DAkkS Deutsche Akkreditierungsstelle D-PL-21375-01-03 D-PL-21375-01-04

INGENIEURBÜRO LENHARDT

BNetzA-CAB-21/21-21

Test Report

Test report no.: 21065785-21222-0
Date of issue: 2021-09-10

Test result: The test item **- passed -** and complies with the listed standards.

Applicant

Mitsubishi Electric Corporation Sanda Works

Manufacturer

Mitsubishi Electric Corporation

Test Item

R1LOW-R-SBM

RF-Spectrum Testing according to:

FCC 47 CFR Part 15
Radio Frequency Devices (Subpart E)

RSS-247, Issue 2 (2017-02)
Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

RSS-Gen, Issue 5 (2018-04)
General Requirements for Compliance of Radio Apparatus

Tested by (name, function, signature)	*Karsten Geraldy* *Head of Laboratory RF*	signature
Approved by (name, function, signature)	*Andreas Bender* *Head of Laboratory*	signature

Applicant and Test item details	
Applicant	Mitsubishi Electric Corporation Sanda Works 2-3-33, Miwa, Sanda-City, Hyogo 669-1513 Japan DESIGN-A SECTION, CAR MULTIMEDIA DESIGN DEPT. Fon: +81 79 559 4813 E-Mail: Yoshinaga.Ryuji@db.MitsubishiElectric.co.jp
Manufacturer	Mitsubishi Electric Corporation 2-3-33, Miwa, Sanda-City, Hyogo 669-1513 Japan DESIGN-A SECTION, CAR MULTIMEDIA DESIGN DEPT. Fon: +81 79 559 4813 E-Mail: Yoshinaga.Ryuji@db.MitsubishiElectric.co.jp
Test item description	Automotive Display Audio
Model/Type reference	R1LOW-R-SBM
Standard specific information	
FCC ID	UJH-R1LOW-R-SBM
IC	662K-R1LOWRSB
PMN	R1LOW-R-SBM
HVIN	NR-0C-R-DV
FVIN	N/A
HMN	N/A
Frequency	UNII bands 5150 MHz to 5850 MHz)
Technology	Type of radio transmission: OFDM Type of modulation: BPSK, QPSK, 16QAM, 64QAM, 256QAM
Number of channels	25 (20 MHz), 12 (40 MHz), 6 (80 MHz)
Antenna	external PCB antenna
Power supply	9 – 16.5V DC Battery
Temperature range	-40 °C to +75 °C

Disclaimer and Notes

The content of this rest report relates to the mentioned test sample(s) only.
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The last valid version is available at TAMSys®.

Within this test report, a ☒ point / ☐ comma is used as a decimal separator.
If otherwise, a detailed note is added adjected to its use.

IBL-Lab GmbH does not take test samples. The sample used for testing is provided by the applicant.

Decision rule: Binary Statement for Simple Acceptance Rule according ILAC-G8:09/2019

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2 GENERAL INFORMATION

2.1 Administrative details

Testing laboratory	**IBL-Lab GmbH** Heinrich-Hertz-Allee 7 66386 Sankt Ingbert / Germany Fon: +49 6894 38938-0 Fax: +49 6894 38938-99 URL: www.ib-lenhardt.de E-Mail: info@ib-lenhardt.de
Accreditation	The testing laboratory is accredited by Deutsche Akkreditierungsstelle GmbH (DAkkS) in compliance with DIN EN ISO/IEC 17025:2018. Scope of testing and registration number: • Electronics D-PL-21375-01-01 • Electromagnetic Compatibility D-PL-21375-01-02 • Electromagnetic Compatibility and Telecommunication (FCC requirements) D-PL-21375-01-03 • Telecommunication (TC) and Electromagnetic Compatibility (EMC) for Canadian Standards D-PL-21375-01-04 • ISED Company Number 27156 • Testing Laboratory CAB Identifier DE0020 • Telekommunikation (TK) D-PL-21375-01-05 Website DAkkS: https://www.dakks.de/ The Deutsche Akkreditierungsstelle GmbH (DAkkS) is also a signatory to ILAC Mutual Recognition Arrangement
Testing location	**IBL-Lab GmbH** Heinrich-Hertz-Allee 7 66386 St. Ingbert / Germany
Date of receipt of test samples	2021-07-07
Start – End of tests	2021-07-19 – 2021-09-10

2.2 Possible test case verdicts

Test sample meets the requirements	P (PASS)
Test sample does not meet the requirements	F (FAIL)
Test case does not apply to the test sample	N/A (Not applicable)
Test case not performed	N/P (Not performed)

2.3 Observations

No additional observations other than the reported observations within this test report have been made.

2.4 Opinions and Interpretations

No appropriate opinions or interpretations according ISO/IEC 17025:2017 clause 7.8.7 are within this test report.

2.5 Revision History

-0 Initial Version

2.6 Further documents

List of further applicable documents belonging to the present test report:
- no additional documents -

3 ENVIRONMENTAL & TEST CONDITIONS

3.1 Environmental conditions

Temperature	20°C ± 5°C
Relative humidity	25-75 % r.H.
Barometric Pressure	860-1060 mbar
Power supply	230 V / 50 Hz

3.2 Normal and extreme test conditions

	minimum	nominal	maximum
Temperature	-/-	+25 °C	-/-
Relative humidity	-/-	50 % r.h.	-/-
Power supply	-/-	12.6 V DC	-/-

4 TEST STANDARDS AND REFERENCES

Test standard (accredited)	Description
FCC 47 CFR Part 15	Radio Frequency Devices (Subpart E)
RSS-247, Issue 2 (2017-02)	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
RSS-Gen, Issue 5 (2018-04)	General Requirements for Compliance of Radio Apparatus

Test standard (not accredited)	Description
none	---

Reference	Description
ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.10-2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
789033 D02 General U-NII Test Procedures New Rules v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructur (U-NII) Devices Part 15, Subpart E
905462 D02 UNII DFS Compliance Procedures New Rules v02	Compliance Measurement Procedures for Unlicensed-National Information Infrastructure Devices Operating in the 5250-5350 MHz and 5470-5725 MHz Bands Incorporating Dynamic Frequency Selection

5 EQUIPMENT UNDER TEST (EUT)

5.1 Product Description

Automotive Display Audio

*: as declared by applicant

5.2 Test Item Description

Model name*	R1LOW-R-SBM
Serial numbers R1LOW-R-SBM test samples*	radiated EUT: 61314 conducted EUT: 61313
Serial numbers R1LOW-R test samples*	radiated EUT: 60338 conducted EUT: 60337
PCB identifier*	NJ00193611
Hardware status*	NR-0C-R-DV
Software status*	Android 10

*: as declared by applicant; please see Annex A for EUT photographs.

5.3 Technical Data of Equipment

Operational frequency band*	UNII bands 5150 MHz to 5850 MHz)
Transmitter*	Chip QCA6574AU with 48 MHz TCXO (Module UGKZ5A3006A)
Technology*	802.11 a/n/ac, OFDM
Modulation type*	802.11 a/n: BPSK, QPSK, 16QAM, 64QAM 802.11 ac: BPSK, QPSK, 16QAM, 64QAM, 256 QAM
Data rate*	802.11 a: 6 Mbps – 54 Mbps 802.11 n: 6.5 Mbps – 300 Mbps 802.11 ac: 6.5 Mbps – 866.7 Mbps
Number of channels*	25 (20 MHz bandwidth) 12 (40 MHz bandwidth) 6 (80 MHz bandwidth)
Channel bandwidth*	20/40/80 MHz
Channel spacing*	20/40/80 MHz
Guard Interval*	802.11n, 802.11ac: GI=800 ns, GI=400 ns
Rated RF Output Power*	802.11 a: 7.5 dBm 802.11 n: 5.5 – 6.5 dBm (depending on channel bandwidth) 802.11 ac: 2.5 – 6.5 dBm (depending on channel bandwidth)
Transmit Power Control*	yes (follows attenuation – power constraint IE - from access point)
DFS capability*	yes
DFS mode*	Secondary (Slave) without radar detection
Power supply*	9 – 16.5V DC Battery, V_{nom}=12.6 V
Temperature range*	-40 °C to +75 °C, T_{nom}=+25°C

*: as declared by applicant

Technical Data of Equipment (contd.)	
Antenna R1LOW-R-SBM model* Part name Antenna 0 Part name Antenna 1	external PCB antenna, P68306857AA/00534042660 #0 P68306857AA/00534042660 #1
Antenna gain R1LOW-R-SBM model *	Antenna 0: 0.15 dBi, Antenna 1: 1.61 dBi
Antenna R1LOW-R model* Part name Antenna 0 Part name Antenna 1	Sheet metal antenna, 2342059-2 2342059-1
Antenna gain R1LOW-R model*	Antenna 0: -2.29 dBi, Antenna 1: -2.81 dBi
Number of Spatial Streams*	NSS=1, NSS=2
Power supply, V_{nom}*	9 – 16.5V DC Battery, V_{nom}=12.6 V
Temperature range, T_{nom}*	-40 °C to +75 °C, T_{nom}=+25°C

Channels with **20 MHz** channel bandwidth:

U-NII-1 & U-NII-2A (5150 MHz to 5250 MHz & 5250 MHz to 5350 MHz) channel number & center frequency								
channel	**36**	40	44	**48**	**52**	56	60	**64**
f_c / MHz	**5180**	5200	5220	**5240**	**5260**	5280	5300	**5320**

U-NII-2C (5470 MHz to 5725 MHz) channel number & center frequency												
channel	**100**	104	108	112	116	**120**	124	128	132	136	**140**	**144**
f_c / MHz	**5500**	5520	5540	5560	5580	**5600**	5620	5640	5660	5680	**5700**	**5720**

U-NII-3 (5725 MHz to 5850 MHz) channel number & center frequency					
channel	**149**	153	**157**	161	**165**
f_c / MHz	**5745**	5765	**5785**	5805	**5825**

Channels with **40 MHz** channel bandwidth:

U-NII-1 & U-NII-2A (5150 MHz to 5250 MHz & 5250 MHz to 5350 MHz) channel number & center frequency				
channel	**38**	**46**	**54**	**62**
f_c / MHz	**5190**	**5230**	**5270**	**5310**

U-NII-2C (5470 MHz to 5725 MHz) channel number & center frequency						
channel	**102**	110	118	**126**	134	**142**
f_c / MHz	**5510**	5550	5590	**5630**	5670	**5710**

U-NII-3 (5725 MHz to 5850 MHz) channel number & center frequency		
channel	**151**	**159**
f_c / MHz	**5755**	**5795**

Channels with **80 MHz** channel bandwidth:

U-NII-1 & U-NII-2A (5150 MHz to 5250 MHz & 5250 MHz to 5350 MHz) channel number & center frequency		
channel	**42**	**58**
f_c / MHz	**5210**	**5290**

U-NII-2C (5470 MHz to 5725 MHz) channel number & center frequency			
channel	**106**	**122**	**138**
f_c / MHz	**5530**	**5610**	**5690**

U-NII-3 (5725 MHz to 5850 MHz) channel number & center frequency	
channel	**155**
f_c / MHz	**5775**

5.4 Additional Information

Model differences	• R1LOW-R-SBM model with external antenna and disassociated display • R1LOW-R model with integrated sheet metal antenna and associated display **Applicant declares that transmitter modul and PCB are identical in both models** Conducted R1LOW-R test sample is used for following test cases: • 6 dB emission bandwidth • 26 dB emission bandwidth • Occupied Channel Bandwidth (99%) • Peak power spectral density (PSD) • Band edge compliance (BEC), conducted • Conducted spurious emissions (CSE) • Dynamic Frequency Selection (DFS) Radiated R1LOW-R test sample is used for following test cases: • Radiated spurious emissions (RSE) Conducted R1LOW-R-SBM test sample is used for following test cases: • RF output power (conducted peak power) Radiated R1LOW-R-SBM test sample is used for following test cases: • Antenna gain (calculated) • Band edge compliance (BEC), radiated Radiated spurious emissions (RSE) – worst case from R1LOW-R test sample tests
Ancillaries tested with	None
Additional equipment used for testing	Notebook with test tool; Companion device for DFS testing Access Point: FRITZ!Box 7590, Serial number M511.627.31.683.551

5.5 Test modes

Mode 1, a-mode	20 MHz bandwidth, Modulation type: BPSK 6.0 Mbps*
Mode 2, n-HT20 mode	20 MHz bandwidth, Modulation type: BPSK 13.0 Mbps, NSS=2*
Mode 3, n-HT40 mode	40 MHz bandwidth, Modulation type: BPSK 27.0 Mbps, NSS=2*
Mode 4, ac-HT20-mode	20 MHz bandwidth, Modulation type: BPSK, 13.0 Mbps, NSS=2*
Mode 5, ac-HT40-mode	40 MHz bandwidth, Modulation type: BPSK, 27.0 Mbps, NSS=2*
Mode 6, ac-HT80-mode	80 MHz bandwidth, Modulation type: BPSK, 58.5 Mbps, NSS=2*
Channel	Channels used for testing are marked in bold in 20 MHz, 40 MHz, 80 MHz channel lists (see secion 5.3)
Antennas and transmit operating mode	Equipment with 2 antennas/transmit chains are used simultaneously but without beamforming

Worst case configuration with respect to RF output power	Conducted RF output power has been measured for following modulation types, spatial streams and data rates for following channels (respective channel frequencies and bandwidth see channel lists in section 5.3):
	– 802.11a, all modulation types and data rates, NSS=2 (antenna 0 + 1) for
	  o 20 MHz channel 44, 60, 120, 157
	– 802.11n, all modulation types and data rates, NSS=2 (antenna 0 + 1) for
	  o 20 MHz channel 44, 60, 120, 157 and
	  o 40 MHz channel 46, 62, 126, 159
	– 802.11ac, all modulation types and data rates, NSS=2 (antenna 0 + 1) for
	  o 20 MHz channel 44, 60, 120, 157 and
	  o 40 MHz channel 46, 62, 126, 159 and
	  o 80 MHz channel 42, 58, 122, 155
	– 802.11a, BPSK, NSS=2, antenna 0 + 1 for channel frequencies marked in bold in 20 MHz channel list (see section 5.3)
	– 802.11n, BPSK, NSS=2, antenna 0 + 1 for channel frequencies marked in bold in 20, 40 MHz channel list (see section 5.3)
	– 802.11ac, BPSK, NSS=2, antenna 0 + 1 for channel frequencies marked in bold in 20, 40, 80 MHz channel list (see section 5.3)
	
	* From conducted RF output measurements test mode 1, 2, 3, 4, 6 have been selected for bandwidth and PSD measurements based on measured maximum conducted output power.
	Test modes 1, 3, 6 have been selected for BEC and RSE conducted and radiated measurements as well as EIRP radiated measurements based on measured maximum conducted output power.

6 SUMMARY OF TEST RESULTS

Test specification
FCC 47 CFR Part 15 **RSS-247, Issue 2 (2017-02) / RSS-Gen, Issue 5 (2018-04)**

Clause	Requirement / Test Case	Guideline - Remark	Verdict
§15.407(e) RSS-247, 6.2.4.1	6 dB emission bandwidth	KDB 789033, section C	- PASS -
§15.407(a) RSS-247, 6.2.1.2	26 dB emission bandwidth	KDB 789033, section C	- PASS -
RSS Gen, 6.7	Occupied bandwidth (99%)	KDB 789033, section D	- PASS -
§15.407(a) RSS-247, 6.2	RF output power (conducted peak power)	KDB 789033, section E	- PASS -
§15.407(a) RSS-247, 6.2	Antenna gain (calculated)	-/-	- PASS -
§15.407(a) RSS-247, 6.2	Peak power spectral density (PSD)	KDB 789033, section F	- PASS -
§15.407(b) RSS-247, 6.2	Band edge compliance (BEC), conducted	KDB 789033, section G	- PASS -
§15.407(b) RSS-247, 6.2	Band edge compliance (BEC), radiated	KDB 789033, section G	- PASS -
§15.407(b) RSS-247, 6.2	Conducted spurious emissions (CSE)	KDB 789033, section G	- PASS -
§15.407(b) / §15.209 RSS-247, 6.2 / RSS-Gen, 8.9	Radiated spurious emissions (RSE)	KDB 789033, section G	- PASS -
§15.407(h)(1) RSS-247, 6.2	Transmit Power Control	A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW	- N/A -
§15.407(h)(2) RSS-247, 6.3	Dynamic Frequency Selection (DFS) - channel availibiltiy check - channel move time - non occupancy period	KDB 905462	- PASS -
§15.207 RSS-Gen, 8.8	AC conducted emissions	EUT is battery powered	- N/A -

Comments and observations
Following pages show requirements and references of FCC Part 15.407, ANSI C63.10, KDB 789033 and KDB 905462 only. Same tests are also applicable and valid for RSS-247, with clauses given in table above.

7 TEST RESULTS

7.1 6 dB emission bandwidth

Applicability
This requirement applies to unlicensed National Information Infrastructure (U–NII) devices operating in the 5.15–5.35 GHz, 5.47–5.725 GHz and 5.725–5.85 GHz bands

Description
The 6 dB Emission Bandwidth is defined as the frequency width of the emission that is constrained by the frequencies associated with the tow outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Limit
§15.407(e): Within the 5.725–5.85 GHz band, the minimum 6 dB bandwidth of U–NII devices shall be at least 500 kHz.
RSS 247 section 6.2.4.1: For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

Test procedure
KDB 789033 D02, C.2.
The steps are as follows:
a) Set RBW = 100 kHz
b) Set the VBW ≥ [3 × RBW].
c) Detector = peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
The automatic bandwidth measurement capability of an instrument may be employed using the 6 dB bandwidth mode.

Test setup: 8.4 with conducted test sample 60337

Test Results 20 MHz				
EUT Mode	**6dB emission bandwidth**			**Limit Min [MHz]**
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [MHz]	**mid channel [MHz]**	**high channel [MHz]**	
Mode 1	15.650	15.450	15.450	0.500
Mode 2	15.800	15.250	15.250	0.500
Mode 4	15.250	15.250	15.250	0.500

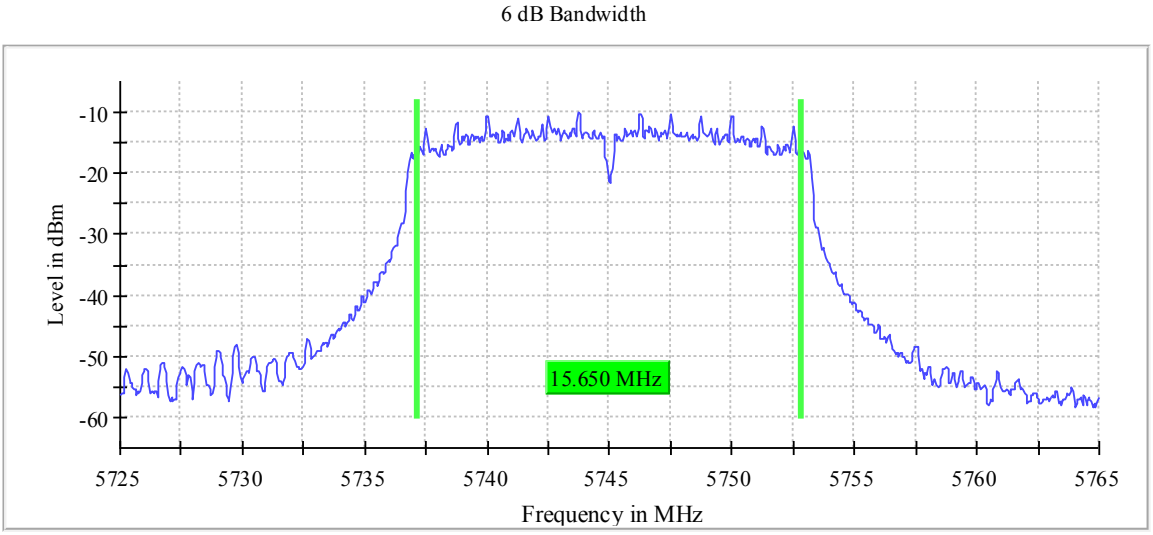
Test Results 40 MHz				
EUT Mode	**6dB emission bandwidth**			**Limit Min [MHz]**
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [MHz]	**mid channel [MHz]**	**high channel [MHz]**	
Mode 3	35.150	--	35.200	0.500

Test Results 80 MHz				
EUT Mode	**6dB emission bandwidth**			**Limit Min [MHz]**
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [MHz]	**mid channel [MHz]**	**high channel [MHz]**	
Mode 6	--	75.150	--	0.500

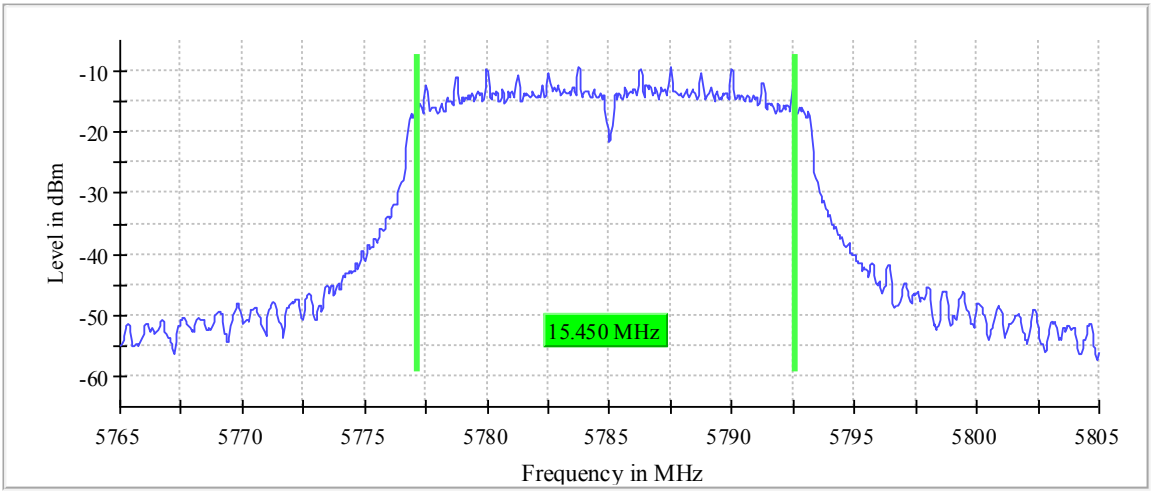
Comment:	---

Verdict	**- PASS -**	*see next plots*

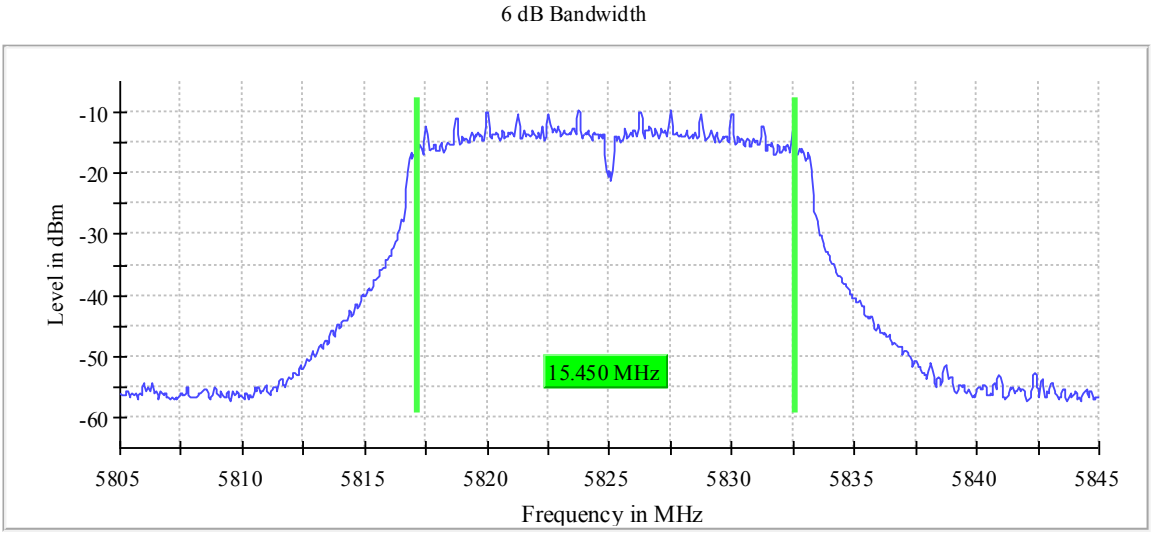
Plot 1: Mode 1, U-NII-3, Minimum Emission Bandwidth 6 dB, low channel



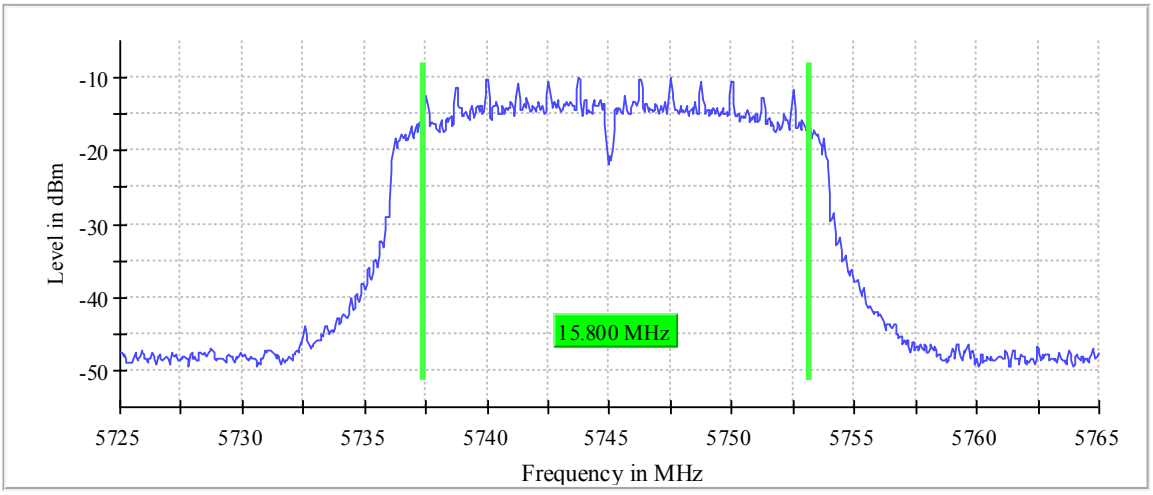
Plot 2: Mode 1, U-NII-3, Minimum Emission Bandwidth 6 dB, mid channel



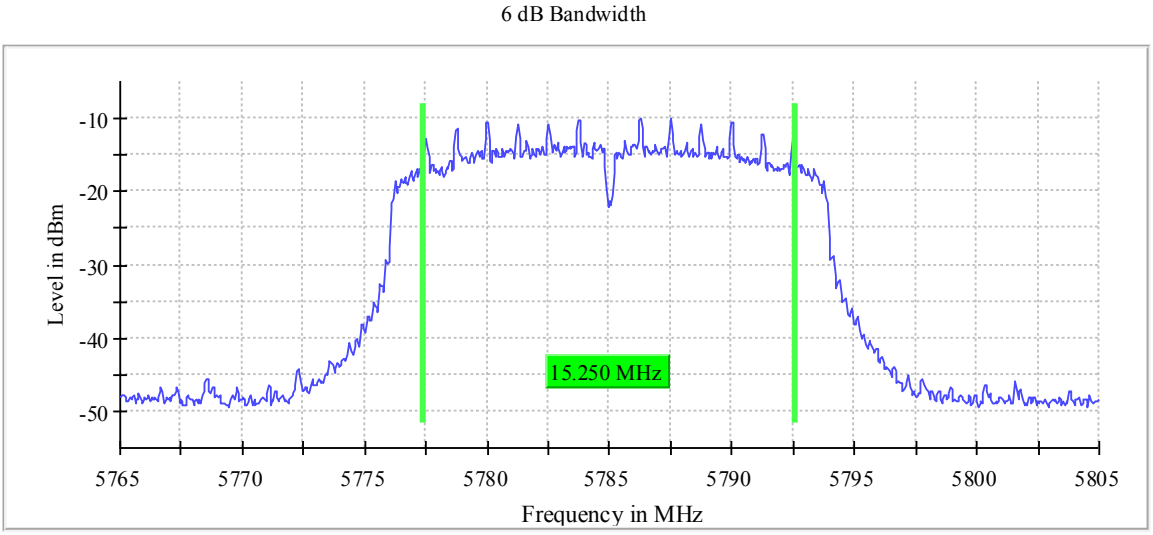
Plot 3: Mode 1, U-NII-3, Minimum Emission Bandwidth 6 dB, high channel



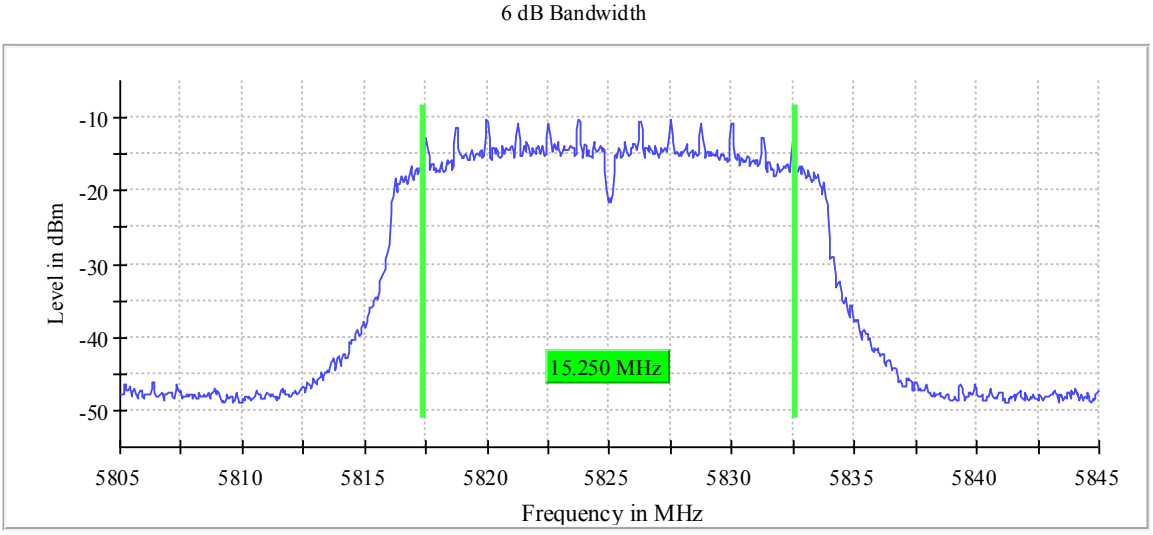
Plot 4: Mode 2, U-NII-3, Minimum Emission Bandwidth 6 dB, low channel



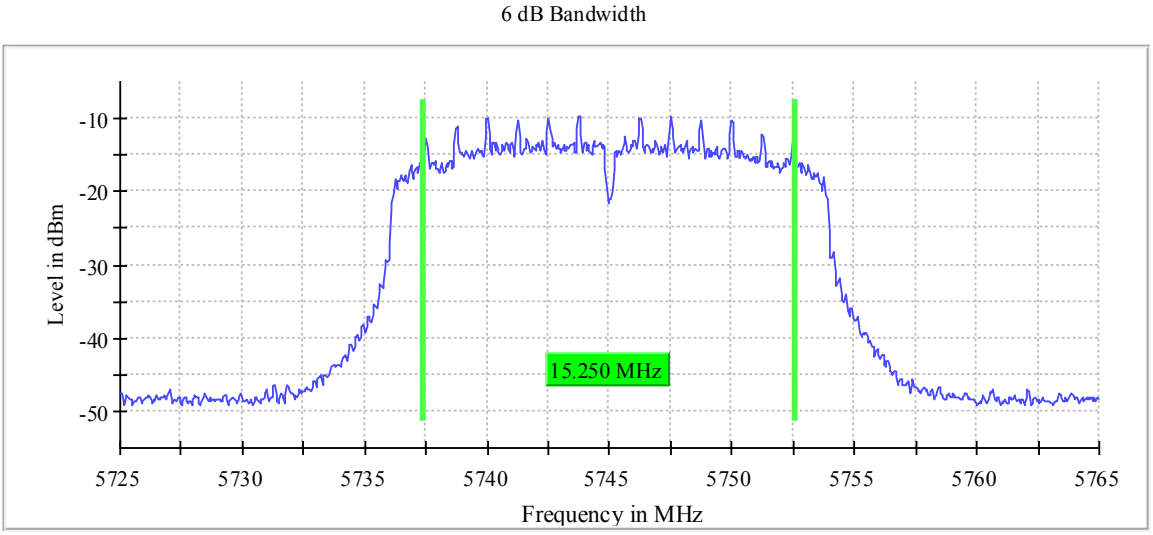
Plot 5: Mode 2, U-NII-3, Minimum Emission Bandwidth 6 dB, mid channel



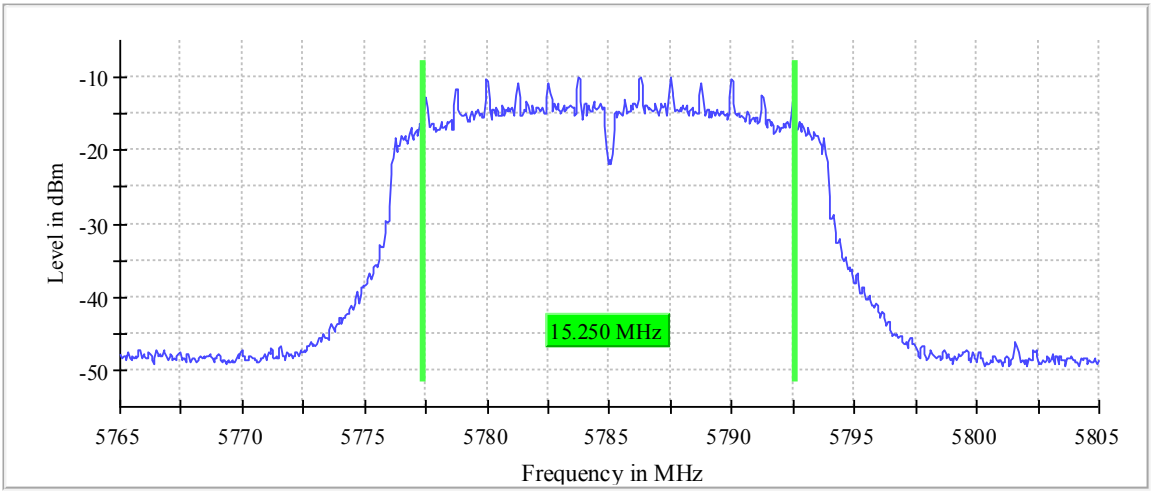
Plot 6: Mode 2, U-NII-3, Minimum Emission Bandwidth 6 dB, high channel



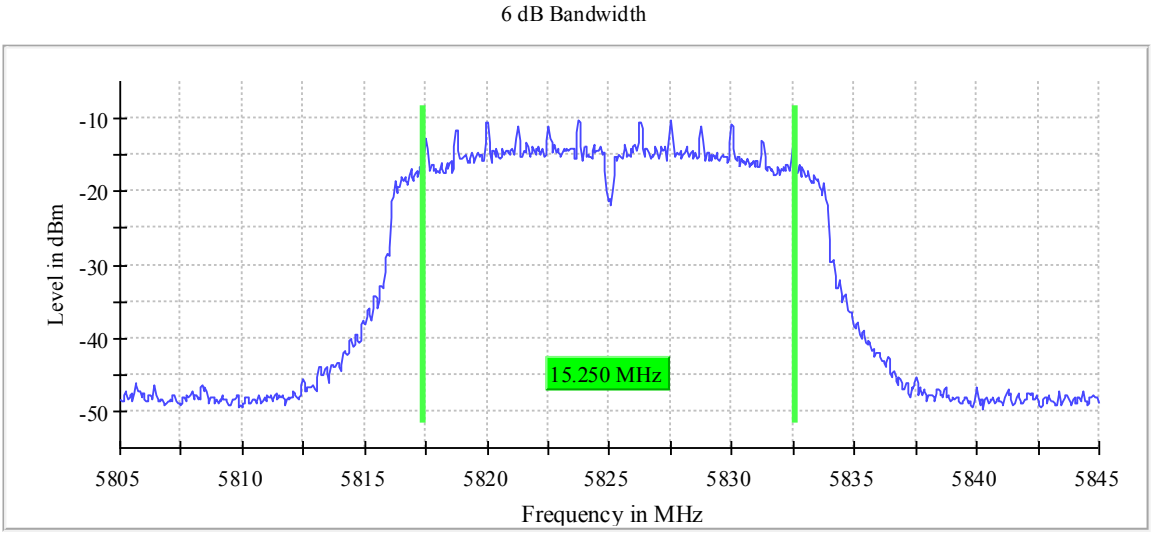
Plot 7: Mode 4, U-NII-3, Minimum Emission Bandwidth 6 dB, low channel



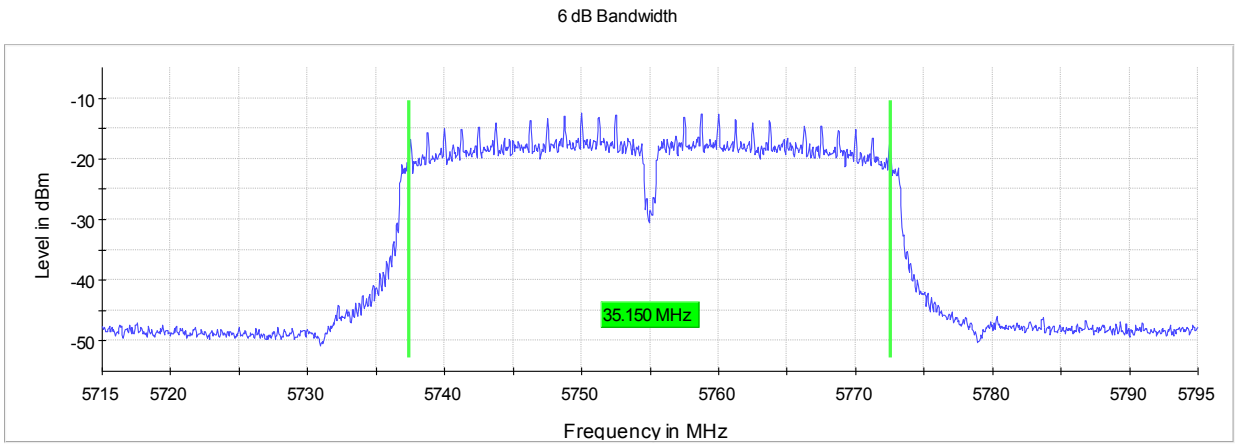
Plot 8: Mode 4, U-NII-3, Minimum Emission Bandwidth 6 dB, mid channel



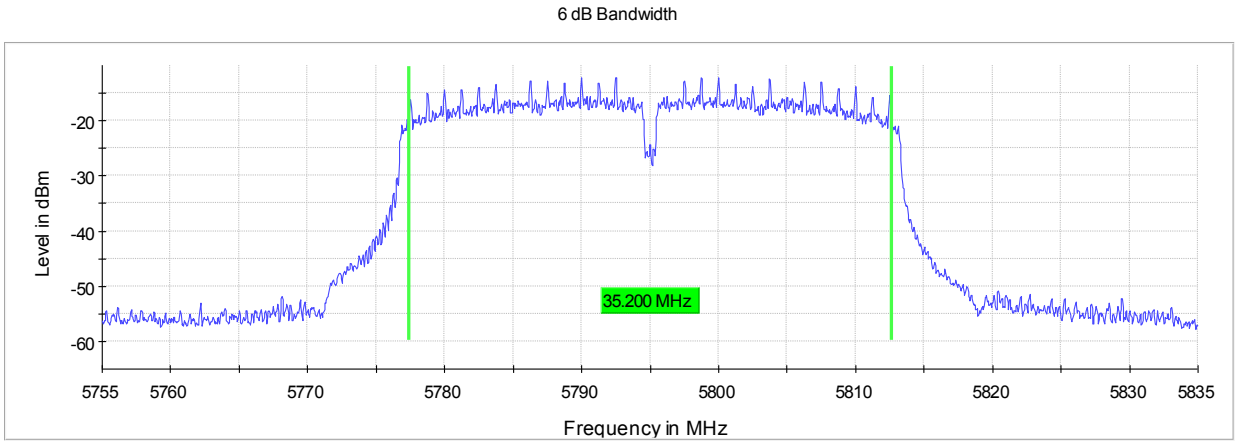
Plot 9: Mode 4, U-NII-3, Minimum Emission Bandwidth 6 dB, high channel



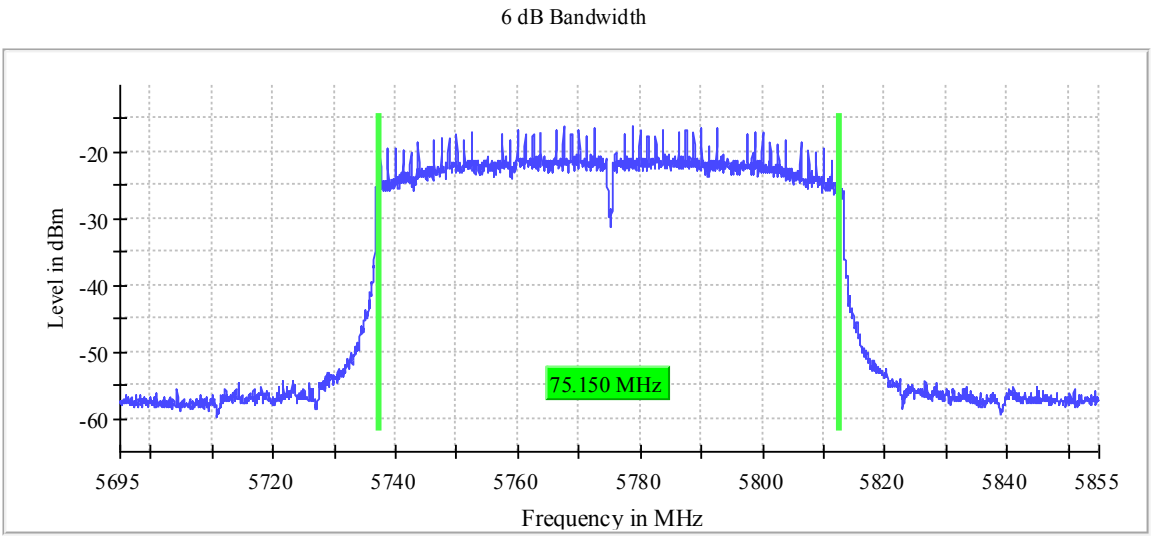
Plot 10: Mode 3, U-NII-3, Minimum Emission Bandwidth 6 dB, low channel



Plot 11: Mode 3, U-NII-3, Minimum Emission Bandwidth 6 dB, high channel



Plot 12: Mode 6, U-NII-3, Minimum Emission Bandwidth 6 dB, mid channel



7.2 26 dB emission bandwidth

Applicability
This requirement applies to unlicensed National Information Infrastructure (U–NII) devices operating in the 5.15–5.35 GHz, 5.47–5.725 GHz and 5.725–5.85 GHz bands

Description
The 26 dB Emission Bandwidth is defined as the frequency width of the emission that is constrained by the frequencies associated with the tow outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

Limit
§15.407(a):
For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz

§15.407(h):
Radar Detection Function of Dynamic Frequency Selection (DFS). U–NII devices operating with any part of its 26 dB emission bandwidth in the 5.25–5.35 GHz and 5.47–5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems.

