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Acronyms

Acronym ID	Acronym Description
Avg Power	Maximum Average Conducted Output Power
DC	Duty Cycle
Detector	Detector used
Ebw	Emission Bandwidth
EUT	Equipment Under Test
Freq	Frequency
Freq Rng	Frequency Range
Inband Peak Lvl	Inband Peak Level
Lvl	Level
MP	Measurement Point
Max EIRP	Maximum Burst EIRP
Mod	Modulation
Mode	MIMO Mode
Operation Band	Operation Band
PSD	Power Spectral Density
Pol	Polarization
Port	Active Port
TPC	TPC
Unwanted Freq	Unwanted Emissions Frequency
Unwanted Lvl	Unwanted Emissions Level

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.

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.

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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 $\leq \pm 5,35$ 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 $\leq \pm 4,32$ 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 $\leq \pm 5,55$ 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 $\leq \pm 2,01$ dB

Duty Cycle: Measurement uncertainty $\leq \pm 0,84$ ms

Power Spectral Density: Measurement uncertainty $\leq \pm 2,01$ dB

Occupied/26 dBc Bandwidth: Measurement uncertainty

$\leq \pm 57,76$ kHz for BW 20MHz;

$\leq \pm 115,53$ kHz for BW 40MHz; and

$\leq \pm 231,06$ kHz for BW 80MHz.

6 dB Bandwidth: Measurement uncertainty

$\leq \pm 34,67$ kHz for BW 20MHz;

$\leq \pm 46,22$ kHz for BW 40MHz; and

$\leq \pm 80,90$ kHz for BW 80MHz.

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 Central In-Vehicle Infotainment Computer CIVIC Gen20xi.3

Including:

GNSS (GPS, Galileo Beidou Glonass)

AM/FM/DAB (ROW/ECE)

AM/FM/SXM (NA)

AM/FM/TV (JP)

WLAN 2.4 &5GHz

Bluetooth

3. Declaration of similarity

Cross-Domain Computing Solutions



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FCC BCI3L3N1 - Product Variant Declaration Star 3.0 vs Star 3.5

May 13, 2025

Ladies and gentlemen,

We, Robert Bosch GmbH, herewith declare that our product **BCI3L3N1** exists in two variants, which are electrical identical in all aspects.

HVIN (Model Name)	BCI3L3N1
FCC ID:	2AUXS- BCI3L3N1
IC:	25847- BCI3L3N1

The product is mounted in two different vehicle types:

- one with a CAN Bus Vehicle communication system,
- the other one has vehicular Ethernet as communication system

In order to be operational in these vehicles, our product is preconfigured in two variants as described below. Both are **HW identical**, only that different path for in-vehicle communication is used.

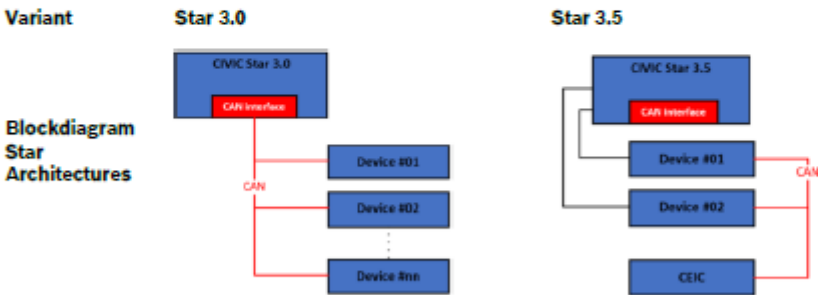
The CAN and Ethernet interface are always built on both Star architectures, but only Star 3.0 uses the CAN interface, and Star 3.5 uses Ethernet interface.

The following block diagrams show the architectures:

Cross-Domain Computing Solutions



May 13, 2025
Page 2 of 2



From regulatory point of view, we, BOSCH, consider the impact of the variant coding as follows:

	CAN Bus / Ethernet Bus
Radio Requirements	No impact
Health Requirements	No impact
Electrical Safety Requirements	No impact
EMC Requirements	Radiated emissions

Yours sincerely

Dirk_Zam

OW

Digitally signed by
Dirk_Zamow
Date: 2025.05.13
11:27:19 +02'00'

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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 N°	Date Reception	of	Application
S/01		76719D_149.1	Headunit A-PREMIUN USA	BCI3L3N1	CM0206R0016007	2024-10-25		Element Under Test
		76719D_111.1	Harness	---	---	2024-04-19		Auxiliary Element
		76719D_48.1	Farkra-USB adapter cable	---	---	2024-04-17		Auxiliary Element
		76719D_60.1	Termination box	---	---	2024-04-17		Auxiliary Element
		76719D_62.1	DC Block	---	---	2024-04-17		Auxiliary Element
		76719D_64.1	DC Block	---	---	2024-04-17		Auxiliary Element
		76719D_65.1	DC Block	---	---	2024-04-17		Auxiliary Element
		76719D_68.1	DC Block	---	---	2024-04-17		Auxiliary Element
		76719D_84.1	Antenna	A1779052902/002	---	2024-04-17		Auxiliary Element
		76719D_85.1	Antenna	A1779052902/002	---	2024-04-17		Auxiliary Element
		76719D_86.1	Antenna	A1779052902/002	---	2024-04-17		Auxiliary Element
		76719D_93.1	Antenna	A1779052902/002	---	2024-04-17		Auxiliary Element
S/02		76719D_149.1	Headunit A-PREMIUN USA	BCI3L3N1	CM0206R0016007	2024-10-25		Element Under Test
		76719D_111.1	Harness	---	---	2024-04-19		Auxiliary Element
		76719D_48.1	Farkra-USB adapter cable	---	---	2024-04-17		Auxiliary Element
		76719D_96.1	Farkra- 4 SMA cable	---	---	2024-04-17		Auxiliary Element

Notes referenced to samples during the project:

Id		Type
S/01		Samples used for radiated test
S/02		Samples used for conducted test

Test sample description

Ports..... :	Port name and description	Cable					
		Specified max length [m]	Attached during test		Shielded		
	Main Connector	2m	[X]		[]		
	Fakra Quad Connector AM/FM/DAB		[X]		[]		
	Fakra Single Connector GPS						
	Fakra Quad Connector WLAN/BT		[X]		[]		
USB Cable			[X]		[]		
Supplementary information to the ports..... :	--						
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[]	AC:					
	[X]	DC: 9-16V nominal 12 VDC by vehicle battery					
Rated Power	--						
Clock frequencies..... :	--						
Other parameters	IP20 ; -40C to +65C						
Software version	E064.4						
Hardware version	D5						
Dimensions in cm (W x H x D)	220mmx161mmx78mm						
Mounting position	[]	Table top equipment					
	[]	Wall/Ceiling mounted equipment					
	[]	Floor standing equipment					
	[]	Hand-held equipment					
	[X]	Other: Cluster in the car with separate antennas built into the cockpit of vehicle					
Modules/parts..... :	Module/parts of test item		Type		Manufacturer		
	--						
Accessories (not part of the test item)	Description		Type		Manufacturer		
	Antennas						
	Display						
	any other equipment to make device functional						
	Laptop						
Documents as provided by the applicant	Description		File name		Issue date		
	--						

Identification of the client

Robert Bosch GmbH
Robert-Bosch-Strasse, 200, 31139, Hildesheim, Germany

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2025-01-16
Date (finish)	2025-03-17

Document history

Report number	Date	Description
76719RRF.002	2025-06-04	First release.
76719RRF.002A1	2025-07-02	Second release. Modification due to typos. This modification test report cancels and replaces the test report 76719RRF.002.

Environmental conditions

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

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

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

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

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

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

Remarks and comments

The tests have been performed by the technical personnel: Antonio Maireles, Carmen Vázquez Perez, Pablo Redondo Reyes and Rosa Maria Gallardo Perez.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
06791	SEMIANECHOIC ABSORBER LINED CHAMBER IV	FACT 3 200 STP	ETS LINDGREN	N/A
06792	SHIELDED ROOM	S101	ETS LINDGREN	N/A
06609	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2026-04-21
06615	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2026-04-24
06143	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2027-01-22
06142	PRE-AMPLIFIER G>38dB 30MHz-6GHz	BLNA 0360-01N	BONN ELEKTRONIK	2025-07-25
06496	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK	2026-12-01
03783	PRE-AMPLIFIER G>30dB 1GHz-18GHz	BLMA 0118-3A	BONN ELEKTRONIK	2026-03-17
04657	HORN ANTENNA 18-40GHz	BBHA 9170	SCHWARZBECK	2026-06-12
10537	PRE-AMPLIFIER G>46dB 18-40 GHz	BLMA 1840-5G	BONN ELEKTRONIK	2026-03-07
07817	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2026-07-01
07445	DC POWER SUPPLY 30V/5A	U8002A	KEYSIGHT TECHNOLOGIES	N/A
07760	DIGITAL MULTIMETER	175	FLUKE	2025-11-07
04848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A
06793	SHIELDED ROOM	S101	ETS LINDGREN	N/A
06611	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2026-04-21
06668	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2027-04-01
07796	EXTENSION FOR OPEN SWITCH UNIT UP TO 40GHz	OSP-B157Wx	ROHDE AND SCHWARZ	2027-01-09
08848	OPEN SWITCH UNIT UP TO 7.5 GHz	OSP-B157W8 PLUS	ROHDE AND SCHWARZ	2027-01-02
00922	POWER SUPPLY DC 40 V / 40 A	NGPE 40/40	ROHDE AND SCHWARZ	N/A
05850	DIGITAL MULTIMETER	179	FLUKE	2025-11-04
07798	SOFTWARE FOR EMC/RF TESTING	WMS32	ROHDE AND SCHWARZ	N/A

Testing verdicts

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

Summary

A. Common requirements for all Bands:

FCC PART 15		
Requirement – Test case	Verdict	Remark
Transmitter. Duty Cycle	P	
Transmitter. 99% Occupied Bandwidth	P	
Transmitter. 26 dB Emission Bandwidth (EBW)	P	
<u>Supplementary information and remarks:</u> None.		

U-NII-1 Band: 5.15 - 5.25 GHz

FCC PART 15 PARAGRAPH		
Requirement – Test case	Verdict	Remark
FCC 15.407 (a)(1)(iv) Transmitter Maximum conducted Output Power	P	
FCC 15.407 (a)(1)(iv) Transmitter Maximum Power Spectral Density	P	
FCC 15.407 (b)(1) Transmitter Out of Band Radiated Emissions	P	
FCC 15.407 (b)(1) Transmitter Band Edge Radiated Emissions	P	
<u>Supplementary information and remarks:</u> None.		

U-NII-3: 5.725 GHz – 5.85 GHz Band:

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

Appendix A: Test Common requirements for all Bands

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<i>Transmitter Duty Cycle</i>	21
<i>Transmitter. 99% Occupied Bandwidth</i>	21
<i>Transmitter. 26 dB Emission Bandwidth (EBW)</i>	50

TEST CONDITIONS

(*) Declared by the Client.

POWER SUPPLY (*):

Vnominal: 12 Vdc
Type of Power Supply: Vehicle battery

ANTENNA (*):

Type of Antenna: External

Directional Antenna Gain Calculations for CDD MIMO In-Band Measurements:

For 2Tx CDD MIMO modes, in accordance with KDB 662911 D01 v02r01 Section F)2)f(i), directional gain was calculated as follows:

- For power spectral density (PSD) measurements on all devices:

$$N_{SS} = 1, N_{ANT} = 2, G_{ANT0} = 5.1, G_{ANT1} = 5.1$$

$$Array\ Gain = 10 \log \left[\frac{N_{ANT}}{N_{SS}} \right] = 10 \log \left[\frac{2}{1} \right] = 3.01\ dB$$

$$\textbf{Directional gain} = G_{ANT} + Array\ Gain = 5.1 + 3.01 = \textbf{8.11 dB}$$

- For power measurements on IEEE 802.11 devices:

$$Array\ Gain = 0\ dB\ for\ N_{ANT} \leq 4$$

$$\textbf{Directional gain} = G_{ANT} + Array\ Gain = 5.1 + 0 = \textbf{5.10 dB}$$

POWER ADJUSTMENT (*): 8 dBm

TEST FREQUENCIES (*):

UNII-1:

Technology Tested:	WLAN (IEEE 802.11 a,n,ac,ax) 2x2 / U-NII-1	
	802.11 n HT20: MCS0 to MCS23 (MIMO 2x2)	
	802.11 n HT40: MCS0 to MCS23 (MIMO 2x2)	
	802.11 ac VHT20: MCS0 to MCS9 (MIMO 2x2)	
	802.11 ac VHT40: MCS0 to MCS9 (MIMO 2x2)	
	802.11 ac VHT80: MCS0 to MCS9 (MIMO 2x2)	
	802.11 ax HE20: MCS0 to MCS11 (MIMO 2x2) – SU/RU	
	802.11 ax HE40: MCS0 to MCS11 (MIMO 2x2) – SU/RU	
	802.11 ax HE80: MCS0 to MCS11 (MIMO 2x2) – SU/RU	
Setting of cores / ports:	3+4	
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

* The EUT does not support the Middle Channel of 802.11ax HE20 (OFDMA MCS0) SU modulation.

UNII-3:

Technology Tested:	WLAN (IEEE 802.11 a,n,ac,ax) 2x2 / U-NII-3	
	802.11 n HT20: MCS0 to MCS23 (MIMO 2x2)	
	802.11 n HT40: MCS0 to MCS23 (MIMO 2x2)	
	802.11 ac VHT20: MCS0 to MCS9 (MIMO 2x2)	
	802.11 ac VHT40: MCS0 to MCS9 (MIMO 2x2)	
	802.11 ac VHT80: MCS0 to MCS9 (MIMO 2x2)	
	802.11 ax HE20: MCS0 to MCS11 (MIMO 2x2) – SU/RU	
	802.11 ax HE40: MCS0 to MCS11 (MIMO 2x2) – SU/RU	
	802.11 ax HE80: MCS0 to MCS11 (MIMO 2x2) – SU/RU	
Setting of cores / ports:	3+4	
Beamforming:	No.	
	5725 MHz to 5850 MHz	
Power Settings:	13 dBm	
Operating Channel Bandwidth:	20 MHz	
Transmission Channels:	Channel	Channel Frequency (MHz)
	Low (149)	5745
	Middle (157)	5785
	High (165)	5825
Operating Channel Bandwidth:	40 MHz	
Transmission Channels:	Channel	Channel Frequency (MHz)
	Low (151)	5755
	High (159)	5795
Operating Channel Bandwidth:	80 MHz	
Transmission Channels:	Single (155)	5775

* The EUT does not support the Middle Channel of 802.11ax HE20 (OFDMA MCS0) SU modulation.

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 n HT20: MCS0
- 802.11 n HT40: MCS0
- 802.11 ac VHT20: MCS0
- 802.11 ac VHT40: MCS0
- 802.11 ac VHT80: MCS0
- 802.11 ax HE20: MCS0
- 802.11 ax HE40: MCS0
- 802.11 ax HE80: MCS0

CONDUCTED MEASUREMENTS:

The equipment under test was set up in a shielded room and connected to the spectrum analyzer using a low-loss RF cable. The reading in the spectrum analyzer is corrected taking into account the internal and external RF cable loss.

For all modes:



Transmitter 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.

Results

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

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5180.00000	99.72
		5220.00000	99.72
		5240.00000	99.72
[5725, 5850]		5745.00000	99.72
		5785.00000	99.72
		5825.00000	99.72

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

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5190.00000	99.73
		5230.00000	99.73
[5725, 5850]		5755.00000	99.73
		5795.00000	99.73

Modulation: 802.11ac VHT20 (OFDM MCS0)

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5180.00000	99.72
		5220.00000	99.72
		5240.00000	99.72
[5725, 5850]		5745.00000	99.72
		5785.00000	99.72
		5825.00000	99.72

Modulation: 802.11ac VHT40 (OFDM MCS0)

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5190.00000	99.73
		5230.00000	99.73
[5725, 5850]		5755.00000	99.74
		5795.00000	99.73

Modulation: 802.11ac VHT80 (OFDM MCS0)

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5210.00000	99.74
[5725, 5850]		5775.00000	99.74

Modulation: 802.11ax HE20 (OFDMA MCS0) SU

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5180.00000	99.72
		5240.00000	99.72
[5725, 5850]		5745.00000	99.72
		5825.00000	99.72

Modulation: 802.11ax HE20 (OFDMA MCS0) RU26

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5180.00000	99.68
		5220.00000	99.68
		5240.00000	99.68
[5725, 5850]		5745.00000	99.66
		5785.00000	99.69
		5825.00000	99.68

Modulation: 802.11ax HE40 (OFDMA MCS0) SU

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5190.00000	99.73
		5230.00000	99.73
[5725, 5850]		5755.00000	99.73
		5795.00000	99.74

Modulation: 802.11ax HE40 (OFDMA MCS0) RU26

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5190.00000	99.64
		5230.00000	99.59
[5725, 5850]		5755.00000	99.63
		5795.00000	99.59

Modulation: 802.11ax HE80 (OFDMA MCS0) SU

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5210.00000	99.74
[5725, 5850]		5775.00000	99.74

Modulation: 802.11ax HE80 (OFDMA MCS0) RU26

Operation Band (MHz)	Port	Freq (MHz)	DC (%)
[5150, 5250]	3+4	5210.00000	99.56
[5725, 5850]		5775.00000	99.56

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 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).

Results

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

Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5180.00000	17.70
		5220.00000	17.70
		5240.00000	17.70
[5725, 5850]		5745.00000	17.60
		5785.00000	17.60
		5825.00000	17.60

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

Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5190.00000	36.25
		5230.00000	36.25
[5725, 5850]		5755.00000	36.00
		5795.00000	36.00

Modulation: 802.11ac VHT20 (OFDM MCS0)

Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5180.00000	17.70
		5220.00000	17.70
		5240.00000	17.70
[5725, 5850]		5745.00000	17.60
		5785.00000	17.60
		5825.00000	17.50

Modulation: 802.11ac VHT40 (OFDM MCS0)

Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5190.00000	36.25
		5230.00000	36.25
[5725, 5850]		5755.00000	36.25
		5795.00000	36.25

Modulation: 802.11ac VHT80 (OFDM MCS0)

Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5210.00000	76.50
[5725, 5850]		5775.00000	76.00

Modulation: 802.11ax HE20 (OFDMA MCS0) SU

Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5180.00000	18.90
		5240.00000	18.90
[5725, 5850]		5745.00000	18.90
		5825.00000	18.90

Modulation: 802.11ax HE20 (OFDMA MCS0) RU26

Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5180.00000	18.50
		5200.00000	17.20
		5240.00000	18.60
[5725, 5850]		5745.00000	18.50
		5785.00000	17.30
		5825.00000	18.60

Modulation: 802.11ax HE40 (OFDMA MCS0) SU

Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5190.00000	37.75
		5230.00000	37.75
[5725, 5850]		5755.00000	37.75
		5795.00000	37.75

Modulation: 802.11ax HE40 (OFDMA MCS0) RU26

Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5190.00000	36.00
		5230.00000	38.00
[5725, 5850]		5755.00000	38.00
		5795.00000	38.25

Modulation: 802.11ax HE80 (OFDMA MCS0) SU

Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5210.00000	77.50
[5725, 5850]		5775.00000	77.50

Modulation: 802.11ax HE80 (OFDMA MCS0) RU26

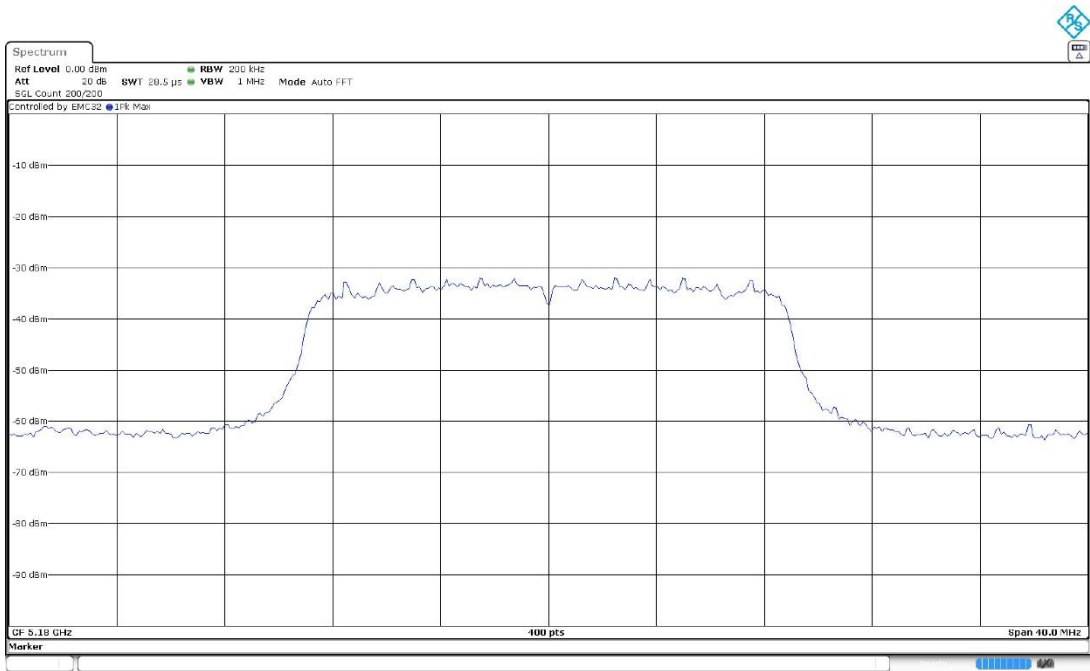
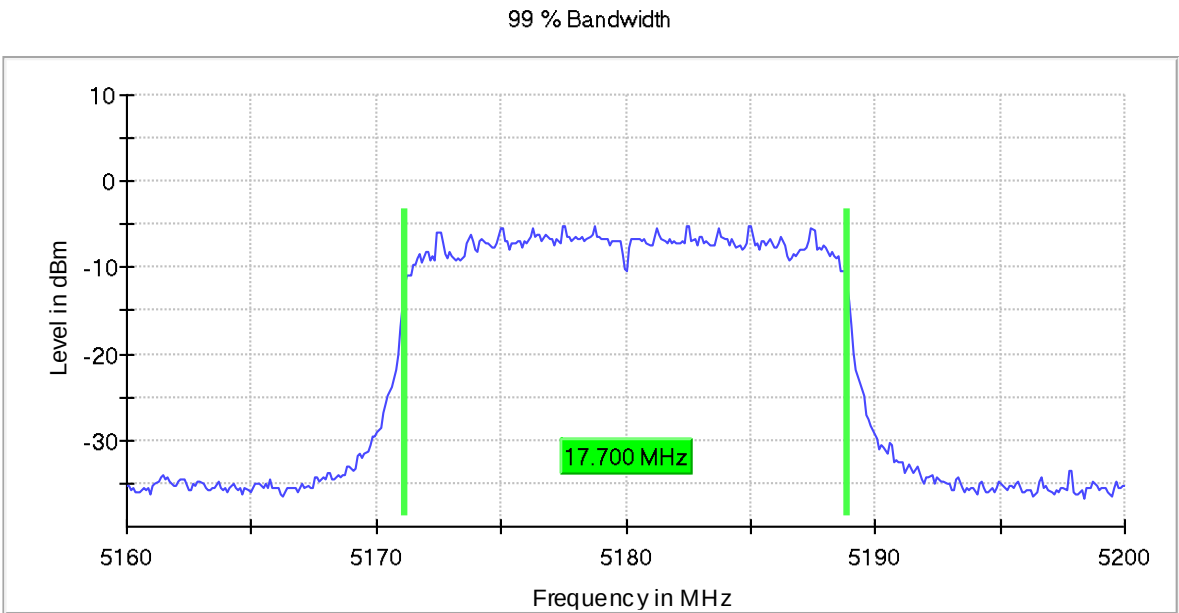
Operation Band (MHz)	Port	Freq (MHz)	OBW (MHz)
[5150, 5250]	3+4	5210.00000	78.00
[5725, 5850]		5775.00000	79.00

Attachments

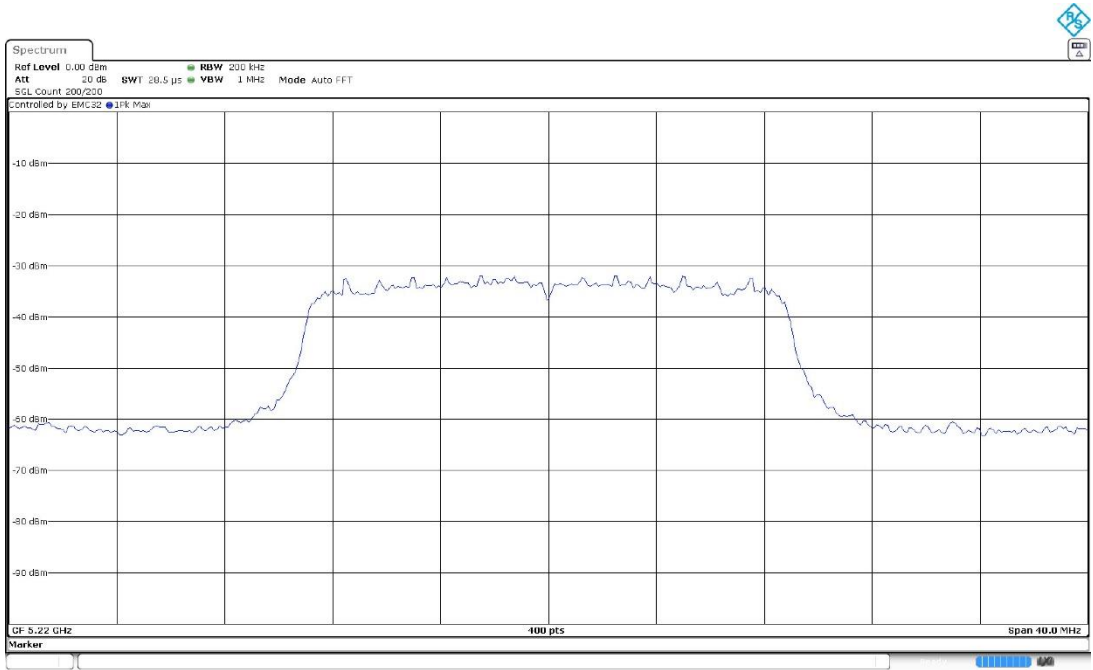
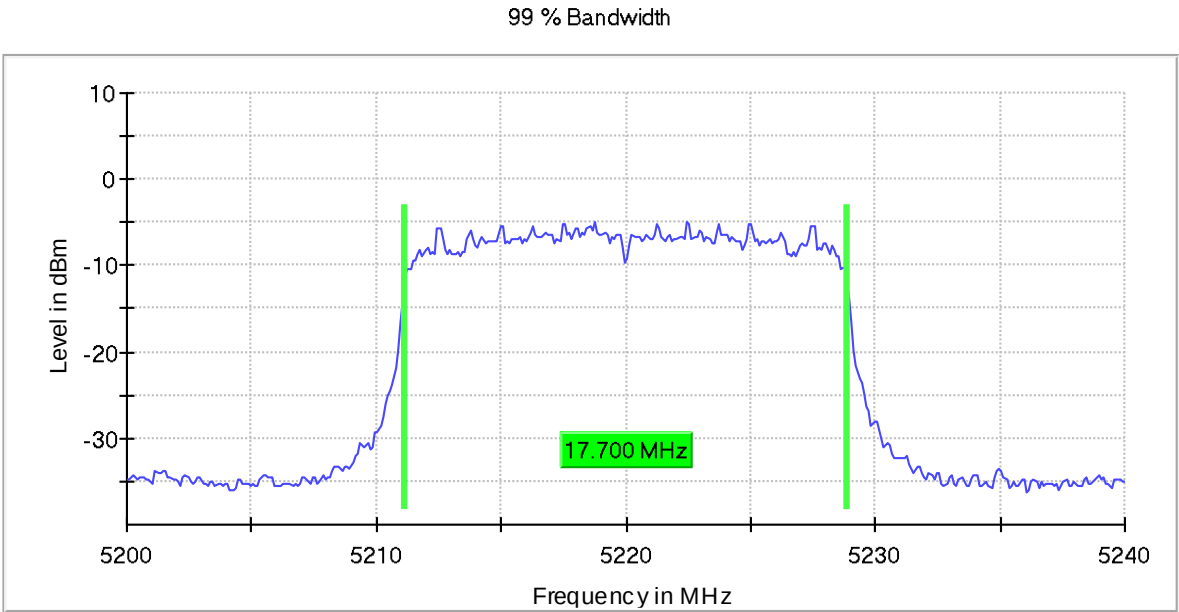
Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

U-NII-1 FCC (5150-5250 MHz)

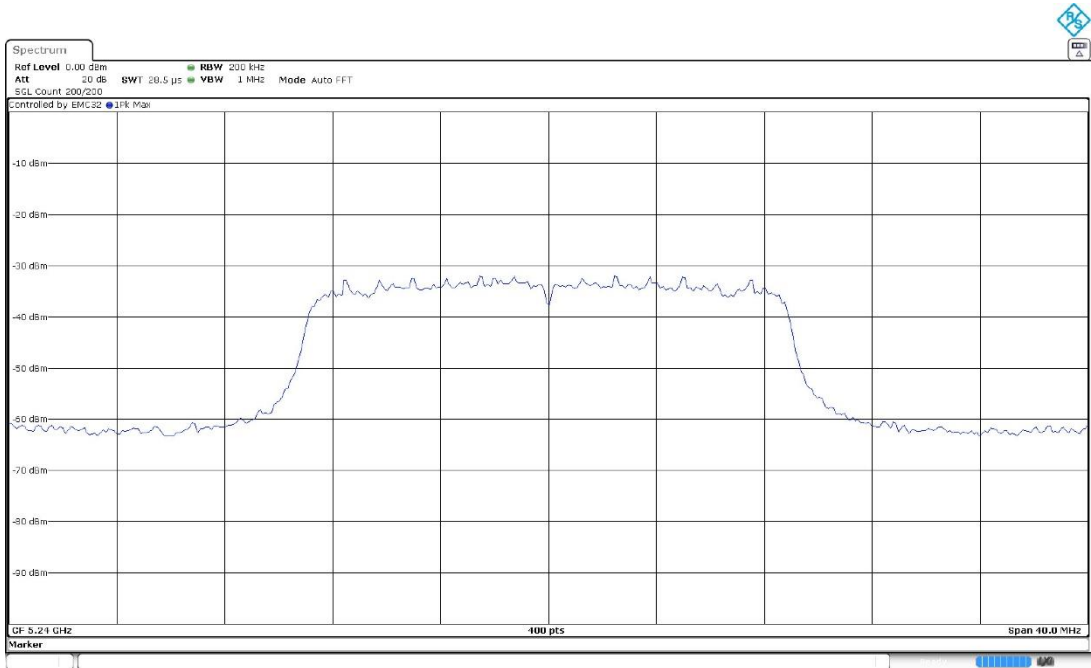
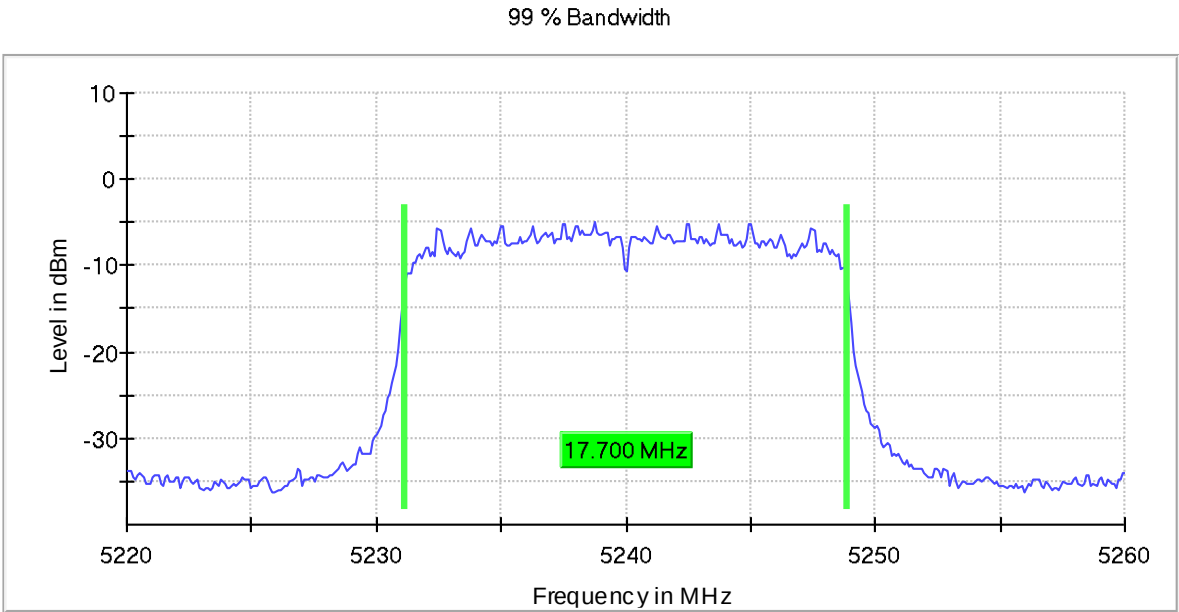
- Low Channel 36 (5180 MHz):



