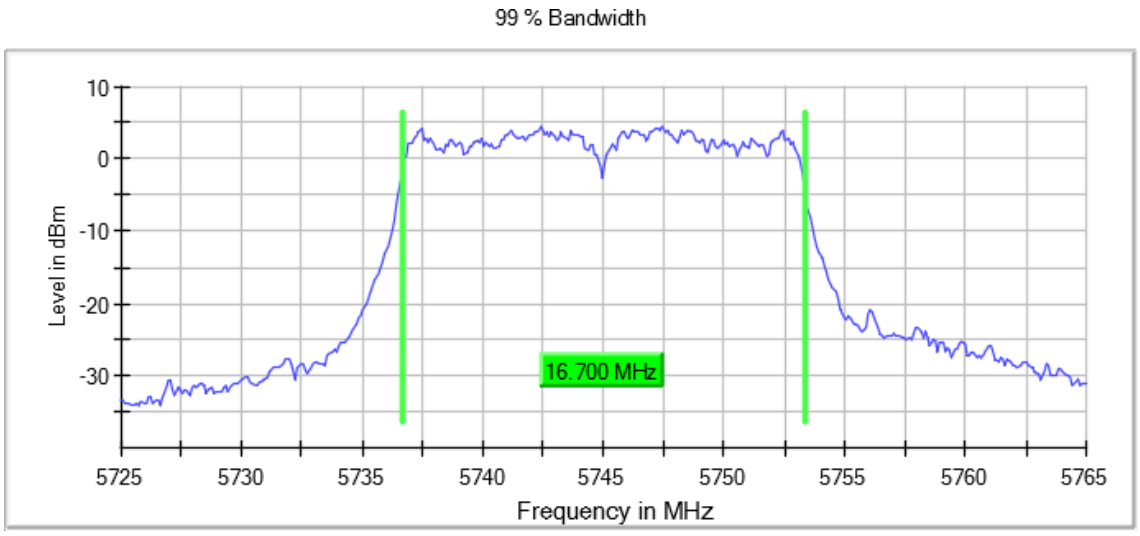
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



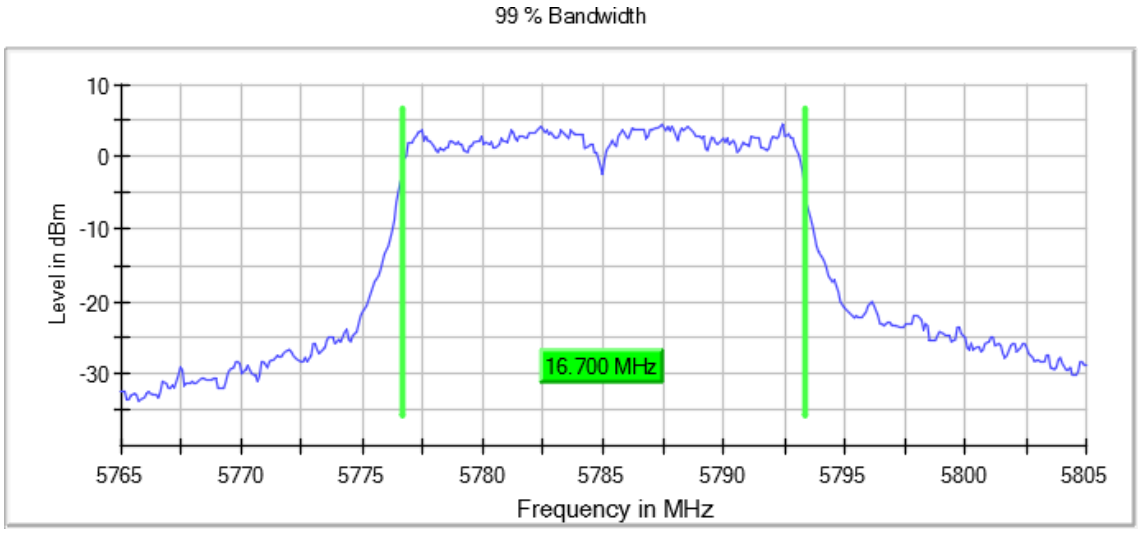
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



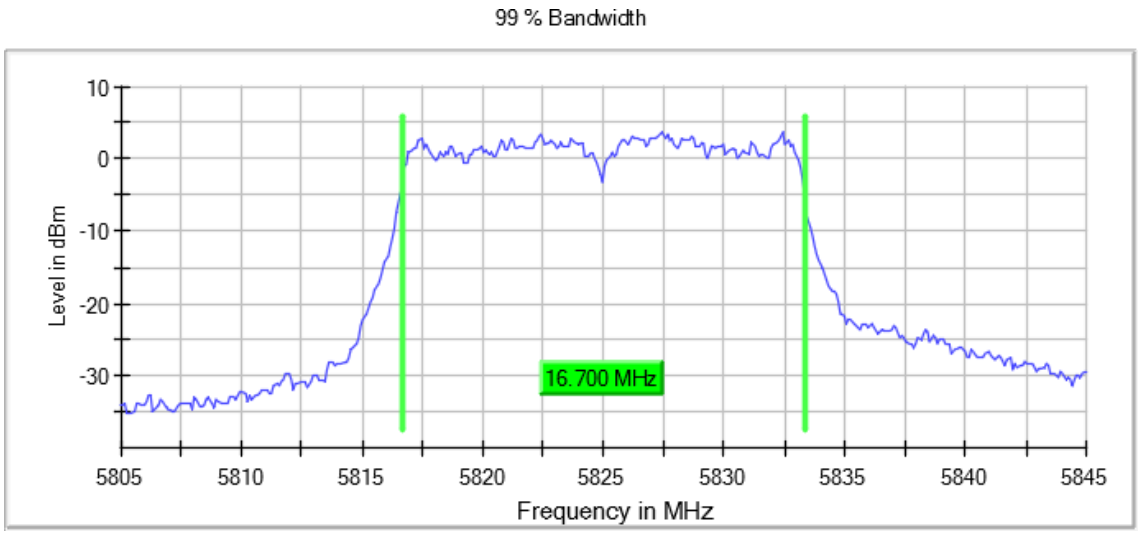
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)
Results

Freq (MHz)	Occ Ch BW (MHz)
5180.00000	17.700
5180.00000	17.700
5200.00000	17.700
5200.00000	17.700
5240.00000	17.600
5240.00000	17.600
5745.00000	17.800
5745.00000	17.800
5785.00000	17.700
5785.00000	17.700
5825.00000	17.700
5825.00000	17.700

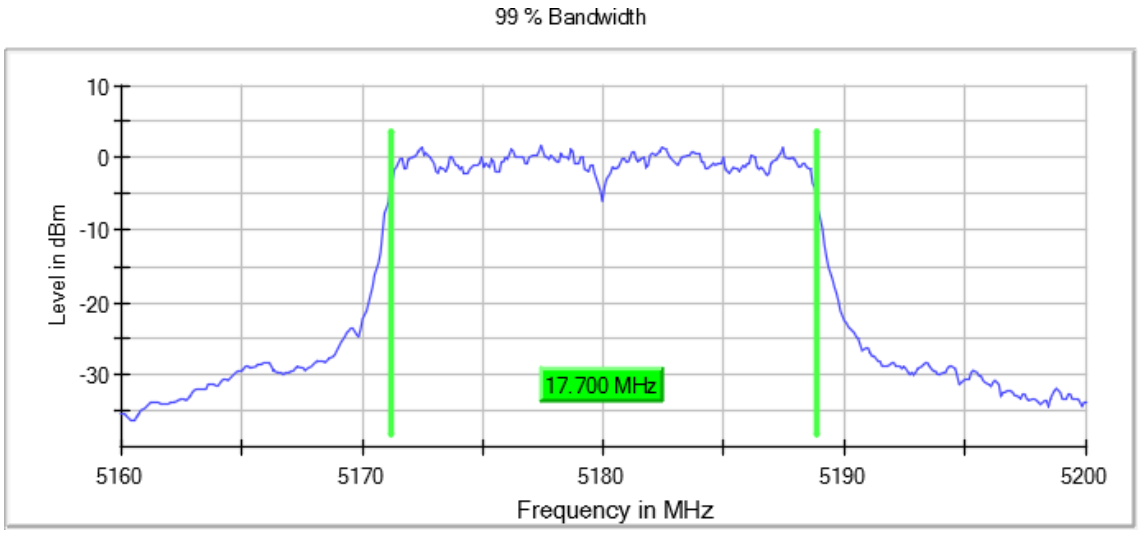
Verdict

Pass

Attachments

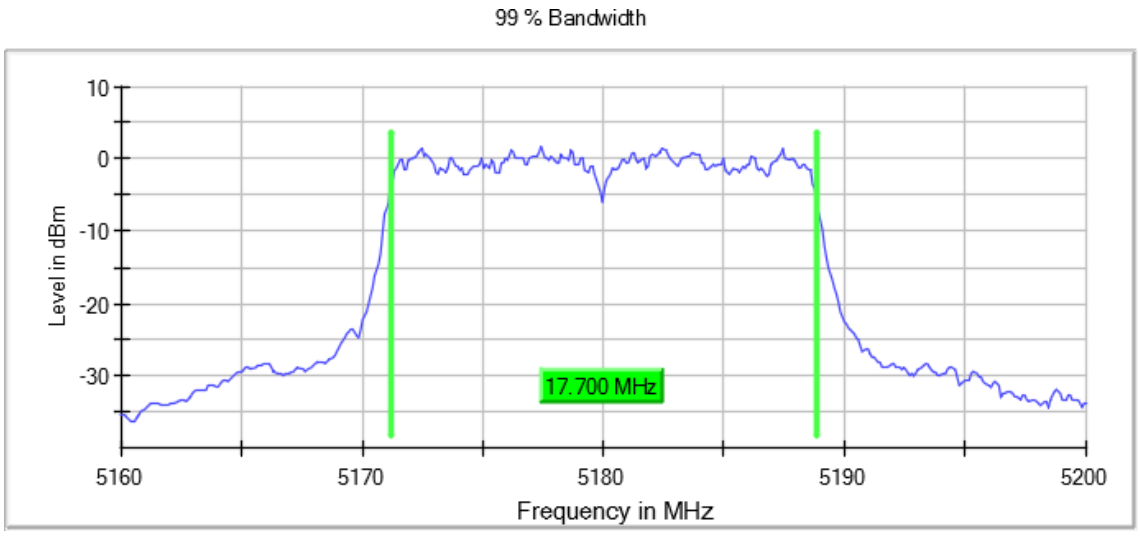
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



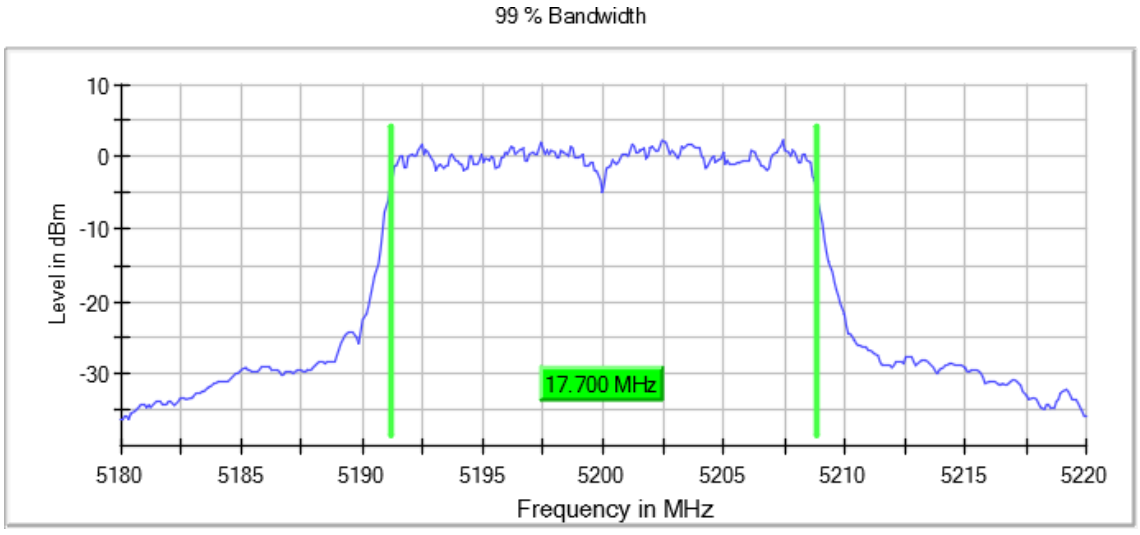
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



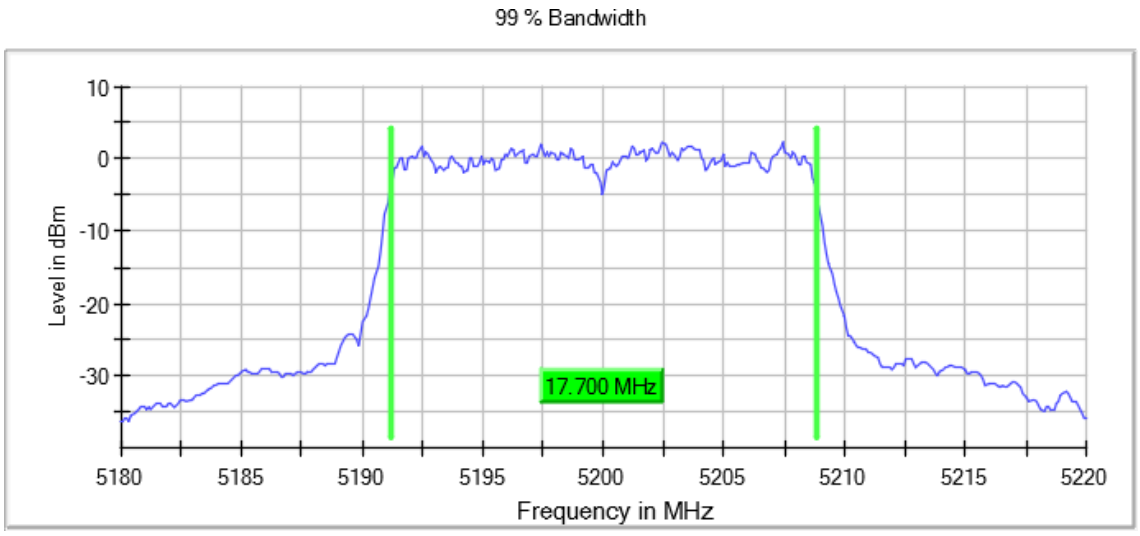
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



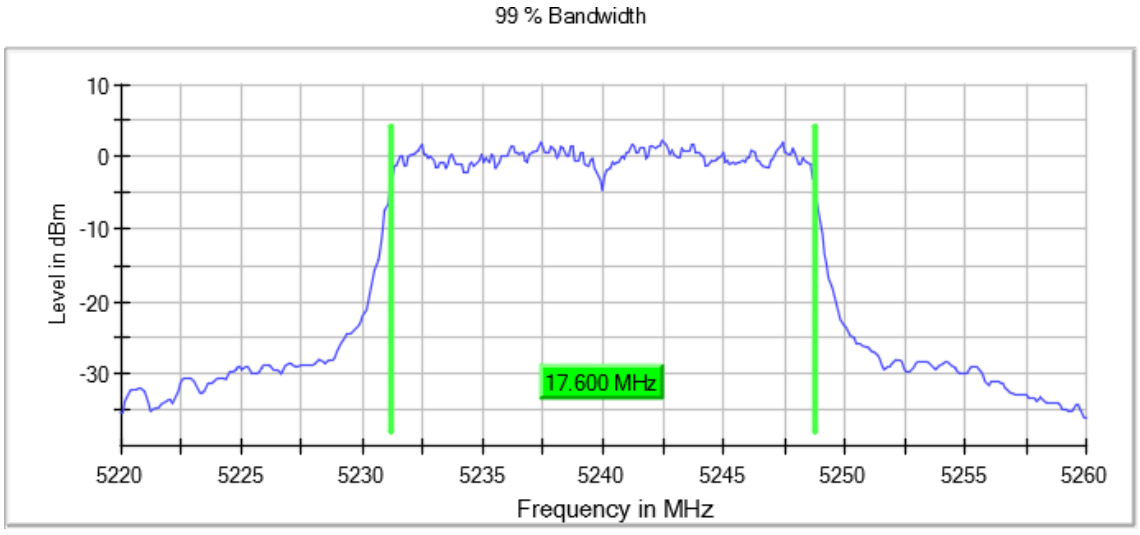
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



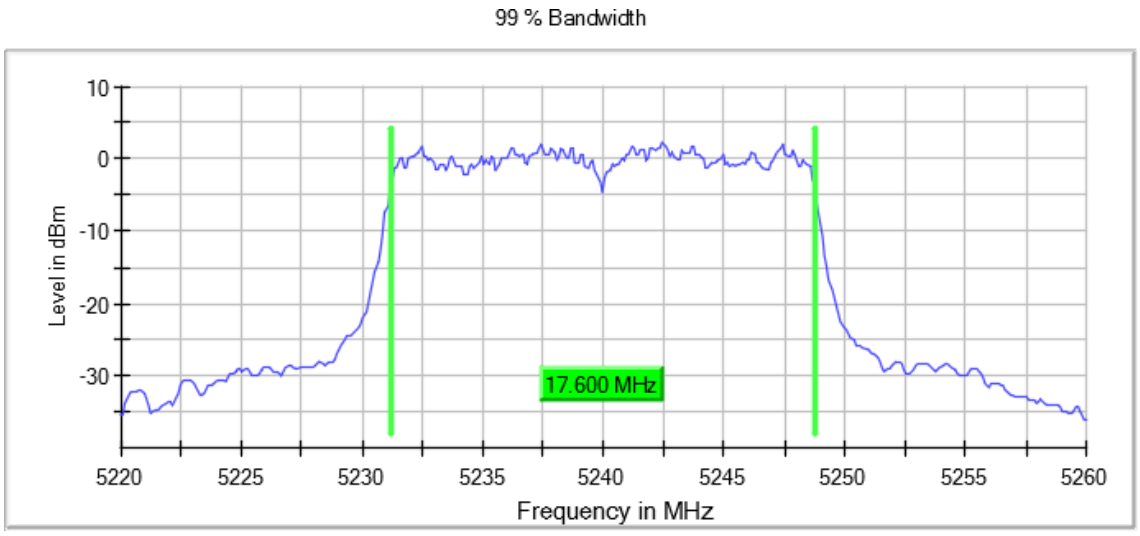
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



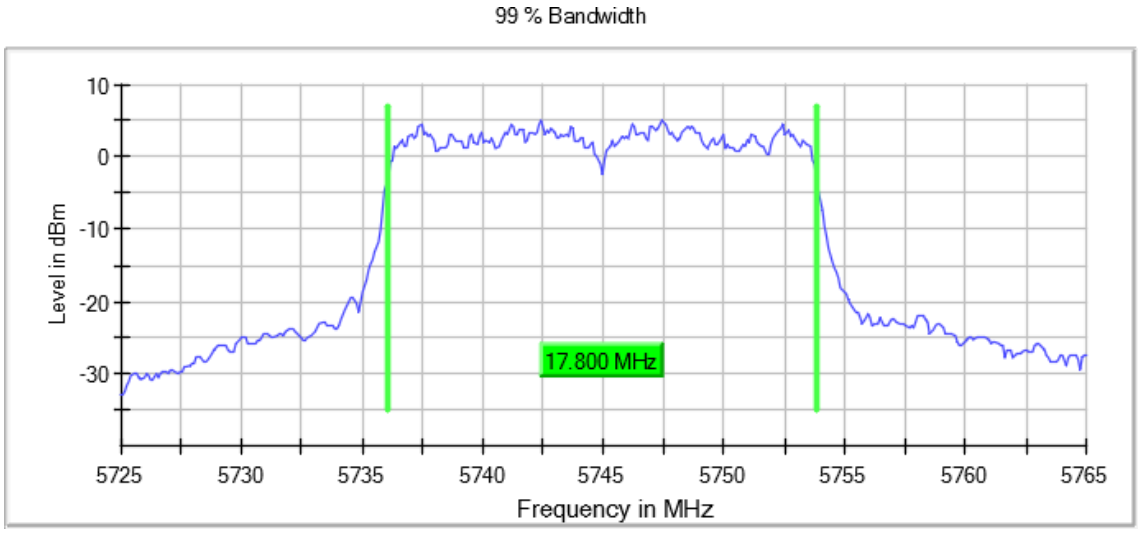
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



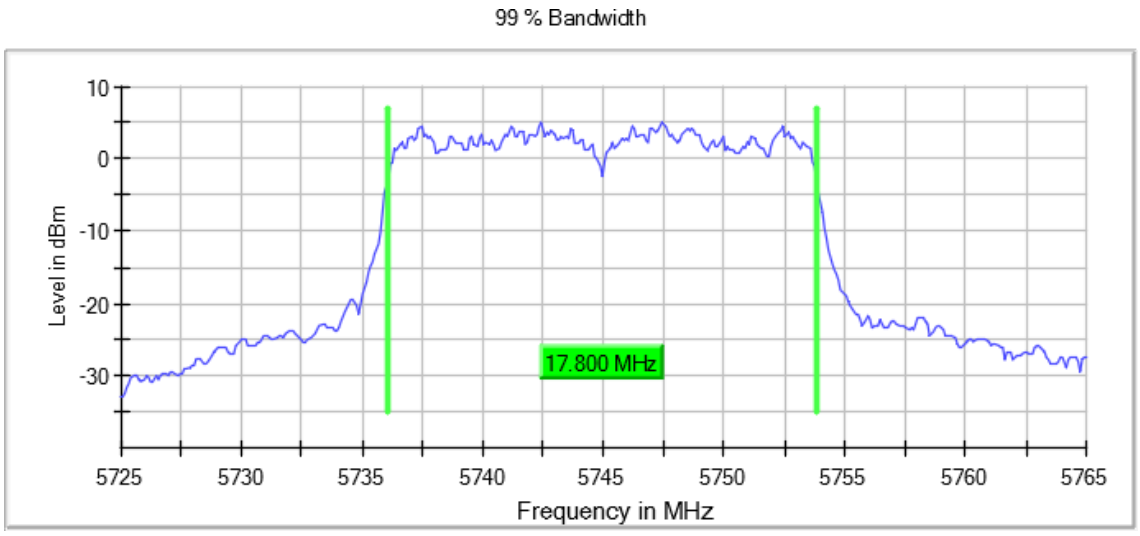
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



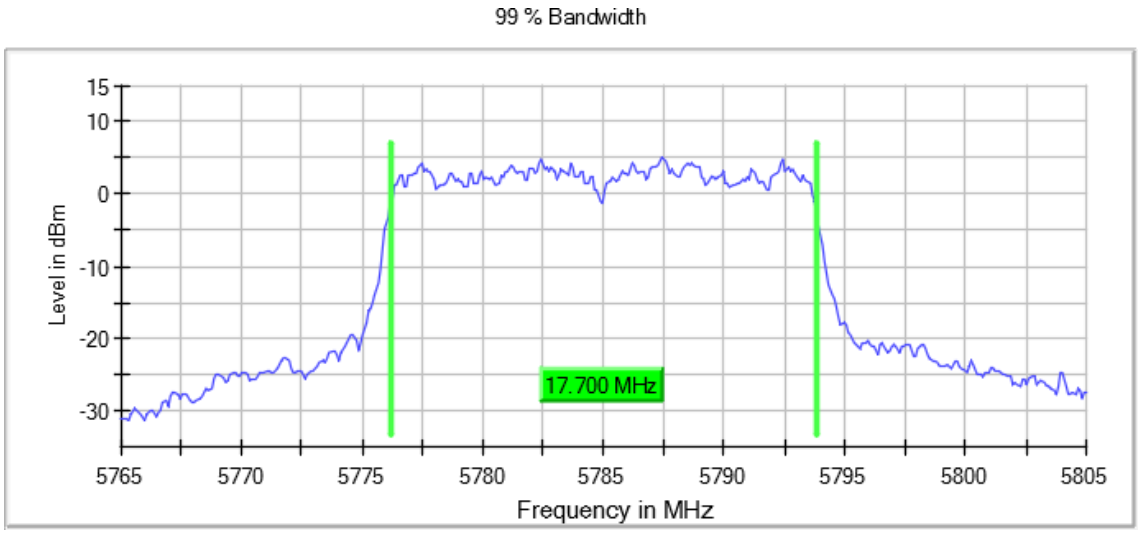
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



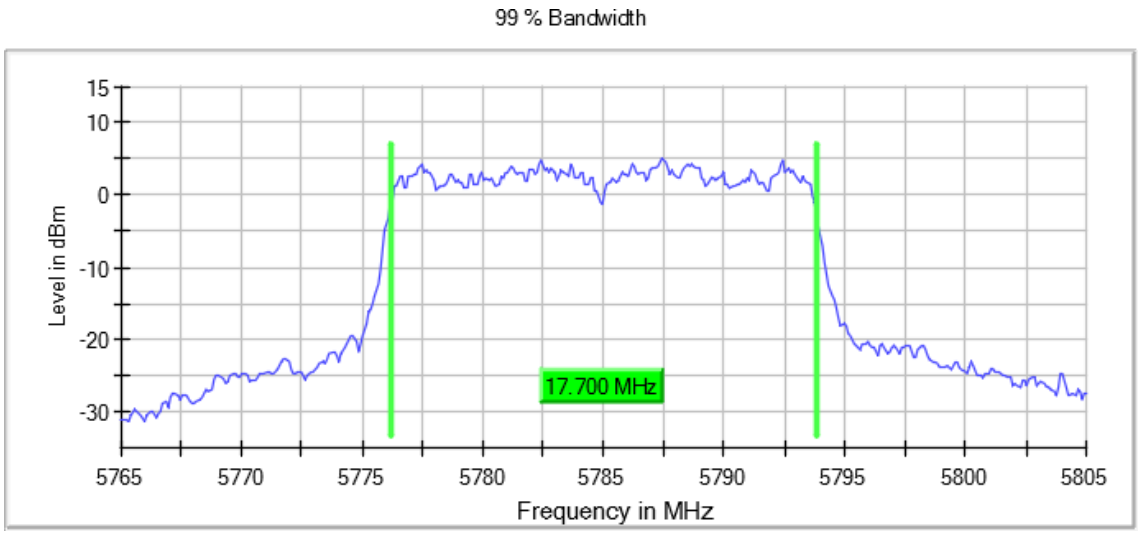
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



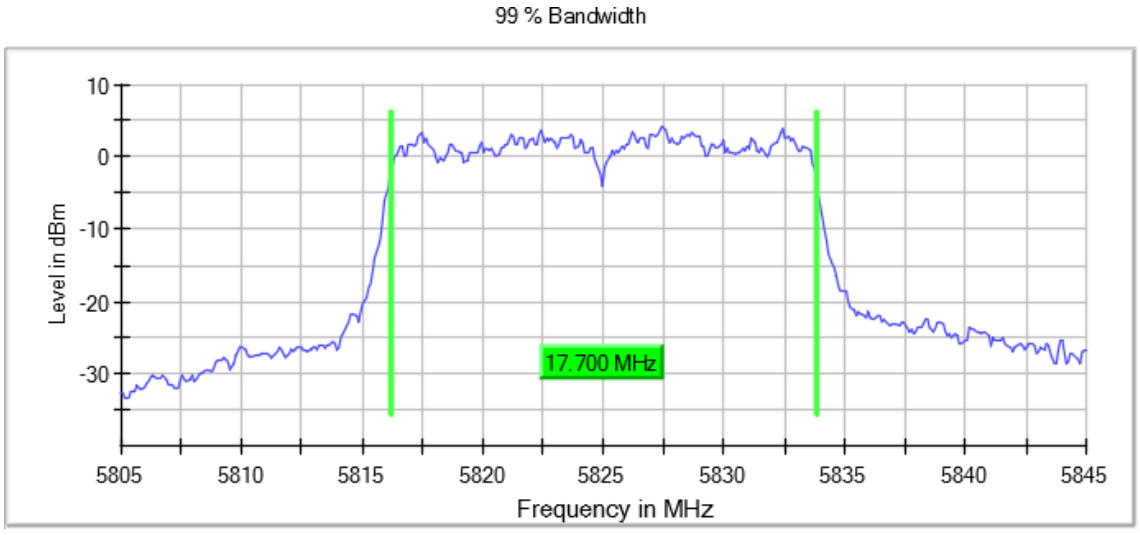
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



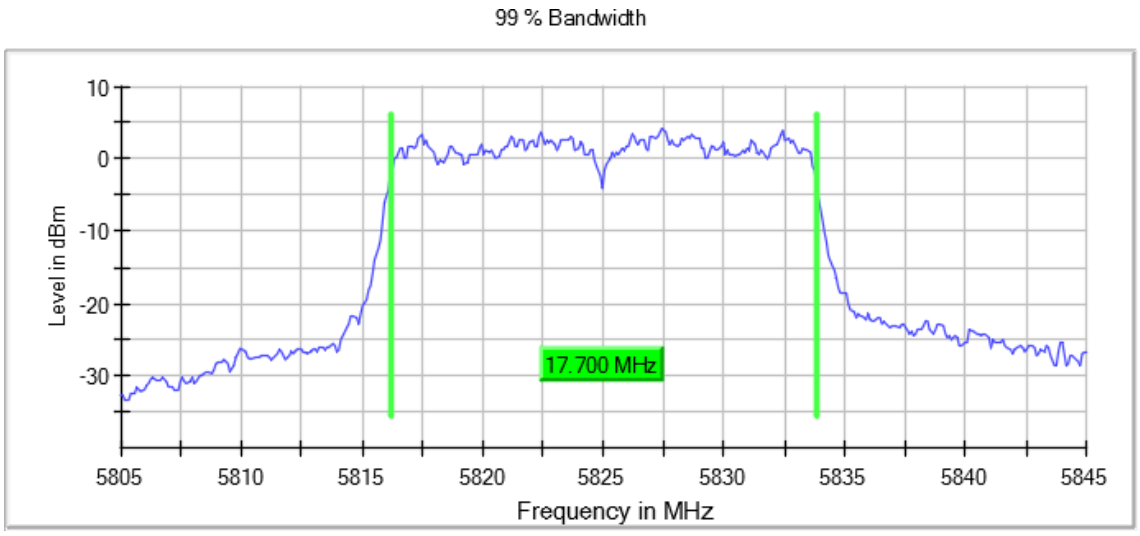
Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



Modulation: 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)
Results

Freq (MHz)	Occ Ch BW (MHz)
5190.00000	36.250
5230.00000	36.500
5755.00000	36.750
5795.00000	36.750

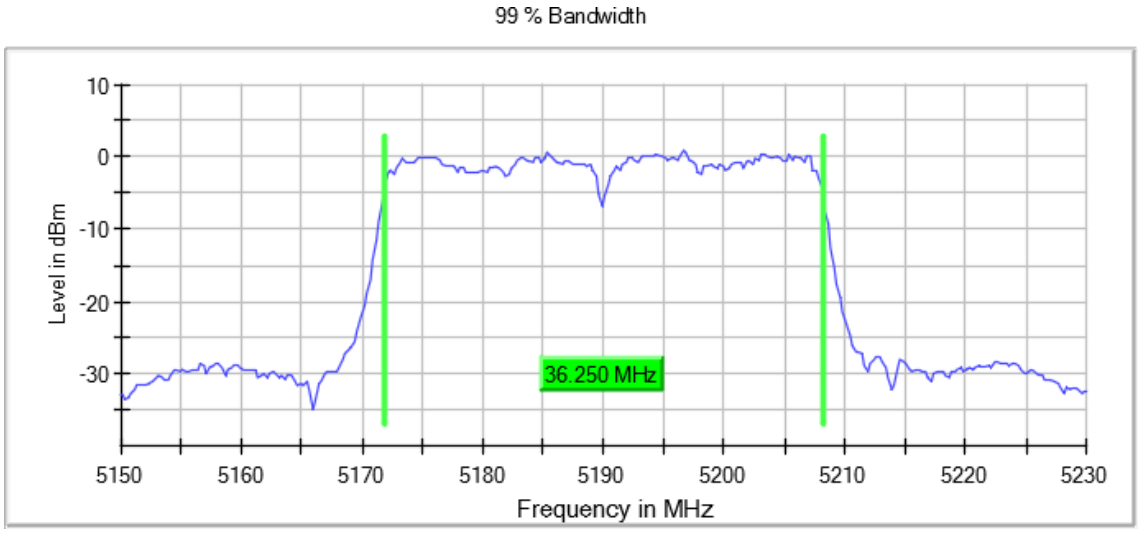
Verdict

Pass

Attachments

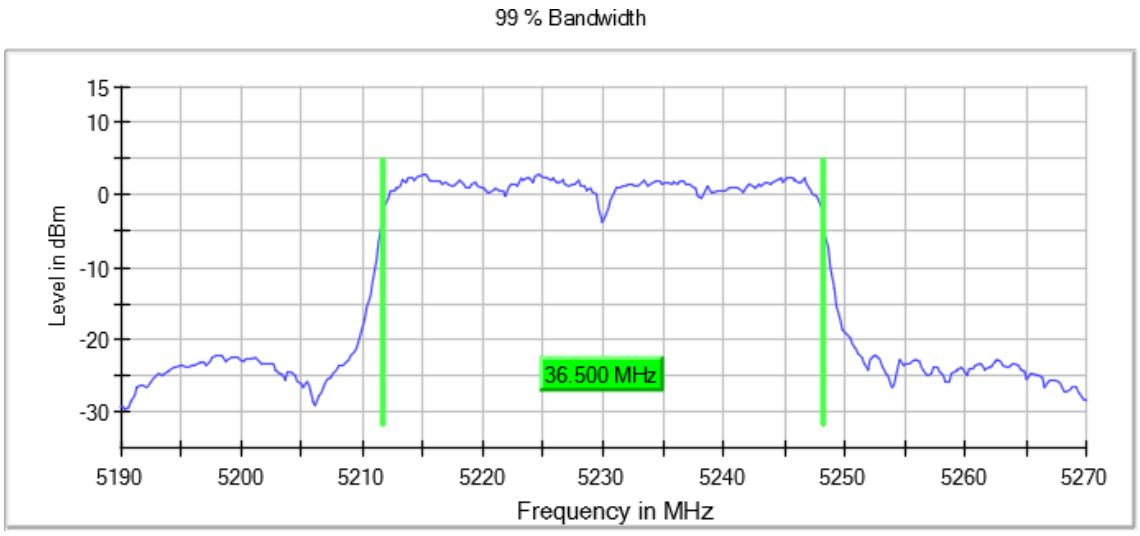
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



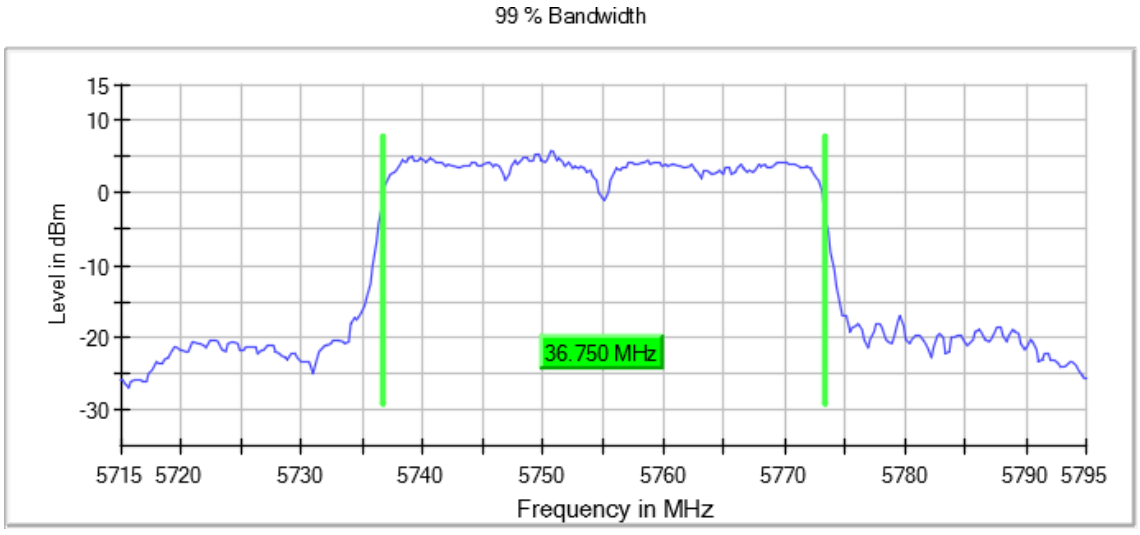
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



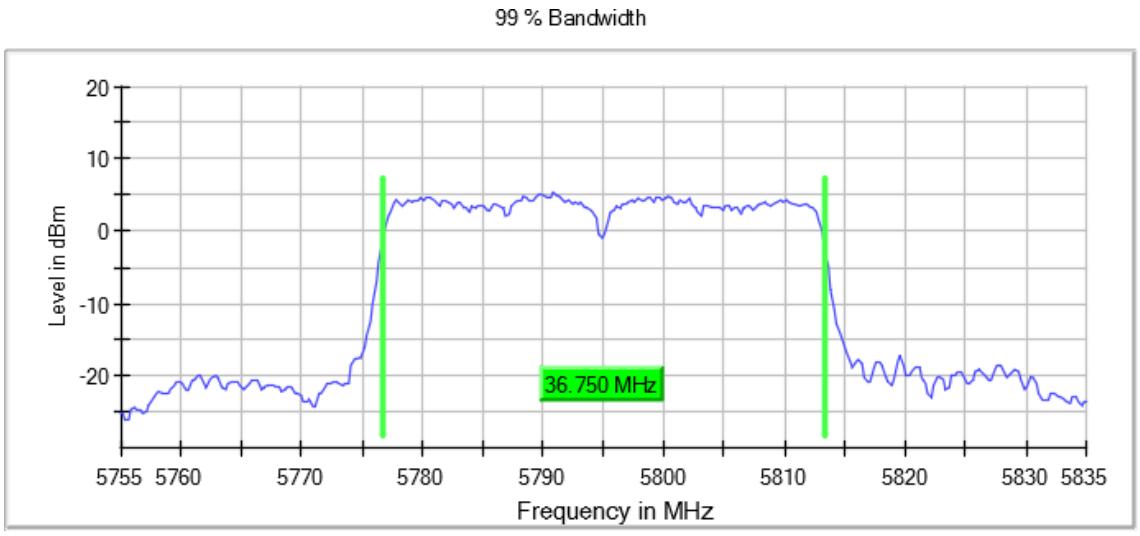
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT20 (OFDM MCS0)
Results

Freq (MHz)	Occ Ch BW (MHz)
5180.00000	17.600
5200.00000	17.700
5240.00000	17.600
5745.00000	17.700
5785.00000	17.600
5825.00000	17.700

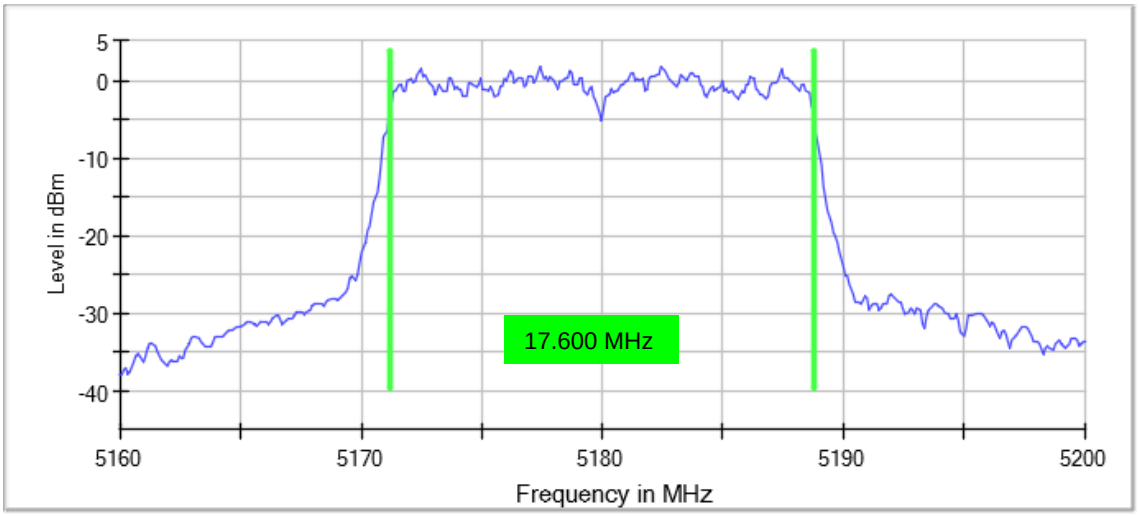
Verdict

Pass

Attachments

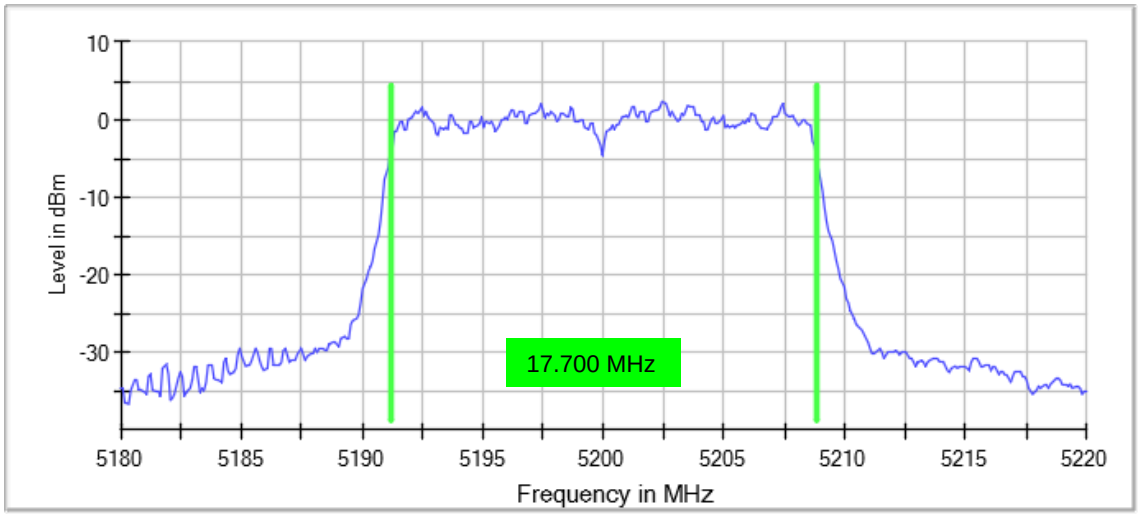
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



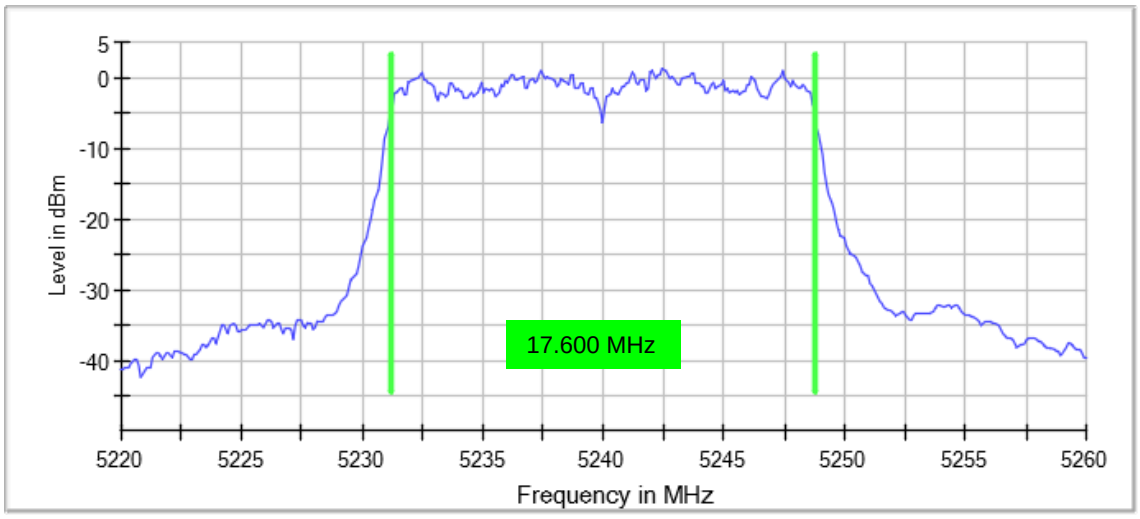
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



