DEKRA Testing and Certification, S.A.U.
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C.I.F. A29507456

ISED CABid: ES1909

Test Report No:
NIE: 67442RRF.006A1

Partial Test Report

USA FCC Part 15.407, 15.209

CANADA RSS-247, RSS-Gen

(*) Identification of item tested	Communications device
(*) Trademark	Ring LLC
(*) Model and /or type reference	5AT3T3
Other identification of the product	FCC ID: 2AEUPBHAXN001 IC: 20271-BHAXN001
(*) Features	--
Applicant	Ring LLC 1523 26th Street, Santa Monica, 90404, California, United States
Test method requested, standard	USA FCC Part 15.407 (10-1-20) Edition: Unlicensed National Information Infrastructure (U-NII) Devices. General technical requirements. USA FCC Part 15.209 (10-1-20) Edition: Radiated emission limits; general requirements. CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 Amendment 1 (March 2019). 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. Guidance for Emission Testing of Transmitters with Multiple Outputs in the Same Band 662911 D01 Multiple Transmitter Output v02r01 dated 10/31/2013 ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Approved by (name / position & signature)	Rafael López Martín EMC Consumer & RF Lab. Manager 2021.10.27 11:00:38 +02'00'
Date of issue	2021-10-27
Report template No	FDT08_23 (*) “Data provided by the client”

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Uncertainty

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

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 of the model number 5AT3T3 is a communications device with wireless technologies.

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 result.

Usage of samples

Samples undergoing test have been selected by: The client.

- Sample S/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Reception
67442/028	Communications Device	5AT3T3	GCB1ES0011360001	2021/05/03

Auxiliary elements used with the Sample S/01:

Control Nº	Description	Model	Serial Nº	Reception
67442/018	AC/DC Adapter	DSA-36PDB FUS	--	2021/04/13

Sample S/01 has undergone the test(s): For the U-NII-1, the U-NII-3 indicated in the Appendix A.

- Sample S/02 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Reception
67442/077	Communications Device	5AT3T3	GCB1ES011307006K	2021/09/07

Auxiliary elements used with the Sample S/02:

Control Nº	Description	Model	Serial Nº	Reception
67442/079	AC/DC Adapter	DSA-36PDB FUS	GB51PR0110770RW0	2021/09/07

Sample S/02 has undergone the test(s): For the U-NII-2A, the U-NII-2C indicated in the Appendix A.

Test sample description

Ports…… :	Port name and description		Cable				
			Specified max length [m]	Attached during test	Shielded	Coupled to patient	
	AC power port		>3m	Yes	No		
	USB power port		<3m	Yes	Yes		
	Ethernet ports		>3m	Yes	No		
Supplementary information to the ports…… :							
Rated power supply .....:	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	X	AC: 110V (60Hz).	X			X	
	X	DC: 12V, 3A					
Rated Power .....:	Not provided.						
Clock frequencies.....:	Not provided.						
Other parameters.....:	Not provided.						
Software version .....:	Not provided.						
Hardware version.....:	Not provided.						
Dimensions in cm (W x H x D) ....:	Not provided.						
Mounting position.....:	X	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	

Identification of the client

Ring LLC

1523 26th Street, Santa Monica, 90404, California, United States

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2021-05-22
Date (finish)	2021-09-27

Document history

Report number	Date	Description
67442RRF.006	2021-10-276	First release.
67442RRF.006A1	2021-10-27	First modification: - Tests for bands U-NII-2A and U-NII-2C are added. - This modification test report cancels and replaces the test report 67442RRF.006.

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: Daniel Mejías, Jaime Barranquero and Antonio Manuel Sánchez.

Used instrumentation:

Radiated Measurements:

		Last Calibration	Due Calibration
1.	Semianechoic Absorber Lined Chamber ALBATROSS P29419	2020/01	2023/01
2.	Shielded Room ALBATROSS PROJECTS GMBH P29419	N/A	N/A
3.	EMI Test Receiver 2 Hz – 44 GHz Rhode and Schwarz ESW44	2019/10	2021/10
4.	Horn. Antenna 1-18 GHz SCHWARZBECK MESS-ELEKTRONIK BBHA 9120 D	2019/11	2022/12
5.	Horn. Antenna 18-40 GHz SCHWARZBECK BBHA 9170	2021/03	2024/03
6.	Preamplifier 30dB 500MHz-18GHz SCHWARZBECK BBV 9718 C	2021/02	2022/02
7.	Pre-amplifier G>30dB 18-40 GHz BONN ELEKTRONIK BLMA 1840-3G	2019/11	2021/11
8.	Hybrid Bilog Antenna 30MHz-6GHz ETS LINDGREN 3142E	2019/02	2022/02

Conducted Measurements

		Last Calibration	Due Calibration
1.	Shielded Room ALBATROSS PROJECTS GMBH P29419	N/A	N/A
2.	Spectrum Analyzer 9KHz-6GHz ROHDE AND SCHWARZ FSL6	2021/04	2023/04
3.	Vector Signal Generator 100KHz-6GHz ROHDE AND SCHWARZ SMU200A	2021/04	2023/04
4.	Signal Generator 9KHz-6GHz ROHDE AND SCHWARZ SMB100A	2019/10	2021/10
5.	Extension For Open Switch Unit to 40GHz ROHDE AND SCHAWARZ OPS-B157Wx	2021/03	2023/03
6.	Open Switch Unit Up To 6GHz ROHDE AND SCHWARZ OSP-B157W8	2021/03	2023/03
7.	Signal and Spectrum Analyzer 2Hz-50GHz ROHDE AND SCHWARZ FSW50	2021/07	2023/07
8.	Vector Signal Generator 100 KHz-6GHz ROHDE AND SCHWARZ SMU200A	2021/04	2023/04
9.	Signal Generator 9 KHz-6 GHz, ROHDE AND SCHWARZ SMB100A	2019/10	2021/10
10.	Open Switch and Control Platform ROHDE & SCHWARZ OSP-B157W8	2021/03	2023/03

Testing verdicts

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

Summary

A. Common requirements for all Bands:

FCC PART 15 PARAGRAPH / RSS-247 Requirement – Test case	Verdict	Remark
Transmitter. Duty Cycle	P	
Transmitter. 99% Occupied Bandwidth	P	
Transmitter. 26 dB Emission Bandwidth (EBW)	P	
Supplementary information and remarks: None.		

Appendix A: Test Common requirements for all Bands

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TEST CONDITIONS

(*) Declared by the Client.

POWER SUPPLY (*):

Vnominal:	110 Vac
Type of Power Supply:	AC/DC Adapter.

ANTENNA (*):

Type of Antennas: Integral (stamped metal).

Maximum Declared Antenna Gain WLAN1 U-NII-1:	+3.5 dBi
Maximum Declared Antenna Gain WLAN1 U-NII-2A:	+3.5 dBi
Maximum Declared Antenna Gain WLAN1 U-NII-2C:	+5.5 dBi
Maximum Declared Antenna Gain WLAN1 U-NII-3:	+5.2 dBi
Maximum Declared Antenna Gain WLAN2 U-NII-1:	+2.8 dBi
Maximum Declared Antenna Gain WLAN2 U-NII-2A:	+2.8 dBi
Maximum Declared Antenna Gain WLAN2 U-NII-2C:	+4.3 dBi
Maximum Declared Antenna Gain WLAN2 U-NII-3:	+4.9 dBi

Directional Antenna Gain Calculations for CDD MIMO:

U-NII-1:

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

$N_{SS} = 1$, $N_{ANT} = 2$, $G_{WLAN1} = +3.5$ dBi, $G_{WLAN2} = +2.8$ dBi

$$\text{Directional Gain} = 10\log\left[\frac{\sum_{j=1}^{N_{SS}}\left(\sum_{k=1}^{N_{ANT}} g_{j,k}\right)^2}{N_{ANT}}\right] = 10\log\left[\frac{\sum_{j=1}^{1}\left(\sum_{k=1}^{2} g_{j,k}\right)^2}{2}\right]$$

$$= 10\log\left[\frac{(g_{1,1}+g_{1,2})^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{G_1}{20}}+10^{\frac{G_2}{20}}\right)^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{2.8}{20}}+10^{\frac{3.5}{20}}\right)^2}{2}\right] = 6.17 \text{ dBi}$$

Maximum Declared Antenna Gain MIMO U-NII-1: +6.17 dBi

U-NII-2A:

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

$N_{ss} = 1$, $N_{ANT} = 2$, $G_{WLAN1} = +3.5$ dBi, $G_{WLAN2} = +2.8$ dBi

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

Directional Gain = +6.17 dBi

Maximum Declared Antenna Gain MIMO U-NII-2A: +6.17 dBi

U-NII-2C:

- For 2Tx CDD MIMO modes, in accordance with KDB 662911 D01 v02r01 Section F)2)f)(ii), directional gain was calculated as (the worst-case):

$N_{ss} = 1$, $N_{ANT} = 2$, $G_{WLAN1} = +5.5$ dBi, $G_{WLAN2} = +4.3$ dBi

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

Directional Gain = +7.93 dBi

Maximum Declared Antenna Gain MIMO U-NII-2C: +7.93 dBi

U-NII-3:

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

$N_{ss} = 1$, $N_{ANT} = 2$, $G_{WLAN1} = +5.2$ dBi, $G_{WLAN2} = +4.9$ dBi

$$\text{Directional Gain} = 10 \log \left[\frac{\sum_{j=1}^{N_{SS}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right] = 10 \log \left[\frac{\sum_{j=1}^{1} \left(\sum_{k=1}^{2} g_{j,k} \right)^2}{2} \right]$$

$$= 10 \log \left[\frac{(g_{1,1} + g_{1,2})^2}{2} \right] = 10 \log \left[\frac{\left(10^{\frac{G_1}{20}} + 10^{\frac{G_2}{20}} \right)^2}{2} \right] = 10 \log \left[\frac{\left(10^{\frac{4.9}{20}} + 10^{\frac{5.2}{20}} \right)^2}{2} \right] = 8.06 \text{ dBi}$$

Maximum Declared Antenna Gain MIMO U-NII-3: +8.06 dBi

TEST FREQUENCIES (*):

Band U-NII-1:

Technology Tested:	WLAN (IEEE 802.11 a20 / n2040 / ac204080 / ax204080 2x2)	
Modes:	802.11a: 6, 9, 12, 18, 24, 36, 48 & 54 Mbps (SISO, or MIMO with CDD)	
	802.11n HT20: MCS0 to MCS23 (1 or 2 spatial stream with either SISO or 2 chain MIMO CDD)	
	802.11n HT40: MCS0 to MCS23 (1 or 2 spatial stream with either SISO or 2 chain MIMO CDD)	
	802.11ac VHT20: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ac VHT40: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ac VHT80: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE20: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE40: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE80: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
Setting of cores / ports:	WLAN1, WLAN2, WLAN12	
Beamforming:	No.	
Frequency Range:	5150 - 5250 MHz	
Operating Channel Bandwidth:	20 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Low (36)	5180
	Middle (40)	5200
	44	5220
	High (48)	5240
Operating Channel Bandwidth:	40 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Low (38)	5190
	High (46)	5230
Operating Channel Bandwidth:	80 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Single (42)	5210

Band U-NII-2A:

Technology Tested:	WLAN (IEEE 802.11 a20 / n2040 / ac204080 / ax204080 2x2) / U-NII-2A	
Modes:	802.11a: 6, 9, 12, 18, 24, 36, 48 & 54 Mbps (SISO, MIMO with CDD)	
	802.11n HT20: MCS0 to MCS23 (1 or 2 spatial stream with either SISO or 2 chain MIMO CDD)	
	802.11n HT40: MCS0 to MCS23 (1 or 2 spatial stream with either SISO or 2 chain MIMO CDD)	
	802.11ac VHT20: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ac VHT40: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ac VHT80: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE20: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE40: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE80: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
Setting of cores / ports:	WLAN1, WLAN2, WLAN12	
Beamforming:	No.	
Frequency Range:	5250 - 5350 MHz	
Operating Channel Bandwidth:	20 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Low: 52	5260
	Middle: 56	5280
	High-1: 60	5300
	High: 64	5320
Operating Channel Bandwidth:	40 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Low: 54	5270
	High: 62	5310
Operating Channel Bandwidth:	80 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Single: 58	5290

Band U-NII-2C:

Technology Tested:	WLAN (IEEE 802.11 a20 / n2040 / ac204080 / ax204080 2x2) / U-NII-2C	
Modes:	802.11a: 6, 9, 12, 18, 24, 36, 48 & 54 Mbps (SISO, MIMO with CDD)	
	802.11n HT20: MCS0 to MCS23 (1 or 2 spatial stream with either SISO or 2 chain MIMO CDD)	
	802.11n HT40: MCS0 to MCS23 (1 or 2 spatial stream with either SISO or 2 chain MIMO CDD)	
	802.11ac VHT20: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ac VHT40: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ac VHT80: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE20: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE40: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE80: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
Setting of cores / ports:	WLAN1, WLAN2, WLAN12	
Beamforming:	No.	
Frequency Range:	5470 - 5725 MHz	
Operating Channel Bandwidth:	20 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Low: 100	5500
	Low+1: 104	5520
	Middle-1: 116	5580
	High: 140	5700
Straddle Channel U-NII-2C / U-NII-3	Straddle:144	5720
Operating Channel Bandwidth:	40 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Low: 102	5510
	Low+1: 110	5550
	Middle: 118 (**)	5590
	High: 134	5670
Straddle Channel U-NII-2C / U-NII-3	Straddle:142	5710
Operating Channel Bandwidth:	80 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Low: 106	5530
	High: 122 (**)	5610
Straddle Channel U-NII-2C / U-NII-3	Straddle:138	5690

(**): Channel not allowed in Canada.

Band U-NII-3:

Technology Tested:	WLAN (IEEE 802.11 a20 / n2040 / ac204080 / ax204080 2x2)	
Modes:	802.11a: 6, 9, 12, 18, 24, 36, 48 & 54 Mbps (SISO, or MIMO with CDD)	
	802.11n HT20: MCS0 to MCS23 (1 or 2 spatial stream with either SISO or 2 chain MIMO CDD)	
	802.11n HT40: MCS0 to MCS23 (1 or 2 spatial stream with either SISO or 2 chain MIMO CDD)	
	802.11ac VHT20: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ac VHT40: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ac VHT80: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE20: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE40: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
	802.11ax HE80: MCS0 to MCS9 (1 or 2 spatial stream) (SISO, or MIMO with CDD without TxBF)	
Setting of cores / ports:	WLAN1, WLAN2, WLAN12	
Beamforming:	No.	
Frequency Range:	5725 MHz to 5850 MHz	
Operating Channel Bandwidth:	20 MHz	
Transmission Channels:	Channel	Channel Frequency (MHz)
	Low (149)	5745
	153	5765
	Middle (157)	5785
	161	5805
	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

POWER SETTINGS (*):

U-NII-1. FCC:

WLAN1

Channel	Frequency	11a	11n	11ac	11he
36	5180 MHz	24.5	24.5	24.5	24.5
40	5200 MHz	27	26.5	27	25
44	5220 MHz	30	25	29	25
48	5240 MHz	30	25	28.5	25.5
38	5190 MHz		19	18	18,5
46	5230 MHz		23.5	24.5	24.5
42	5210 MHz			19	19

WLAN2

Channel	Frequency	11a	11n	11ac	11he
36	5180 MHz	24	24	24	24
40	5200 MHz	27	27	27	26.5
44	5220 MHz	28	28	28	28
48	5240 MHz	30	30	30	30
38	5190 MHz		17	17.5	18
46	5230 MHz		25	25.5	25.5
42	5210 MHz			18	18

WLAN12

Channel	Frequency	11a	11n	11ac	11he
36	5180 MHz	24	24	24	24
40	5200 MHz	27	27	27	26.5
44	5220 MHz	28	28	28	28
48	5240 MHz	30	30	30	30
38	5190 MHz		17	17.5	18
46	5230 MHz		25	25.5	25.5
42	5210 MHz			18	18

U-NII-1. IC:

WLAN1

Channel	Frequency	11a	11n	11ac	11he
36	5180 MHz	18.5	18.5	18.5	18.5
40	5200 MHz	18.5	18.5	18.5	18.5
44	5220 MHz	18.5	18.5	18.5	18.5
48	5240 MHz	18.5	18.5	18.5	18.5
38	5190 MHz		19	18	18.5
46	5230 MHz		18.5	19.5	18.5
42	5210 MHz			19	19

WLAN2

Channel	Frequency	11a	11n	11ac	11he
36	5180 MHz	18.5	18.5	18.5	18.5
40	5200 MHz	18.5	18.5	18.5	18.5
44	5220 MHz	18.5	18.5	18.5	18.5
48	5240 MHz	18.5	18.5	18.5	18.5
38	5190 MHz		17	17.5	18
46	5230 MHz		19	19	19.5
42	5210 MHz			18	18.5

WLAN12

Channel	Frequency	11a	11n	11ac	11he
36	5180 MHz	12.5	13	13	13
40	5200 MHz	12.5	13	13	13
44	5220 MHz	12.5	13	13	13
48	5240 MHz	12.5	13	13	13
38	5190 MHz		12	12.5	13
46	5230 MHz		12	12.5	13
42	5210 MHz			12.5	12.5

U-NII-2A. FCC and IC:

WLAN1

Channel	Frequency	11a	11n	11ac	11ax
52	5260 MHz	22.5	24	23	23.5
56	5280 MHz	22.5	24	23	23.5
60	5300 MHz	22	24	23	23.5
64	5320 MHz	22.5	24	23.5	24
54	5270 MHz		22.5	22.5	23
62	5310 MHz		21.5	21.5	21.5
58	5290 MHz			21.5	21.5

WLAN2

Channel	Frequency	11a	11n	11ac	11ax
52	5260 MHz	23	23.5	23.5	23.5
56	5280 MHz	23	23.5	23	23.5
60	5300 MHz	23	23.5	23.5	23.5
64	5320 MHz	23	23.5	23	23.5
54	5270 MHz		22.5	22	18.5
62	5310 MHz		18.5	18.5	18.5
58	5290 MHz			19	19

WLAN12

Channel	Frequency	11a	11n	11ac	11ax
52	5260 MHz	19.5	20	20	20.5
56	5280 MHz	19.5	20	20	20
60	5300 MHz	19	20	20	20.5
64	5320 MHz	19	19.5	20	20.5
54	5270 MHz		19	19	19.5
62	5310 MHz		19	19	19.5
58	5290 MHz			19	19

U-NII-2C. FCC and IC:

WLAN1

Channel	Frequency	11a	11n	11ac	11ax
100	5500 MHz	24	24	24	24
104	5520 MHz	24	24	24	24
116	5580 MHz	24	24	24	24
140	5700 MHz	22	22.5	22.5	22
144	5720 MHz	24	24	24	25
102	5510 MHz		23.5	23.5	24
110	5550 MHz		24	23.5	24
118 (*)	5590 MHz		23	23	23.5
134	5670 MHz		22.5	22.5	22
142	5710 MHz		24	24	24
106	5530 MHz			23.5	24
122 (*)	5610 MHz			23	23
138	5690 MHz			24	24

WLAN2

Channel	Frequency	11a	11n	11ac	11ax
100	5500 MHz	22.5	23.5	23.5	23.5
104	5520 MHz	23	23.5	23.5	24
116	5580 MHz	22	22.5	23	23
140	5700 MHz	20	22.5	22.5	21
144	5720 MHz	23	23.5	23.5	24
102	5510 MHz		17.5	18	18.5
110	5550 MHz		23	23	23.5
118 (*)	5590 MHz		23	22	23
134	5670 MHz		22	21.5	21
142	5710 MHz		22.5	22.5	23
106	5530 MHz			19.5	19
122 (*)	5610 MHz			22	22
138	5690 MHz			23	23

WLAN12

Channel	Frequency	11a	11n	11ac	11ax
100	5500 MHz	18	18.5	18.5	18.5
104	5520 MHz	18	18.5	19	18.5
116	5580 MHz	18.5	18.5	19	18
140	5700 MHz	18	18.5	19	19
144	5720 MHz	18.5	19	19	19
102	5510 MHz		17.5	17.5	18
110	5550 MHz		18	18	18.5
118 (**)	5590 MHz		18	18	18.5
134	5670 MHz		17.5	17.5	18
142	5710 MHz		18	18	18.5
106	5530 MHz			18.5	18.5
122 (**)	5610 MHz			18.5	18.5
138	5690 MHz			18.5	18.5

(**): Channel not allowed in Canada.

U-NII-3. FCC and IC:

WLAN1

Channel	Frequency	11a	11n	11ac	11he
149	5745 MHz	25	26	22	25.5
153	5765 MHz	25	23	18	24
157	5785 MHz	27	24	26	30
161	5805 MHz	21	23	21.5	20.5
165	5825 MHz	21	24.5	21.5	21
151	5755 MHz		16.5	17	16.5
159	5795 MHz		22	24	23
155	5775 MHz			17	17.5

WLAN2

Channel	Frequency	11a	11n	11ac	11he
149	5745 MHz	29	30	28	30
153	5765 MHz	30	30	30	30
157	5785 MHz	30	30	30	30
161	5805 MHz	30	30	30	30
165	5825 MHz	27.5	26.5	27	27.5
151	5755 MHz		26	26	26.5
159	5795 MHz		26	26	26.5
155	5775 MHz			21.5	21.5

WLAN12

Channel	Frequency	11a	11n	11ac	11he
149	5745 MHz	24	25.5	25	25.5
153	5765 MHz	25	24	25	24
157	5785 MHz	25	24	25	25.5
161	5805 MHz	24.5	20	25	18.5
165	5825 MHz	24	25	25	20
151	5755 MHz		13	17	14
159	5795 MHz		18	24	24
155	5775 MHz			19	18.5

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:

- 802.11a:	6 Mbps SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11n HT20:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11n HT40:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ac VHT20:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ac VHT40:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ac VHT80:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ax HE20:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ax HE40:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ax HE80:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12

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:

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-18 GHz Double ridge horn antenna is situated at a distance of 3 m and a distance of 1 m for the frequency range 17 GHz-40 GHz (18 GHz-40 GHz horn antenna).

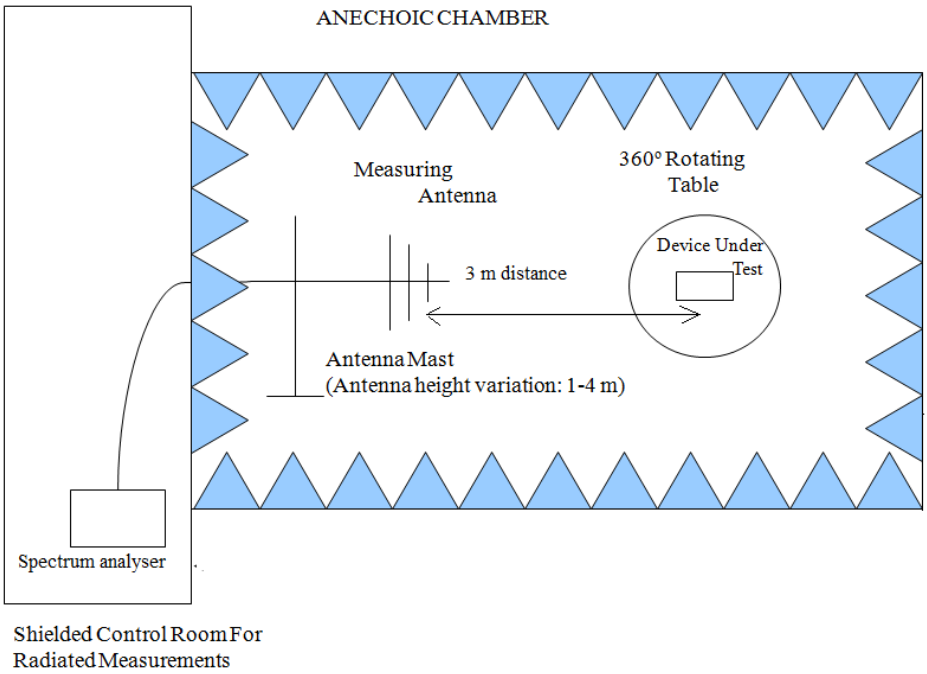
For radiated emissions in the range 17 GHz-40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

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.

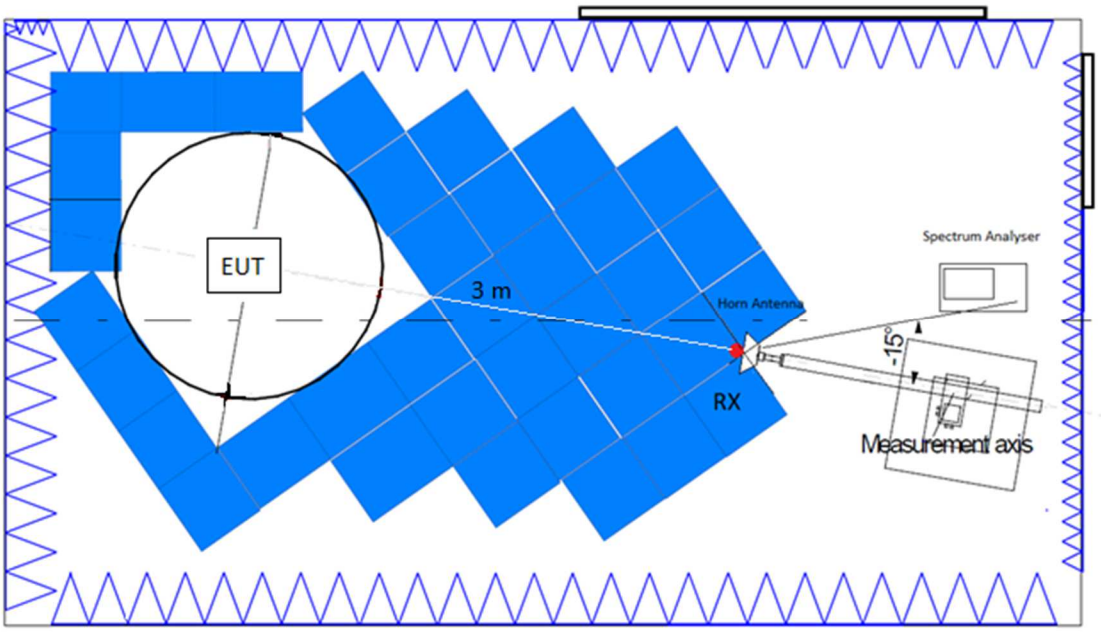
Measurements were made in both horizontal and vertical planes of polarization.

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

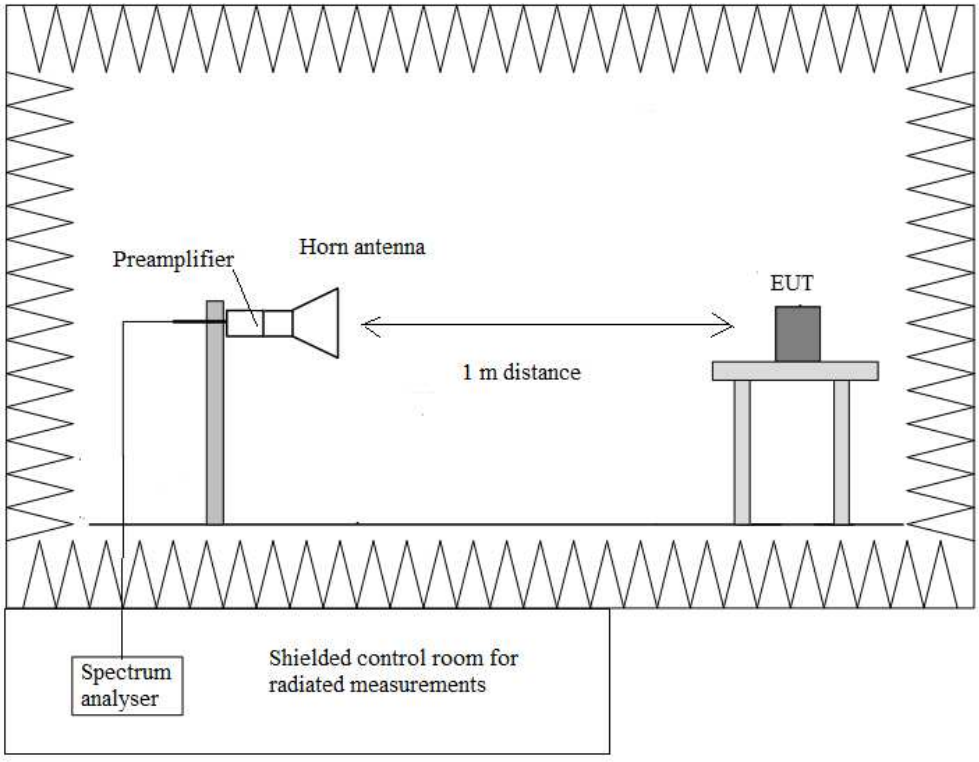
Radiated measurements setup f < 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup f > 17 GHz:



Transmitter. Duty Cycle

SPECIFICATION:

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:

These results are for modes with data rates with a Duty Cycle < 98%. The rest of modes with a Duty Cycle > 98%.

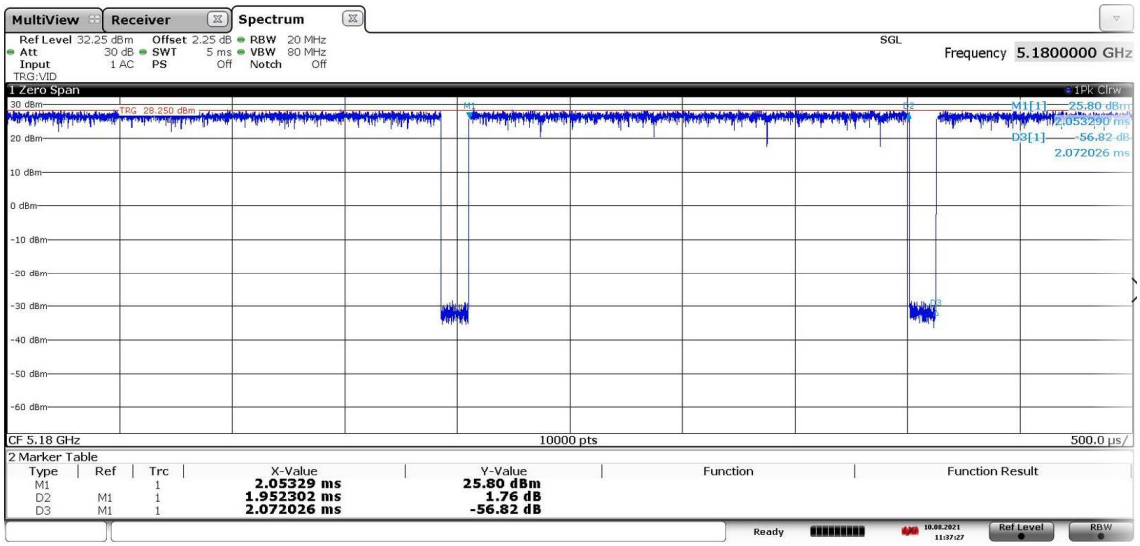
- Preliminary tests determined the SISO worst-case: WLAN1.
- Preliminary tests determined the MIMO worst-case: WLAN12.

Band	Technique	Mode	Pulse (ms)	Period (ms)	Duty Cycle Correction (dB)
U-NII-1	SISO WLAN1	802.11 a / 20 MHz	1.952302	2.072026	0.26
U-NII-2A	SISO WLAN1	802.11 a / 20 MHz	1.952302	2.072026	0.26
U-NII-2C	SISO WLAN1	802.11 a / 20 MHz	1.952302	2.072026	0.26
U-NII-3	SISO WLAN1	802.11 a / 20 MHz	1.952302	2.072026	0.26
U-NII-1	SISO WLAN1	802.11 n / 20 MHz	5.39897	5.65576	0.20
U-NII-2A	SISO WLAN1	802.11 n / 20 MHz	5.39897	5.65576	0.20
U-NII-2C	SISO WLAN1	802.11 n / 20 MHz	5.39897	5.65576	0.20
U-NII-3	SISO WLAN1	802.11 n / 20 MHz	5.39897	5.65576	0.20
U-NII-1	SISO WLAN1	802.11 ac / 20 MHz	5.39797	5.65576	0.20
U-NII-2A	SISO WLAN1	802.11 ac / 20 MHz	5.39797	5.65576	0.20
U-NII-2C	SISO WLAN1	802.11 ac / 20 MHz	5.39797	5.65576	0.20
U-NII-3	SISO WLAN1	802.11 ac / 20 MHz	5.39797	5.65576	0.20
U-NII-1	SISO WLAN1	802.11 he / 20 MHz	5.42431	5.82405	0.31
U-NII-2A	SISO WLAN1	802.11 he / 20 MHz	5.42431	5.82405	0.31
U-NII-2C	SISO WLAN1	802.11 he / 20 MHz	5.42431	5.82405	0.31
U-NII-3	SISO WLAN1	802.11 he / 20 MHz	5.42431	5.82405	0.31
U-NII-1	SISO WLAN1	802.11 n / 40 MHz	10.82194	12.38243	0.59
U-NII-2A	SISO WLAN1	802.11 n / 40 MHz	10.82194	12.38243	0.59
U-NII-2C	SISO WLAN1	802.11 n / 40 MHz	10.82194	12.38243	0.59
U-NII-3	SISO WLAN1	802.11 n / 40 MHz	10.82194	12.38243	0.59
U-NII-1	SISO WLAN1	802.11 ac / 40 MHz	10.82104	12.39979	0.59
U-NII-2A	SISO WLAN1	802.11 ac / 40 MHz	10.82104	12.39979	0.59
U-NII-2C	SISO WLAN1	802.11 ac / 40 MHz	10.82104	12.39979	0.59
U-NII-3	SISO WLAN1	802.11 ac / 40 MHz	10.82104	12.39979	0.59
U-NII-1	SISO WLAN1	802.11 he / 40 MHz	10.82997	11.48826	0.26
U-NII-2A	SISO WLAN1	802.11 he / 40 MHz	10.82997	11.48826	0.26
U-NII-2C	SISO WLAN1	802.11 he / 40 MHz	10.82997	11.48826	0.26
U-NII-3	SISO WLAN1	802.11 he / 40 MHz	10.82997	11.48826	0.26
U-NII-1	SISO WLAN1	802.11 ac / 80 MHz	5.41339	5.64129	0.18
U-NII-2A	SISO WLAN1	802.11 ac / 80 MHz	5.41339	5.64129	0.18
U-NII-2C	SISO WLAN1	802.11 ac / 80 MHz	5.41339	5.64129	0.18
U-NII-3	SISO WLAN1	802.11 ac / 80 MHz	5.41339	5.64129	0.18
U-NII-1	SISO WLAN1	802.11 he / 80 MHz	5.43454	5.74513	0.24
U-NII-2A	SISO WLAN1	802.11 he / 80 MHz	5.43454	5.74513	0.24
U-NII-2C	SISO WLAN1	802.11 he / 80 MHz	5.43454	5.74513	0.24
U-NII-3	SISO WLAN1	802.11 he / 80 MHz	5.43454	5.74513	0.24
U-NII-1	MIMO WLAN12	802.11 a / 20 MHz (**)	1.9692	2.0968	0.27

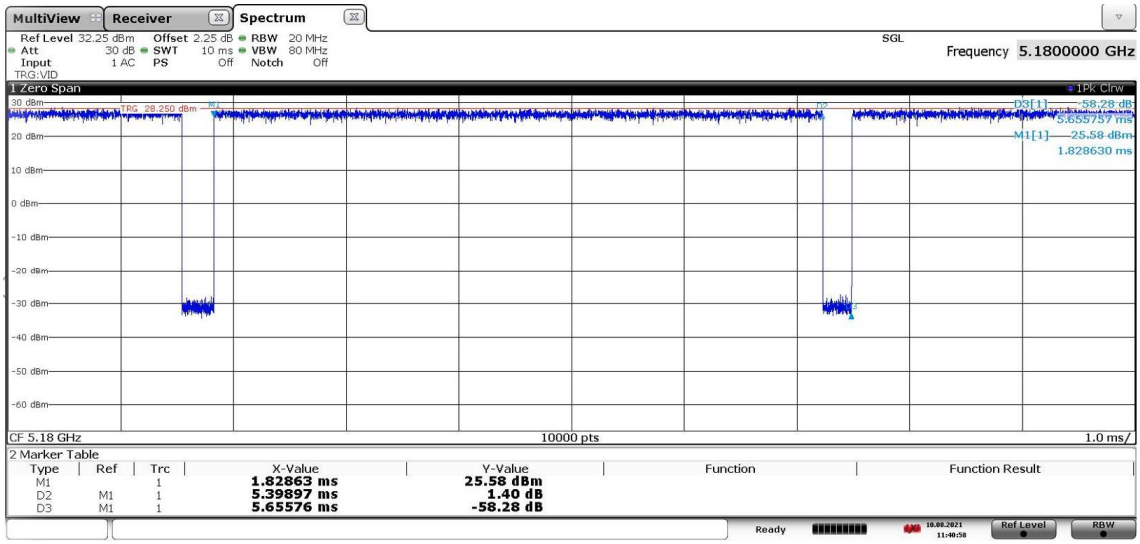
U-NII-2A	MIMO WLAN12	802.11 a / 20 MHz (**)	1.9692	2.0968	0.27
U-NII-2C	MIMO WLAN12	802.11 a / 20 MHz (**)	1.9692	2.0968	0.27
U-NII-3	MIMO WLAN12	802.11 a / 20 MHz (**)	1.9692	2.0968	0.27
U-NII-1	MIMO WLAN12	802.11 n / 20 MHz	10.8093	11.9183	0.42
U-NII-2A	MIMO WLAN12	802.11 n / 20 MHz	10.8093	11.9183	0.42
U-NII-2C	MIMO WLAN12	802.11 n / 20 MHz	10.8093	11.9183	0.42
U-NII-3	MIMO WLAN12	802.11 n / 20 MHz	10.8093	11.9183	0.42
U-NII-1	MIMO WLAN12	802.11 ac / 20 MHz	10.8847	11.9366	0.40
U-NII-2A	MIMO WLAN12	802.11 ac / 20 MHz	10.8847	11.9366	0.40
U-NII-2C	MIMO WLAN12	802.11 ac / 20 MHz	10.8847	11.9366	0.40
U-NII-3	MIMO WLAN12	802.11 ac / 20 MHz	10.8847	11.9366	0.40
U-NII-1	MIMO WLAN12	802.11 he / 20 MHz	10.9162	12.2746	0.51
U-NII-2A	MIMO WLAN12	802.11 he / 20 MHz	10.9162	12.2746	0.51
U-NII-2C	MIMO WLAN12	802.11 he / 20 MHz	10.9162	12.2746	0.51
U-NII-3	MIMO WLAN12	802.11 he / 20 MHz	10.9162	12.2746	0.51
U-NII-1	MIMO WLAN12	802.11 n / 40 MHz	10.8457	12.3964	0.58
U-NII-2A	MIMO WLAN12	802.11 n / 40 MHz	10.8457	12.3964	0.58
U-NII-2C	MIMO WLAN12	802.11 n / 40 MHz	10.8457	12.3964	0.58
U-NII-3	MIMO WLAN12	802.11 n / 40 MHz	10.8457	12.3964	0.58
U-NII-1	MIMO WLAN12	802.11 ac / 40 MHz	10.8259	12.4307	0.60
U-NII-2A	MIMO WLAN12	802.11 ac / 40 MHz	10.8259	12.4307	0.60
U-NII-2C	MIMO WLAN12	802.11 ac / 40 MHz	10.8259	12.4307	0.60
U-NII-3	MIMO WLAN12	802.11 ac / 40 MHz	10.8259	12.4307	0.60
U-NII-1	MIMO WLAN12	802.11 he / 40 MHz	10.9003	12.015	0.42
U-NII-2A	MIMO WLAN12	802.11 he / 40 MHz	10.9003	12.015	0.42
U-NII-2C	MIMO WLAN12	802.11 he / 40 MHz	10.9003	12.015	0.42
U-NII-3	MIMO WLAN12	802.11 he / 40 MHz	10.9003	12.015	0.42
U-NII-1	MIMO WLAN12	802.11 ac / 80 MHz	5.4355	5.6453	0.16
U-NII-2A	MIMO WLAN12	802.11 ac / 80 MHz	5.4355	5.6453	0.16
U-NII-2C	MIMO WLAN12	802.11 ac / 80 MHz	5.4355	5.6453	0.16
U-NII-3	MIMO WLAN12	802.11 ac / 80 MHz	5.4355	5.6453	0.16
U-NII-1	MIMO WLAN12	802.11 he / 80 MHz	10.8447	12.2288	0.52
U-NII-2A	MIMO WLAN12	802.11 he / 80 MHz	10.8447	12.2288	0.52
U-NII-2C	MIMO WLAN12	802.11 he / 80 MHz	10.8447	12.2288	0.52
U-NII-3	MIMO WLAN12	802.11 he / 80 MHz	10.8447	12.2288	0.52

SISO worst-case:

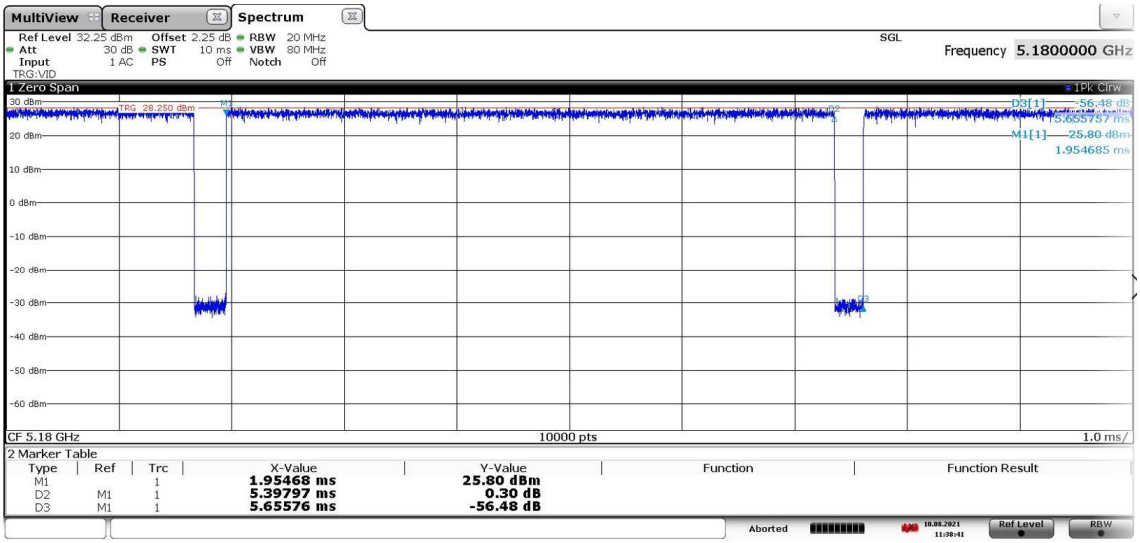
SISO 802.11 a20:



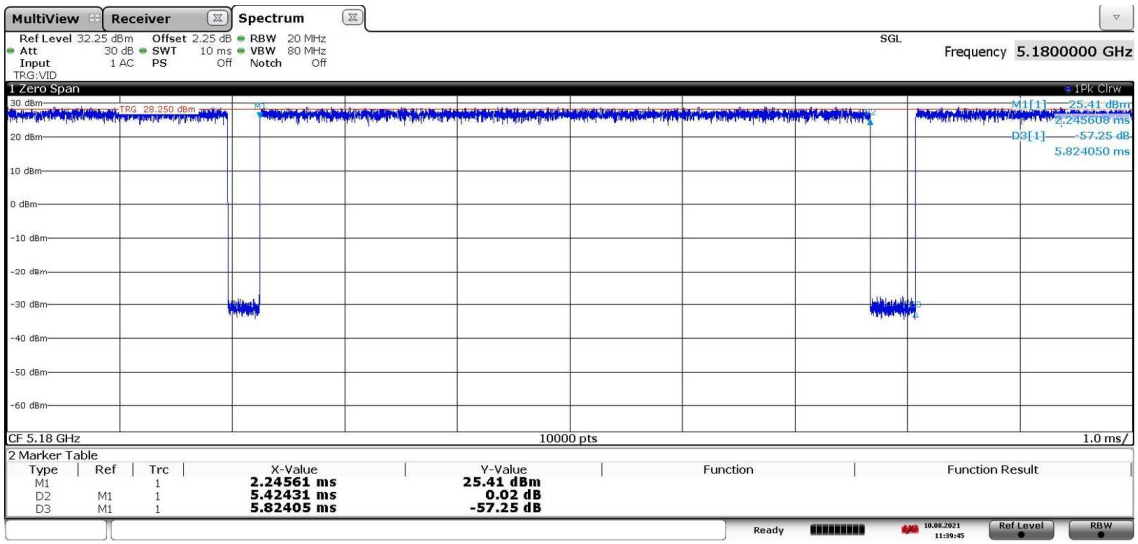
SISO 802.11 n20:



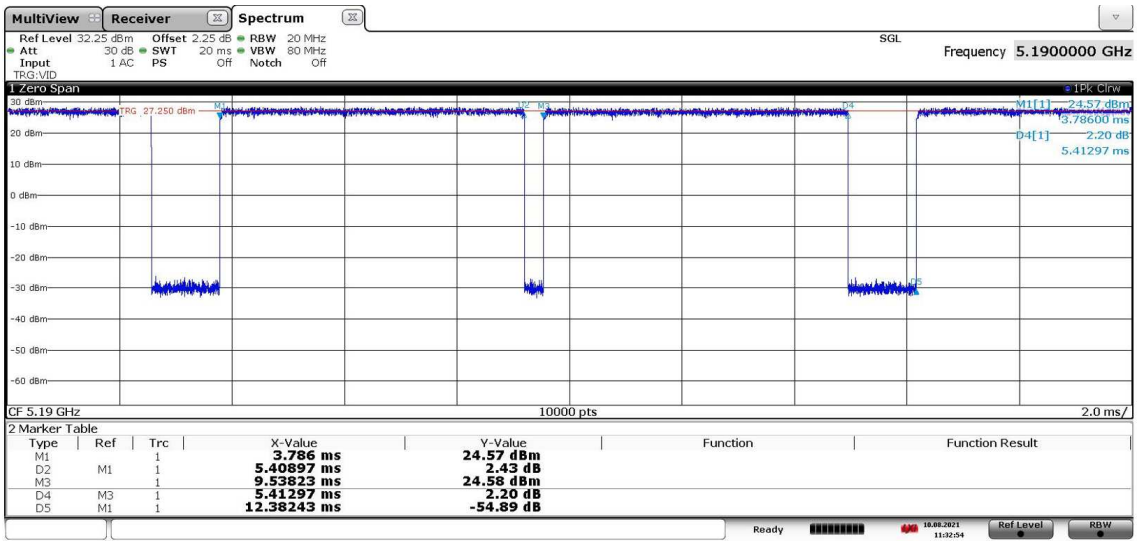
SISO 802.11 ac20:



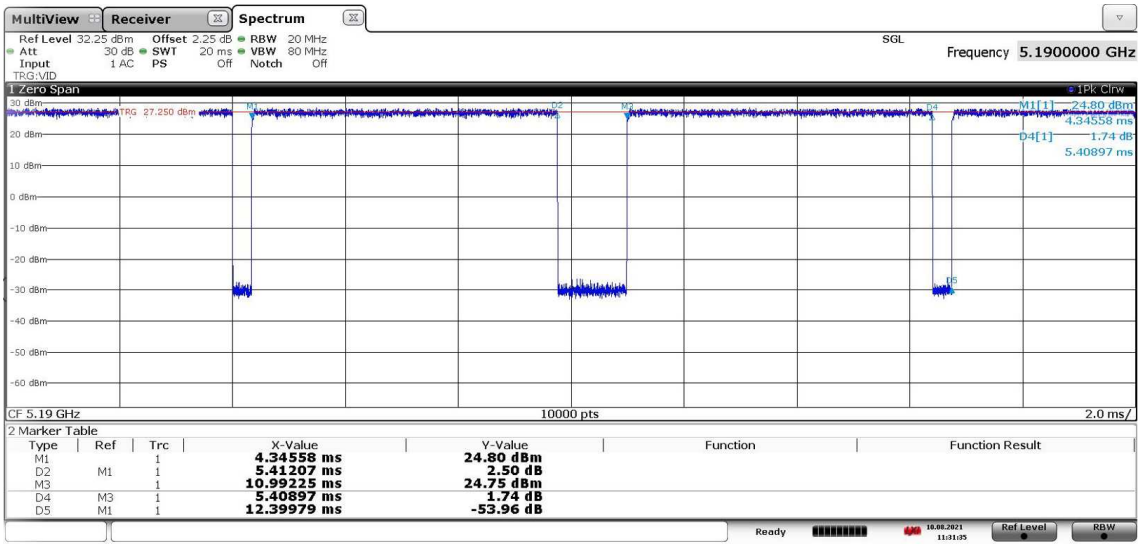
SISO 802.11 he20:



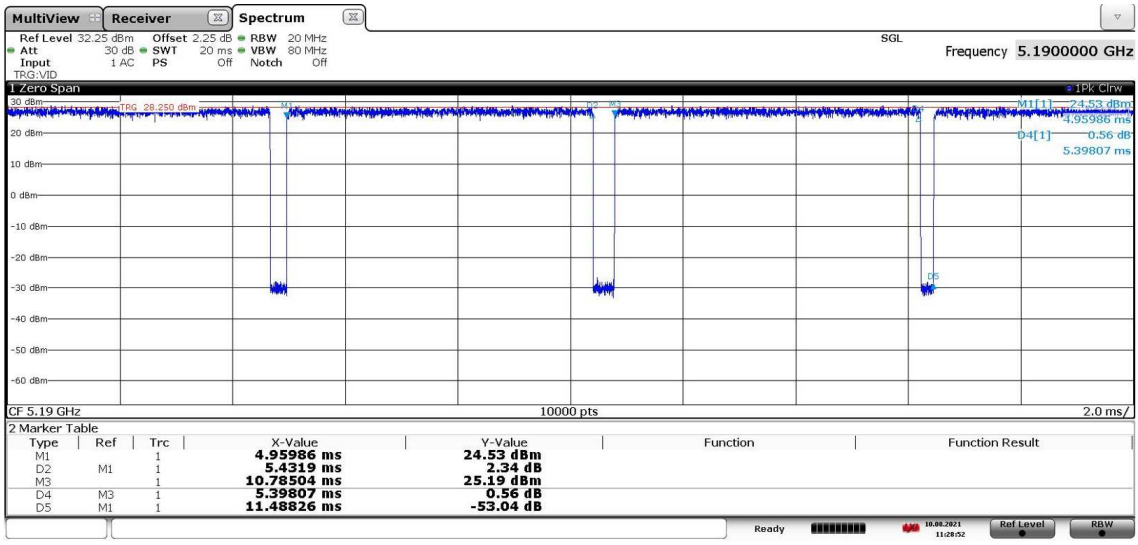
SISO 802.11 n40:



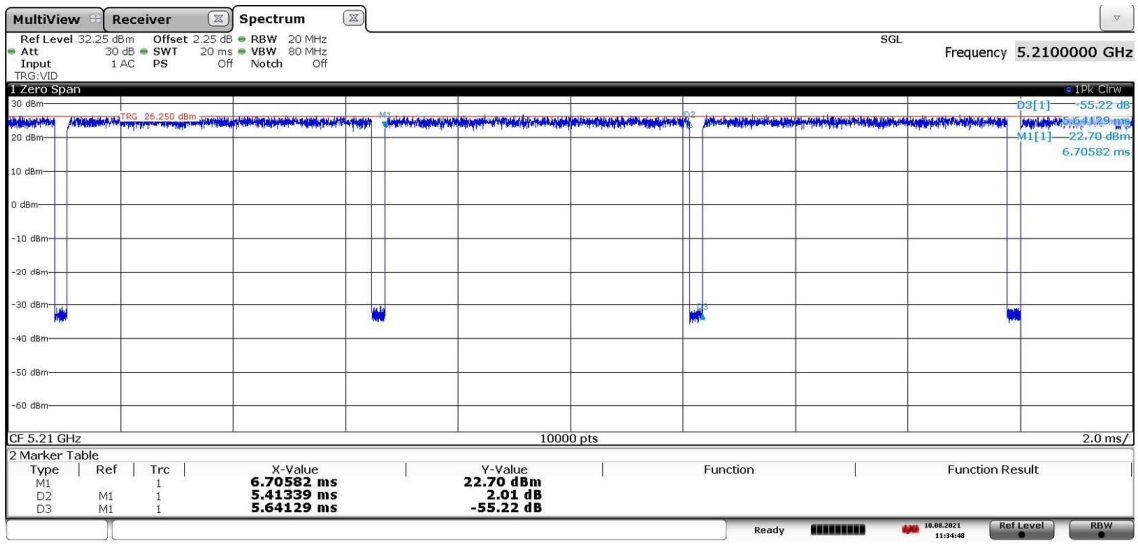
SISO 802.11 ac40:



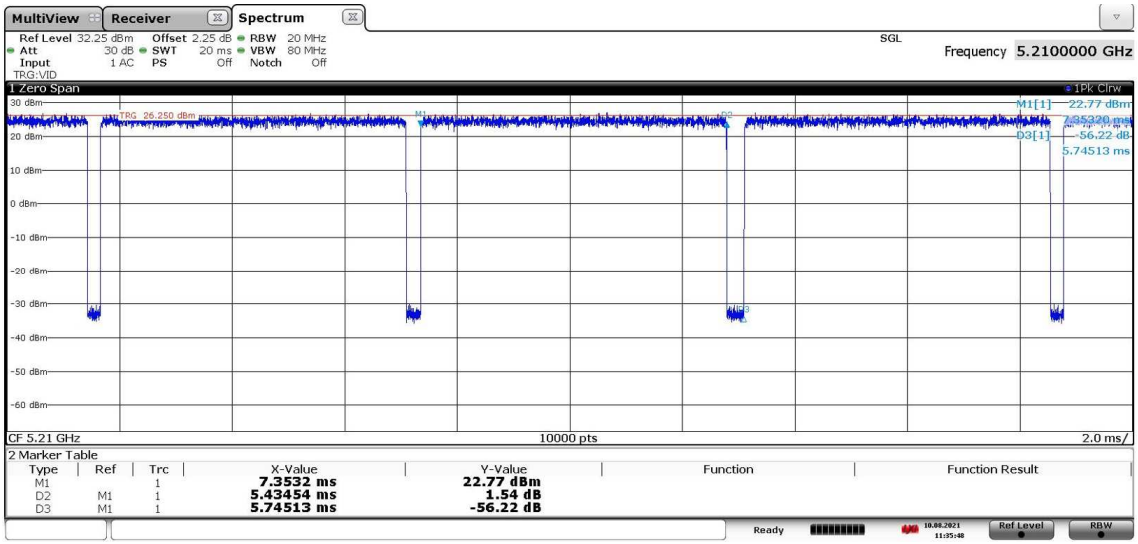
SISO 802.11 he40:



SISO 802.11 ac80:

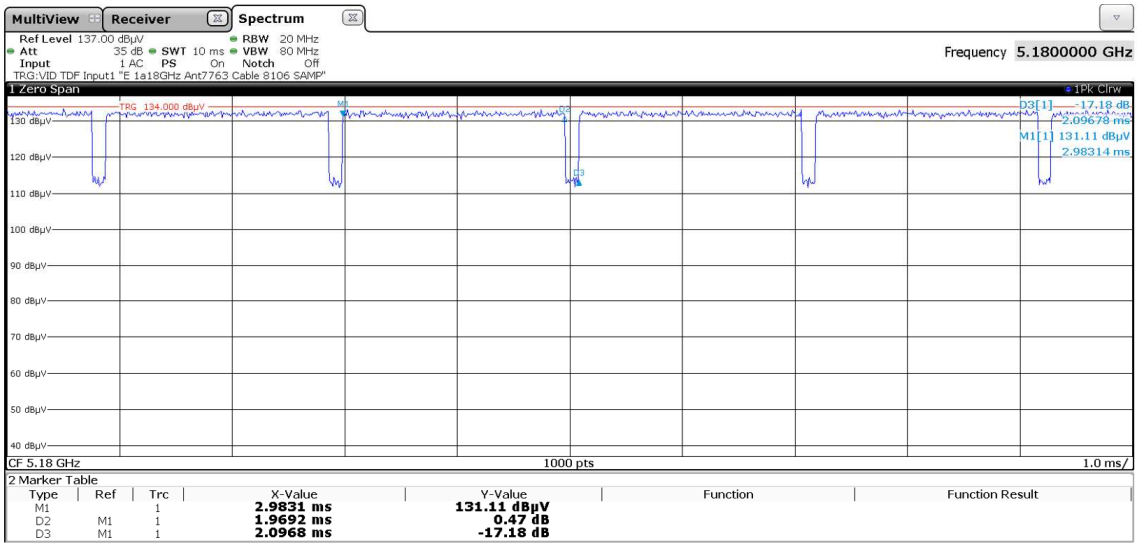


SISO 802.11 he80:

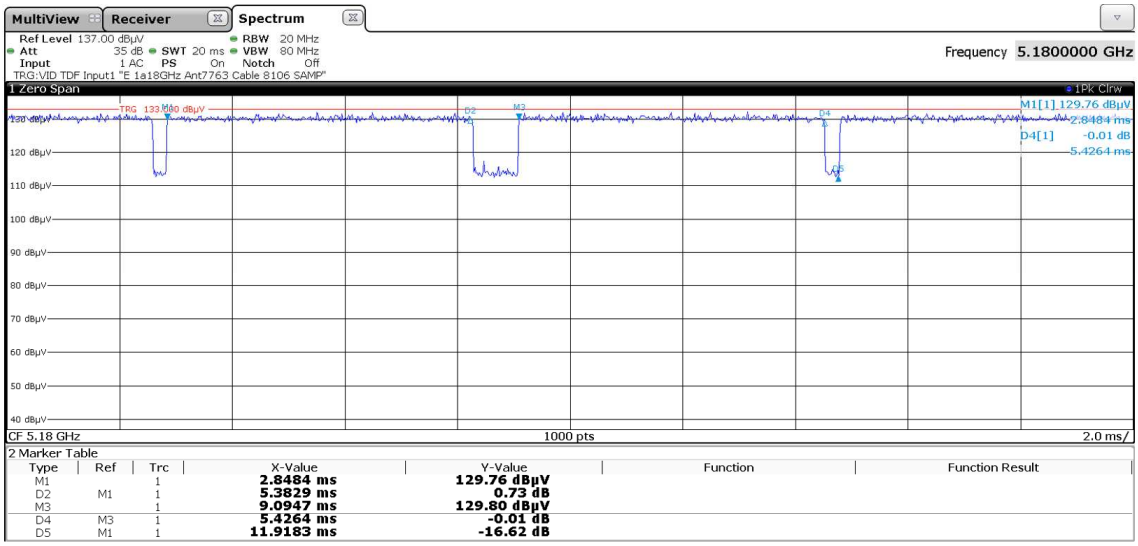


MIMO worst-case:

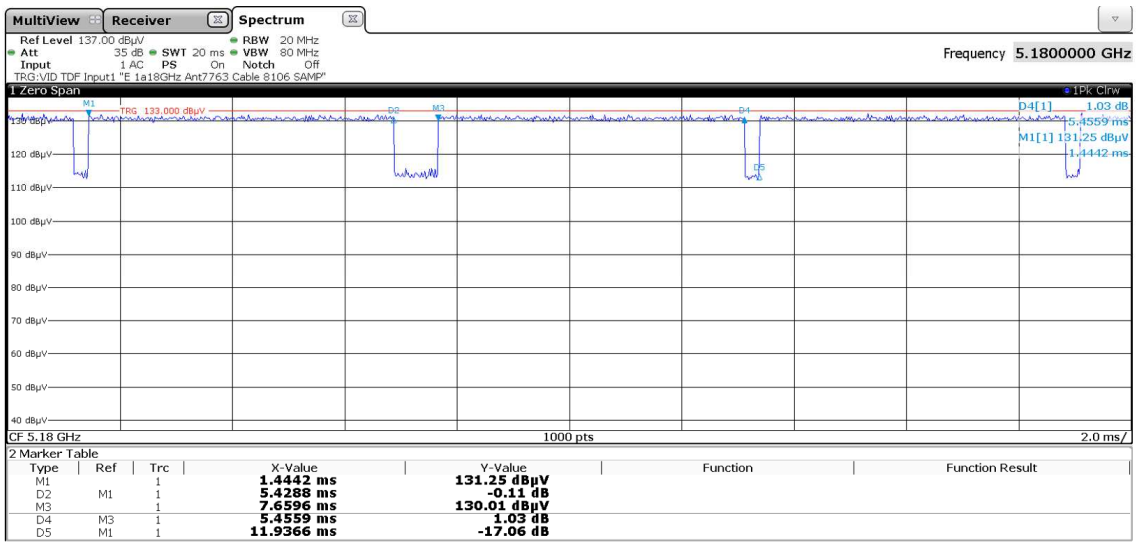
MIMO 802.11 a20:



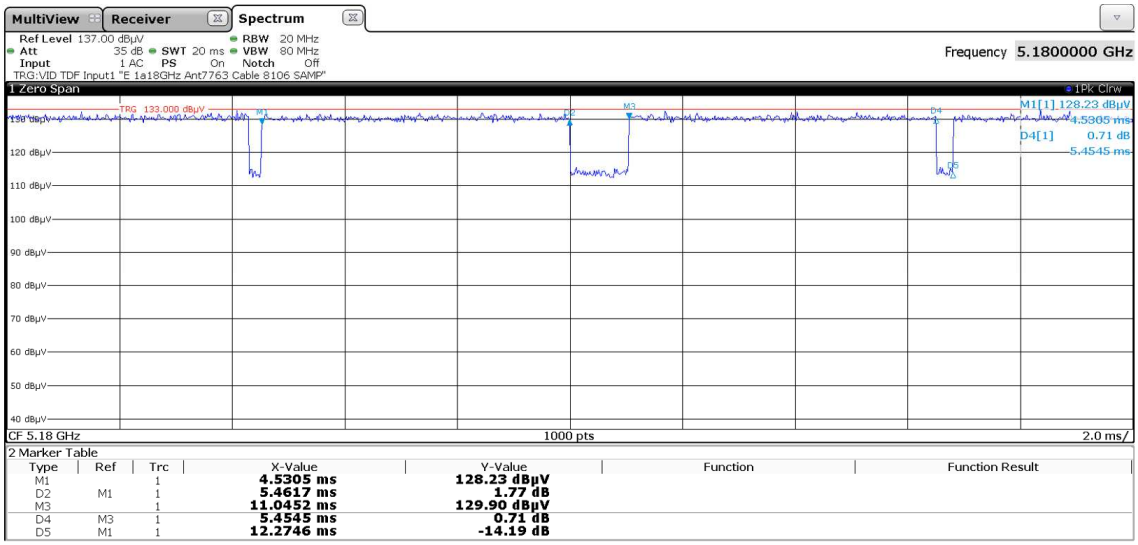
MIMO 802.11 n20:



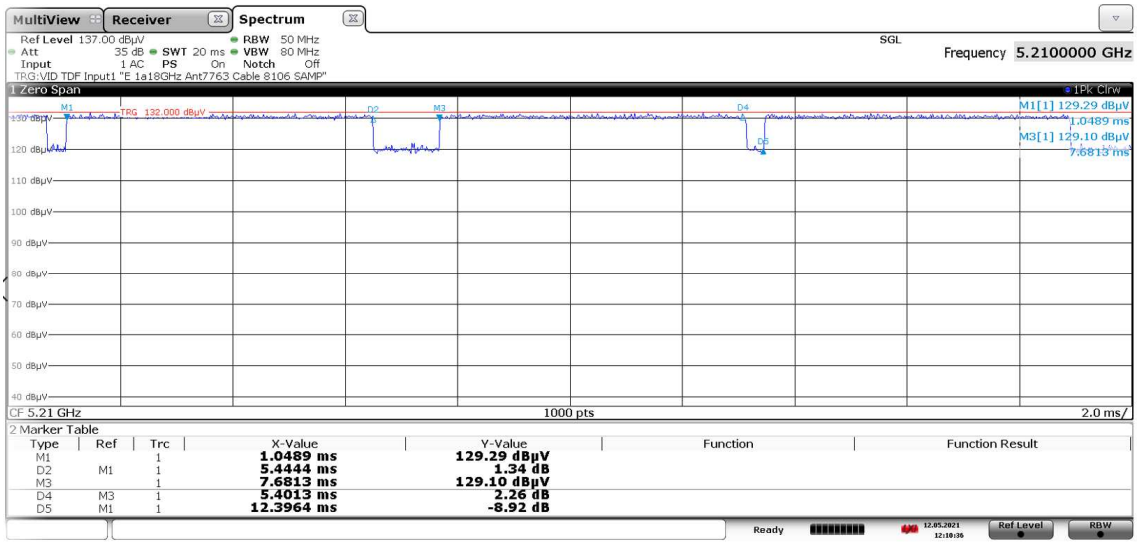
MIMO 802.11 ac20:



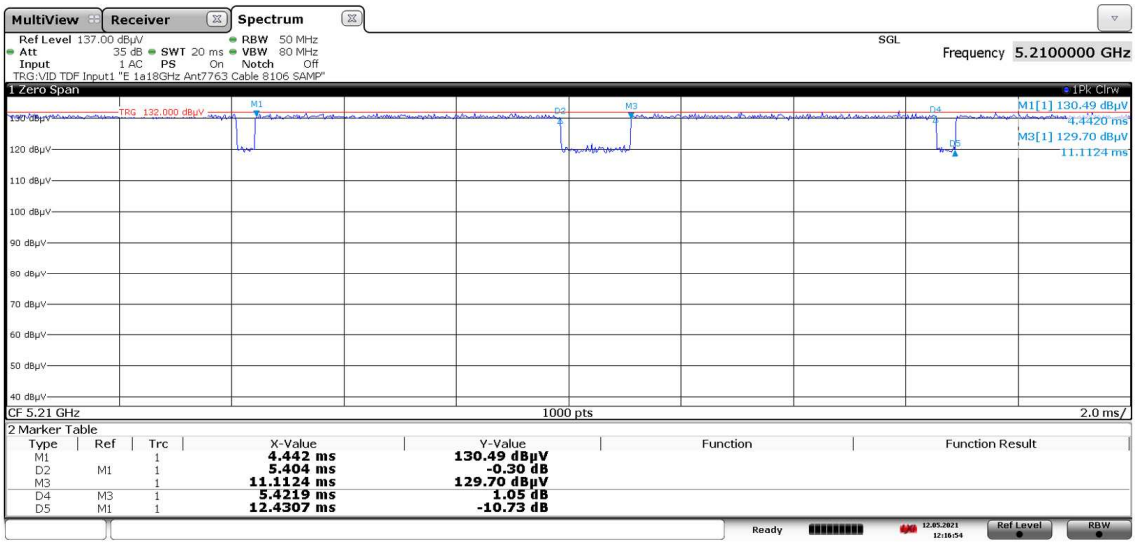
MIMO 802.11 he20:



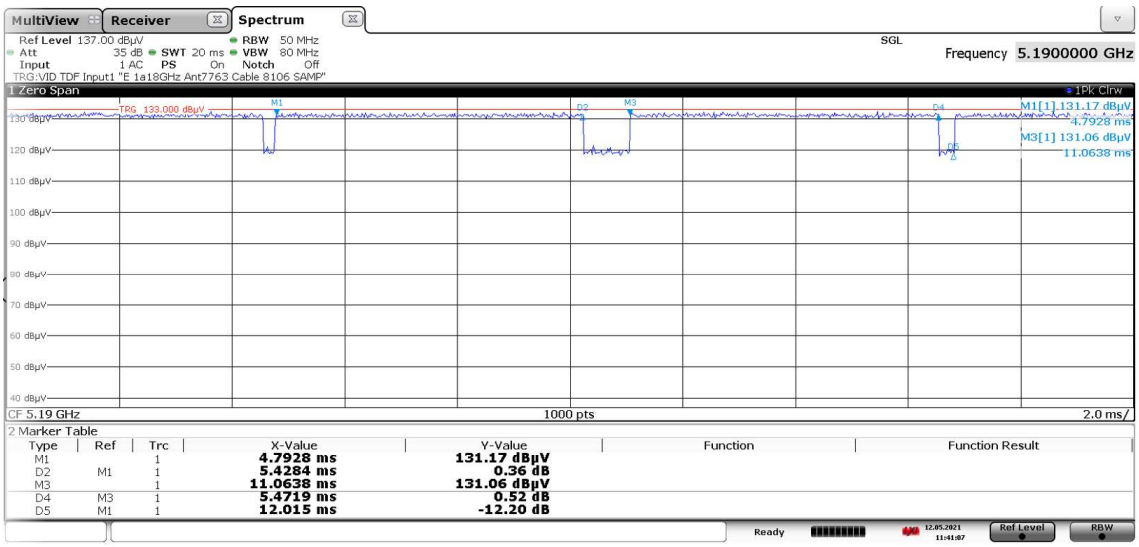
MIMO 802.11 n40:



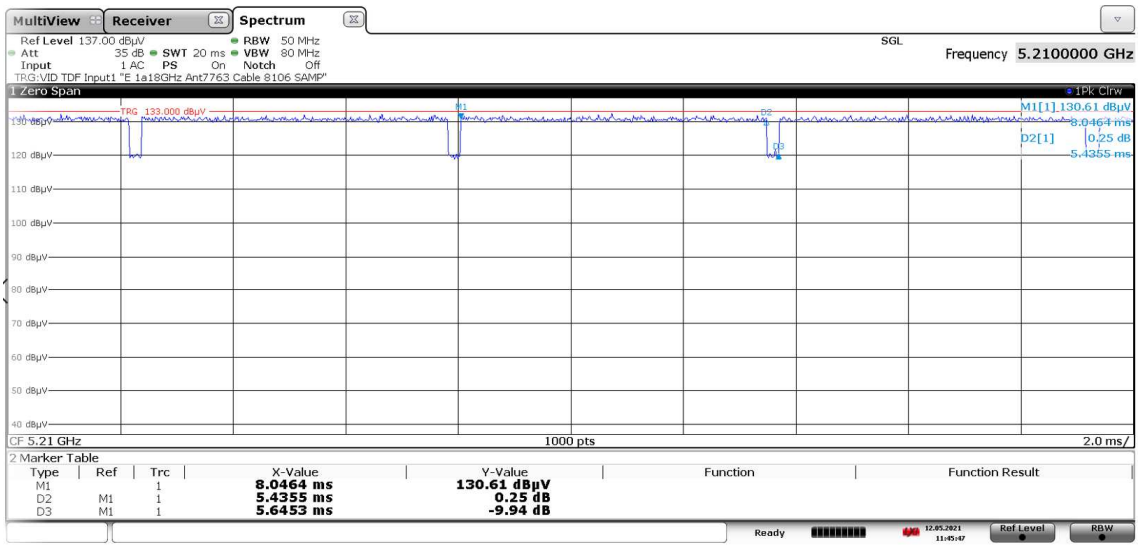
MIMO 802.11 ac40:



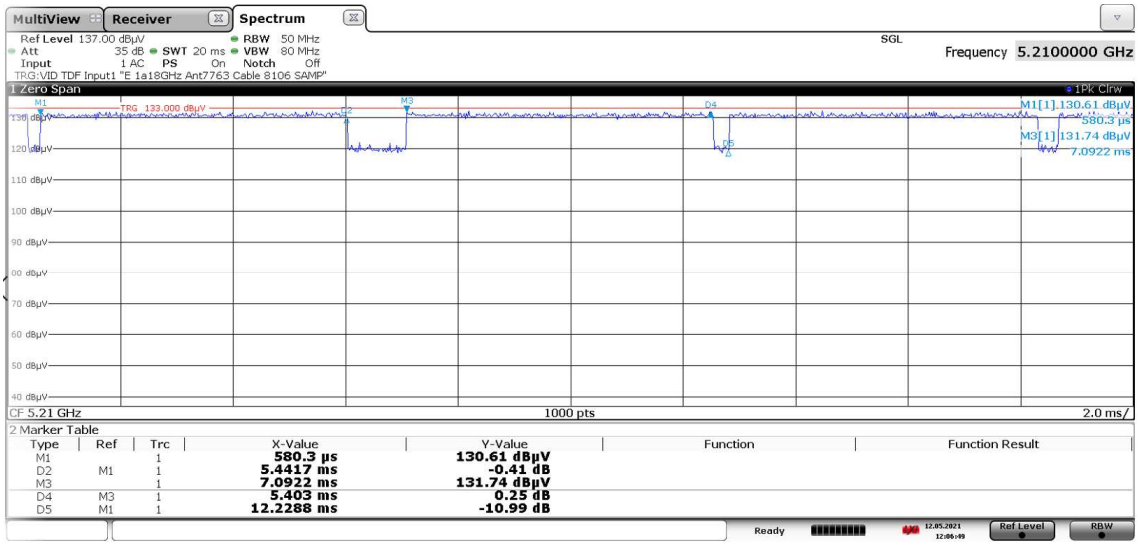
MIMO 802.11 he40:



MIMO 802.11 ac80:



MIMO 802.11 he80:



Transmitter. 99% Occupied Bandwidth

SPECIFICATIONS:

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).

RESULTS:

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

- 802.11a:	6 Mbps SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11n HT20:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11n HT40:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ac VHT20:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ac VHT40:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ac VHT80:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ax HE20:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ax HE40:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.
- 802.11ax HE80:	MCS0 SISO 1Tx on WLAN1 / MIMO 2Tx on WLAN12.

- Preliminary tests determined the SISO worst case: WLAN1.
- Preliminary tests determined the MIMO worst case: WLAN12.

SISO worst-case:

SISO 802.11 a20:

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	16.629213	17.378278	29.662921	26.217229
Measurement uncertainty (kHz)	<±36.95			

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	16.629213	16.779026	16.629213	16.779026
Measurement uncertainty (kHz)	<±36.95			

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	Channel 60 (5300 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	16.300000	16.400000	16.400000	16.400000
Measurement uncertainty (kHz)	<±36.95			

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 100 (5500 MHz)	Channel 104 (5520 MHz)	Middle Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)
99% Occupied Bandwidth (MHz)	16.400000	16.400000	16.400000	16.400000
Measurement uncertainty (kHz)	<±36.95			

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 149 (5745 MHz)	Channel 153 (5765 MHz)	Middle Channel 157 (5785 MHz)	Channel 161 (5805 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	16.629213	16.629213	16.779026	16.779026	16.779026
Measurement uncertainty (kHz)	<±36.95				

SISO 802.11 n20 (VHT20):

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	17.677902	17.977528	17.677902	17.677902
Measurement uncertainty (kHz)	<±36.95			

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	17.677902	17.677902	17.677902	17.677902
Measurement uncertainty (kHz)	<±36.95			

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	Channel 60 (5300 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	17.600000	17.600000	17.600000	17.600000
Measurement uncertainty (kHz)	<±36.95			

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 100 (5500 MHz)	Channel 104 (5520 MHz)	Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)
99% Occupied Bandwidth (MHz)	17.500000	17.600000	17.600000	17.600000
Measurement uncertainty (kHz)	<±36.95			

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 149 (5745 MHz)	Channel 153 (5765 MHz)	Middle Channel 157 (5785 MHz)	Channel 161 (5805 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	17.827715	17.827715	17.827715	17.677902	17.677902
Measurement uncertainty (kHz)	<±36.95				

SISO 802.11 ac20 (VHT20):

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	17.677902	18.277154	29.213483	25.018727
Measurement uncertainty (kHz)	<±36.95			

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	17.677902	17.827715	17.677902	17.677902
Measurement uncertainty (kHz)	<±36.95			

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	Channel 60 (5300 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	17.600000	17.600000	17.600000	17.600000
Measurement uncertainty (kHz)	<±36.95			

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 100 (5500 MHz)	Channel 104 (5520 MHz)	Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)
99% Occupied Bandwidth (MHz)	17.600000	17.600000	17.600000	17.600000
Measurement uncertainty (kHz)	<±36.95			

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 149 (5745 MHz)	Channel 153 (5765 MHz)	Middle Channel 157 (5785 MHz)	Channel 161 (5805 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	17.827715	17.677902	17.677902	17.827715	17.977528
Measurement uncertainty (kHz)	<±36.95				

SISO 802.11 ax20 (HE20):

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	19.026217	19.026217	19.026217	19.026217
Measurement uncertainty (kHz)	<±36.95			

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	19.176030	19.176030	19.026217	19.176030
Measurement uncertainty (kHz)	<±36.95			

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	Channel 60 (5300 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	18.900000	18.900000	18.900000	18.900000
Measurement uncertainty (kHz)	<±36.95			

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 100 (5500 MHz)	Channel 104 (5520 MHz)	Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)
99% Occupied Bandwidth (MHz)	18.900000	19.000000	18.900000	19.000000
Measurement uncertainty (kHz)	<±36.95			

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 149 (5745 MHz)	Channel 153 (5765 MHz)	Middle Channel 157 (5785 MHz)	Channel 161 (5805 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	19.026217	19.176030	22.921349	19.176030	19.176030
Measurement uncertainty (kHz)	<±36.95				

SISO 802.11 n40 (HT40):

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

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	36.500000	36.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	36.500000	36.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 54 (5270 MHz)	High Channel 62 (5310 MHz)
99% Occupied Bandwidth (MHz)	36.250000	36.000000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 102 (5510 MHz)	Middle Channel 110 (5550 MHz)	Channel 118 (5590 MHz) (**)	High Channel 134 (5670 MHz)
99% Occupied Bandwidth (MHz)	36.000000	36.250000	36.000000	36.000000
Measurement uncertainty (kHz)	<±36.95			

(**): Channel not allowed in Canada.

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
99% Occupied Bandwidth (MHz)	36.500000	36.500000
Measurement uncertainty (kHz)	<±36.95	

SISO 802.11 ac40 (VHT40):

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

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	36.500000	36.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	36.500000	36.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 54 (5270 MHz)	High Channel 62 (5310 MHz)
99% Occupied Bandwidth (MHz)	36.250000	36.000000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 102 (5510 MHz)	Middle Channel 110 (5550 MHz)	Channel 118 (5590 MHz) (**)	High Channel 134 (5670 MHz)
99% Occupied Bandwidth (MHz)	36.250000	36.250000	36.000000	36.250000
Measurement uncertainty (kHz)	<±36.95			

(**): Channel not allowed in Canada.

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
99% Occupied Bandwidth (MHz)	37.000000	36.500000
Measurement uncertainty (kHz)	<±36.95	

SISO 802.11 ax40 (HE40):

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

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	38.500000	38.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	38.500000	38.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 54 (5270 MHz)	High Channel 62 (5310 MHz)
99% Occupied Bandwidth (MHz)	37.750000	37.750000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 102 (5510 MHz)	Middle Channel 110 (5550 MHz)	Channel 118 (5590 MHz) (**)	High Channel 134 (5670 MHz)
99% Occupied Bandwidth (MHz)	37.750000	37.750000	37.750000	37.750000
Measurement uncertainty (kHz)	<±36.95			

(**): Channel not allowed in Canada.

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
99% Occupied Bandwidth (MHz)	38.500000	38.500000
Measurement uncertainty (kHz)	<±36.95	

SISO 802.11 ac80 (VHT80):

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

Channel	Single Channel 42 (5210 MHz)
99% Occupied Bandwidth (MHz)	75.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-1 RSS (5150-5250 MHz):

Channel	Single Channel 42 (5210 MHz)
99% Occupied Bandwidth (MHz)	75.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-2A (5250-5350 MHz):

Channel	Single Channel 58 (5290 MHz)
99% Occupied Bandwidth (MHz)	75.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 106 (5530 MHz)	High Channel 122 (5610 MHz) (**)
99% Occupied Bandwidth (MHz)	75.500000	75.500000
Measurement uncertainty (kHz)	<±36.95	

(**): Channel not allowed in Canada.

U-NII-3 (5725-5850 MHz):

Channel	Single Channel 155 (5775 MHz)
99% Occupied Bandwidth (MHz)	76.000000
Measurement uncertainty (kHz)	<±36.95

SISO 802.11 ax80 (HE80):

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

Channel	Single Channel 42 (5210 MHz)
99% Occupied Bandwidth (MHz)	77.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-1 RSS (5150-5250 MHz):

Channel	Single Channel 42 (5210 MHz)
99% Occupied Bandwidth (MHz)	77.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-2A (5250-5350 MHz):

Channel	Single Channel 58 (5290 MHz)
99% Occupied Bandwidth (MHz)	76.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 106 (5530 MHz)	High Channel 122 (5610 MHz) (**)
99% Occupied Bandwidth (MHz)	76.500000	77.000000
Measurement uncertainty (kHz)	<±36.95	

(**): Channel not allowed in Canada.

U-NII-3 (5725-5850 MHz):

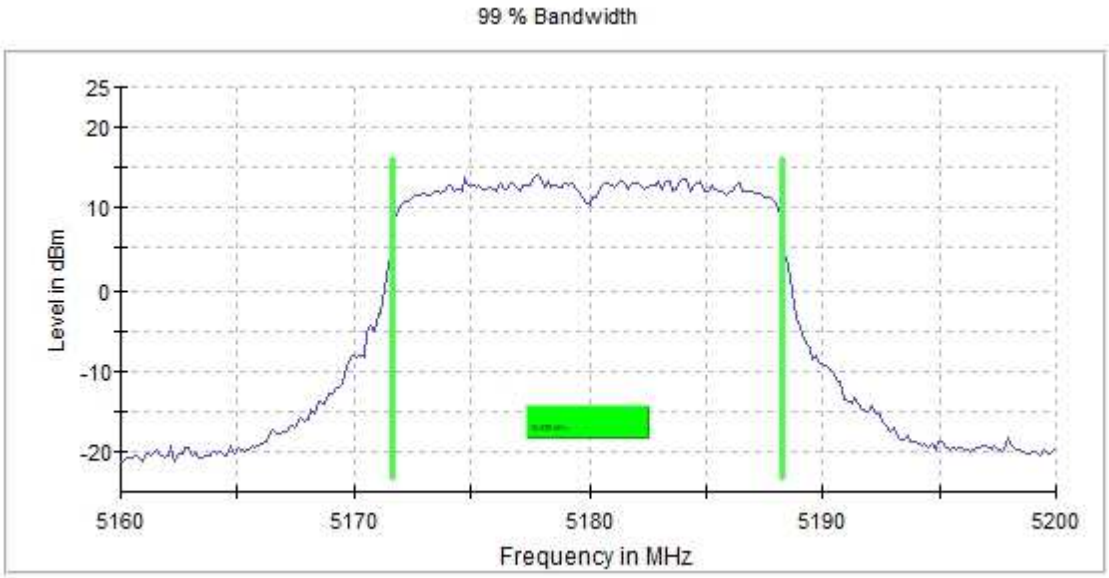
Channel	Single Channel 155 (5775 MHz)
99% Occupied Bandwidth (MHz)	77.500000
Measurement uncertainty (kHz)	<±36.95

SISO worst-case:

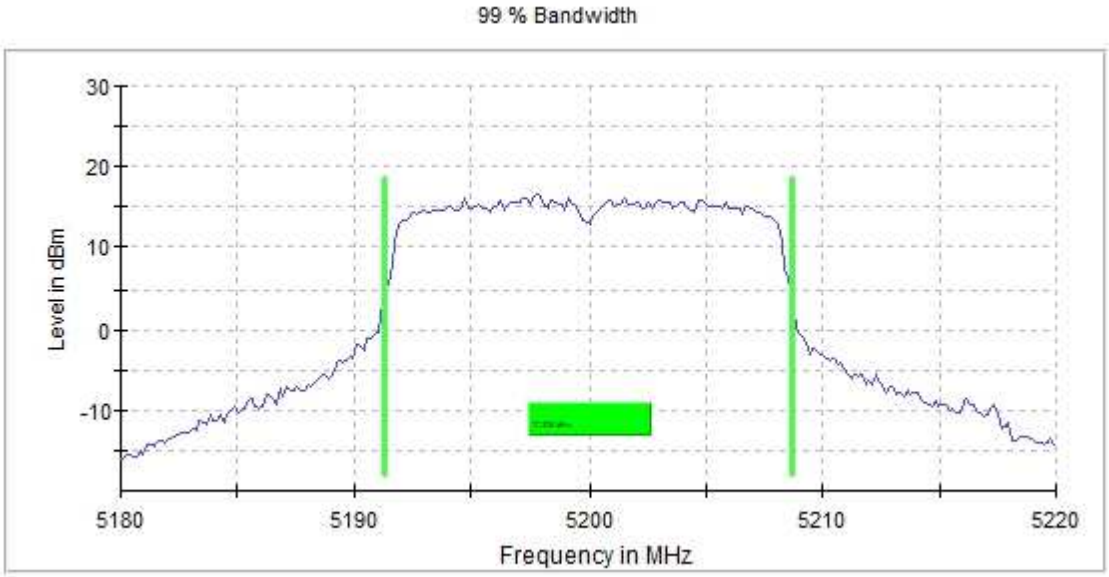
SISO 802.11 a20:

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

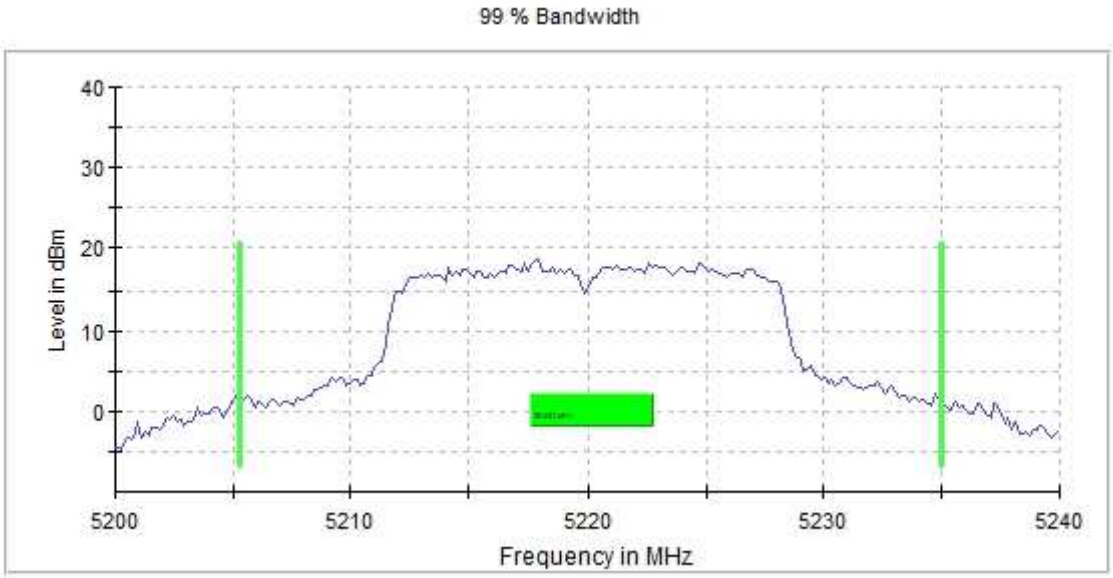
- Low Channel 36 (5180 MHz):



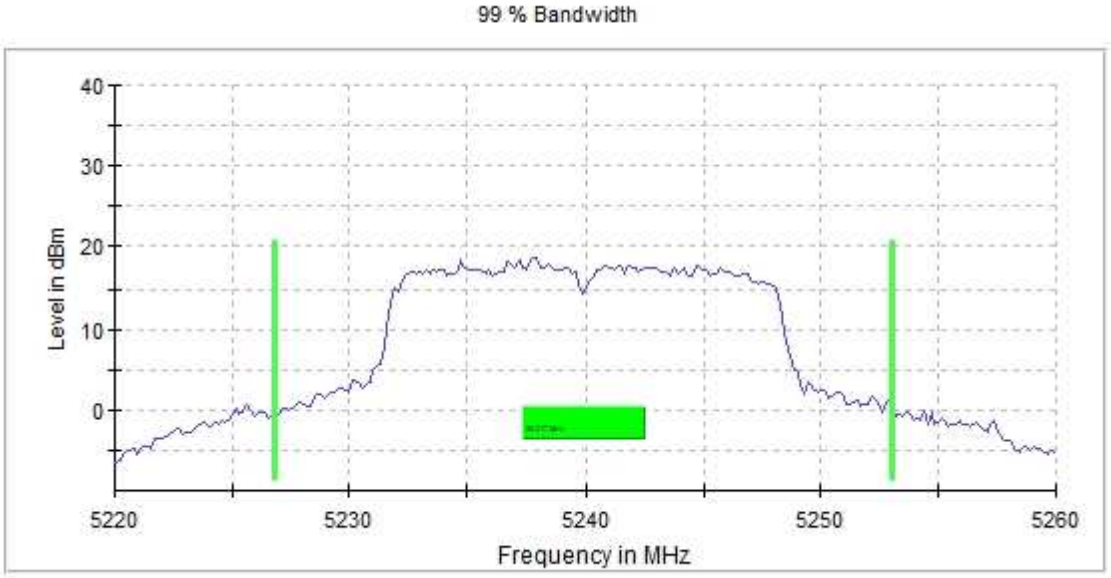
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):

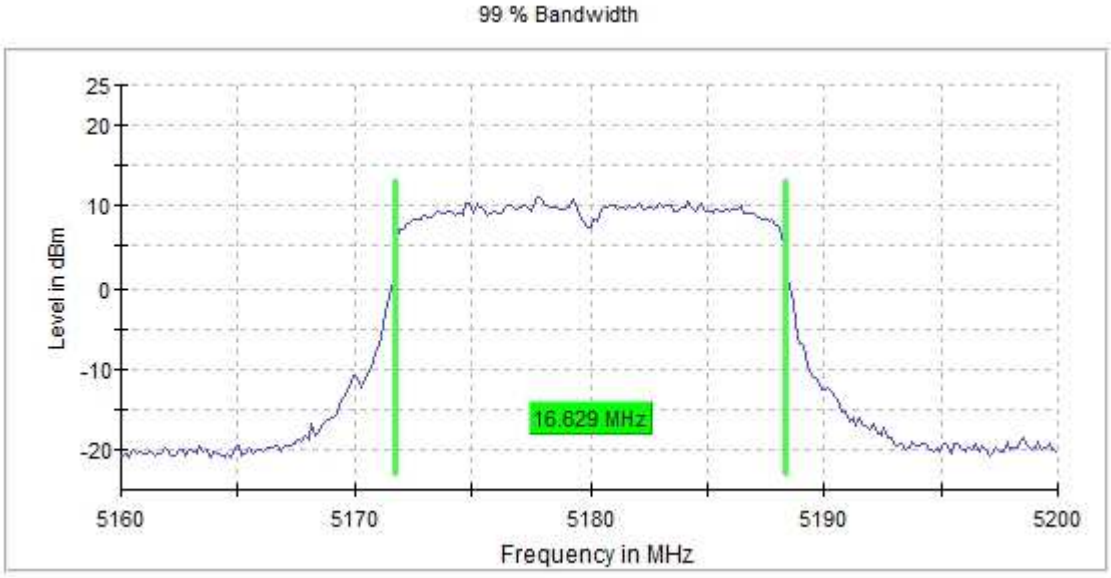


- High Channel 48 (5240 MHz):

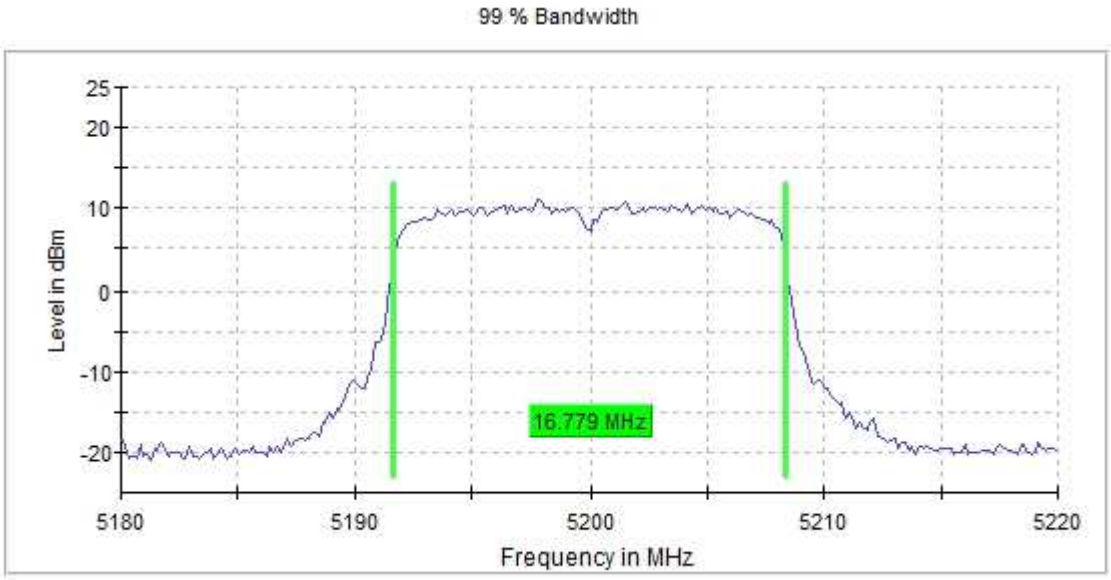


U-NII-1 RSS (5150-5250 MHz)