- Channel 40 (5200 MHz):

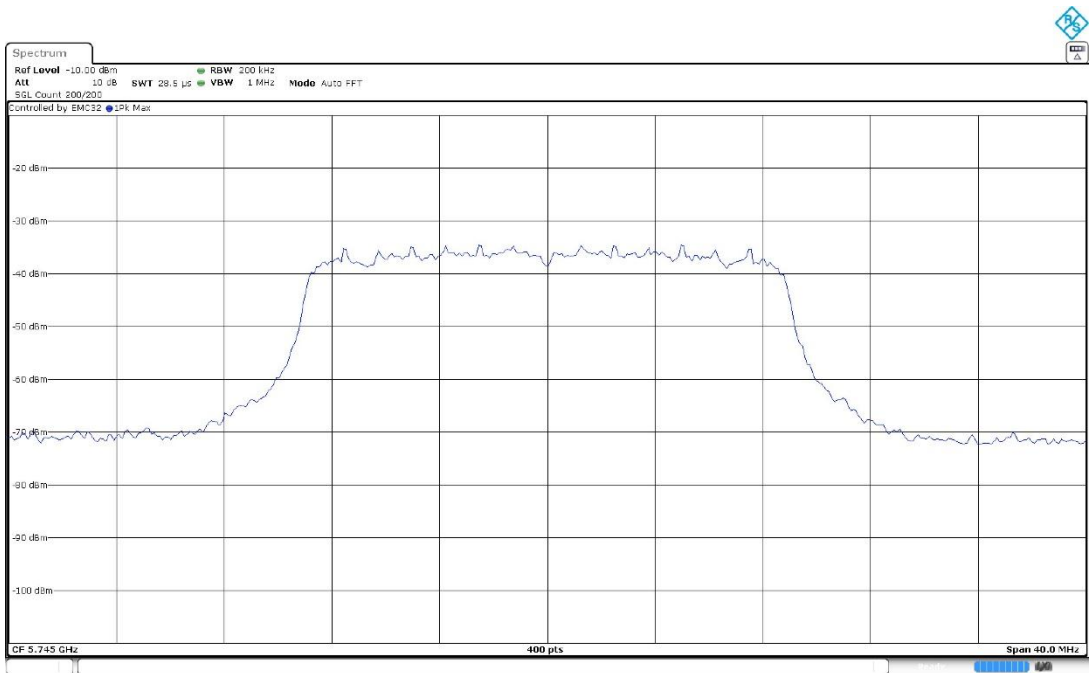
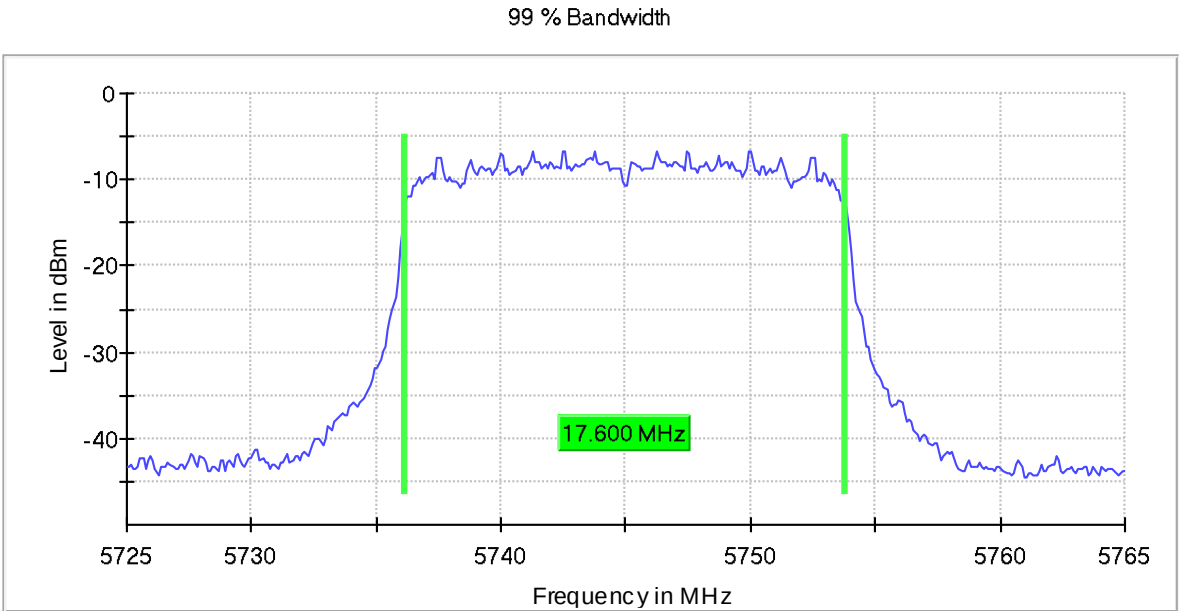


- High Channel 48 (5240 MHz):

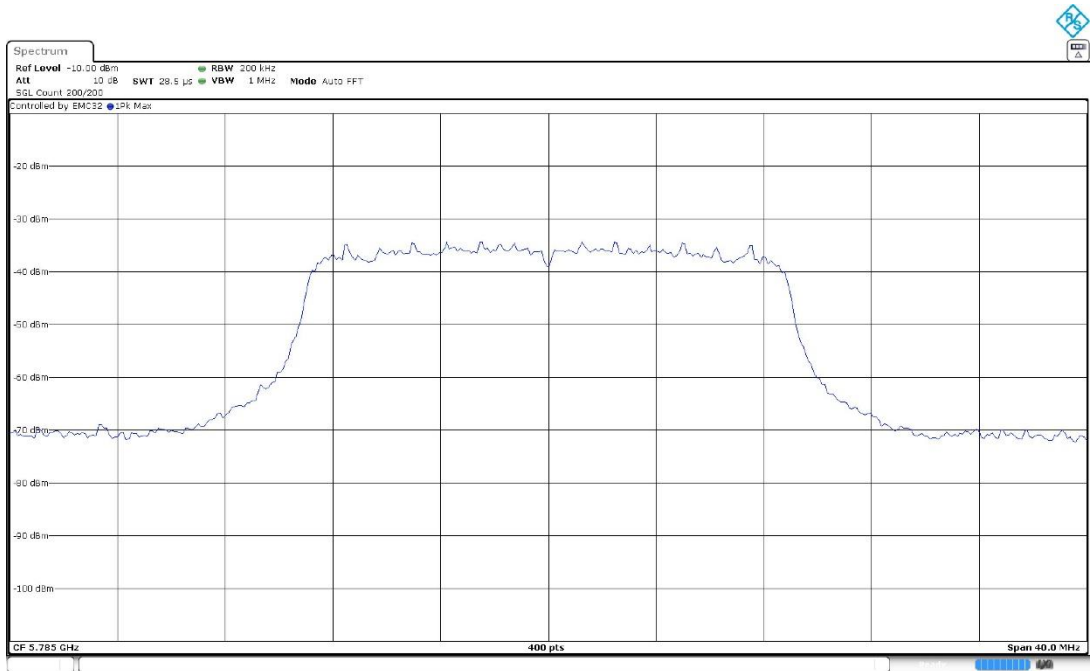
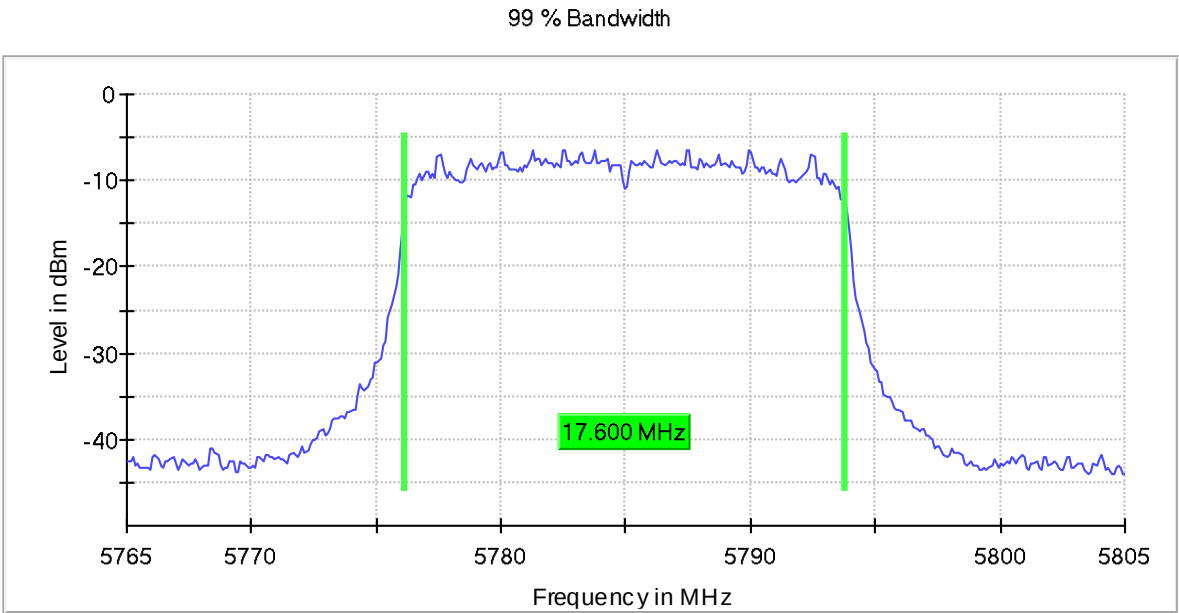


U-NII-3 (5725-5850 MHz)

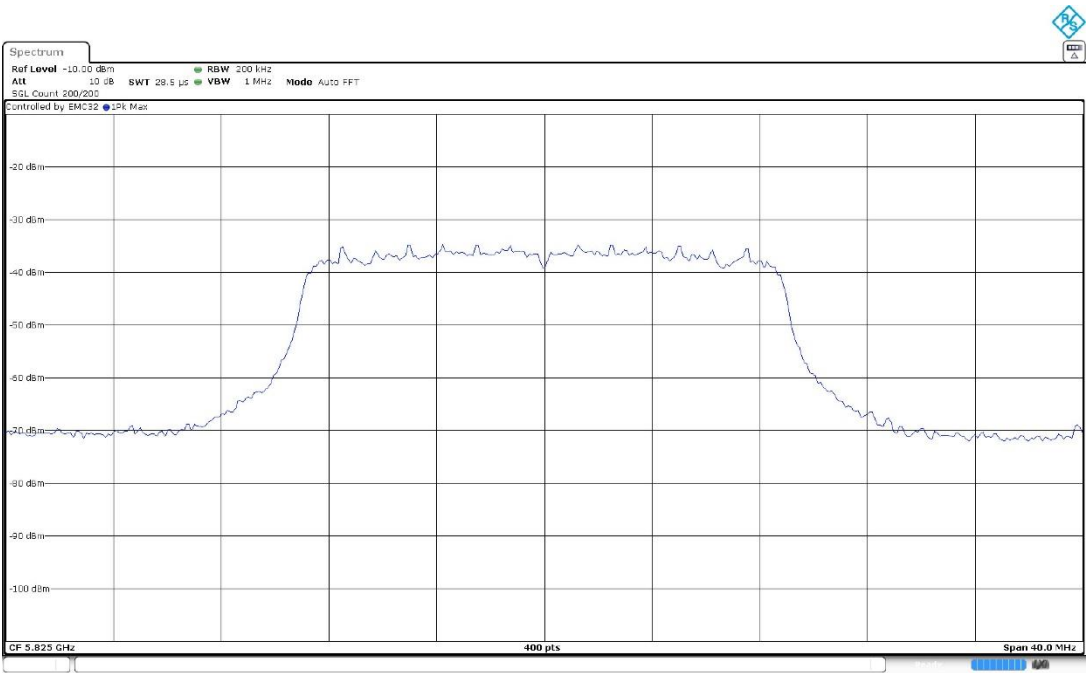
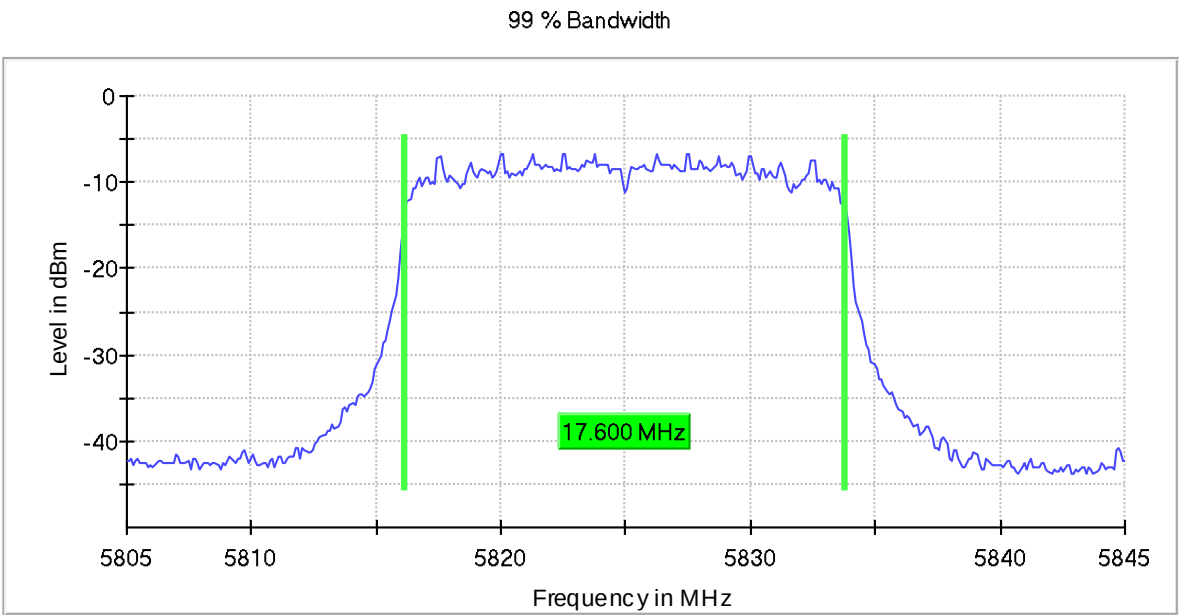
- Low Channel 149 (5745 MHz):



- Middle Channel 157 (5785 MHz):



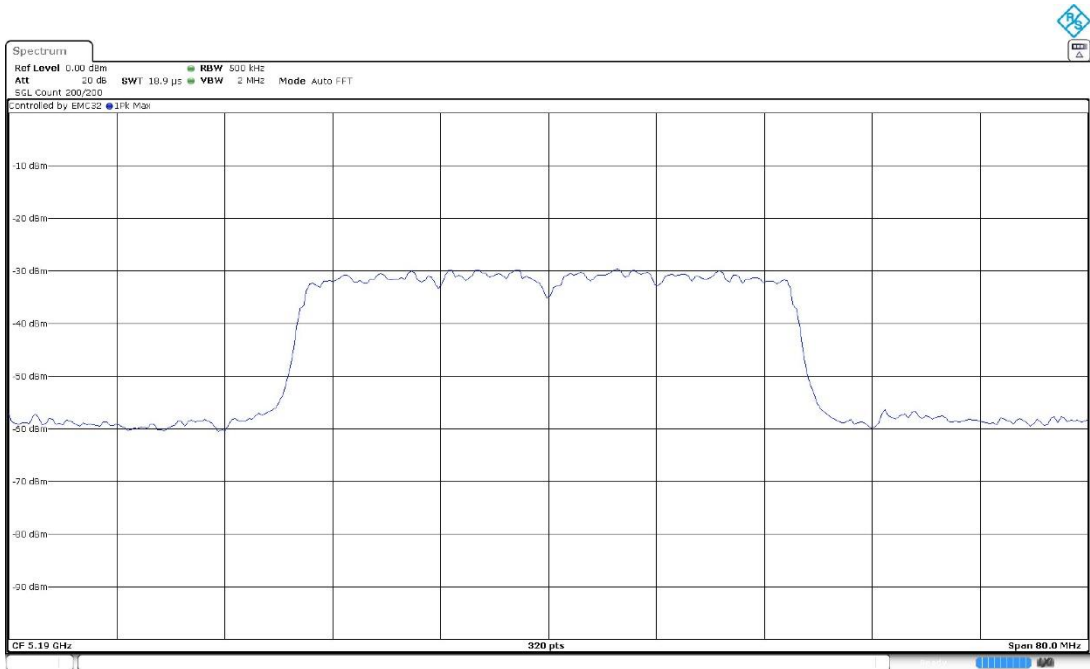
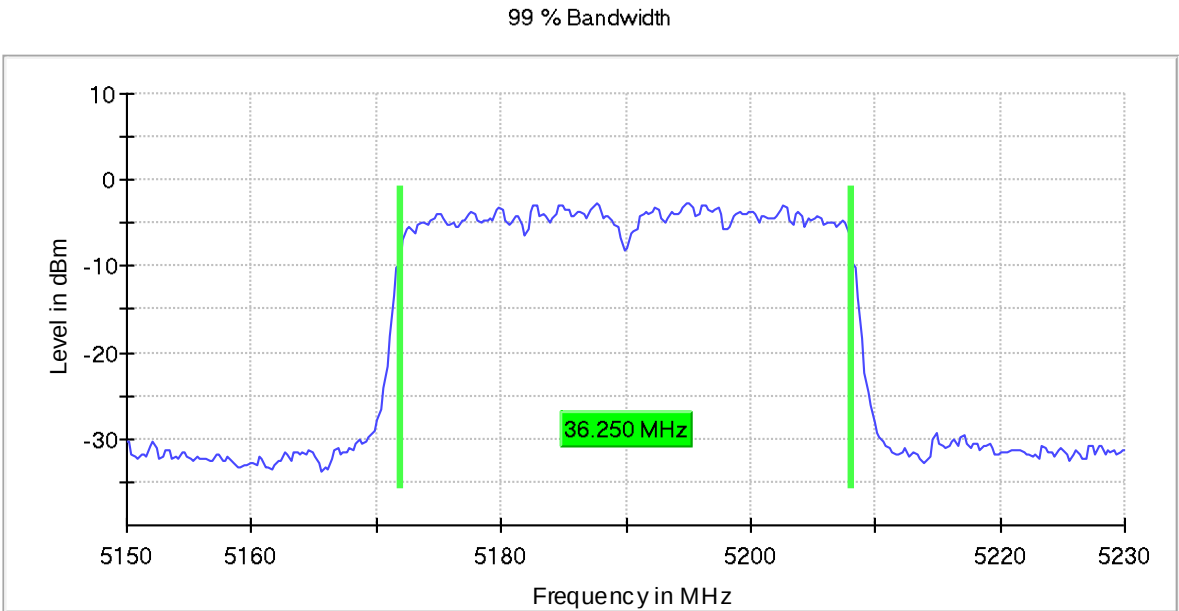
- High Channel 165 (5825 MHz):



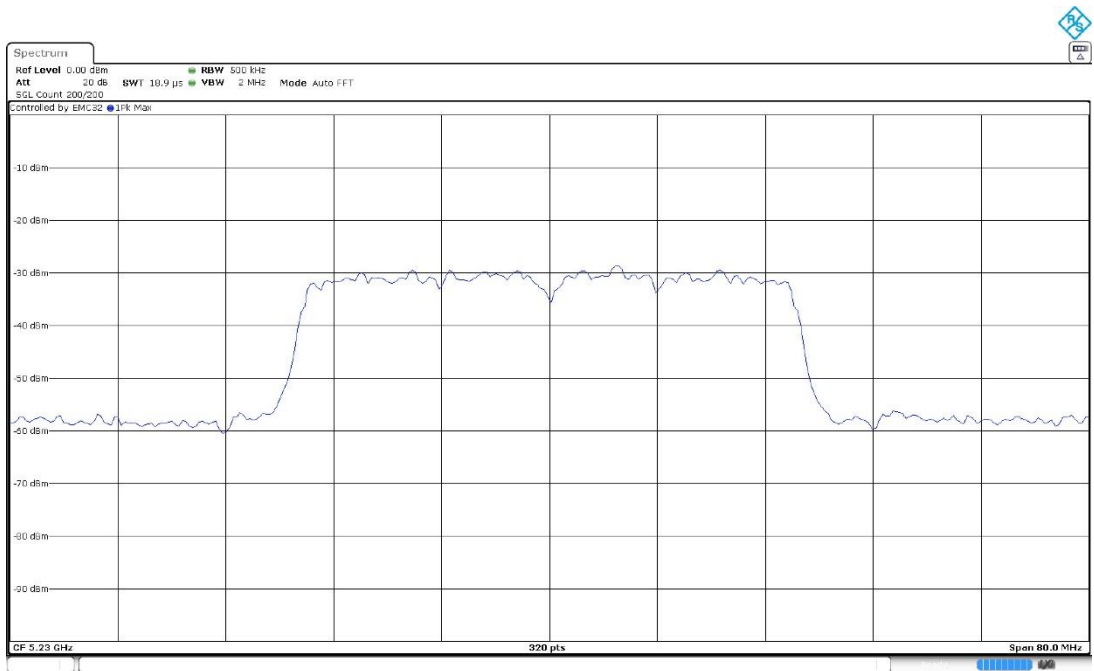
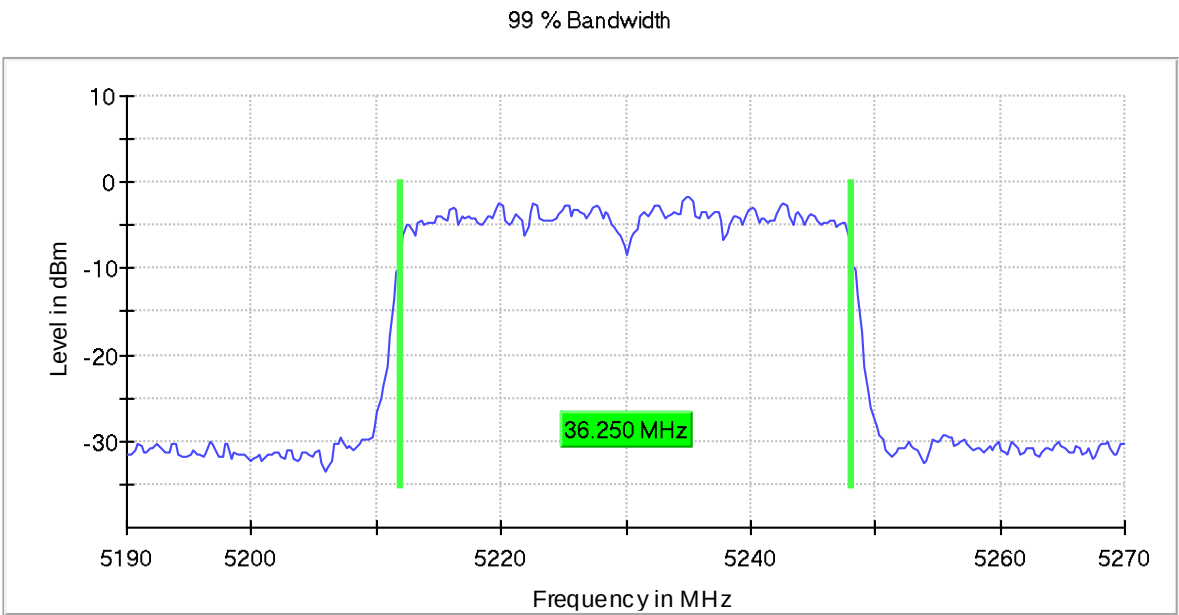
Modulation: 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

U-NII-1 FCC (5150-5250 MHz)

- Low Channel 36 (5180 MHz):

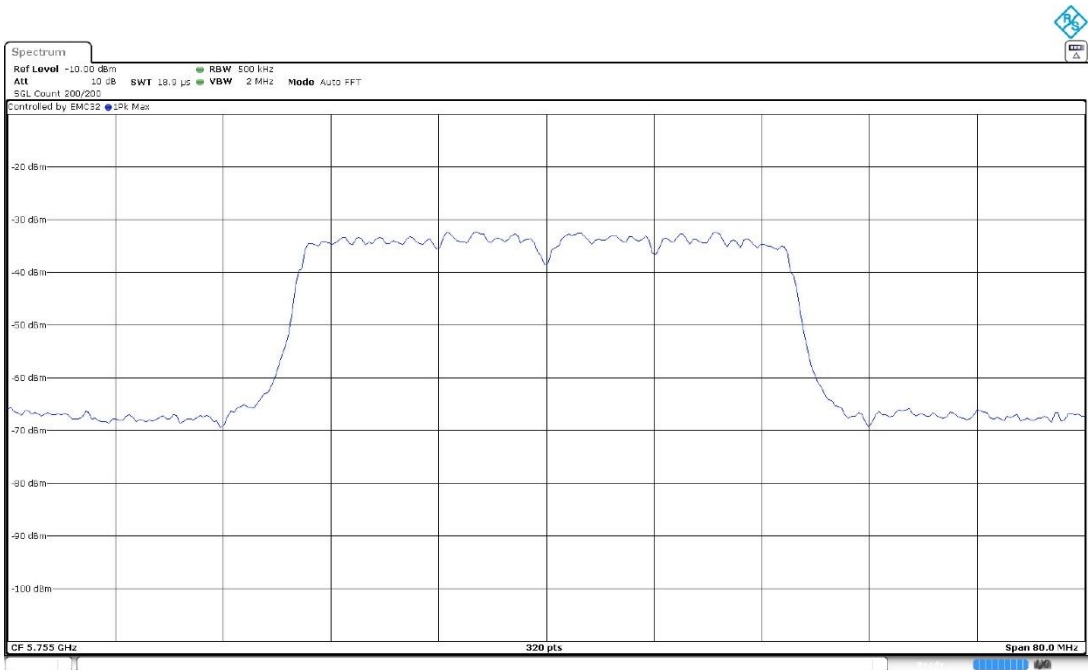
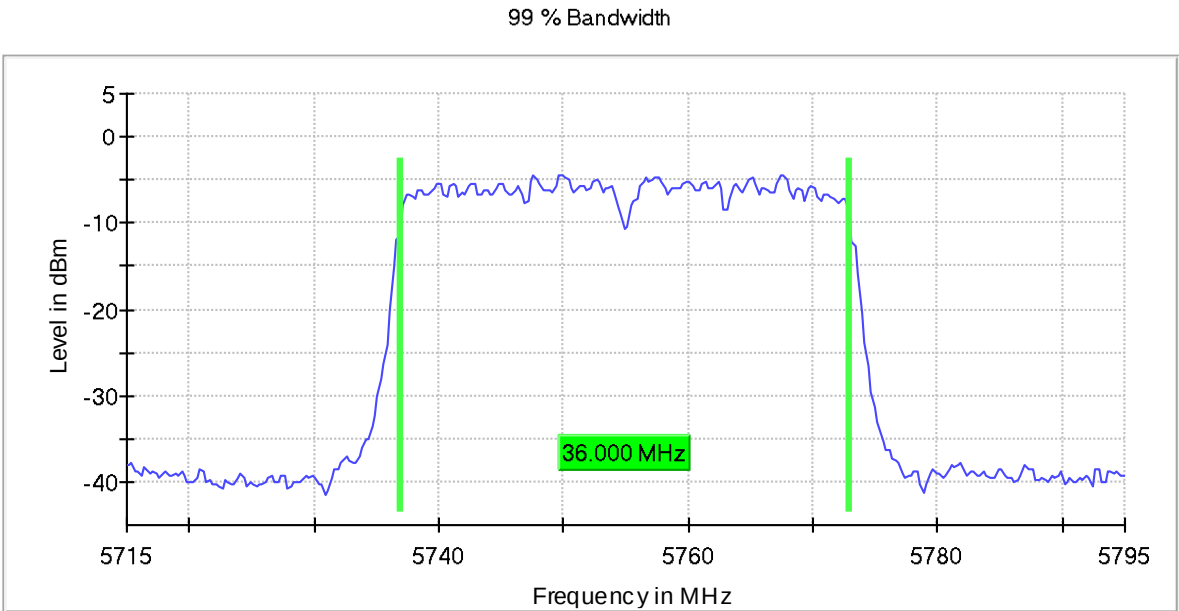


- High Channel 48 (5240 MHz):

