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Acronyms

Acronym ID	Acronym Description
# of Tx Chains	Number of Transmission Chains
Detector	Detector used
Equipment	Equipment Type
Freq	Frequency
Freq Rng	Frequency Range
MP	Measurement Point
Mod	Modulation
Pol	Polarization
Port	Active Port
Unwanted Freq	Unwanted Emissions Frequency
Unwanted Lvl	Unwanted Emissions Level

Competences and guarantees

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

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

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Uncertainty

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

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

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

The total uncertainty of the measurement system for the radiated emissions of EUT from 17 GHz to 26 GHz is: Measurement uncertainty ≤ ± 5,51 dB with factor (k = 2).

The total uncertainty of the measurement system for the radiated emissions of EUT from 26 GHz to 40 GHz is: Measurement uncertainty ≤ ± 5,55 dB with factor (k = 2).

The total uncertainty of the measurement system for the conducted testing of EUT is:

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

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

Conducted Band-edge spurious emissions: Measurement uncertainty ≤ ± 2,57 dB
DFS Channel closing & Move time: Measurement uncertainty ≤ ± 0,84 ms
DFS Detection Threshold Level: Measurement uncertainty ≤ ± 1,81 dB

Data provided by the client

The following data has been provided by the client:

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

2. The sample consists of a Central Unit 2 - LatAm variant. Central Unit of the alarm suite. It acts as the main hub and gateway.

3. Equipment supports frequency sharing techniques.

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.

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	72872C_14.1	Central Unit 2 - LatAm variant (radiated)	GW-CU2L	26UA DDJY	2022-12-22	Element Under Test
S/02	72872C_57.1	Central Unit 2 - LatAm variant (conducted)	GW-CU2L	26MN JYAR	2022-12-28	Element Under Test
S/03	72872C_56.1	Central Unit 2 - LatAm variant (conducted)	GW-CU2L	26MN K3HD	2022-12-28	Element Under Test
S/01, S/02 & S/03	72872C_39.1	AC/DC adapter	AA18A-120GVS1	--	2022-12-22	Element Under Test
S/01, S/02 & S/03	72872C_19.1	Raspberry Pi	--	--	2022-12-12	Auxiliary Element
S/01, S/02 & S/03	72872C_35.1	Ethernet cable	--	--	2022-12-22	Auxiliary Element
S/01, S/02 & S/03	72872C_65.1	AC/DC adapter	KSA-15E-051300HE	--	2022-12-28	Auxiliary Element
S/01, S/02 & S/03	72872C_70.1	HDMI cable	--	--	2022-12-28	Auxiliary Element

Notes referenced to samples during the project:

Id	Type
S/01	Test samples used for Radiated testing.
S/02	Test samples used for Conducted testing except DFS testing
S/03	Test samples used for DFS testing.