RSS 247 section 6.2.1.2:
Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250- 5350 MHz band

Test procedure
KDB 789033 D02, C.1.
The steps are as follows:
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

Test setup: 8.4 with conducted test sample 60337

Test Results 20 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-1 (5150 MHz to 5250 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 1	20.00	19.50	19.80	--
Mode 2	20.70	20.60	20.60	--
Mode 4	20.90	20.30	21.00	

Test Results 20 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-2A (5250 MHz to 5350 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 1	19.60	19.90	19.50	--
Mode 2	20.60	20.60	20.30	--
Mode 4	20.70	20.80	20.30	

Test Results 20 MHz					
EUT Mode	26 dB bandwidth				Limit [MHz]
	U-NII-2C (5470 MHz to 5725 MHz)				
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	Channel 144 [MHz]	
Mode 1	19.70	19.30	19.80	19.50	--
Mode 2	20.40	20.40	20.60	20.60	--
Mode 4	20.70	20.70	20.40	20.50	

Test Results 20 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 1	19.60	19.90	19.70	
Mode 2	20.40	20.80	20.90	--
Mode 4	20.70	20.70	20.80	

Test Results 40 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-1 (5150 MHz to 5250 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 3	42.03	--	41.28	--

Test Results 40 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-2A (5250 MHz to 5350 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 3	41.28	--	41.28	--

Test Results 40 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-2C (5470 MHz to 5725 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 3	40.83	41.28	41.28	--

Test Results 40 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 3	41.58	--	40.68	--

Test Results 80 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-1 (5150 MHz to 5250 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 6	--	83.50	--	--

Test Results 80 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-2A (5250 MHz to 5350 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 6	--	85.00	--	--

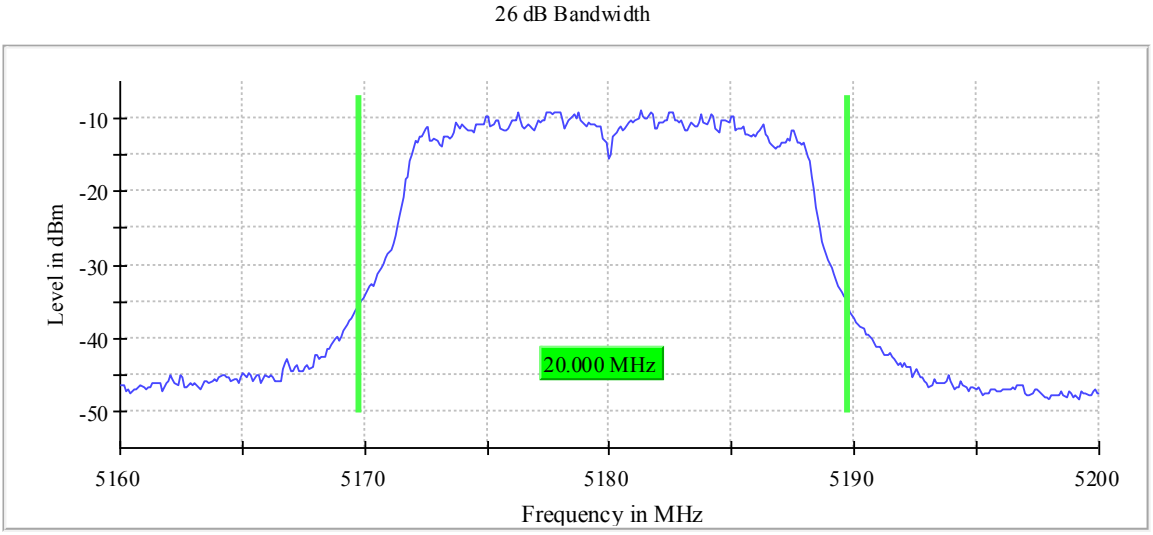
Test Results 80 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-2C (5470 MHz to 5725 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 6	84.50	84.00	83.50	--

Test Results 80 MHz				
EUT Mode	26 dB bandwidth			Limit [MHz]
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 6	--	85.5	--	--

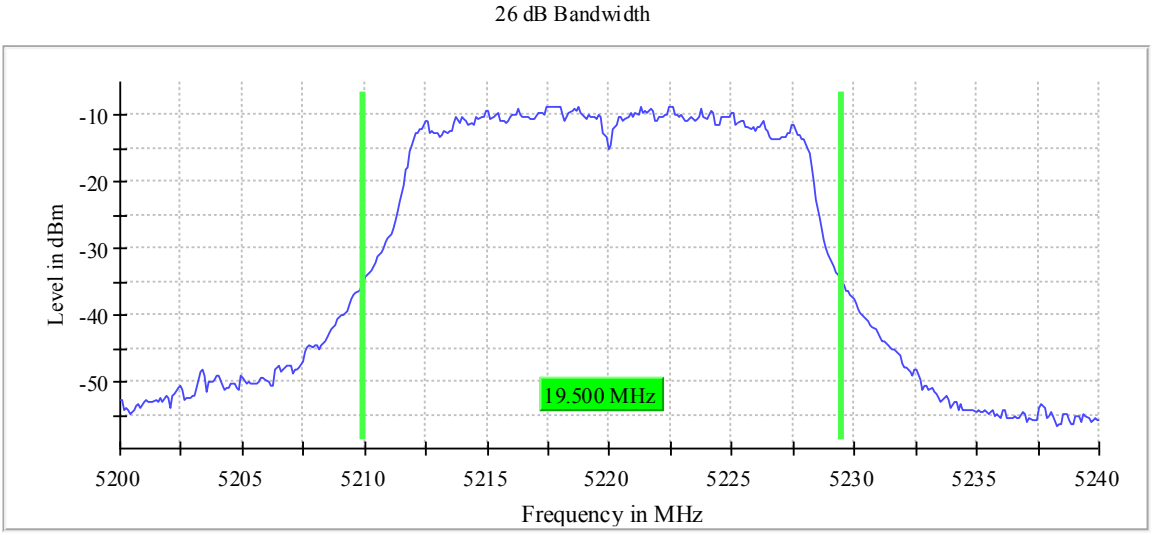
Comment:	---

Verdict	- PASS -	*see next plots*

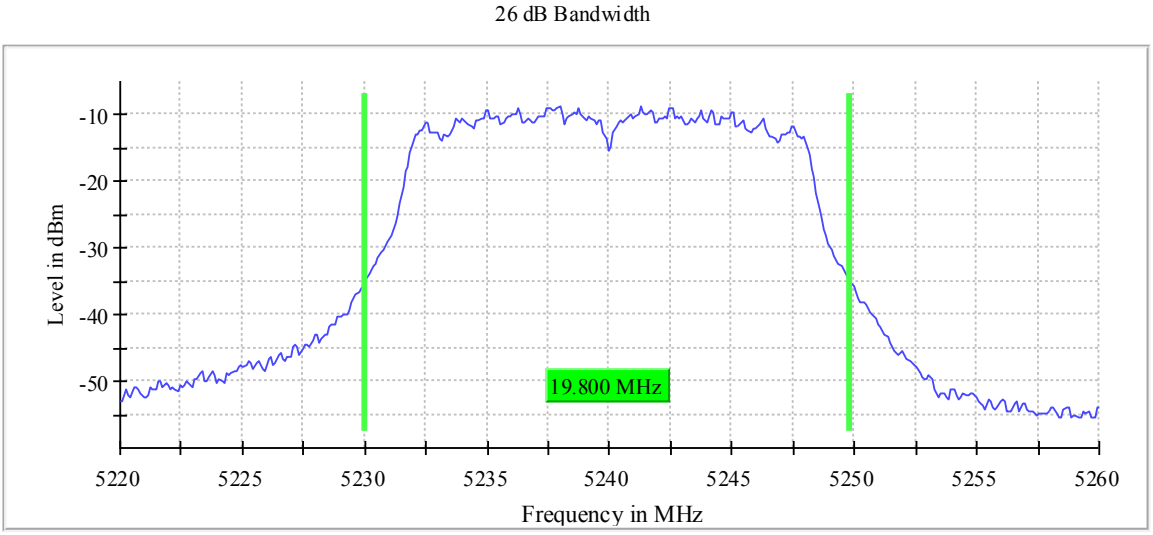
Plot 13: Mode 1, U-NII-1, Emission Bandwidth 26 dB, low channel



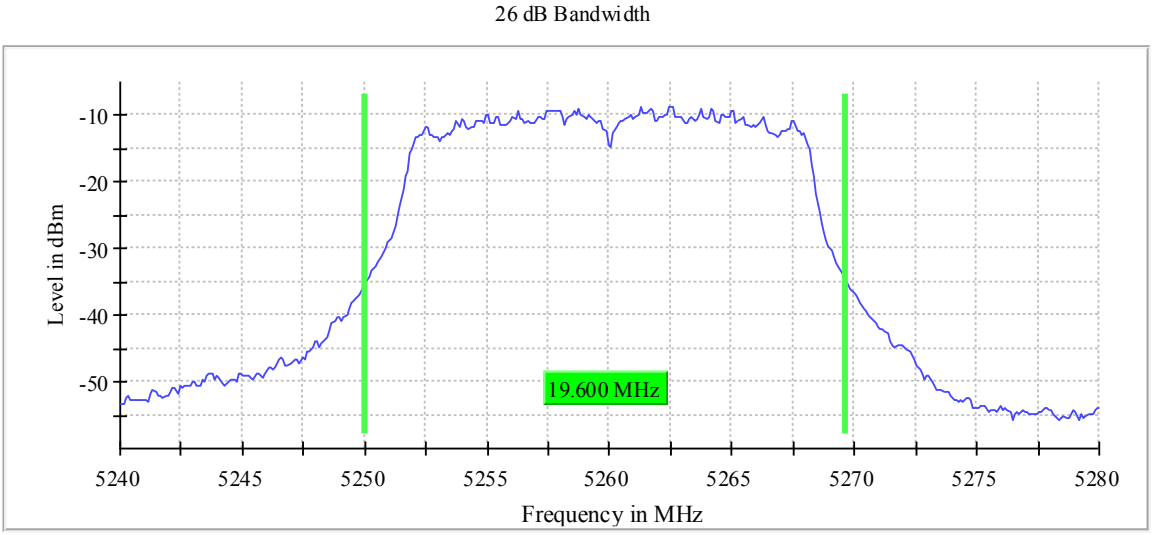
Plot 14: Mode 1, U-NII-1, Emission Bandwidth 26 dB, mid channel



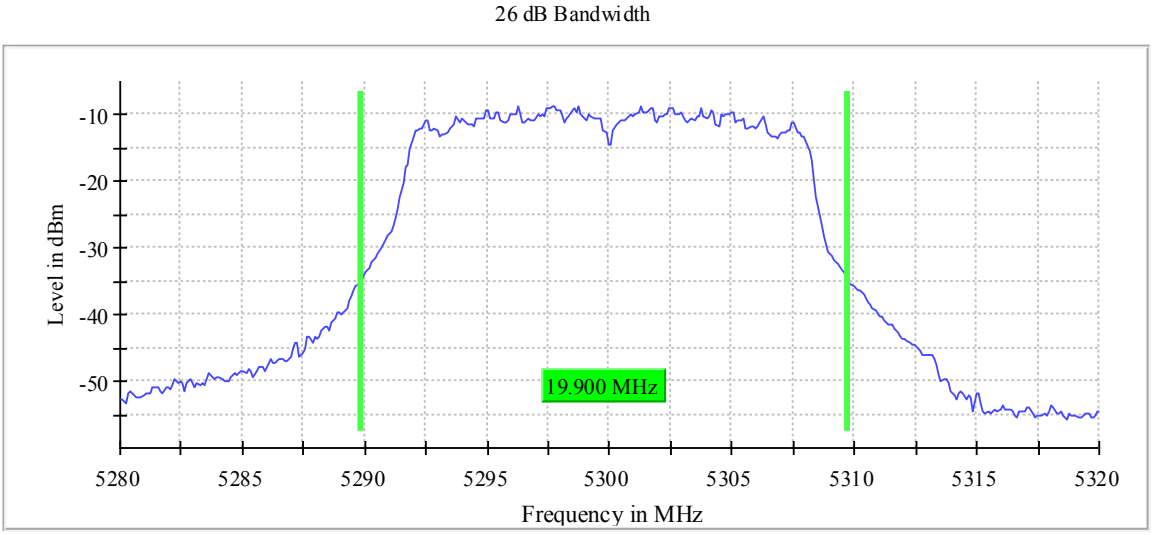
Plot 15: Mode 1, U-NII-1, Emission Bandwidth 26 dB, high channel



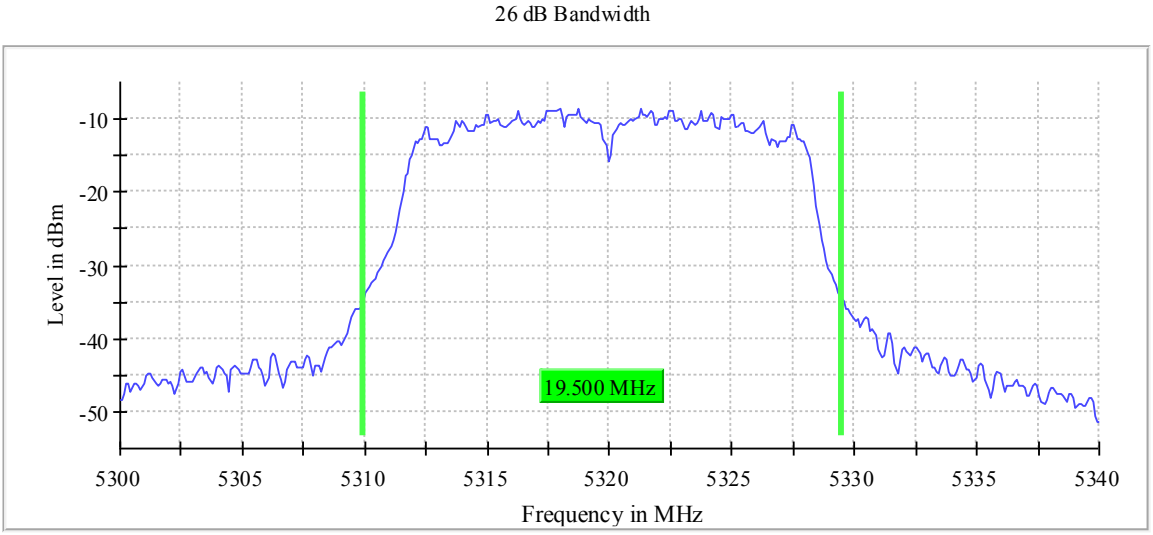
Plot 16: Mode 1, U-NII-2A, Emission Bandwidth 26 dB, low channel



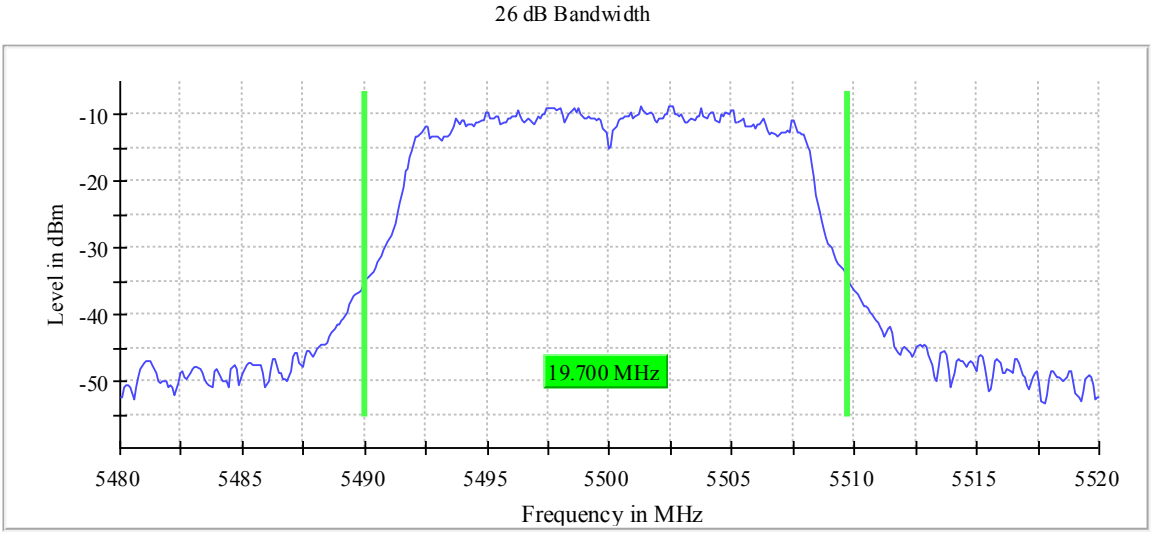
Plot 17: Mode 1, U-NII-2A, Emission Bandwidth 26 dB, mid channel



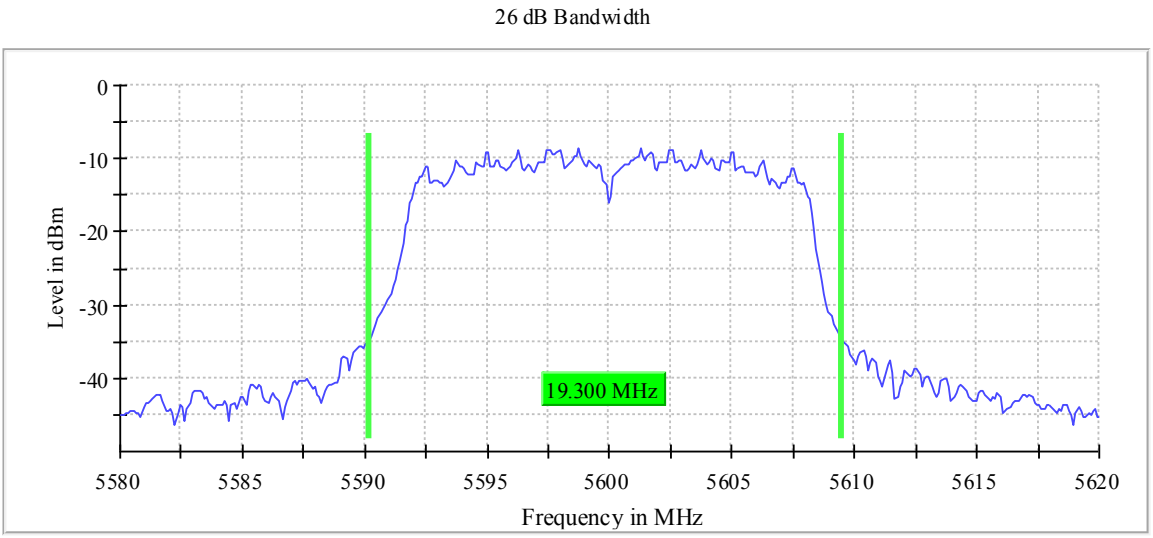
Plot 18: Mode 1, U-NII-2A, Emission Bandwidth 26 dB, high channel



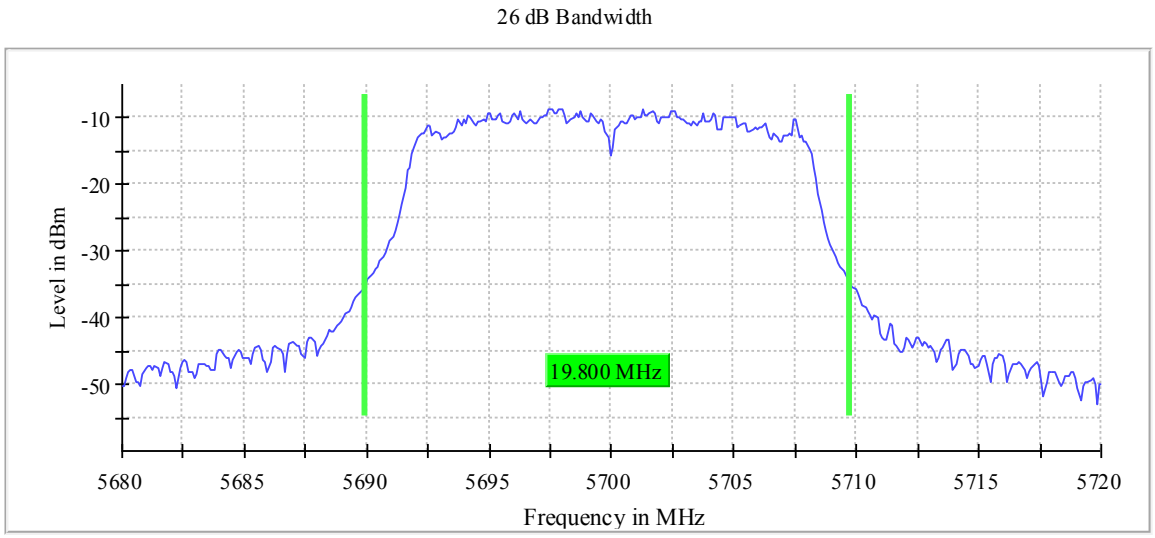
Plot 19: Mode 1, U-NII-2C, Emission Bandwidth 26 dB, low channel



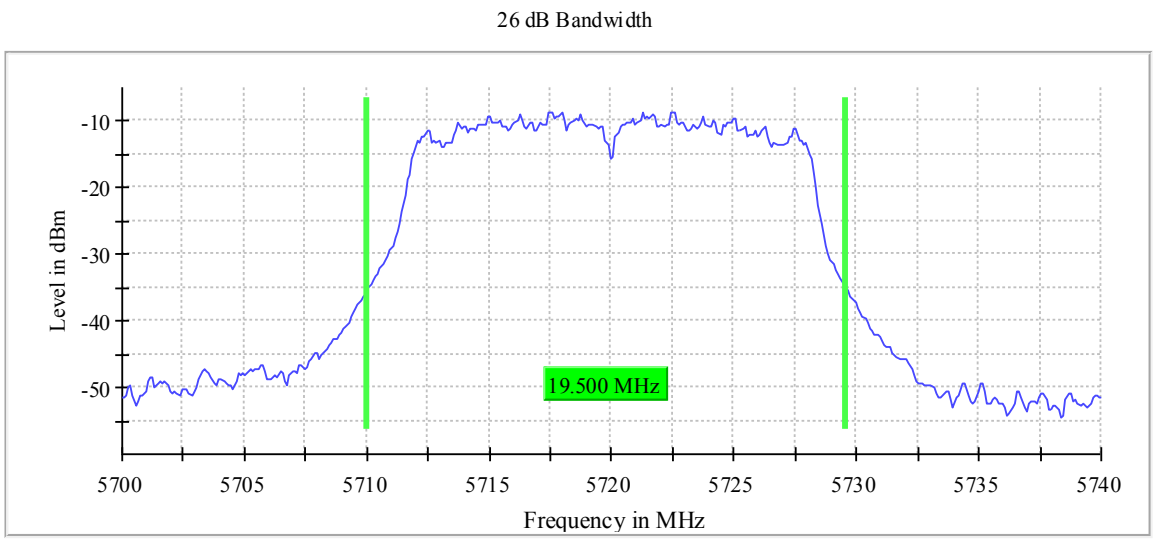
Plot 20: Mode 1, U-NII-2C, Emission Bandwidth 26 dB, mid channel



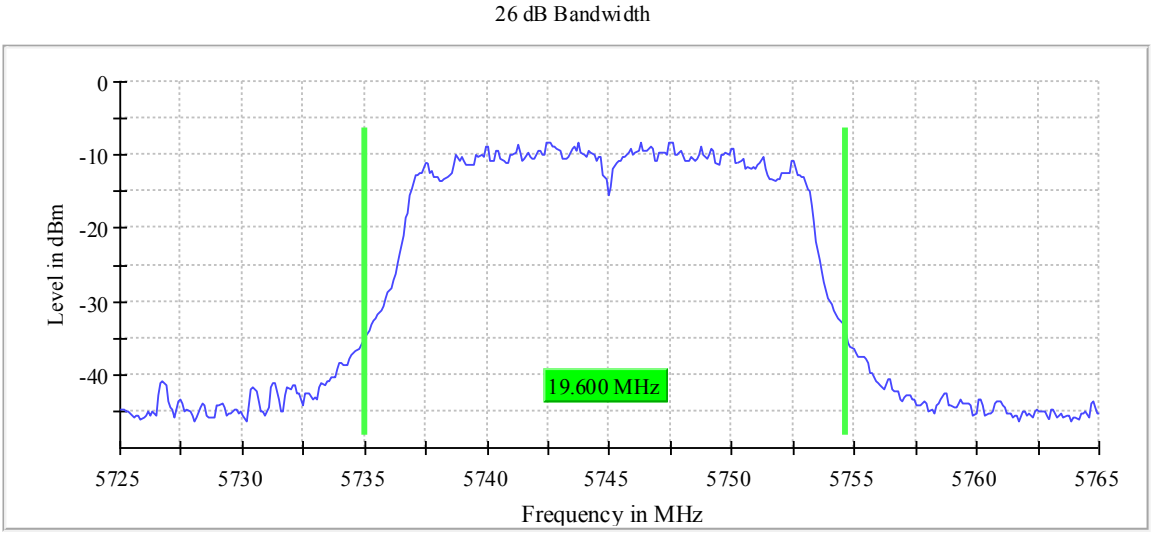
Plot 21: Mode 1, U-NII-2C, Emission Bandwidth 26 dB, high channel



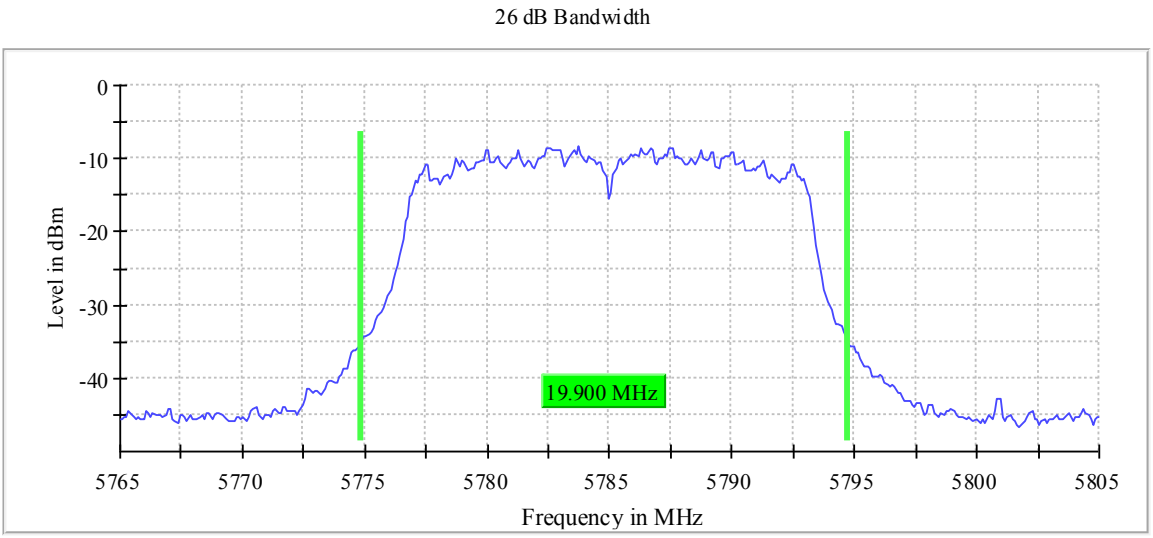
Plot 22: Mode 1, U-NII-2C, Emission Bandwidth 26 dB, channel 144



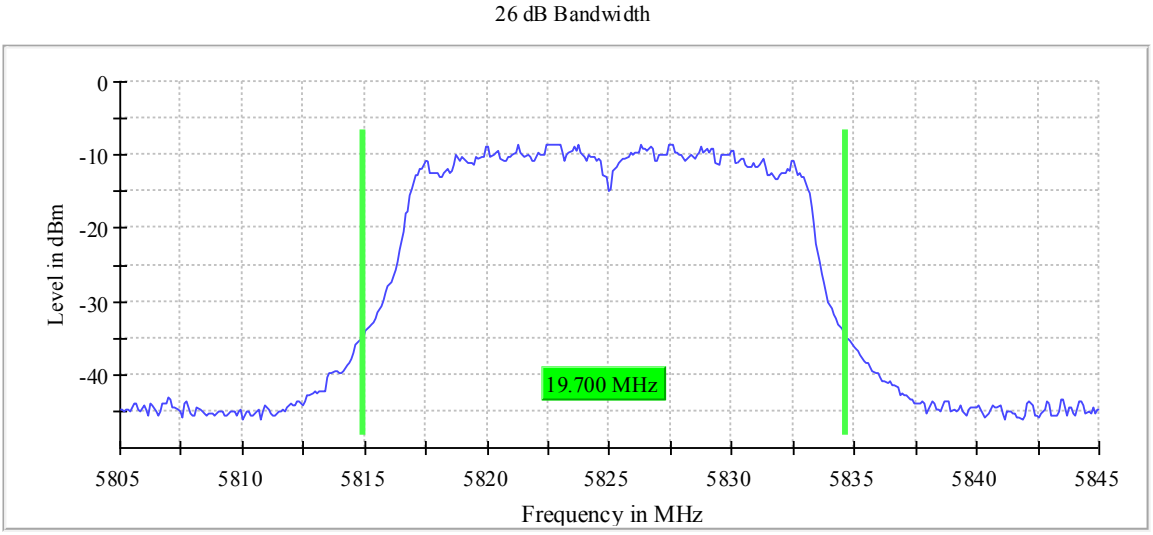
Plot 23: Mode 2, U-NII-3, Emission Bandwidth 26 dB, low channel



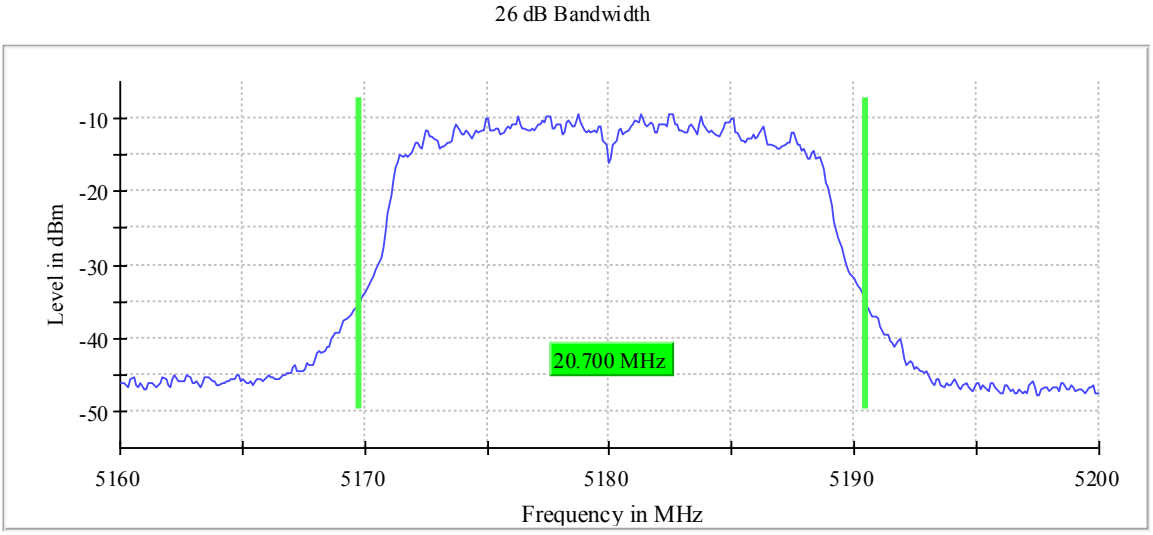
Plot 24: Mode 2, U-NII-3, Emission Bandwidth 26 dB, mid channel



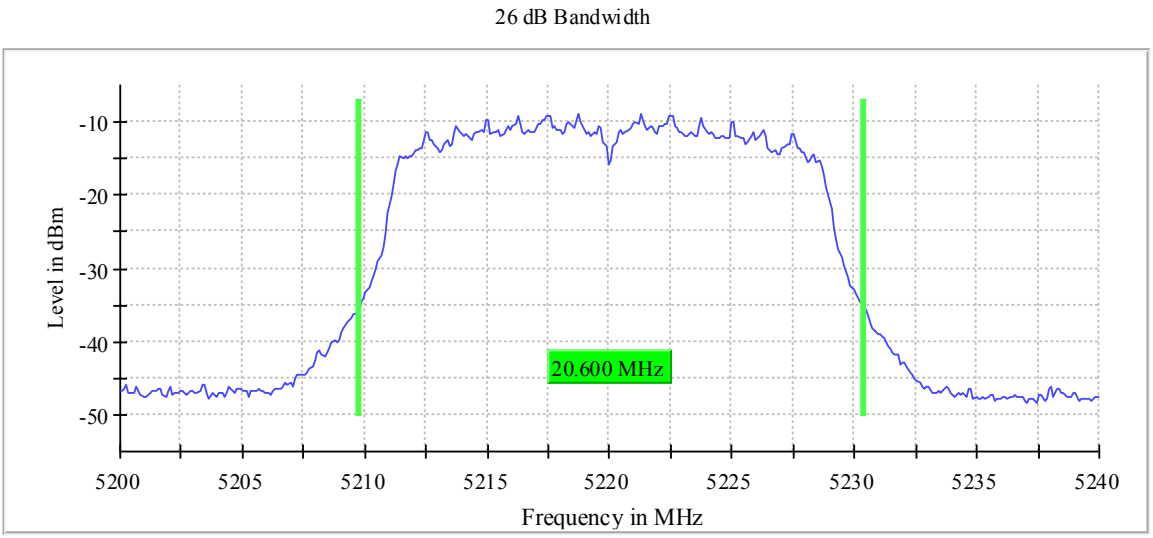
Plot 25: Mode 2, U-NII-3, Emission Bandwidth 26 dB, high channel



