DEKRA Testing and Certification, S.A.U.
Parque Tecnológico de Andalucía,
c/ Severo Ochoa nº 2 · 29590 Campanillas · Málaga · España
C.I.F. A29507456

ISED CABid: ES1909
Lab. Company Number: 4621A

Test Report No:
78973RRF.002A1

Test Report

USA FCC Part 15.407, 15.209
CANADA RSS-247, RSS-Gen

(*) Identification of item tested	Radio Navigation Systems (NAV), Display Audio systems (DA)
(*) Trademark	BOSCH
(*) Model and /or type reference	MMCSBXNAR
Other identification of the product	FCC ID: 2AUXS -MMCSBXNAR IC: 25847 - MMCSBXNAR
(*) Features	AM/FM, BT, Wi-Fi, GNSS, Highspeed CAN -M-CAN and V-CAN, USB, Ethernet HW version: 001 SW version: 6830_240319
Applicant	Robert Bosch GmbH Robert-Bosch-Platz 1, 70839 Gerlingen, Germany
Test method requested, standard	USA FCC Part 15.407 (10-1-23) Edition: Unlicensed National Information Infrastructure (U-NII) Devices. General technical requirements. USA FCC Part 15.209 (10-1-23) Edition: Radiated emission limits; general requirements. CANADA RSS-247 Issue 3 (August 2023). CANADA RSS-Gen Issue 5 Amendment 2 (February 2021). Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017. ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez Galván EMC Consumer & RF Lab. Manager  Firmado digitalmente por 53680346W JOSE MANUEL GOMEZ (C:A29507456)
Date of issue	2024-12-03
Report template No	FDT08_25 (*) “Data provided by the client”

INDEX

Acronyms

Acronym ID	Acronym Description
Avg Power	Maximum Average Conducted Output Power
BW	Bandwidth
CCTT Found	CCTT No. Of Pulses found
CCTT Time	CCTT Tx Time
DC	Duty Cycle
Ebw	Emission Bandwidth
Freq	Frequency
Inband Peak Lvl	Inband Peak Level
Lvl	Level
MP	Measurement Point
Max EIRP	Maximum Burst EIRP
Mod	Modulation
Mode	MIMO Mode
NOP Found	NOP No. Of Pulses found
NOP Time	NOP Tx Time
Occ Ch BW	Occupied Channel Bandwidth
Operation Band	Operation Band
PSD	Power Spectral Density
Port	Active Port
Rdr Sgnl	Radar test signal
TPC	TPC

Competences and guarantees

DEKRA Testing and Certification S.A.U. is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

DEKRA Testing and Certification S.A.U. is an FCC-recognized accredited testing laboratory with appropriate scope of accreditation that covers the performed tests in this report.

DEKRA Testing and Certification S.A.U. is an ISED-recognized accredited testing laboratory, CABid: ES1909, Company Number: 4621A, with the appropriate scope of accreditation that covers the performed tests in this report.

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

DEKRA Testing and Certification S.A.U. 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 Testing and Certification S.A.U. at the time of performance of the test.

DEKRA Testing and Certification S.A.U. 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.

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 Testing and Certification S.A.U.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification S.A.U. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

The total uncertainty of the measurement system for the radiated emissions of EUT from 30 MHz to 1 GHz is:
Measurement uncertainty ≤ ± 5,35 dB with factor (k = 2).

The total uncertainty of the measurement system for the radiated emissions of EUT from 1 GHz to 17 GHz is:
Measurement uncertainty ≤ ± 4,32 dB with factor (k = 2).

The total uncertainty of the measurement system for the radiated emissions of EUT from 17 GHz to 40 GHz is:
Measurement uncertainty ≤ ± 5,55 dB with factor (k = 2).

The total uncertainty of the measurement system for the conducted testing of EUT is:
RF Average Output Power: Measurement uncertainty ≤ ± 2,01 dB
Duty Cycle: Measurement uncertainty ≤ ± 0,84 ms
Power Spectral Density: Measurement uncertainty ≤ ± 2,01 dB
Occupied/26 dBc Bandwidth: Measurement uncertainty
≤ ± 57,76 kHz for BW 20MHz;
≤ ± 115,53 kHz for BW 40MHz; and
≤ ± 231,06 kHz for BW 80MHz.

6 dB Banwidth: Measurement uncertainty
≤ ± 34,67 kHz for BW 20MHz;
≤ ± 46,22 kHz for BW 40MHz; and
≤ ± 80,90 kHz for BW 80MHz.

Conducted Band-edge spurious emissions: Measurement uncertainty ≤ ± 2,57 dB
DFS Channel closing & Move time: Measurement uncertainty ≤ ± 0,84 ms

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 a Radio Navigation Systems (NAV). Display Audio systems (DA) with following features:
   - Units without fascia and keys
   - Linux-based software
   - Key Features:
     - Connectivity (Highspeed CAN -M-CAN and V-CAN bus- 500kbit/s, BT, Wi-Fi SISO, Ethernet)
     - USB
   - 1st port: Connect Molex or Mitsumi USB hub 2port hub. The hub supports connection to MSC or MTP devices containing media playback data or download data. Also supporting connection to devices supporting Apple iPod playback, Apple Carplay and Android Auto
   - 2nd port: Connect TCU box. Using USB subclass CDC-EEM for data transmission (Telematic / eCall box)
     - Smartphone integration
     - GNSS localization (details see GNSS chapter)
     - Audio: Arkamys, ESE
     - Radio: AM/FM, SXM (optional only NAR)
     - Display of vehicle functions HMI
     - LVDS connection to RearViewCamera, RearSeatEntertainment, Media Player and external Display
     - Analogue RearViewCamera
     - LVDS audio connection A2B for external amplifier with digital A2B input

DEKRA Testing and Certification S.A.U. declines any responsibility with respect to the information provided by the client and that may affect the validity of results. The laboratory is not responsible for such information and it is not covered by accreditation.

Usage of samples

Samples undergoing test have been selected by: The client.

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	78973_1.1	Display	CID UNIT CENTRAL DISPLAY	D000XMI120230922000001	2024-06-24	Element Under Test
S/01	78973_5.1	Headunit	MMCSBXNAR	000732525915W016P	2024-06-24	Element Under Test
S/01	78973_10.1	Signal distributor smalll box	-	-	2024-07-10	Auxiliary Element
S/01	78973_2.1	Harness small	LVDS CABLE	-	2024-06-24	Auxiliary Element
S/01	78973_27.1	Ethernet cable	-	-	2024-07-10	Auxiliary Element
S/01	78973_28.1	USB A female-mini B Cable	-	-	2024-07-10	Auxiliary Element
S/01	78973_29.1	Erhernet-USB adapter	-	-	2024-07-10	Auxiliary Element
S/01	78973_9.1	Load box	A-IVI 2	-	2024-07-10	Auxiliary Element

Notes referenced to samples during the project:

Id	Type
S/01	Sample used for radiated and conducted testing

Test sample description

Ports…… :	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient(3)		
	WiFi connector	2m	[X]	[ ]	[ ]		
	FM2 connector	2m	[X]	[ ]	[ ]		
	FM1/AM connector	2m	[X]	[ ]	[ ]		
	GNSS connector	2m	[X]	[ ]	[ ]		
	SBX connector	2m	[X]	[ ]	[ ]		
	A2B connector	2m	[X]	[ ]	[ ]		
	ETH2/REC connector	2m	[X]	[ ]	[ ]		
	ETHA/CGW connector	2m	[X]	[ ]	[ ]		
	RVC LVDS connector	2m	[X]	[ ]	[ ]		
	TCU/IVCC USB2 connector	2m	[X]	[ ]	[ ]		
	LVDS out connector	2m	[X]	[ ]	[ ]		
	MCH/USB1 connector	2m	[X]	[ ]	[ ]		
	MAIN connector	2m	[X]	[ ]	[ ]		
	--		[ ]	[ ]	[ ]		
Supplementary information to the ports…… :							
Rated power supply .....:	Voltage and Frequency			Reference poles			
				L1	L2	L3	N	PE
	[ ]	AC:		[ ]	[ ]	[ ]	[ ]	[ ]
	[X]	DC: 12Vdc						
Rated Power .....:	--							
Clock frequencies.....:	--							
Other parameters .....:	--							
Software version .....:	6830_240319							
Hardware version .....:	001							
Dimensions in cm (W x H x D) ....:	--							
Mounting position .....:	[ ]	Table top equipment						
	[ ]	Wall/Ceiling mounted equipment						
	[ ]	Floor standing equipment						
	[ ]	Hand-held equipment						

	[ ]	Other:		
Modules/parts.....:	Module/parts of test item		Type	Manufacturer
	--			
Accessories (not part of the test item) .....:	Description		Type	Manufacturer
	--			
Documents as provided by the applicant.....:	Description		File name	Issue date
	--			

(3) Only for Medical Equipment

Identification of the client

Robert Bosch GmbH

Robert-Bosch-Platz 1, 70839 Gerlingen, Germany

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2024-03-10
Date (finish)	2024-09-25

Document history

Report number	Date	Description
78973RRF.002	2024-11-21	First release.
78973RRF.002A1	2024-12-03	Second release. It is modified due to missing information and some typos. This modification test report cancels and replaces the test report 78973RRF.002

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: Carmen Vazquez Perez, Rafael Fernandez Martin and Sergio Carrasco.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
05850	DIGITAL MULTIMETER	179	FLUKE	2025-11-04
08848	OPEN SWITCH UNIT UP TO 7.5 GHz	OSP-B157W8 PLUS	ROHDE & SCHWARZ	2024-12-21
03335	POWER SENSOR 10MHz-8GHz	NRP-Z11	ROHDE AND SCHWARZ	2025-07-31
00922	POWER SUPPLY DC 40 V / 40 A	NGPE 40/40	ROHDE AND SCHWARZ	2027-10-02
06793	SHIELDED ROOM	S101	ETS LINDGREN	N/A
06668	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2024-12-14
07794	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2025-04-21
07791	SIGNAL GENERATOR 8kHz-6GHz	SMB100B	ROHDE AND SCHWARZ	2026-03-15
07793	SIGNAL GENERATOR 8kHz-6GHz	SMBV100B	ROHDE AND SCHWARZ	2026-03-11
06611	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2025-04-04
08847	VECTOR SIGNAL GENERATOR 100kHz-7.5 GHz	SMW200A	ROHDE AND SCHWARZ	2025-09-29
07795	WIRELESS CONNECTIVITY TESTER BW 160 MHz	CMW270	ROHDE AND SCHWARZ	2025-03-13
07798	WMS32	WMS32	ROHDE AND SCHWARZ	N/A
07445	DC POWER SUPPLY 30V/5A	U8002A	KEYSIGHT TECHNOLOGIES	N/A
07760	DIGITAL MULTIMETER	175	FLUKE	2025-11-08
07817	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2026-07-01
06615	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2025-04-04
06609	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2025-04-22
09029	HIGH PASS FILTER 17-40 GHZ	STHP-17-40G-92	TEMSTRON/TEM WELL	2025-03-29
07091	HIGH PASS FILTER 7-18 GHZ	ST-7GA3619-HS	TEMSTRON/TEM WELL	2025-04-08

Control No.	Equipment	Model	Manufacturer	Next Calibration
06496	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK	2026-12-01
04657	HORN ANTENNA 18-40GHz	BBHA 9170	SCHWARZBECK	2026-06-12
07193	MULTI-DEVICE CONTROLLER	CO3000	INNCO	N/A
08856	PRE-AMPLIFIER G>30dB 18-40GHz	BLMA 1840-4A	BONN ELEKTRONIK	2025-02-27
06142	PRE-AMPLIFIER G>38dB 30MHz-6GHz	BLNA 0360-01N	BONN ELEKTRONIK	2025-07-25
06791	SEMIANECHOIC ABSORBER LINED CHAMBER IV	FACT 3 200 STP	ETS LINDGREN	N/A
04848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A

Testing verdicts

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

Summary

U-NII-1 Band: 5.15 - 5.25 GHz

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		**Verdict**	**Remark**
FCC 15.407 (a)(1)(iv)	Transmitter Maximum conducted Output Power	P	
RSS-247 6.2.1.1	Transmitter Maximum Equivalent Isotropically Radiated Power EIRP	P	
FCC 15.407 (a)(1)(iv)	Transmitter Maximum Power Spectral Density	P	
RSS-247 6.2.1.1	Transmitter EIRP Spectral Density	P	
FCC 15.407 (b)(1)(6) / RSS-247 6.2.1.2	Transmitter Out of Band Radiated Emissions	P	
FCC 15.407 (b)(1) / RSS-247 6.2.1.2	Transmitter Band Edge Radiated Emissions	P	
Supplementary information and remarks: None.			

U-NII-2A: 5.25 GHz – 5.35 GHz Band:

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		**Verdict**	**Remark**
FCC 15.407 (a)(2) / RSS-247 6.2.2.1	Transmitter Maximum Conducted Output Power Transmitter Maximum Equivalent Isotropically Radiated Power	P	
FCC 15.407 (a)(2) / RSS-247 6.2.2.1	Transmitter Maximum Power Spectral Density Transmitter EIRP Spectral Density	P	
FCC 15.407 (b)(2) / RSS-247 6.2.2.2	Transmitter Out of Band Radiated Emissions	P	
FCC 15.407 (b)(2) / RSS-247 6.2.2.2	Transmitter Band Edge Radiated Emissions	P	
FCC 15.407 (h)(1) / RSS-247 6.2.2.1	Transmitter Power Control	N/A	(1)
Supplementary information and remarks: 1. The device does not support TPC			

U-NII-2C: 5.47 GHz – 5.725 GHz Band:

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		**Verdict**	**Remark**
FCC 15.407 (a)(2) / RSS-247 6.2.3.1	Transmitter Maximum Conducted Output Power Transmitter Maximum Equivalent Isotropically Radiated Power	P	
FCC 15.407 (a)(2) / RSS-247 6.2.3.1	Transmitter Maximum Power Spectral Density Transmitter EIRP Spectral Density	P	
FCC 15.407 (b)(3) / RSS-247 6.2.3.2	Transmitter Out of Band Radiated Emissions	P	
FCC 15.407 (b)(3) / RSS-247 6.2.3.2	Transmitter Band Edge Radiated Emissions	P	
FCC 15.407 (h)(1) / RSS-247 6.2.2.1	Transmitter Power Control	N/A	(1)
RSS-247. 6.3.2 / KDB Sect. 7.8.	DFS In Service Monitoring CCTT & NOP	P	
Supplementary information and remarks: 1. The device does not support TPC			

U-NII-3: 5.725 GHz – 5.85 GHz Band:

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		**Verdict**	**Remark**
FCC 15.407 (e) / RSS-247 6.2.4.1	6 dB Bandwidth	P	
FCC 15.407 (a)(3)(i) / RSS-247 6.2.4.1	Transmitter Maximum Conducted Output Power	P	
FCC 15.407 (a)(3)(i) / RSS-247 6.2.4.1	Transmitter Maximum Power Spectral Density	P	
FCC 15.407 (b)(4) / RSS-247 6.2.4.2	Transmitter Out of Band Radiated Emissions	P	
FCC 15.407 (b)(4) / RSS-247 6.2.4.2	Transmitter Band Edge Radiated Emissions	P	
Supplementary information and remarks: None.			

Appendix A: **Test result for 5.15 GHz - 5.25 GHz**

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_Toc181977203

TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal:	12 V DC
Type of Power Supply:	External power supply

ANTENNA (*):

Type of Antenna:	External
Maximum Declared Antenna Gain:	3.45

TEST FREQUENCIES (*):

Technology Tested:	WLAN (IEEE 802.11 a, n, ac) / U-NII-1	
Modes:	802.11a20: 6, 9, 12, 18, 24, 36, 48 & 54 Mbps	
	802.11n HT20: MCS0 to MCS7	
	802.11n HT40: MCS0 to MCS7	
	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 MHz to 5250 MHz	
Channel Spacing:	20 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Low: 36	5180
	Middle: 40	5200
	High: 48	5240
Channel Spacing:	40 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Low: 38	5190
	High: 46	5230
Channel Spacing:	80 MHz	
Transmit Channels	Middle: 42	5210

POWER SETTING (*):

For 802.11 a, the power level is always 10 dBm and the modulation group is 1.
For 802.11 n, the power level is always 10 dBm and the modulation group is 1.
For 802.11 ac, the power level is always 6 dBm and the modulation group is 1.

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:

The equipment under test was set up in a shielded room and it is connected to the TS8997 using a low loss RF cable. The reading of the spectrum analyser is corrected taking into account the cable loss.

RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna (Bilog antenna for the range between 30 MHz to 1000 MHz and 1 GHz-17 GHz Double ridge horn antenna) is situated at a distance of 3 m and at a distance of 1.5 m for the frequency range 17 GHz-26 GHz (17 GHz-40 GHz horn antenna).

For radiated emissions in the range 17 GHz-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.

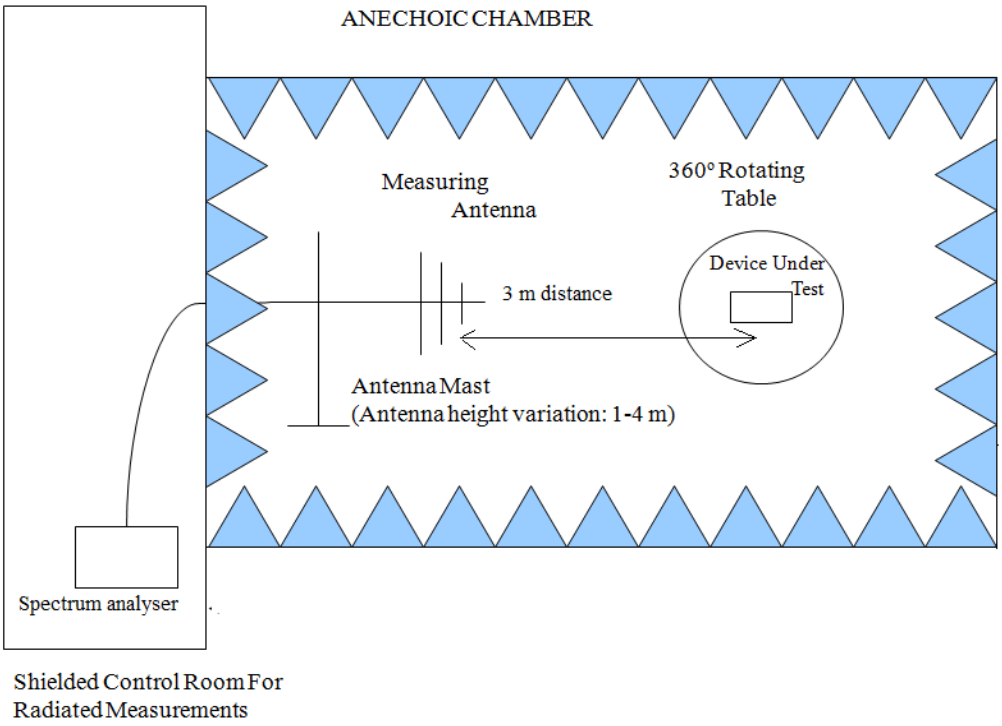
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360º and the antenna height (Bilog antenna and Double ridge horn antenna) was varied from 1 to 4 meters to find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

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

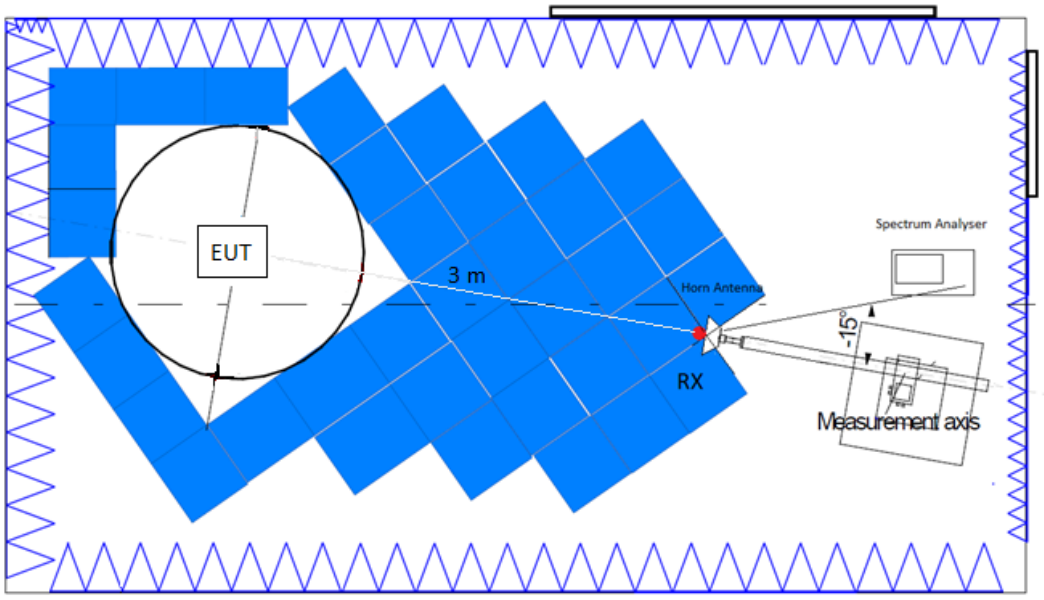
The final measured value, for the given emission, in the tables below incorporates the calibrated antenna factor and cable loss.

A resolution bandwidth/video bandwidth of 100 kHz / 300 kHz was used for frequencies below 1 GHz and 1 MHz / 3 MHz for frequencies above 1 GHz.

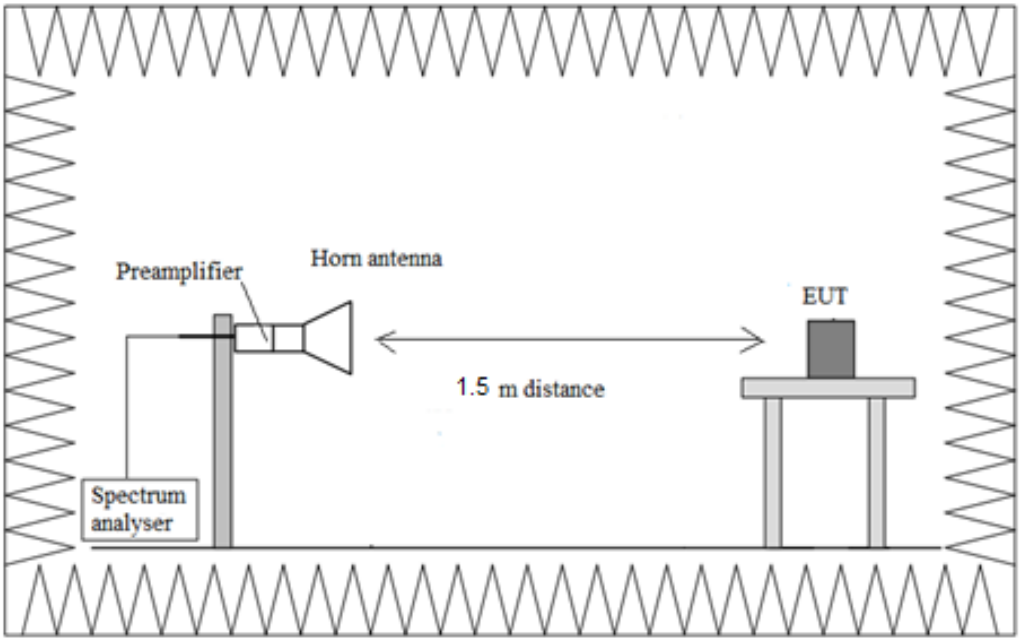
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup f > 17 GHz:



RSS-247 6.2.1.1 / FCC 15.407 (a) (1) [Avcp] Maximum Conducted output power U-NII-1

Limits

* FCC 15.407: For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, 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: For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Modulation: 802.11n HT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
1	5180.00000	No	4.94	8.39
	5200.00000		5.06	8.51
	5240.00000		4.76	8.21

Modulation: 802.11n HT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
1	5190.00000	No	5.13	8.58
	5230.00000		4.94	8.39

Modulation: 802.11a (OFDM 6 Mbit/s)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
1	5180.00000	No	5.02	8.47
	5200.00000		4.94	8.39
	5240.00000		5.15	8.60

Modulation: 802.11ac VHT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
1	5180.00000	No	0.87	4.32
	5200.00000		0.89	4.34
	5240.00000		0.71	4.16

Modulation: 802.11ac VHT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
1	5190.00000	No	0.70	4.15
	5230.00000		0.85	4.30

Modulation: 802.11ac VHT80 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
1	5210.00000	No	0.94	4.39

Verdict

Pass

RSS-247 6.2.1.1 / FCC 15.407 (a) (1) [Psd] Transmitter Maximum Power Spectral Density U-NII-1

Limits

* FCC 15.407 (a)(1)(i): For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. 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.

* FCC 15.407 (a)(1)(iv): For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 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 6.2.2.1: The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Modulation: 802.11n HT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
1	5180.00000	No	5177.623762	-7.21
	5200.00000		5202.376238	-6.98
	5240.00000		5242.574257	-7.25

Verdict

Pass

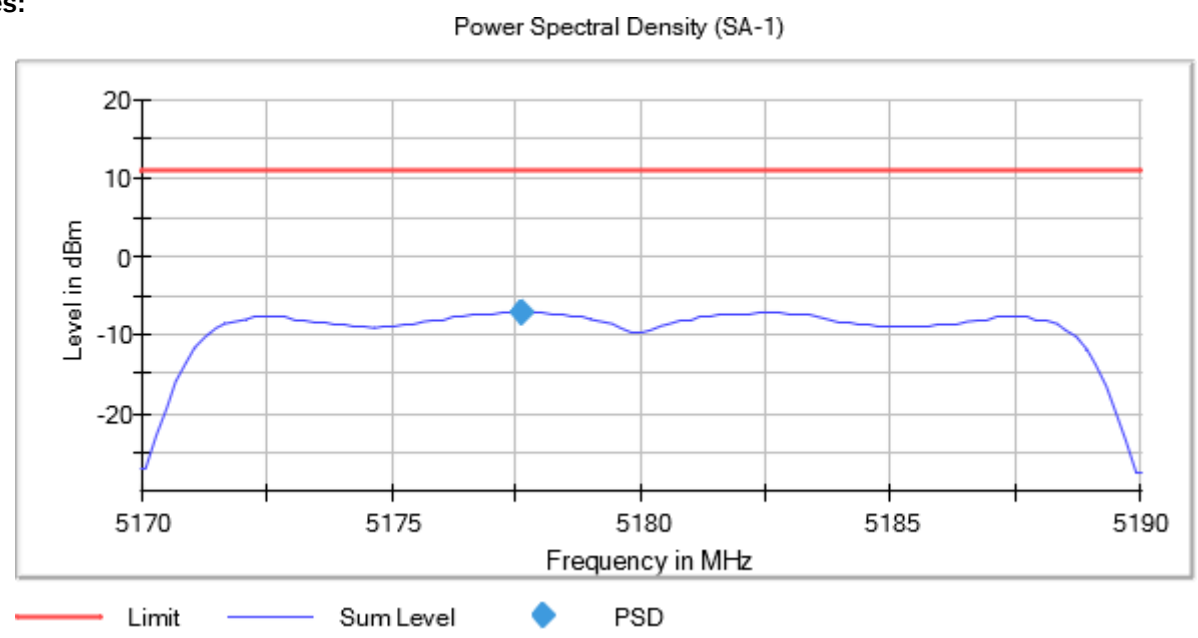
Attachments

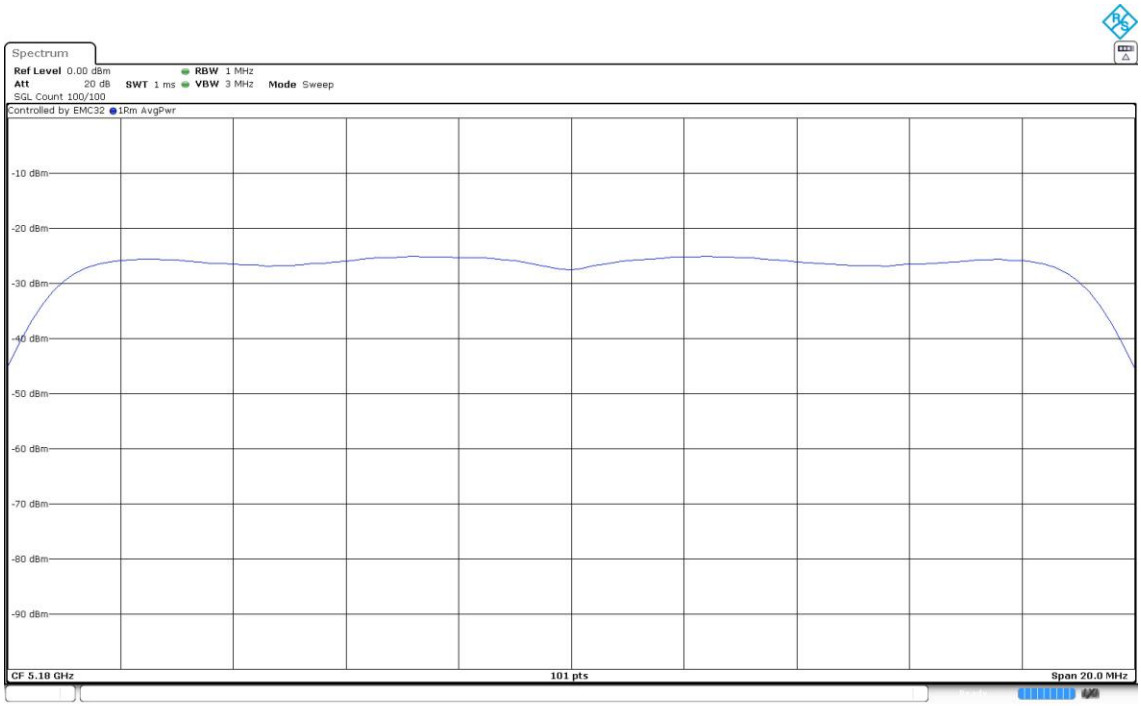
Active Port = 1 Frequency MHz = 5180.00000

Modulation = 802.11n HT20 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:



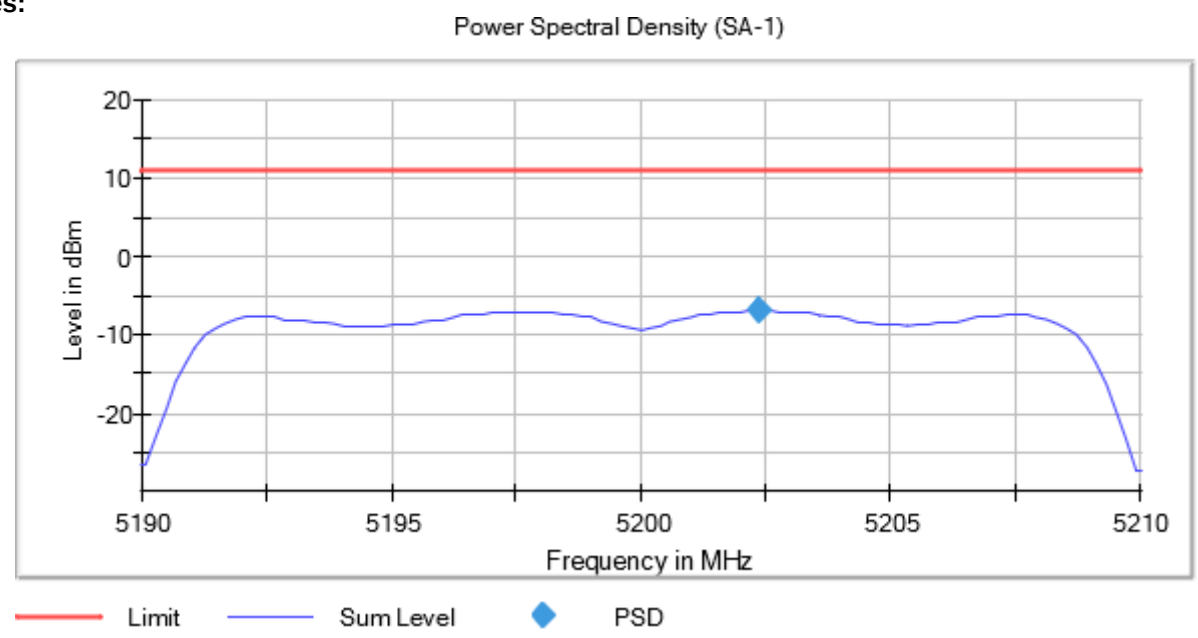


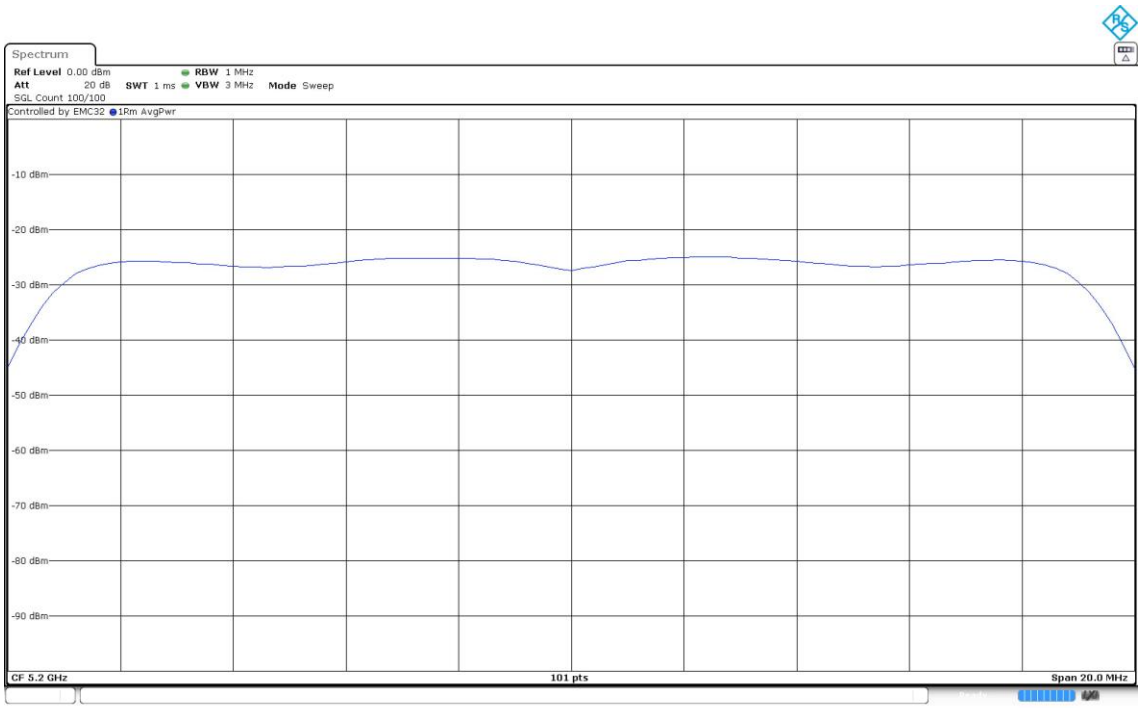
Active Port = 1 Frequency MHz = 5200.00000