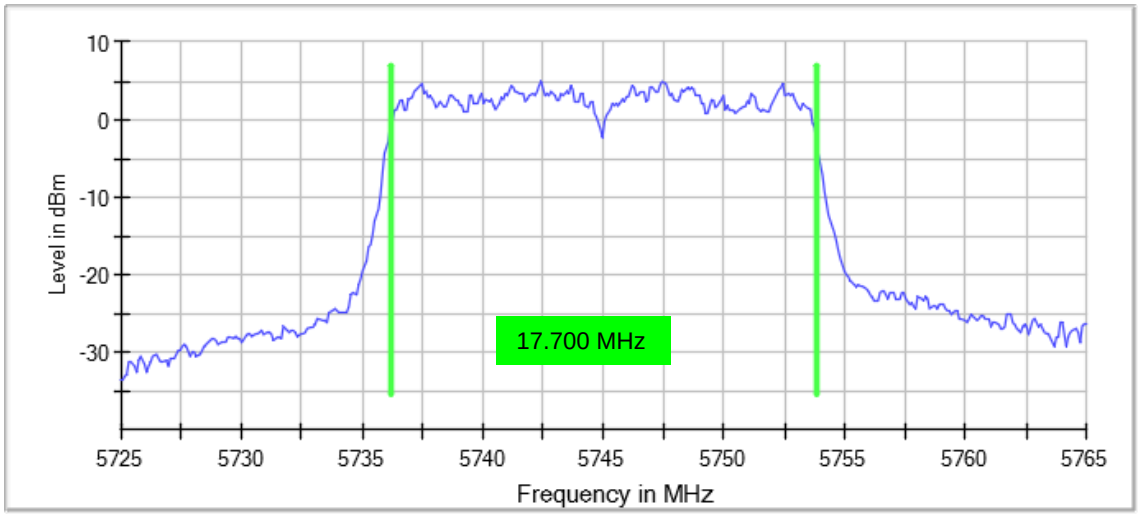
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



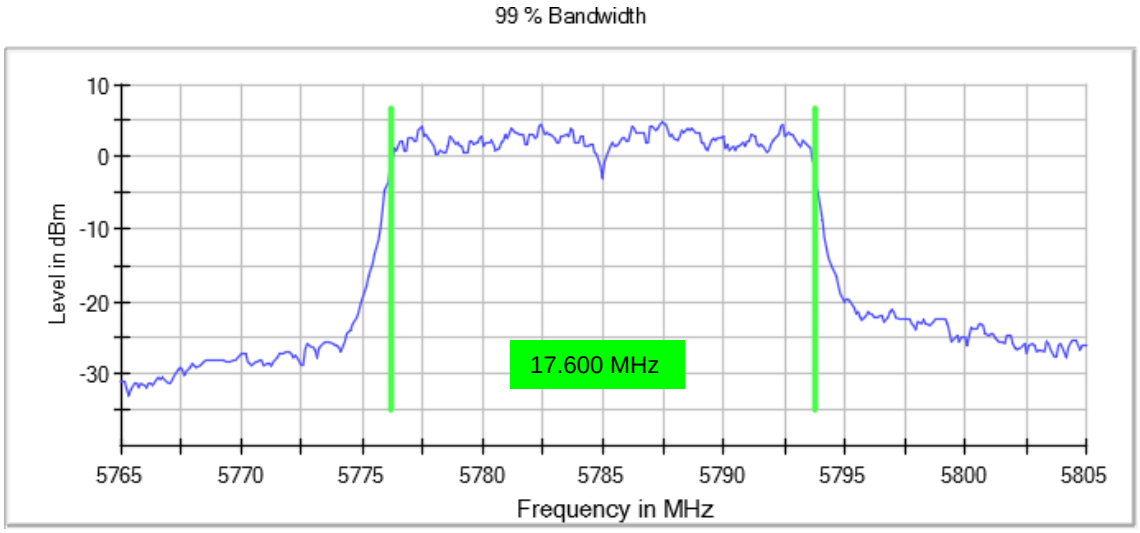
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



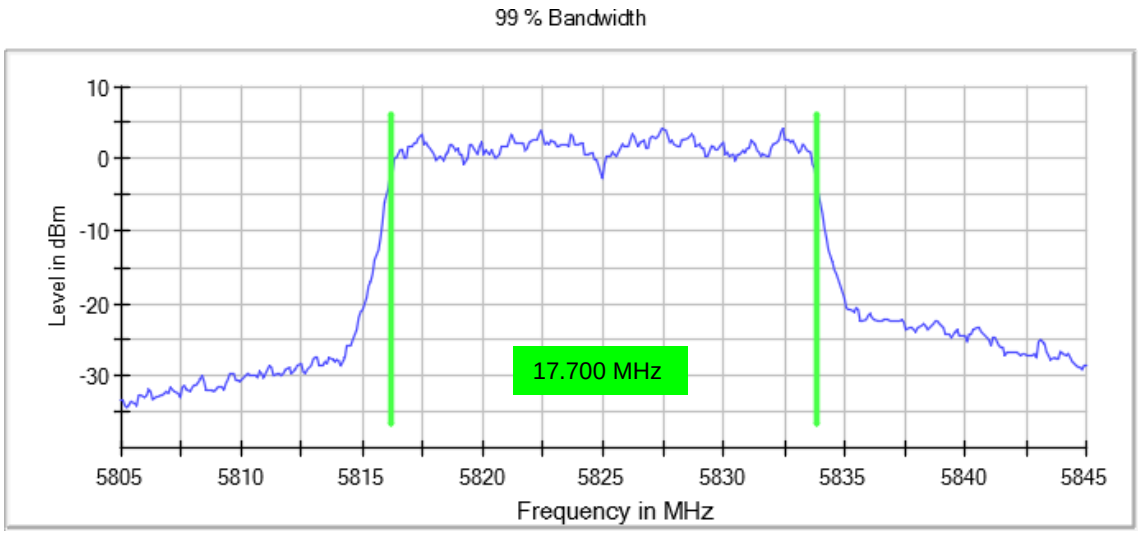
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT40 SS1 (OFDM MCS0)
Results

Freq (MHz)	Occ Ch BW (MHz)
5190.00000	36.250
5230.00000	36.500
5755.00000	36.500
5795.00000	36.500

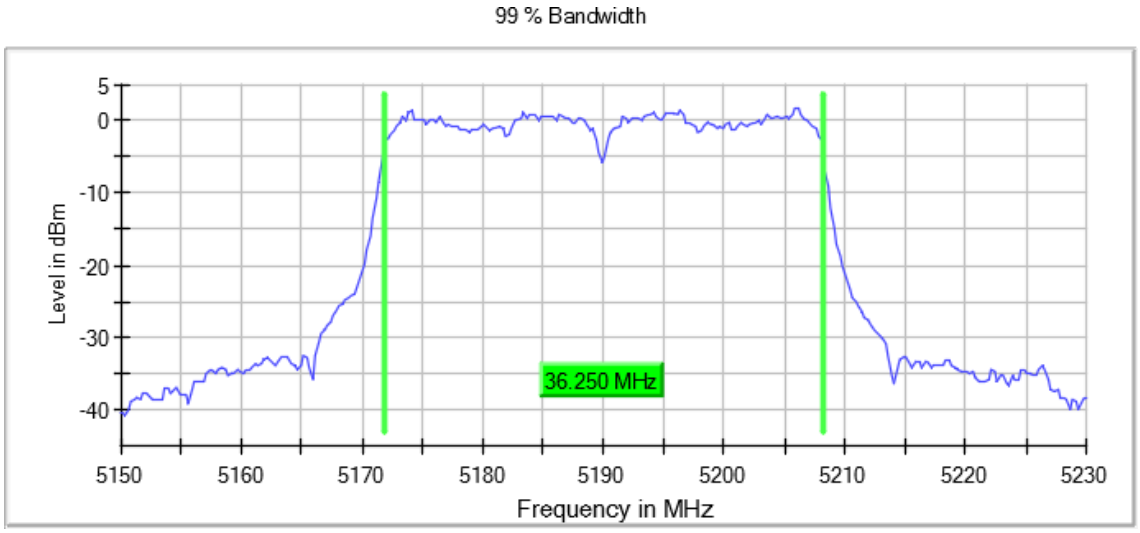
Verdict

Pass

Attachments

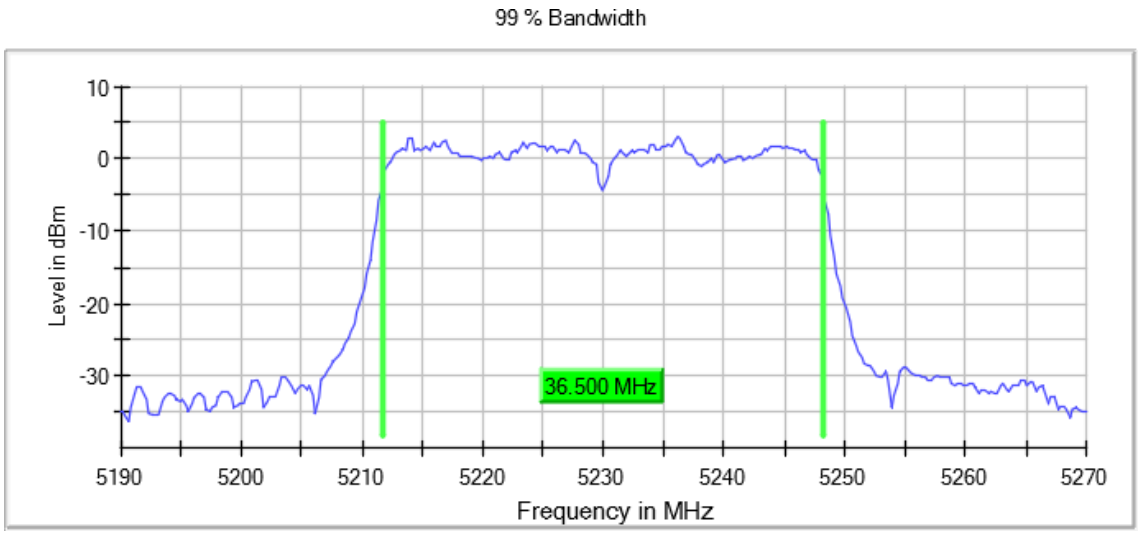
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



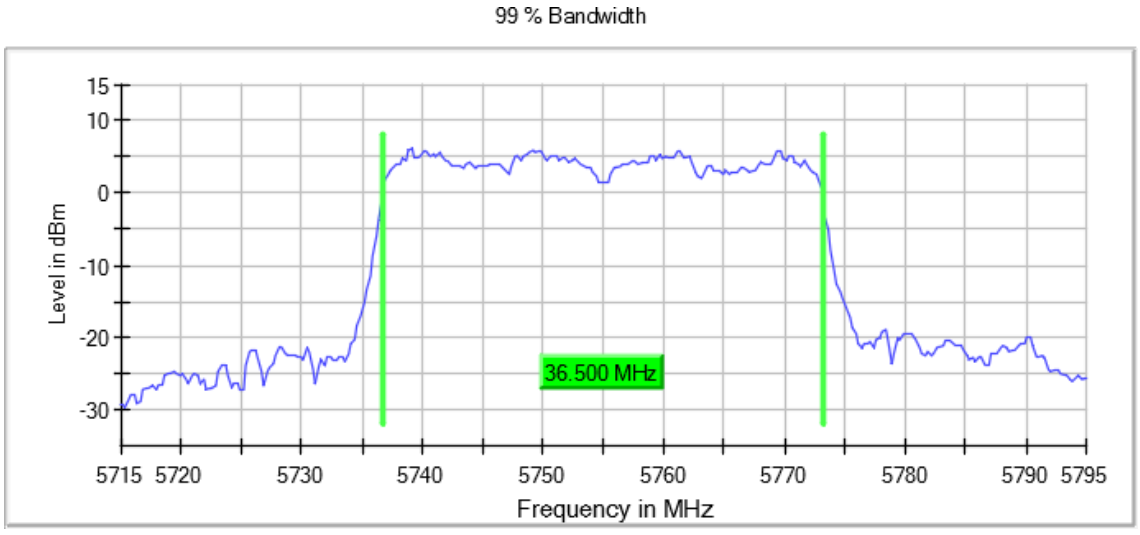
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



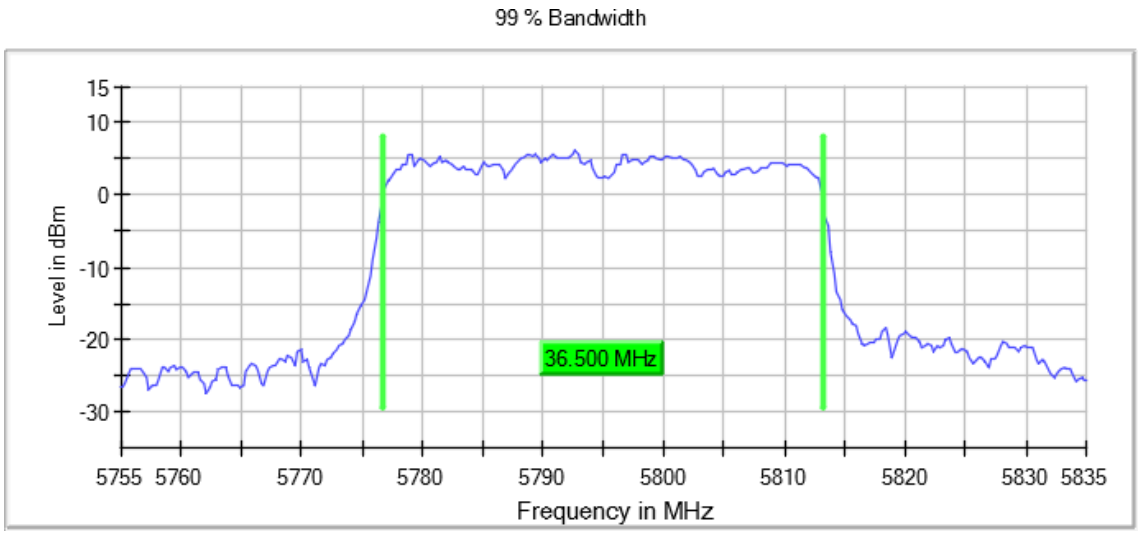
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT80 SS1 (OFDM MCS0)
Results

Freq (MHz)	Occ Ch BW (MHz)
5210.00000	76.500
5775.00000	77.000

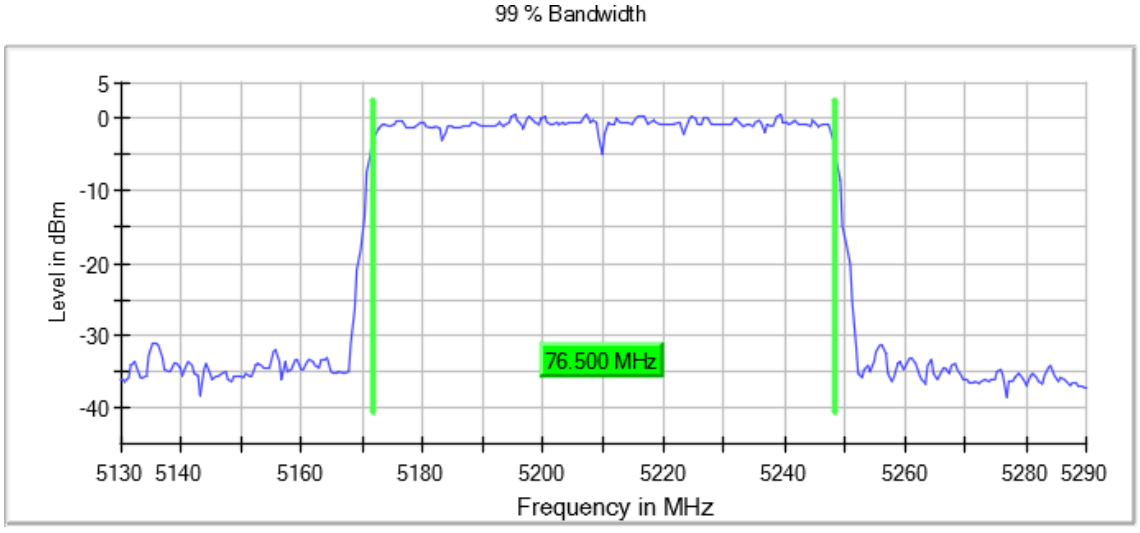
Verdict

Pass

Attachments

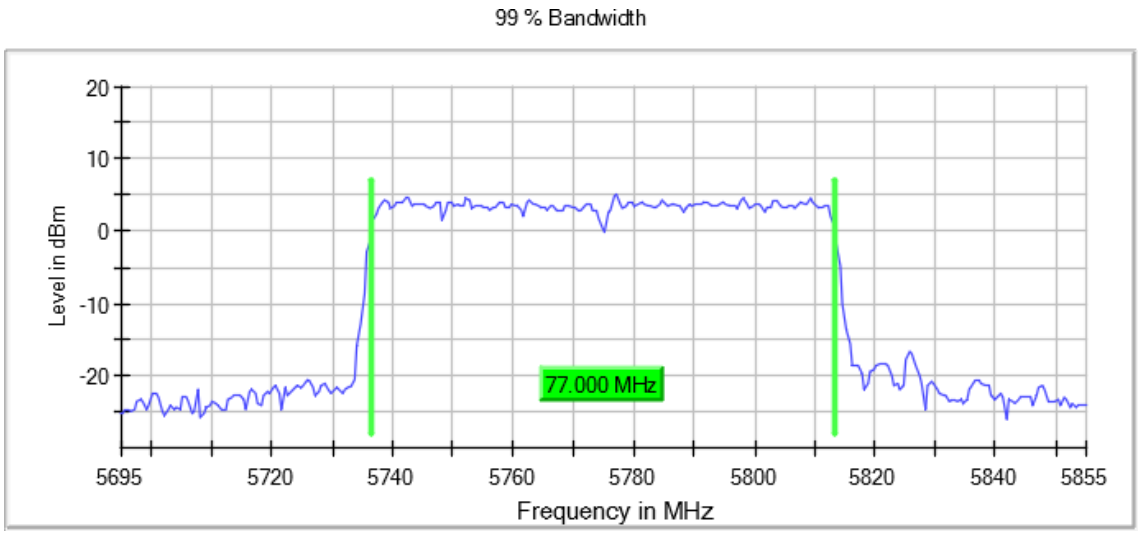
Active Port = 1, Frequency MHz = 5210.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5775.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Measurement Setup

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 kHz	200.000 kHz	200.000 kHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
Sweep Points	400	400	400
Sweep time	28.477 µs	28.477 µs	28.477 µs
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	Max Peak	Max Peak	Max Peak
Sweep Count	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	40 / max. 150	66 / max. 150	43 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.23 dB	0.18 dB

Measurement Setup

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.72500 GHz	5.76500 GHz	5.80500 GHz
Stop Frequency	5.76500 GHz	5.80500 GHz	5.84500 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 kHz	200.000 kHz	200.000 kHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
Sweep Points	400	400	400
Sweep time	28.477 µs	28.477 µs	28.477 µs
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	Max Peak	Max Peak	Max Peak
Sweep Count	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	108 / max. 150	68 / max. 150	80 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB	0.07 dB

FCC 15.407 Subclause 15.403 Transmitter 26 dB Emission Bandwidth (EBW)

Modulation: 802.11a (OFDM 6 Mbit/s)
Results

Freq (MHz)	26Ebw (MHz)
5180.00000	19.900
5200.00000	20.100
5240.00000	19.900
5745.00000	19.900
5785.00000	21.900
5825.00000	21.400

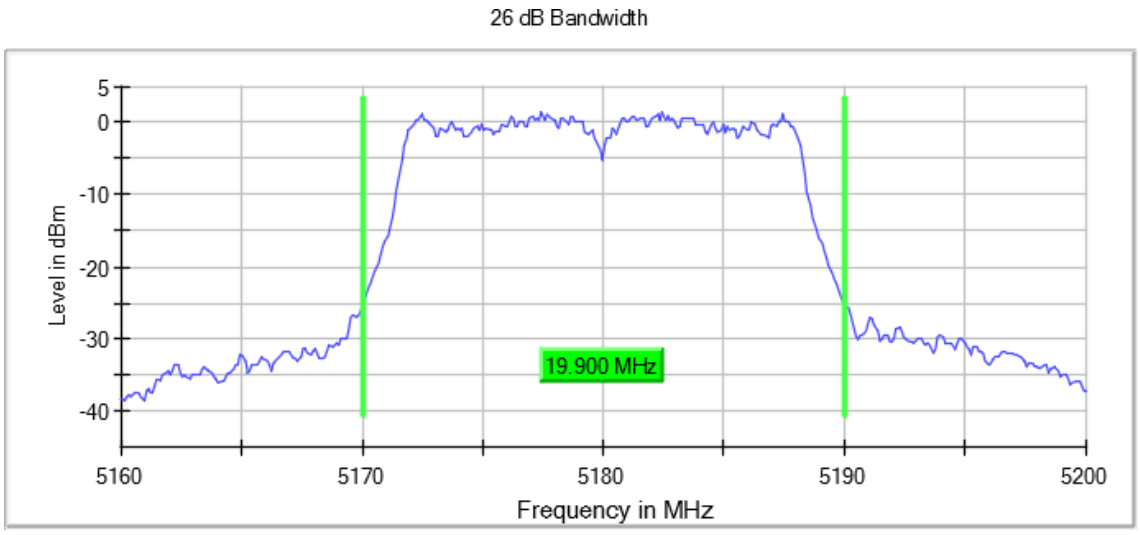
Verdict

Pass

Attachments

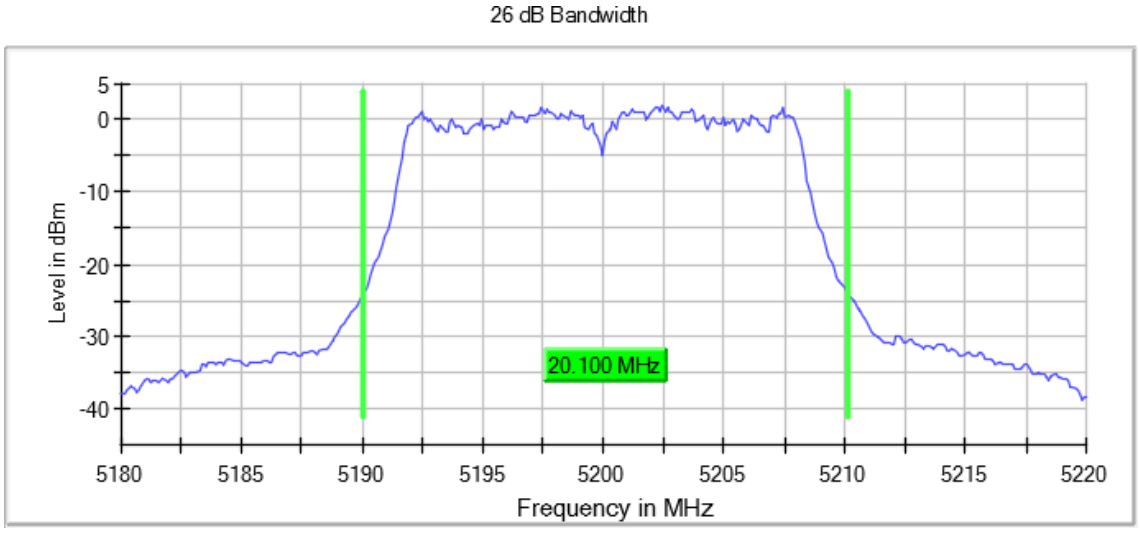
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



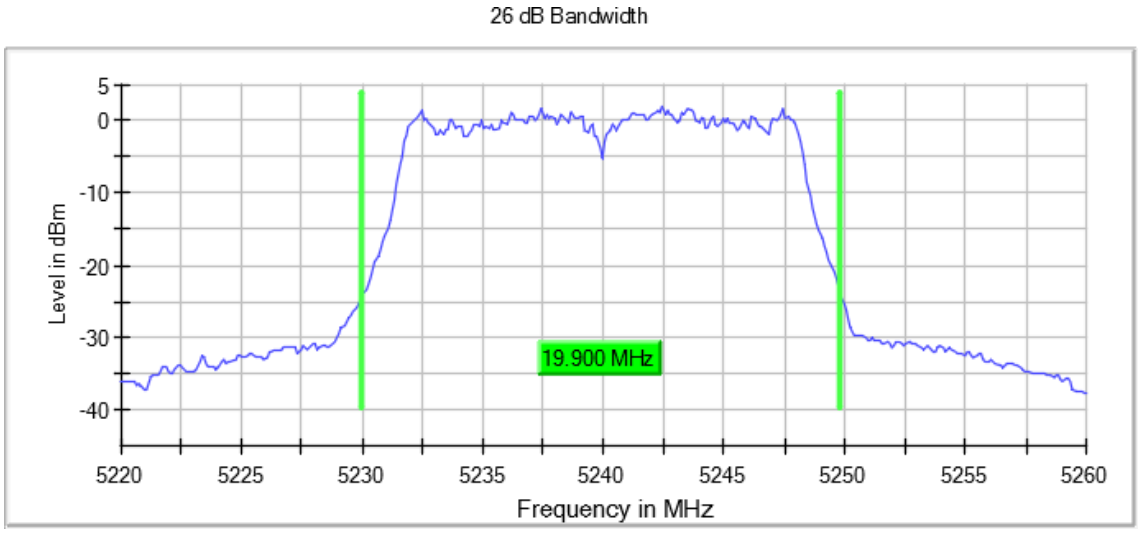
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



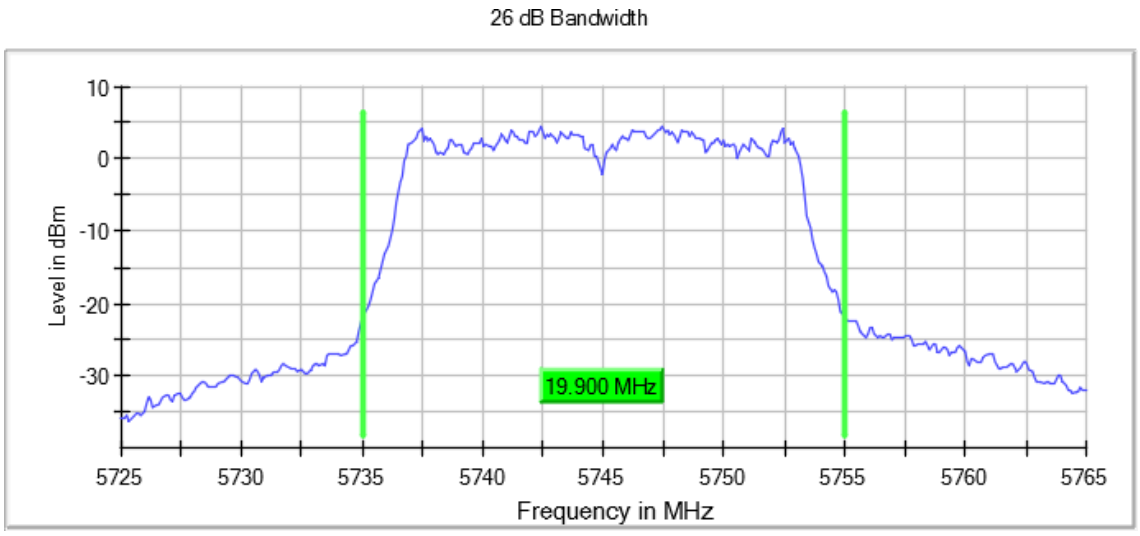
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



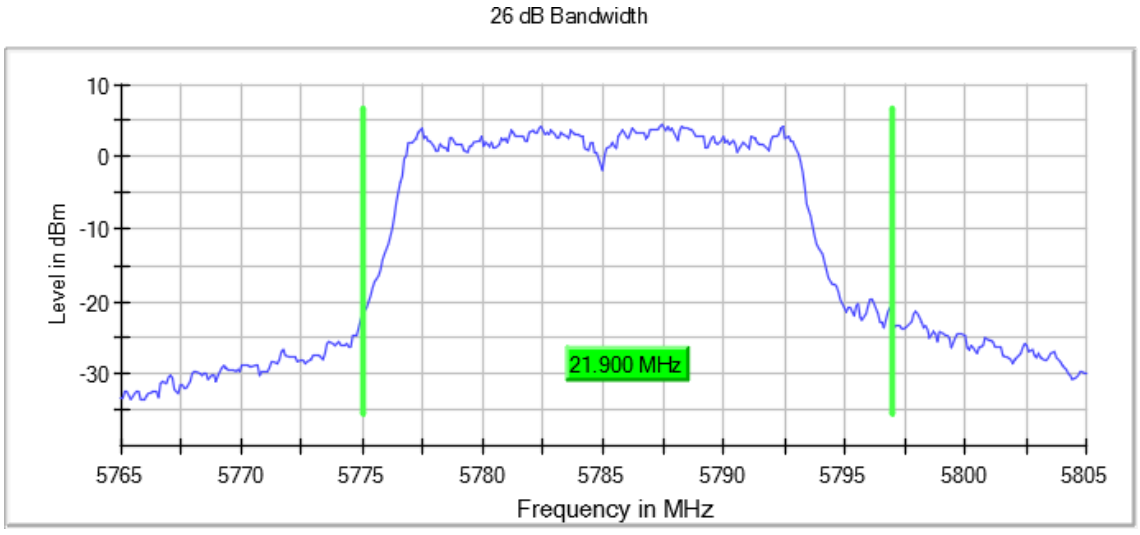
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



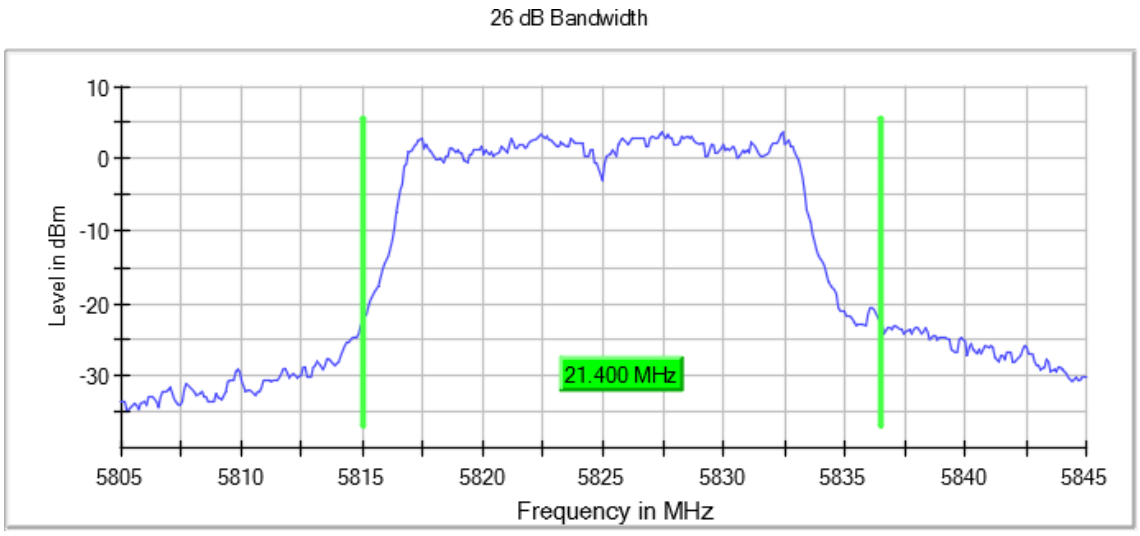
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)
Results

Freq (MHz)	26Ebw (MHz)
5180.00000	21.200
5180.00000	21.200
5200.00000	20.400
5200.00000	20.400
5240.00000	20.200
5240.00000	20.200
5745.00000	21.000
5745.00000	21.000
5785.00000	22.900
5785.00000	22.900
5825.00000	22.200
5825.00000	22.200

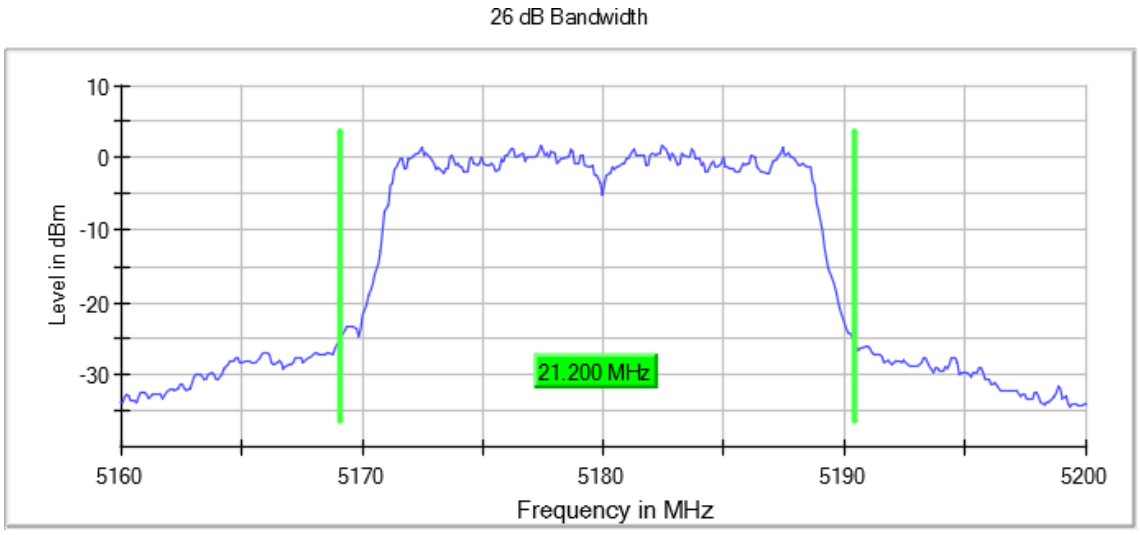
Verdict

Pass

Attachments

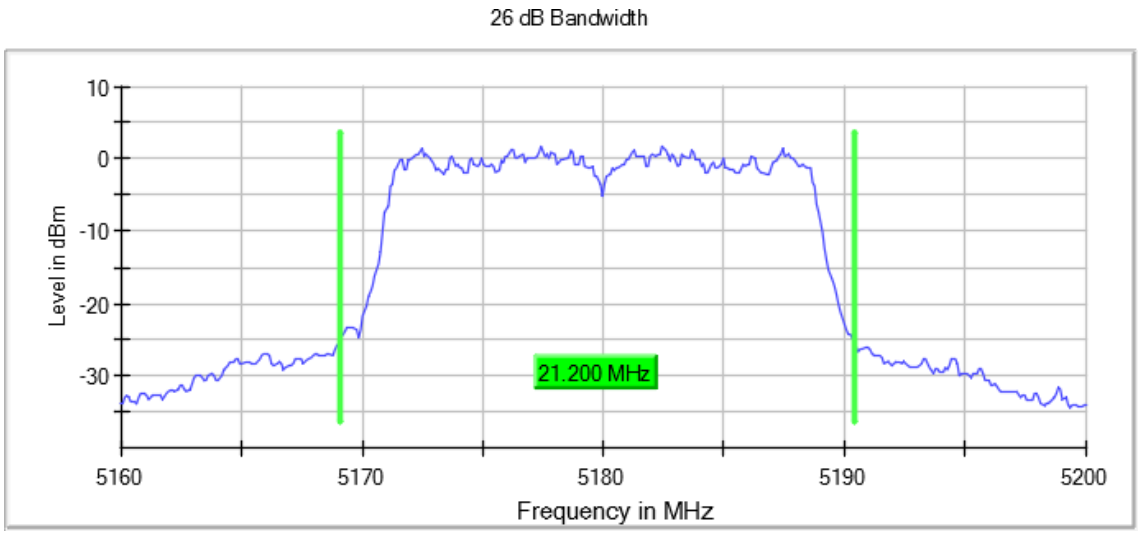
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



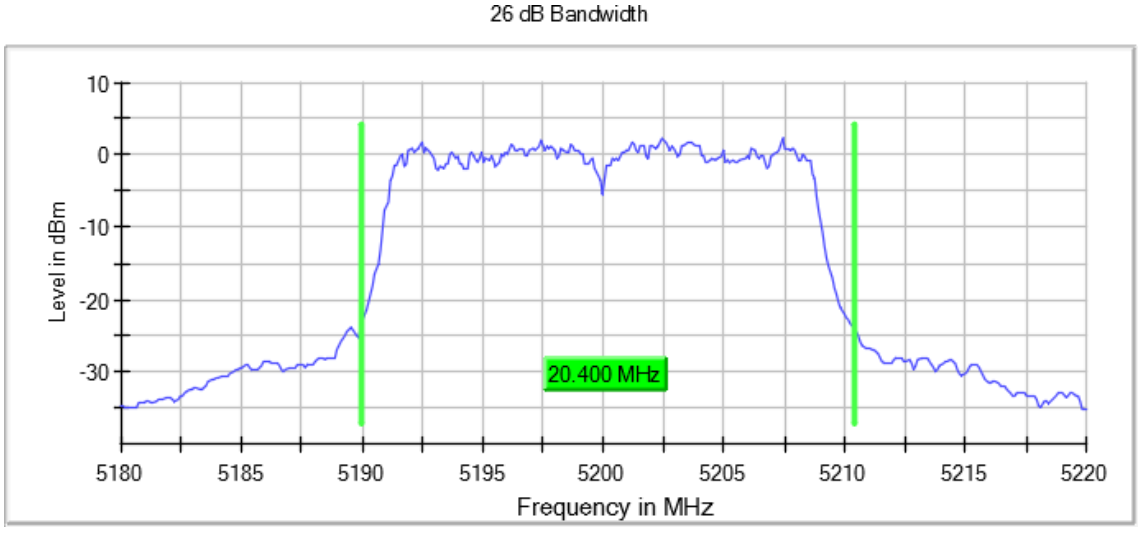
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



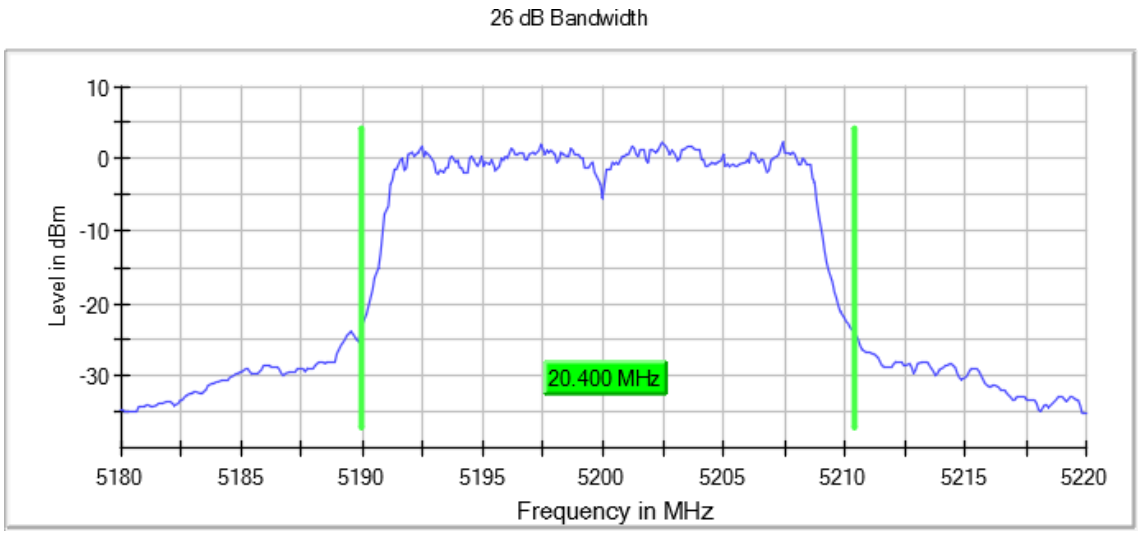
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



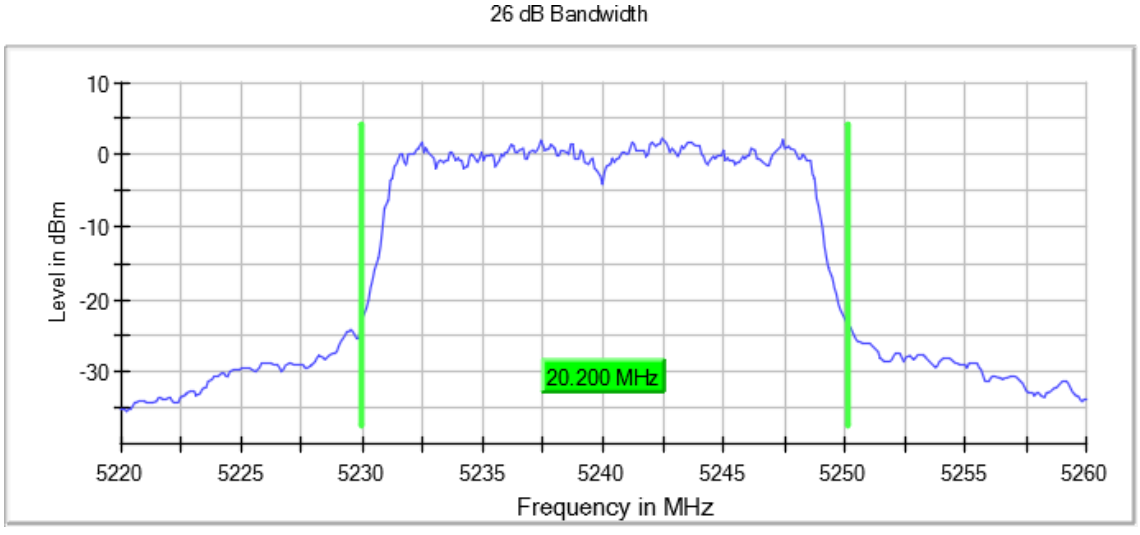
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