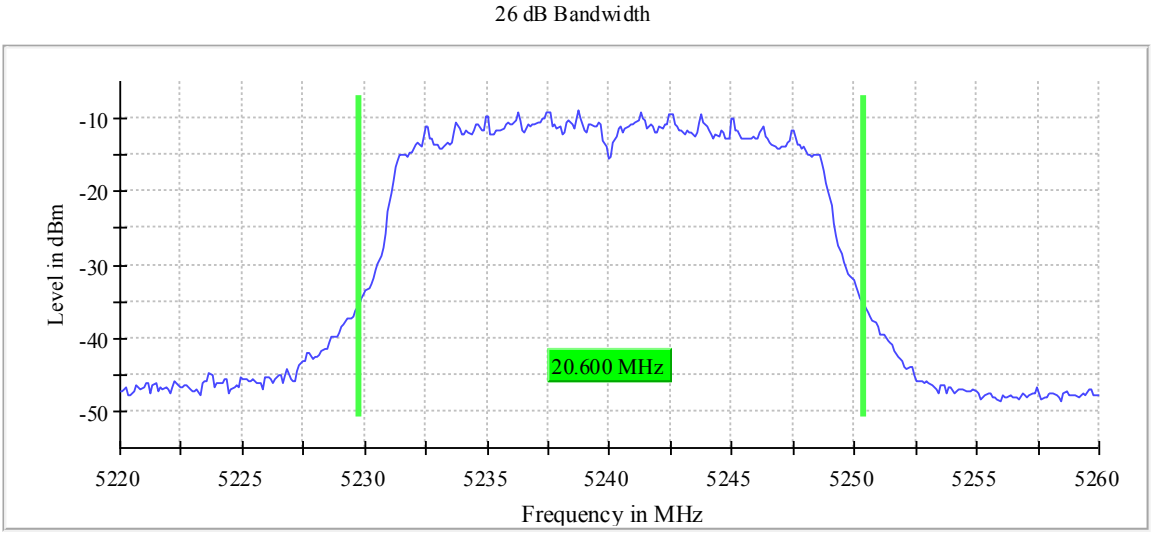
Plot 26: Mode 2, U-NII-1, Emission Bandwidth 26 dB, low channel



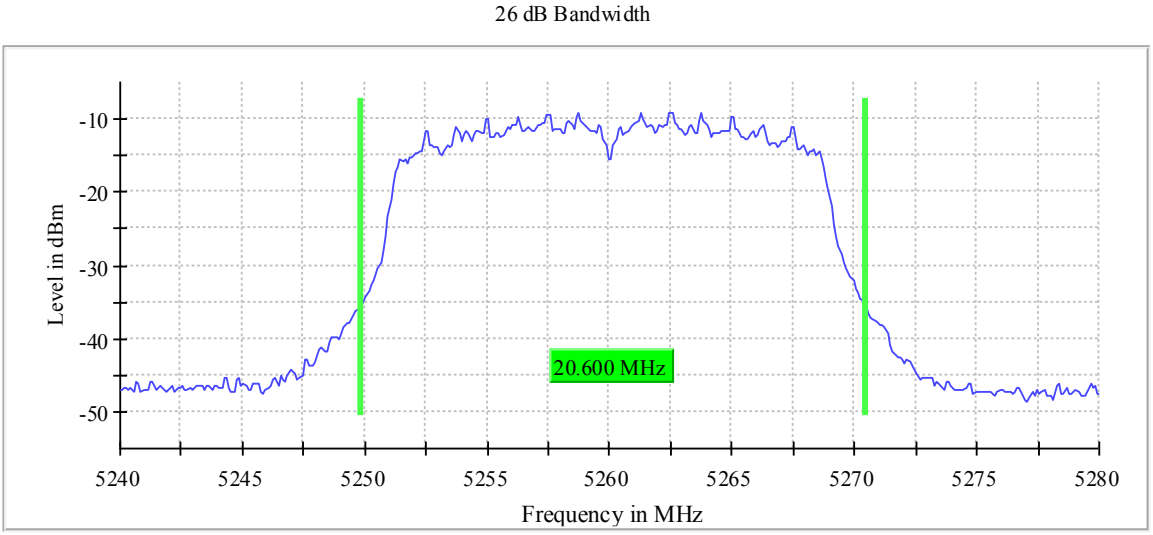
Plot 27: Mode 2, U-NII-1, Emission Bandwidth 26 dB, mid channel



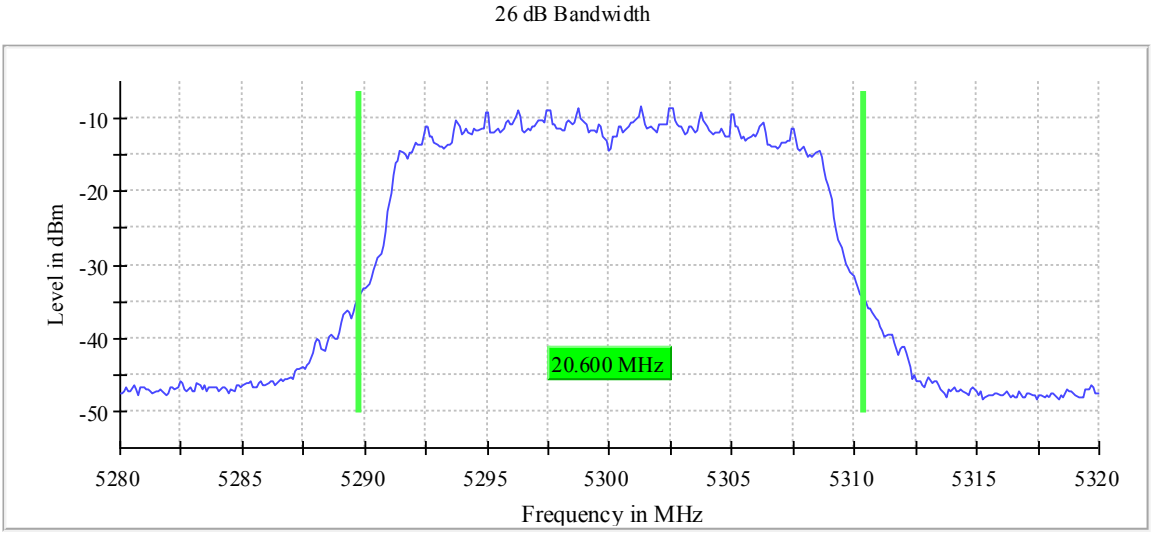
Plot 28: Mode 2, U-NII-1, Emission Bandwidth 26 dB, high channel



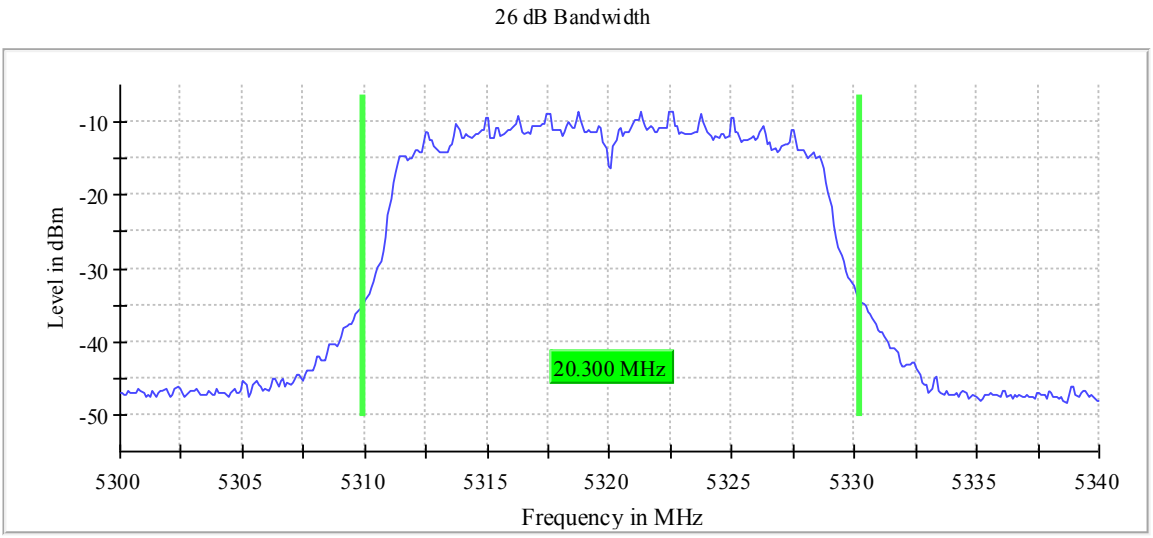
Plot 29: Mode 2, U-NII-2A, Emission Bandwidth 26 dB, low channel



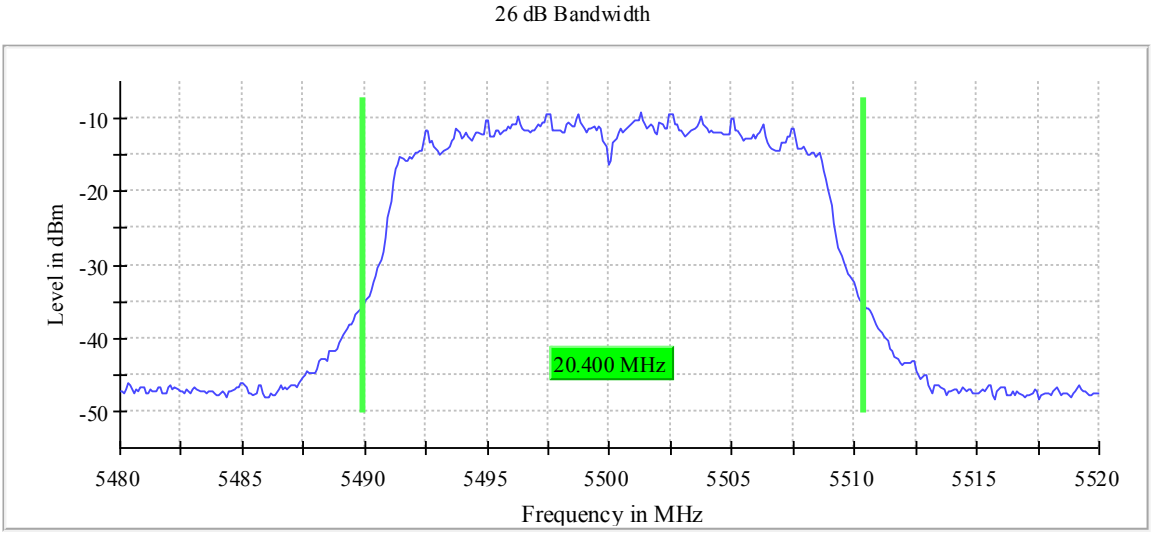
Plot 30: Mode 2, U-NII-2A, Emission Bandwidth 26 dB, mid channel



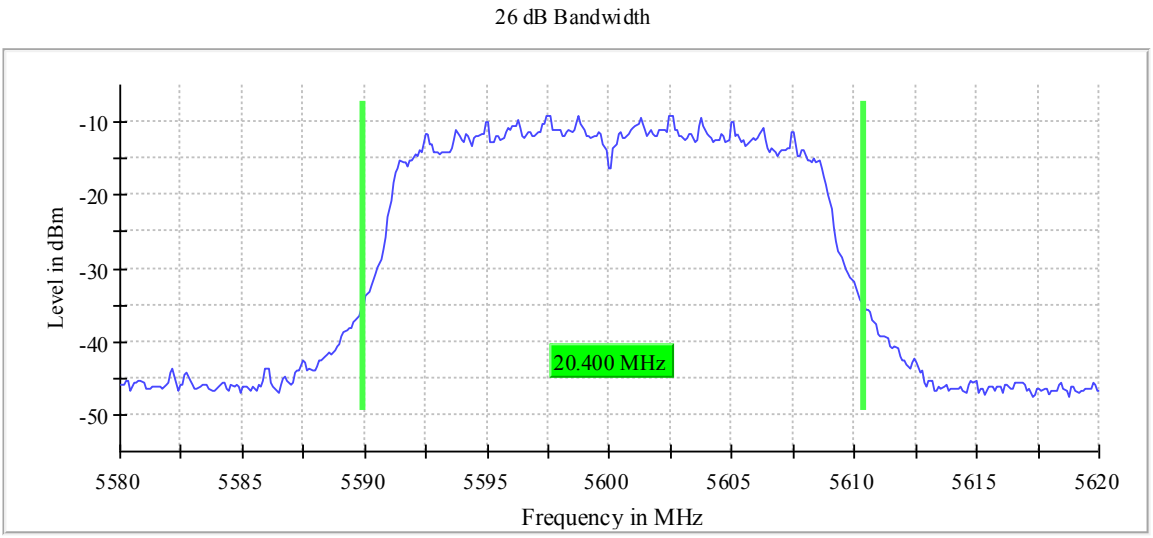
Plot 31: Mode 2, U-NII-2A, Emission Bandwidth 26 dB, high channel



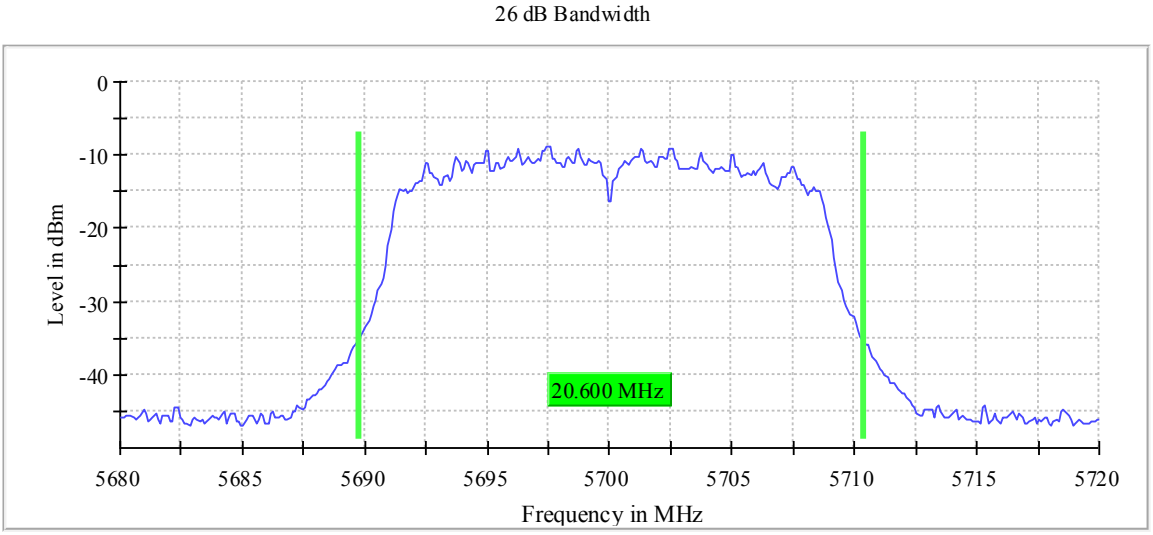
Plot 32: Mode 2, U-NII-2C, Emission Bandwidth 26 dB, low channel



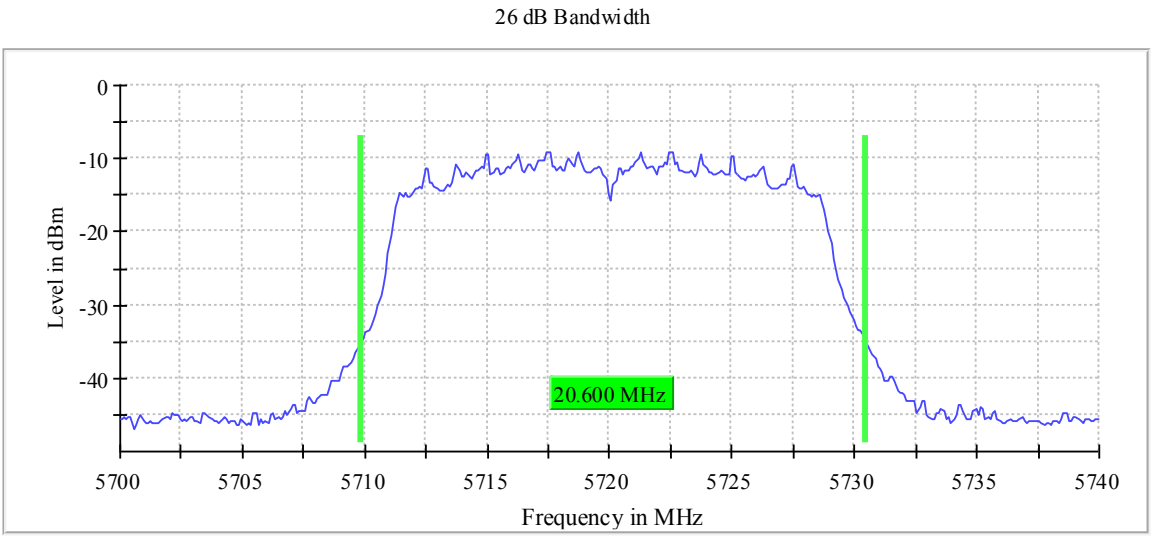
Plot 33: Mode 2, U-NII-2C, Emission Bandwidth 26 dB, mid channel



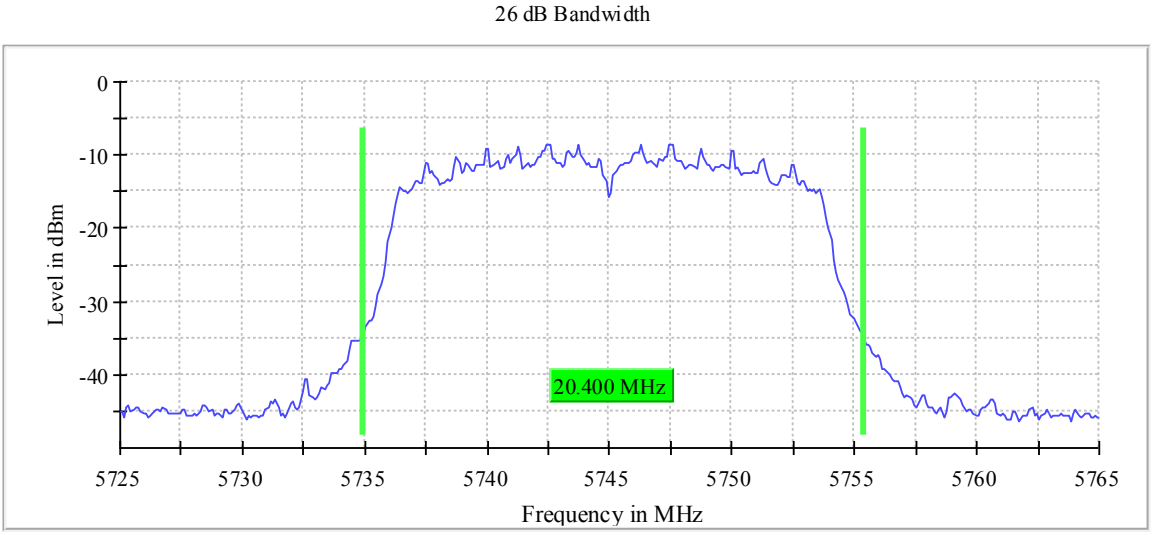
Plot 34: Mode 2, U-NII-2C, Emission Bandwidth 26 dB, high channel



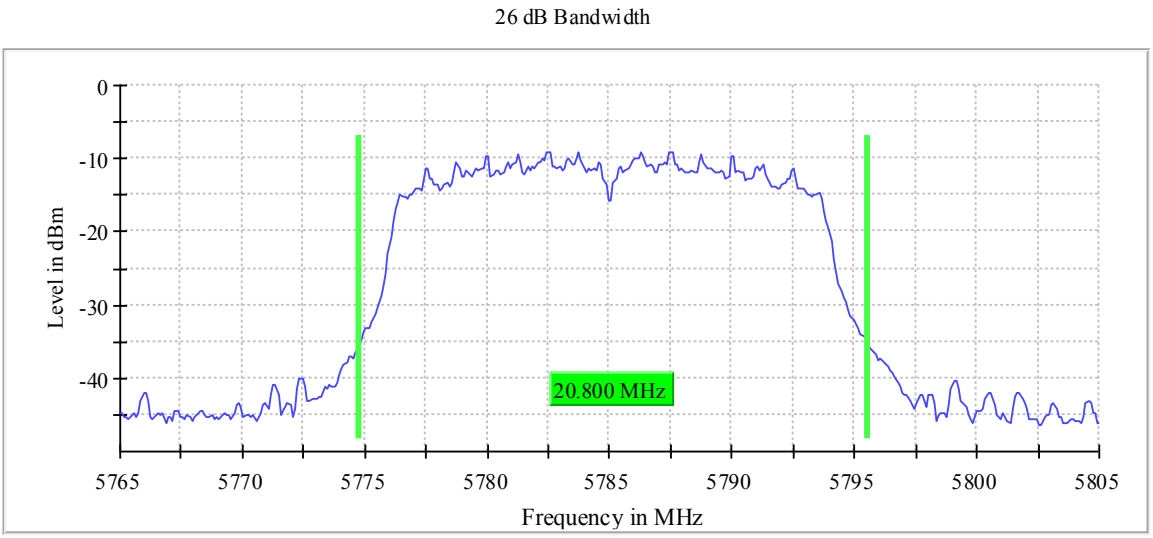
Plot 35: Mode 2, U-NII-2C, Emission Bandwidth 26 dB, channel 144



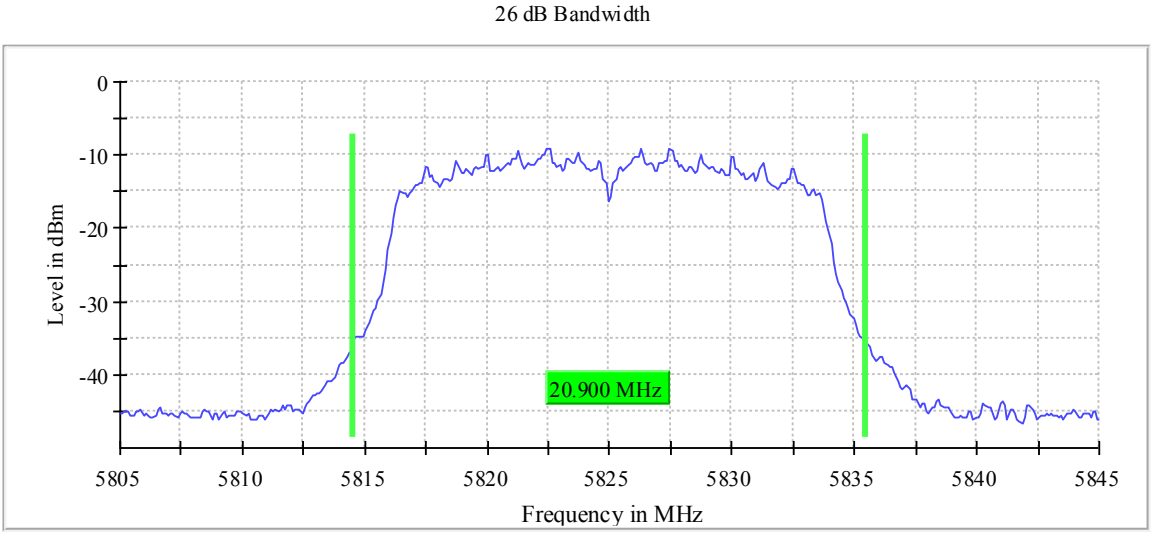
Plot 36: Mode 2, U-NII-3, Emission Bandwidth 26 dB, low channel



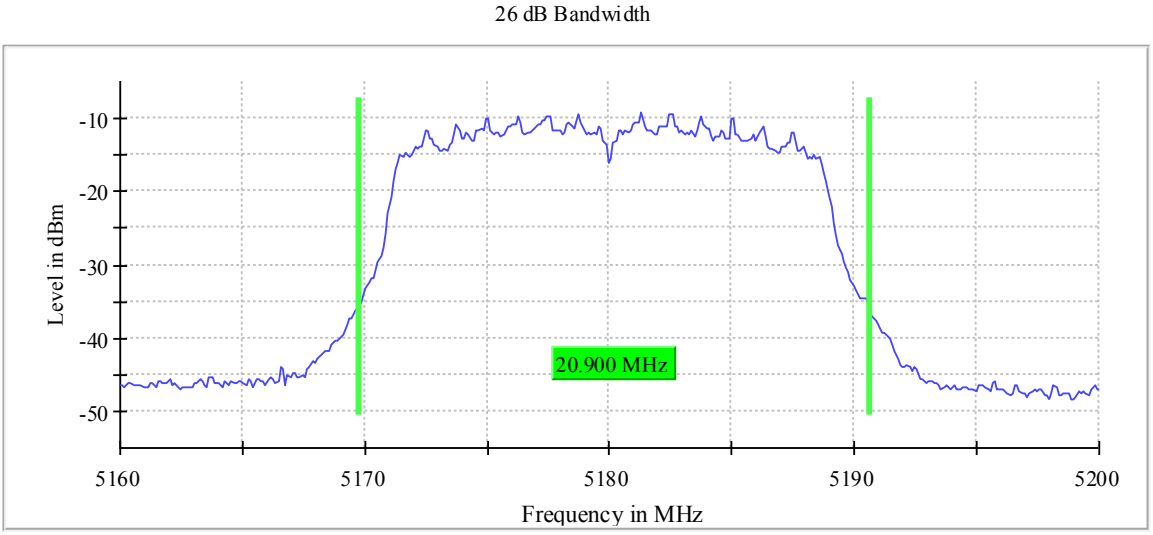
Plot 37: Mode 2, U-NII-3, Emission Bandwidth 26 dB, mid channel



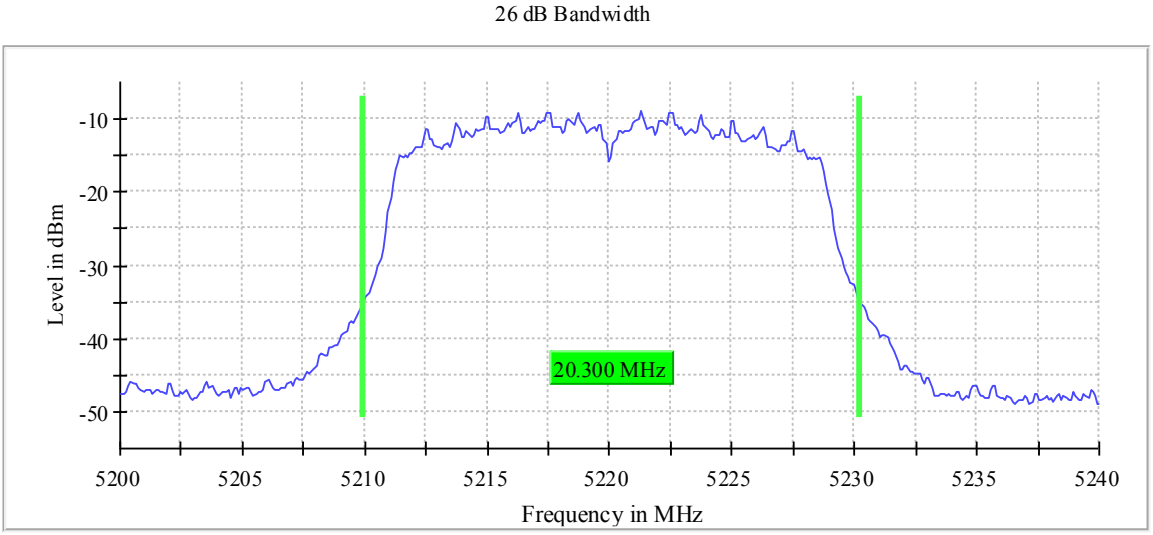
Plot 38: Mode 2, U-NII-3, Emission Bandwidth 26 dB, high channel



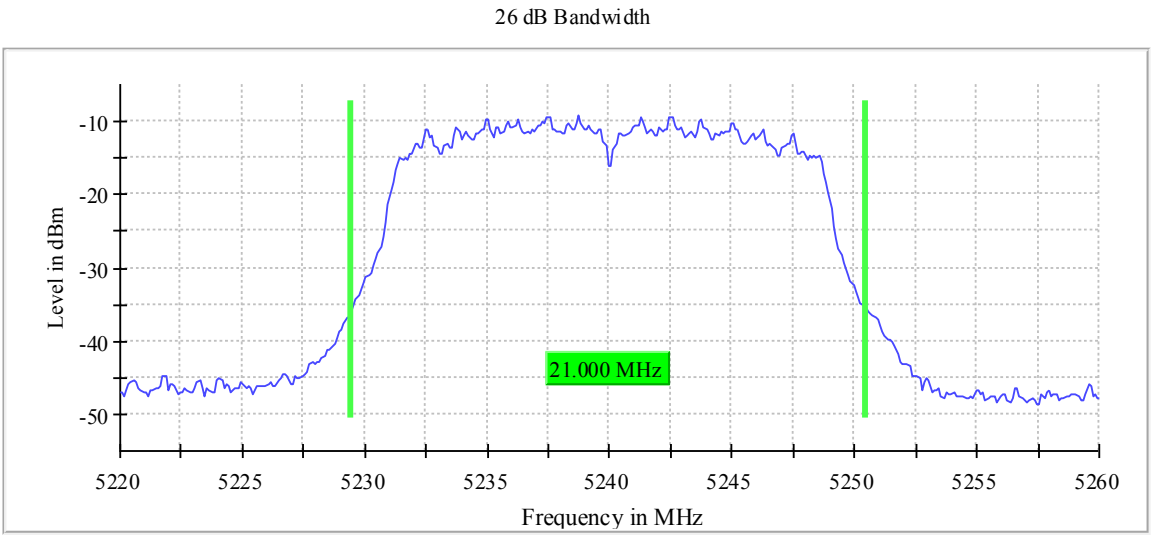
Plot 39: Mode 4, U-NII-1, Emission Bandwidth 26 dB, low channel



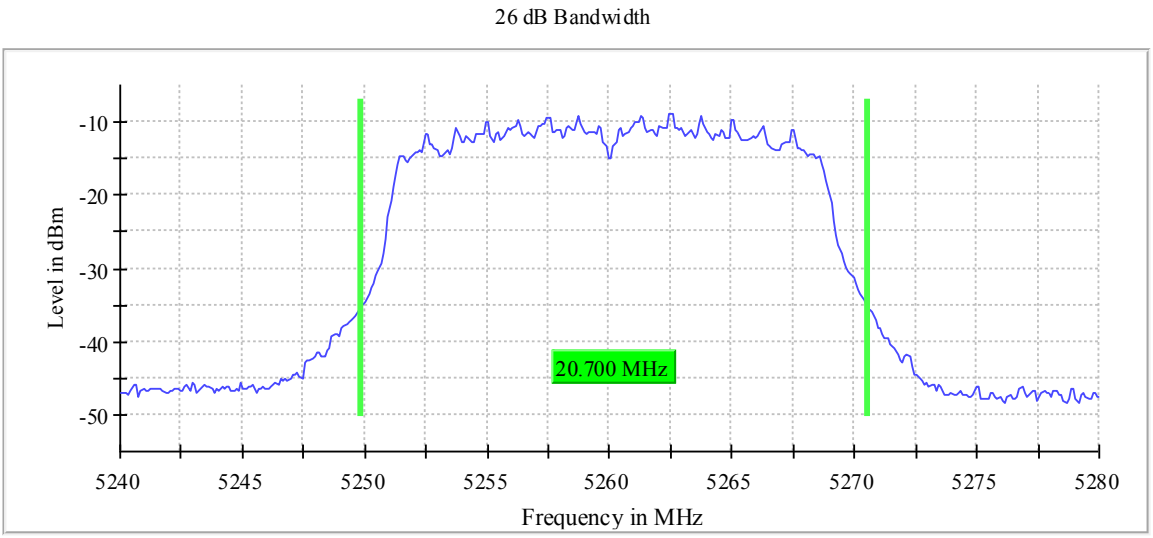
Plot 40: Mode 4, U-NII-1, Emission Bandwidth 26 dB, mid channel



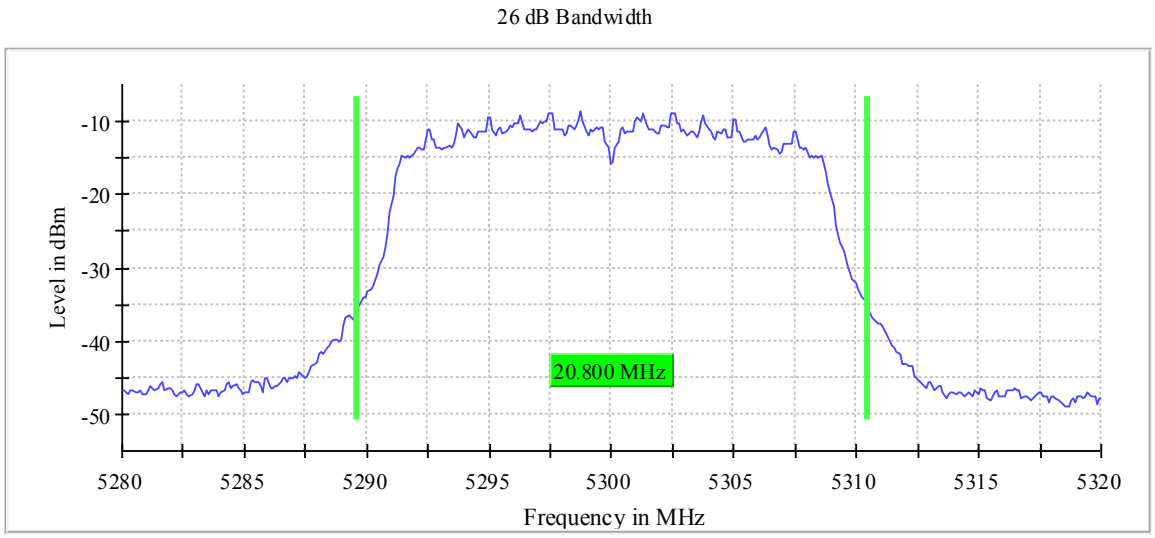
Plot 41: Mode 4, U-NII-1, Emission Bandwidth 26 dB, high channel



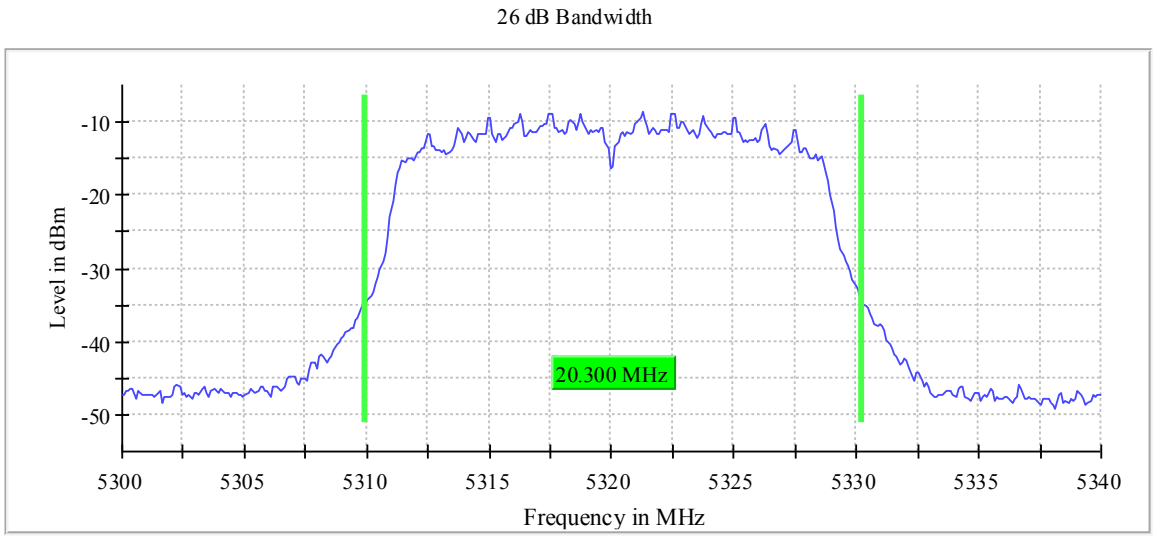
Plot 42: Mode 4, U-NII-2A, Emission Bandwidth 26 dB, low channel



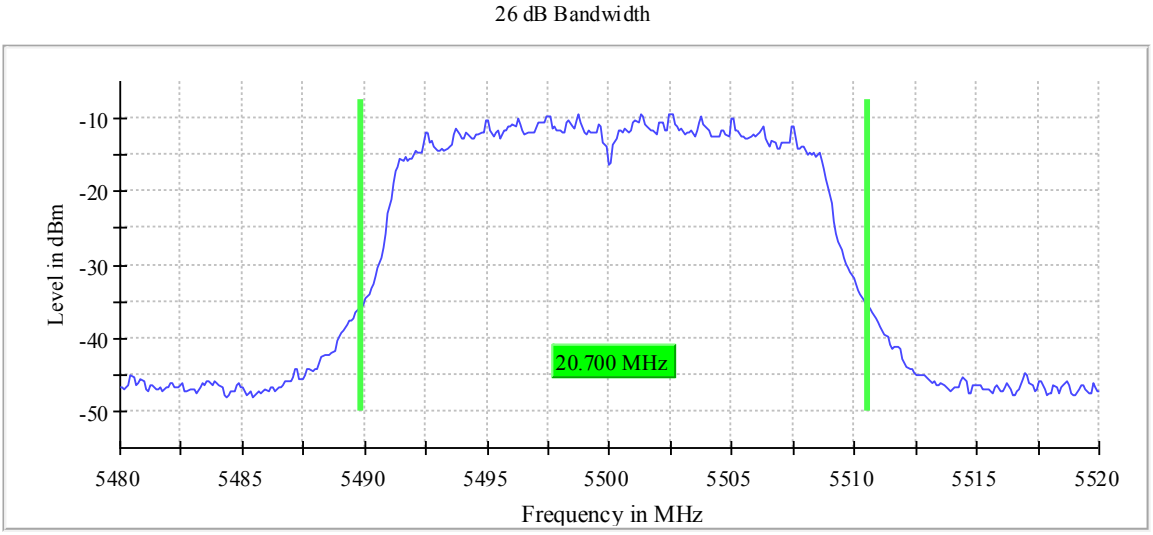
Plot 43: Mode 4, U-NII-2A, Emission Bandwidth 26 dB, mid channel