Modulation = 802.11n HT20 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:



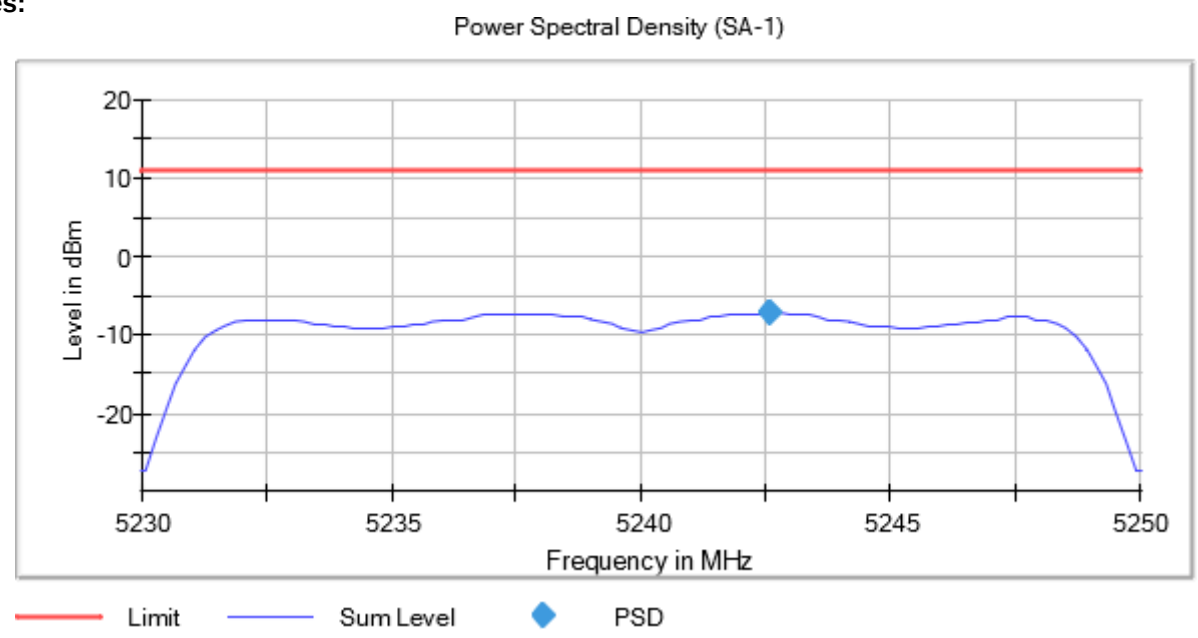


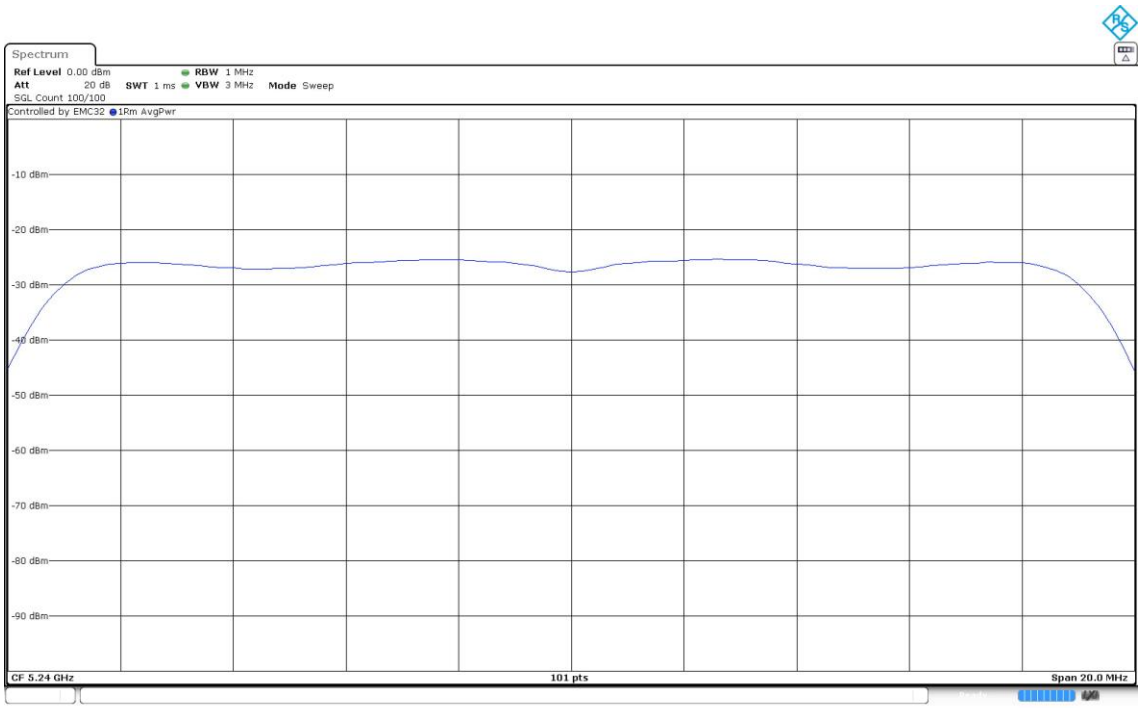
Active Port = 1 Frequency MHz = 5240.00000

Modulation = 802.11n HT20 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:





Modulation: 802.11n HT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
1	5190.00000	No	5195.148515	-10.14
	5230.00000		5224.851485	-10.31

Verdict

Pass

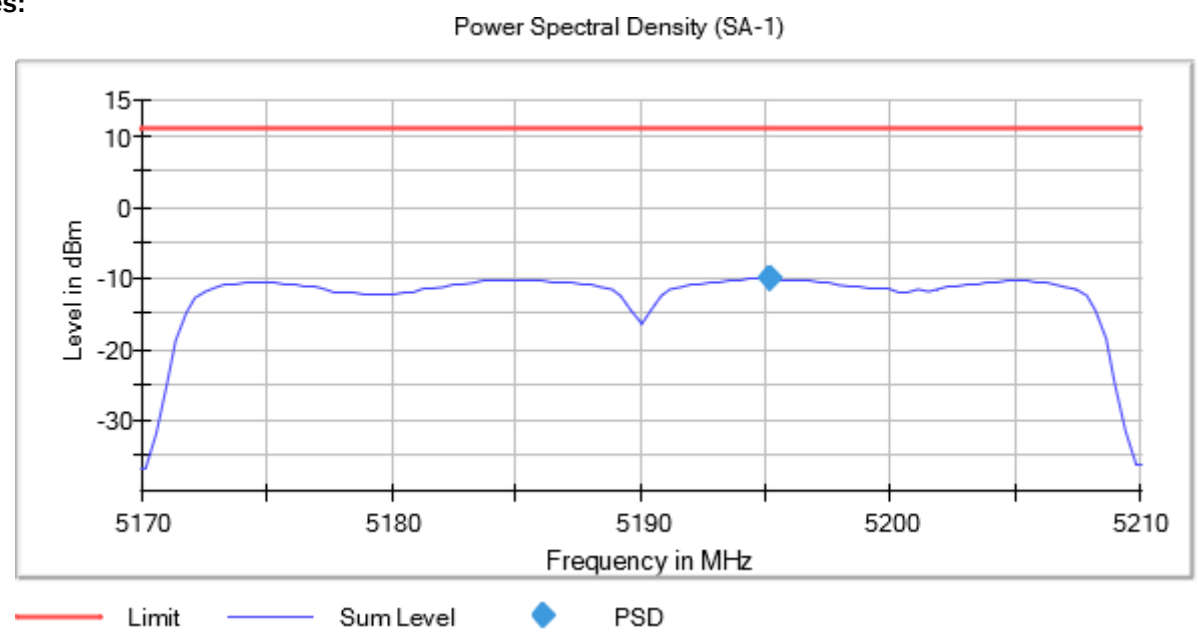
Attachments

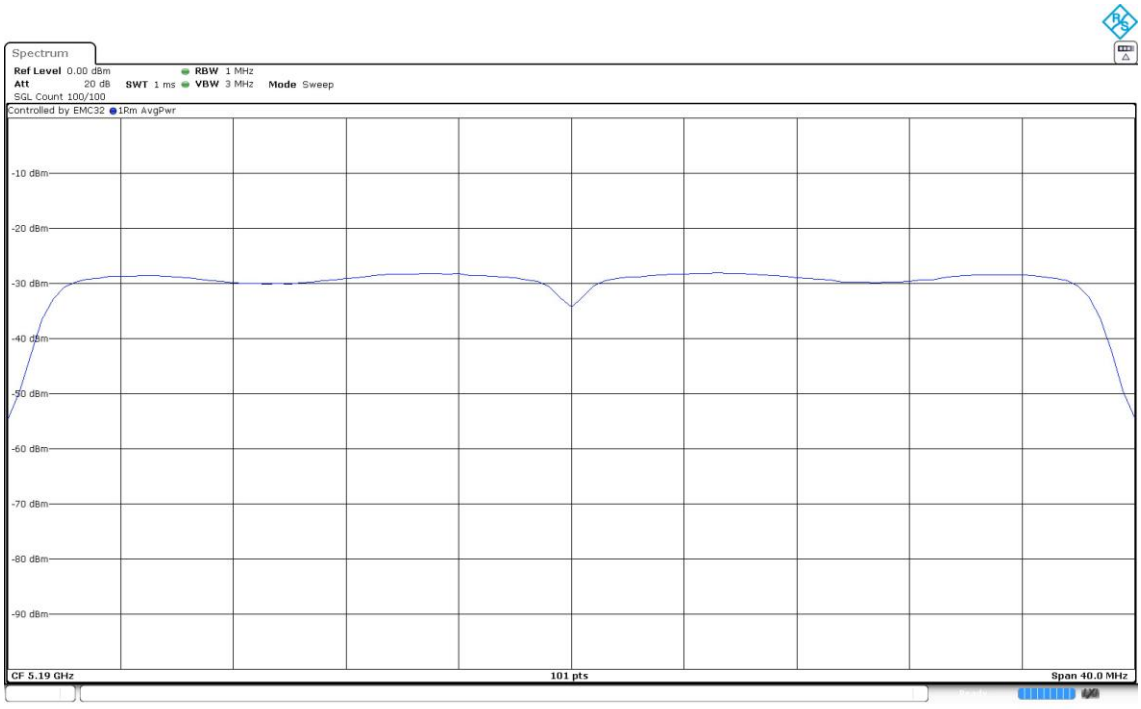
Active Port = 1 Frequency MHz = 5190.00000

Modulation = 802.11n HT40 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:



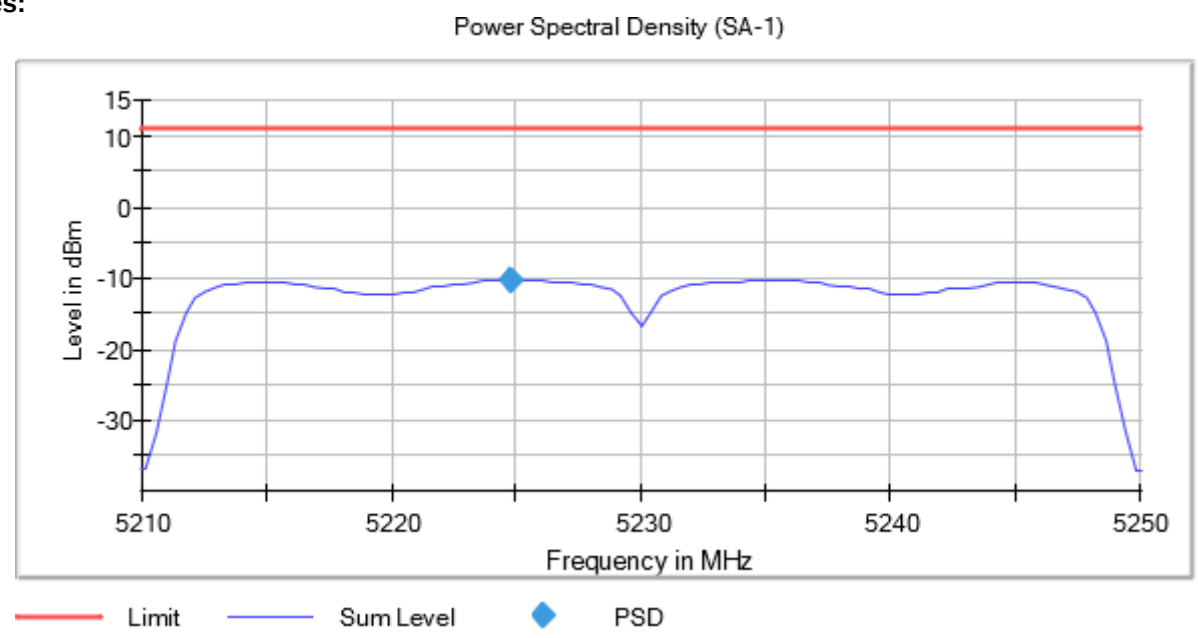


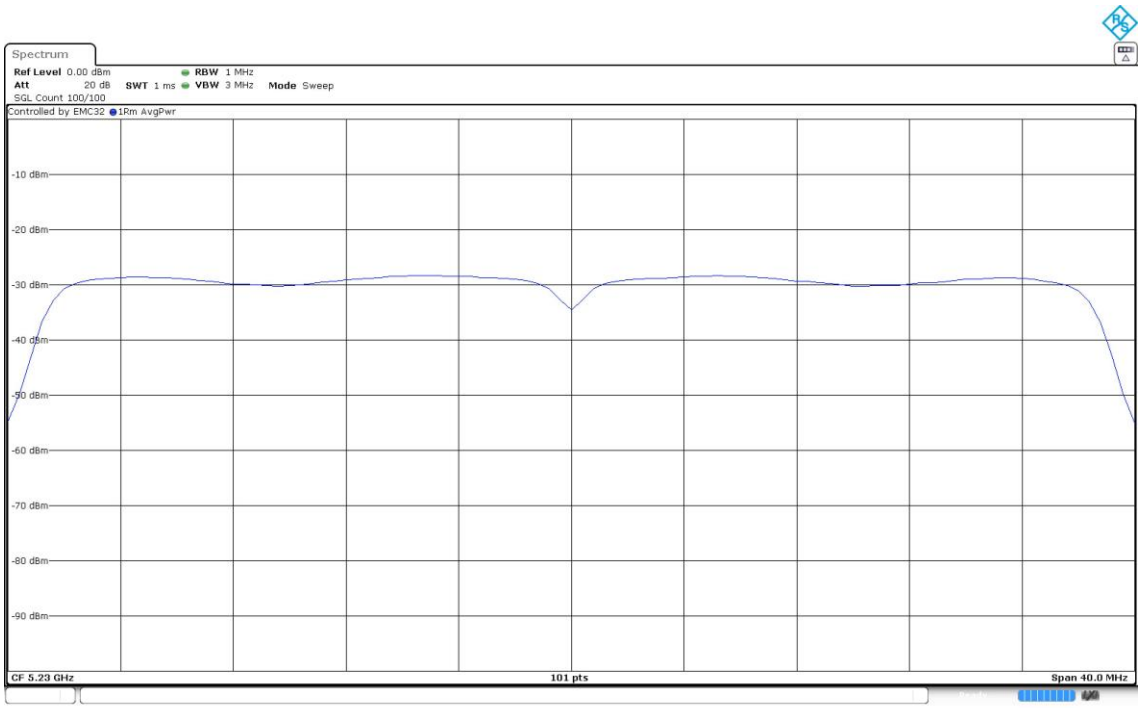
Active Port = 1 Frequency MHz = 5230.00000

Modulation = 802.11n HT40 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:





Modulation: 802.11a (OFDM 6 Mbit/s)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
1	5180.00000	No	5181.980198	-6.74
	5200.00000		5202.178218	-6.81
	5240.00000		5237.623762	-6.69

Verdict

Pass

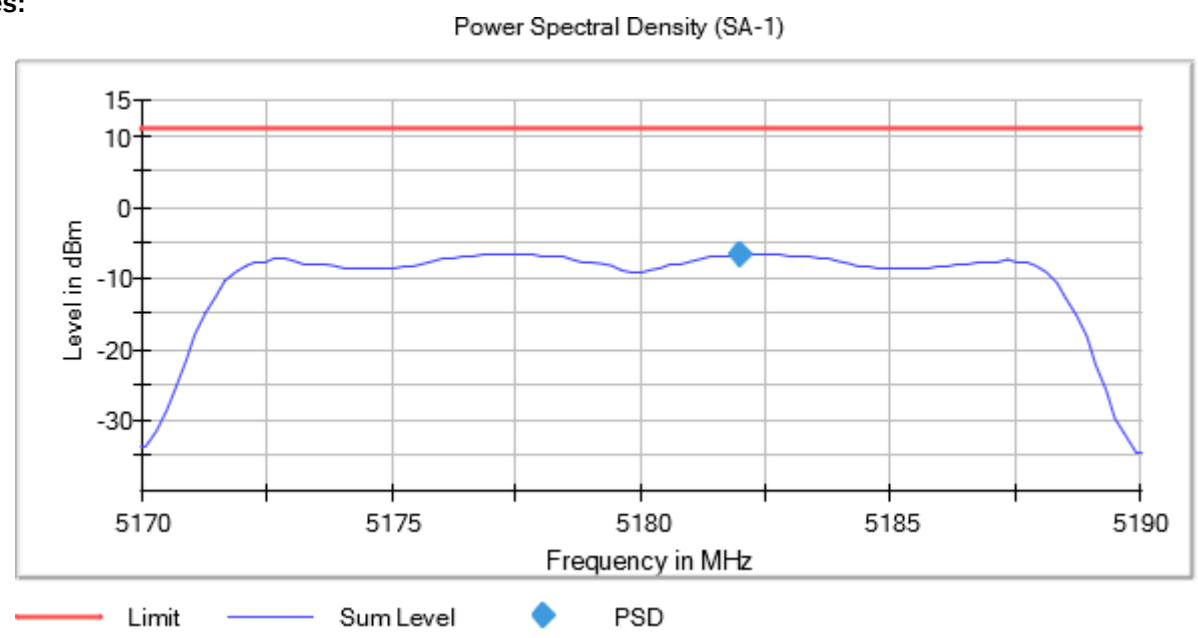
Attachments

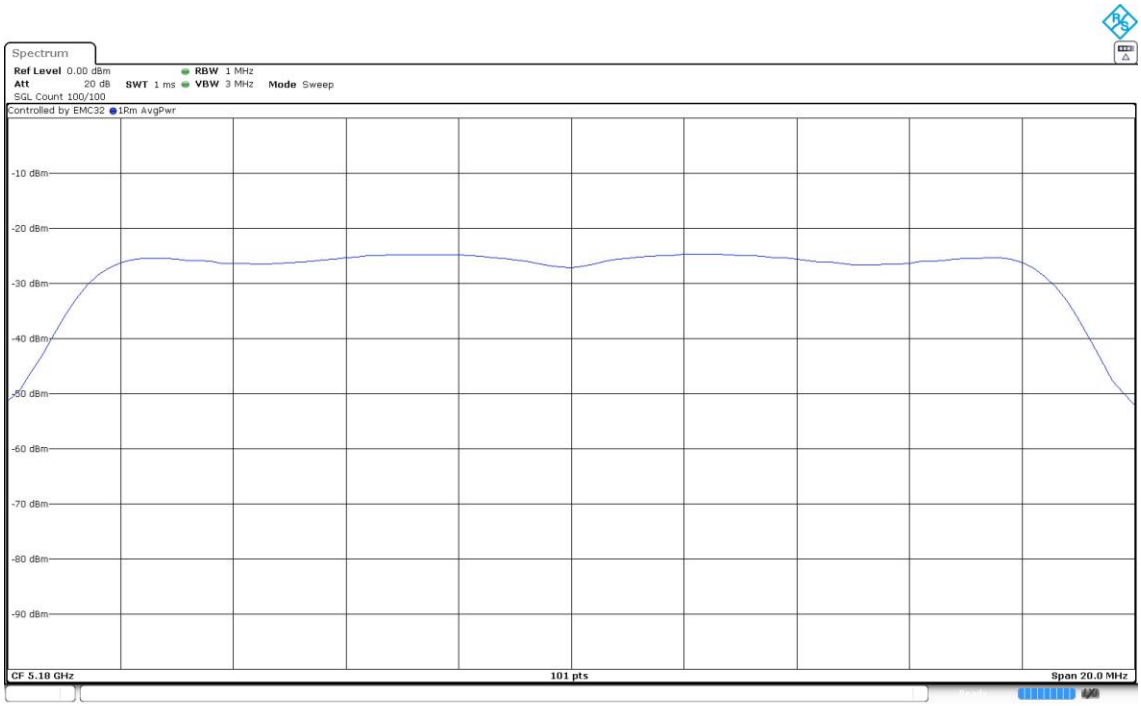
Active Port = 1 Frequency MHz = 5180.00000

Modulation = 802.11a (OFDM 6 Mbit/s) TPC = No

MIMO Mode = SISO

Images:



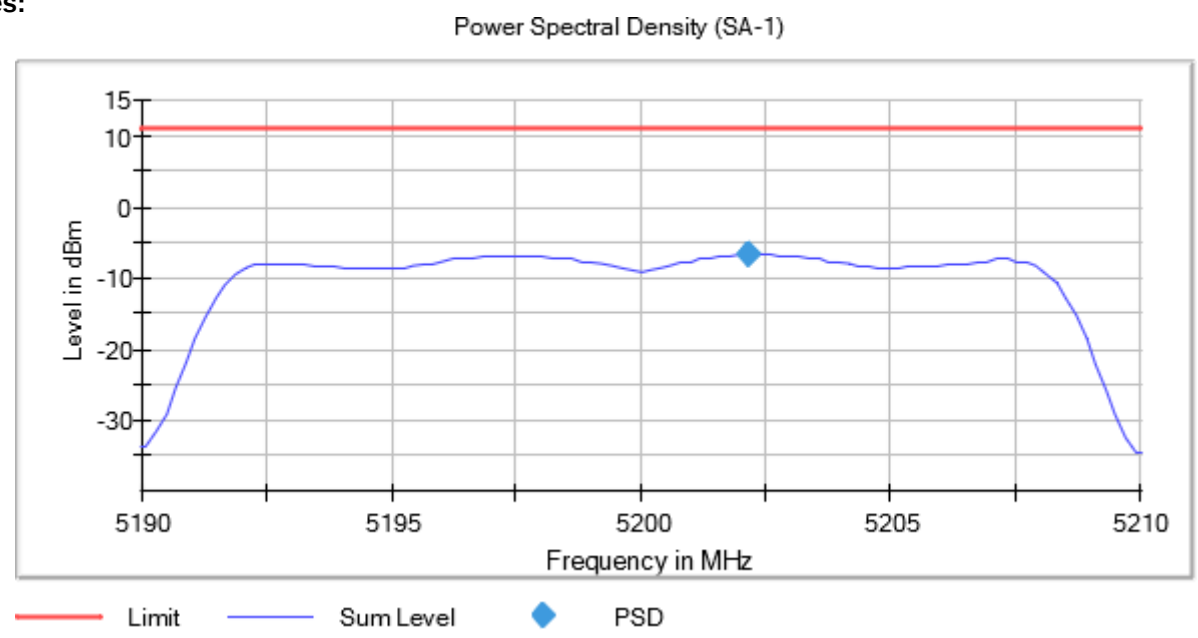


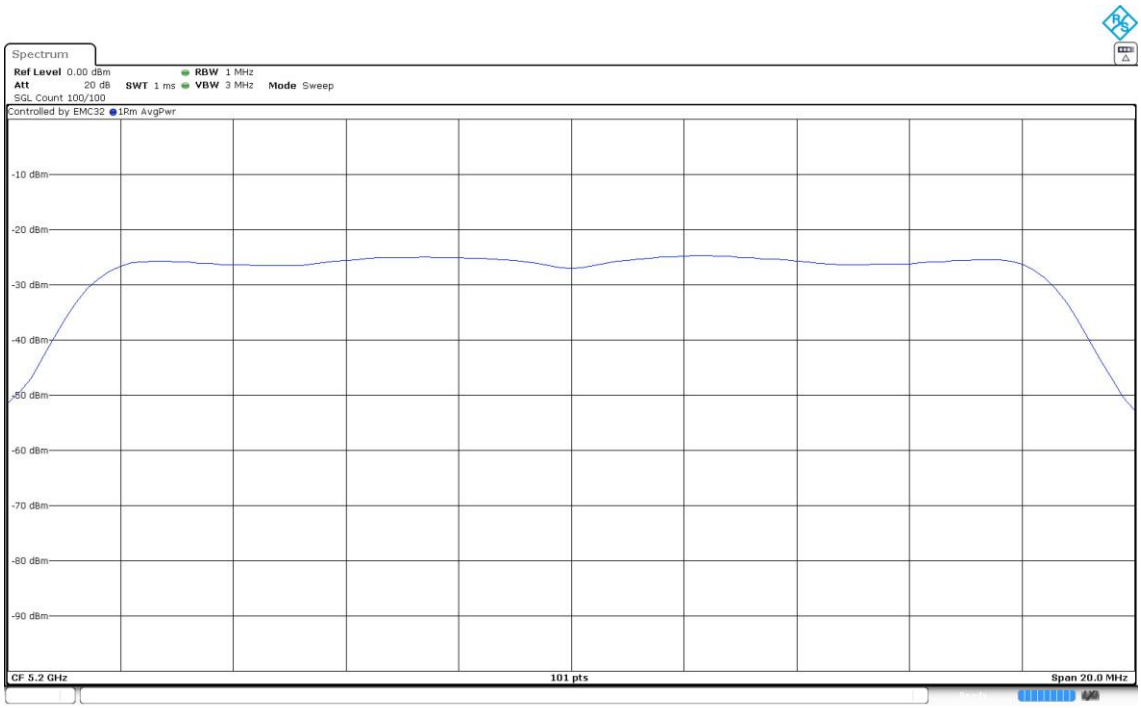
Active Port = 1 Frequency MHz = 5200.00000

Modulation = 802.11a (OFDM 6 Mbit/s) TPC = No

MIMO Mode = SISO

Images:



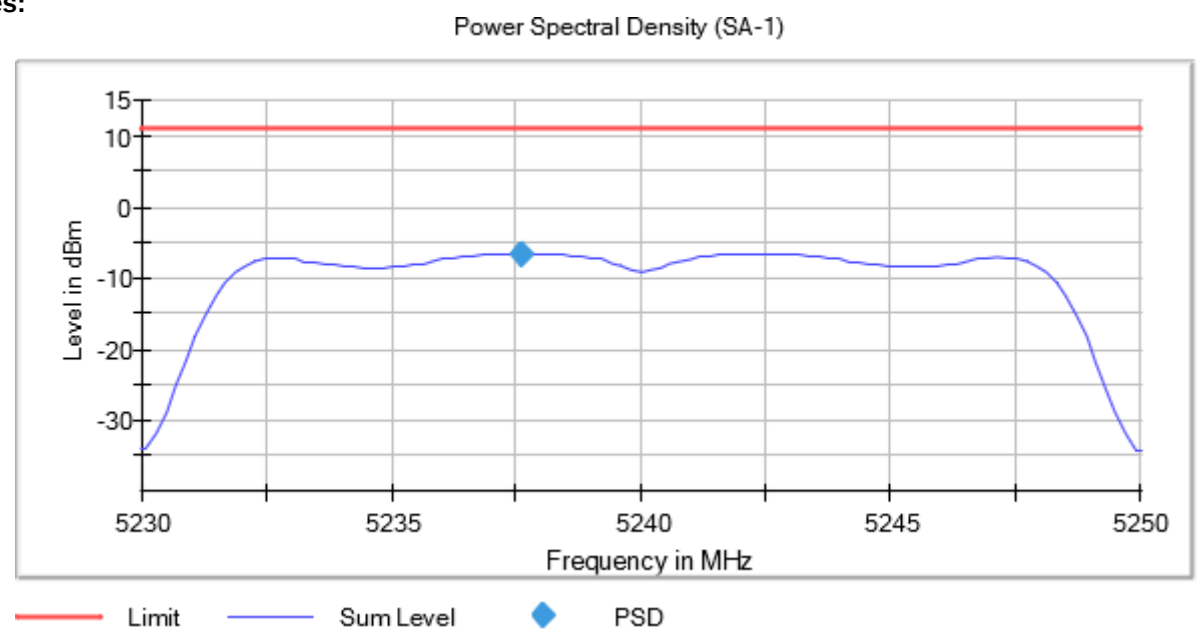


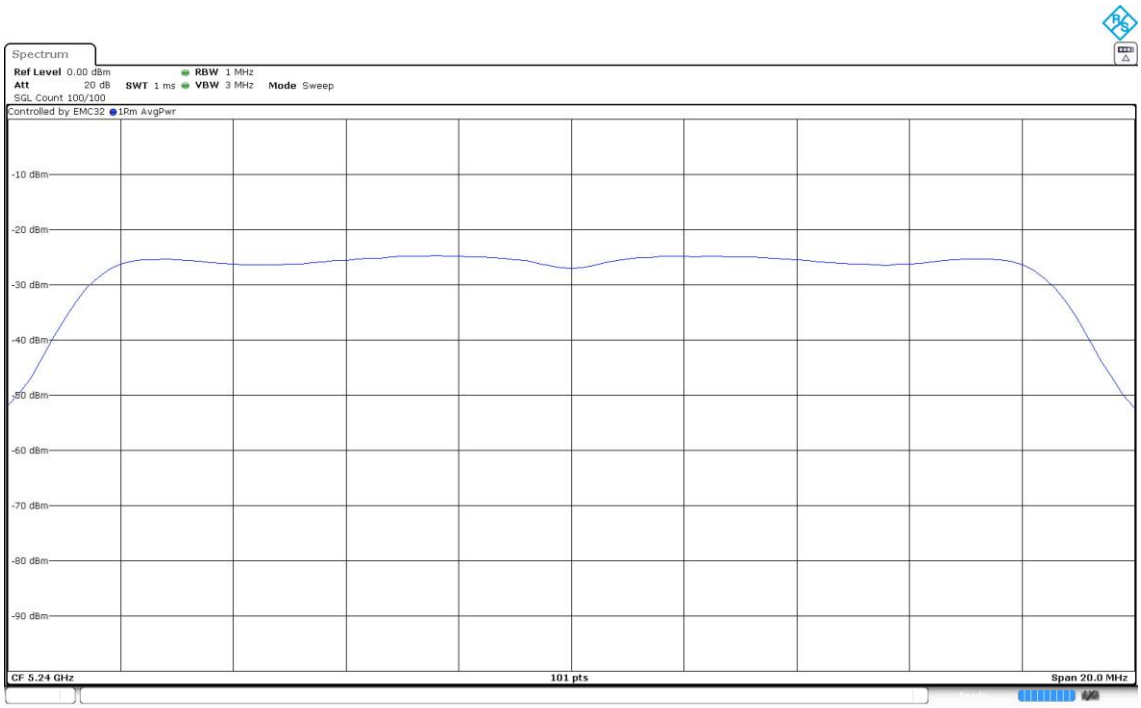
Active Port = 1 Frequency MHz = 5240.00000

Modulation = 802.11a (OFDM 6 Mbit/s) TPC = No

MIMO Mode = SISO

Images:





Modulation: 802.11ac VHT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
1	5180.00000	No	5182.376238	-11.26
	5200.00000		5202.574257	-11.14
	5240.00000		5237.425743	-11.39

Verdict

Pass

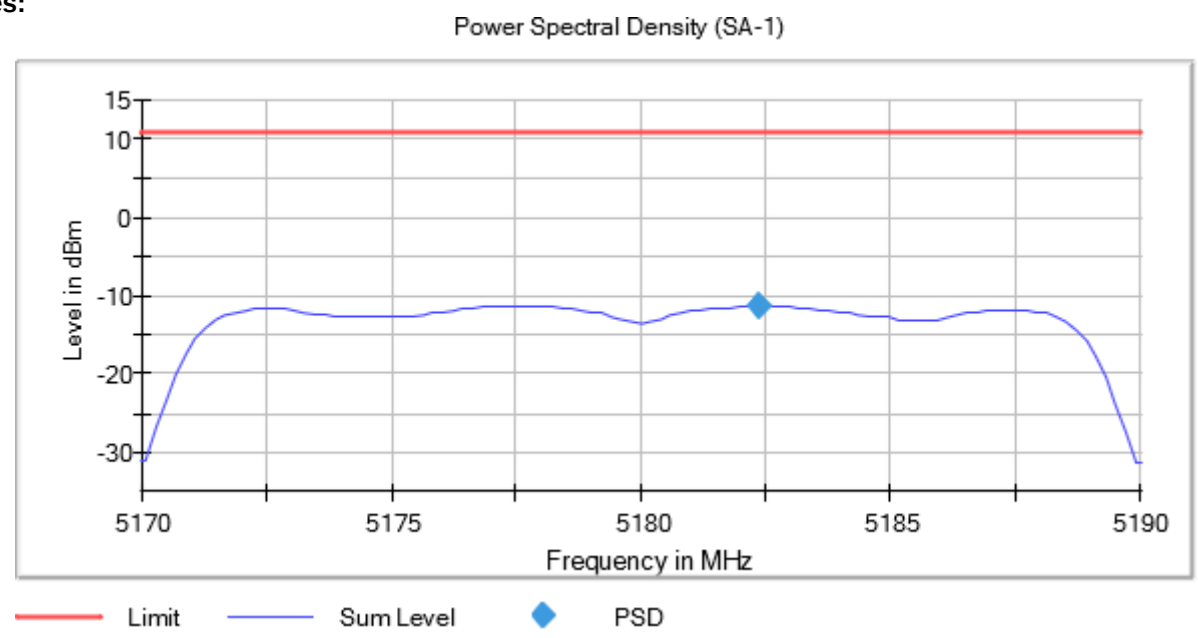
Attachments

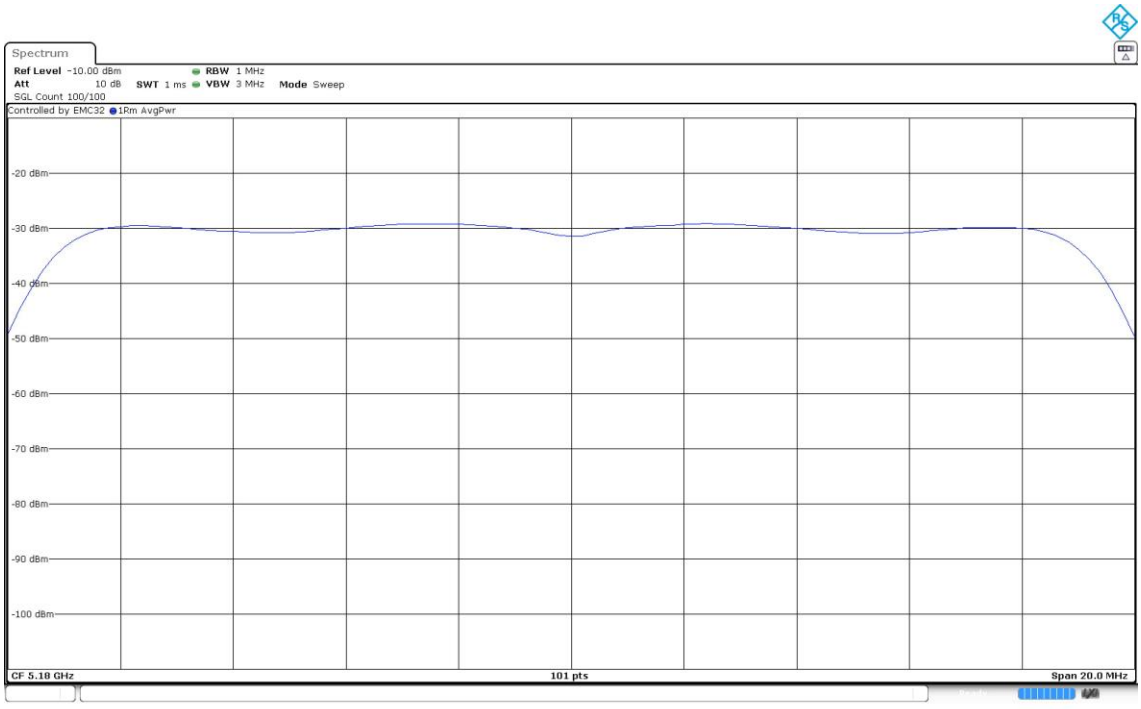
Active Port = 1 Frequency MHz = 5180.00000