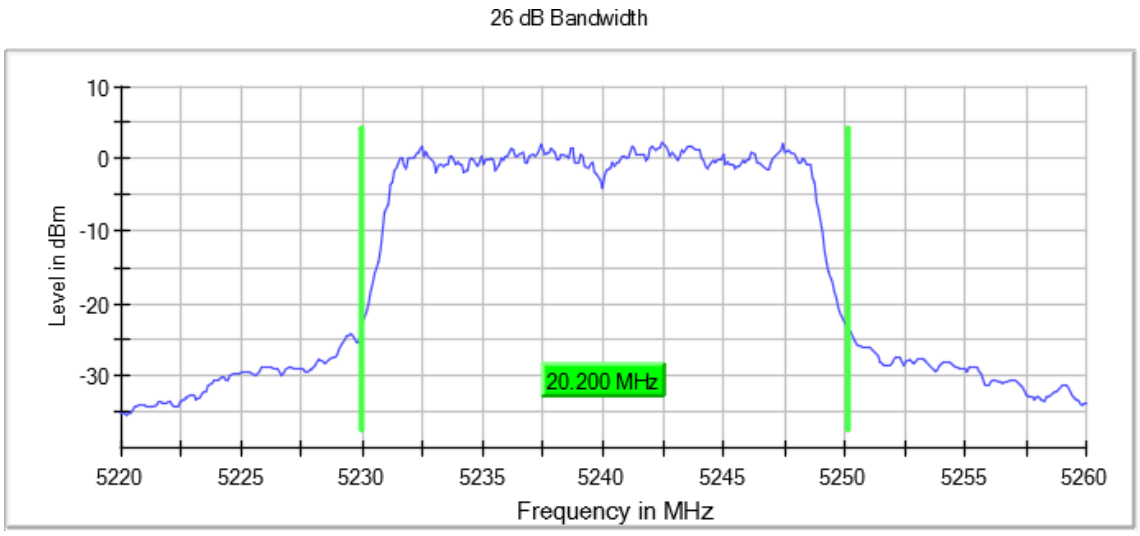
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



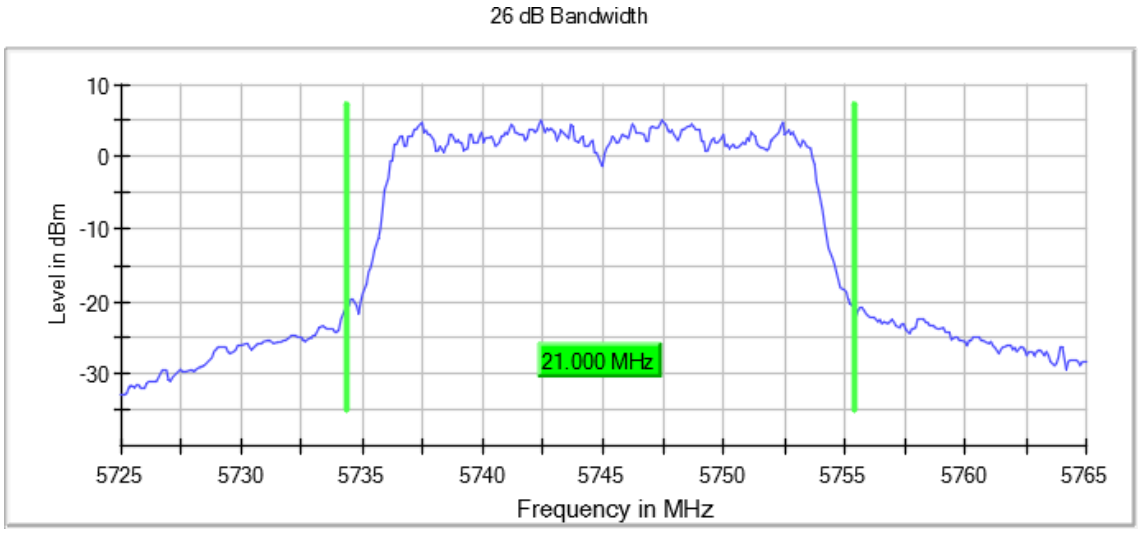
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



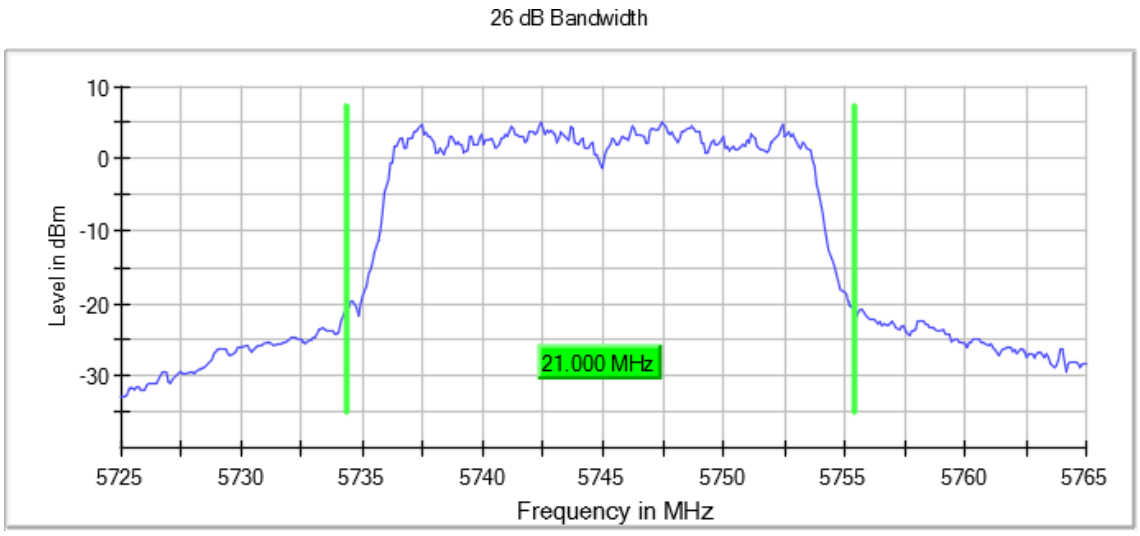
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



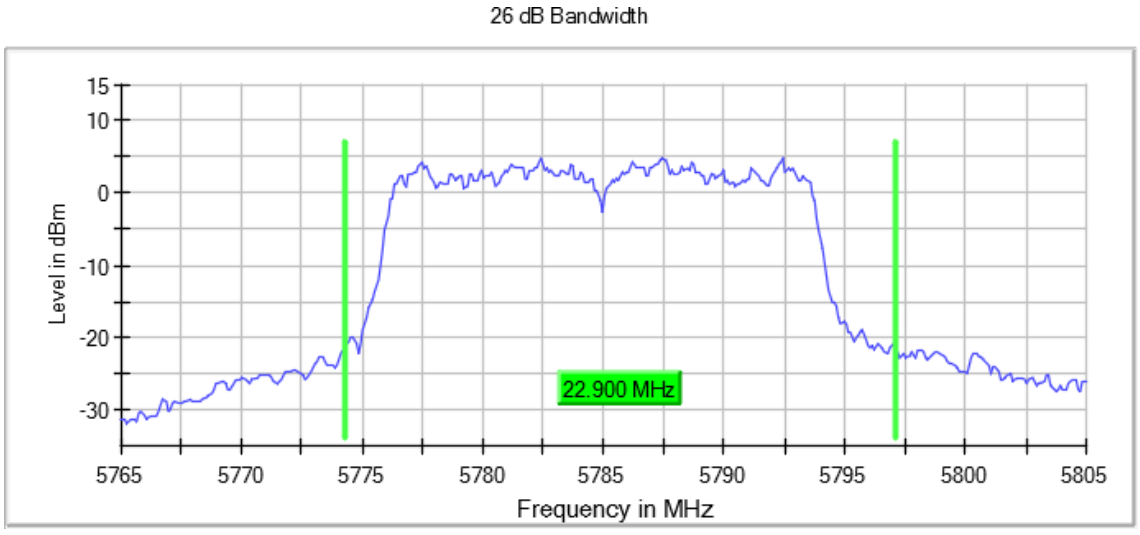
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



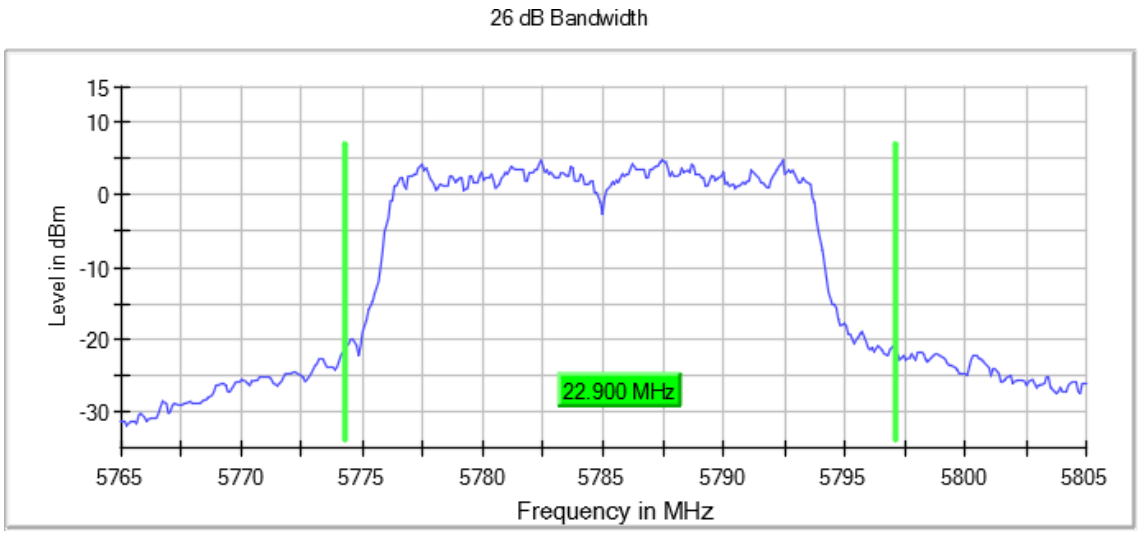
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



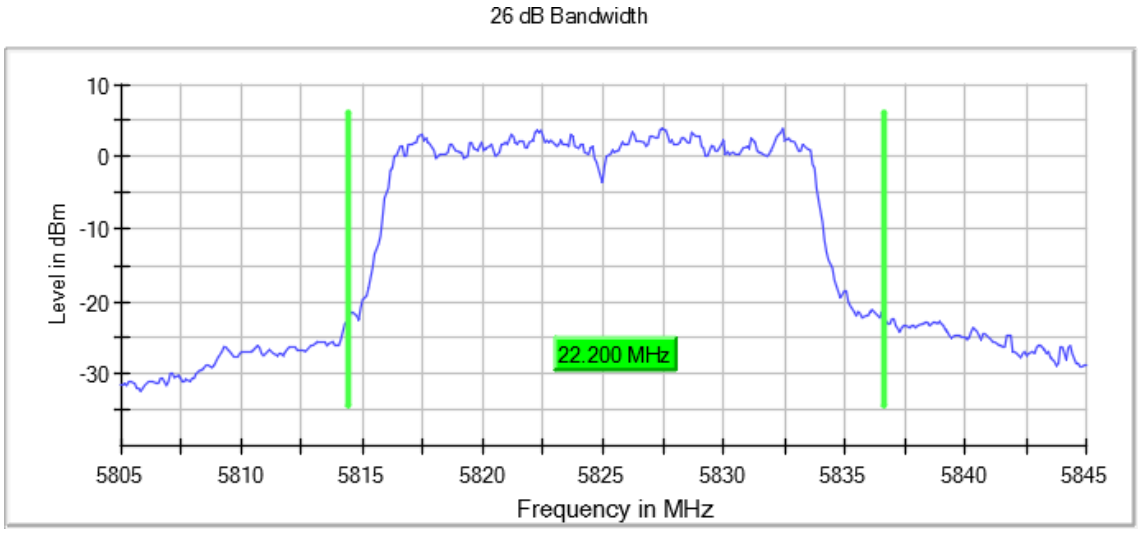
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



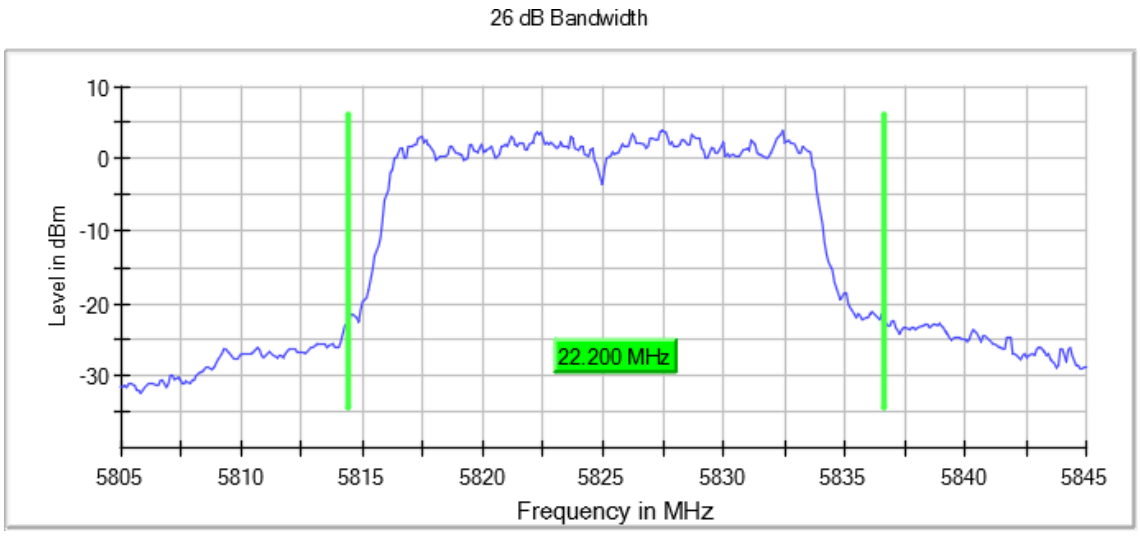
Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



Modulation: 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)
Results

Freq (MHz)	26Ebw (MHz)
5190.00000	41.126
5230.00000	42.326
5755.00000	55.235
5795.00000	69.944

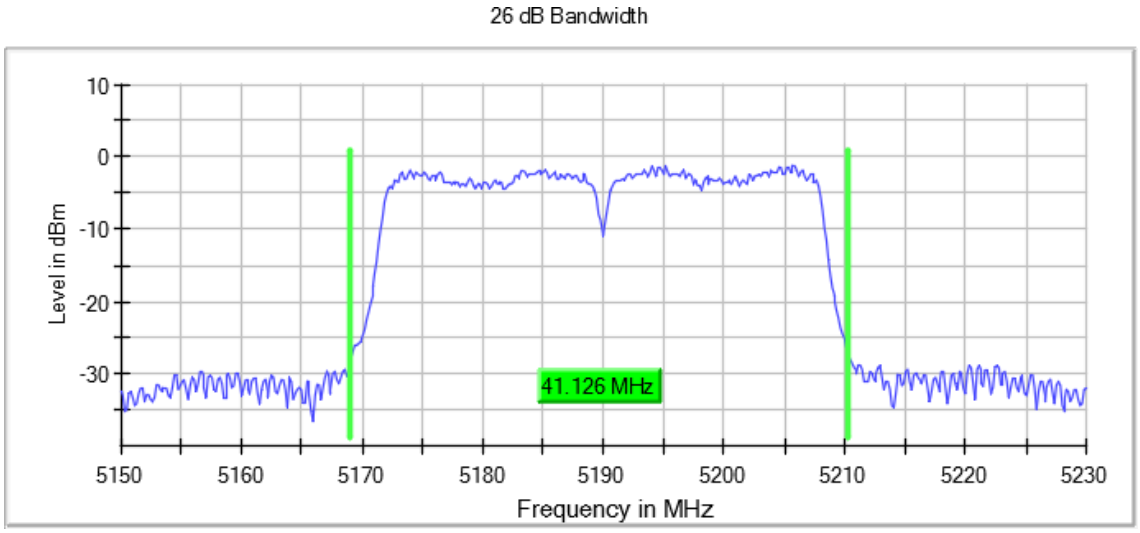
Verdict

Pass

Attachments

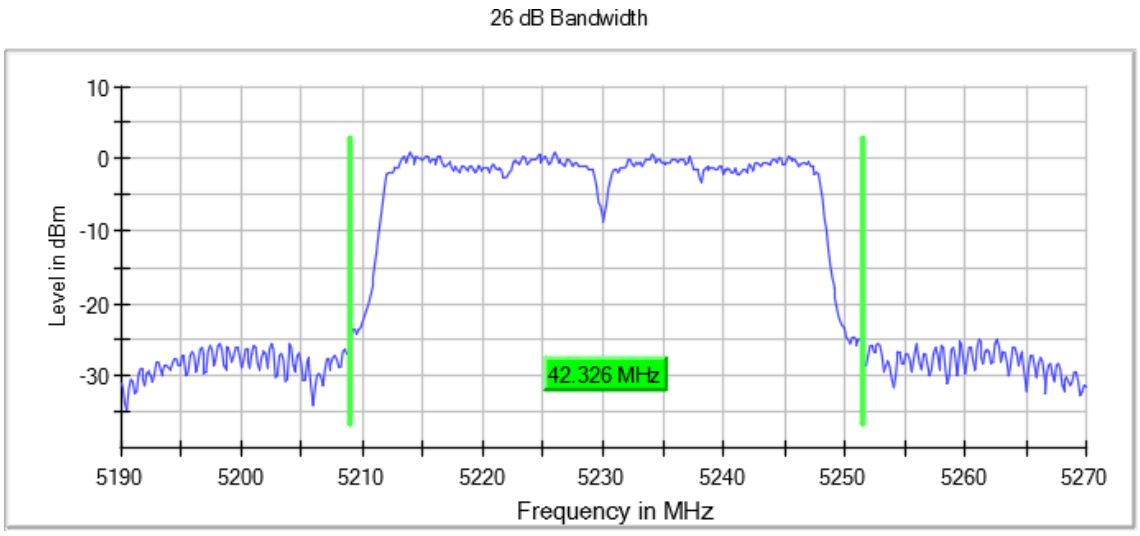
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



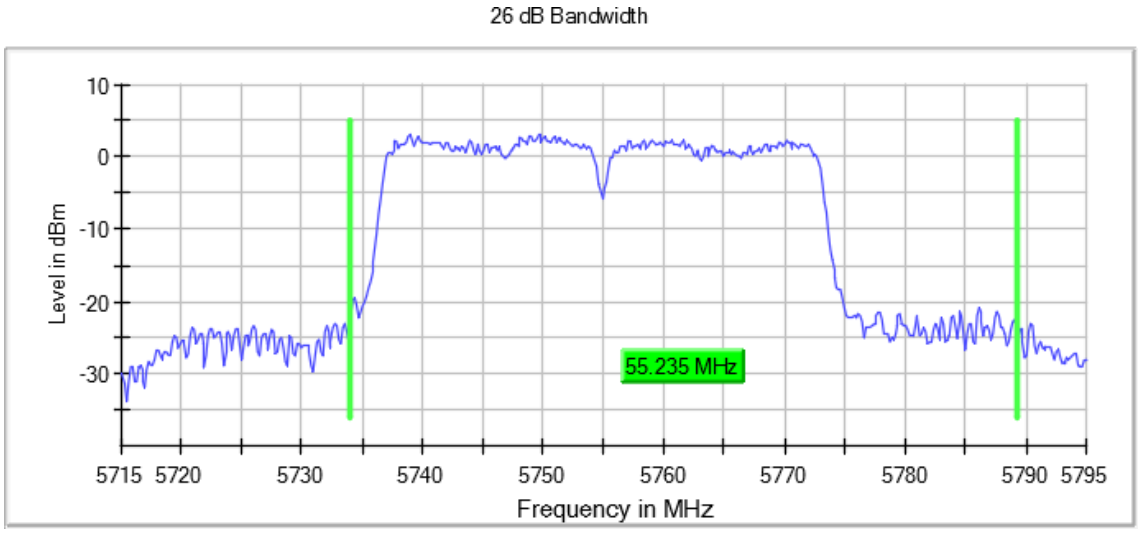
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



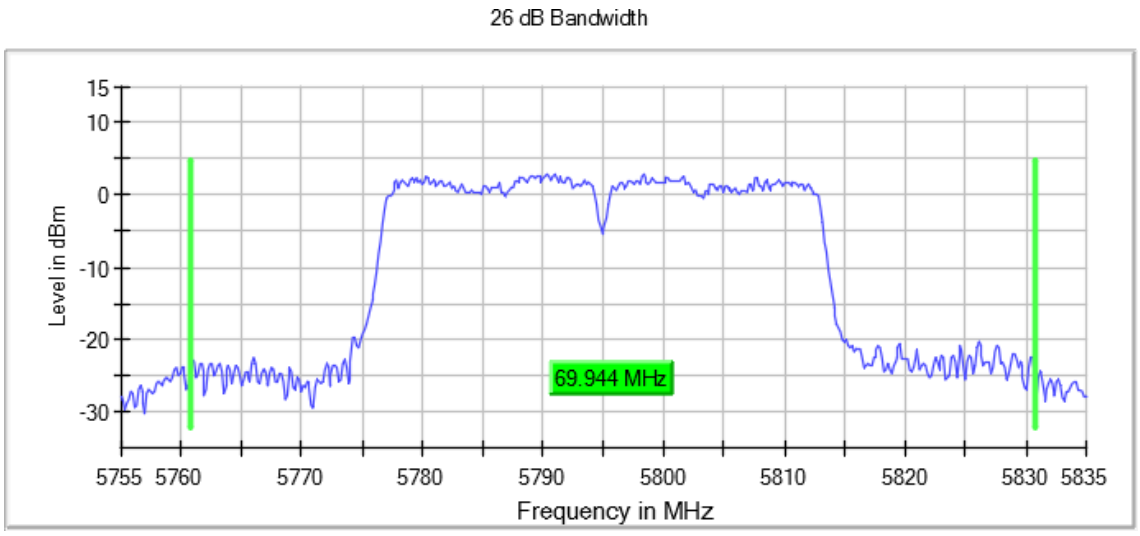
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT20 (OFDM MCS0)
Results

Freq (MHz)	26Ebw (MHz)
5180.00000	21.100
5200.00000	20.400
5240.00000	20.200
5745.00000	20.400
5785.00000	20.500
5825.00000	23.400

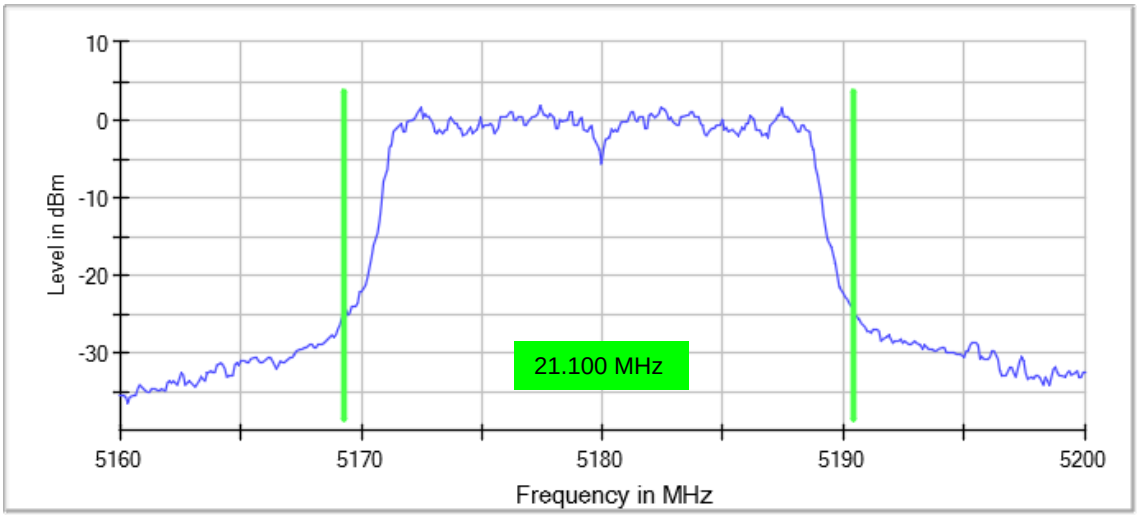
Verdict

Pass

Attachments

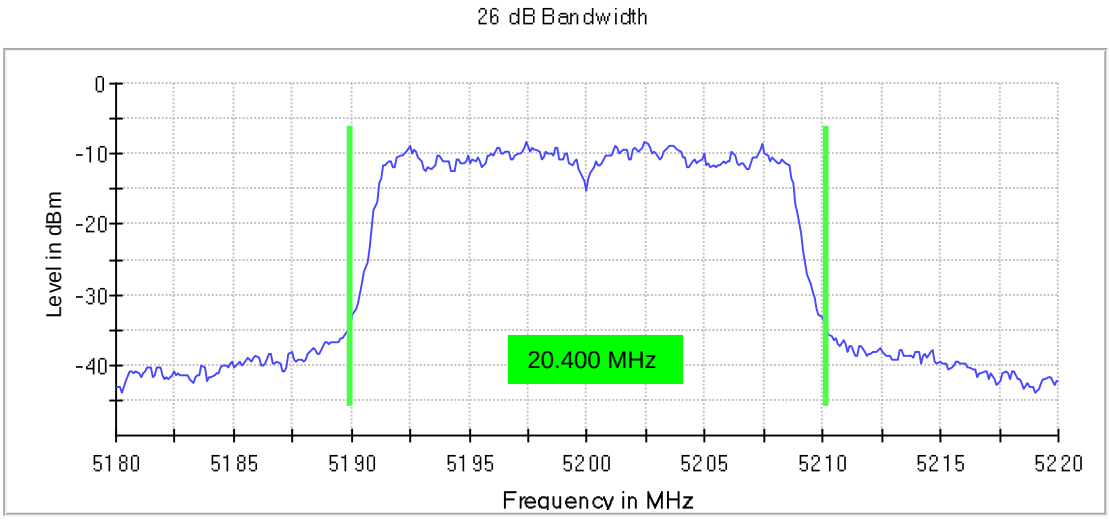
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



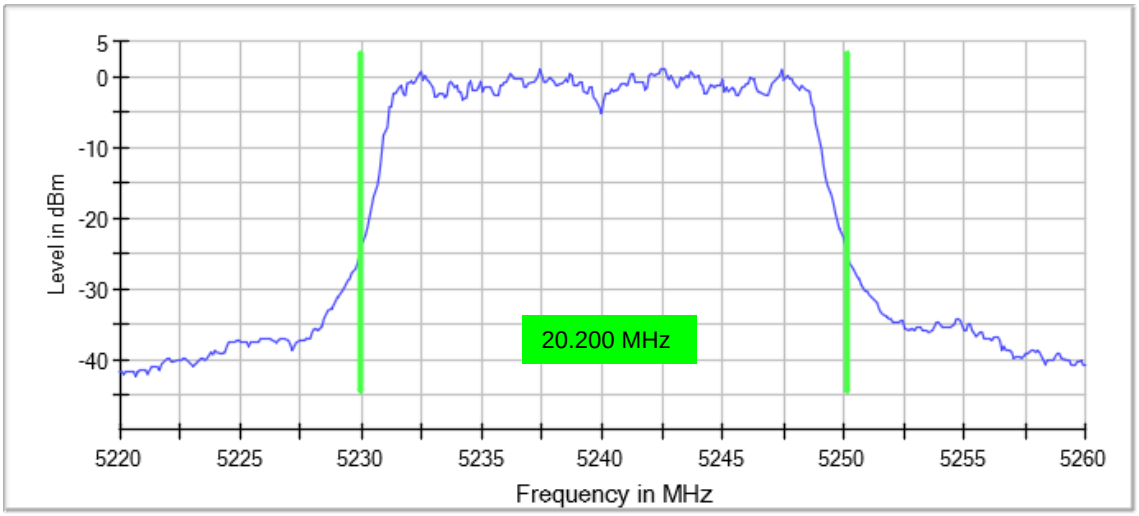
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



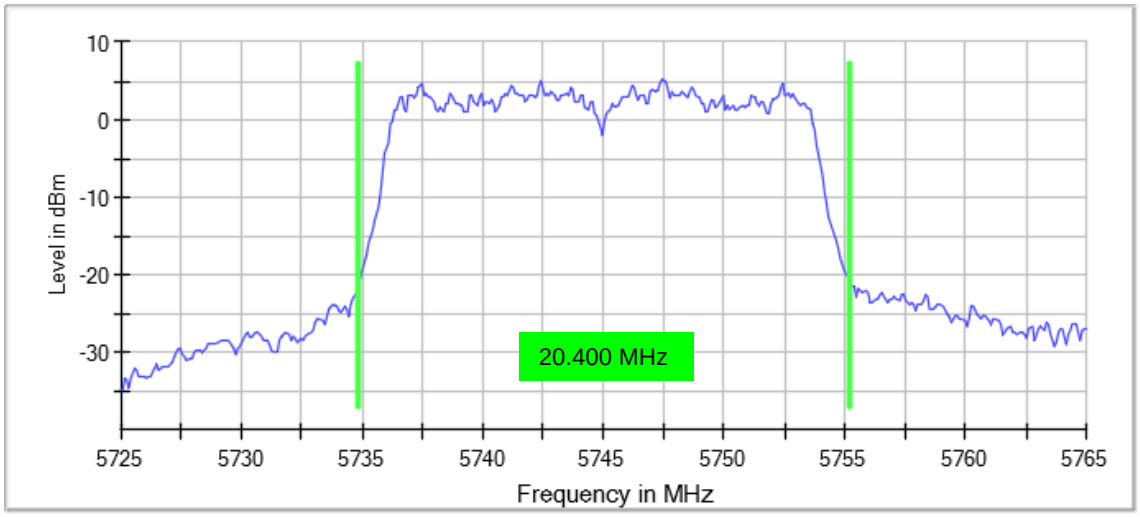
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



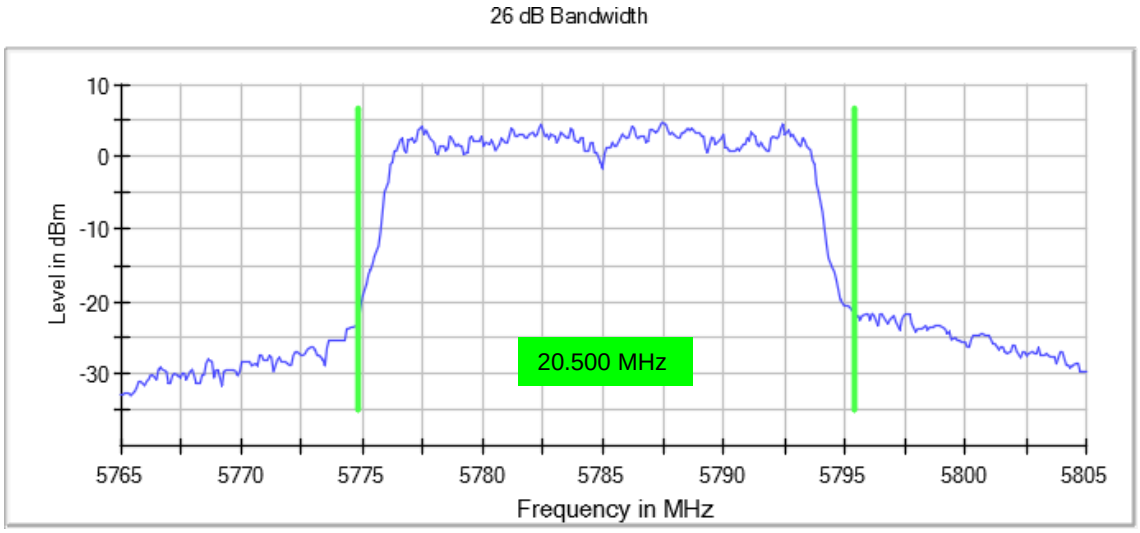
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



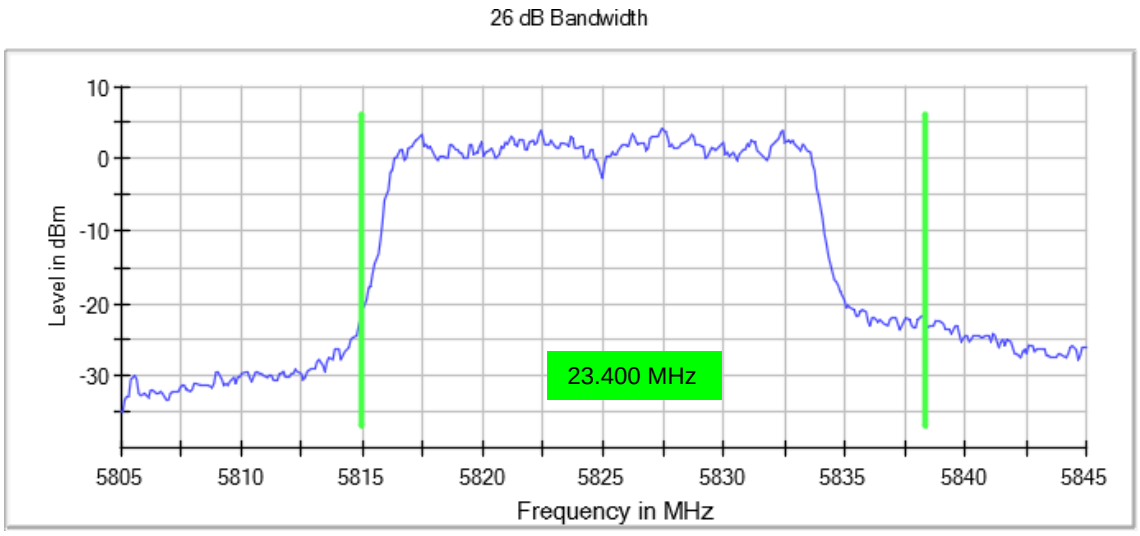
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT40 SS1 (OFDM MCS0)
Results

Freq (MHz)	26Ebw (MHz)
5190.00000	40.826
5230.00000	40.826
5755.00000	43.827
5795.00000	45.629

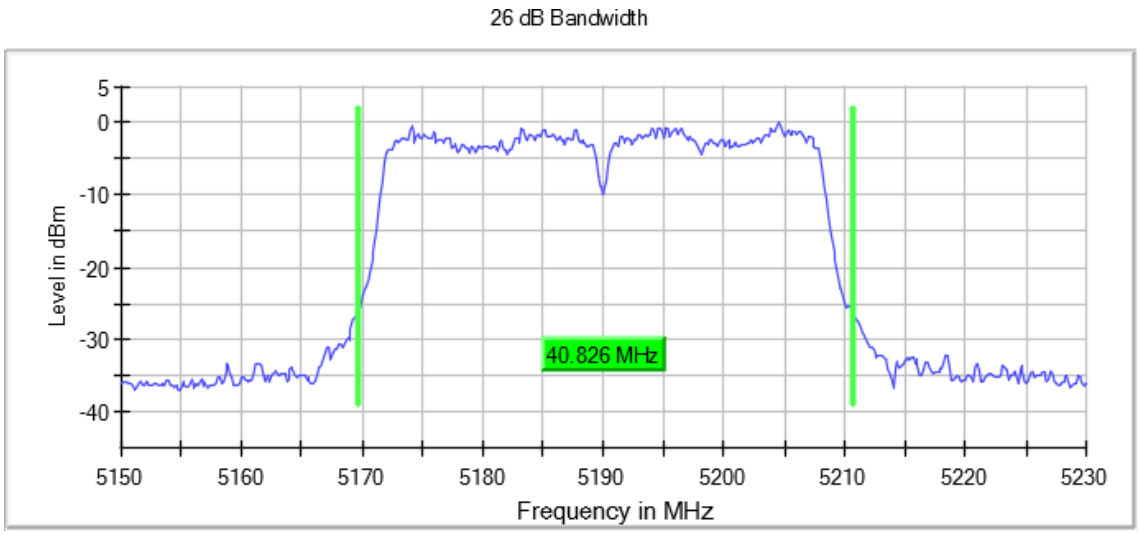
Verdict

Pass

Attachments

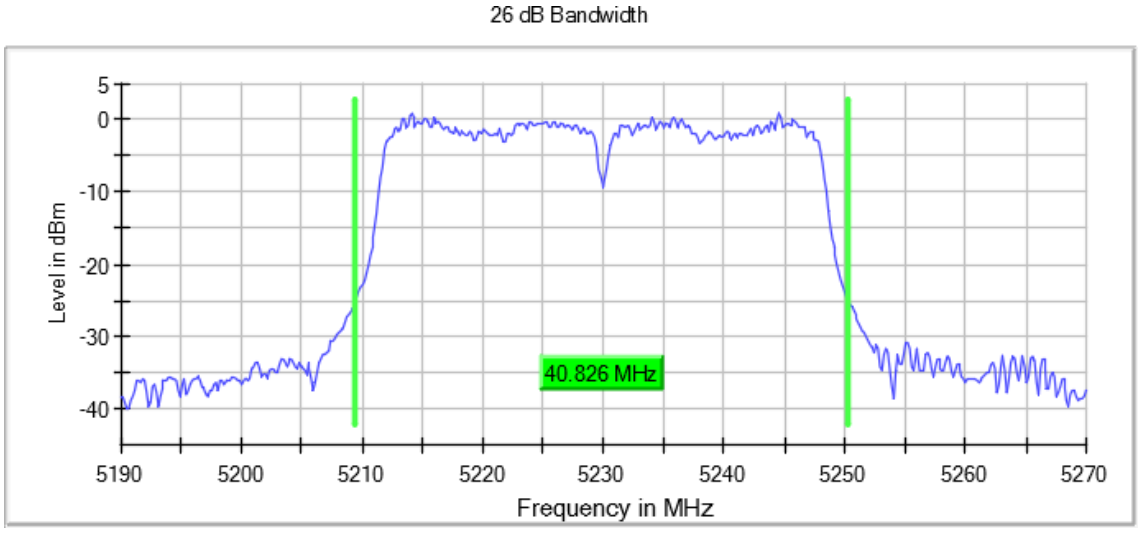
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



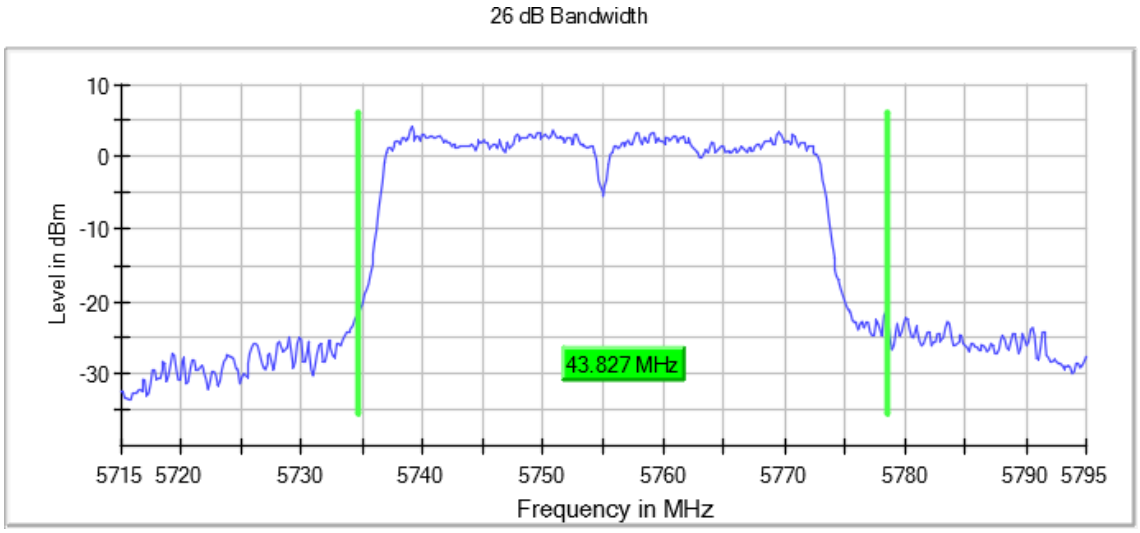
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



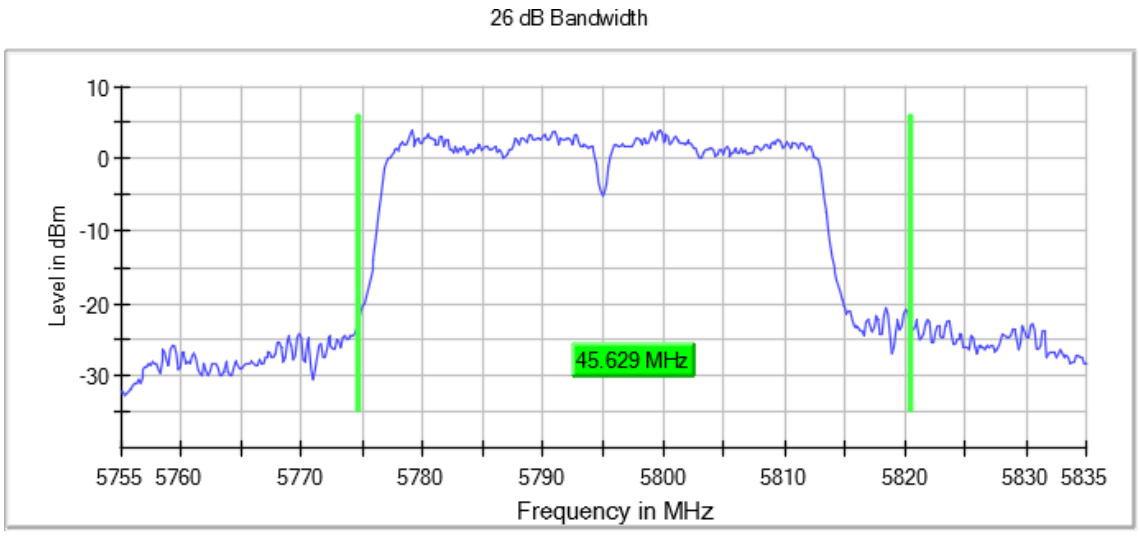
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT80 SS1 (OFDM MCS0)
Results

Freq (MHz)	26Ebw (MHz)
5210.00000	83.500
5775.00000	104.500

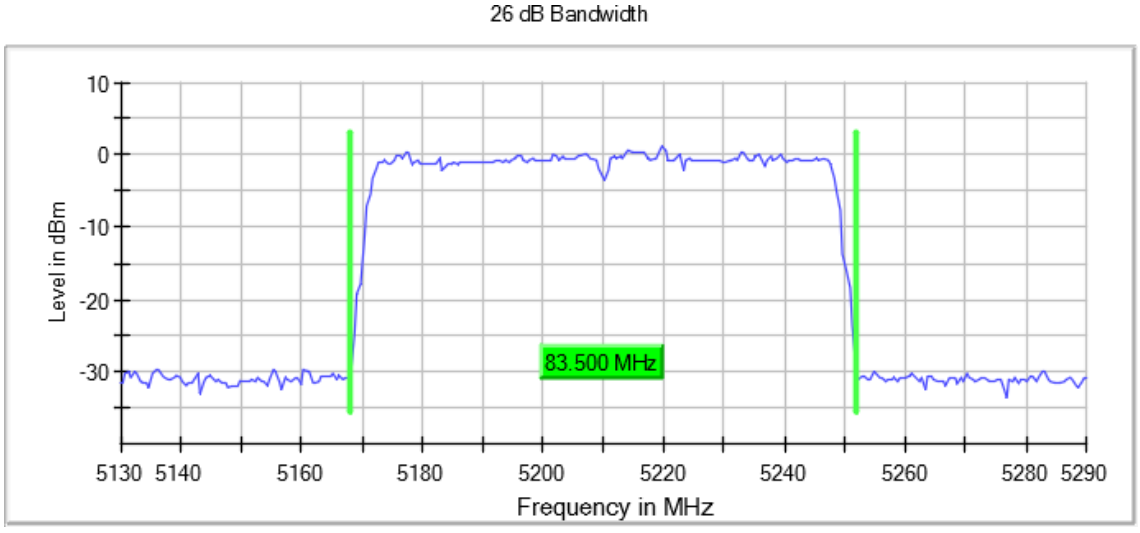
Verdict

Pass

Attachments

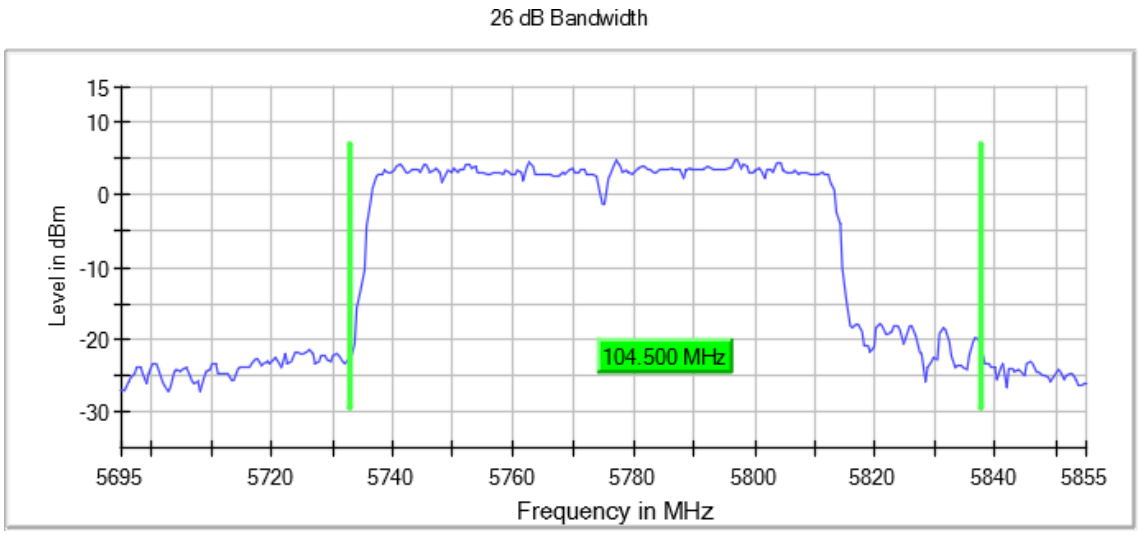
Active Port = 1, Frequency MHz = 5210.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5775.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Measurement Setup

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.16000 GHz	5.18000 GHz	5.22000 GHz
Stop Frequency	5.20000 GHz	5.22000 GHz	5.26000 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 kHz	200.000 kHz	200.000 kHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
Sweep Points	400	400	400
Sweep time	28.477 µs	28.477 µs	28.477 µs
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	Max Peak	Max Peak	Max Peak
Sweep Count	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	67 / max. 150	82 / max. 150	92 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.01 dB	0.19 dB

Measurement Setup

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.72500 GHz	5.76500 GHz	5.80500 GHz
Stop Frequency	5.76500 GHz	5.80500 GHz	5.84500 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 kHz	200.000 kHz	200.000 kHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
Sweep Points	400	400	400
Sweep time	28.477 µs	28.477 µs	28.477 µs
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	Max Peak	Max Peak	Max Peak
Sweep Count	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	39 / max. 150	82 / max. 150	45 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.18 dB	0.07 dB	0.29 dB

FCC 15.407 (b) / RSS-247 6.2 Band-edge Conducted Emissions

Limits

For transmitters operating in the 5.15–5.25 and 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 (68.20 dBµV/m at 3 m distance).