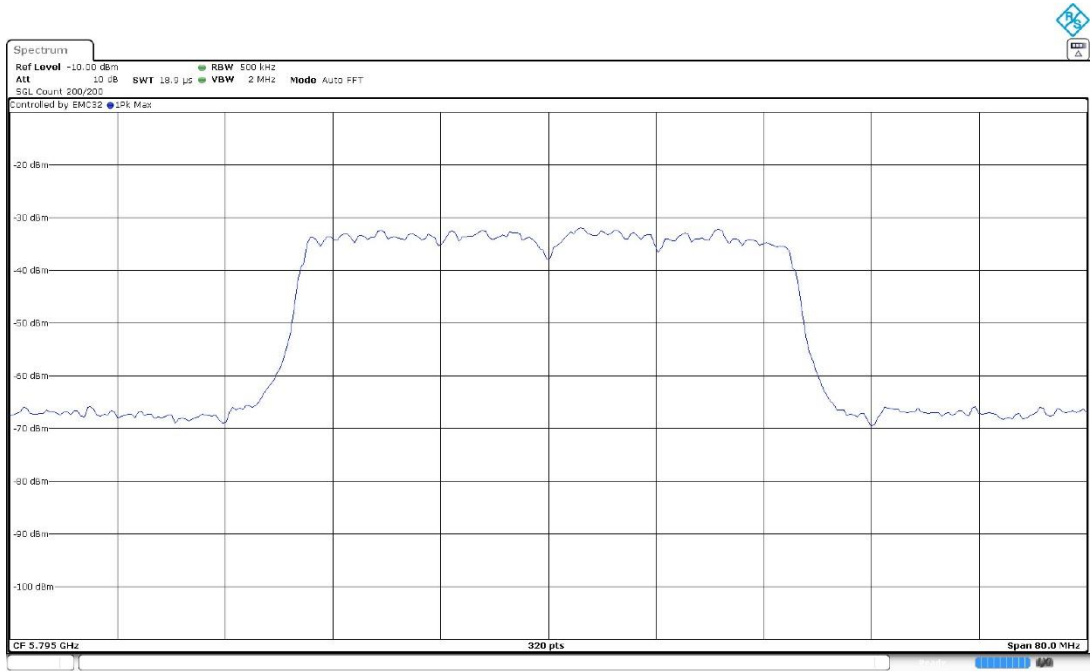
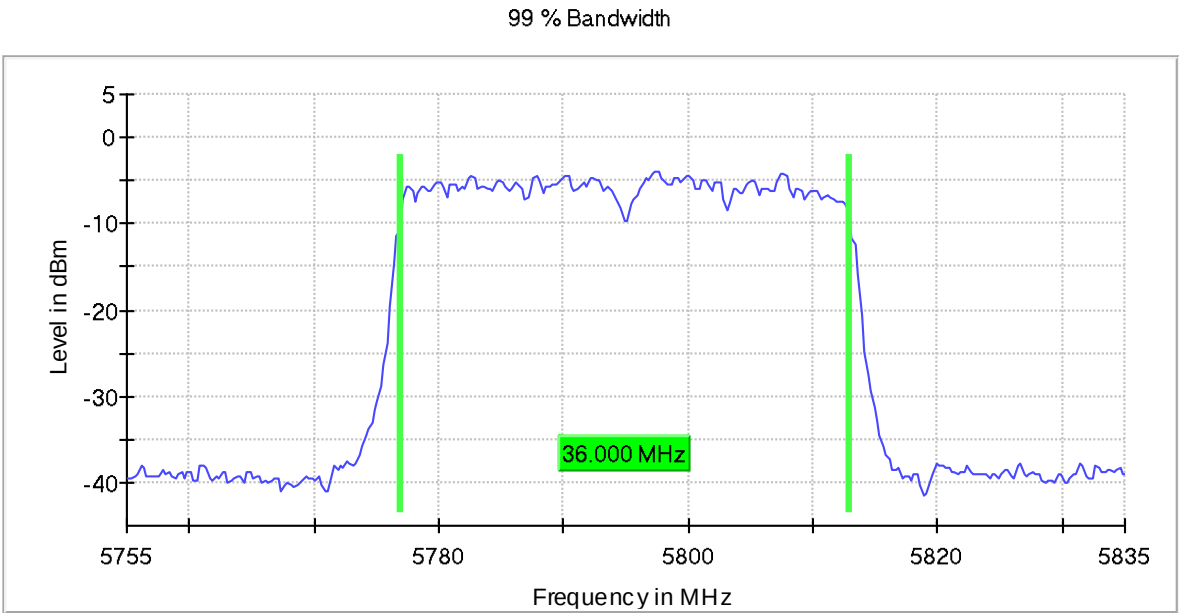


U-NII-3 (5725-5850 MHz)

- Low Channel 149 (5745 MHz):



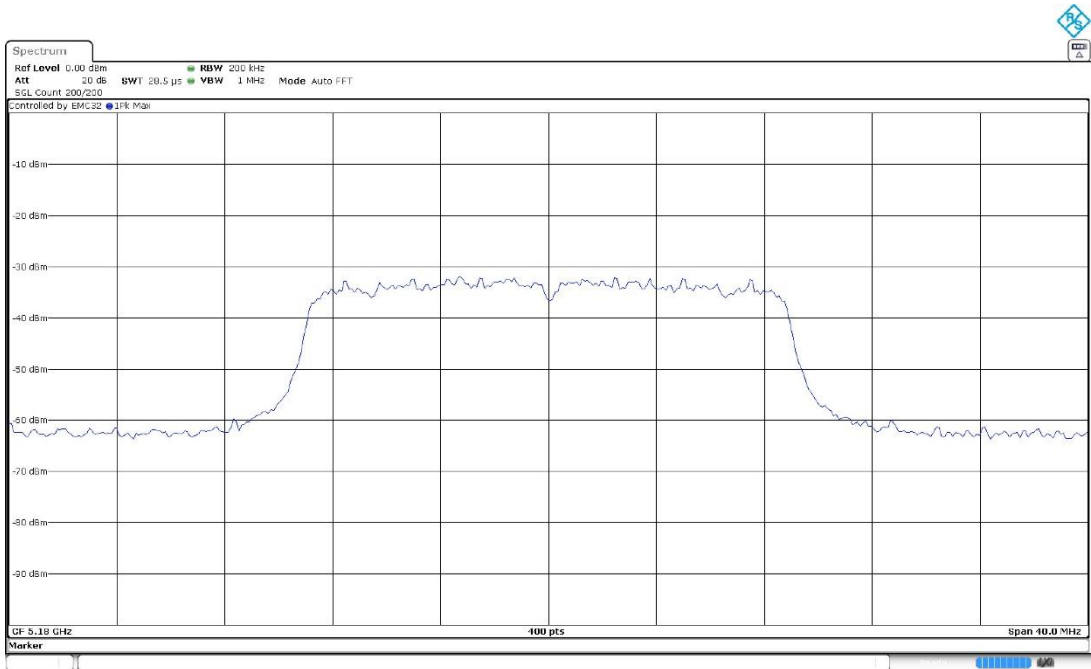
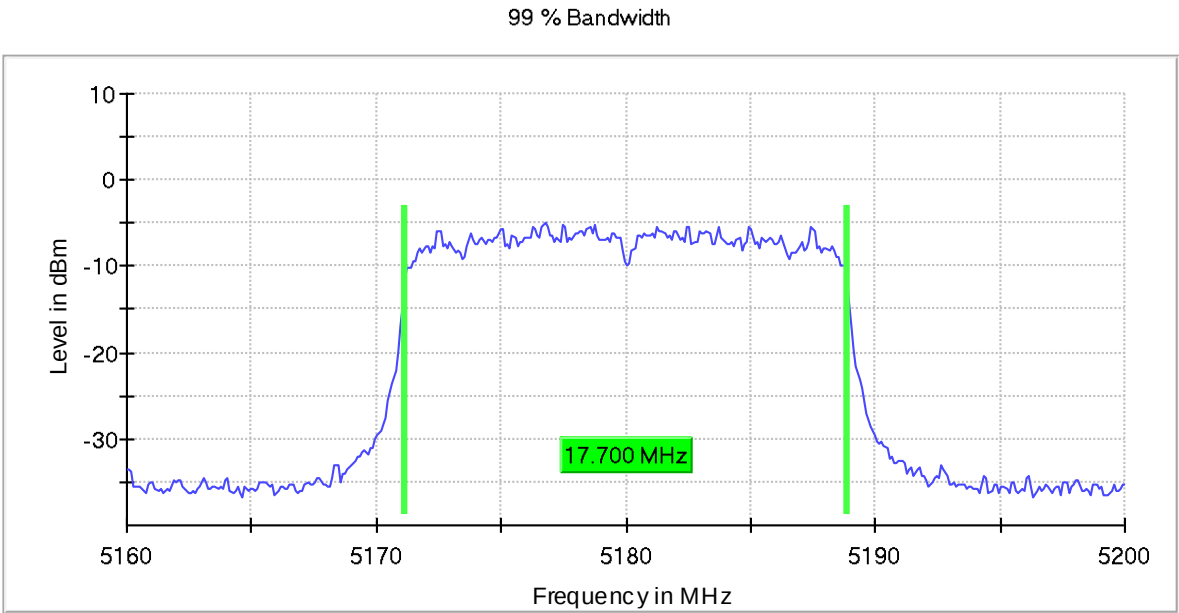
- High Channel 165 (5825 MHz):



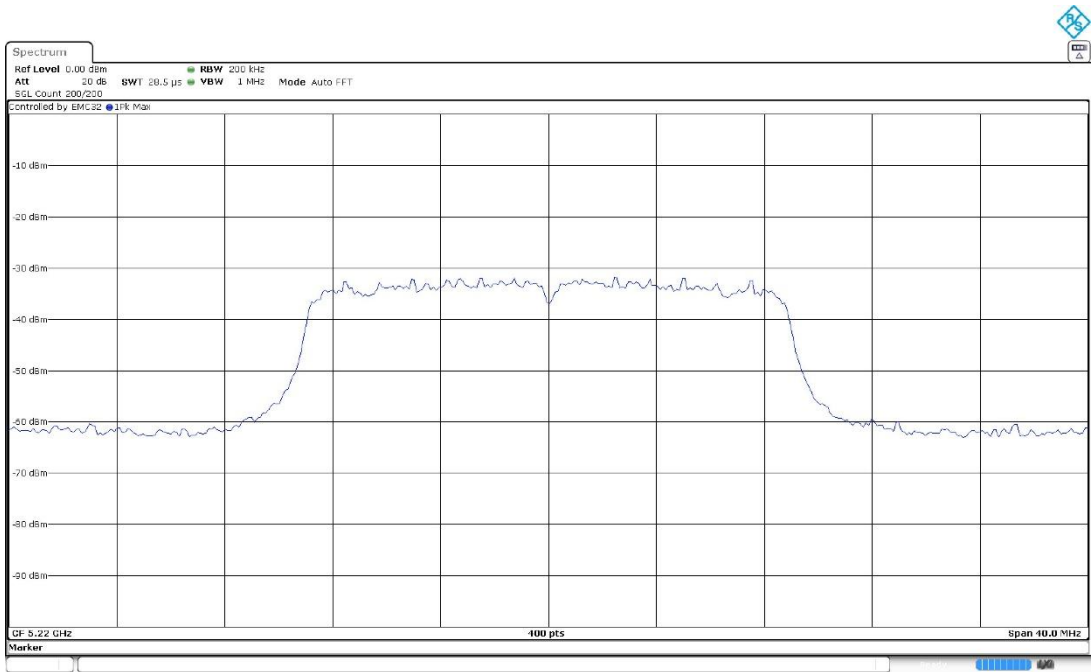
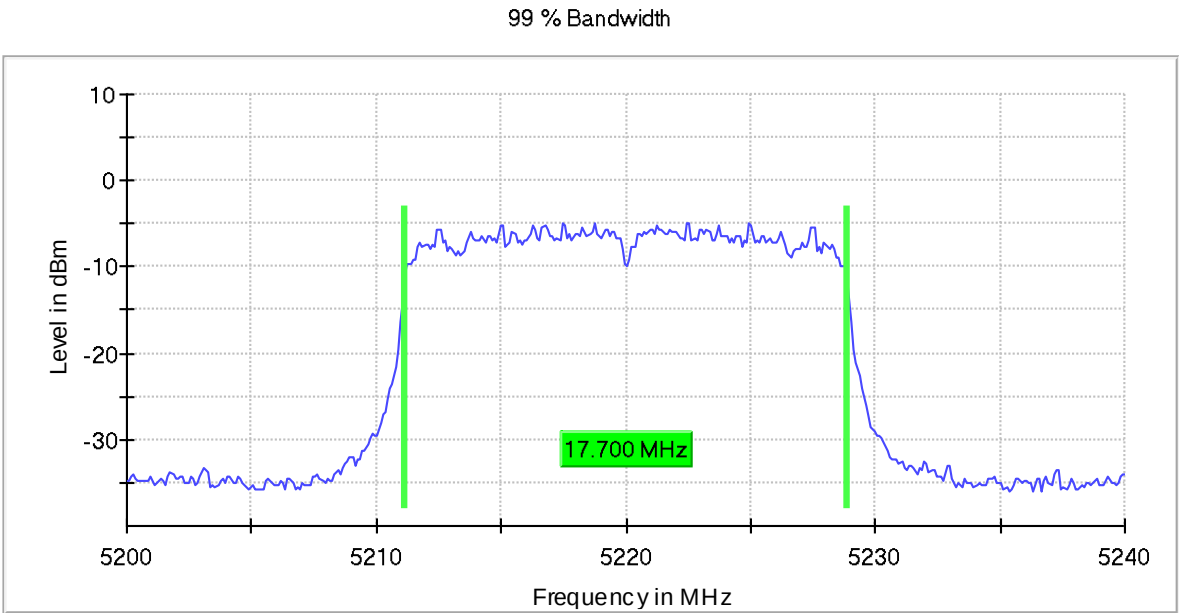
Modulation: 802.11ac VHT20 (OFDM MCS0)

U-NII-1 FCC (5150-5250 MHz)

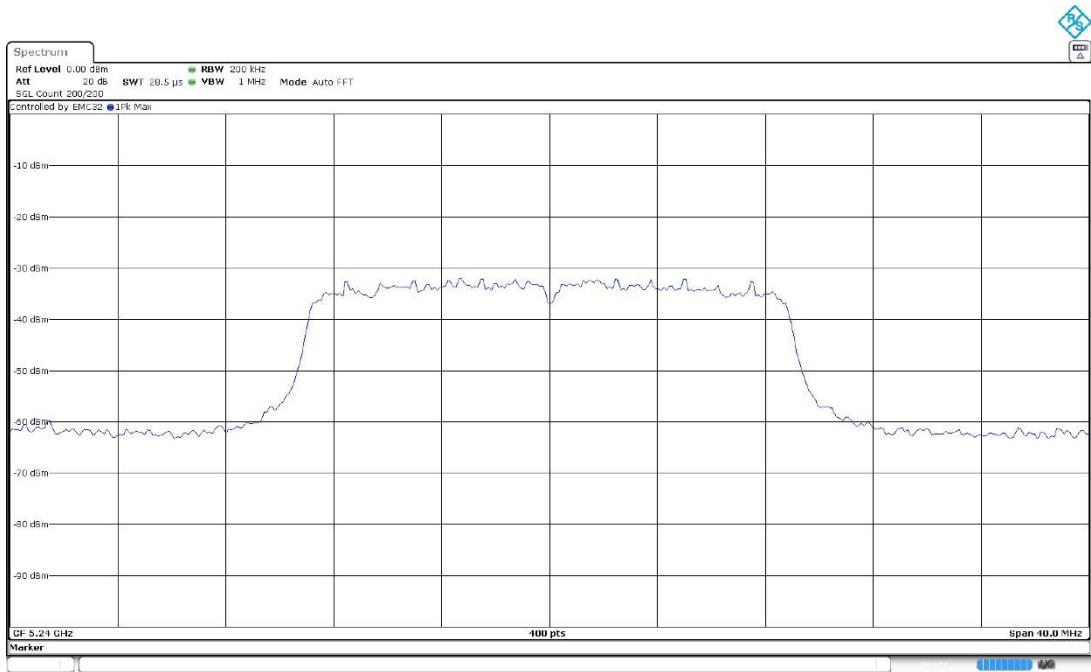
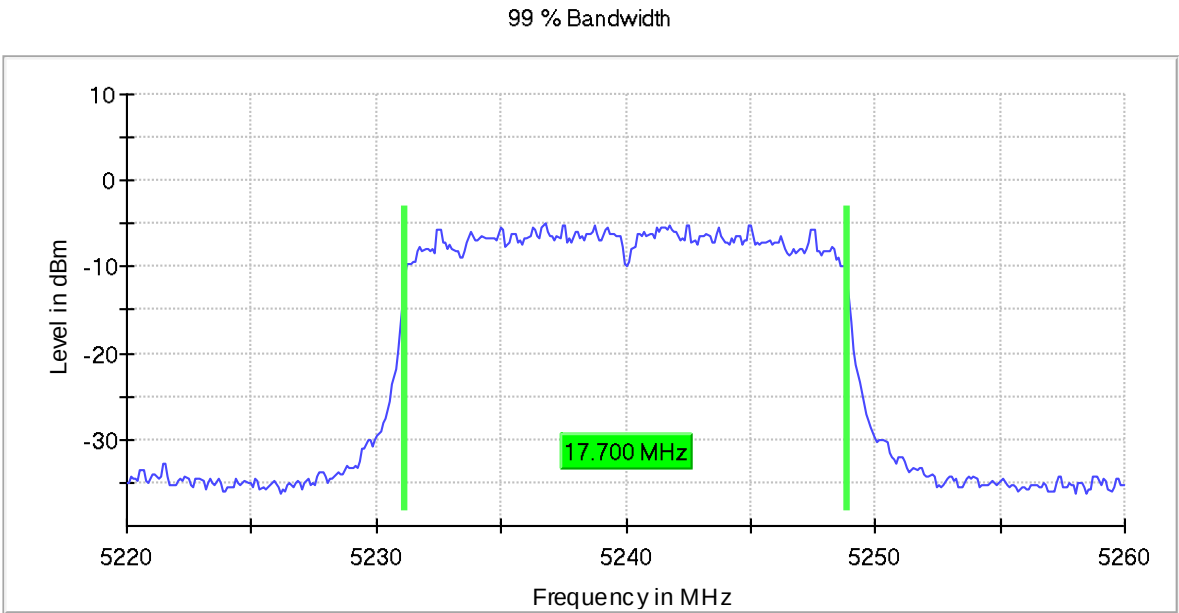
- Low Channel 36 (5180 MHz):



- Middle Channel 44 (5220 MHz):

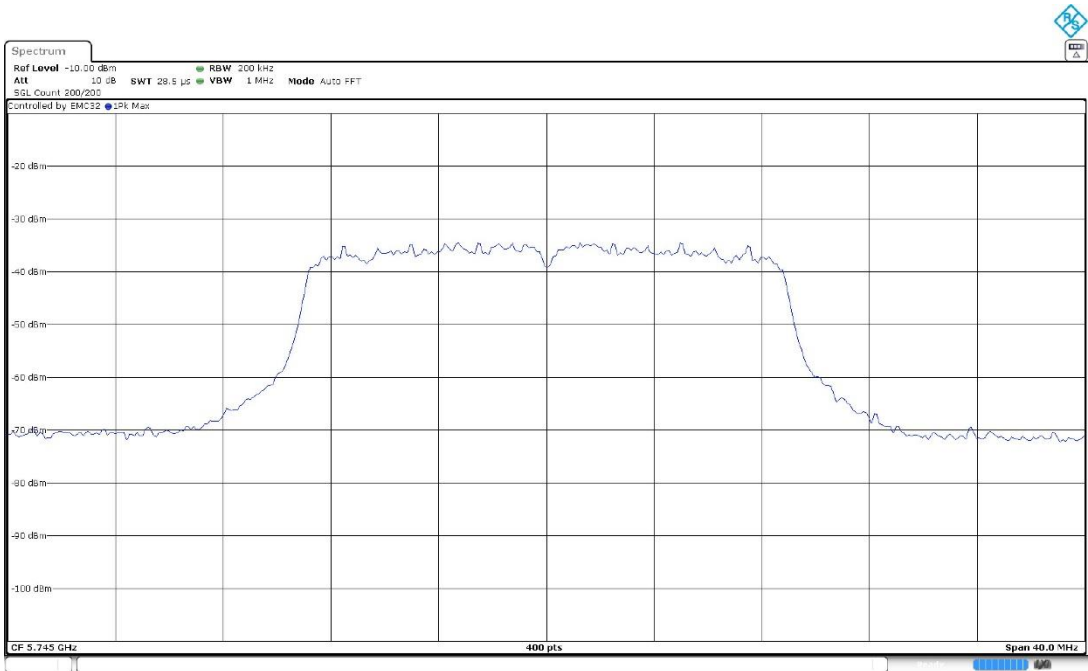
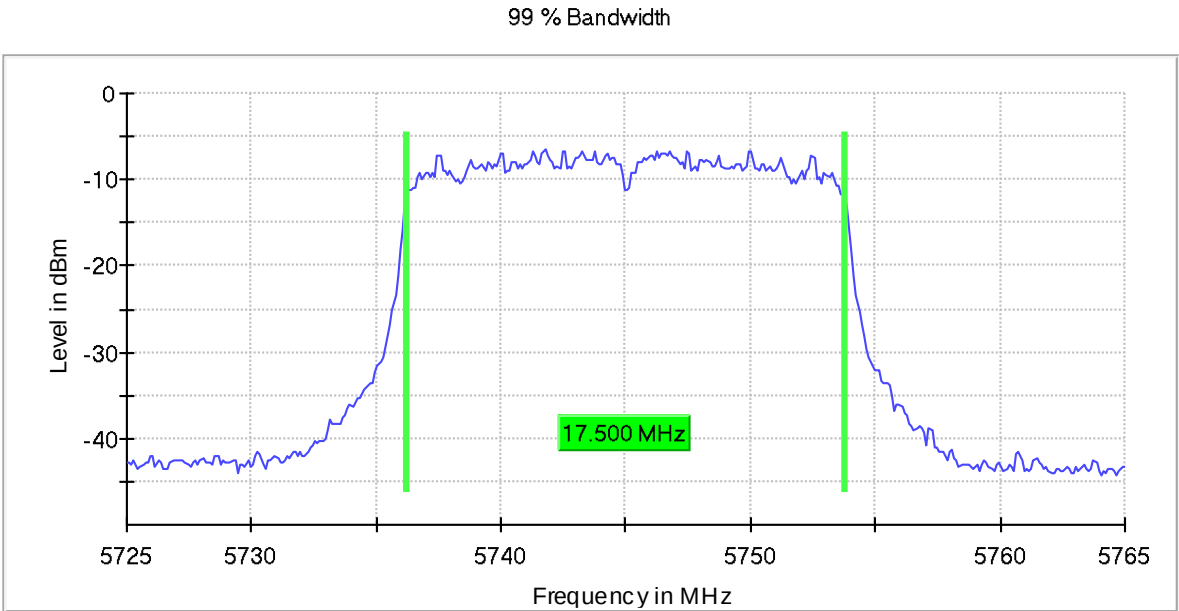


- High Channel 48 (5240 MHz):

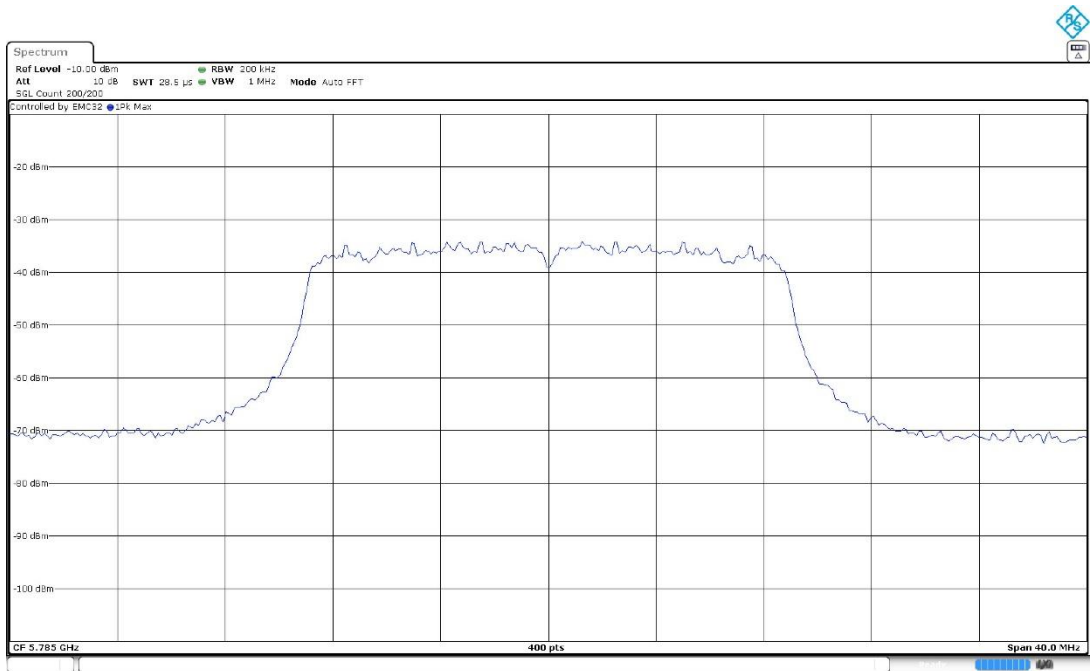
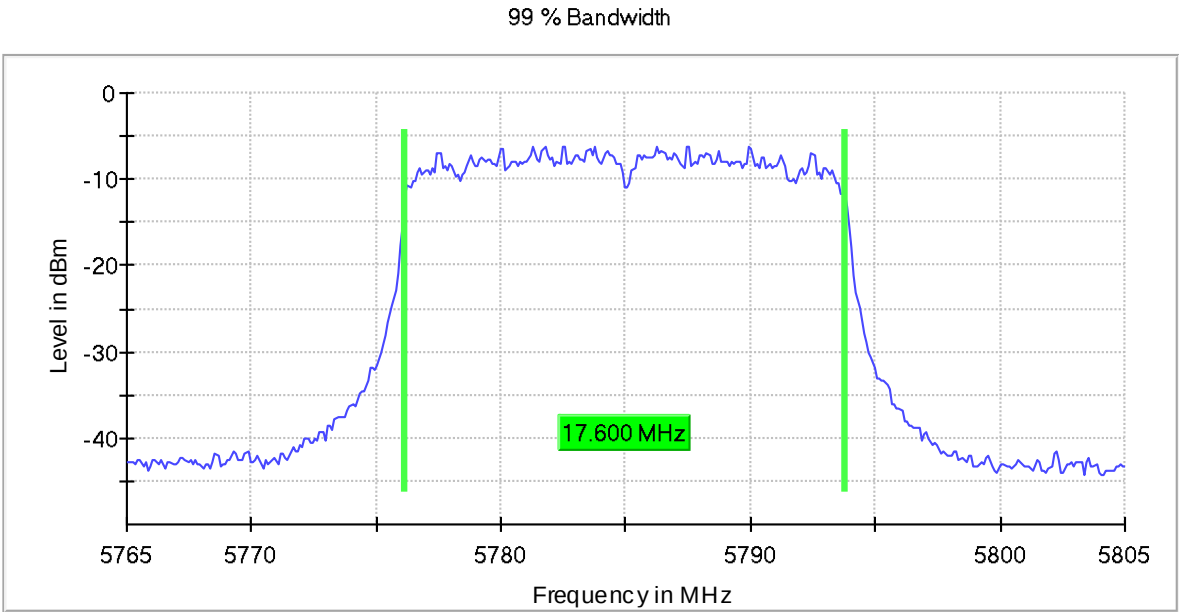


U-NII-3 (5725-5850 MHz)

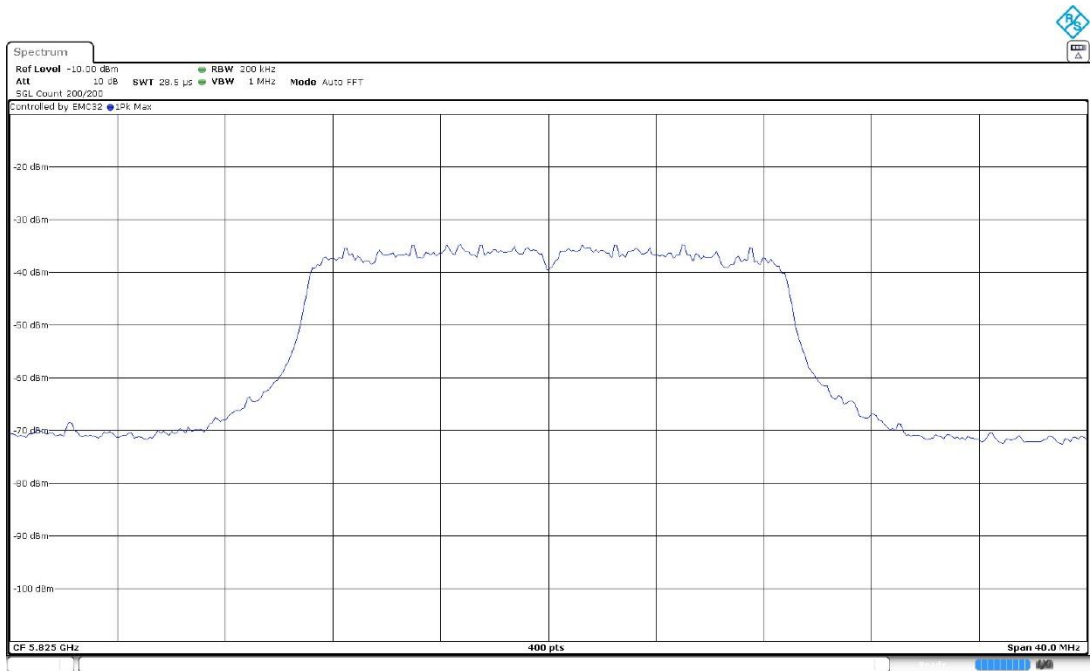
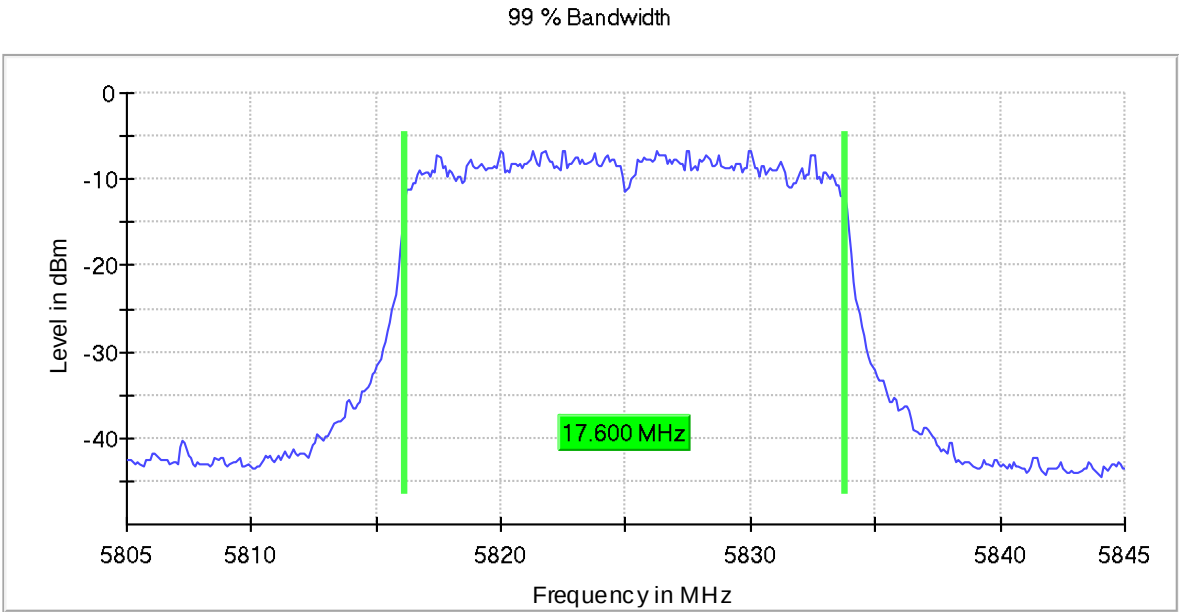
- Low Channel 149 (5745 MHz):