Modulation = 802.11ac VHT20 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:



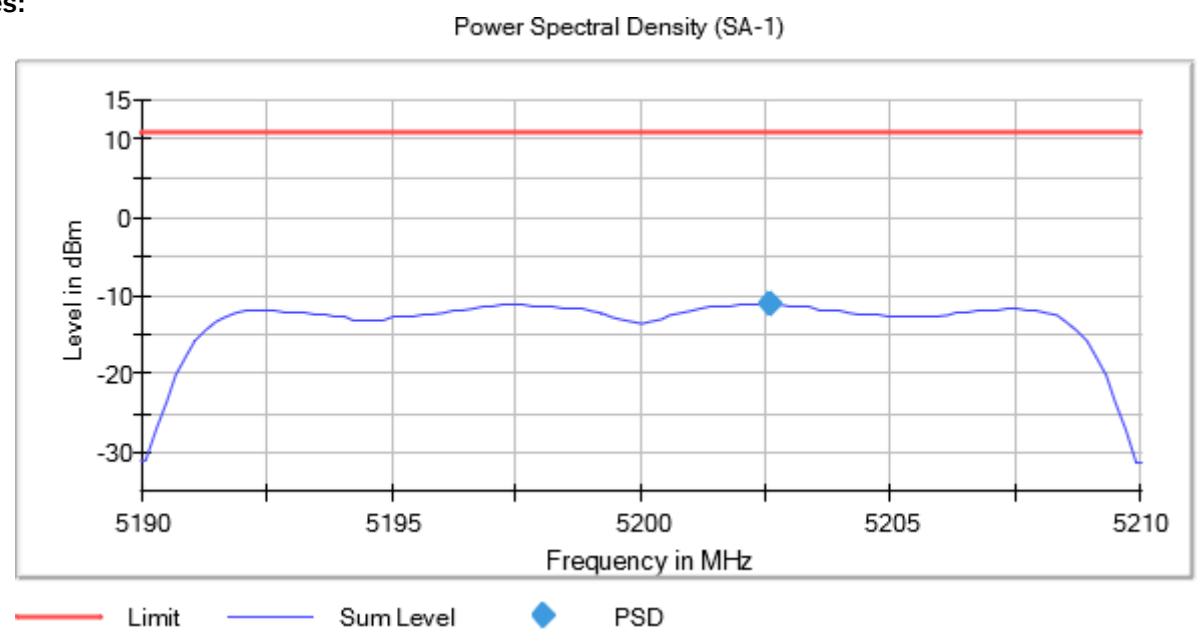


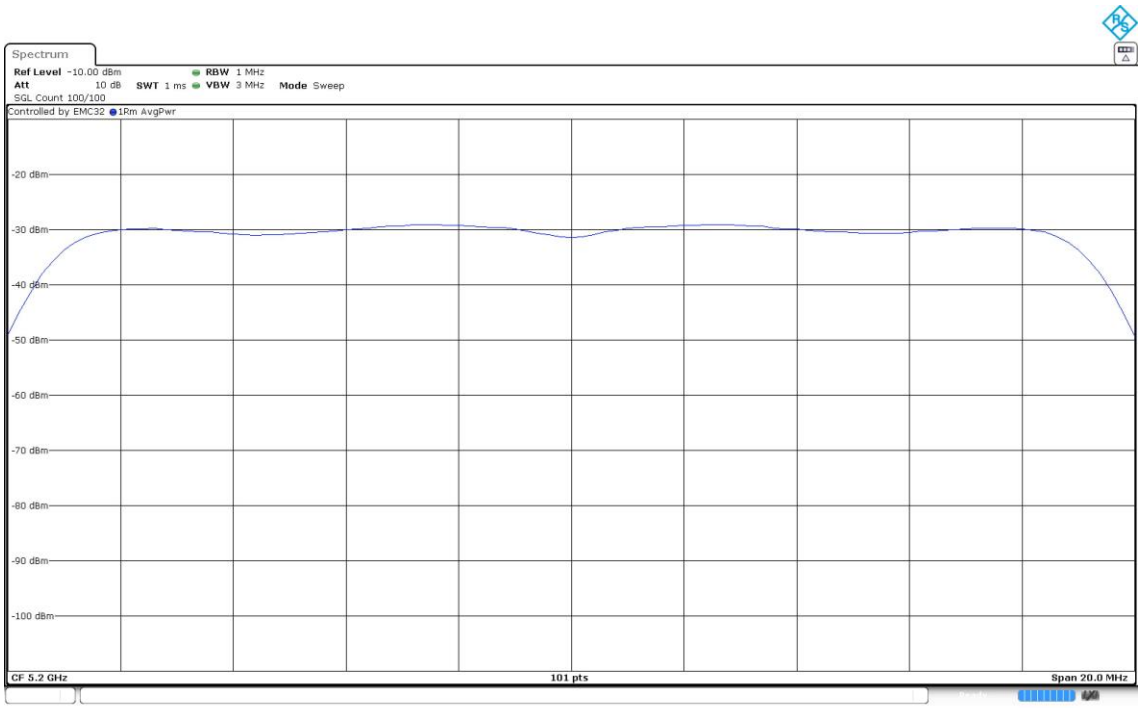
Active Port = 1 Frequency MHz = 5200.00000

Modulation = 802.11ac VHT20 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:



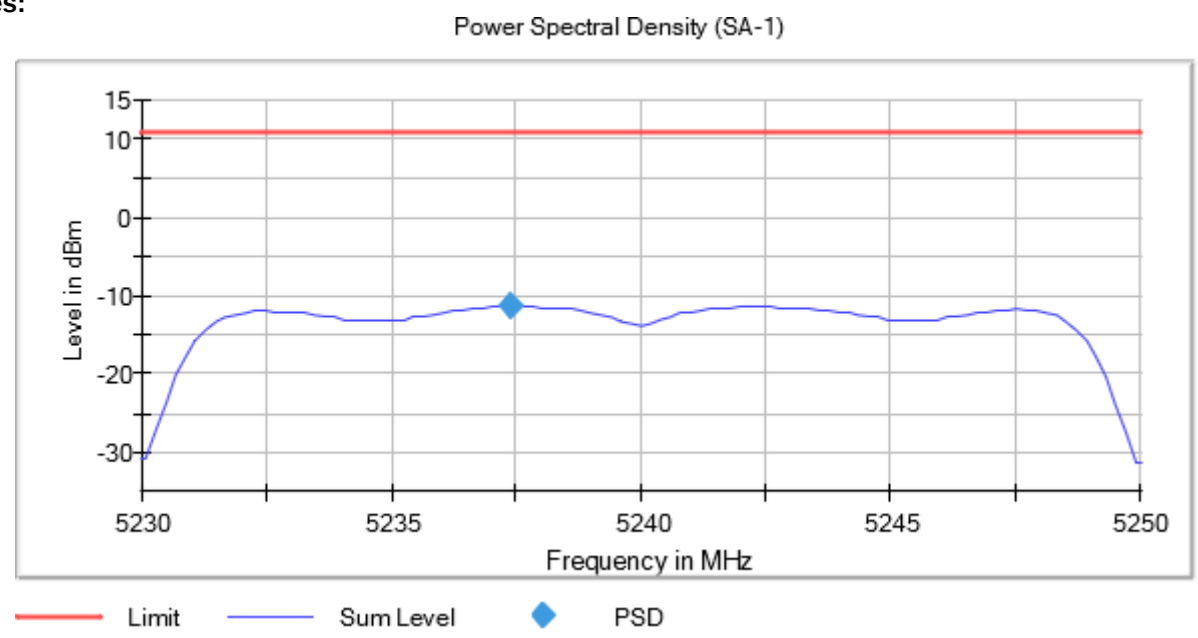


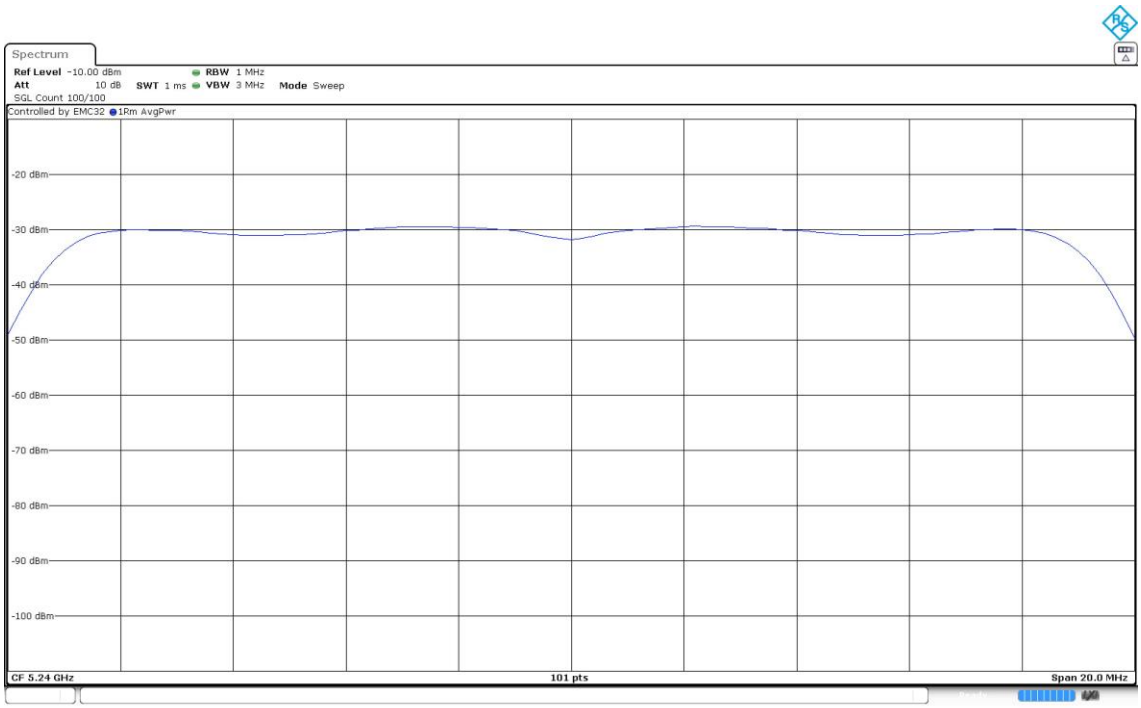
Active Port = 1 Frequency MHz = 5240.00000

Modulation = 802.11ac VHT20 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:





Modulation: 802.11ac VHT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
1	5190.00000	No	5194.752475	-14.61
	5230.00000		5224.455446	-14.35

Verdict

Pass

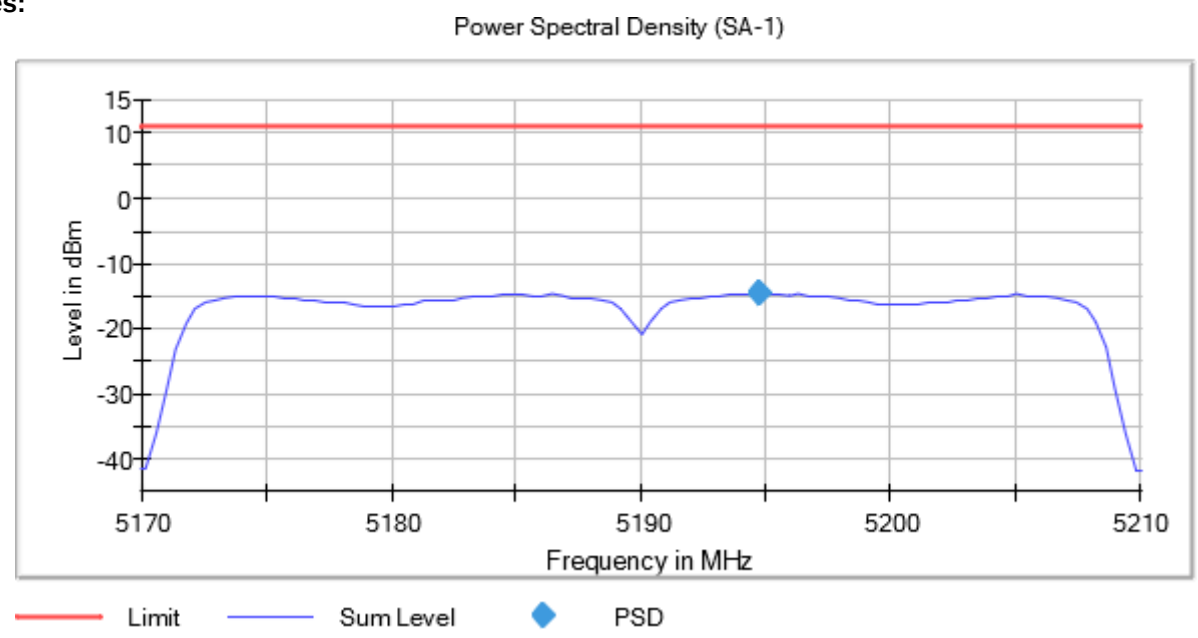
Attachments

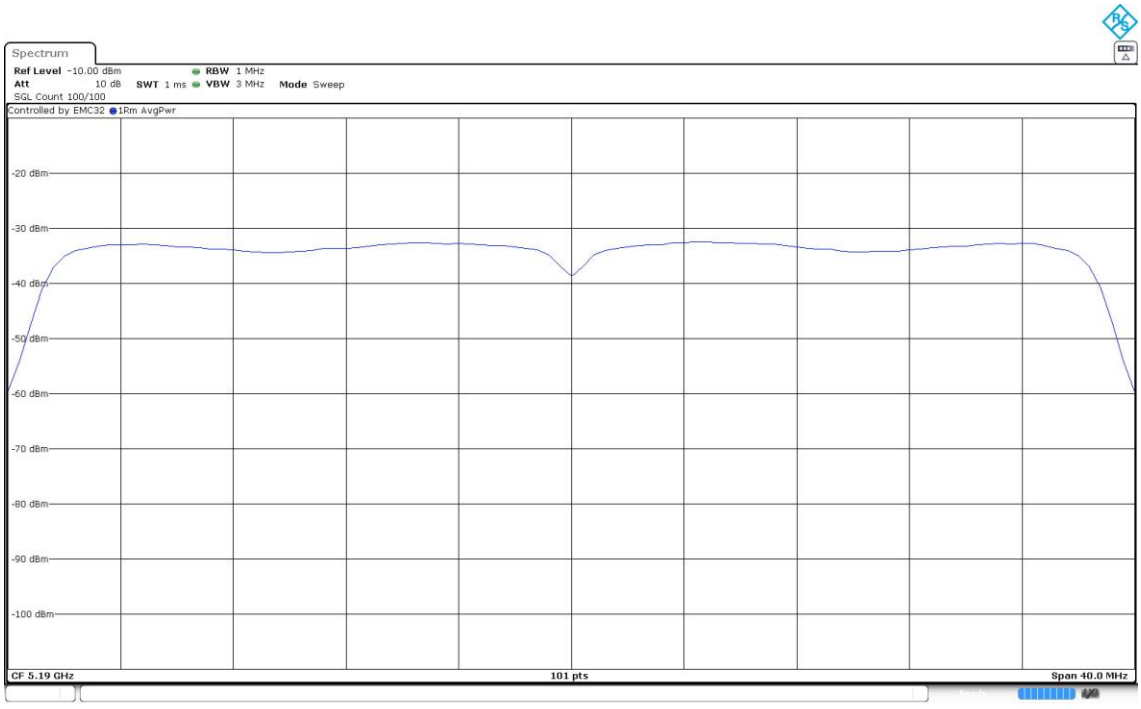
Active Port = 1 Frequency MHz = 5190.00000

Modulation = 802.11ac VHT40 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:



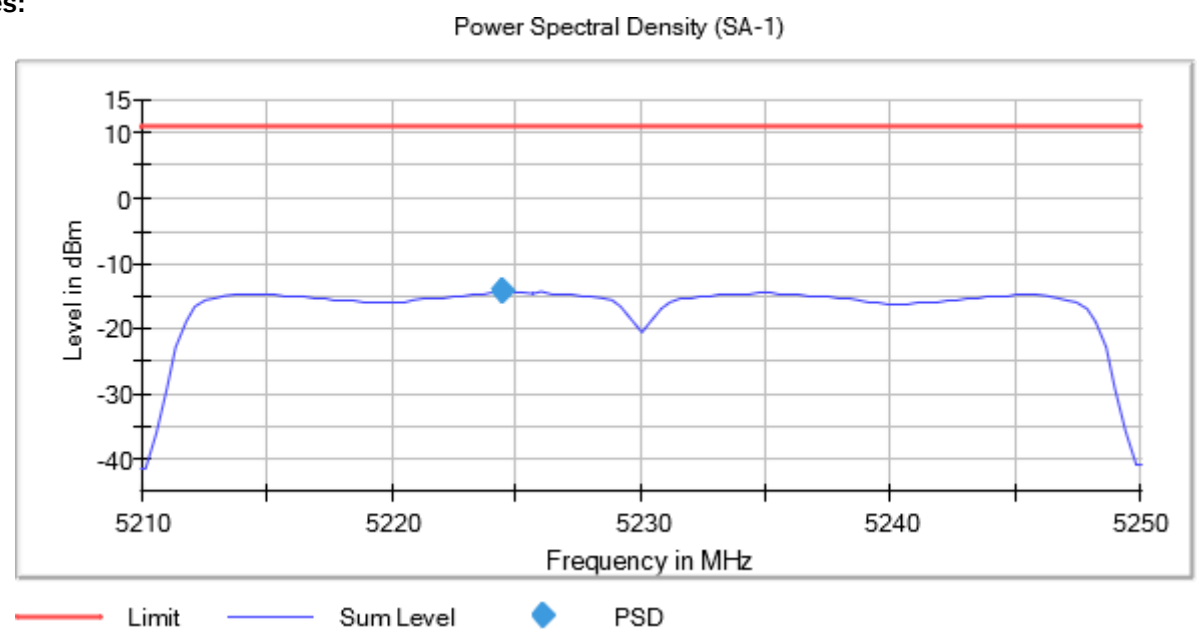


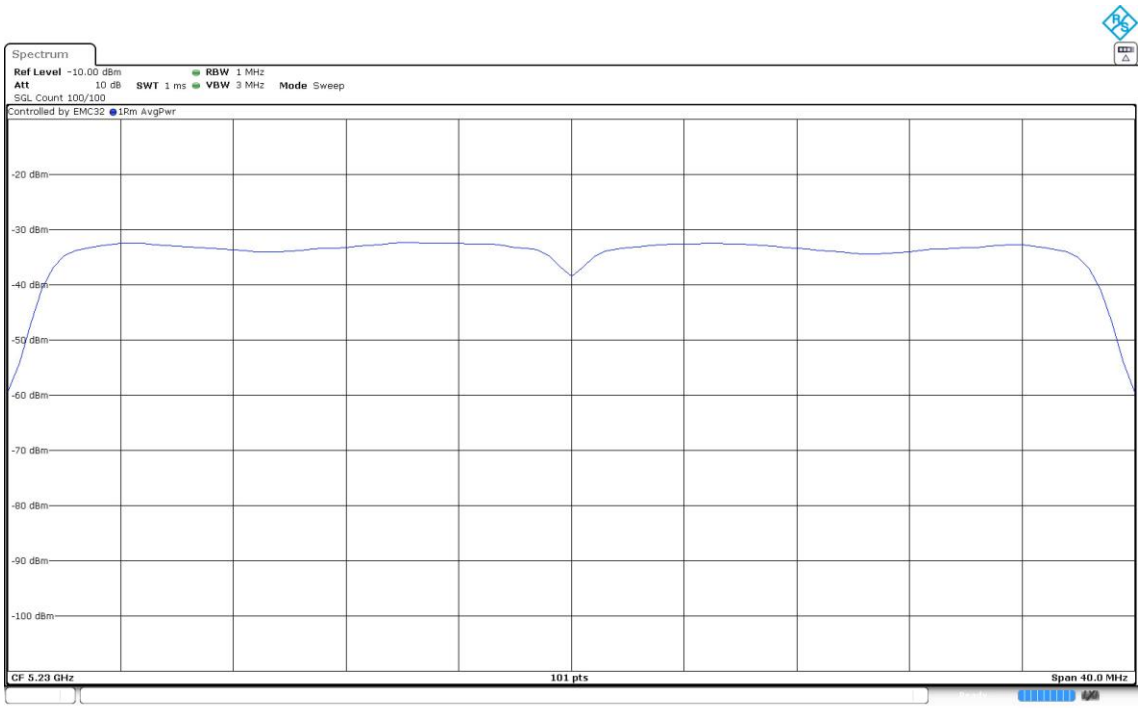
Active Port = 1 Frequency MHz = 5230.00000

Modulation = 802.11ac VHT40 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:





Modulation: 802.11ac VHT80 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
1	5210.00000	No	5206.250000	-18.11

Verdict

Pass

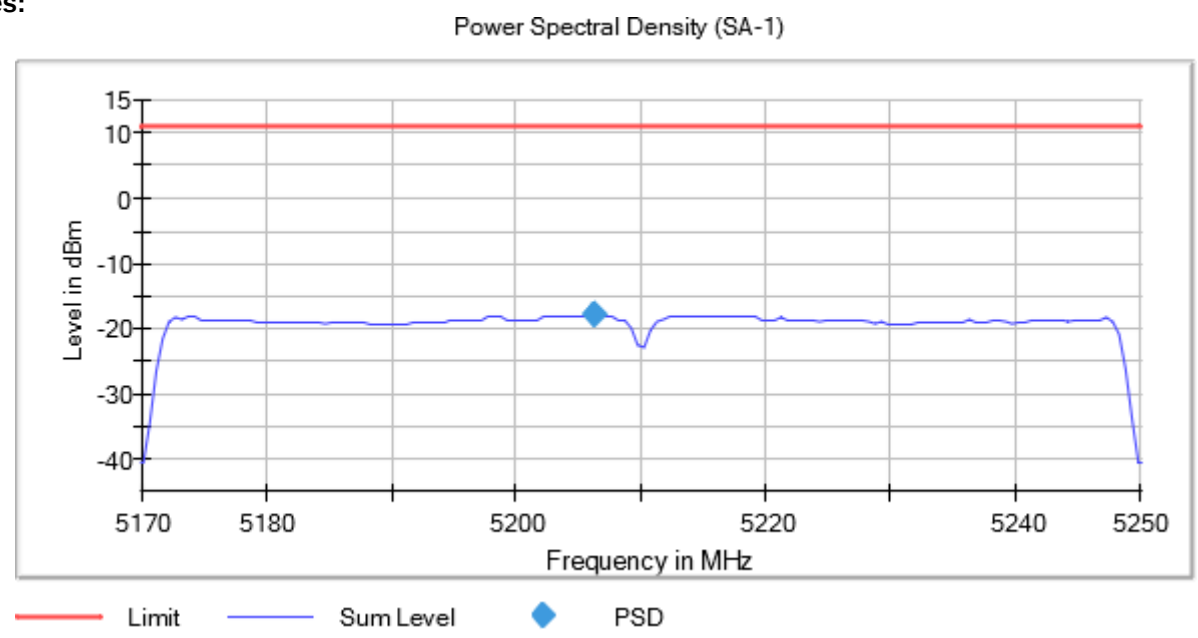
Attachments

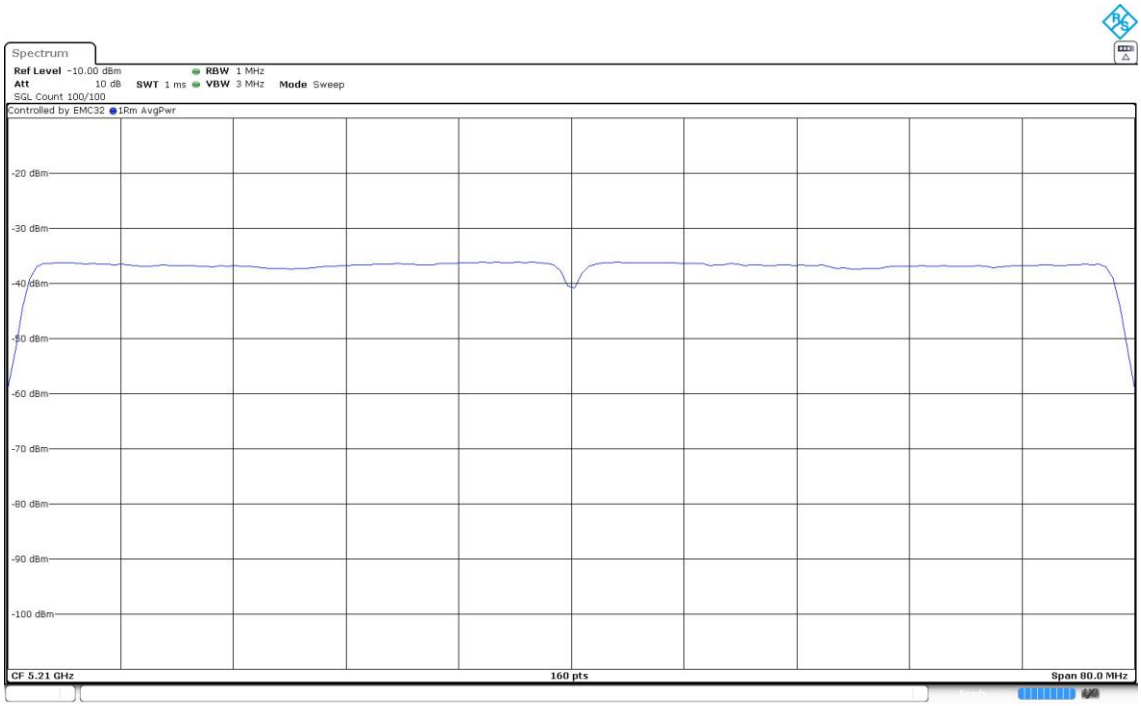
Active Port = 1 Frequency MHz = 5210.00000

Modulation = 802.11ac VHT80 (OFDM MCS0) TPC = No

MIMO Mode = SISO

Images:





RSS-247 6.2.1.2 / FCC 15.407 (b) (1) [Bndedge] Transmitter Out of Band Radiated Emissions for U-NII-1

Limits

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz (68.23 dBµV/m at 3 m distance).

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)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Freq (MHz)	Lvl (dBm)
1	5180.00000	5146.250000	-46.1
1	5180.00000	5148.250000	-47.6
1	5180.00000	5146.750000	-47.8
1	5180.00000	5149.250000	-48.2
1	5180.00000	5149.750000	-48.4
1	5180.00000	5148.750000	-48.6
1	5180.00000	5147.750000	-48.7
1	5180.00000	5147.250000	-48.9
1	5180.00000	5145.750000	-48.9
1	5180.00000	5143.250000	-49.6
1	5180.00000	5144.750000	-49.6
1	5180.00000	5143.750000	-49.7
1	5180.00000	5145.250000	-49.7
1	5180.00000	5144.250000	-49.7

Port	Freq (MHz)	Freq (MHz)	Lvl (dBm)
1	5180.00000	5142.250000	-50.6
1	5240.00000	5386.750000	-55.6
1	5240.00000	5395.750000	-56.1
1	5240.00000	5392.750000	-56.2
1	5240.00000	5389.250000	-56.2
1	5240.00000	5441.250000	-56.5
1	5240.00000	5382.250000	-56.5
1	5240.00000	5372.250000	-56.7
1	5240.00000	5387.250000	-56.7
1	5240.00000	5381.250000	-56.7
1	5240.00000	5381.750000	-56.8
1	5240.00000	5384.750000	-56.8
1	5240.00000	5371.750000	-56.9
1	5240.00000	5352.750000	-56.9
1	5240.00000	5383.750000	-56.9
1	5240.00000	5385.250000	-56.9

Verdict

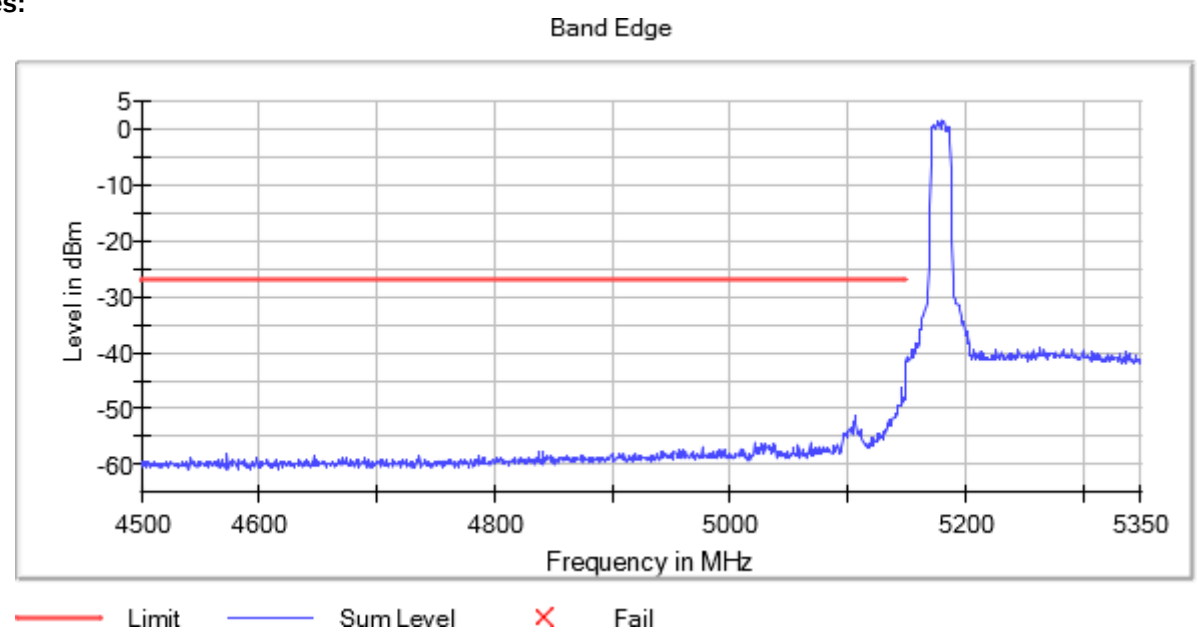
Pass

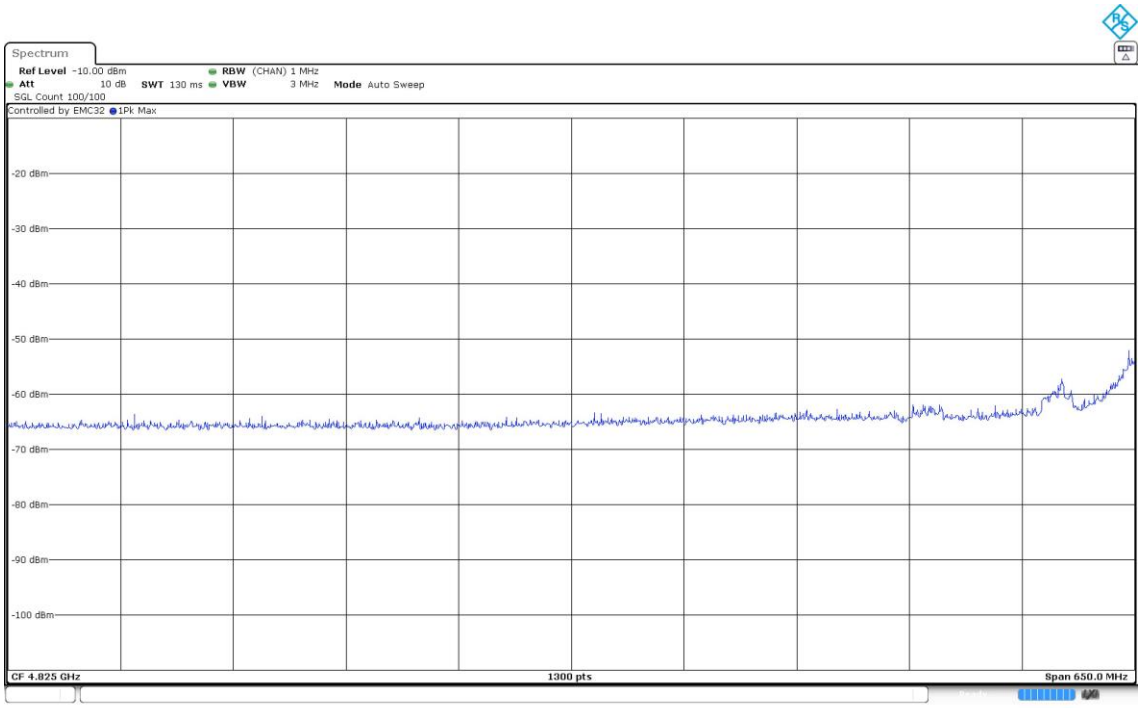
Attachments

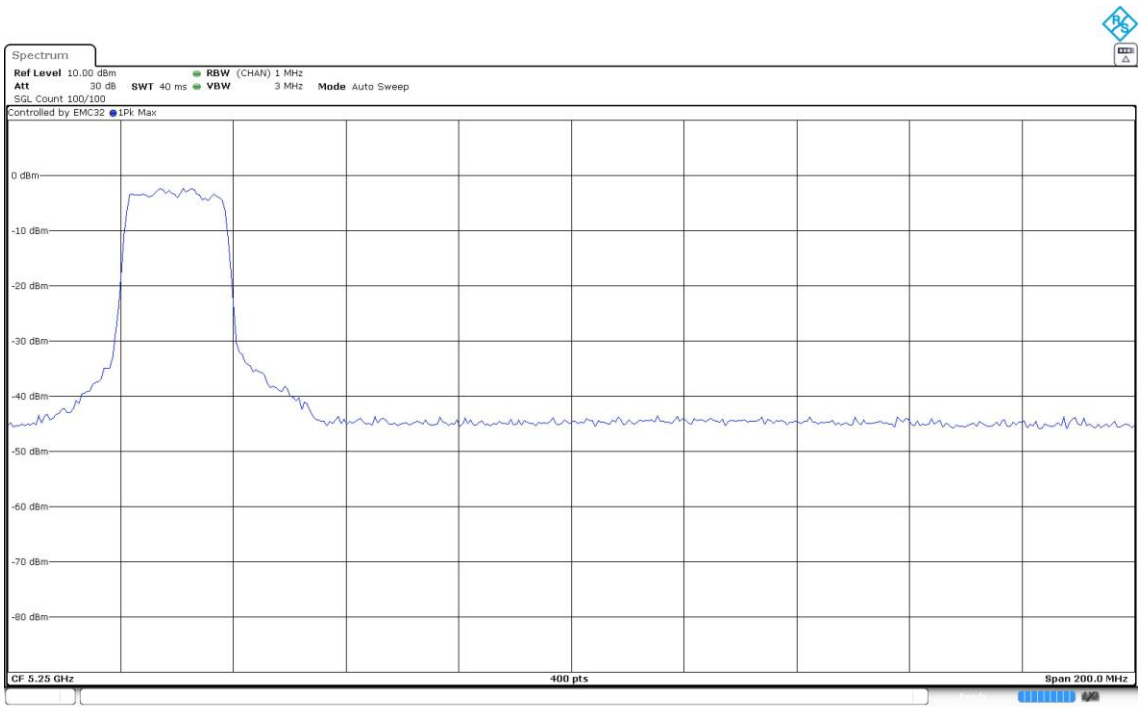
Active Port = 1 Frequency MHz = 5180.00000