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.

For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

RSS 247:

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz.

Emissions outside the band 5470-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p.

Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

a. 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;
b. 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;
c. 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and
d. -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

Modulation: 802.11a (OFDM 6 Mbit/s)
Results

Freq (MHz)	Lvl (dBm)
5148.250000	-36.8
5145.250000	-36.9
5149.250000	-37.0
5149.750000	-38.3
5146.750000	-38.6
5148.750000	-38.6
5147.250000	-39.2
5146.250000	-39.2
5140.250000	-39.7
5383.750000	-47.7
5372.750000	-47.8
5422.750000	-47.9
5361.250000	-48.0
5373.750000	-48.0
5367.250000	-48.1
5368.750000	-48.1
5418.250000	-48.1
5354.250000	-48.1
5645.750000	-44.6
5645.250000	-45.3
5611.250000	-45.3
5648.750000	-45.4
5648.250000	-45.5
5644.750000	-45.5
5642.250000	-45.6
5646.250000	-45.6
5609.750000	-45.6
5932.750000	-48.6
5929.250000	-49.2
5928.750000	-49.3
5925.750000	-49.3
5928.250000	-49.4
5943.750000	-49.5
5930.250000	-49.5
5931.750000	-49.5
5935.250000	-49.5
5145.750000	-40.1
5144.750000	-40.4

Freq (MHz)	Lvl (dBm)
5142.250000	-40.4
5144.250000	-40.4
5147.750000	-40.6
5143.750000	-41.7
5353.750000	-48.1
5353.250000	-48.1
5443.750000	-48.1
5414.750000	-48.1
5378.750000	-48.2
5406.750000	-48.2
5639.250000	-45.7
5638.250000	-45.7
5620.750000	-45.7
5649.750000	-45.7
5647.750000	-45.8
5646.750000	-45.9
5933.250000	-49.5
5926.250000	-49.5
5932.250000	-49.6
5923.250000	-48.3
5927.750000	-49.6
5926.750000	-49.7

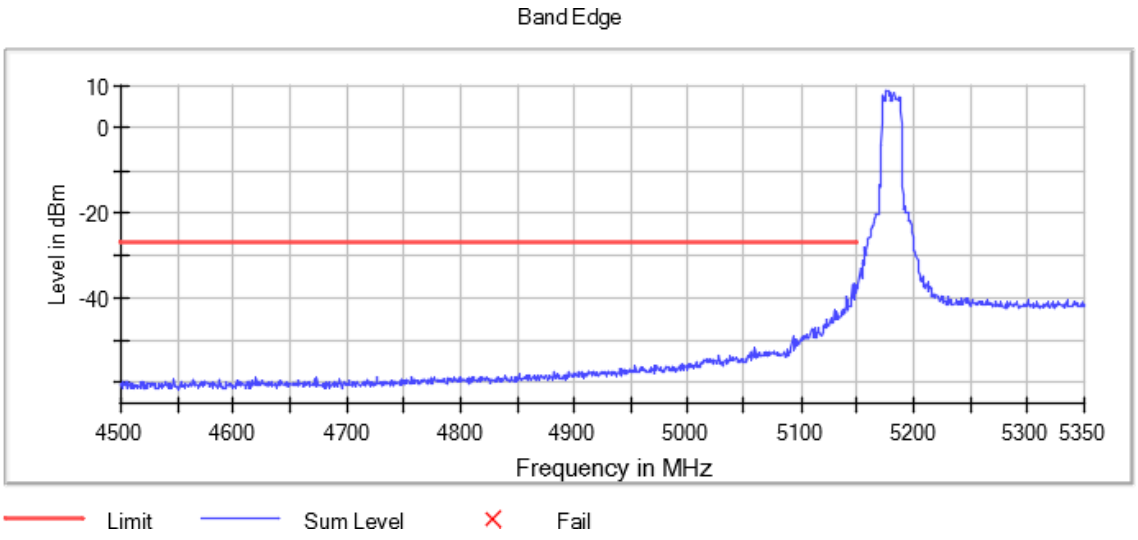
Verdict

Pass

Attachments

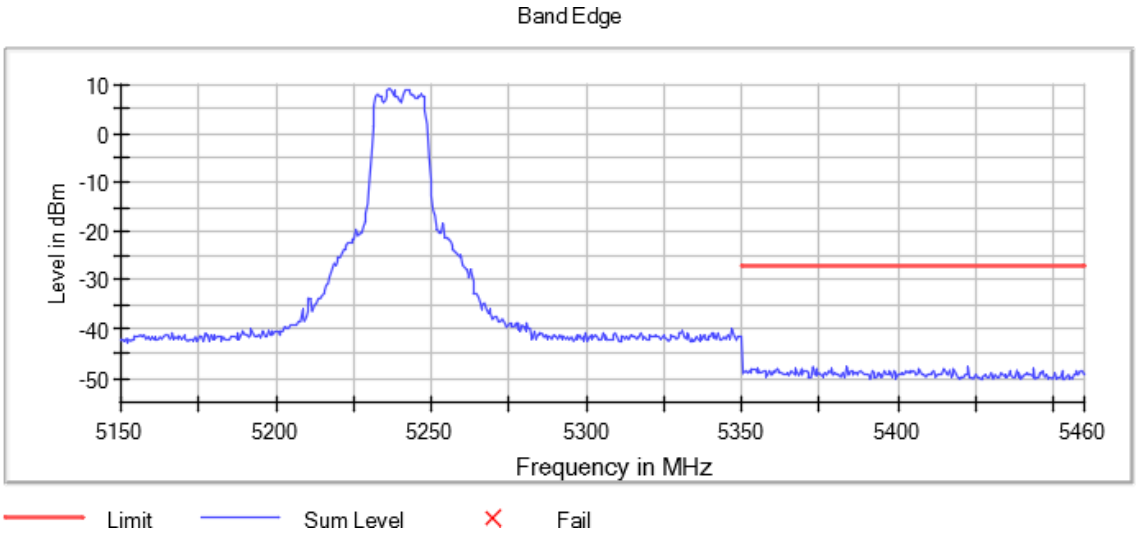
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Measurement Point = 1

Images:



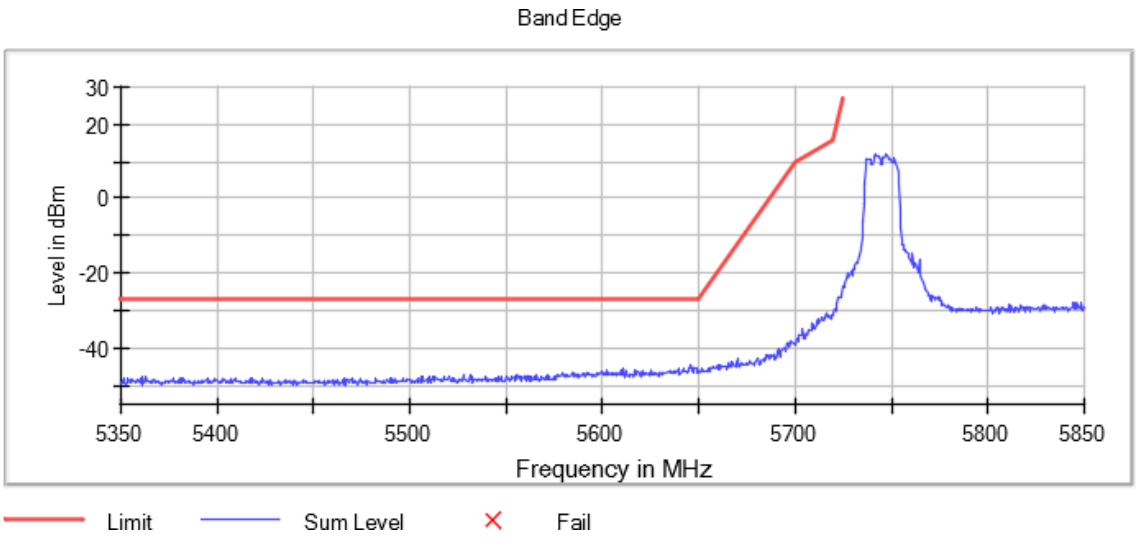
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Measurement Point = 1

Images:



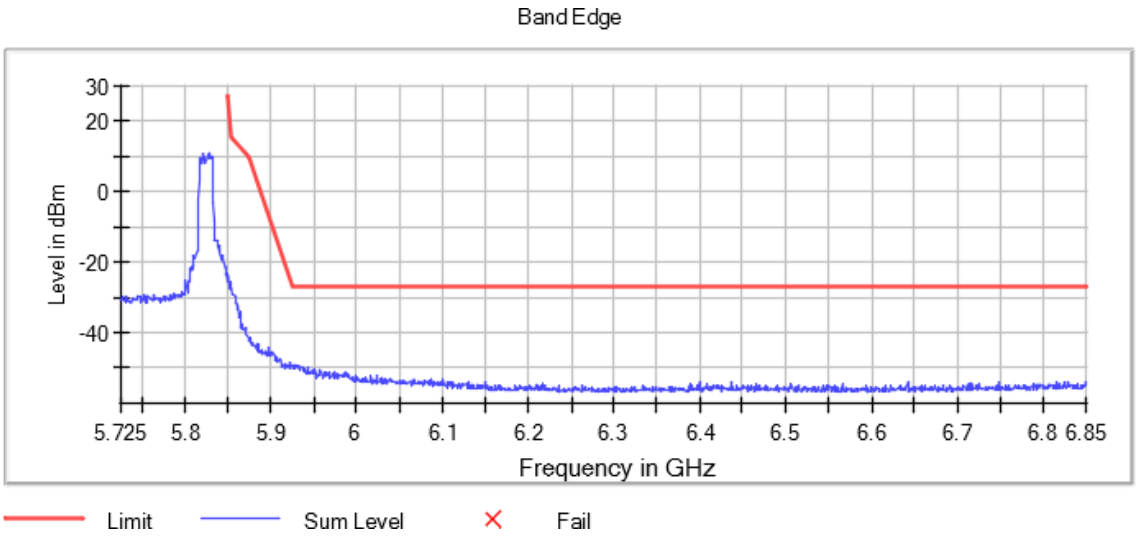
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Measurement Point = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Measurement Point = 1

Images:



Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)
Results

Freq (MHz)	Lvl (dBm)
5149.250000	-31.3
5148.750000	-32.0
5149.750000	-33.1
5148.250000	-34.0
5145.250000	-35.1
5144.750000	-35.2
5146.750000	-35.6
5147.250000	-35.8
5146.250000	-35.9
5415.250000	-47.0
5352.750000	-47.6
5362.250000	-47.7
5386.750000	-47.8
5397.750000	-47.8
5400.250000	-47.9
5398.750000	-48.0
5354.250000	-48.0
5351.250000	-48.0
5645.250000	-44.8
5644.750000	-44.9
5646.750000	-44.9
5646.250000	-44.9
5636.750000	-44.9
5631.750000	-45.0
5642.750000	-45.3
5639.250000	-45.4
5650.250000	-45.2
5928.250000	-47.8
5935.250000	-48.2
5926.250000	-48.3
5928.750000	-48.4
5925.250000	-48.9
5933.750000	-49.4
5932.750000	-49.4
5936.250000	-49.6
5927.250000	-49.6
5145.750000	-36.4
5147.750000	-36.6

Freq (MHz)	Lvl (dBm)
5144.250000	-36.7
5143.250000	-36.9
5143.750000	-37.0
5142.750000	-37.2
5359.750000	-48.1
5356.750000	-48.1
5363.250000	-48.2
5380.750000	-48.2
5456.750000	-48.2
5355.250000	-48.2
5645.750000	-45.4
5643.750000	-45.5
5633.750000	-45.5
5640.250000	-45.6
5648.250000	-45.6
5643.250000	-45.6
5931.750000	-49.7
5934.750000	-49.8
5932.250000	-49.8
5933.250000	-49.8
5930.250000	-49.8
5929.250000	-49.8

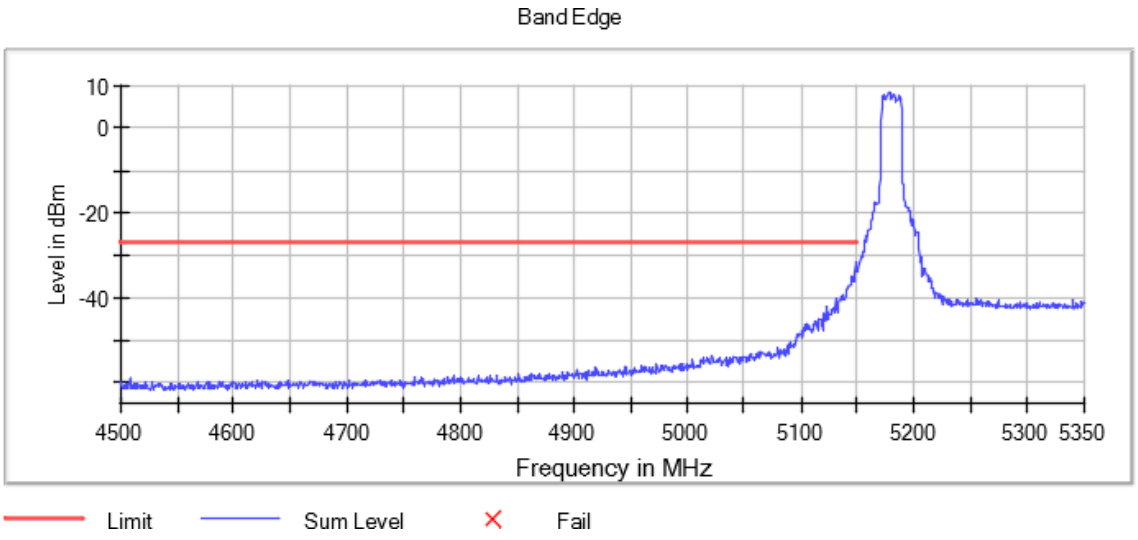
Verdict

Pass

Attachments

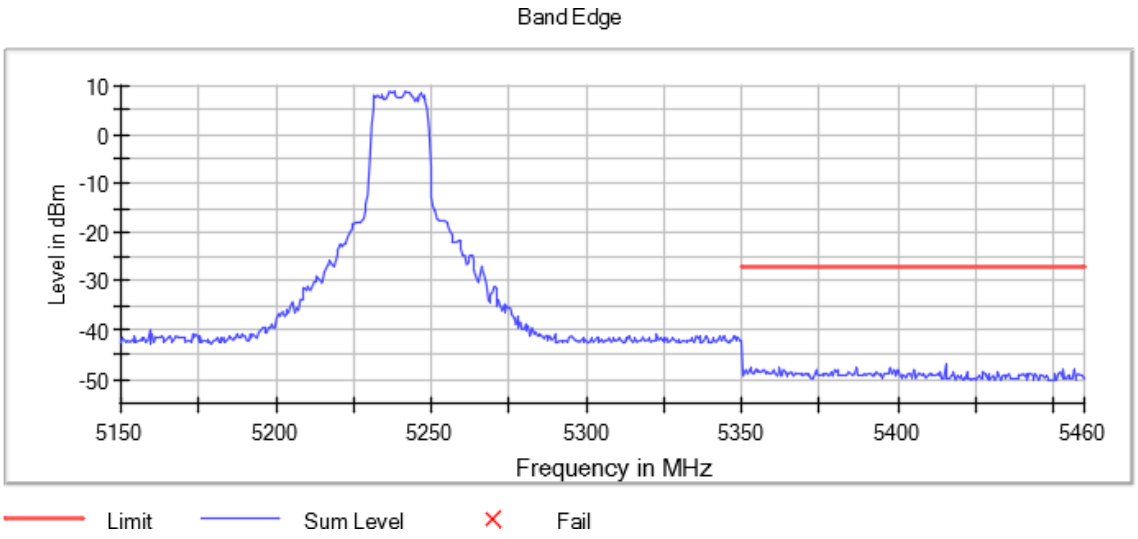
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Measurement Point = 1

Images:



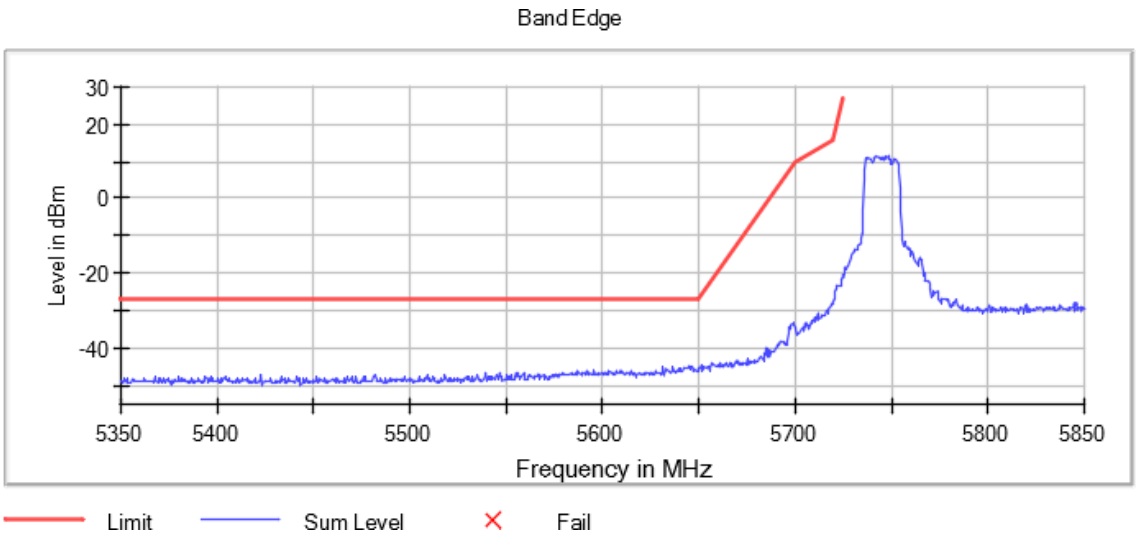
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Measurement Point = 1

Images:



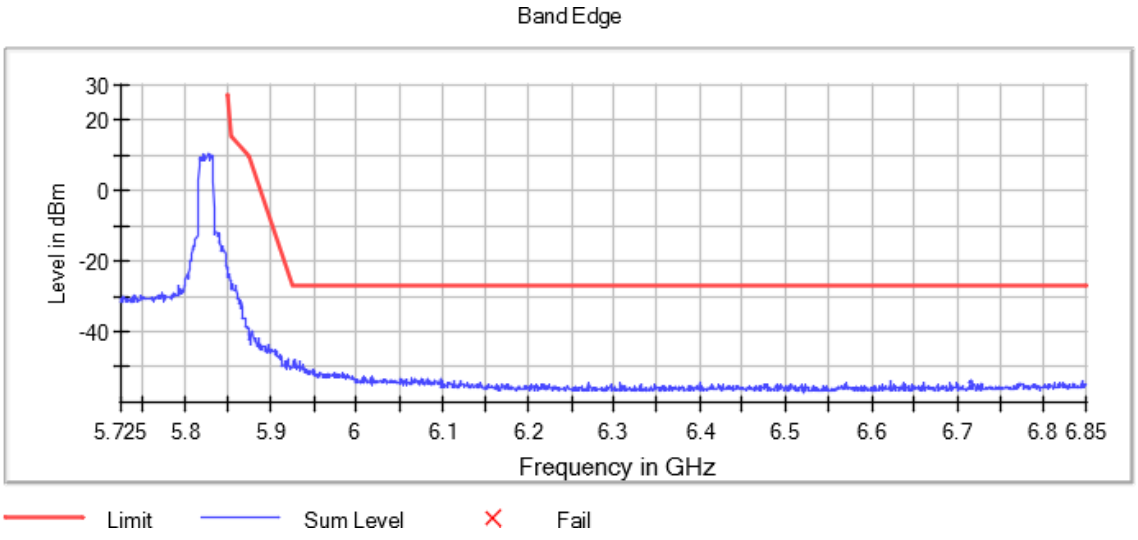
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Measurement Point = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Measurement Point = 1

Images:



Modulation: 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)
Results

Freq (MHz)	Lvl (dBm)
5149.750000	-28.1
5148.750000	-29.7
5149.250000	-29.7
5148.250000	-29.8
5147.750000	-31.6
5147.250000	-31.7
5146.750000	-32.3
5146.250000	-33.4
5145.250000	-33.6
5356.250000	-45.8
5350.250000	-46.5
5356.750000	-46.5
5351.250000	-46.8
5353.750000	-46.8
5366.750000	-46.9
5357.250000	-46.9
5354.750000	-47.2
5351.750000	-47.3
5645.250000	-38.9
5640.750000	-39.0
5643.250000	-39.4
5641.250000	-39.5
5646.750000	-39.6
5647.250000	-39.6
5635.250000	-39.7
5635.750000	-39.8
5642.750000	-40.0
5935.250000	-40.5
5935.750000	-40.6
5931.750000	-40.6
5922.750000	-39.2
5933.250000	-41.1
5933.750000	-41.2
5932.750000	-41.4
5936.250000	-41.4
5934.750000	-41.4
5144.750000	-33.7
5145.750000	-33.7

Freq (MHz)	Lvl (dBm)
5143.750000	-34.0
5144.250000	-34.0
5142.250000	-34.8
5134.750000	-35.0
5354.250000	-47.4
5353.250000	-47.4
5350.750000	-47.5
5361.750000	-47.6
5357.750000	-47.7
5352.750000	-47.8
5644.250000	-40.3
5646.250000	-40.3
5633.750000	-40.3
5634.250000	-40.3
5644.750000	-40.4
5640.250000	-40.4
5936.750000	-41.4
5934.250000	-41.5
5930.750000	-41.5
5932.250000	-41.6
5930.250000	-41.7
5938.250000	-42.1

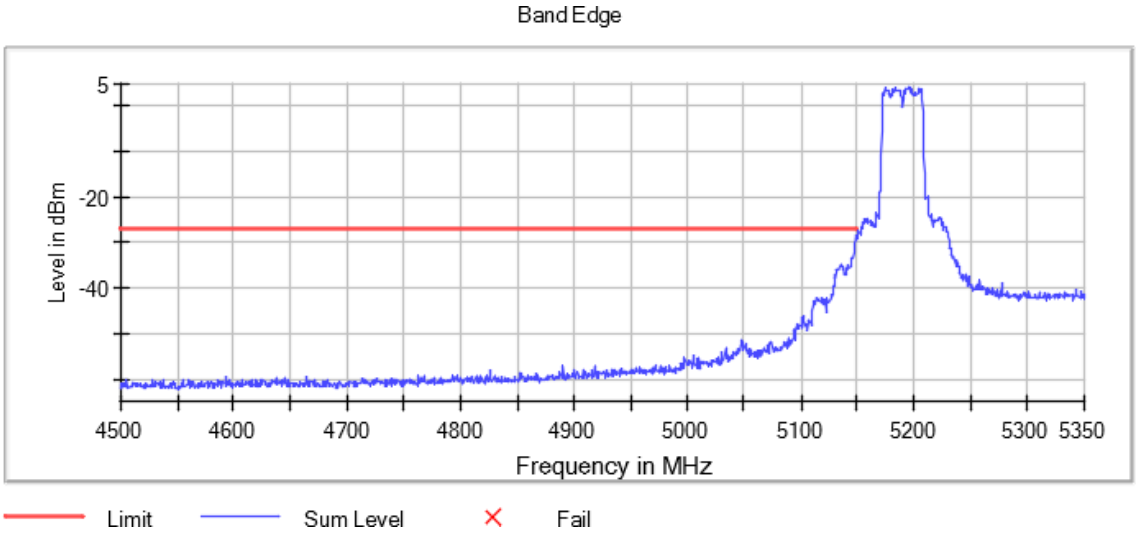
Verdict

Pass

Attachments

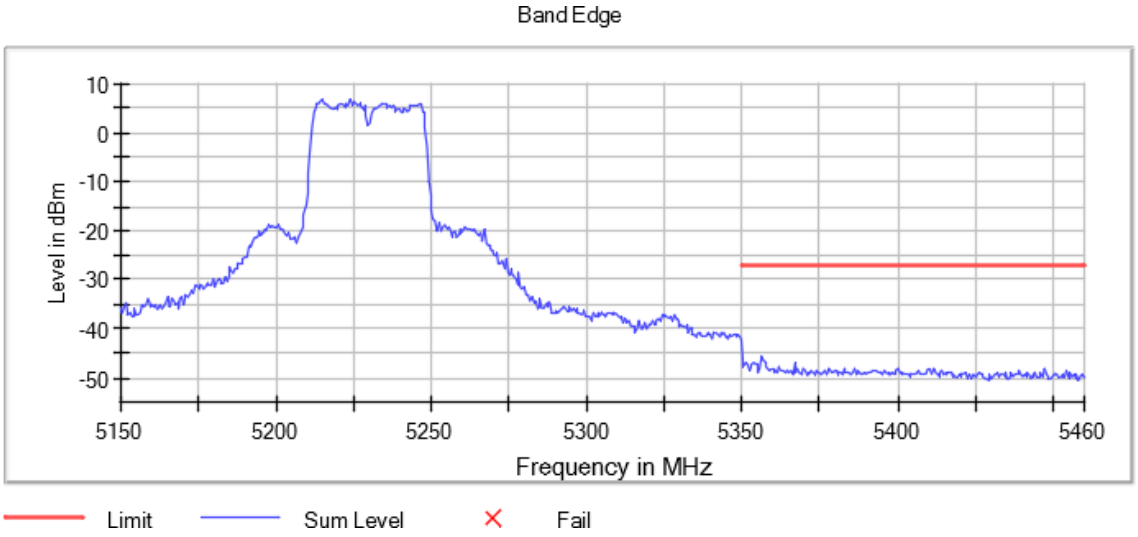
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Measurement Point = 1

Images:



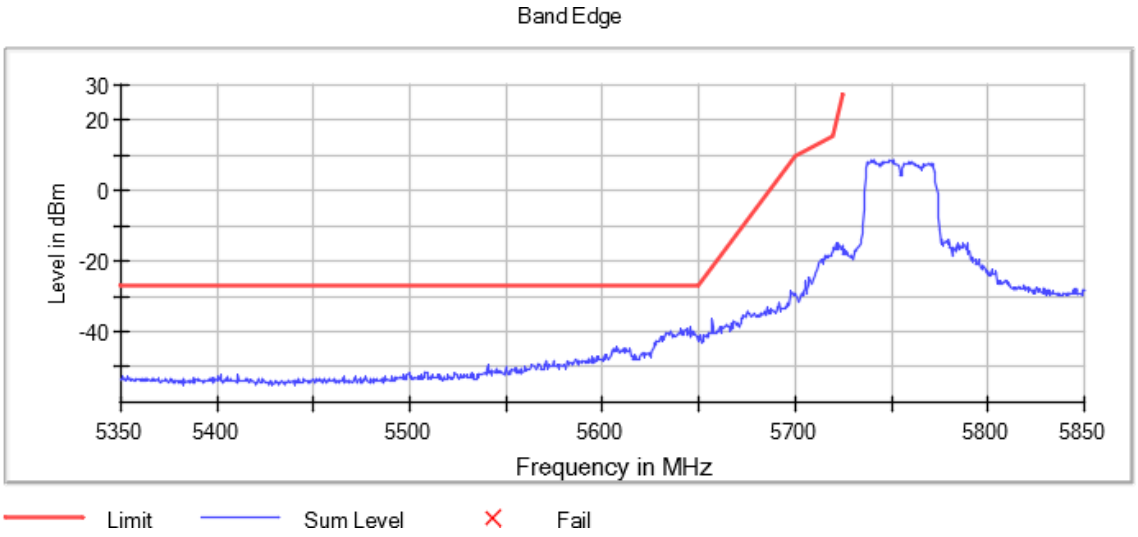
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Measurement Point = 1

Images:



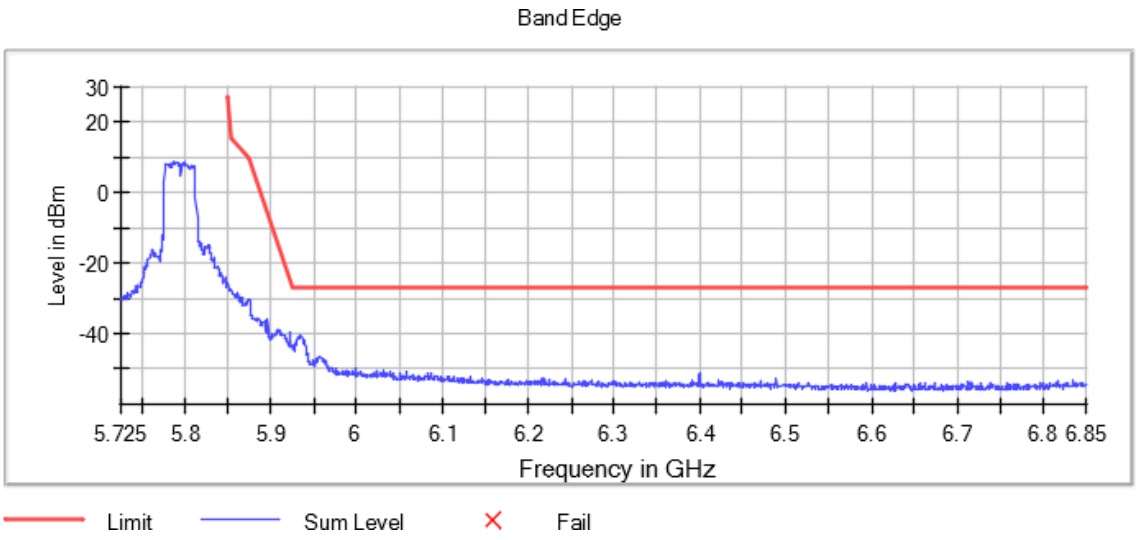
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Measurement Point = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Measurement Point = 1

Images:



Modulation: 802.11ac VHT20 (OFDM MCS0)
Results

Freq (MHz)	Lvl (dBm)
5149.750000	-32.4
5148.750000	-32.7
5148.250000	-33.1
5149.250000	-33.2
5147.750000	-35.2
5147.250000	-36.2
5146.250000	-36.3
5145.750000	-36.4
5146.750000	-37.2
5358.750000	-48.0
5401.750000	-48.1
5443.750000	-48.1
5399.750000	-48.2
5414.250000	-48.2
5354.750000	-48.2
5360.250000	-48.3
5433.750000	-48.3
5393.250000	-48.4
5648.750000	-45.0
5651.250000	-44.1
5643.250000	-45.1
5637.750000	-45.1
5647.250000	-45.1
5644.250000	-45.2
5645.750000	-45.3
5646.250000	-45.3
5645.250000	-45.3
5928.750000	-48.9
5924.750000	-48.8
5926.750000	-49.1
5925.250000	-49.1
5935.750000	-49.2
5933.750000	-49.3
5926.250000	-49.3
5927.750000	-49.3
5928.250000	-49.4
5143.250000	-37.7
5144.750000	-38.0

Freq (MHz)	Lvl (dBm)
5142.250000	-38.0
5145.250000	-38.1
5139.750000	-38.2
5143.750000	-38.4
5391.750000	-48.4
5435.750000	-48.5
5362.750000	-48.5
5394.250000	-48.5
5380.250000	-48.5
5351.750000	-48.5
5641.250000	-45.3
5629.250000	-45.4
5640.250000	-45.4
5638.250000	-45.4
5648.250000	-45.4
5636.250000	-45.5
5930.750000	-49.4
5925.750000	-49.4
5932.750000	-49.5
5924.250000	-49.0
5931.250000	-49.5
5927.250000	-49.6

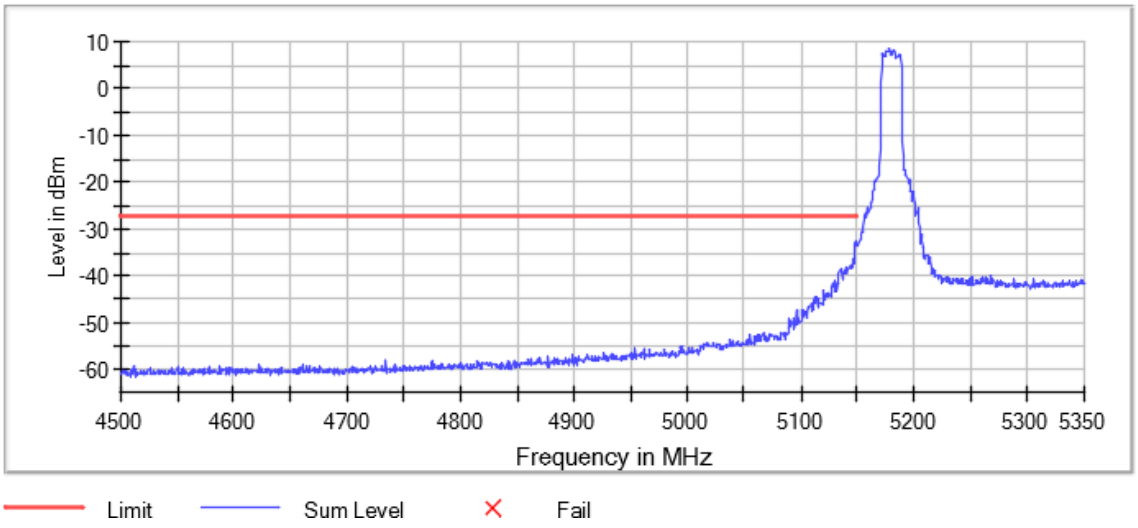
Verdict

Pass

Attachments

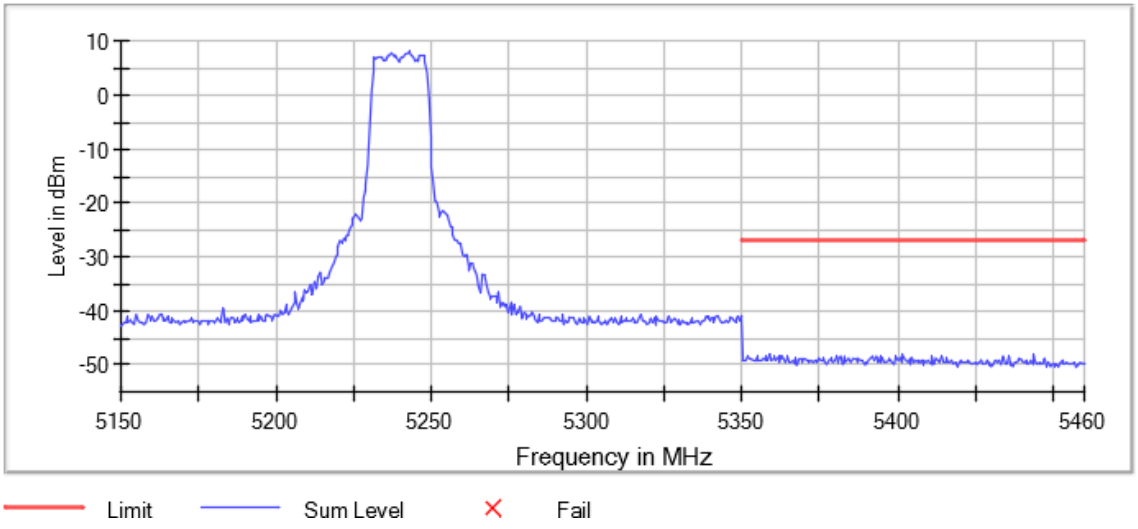
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Measurement Point = 1

Images:



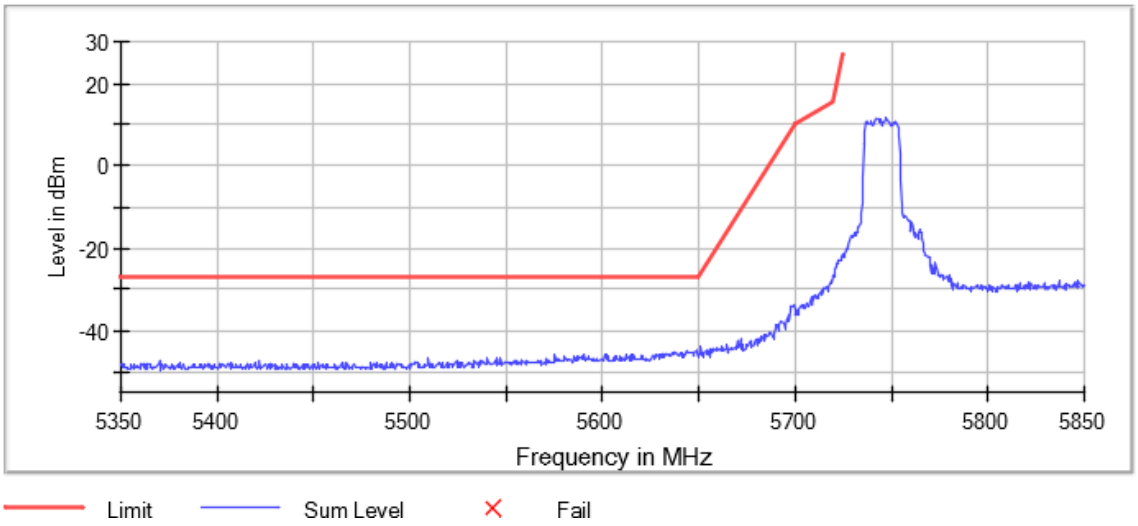
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Measurement Point = 1

Images:



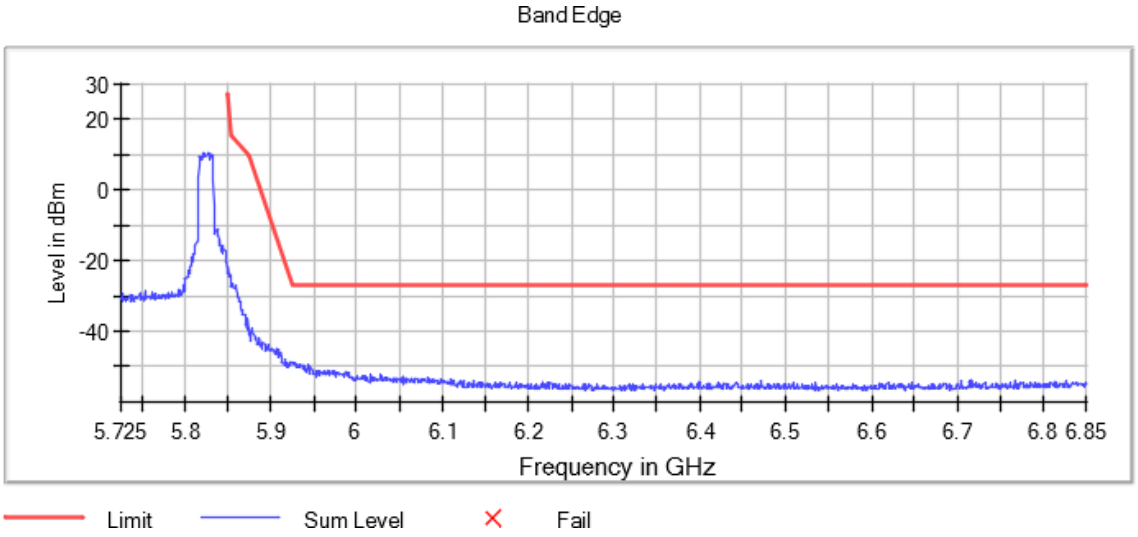
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Measurement Point = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Measurement Point = 1

Images:



Modulation: 802.11ac VHT40 SS1 (OFDM MCS0)
Results

Freq (MHz)	Lvl (dBm)
5149.750000	-30.6
5148.750000	-30.6
5149.250000	-31.7
5146.750000	-32.1
5146.250000	-32.5
5148.250000	-33.2
5147.250000	-33.5
5144.750000	-33.7
5142.750000	-34.5
5354.750000	-50.9
5354.250000	-51.5
5352.250000	-51.7
5353.750000	-51.7
5357.250000	-51.7
5357.750000	-51.8
5350.250000	-51.9
5351.750000	-51.9
5364.750000	-52.0
5648.750000	-39.7
5649.250000	-39.8
5645.250000	-40.6
5650.250000	-40.7
5647.250000	-41.2
5650.750000	-40.9
5651.750000	-40.1
5651.250000	-40.5
5648.250000	-41.5
5923.750000	-39.3
5925.750000	-40.4
5924.750000	-41.5
5925.250000	-42.7
6787.250000	-43.2
5921.750000	-40.9
6817.250000	-43.3
5929.750000	-43.4
6780.250000	-43.4
5144.250000	-34.9
5141.250000	-35.1