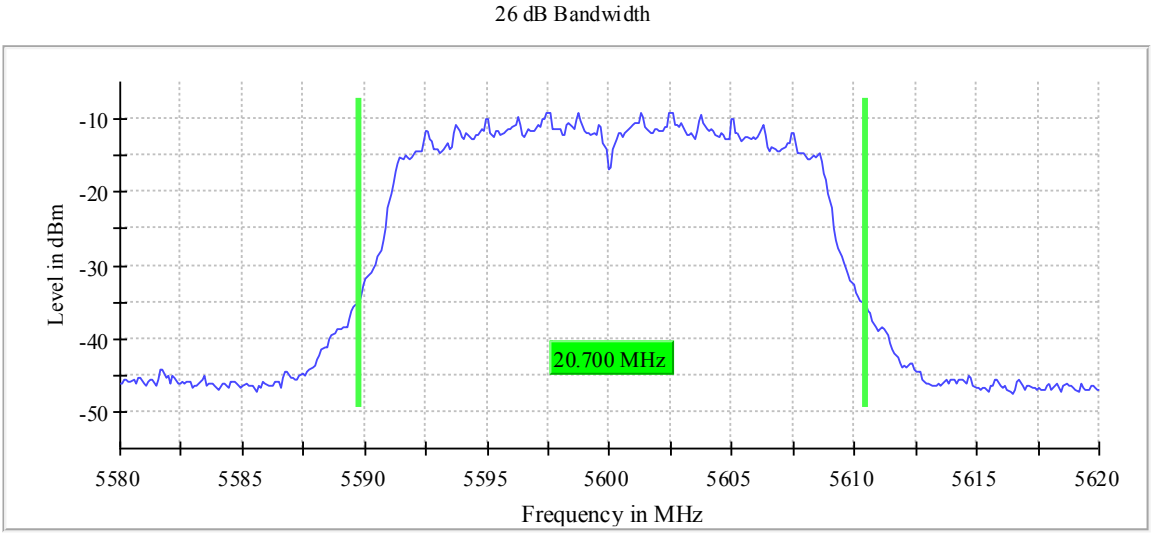
Plot 44: Mode 4, U-NII-2A, Emission Bandwidth 26 dB, high channel



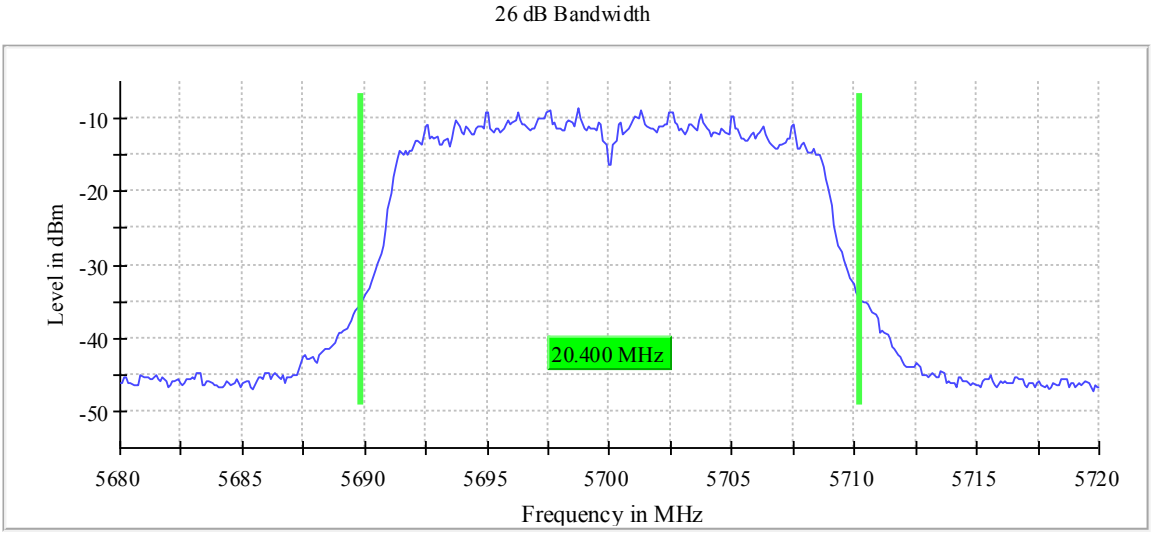
Plot 45: Mode 4, U-NII-2C, Emission Bandwidth 26 dB, low channel



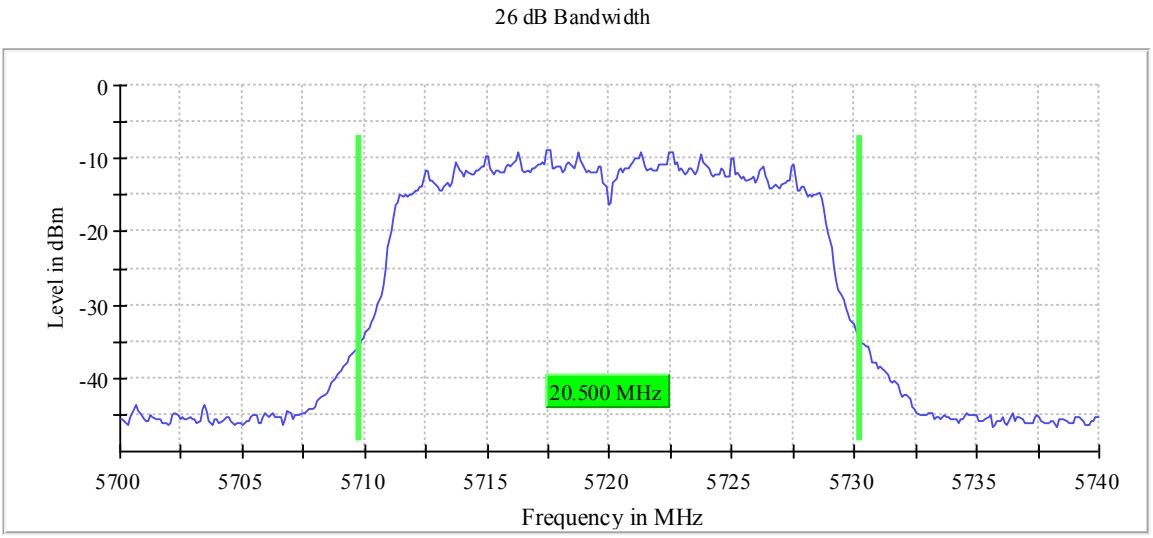
Plot 46: Mode 4, U-NII-2C, Emission Bandwidth 26 dB, mid channel



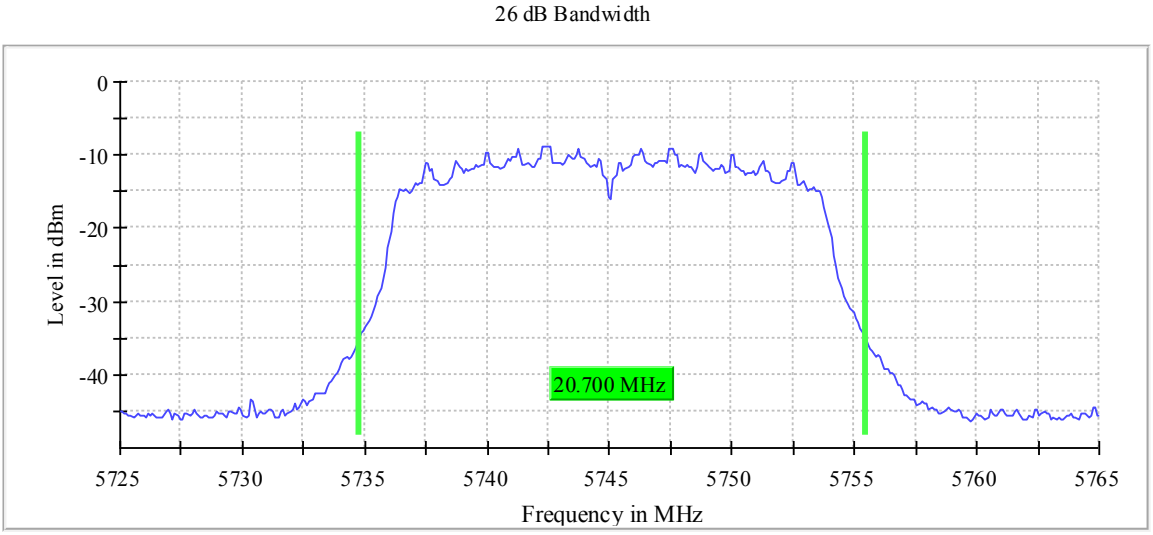
Plot 47: Mode 4, U-NII-2C, Emission Bandwidth 26 dB, high channel



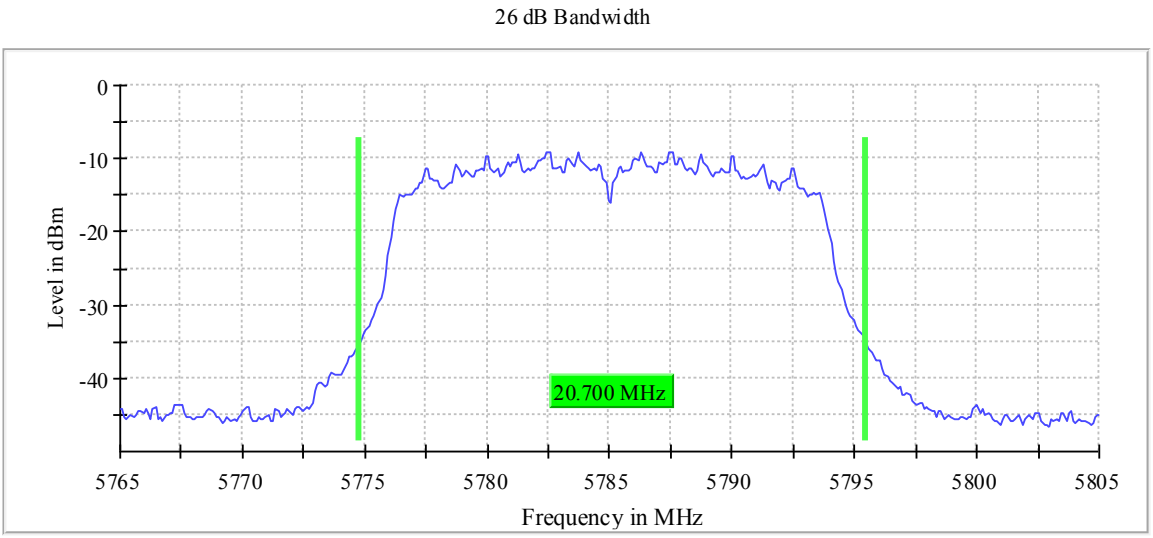
Plot 48: Mode 4 U-NII-2C, Emission Bandwidth 26 dB, channel 144



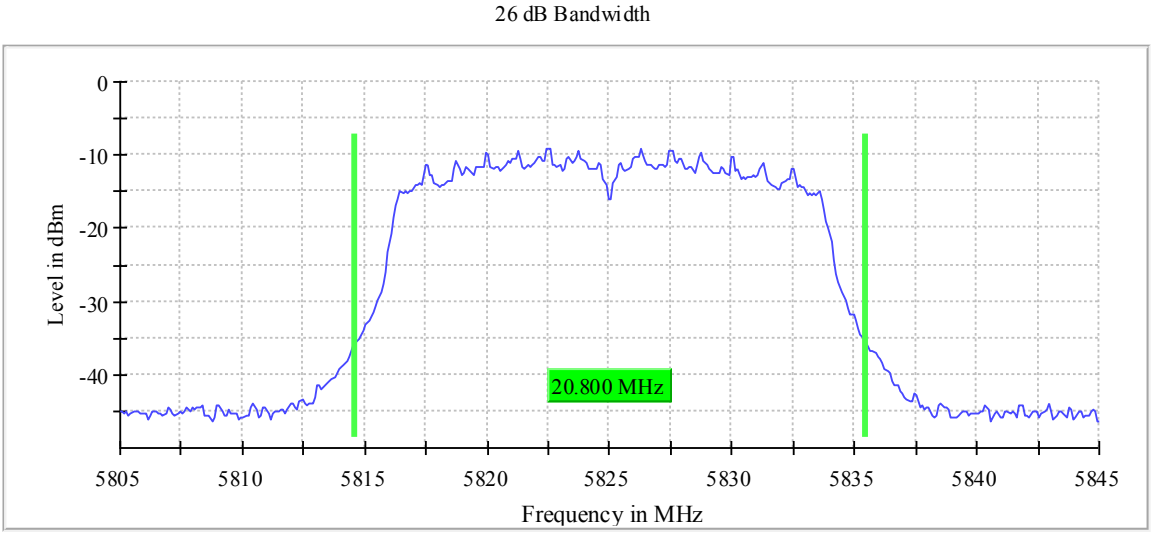
Plot 49: Mode 4, U-NII-3, Emission Bandwidth 26 dB, low channel



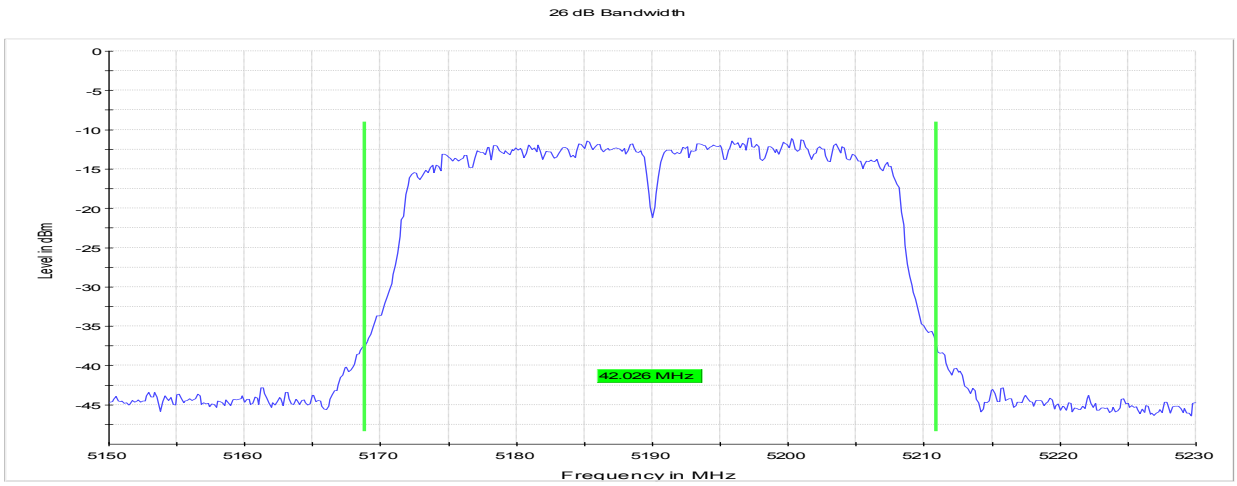
Plot 50: Mode 4, U-NII-3, Emission Bandwidth 26 dB, mid channel



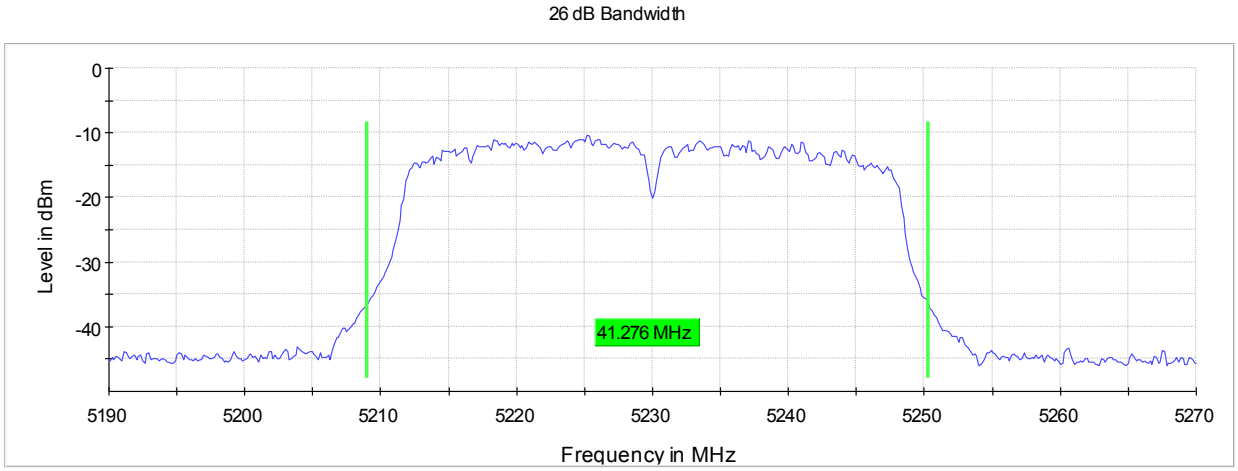
Plot 51: Mode 4, U-NII-3, Emission Bandwidth 26 dB, high channel



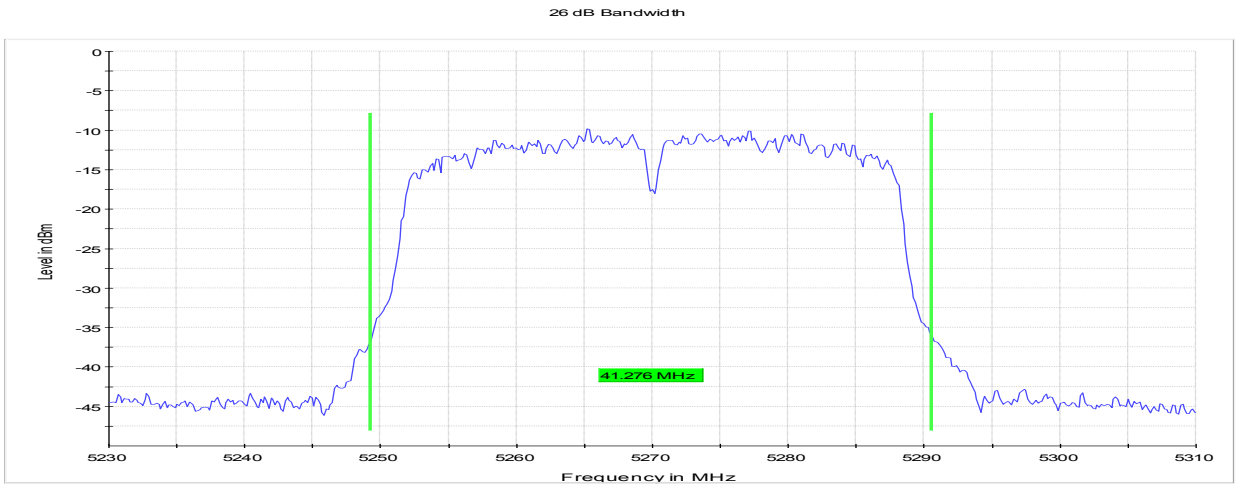
Plot 52: Mode 3, U-NII-1, Emission Bandwidth 26 dB, low channel



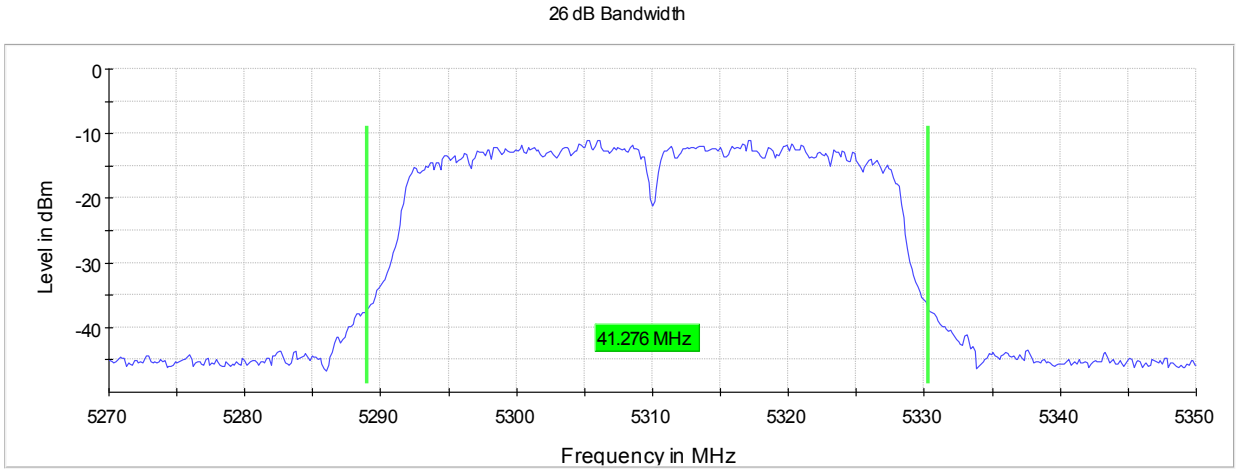
Plot 53: Mode 3, U-NII-1, Emission Bandwidth 26 dB, high channel



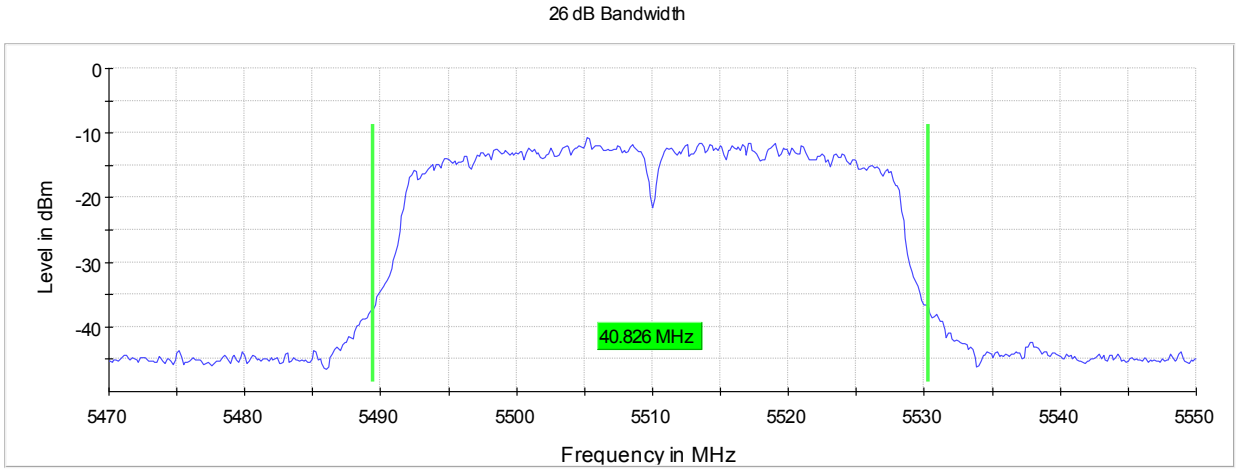
Plot 54: Mode 3, U-NII-2A, Emission Bandwidth 26 dB, low channel



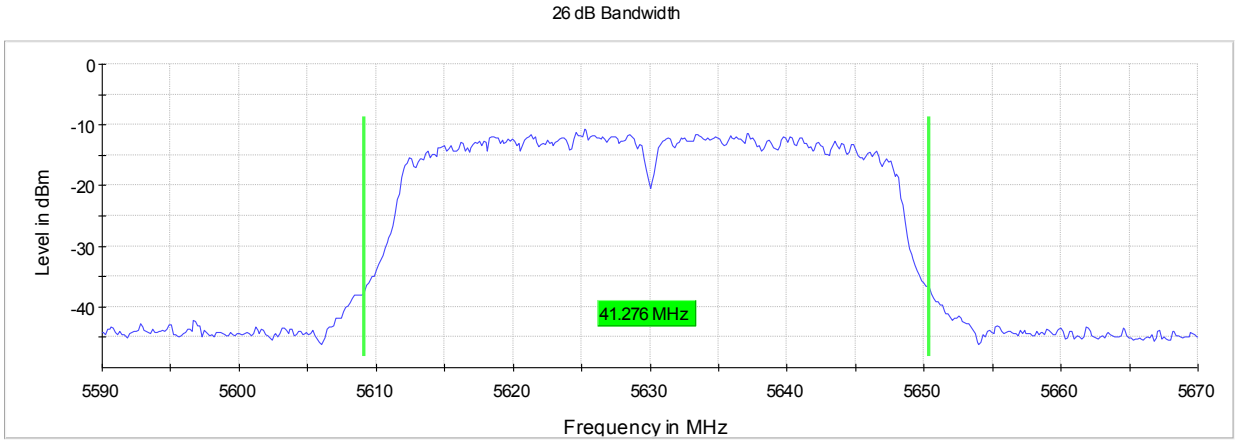
Plot 55: Mode 3, U-NII-2A, Emission Bandwidth 26 dB, high channel



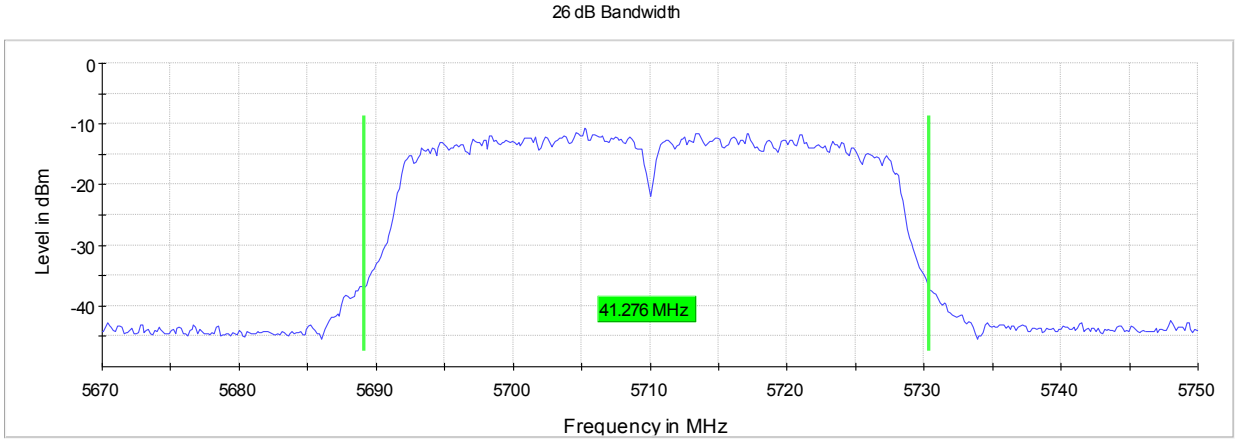
Plot 56: Mode 3, U-NII-2C, Emission Bandwidth 26 dB, low channel



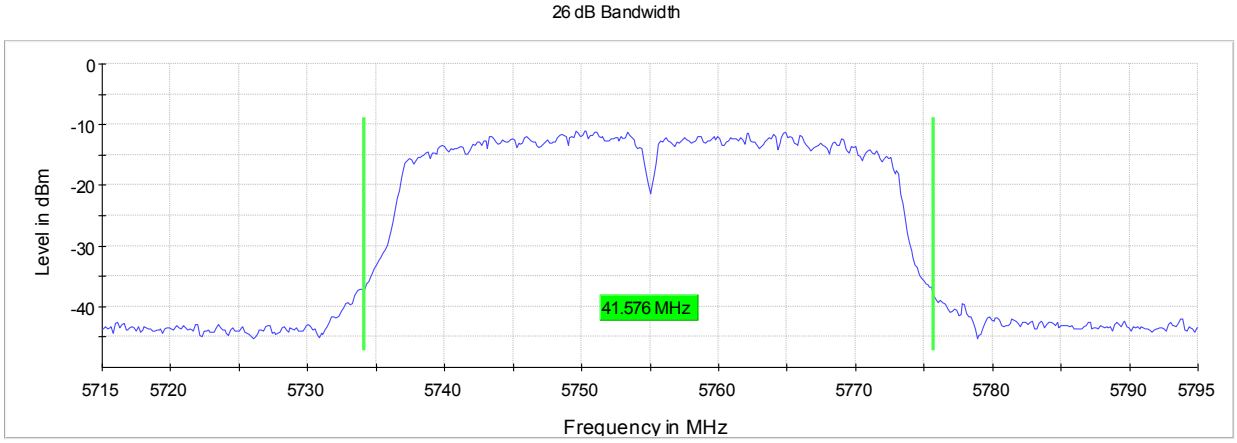
Plot 57: Mode 3, U-NII-2C, Emission Bandwidth 26 dB, mid channel



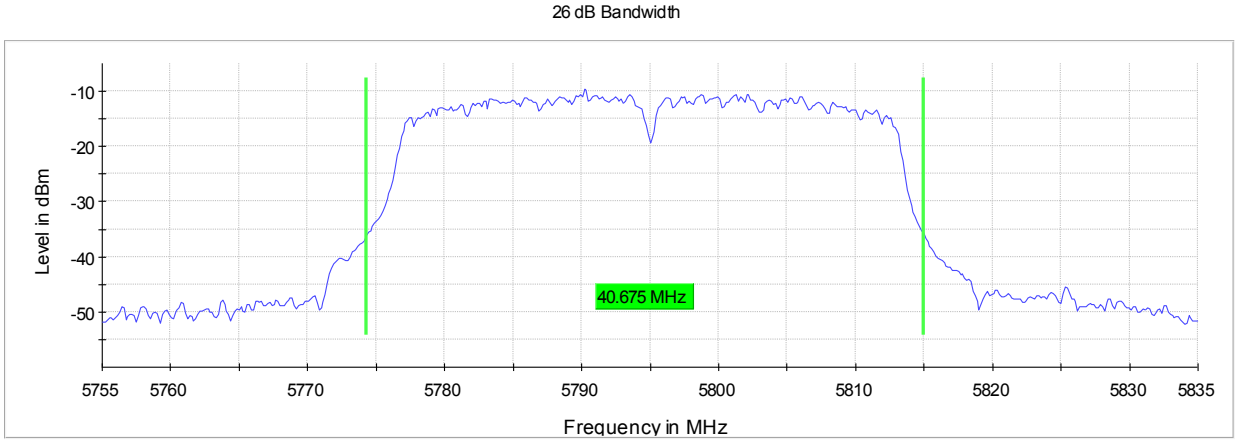
Plot 58: Mode 3, U-NII-2C, Emission Bandwidth 26 dB, high channel



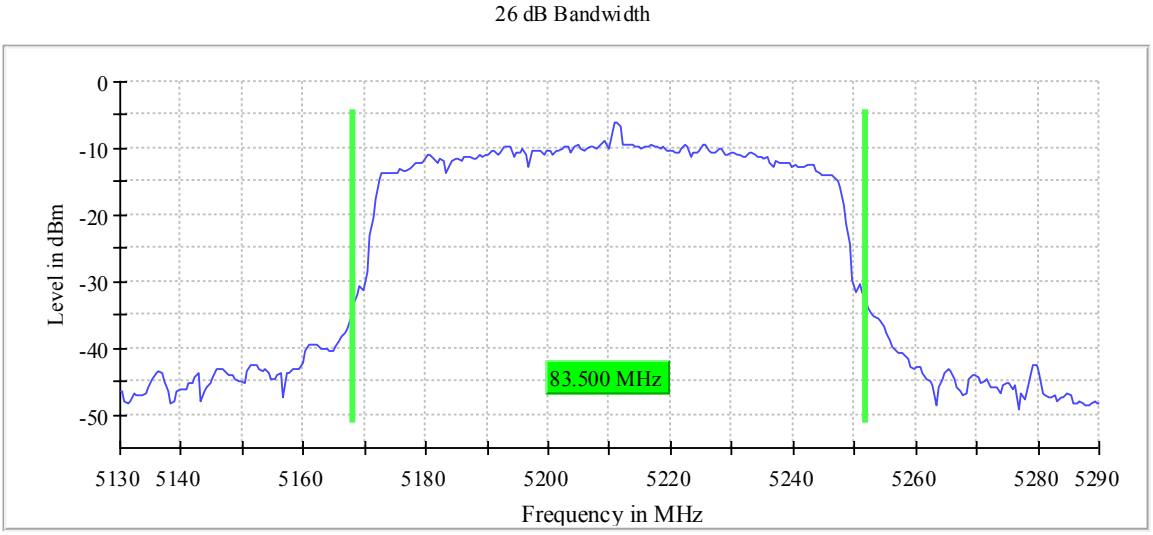
Plot 59: Mode 3, U-NII-3, Emission Bandwidth 26 dB, low channel



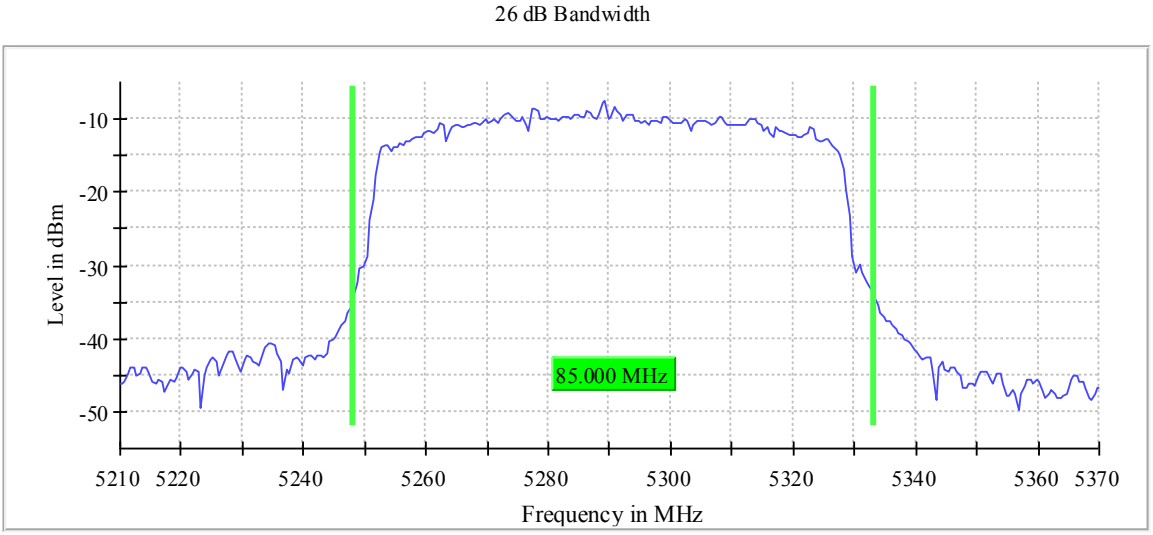
Plot 60: Mode 3, U-NII-3, Emission Bandwidth 26 dB, high channel



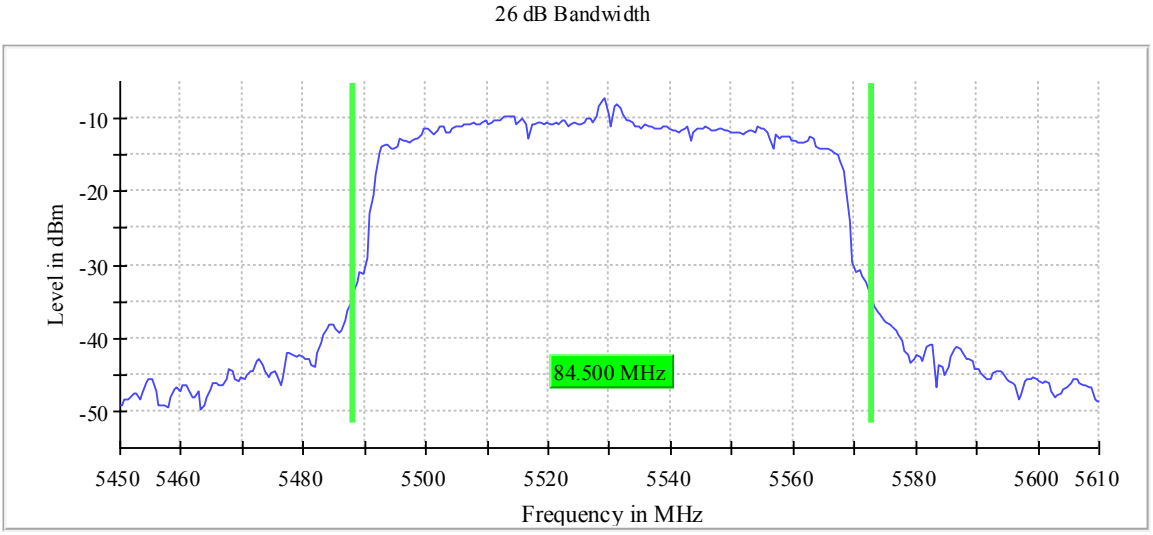
Plot 61: Mode 6, U-NII-1, Emission Bandwidth 26 dB, mid channel



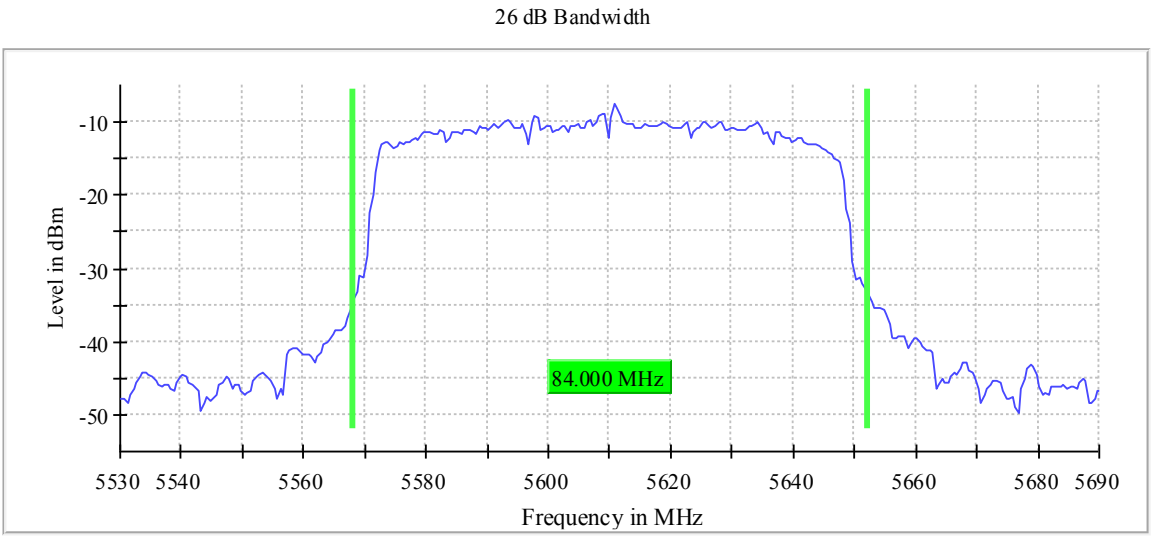
Plot 62: Mode 6, U-NII-2A, Emission Bandwidth 26 dB, mid channel



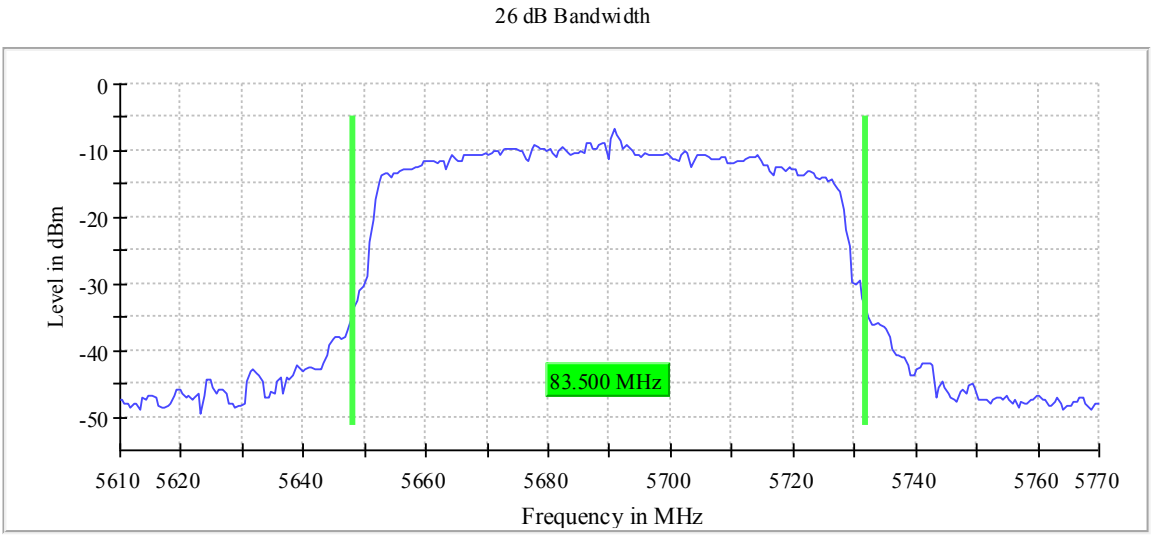
Plot 63: Mode 6, U-NII-2C, Emission Bandwidth 26 dB, low channel



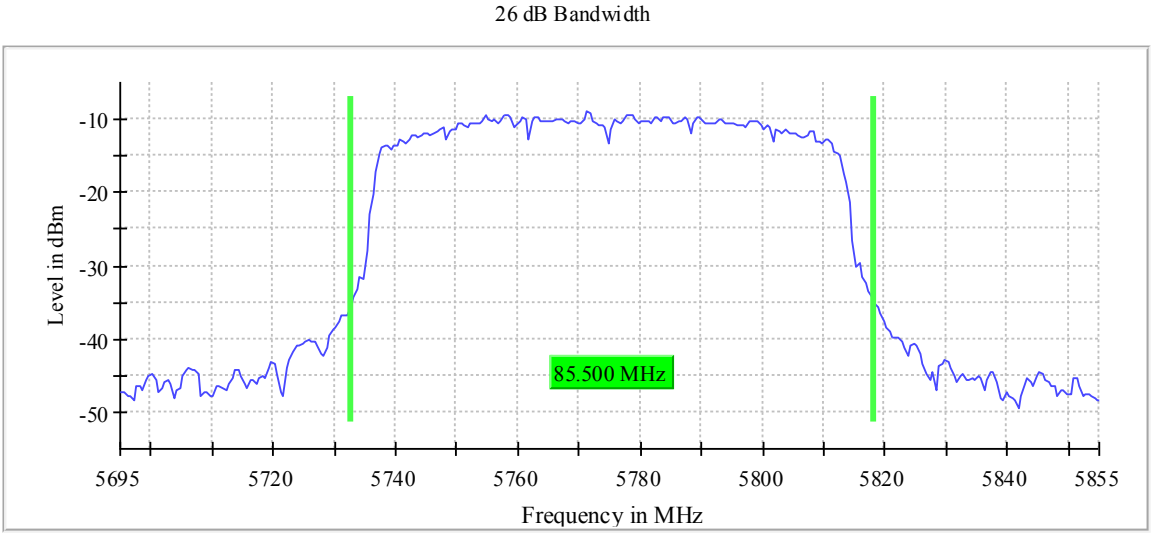
Plot 64: Mode 6, U-NII-2C, Emission Bandwidth 26 dB, mid channel



Plot 65: Mode 6, U-NII-2C, Emission Bandwidth 26 dB, high channel



Plot 66: Mode 6, U-NII-3, Emission Bandwidth 26 dB, mid channel



7.3 Occupied Bandwidth (99% OBW)

Applicability
This requirement applies to licence-exempt local area network (LE-LAN) devices operating in the bands 5150-5250 MHz, 5250-5350 MHz, 5470-5725 MHz and 5725-5850 MHz.