Modulation = 802.11n HT20 (OFDM MCS0) MIMO Mode = SISO

Images:



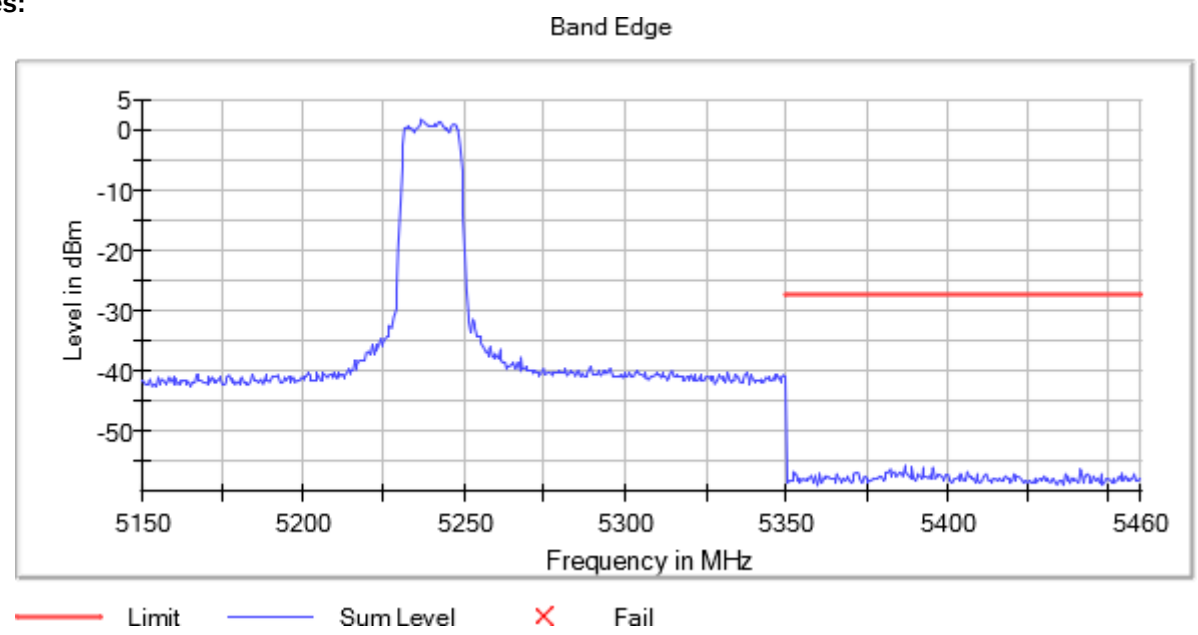


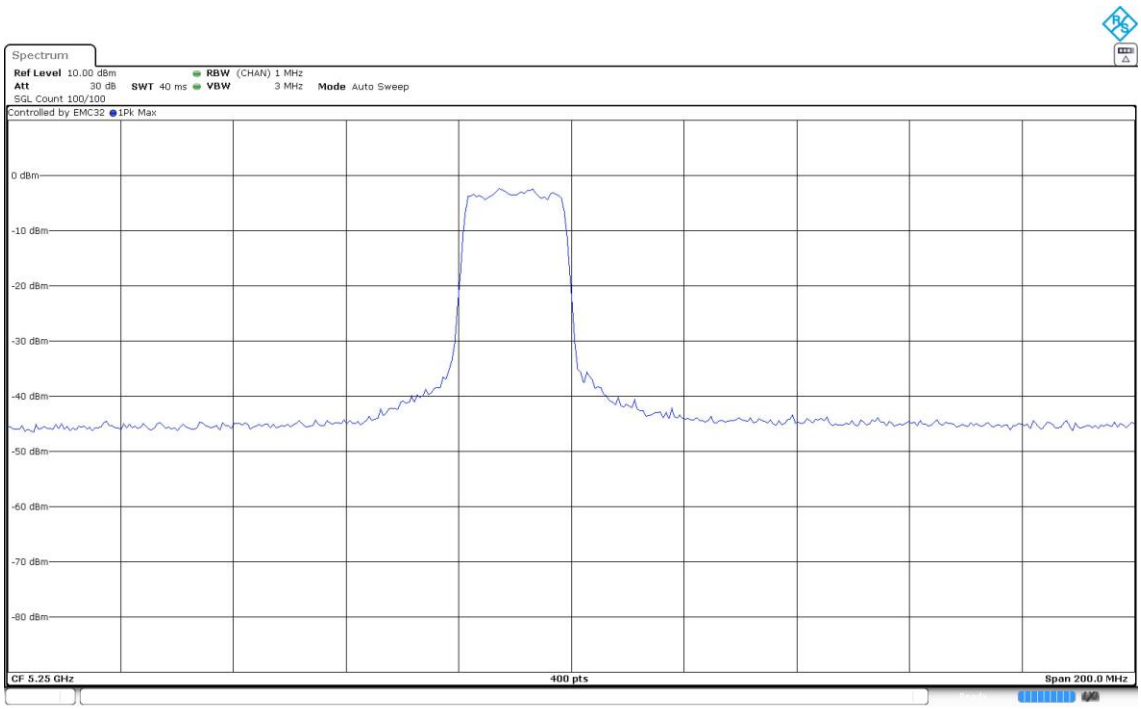

Spectrum
Ref Level 10.00 dBm
RBW (CHAN) 1 MHz
Att 30 dB
SWT 40 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
CF 5.25 GHz
400 pts
Span 200.0 MHz

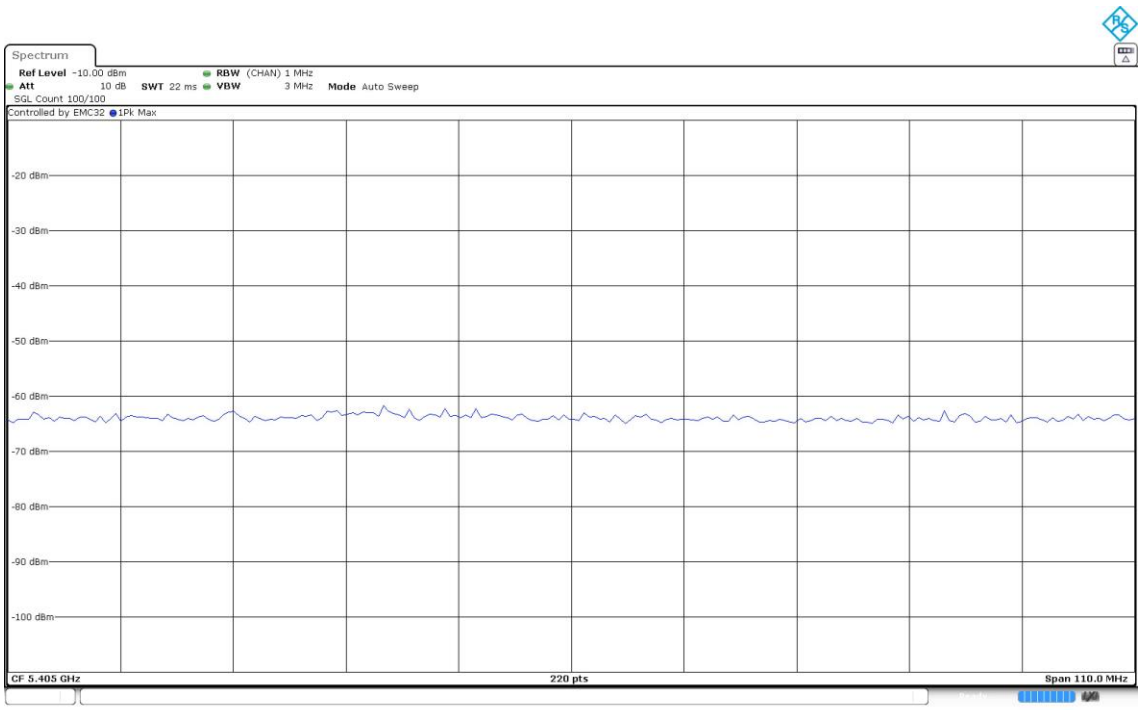
Active Port = 1 Frequency MHz = 5240.00000

Modulation = 802.11n HT20 (OFDM MCS0) MIMO Mode = SISO

Images:






Spectrum
Ref Level -10.00 dBm
RBW (CHAN) 1 MHz
Att 10 dB
SWT 22 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
-100 dBm
CF 5.405 GHz
220 pts
Span 110.0 MHz

Modulation: 802.11n HT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Freq (MHz)	Lvl (dBm)
1	5190.00000	5148.750000	-33.5
1	5190.00000	5146.250000	-34.7
1	5190.00000	5148.250000	-34.7
1	5190.00000	5149.250000	-35.2
1	5190.00000	5147.750000	-35.4
1	5190.00000	5147.250000	-35.9
1	5190.00000	5146.750000	-35.9
1	5190.00000	5144.750000	-35.9
1	5190.00000	5149.750000	-36.1
1	5190.00000	5145.750000	-36.1
1	5190.00000	5145.250000	-37.2
1	5190.00000	5144.250000	-37.6
1	5190.00000	5143.750000	-38.4
1	5190.00000	5142.250000	-38.6
1	5190.00000	5142.750000	-39.0
1	5230.00000	5373.250000	-56.7
1	5230.00000	5374.750000	-57.3
1	5230.00000	5375.250000	-57.5
1	5230.00000	5372.750000	-57.5
1	5230.00000	5374.250000	-57.6
1	5230.00000	5372.250000	-57.6
1	5230.00000	5373.750000	-57.7
1	5230.00000	5376.750000	-57.8
1	5230.00000	5375.750000	-57.8
1	5230.00000	5371.750000	-58.5
1	5230.00000	5377.250000	-58.9
1	5230.00000	5376.250000	-59.0
1	5230.00000	5377.750000	-59.4
1	5230.00000	5364.250000	-59.5
1	5230.00000	5378.750000	-59.8

Verdict

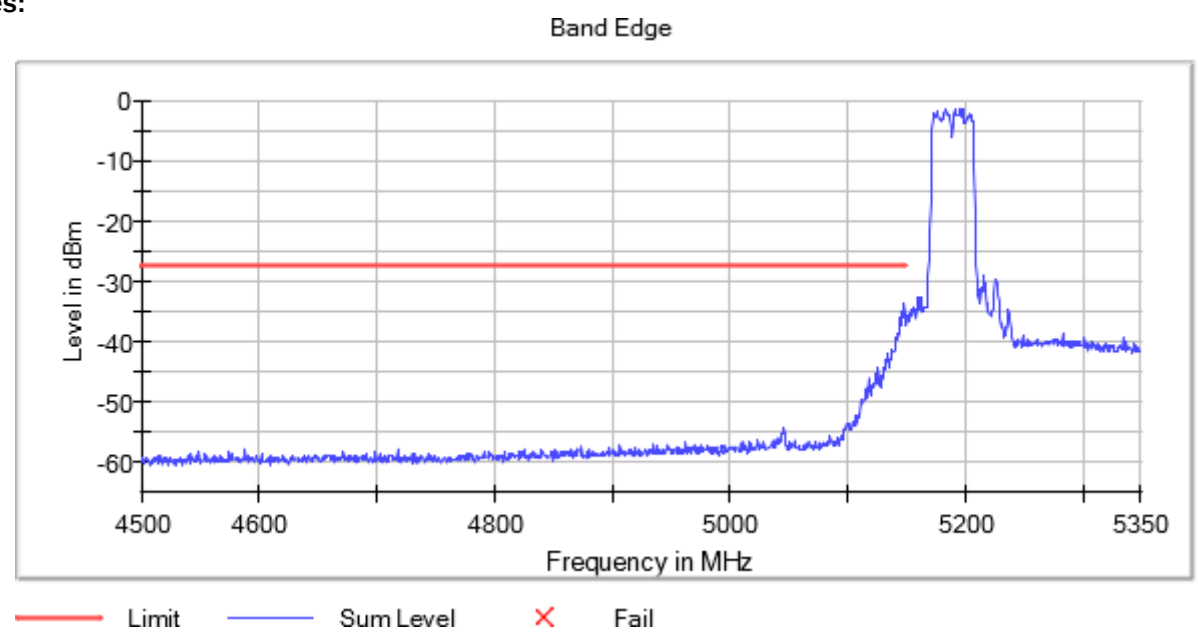
Pass

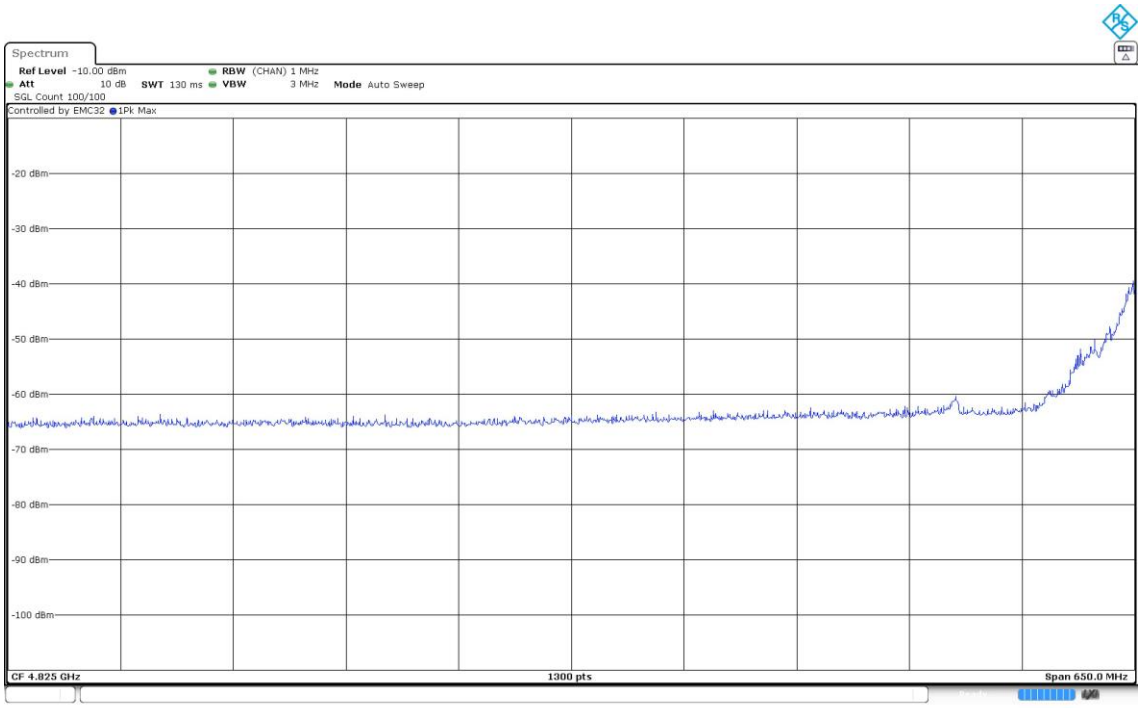
Attachments

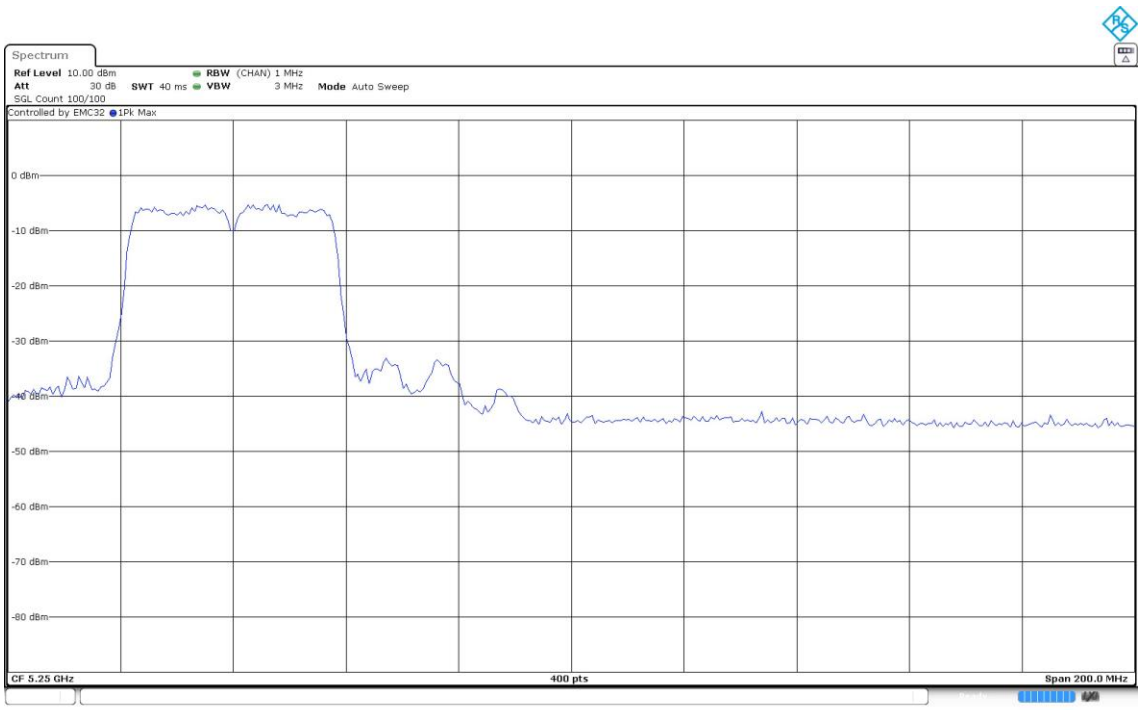
Active Port = 1 Frequency MHz = 5190.00000

Modulation = 802.11n HT40 (OFDM MCS0) MIMO Mode = SISO

Images:



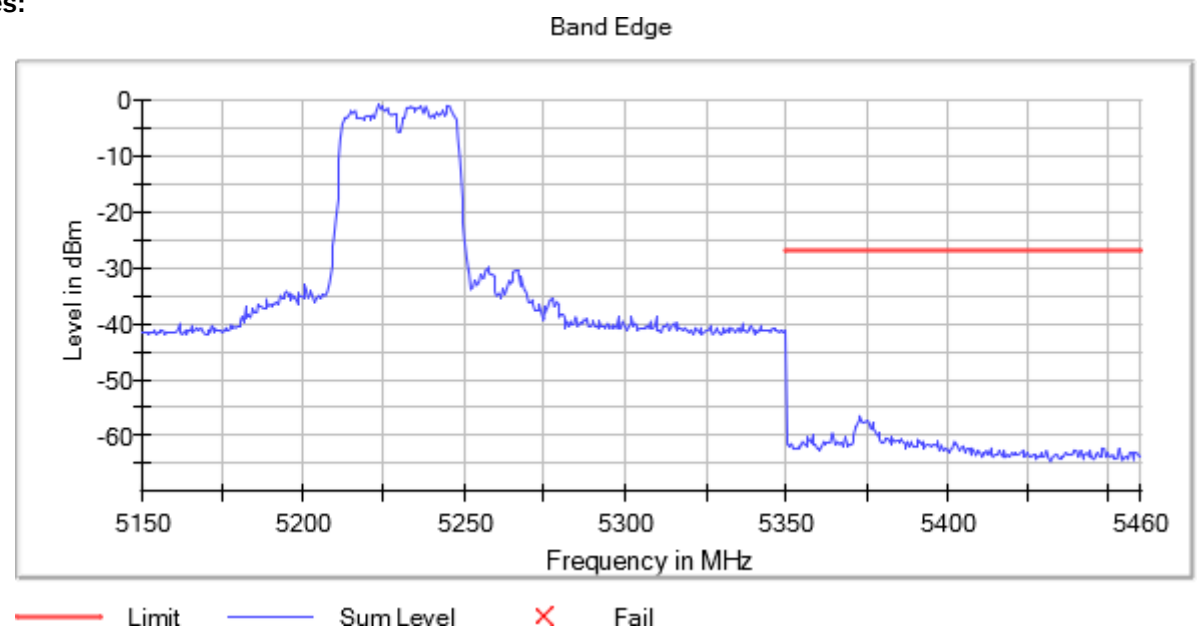


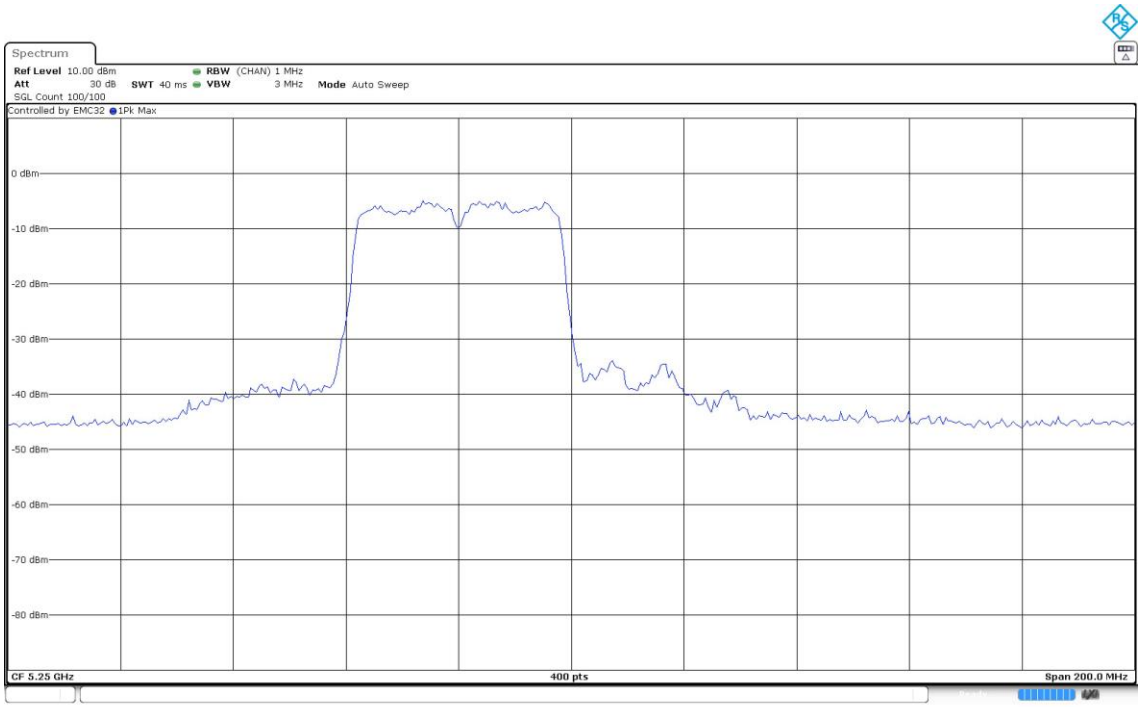

Spectrum
Ref Level 10.00 dBm
RBW (CHAN) 1 MHz
Att 30 dB
SWT 40 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
CF 5.25 GHz
400 pts
Span 200.0 MHz

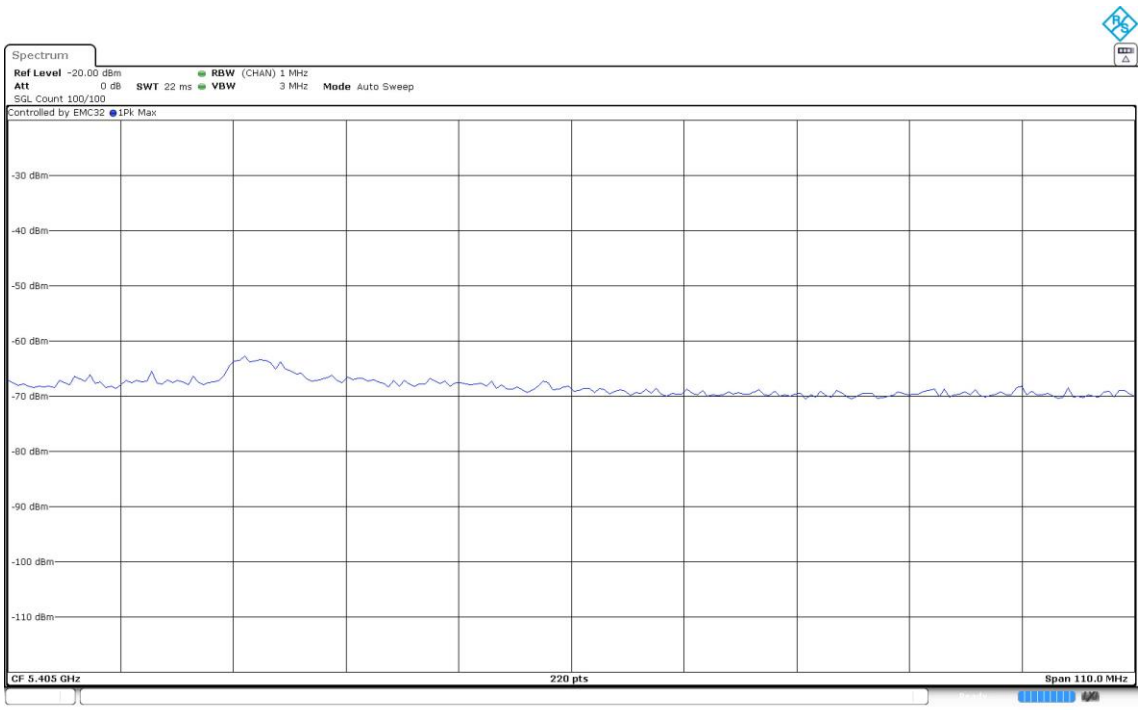
Active Port = 1 Frequency MHz = 5230.00000

Modulation = 802.11n HT40 (OFDM MCS0) MIMO Mode = SISO

Images:






Spectrum
Ref Level -20.00 dBm
RBW (CHAN) 1 MHz
Att 0 dB
SWT 22 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
-100 dBm
-110 dBm
CF 5.405 GHz
220 pts
Span 110.0 MHz

Modulation: 802.11a (OFDM 6 Mbit/s)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Freq (MHz)	Lvl (dBm)
1	5180.00000	5147.250000	-45.1
1	5180.00000	5149.750000	-45.2
1	5180.00000	5148.750000	-45.4
1	5180.00000	5146.250000	-45.5
1	5180.00000	5145.750000	-45.5
1	5180.00000	5148.250000	-45.6
1	5180.00000	5149.250000	-45.7
1	5180.00000	5147.750000	-46.1
1	5180.00000	5146.750000	-46.3
1	5180.00000	5144.750000	-47.8
1	5180.00000	5143.750000	-48.1
1	5180.00000	5145.250000	-48.3
1	5180.00000	5144.250000	-48.9
1	5180.00000	5143.250000	-49.0
1	5180.00000	5142.250000	-49.9
1	5240.00000	5383.750000	-59.8
1	5240.00000	5386.750000	-59.9
1	5240.00000	5392.250000	-60.2
1	5240.00000	5385.750000	-60.3
1	5240.00000	5397.250000	-60.3
1	5240.00000	5396.750000	-60.3
1	5240.00000	5386.250000	-60.4
1	5240.00000	5382.250000	-60.5
1	5240.00000	5353.750000	-60.5
1	5240.00000	5392.750000	-60.5
1	5240.00000	5393.750000	-60.6
1	5240.00000	5389.250000	-60.6
1	5240.00000	5390.250000	-60.6
1	5240.00000	5390.750000	-60.7
1	5240.00000	5394.750000	-60.7

Verdict

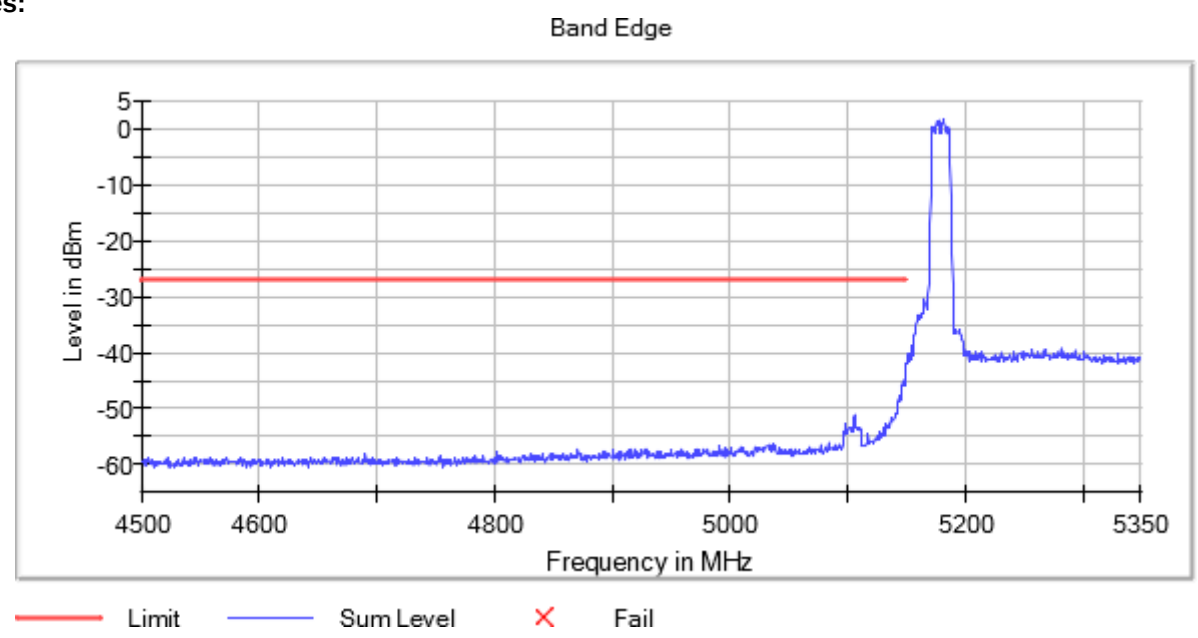
Pass

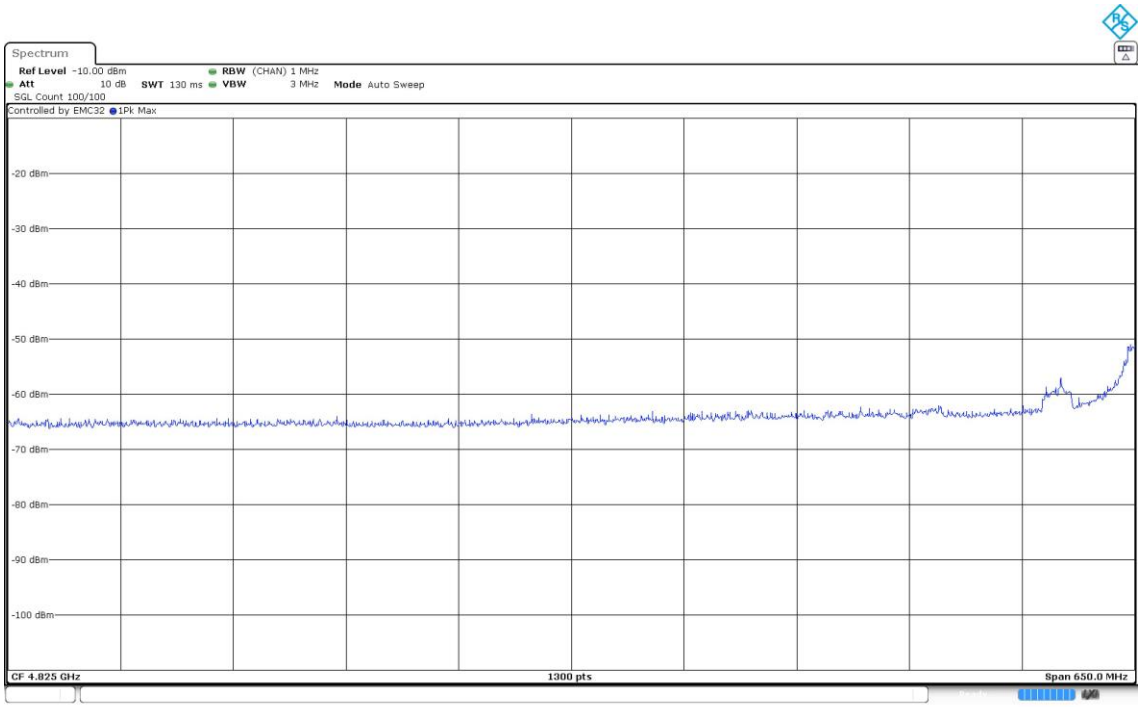
Attachments

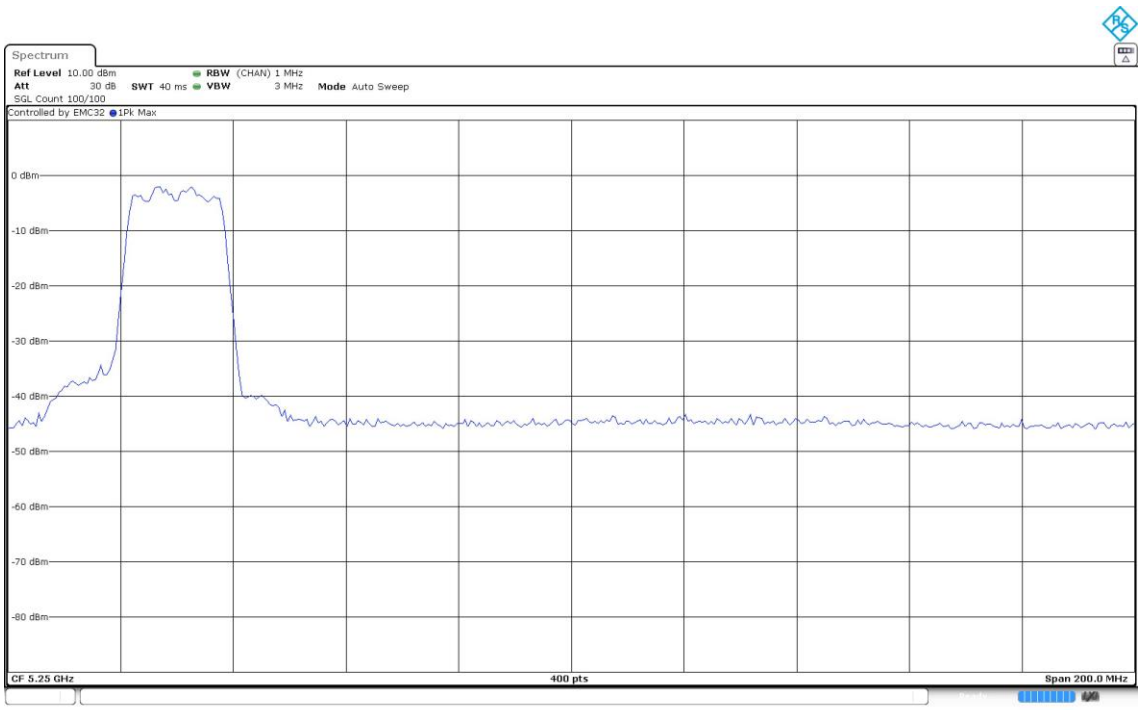
Active Port = 1 Frequency MHz = 5180.00000