- Middle Channel 157 (5785 MHz):



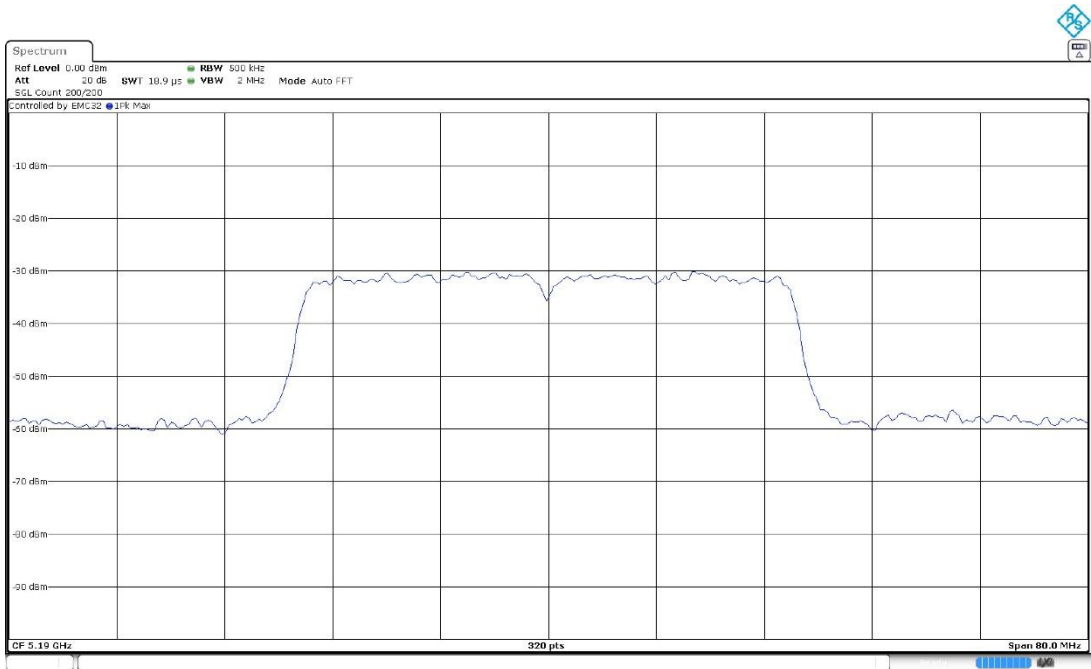
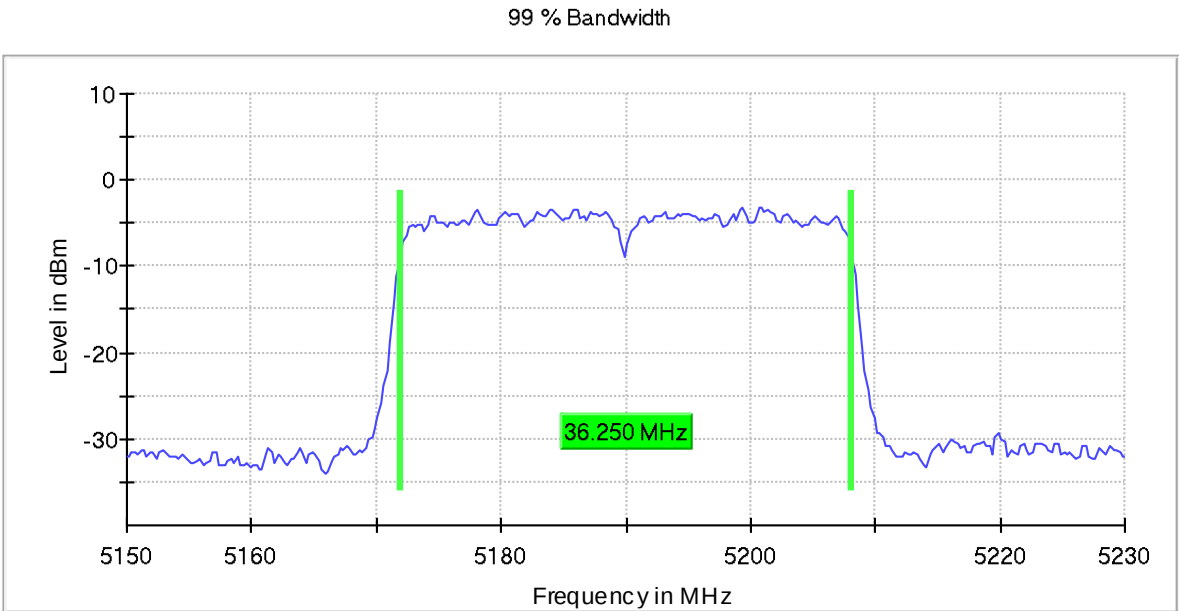
- High Channel 165 (5825 MHz):



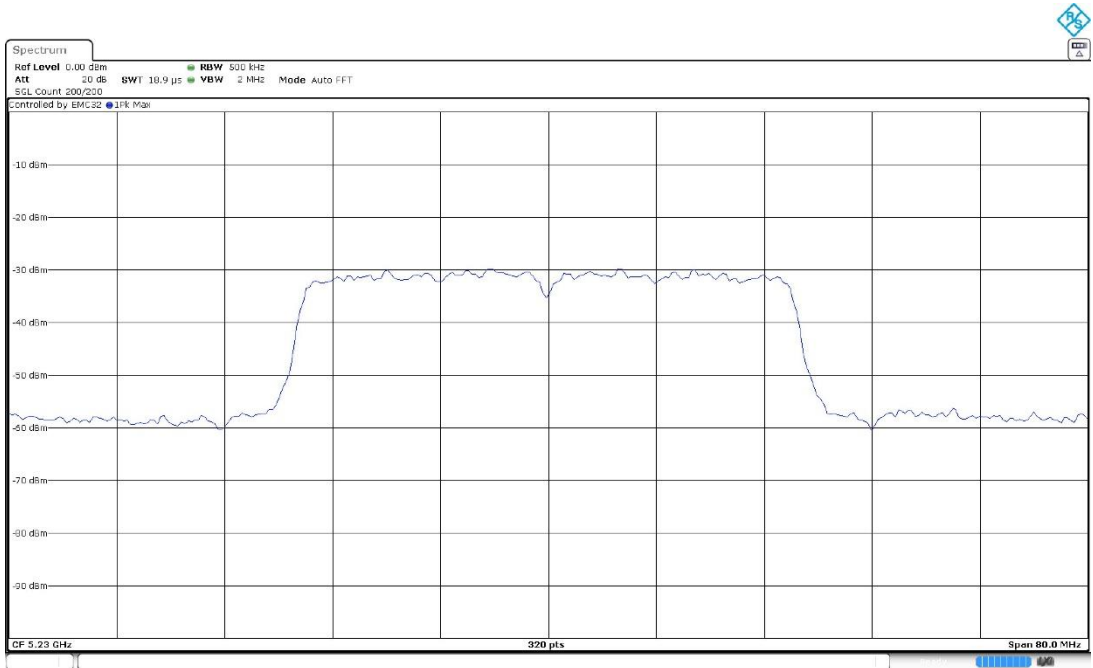
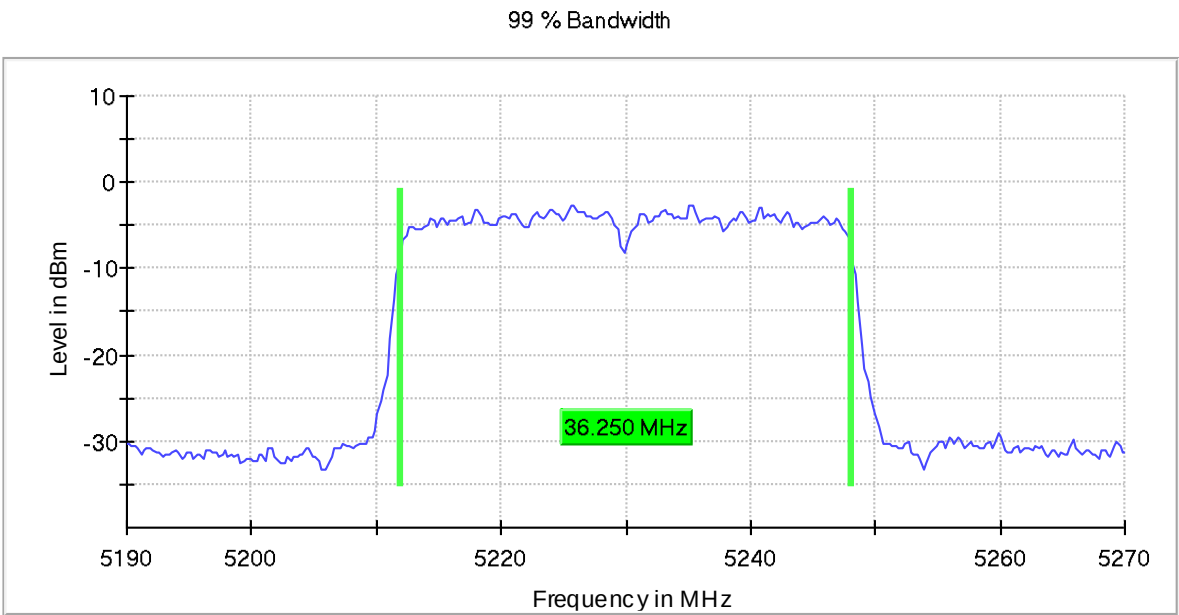
Modulation: 802.11ac VHT40 (OFDM MCS0)

U-NII-1 FCC (5150-5250 MHz)

- Low Channel 38 (5190 MHz):

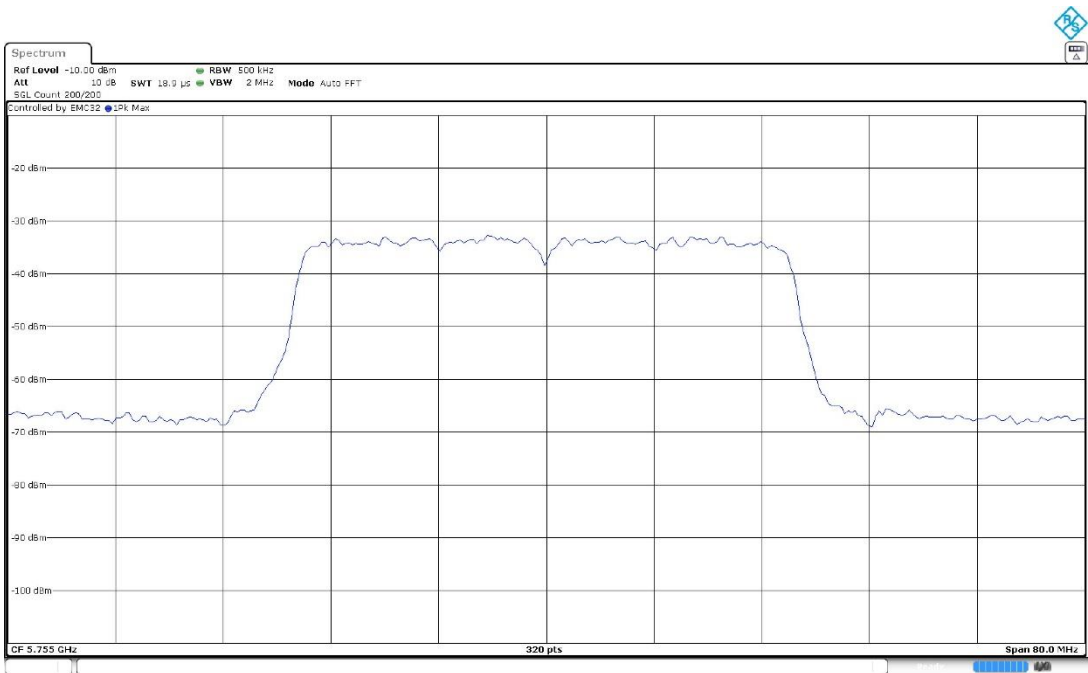
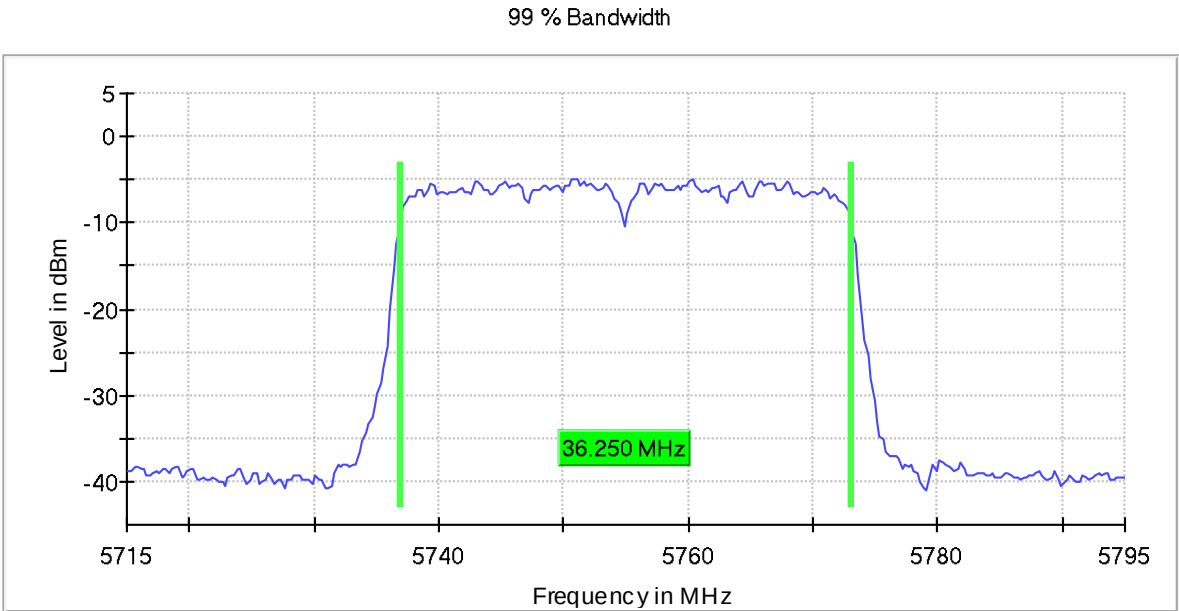


- High Channel 46 (5230 MHz):

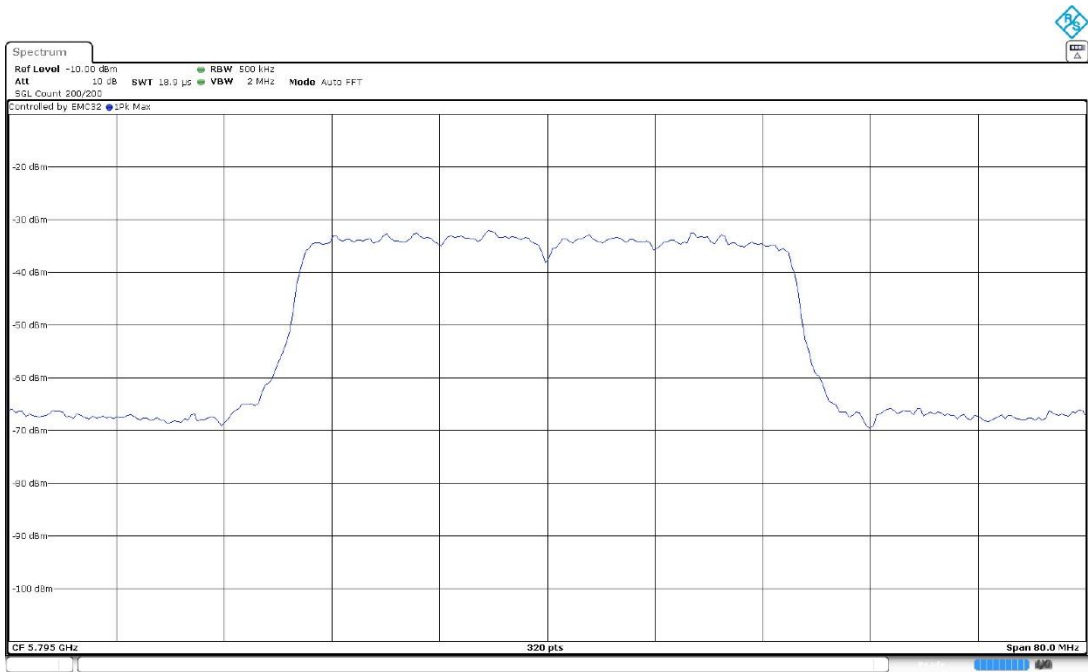
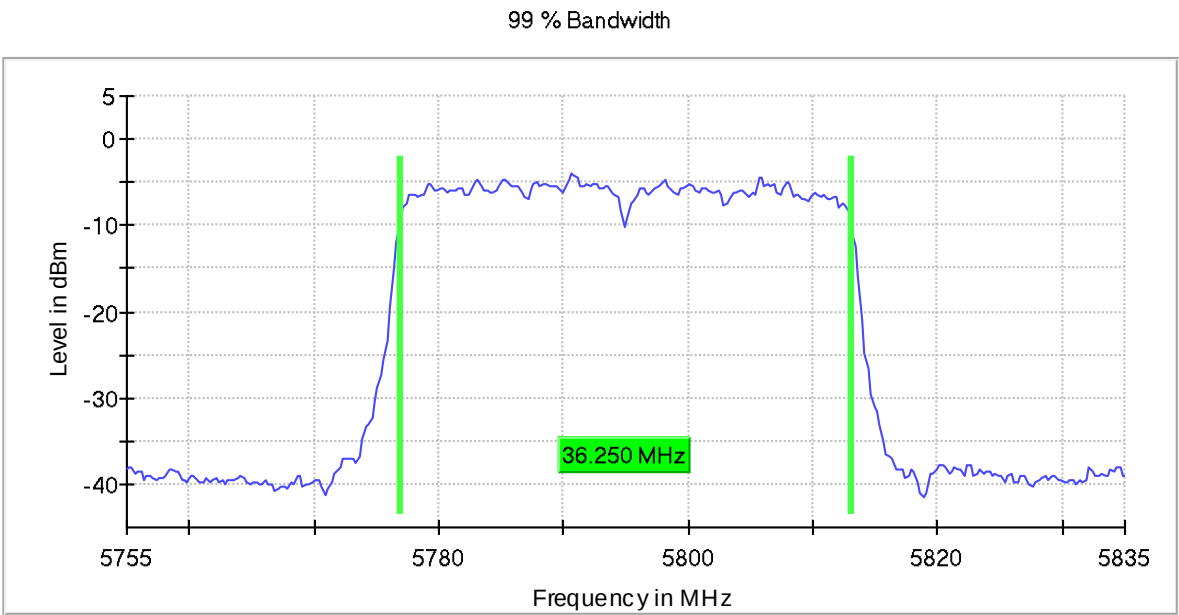


U-NII-3 (5725-5850 MHz)

- Low Channel 151 (5755 MHz):



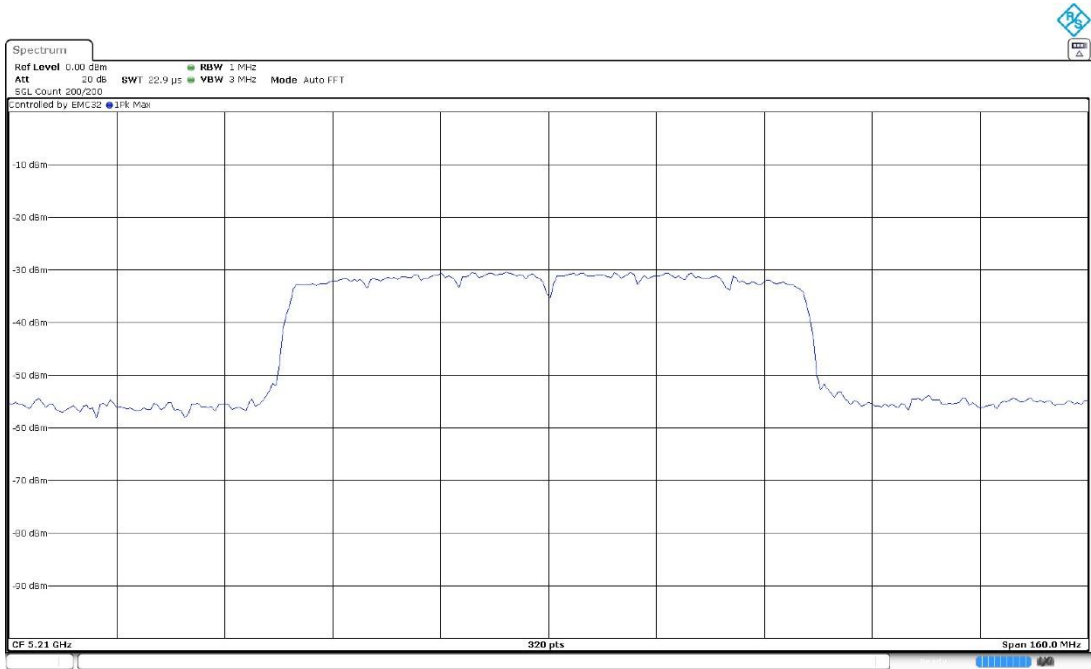
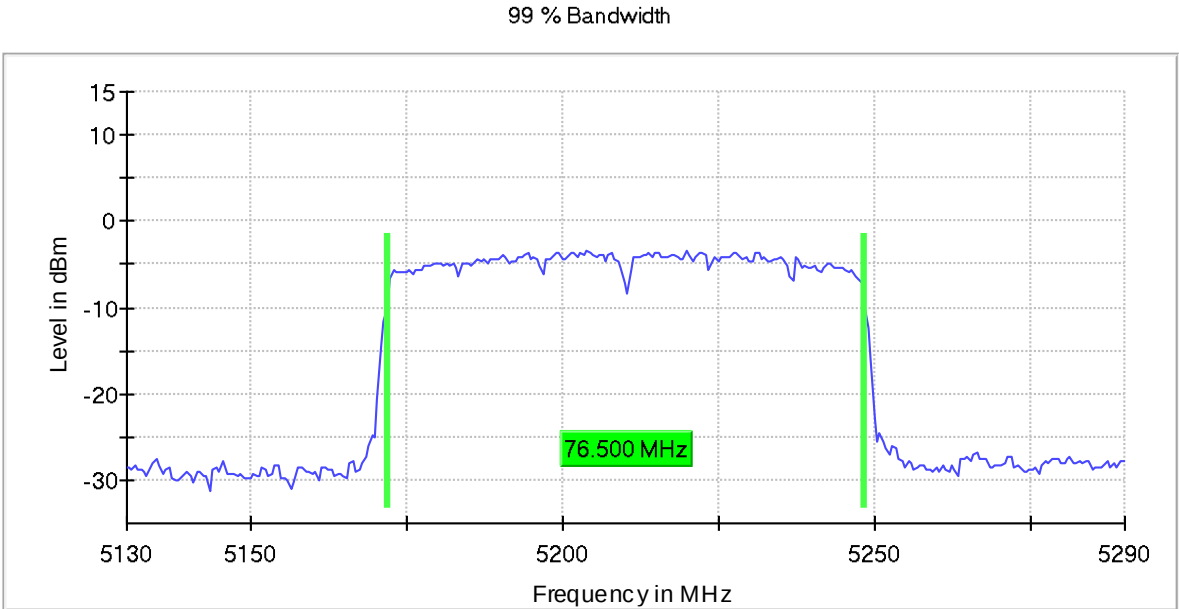
- High Channel 159 (5795 MHz):



Modulation: 802.11ac VHT80 (OFDM MCS0)

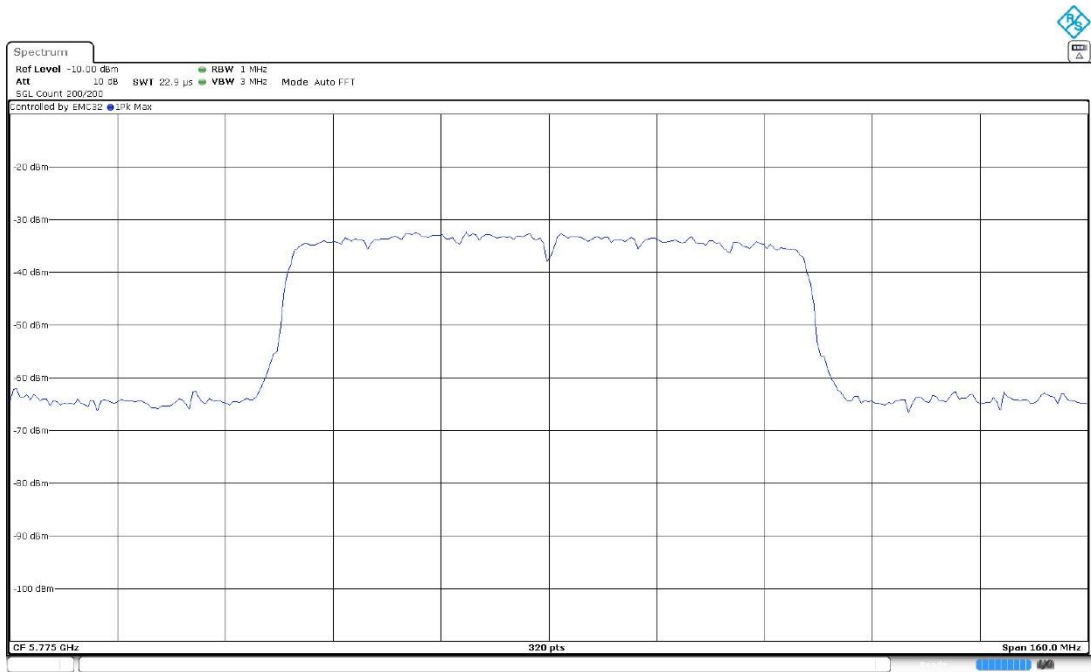
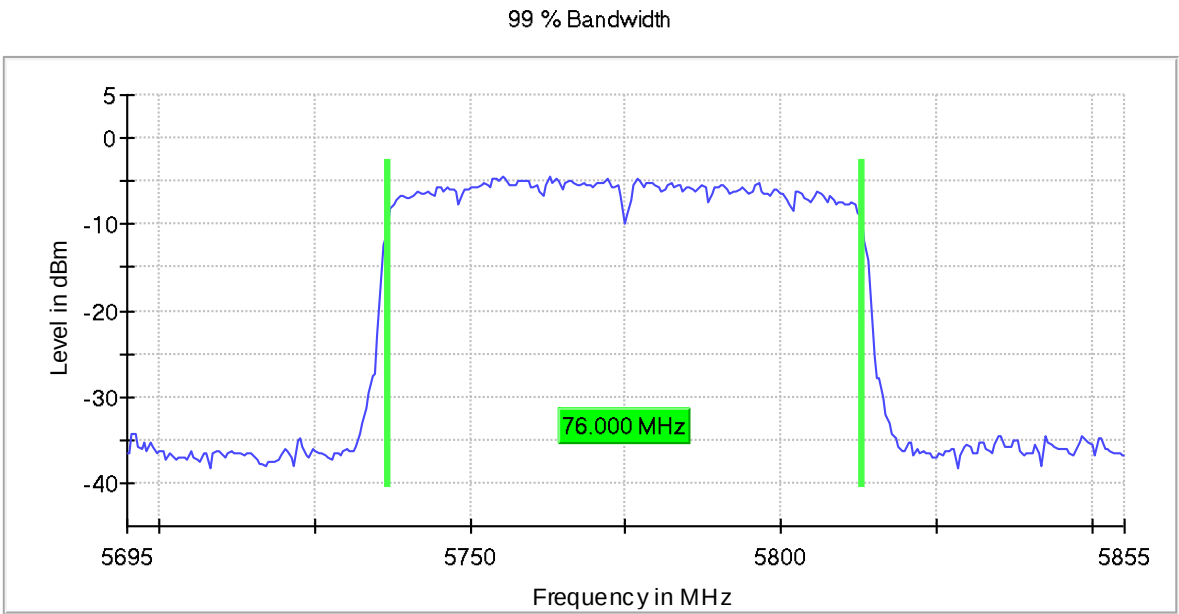
U-NII-1 FCC (5150-5250 MHz)

- Single Channel 42 (5210 MHz):



U-NII-3 (5725-5850 MHz)

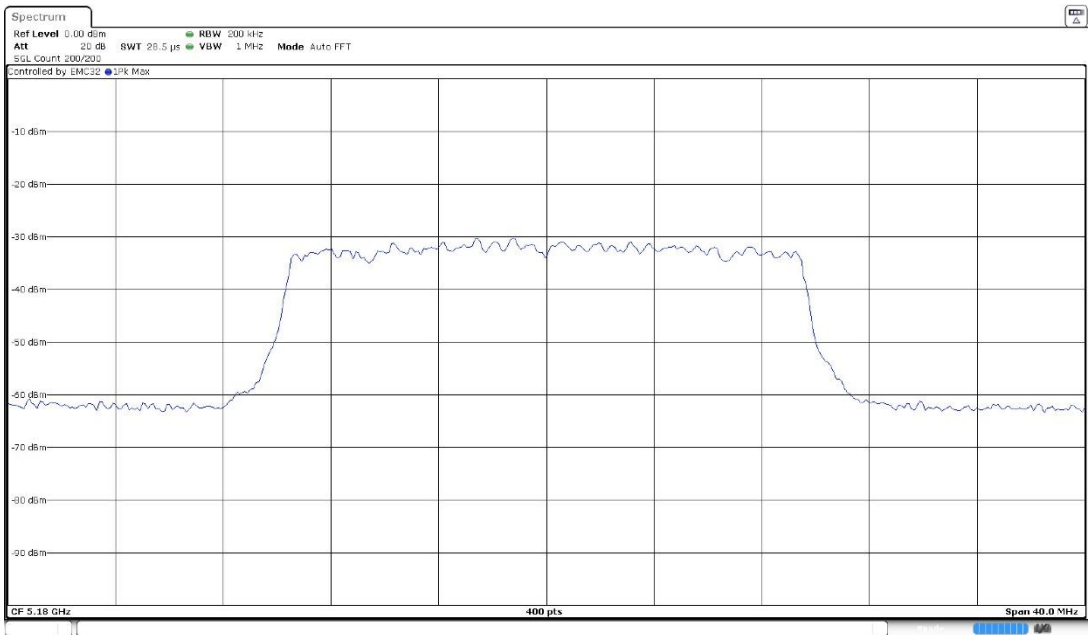
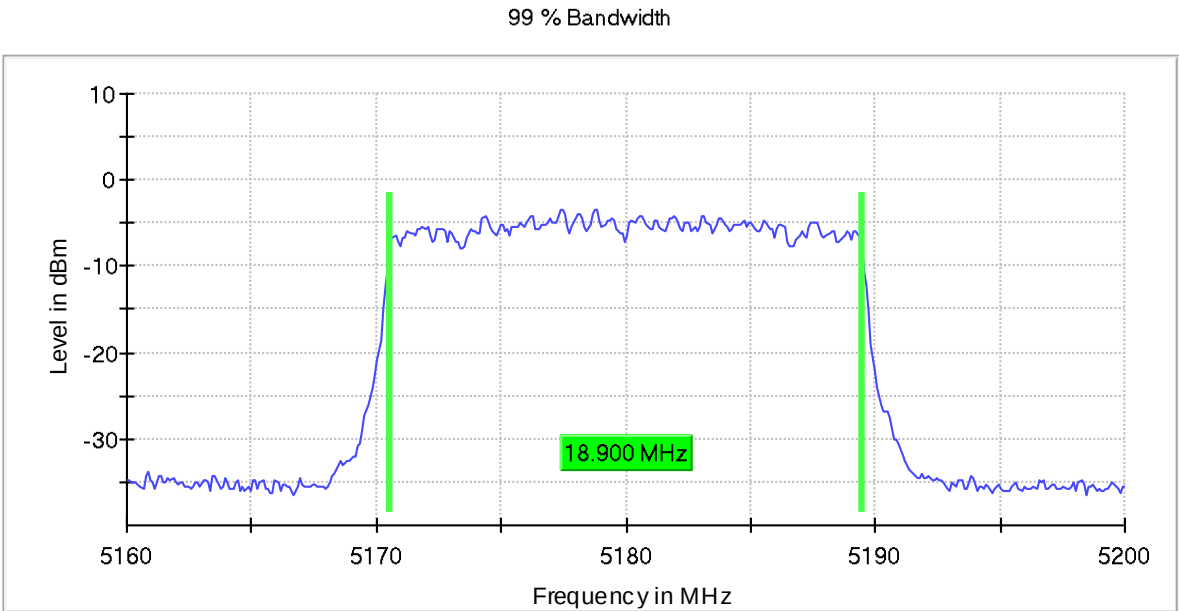
- Single Channel 155 (5775 MHz):