Freq (MHz)	Lvl (dBm)
5140.750000	-35.1
5145.750000	-35.1
5141.750000	-35.2
5143.750000	-35.3
5353.250000	-52.0
5351.250000	-52.0
5355.750000	-52.1
5350.750000	-52.2
5370.250000	-52.3
5356.750000	-52.3
5628.750000	-41.6
5652.750000	-39.6
5653.250000	-39.4
5649.750000	-41.8
5641.750000	-41.9
5647.750000	-41.9
5924.250000	-42.8
6842.750000	-43.5
5930.750000	-43.7
6837.250000	-43.8
6399.750000	-43.8
6768.750000	-43.8

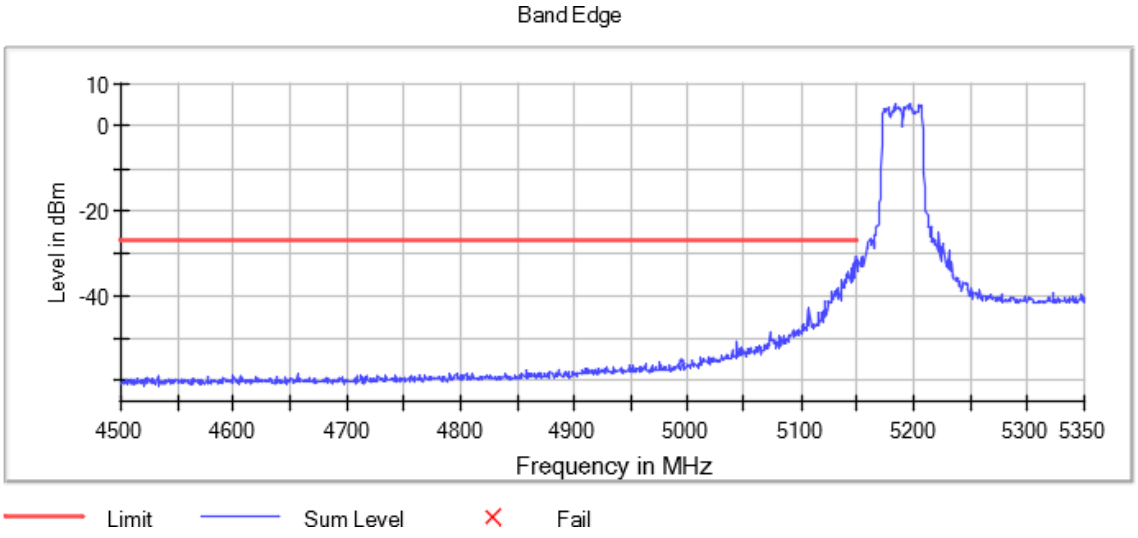
Verdict

Pass

Attachments

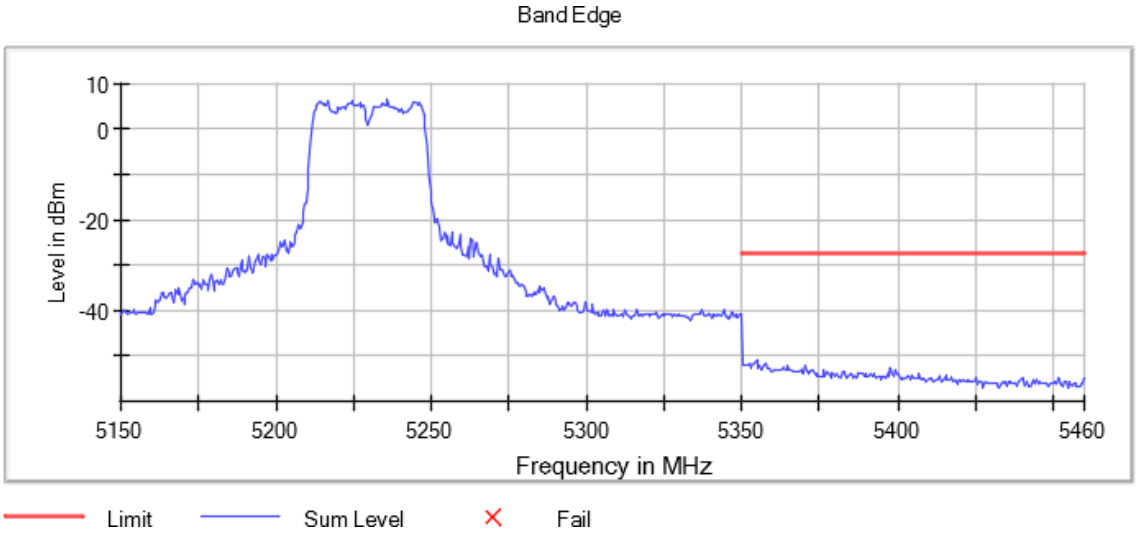
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Measurement Point = 1

Images:



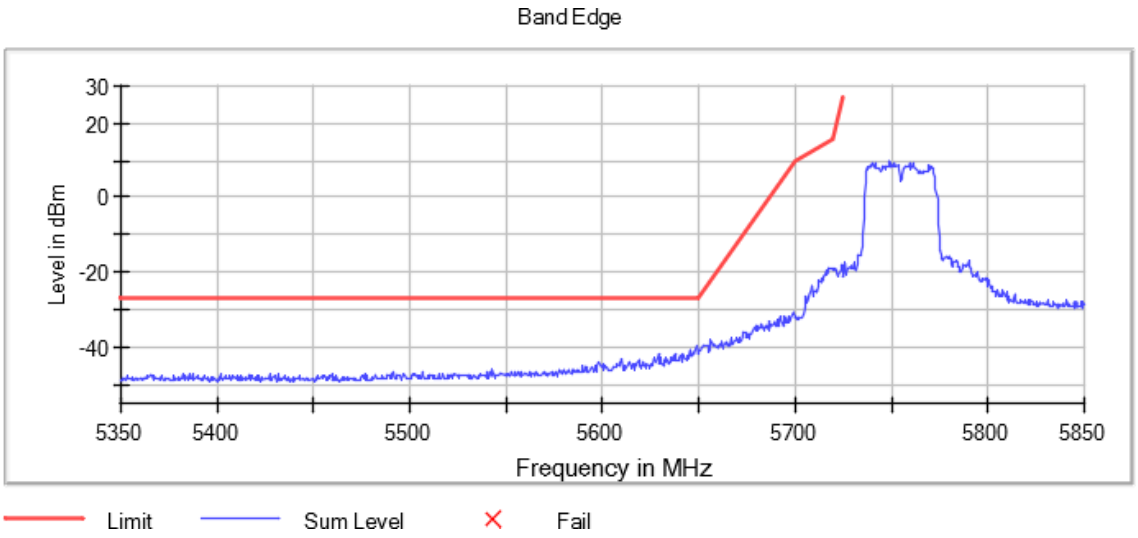
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Measurement Point = 1

Images:



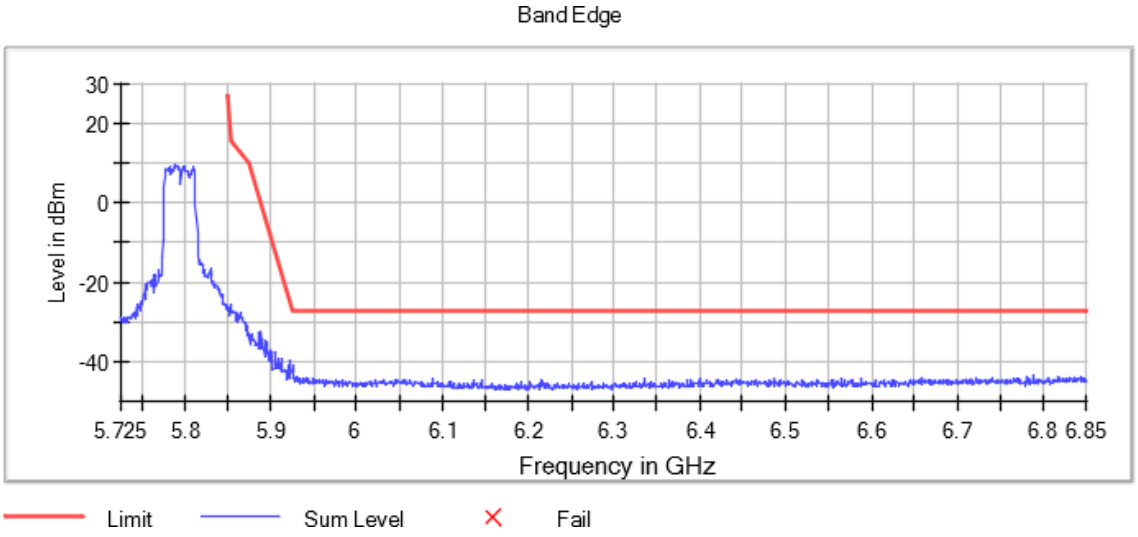
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Measurement Point = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Measurement Point = 1

Images:



Modulation: 802.11ac VHT80 SS1 (OFDM MCS0)
Results

Freq (MHz)	Lvl (dBm)
5118.750000	-31.0
5148.250000	-31.1
5147.750000	-31.2
5135.250000	-31.3
5148.750000	-31.5
5134.250000	-31.5
5135.750000	-31.9
5137.750000	-31.9
5138.750000	-32.0
5648.750000	-29.4
5929.250000	-29.6
5646.250000	-30.5
5644.750000	-31.2
5929.750000	-31.8
5930.250000	-32.0
5647.750000	-31.3
5636.250000	-31.4
5926.250000	-32.0
5928.750000	-32.4
5635.750000	-31.4
5928.250000	-32.4
5646.750000	-31.5
5930.750000	-32.8
5645.250000	-31.7
5643.250000	-32.0
5935.250000	-33.0
5146.750000	-32.0
5134.750000	-32.1
5145.250000	-32.1
5127.250000	-32.1
5136.250000	-32.1
5147.250000	-32.2
5644.250000	-32.1
5947.750000	-33.1
5925.250000	-33.1
5648.250000	-32.2
5934.750000	-33.5
5633.250000	-32.2

Freq (MHz)	Lvl (dBm)
5647.250000	-32.3
5932.750000	-33.5
5650.750000	-31.8
5935.750000	-33.6
5924.750000	-33.4
5642.750000	-32.4
5925.750000	-33.6

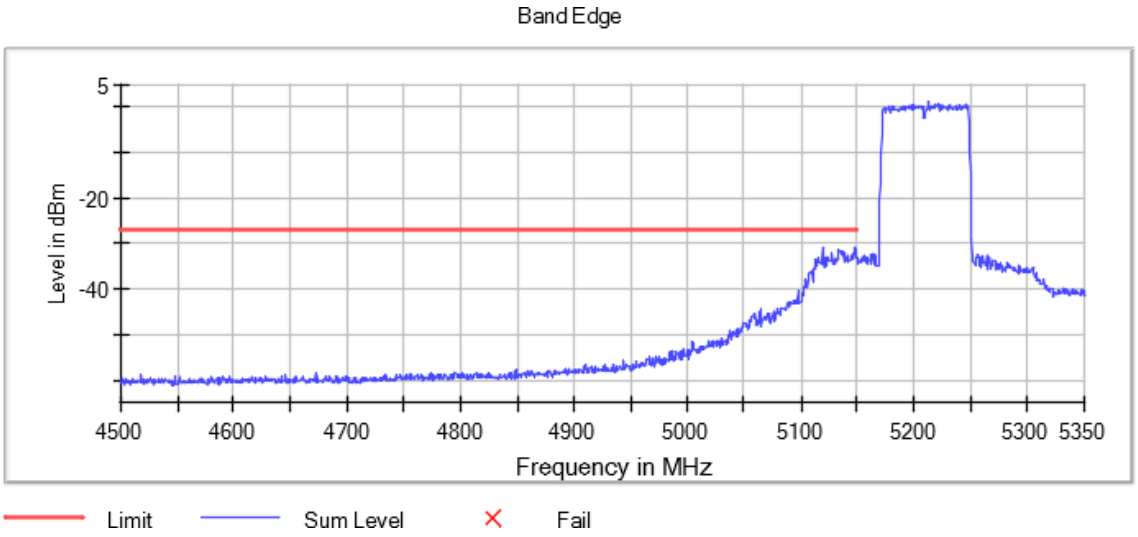
Verdict

Pass

Attachments

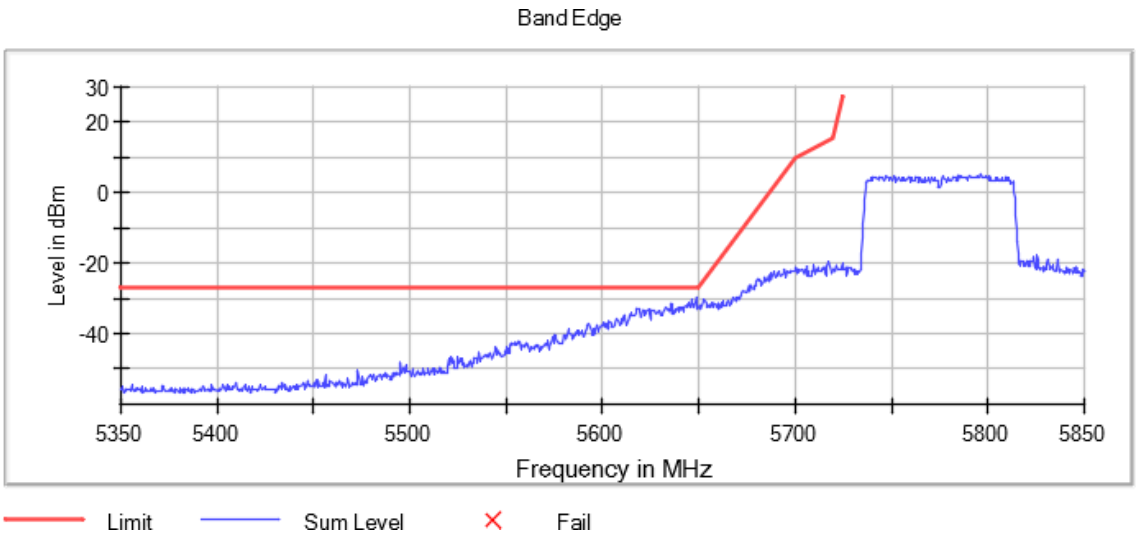
Active Port = 1, Frequency MHz = 5210.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), Measurement Point = 1

Images:



Active Port = 1, Frequency MHz = 5775.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), Measurement Point = 1

Images:



Measurement Setup

Setting	Instrument Value	Instrument Value
Start Frequency	5.15000 GHz	5.72500 GHz
Stop Frequency	5.35000 GHz	5.85000 GHz
Span	200.000 MHz	125.000 MHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	400	250
Sweeptime	40.000 ms	25.000 ms
Reference Level	0.000 dBm	10.000 dBm
Attenuation	20.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	Channel	Channel
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	14 / max. 150	11 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.03 dB	0.09 dB

FCC 15.407 (e) / RSS-247 6.2.4.1 6 dB Emission Bandwidth

Limits

Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

RSS-247: For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

Modulation: 802.11a (OFDM 6 Mbit/s)
Results

Port	Freq (MHz)	# of Tx Chains	26Ebw (MHz)
1	5180.00000	1	16.450
	5200.00000		16.450
	5240.00000		16.450
	5745.00000		16.400
	5785.00000		16.400
	5825.00000		16.450

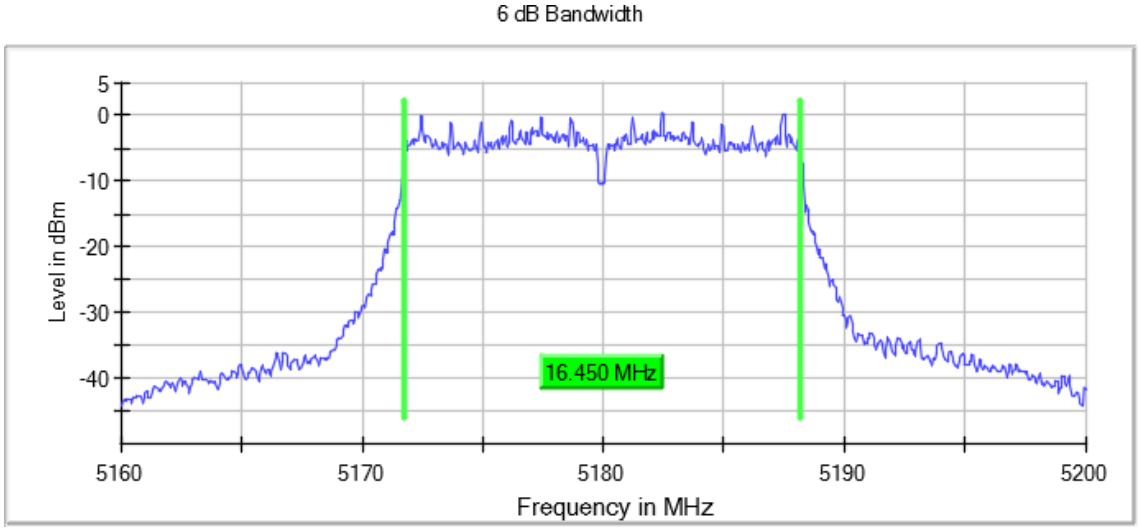
Verdict

Pass

Attachments

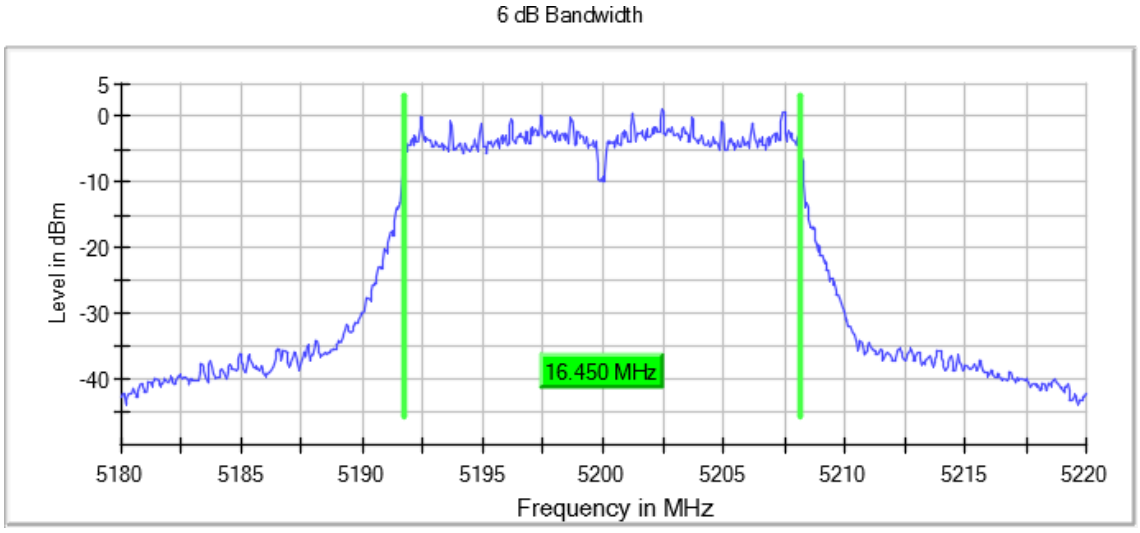
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



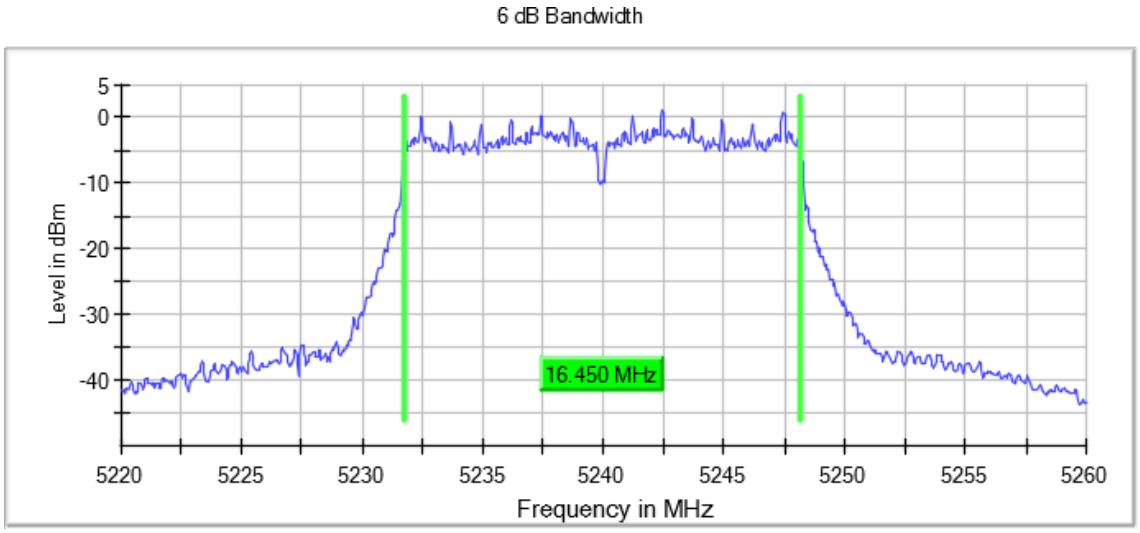
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



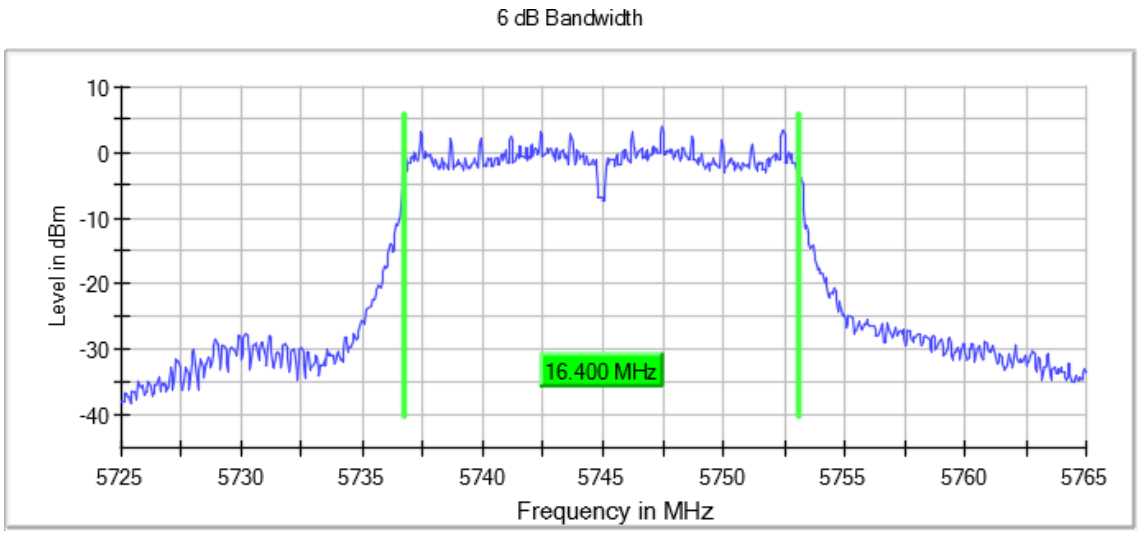
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



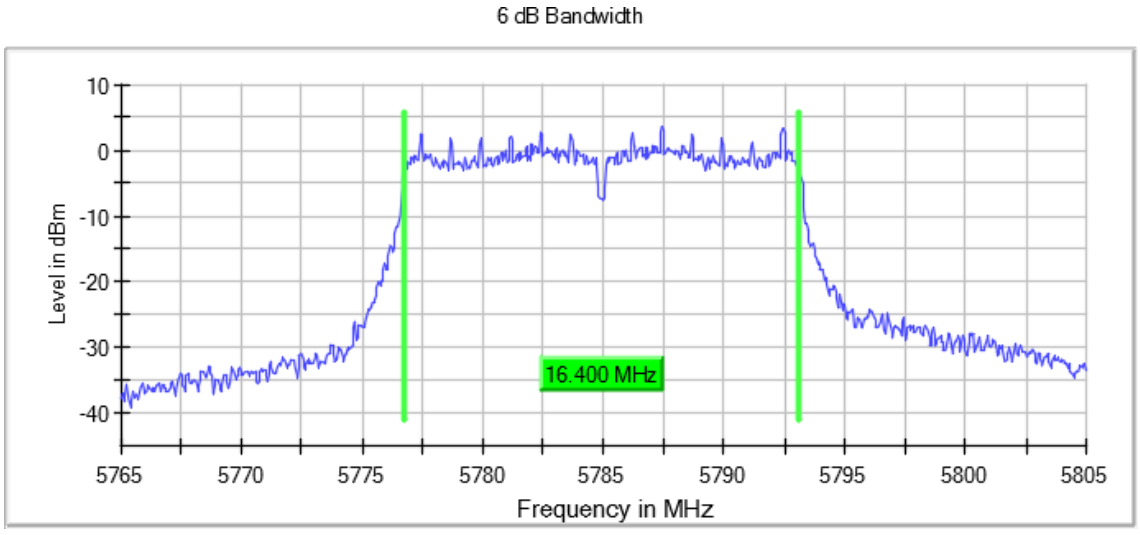
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



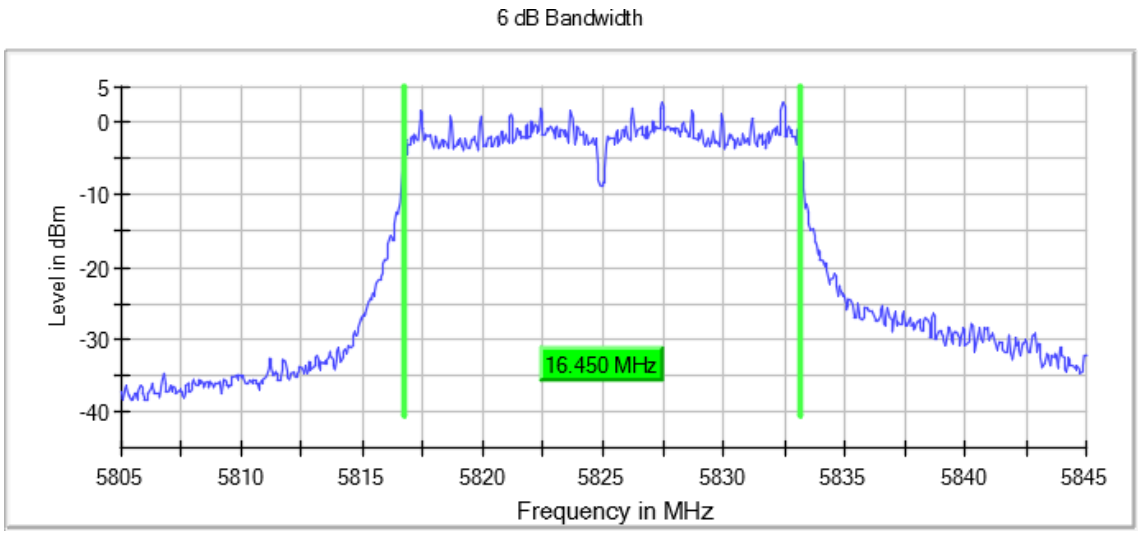
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11a (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Images:



Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)
Results

Freq (MHz)	26Ebw (MHz)
5180.00000	17.650
5200.00000	17.400
5240.00000	17.350
5745.00000	17.400
5785.00000	17.150
5825.00000	17.350

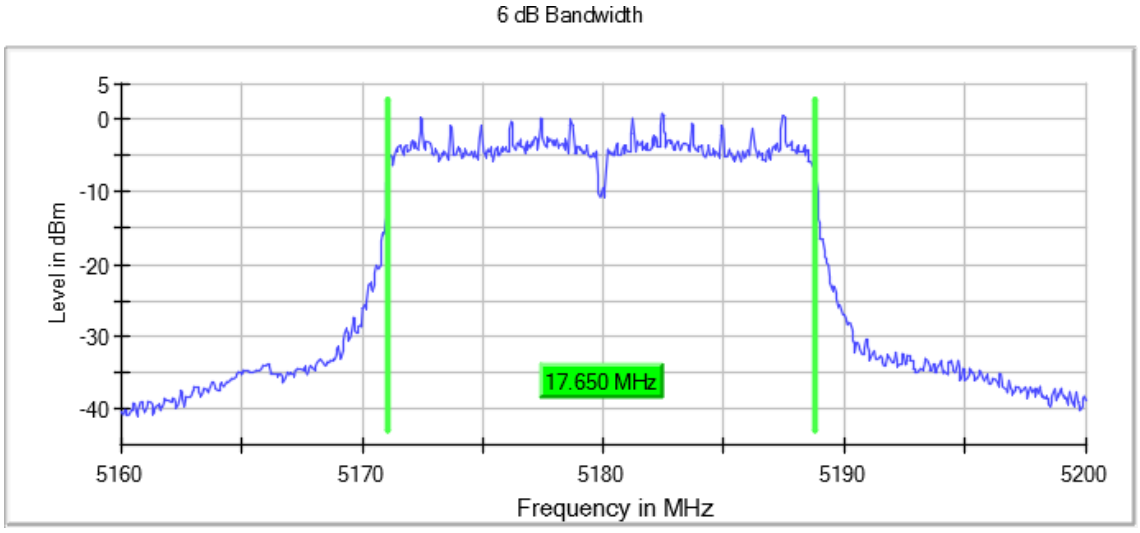
Verdict

Pass

Attachments

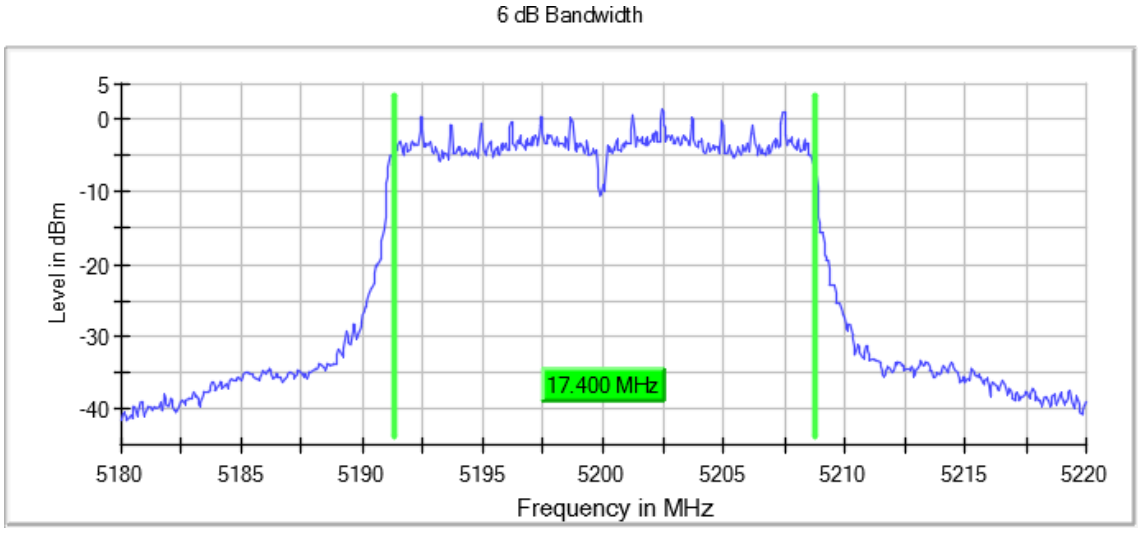
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



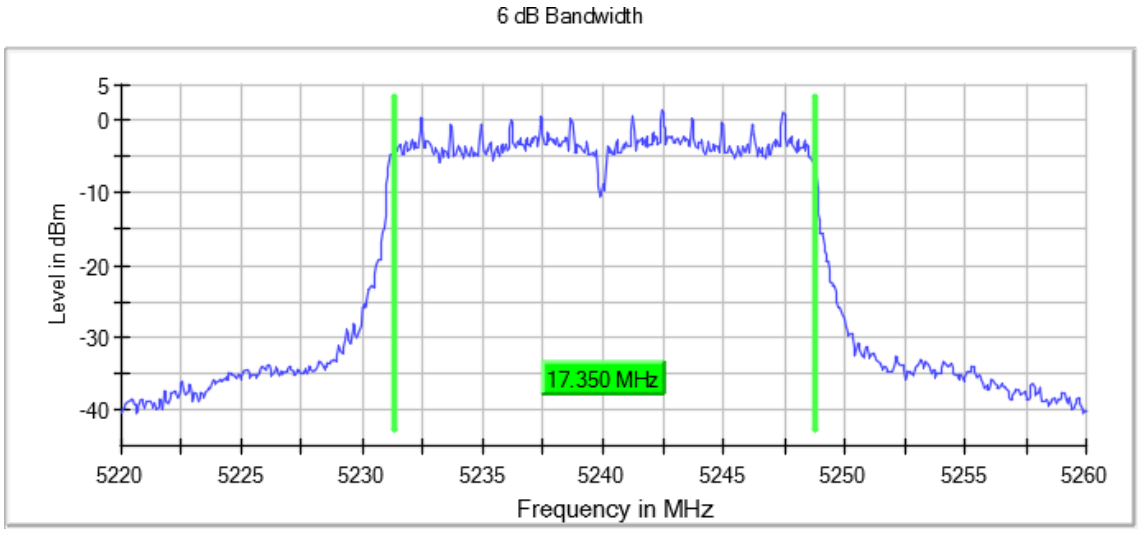
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



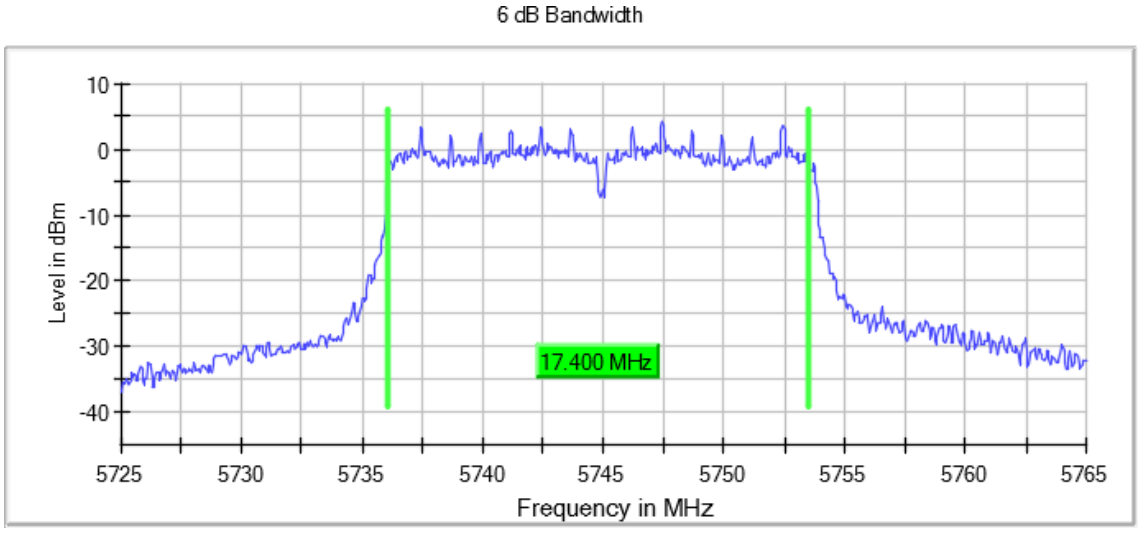
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



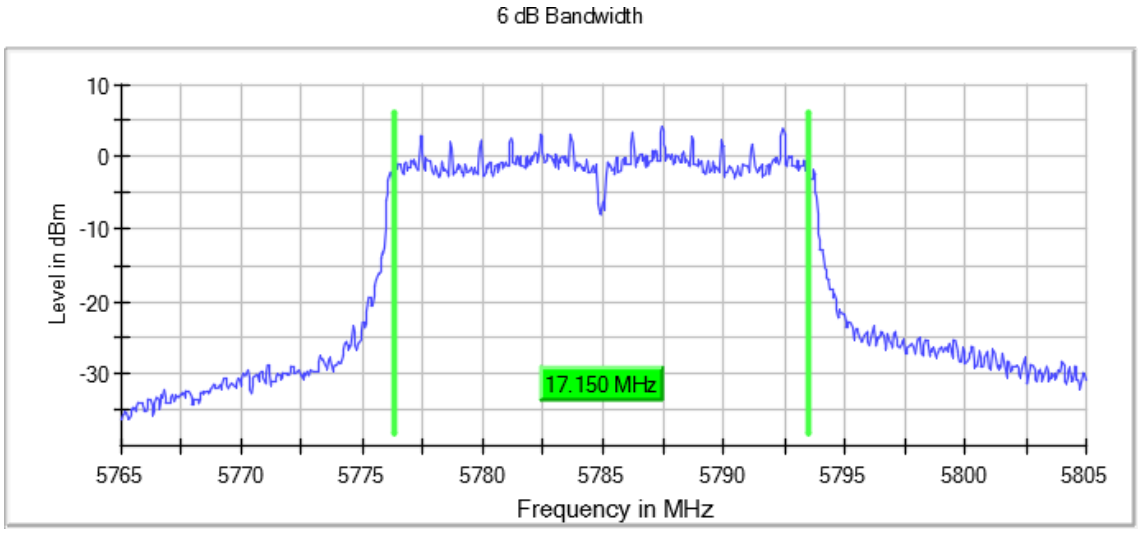
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



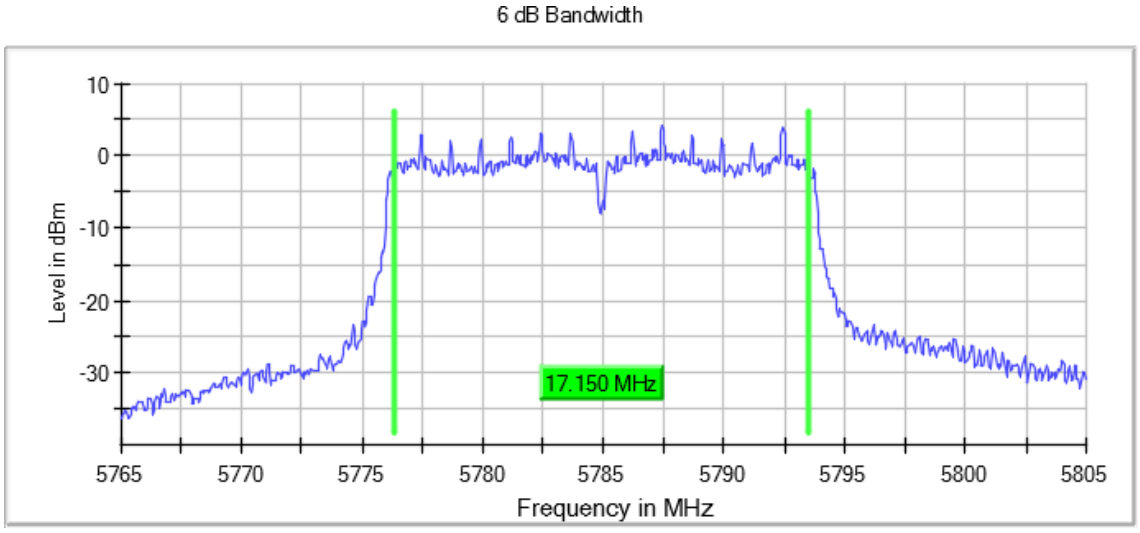
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



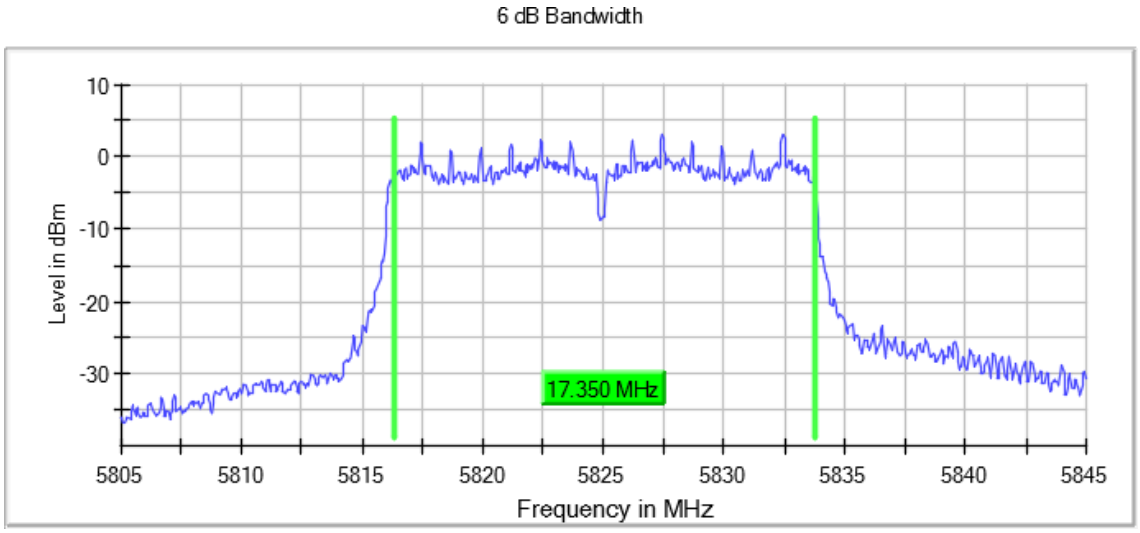
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



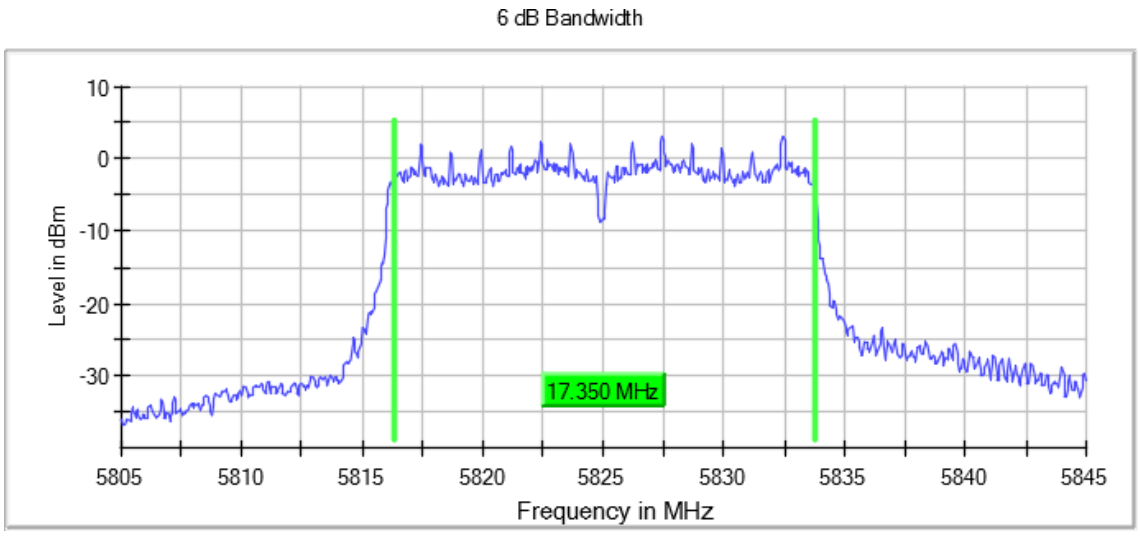
Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Images:



Modulation: 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

Results

Freq (MHz)	26Ebw (MHz)
5190.00000	35.750
5230.00000	35.850
5755.00000	35.900
5795.00000	35.900