Modulation = 802.11a (OFDM 6 Mbit/s) MIMO Mode = SISO

Images:



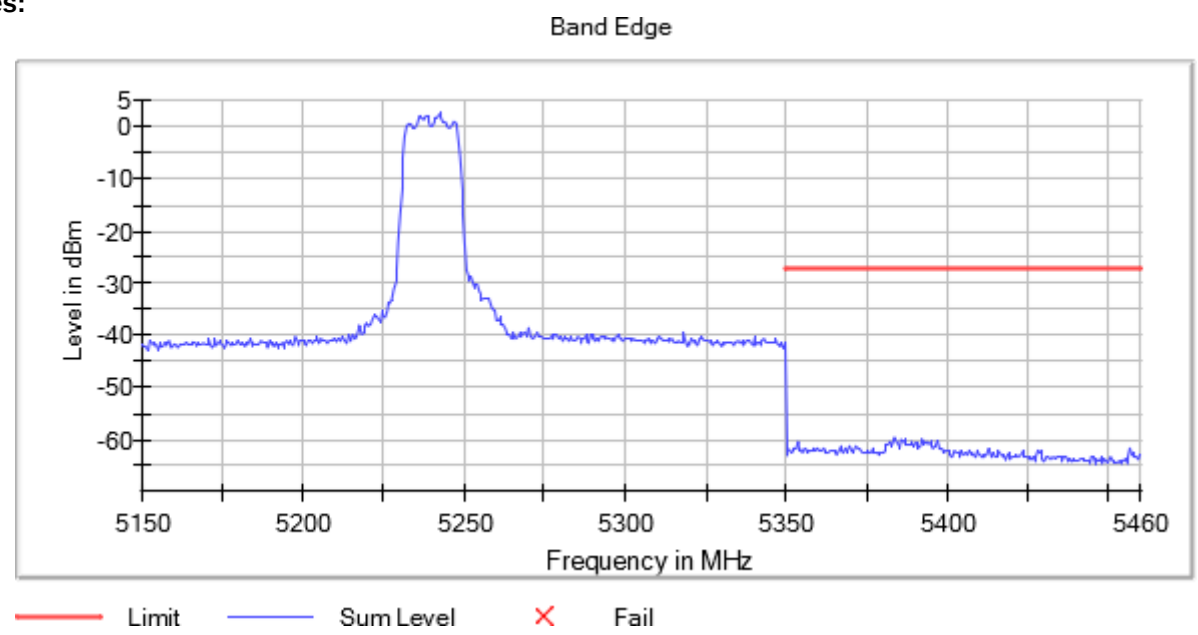


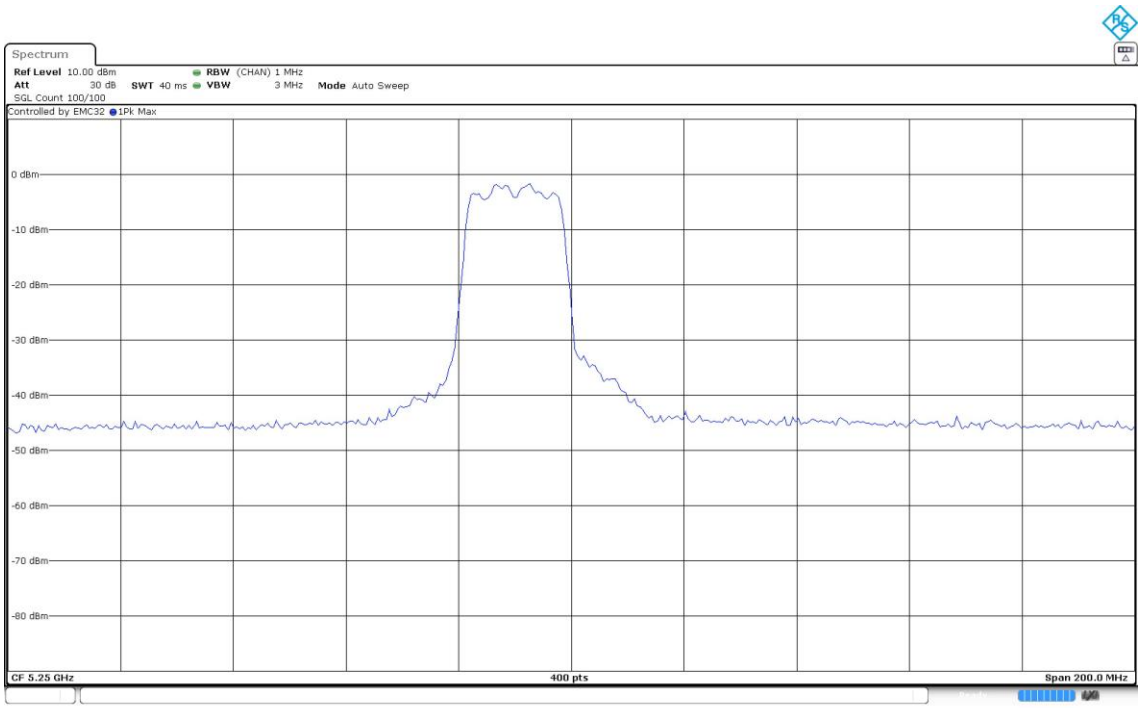

Spectrum
Ref Level 10.00 dBm
RBW (CHAN) 1 MHz
Att 30 dB
SWT 40 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
CF 5.25 GHz
400 pts
Span 200.0 MHz

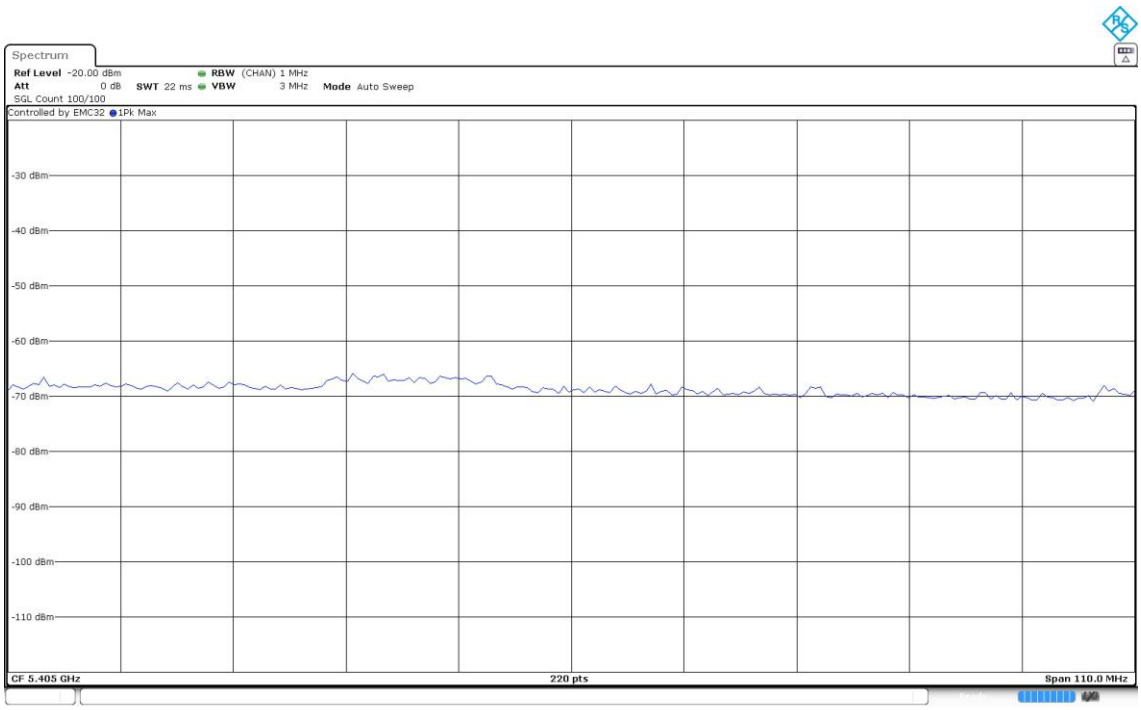
Active Port = 1 Frequency MHz = 5240.00000

Modulation = 802.11a (OFDM 6 Mbit/s) MIMO Mode = SISO

Images:






Spectrum
Ref Level -20.00 dBm
RBW (CHAN) 1 MHz
Att 0 dB
SWT 22 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
-100 dBm
-110 dBm
CF 5.405 GHz
220 pts
Span 110.0 MHz

Modulation: 802.11ac VHT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Freq (MHz)	Lvl (dBm)
1	5180.00000	5147.750000	-49.0
1	5180.00000	5148.750000	-49.6
1	5180.00000	5149.750000	-49.8
1	5180.00000	5149.250000	-50.2
1	5180.00000	5148.250000	-50.4
1	5180.00000	5145.750000	-50.4
1	5180.00000	5144.250000	-50.5
1	5180.00000	5145.250000	-50.7
1	5180.00000	5146.750000	-50.7
1	5180.00000	5147.250000	-50.7
1	5180.00000	5143.750000	-50.9
1	5180.00000	5143.250000	-51.0
1	5180.00000	5146.250000	-51.1
1	5180.00000	5144.750000	-51.1
1	5180.00000	5142.750000	-52.1
1	5240.00000	5382.250000	-60.8
1	5240.00000	5389.750000	-61.1
1	5240.00000	5382.750000	-61.3
1	5240.00000	5390.250000	-61.3
1	5240.00000	5390.750000	-61.5
1	5240.00000	5362.250000	-61.5
1	5240.00000	5367.750000	-61.6
1	5240.00000	5380.750000	-61.7
1	5240.00000	5386.750000	-61.8
1	5240.00000	5387.250000	-61.9
1	5240.00000	5370.250000	-61.9
1	5240.00000	5360.750000	-61.9
1	5240.00000	5389.250000	-62.0
1	5240.00000	5395.750000	-62.0
1	5240.00000	5408.750000	-62.0

Verdict

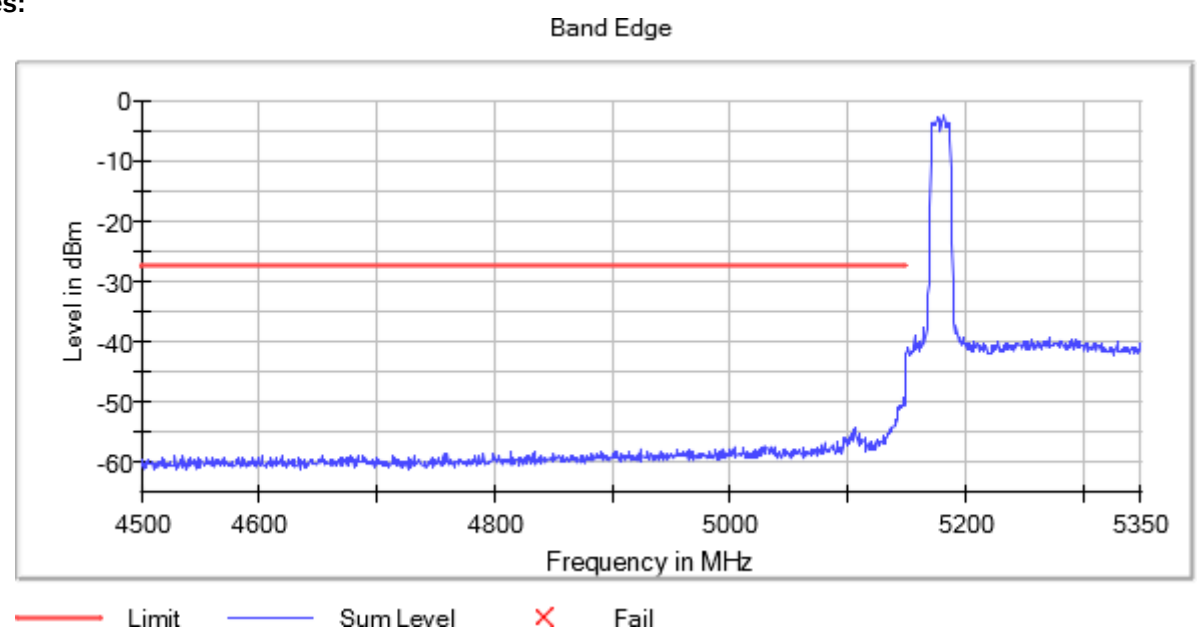
Pass

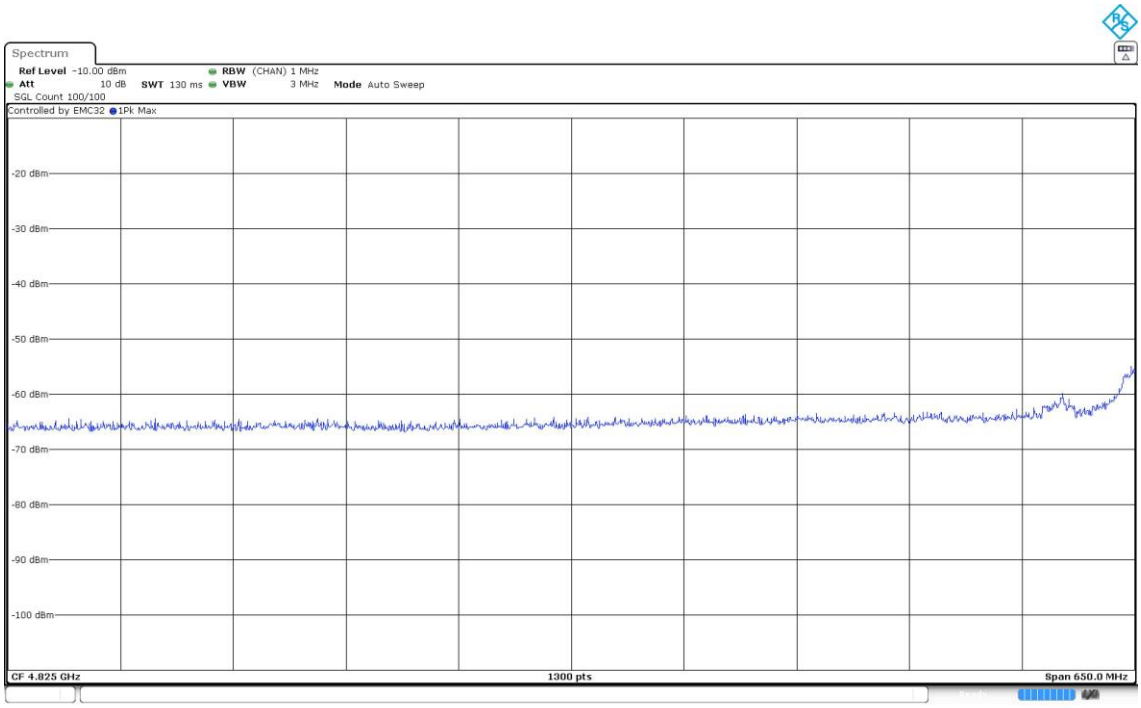
Attachments

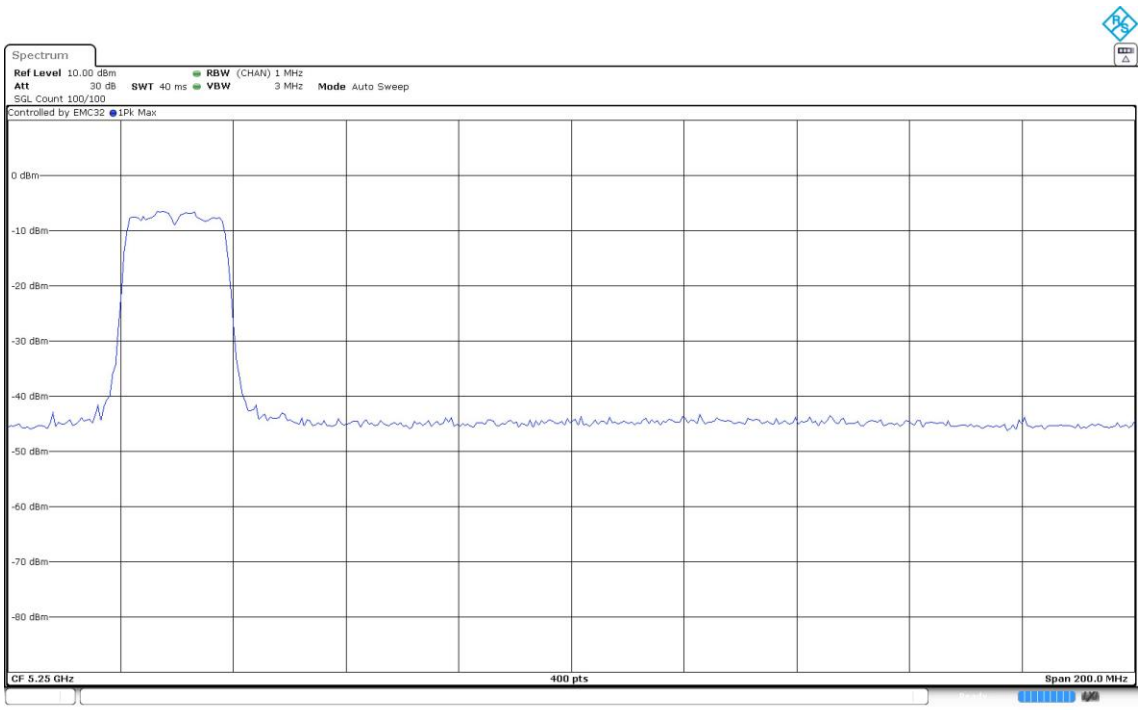
Active Port = 1 Frequency MHz = 5180.00000

Modulation = 802.11ac VHT20 (OFDM MCS0) MIMO Mode = SISO

Images:



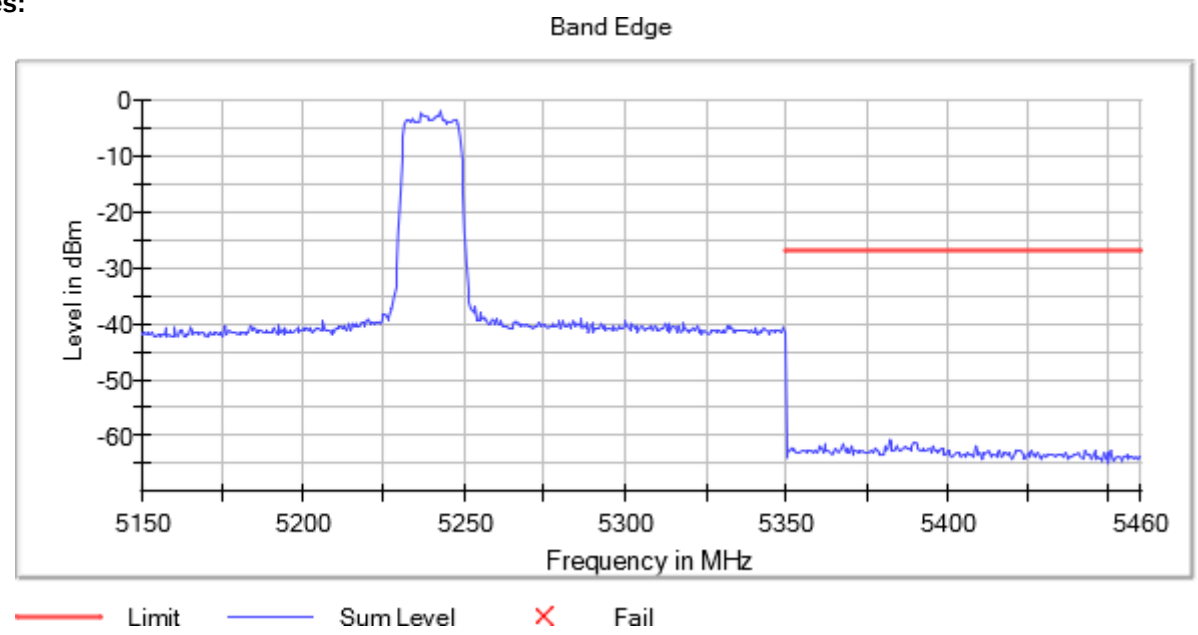


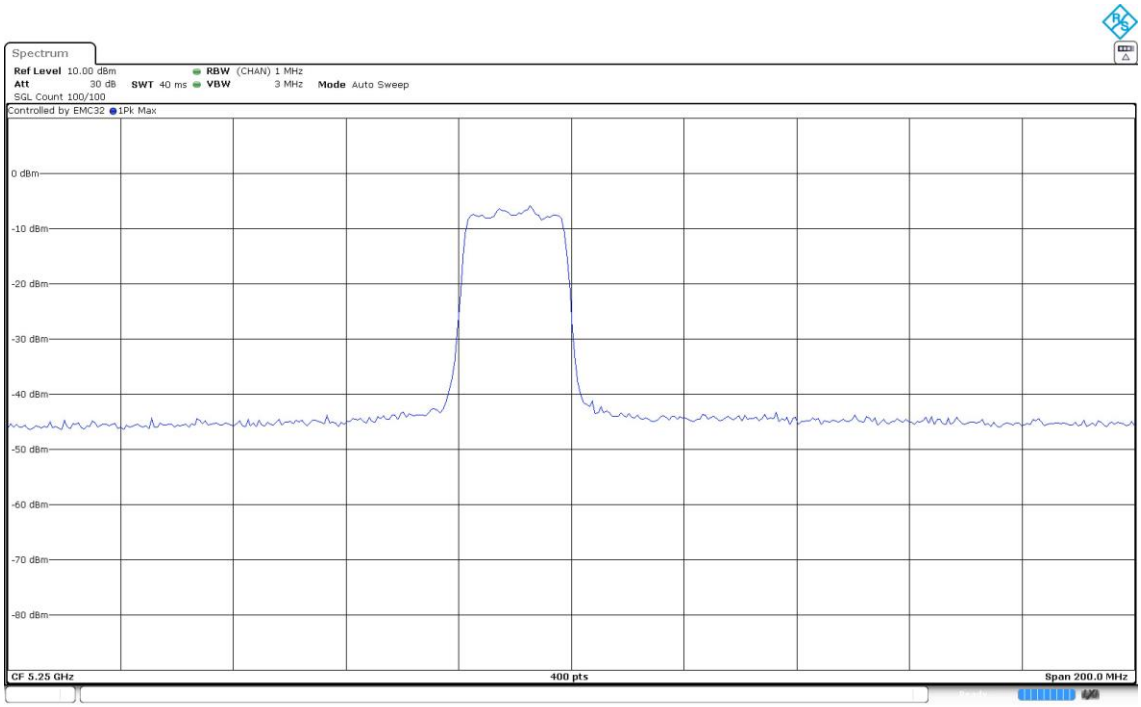

Spectrum
Ref Level 10.00 dBm
RBW (CHAN) 1 MHz
Att 30 dB
SWT 40 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
CF 5.25 GHz
400 pts
Span 200.0 MHz

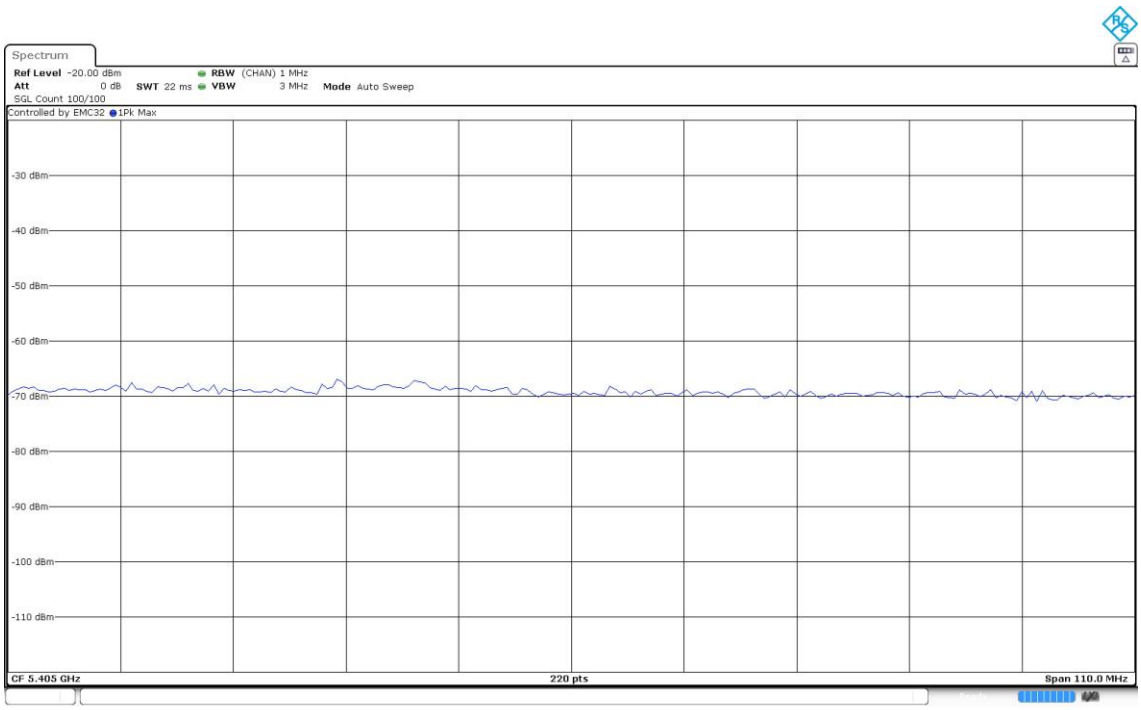
Active Port = 1 Frequency MHz = 5240.00000

Modulation = 802.11ac VHT20 (OFDM MCS0) MIMO Mode = SISO

Images:






Spectrum
Ref Level -20.00 dBm
RBW (CHAN) 1 MHz
Att 0 dB
SWT 22 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
-100 dBm
-110 dBm
CF 5.405 GHz
220 pts
Span 110.0 MHz

Modulation: 802.11ac VHT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Freq (MHz)	Lvl (dBm)
1	5190.00000	5148.750000	-44.1
1	5190.00000	5147.750000	-44.5
1	5190.00000	5146.250000	-44.6
1	5190.00000	5146.750000	-44.9
1	5190.00000	5149.250000	-44.9
1	5190.00000	5148.250000	-45.0
1	5190.00000	5147.250000	-45.3
1	5190.00000	5143.750000	-45.5
1	5190.00000	5149.750000	-45.6
1	5190.00000	5145.750000	-46.1
1	5190.00000	5145.250000	-46.7
1	5190.00000	5144.250000	-46.7
1	5190.00000	5142.250000	-46.7
1	5190.00000	5144.750000	-46.7
1	5190.00000	5143.250000	-47.3
1	5230.00000	5375.750000	-59.3
1	5230.00000	5376.250000	-59.5
1	5230.00000	5374.250000	-59.7
1	5230.00000	5372.750000	-59.8
1	5230.00000	5373.250000	-60.0
1	5230.00000	5375.250000	-60.1
1	5230.00000	5373.750000	-60.1
1	5230.00000	5376.750000	-60.1
1	5230.00000	5372.250000	-60.4
1	5230.00000	5374.750000	-60.5
1	5230.00000	5371.750000	-60.9
1	5230.00000	5377.750000	-61.1
1	5230.00000	5383.250000	-61.1
1	5230.00000	5378.250000	-61.1
1	5230.00000	5378.750000	-61.2

Verdict

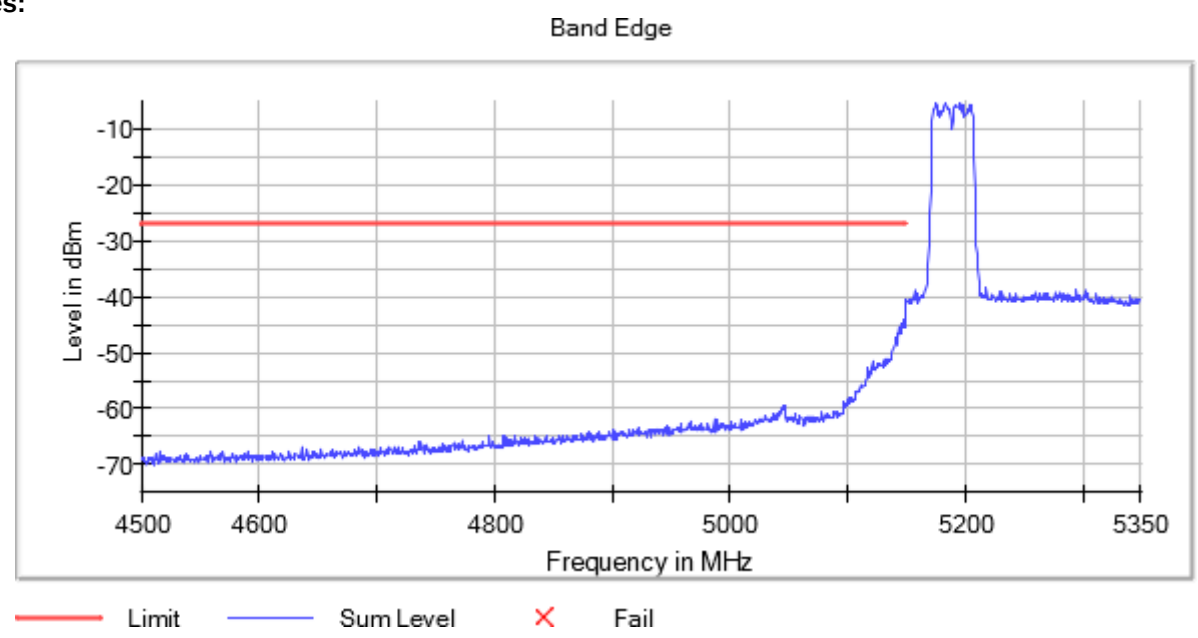
Pass

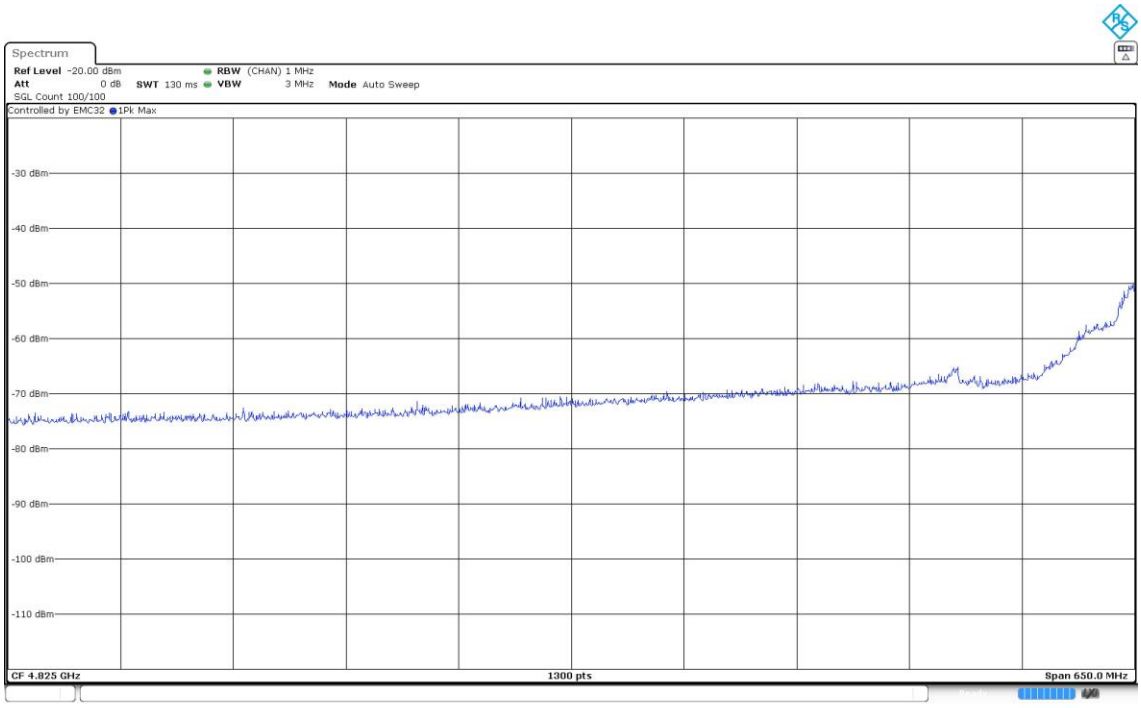
Attachments

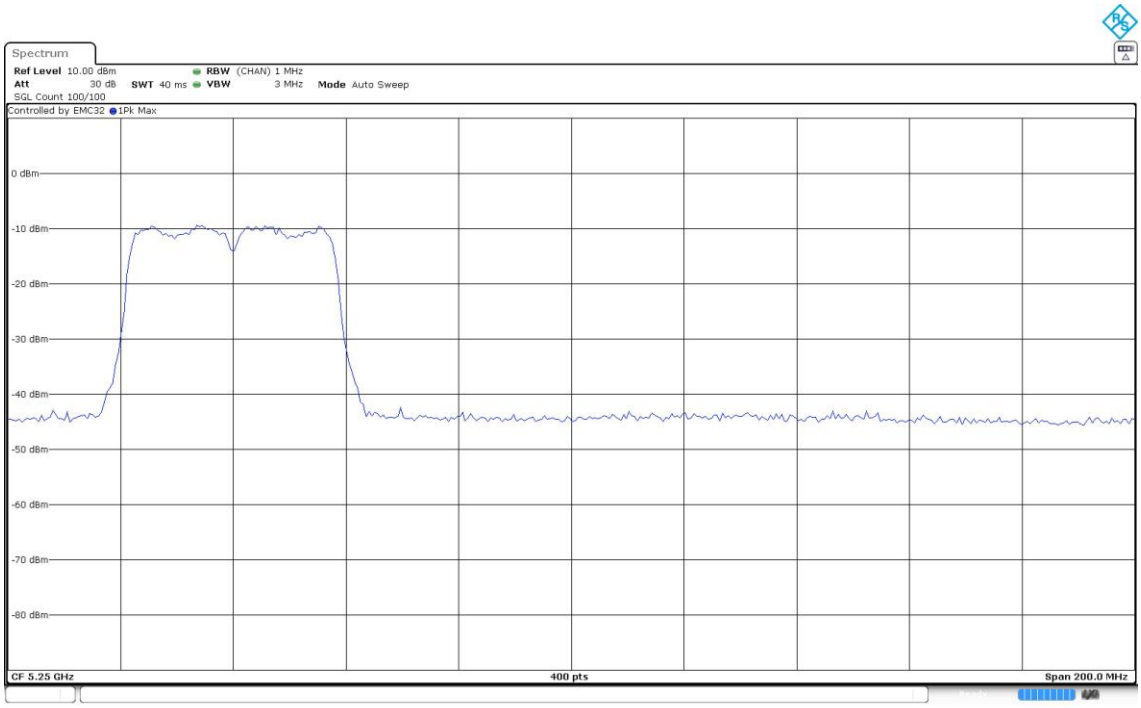
Active Port = 1 Frequency MHz = 5190.00000