Modulation: 802.11ax HE20 (OFDMA MCS0) – SU

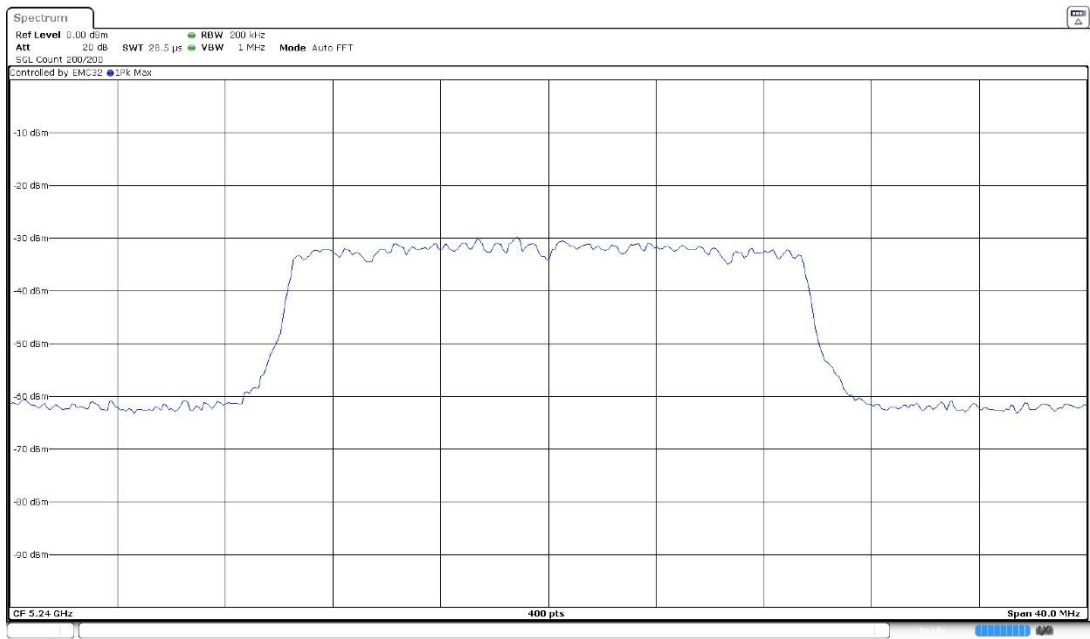
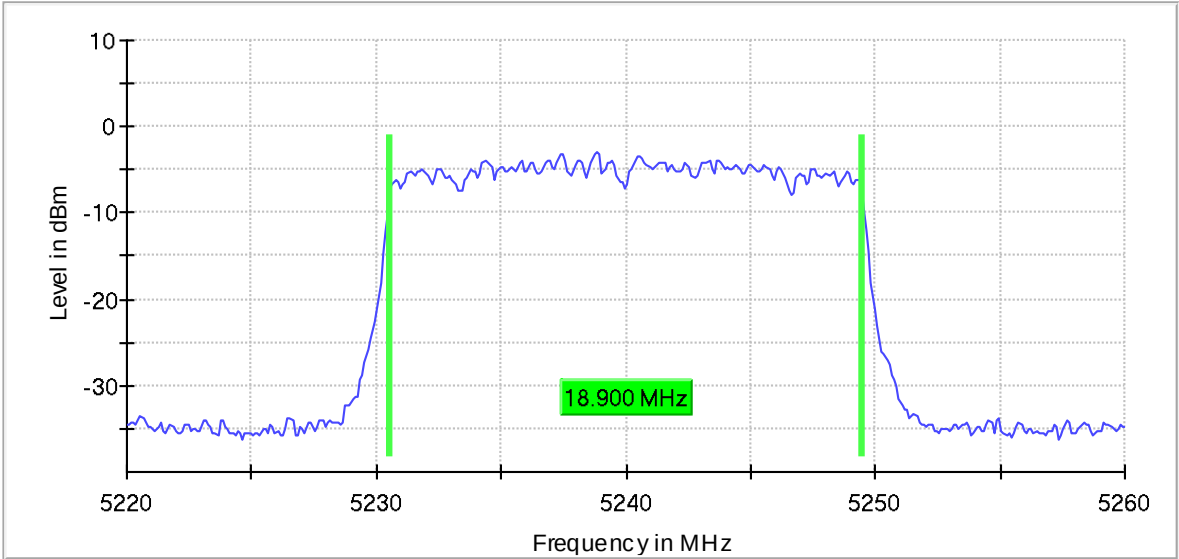
U-NII-1 FCC (5150-5250 MHz)

- Low Channel 36 (5180 MHz):



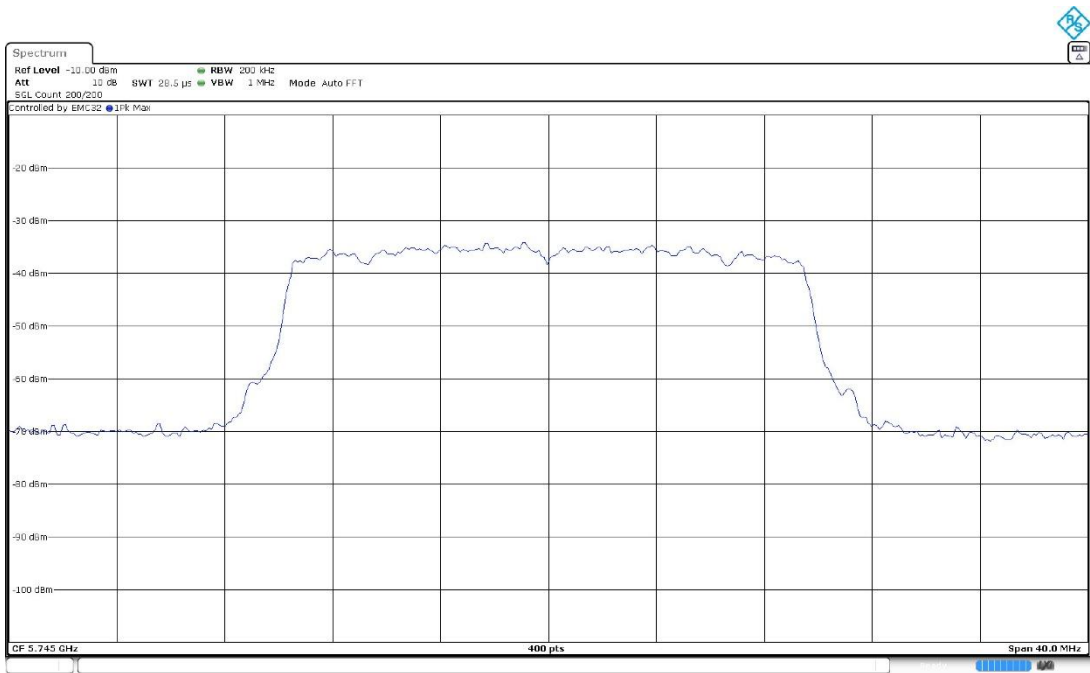
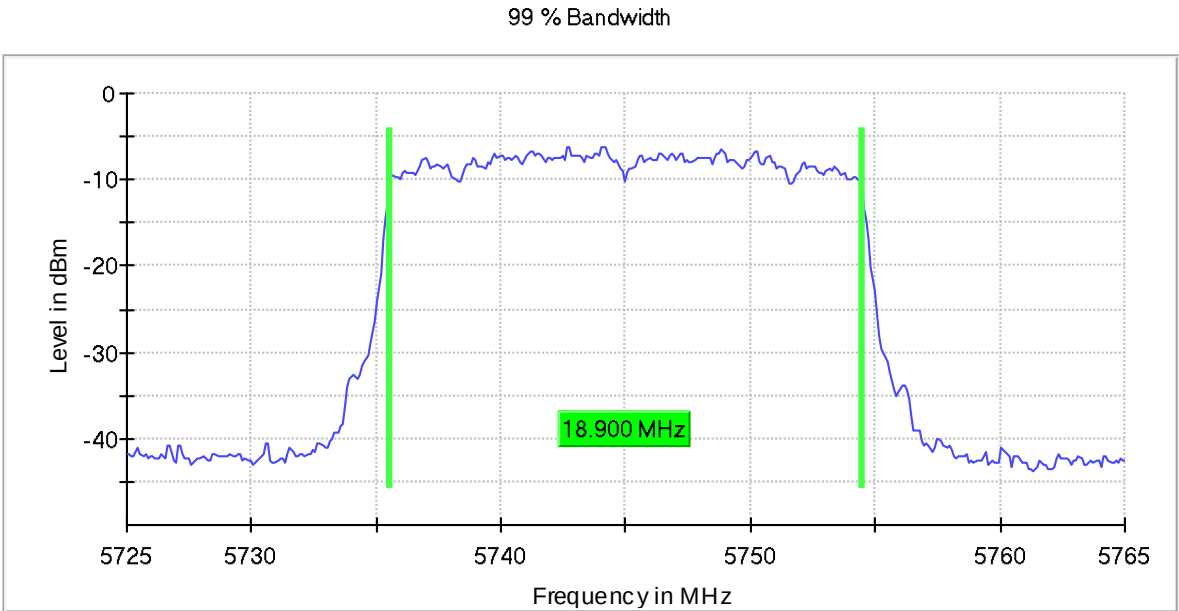
- High Channel 48 (5240 MHz):

99 % Bandwidth

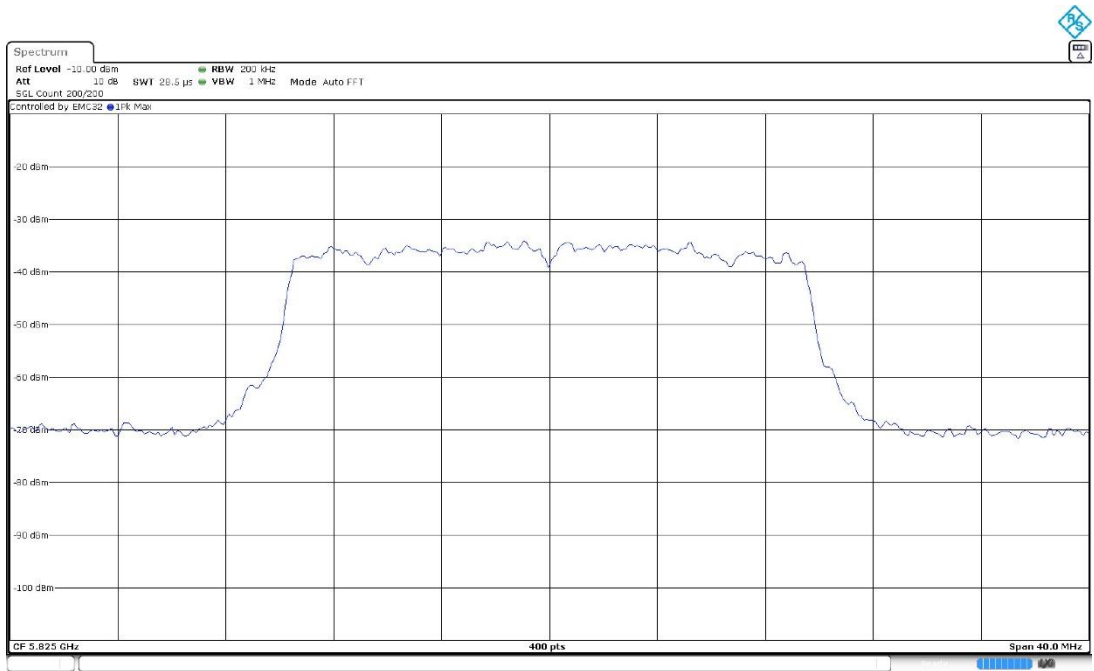
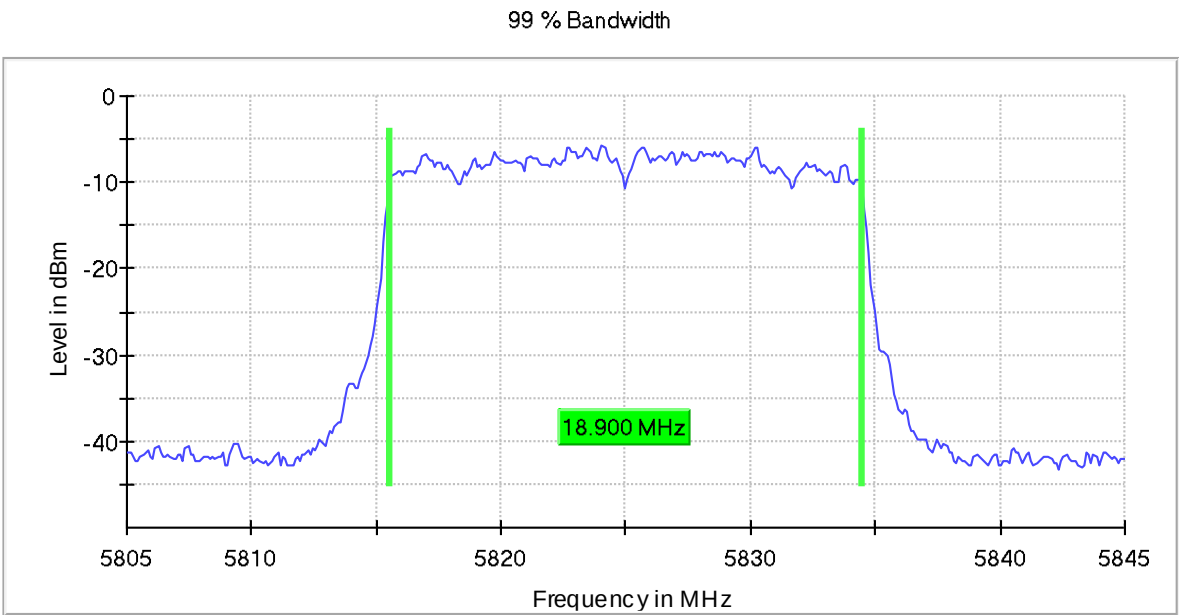


U-NII-3 (5725-5850 MHz)

- Low Channel 149 (5745 MHz):



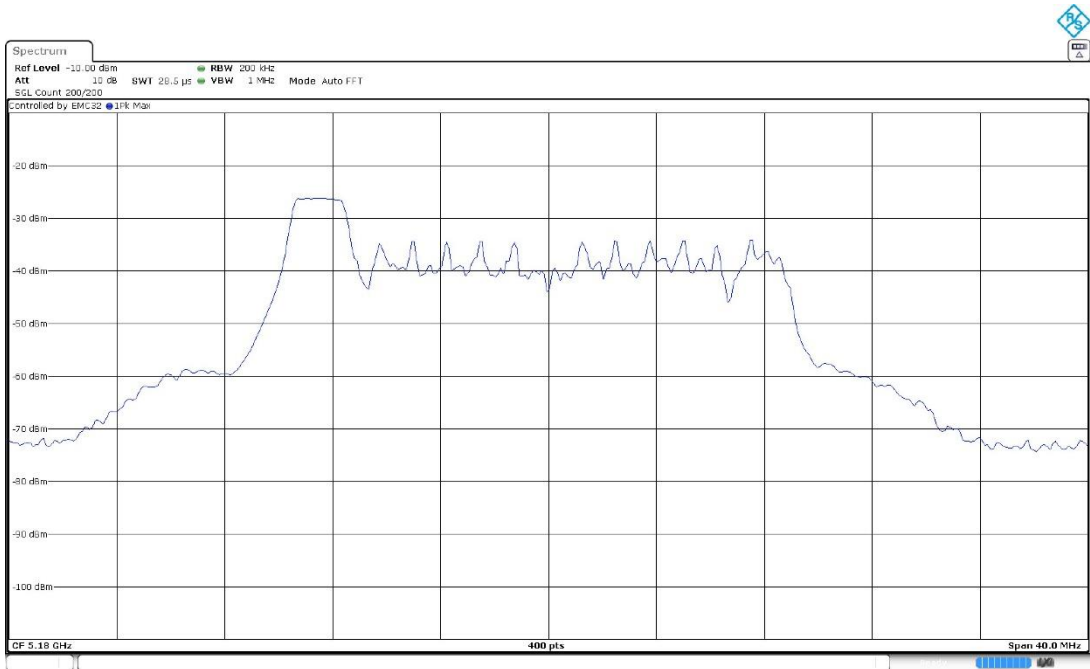
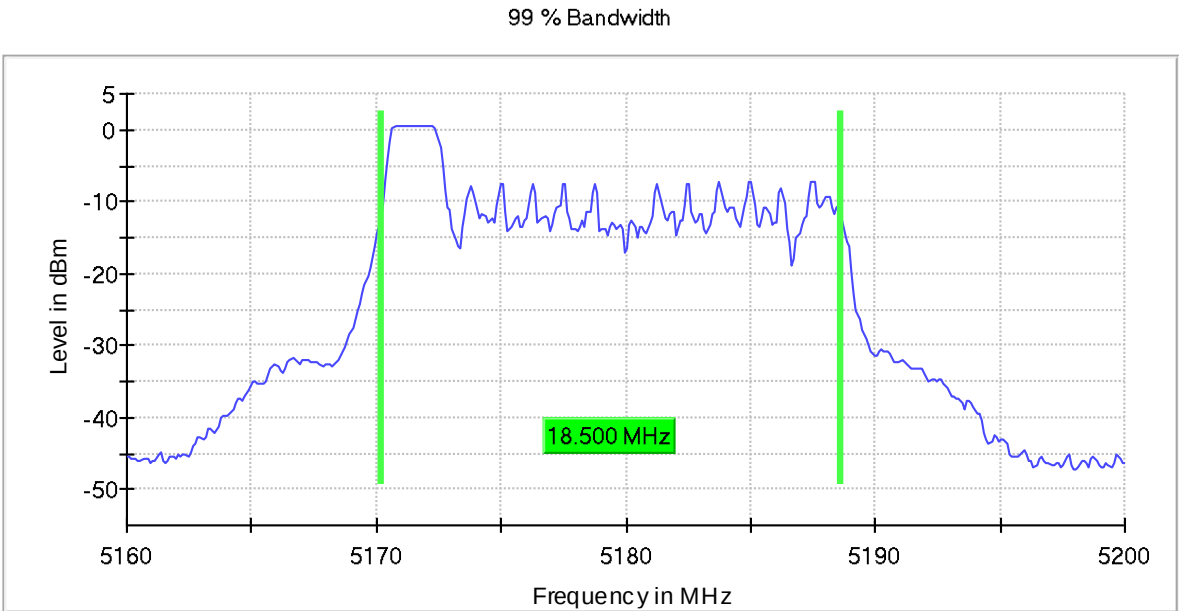
- High Channel 165 (5825 MHz):



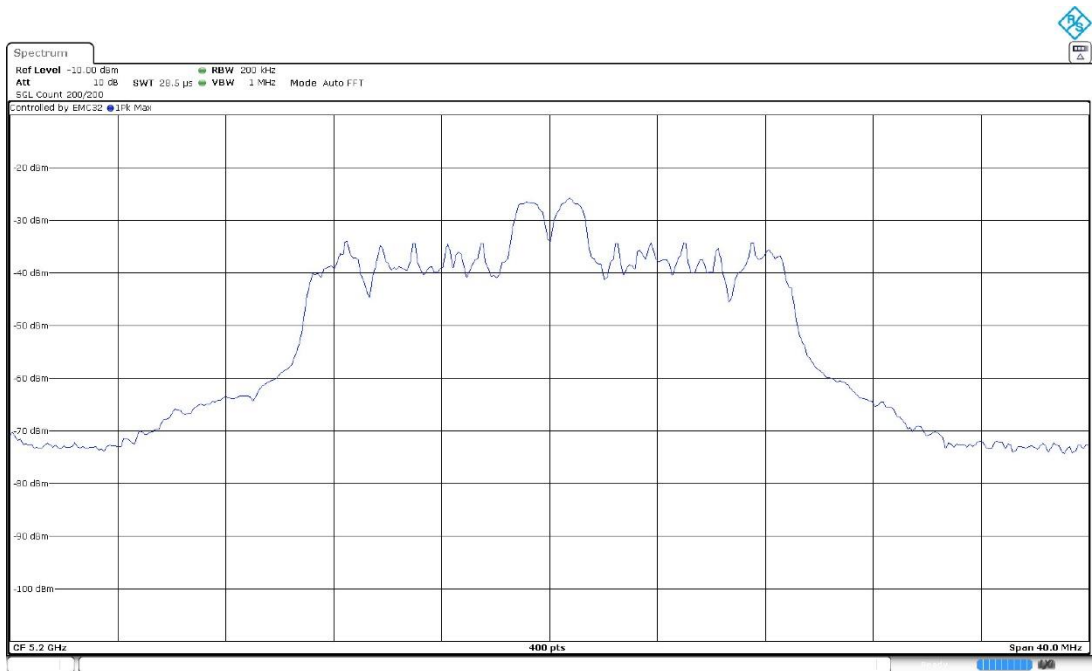
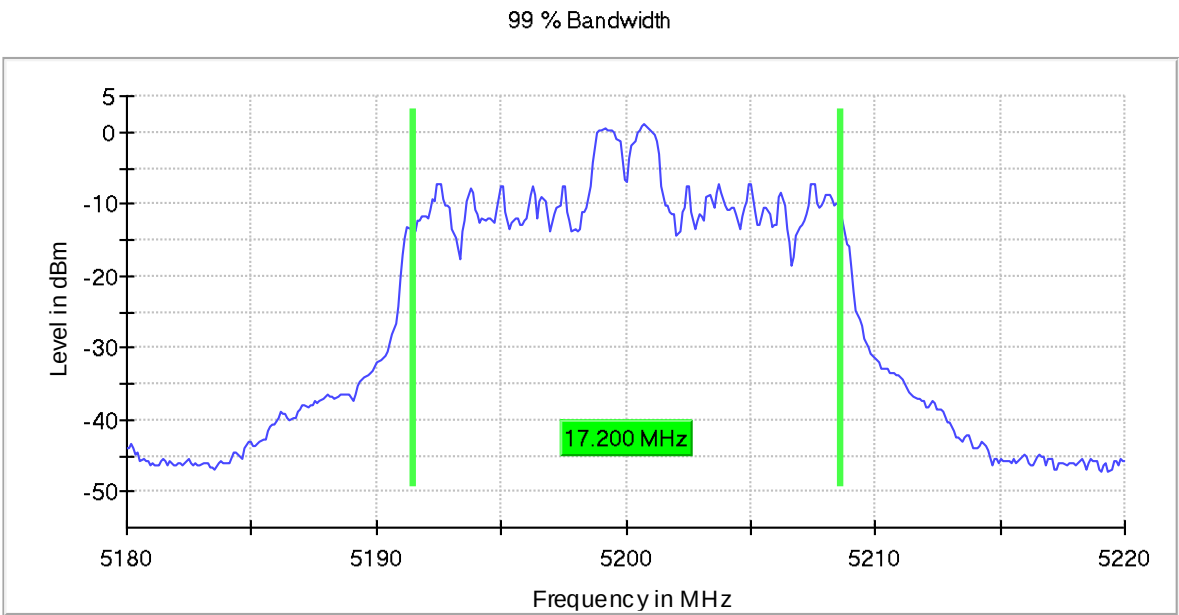
Modulation: 802.11ax HE20 (OFDMA MCS0) – RU

U-NII-1 FCC (5150-5250 MHz)

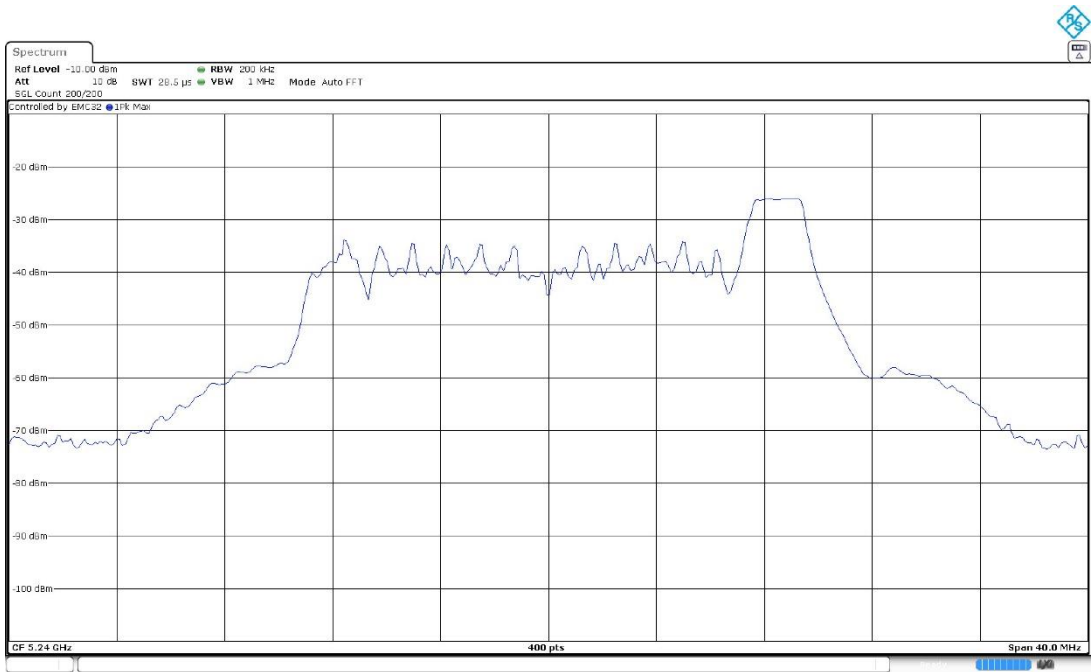
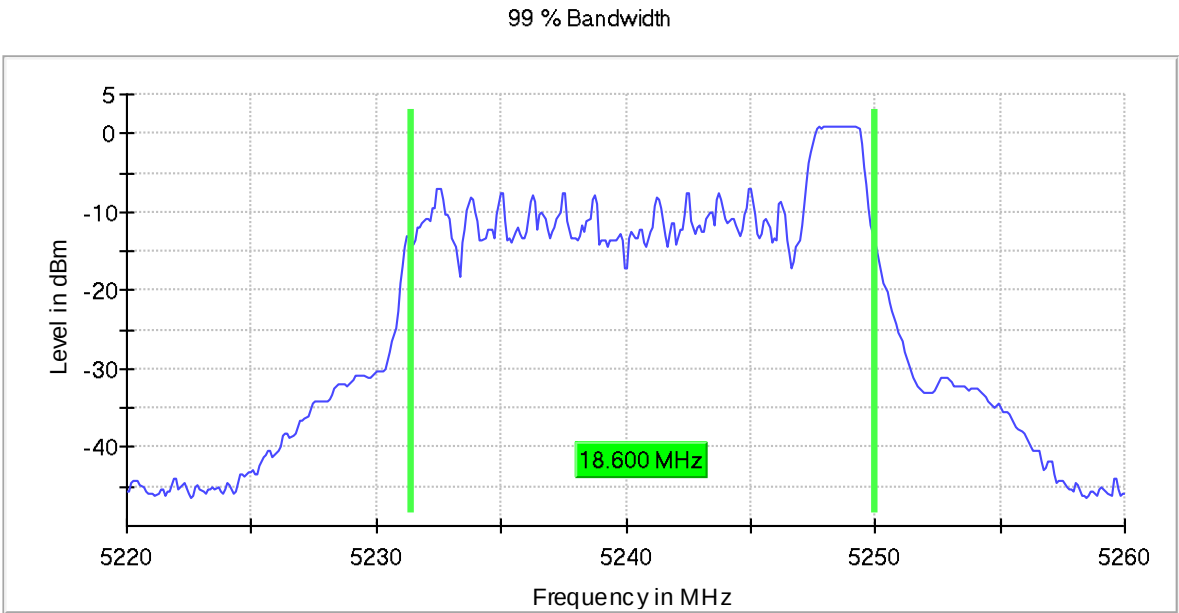
- Low Channel 36 (5180 MHz):



- Middle Channel 36 (5200 MHz):