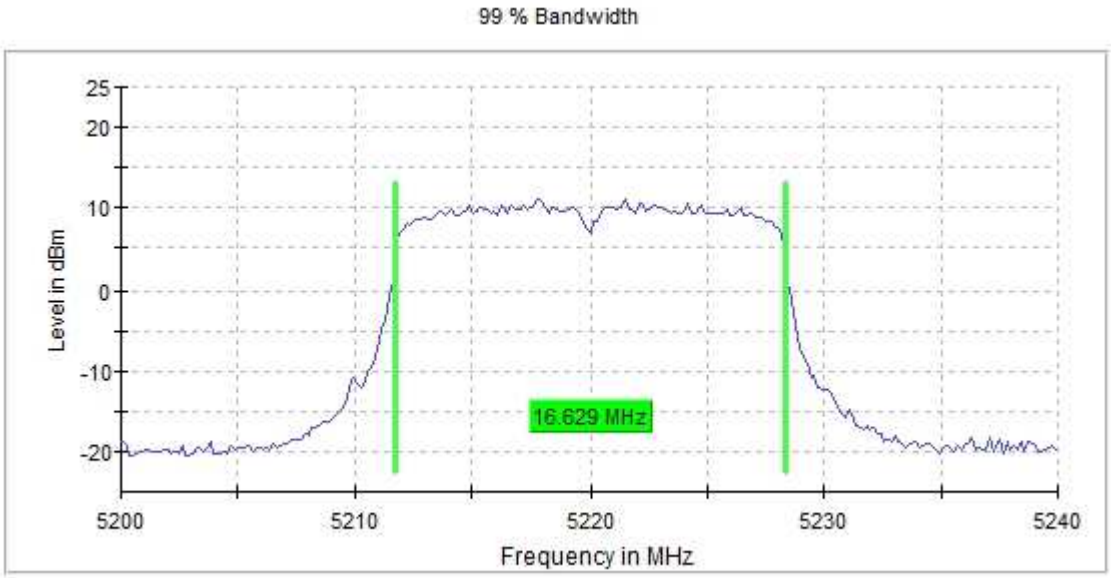
- Low Channel 36 (5180 MHz):



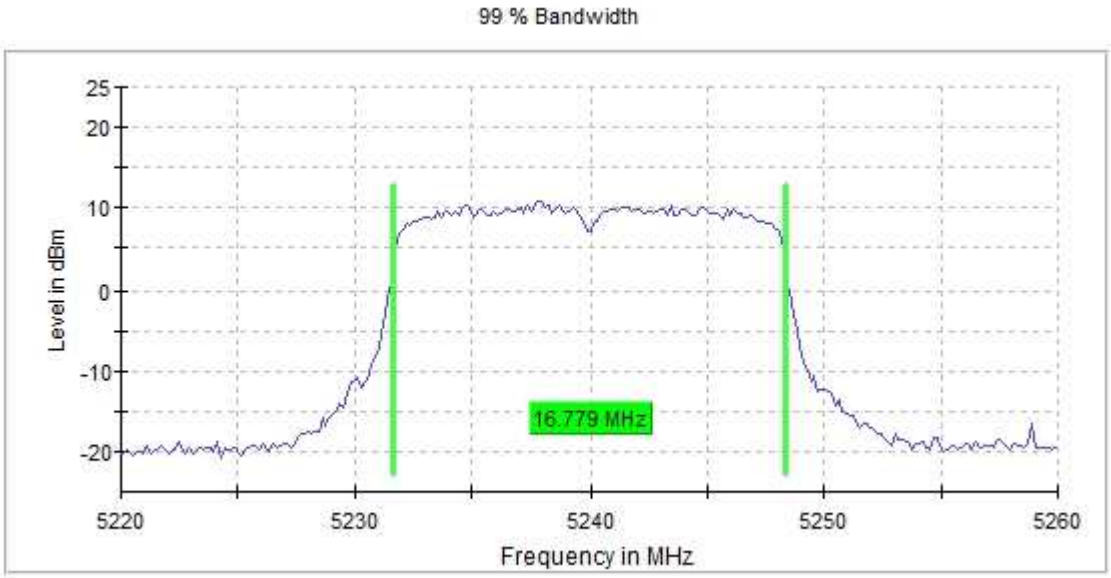
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):

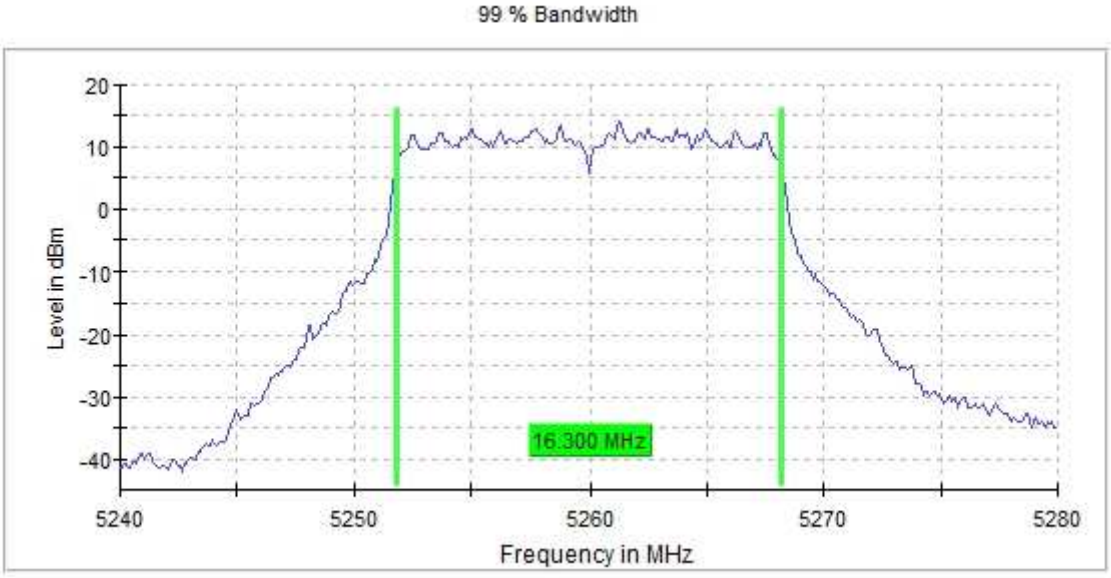


- High Channel 48 (5240 MHz):

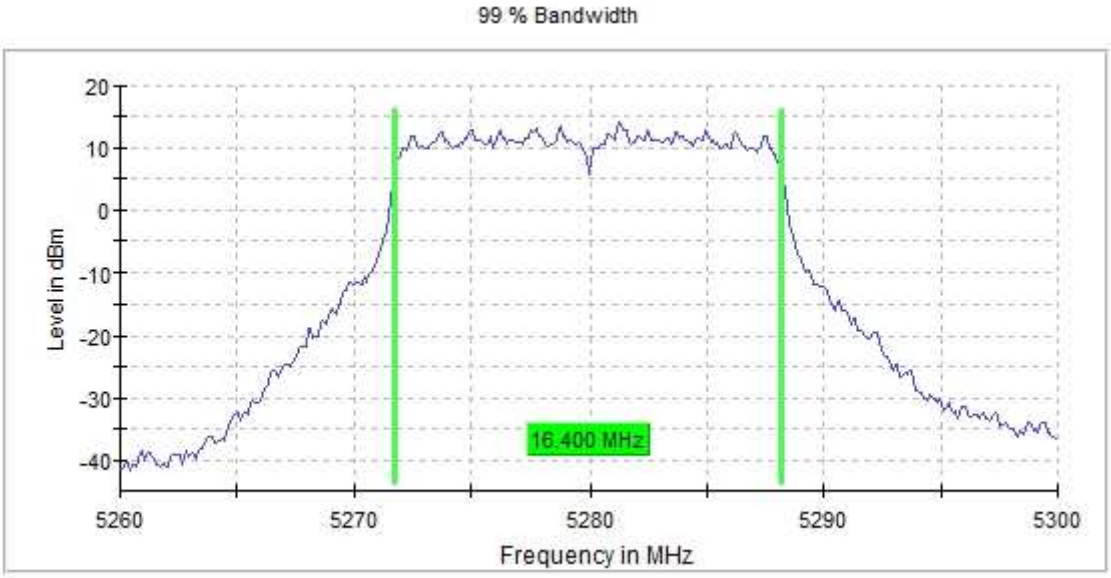


U-NII-2A (5250-5350 MHz)

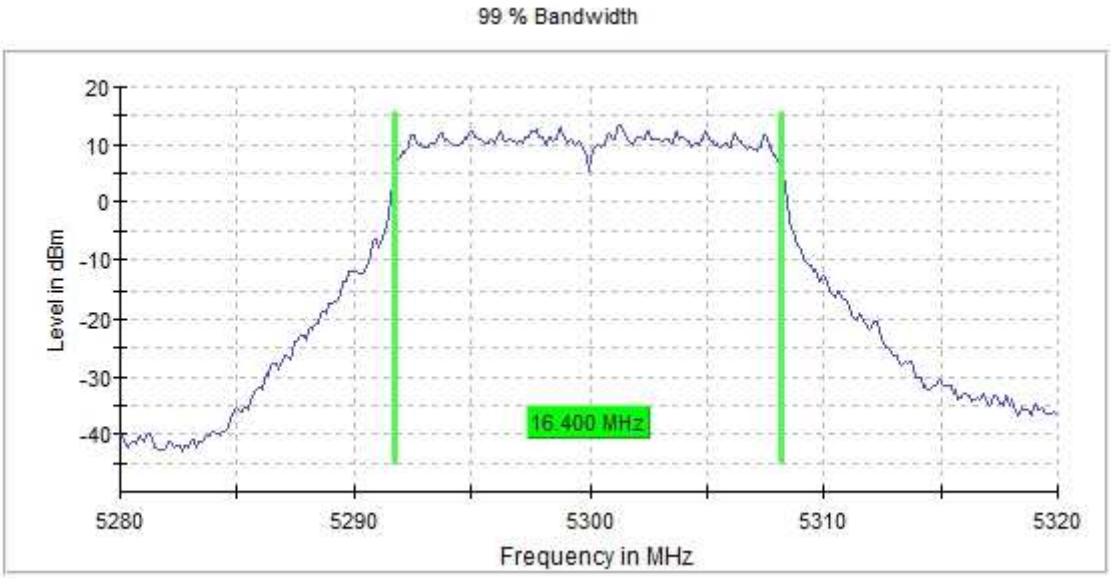
- Low Channel 52 (5260 MHz):



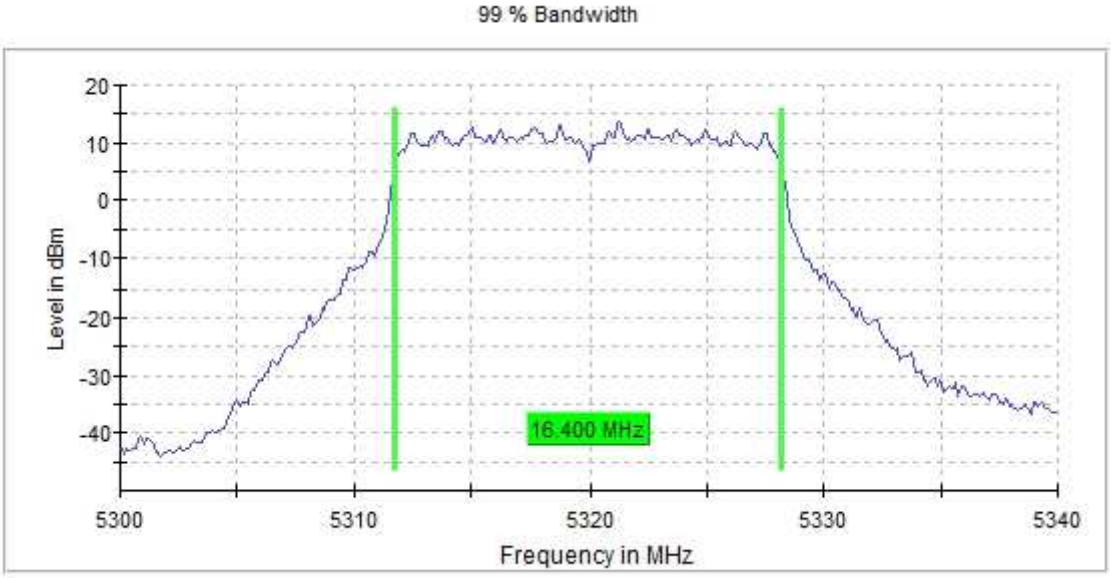
- Middle Channel 56 (5280 MHz):



- Channel 60 (5300 MHz):

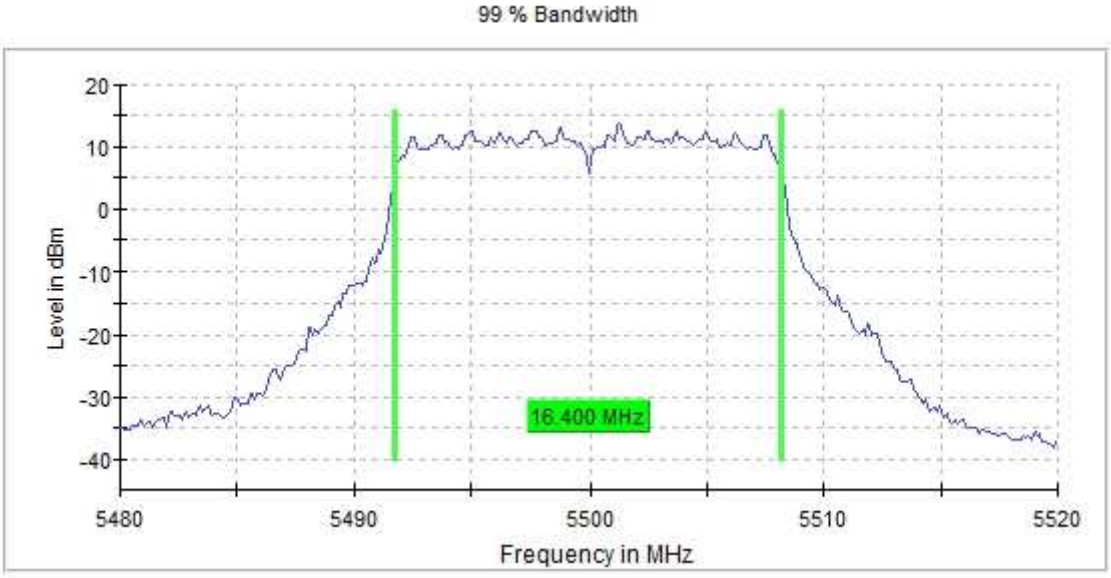


- High Channel 64 (5320 MHz):

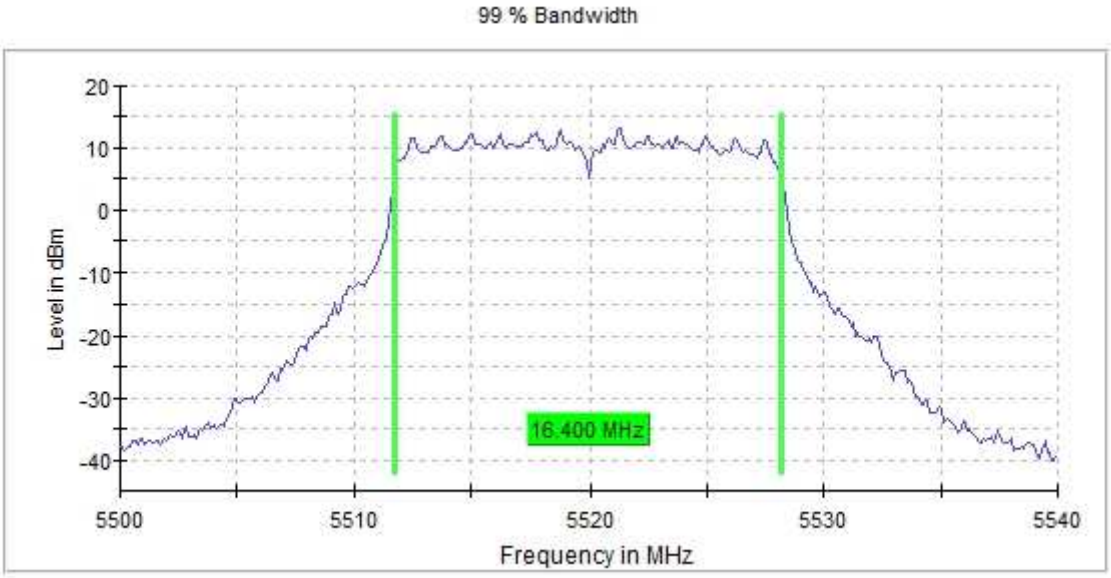


U-NII-2C (5470-5725 MHz)

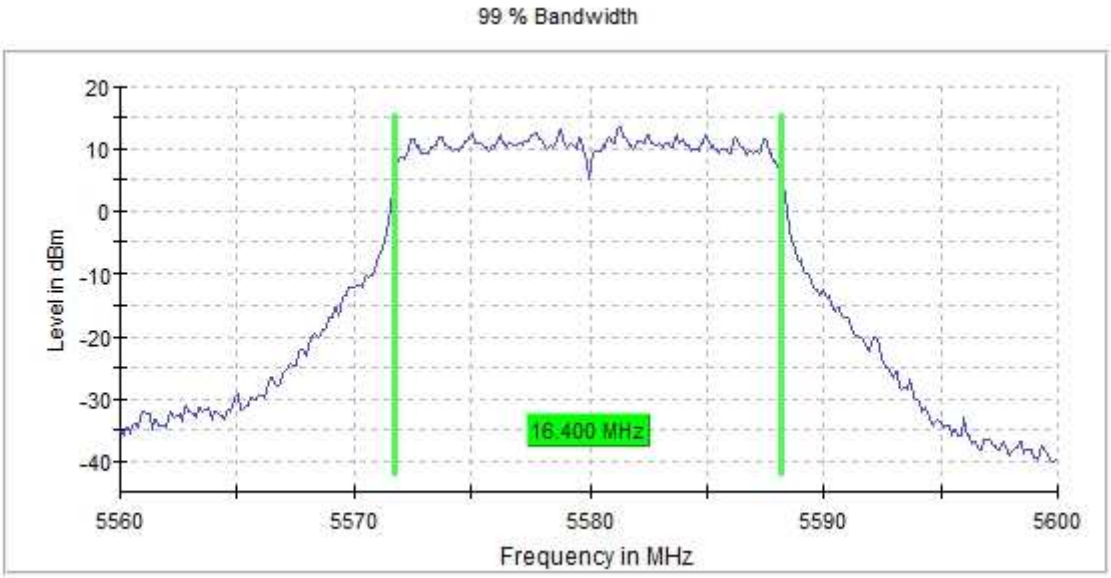
- Low Channel 100 (5500 MHz):



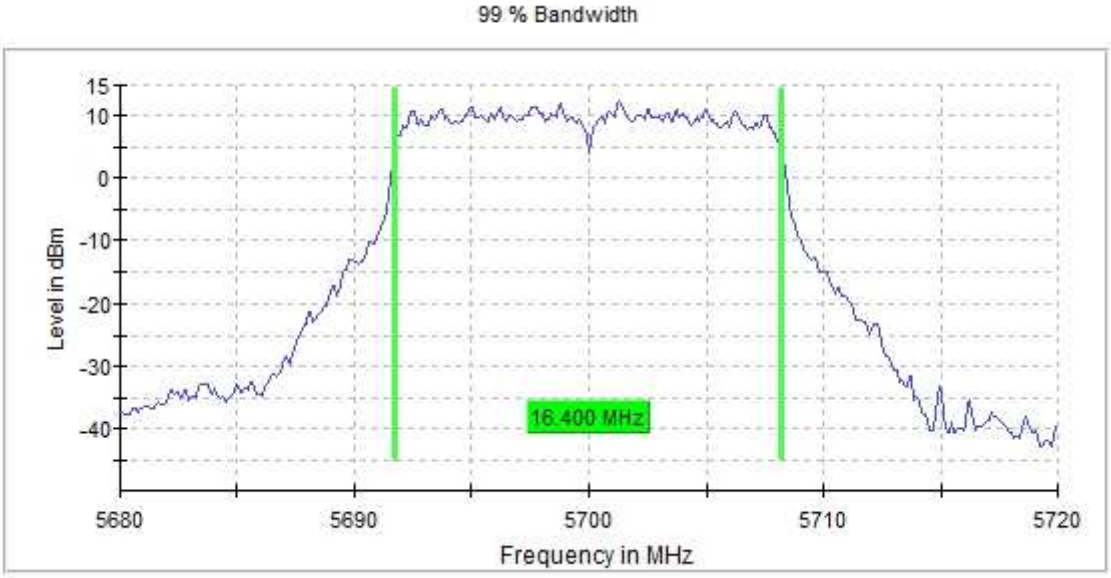
- Channel 104 (5520 MHz):



- Middle Channel 116 (5580 MHz):

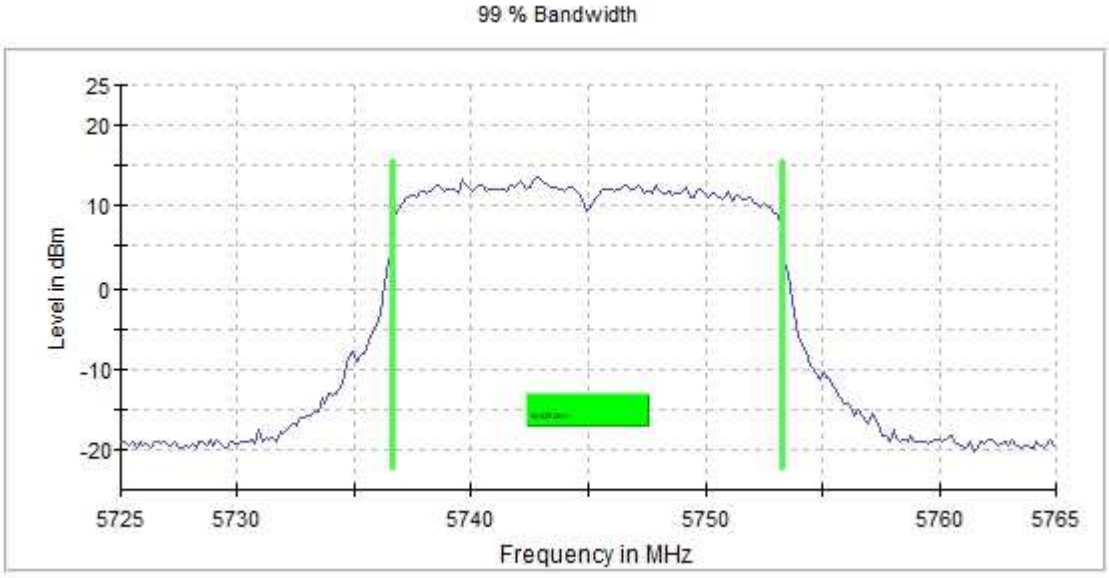


- High Channel 140 (5700 MHz):

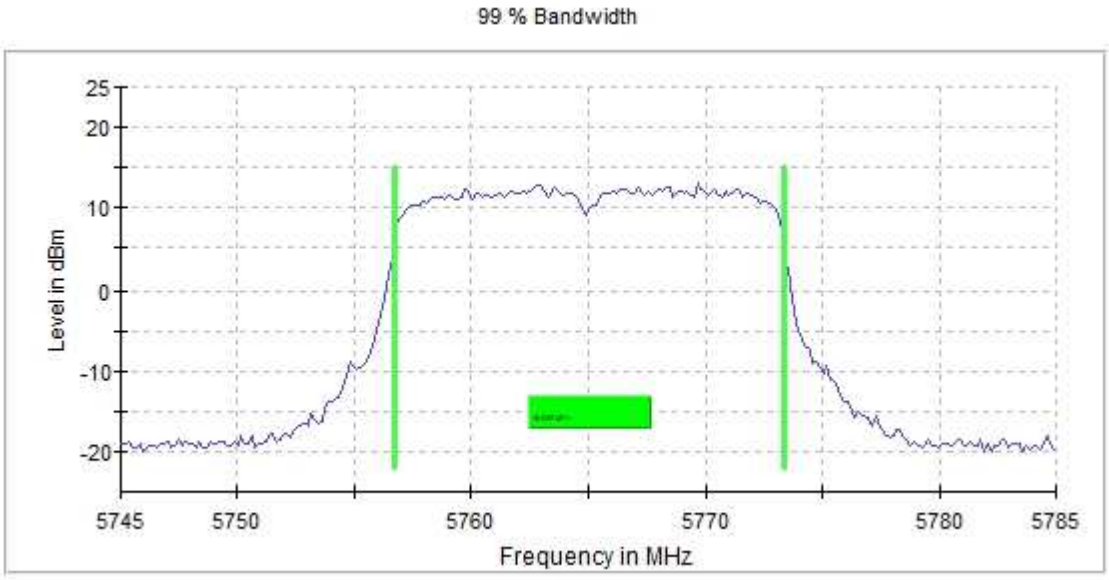


U-NII-3 (5725-5850 MHz)

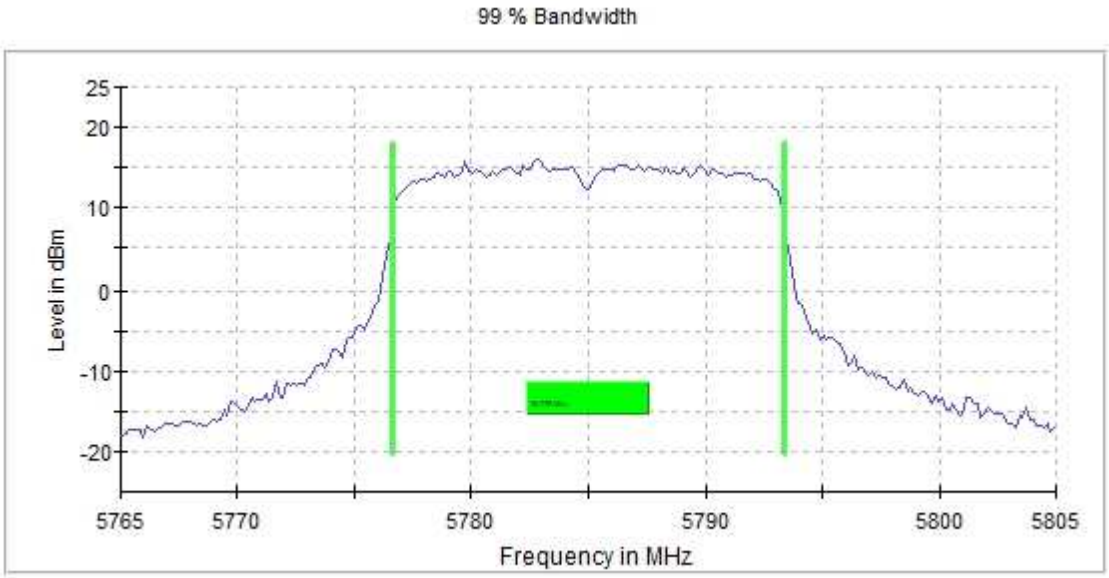
- Low Channel 149 (5745 MHz):



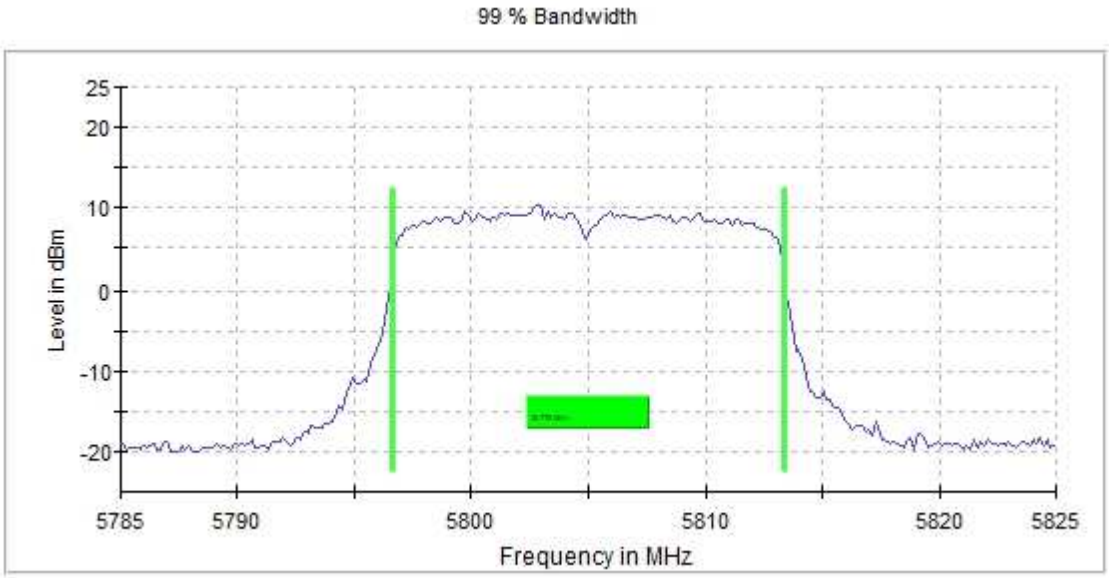
- Channel 153 (5765 MHz):



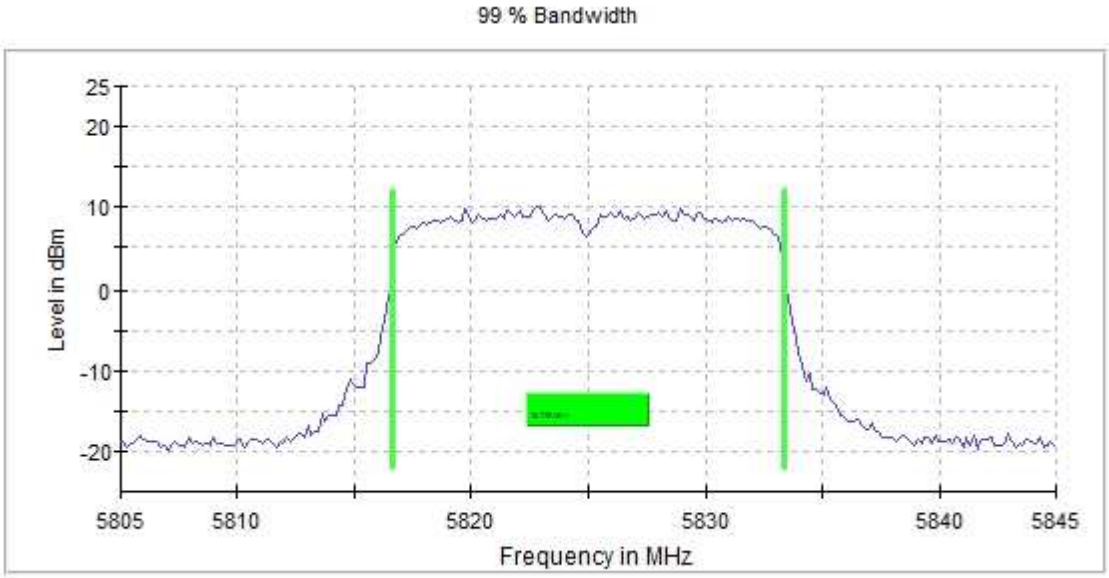
- Middle Channel 157 (5785 MHz):



- Channel 161 (5805 MHz):



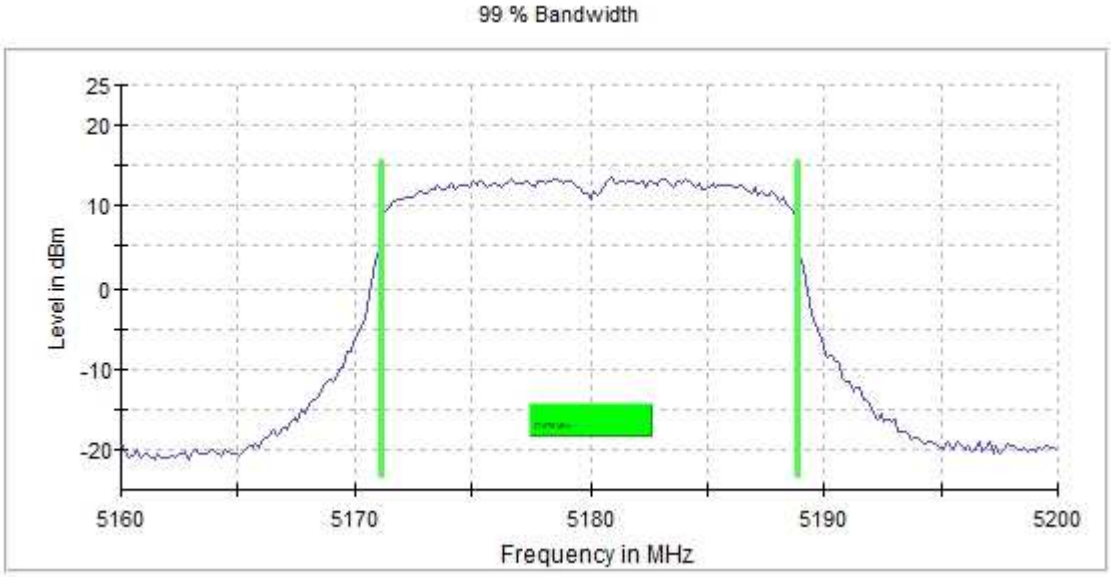
- High Channel 165 (5825 MHz):



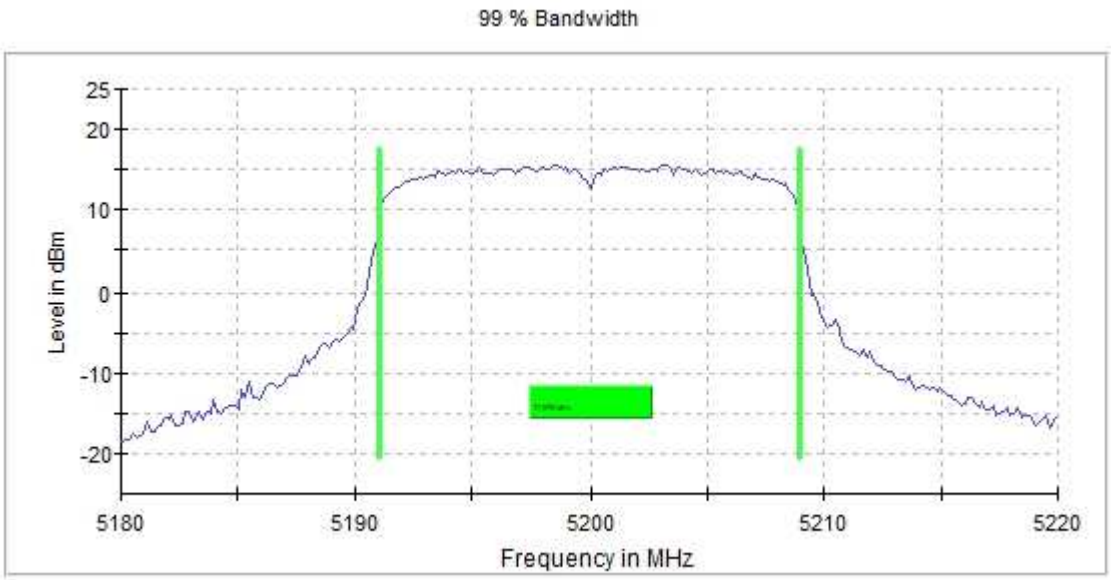
SISO 802.11 n20 (HT20):

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

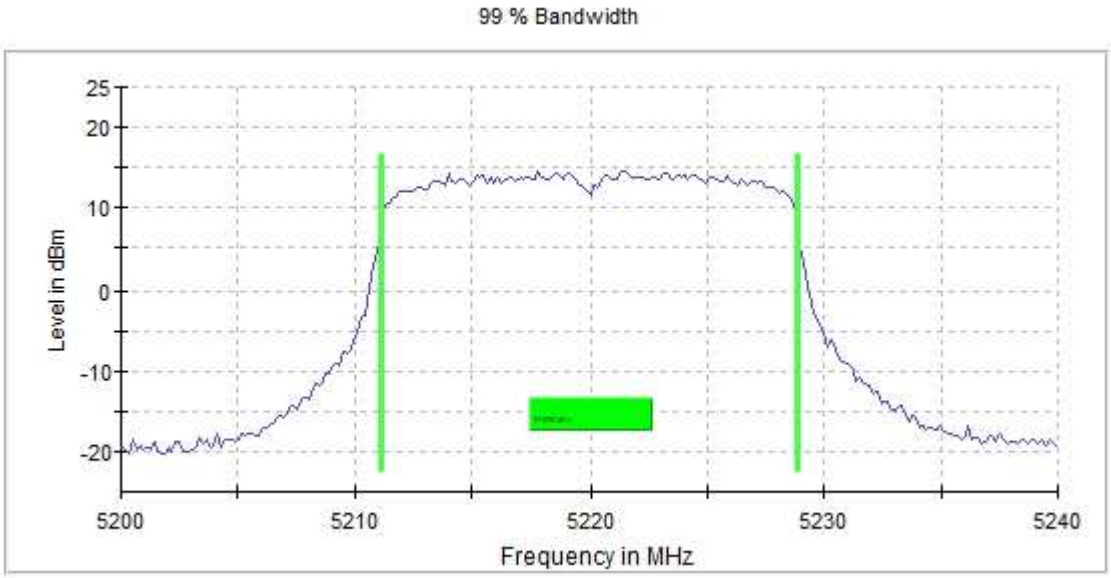
- Low Channel 36 (5180 MHz):



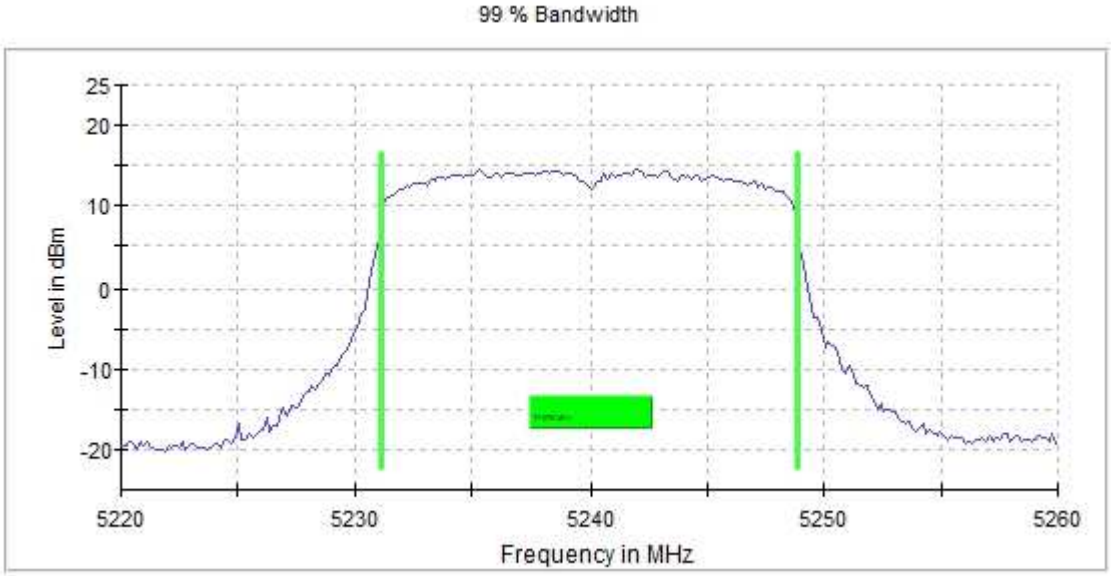
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):

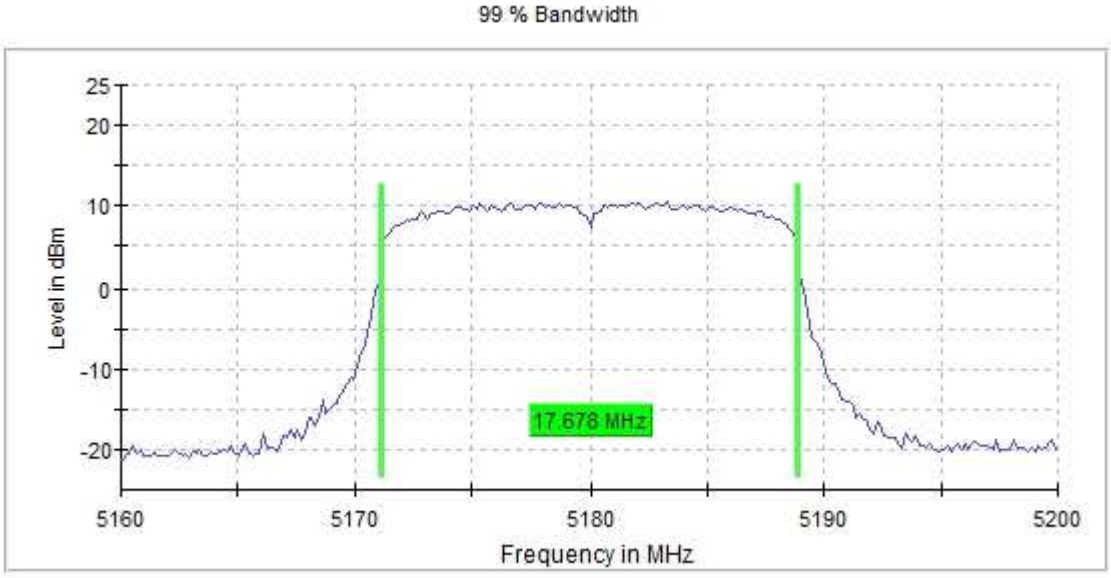


- High Channel 48 (5240 MHz):

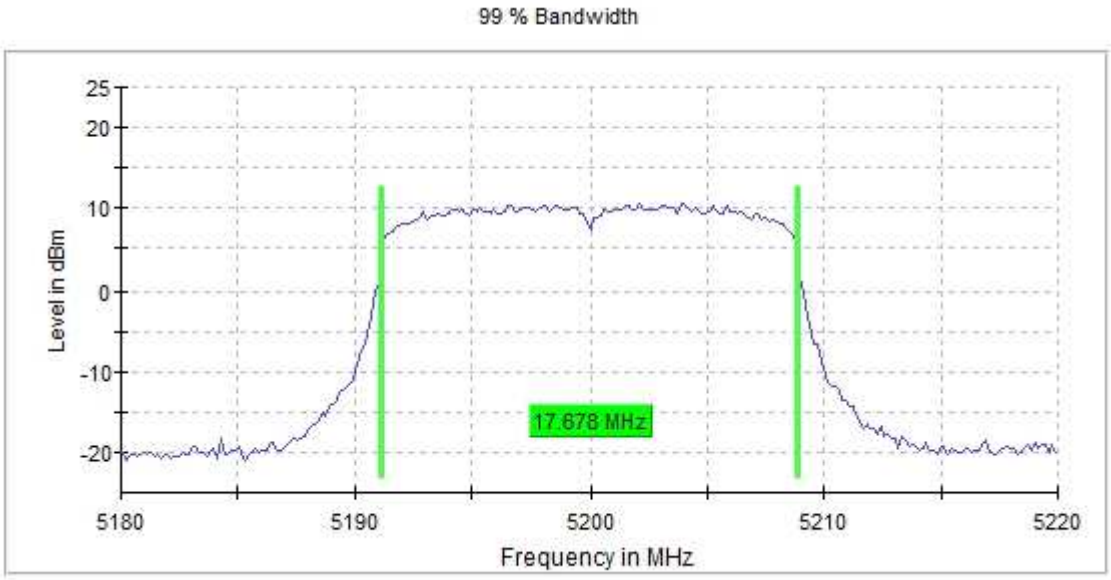


U-NII-1 RSS (5150-5250 MHz)

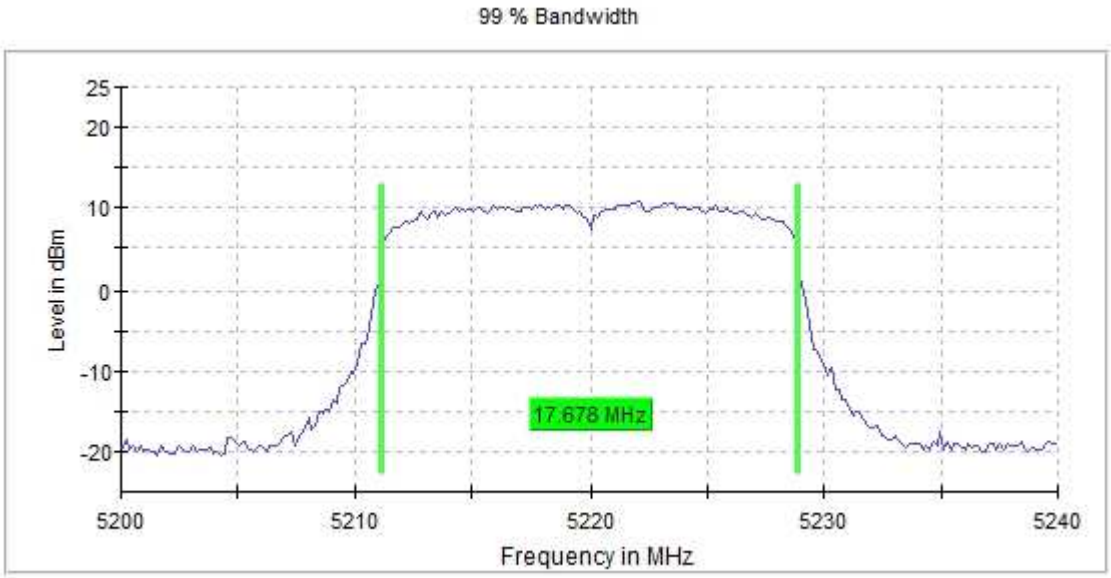
- Low Channel 36 (5180 MHz):



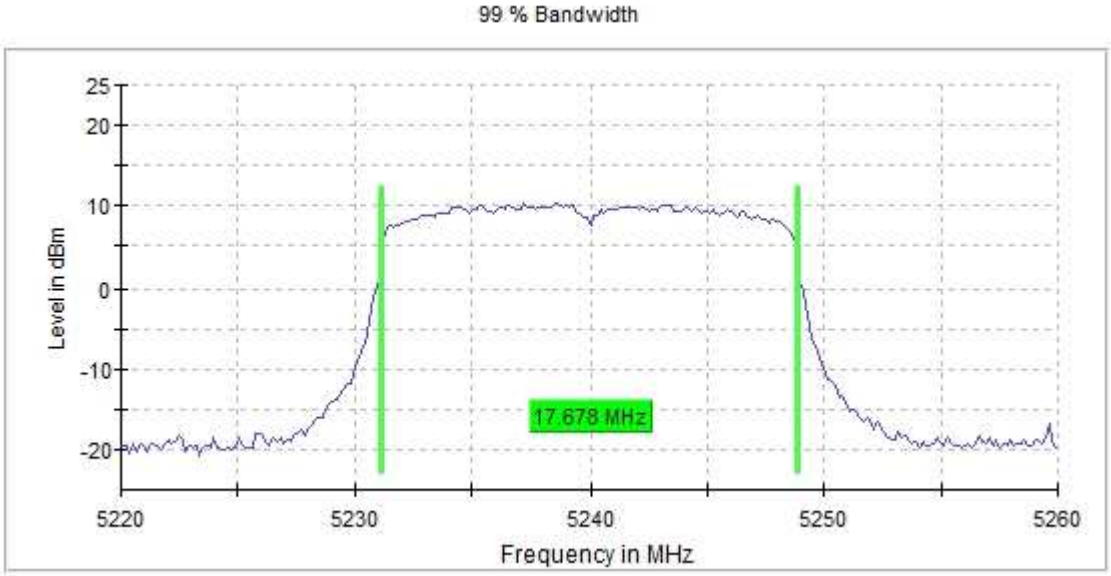
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):