Description
The Occupied Channel Bandwidth is the bandwidth that contains 99 % of the power of the signal (RSS-Gen).

Limit
Knowledge of 99% Occupied Bandwidth is necessary for Emission designation.

Test procedure
ANSI C63.10, 7.8
The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.
The following procedure shall be used for measuring 99% power bandwidth:
a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.
d) Step a) through step c) might require iteration to adjust within the specified range.
e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power 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; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Test setup: 8.4 with conducted test sample 60337

Test Results 20 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-1 (5150 MHz to 5250 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 1	16.30	16.30	16.40	--
Mode 2	17.50	17.50	17.50	--
Mode 4	17.50	17.50	17.50	--

Test Results 20 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-2A (5250 MHz to 5350 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 1	16.30	16.40	16.30	--
Mode 2	17.50	17.50	17.50	--
Mode 4	17.60	17.50	17.50	--

Test Results 20 MHz					
EUT Mode	Occupied Bandwidth (99%)				Limit [MHz]
	U-NII-2C (5470 MHz to 5725 MHz)				
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	Channel 144 [MHz]	
Mode 1	16.30	16.30	16.30	16.30	--
Mode 2	17.50	17.50	17.50	17.50	--
Mode 4	17.50	17.50	17.50	17.50	--

Test Results 20 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 1	16.30	16.30	16.30	--
Mode 2	17.50	17.50	17.50	--
Mode 4	17.50	17.50	17.50	--

Test Results 40 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-1 (5150 MHz to 5250 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 3	36.25	--	36.25	--

Test Results 40 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-2A (5250 MHz to 5350 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 3	36.25	--	36.25	--

Test Results 40 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-2C (5470 MHz to 5725 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 3	36.25	36.25	36.25	--

Test Results 40 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 3	36.25	--	36.25	--

Test Results 80 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-1 (5150 MHz to 5250 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 6	--	75.50	--	--

Test Results 80 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-2A (5250 MHz to 5350 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 6	--	75.50	--	--

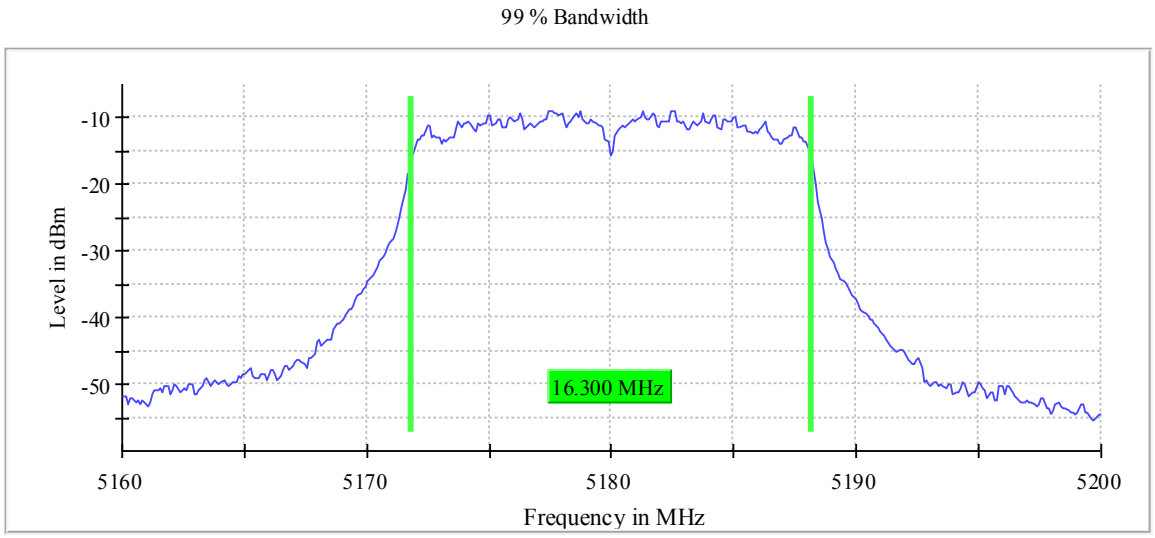
Test Results 80 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-2C (5470 MHz to 5725 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 6	75.50	75.50	75.00	--

Test Results 80 MHz				
EUT Mode	Occupied Bandwidth (99%)			Limit [MHz]
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [MHz]	mid channel [MHz]	high channel [MHz]	
Mode 6	--	75.50	--	--

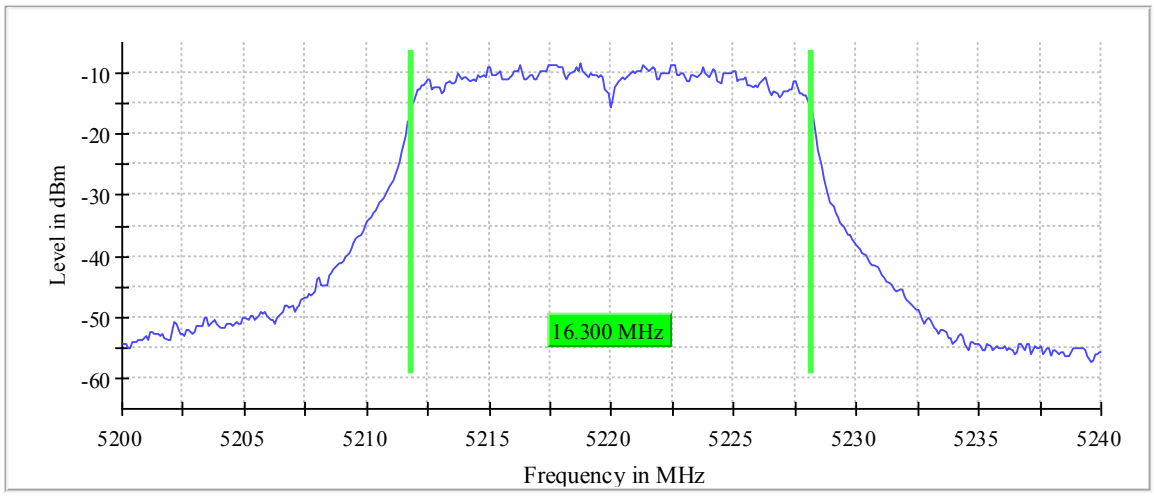
Comment:	---

Verdict	- PASS -	*see next plots*

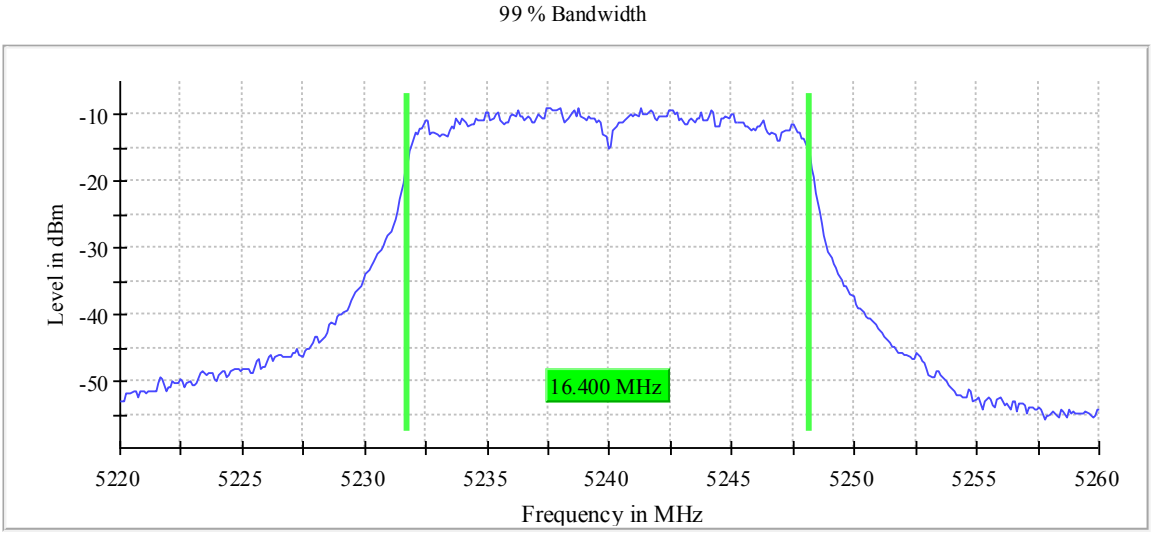
Plot 67: Mode 1, U-NII-1, 99% Occupied Bandwidth, low channel



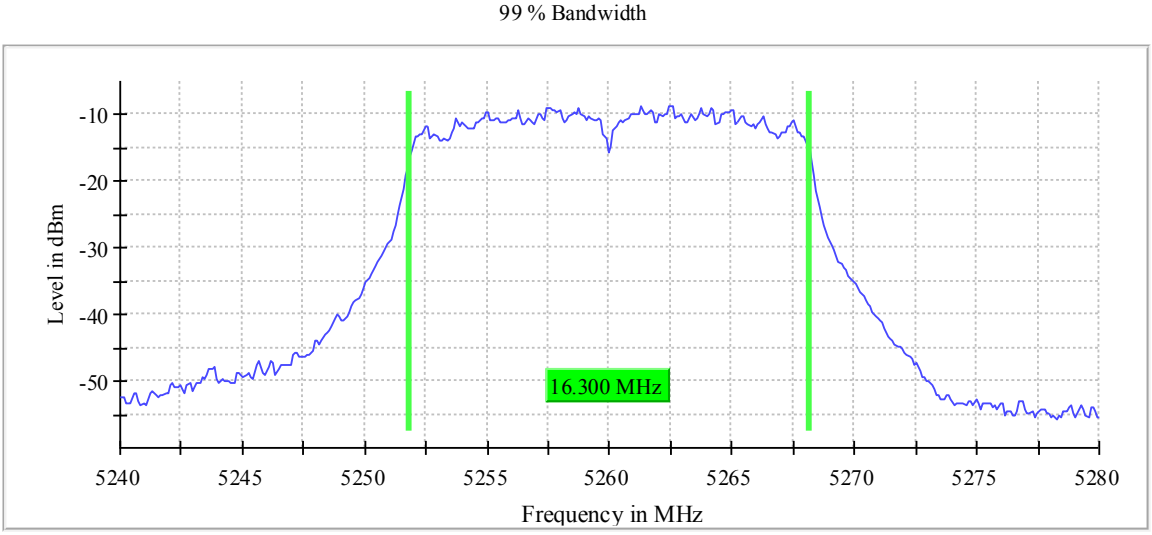
Plot 68: Mode 1, U-NII-1, 99% Occupied Bandwidth, mid channel



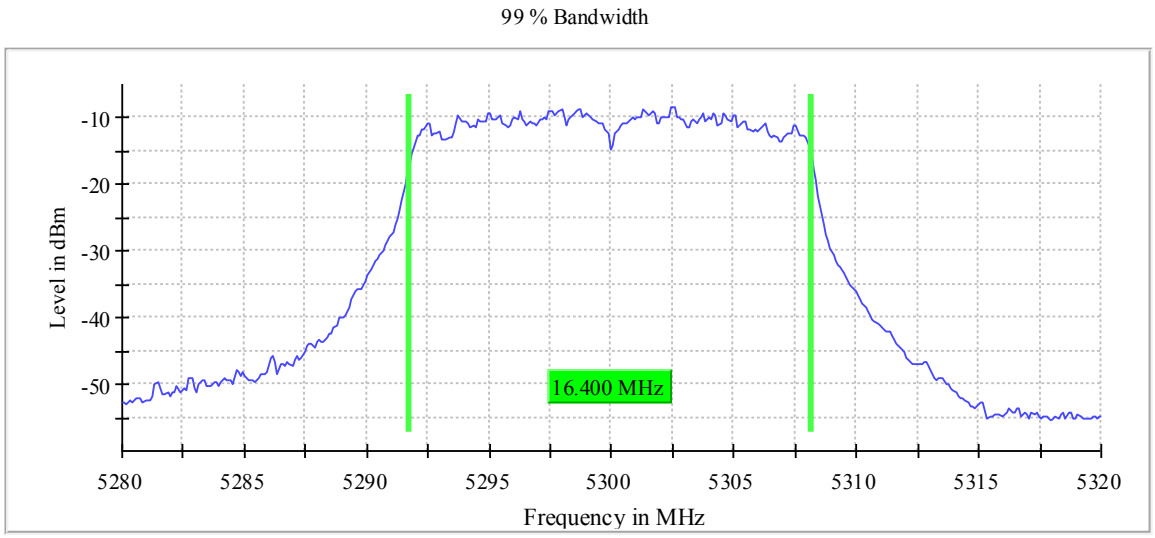
Plot 69: Mode 1, U-NII-1, 99% Occupied Bandwidth, high channel



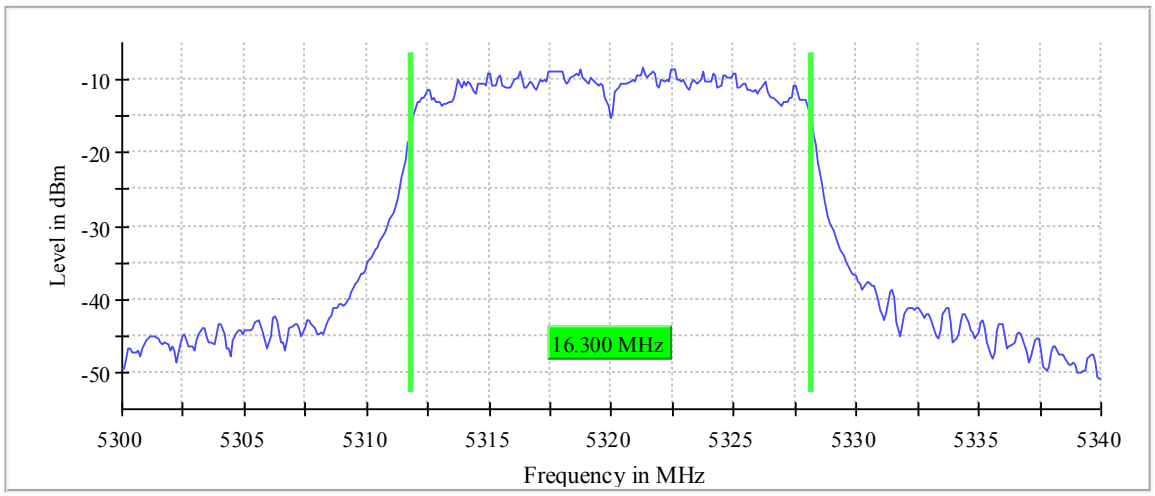
Plot 70: Mode 1, U-NII-2A, 99% Occupied Bandwidth, low channel



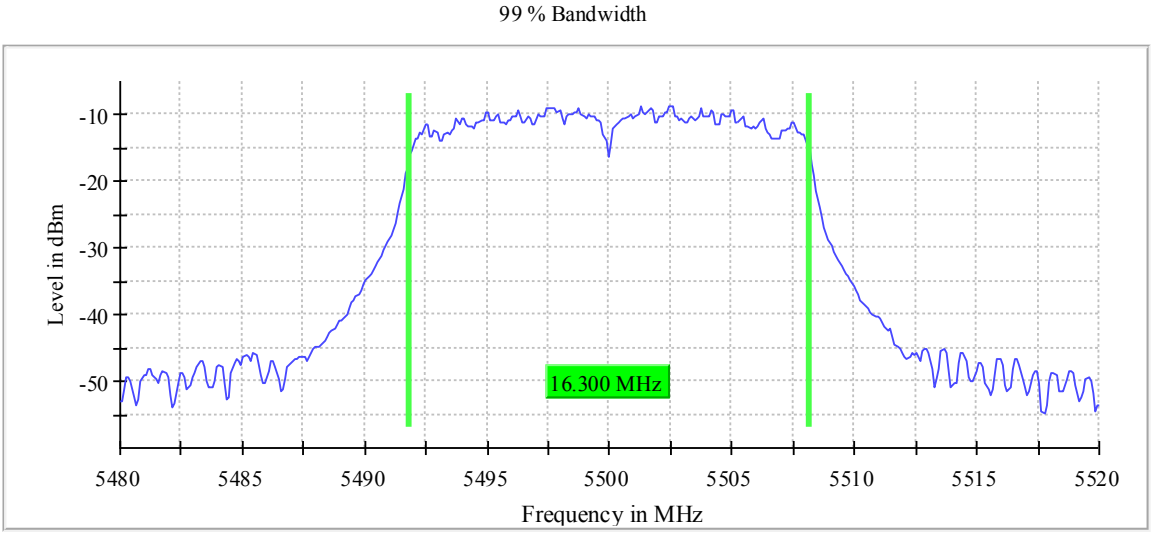
Plot 71: Mode 1, U-NII-2A, 99% Occupied Bandwidth, mid channel



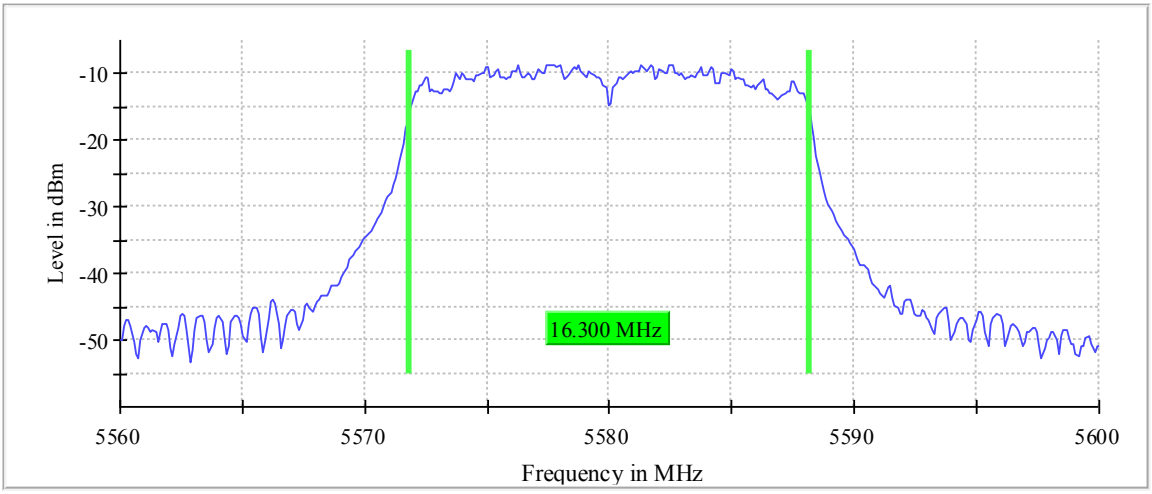
Plot 72: Mode 1, U-NII-2A, 99% Occupied Bandwidth, high channel



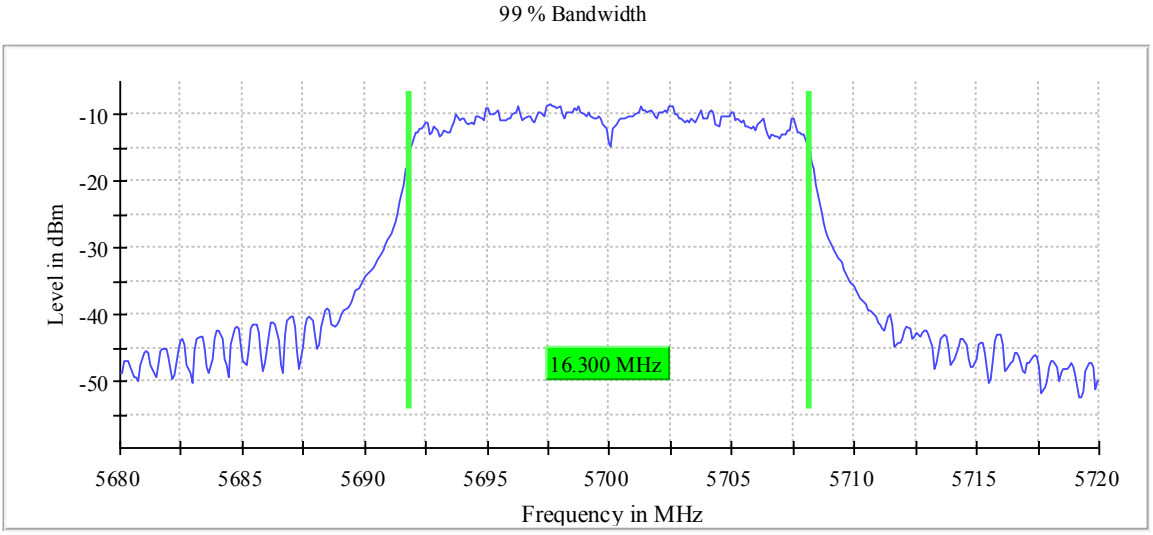
Plot 73: Mode 1, U-NII-2C, 99% Occupied Bandwidth, low channel



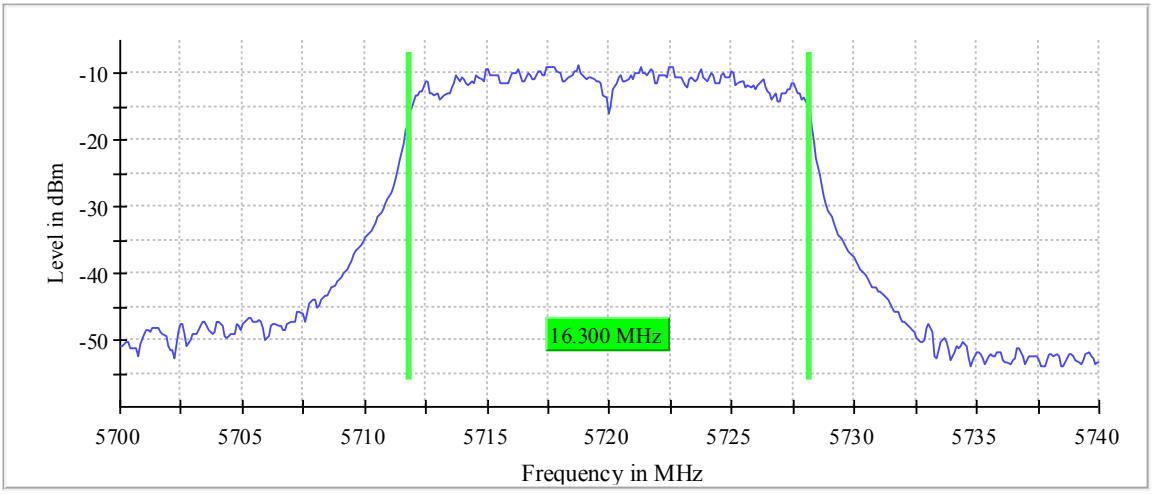
Plot 74: Mode 1, U-NII-2C, 99% Occupied Bandwidth, mid channel



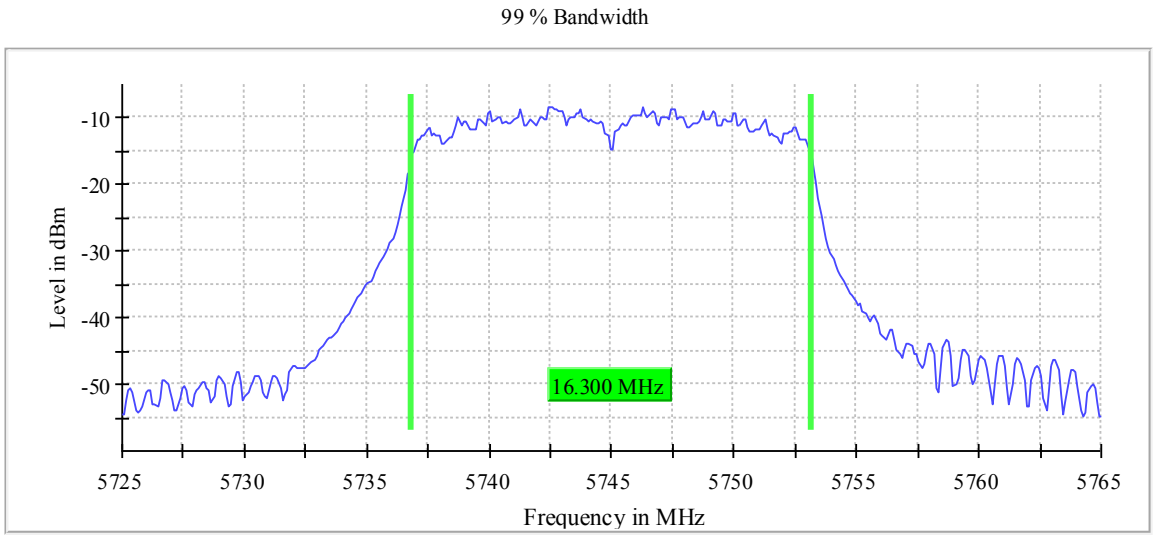
Plot 75: Mode 1, U-NII-2C, 99% Occupied Bandwidth, high channel



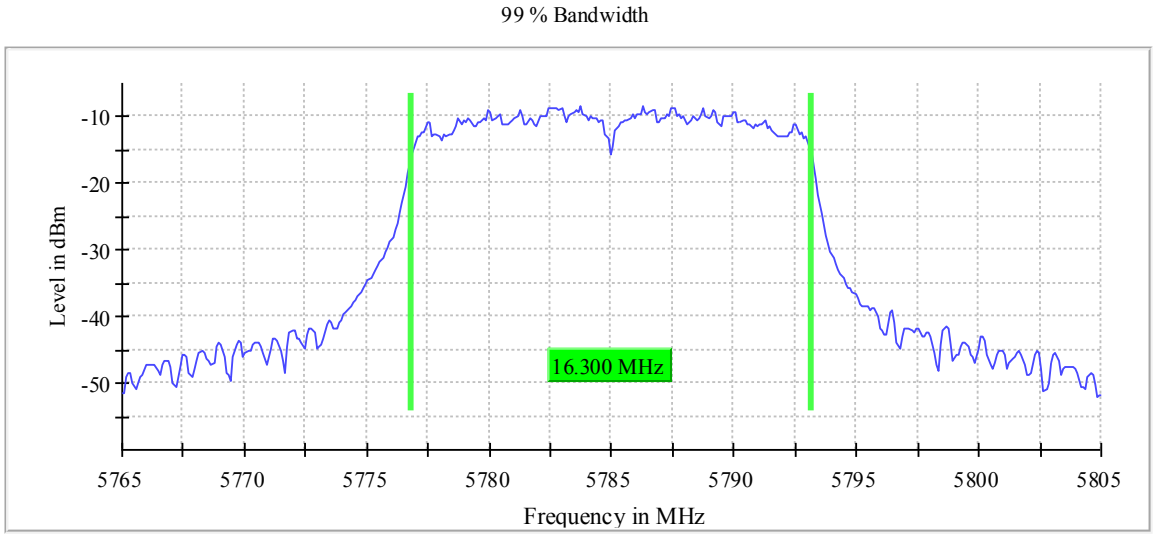
Plot 76: Mode 1, U-NII-2C, 99% Occupied Bandwidth, channel 144



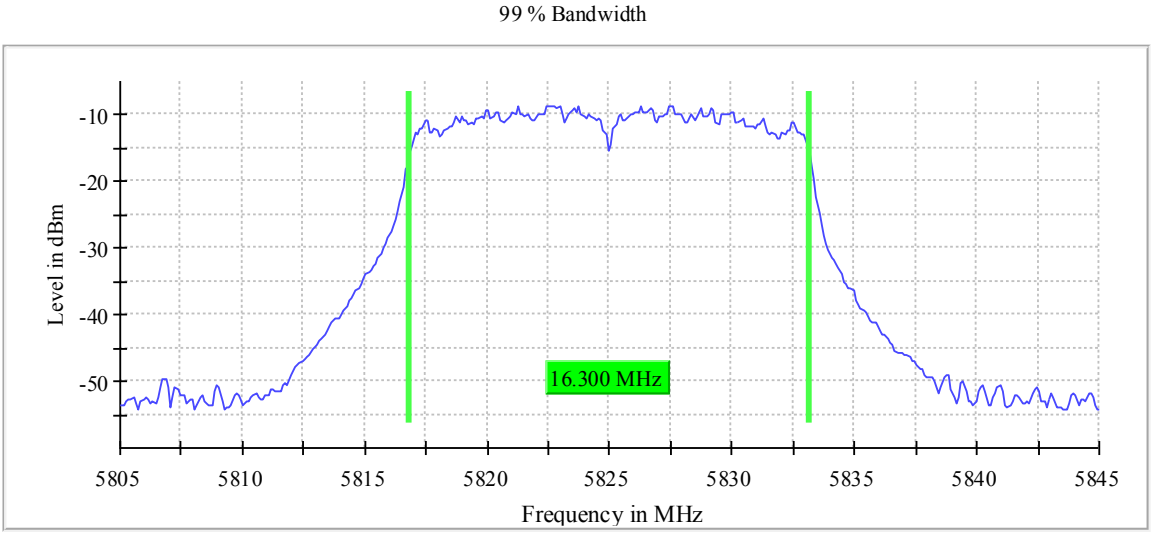
Plot 77: Mode 1, U-NII-3, 99% Occupied Bandwidth, low channel



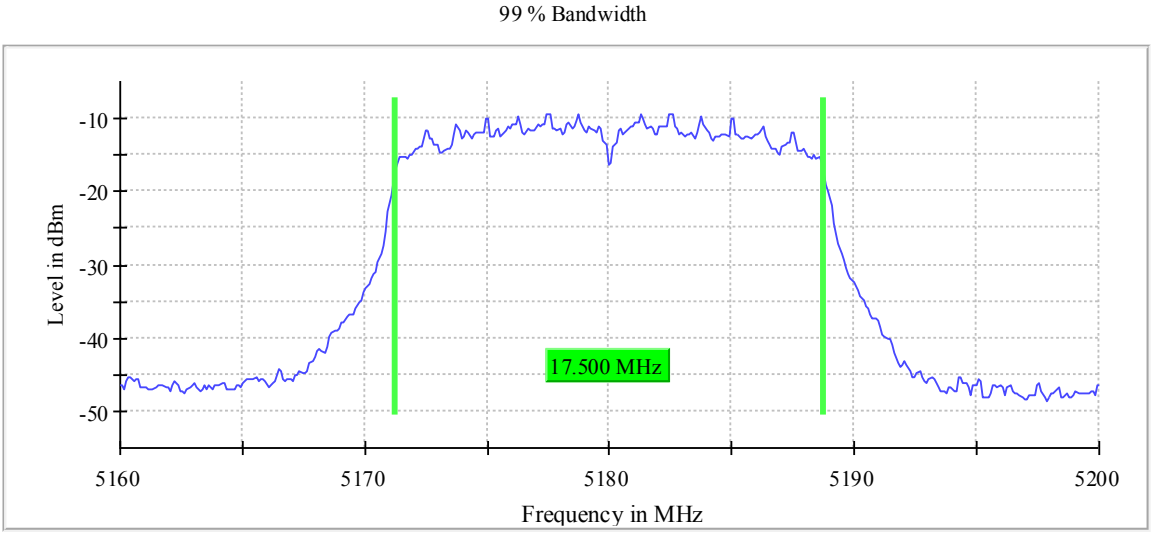
Plot 78: Mode 1, U-NII-3, 99% Occupied Bandwidth, mid channel



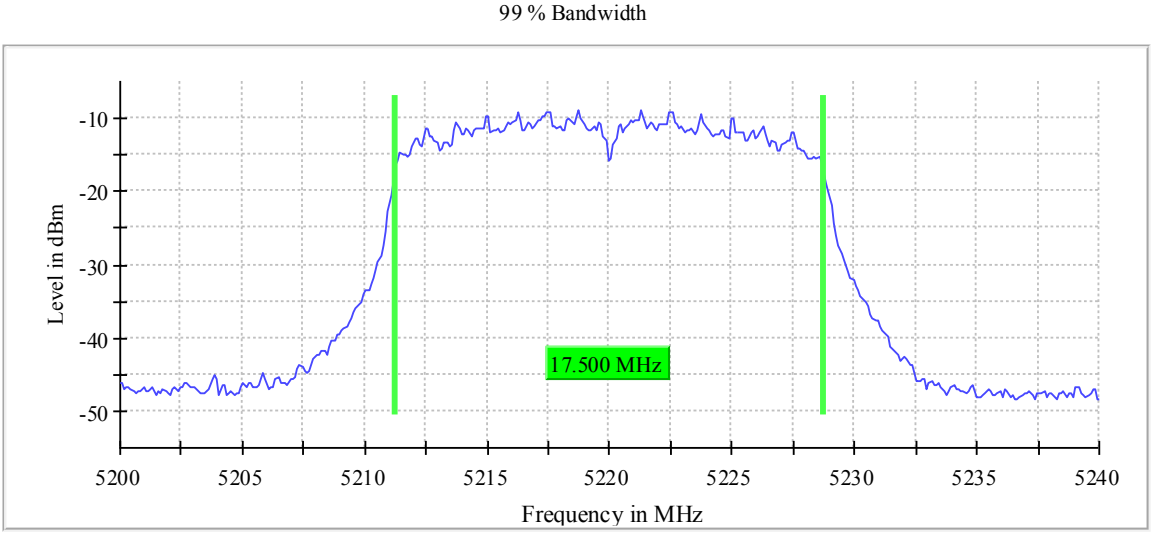
Plot 79: Mode 1, U-NII-3, 99% Occupied Bandwidth, high channel