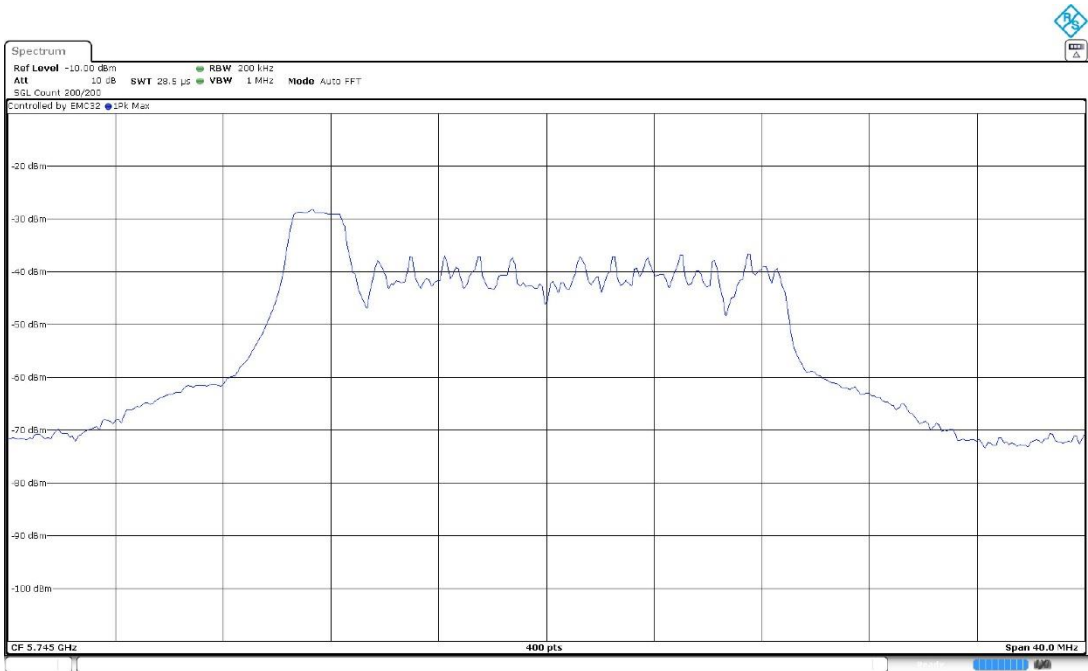
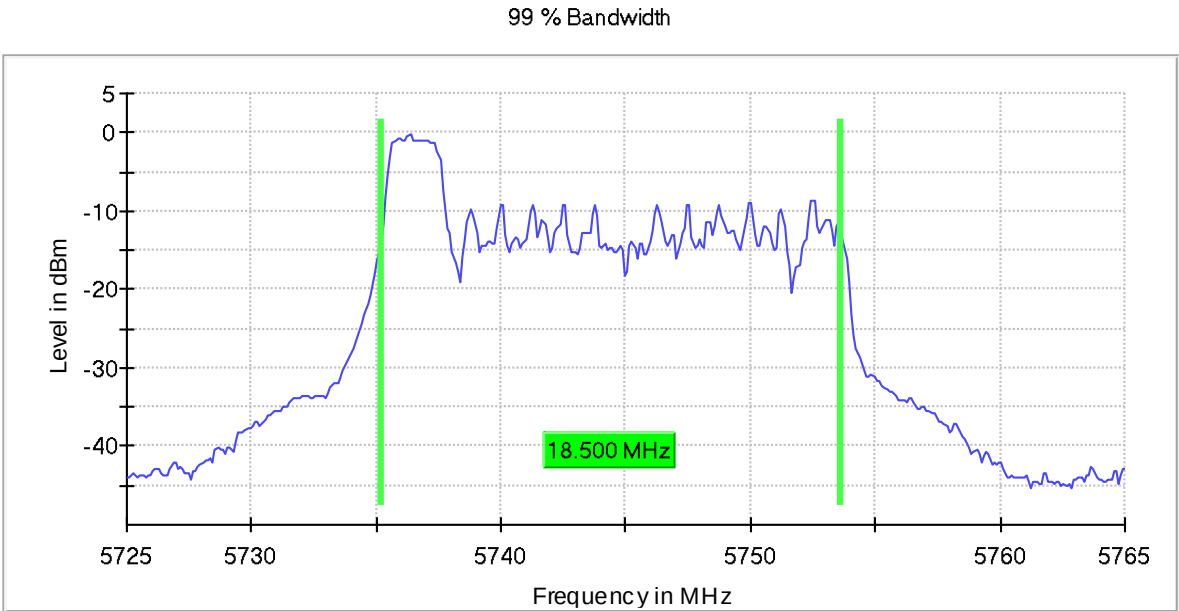


- High Channel 48 (5240 MHz):

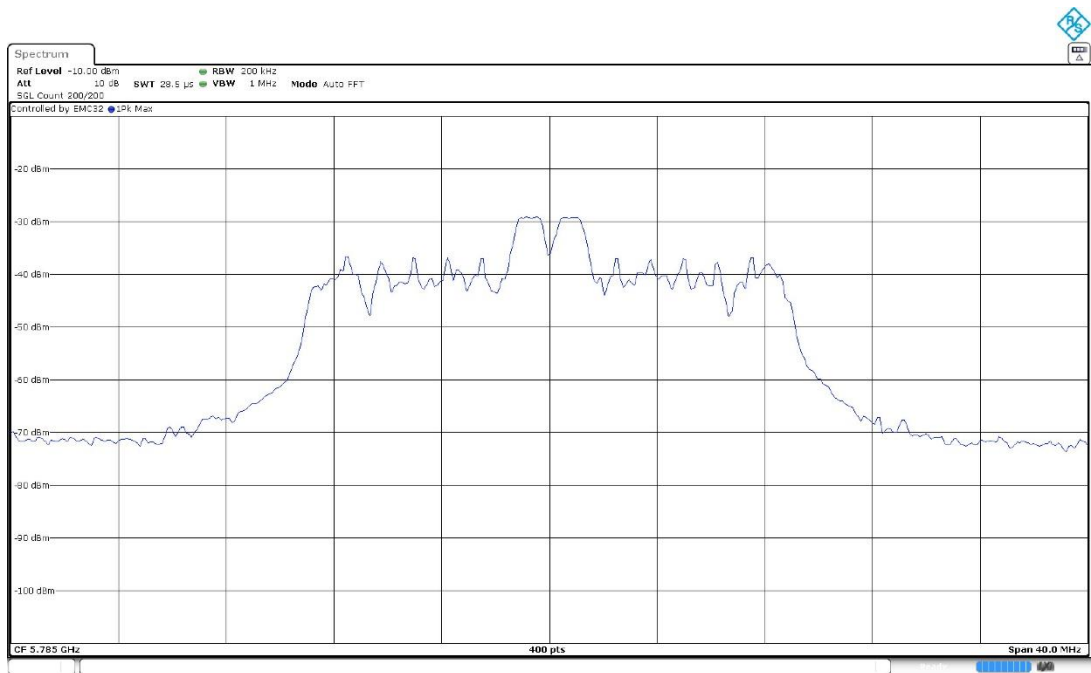
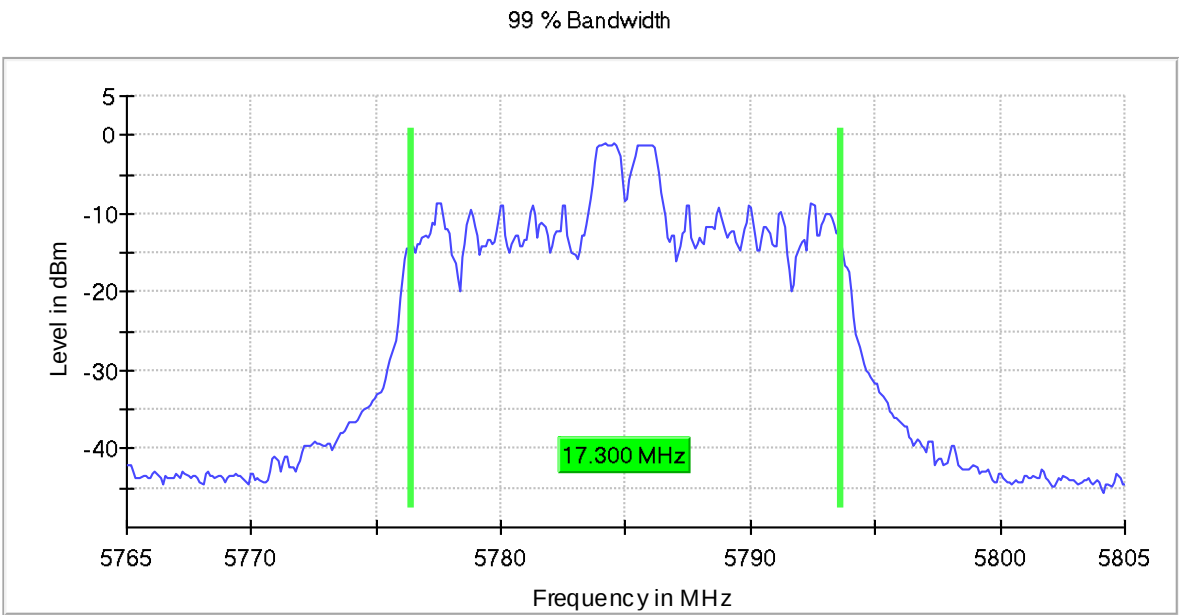


U-NII-3 (5725-5850 MHz)

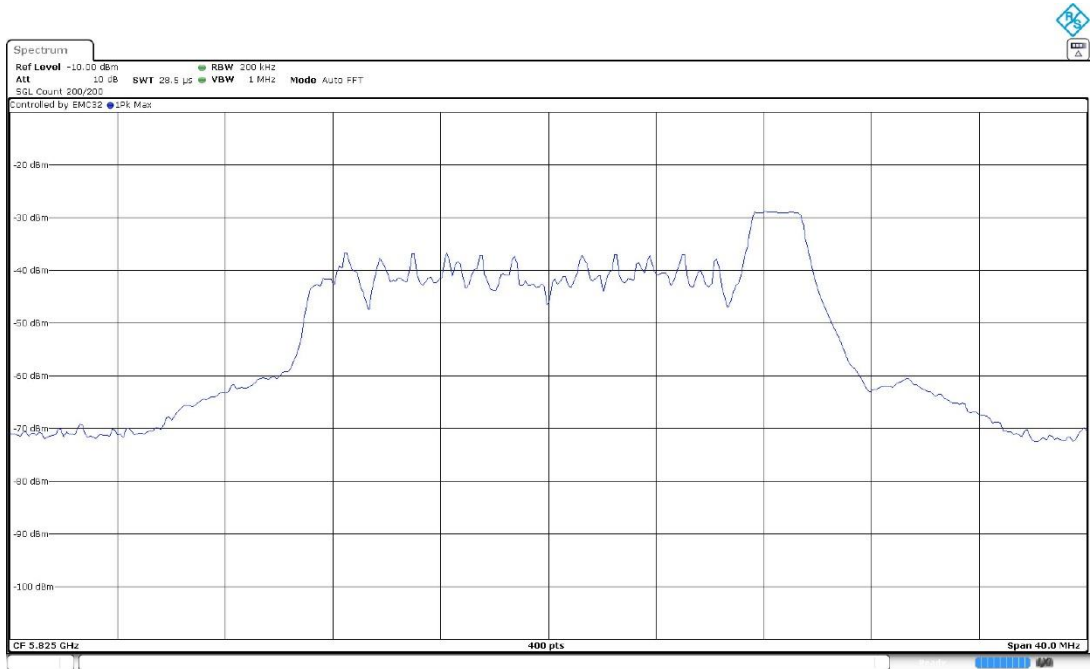
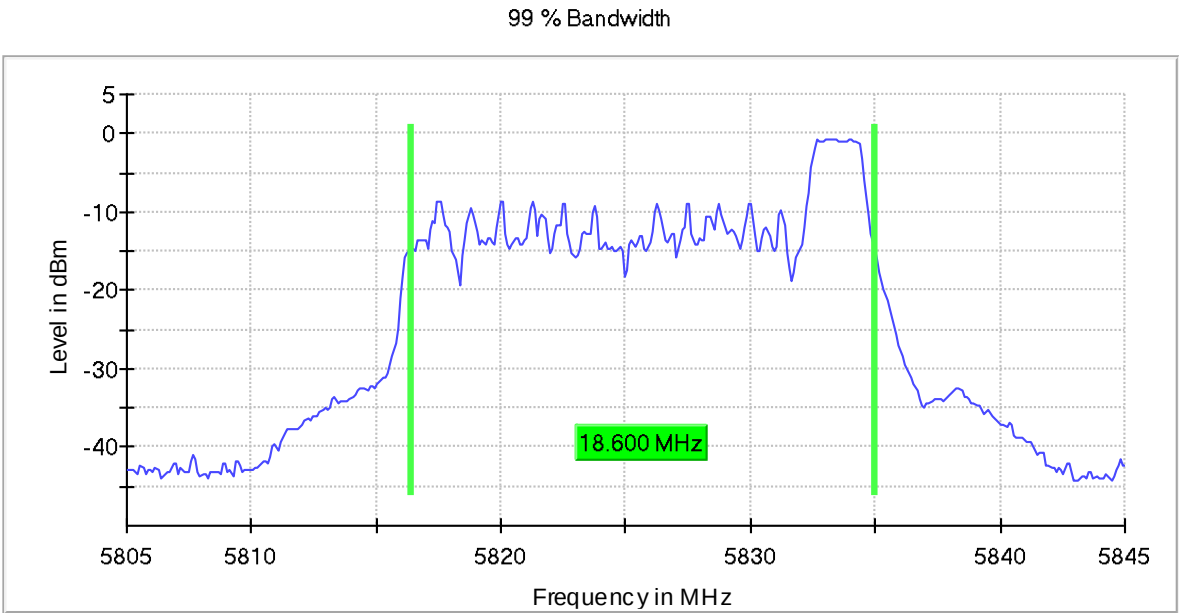
- Low Channel 149 (5745 MHz):



- Middle Channel 165 (5785 MHz):



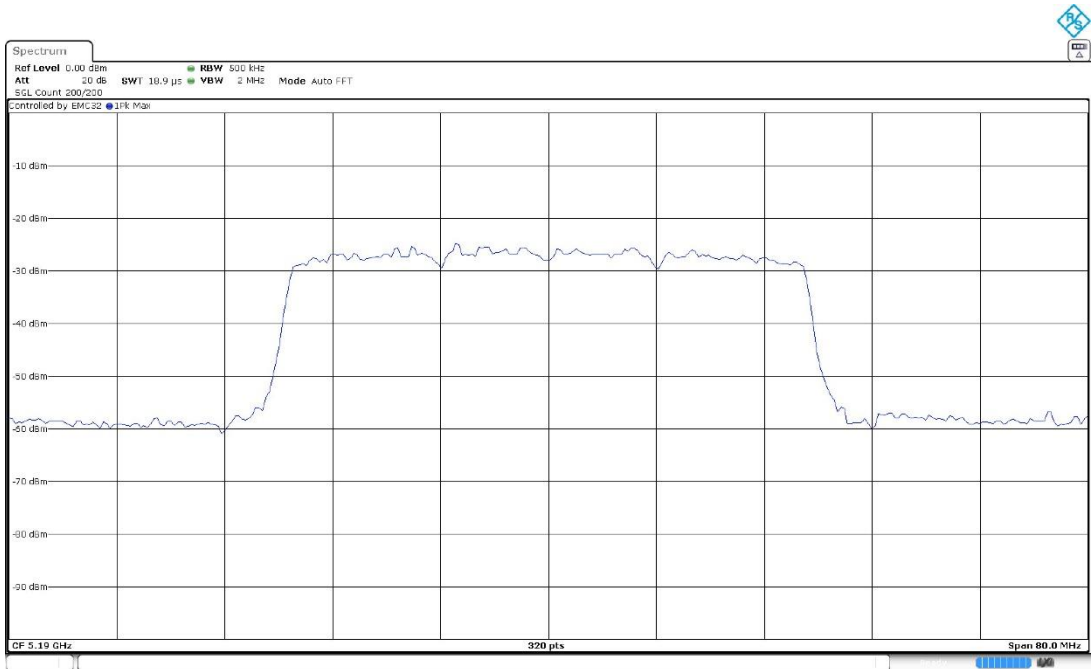
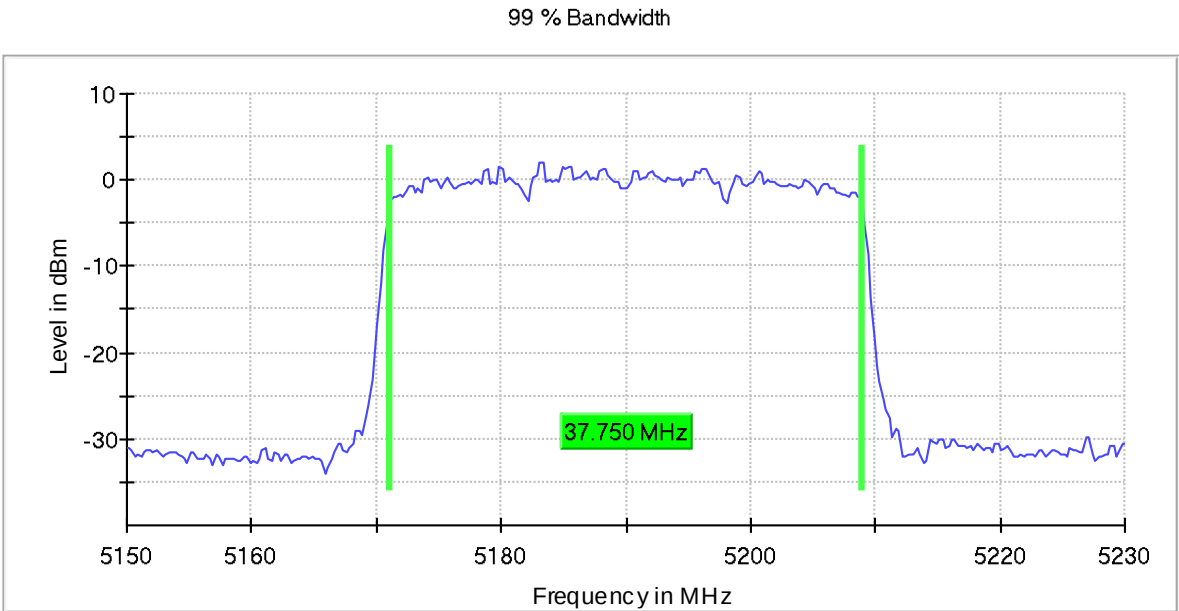
- High Channel 165 (5825 MHz):



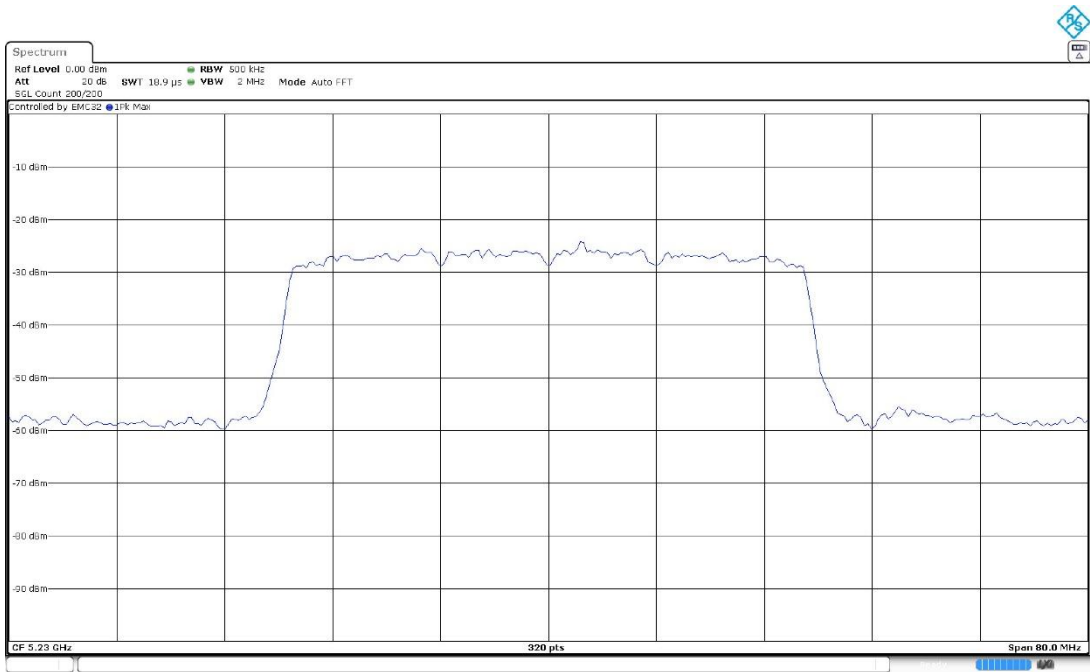
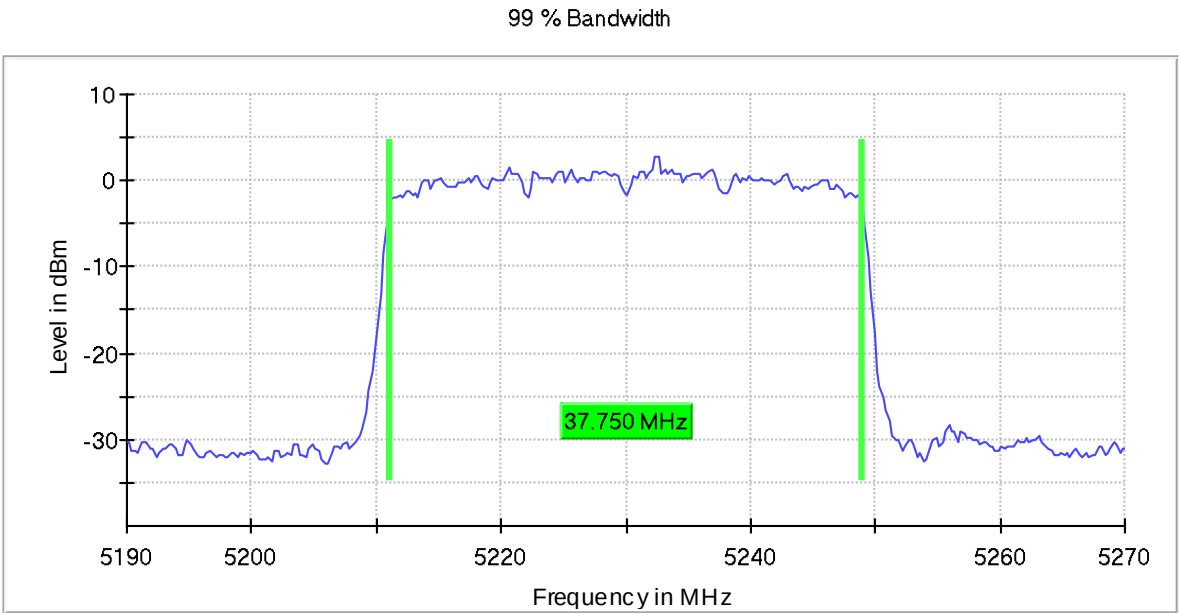
Modulation: 802.11ax HE40 (OFDMA MCS0) – SU

U-NII-1 FCC (5150-5250 MHz)

- Low Channel 38 (5190 MHz):

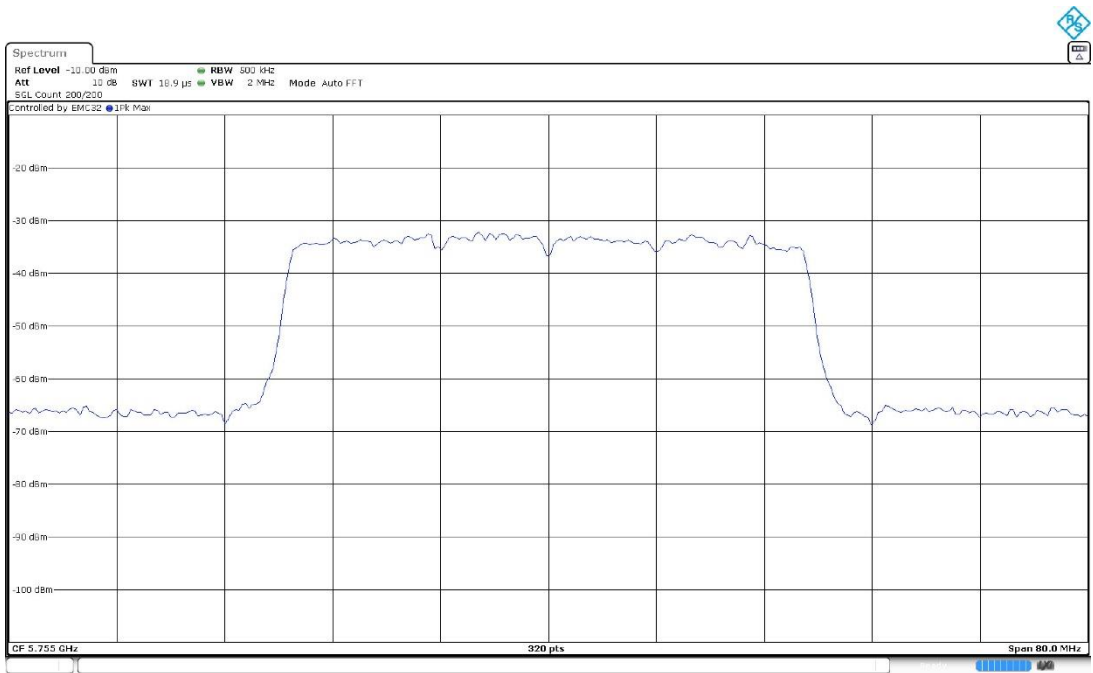
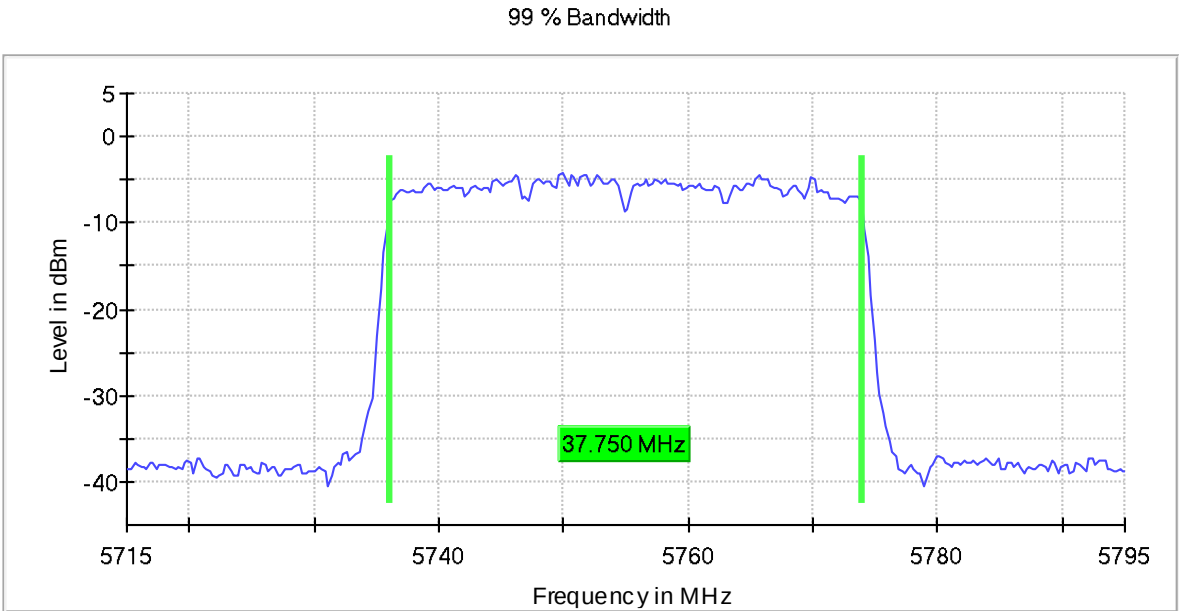


- High Channel 46 (5230 MHz):



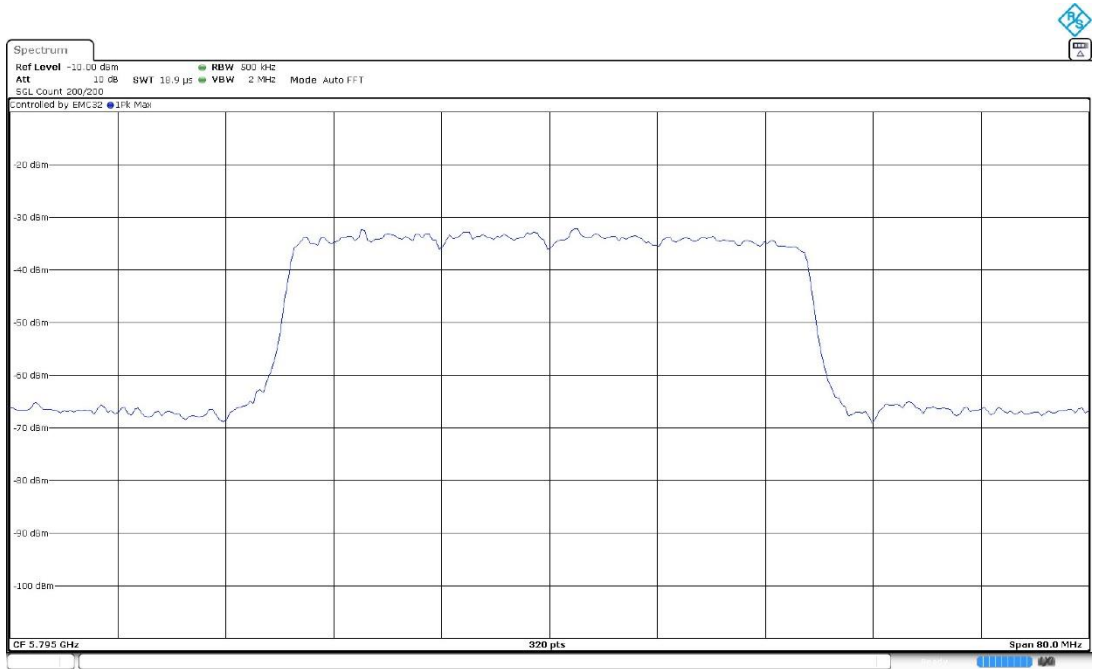
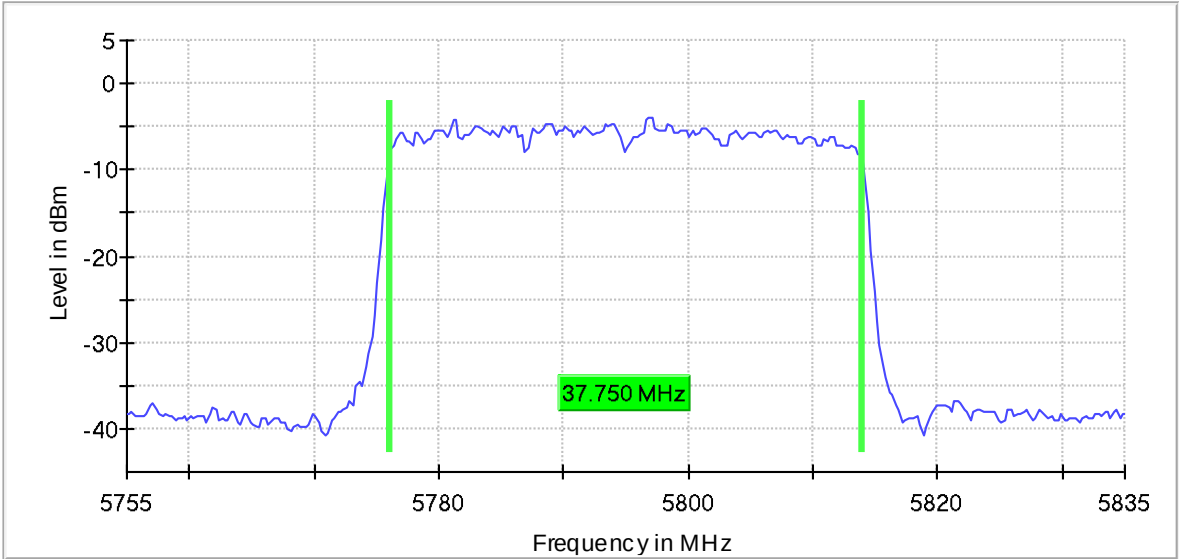
U-NII-3 (5725-5850 MHz)

- Low Channel 151 (5755 MHz):



- High Channel 159 (5825 MHz):