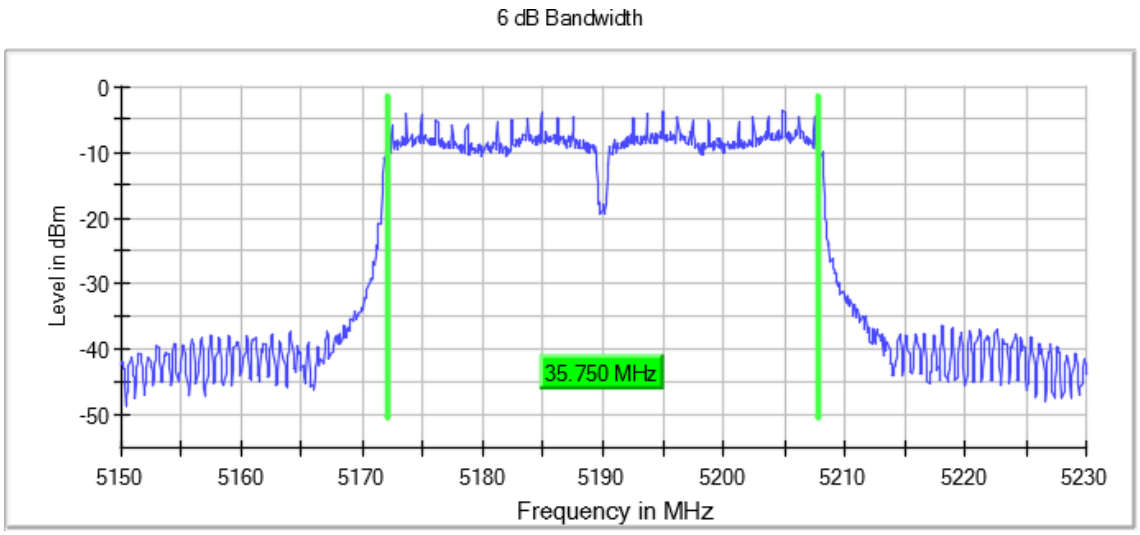
Verdict

Pass

Attachments

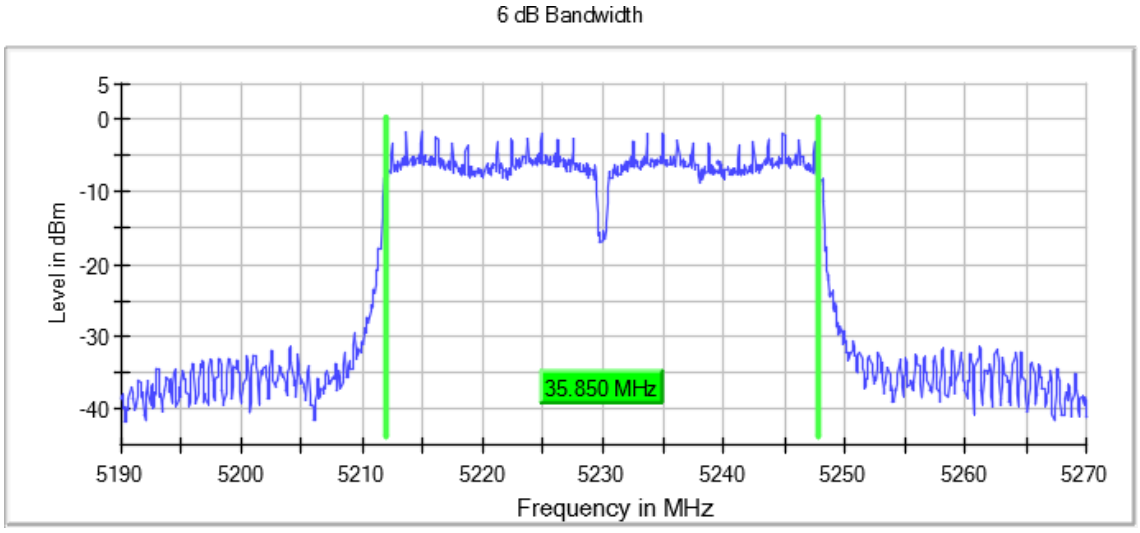
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



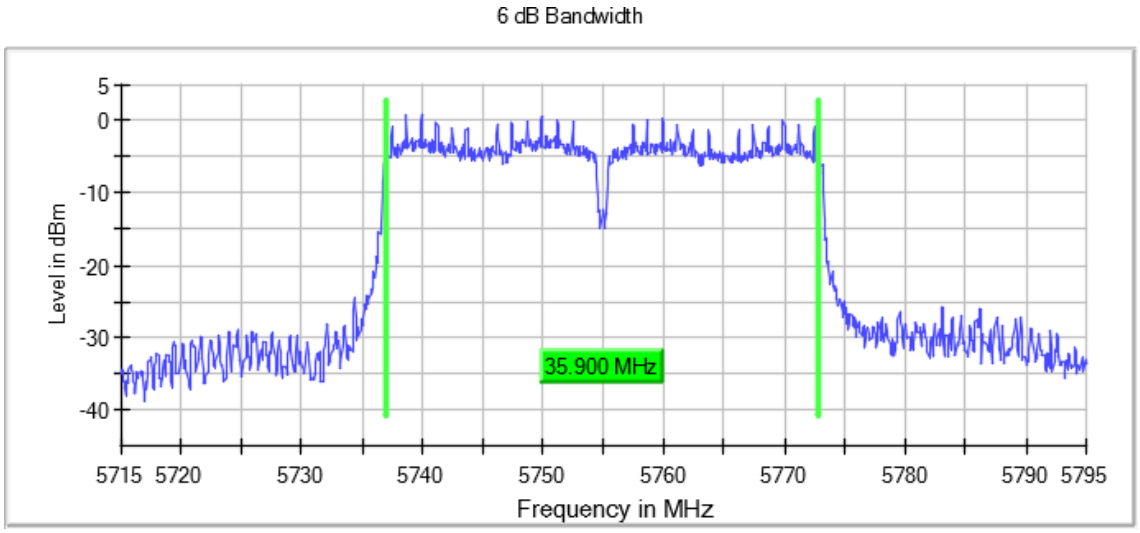
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



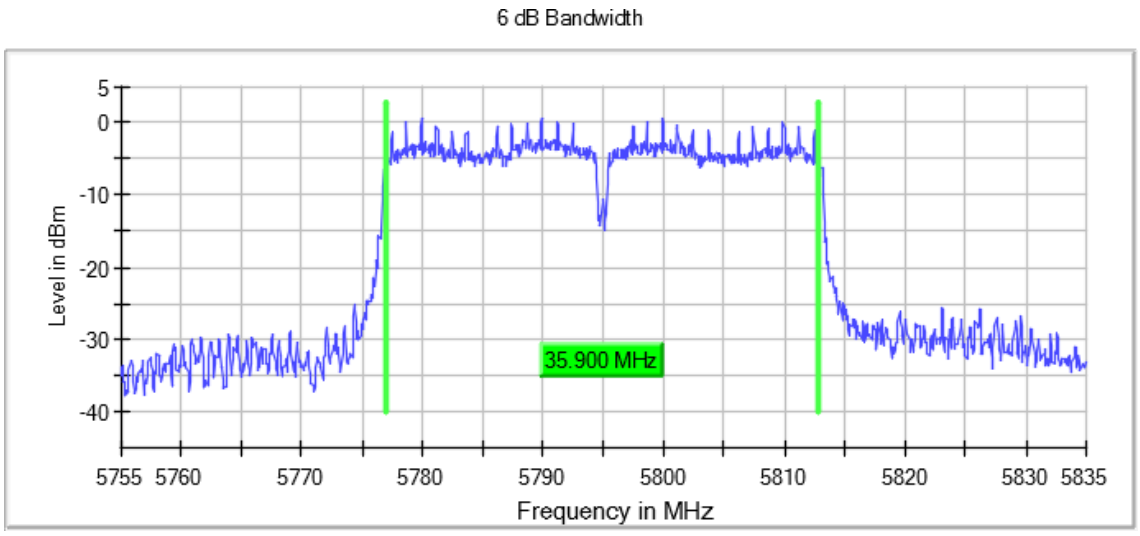
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s), Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT20 (OFDM MCS0)
Results

Freq (MHz)	26Ebw (MHz)
5180.00000	17.650
5200.00000	17.350
5240.00000	17.400
5745.00000	17.150
5785.00000	17.150
5825.00000	17.350

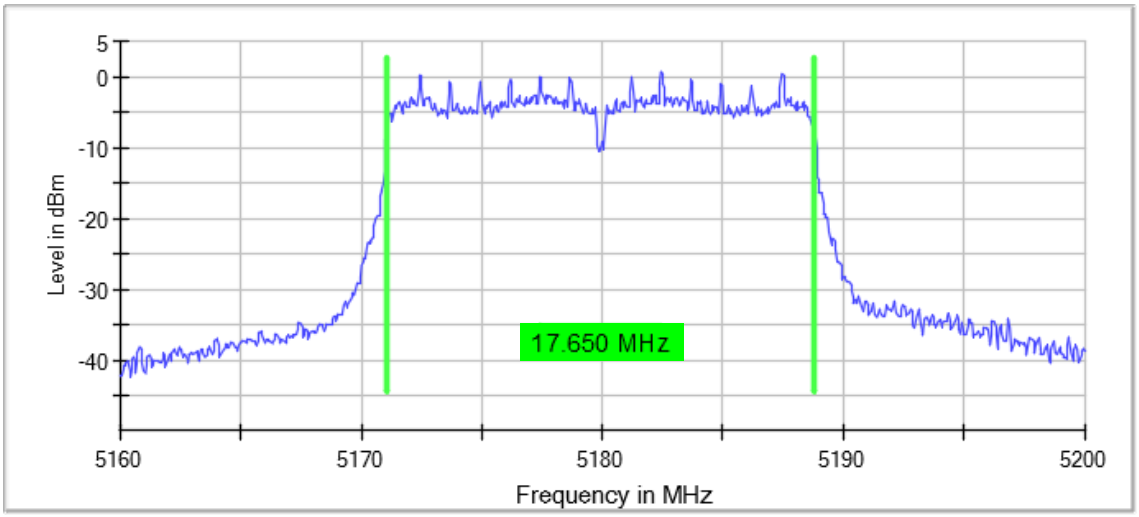
Verdict

Pass

Attachments

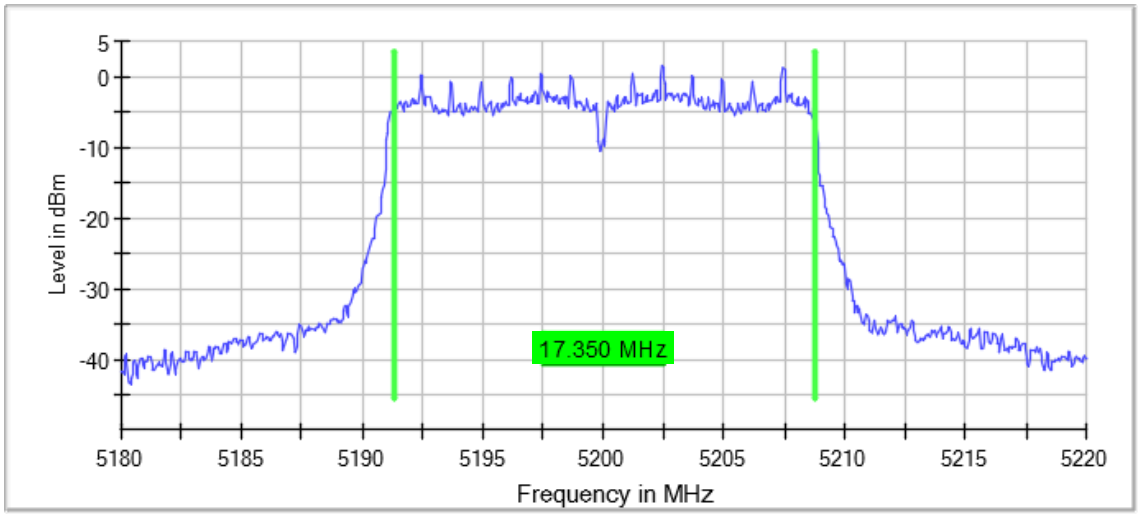
Active Port = 1, Frequency MHz = 5180.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



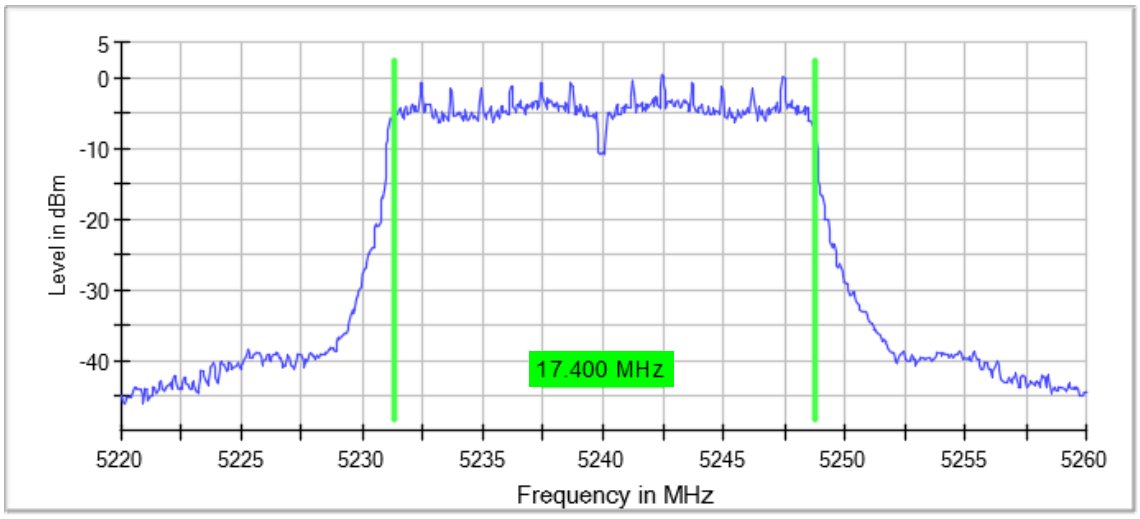
Active Port = 1, Frequency MHz = 5200.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



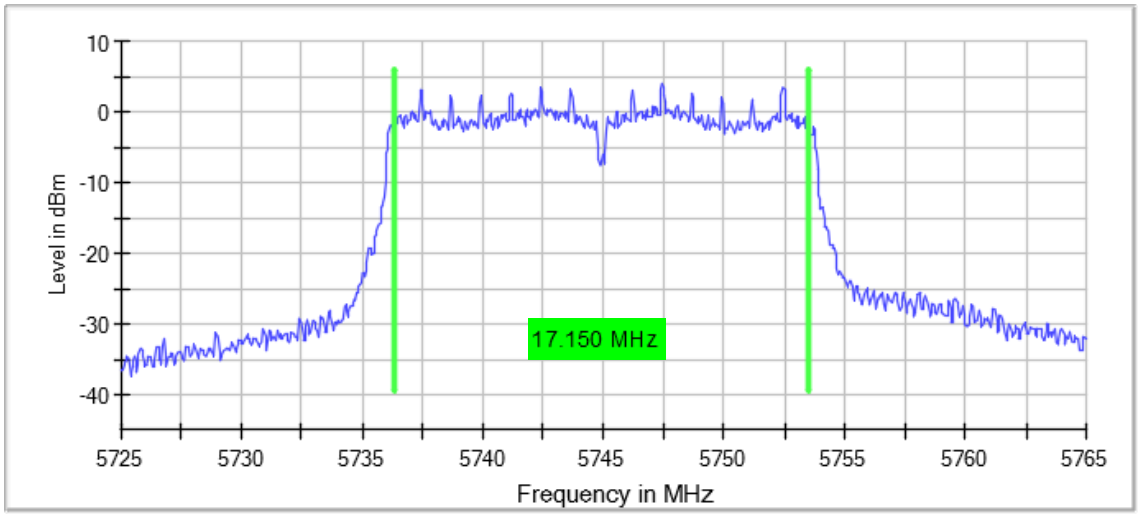
Active Port = 1, Frequency MHz = 5240.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



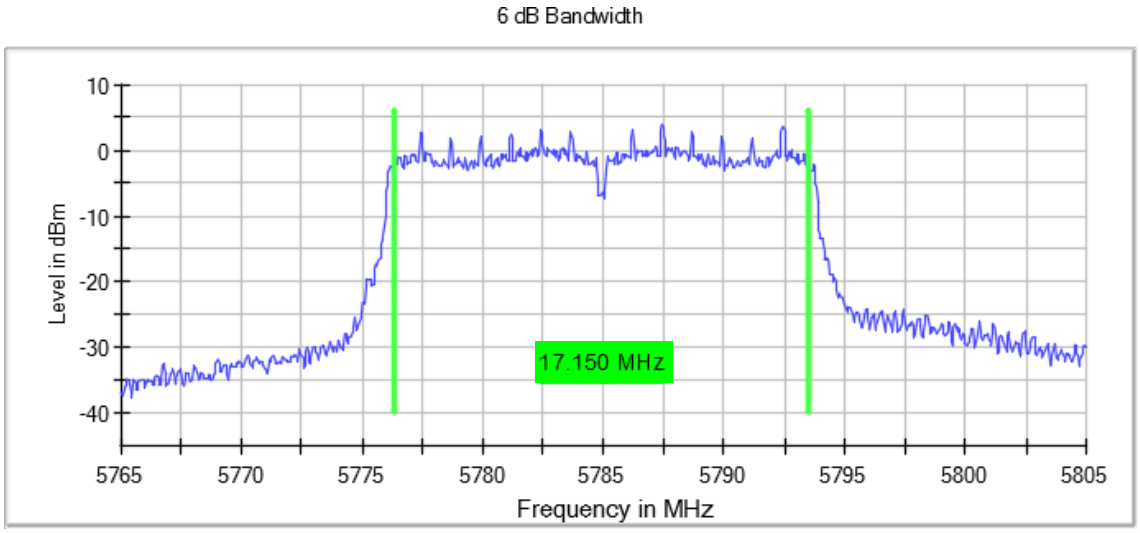
Active Port = 1, Frequency MHz = 5745.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



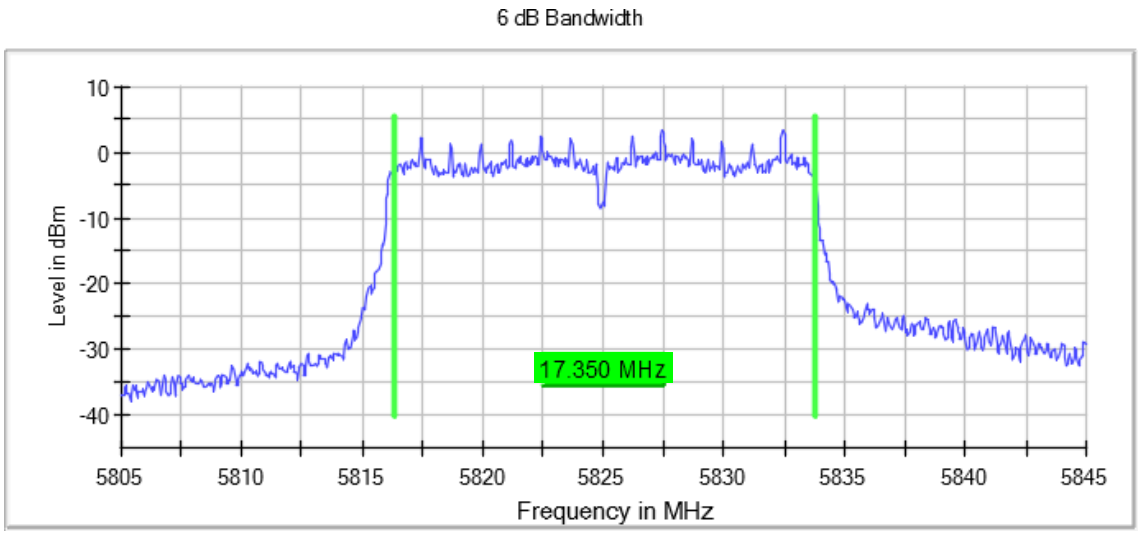
Active Port = 1, Frequency MHz = 5785.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5825.00000, Modulation = 802.11ac VHT20 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT40 SS1 (OFDM MCS0)
Results

Freq (MHz)	26Ebw (MHz)
5190.00000	35.850
5230.00000	35.900
5755.00000	35.900
5795.00000	35.600

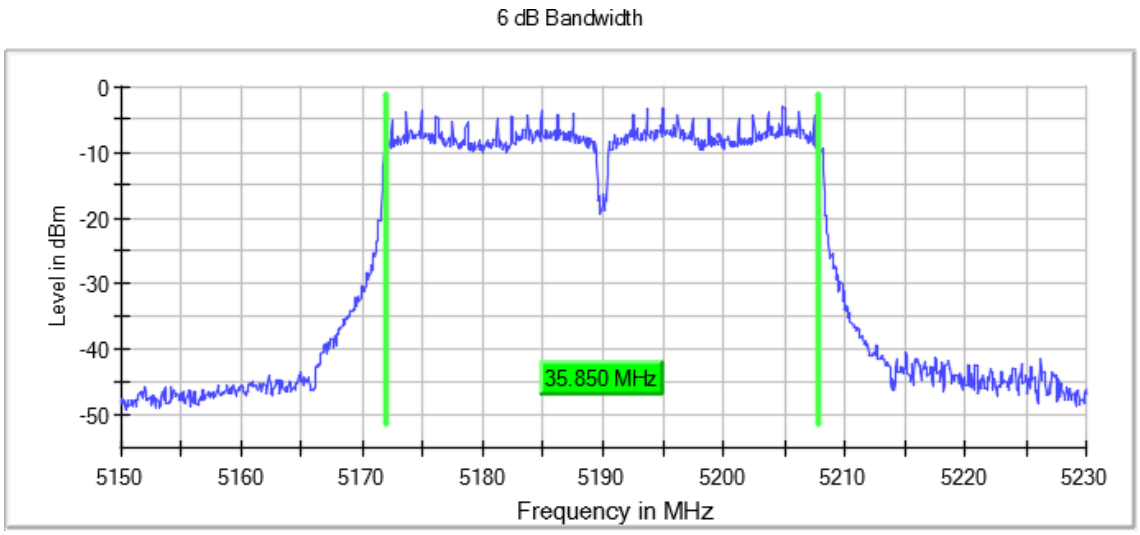
Verdict

Pass

Attachments

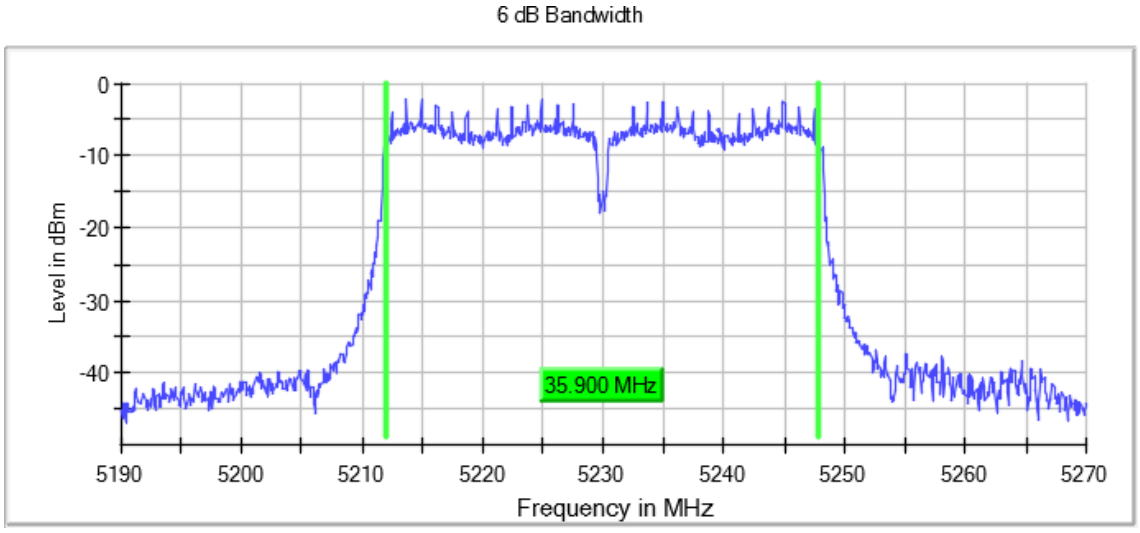
Active Port = 1, Frequency MHz = 5190.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



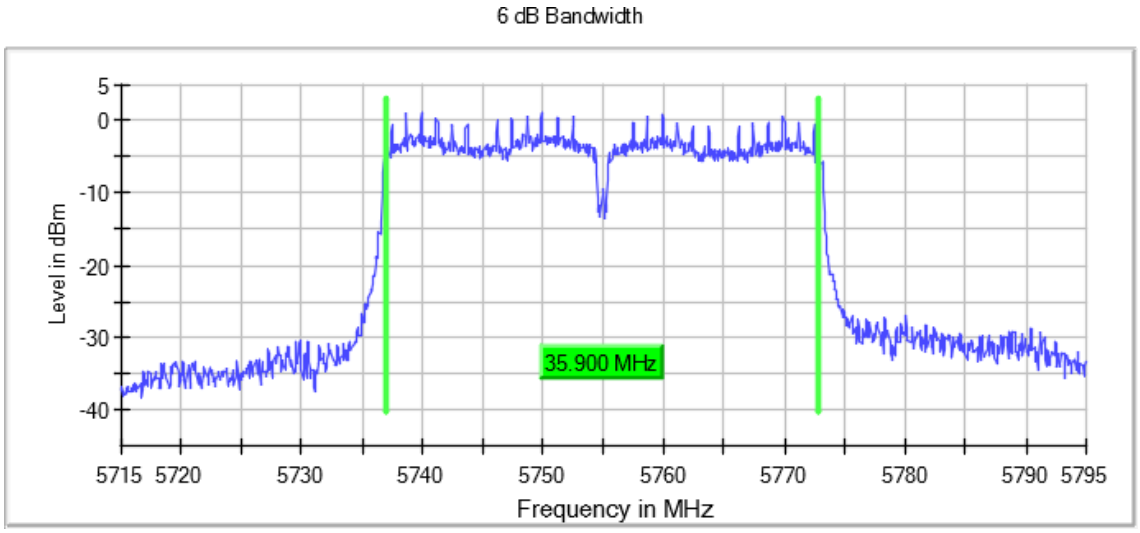
Active Port = 1, Frequency MHz = 5230.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



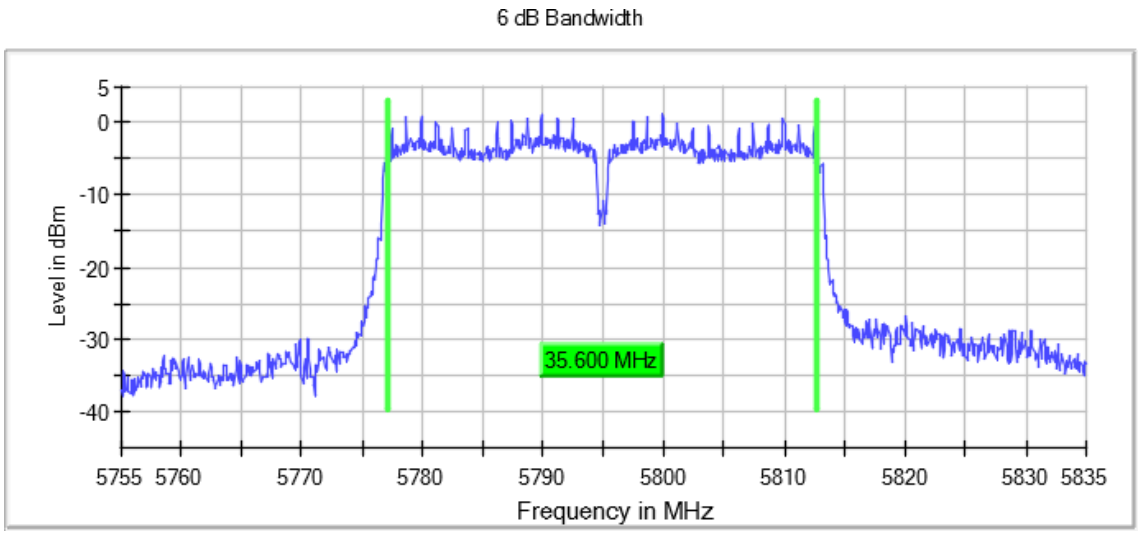
Active Port = 1, Frequency MHz = 5755.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5795.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Modulation: 802.11ac VHT80 SS1 (OFDM MCS0)
Results

Freq (MHz)	26Ebw (MHz)
5210.00000	76.450
5775.00000	76.400

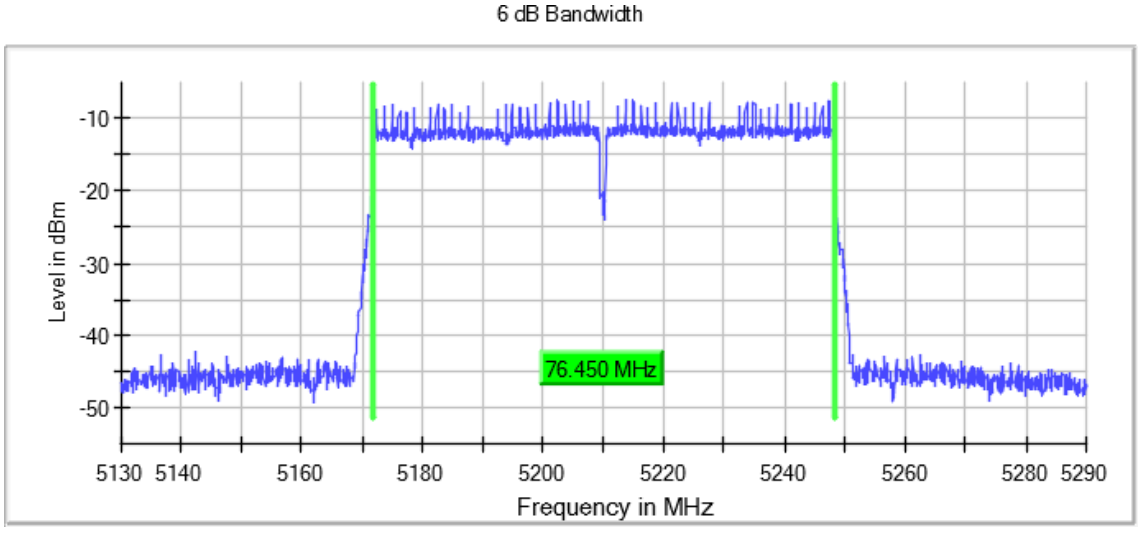
Verdict

Pass

Attachments

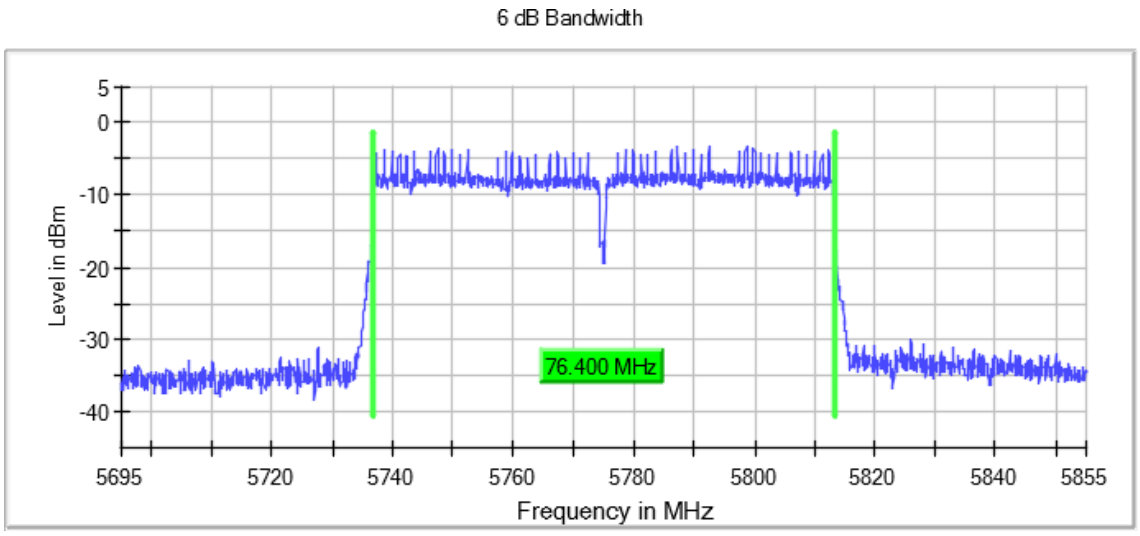
Active Port = 1, Frequency MHz = 5210.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Active Port = 1, Frequency MHz = 5775.00000, Modulation = 802.11ac VHT80 SS1 (OFDM MCS0), Number of Transmission Chains = 1

Images:



Measurement Setup

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.72500 GHz	5.76500 GHz	5.80500 GHz
Stop Frequency	5.76500 GHz	5.80500 GHz	5.84500 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	100.000 kHz	200.000 kHz	200.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
Sweep Points	800	800	800
Sweep time	56.836 µs	56.836 µs	56.836 µs
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	Max Peak	Max Peak	Max Peak
Sweep Count	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	50 / max. 150	72 / max. 150	62 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.19 dB	0.14 dB	0.19 dB

FCC 15.407 (b), 15.205 & 15.209 / RSS-Gen 8.9 & 8.10 Undesirable radiated emissions

Limits

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)):

Frequency Range (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	300
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 40000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

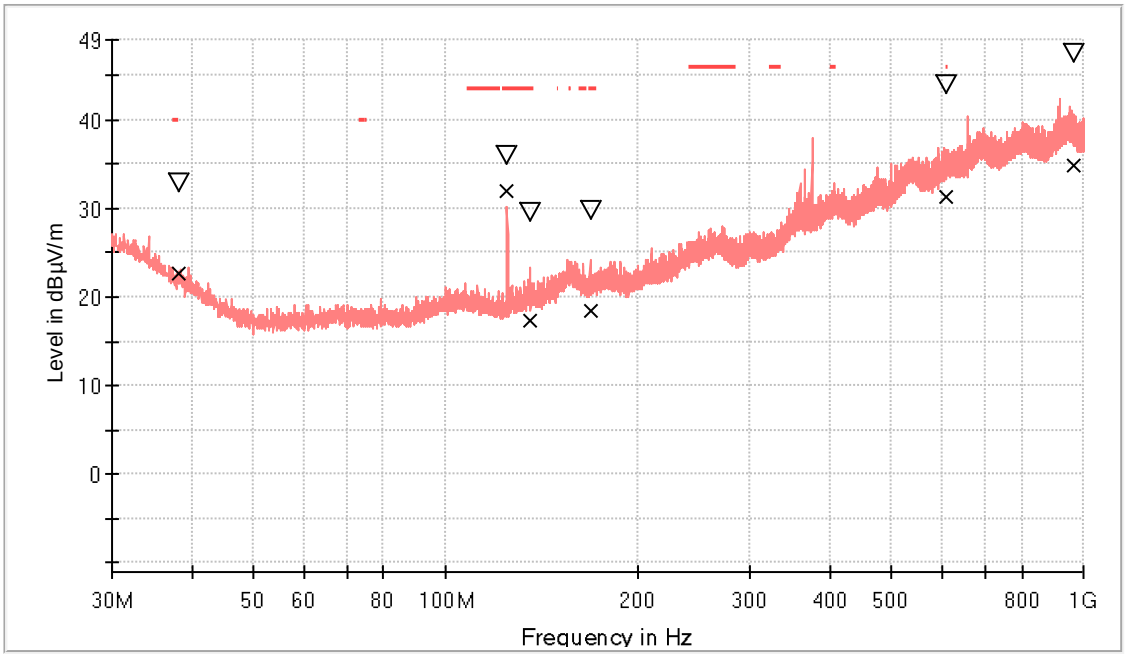
Modulation: 802.11n HT20 (OFDM MCS0)
Results

Verdict

Pass

Frequency Range GHz = [0.03, 1], Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

Images:



PK+_MAXH
MaxPeak-PK+ (Single)
TX limits to Spurious Emission FCC15.407 (30MHz to 1GHz) Restricted Bands QPK Limit
QuasiPeak-QPK (Single)

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Pol	Azimuth (deg)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
38.196500	32.9	22.8	V	0.0	17.2	40.0
124.963000	36.0	32.0	V	17.0	11.5	43.5
135.633000	29.5	17.4	V	0.0	26.1	43.5
168.370500	29.7	18.4	H	-58.0	25.1	43.5
611.030000	43.8	31.2	V	-54.0	14.8	46.0
963.431000	47.4	34.8	H	-52.0	19.2	54.0

Modulation: 802.11n HT20 (OFDM MCS0)
Results

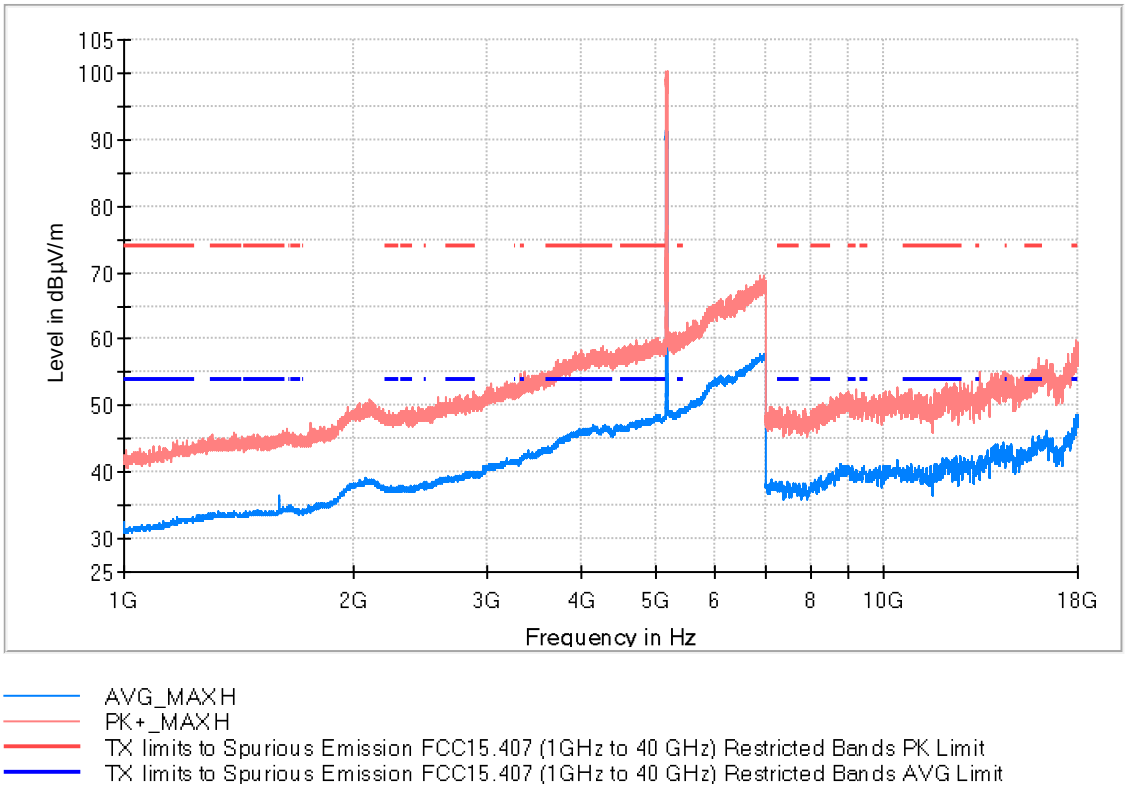
Verdict

Pass

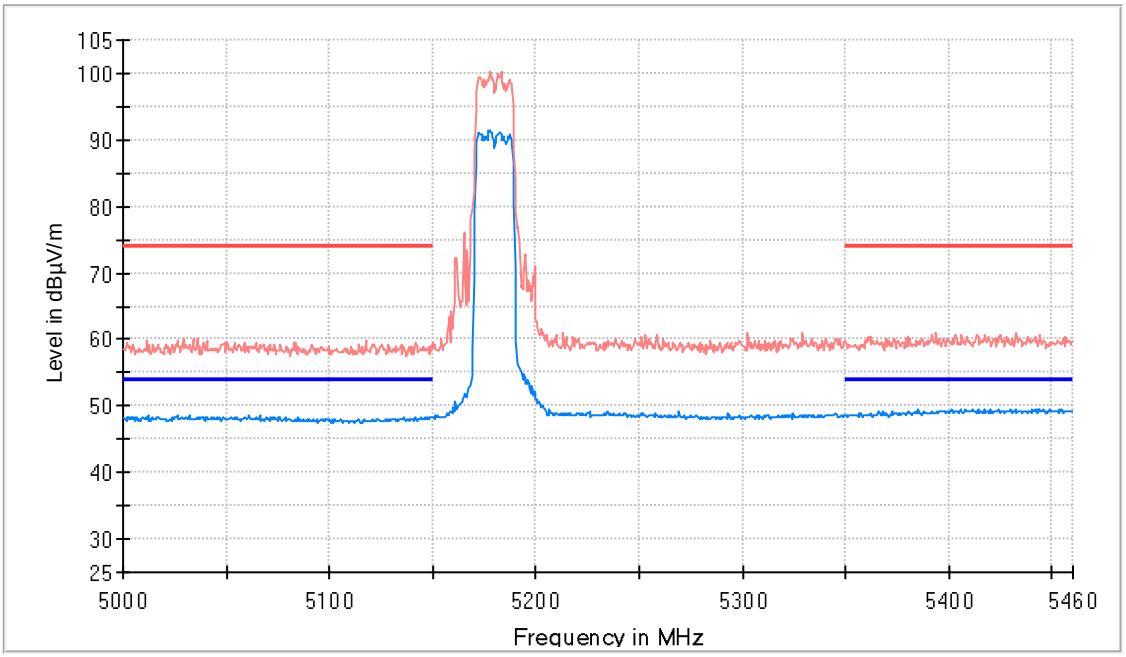
Attachments

Frequency Range GHz = [1, 18], Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

Images:



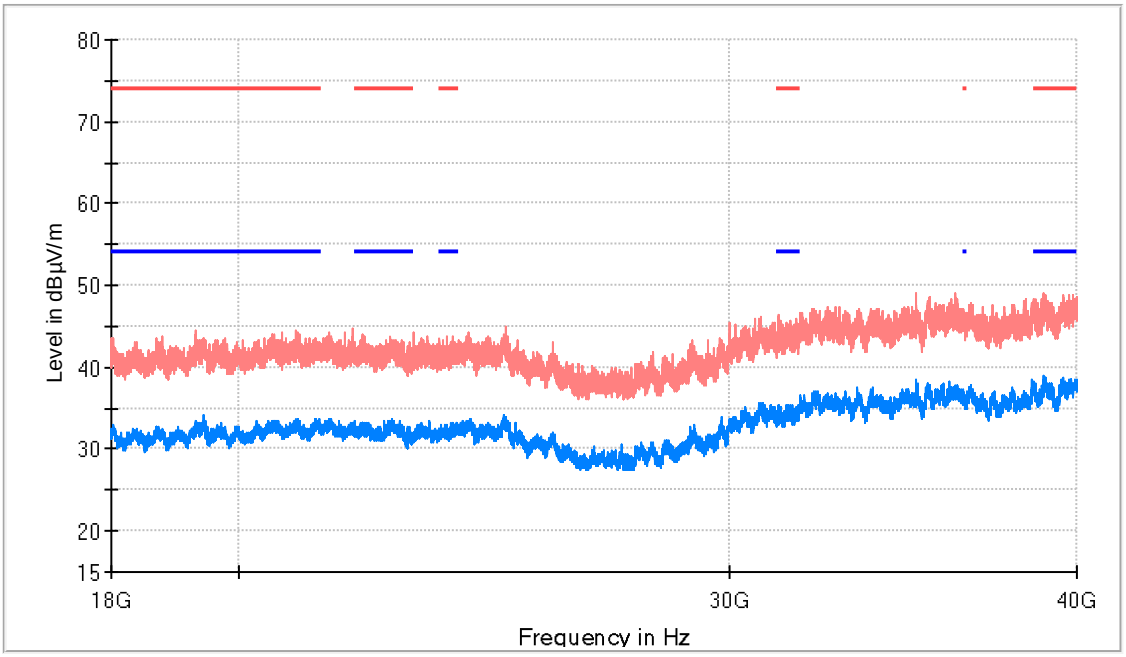
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5177.500000	99.9	91.4	H	---	---	Fundamental
15982.500000	57.1	45.2	H	8.8	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