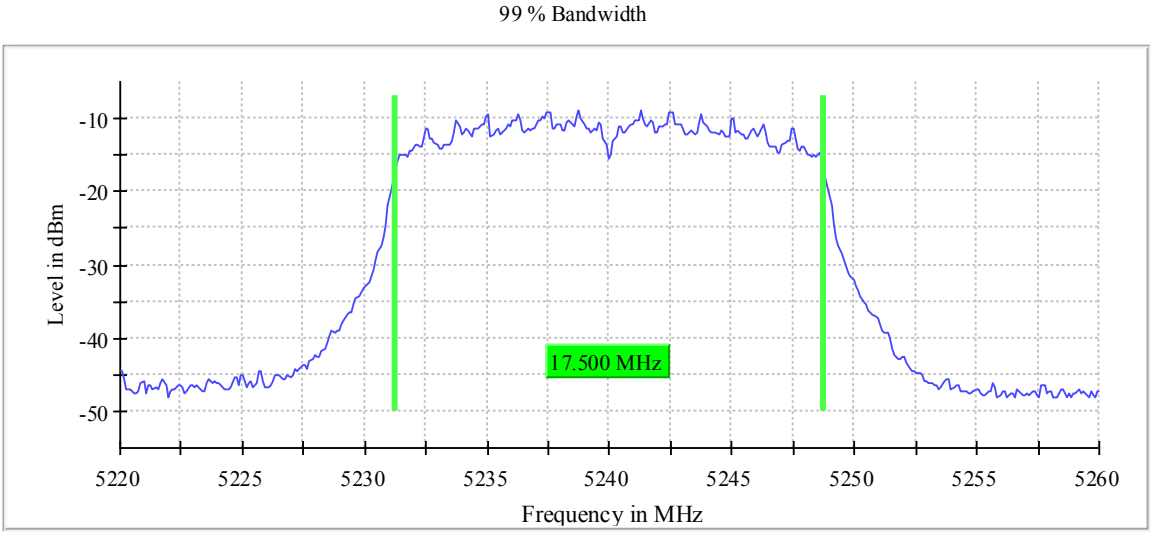
Plot 80: Mode 2, U-NII-1, 99% Occupied Bandwidth, low channel



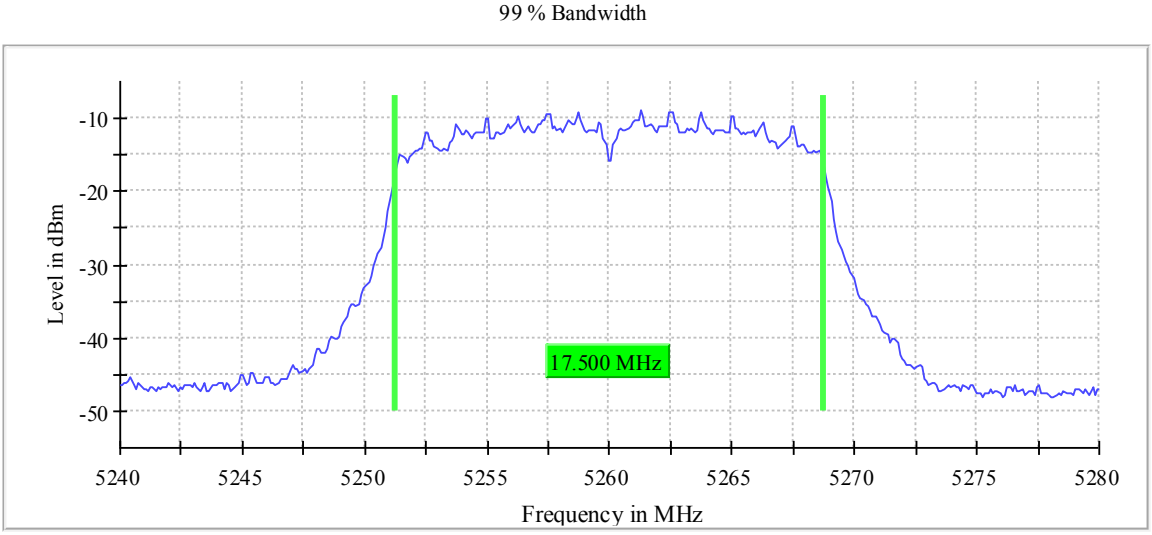
Plot 81: Mode 2, U-NII-1, 99% Occupied Bandwidth, mid channel



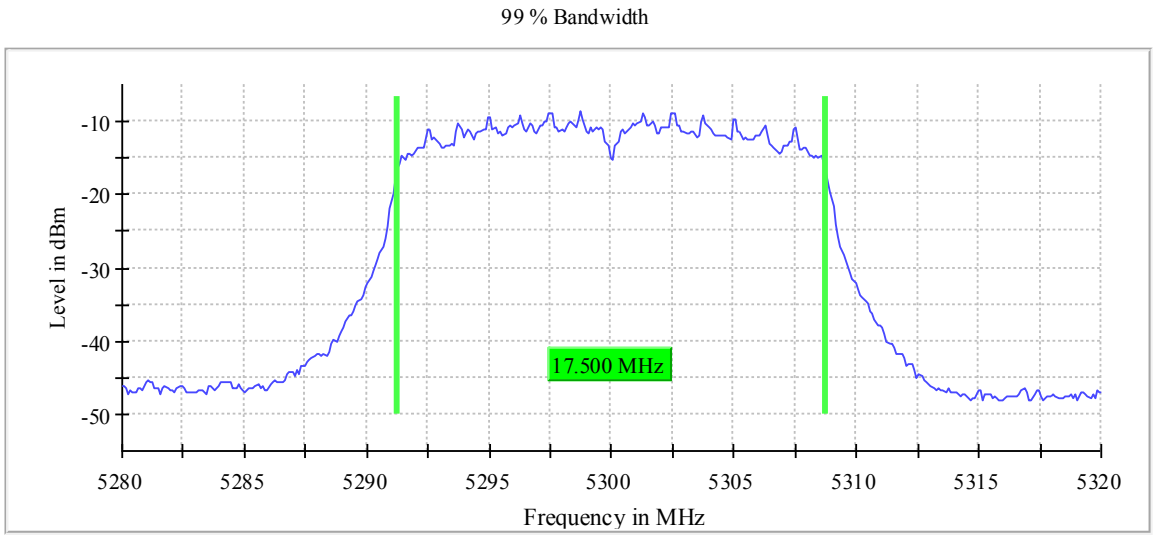
Plot 82: Mode 2, U-NII-1, 99% Occupied Bandwidth, high channel



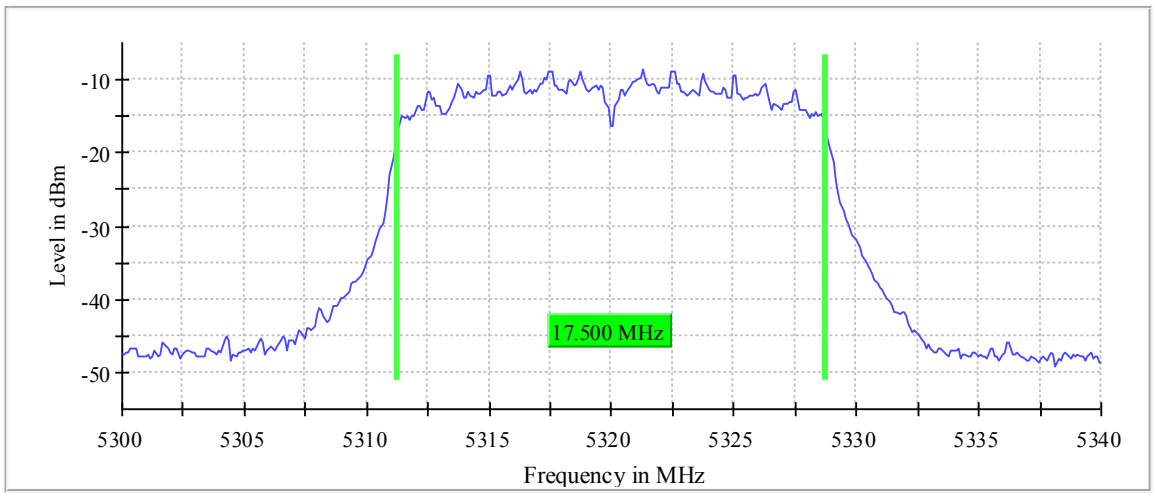
Plot 83: Mode 2, U-NII-2A, 99% Occupied Bandwidth, low channel



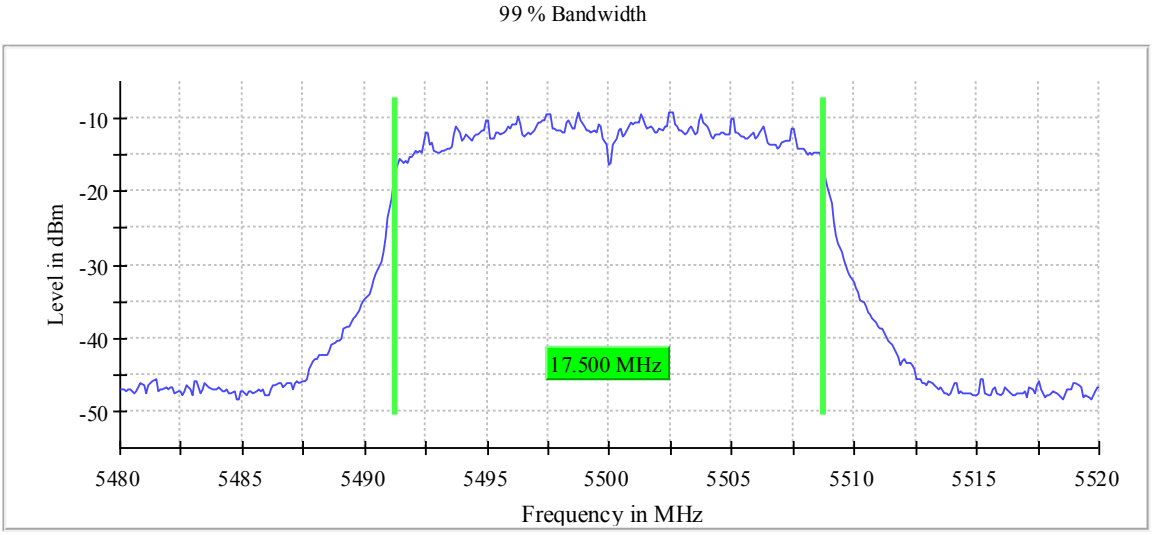
Plot 84: Mode 2, U-NII-2A, 99% Occupied Bandwidth, mid channel



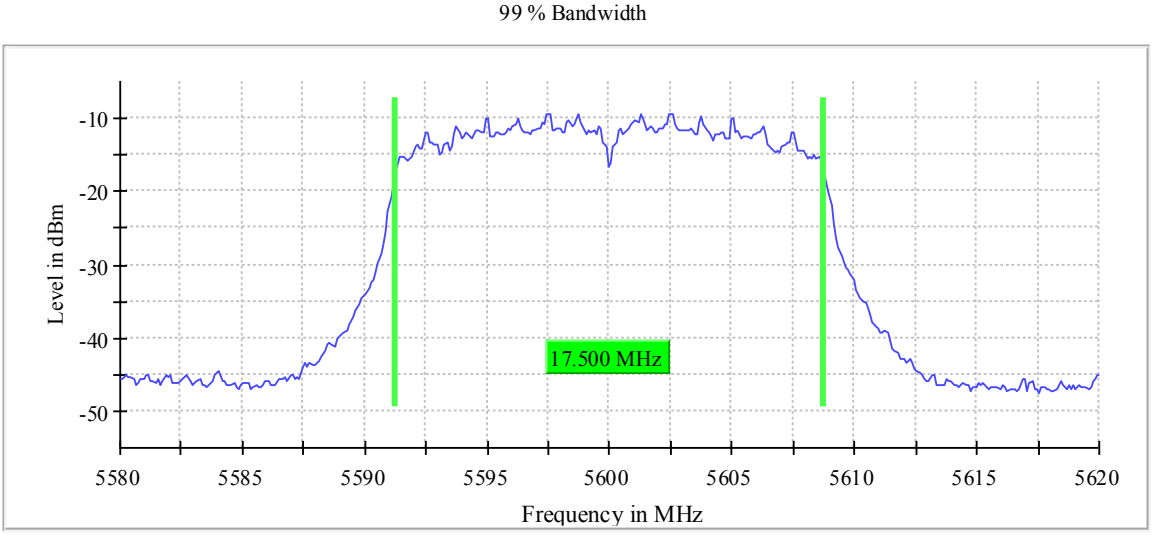
Plot 85: Mode 2, U-NII-2A, 99% Occupied Bandwidth, high channel



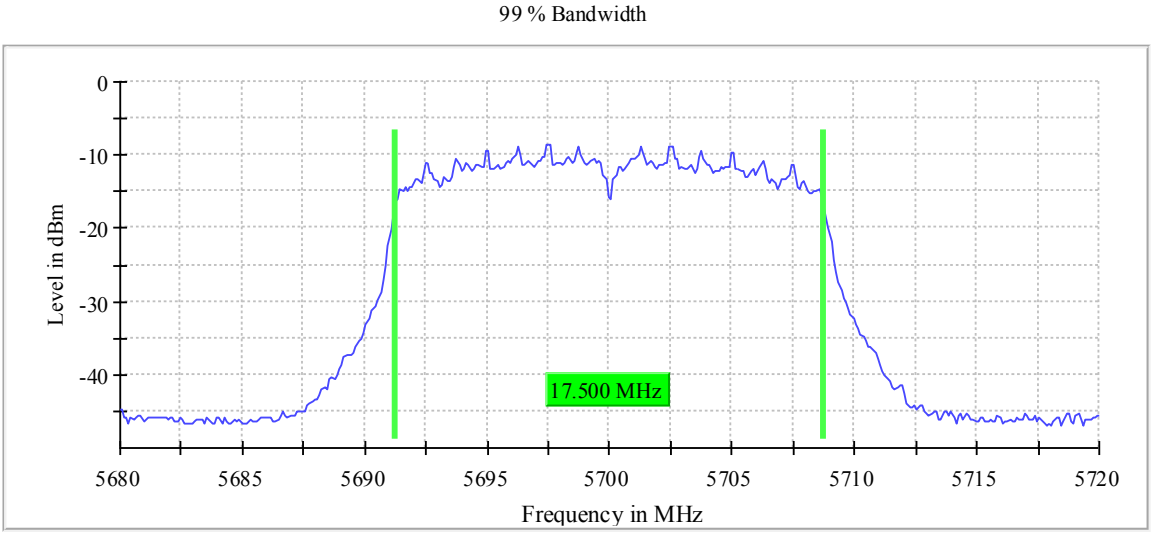
Plot 86: Mode 2, U-NII-2C, 99% Occupied Bandwidth, low channel



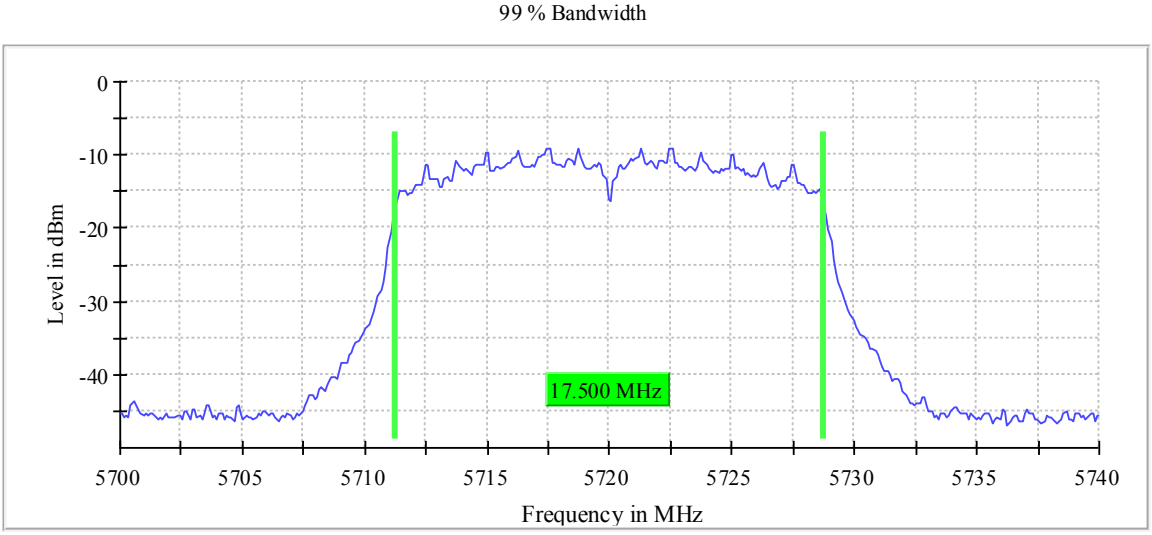
Plot 87: Mode 2, U-NII-2C, 99% Occupied Bandwidth, mid channel



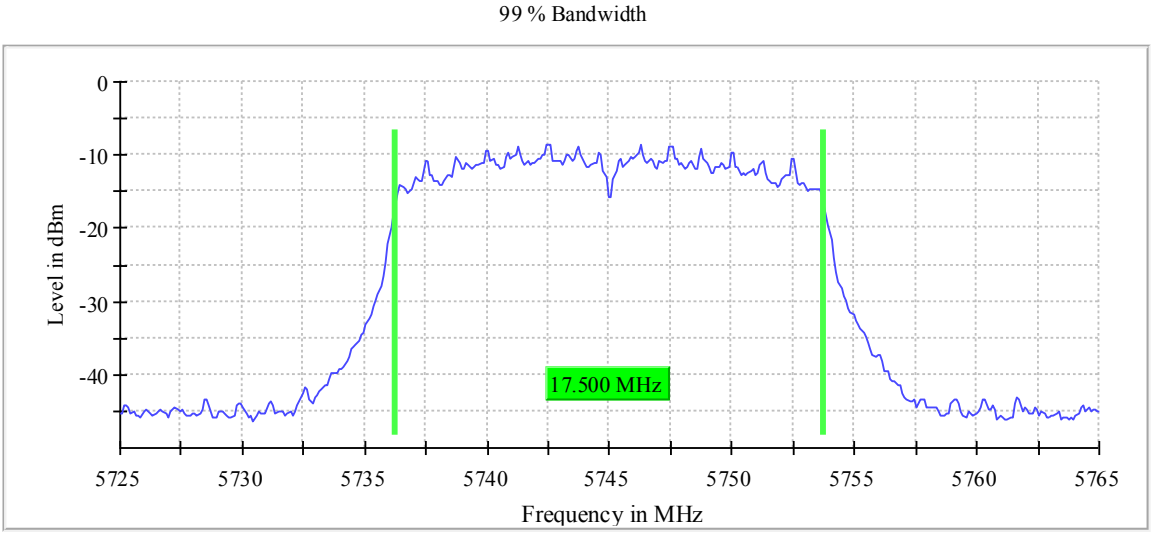
Plot 88: Mode 2, U-NII-2C, 99% Occupied Bandwidth, high channel



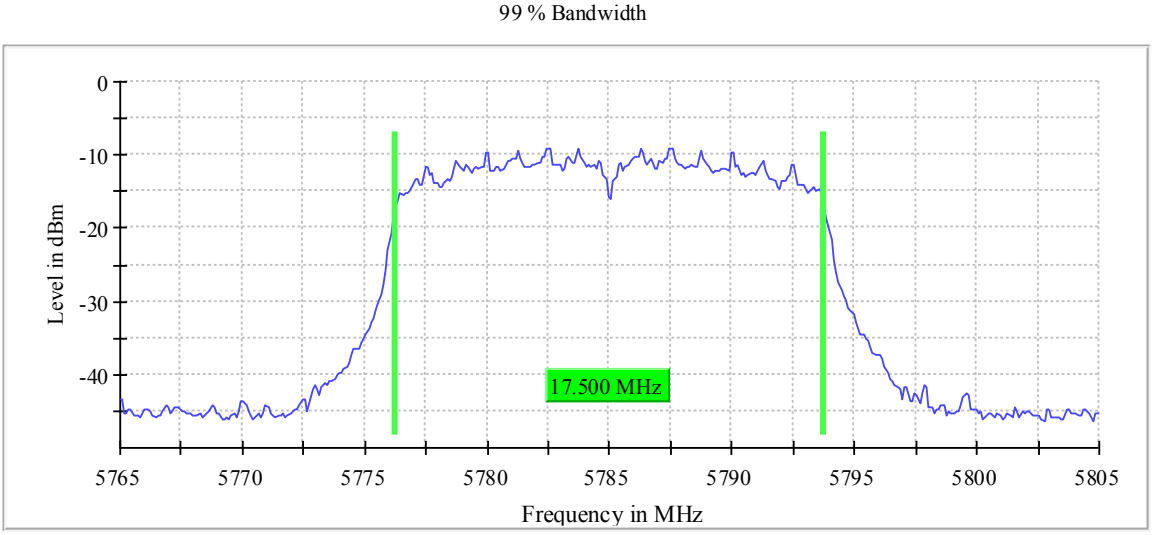
Plot 89: Mode 2, U-NII-2C, 99% Occupied Bandwidth, channel 144



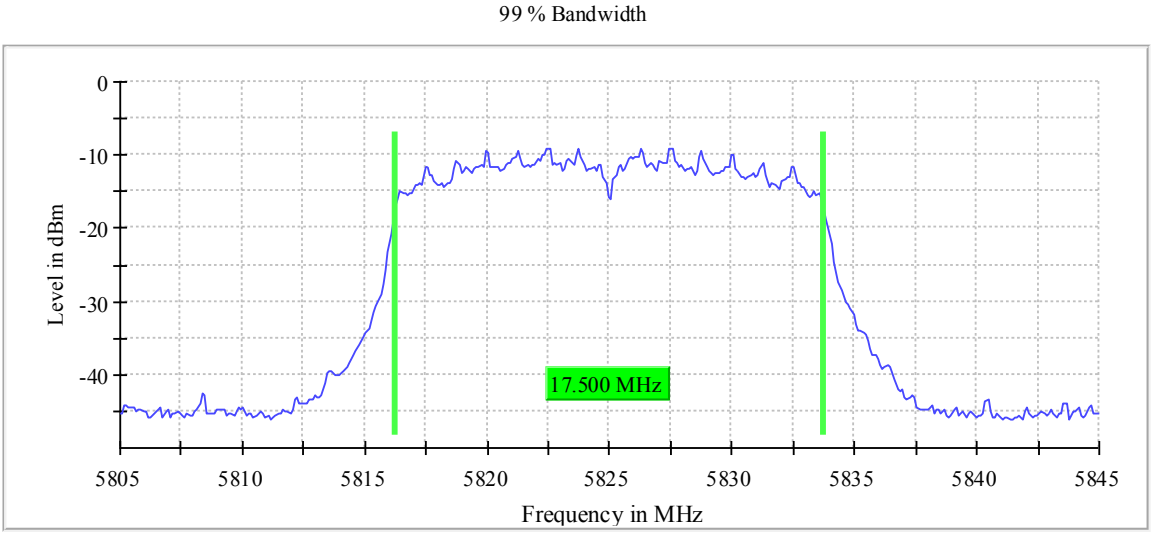
Plot 90: Mode 2, U-NII-3, 99% Occupied Bandwidth, low channel



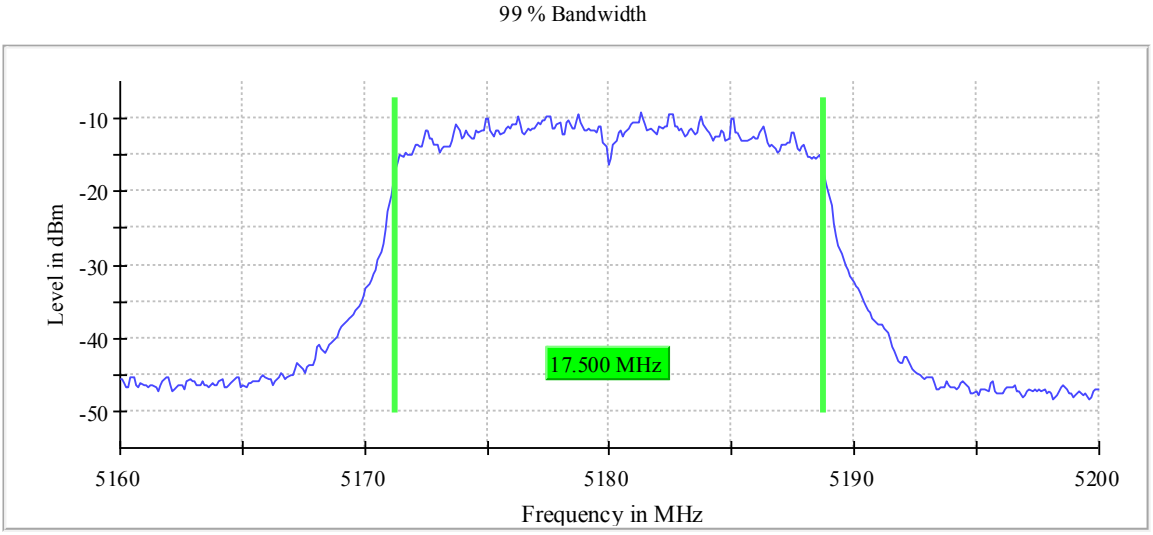
Plot 91: Mode 2, U-NII-3, 99% Occupied Bandwidth, mid channel



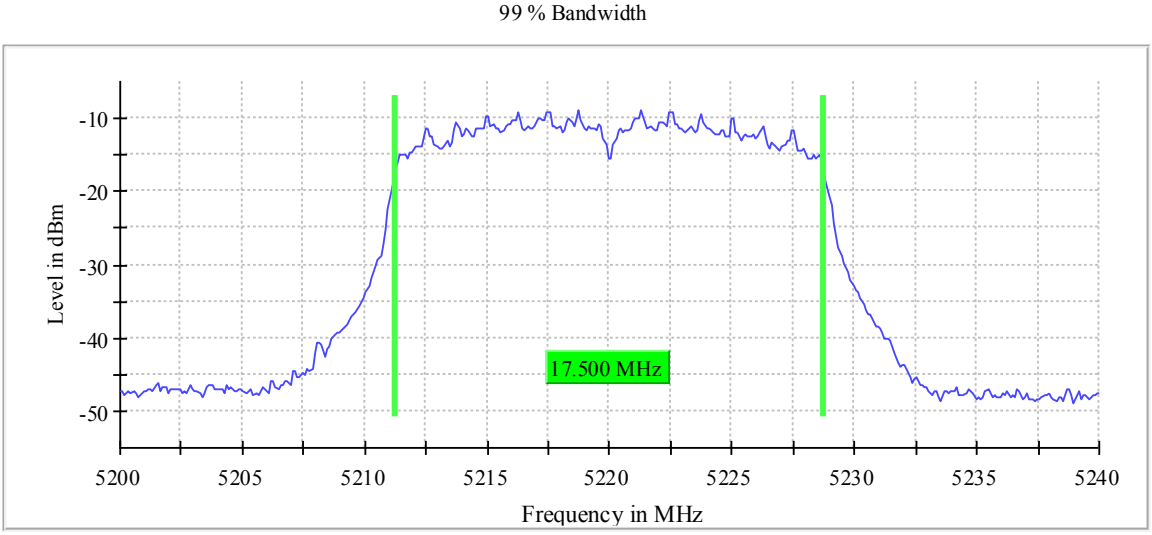
Plot 92: Mode 2, U-NII-3, 99% Occupied Bandwidth, high channel



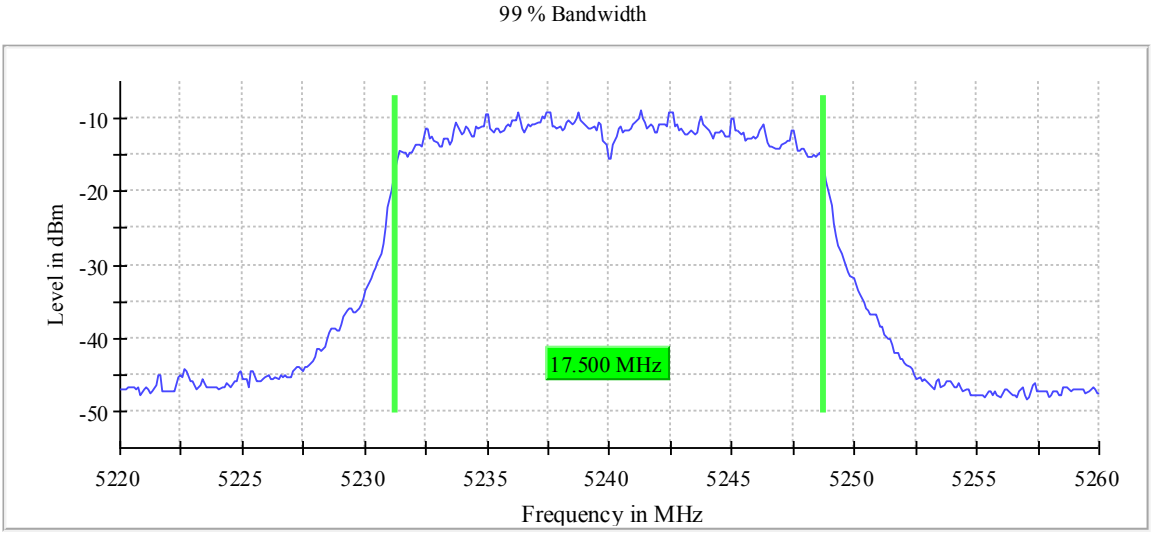
Plot 93: Mode 4, U-NII-1, 99% Occupied Bandwidth, low channel



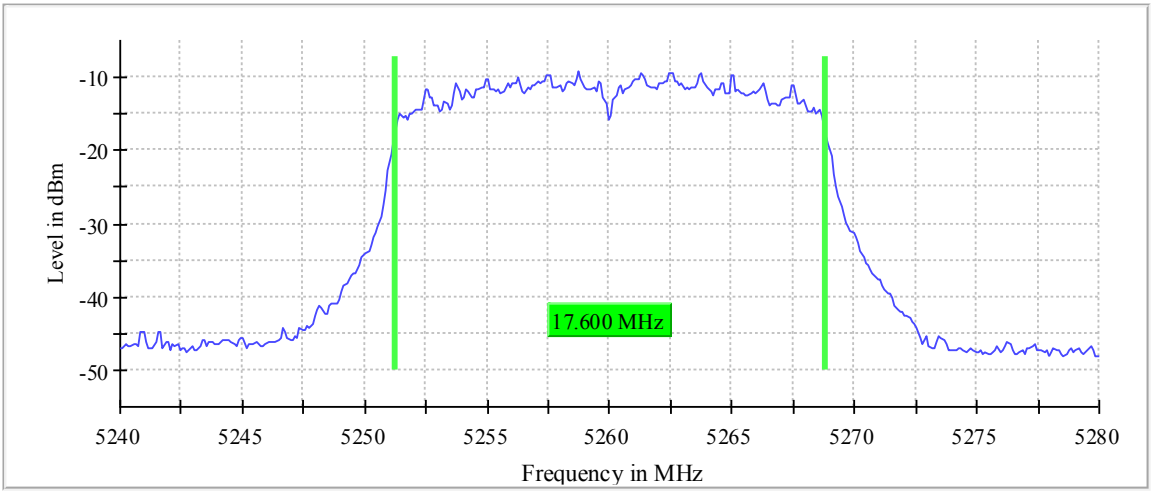
Plot 94: Mode 4, U-NII-1, 99% Occupied Bandwidth, mid channel



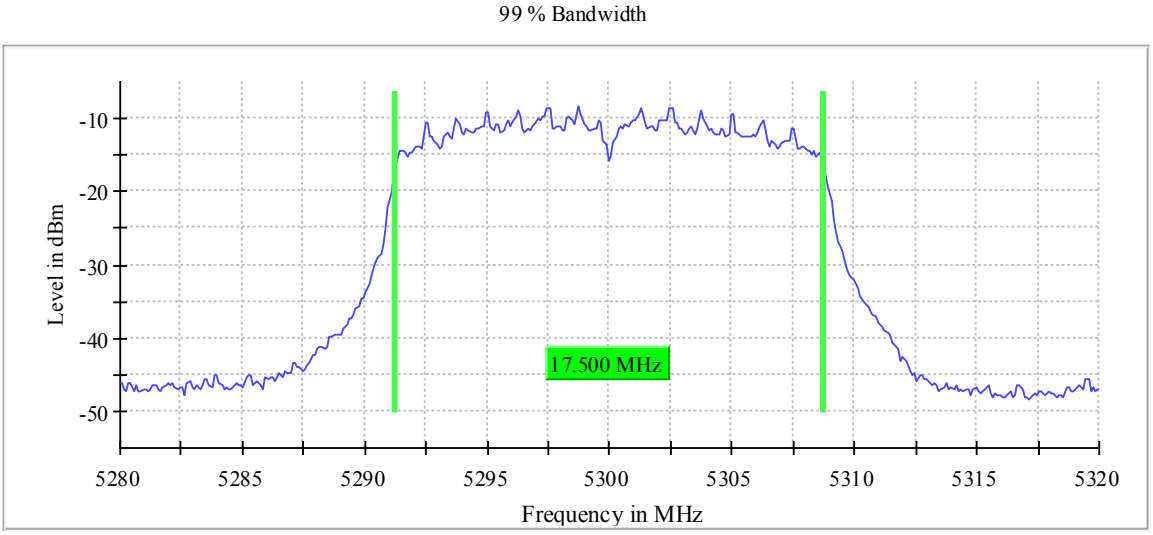
Plot 95: Mode 4, U-NII-1, 99% Occupied Bandwidth, high channel



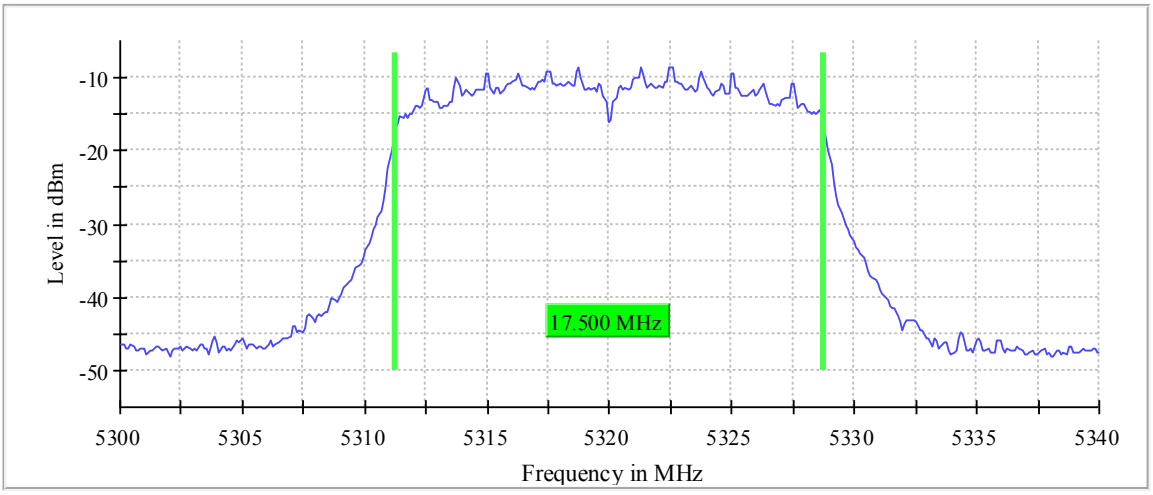
Plot 96: Mode 4, U-NII-2A, 99% Occupied Bandwidth, low channel



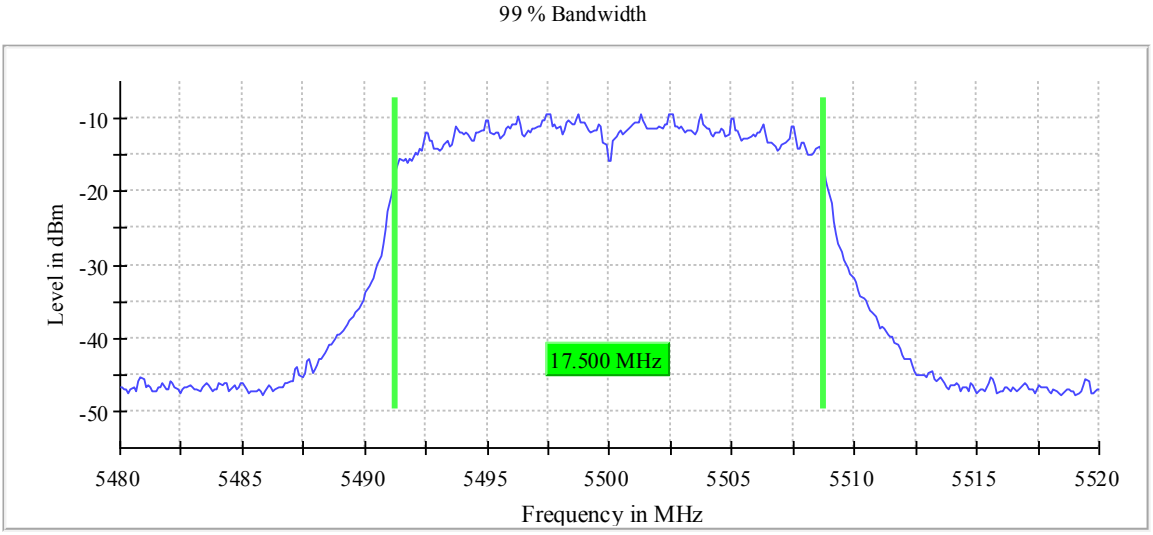
Plot 97: Mode 4, U-NII-2A, 99% Occupied Bandwidth, mid channel