Modulation = 802.11ac VHT40 (OFDM MCS0) MIMO Mode = SISO

Images:



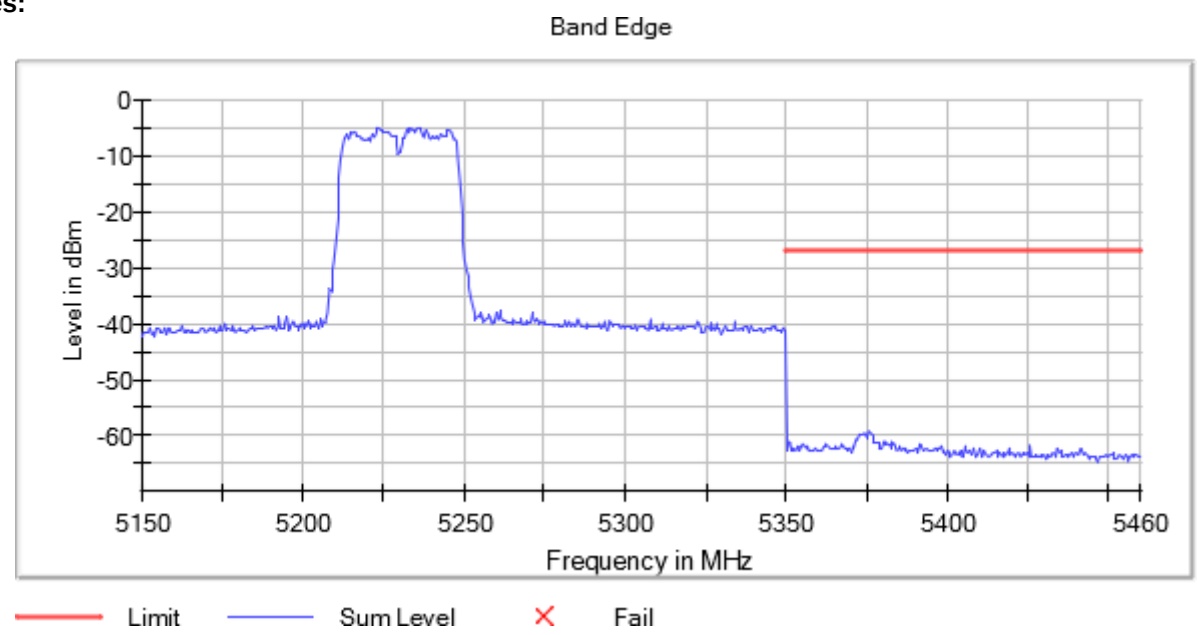


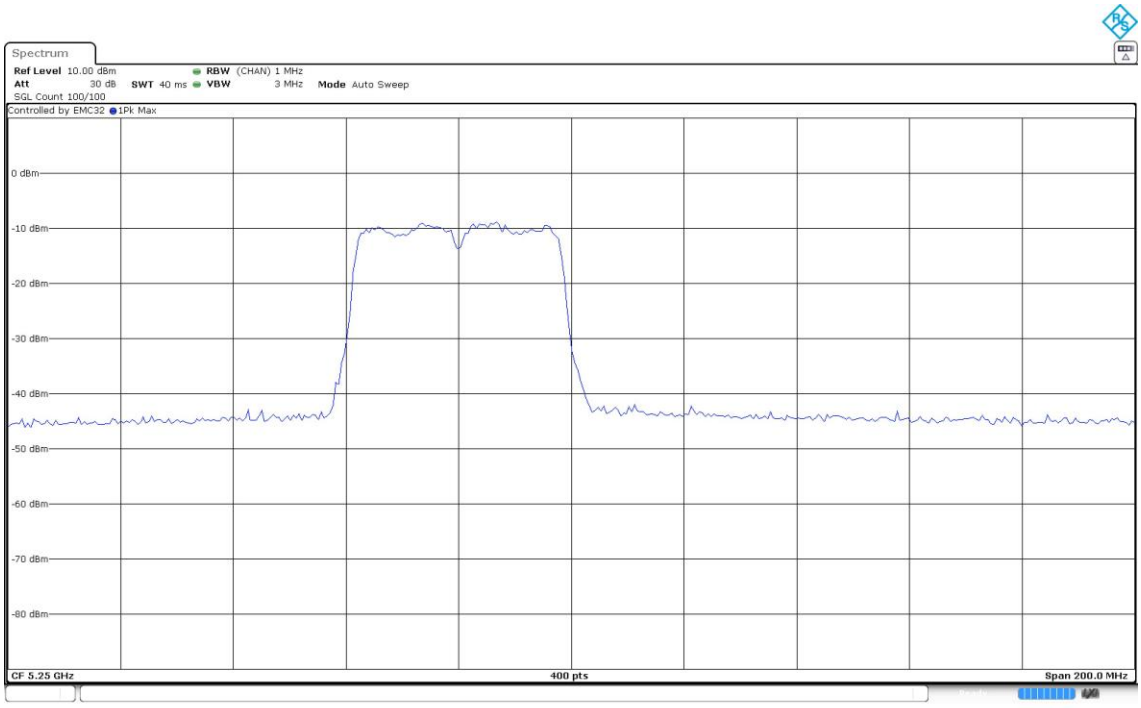

Spectrum
Ref Level 10.00 dBm
RBW (CHAN) 1 MHz
Att 30 dB
SWT 40 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
CF 5.25 GHz
400 pts
Span 200.0 MHz

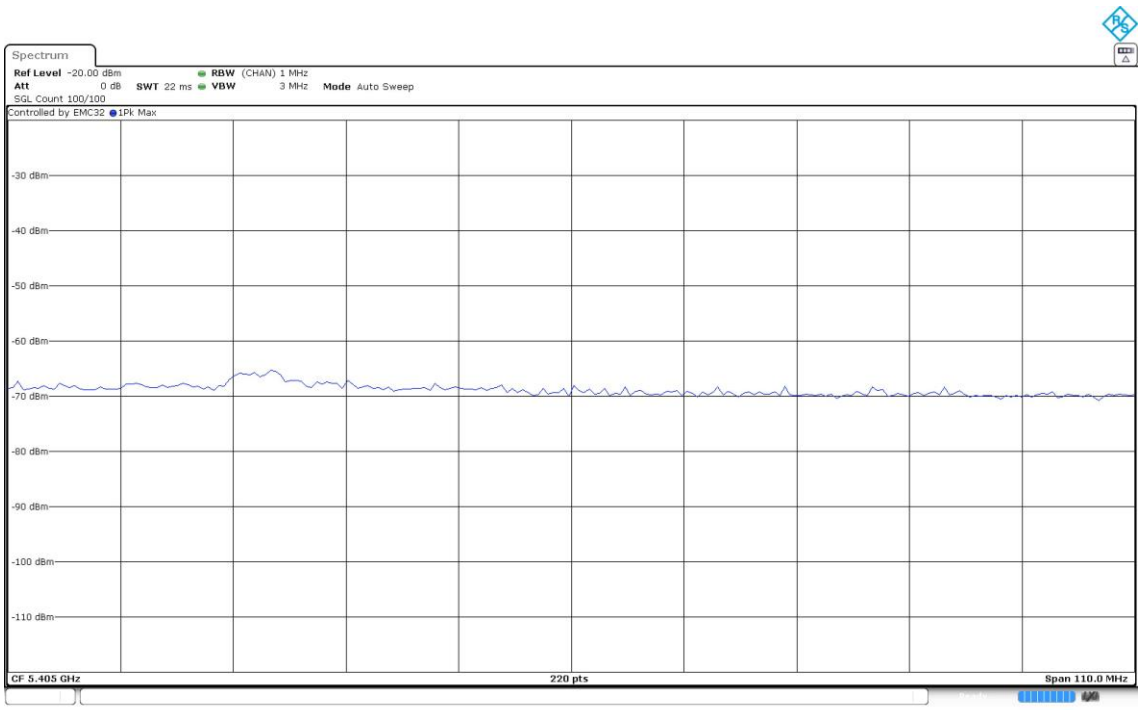
Active Port = 1 Frequency MHz = 5230.00000

Modulation = 802.11ac VHT40 (OFDM MCS0) MIMO Mode = SISO

Images:






Spectrum
Ref Level -20.00 dBm
RBW (CHAN) 1 MHz
Att 0 dB
SWT 22 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
-100 dBm
-110 dBm
CF 5.405 GHz
220 pts
Span 110.0 MHz

Modulation: 802.11ac VHT80 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Freq (MHz)	Lvl (dBm)
1	5210.00000	5138.250000	-41.4
1	5210.00000	5388.250000	-62.1
1	5210.00000	5140.250000	-41.5
1	5210.00000	5141.750000	-41.6
1	5210.00000	5369.750000	-62.3
1	5210.00000	5404.250000	-62.3
1	5210.00000	5135.750000	-41.9
1	5210.00000	5363.750000	-62.4
1	5210.00000	5137.750000	-42.2
1	5210.00000	5139.750000	-42.5
1	5210.00000	5352.250000	-62.5
1	5210.00000	5350.250000	-62.5
1	5210.00000	5141.250000	-42.5
1	5210.00000	5426.750000	-62.6
1	5210.00000	5133.750000	-42.5
1	5210.00000	5132.750000	-42.6
1	5210.00000	5402.750000	-62.6
1	5210.00000	5357.250000	-62.6
1	5210.00000	5138.750000	-42.6
1	5210.00000	5143.750000	-42.6
1	5210.00000	5363.250000	-62.6
1	5210.00000	5367.250000	-62.6
1	5210.00000	5144.250000	-42.7
1	5210.00000	5351.750000	-62.7
1	5210.00000	5140.750000	-42.7
1	5210.00000	5147.250000	-42.8
1	5210.00000	5367.750000	-62.7
1	5210.00000	5360.250000	-62.7
1	5210.00000	5136.250000	-42.8
1	5210.00000	5374.250000	-62.7

Verdict

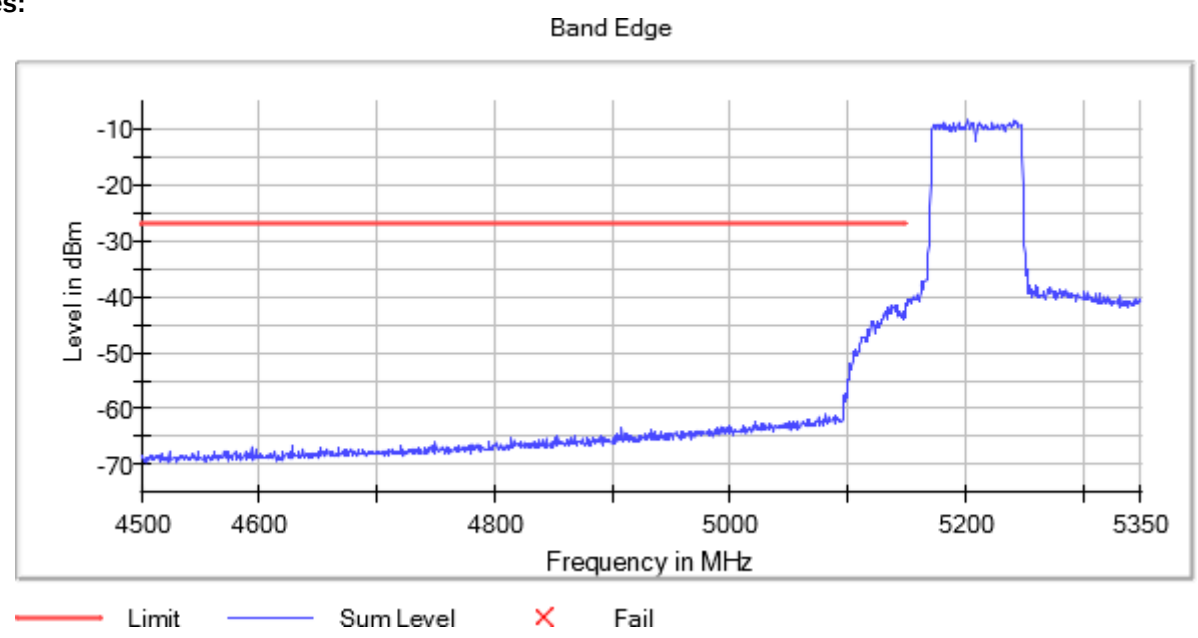
Pass

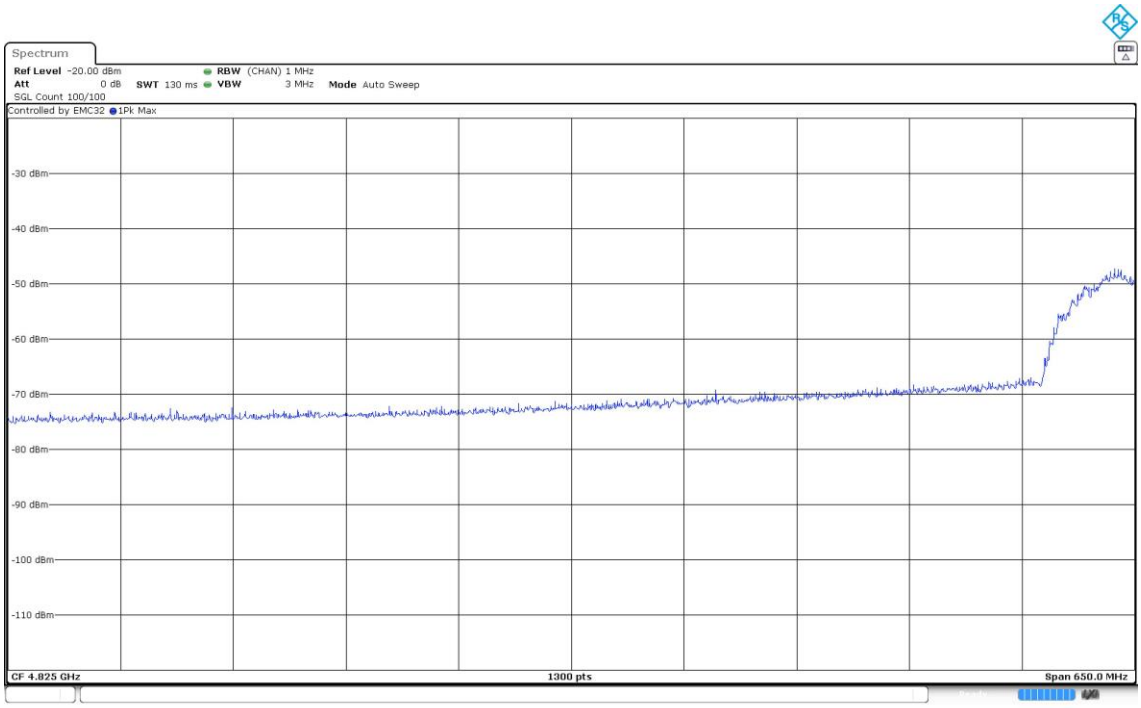
Attachments

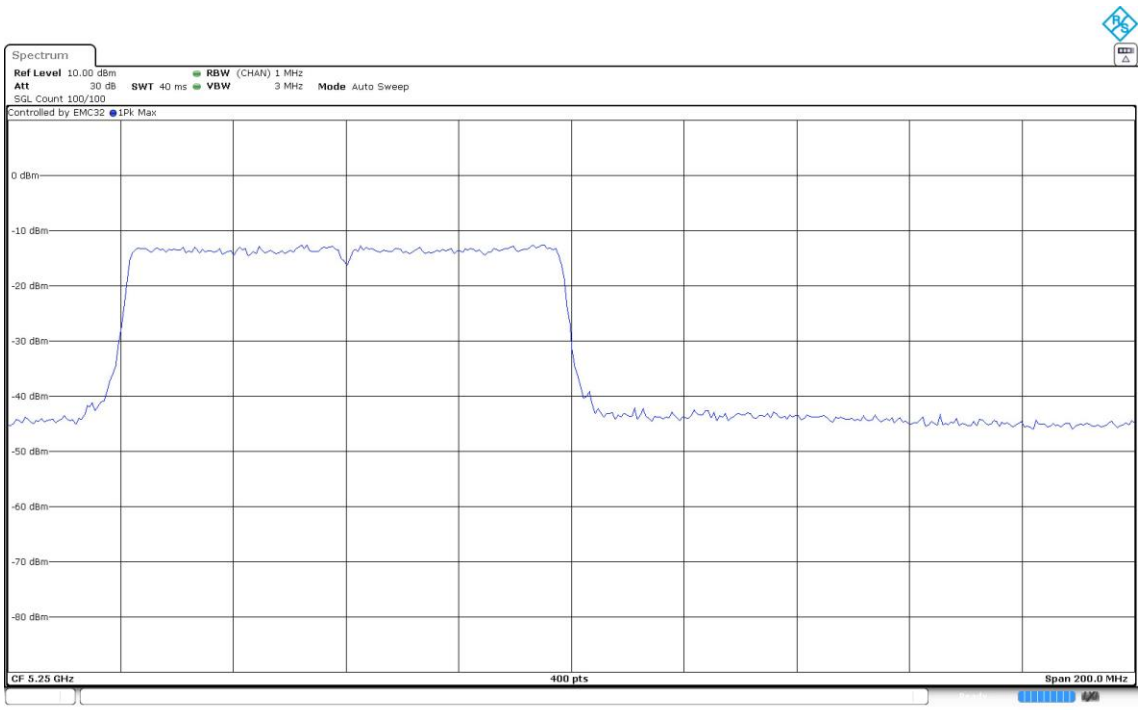
Active Port = 1 Frequency MHz = 5210.00000

Modulation = 802.11ac VHT80 (OFDM MCS0) MIMO Mode = SISO

Images:



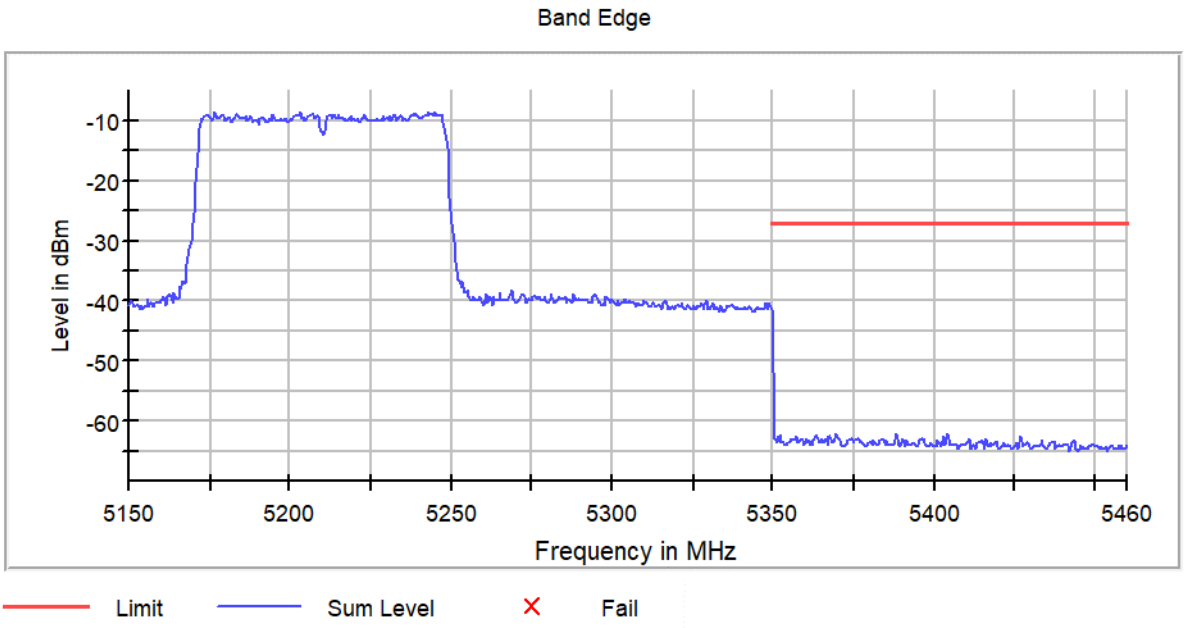


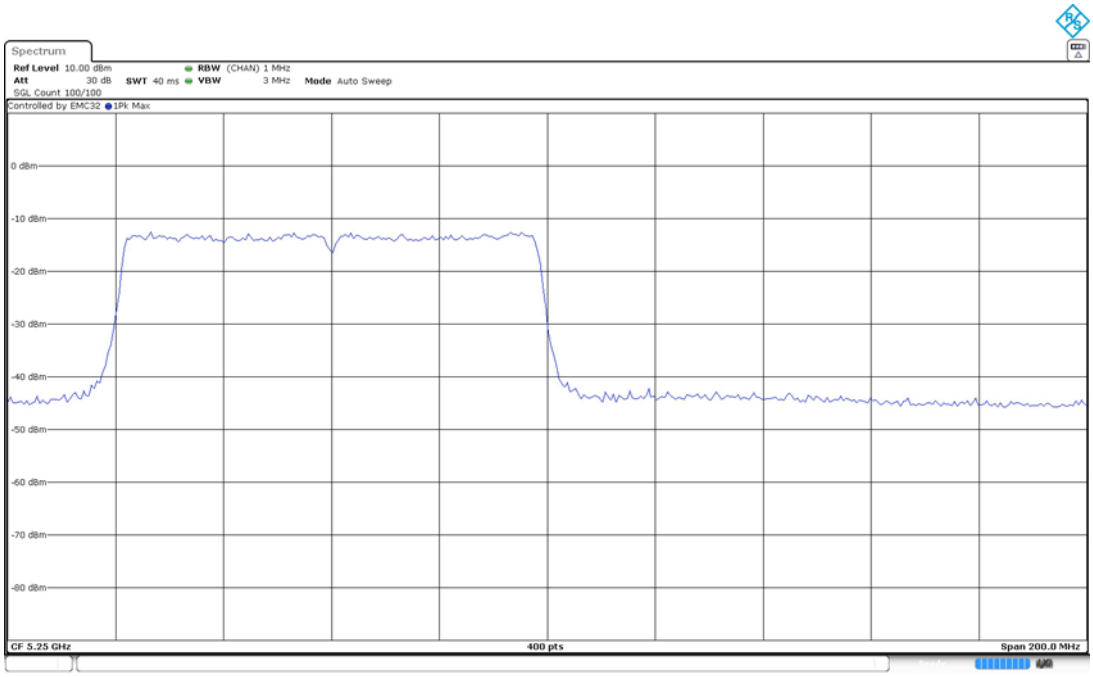


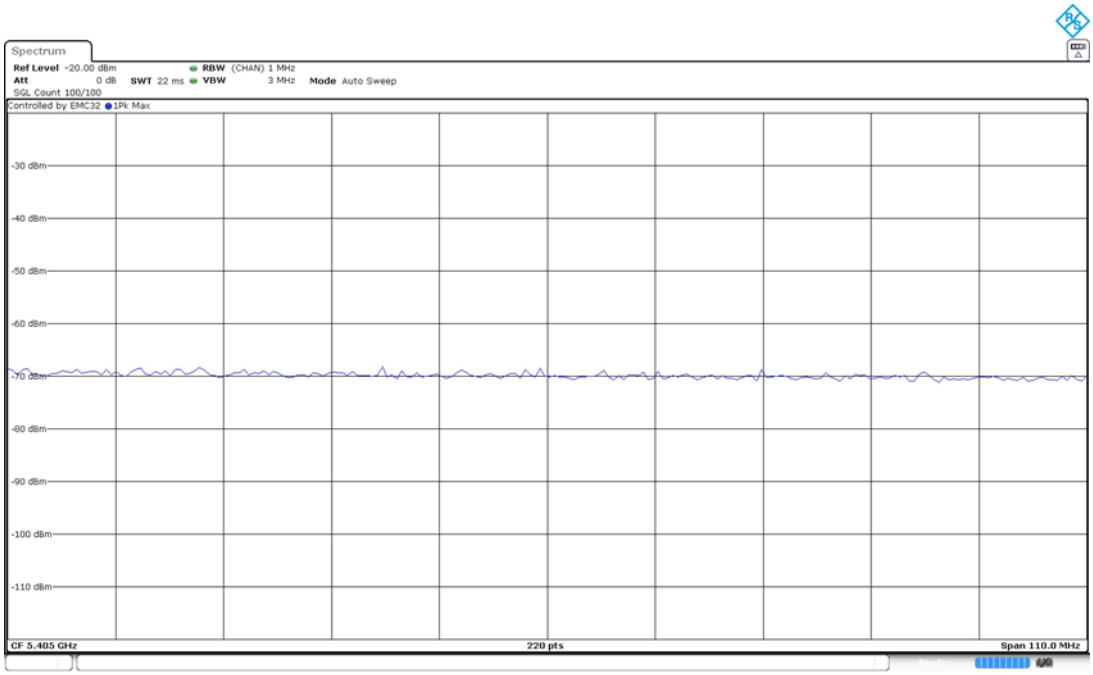
Active Port = 1 Frequency MHz = 5210.00000

Modulation = 802.11ac VHT80 (OFDM MCS0) MIMO Mode = SISO

Images:




Spectrum
Ref Level 10.00 dBm
RBW (CHAN) 1 MHz
Att 30 dB
SWT 40 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
CF 5.25 GHz
400 pts
Span 200.0 MHz


Spectrum
Ref Level -20.00 dBm
RBW (CHAN) 1 MHz
Att 0 dB
SWT 22 ms
VBW 3 MHz
Mode Auto Sweep
SGL Count 100/100
Controlled by EMC32
1Pk Max
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
-100 dBm
-110 dBm
CF 5.485 GHz
220 pts
Span 110.0 MHz

RSS-Gen 6.10. / Section 15.35 Subclause (c) [DC] Duty Cycle

Limits

When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

Modulation: 802.11n HT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	DC (%)
1	5180.00000	95.90
	5200.00000	95.90
	5240.00000	95.90

Modulation: 802.11n HT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	DC (%)
1	5190.00000	92.06
	5230.00000	92.06

Modulation: 802.11a (OFDM 6 Mbit/s)

MIMO Mode: SISO

Results

Port	Freq (MHz)	DC (%)
1	5180.00000	96.15
	5200.00000	96.16
	5240.00000	96.16

Modulation: 802.11ac VHT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	DC (%)
1	5180.00000	95.93
	5200.00000	95.93
	5240.00000	95.93

Verdict

Pass

Modulation: 802.11ac VHT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	DC (%)
1	5190.00000	92.17
	5230.00000	92.14

Verdict

Pass

Modulation: 802.11ac VHT80 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	DC (%)
1	5210.00000	85.41

Verdict

Pass

RSS-Gen 6.6 / RSS-247 6.2. [99dBW] Transmitter 99% Occupied Bandwidth

Limits

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

The following conditions shall be observed for measuring the occupied bandwidth:

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
- The detector of the spectrum analyzer shall be set to “Sample”. However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or “Max Hold”) may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).