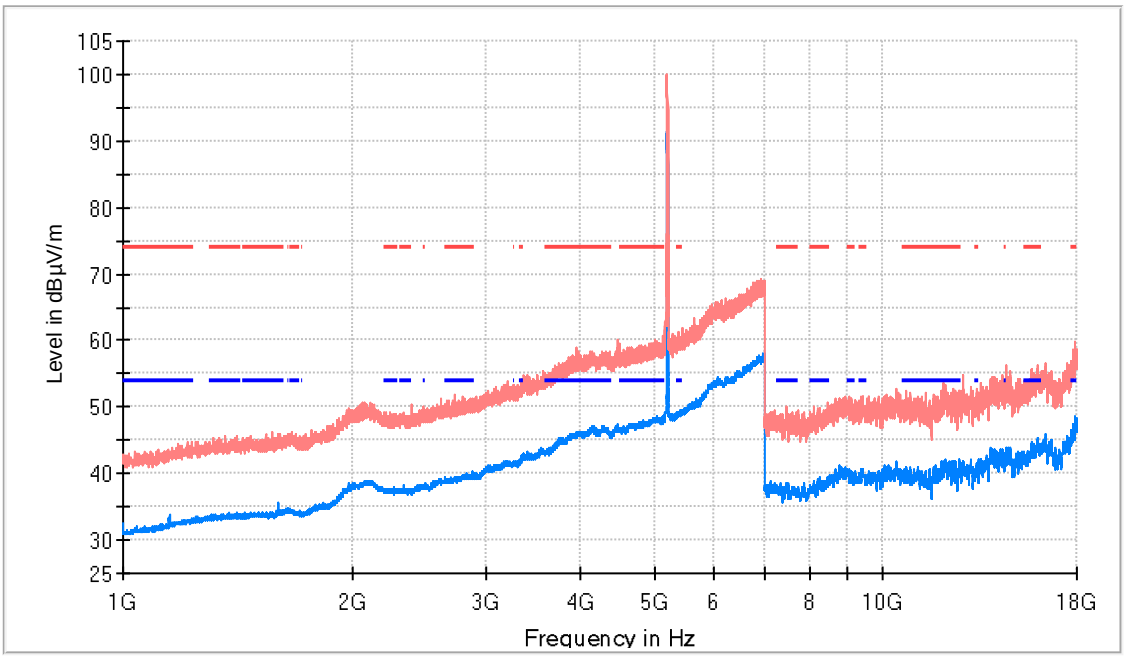
Frequency Range GHz = [18, 40], Frequency MHz = 5180.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

Images:

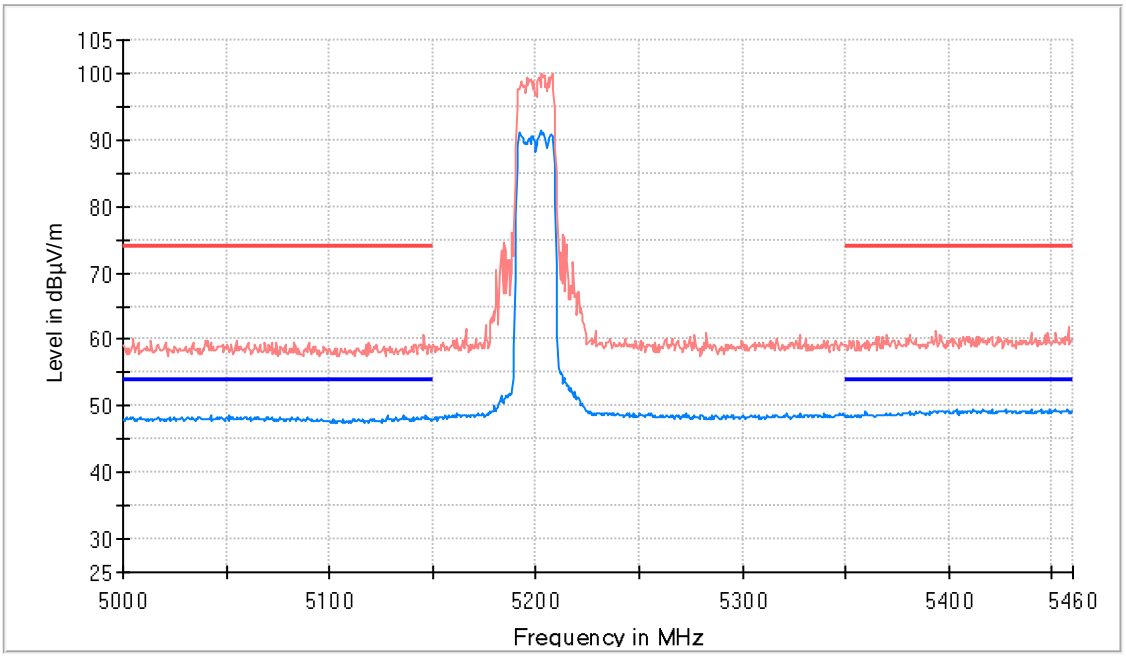


Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
38935.750000	47.8	38.9	H	15.1	54.0

Frequency Range GHz = [1, 18], Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

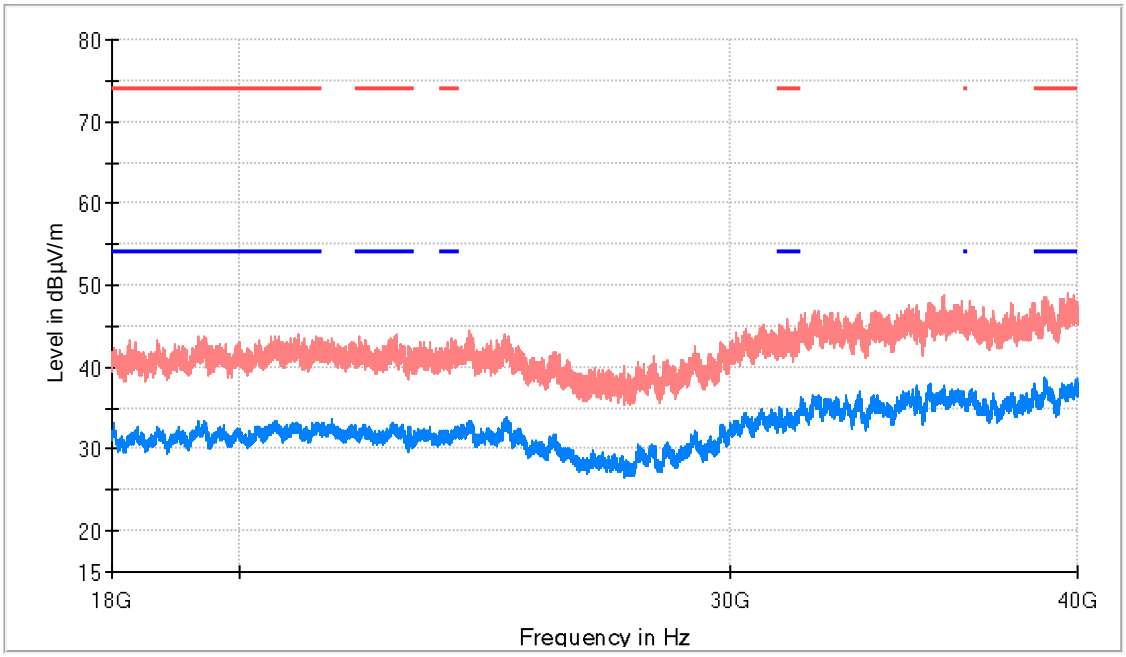


Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5202.000000	98.0	91.4	H	---	---	Fundamental
17934.50000	59.8	47.7	V	6.3	54.0	



AVG_MAXH
PK+_MAXH
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5200.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

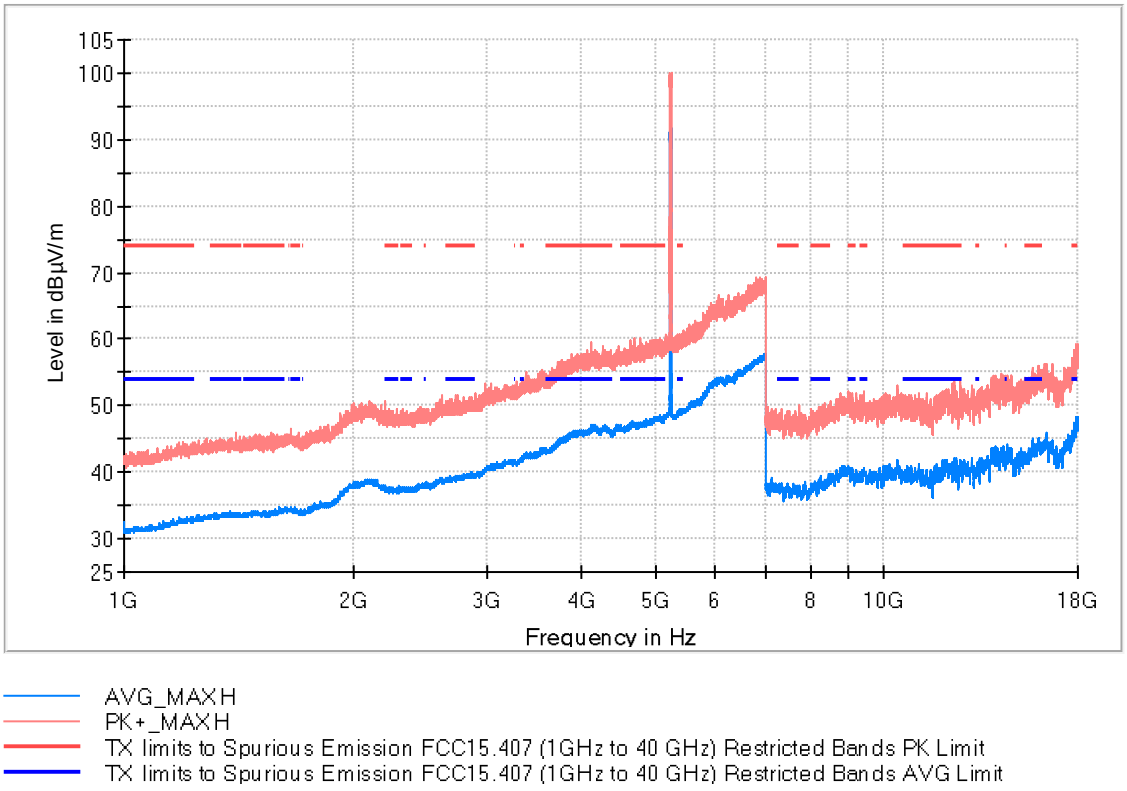


AVG_MAXH
PK+_MAXH
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

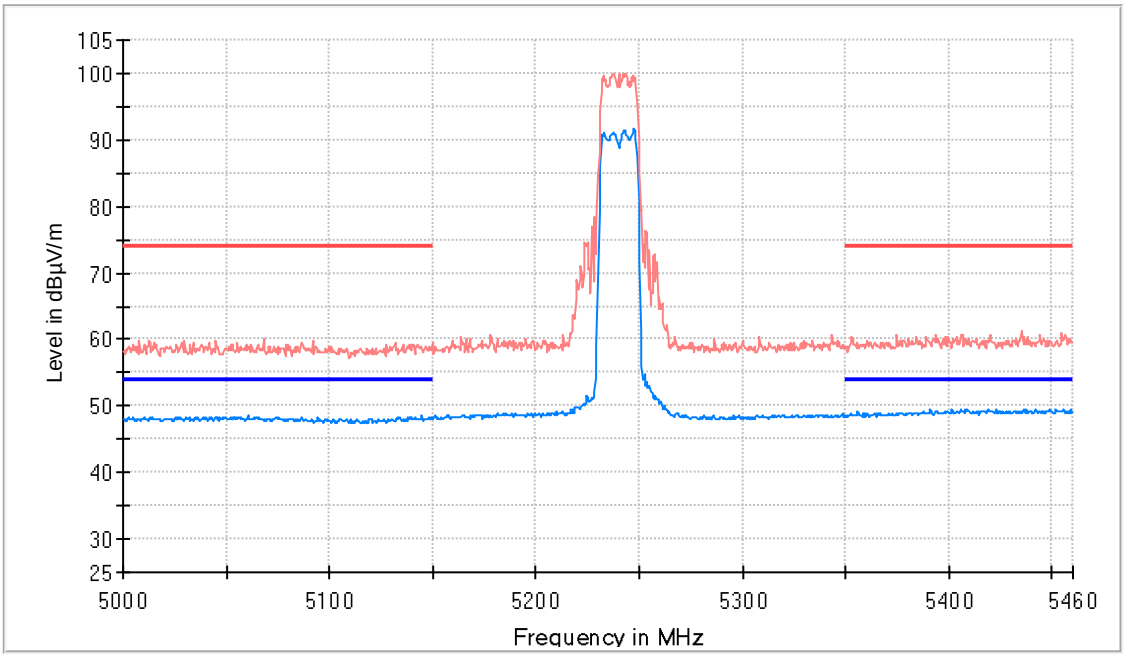
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
38931.625000	47.7	38.8	V	15.2	54.0

Frequency Range GHz = [1, 18], Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

Images:



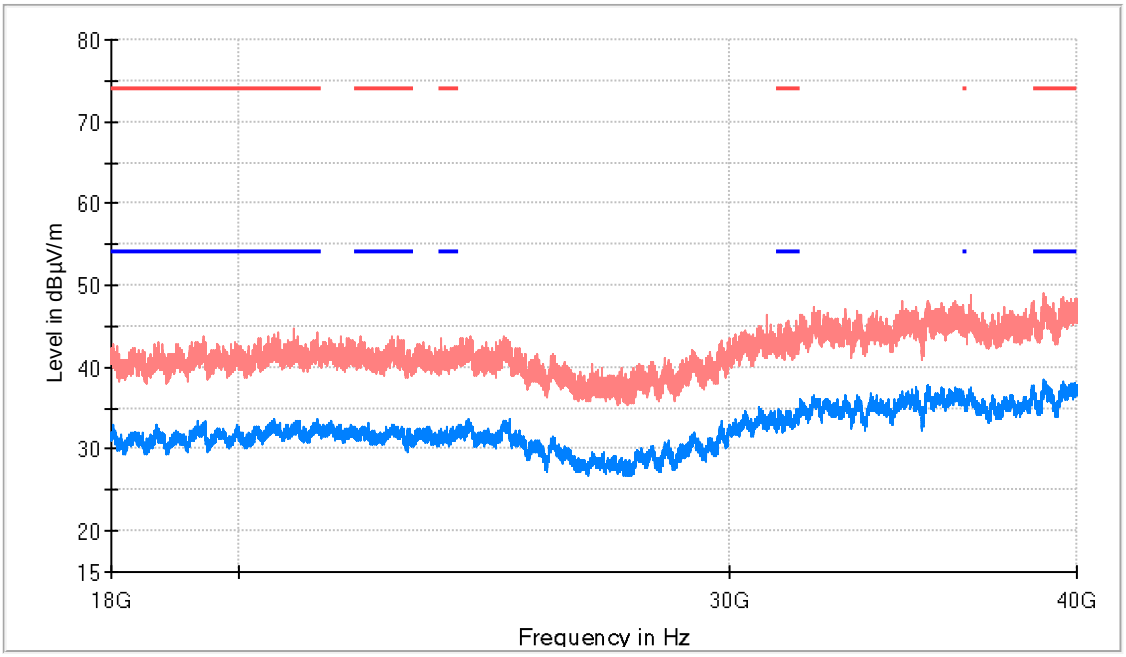
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5247.500000	98.7	91.7	H	---	---	Fundamental
15957.500000	56.0	44.2	H	9.8	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5240.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

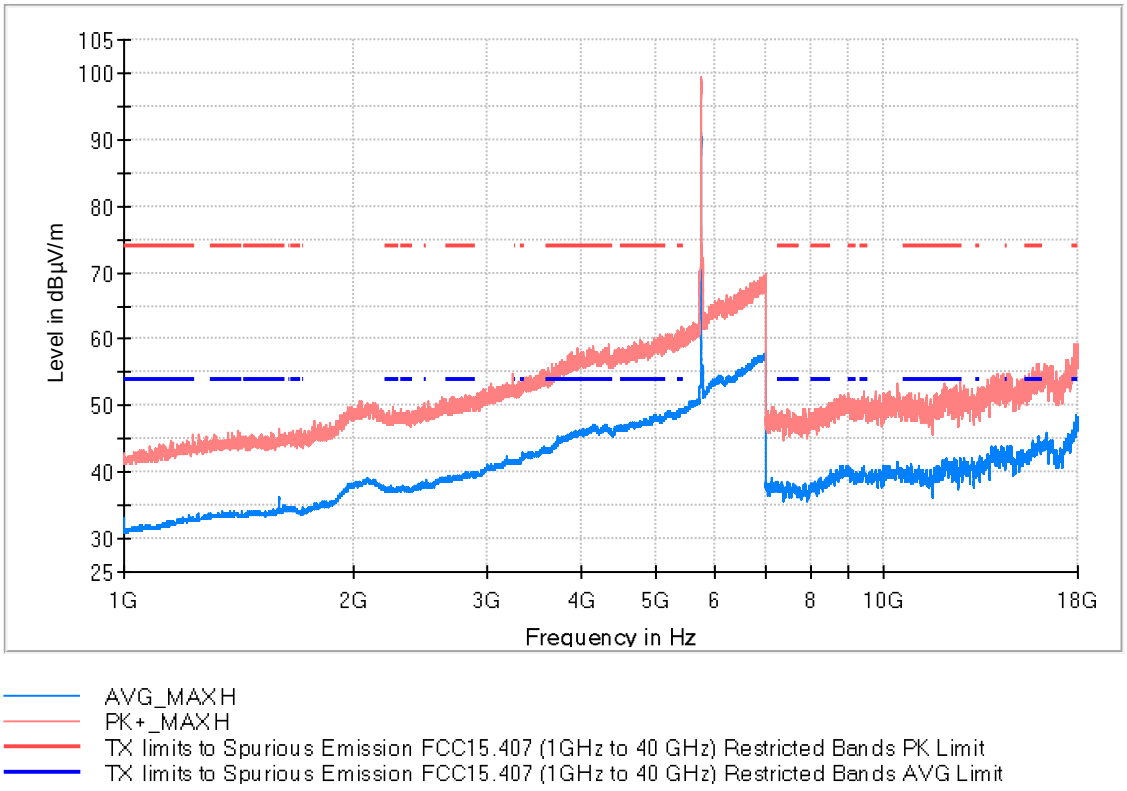
Images:



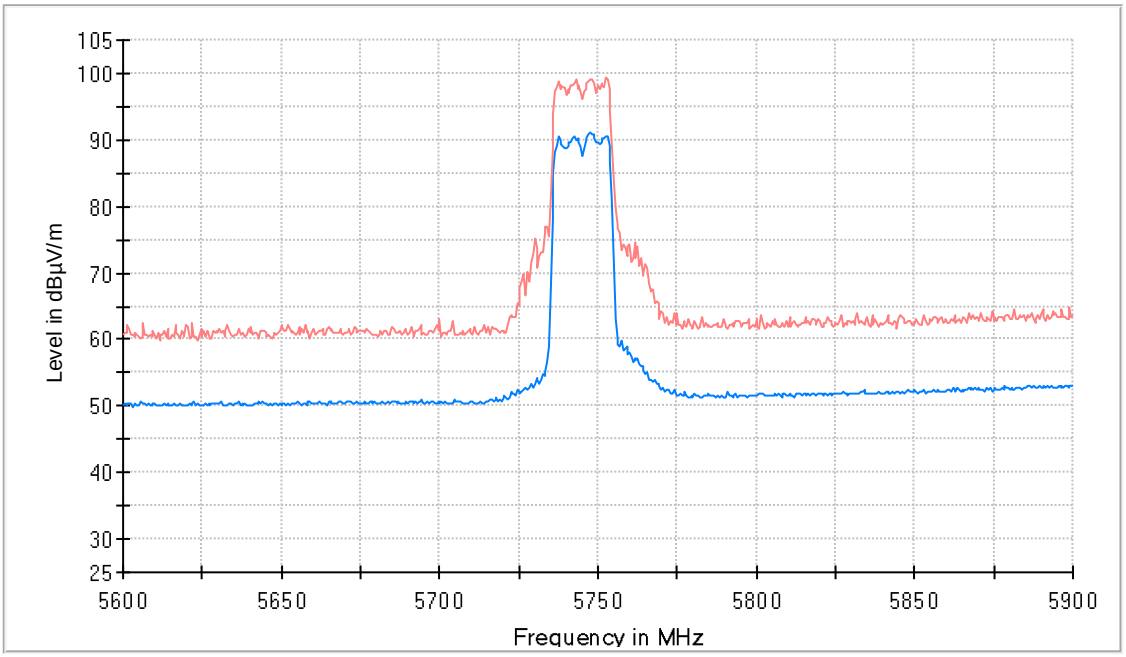
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
38928.875000	46.8	38.5	H	15.5	54.0

Frequency Range GHz = [1, 18], Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

Images:



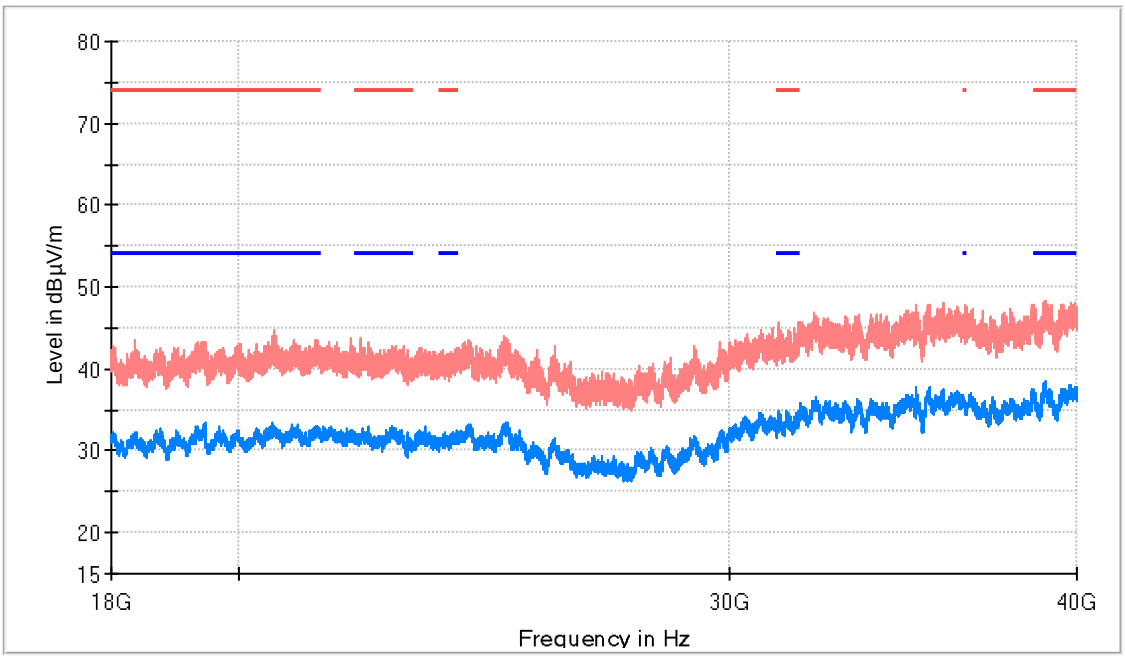
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5747.500000	99.1	91.1	V	---	---	Fundamental
11988.00000	53.4	41.2	V	12.8	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5745.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

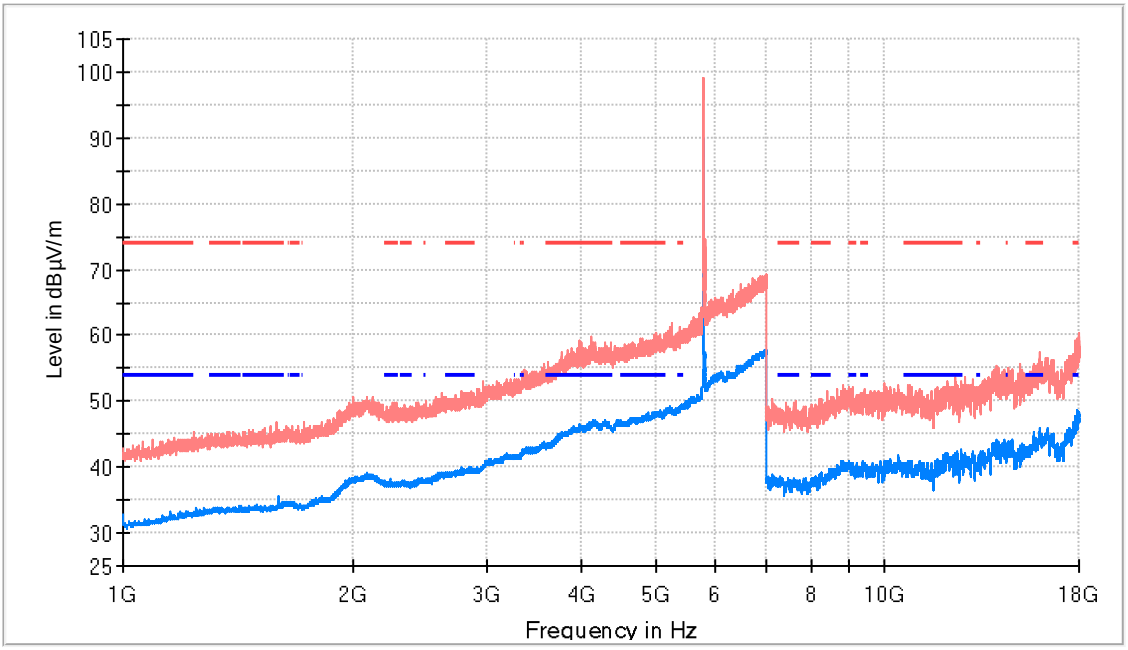
Images:



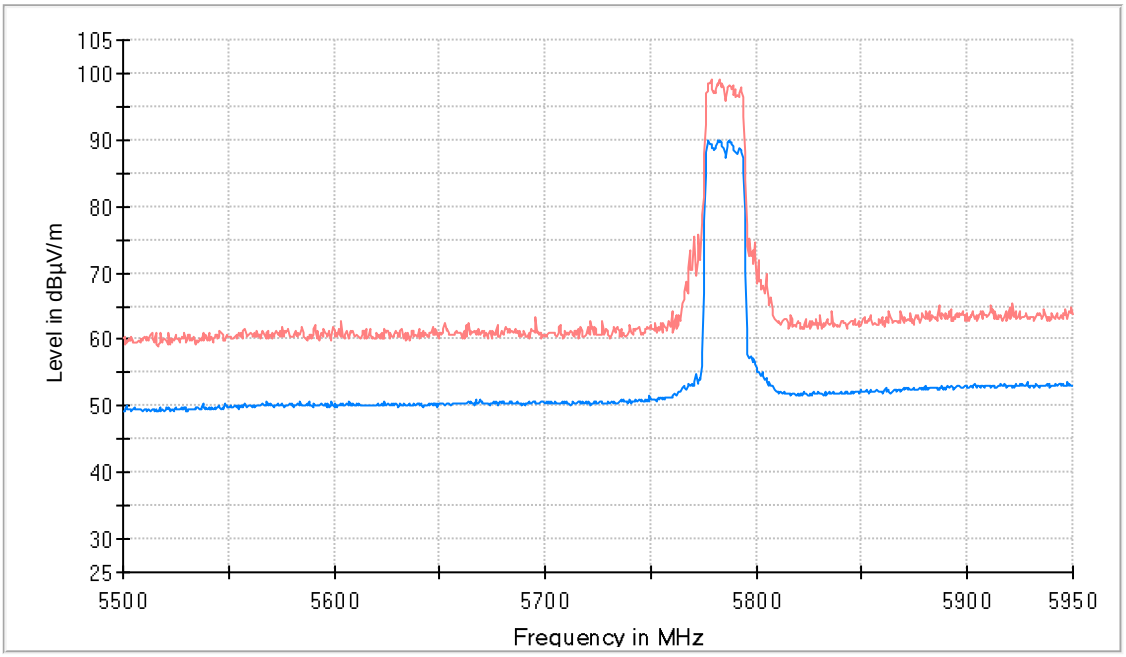
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
38944.687500	46.5	38.5	H	15.5	54.0

Frequency Range GHz = [1, 18], Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

Images:



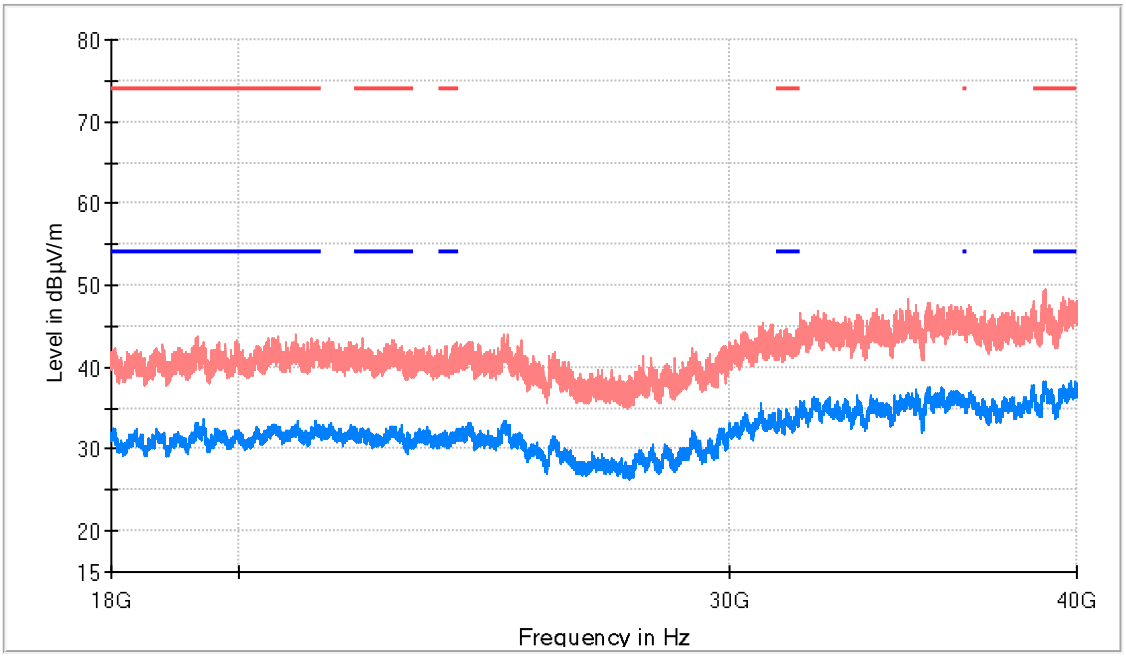
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5782.000000	98.1	90.0	V	---	---	Fundamental
15978.00000	54.3	46.0	V	8.0	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5785.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

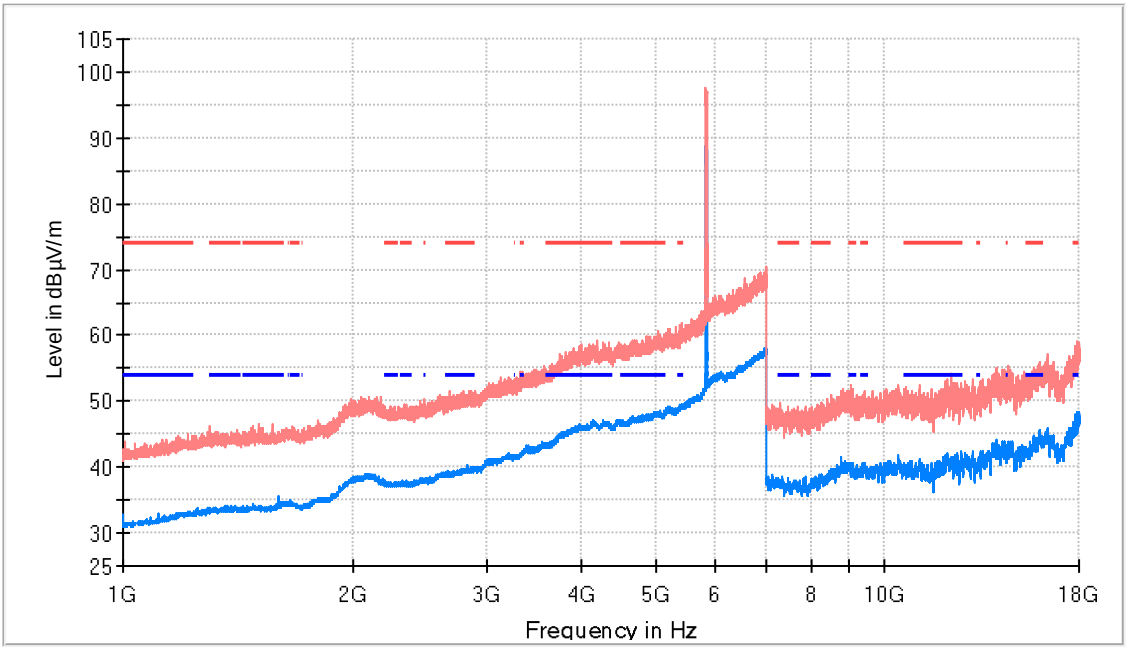
Images:



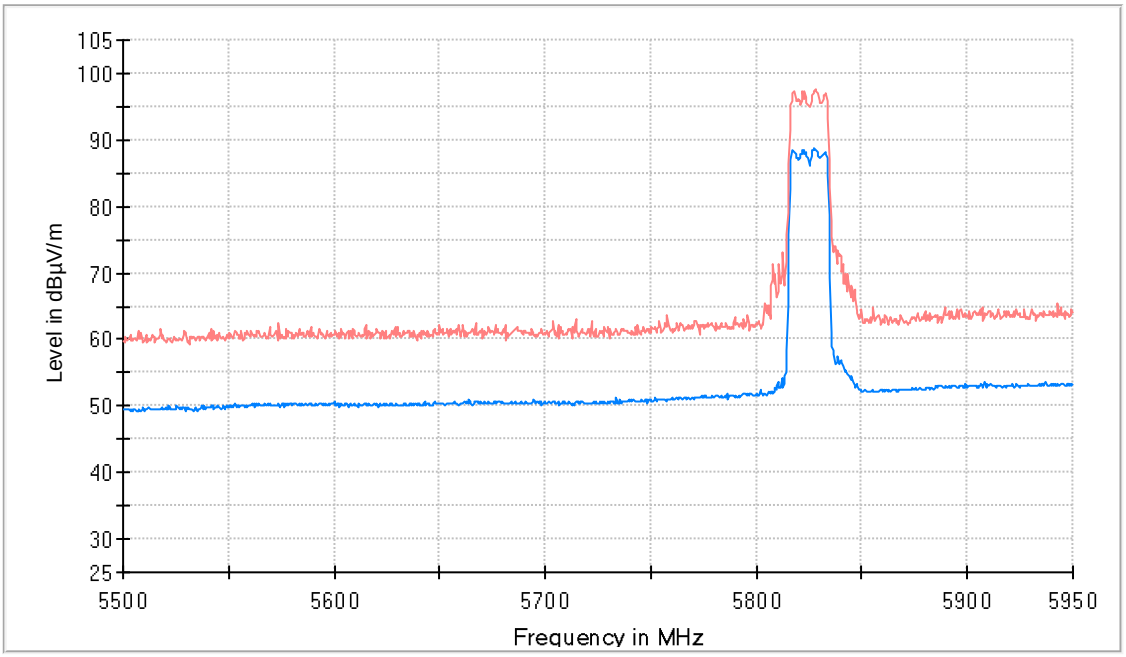
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39802.000000	46.0	38.3	V	15.7	54.0

Frequency Range GHz = [1, 18], Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

Images:



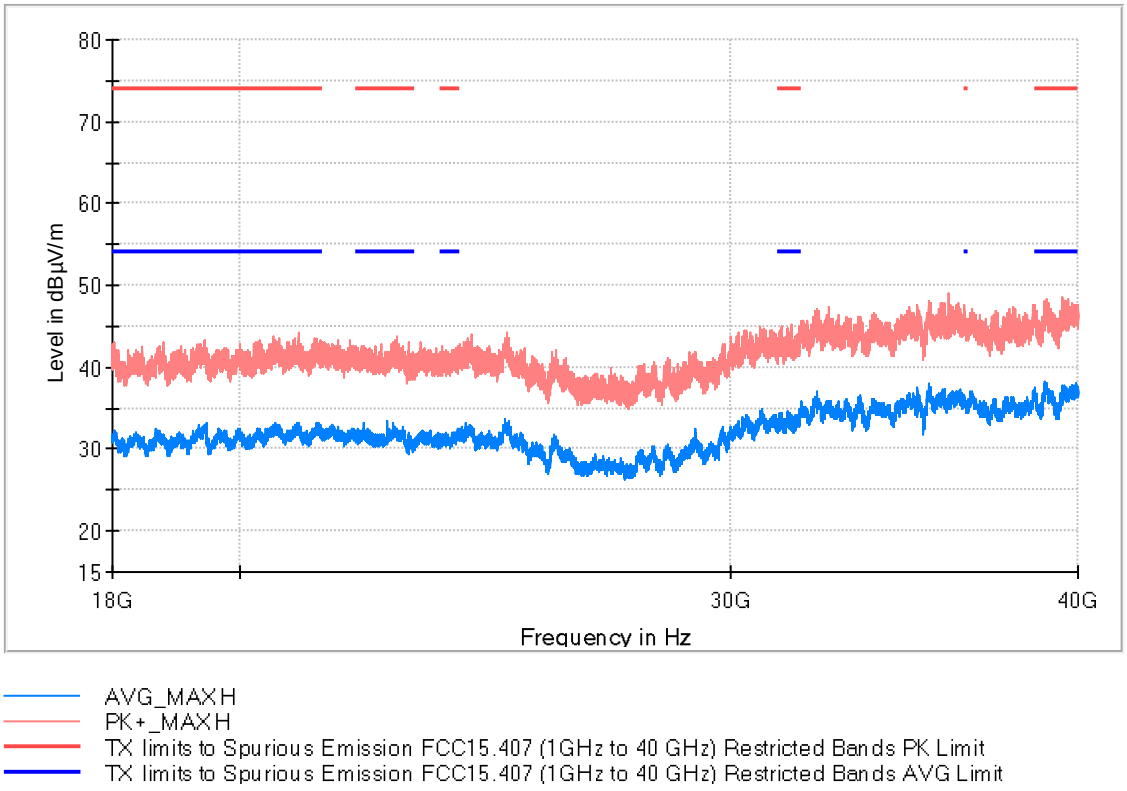
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5827.500000	97.2	88.7	V	---	---	Fundamental
17915.50000	57.7	48.4	H	5.6	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5825.00000, Modulation = 802.11n HT20 (OFDM MCS0), Measurement Point = 1

Images:



Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
38939.875000	46.9	38.2	H	15.9	54.0

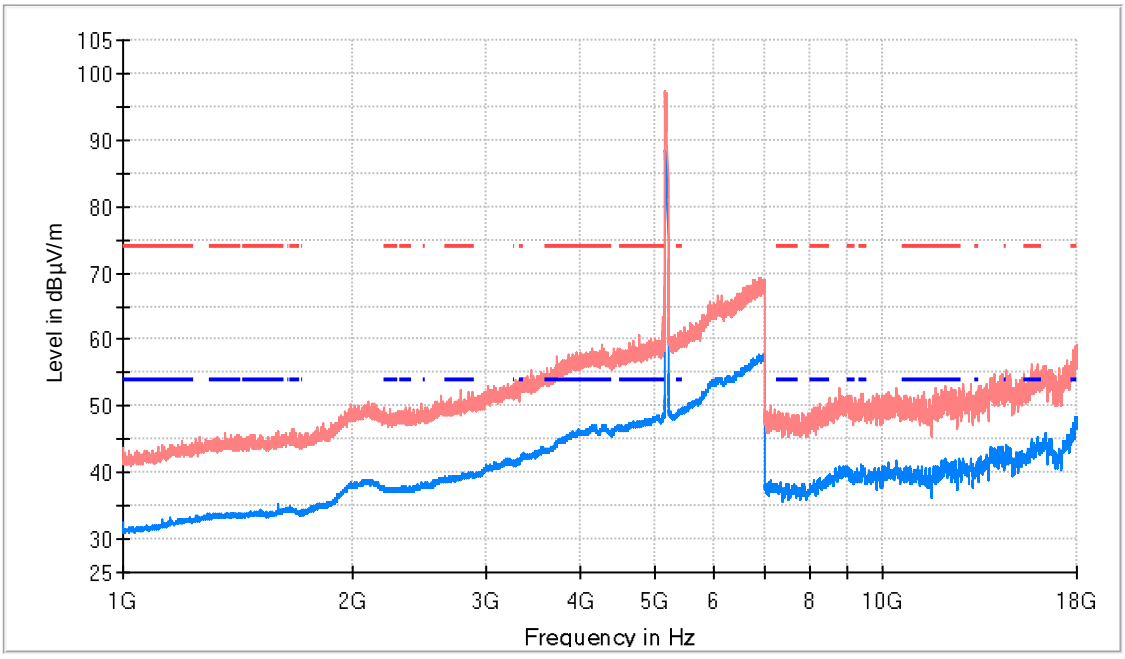
Modulation: 802.11ac VHT40 SS1 (OFDM MCS0)
Results