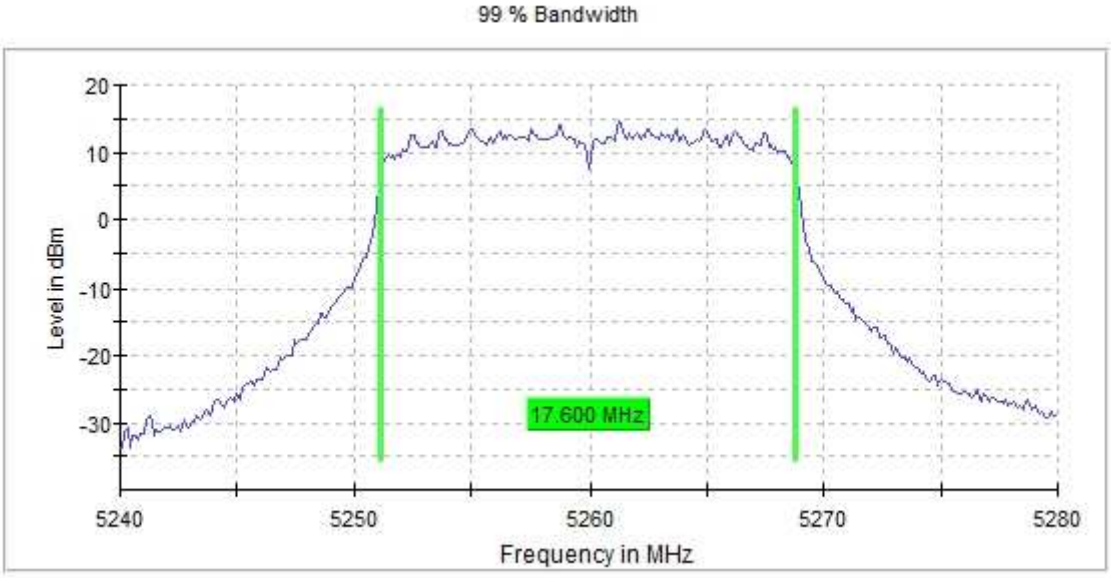


- High Channel 48 (5240 MHz):

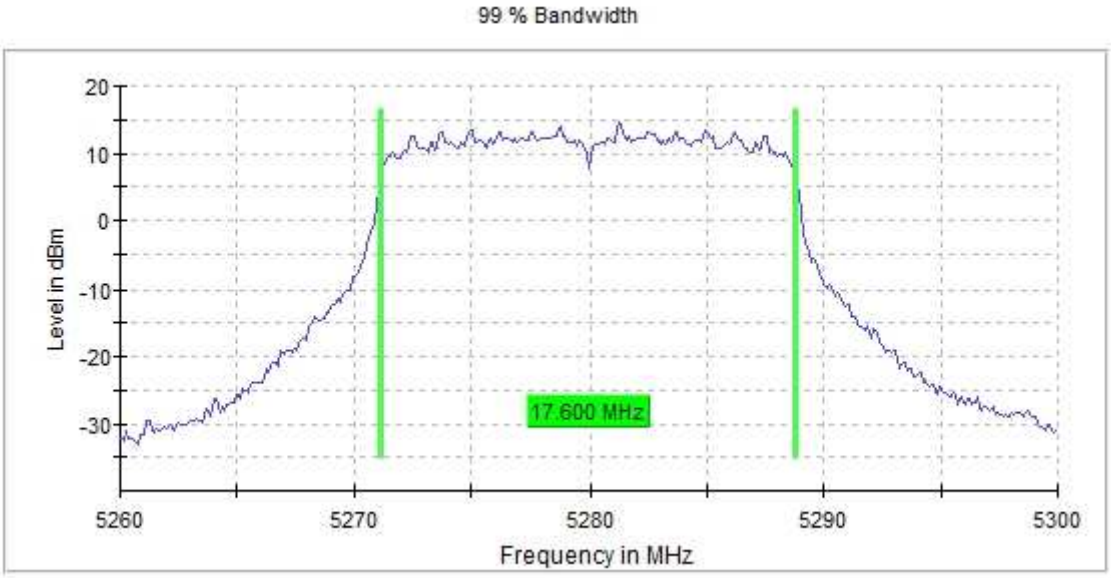


U-NII-2A (5250-5350 MHz)

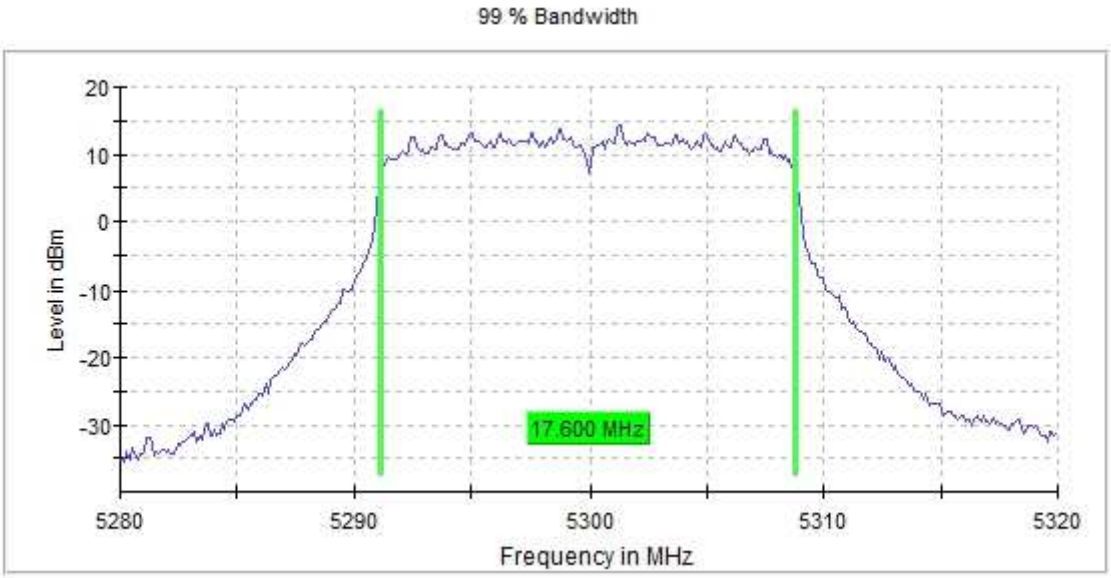
- Low Channel 52 (5260 MHz):



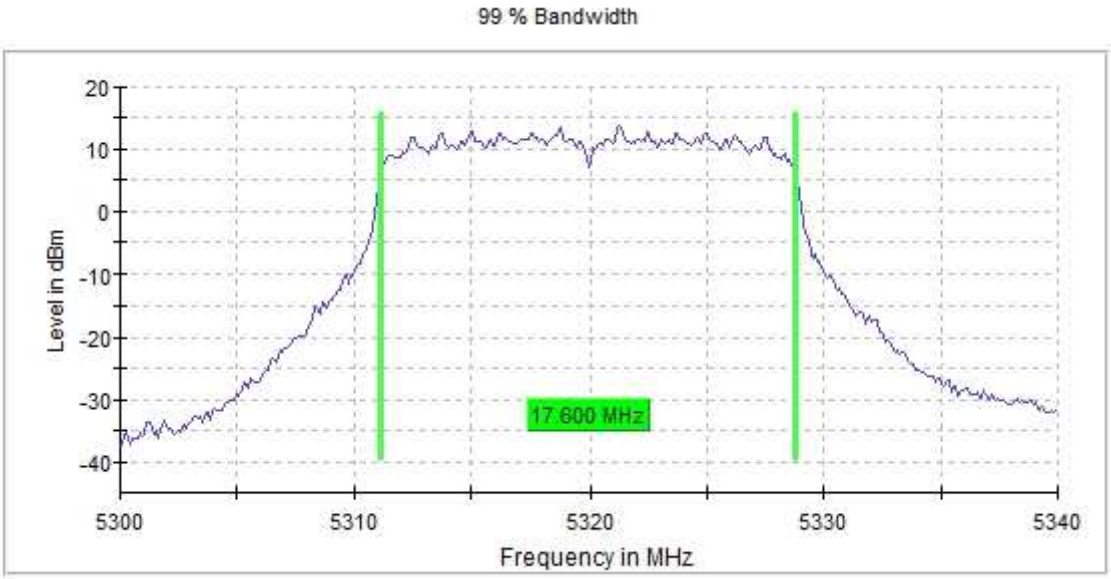
- Middle Channel 56 (5280 MHz):



- Channel 60 (5300 MHz):

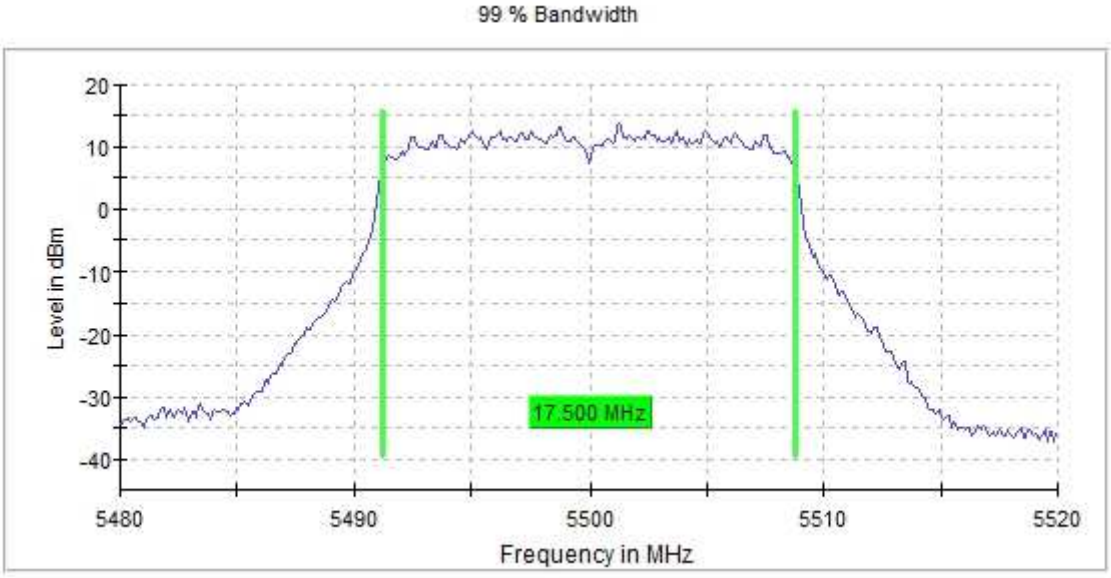


- High Channel 64 (5320 MHz):

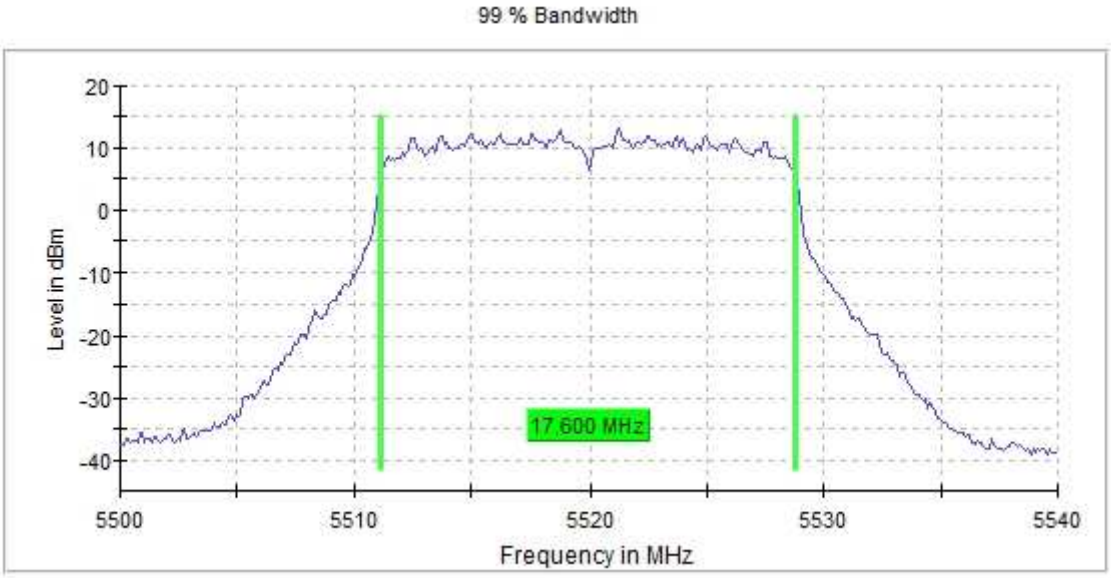


U-NII-2C (5470-5725 MHz)

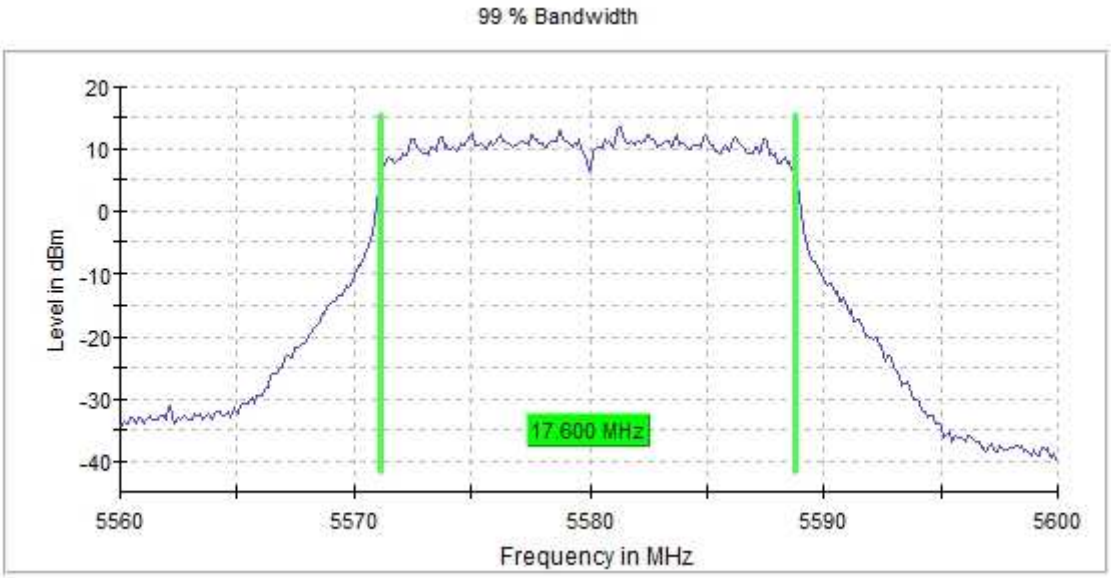
- Low Channel 100 (5500 MHz):



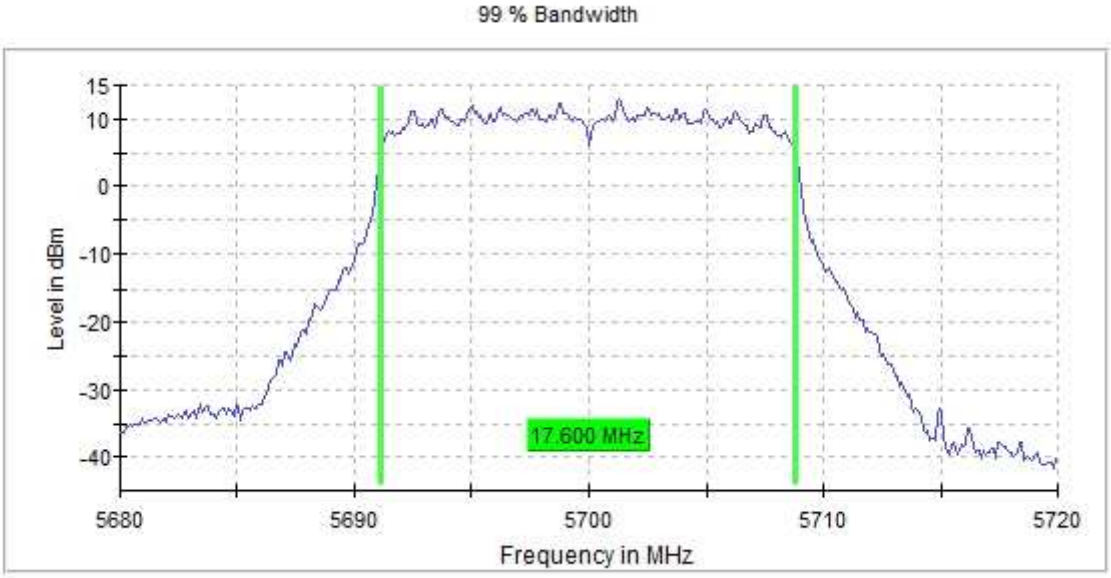
- Channel 104 (5520 MHz):



- Middle Channel 116 (5580 MHz):

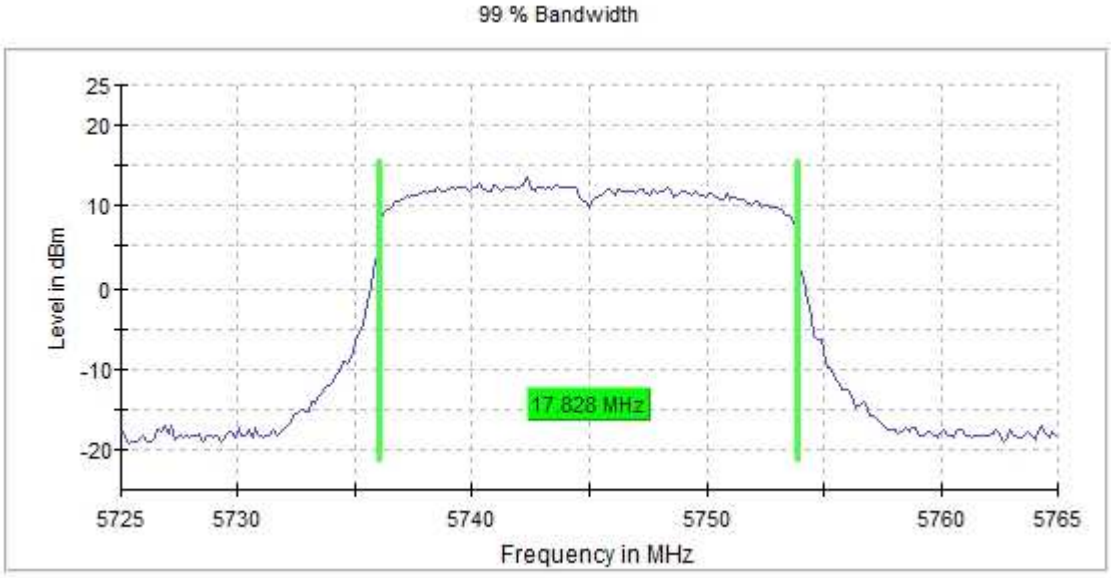


- High Channel 140 (5700 MHz):

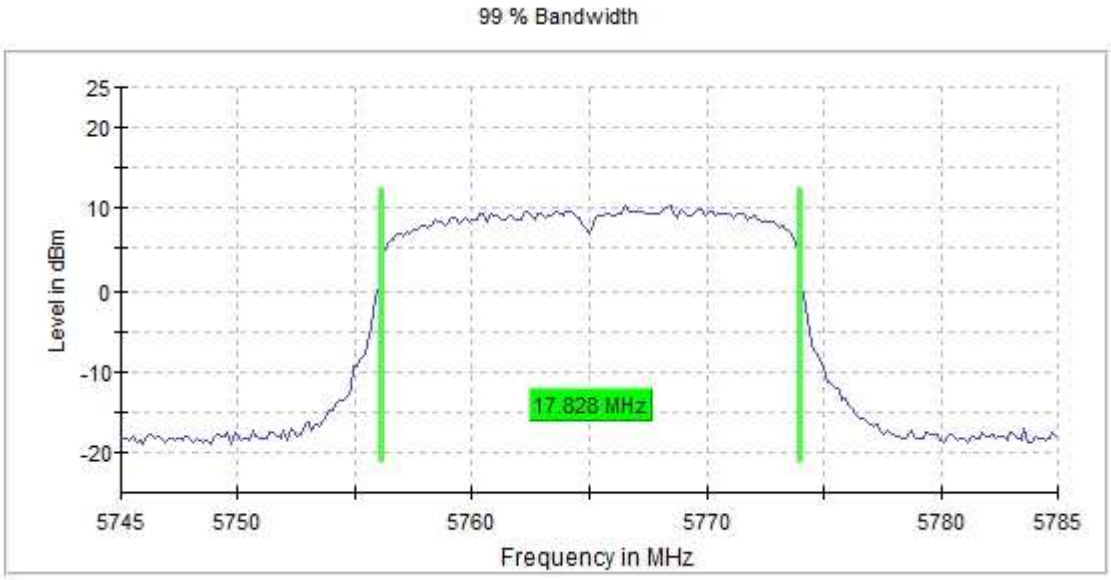


U-NII-3 (5725-5850 MHz)

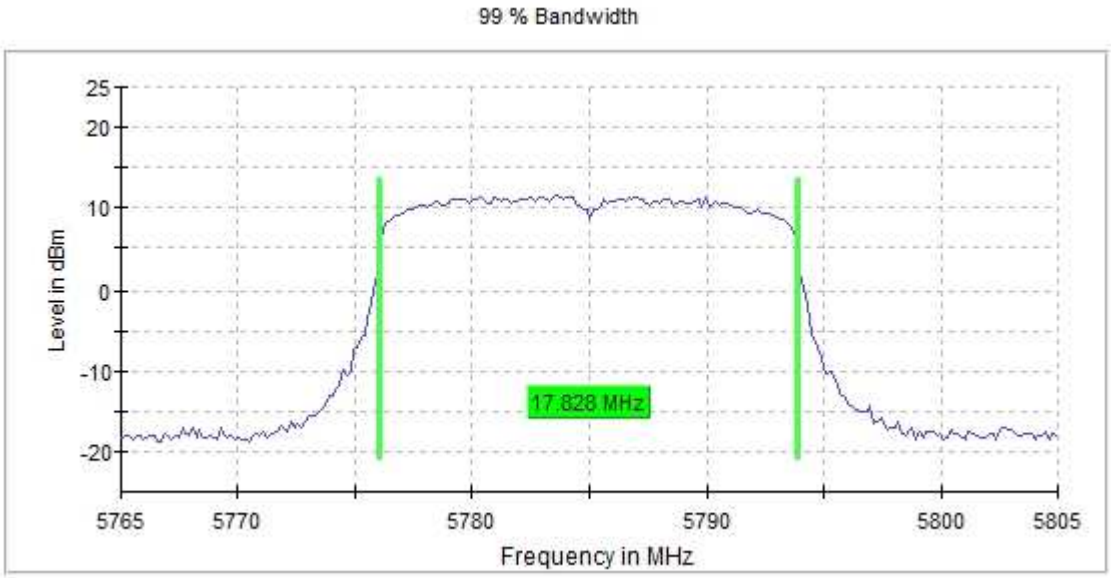
- Low Channel 149 (5745 MHz):



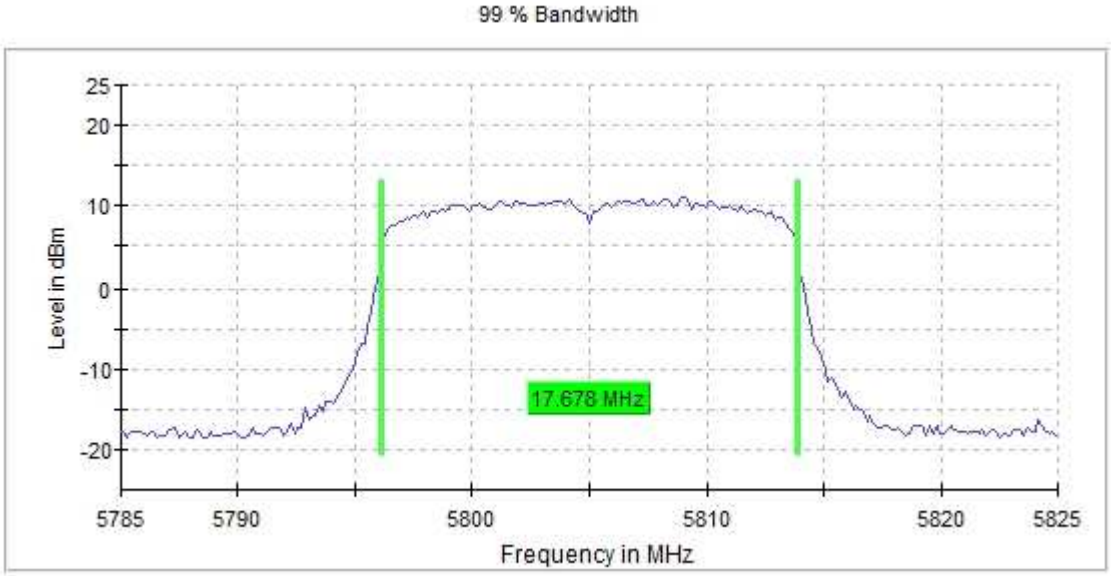
- Channel 153 (5765 MHz):



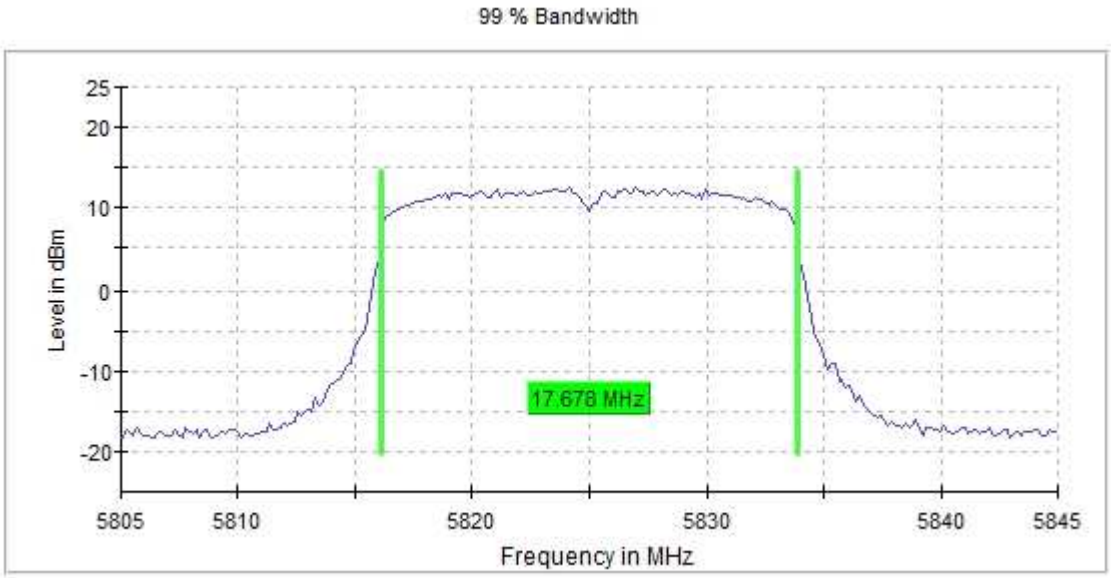
- Middle Channel 157 (5785 MHz):



- Channel 161 (5805 MHz):



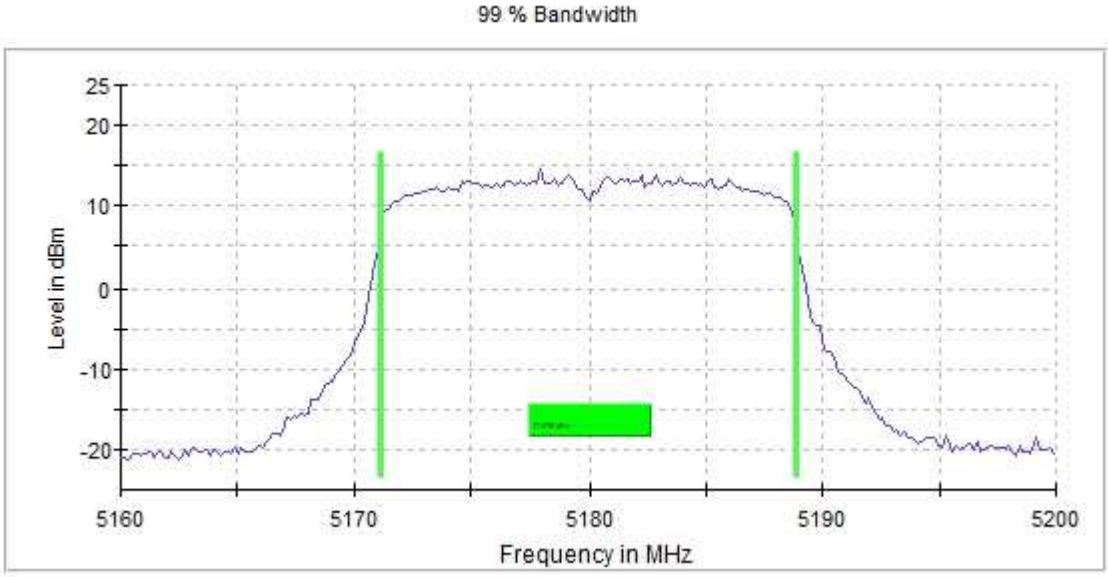
- High Channel 165 (5825 MHz):



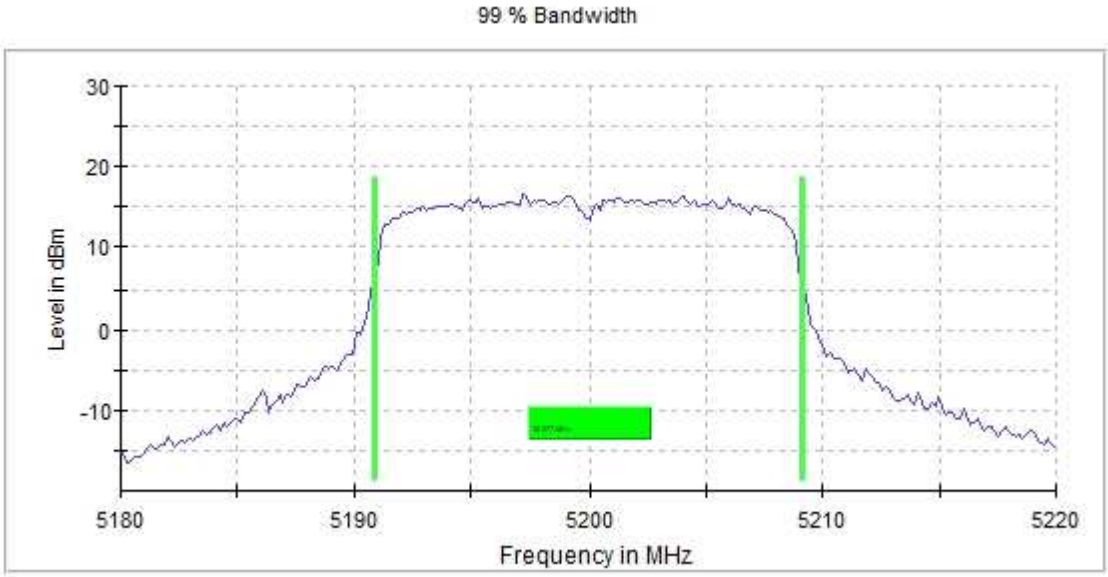
SISO 802.11 ac20 (VHT20):

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

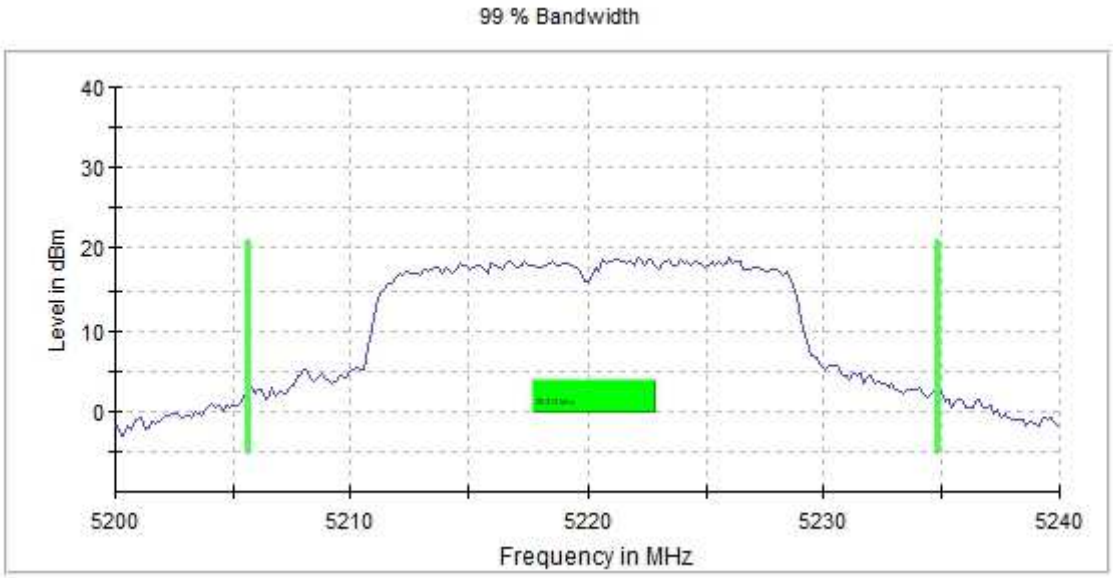
- Low Channel 36 (5180 MHz):



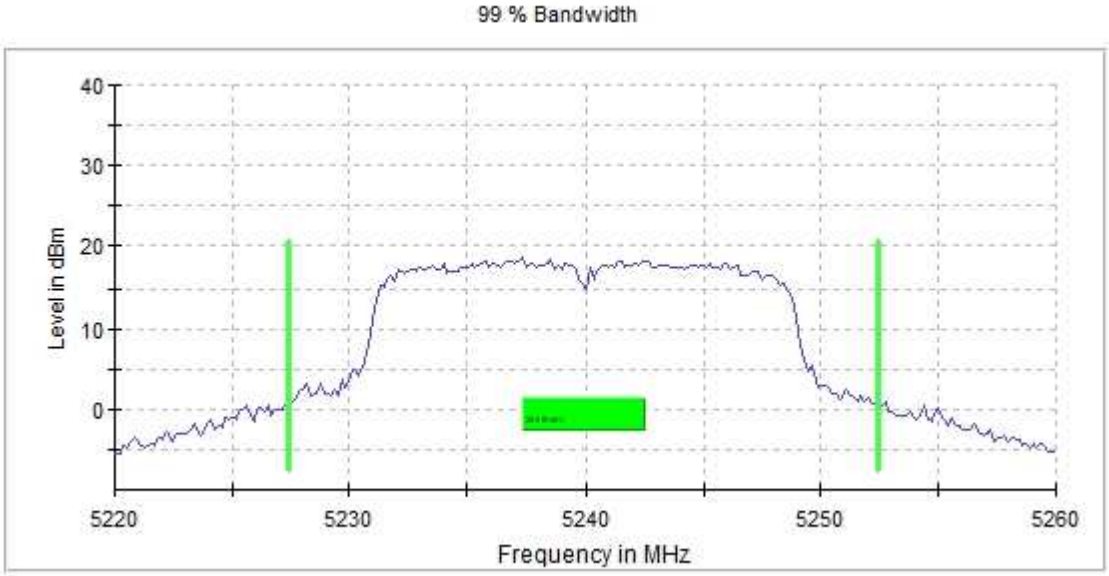
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):

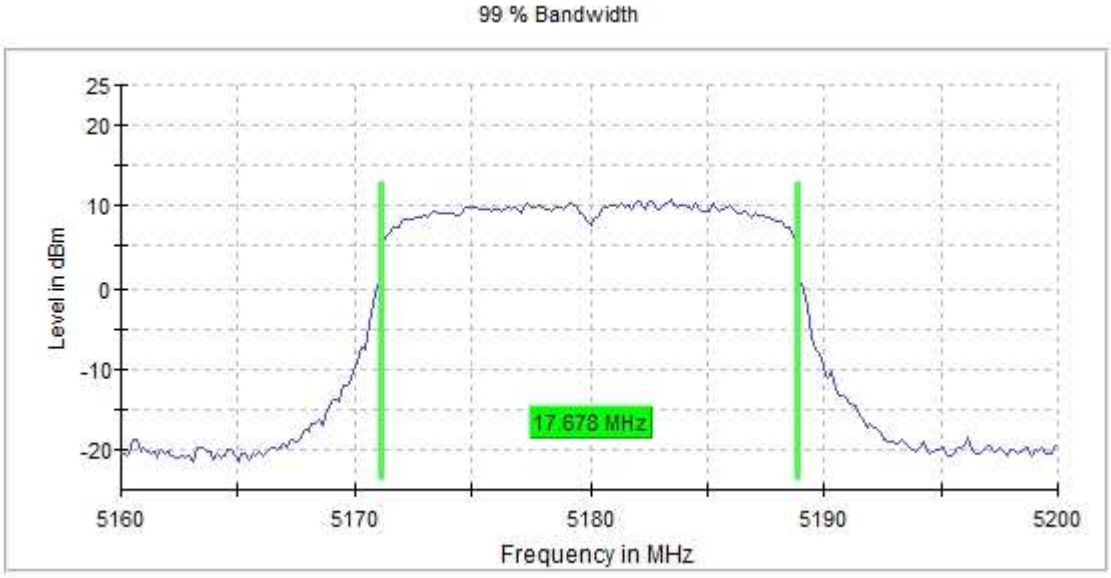


- High Channel 48 (5240 MHz):

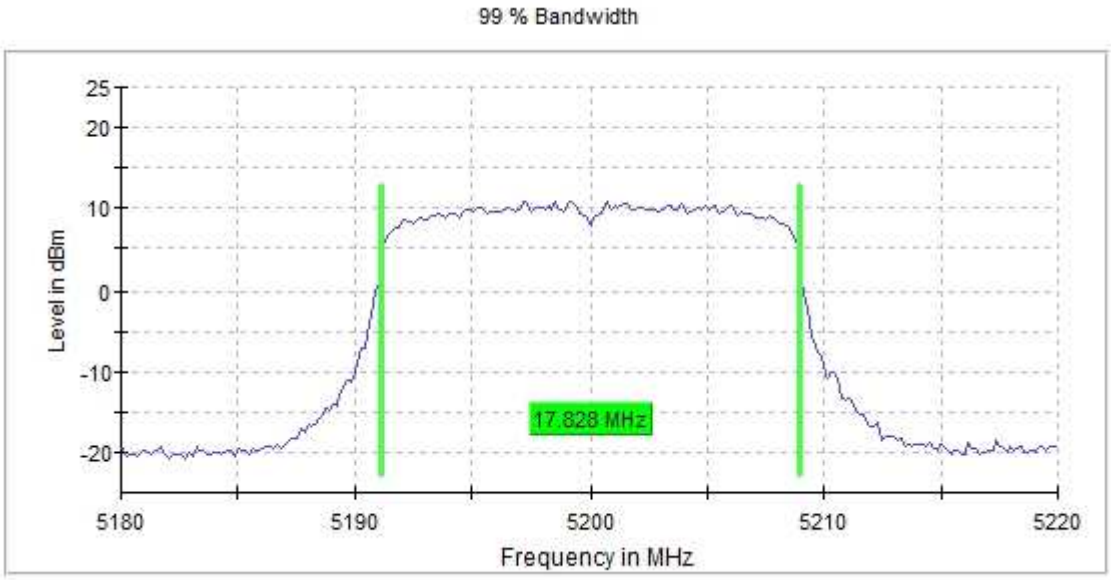


U-NII-1 RSS (5150-5250 MHz)

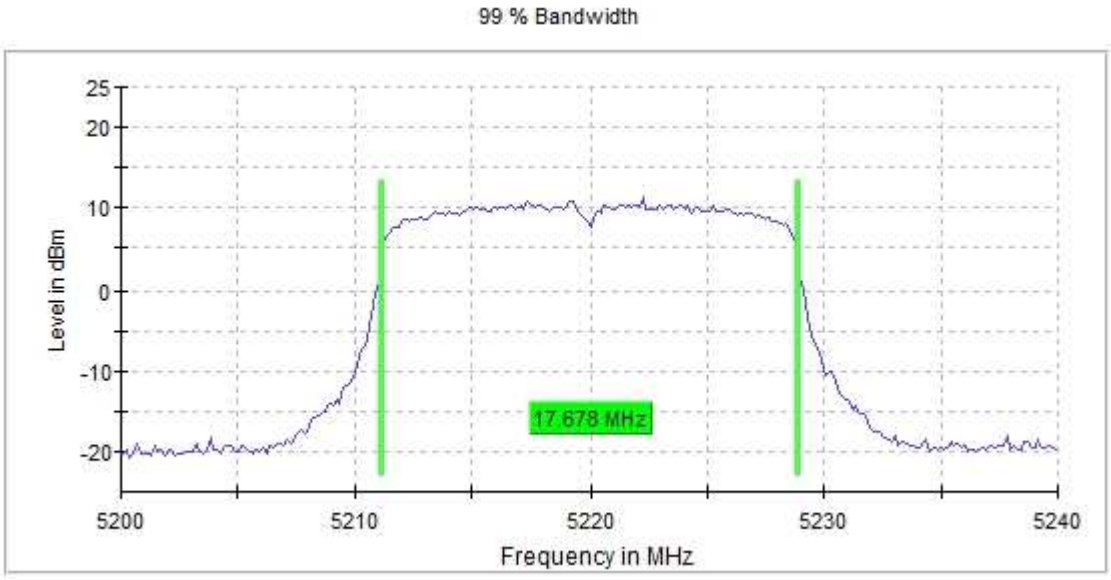
- Low Channel 36 (5180 MHz):



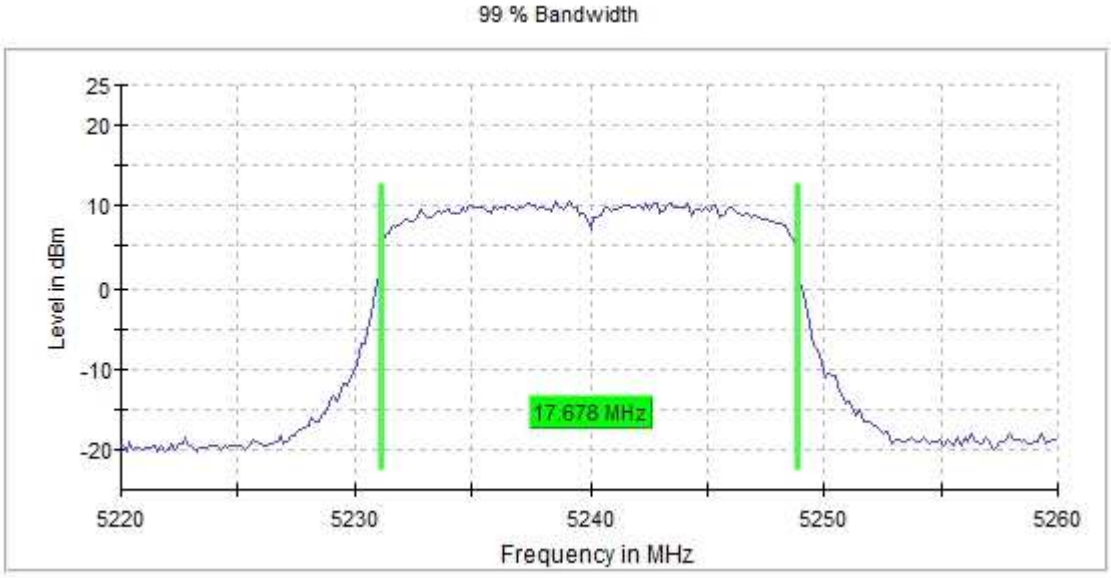
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):

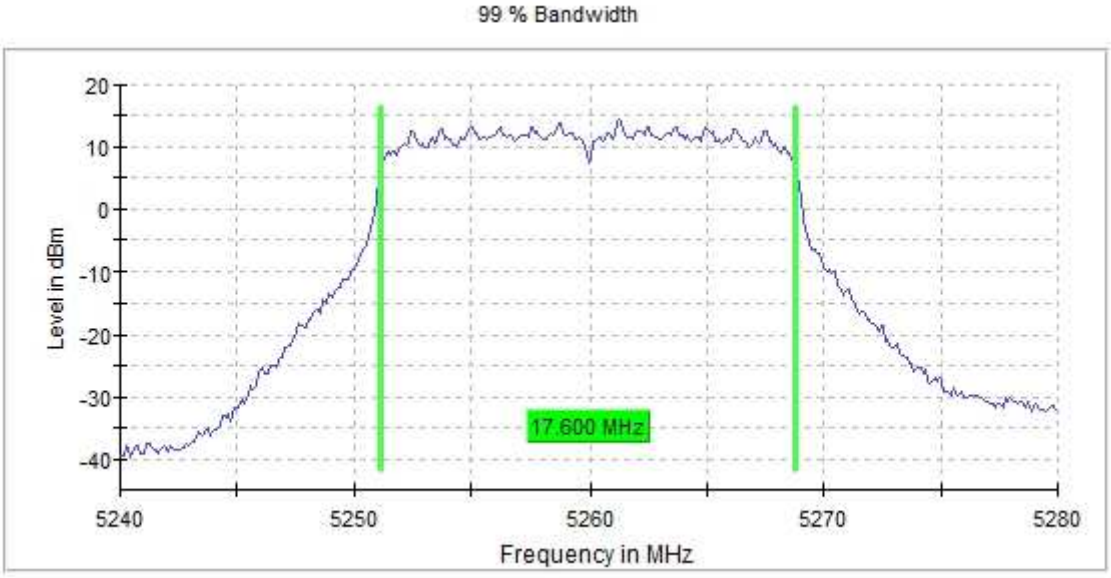


- High Channel 48 (5240 MHz):