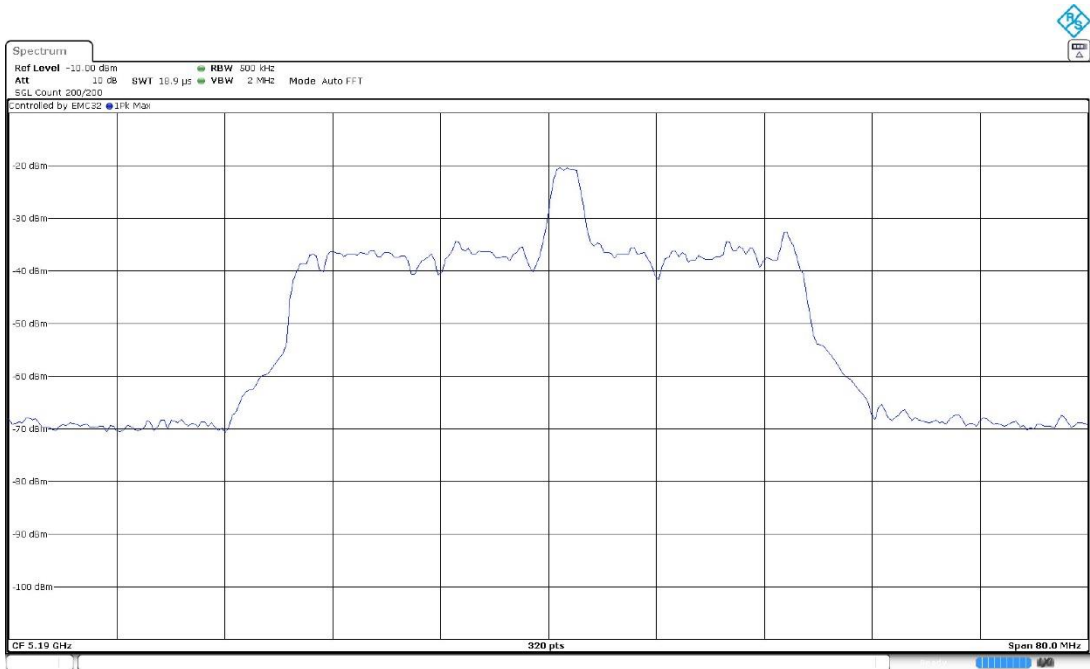
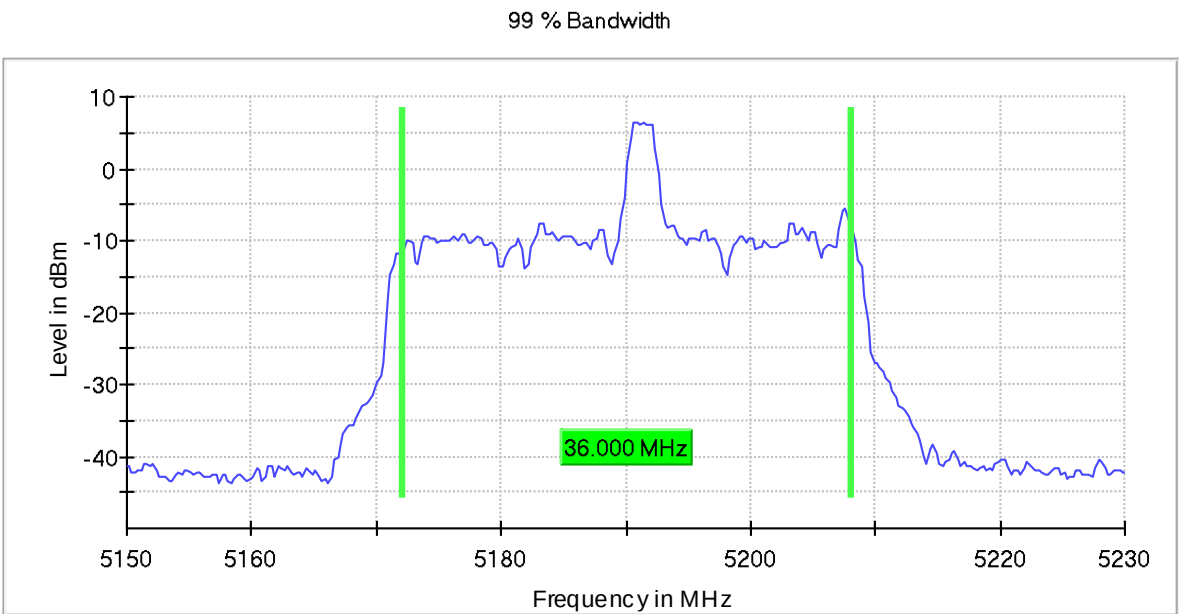
99 % Bandwidth



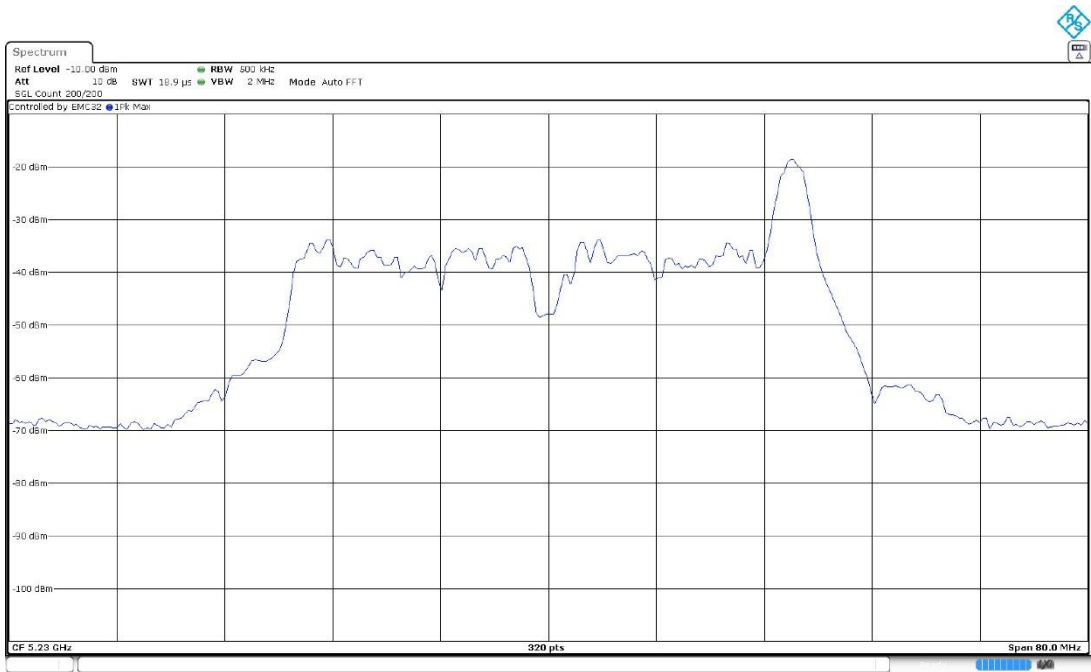
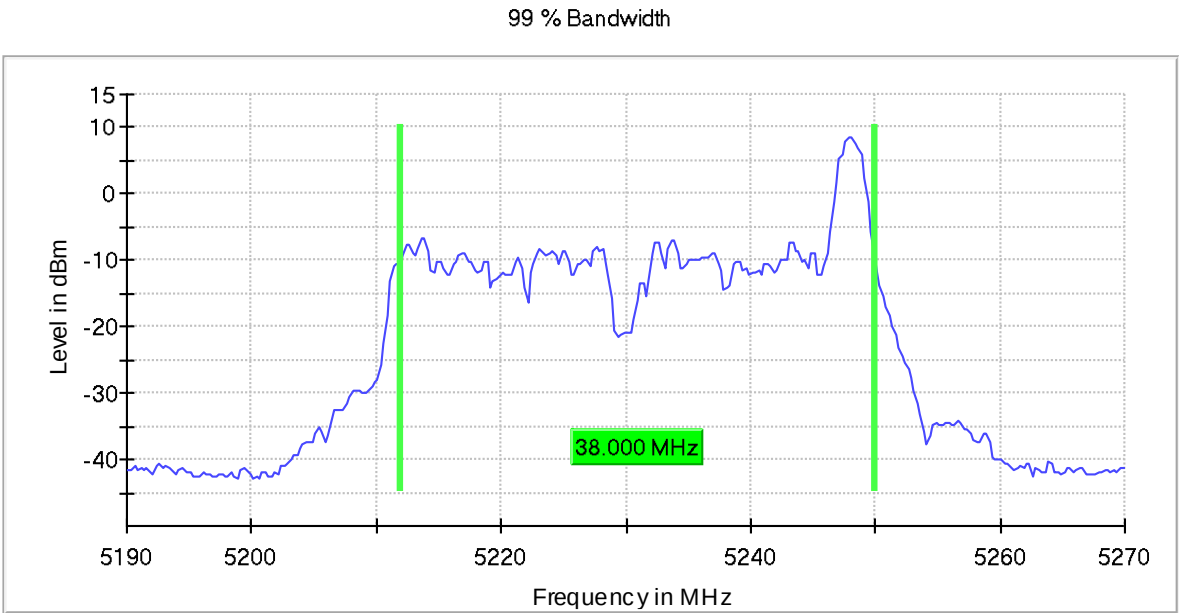
Modulation: 802.11ax HE40 (OFDMA MCS0) – RU

U-NII-1 FCC (5150-5250 MHz)

- Low Channel 38 (5190 MHz):

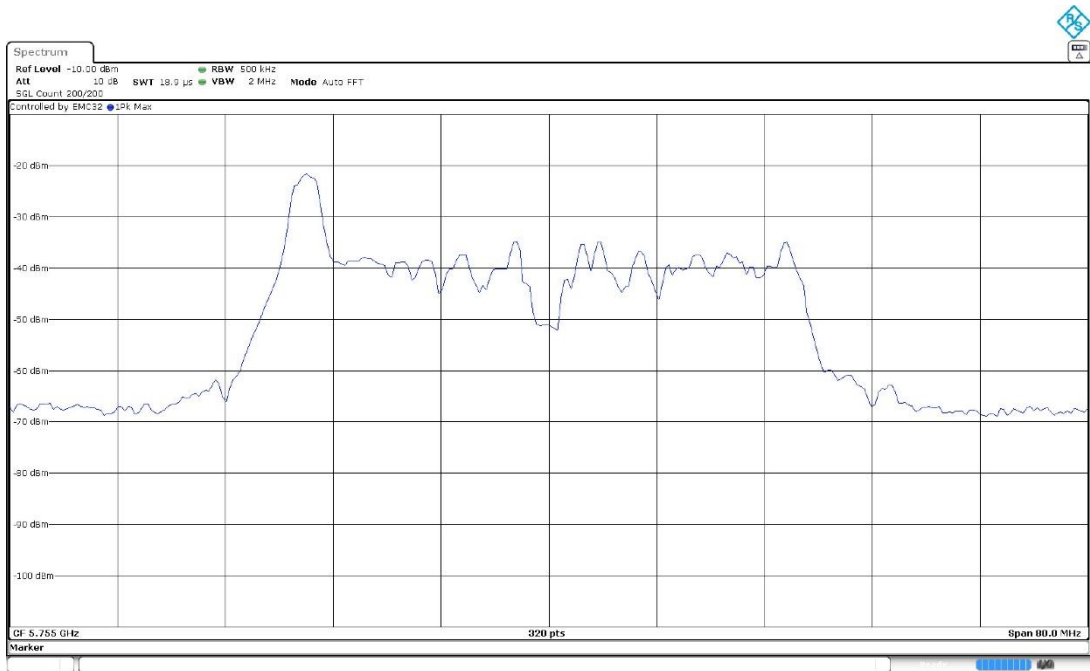
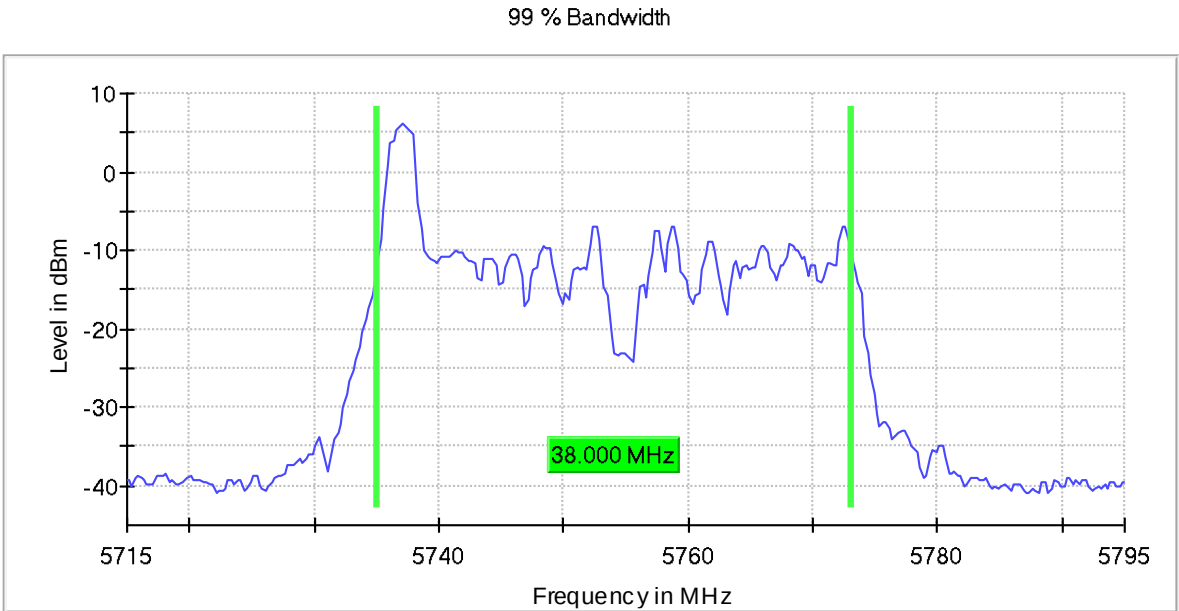


- High Channel 46 (5230 MHz):

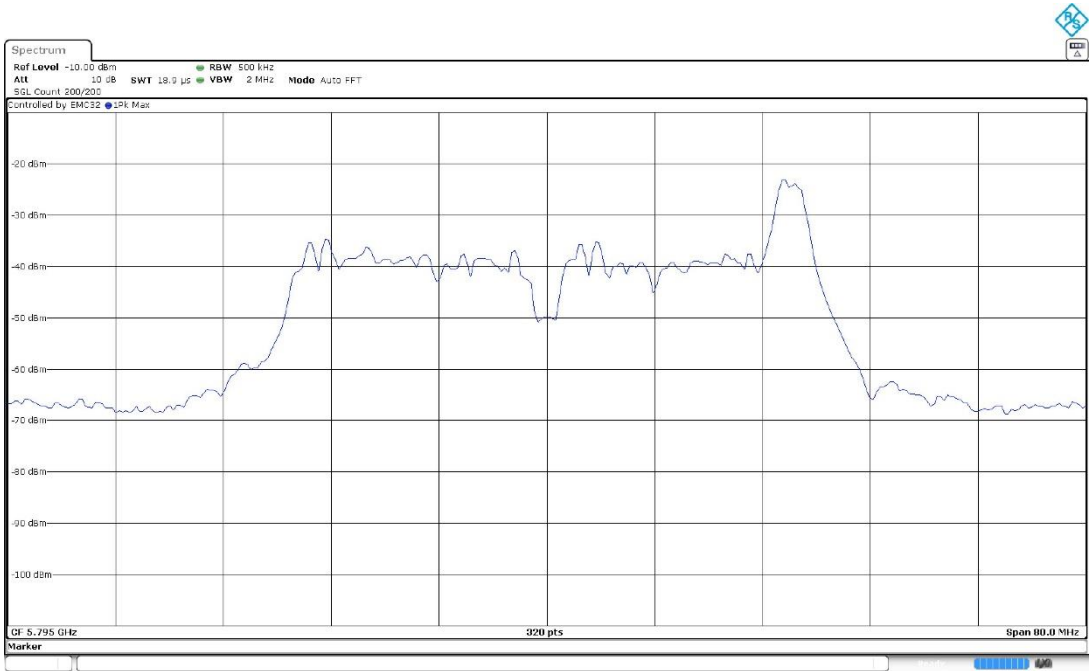
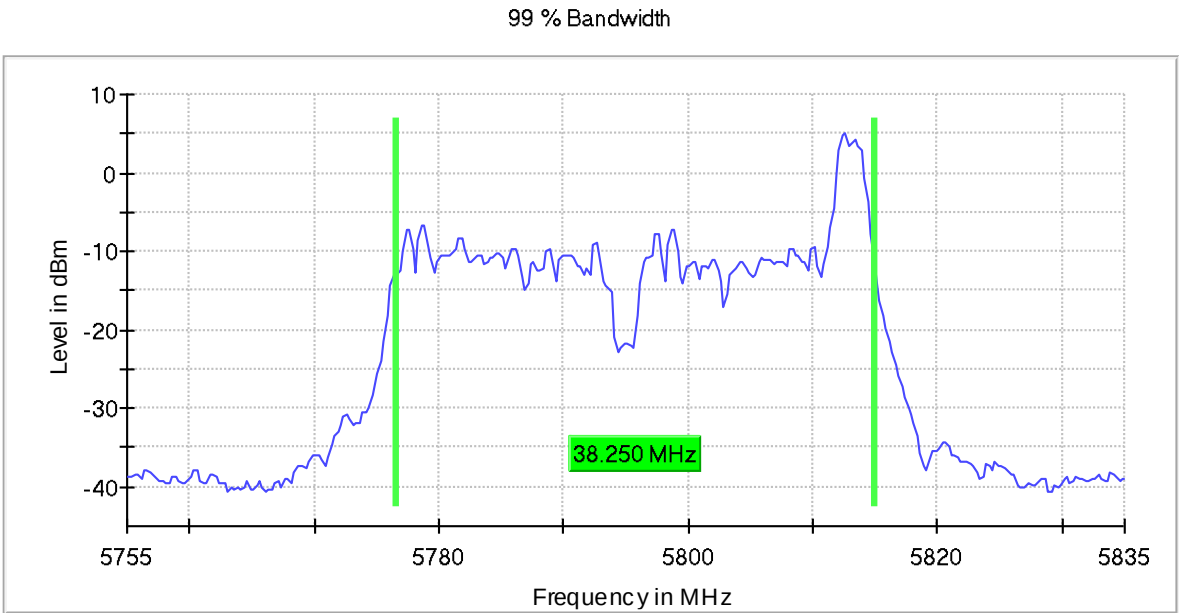


U-NII-3 (5725-5850 MHz)

- Low Channel 151 (5755 MHz):



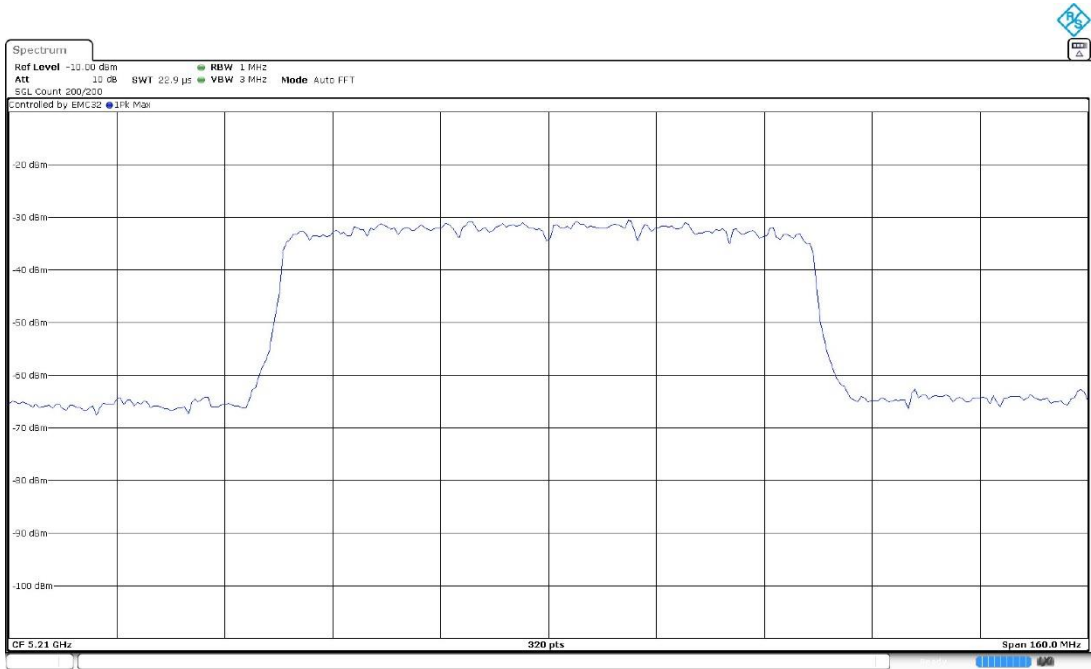
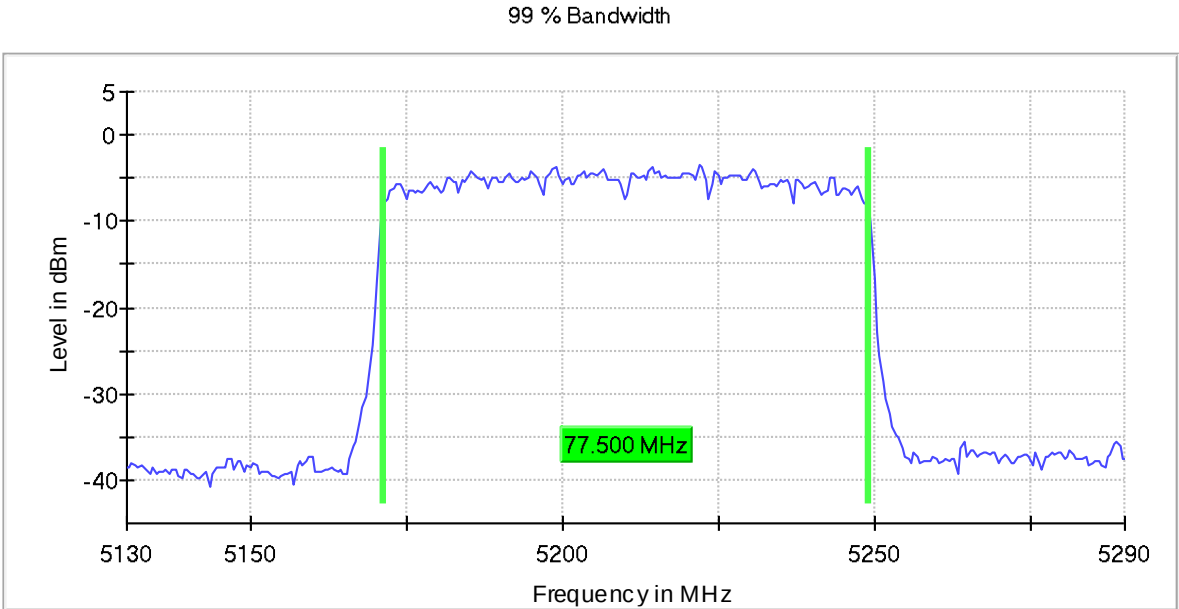
- High Channel 159 (5825 MHz):



Modulation: 802.11ax HE80 (OFDMA MCS0) – SU

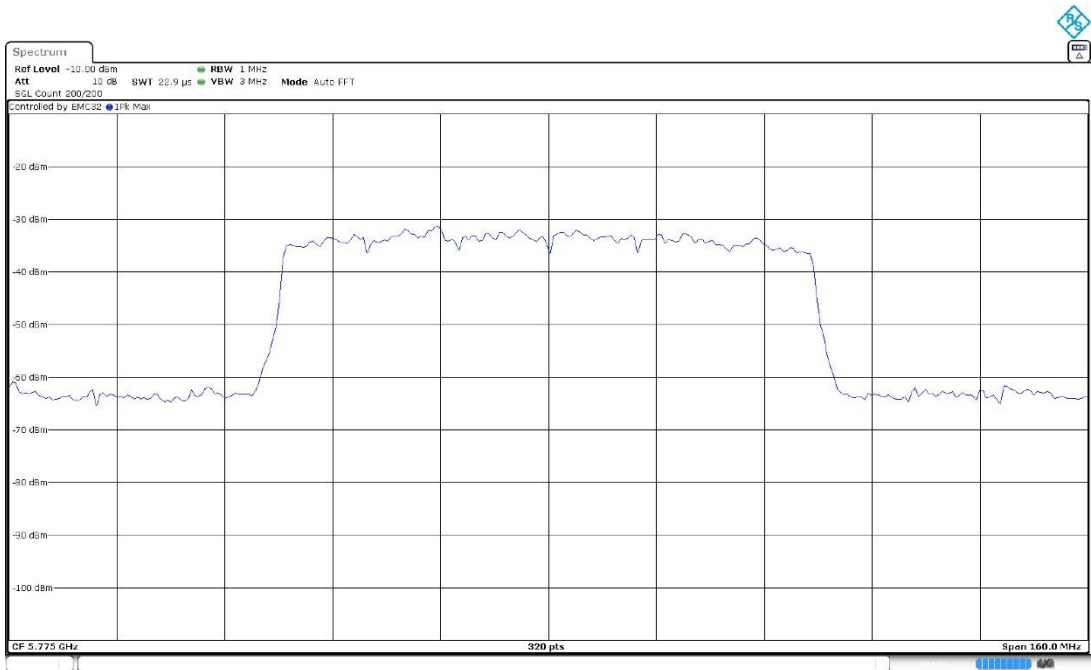
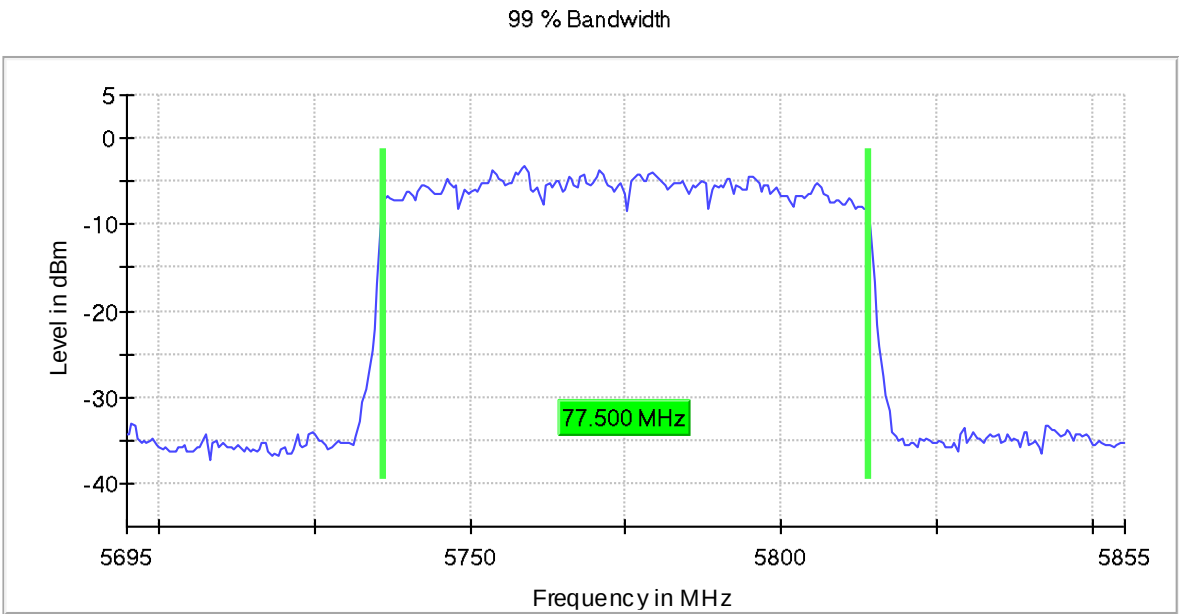
U-NII-1 FCC (5150-5250 MHz)

- Single Channel 42 (5210 MHz):



U-NII-3 (5725-5850 MHz)

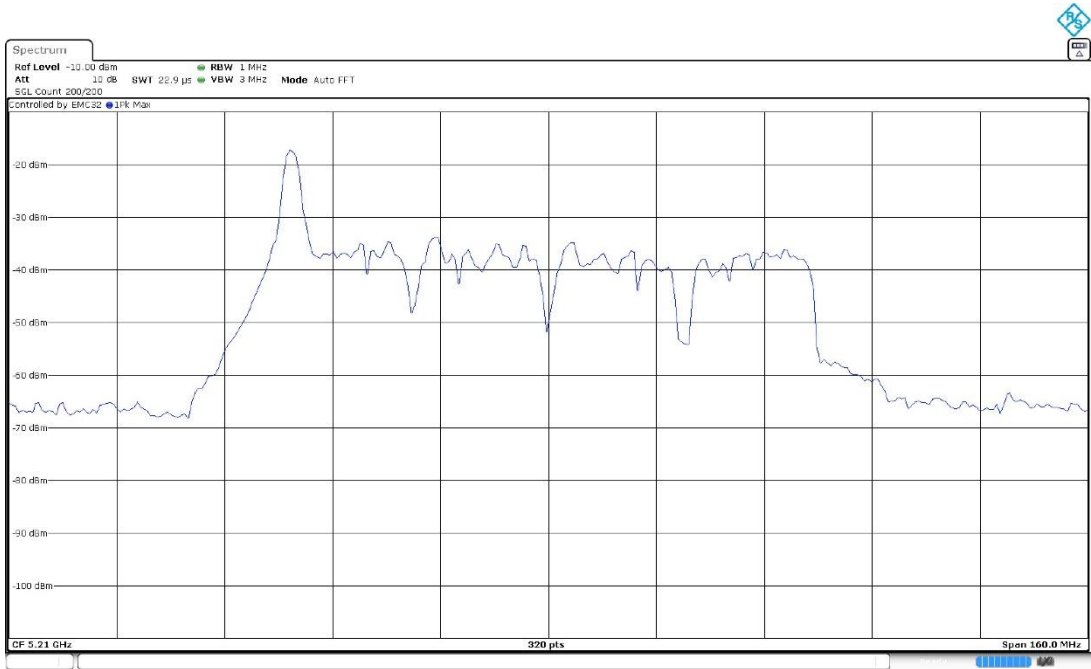
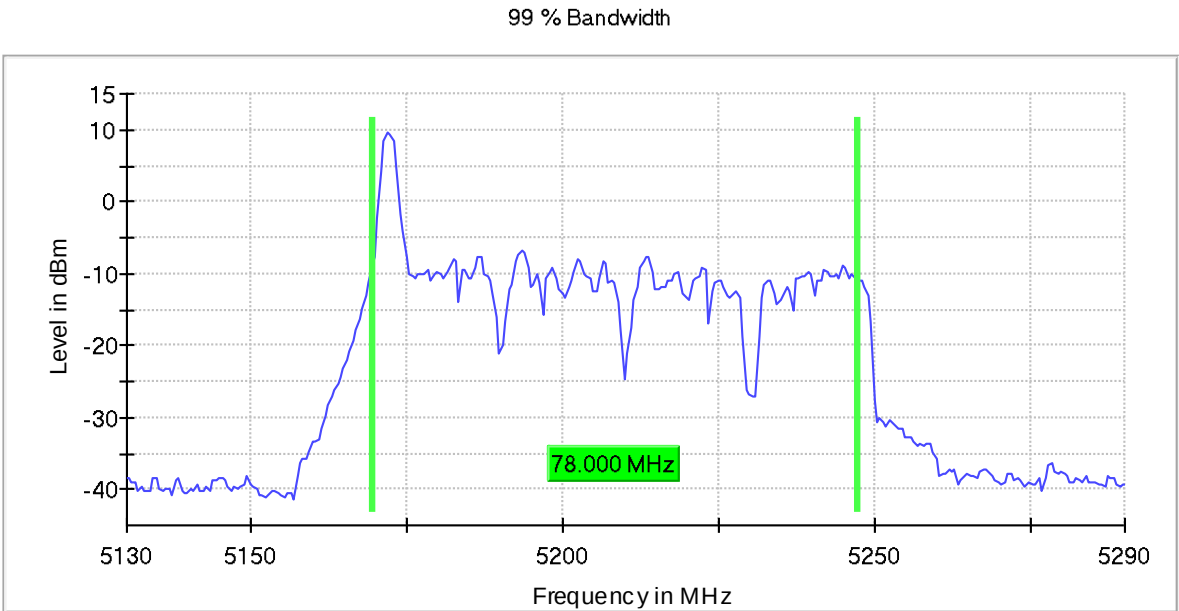
- Single Channel 155 (5775 MHz):