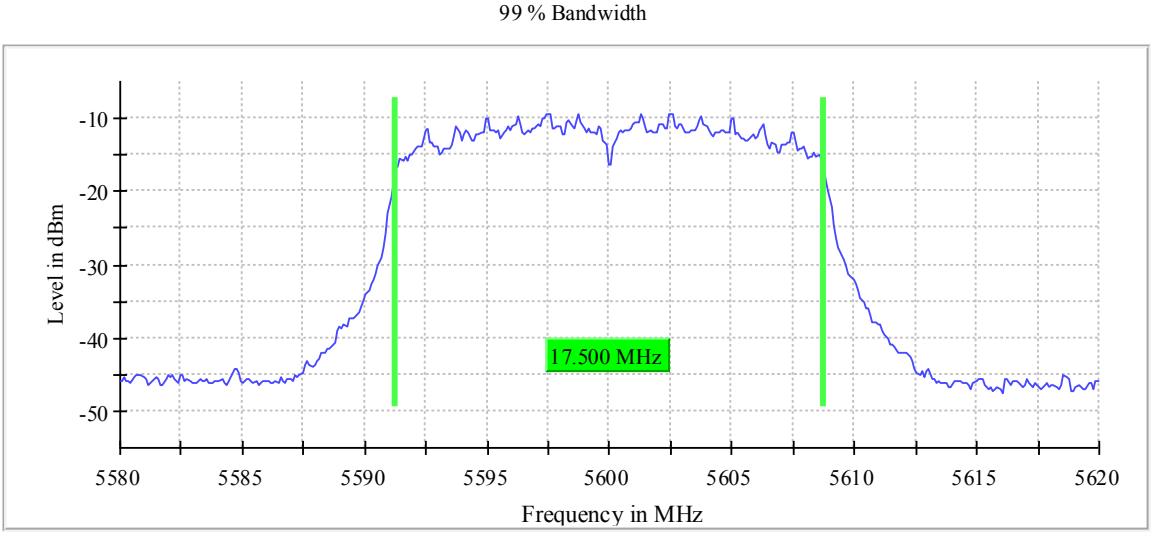
Plot 98: Mode 4, U-NII-2A, 99% Occupied Bandwidth, high channel



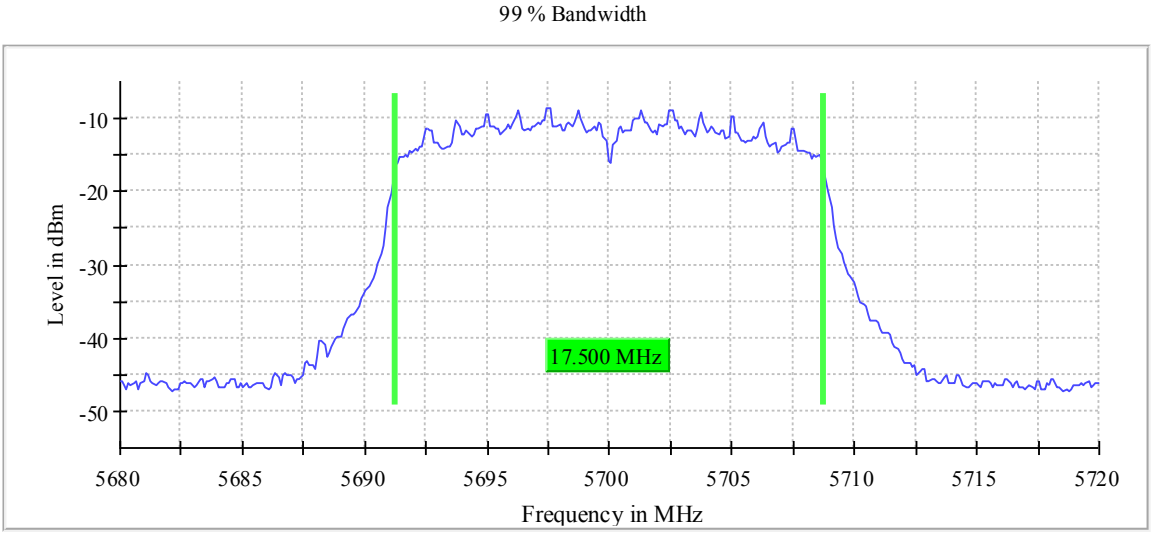
Plot 99: Mode 4, U-NII-2C, 99% Occupied Bandwidth, low channel



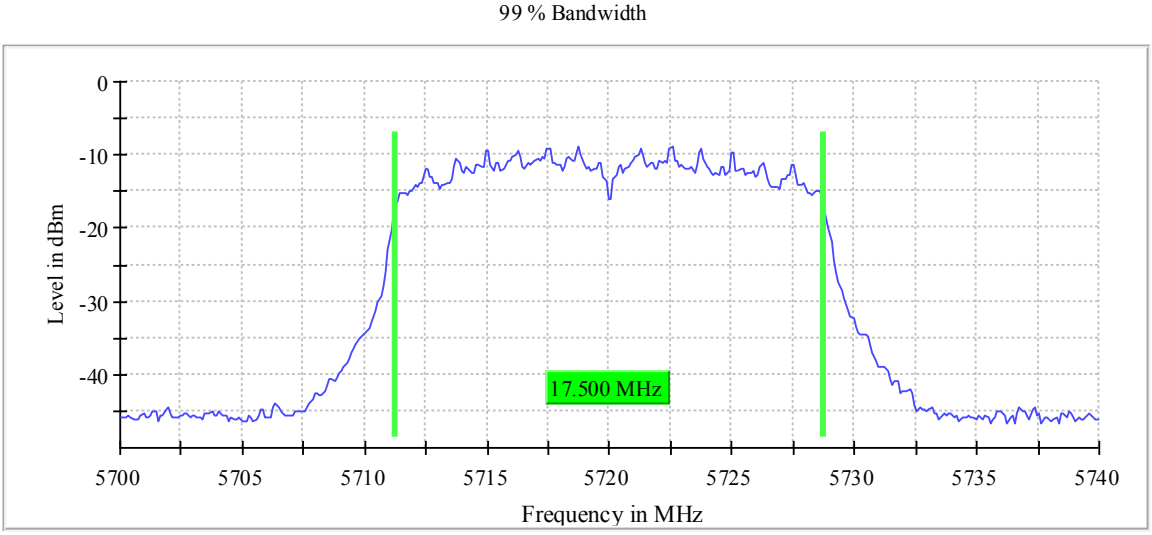
Plot 100: Mode 4, U-NII-2C, 99% Occupied Bandwidth, mid channel



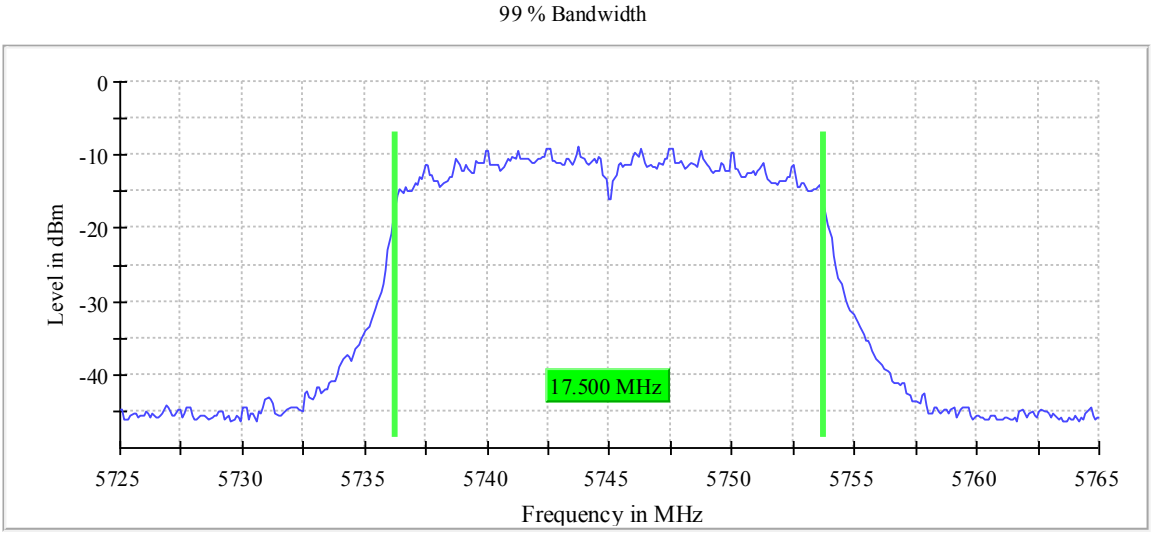
Plot 101: Mode 4, U-NII-2C, 99% Occupied Bandwidth, high channel



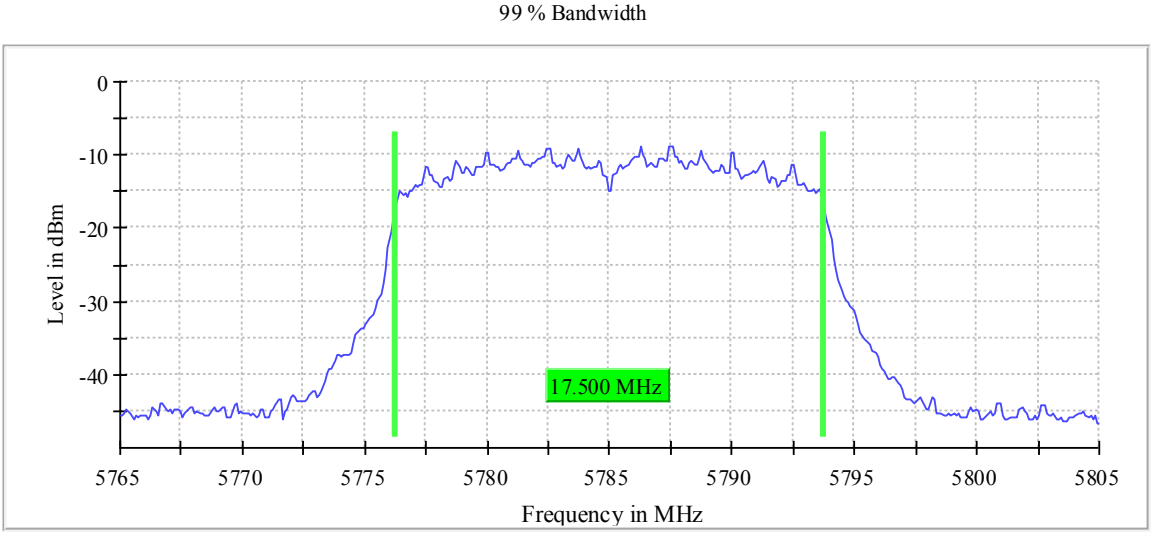
Plot 102: Mode 4, U-NII-2C, 99% Occupied Bandwidth, channel 144



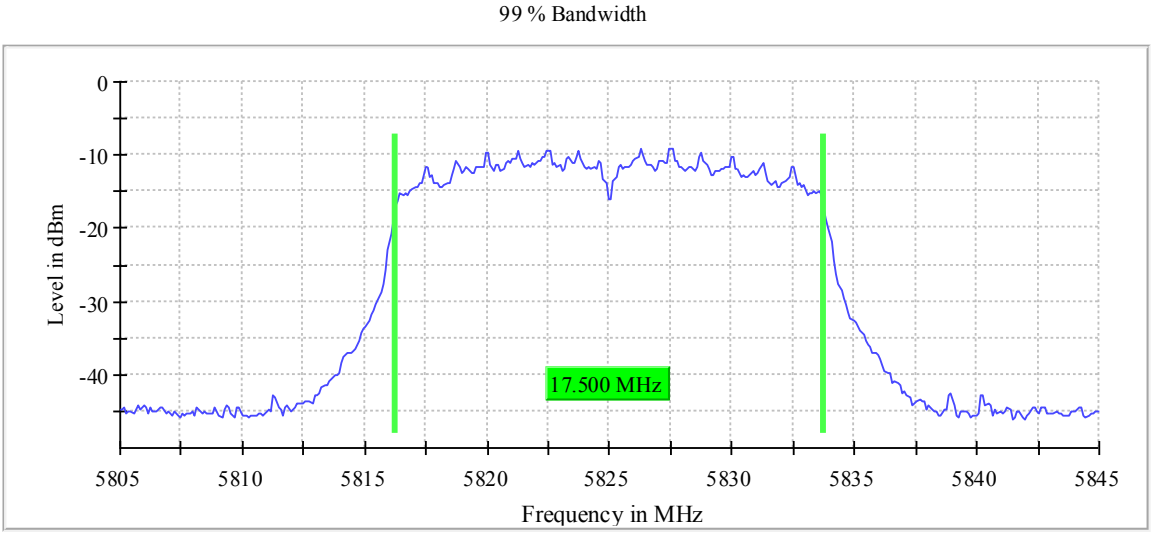
Plot 103: Mode 4, U-NII-3, 99% Occupied Bandwidth, low channel



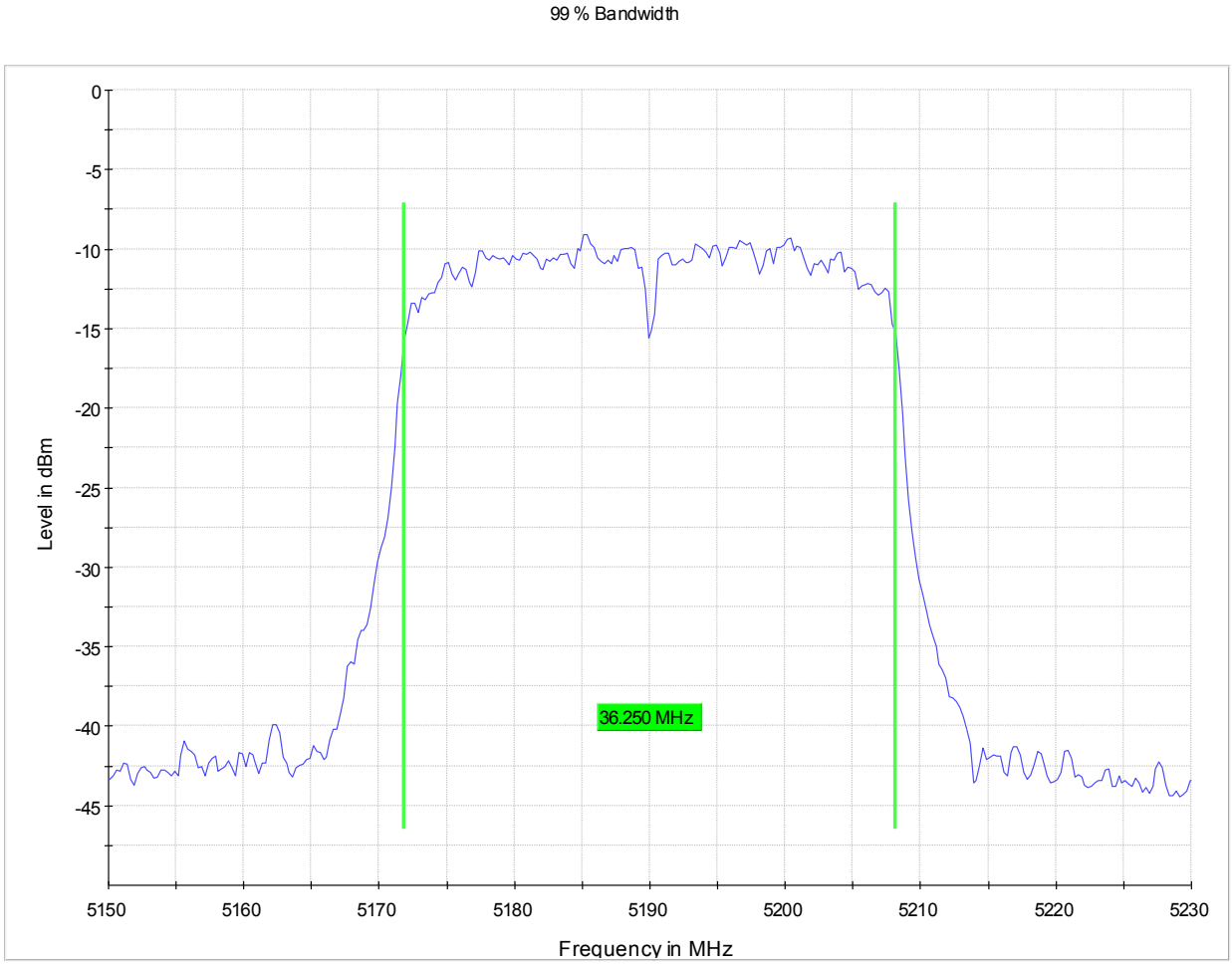
Plot 104: Mode 4, U-NII-3, 99% Occupied Bandwidth, mid channel



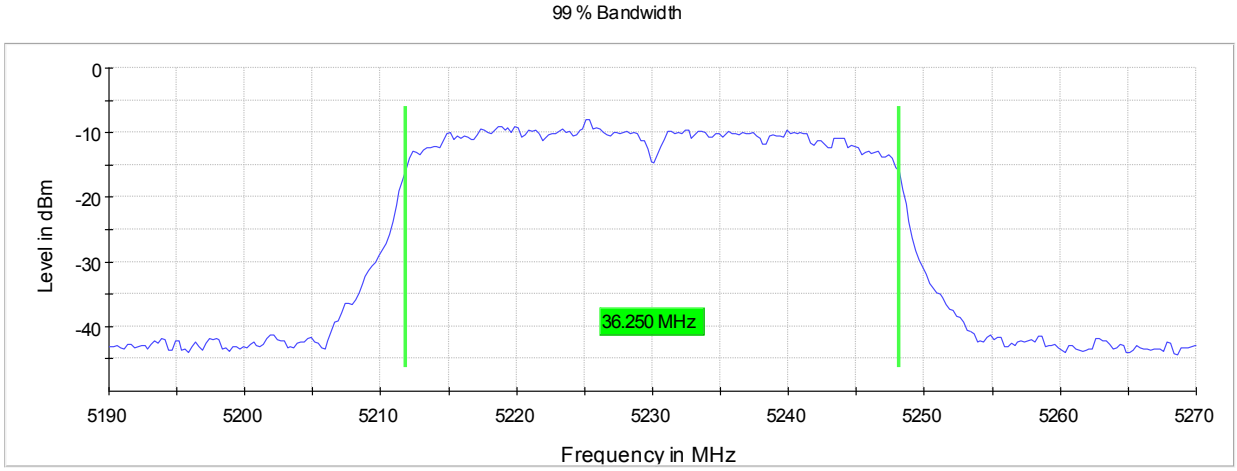
Plot 105: Mode 4, U-NII-3, 99% Occupied Bandwidth, high channel



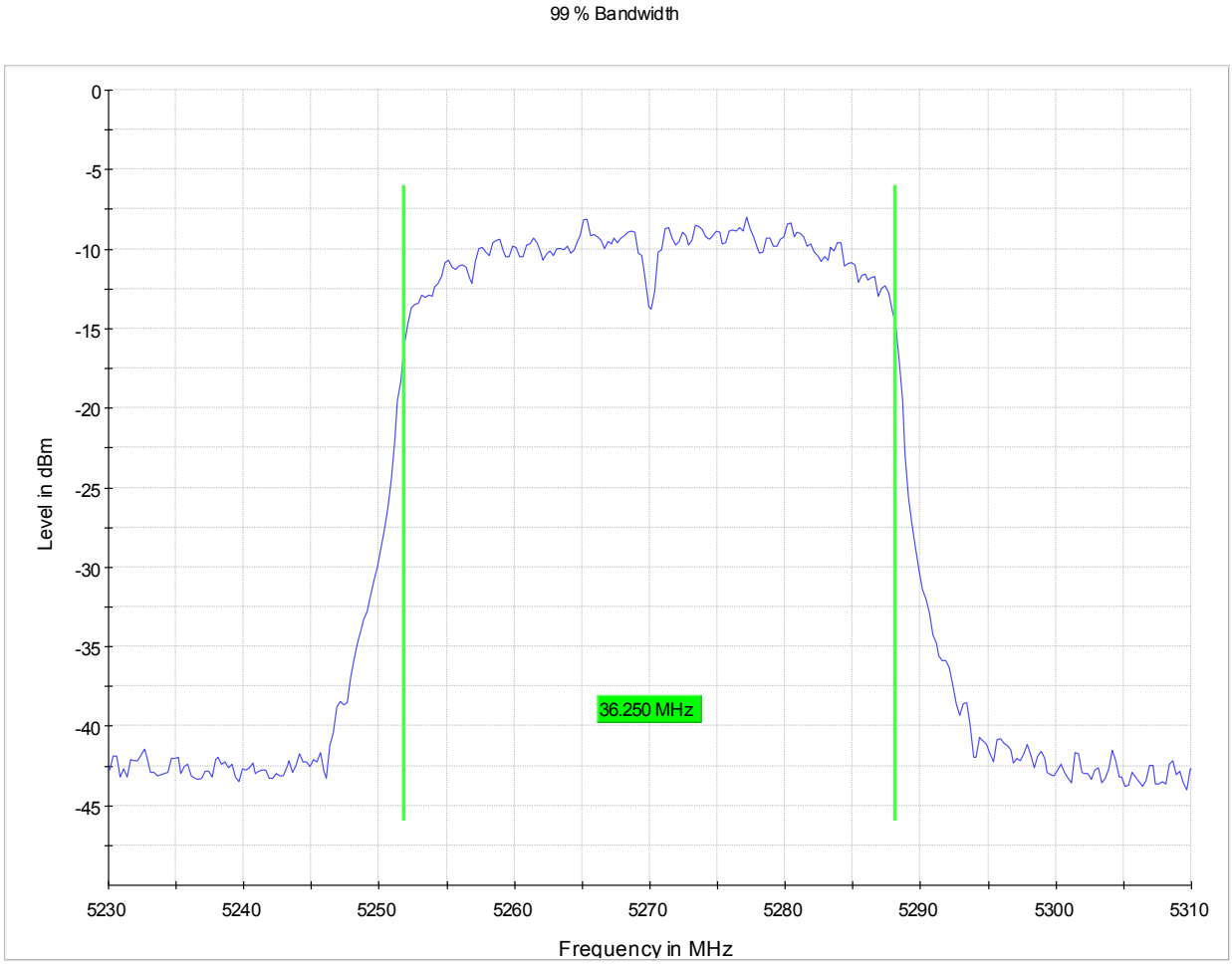
Plot 106: Mode 3, U-NII-1, 99% Occupied Bandwidth, low channel



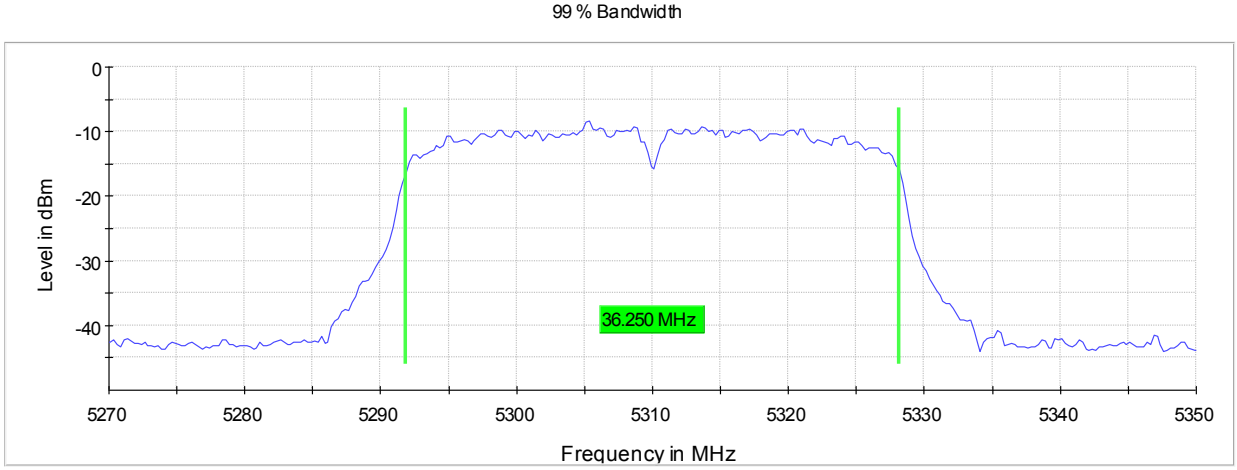
Plot 107: Mode 3, U-NII-1, 99% Occupied Bandwidth, high channel



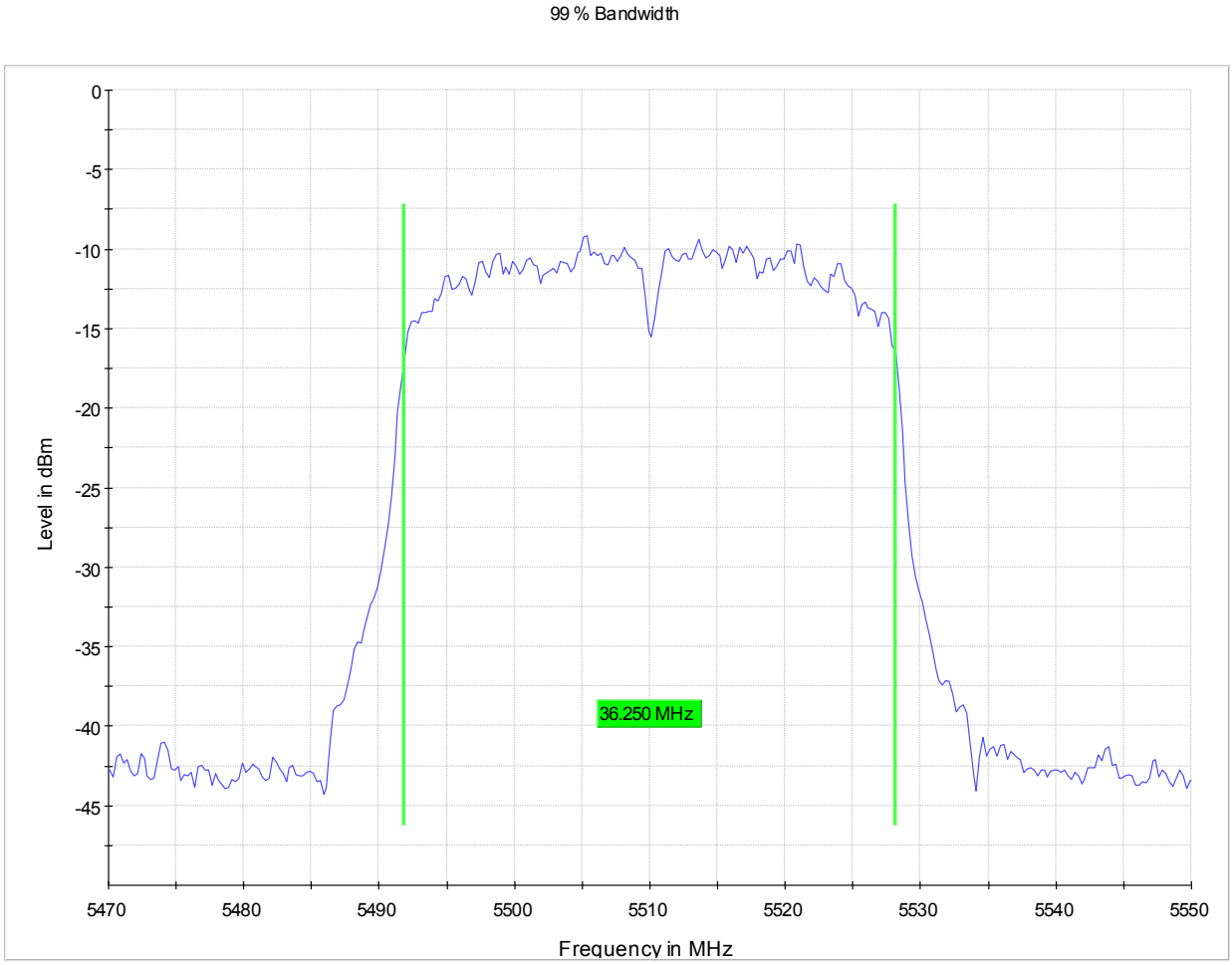
Plot 108: Mode 3, U-NII-2A, 99% Occupied Bandwidth, low channel



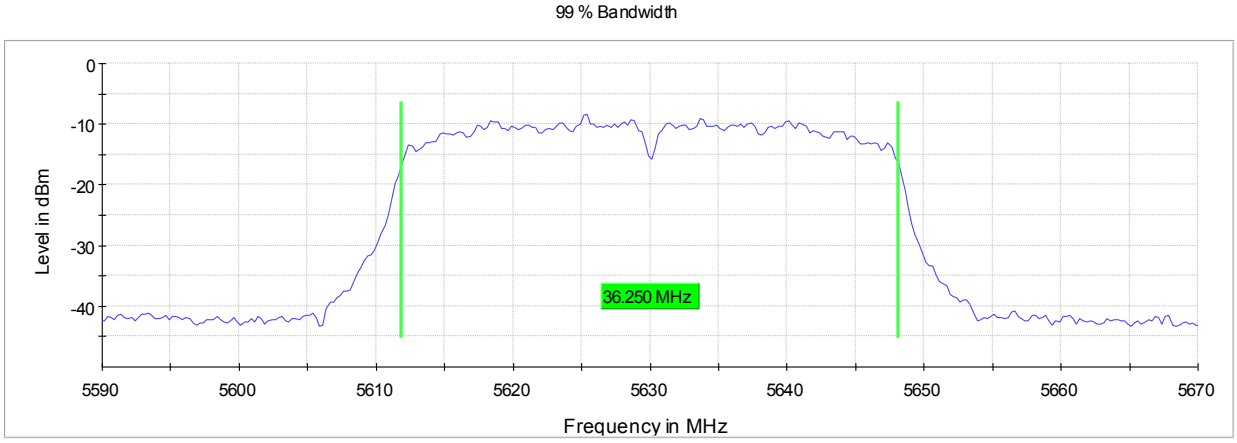
Plot 109: Mode 3, U-NII-2A, 99% Occupied Bandwidth, high channel



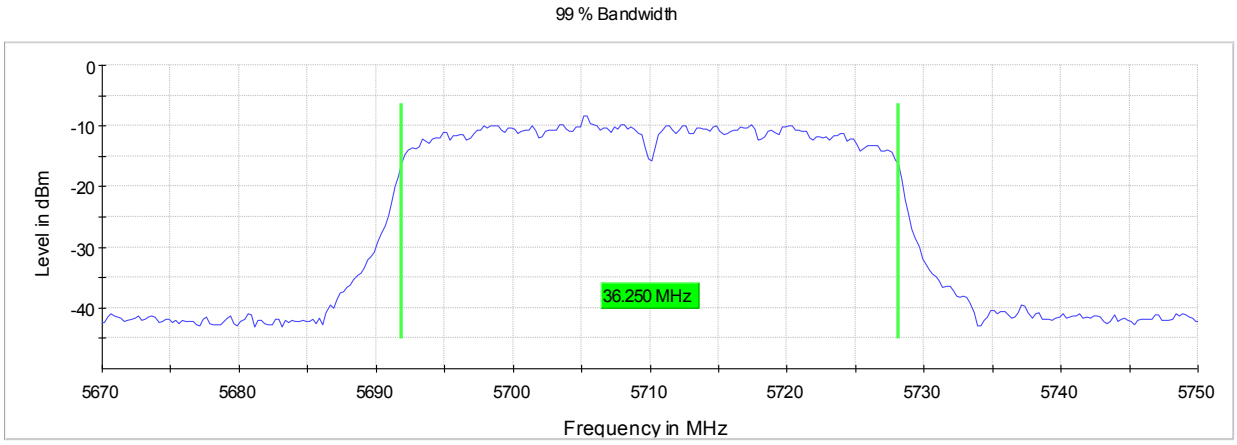
Plot 110: Mode 3, U-NII-2C, 99% Occupied Bandwidth, low channel



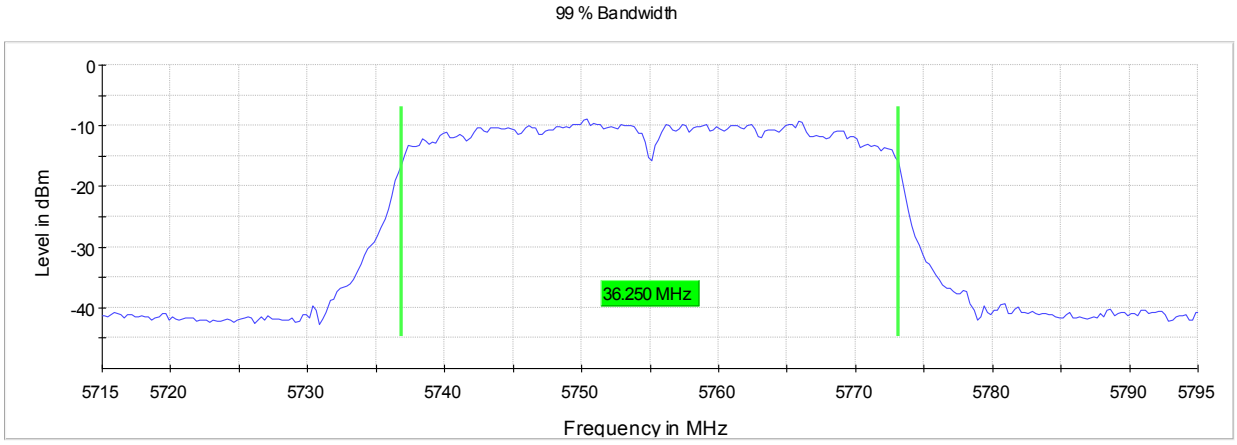
Plot 111: Mode 3, U-NII-2C, 99% Occupied Bandwidth, mid channel



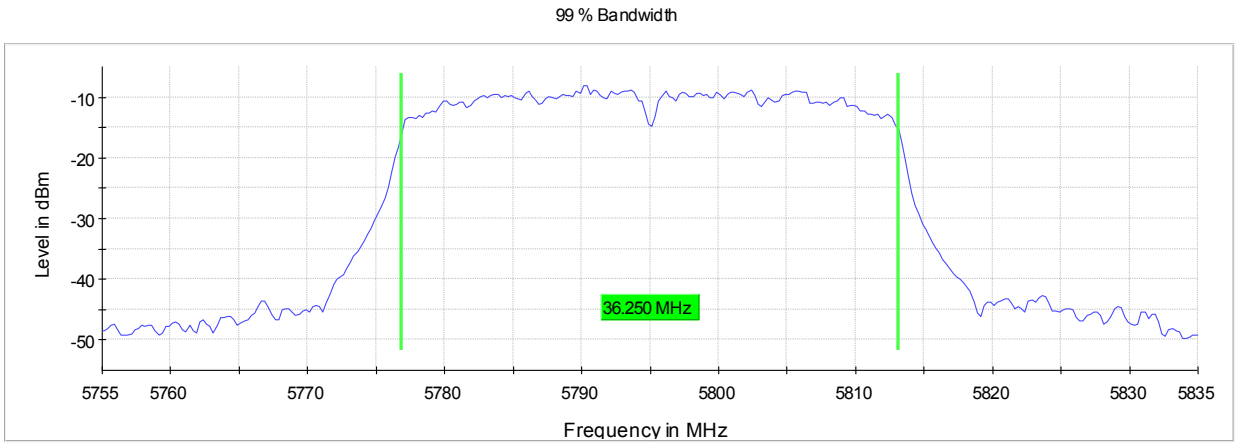
Plot 112: Mode 3, U-NII-2C, 99% Occupied Bandwidth, high channel



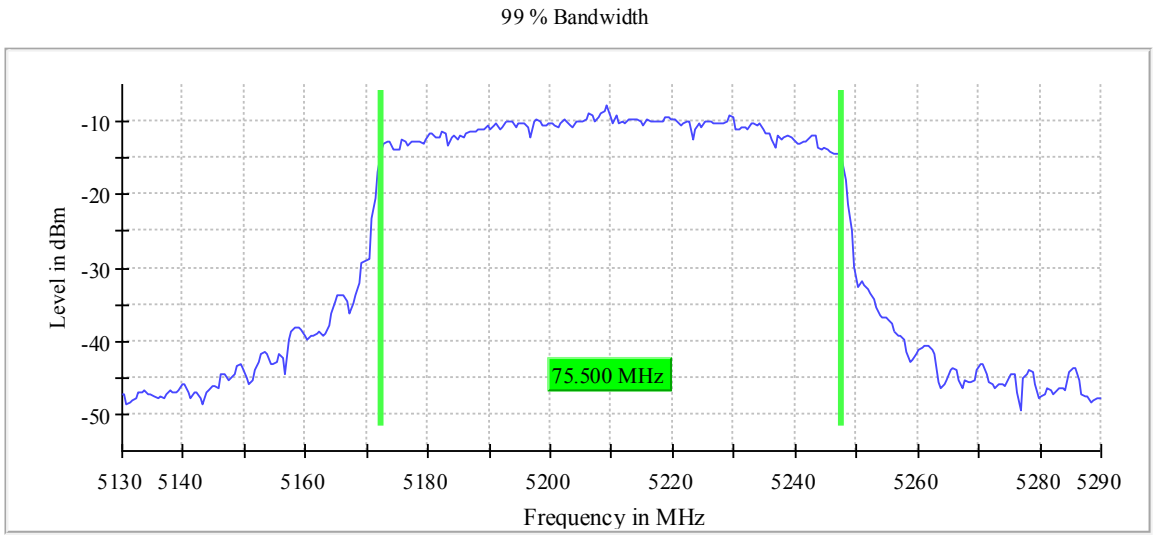
Plot 113: Mode 3, U-NII-3, 99% Occupied Bandwidth, low channel



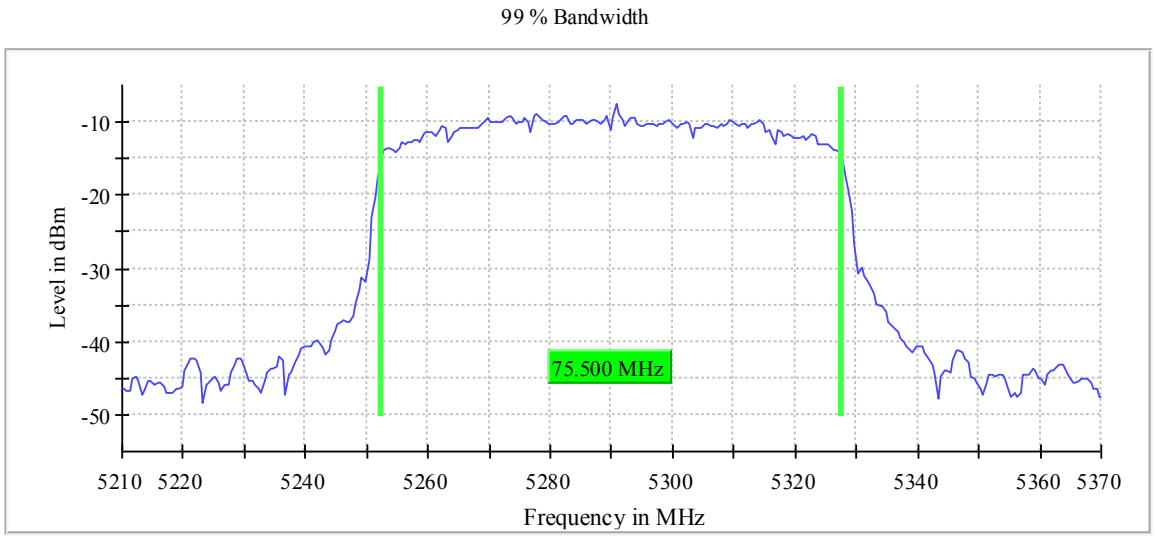
Plot 114: Mode 3, U-NII-3, 99% Occupied Bandwidth, high channel