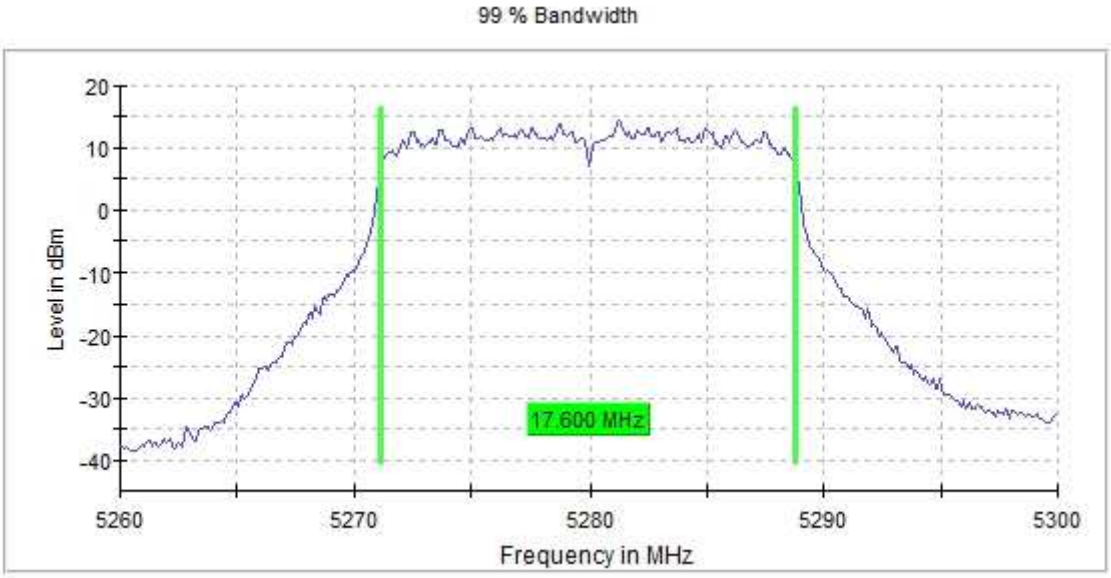


U-NII-2A (5250-5350 MHz)

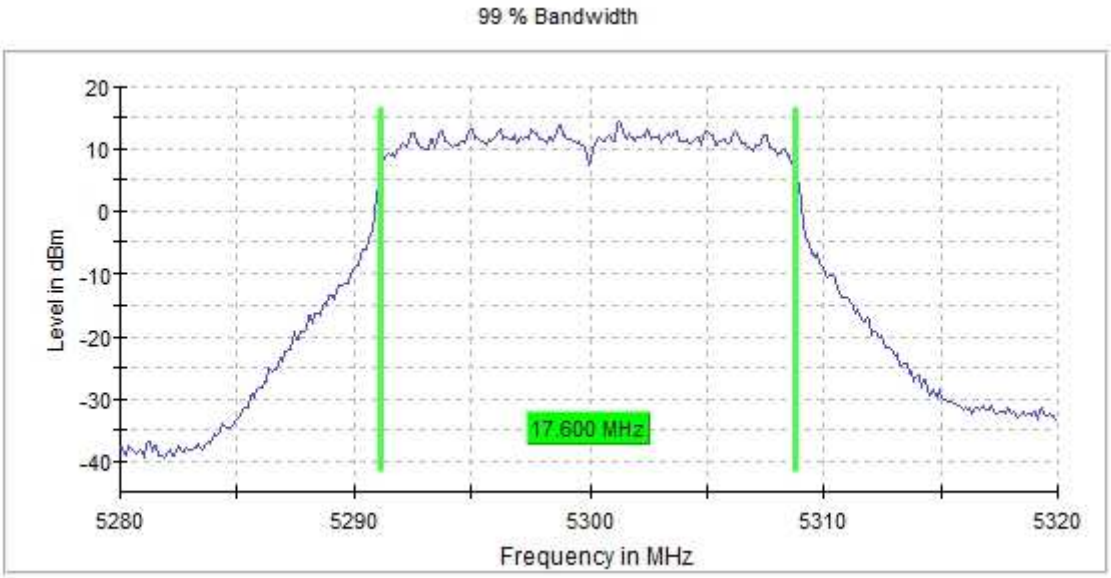
- Low Channel 52 (5260 MHz):



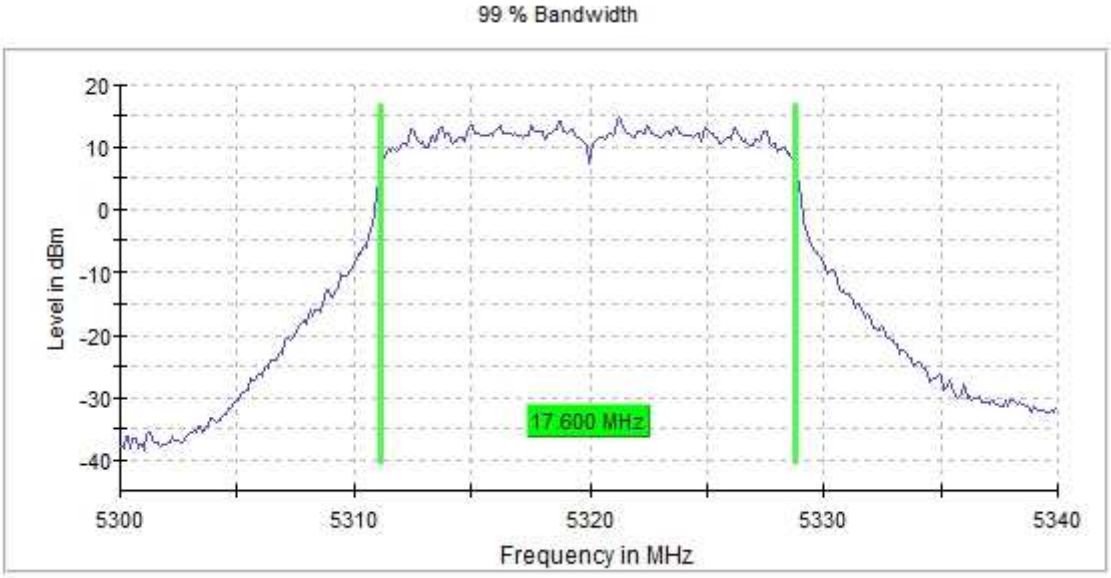
- Middle Channel 56 (5280 MHz):



- Channel 60 (5300 MHz):

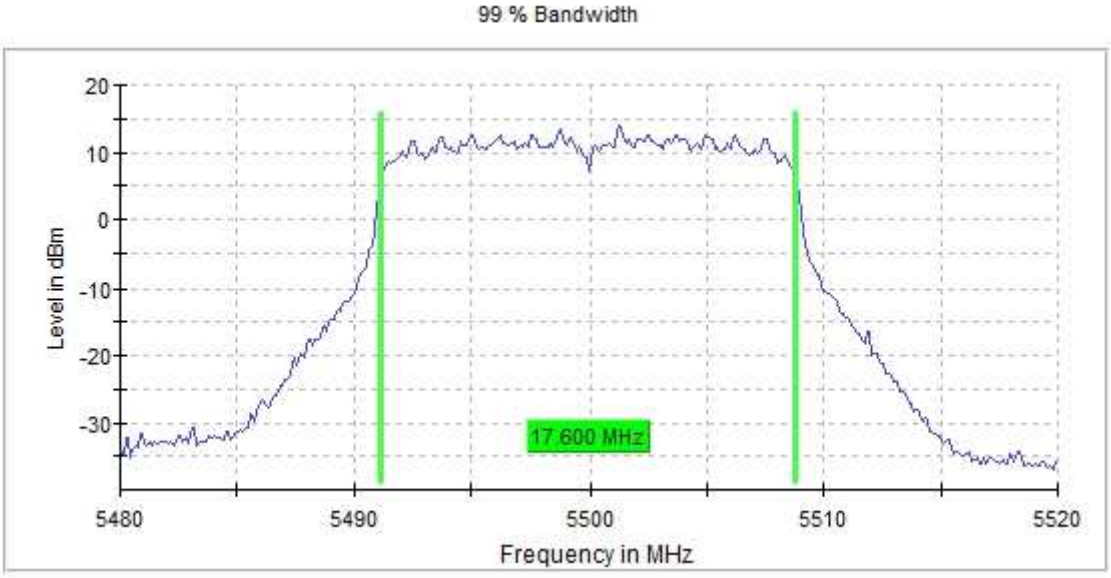


- High Channel 64 (5320 MHz):

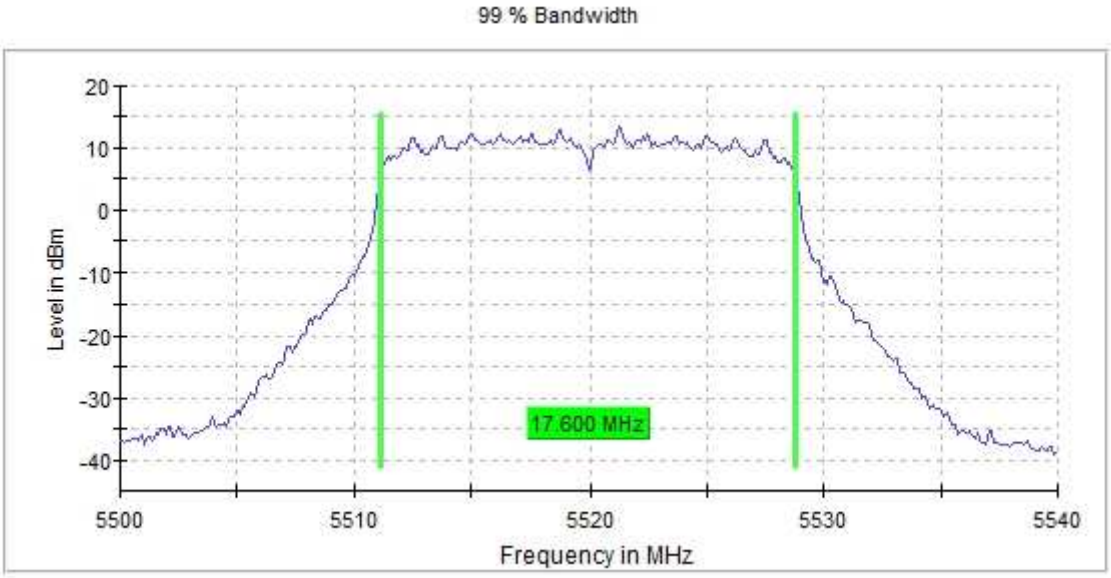


U-NII-2C (5470-5725 MHz)

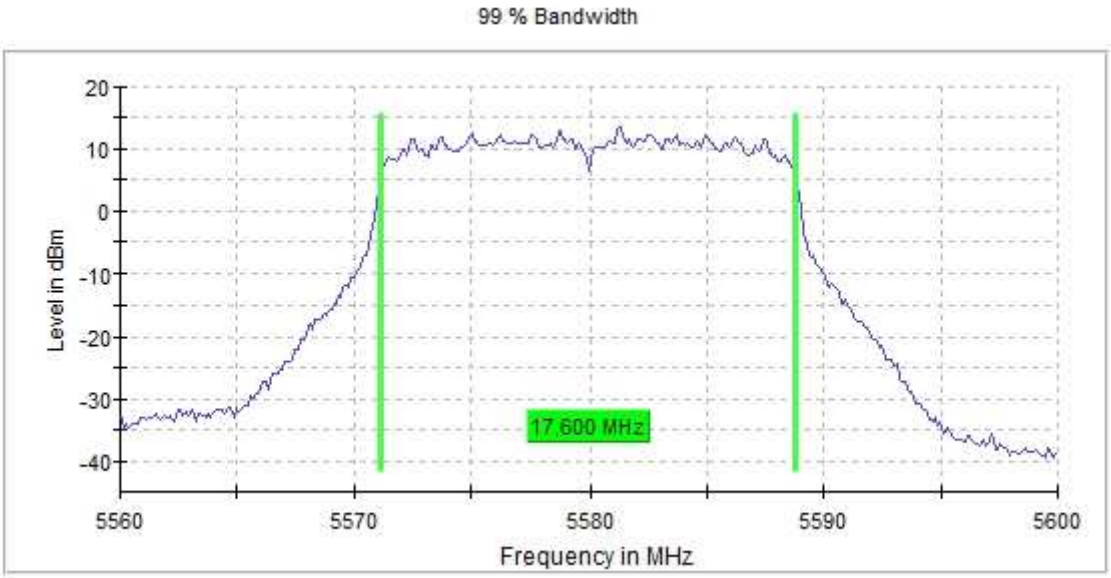
- Low Channel 100 (5500 MHz):



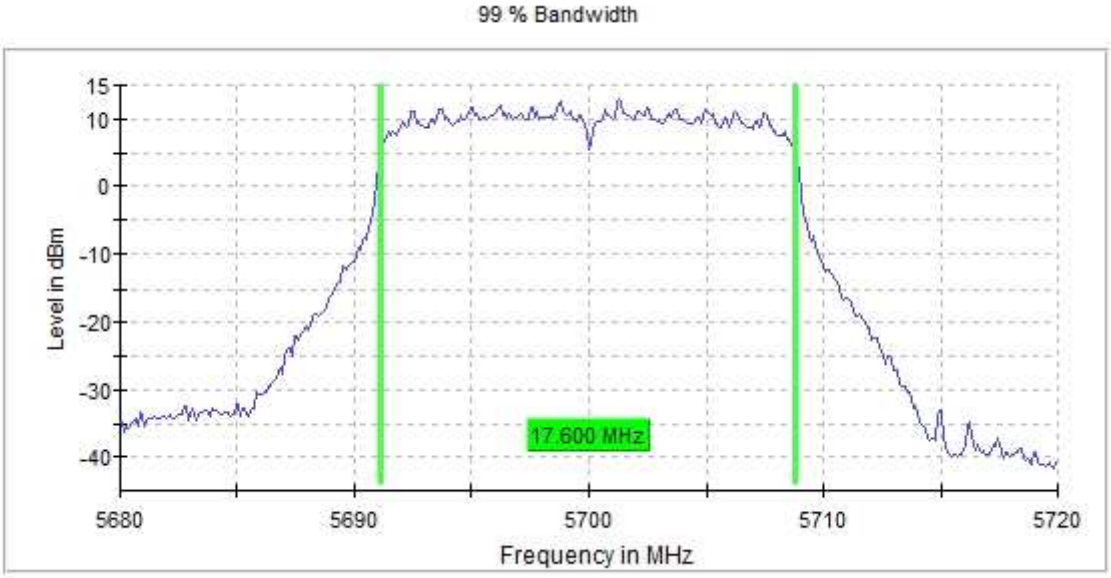
- Channel 104 (5520 MHz):



- Middle Channel 116 (5580 MHz):

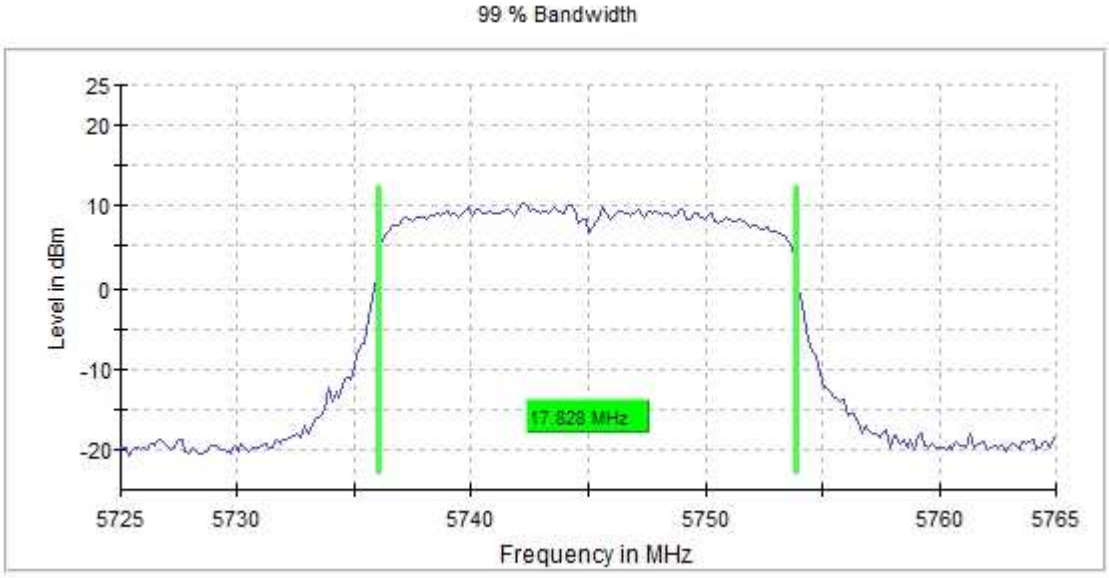


- High Channel 140 (5700 MHz):

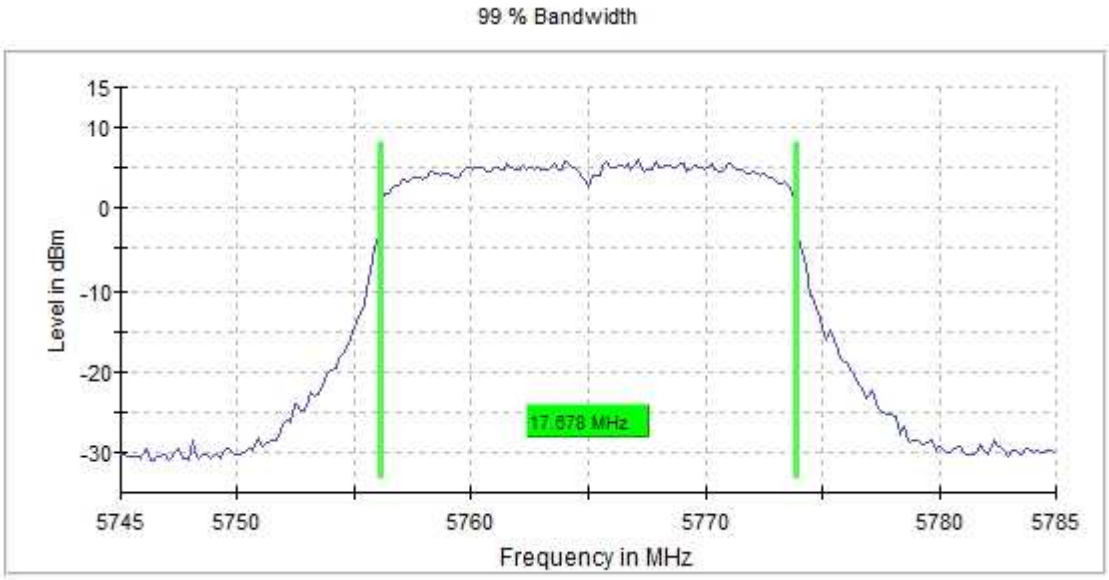


U-NII-3 (5725-5850 MHz)

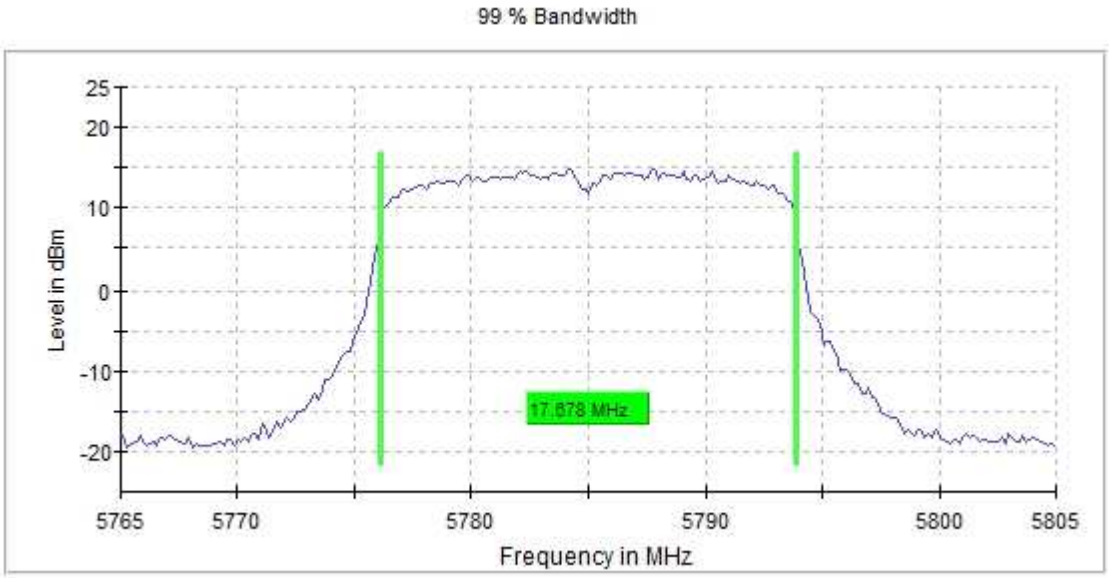
- Low Channel 149 (5745 MHz):



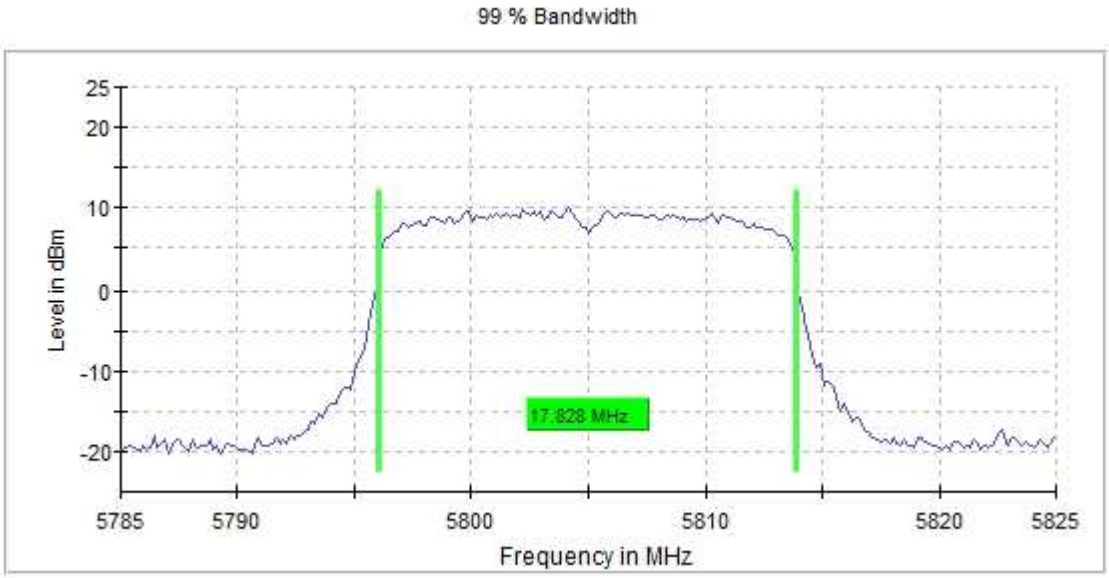
- Channel 153 (5765 MHz):



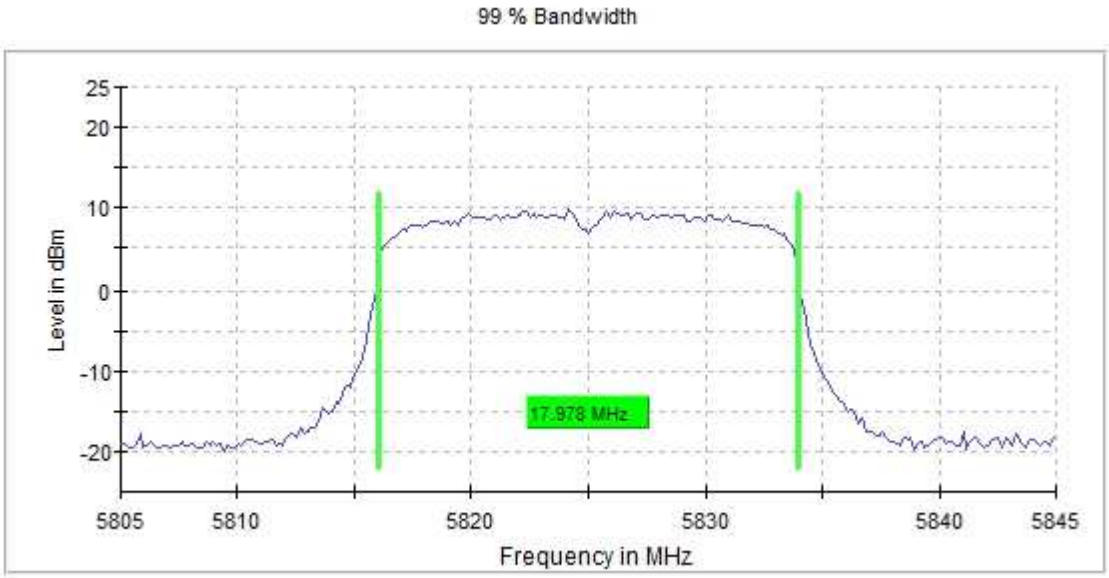
- Middle Channel 157 (5785 MHz):



- Channel 161 (5805 MHz):



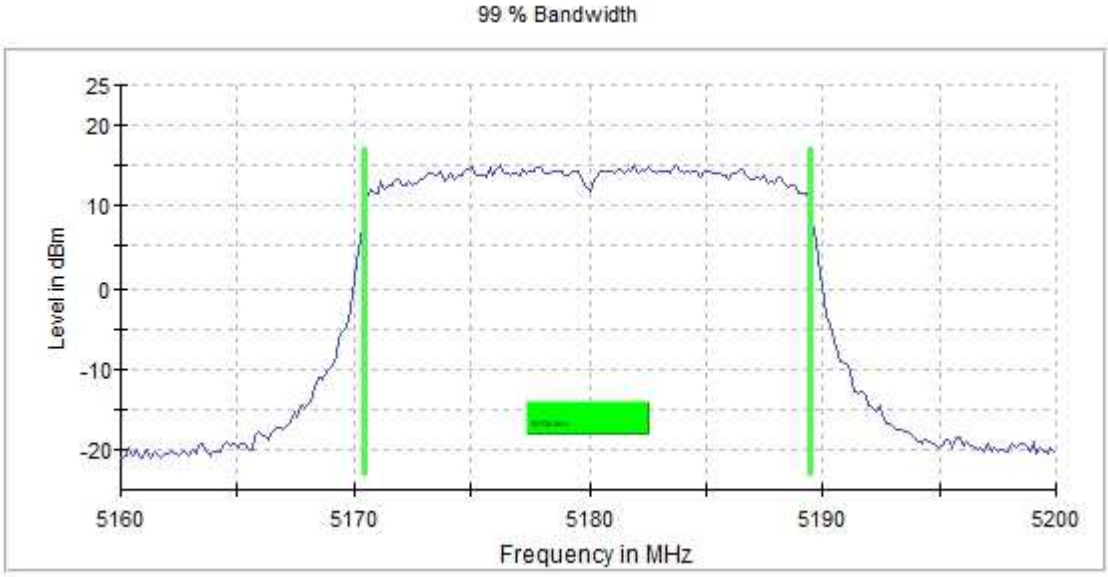
- High Channel 165 (5825 MHz):



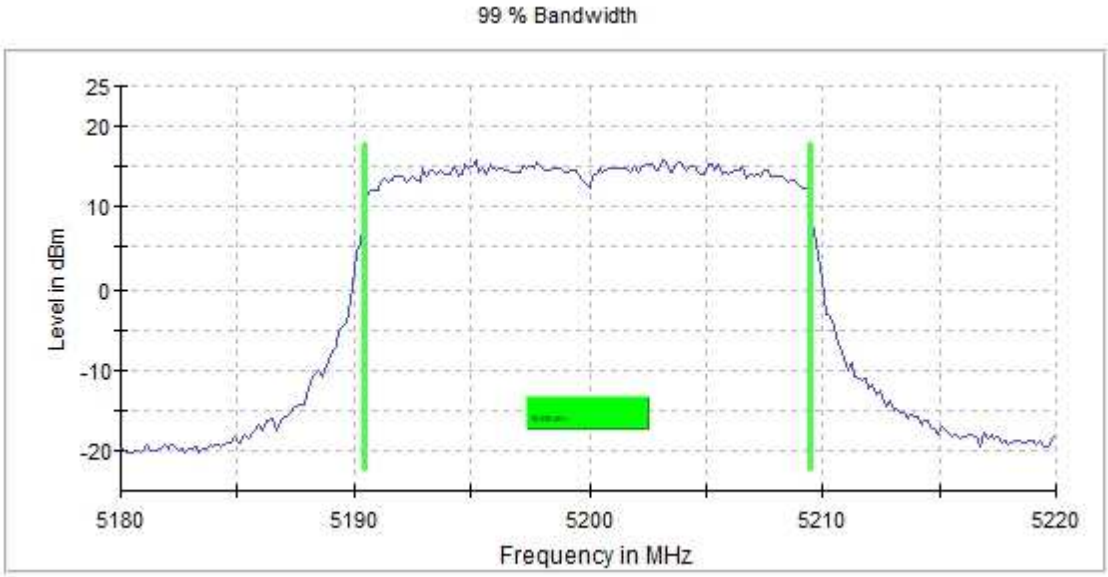
SISO 802.11 ax20 (HE20):

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

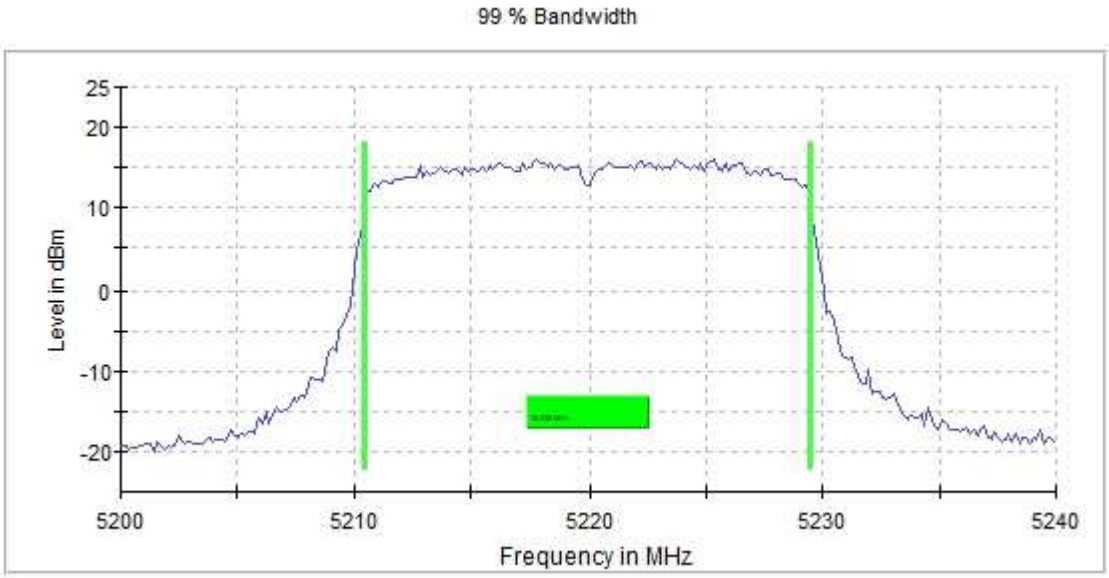
- Low Channel 36 (5180 MHz):



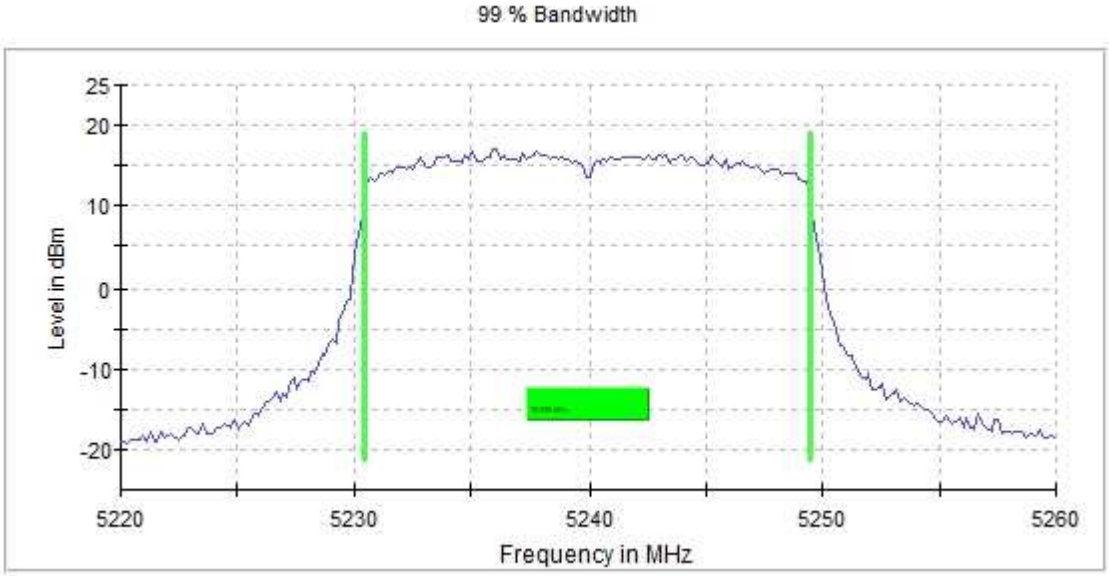
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):

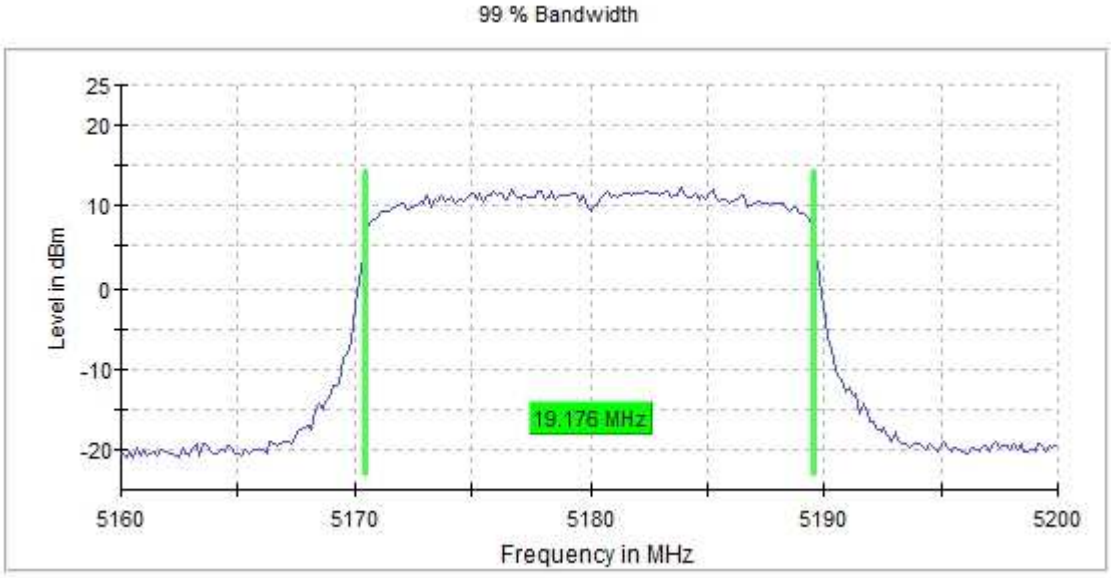


- High Channel 48 (5240 MHz):

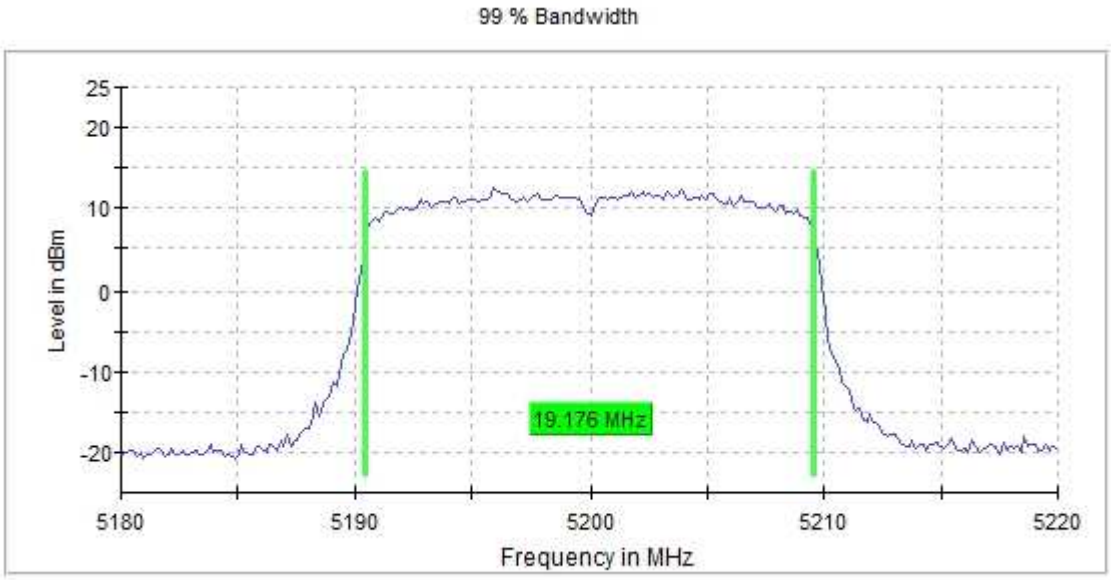


U-NII-1 RSS (5150-5250 MHz)

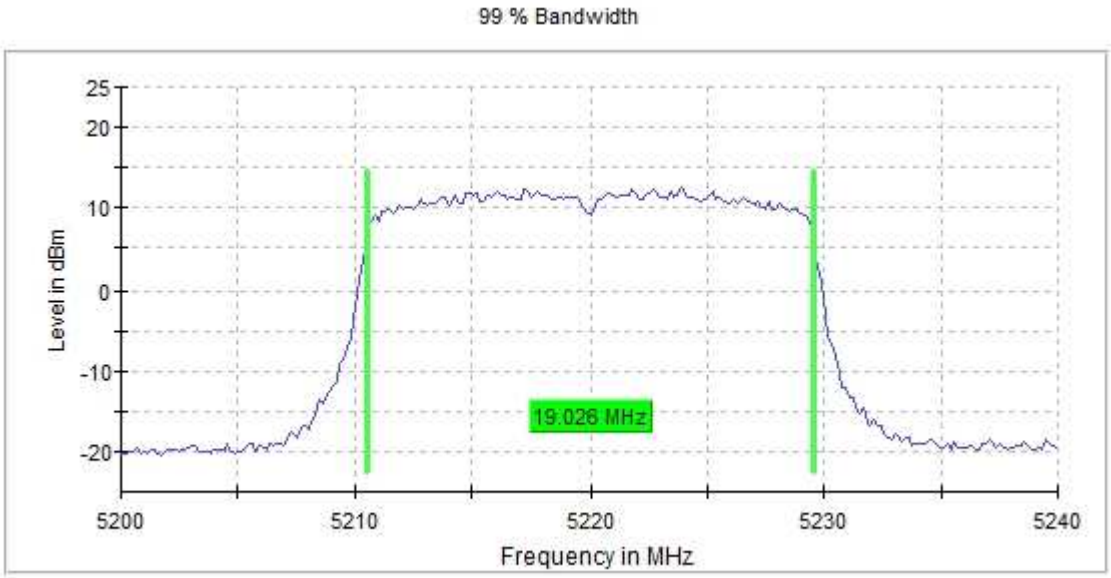
- Low Channel 36 (5180 MHz):



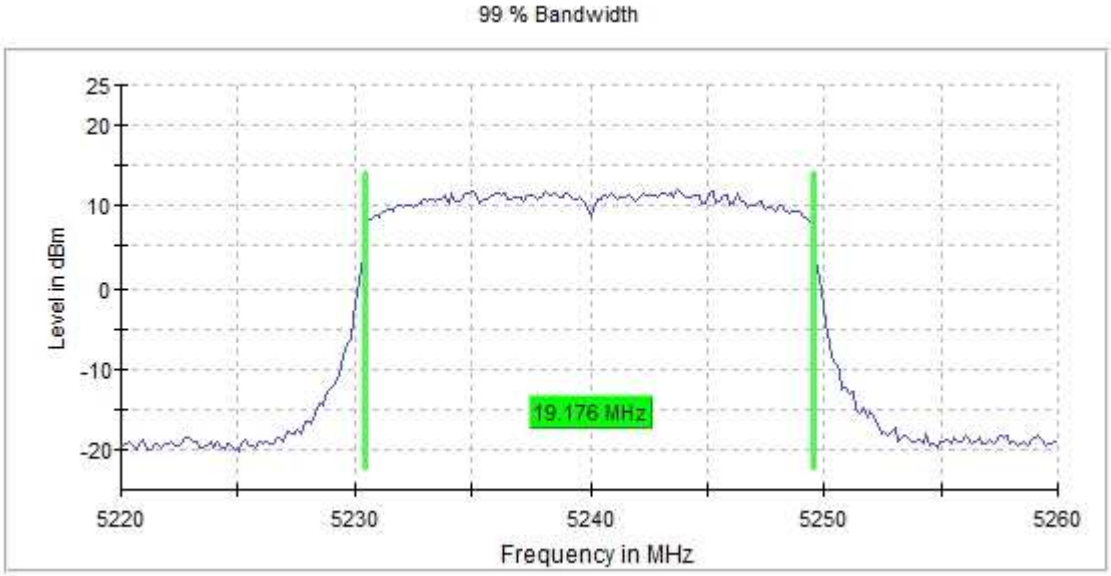
- Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):

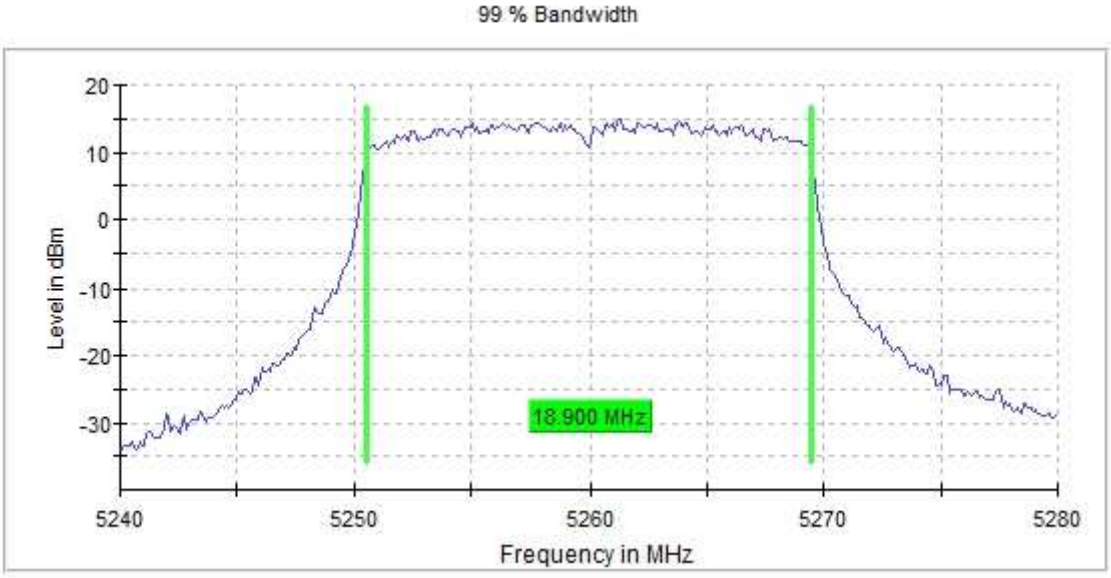


- High Channel 48 (5240 MHz):

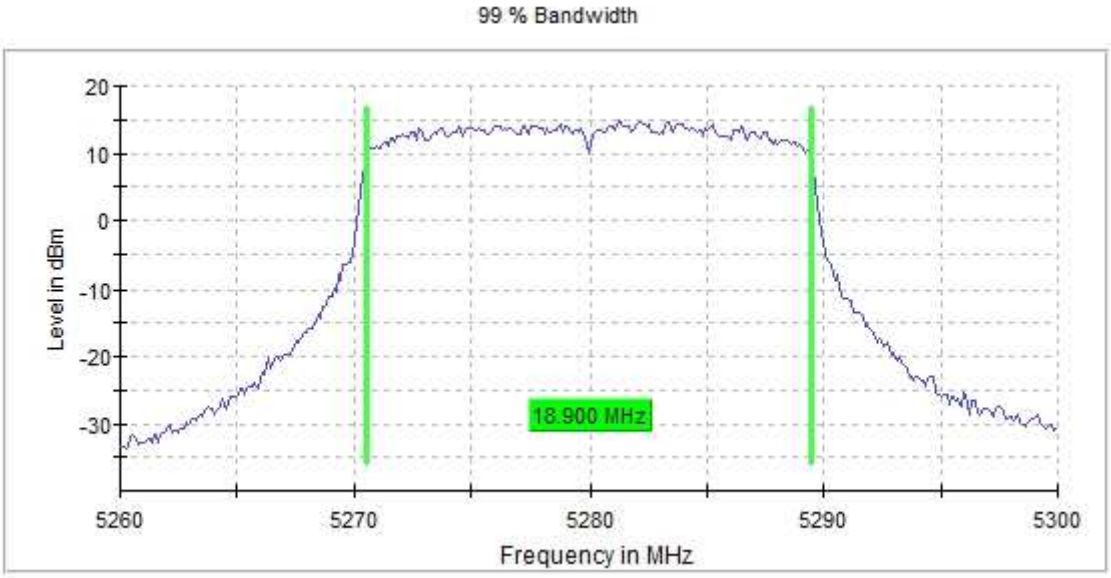


U-NII-2A (5250-5350 MHz)

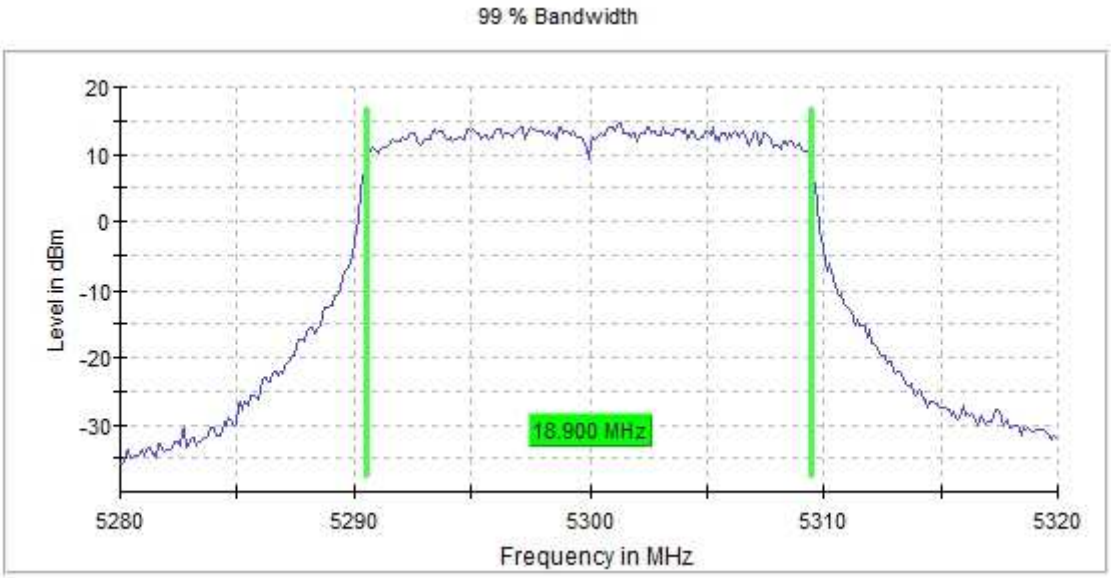
- Low Channel 52 (5260 MHz):