Modulation: 802.11ax HE80 (OFDMA MCS0) – RU

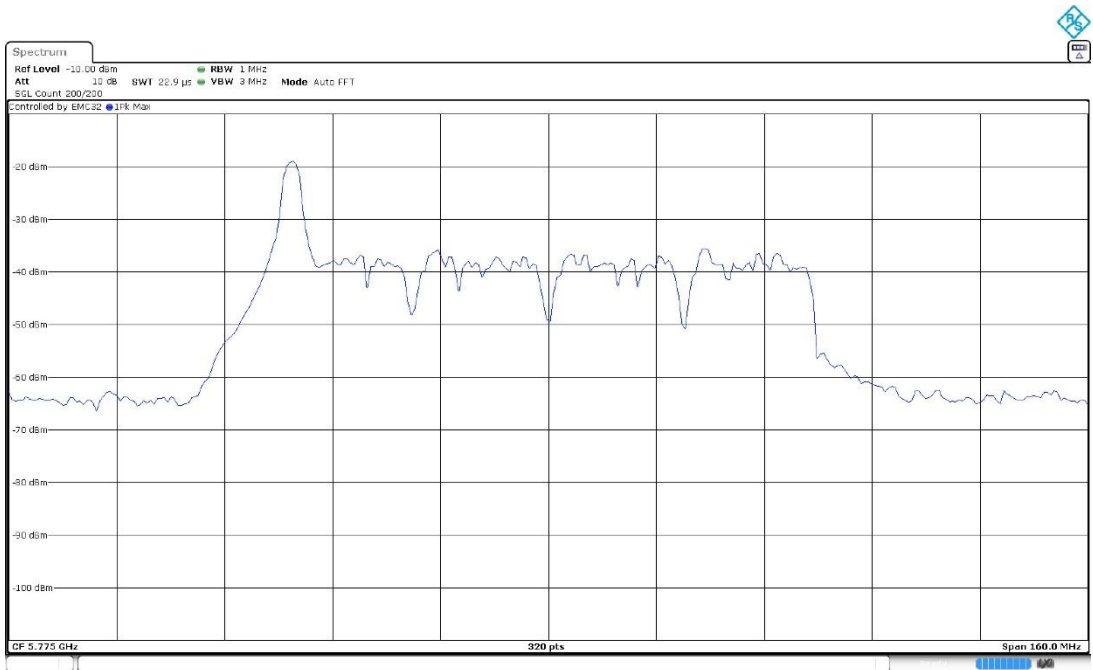
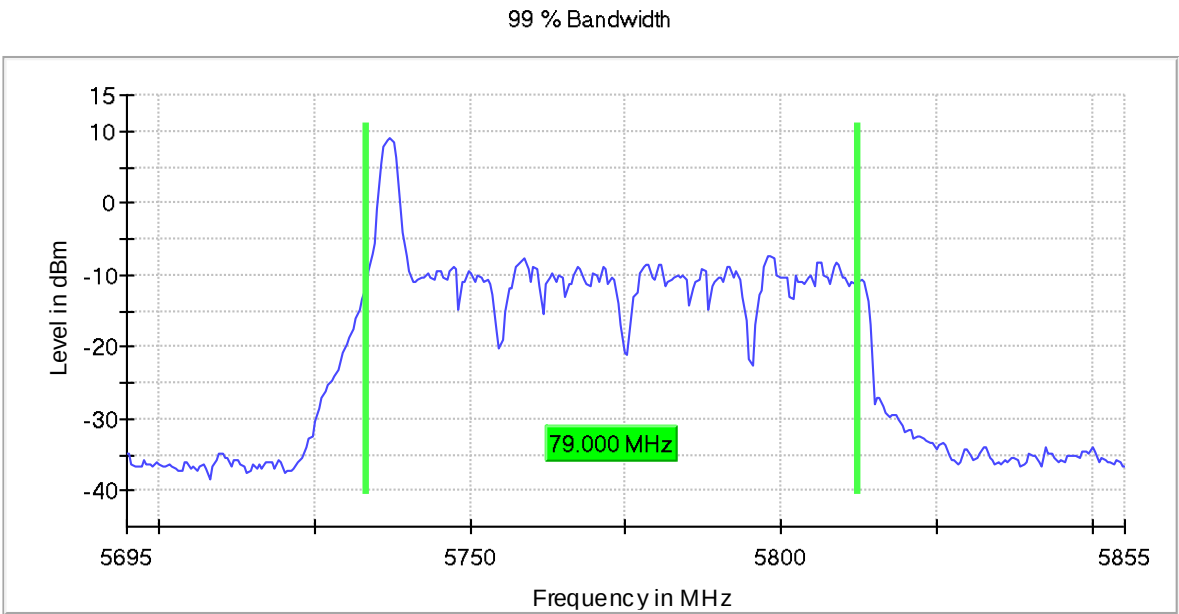
U-NII-1 FCC (5150-5250 MHz)

- Single Channel 42 (5210 MHz):



U-NII-3 (5725-5850 MHz)

- Single Channel 155 (5775 MHz):



Transmitter. 26 dB Emission Bandwidth (EBW)

Results

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

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

Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5180.00000	20.30
		5220.00000	20.30
		5240.00000	20.30
[5725, 5850]		5745.00000	20.20
		5785.00000	20.30
		5825.00000	20.30

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

Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5190.00000	39.32
		5230.00000	39.62
[5725, 5850]		5755.00000	39.77
		5795.00000	39.62

Modulation: 802.11ac VHT20 (OFDM MCS0)

Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5180.00000	20.20
		5220.00000	20.30
		5240.00000	20.00
[5725, 5850]		5745.00000	20.20
		5785.00000	20.20
		5825.00000	20.30

Modulation: 802.11ac VHT40 (OFDM MCS0)

Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5190.00000	39.62
		5230.00000	39.47
[5725, 5850]		5755.00000	39.77
		5795.00000	39.77

Modulation: 802.11ac VHT80 (OFDM MCS0)

Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5210.00000	83.50
[5725, 5850]		5775.00000	83.00

Modulation: 802.11ax HE20 (OFDMA MCS0) SU

Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5180.00000	21.10
		5240.00000	21.20
[5725, 5850]		5745.00000	21.10
		5825.00000	21.30

Modulation: 802.11ax HE20 (OFDMA MCS0) RU26

Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5180.00000	20.20
		5200.00000	18.60
		5240.00000	20.40
[5725, 5850]		5745.00000	20.00
		5785.00000	18.60
		5825.00000	20.20

Modulation: 802.11ax HE40 (OFDMA MCS0) SU

Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5190.00000	40.53
		5230.00000	40.23
[5725, 5850]		5755.00000	40.68
		5795.00000	40.53

Modulation: 802.11ax HE40 (OFDMA MCS0) RU26

Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5190.00000	38.12
		5230.00000	40.08
[5725, 5850]		5755.00000	40.23
		5795.00000	40.08

Modulation: 802.11ax HE80 (OFDMA MCS0) SU

Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5210.00000	84.00
[5725, 5850]		5775.00000	83.50

Modulation: 802.11ax HE80 (OFDMA MCS0) RU26

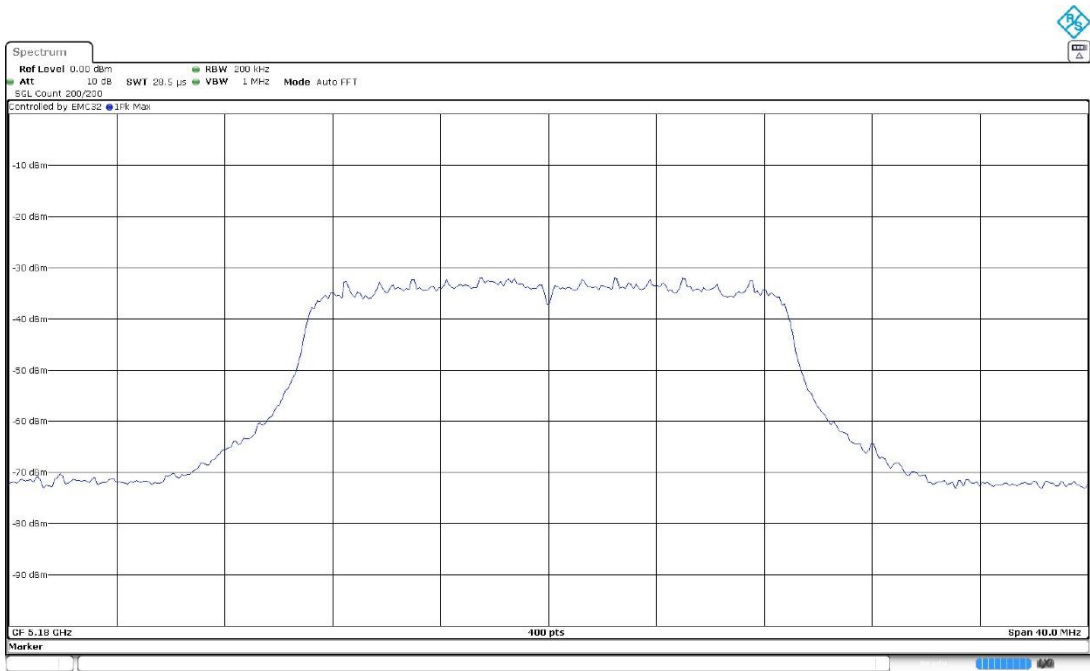
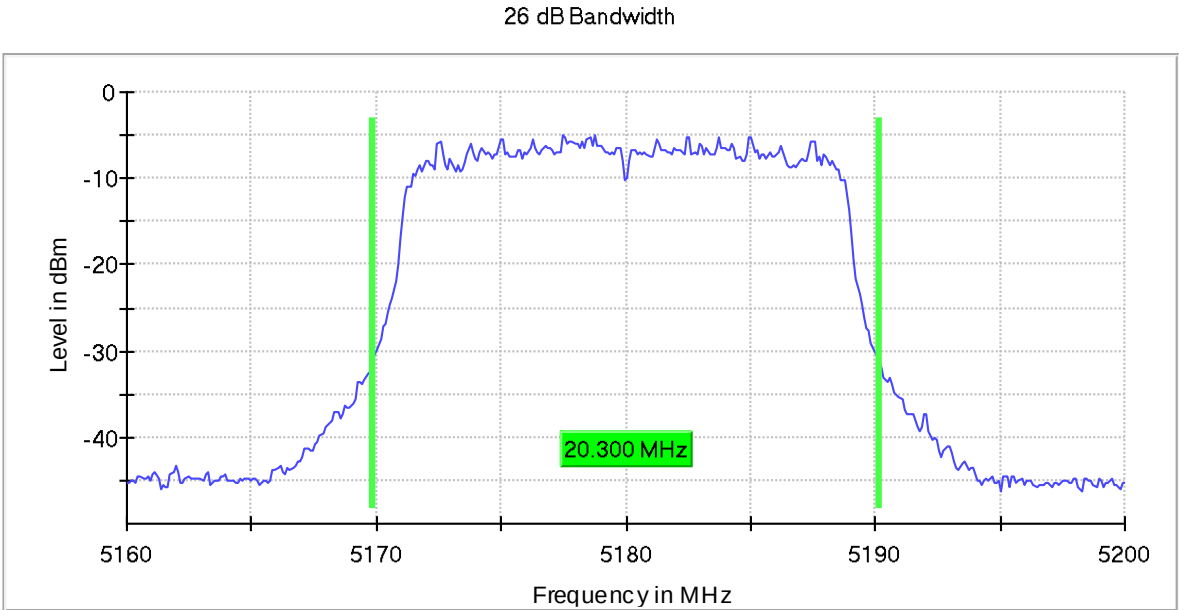
Operation Band (MHz)	Port	Freq (MHz)	26 dBBW (MHz)
[5150, 5250]	3+4	5210.00000	82.50
[5725, 5850]		5775.00000	82.00

Attachments

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

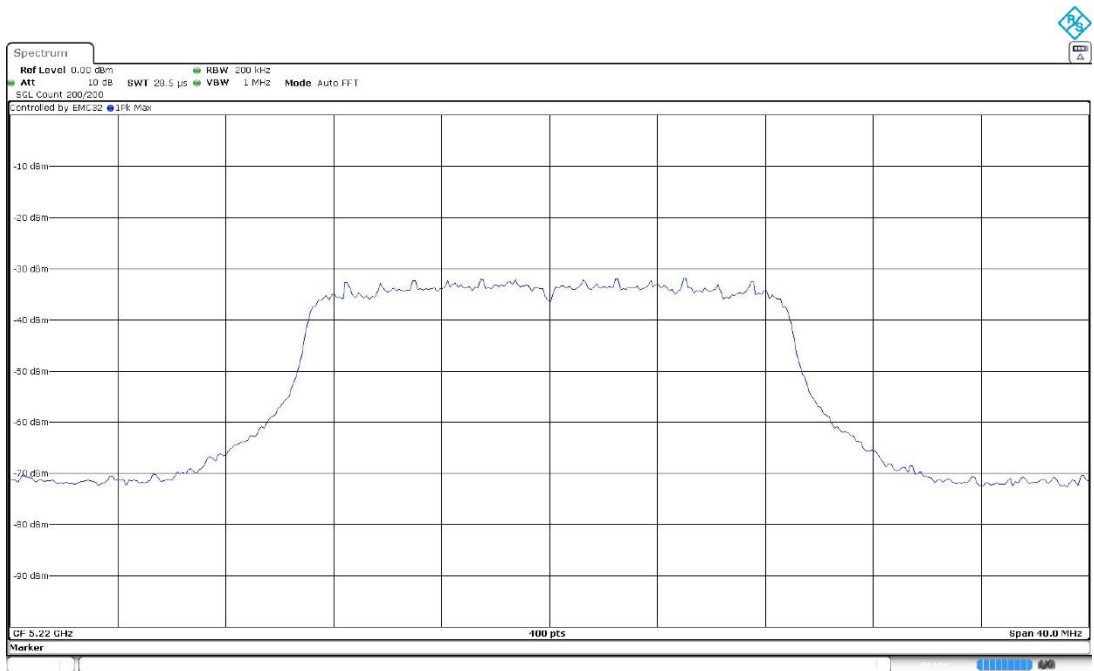
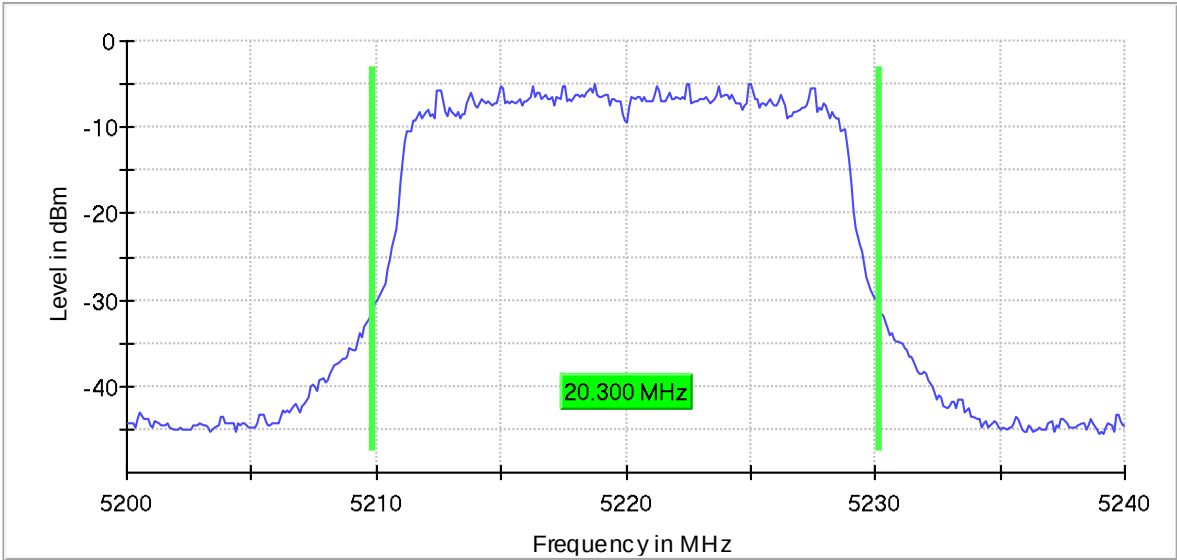
U-NII-1 FCC (5150-5250 MHz)

- Low Channel 36 (5180 MHz):

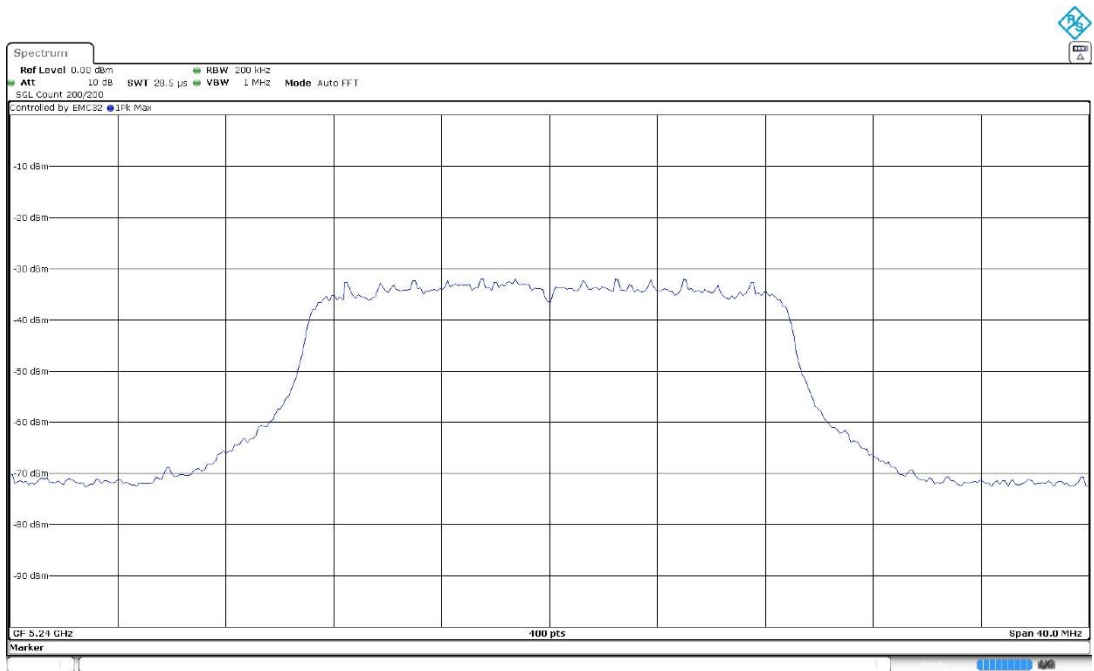
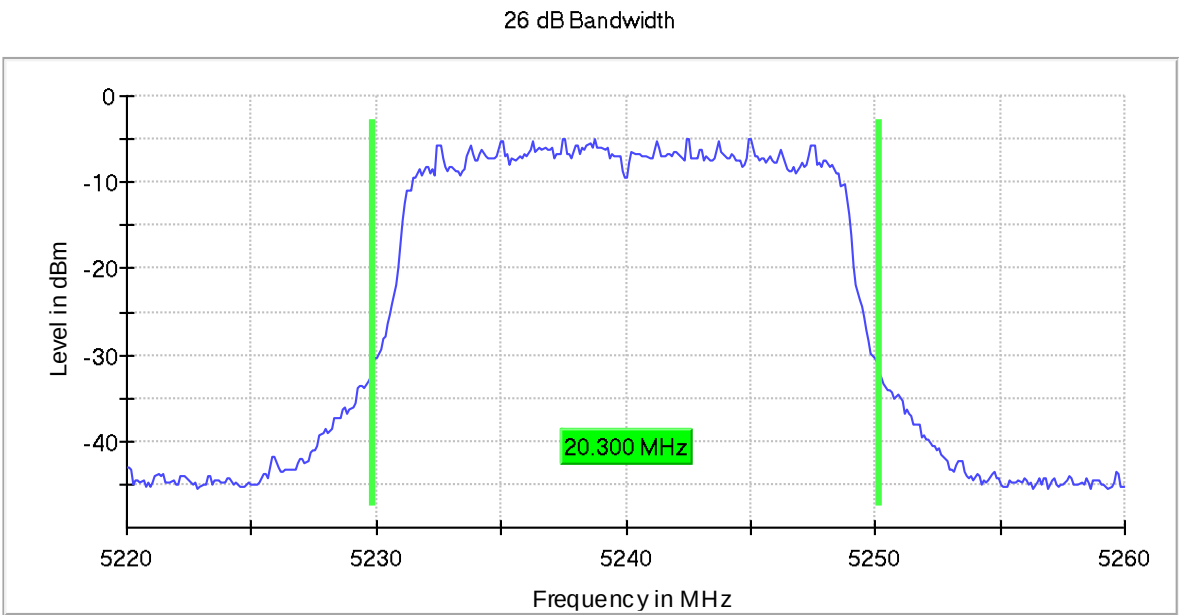


- Channel 40 (5200 MHz):

26 dB Bandwidth

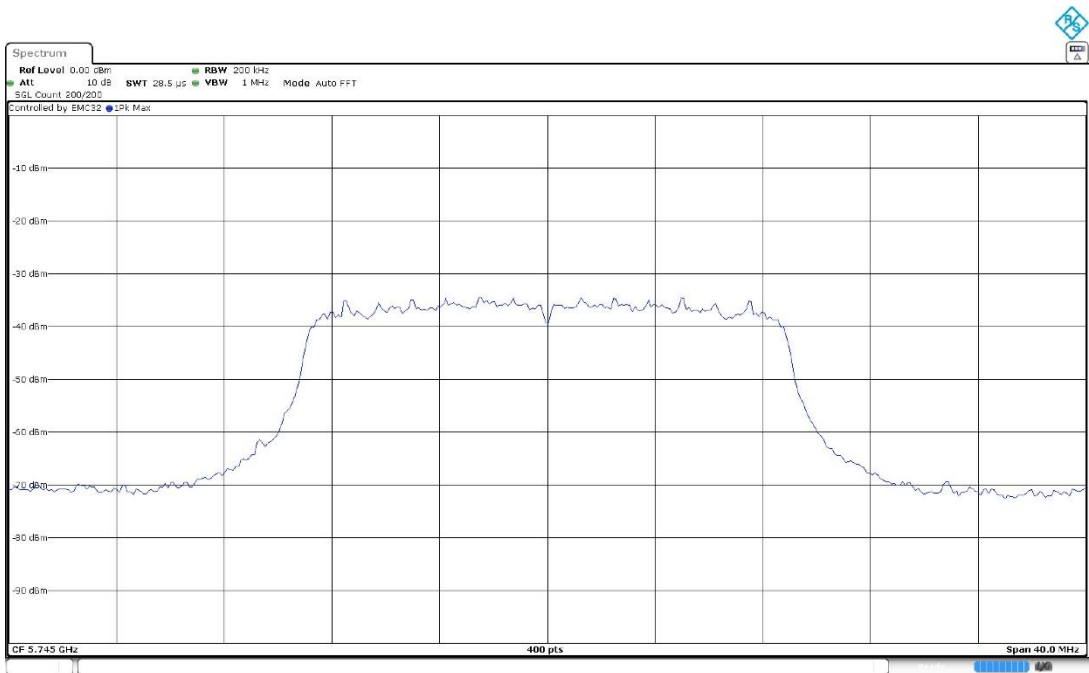
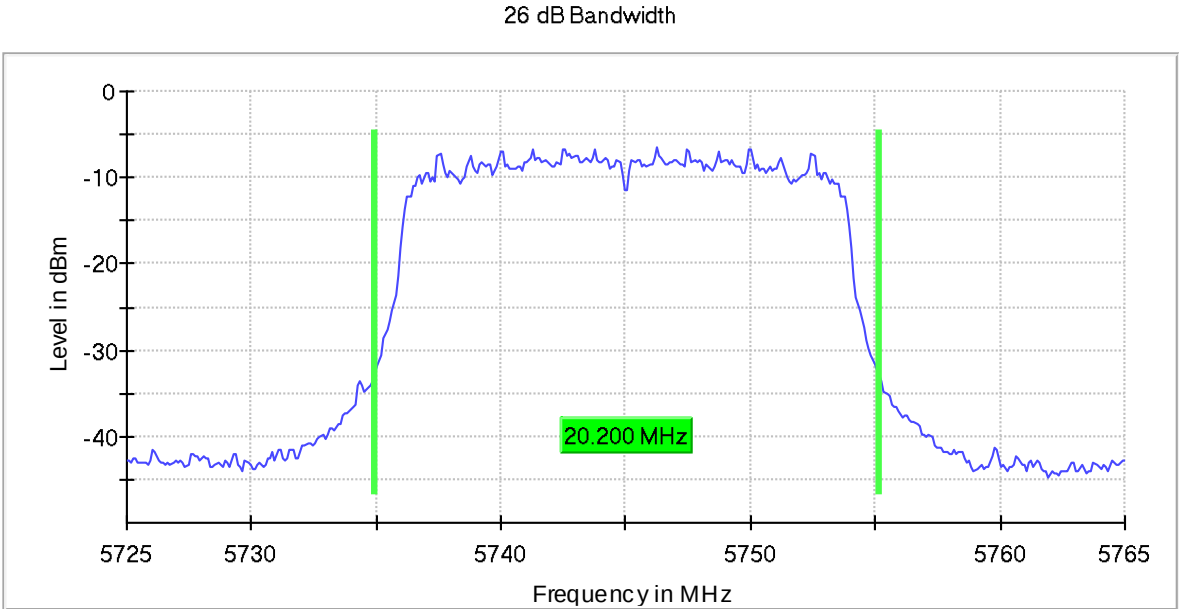


- High Channel 48 (5240 MHz):

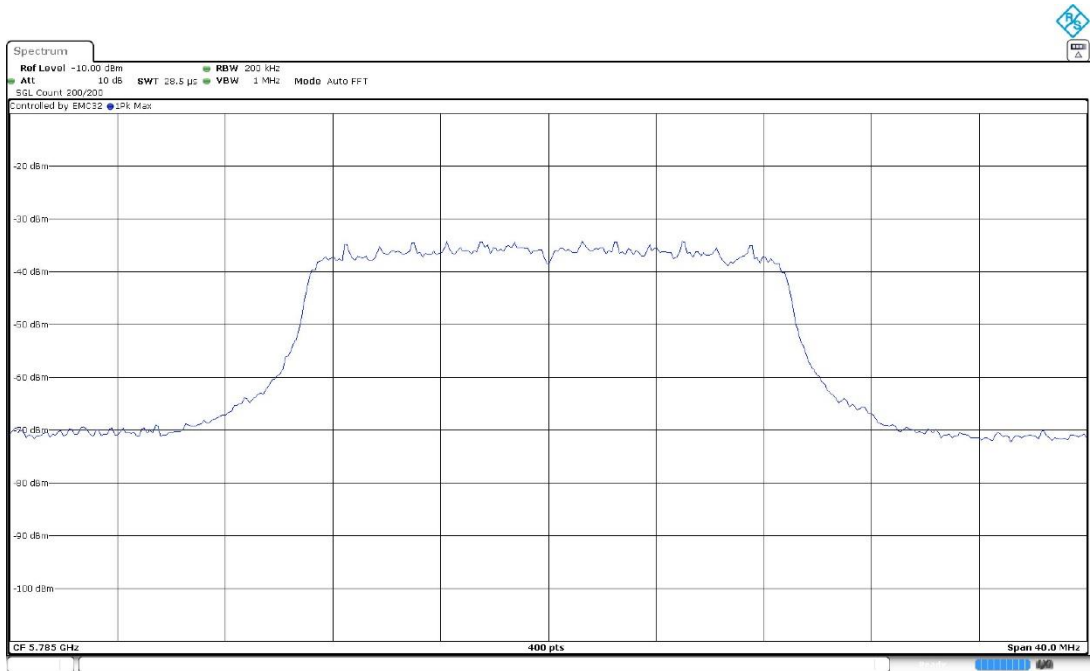
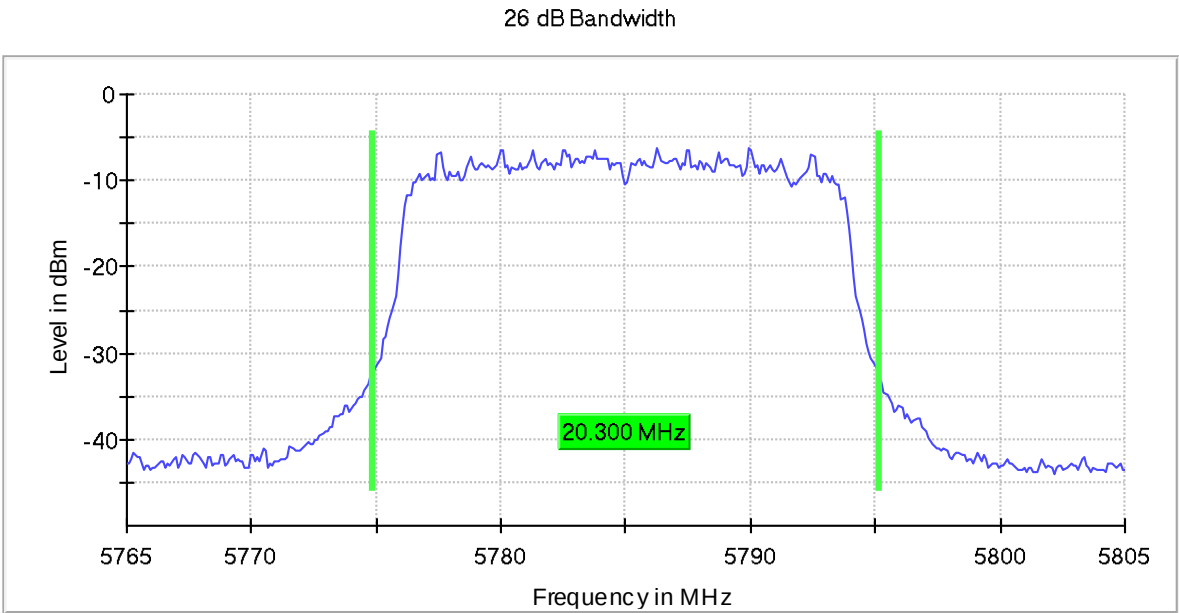


U-NII-3 (5725-5850 MHz)

- Low Channel 149 (5745 MHz):



- Middle Channel 157 (5785 MHz):



- High Channel 165 (5825 MHz):