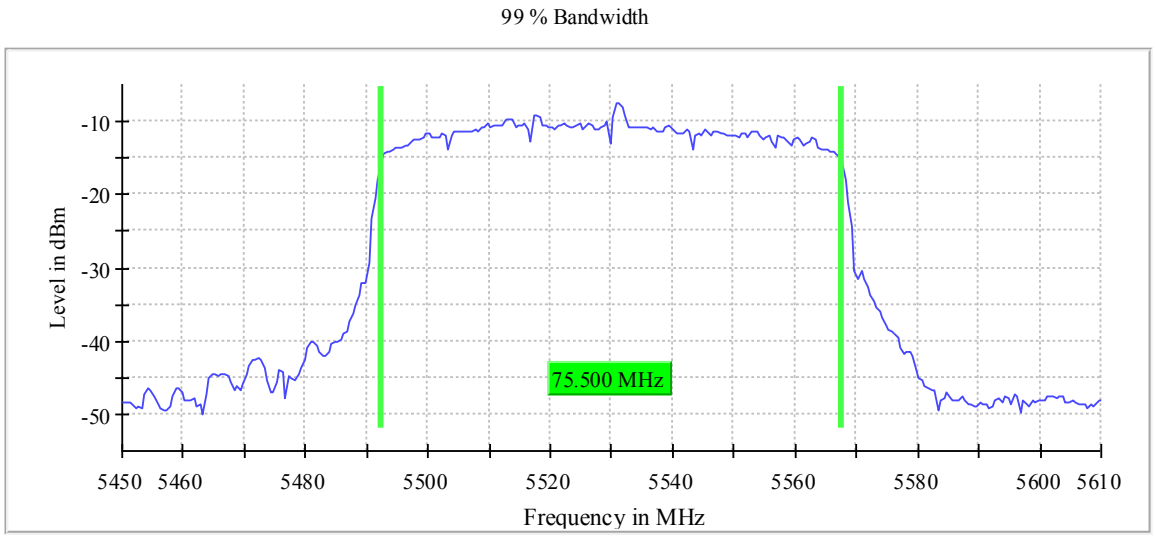
Plot 115: Mode 6, U-NII-1, 99% Occupied Bandwidth, mid channel



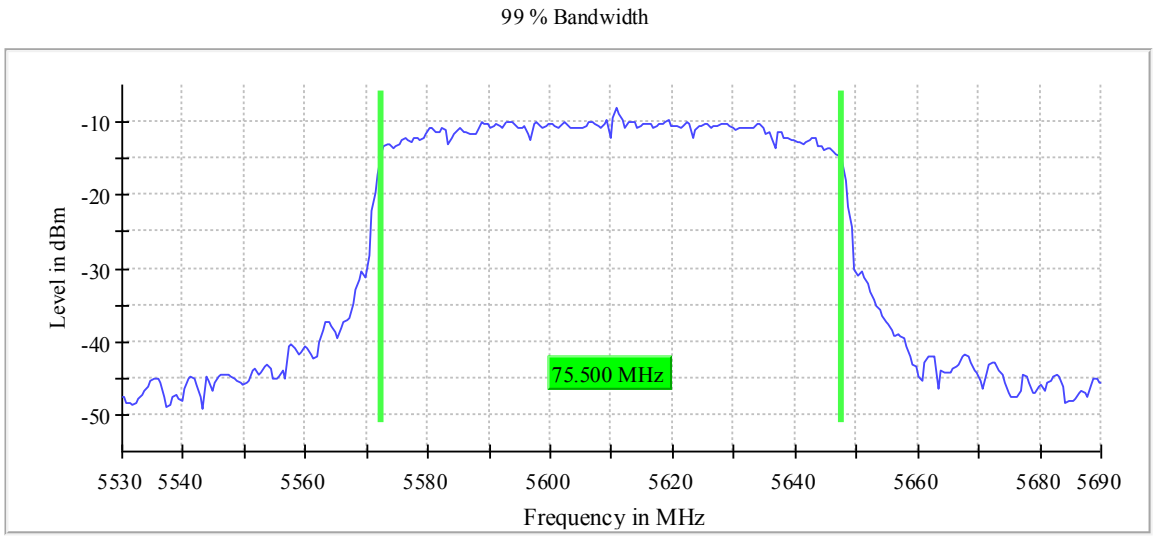
Plot 116: Mode 6, U-NII-2A, 99% Occupied Bandwidth, mid channel



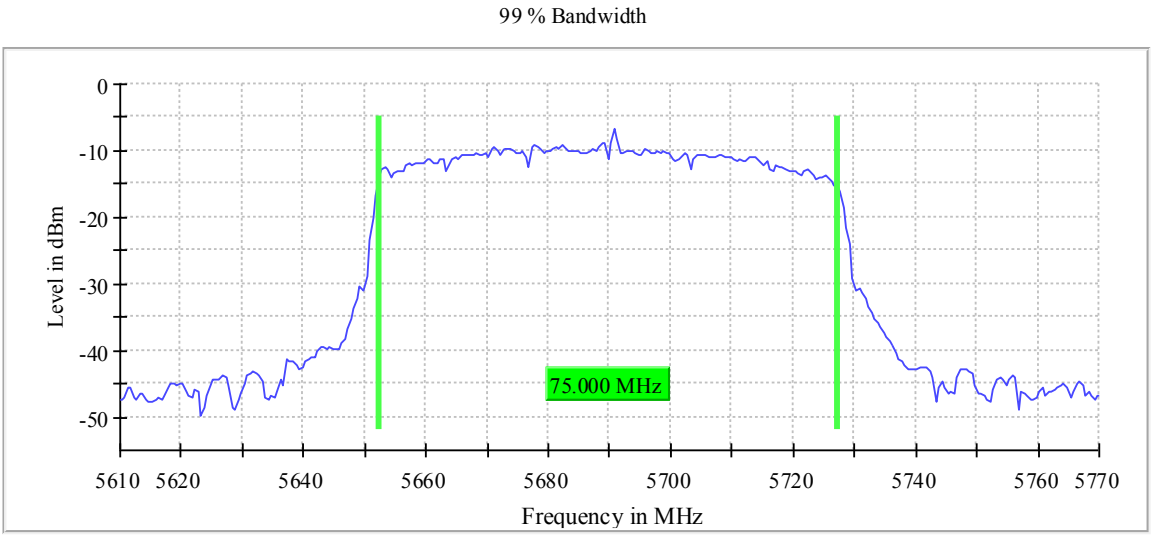
Plot 117: Mode 6, U-NII-2C, 99% Occupied Bandwidth, low channel



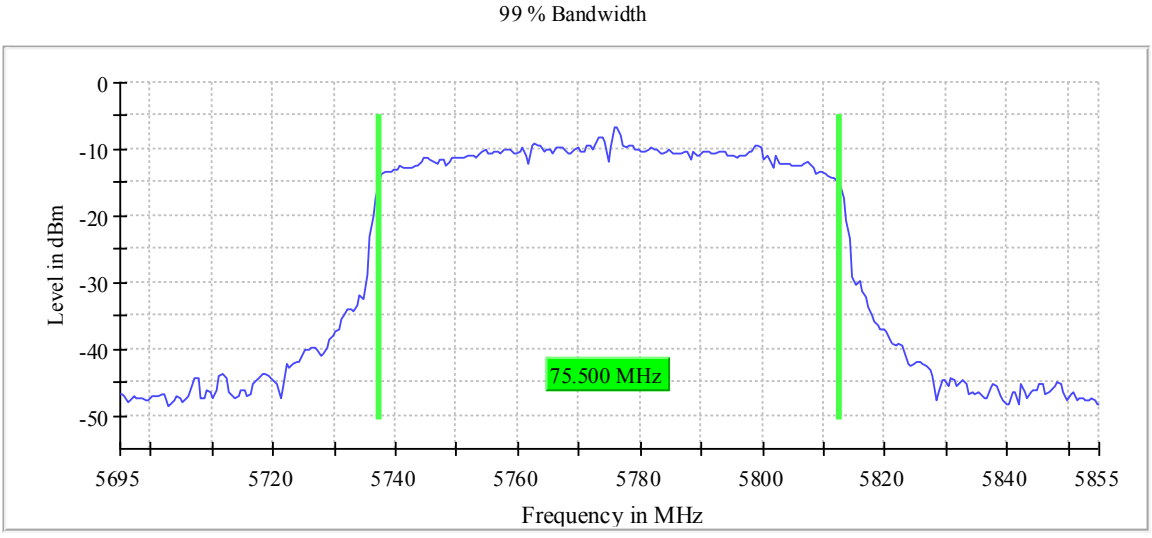
Plot 118: Mode 6, U-NII-2C, 99% Occupied Bandwidth, mid channel



Plot 119: Mode 6, U-NII-2C, 99% Occupied Bandwidth, high channel



Plot 120: Mode 6, U-NII-3, 99% Occupied Bandwidth, mid channel



7.4 RF Output Power (Conducted Mean Power)

Applicability

This requirement applies to unlicensed National Information Infrastructure (U–NII) devices operating in the 5.15–5.35 GHz, 5.47–5.725 GHz and 5.725–5.85 GHz bands

Description

The RF Output Power is defined as the conducted mean output power.

Limit

§15.407 (a)

- For client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW
- For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.
- For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W

RSS 247 section 6.2:

- Frequency band 5150-5250 MHz and 5250-5350 MHz:
  - For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less.
  - Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW
- Frequency band 5470-5600 and 5650-5725 MHz:
  - The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less.
- Frequency band 5725-5850 MHz:
  - The maximum conducted output power shall not exceed 1 W

B is the 99% emission bandwidth in megahertz.

Test procedure

KDB 789033 D02, E.

ANSI C63.10, 11.9.2.3.2

Method AVGPM-G is a measurement using a gated RF average power meter.

Alternatively, measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Gate triggering can be implemented in such a way that the sweep of the instrument is only active during the burst period of the device. Any Gate triggering shall be performed on the full power portion of the pulses and care must be taken to ensure that static portions of the pulse are not included in the measurement (ensuring that the trace is averaged over the entire symbol range). All Gate triggered measurements shall be accompanied by a Gate setup plot in the test report.

Test setup: 8.4 with conducted test sample 61313

Test Results 20 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-1 (5150 MHz to 5250 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 1	4.8	4.8	5.3	24.0
Mode 2	4.1	4.1	4.6	24.0
Mode 4	4.1	4.0	4.6	24.0

Test Results 20 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-2A (5250 MHz to 5350 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 1	4.7	4.9	5.1	24.0
Mode 2	4.1	4.3	4.4	24.0
Mode 4	4.0	4.2	4.4	24.0

Test Results 20 MHz					
EUT Mode	Maximum output power conducted				Limit Max [dBm]
	U-NII-2C (5470 MHz to 5725 MHz)				
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	Channel 144 [dBm]	
Mode 1	4.5	4.5	4.4	4.4	24.0
Mode 2	3.9	3.9	3.8	3.8	24.0
Mode 4	3.8	3.9	3.8	3.8	24.0

Test Results 20 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 1	4.7	4.0	4.1	30.0
Mode 2	4.1	3.3	3.4	30.0
Mode 4	4.1	3.3	3.3	30.0

Test Results 40 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-1 (5150 MHz to 5250 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 3	3.8	-/-	4.1	24.0
Mode 5	3.8	-/-	4.2	24.0

Test Results 40 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-2A (5250 MHz to 5350 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 3	3.8	-/-	4.2	24.0
Mode 5	3.9	-/-	4.2	24.0

Test Results 40 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-2C (5470 MHz to 5725 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 3	3.5	3.8	3.5	24.0
Mode 5	3.5	3.8	3.5	24.0

Test Results 40 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 3	3.7	-/-	3.3	30.0
Mode 5	3.6	-/-	3.4	30.0

Test Results 80 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-1 (5150 MHz to 5250 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 6	-/-	2.8	-/-	24.0

Test Results 80 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-2A (5250 MHz to 5350 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 6	-/-	2.9	-/-	24.0

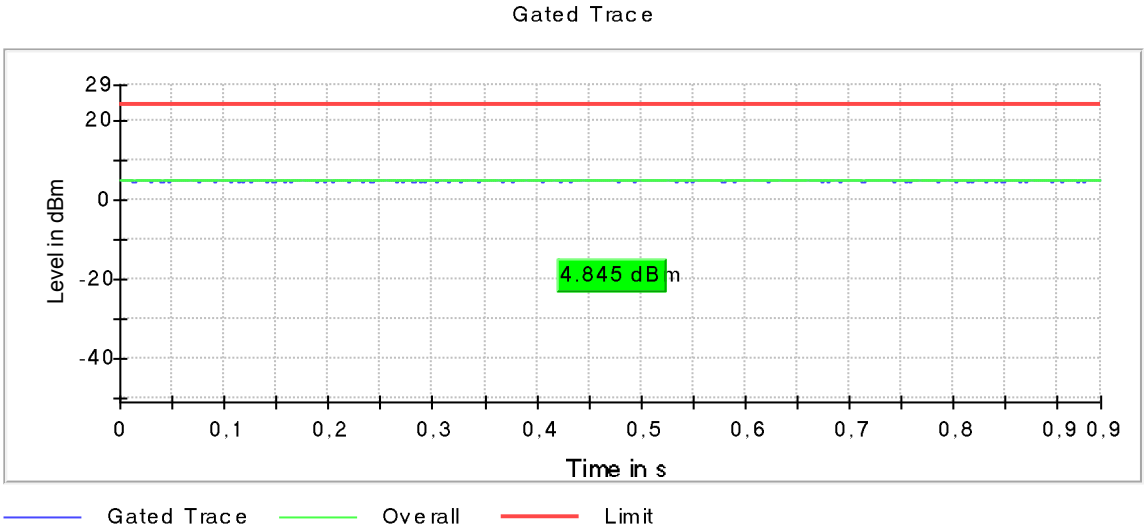
Test Results 80 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-2C (5470 MHz to 5725 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 6	2.6	2.6	2.6	24.0

Test Results 80 MHz				
EUT Mode	Maximum output power conducted			Limit Max [dBm]
	U-NII-3 (5725 MHz to 5850 MHz)			
	low channel [dBm]	mid channel [dBm]	high channel [dBm]	
Mode 6	-/-	2.4	-/-	30.0

Comment:	---

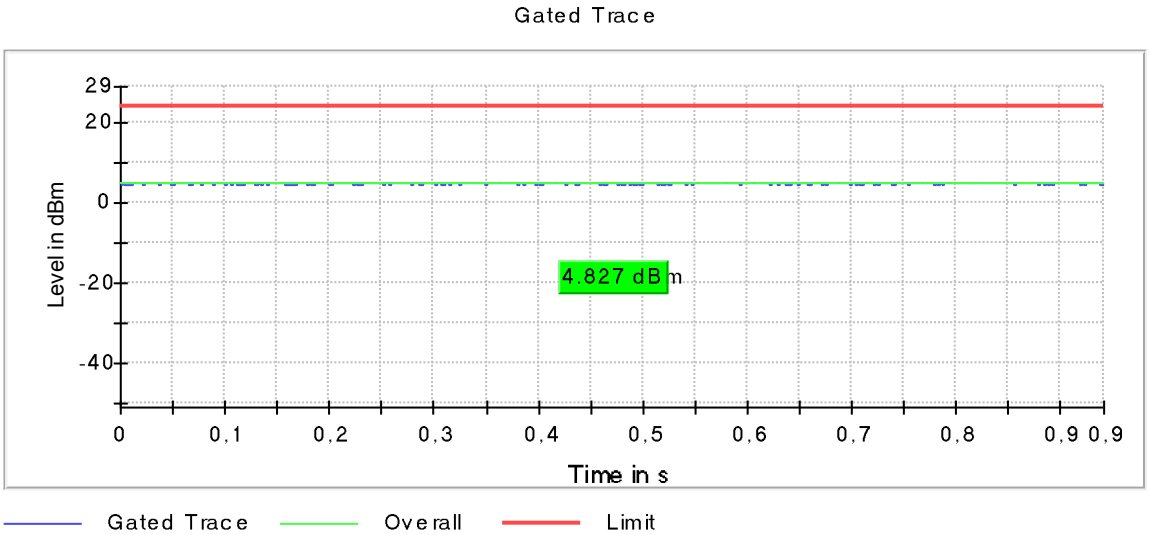
Verdict	- PASS -	*see next plots*

Plot 121: Mode 1, U-NII-1, AVGPM-G Gated Average Power Measurement, low channel



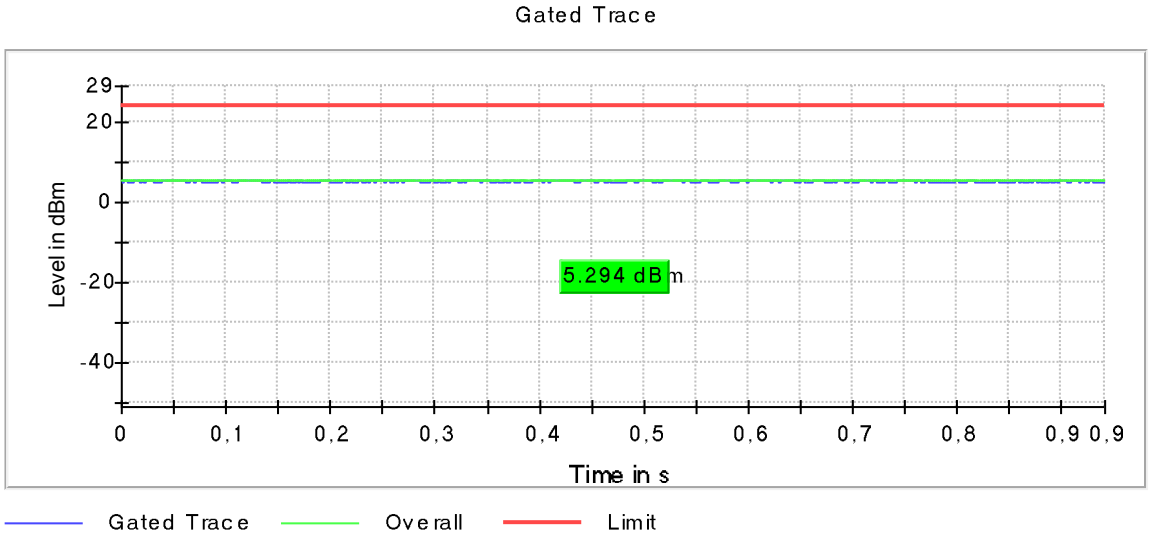
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5180.000000	4.8	24.0	4.8	94.338	PASS

Plot 122: Mode 1, U-NII-1, AVGPM-G Gated Average Power Measurement, mid channel



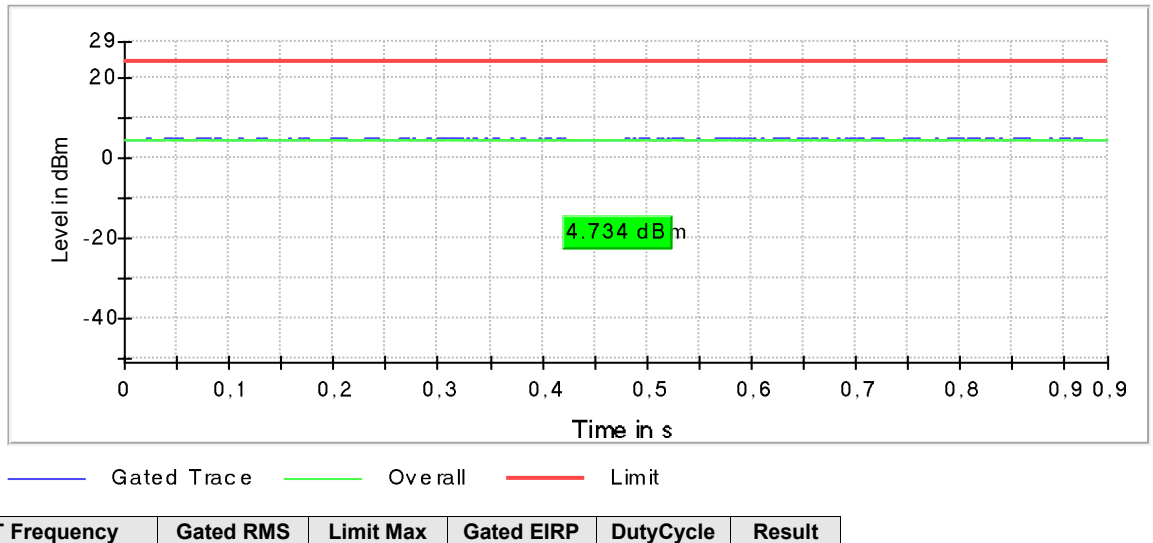
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5220.000000	4.8	24.0	4.8	94.289	PASS

Plot 123: Mode 1, U-NII-1, AVGPM-G Gated Average Power Measurement, high channel



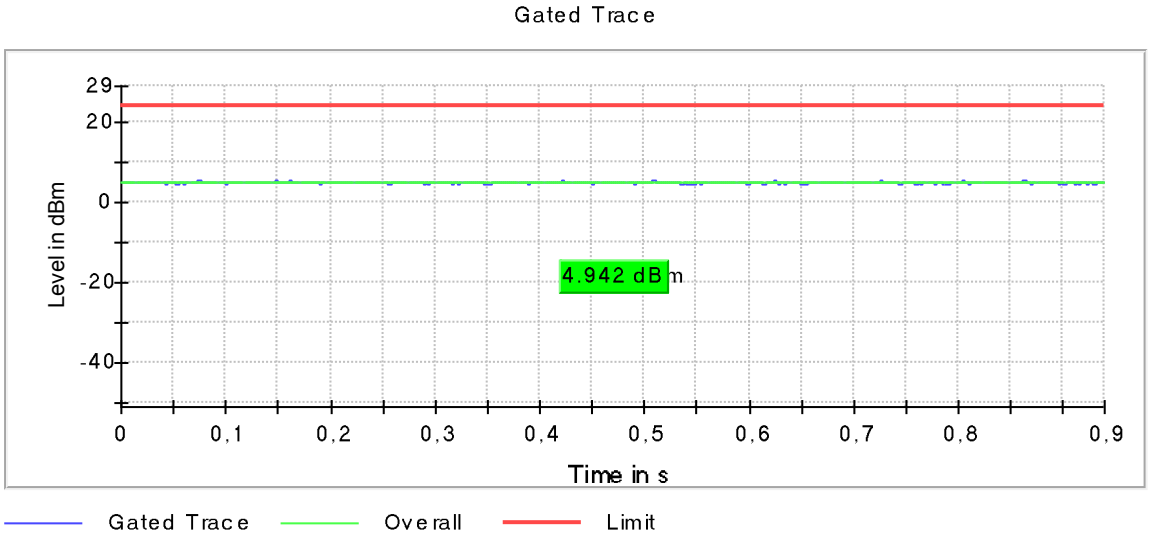
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5240.000000	5.3	24.0	5.3	94.379	PASS

Plot 124: Mode 1, U-NII-2A, AVGPM-G Gated Average Power Measurement, low channel



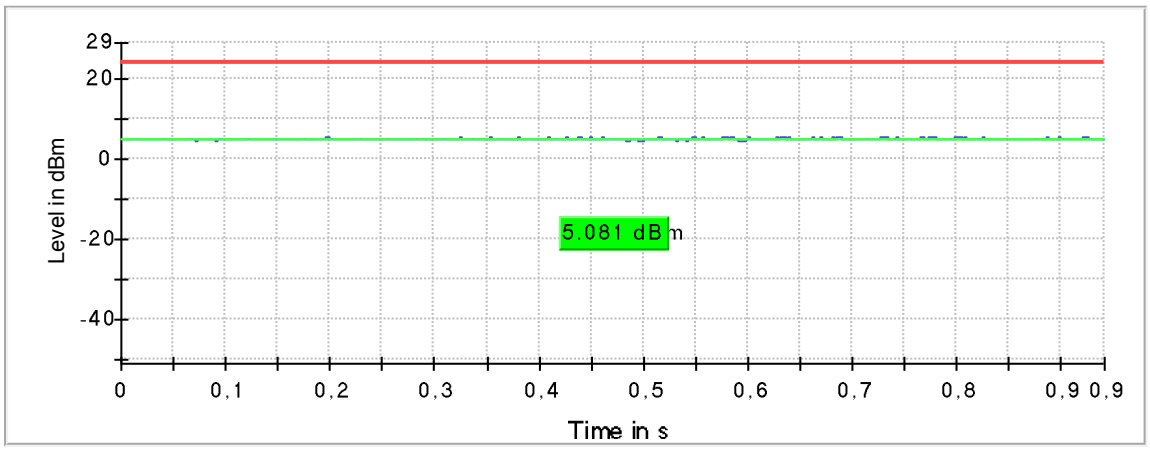
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5260.000000	4.7	24.0	4.7	94.449	PASS

Plot 125: Mode 1, U-NII-2A, AVGPM-G Gated Average Power Measurement, mid channel



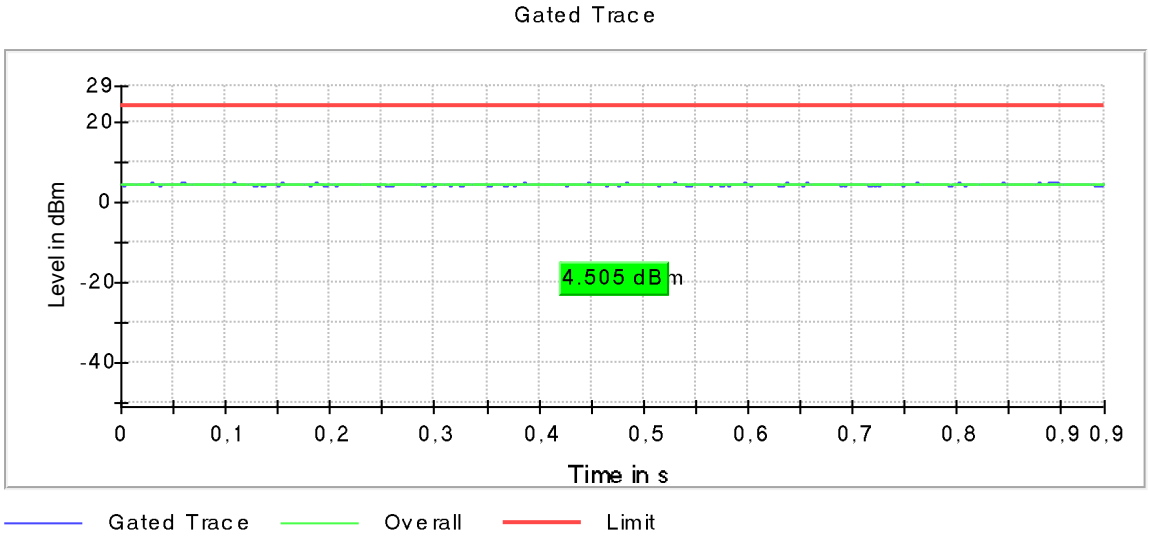
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5300.000000	4.9	24.0	4.9	94.338	PASS

Plot 126: Mode 1, U-NII-2A, AVGPM-G Gated Average Power Measurement, high channel



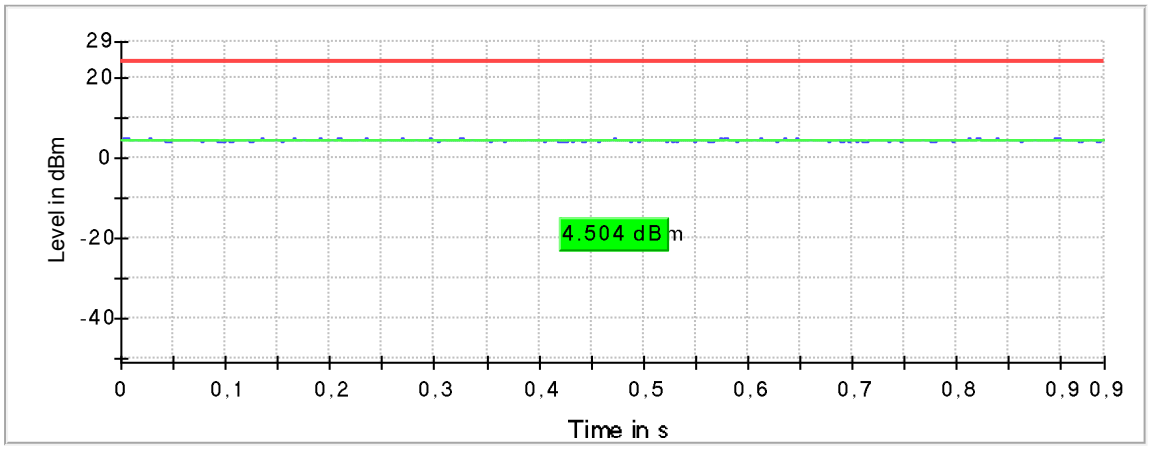
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5320.000000	5.1	24.0	5.1	94.419	PASS

Plot 127: Mode 1, U-NII-2C, AVGPM-G Gated Average Power Measurement, low channel



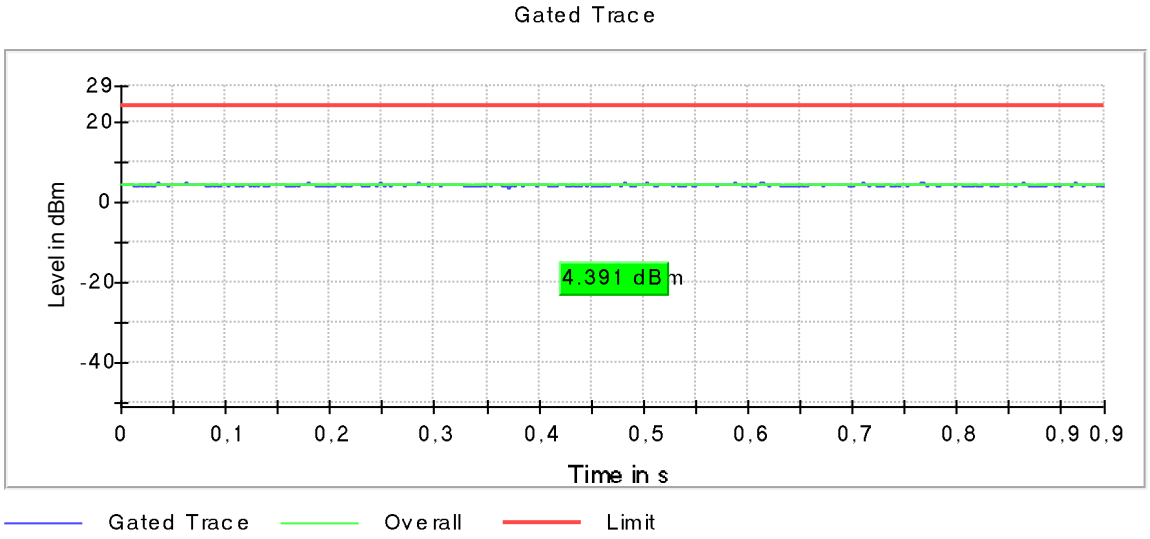
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5500.000000	4.5	24.0	4.5	94.387	PASS

Plot 128: Mode 1, U-NII-2C, AVGPM-G Gated Average Power Measurement, mid channel



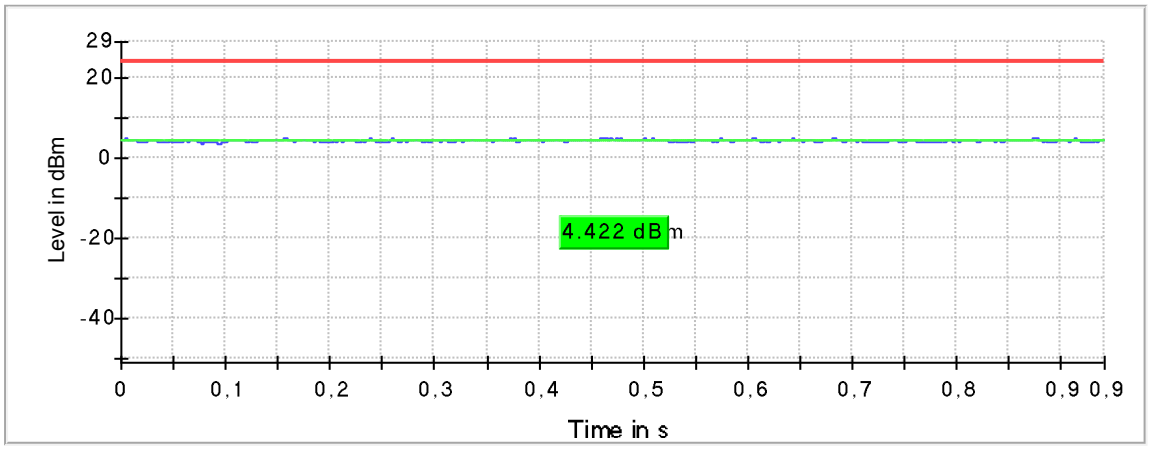
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5600.000000	4.5	24.0	4.5	94.286	PASS

Plot 129: Mode 1, U-NII-2C, AVGPM-G Gated Average Power Measurement, high channel



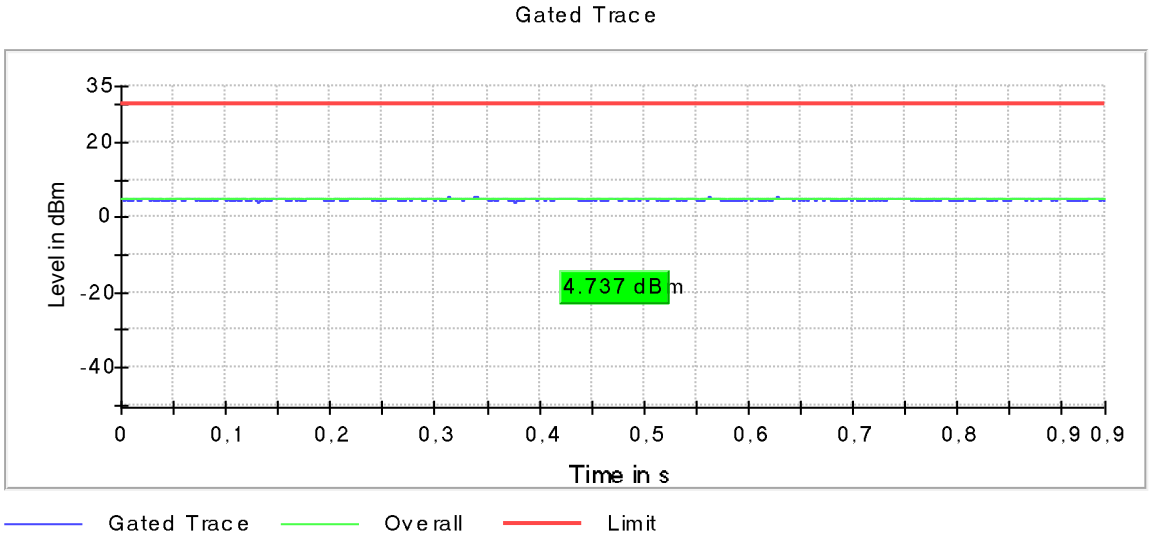
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5700.000000	4.4	24.0	4.4	94.292	PASS

Plot 130: Mode 1, U-NII-2C, AVGPM-G Gated Average Power Measurement, channel 144



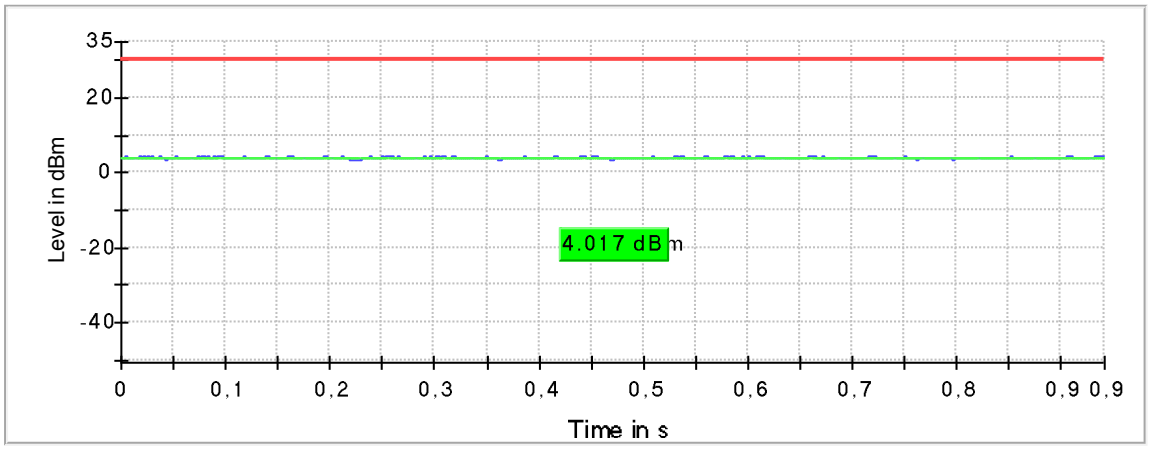
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5720.000000	4.4	24.0	4.4	94.390	PASS

Plot 131: Mode 1, U-NII-3, AVGPM-G Gated Average Power Measurement, low channel



DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5745.000000	4.7	30.0	4.7	94.397	PASS

Plot 132: Mode 1, U-NII-3, AVGPM-G Gated Average Power Measurement, mid channel



DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
5785.000000	4.0	30.0	4.0	94.236	PASS

Plot 133: Mode 1, U-NII-3, AVGPM-G Gated Average Power Measurement, high channel