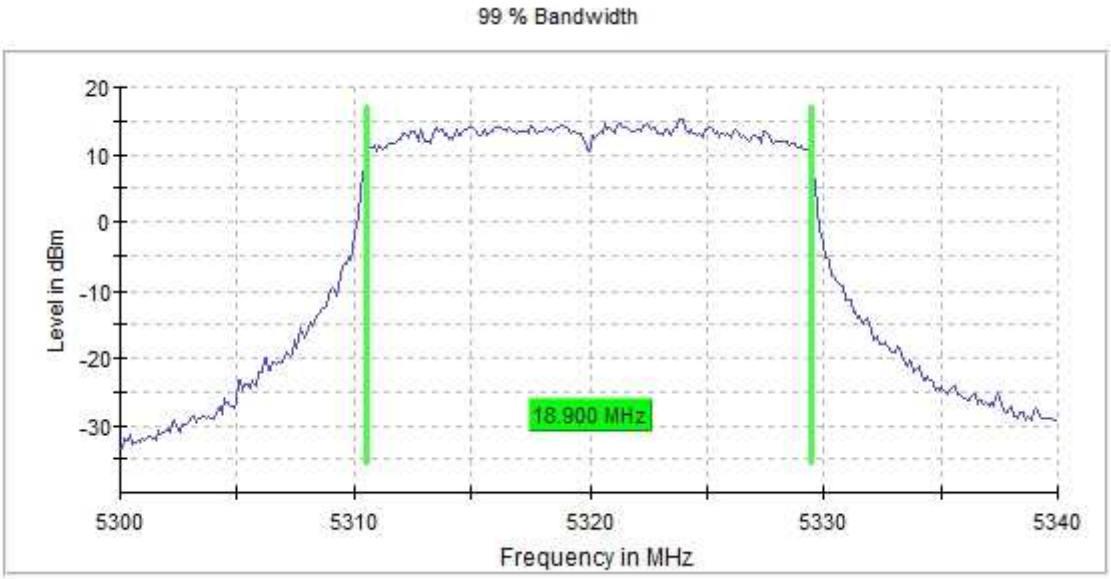
- Middle Channel 56 (5280 MHz):



- Channel 60 (5300 MHz):

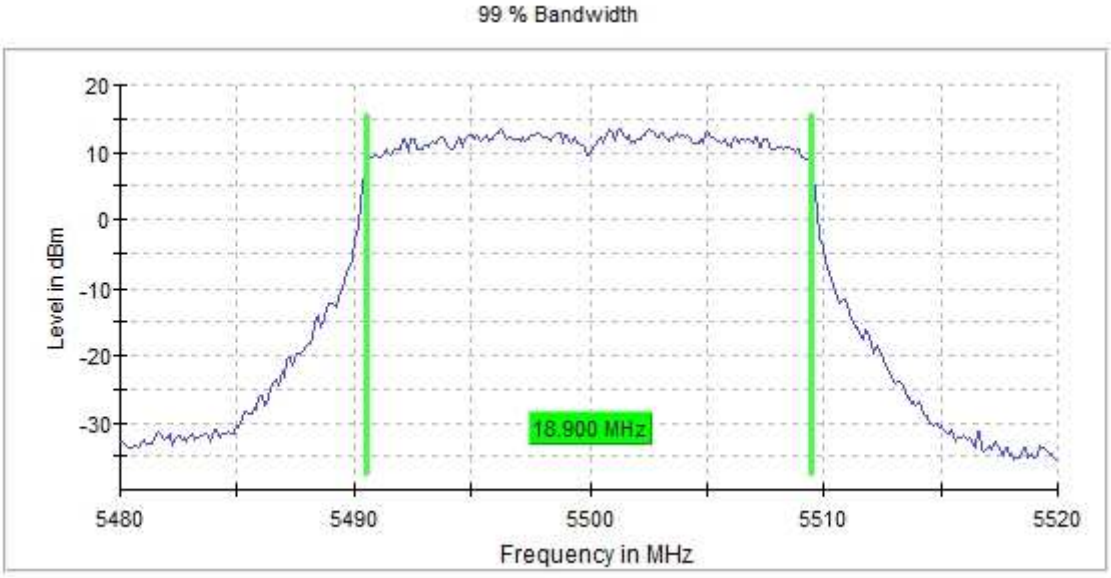


- High Channel 64 (5320 MHz):

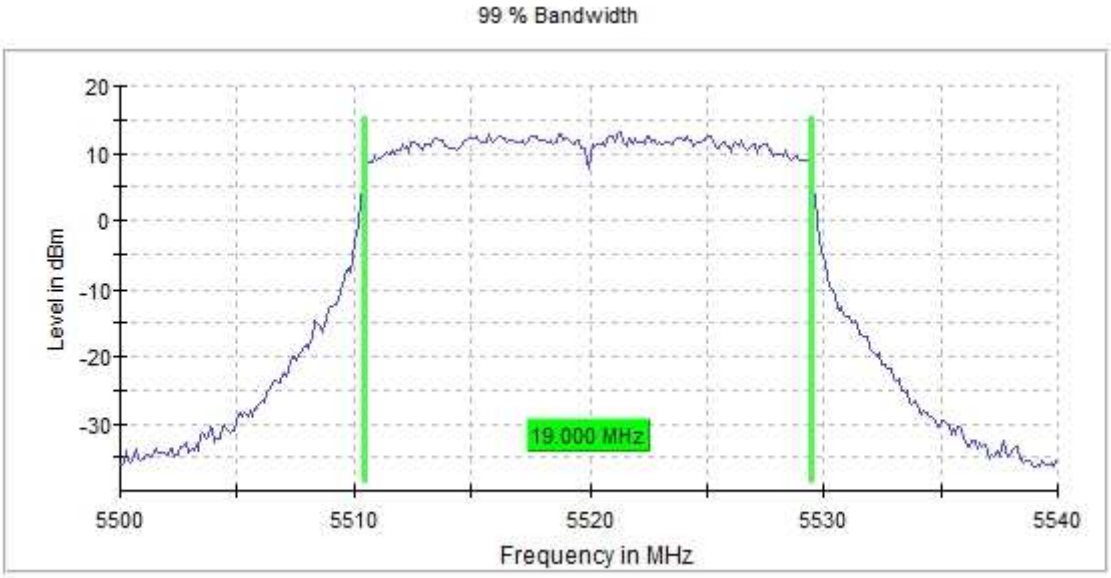


U-NII-2C (5470-5725 MHz)

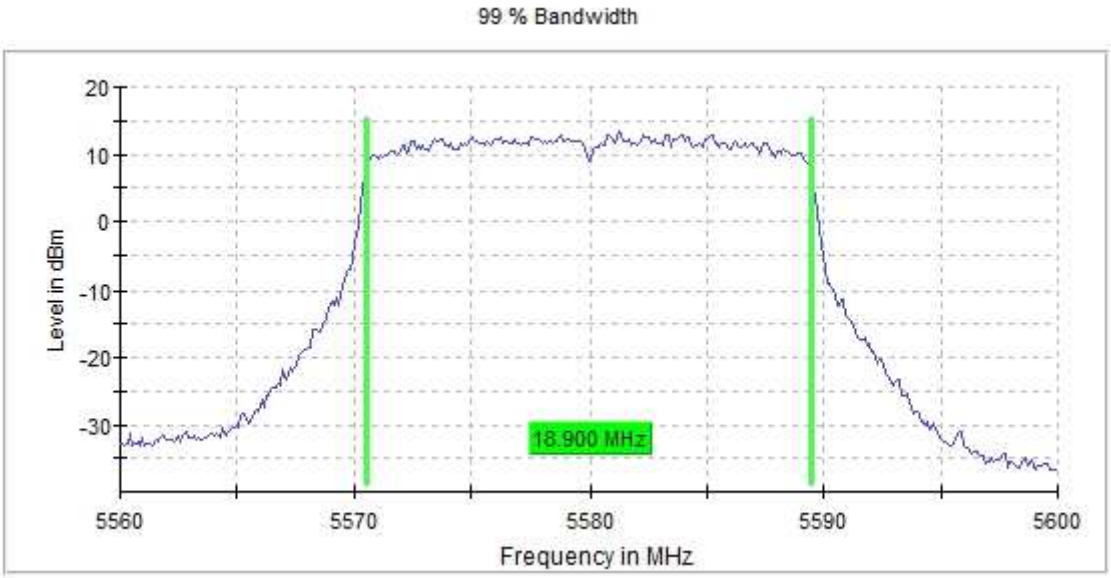
- Low Channel 100 (5500 MHz):



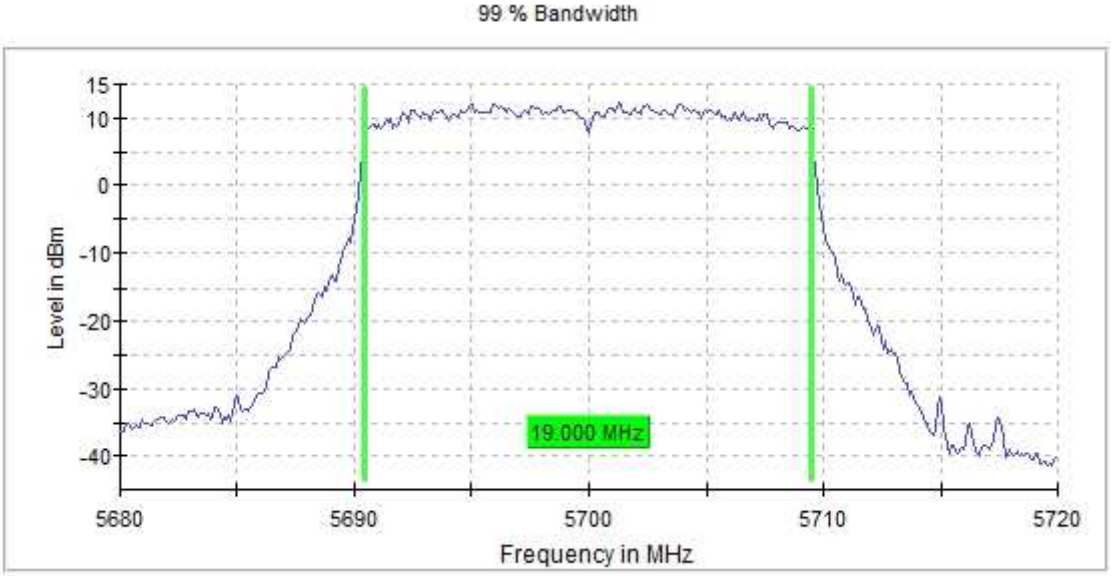
- Channel 104 (5520 MHz):



- Middle Channel 116 (5580 MHz):

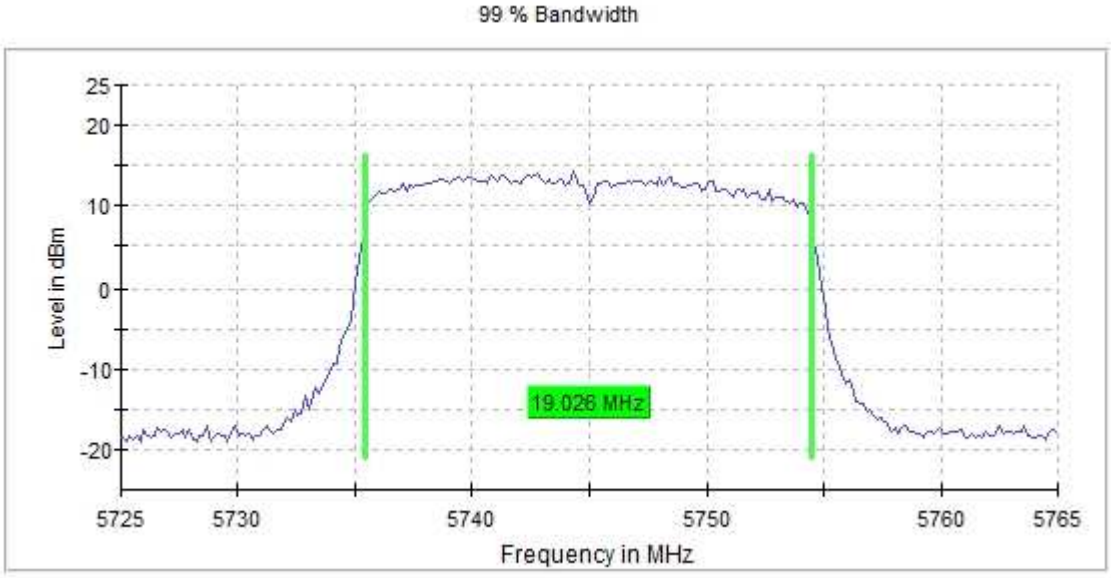


- High Channel 140 (5700 MHz):

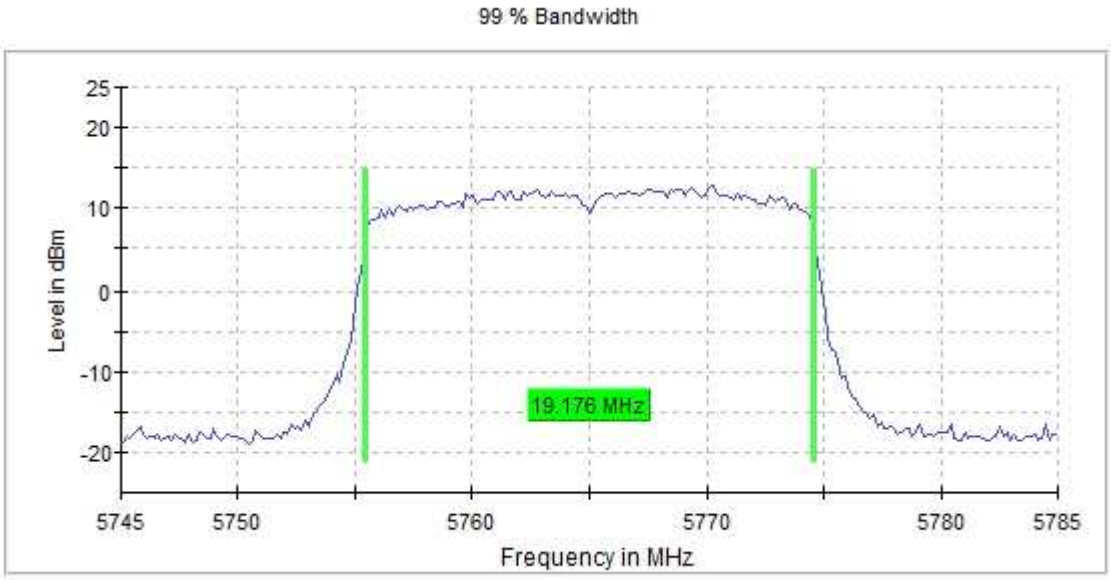


U-NII-3 (5725-5850 MHz)

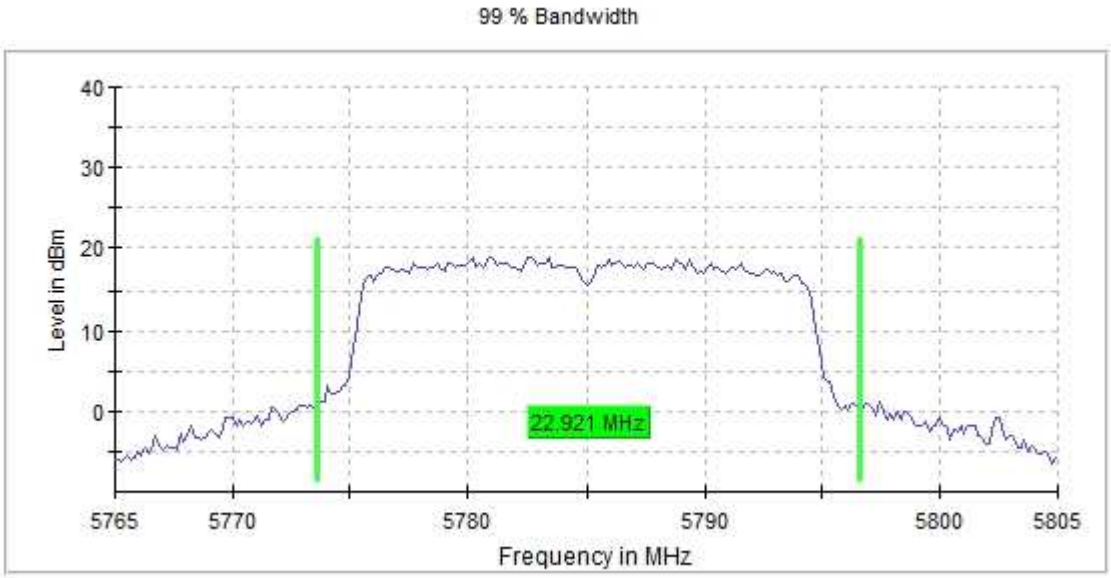
- Low Channel 149 (5745 MHz):



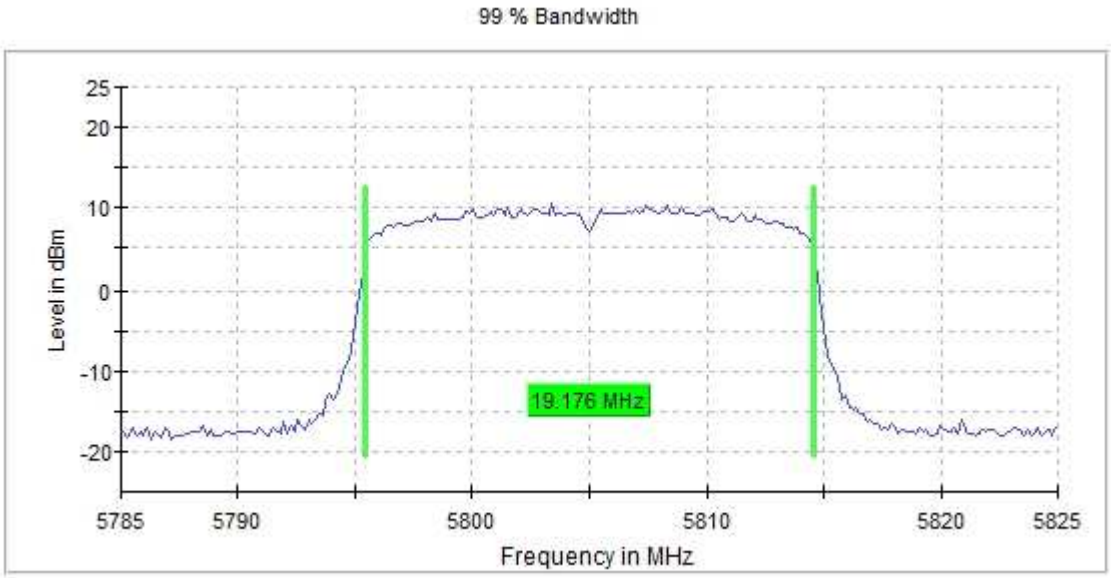
- Channel 153 (5765 MHz):



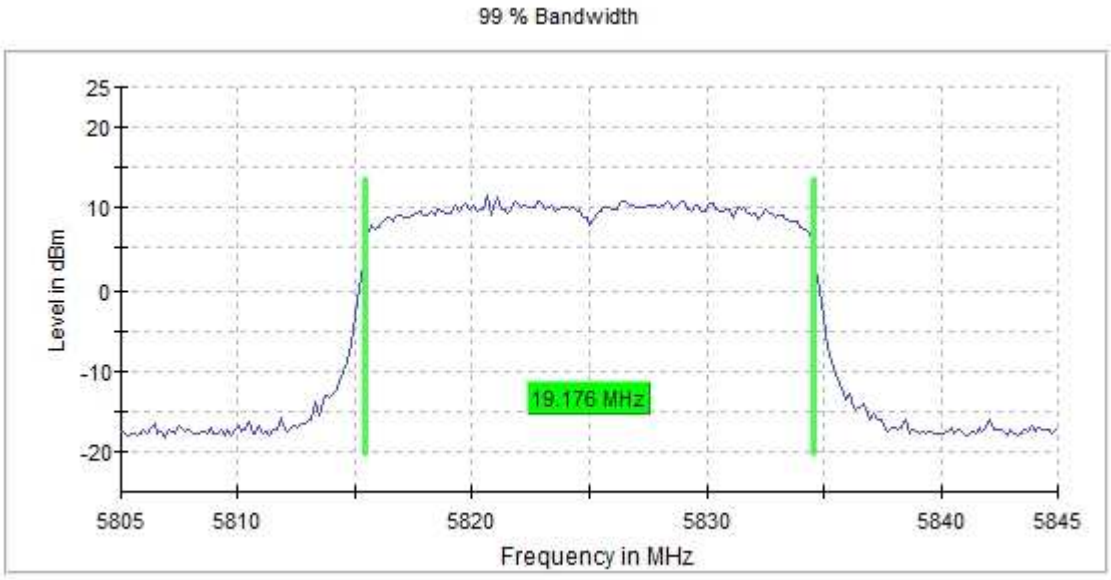
- Middle Channel 157 (5785 MHz):



- Channel 161 (5805 MHz):



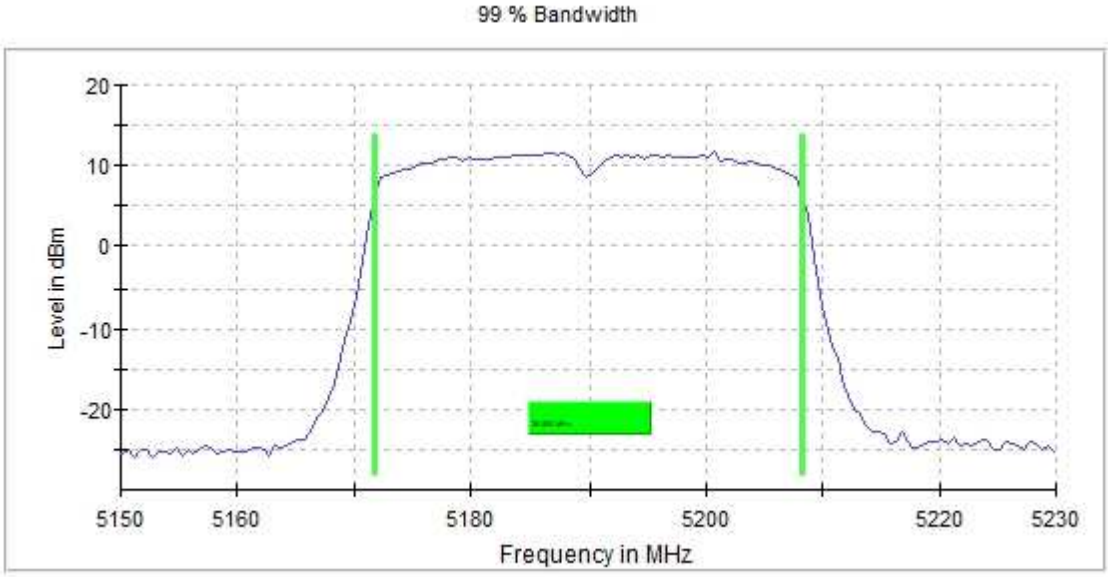
- High Channel 165 (5825 MHz):



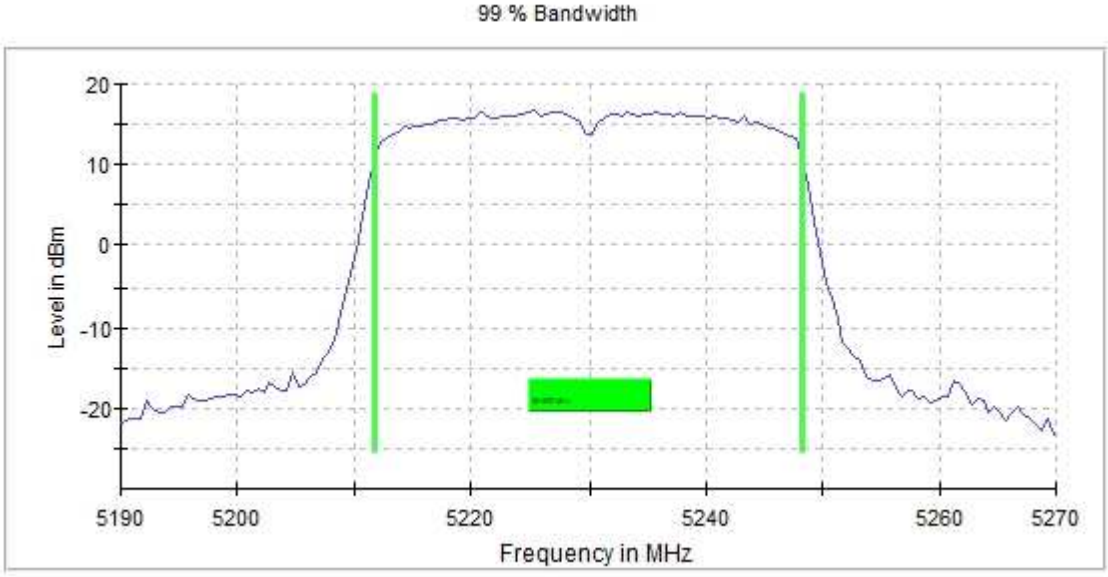
SISO 802.11 n40 (VHT40):

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

- Low Channel 38 (5190 MHz):

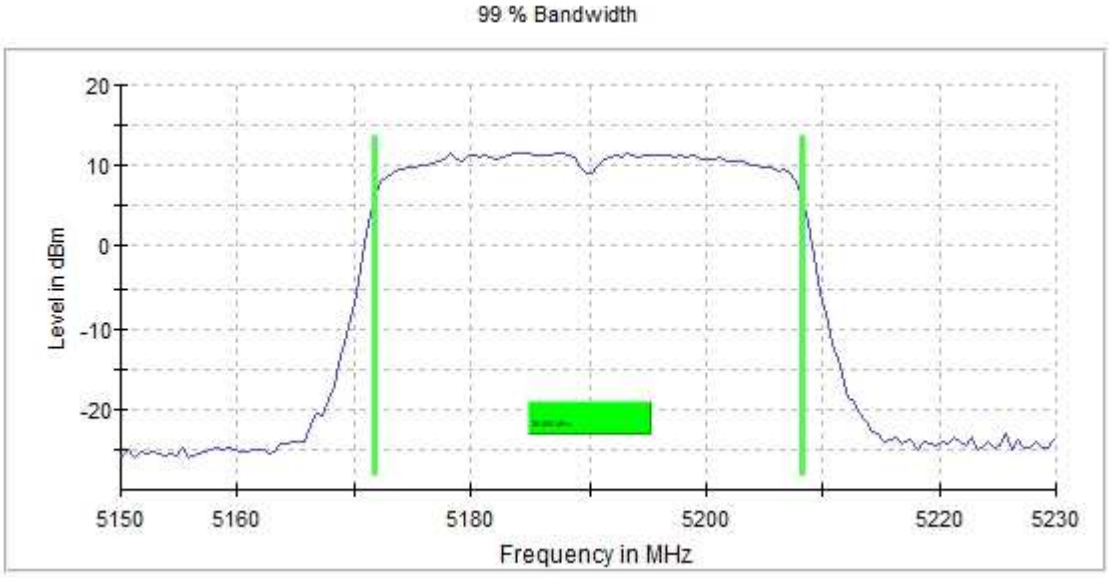


- High Channel 46 (5230 MHz):

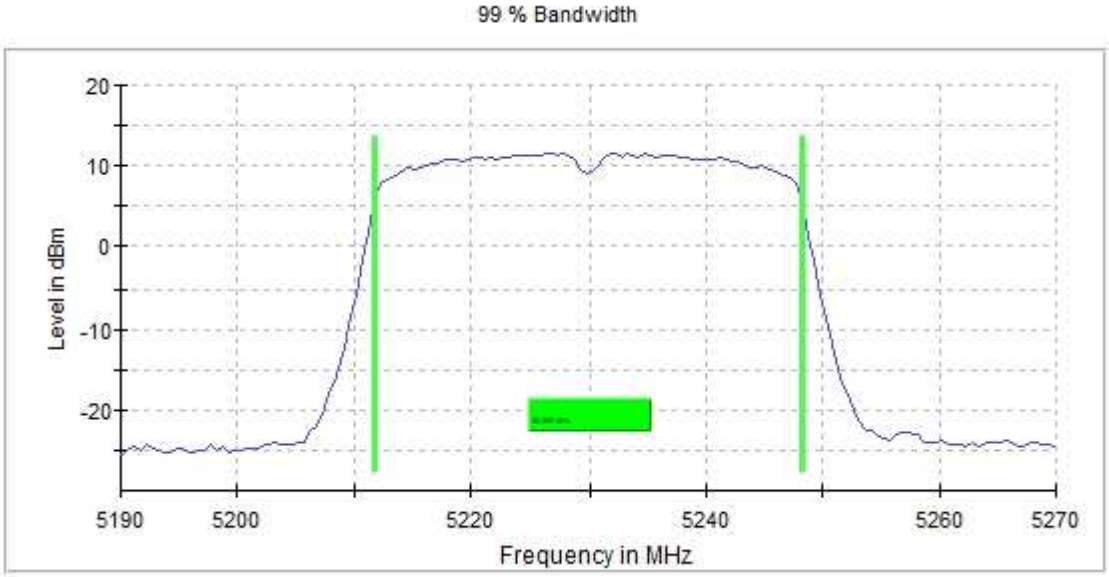


U-NII-1 RSS (5150-5250 MHz)

- Low Channel 38 (5190 MHz):

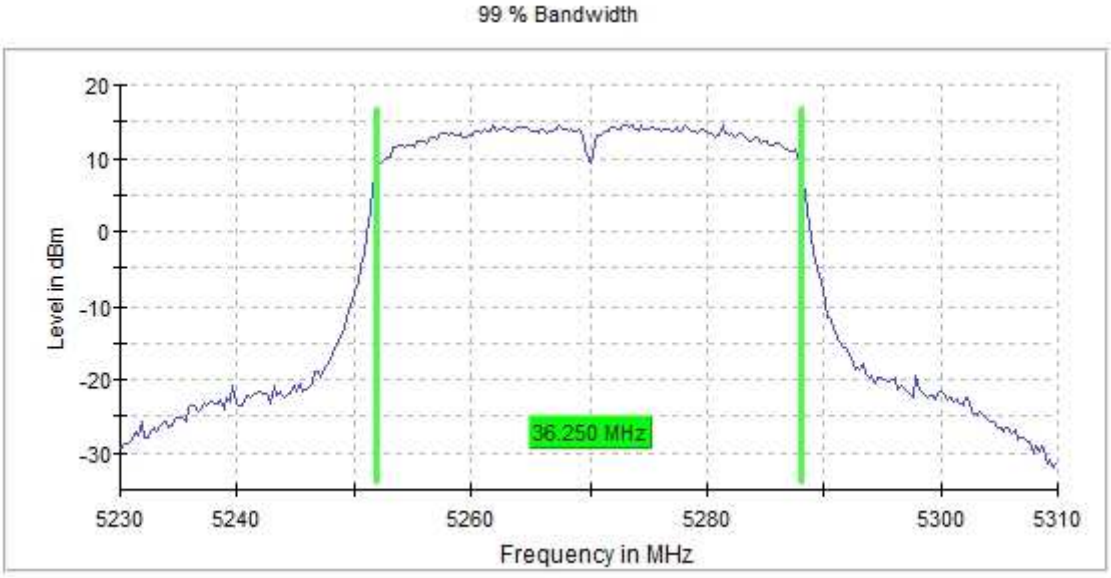


- High Channel 46 (5230 MHz):

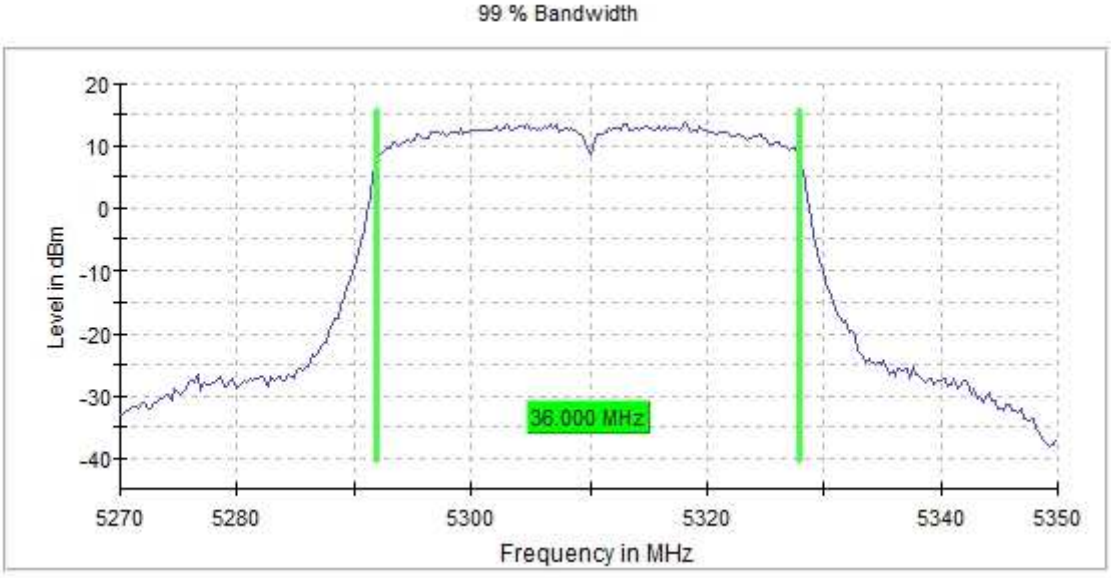


U-NII-2A (5250-5350 MHz)

- Low Channel 54 (5270 MHz):

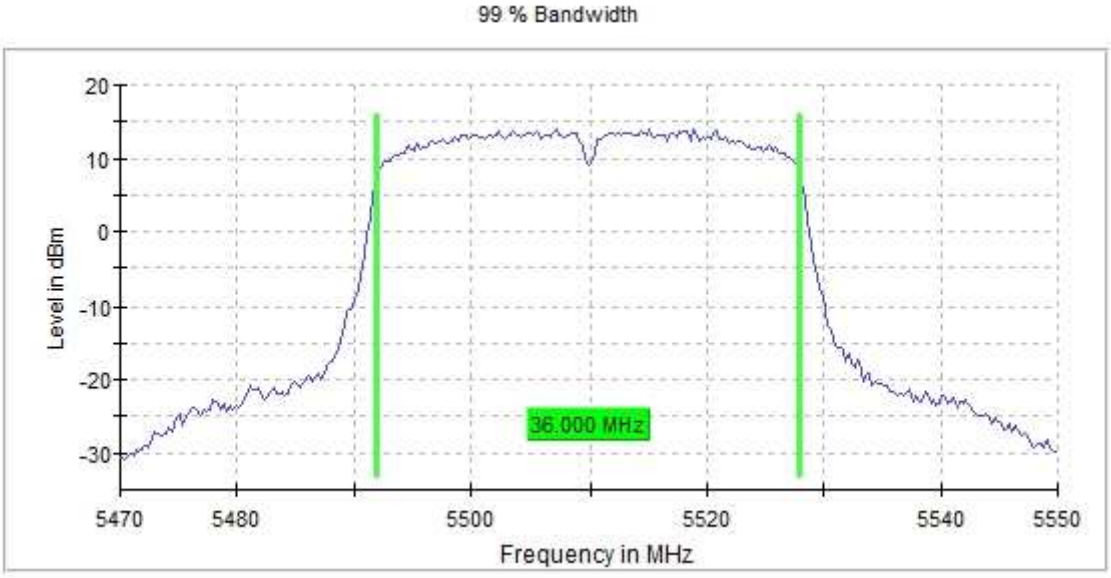


- High Channel 62 (5310 MHz):

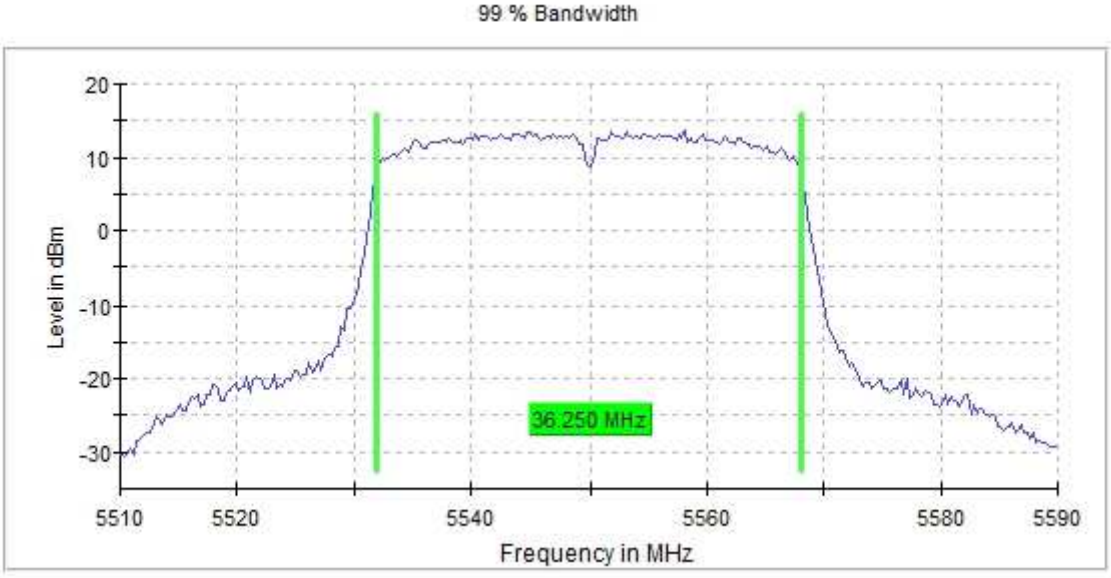


U-NII-2C (5470-5725 MHz)

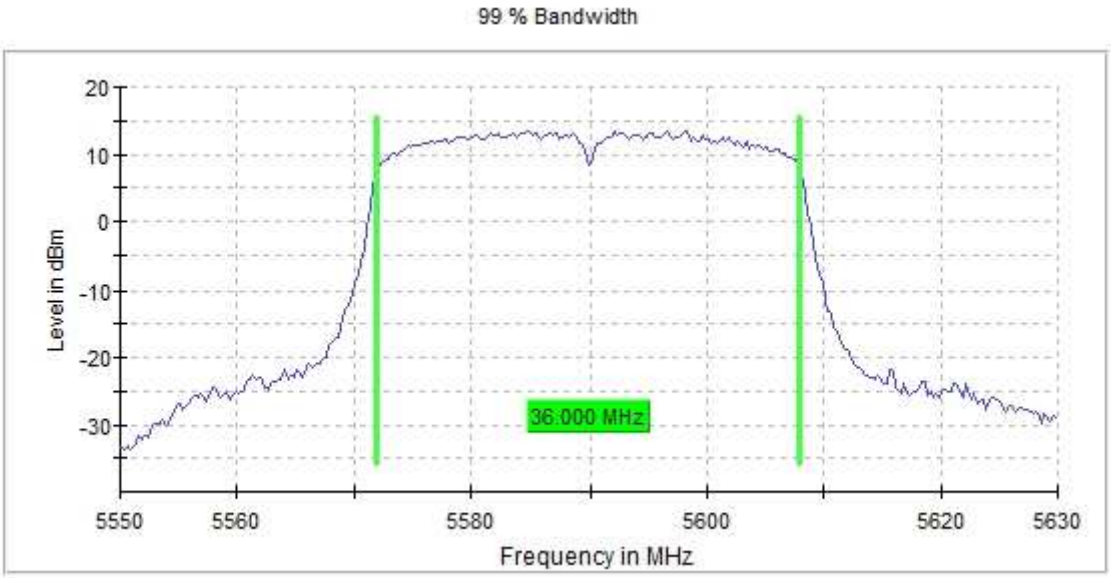
- Low Channel 102 (5510 MHz):



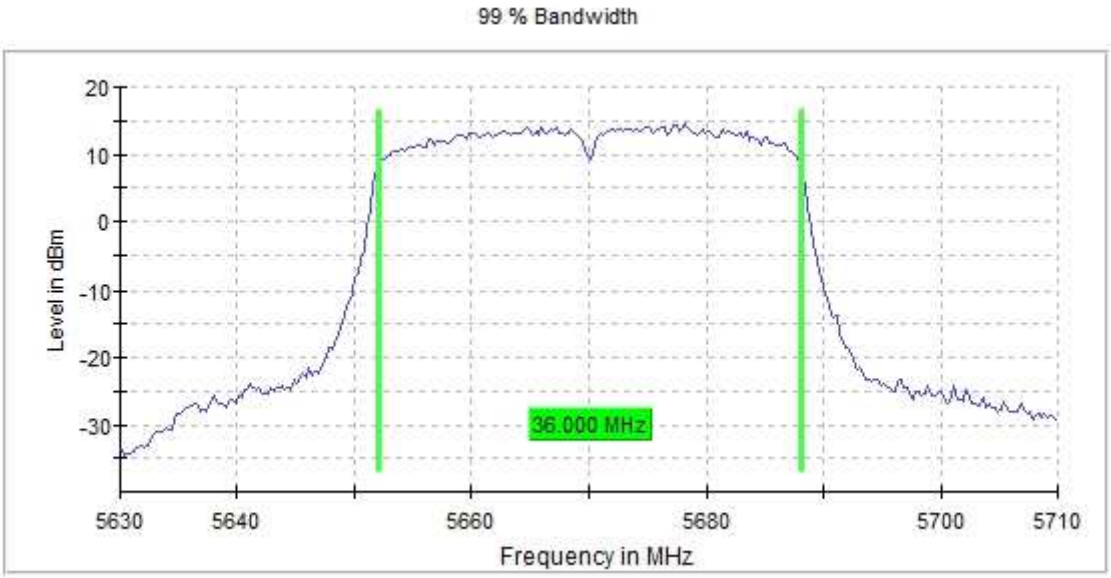
- Middle Channel 110 (5550 MHz):



- Channel 118 (5590 MHz):

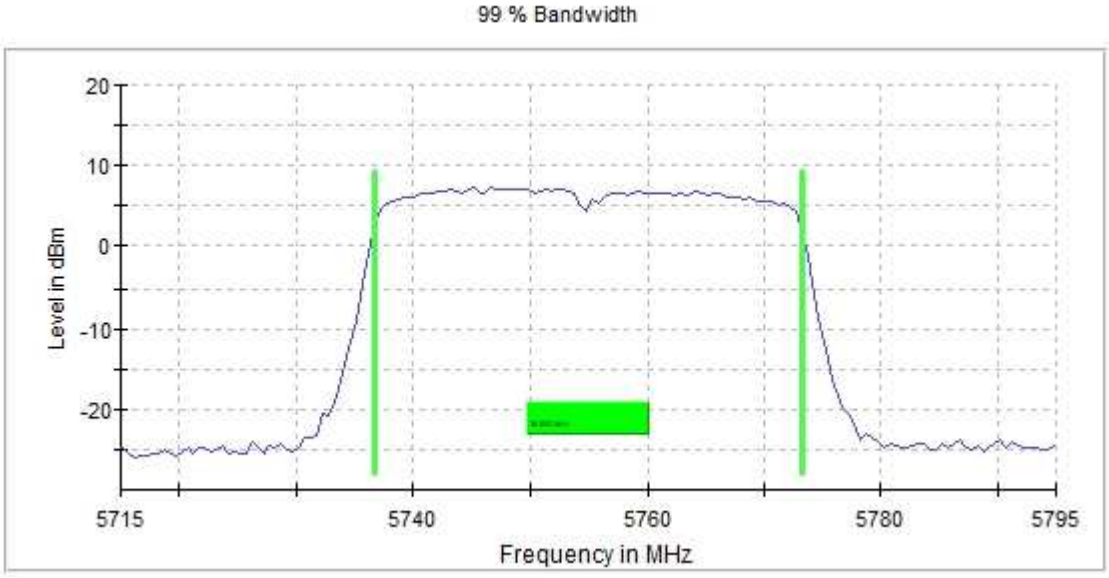


- High Channel 134 (5670 MHz):

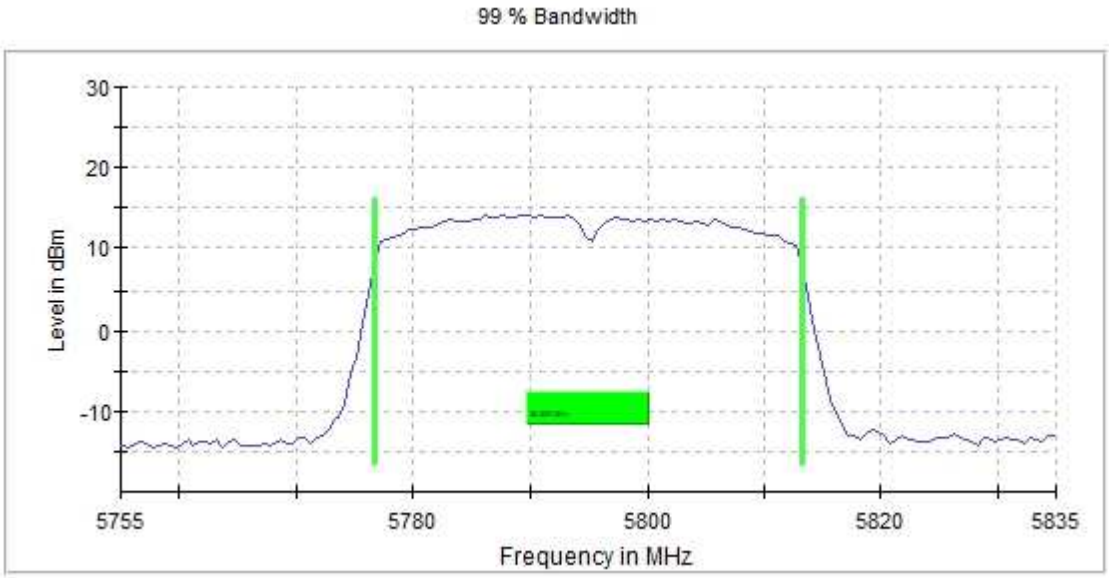


U-NII-3 (5725-5850 MHz)

- Low Channel 151 (5755 MHz):