Modulation: 802.11n HT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Occ Ch BW (MHz)
1	5180.00000	17.700
	5200.00000	17.700
	5240.00000	17.600

Verdict

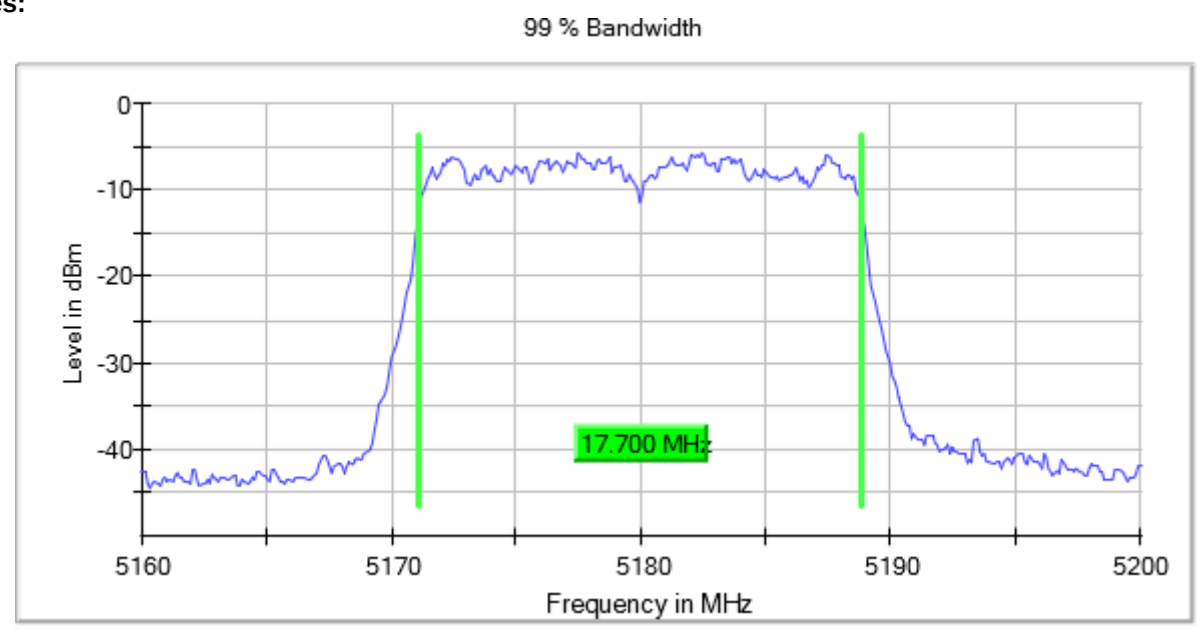
Pass

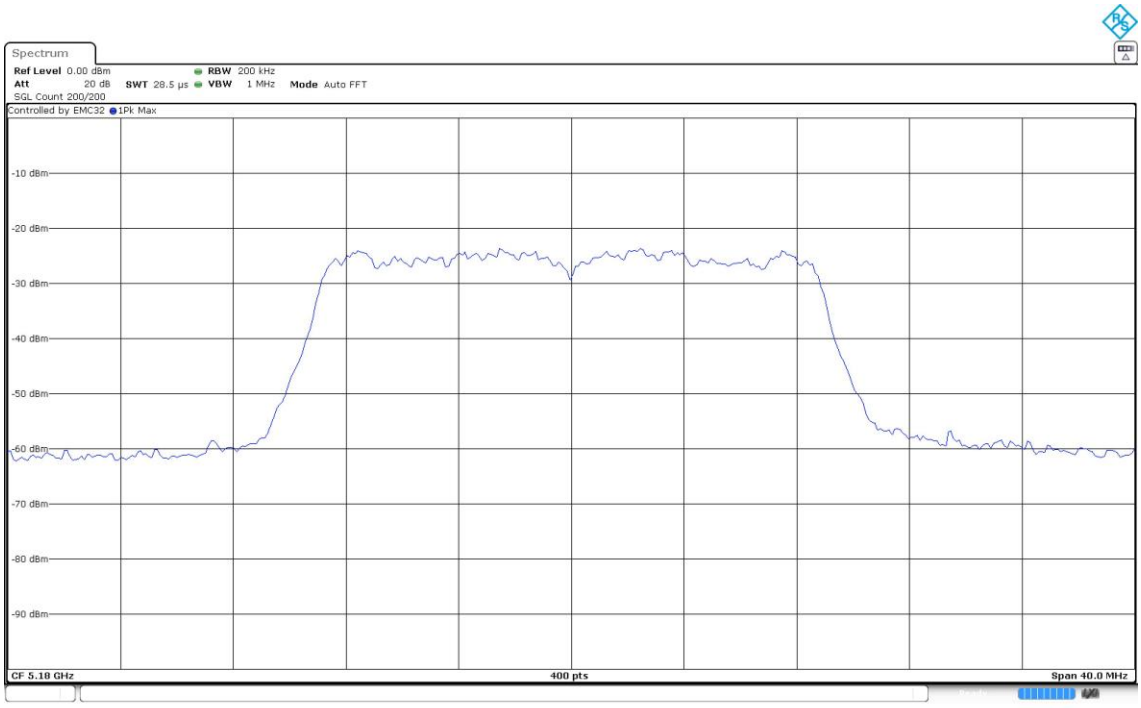
Attachments

Active Port = 1 Frequency MHz = 5180.00000

Modulation = 802.11n HT20 (OFDM MCS0) MIMO Mode = SISO

Images:

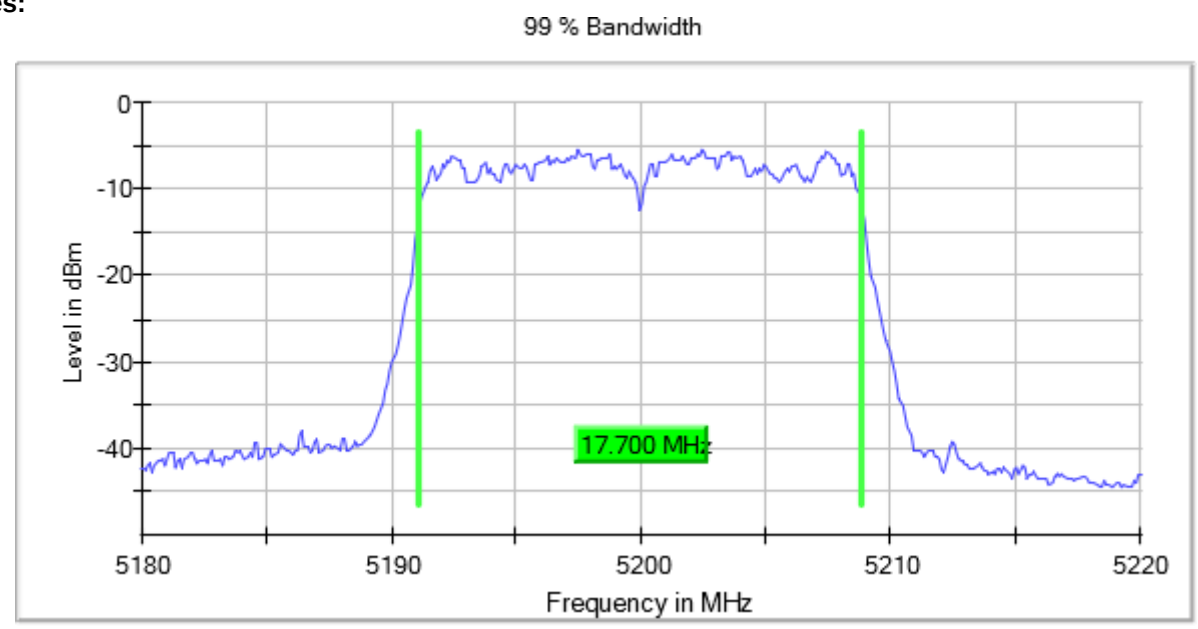


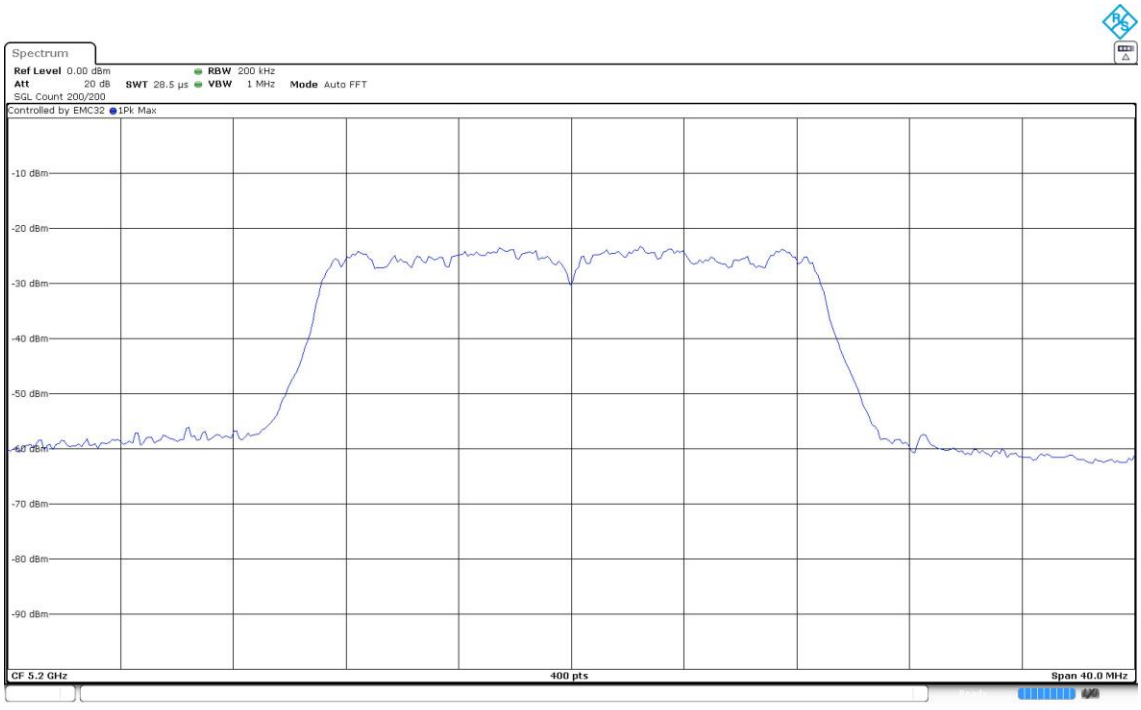


Active Port = 1 Frequency MHz = 5200.00000

Modulation = 802.11n HT20 (OFDM MCS0) MIMO Mode = SISO

Images:

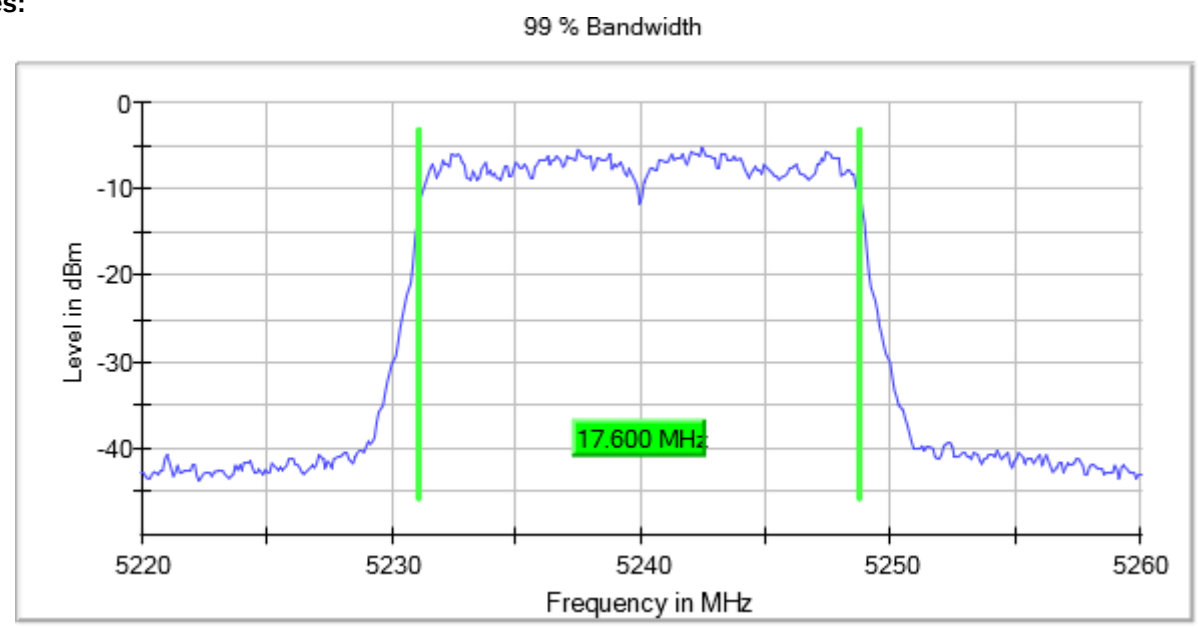


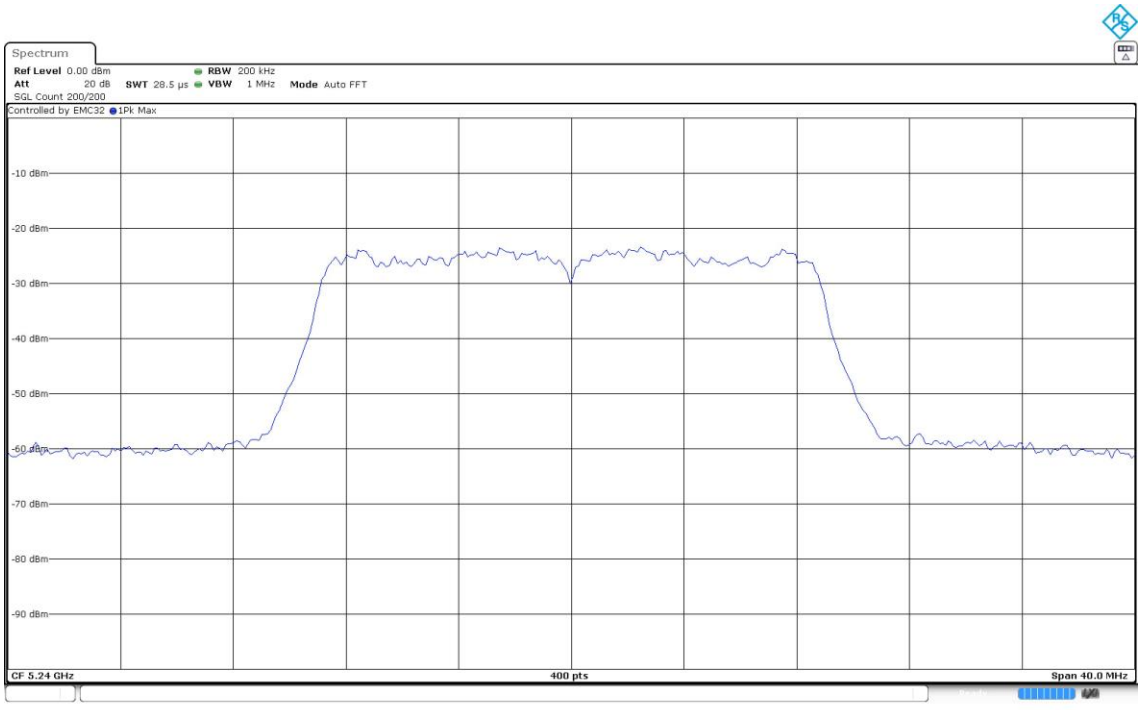


Active Port = 1 Frequency MHz = 5240.00000

Modulation = 802.11n HT20 (OFDM MCS0) MIMO Mode = SISO

Images:





Modulation: 802.11n HT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Occ Ch BW (MHz)
1	5190.00000	36.250
		36.250
	5230.00000	36.250
		36.250

Verdict

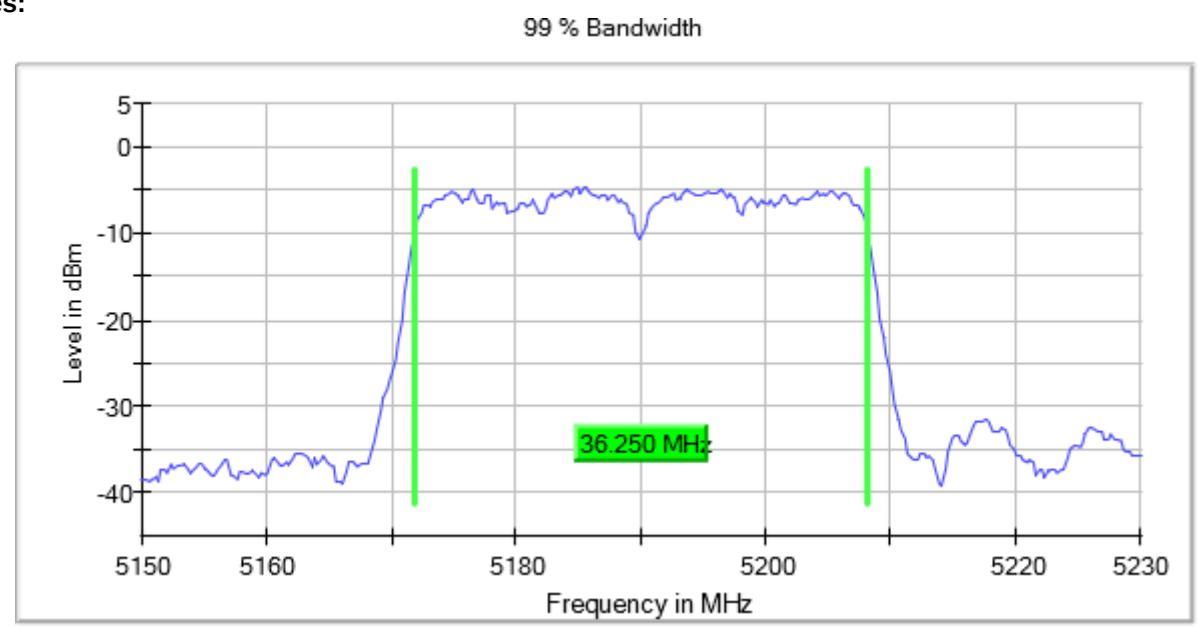
Pass

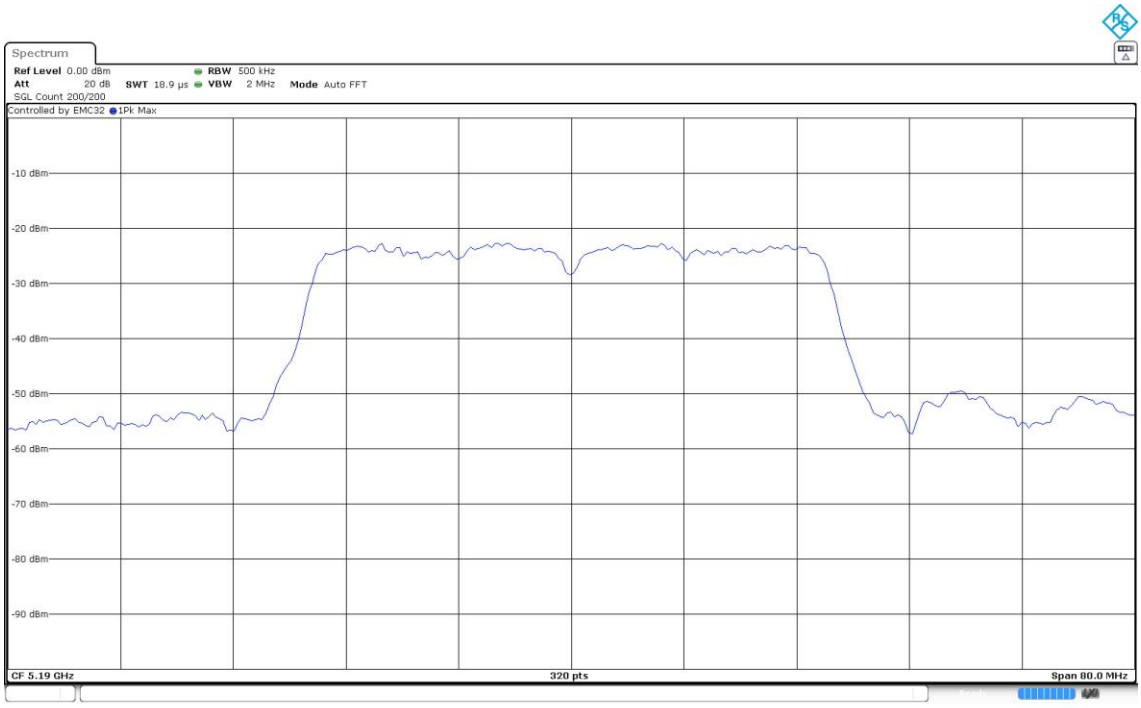
Attachments

Active Port = 1 Frequency MHz = 5190.00000

Modulation = 802.11n HT40 (OFDM MCS0) MIMO Mode = SISO

Images:

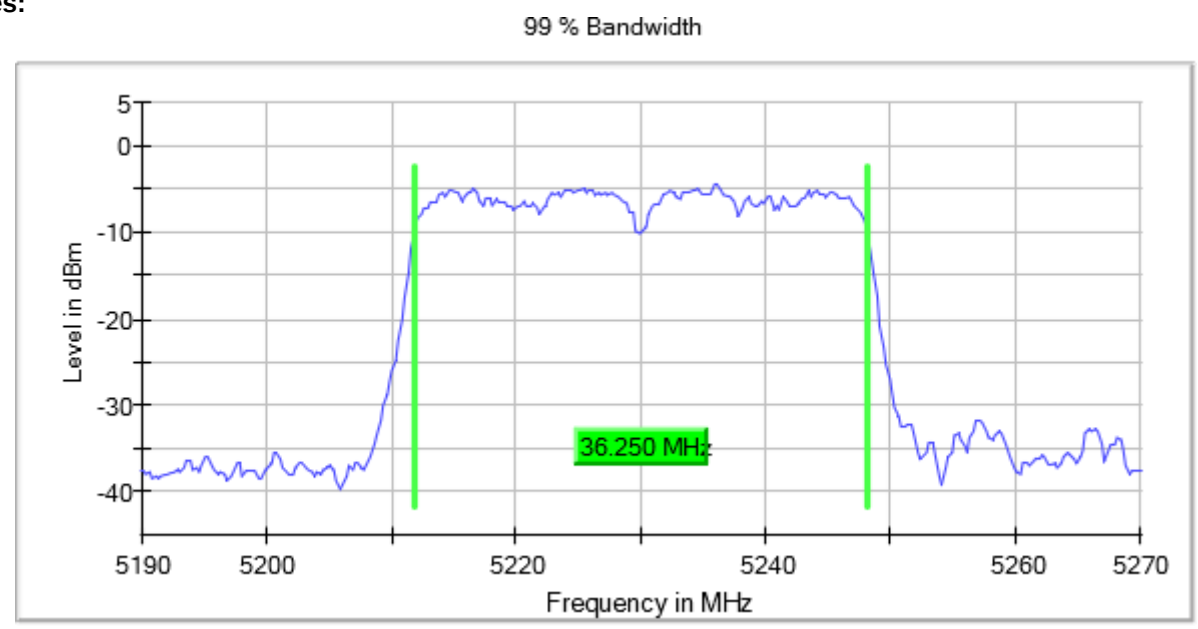


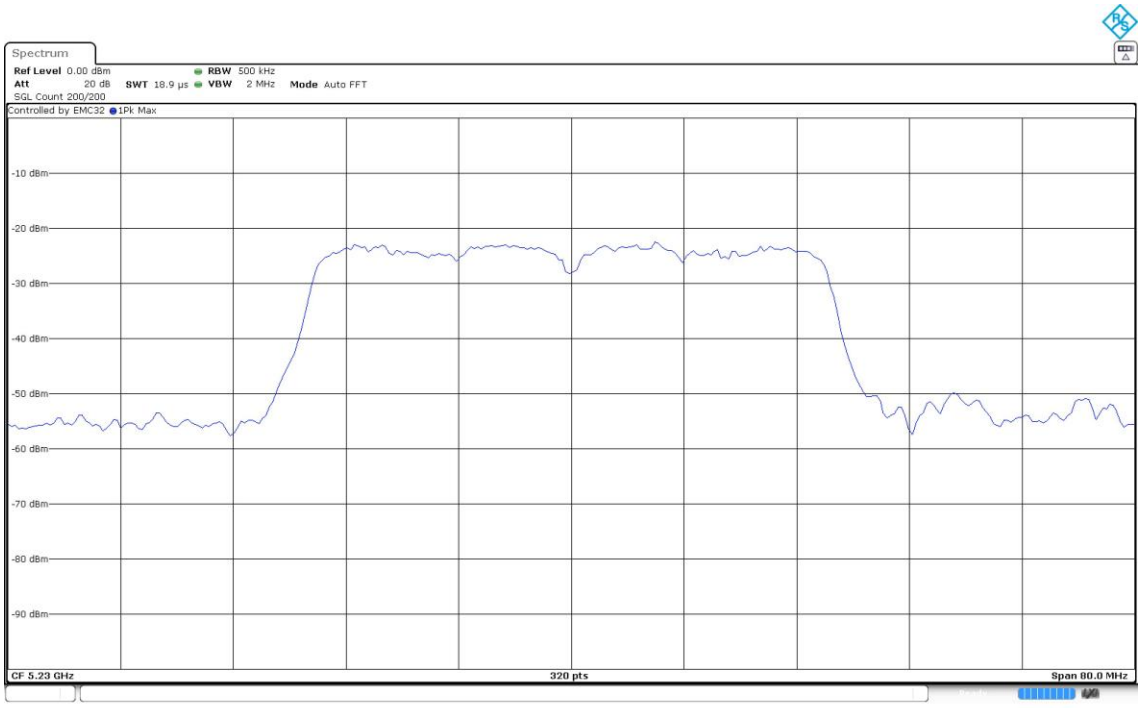


Active Port = 1 Frequency MHz = 5230.00000

Modulation = 802.11n HT40 (OFDM MCS0) MIMO Mode = SISO

Images:





Modulation: 802.11a (OFDM 6 Mbit/s)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Occ Ch BW (MHz)
1	5180.00000	16.700
	5200.00000	16.700
	5240.00000	16.700

Verdict

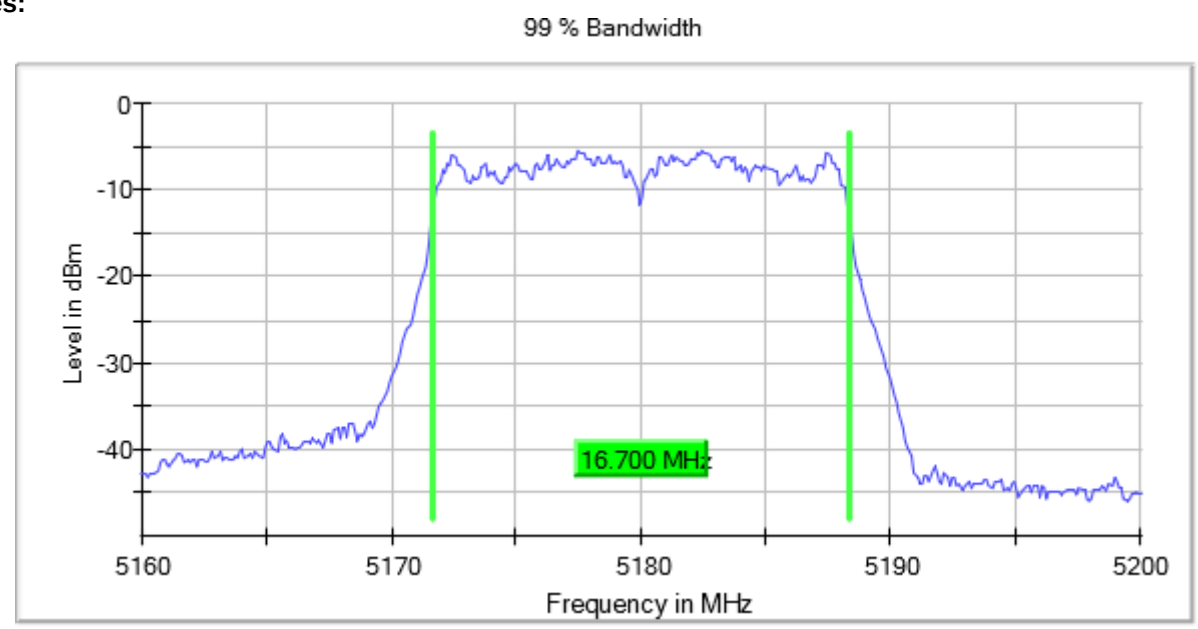
Pass

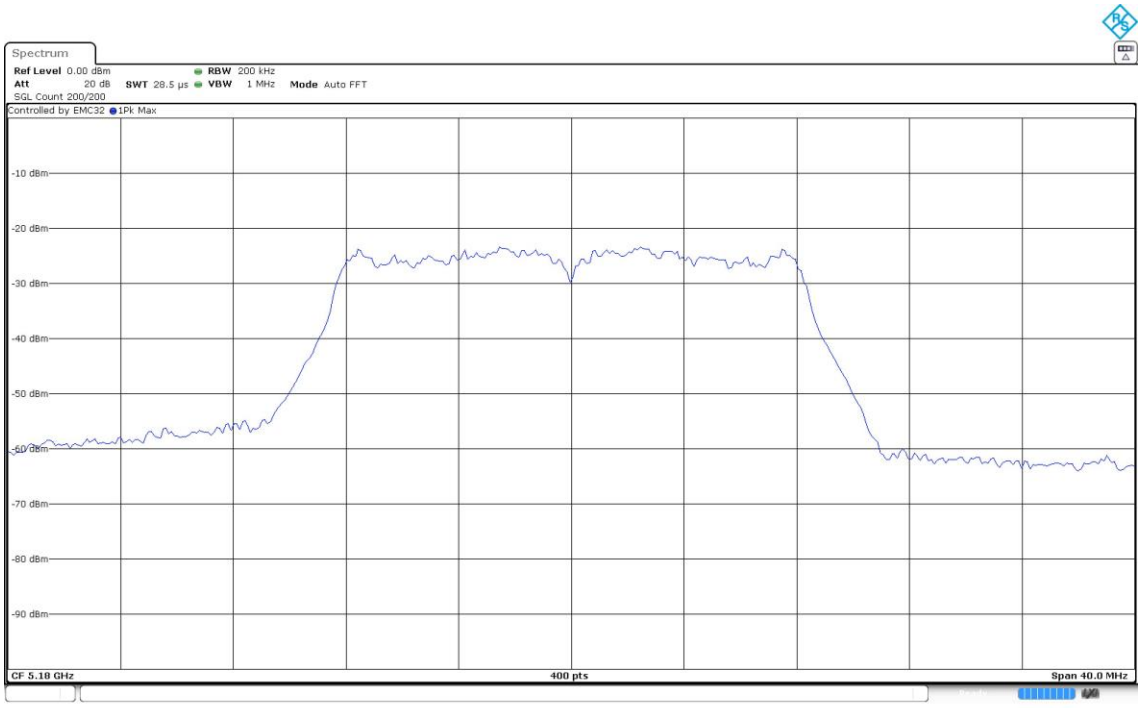
Attachments

Active Port = 1 Frequency MHz = 5180.00000

Modulation = 802.11a (OFDM 6 Mbit/s) MIMO Mode = SISO

Images:

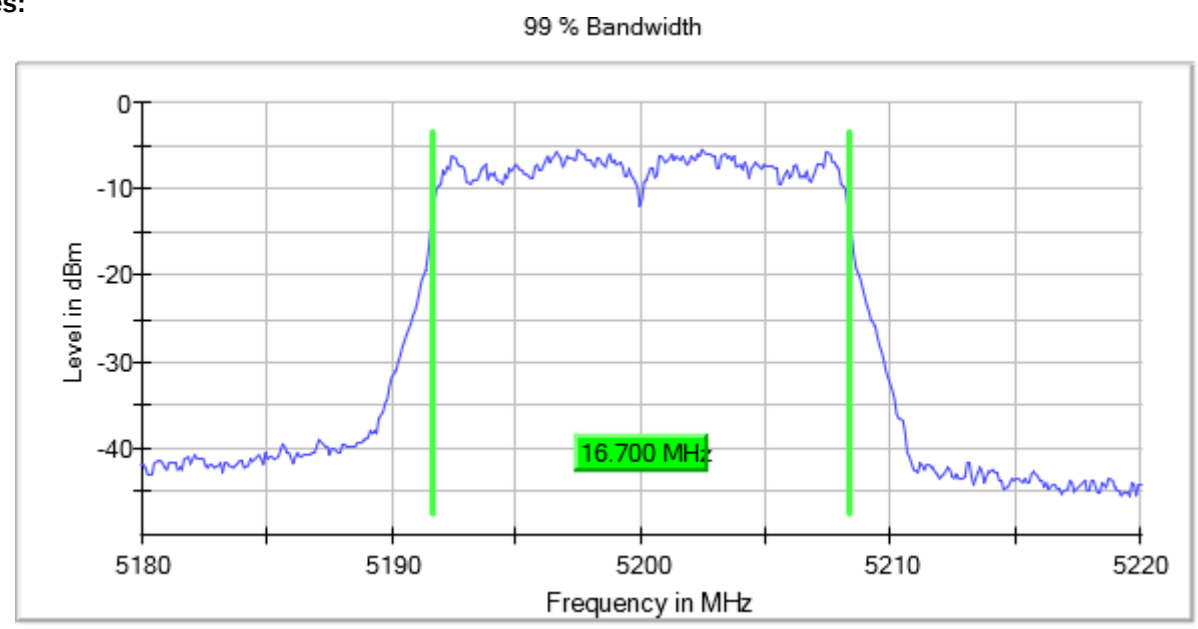


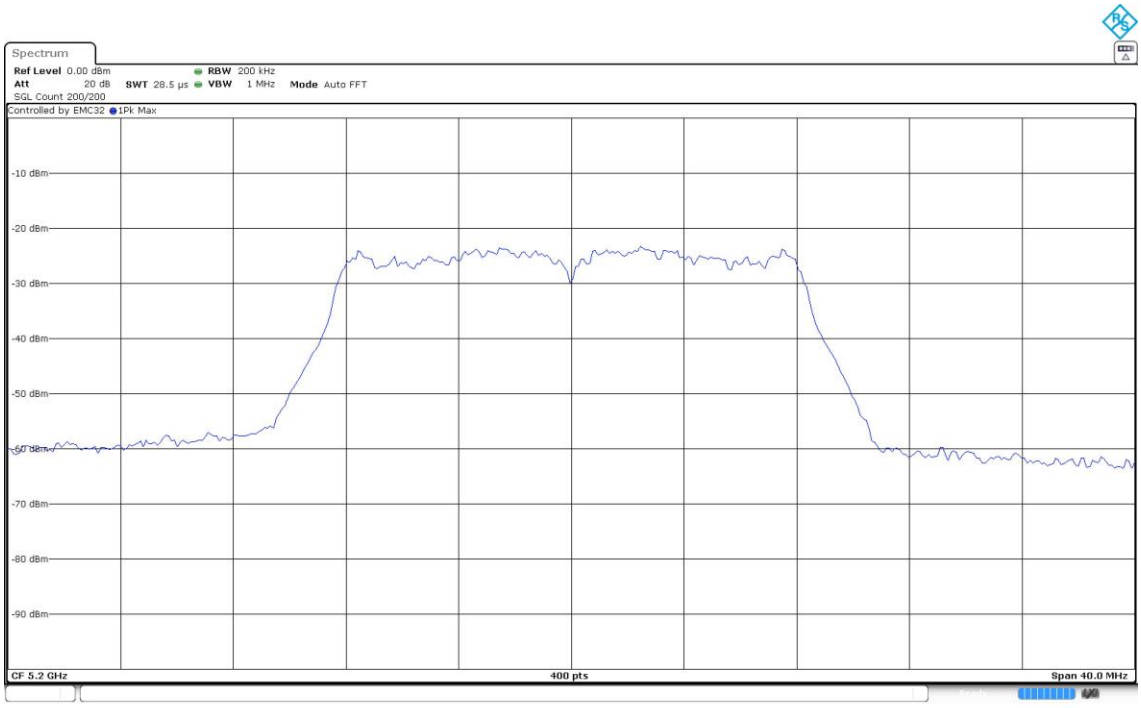


Active Port = 1 Frequency MHz = 5200.00000

Modulation = 802.11a (OFDM 6 Mbit/s) MIMO Mode = SISO

Images:

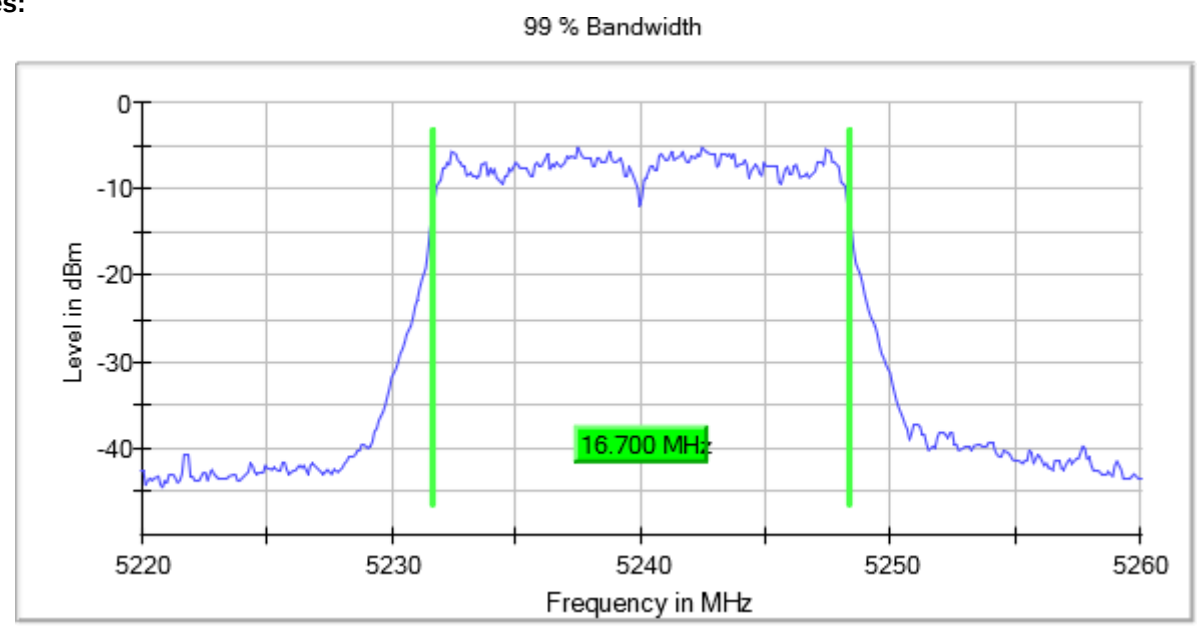


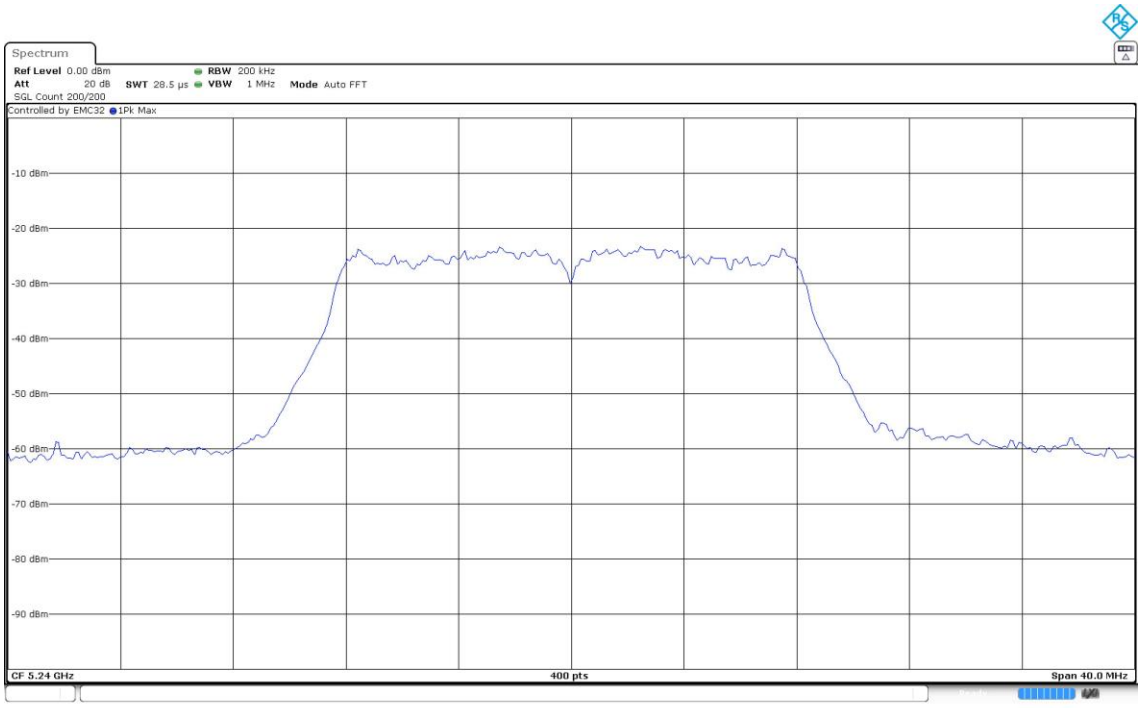


Active Port = 1 Frequency MHz = 5240.00000

Modulation = 802.11a (OFDM 6 Mbit/s) MIMO Mode = SISO

Images:





Modulation: 802.11ac VHT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Occ Ch BW (MHz)
1	5180.00000	17.700
	5200.00000	17.700
	5240.00000	17.600

Verdict

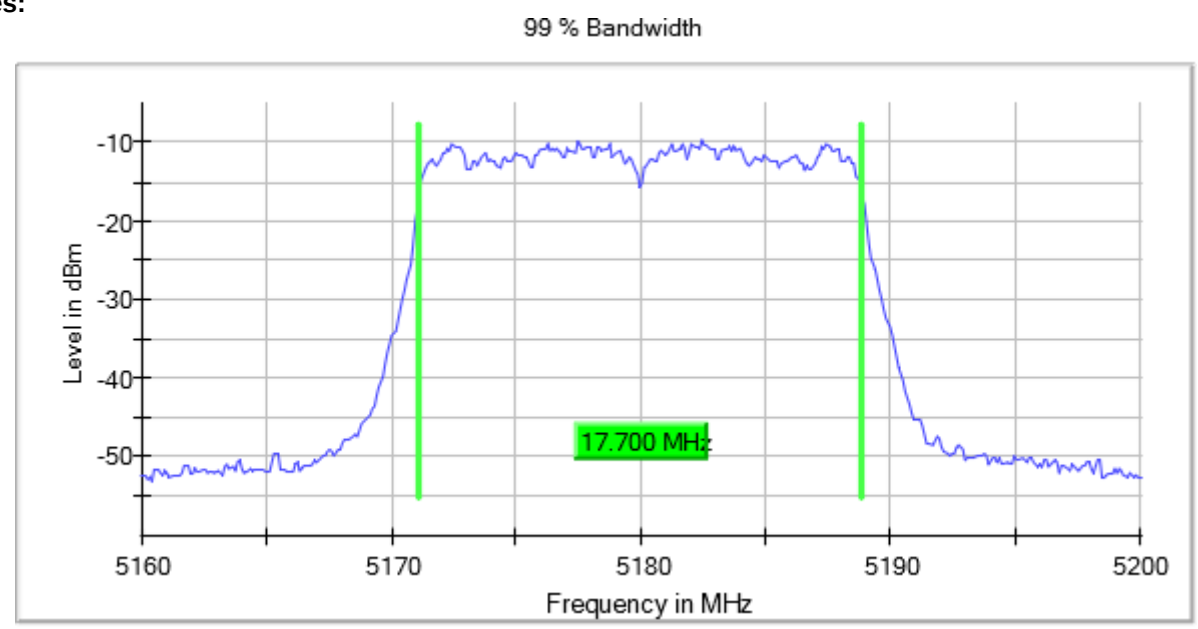
Pass

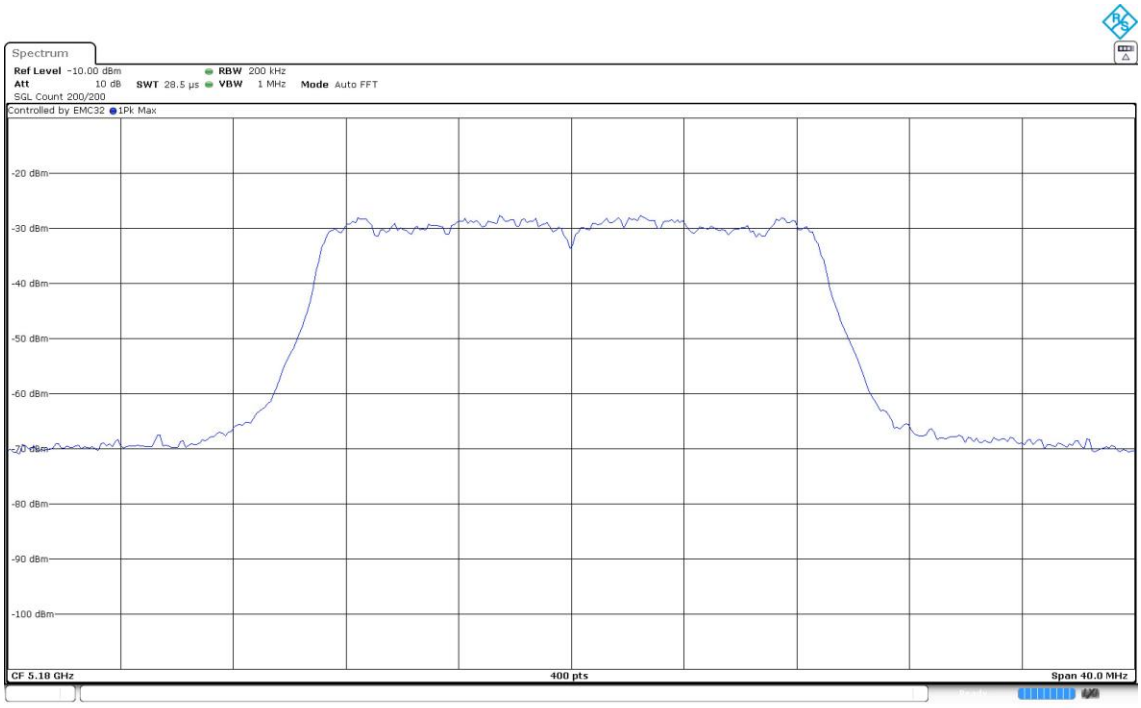
Attachments

Active Port = 1 Frequency MHz = 5180.00000

Modulation = 802.11ac VHT20 (OFDM MCS0) MIMO Mode = SISO

Images:

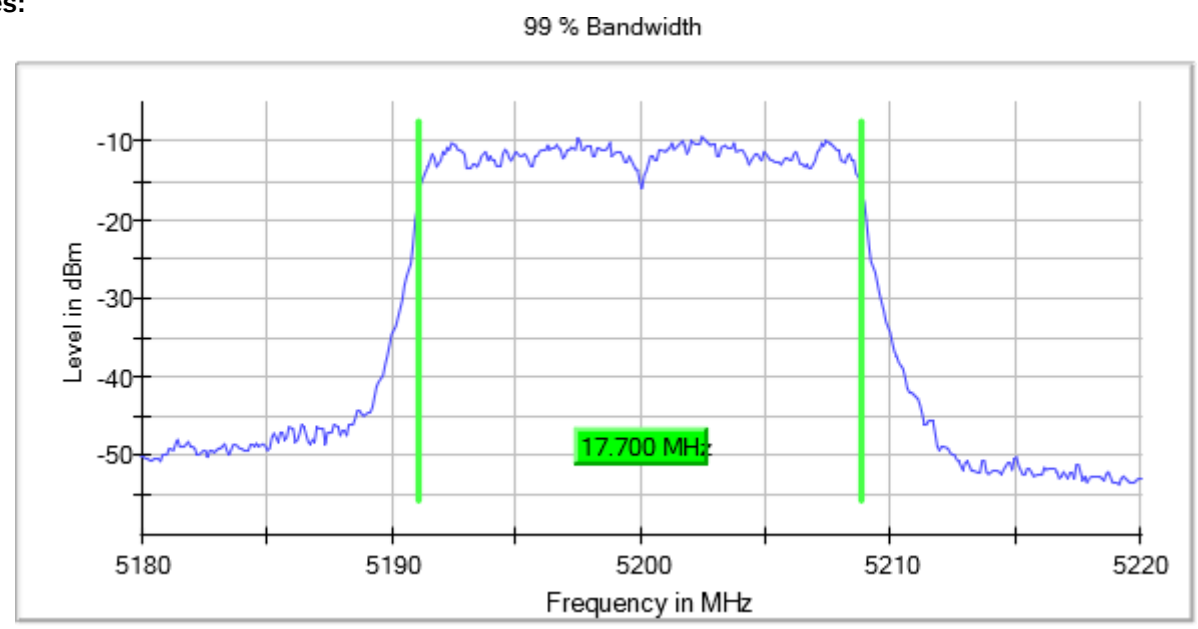


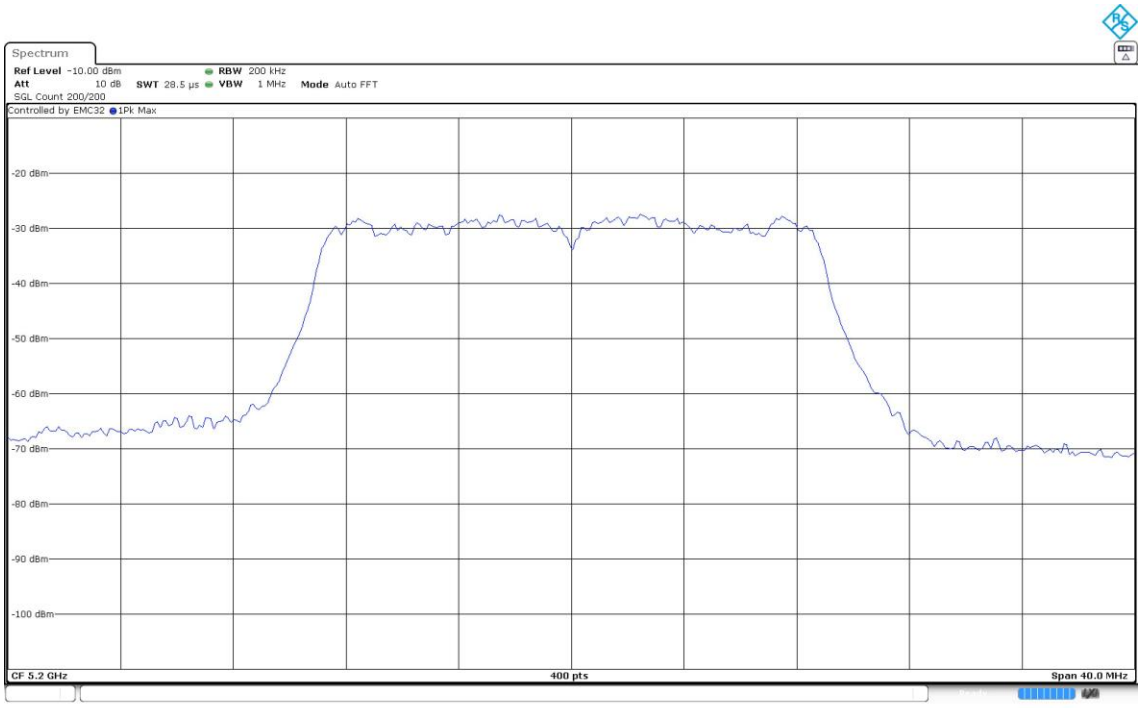


Active Port = 1 Frequency MHz = 5200.00000

Modulation = 802.11ac VHT20 (OFDM MCS0) MIMO Mode = SISO

Images:

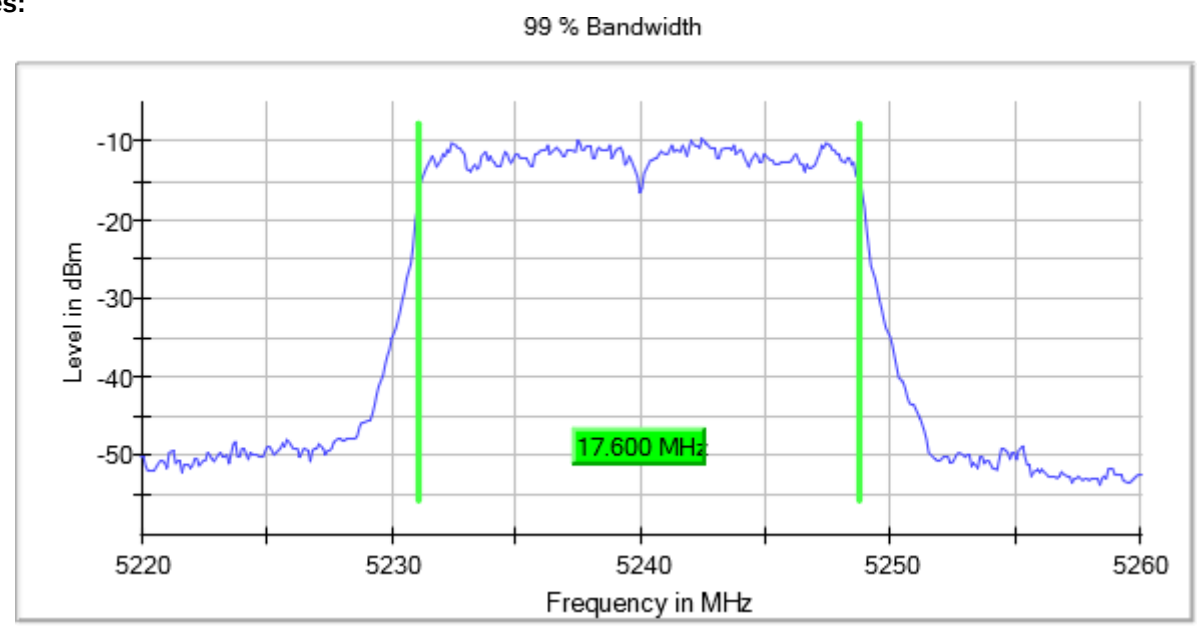


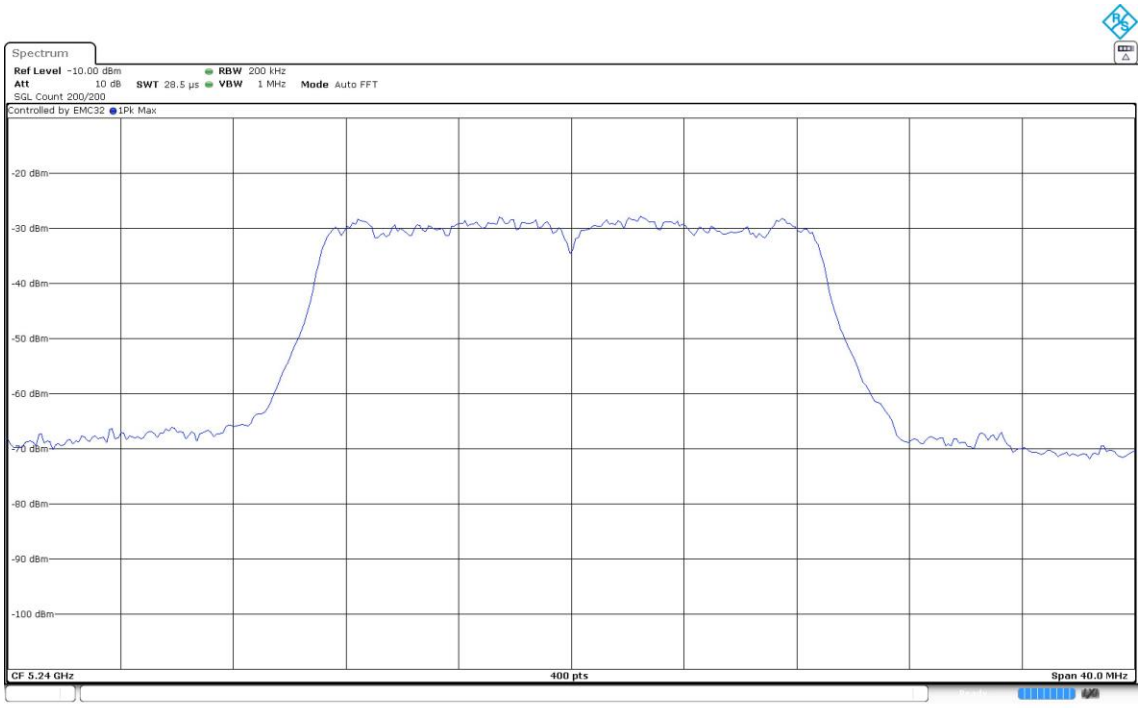


Active Port = 1 Frequency MHz = 5240.00000

Modulation = 802.11ac VHT20 (OFDM MCS0) MIMO Mode = SISO

Images:





Modulation: 802.11ac VHT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Occ Ch BW (MHz)
1	5190.00000	36.250
	5230.00000	36.250

Verdict

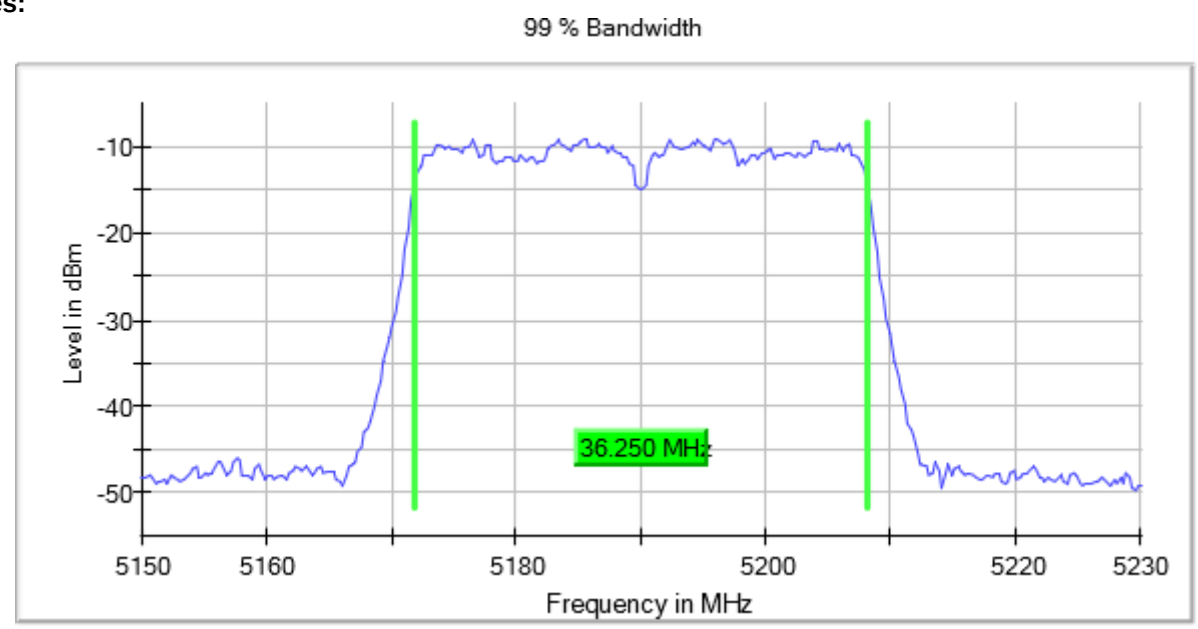
Pass

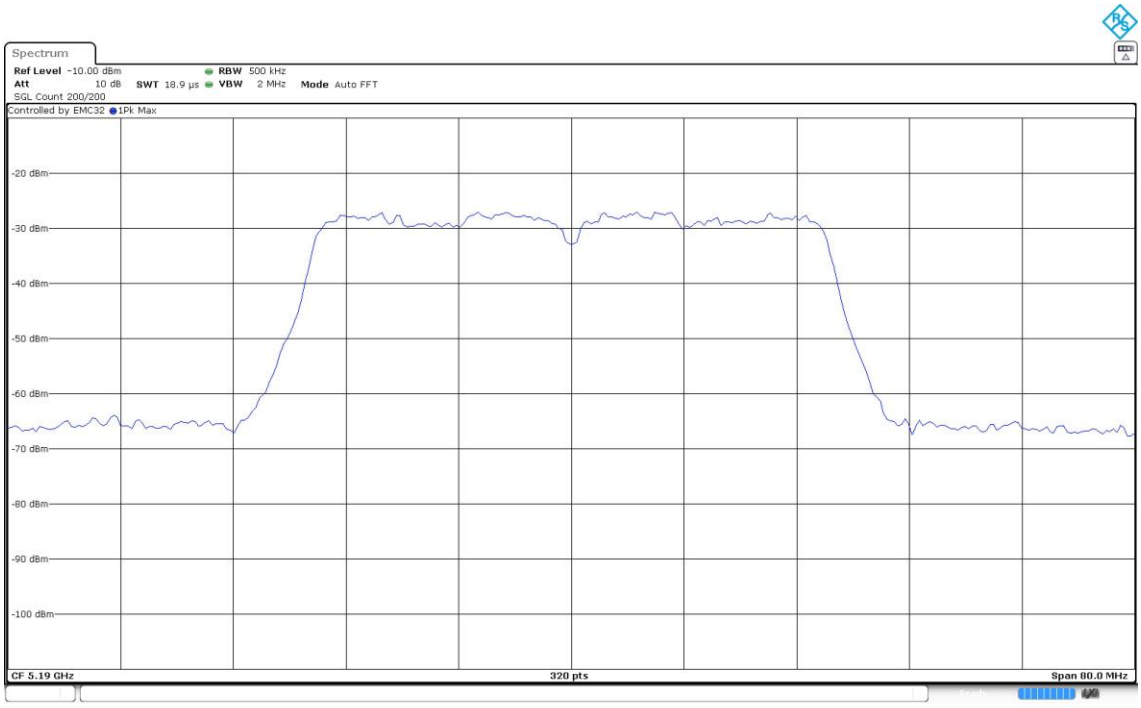
Attachments

Active Port = 1 Frequency MHz = 5190.00000

Modulation = 802.11ac VHT40 (OFDM MCS0) MIMO Mode = SISO

Images:

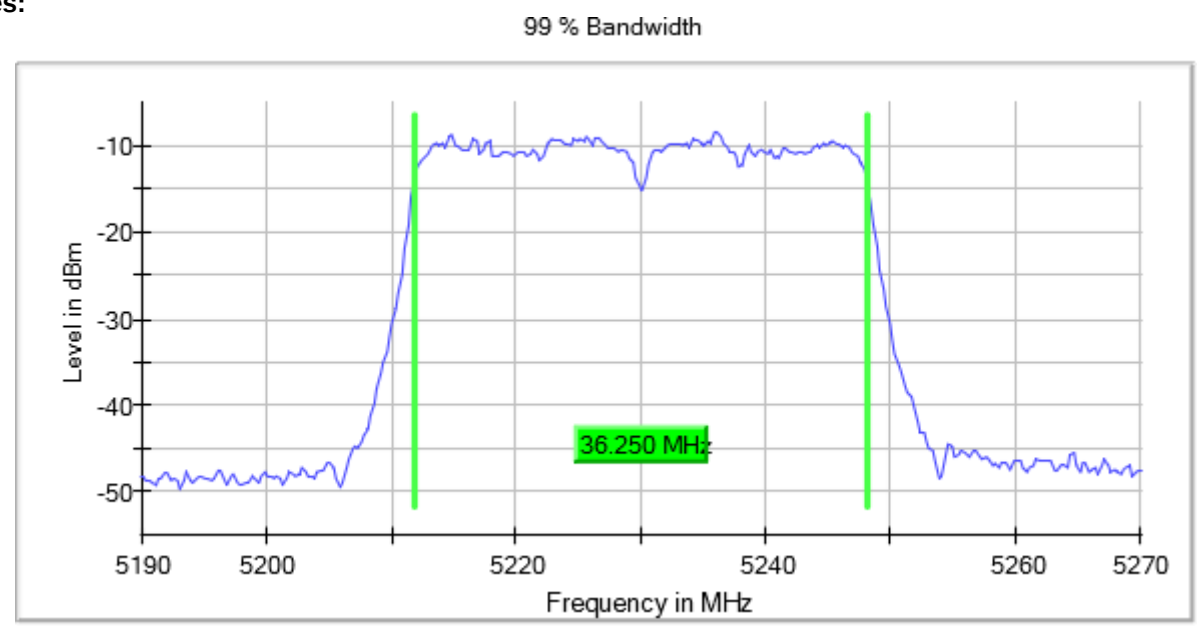


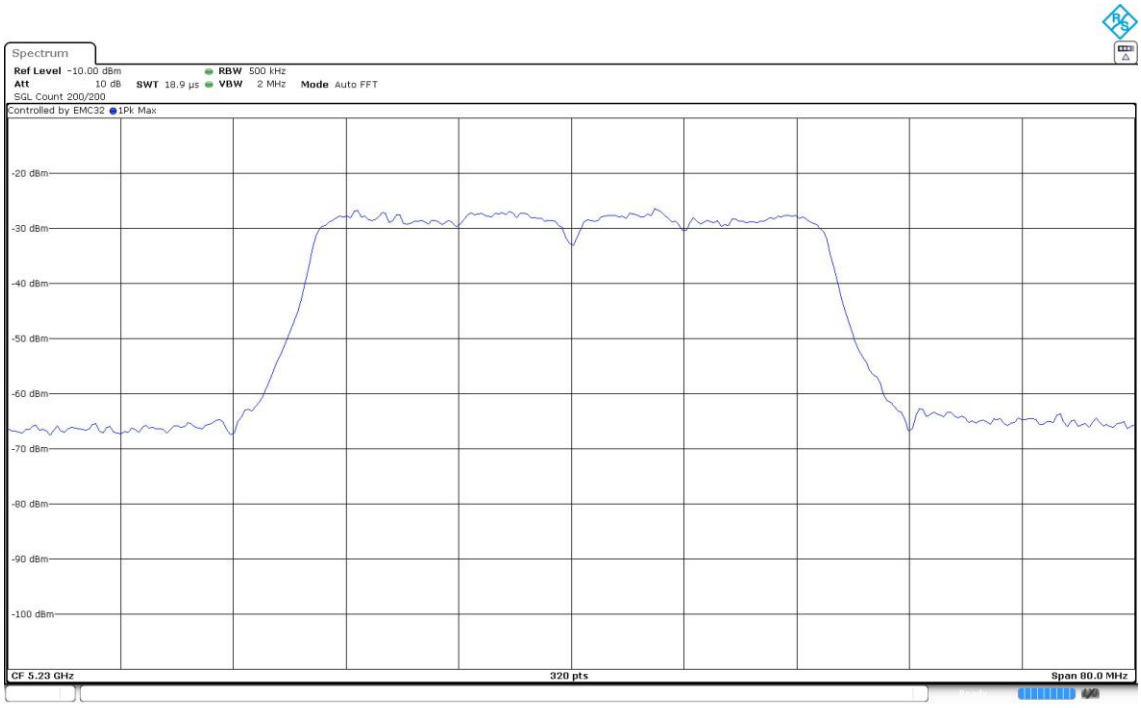


Active Port = 1 Frequency MHz = 5230.00000

Modulation = 802.11ac VHT40 (OFDM MCS0) MIMO Mode = SISO

Images:





Modulation: 802.11ac VHT80 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Occ Ch BW (MHz)
1	5210.00000	76.500

Verdict

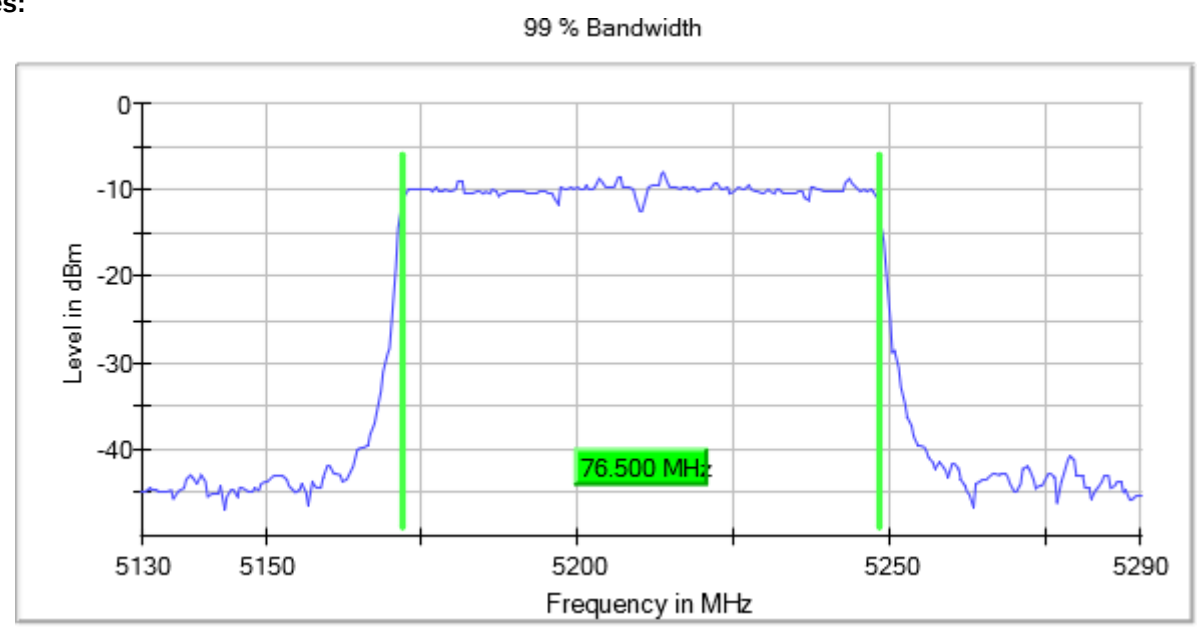
Pass

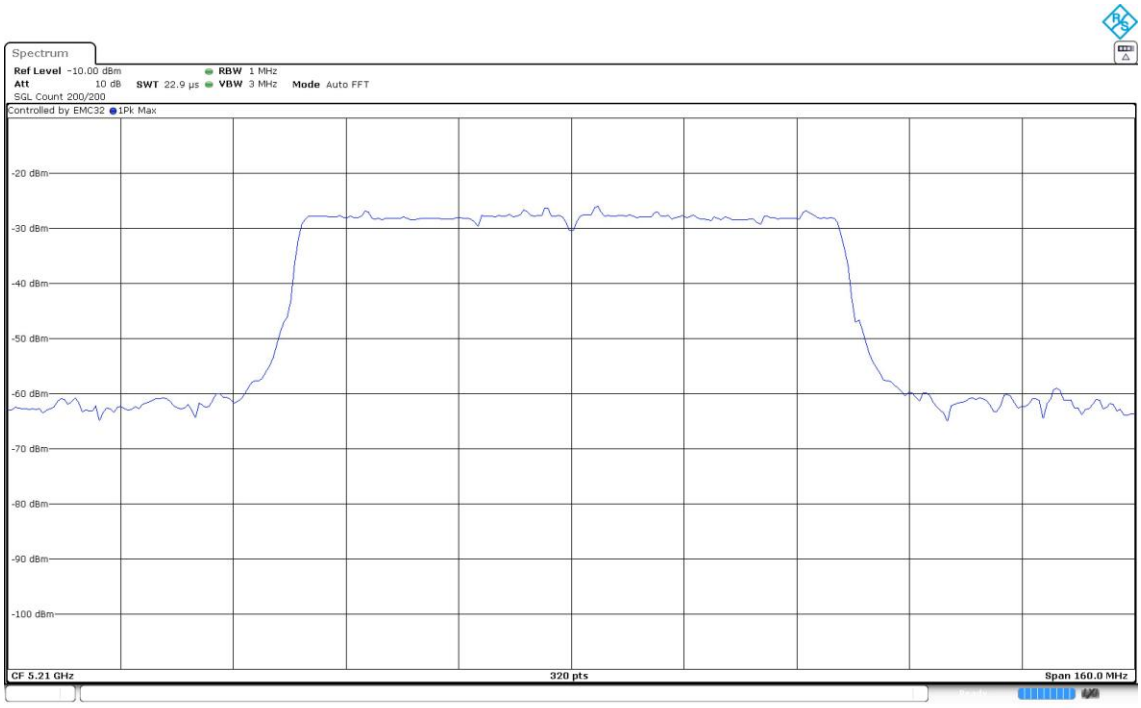
Attachments

Active Port = 1 Frequency MHz = 5210.00000

Modulation = 802.11ac VHT80 (OFDM MCS0) MIMO Mode = SISO

Images:





Section 15.407 Subclause 15.403(i) [Ebw] Transmitter 26 dB Emission Bandwidth (EBW)

Limits

The 26 dB Emission Bandwidth was measured using the method according to point C) 1) of 789033 D02 General UNII Test Procedures New Rules v02r01.

This test was performed on all the supported modes of the EUT, in the worst data rates after preliminary testing:

- 802.11 n HT20: MCS0 SISO 1Tx.
- 802.11 n HT40: MCS0 SISO 1Tx.
- 802.11 ac VHT80: MCS0 SISO 1Tx.

Modulation: 802.11n HT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Port	Freq (MHz)	Ebw (MHz)
1	5180.00000	20.500
	5200.00000	20.300
	5240.00000	20.200

Verdict

Pass