Verdict

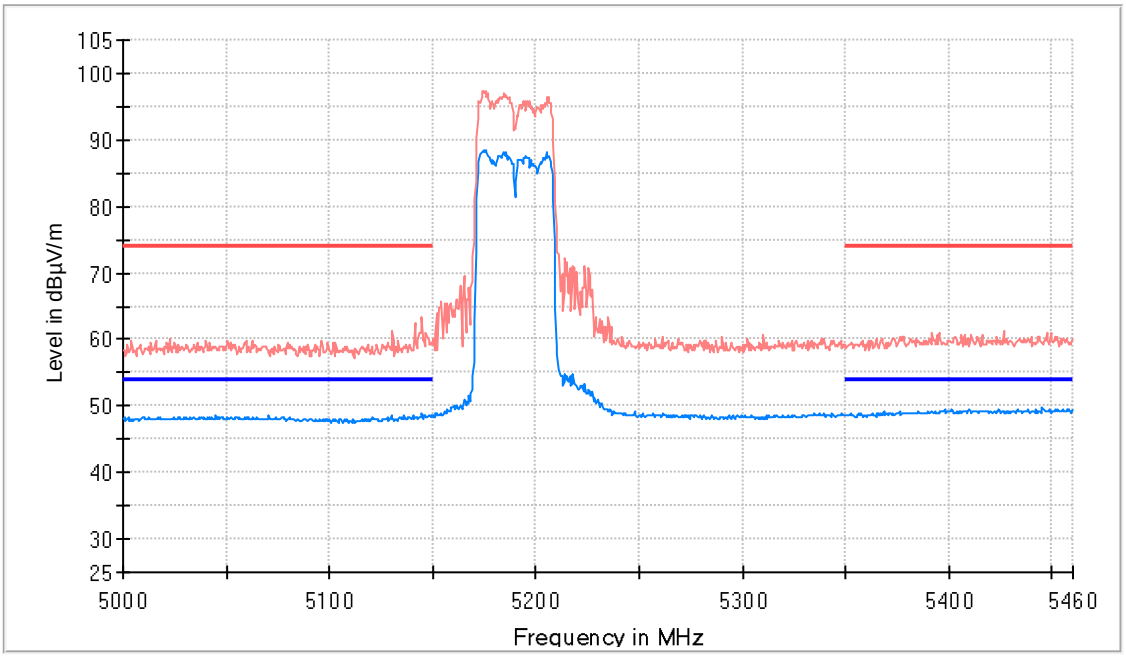
Pass

Frequency Range GHz = [1, 18], Frequency MHz = 5190.00000, Modulation = 802.11ac HT40 (OFDM MCS0), Measurement Point = 1

Images:



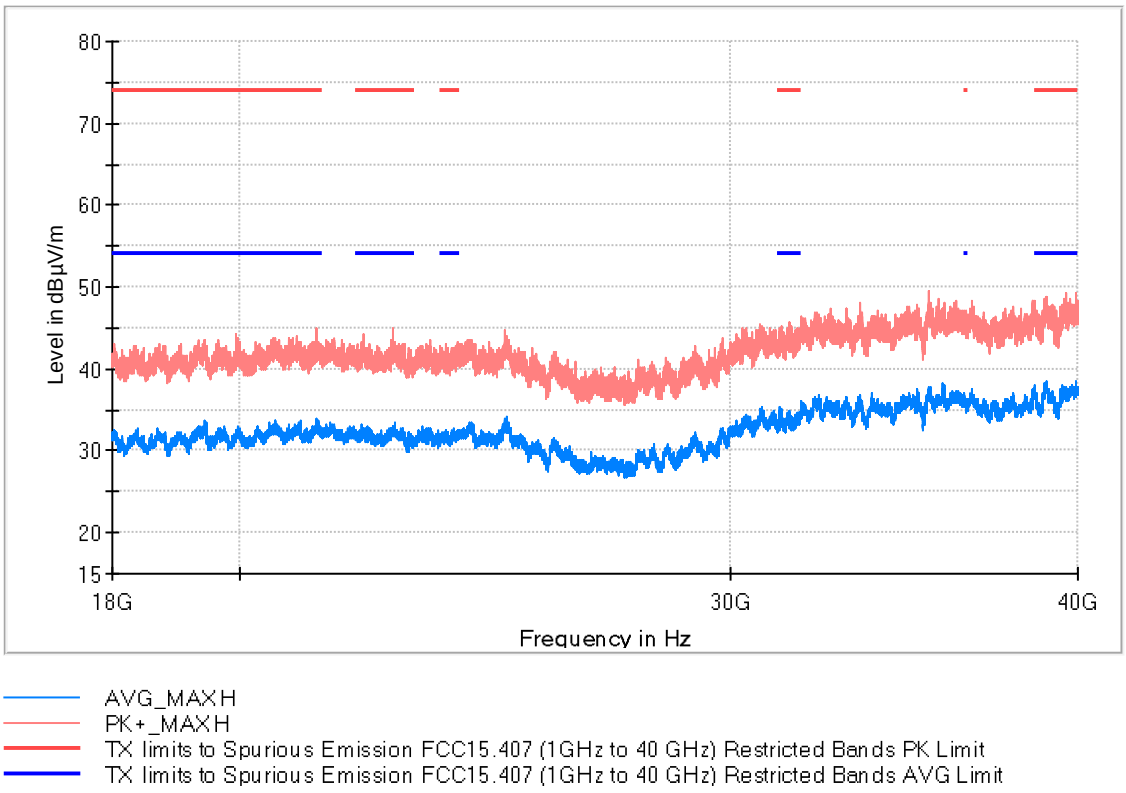
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5175.500000	97.4	88.4	H	---	---	Fundamental
15668.00000	55.7	43.2	H	10.8	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5190.00000, Modulation = 802.11ac HT40 (OFDM MCS0), Measurement Point = 1

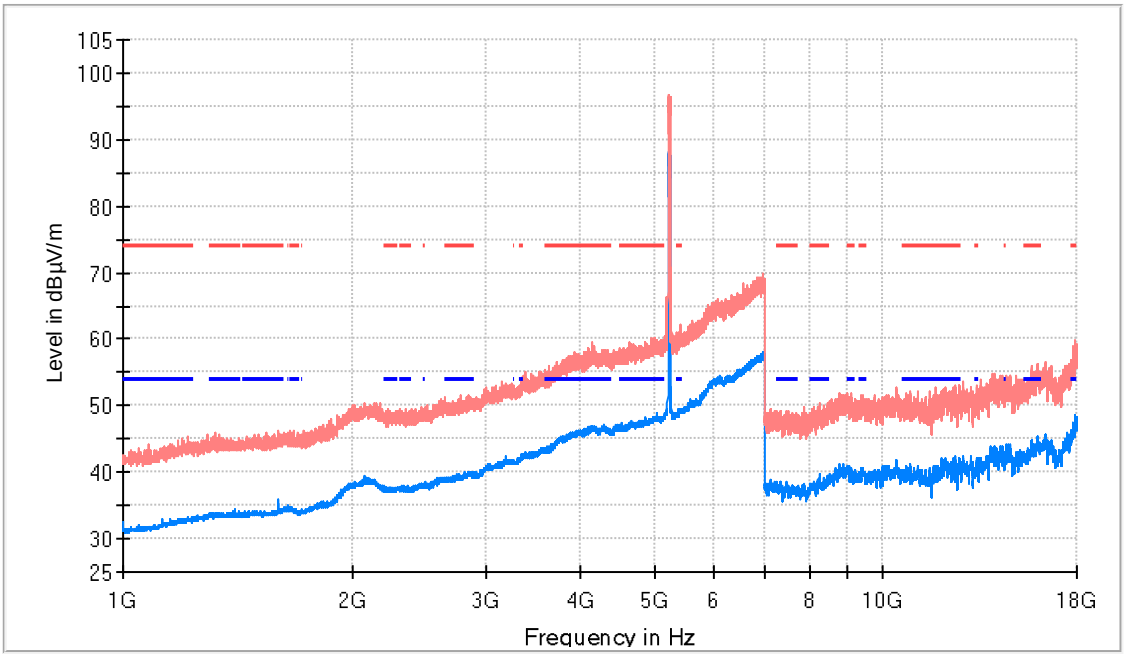
Images:



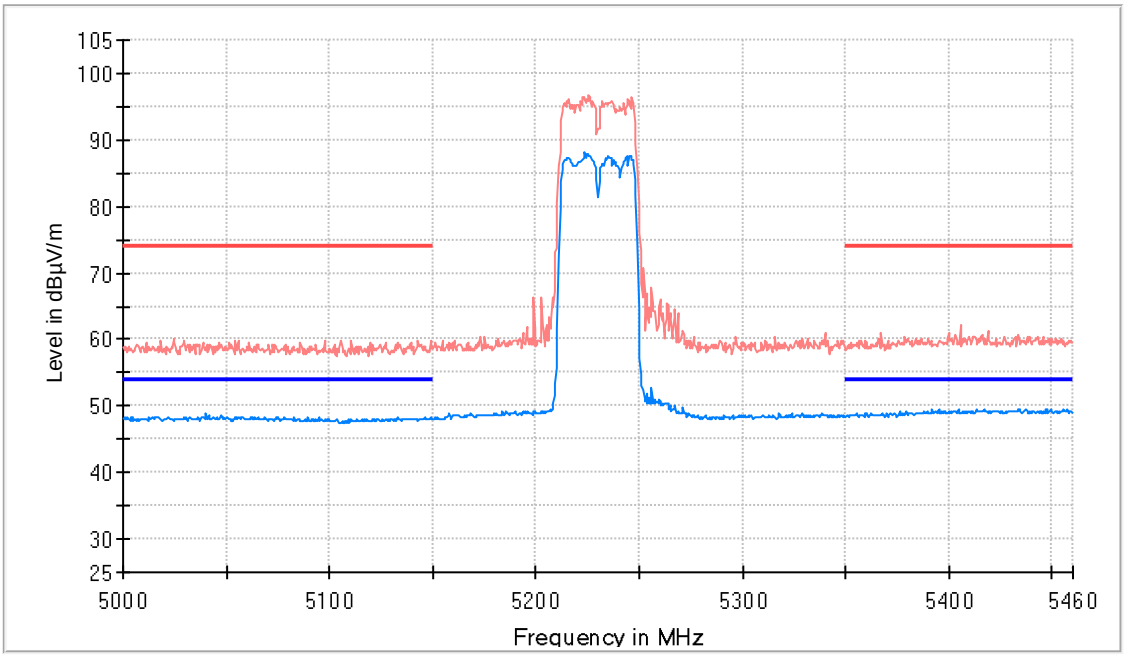
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39919.562500	46.4	38.5	H	15.5	54.0

Frequency Range GHz = [1, 18], Frequency MHz = 5230.00000, Modulation = 802.11ac HT40 (OFDM MCS0), Measurement Point = 1

Images:



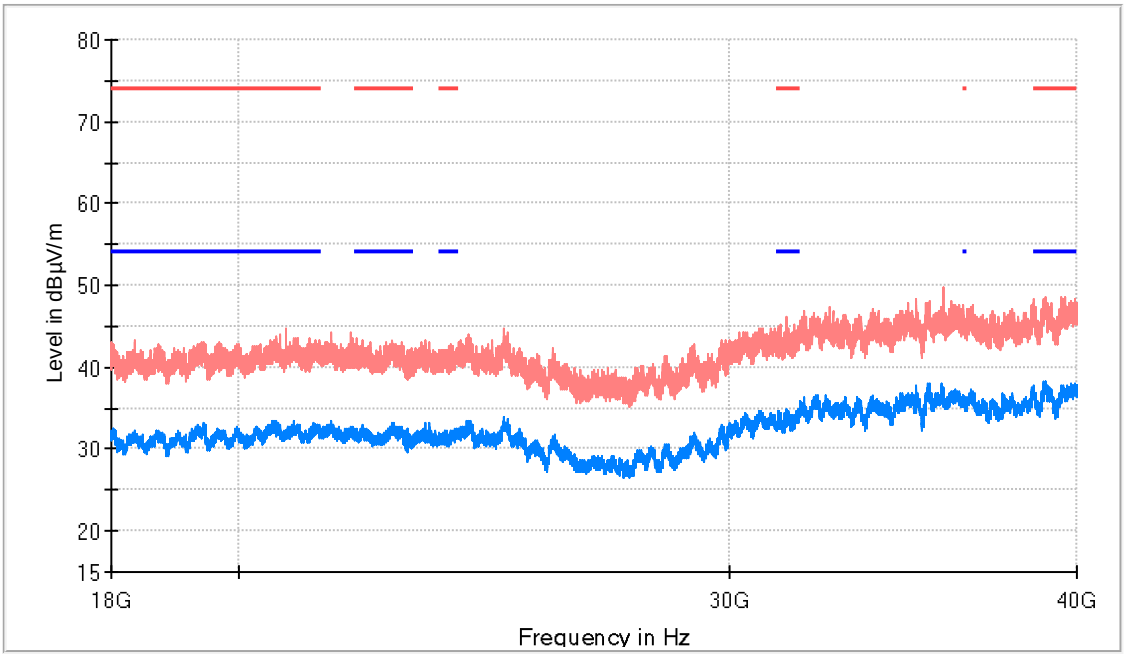
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5223.500000	96.3	88.1	H	---	---	Fundamental
16000.00000	56.4	44.6	H	9.4	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5230.00000, Modulation = 802.11ac HT40 (OFDM MCS0), Measurement Point = 1

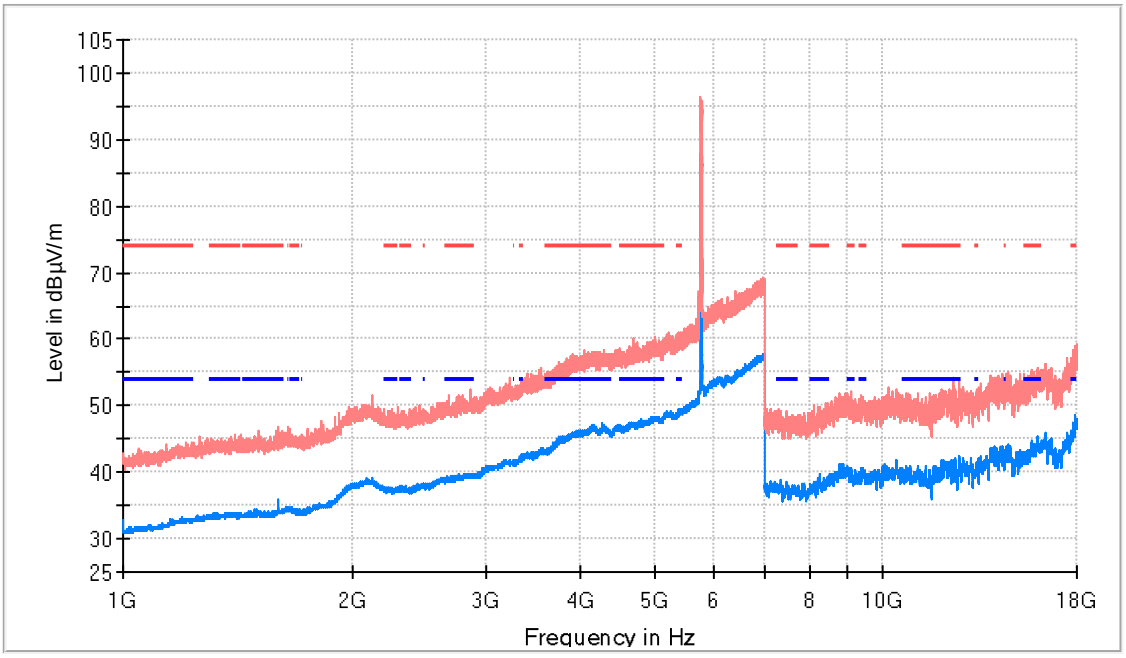
Images:



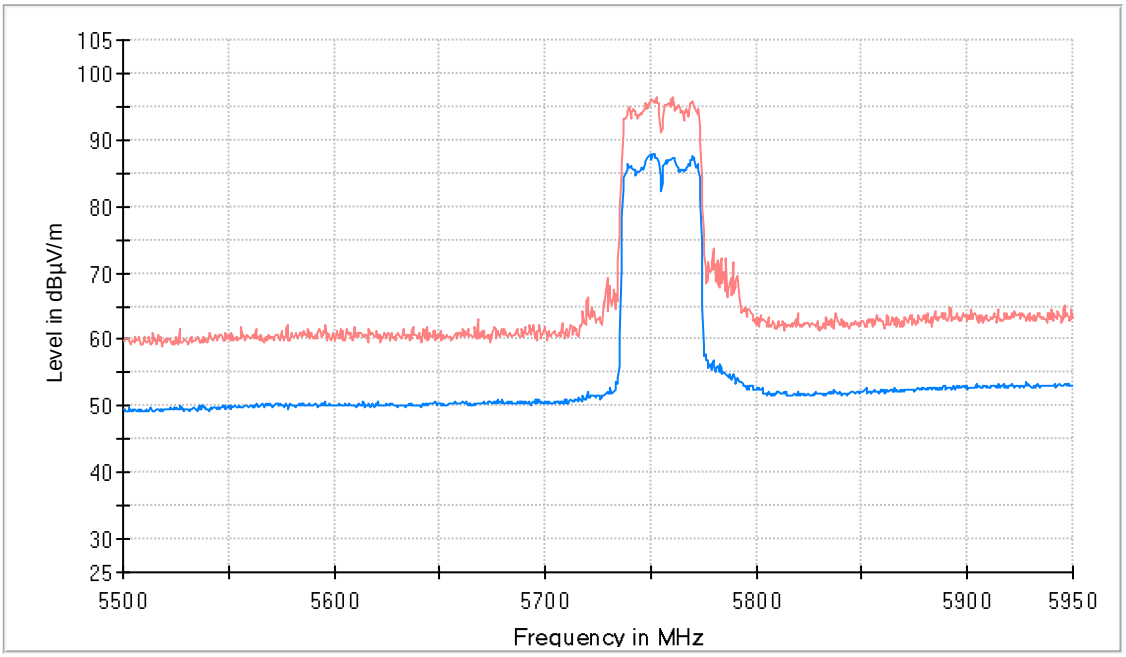
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
38959.812500	46.7	38.4	V	15.6	54.0

Frequency Range GHz = [1, 18], Frequency MHz = 5755.00000, Modulation = 802.11ac HT40 (OFDM MCS0), Measurement Point = 1

Images:



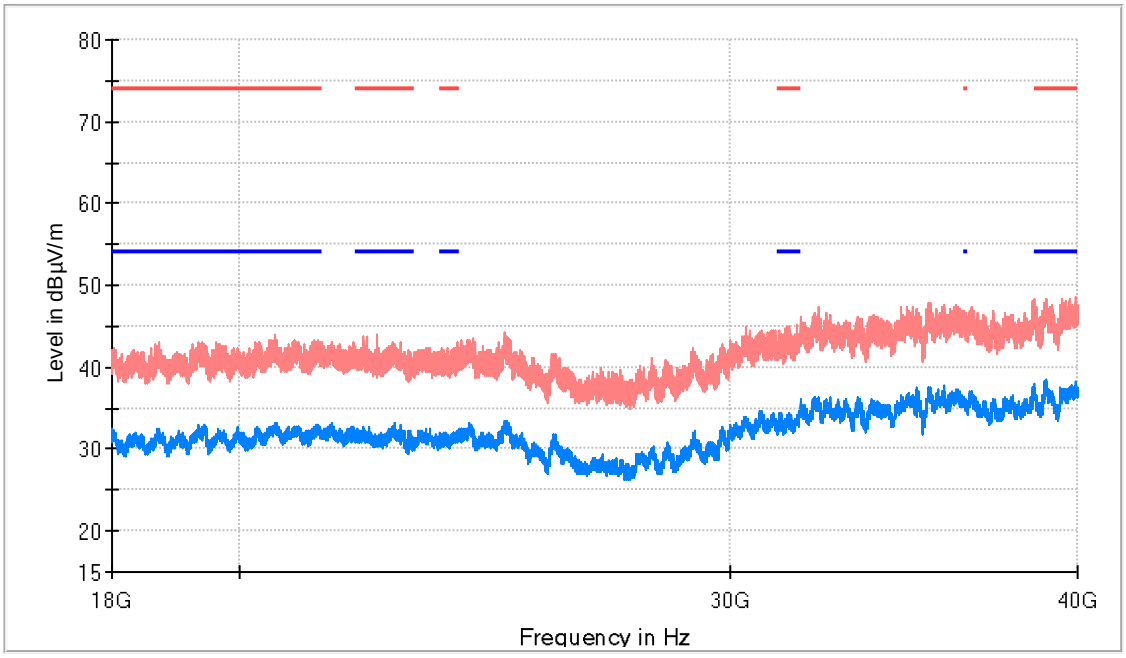
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5751.500000	95.7	87.9	V	---	---	Fundamental
15963.00000	54.0	45.1	H	8.9	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5755.00000, Modulation = 802.11ac HT40 (OFDM MCS0), Measurement Point = 1

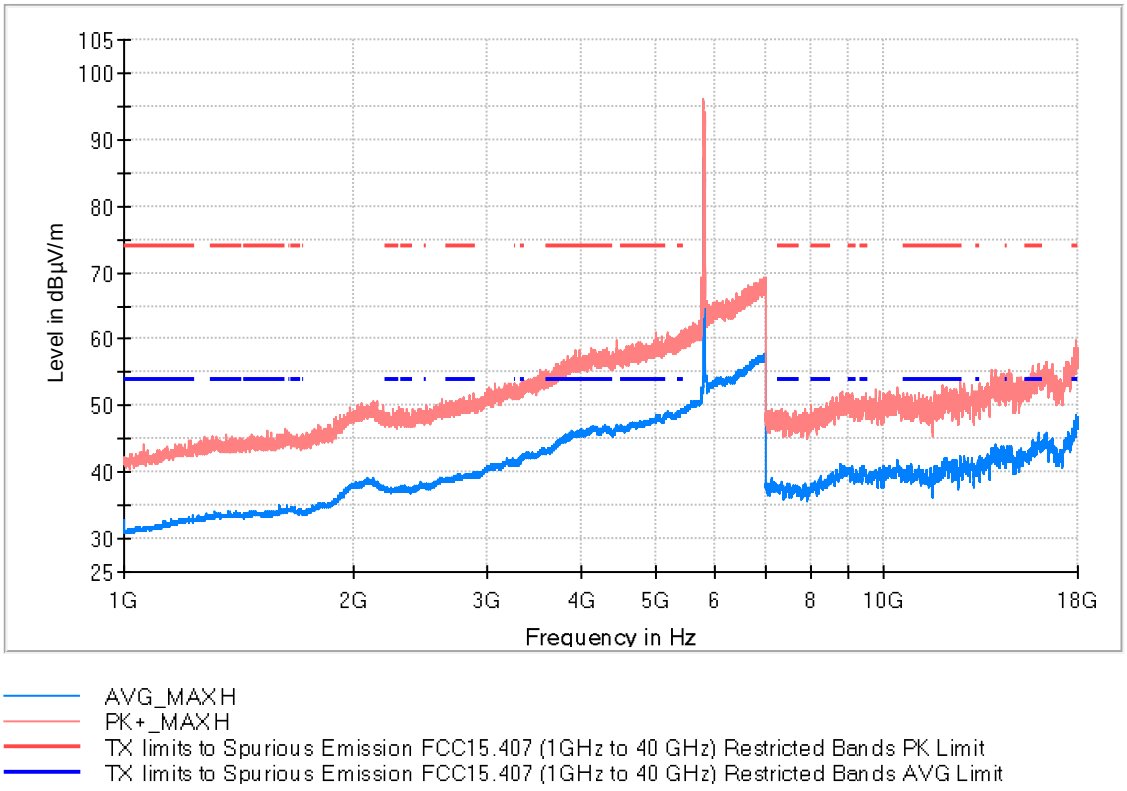
Images:



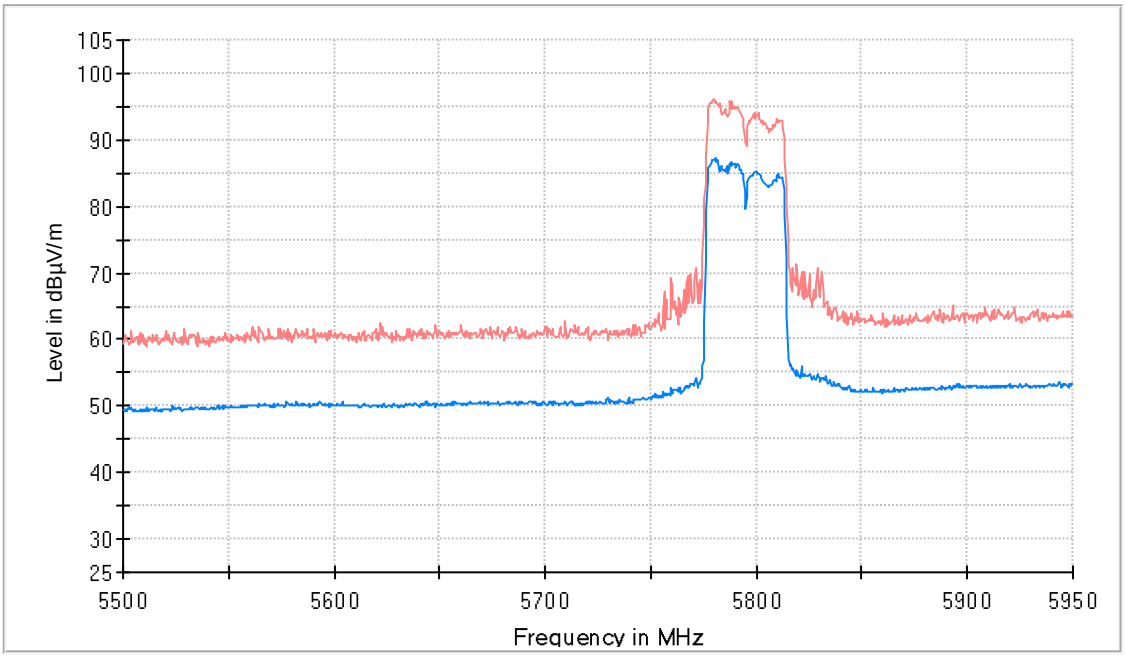
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
38963.250000	48.0	38.4	H	15.6	54.0

Frequency Range GHz = [1, 18], Frequency MHz = 5795.00000, Modulation = 802.11ac HT40 (OFDM MCS0), Measurement Point = 1

Images:



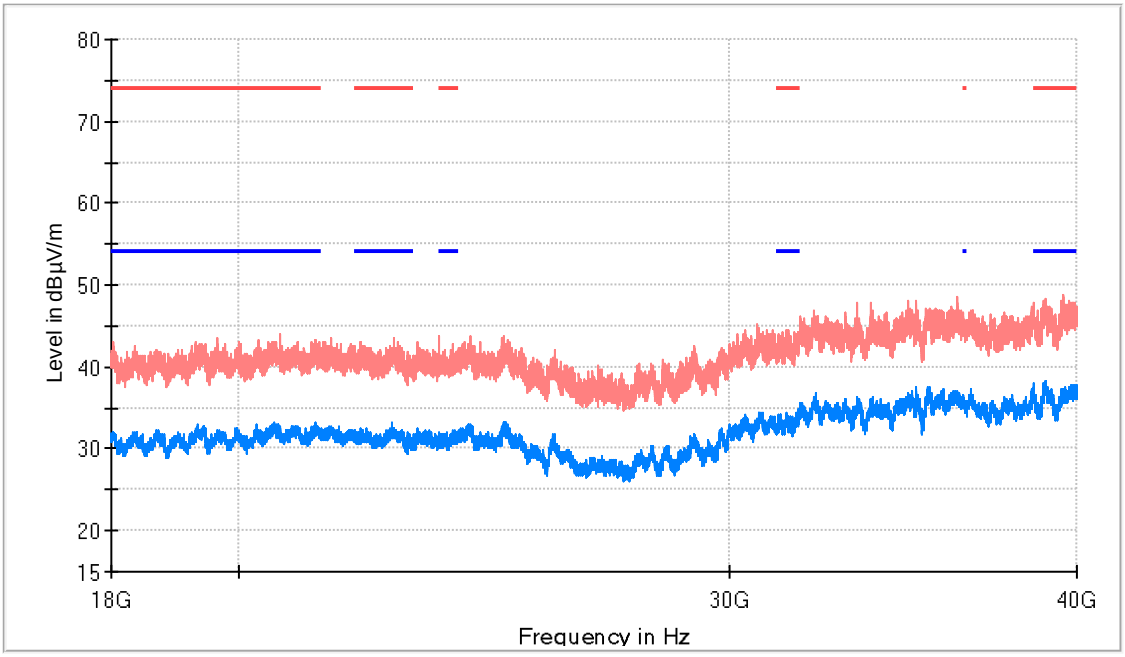
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5780.500000	95.6	87.3	V	---	---	Fundamental
15984.50000	54.5	45.9	H	8.1	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5795.00000, Modulation = 802.11ac HT40 (OFDM MCS0), Measurement Point = 1

Images:



Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
38978.375000	46.3	38.3	H	15.7	54.0

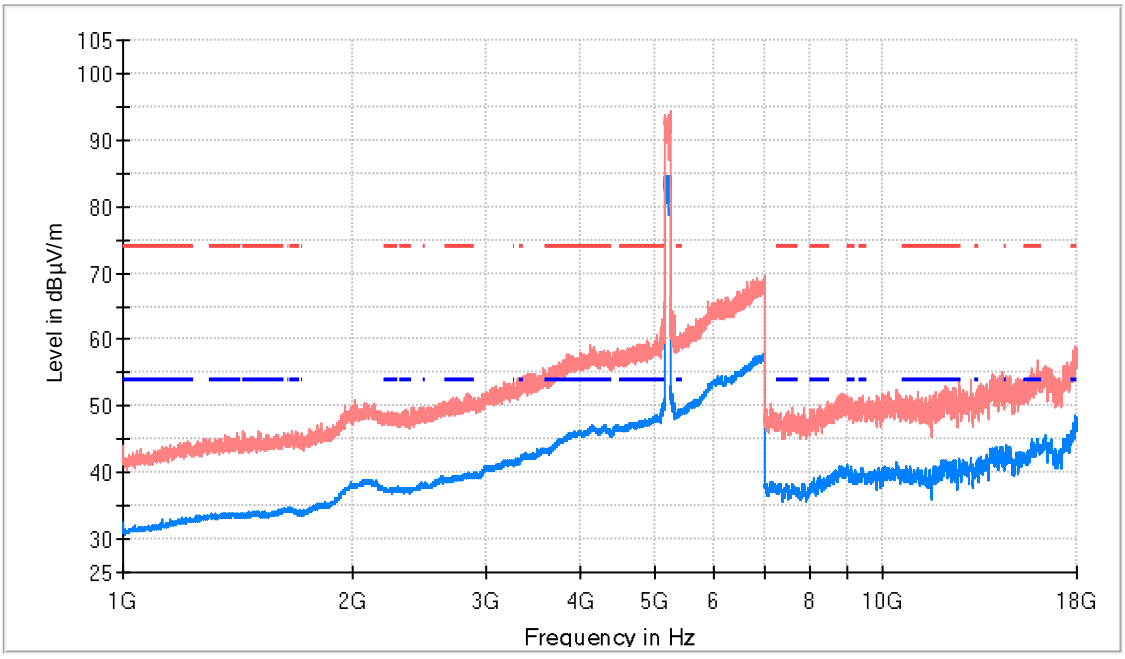
Modulation: 802.11ac VHT80 SS1 (OFDM MCS0)
Results

Verdict

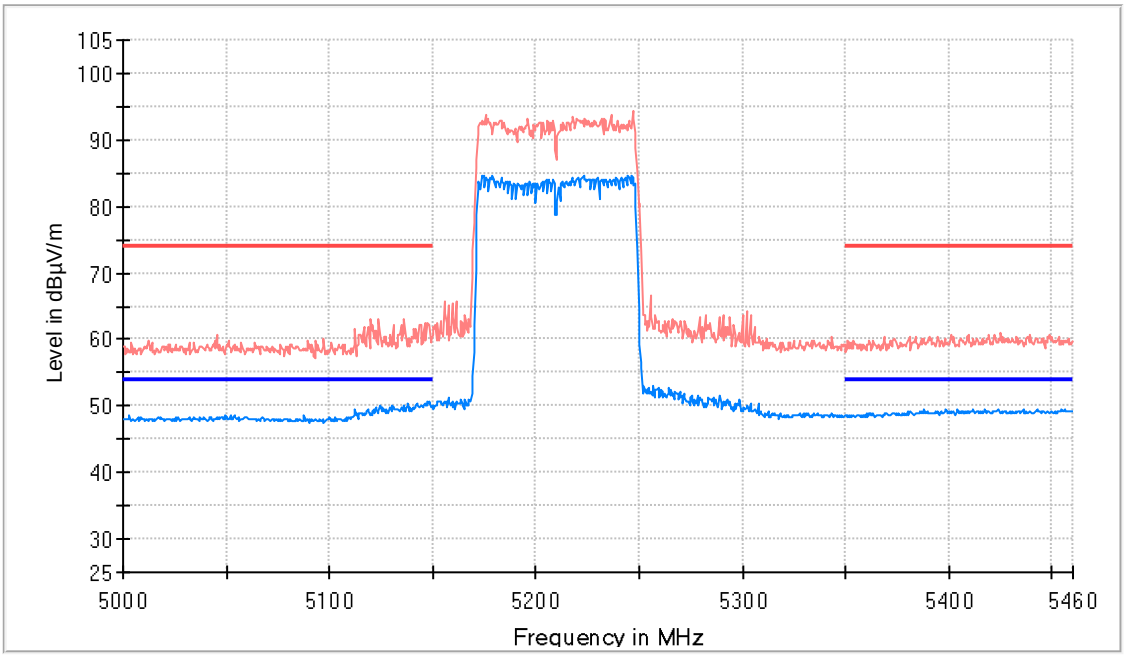
Pass

Frequency Range GHz = [1, 18], Frequency MHz = 5210.00000, Modulation = 802.11ac HT80 (OFDM MCS0), Measurement Point = 1

Images:



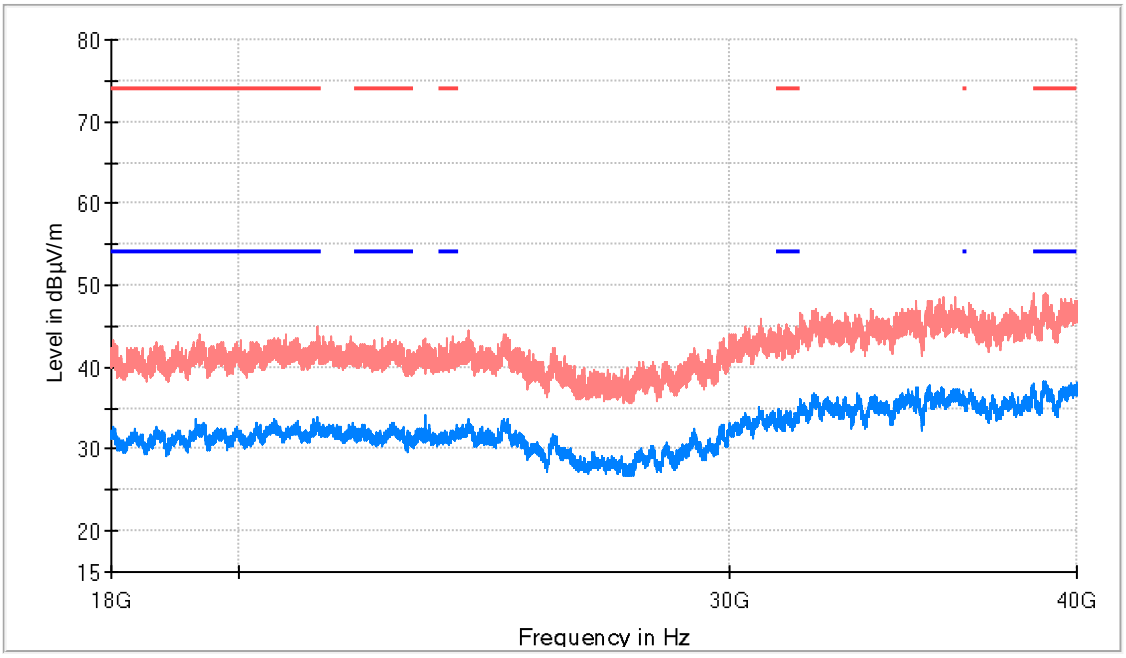
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5173.500000	92.3	84.7	H	---	---	Fundamental
15971.000000	56.8	44.3	V	9.7	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5210.00000, Modulation = 802.11ac HT80 (OFDM MCS0), Measurement Point = 1

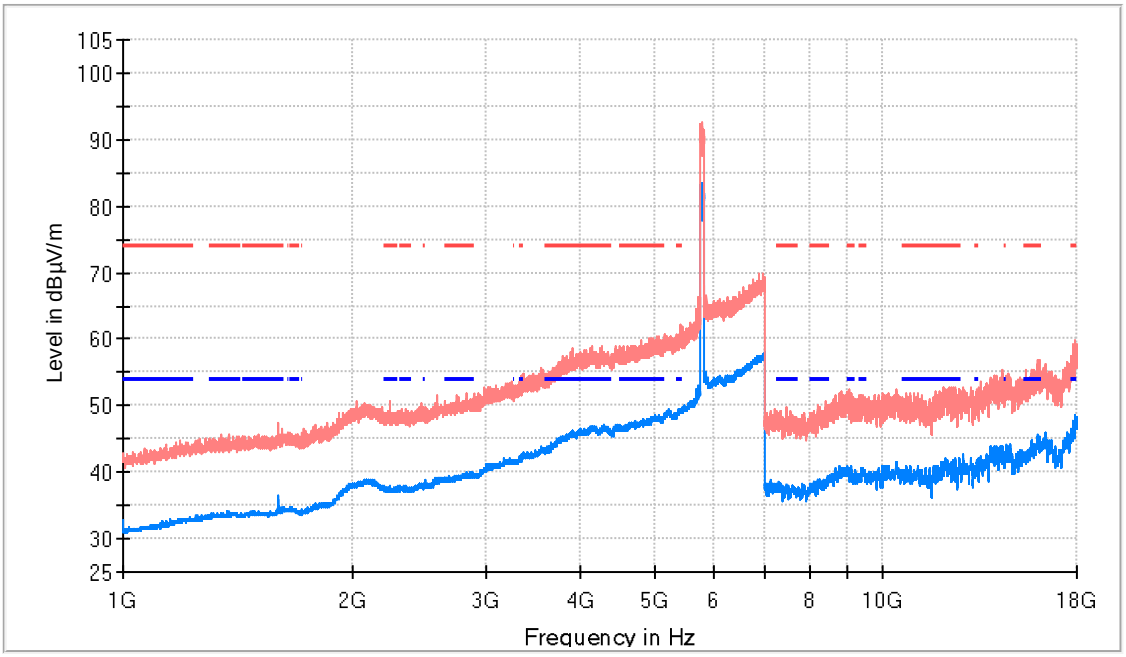
Images:



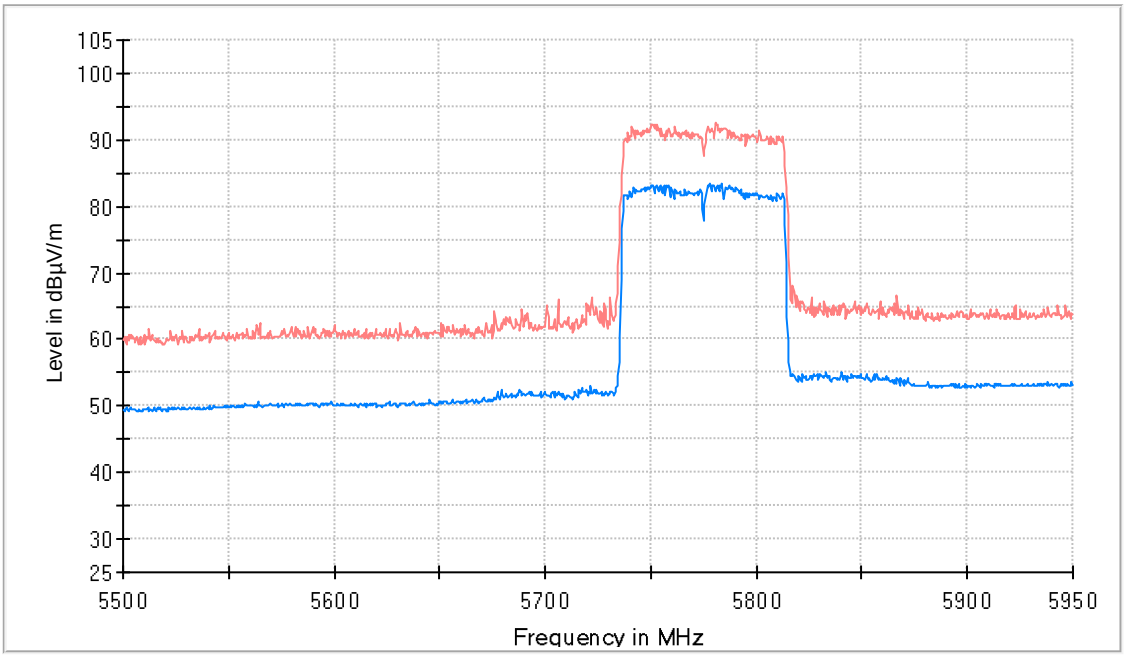
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
38915.125000	47.1	38.3	V	15.7	54.0

Frequency Range GHz = [1, 18], Frequency MHz = 5775.00000, Modulation = 802.11ac HT80 (OFDM MCS0), Measurement Point = 1

Images:



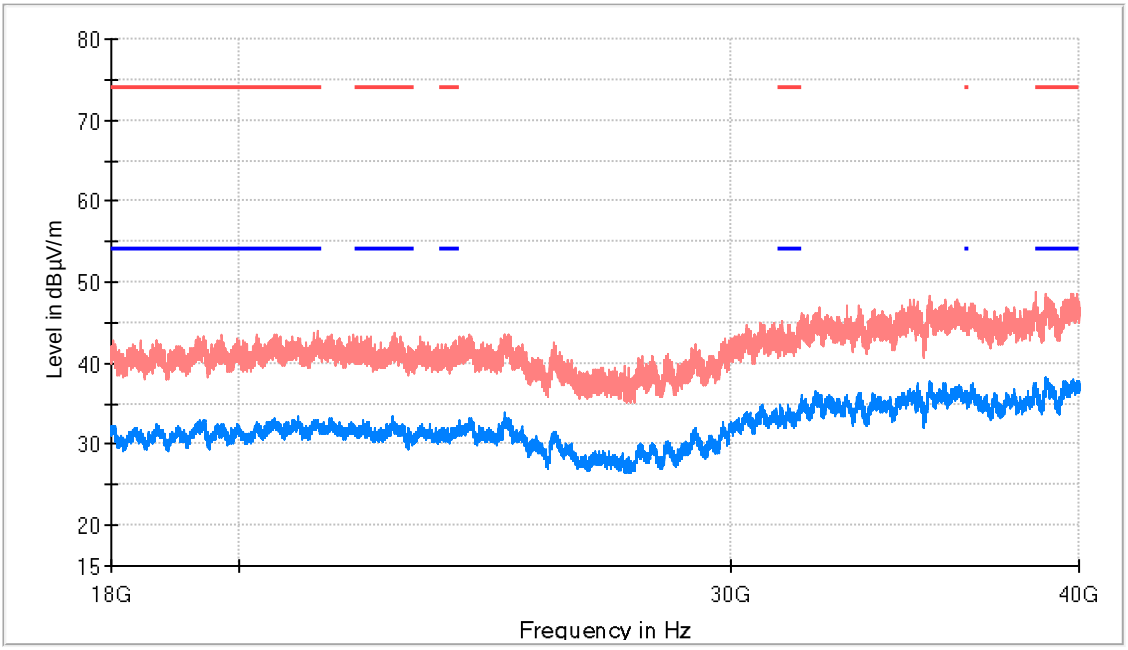
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5784.000000	91.5	83.5	H	---	---	Fundamental
17924.500000	57.9	48.6	H	5.4	54.0	



AVG_MAX H
PK+_MAX H
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency Range GHz = [18, 40], Frequency MHz = 5775.00000, Modulation = 802.11ac HT80 (OFDM MCS0), Measurement Point = 1

Images:



Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
38922.000000	47.2	38.2	V	15.8	54.0