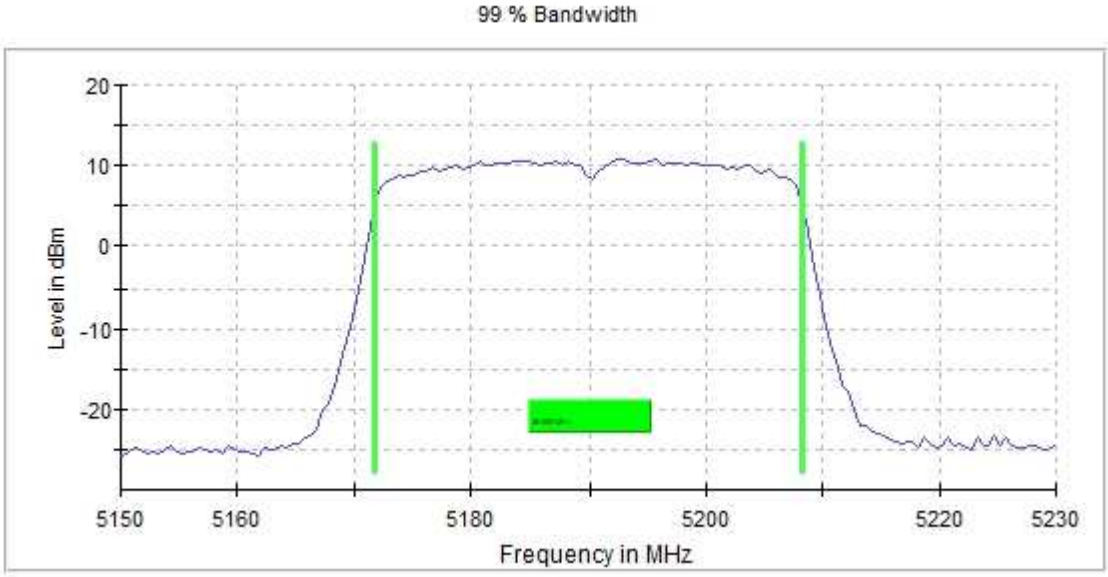
- High Channel 159 (5795 MHz):



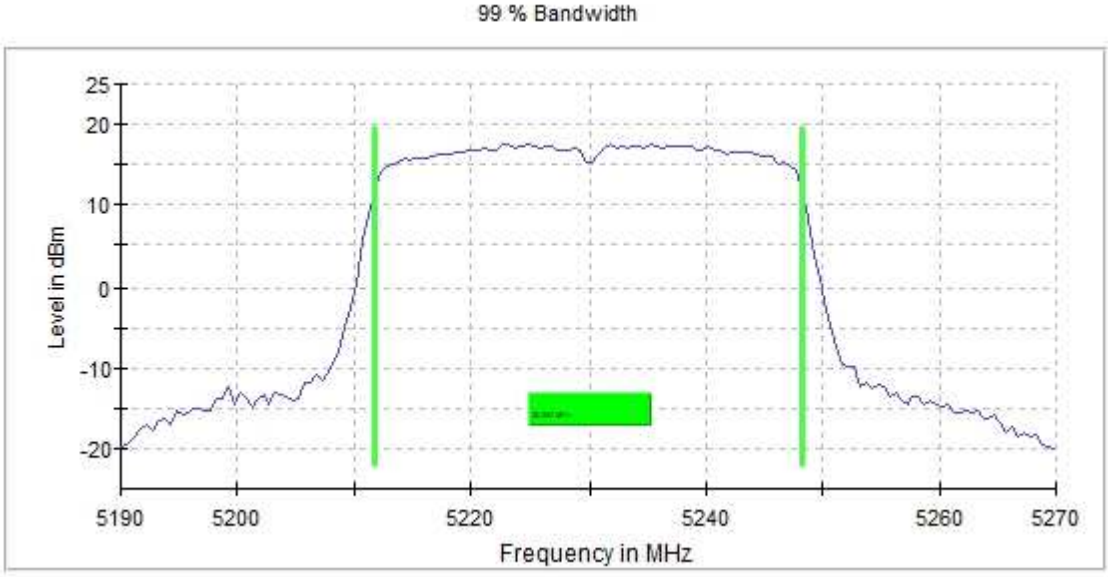
SISO 802.11 ac40 (VHT40):

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

- Low Channel 38 (5190 MHz):

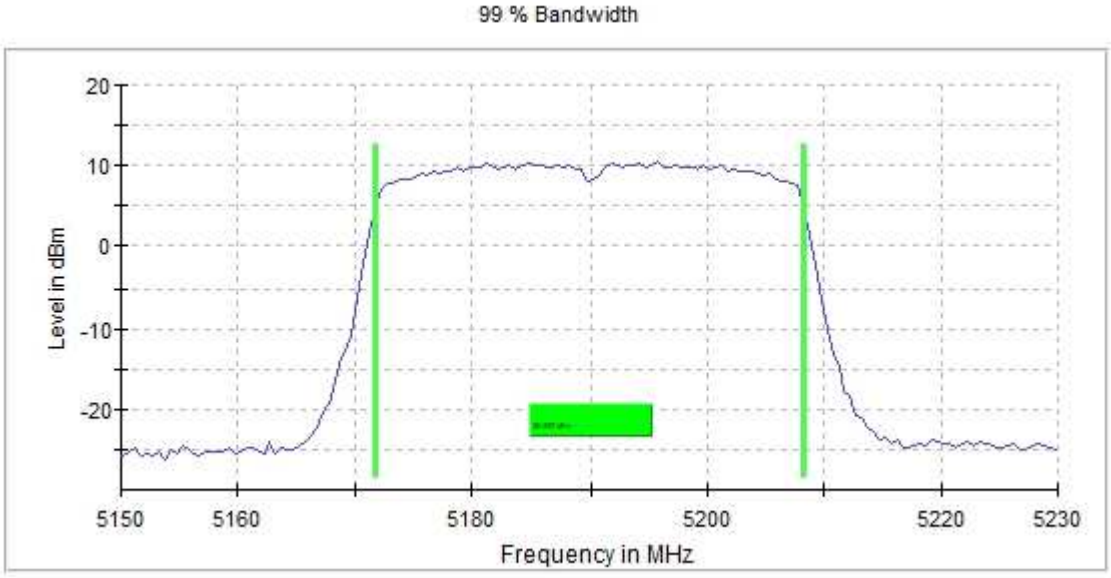


- High Channel 46 (5230 MHz):

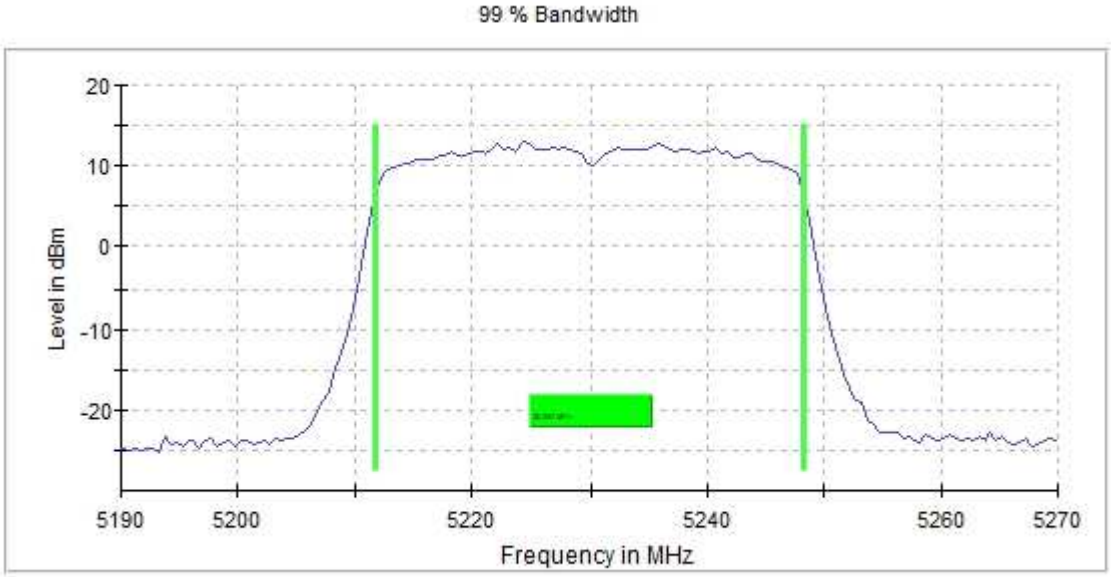


U-NII-1 RSS (5150-5250 MHz)

- Low Channel 38 (5190 MHz):

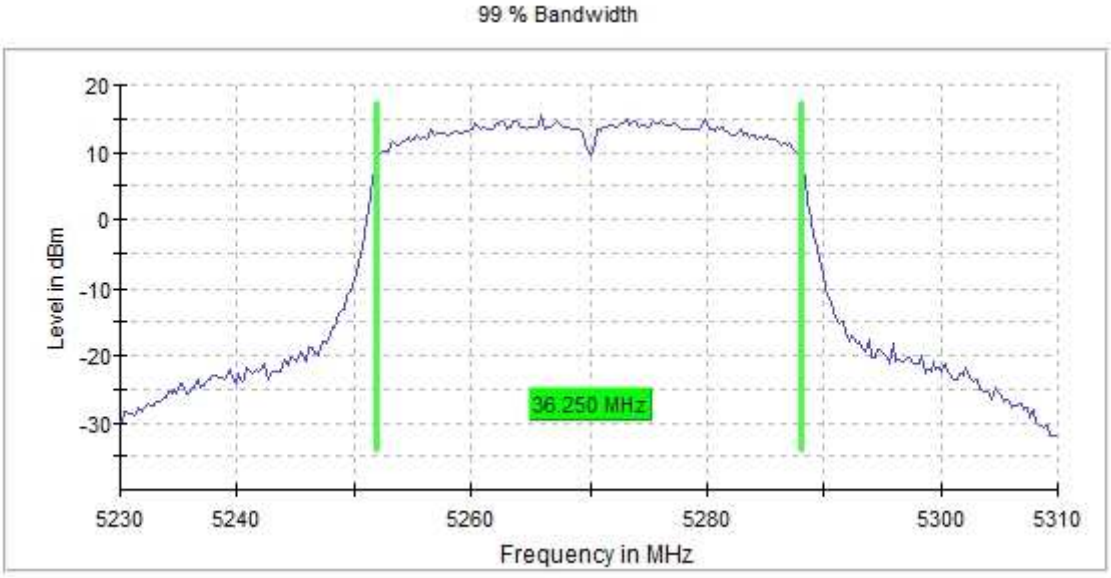


- High Channel 46 (5230 MHz):

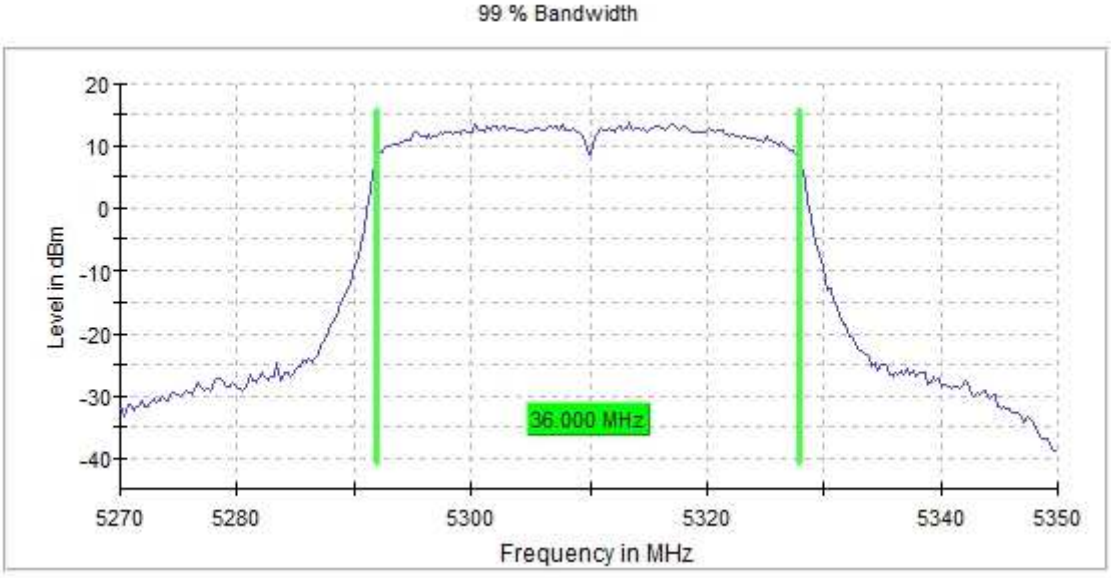


U-NII-2A (5250-5350 MHz)

- Low Channel 54 (5270 MHz):

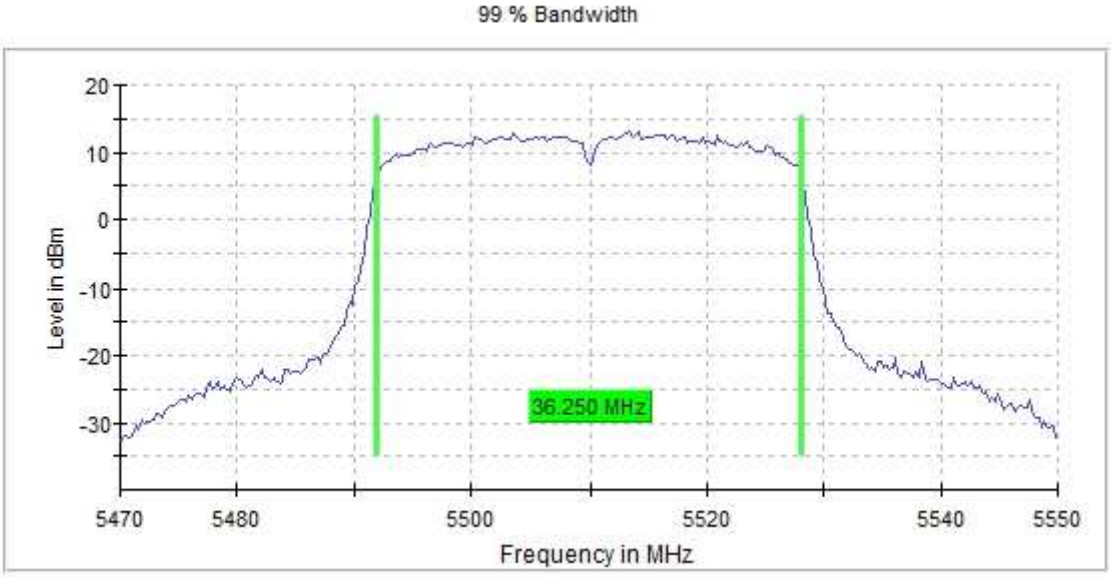


- High Channel 62 (5310 MHz):

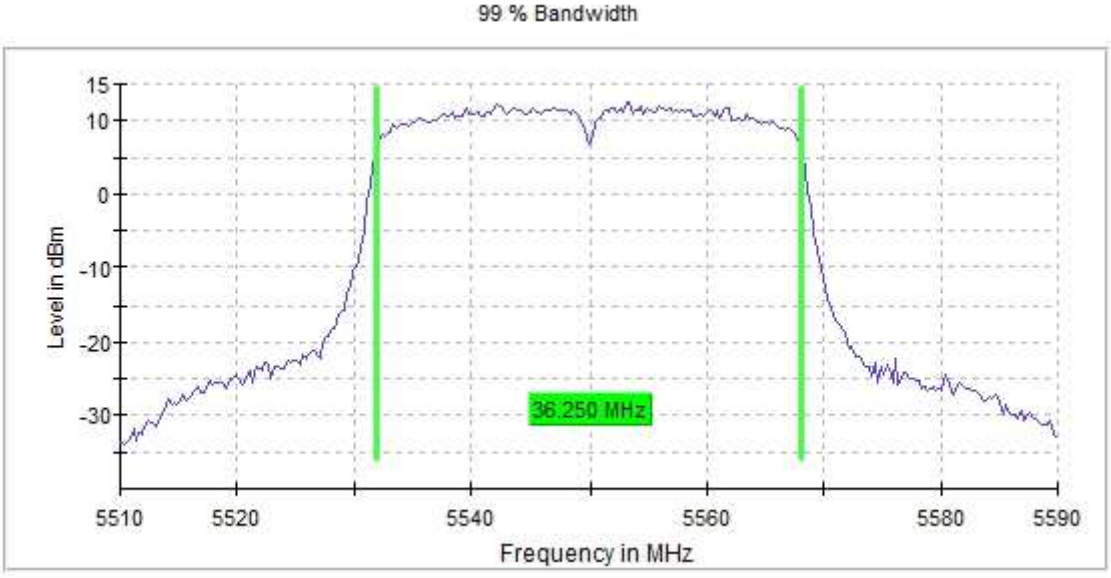


U-NII-2C (5470-5725 MHz)

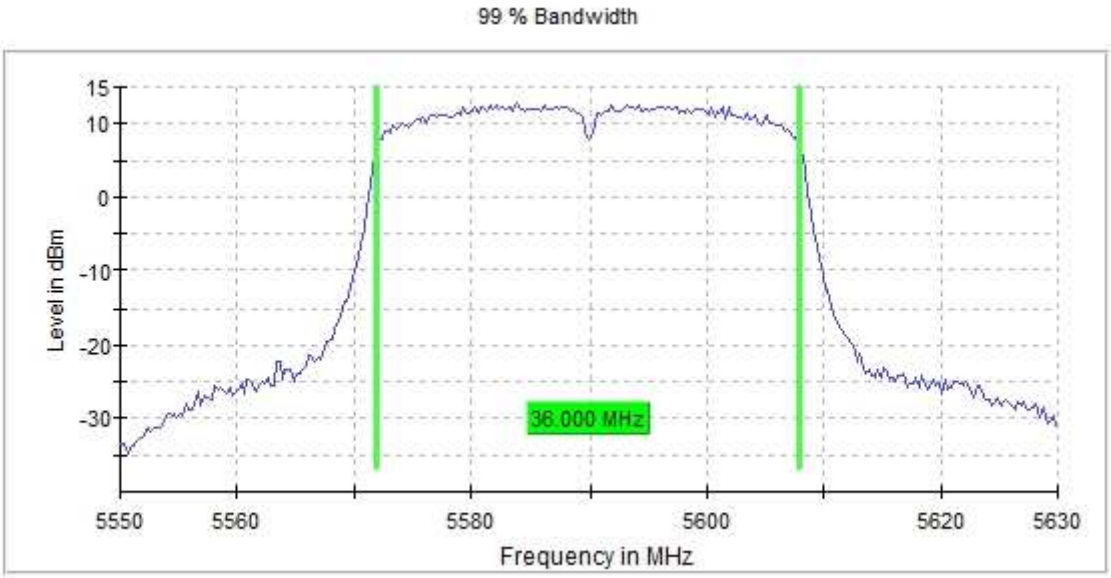
- Low Channel 102 (5510 MHz):



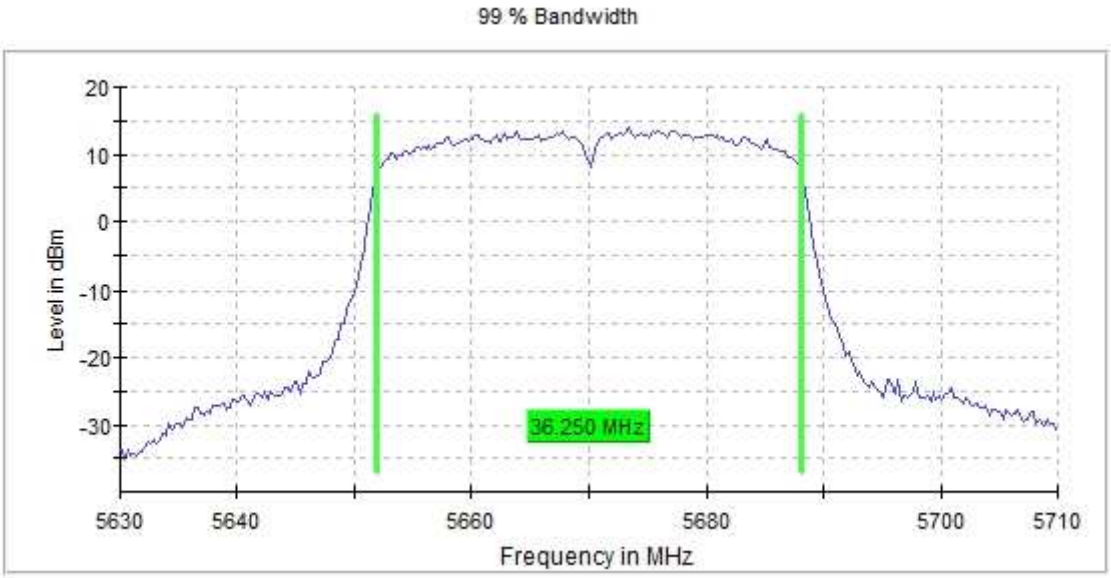
- Middle Channel 110 (5550 MHz):



- Channel 118 (5590 MHz):

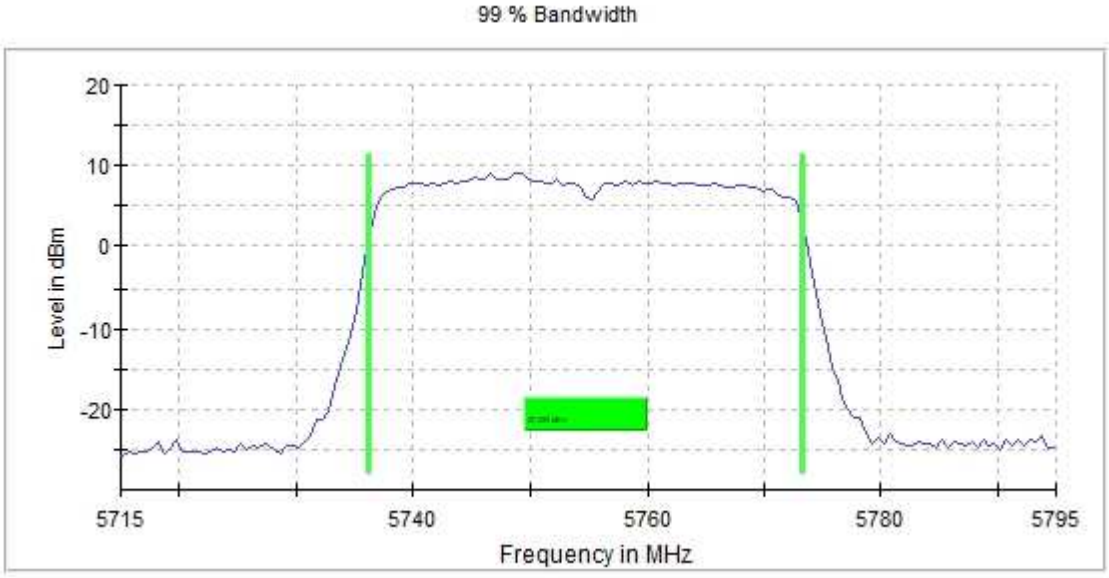


- High Channel 134 (5670 MHz):

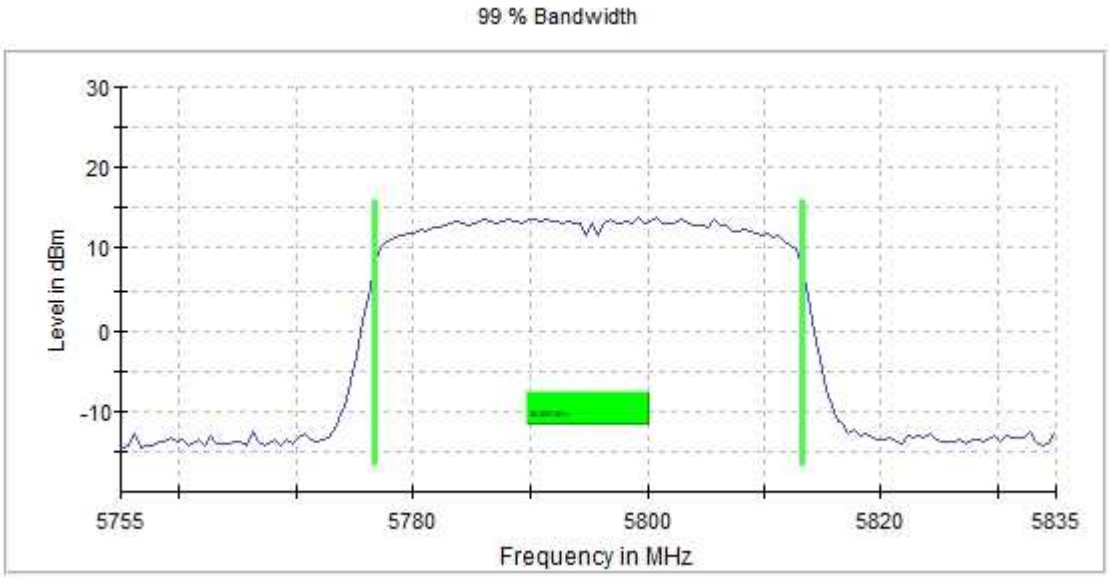


U-NII-3 (5725-5850 MHz)

- Low Channel 151 (5755 MHz):



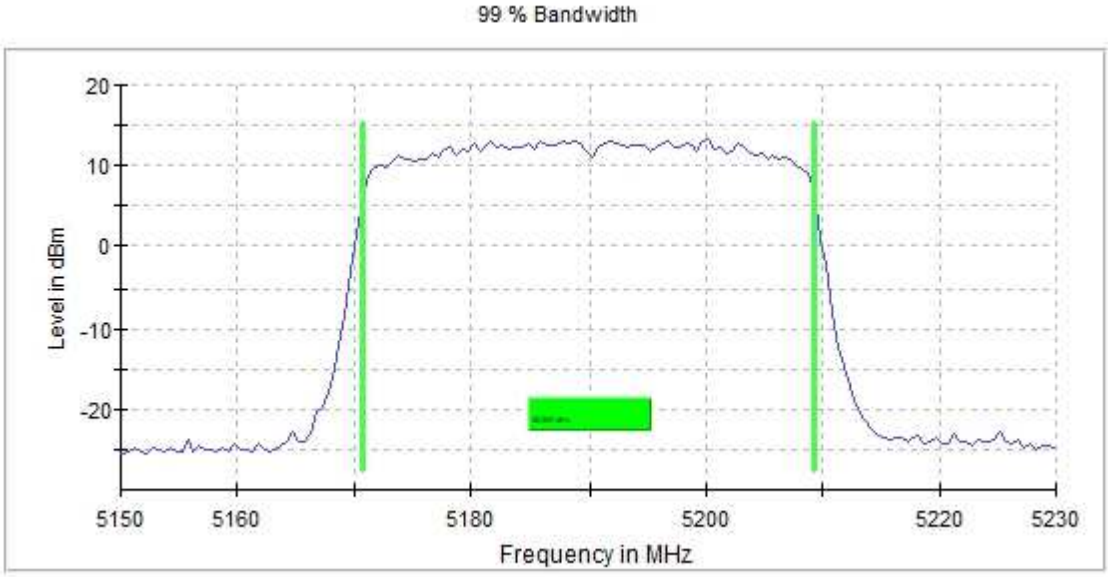
- High Channel 159 (5795 MHz):



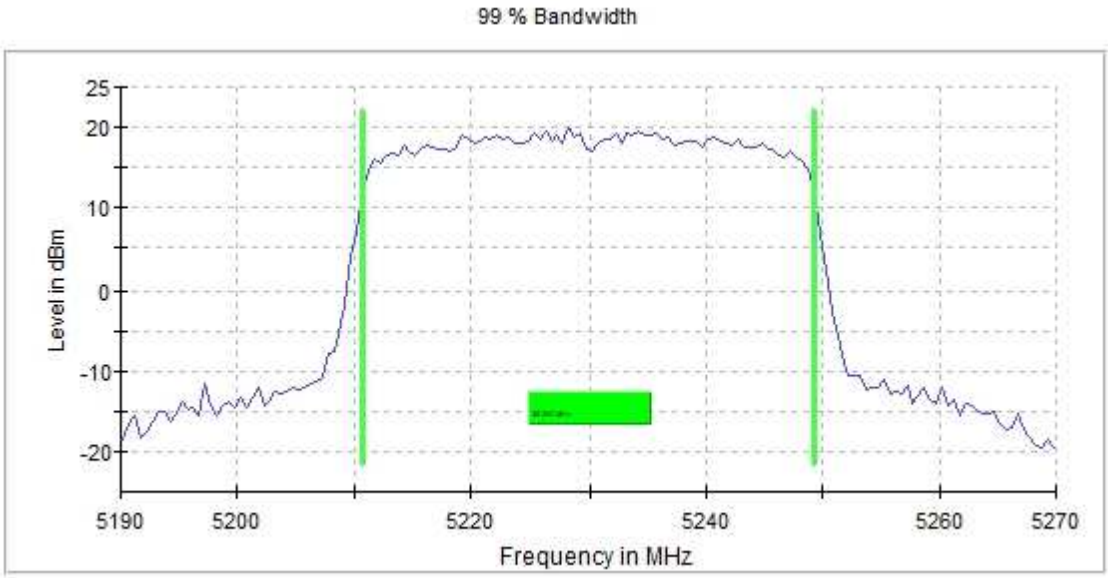
SISO 802.11 ax40 (HE40):

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

- Low Channel 38 (5190 MHz):

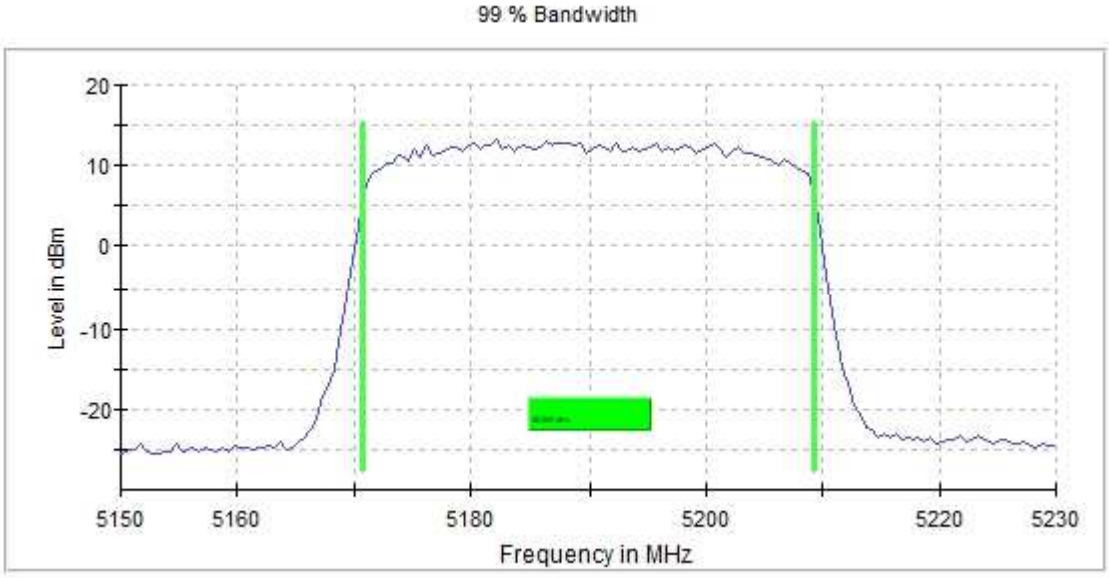


- High Channel 46 (5230 MHz):

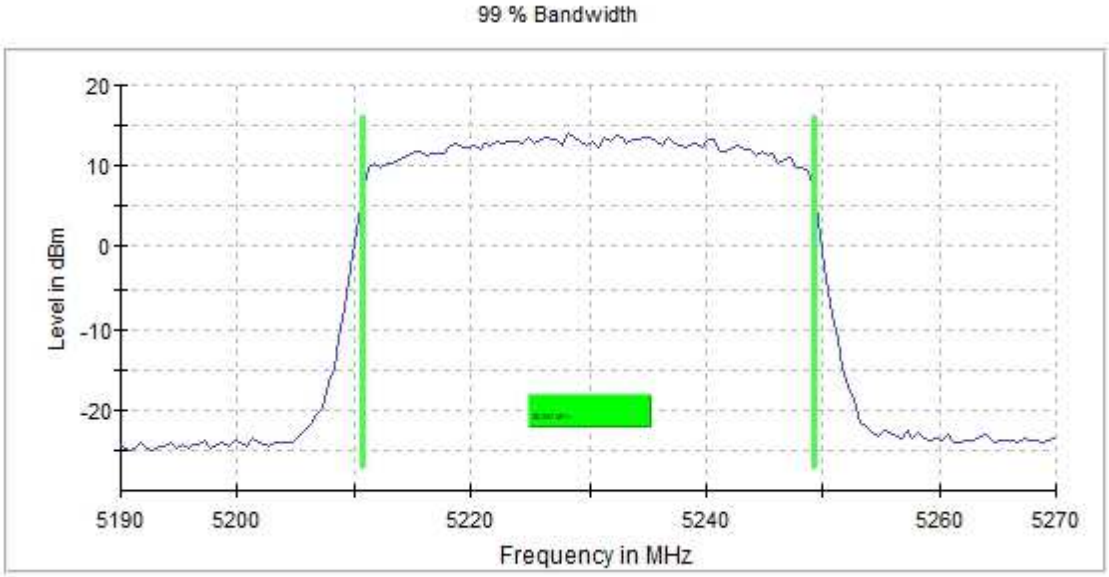


U-NII-1 RSS (5150-5250 MHz)

- Low Channel 38 (5190 MHz):

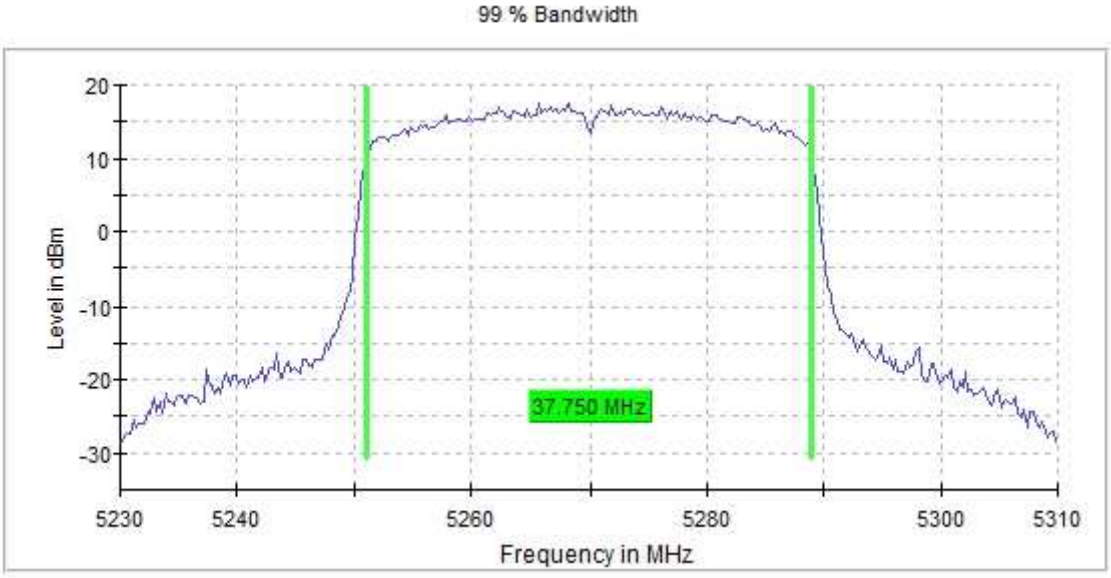


- High Channel 46 (5230 MHz):

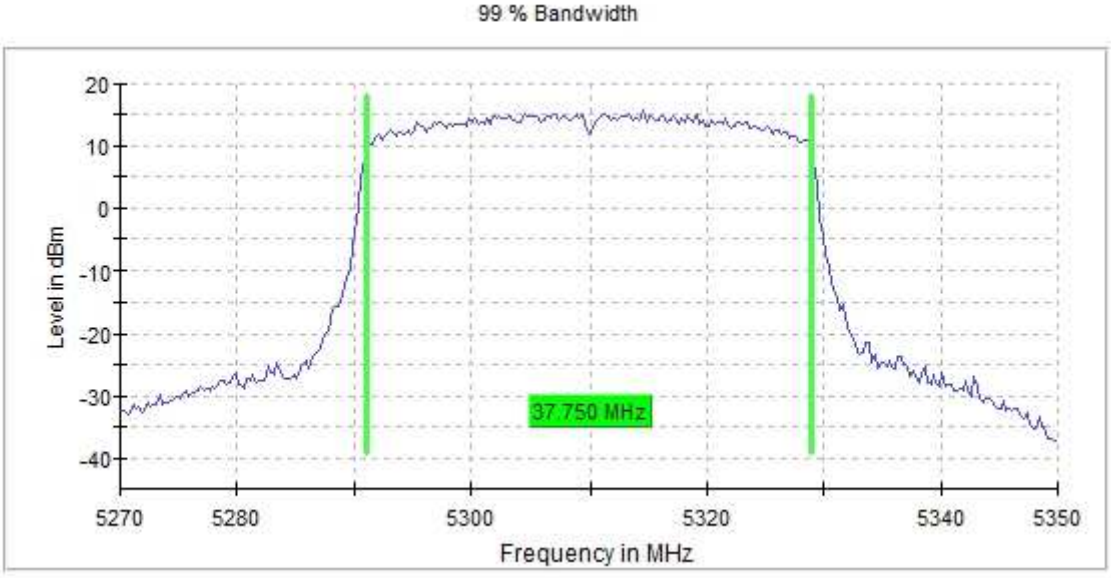


U-NII-2A (5250-5350 MHz)

- Low Channel 54 (5270 MHz):

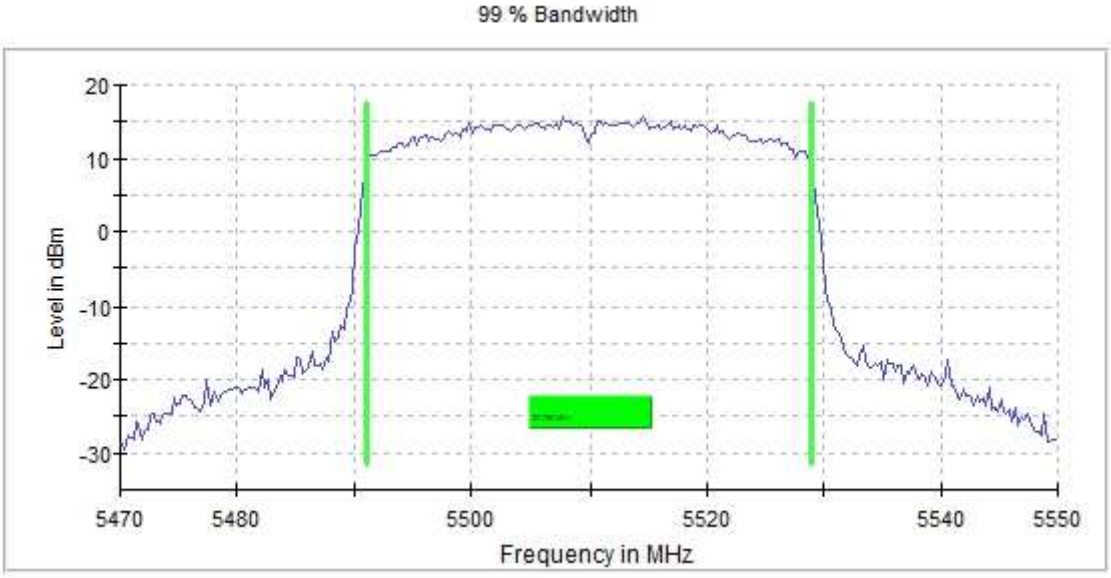


- High Channel 62 (5310 MHz):

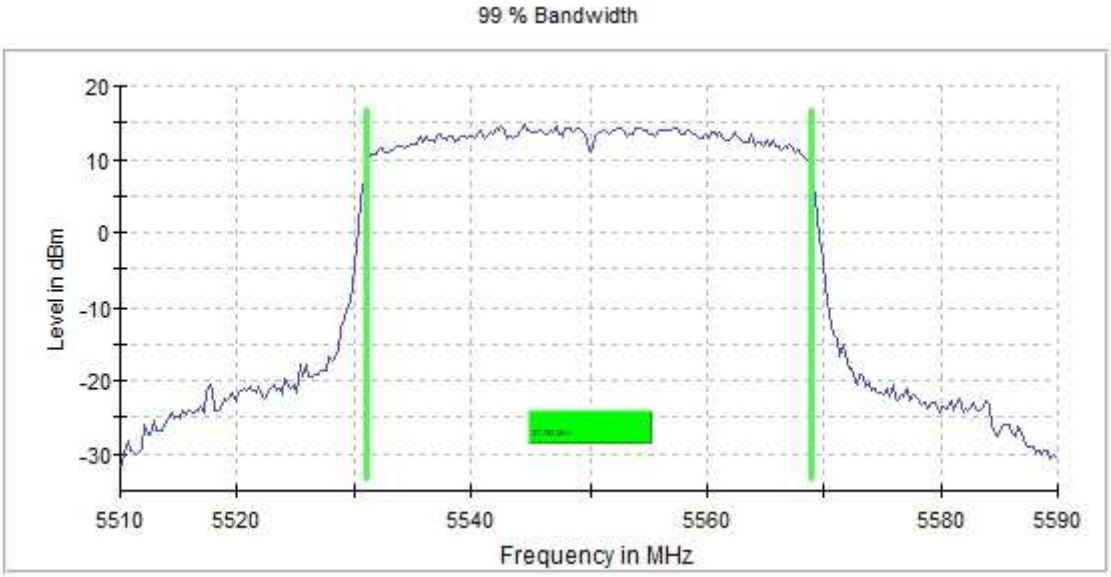


U-NII-2C (5470-5725 MHz)

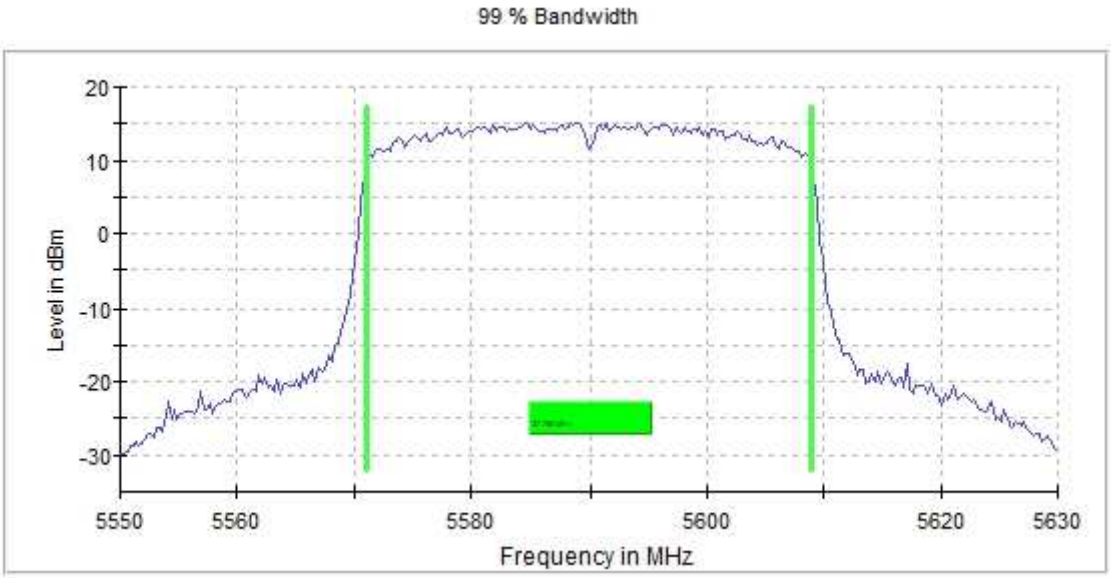
- Low Channel 102 (5510 MHz):



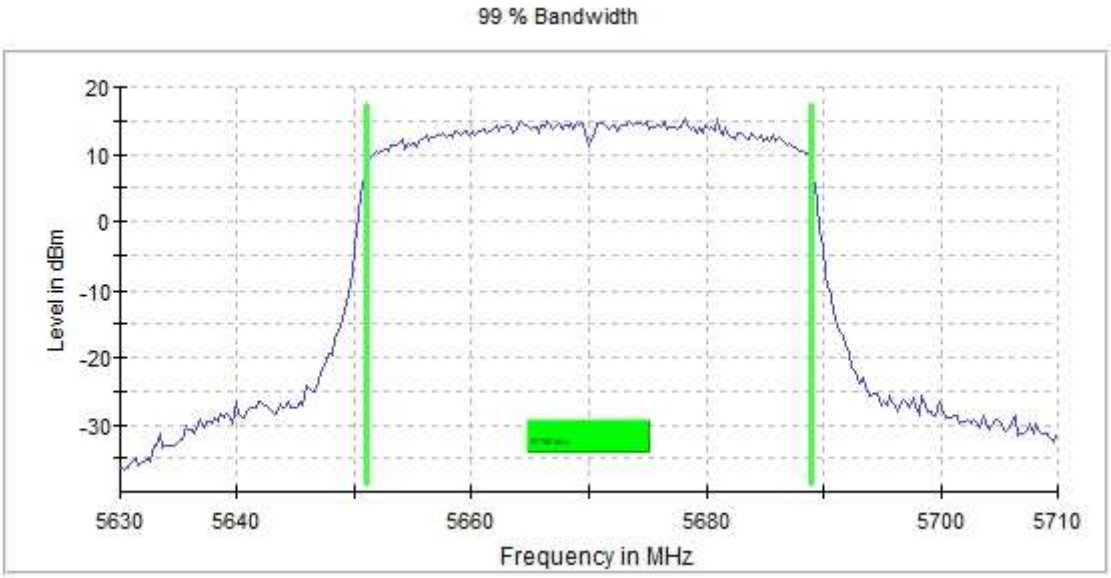
- Middle Channel 110 (5550 MHz):



- Channel 118 (5590 MHz):

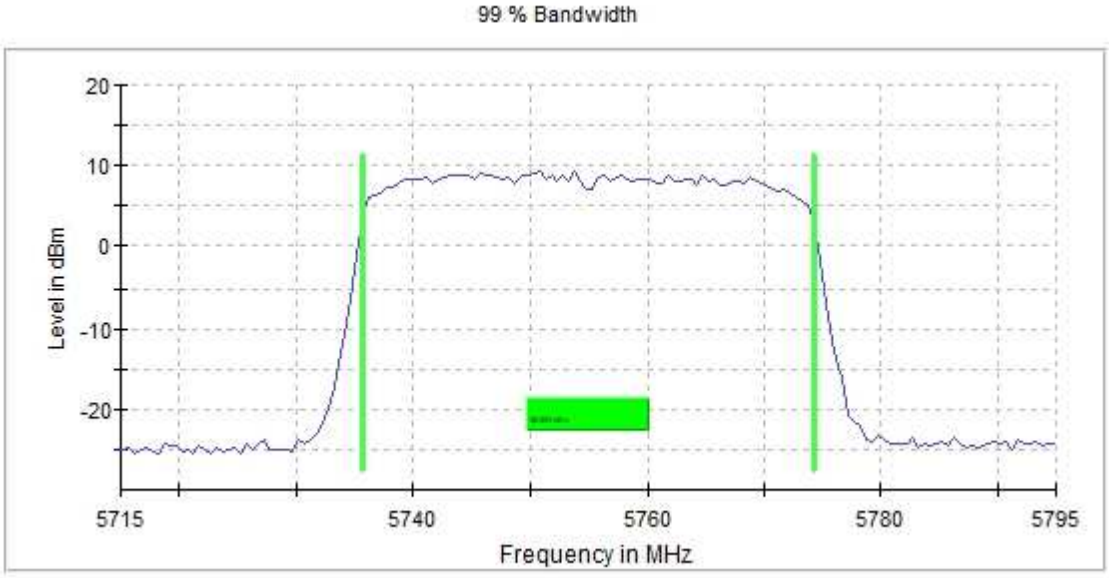


- High Channel 134 (5670 MHz):

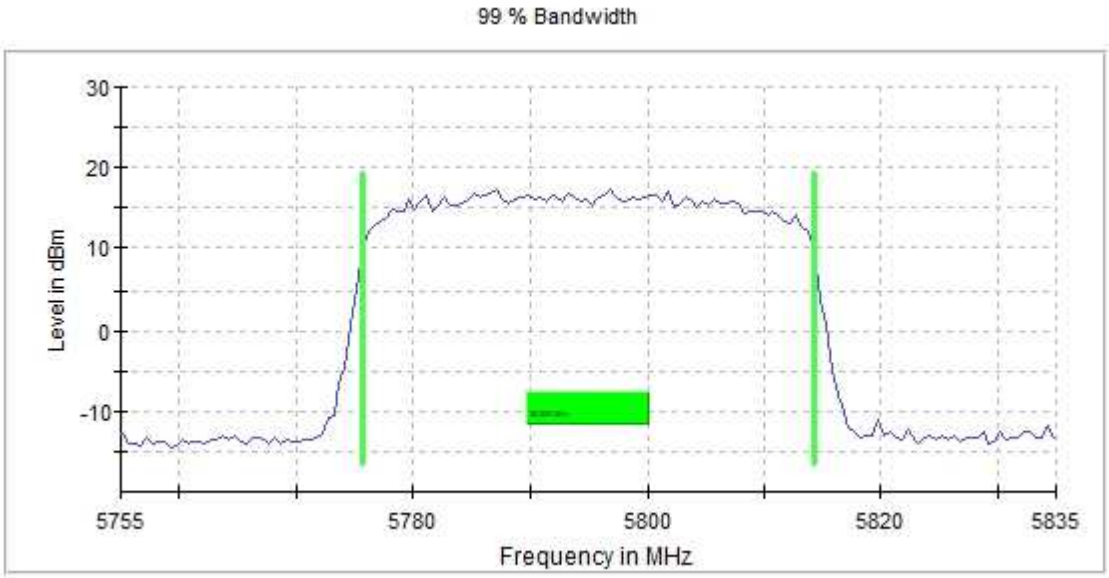


U-NII-3 (5725-5850 MHz)

- Low Channel 151 (5755 MHz):



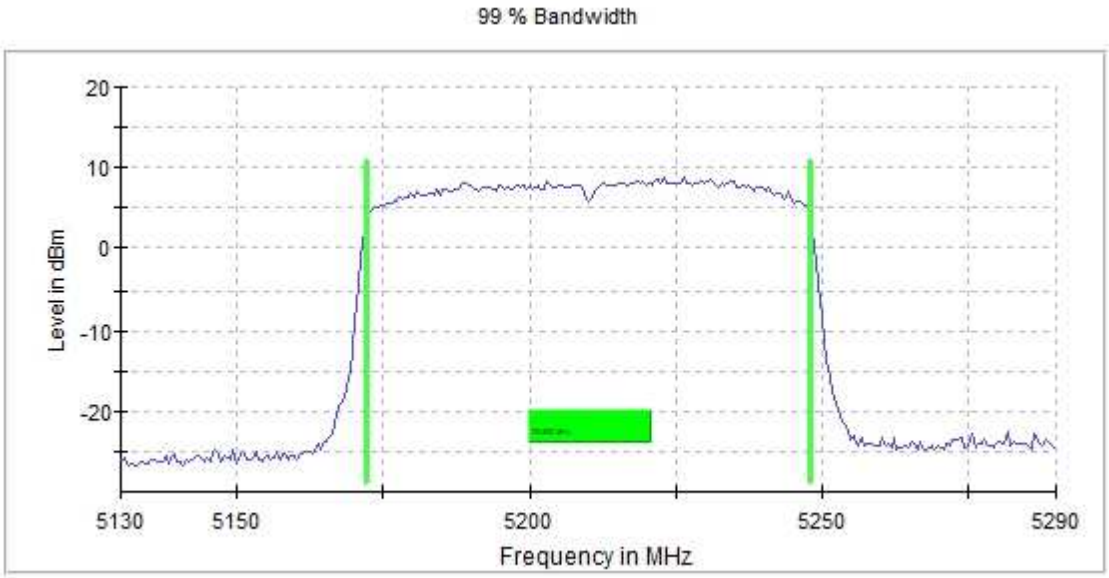
- High Channel 159 (5795 MHz):



SISO 802.11 ac80 (VHT80):

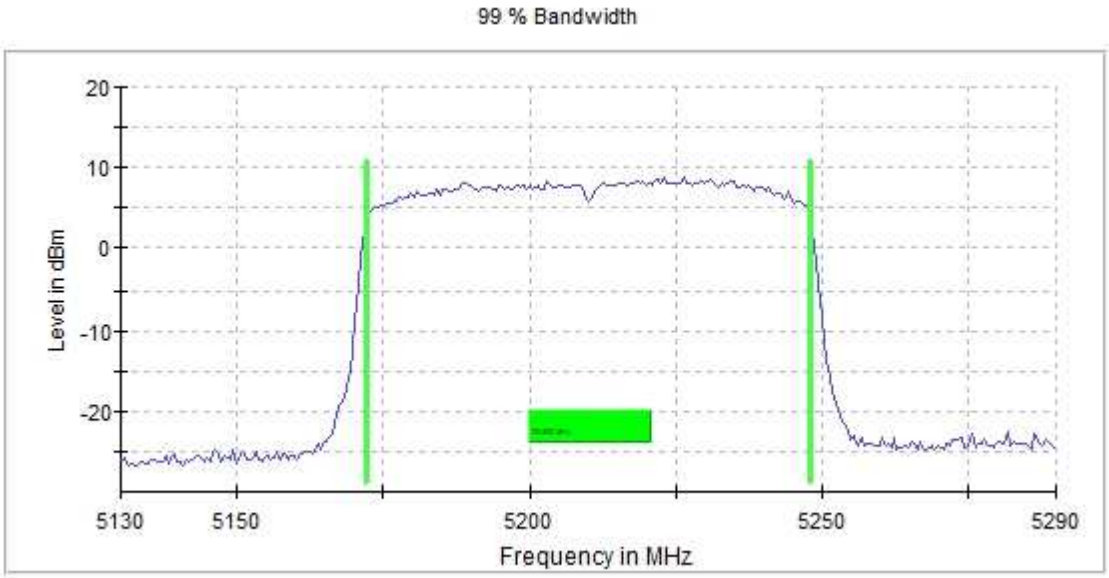
U-NII-1 FCC (5150-5250 MHz)

- Single Channel 42 (5210 MHz):



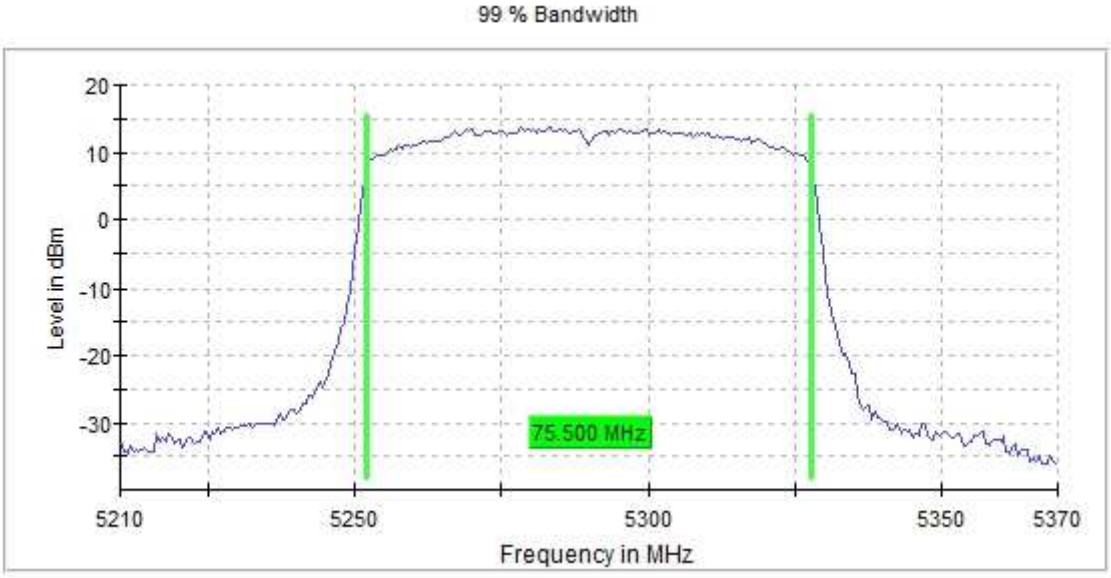
U-NII-1 RSS (5150-5250 MHz)

- Single Channel 42 (5210 MHz):



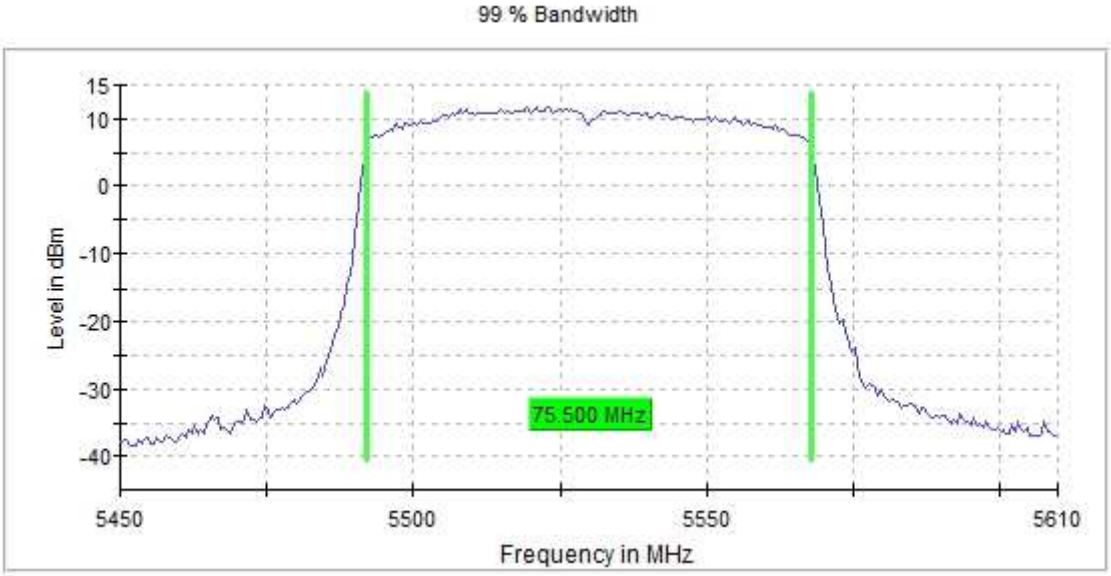
U-NII-2A (5250-5350 MHz)

- Single Channel 58 (5290 MHz):

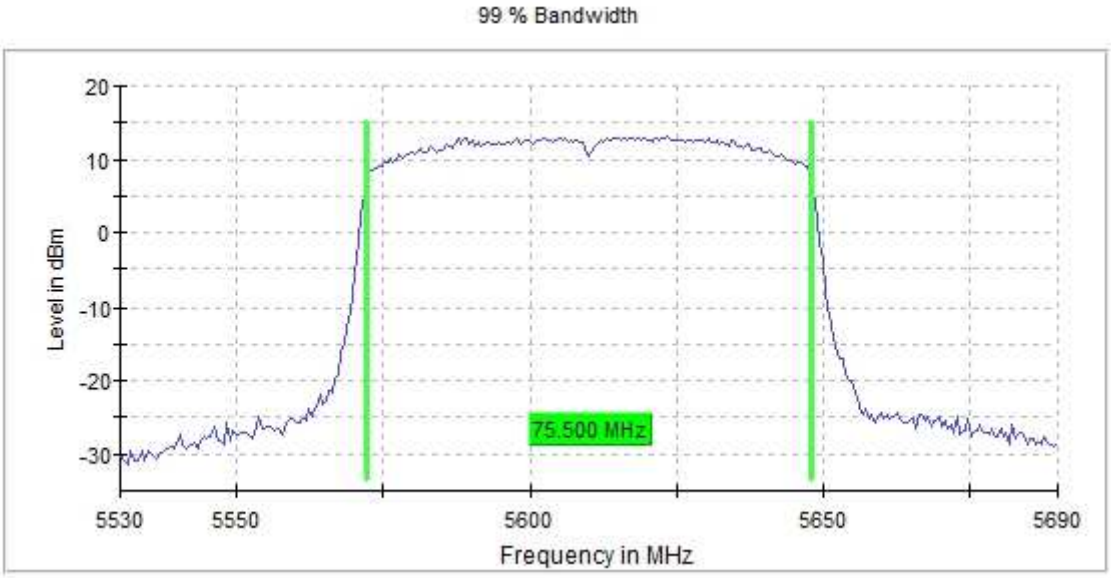


U-NII-2C (5470-5725 MHz)

- Low Channel 106 (5530 MHz):

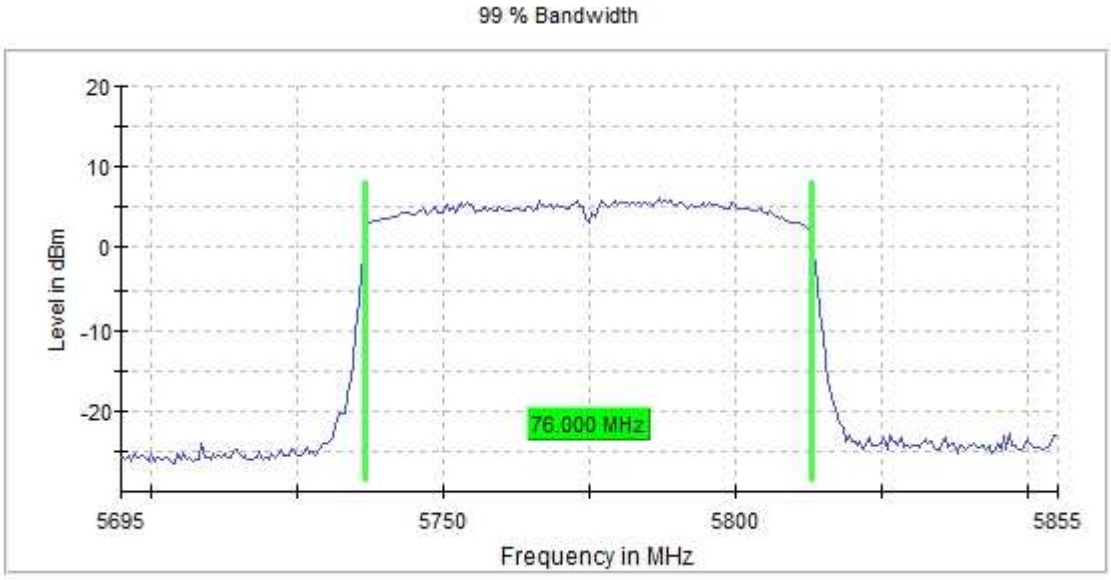


- High Channel 122 (5610 MHz):



U-NII-3 (5725-5850 MHz)

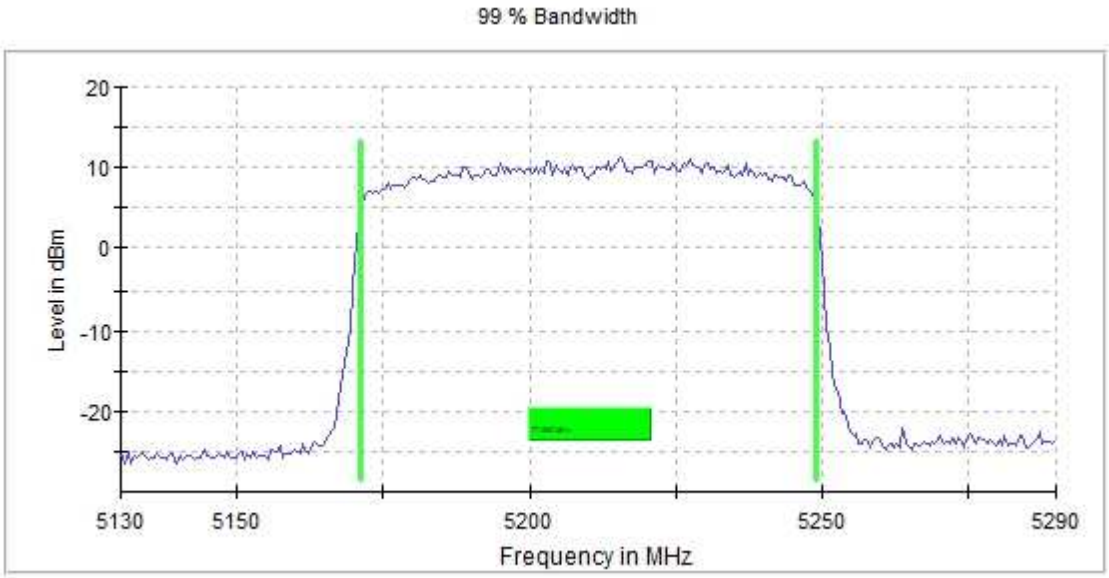
- Single Channel 155 (5775 MHz):



SISO 802.11 ax80 (HE80):

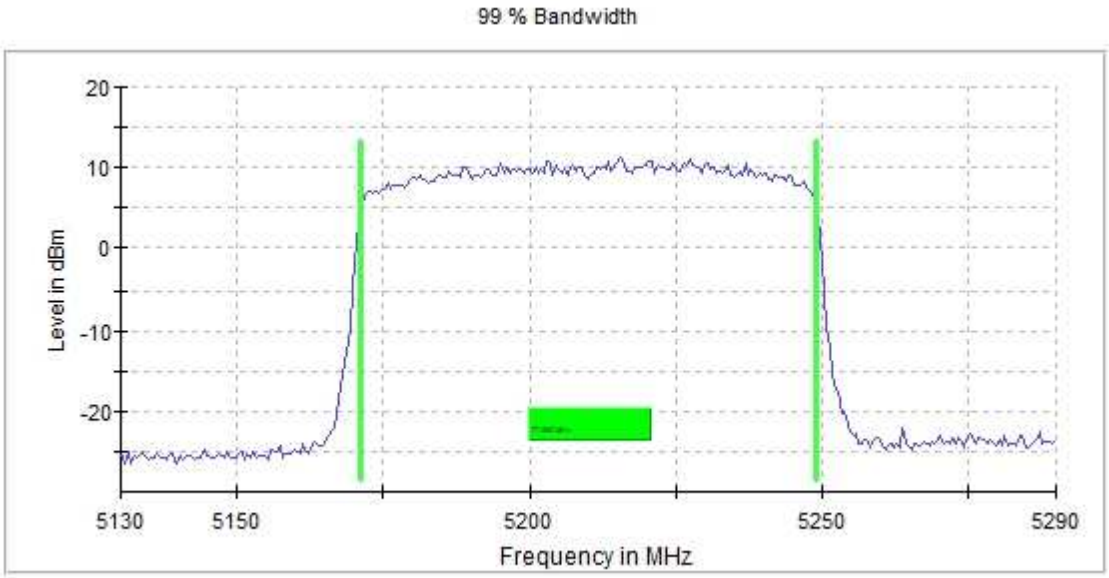
U-NII-1 FCC (5150-5250 MHz)

- Single Channel 42 (5210 MHz):



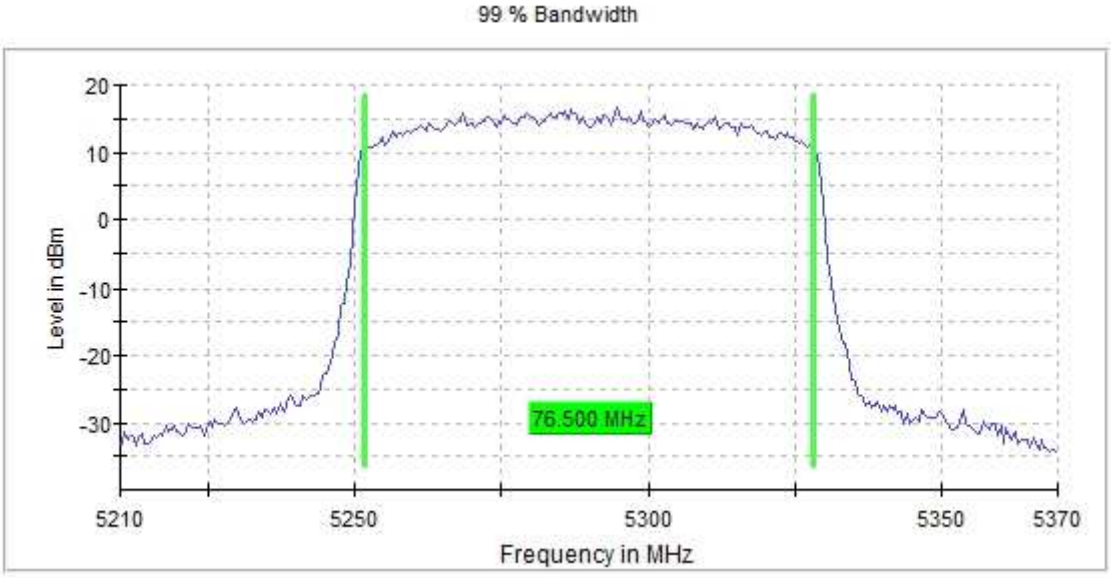
U-NII-1 RSS (5150-5250 MHz)

- Single Channel 42 (5210 MHz):



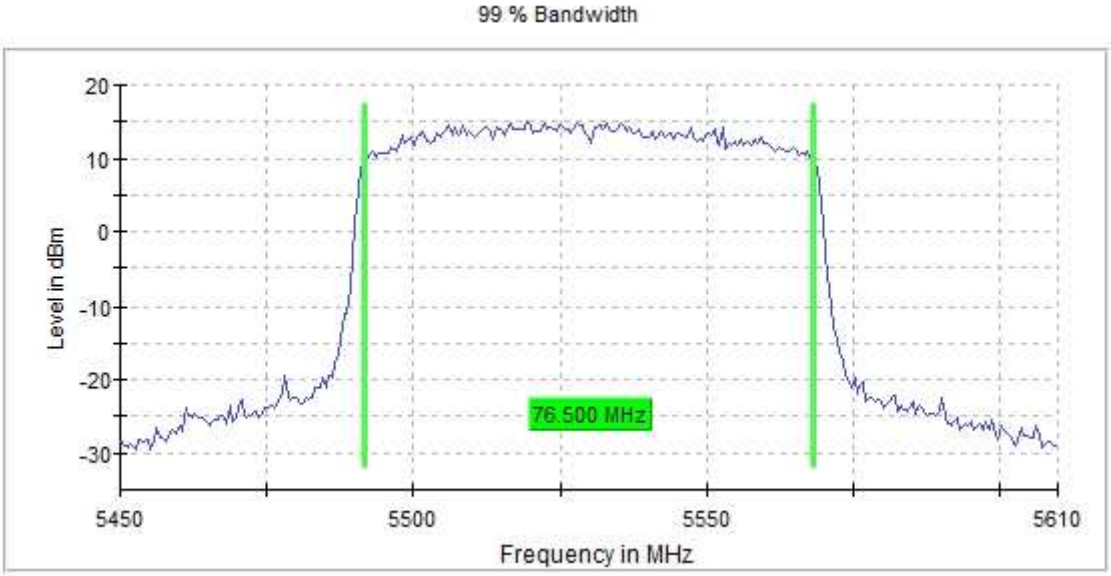
U-NII-2A (5250-5350 MHz)

- Single Channel 58 (5290 MHz):

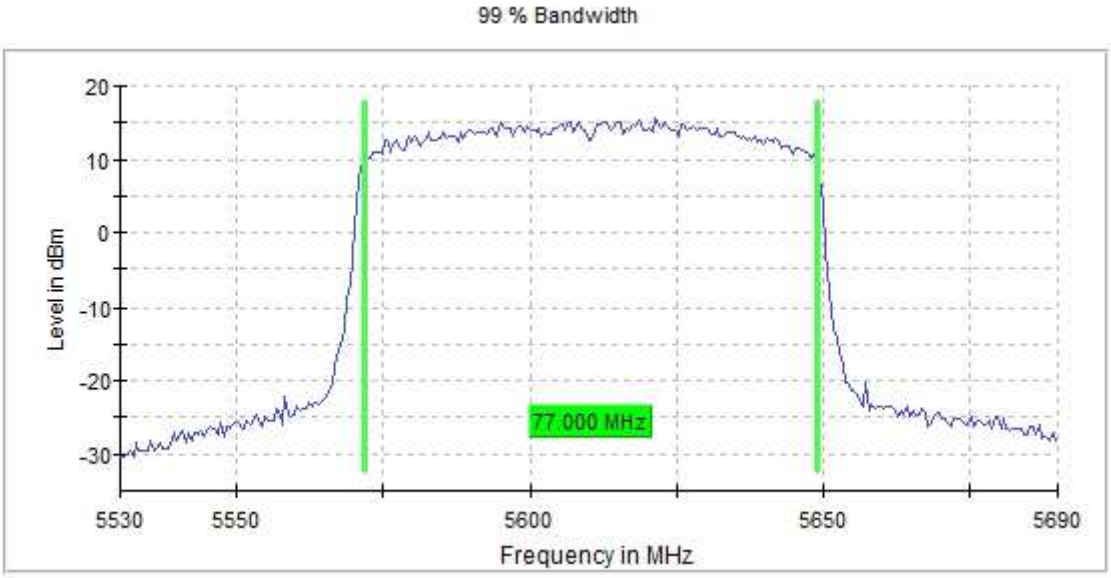


U-NII-2C (5470-5725 MHz)

- Low Channel 106 (5530 MHz):

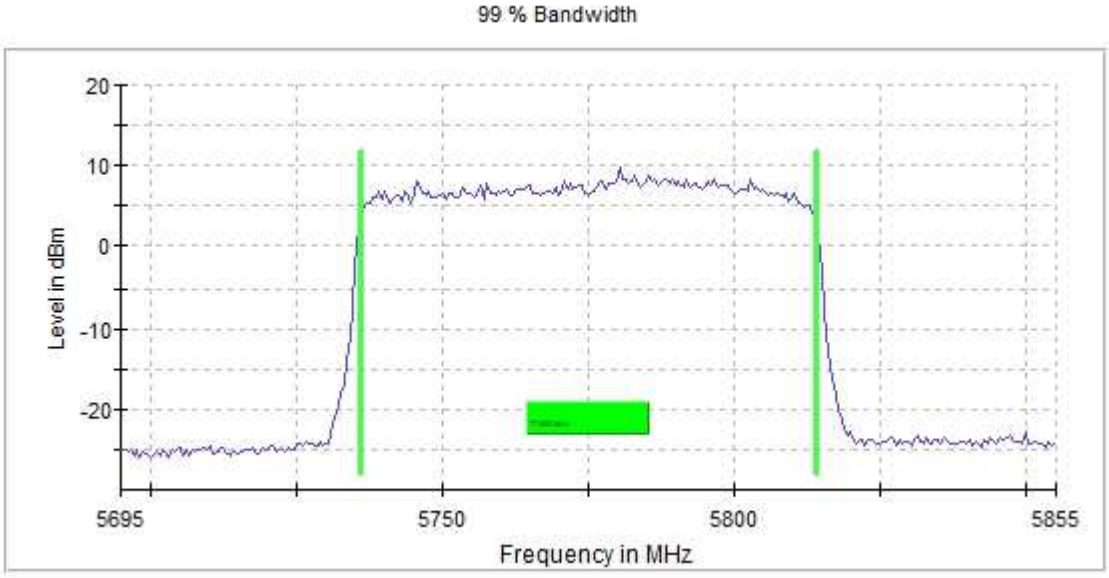


- High Channel 122 (5610 MHz):



U-NII-3 (5725-5850 MHz)

- Single Channel 155 (5775 MHz):



MIMO worst-case:

MIMO 802.11 a20:

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	17.827715	17.378278	17.528090	17.378277
Measurement uncertainty (kHz)	<±36.95			

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	17.228465	17.228465	17.228465	17.378278
Measurement uncertainty (kHz)	<±36.95			

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	Channel 60 (5300 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	16.779026	16.779026	16.779026	16.779026
Measurement uncertainty (kHz)	<±36.95			

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 100 (5500 MHz)	Channel 104 (5520 MHz)	Middle Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)
99% Occupied Bandwidth (MHz)	16.400000	16.400000	16.400000	16.400000
Measurement uncertainty (kHz)	<±36.95			

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 149 (5745 MHz)	Channel 153 (5765 MHz)	Middle Channel 157 (5785 MHz)	Channel 161 (5805 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	16.629213	17.677902	17.228465	17.528090	16.629213
Measurement uncertainty (kHz)	<±36.95				

MIMO 802.11 n20 (VHT20):

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	18.576780	18.277154	18.277154	18.277154
Measurement uncertainty (kHz)	<±36.95			

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	18.277154	18.277154	18.277154	18.277154
Measurement uncertainty (kHz)	<±36.95			

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	Channel 60 (5300 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	17.677902	17.677902	17.677902	17.677902
Measurement uncertainty (kHz)	<±36.95			

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 100 (5500 MHz)	Channel 104 (5520 MHz)	Middle Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)
99% Occupied Bandwidth (MHz)	17.500000	17.600000	17.600000	17.600000
Measurement uncertainty (kHz)	<±36.95			

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 149 (5745 MHz)	Channel 153 (5765 MHz)	Middle Channel 157 (5785 MHz)	Channel 161 (5805 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	18.277154	17.677902	17.677902	17.977528	18.277154
Measurement uncertainty (kHz)	<±36.95				

MIMO 802.11 ac20 (VHT20):

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	18.277154	18.277154	18.277154	18.277154
Measurement uncertainty (kHz)	<±36.95			

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	18.127341	18.277154	18.277154	18.277154
Measurement uncertainty (kHz)	<±36.95			

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	Channel 60 (5300 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	17.677902	17.677902	17.677902	17.677902
Measurement uncertainty (kHz)	<±36.95			

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 100 (5500 MHz)	Channel 104 (5520 MHz)	Middle Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)
99% Occupied Bandwidth (MHz)	17.677902	17.827715	17.677902	17.977528
Measurement uncertainty (kHz)	<±36.95			

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 149 (5745 MHz)	Channel 153 (5765 MHz)	Middle Channel 157 (5785 MHz)	Channel 161 (5805 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	18.426967	17.677902	18.277154	18.277154	18.277154
Measurement uncertainty (kHz)	<±36.95				

MIMO 802.11 ax20 (HE20):

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	19.176030	19.176030	19.325843	19.176030
Measurement uncertainty (kHz)	<±36.95			

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	19.176030	19.176030	19.176030	19.176030
Measurement uncertainty (kHz)	<±36.95			

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	Channel 60 (5300 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	19.176030	19.176030	19.026217	19.026217
Measurement uncertainty (kHz)	<±36.95			

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 100 (5500 MHz)	Channel 104 (5520 MHz)	Middle Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)
99% Occupied Bandwidth (MHz)	18.900000	19.000000	19.000000	18.900000
Measurement uncertainty (kHz)	<±36.95			

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 149 (5745 MHz)	Channel 153 (5765 MHz)	Middle Channel 157 (5785 MHz)	Channel 161 (5805 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	19.176030	19.176030	19.176030	19.026217	19.176030
Measurement uncertainty (kHz)	<±36.95				

MIMO 802.11 n40 (HT40):

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

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	36.500000	36.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	36.500000	36.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 54 (5270 MHz)	High Channel 62 (5310 MHz)
99% Occupied Bandwidth (MHz)	36.000000	36.250000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 102 (5510 MHz)	Middle Channel 110 (5550 MHz)	Channel 118 (5590 MHz) (**)	High Channel 134 (5670 MHz)
99% Occupied Bandwidth (MHz)	35.750000	36.000000	36.250000	36.000000
Measurement uncertainty (kHz)	<±36.95			

(**): Channel not allowed in Canada.

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
99% Occupied Bandwidth (MHz)	36.500000	37.500000
Measurement uncertainty (kHz)	<±36.95	

MIMO 802.11 ac40 (VHT40):

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

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	36.500000	36.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	36.500000	36.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 54 (5270 MHz)	High Channel 62 (5310 MHz)
99% Occupied Bandwidth (MHz)	36.000000	36.000000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 102 (5510 MHz)	Middle Channel 110 (5550 MHz)	Channel 118 (5590 MHz) (**)	High Channel 134 (5670 MHz)
99% Occupied Bandwidth (MHz)	36.000000	36.000000	36.000000	36.000000
Measurement uncertainty (kHz)	<±36.95			

(**): Channel not allowed in Canada.

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
99% Occupied Bandwidth (MHz)	38.500000	39.500000
Measurement uncertainty (kHz)	<±36.95	

MIMO 802.11 ax40 (HE40):

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

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	38.500000	38.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-1 RSS (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	38.500000	38.500000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2A (5250-5350 MHz):

Channels	Low Channel 54 (5270 MHz)	High Channel 62 (5310 MHz)
99% Occupied Bandwidth (MHz)	37.750000	37.750000
Measurement uncertainty (kHz)	<±36.95	

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 102 (5510 MHz)	Middle Channel 110 (5550 MHz)	Channel 118 (5590 MHz) (**)	High Channel 134 (5670 MHz)
99% Occupied Bandwidth (MHz)	37.500000	37.750000	37.750000	37.750000
Measurement uncertainty (kHz)	<±36.95			

(**): Channel not allowed in Canada.

U-NII-3 (5725-5850 MHz):

Channels	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
99% Occupied Bandwidth (MHz)	38.500000	38.500000
Measurement uncertainty (kHz)	<±36.95	

MIMO 802.11 ac80 (VHT80):

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

Channel	Single Channel 42 (5210 MHz)
99% Occupied Bandwidth (MHz)	75.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-1 RSS (5150-5250 MHz):

Channel	Single Channel 42 (5210 MHz)
99% Occupied Bandwidth (MHz)	75.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-2A (5250-5350 MHz):

Channel	Single Channel 58 (5290 MHz)
99% Occupied Bandwidth (MHz)	75.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 106 (5530 MHz)	High Channel 122 (5610 MHz) (**)
99% Occupied Bandwidth (MHz)	75.500000	75.500000
Measurement uncertainty (kHz)	<±36.95	

(**): Channel not allowed in Canada.

U-NII-3 (5725-5850 MHz):

Channel	Single Channel 155 (5775 MHz)
99% Occupied Bandwidth (MHz)	75.500000
Measurement uncertainty (kHz)	<±36.95

MIMO 802.11 ax80 (HE80):

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

Channel	Single Channel 42 (5210 MHz)
99% Occupied Bandwidth (MHz)	77.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-1 RSS (5150-5250 MHz):

Channel	Single Channel 42 (5210 MHz)
99% Occupied Bandwidth (MHz)	77.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-2A (5250-5350 MHz):

Channel	Single Channel 58 (5290 MHz)
99% Occupied Bandwidth (MHz)	76.500000
Measurement uncertainty (kHz)	<±36.95

U-NII-2C (5470-5725 MHz):

Channels	Low Channel 106 (5530 MHz)	High Channel 122 (5610 MHz) (**)
99% Occupied Bandwidth (MHz)	77.000000	77.000000
Measurement uncertainty (kHz)	<±36.95	

(**): Channel not allowed in Canada.

U-NII-3 (5725-5850 MHz):

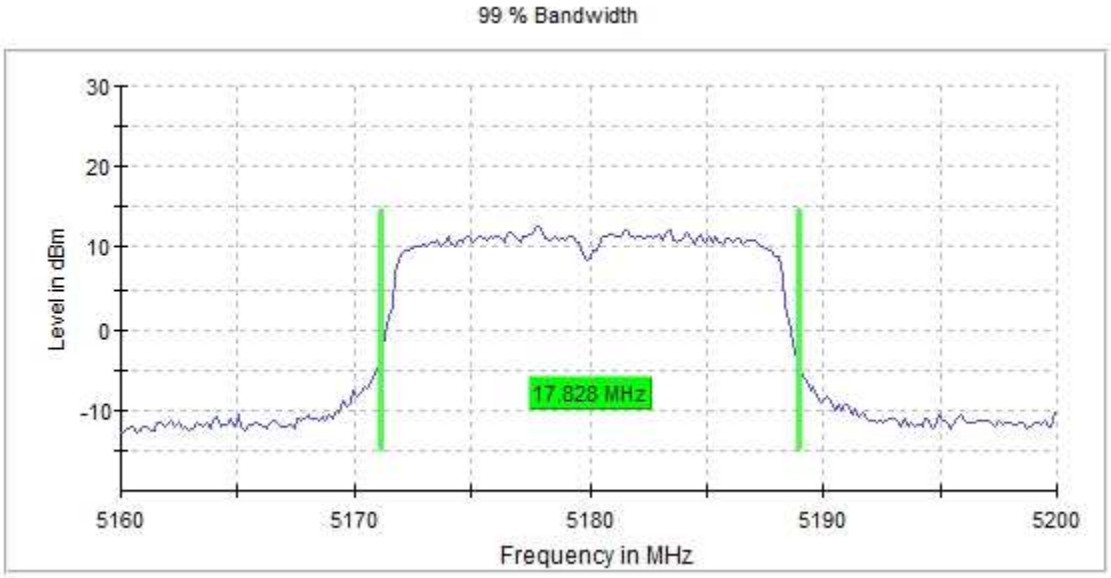
Channel	Single Channel 155 (5775 MHz)
99% Occupied Bandwidth (MHz)	77.500000
Measurement uncertainty (kHz)	<±36.95

MIMO worst-case:

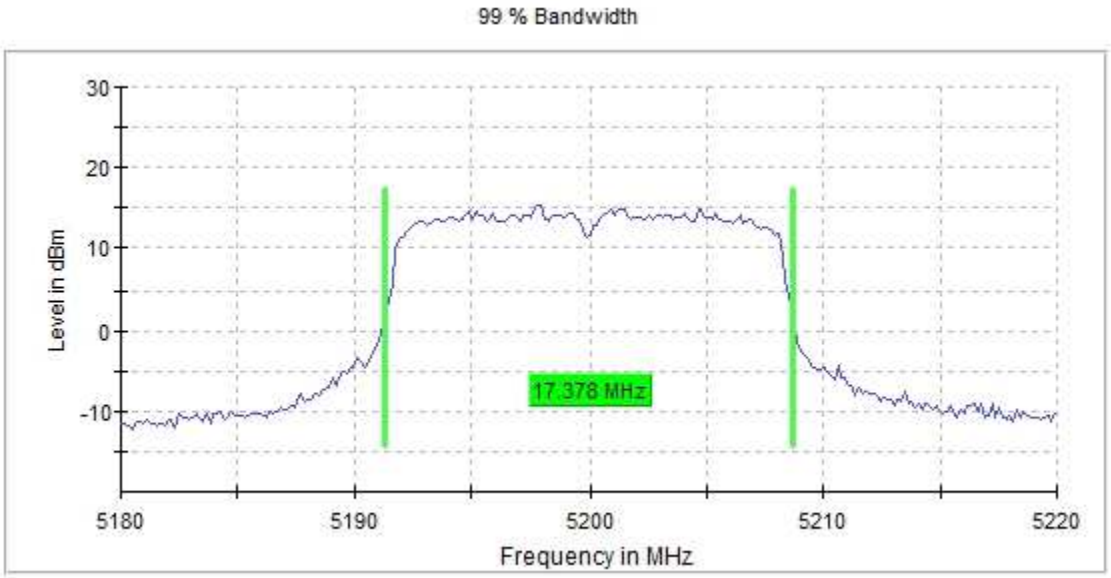
MIMO 802.11 a20:

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

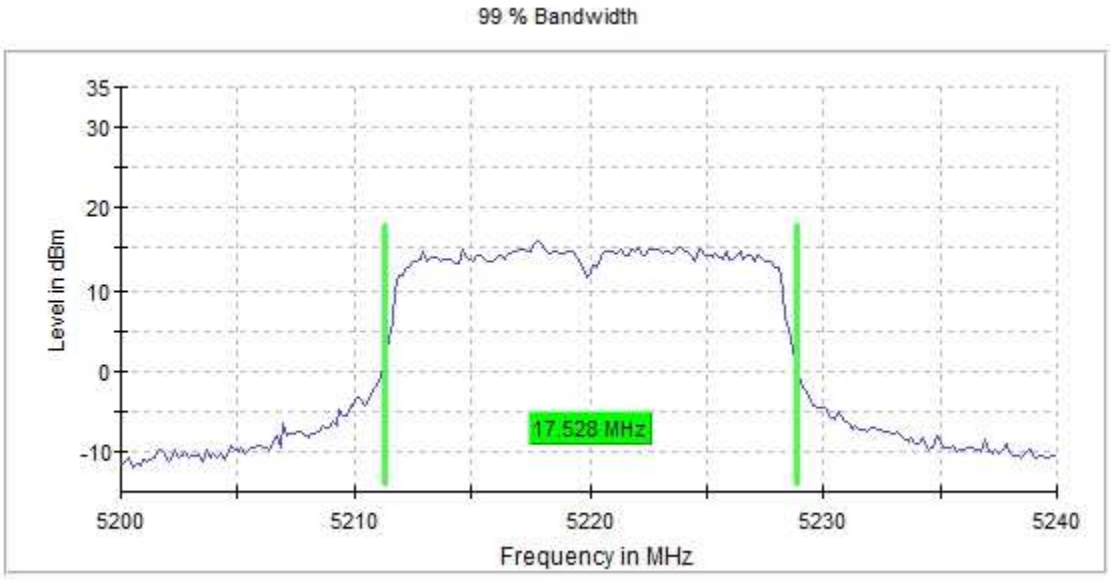
- Low Channel 36 (5180 MHz):



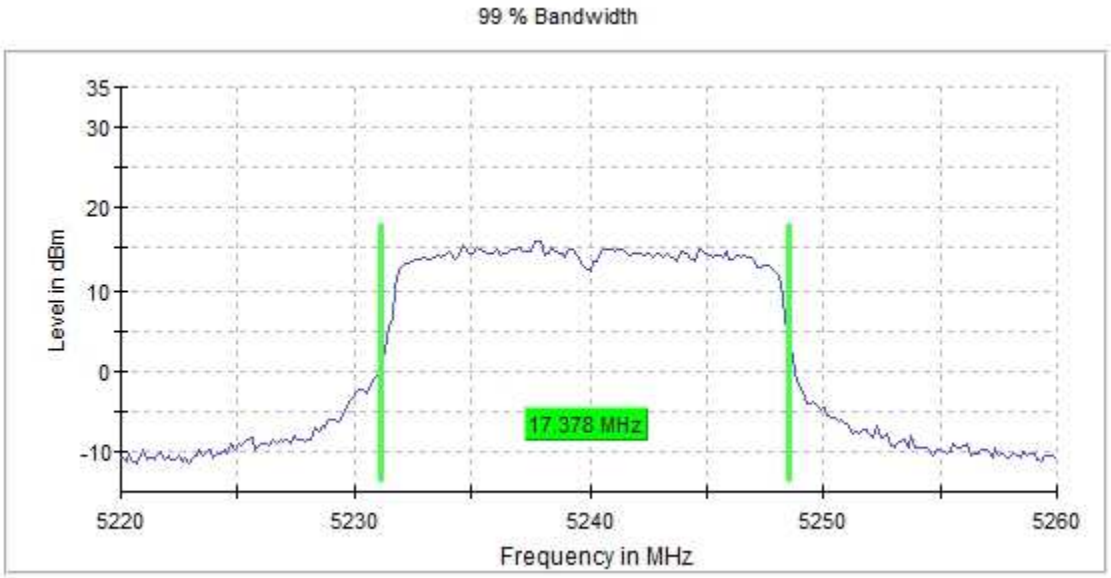
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):

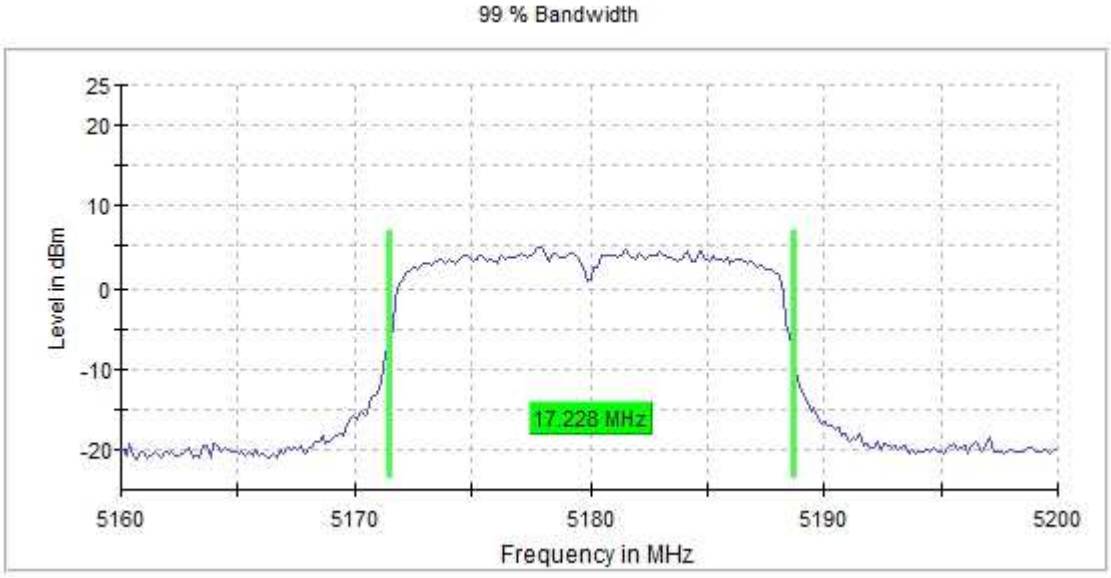


- High Channel 48 (5240 MHz):



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

- Low Channel 36 (5180 MHz):



- Middle Channel 40 (5200 MHz):