Test sample description

<table>
<tr><td rowspan="3">Ports…… :</td><td rowspan="2">Port name and description</td><td colspan="4">Cable</td></tr>
<tr><td>Specified max length [m]</td><td>Attached during test</td><td>Shielded</td><td>Coupled to patient(3)</td></tr>
<tr><td>RJ45 Ethernet socket</td><td>.....</td><td>[X]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>Supplementary information to the ports…… :</td><td>DC power barrel jack</td><td>.....</td><td>[X]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>Rated power supply .....:</td><td colspan="5">Insertion loss for semi-rigids for conducted testing: 0.5-1.5GHz: 0.1 dB; 1.5-3.5GHz: 0.2dB; 3.5-5.5GHz: 0.3dB; 5.5-6.5GHz: 0.5dB.</td></tr>
<tr><td rowspan="3">Rated power supply .....:</td><td colspan="2" rowspan="2">Voltage and Frequency</td><td colspan="4">Reference poles</td></tr>
<tr><td>L1</td><td>L2</td><td>L3</td><td>N</td><td>PE</td></tr>
<tr><td>[X]</td><td>AC: 100-240Vac @50-60Hz</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>[ ]</td><td colspan="5">DC: 12-14.5V 1.5A</td></tr>
<tr><td>Rated Power .....:</td><td colspan="6">18 W</td></tr>
<tr><td>Clock frequencies.....:</td><td colspan="6">32.786 kHz, 13.824 MHz, 24 MHz, 25 MHz, 26 MHz, 37.4 MHz (+ frequencies derived)</td></tr>
<tr><td>Other parameters .....:</td><td colspan="6">.....</td></tr>
<tr><td>Software version .....:</td><td colspan="6">1.8.26</td></tr>
<tr><td>Hardware version .....:</td><td colspan="6">A5</td></tr>
<tr><td>Dimensions in cm (W x H x D) ....:</td><td colspan="6">17.4 x 10.5 x 3</td></tr>
<tr><td rowspan="5">Mounting position .....:</td><td>[ ]</td><td colspan="5">Table top equipment</td></tr>
<tr><td>[X]</td><td colspan="5">Wall/Ceiling mounted equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Floor standing equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Hand-held equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Other: .....</td></tr>
<tr><td rowspan="4">Modules/parts.....:</td><td colspan="3">Module/parts of test item</td><td>Type</td><td colspan="2">Manufacturer</td></tr>
<tr><td colspan="3">Wall bracket</td><td>.....</td><td colspan="2">Verisure</td></tr>
<tr><td colspan="3">Power supply</td><td>.....</td><td colspan="2">Phihong</td></tr>
<tr><td colspan="3">.....</td><td>.....</td><td colspan="2">.....</td></tr>
</table>

Accessories (not part of the test item) .....:	Description	Type	Manufacturer
	Aux. test computer	.....	Raspberry Pi
Documents as provided by the applicant .....:	Description	File name	Issue date
	.....	.....	.....

(3) Only for Medical Equipment

Identification of the client

ESML SD IBERIA HOLDING SA
Calle Priégola, 2, Pozuelo de Alarcon, 28224, Madrid, Spain

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2023-01-03
Date (finish)	2023-03-22

Document history

Report number	Date	Description
72872RRF.002	2023-05-05	First release.

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: Fernando Chito Solis, Rafael Fernandez Martín, Sergio Carrasco and Pablo Redondo Reyes.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
4578	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2023-04-30
6142	PRE-AMPLIFIER G>38dB 30MHz-6GHz	BLNA 0360-01N	BONN ELEKTRONIK	2023-06-16
6165	EMI TEST RECEIVER 9kHz-7GHz	ESR7	ROHDE AND SCHWARZ	2023-11-08
5641	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2024-09-15
6121	PRE-AMPLIFIER G>40dB 10MHz-6GHz	BLNA 0160-01N	BONN ELEKTRONIK	2023-11-30
8866	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2023-09-21
4611	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2026-01-16
5705	PRE-AMPLIFIER G>40dB 1-18 GHz	BLMA 0118-1M	BONN ELEKTRONIK	2023-07-21
4716	SIGNAL AND SPECTRUM ANALYZER 2Hz-50GHz	FSW50	ROHDE AND SCHWARZ	2024-08-12
7794	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2023-02-26
4825	SEMIANECHOIC ABSORBER LINED CHAMBER	FACT 3 200 STP	ETS LINDGREN	N/A
6064	SEMIANECHOIC ABSORBER LINED CHAMBER	SAC-3	FRANKONIA	N/A
4848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A
0922	DC POWER SUPPLY 40V/40A	NGPE 40/40	ROHDE AND SCHWARZ	N/A
5880	DC POWER SUPPLY 30V/5A	U8002A	KEYSIGHT TECHNOLOGIES	N/A
7760	DIGITAL MULTIMETER	175	FLUKE	2023-11-14
7791	SIGNAL GENERATOR 9KHZ-6GHZ	SMB100B	ROHDE AND SCHWARZ	2023-11-03
7040	EXTENSION FOR OPEN SWITCH UNIT UP TO 40GHz	OSP-B157Wx	ROHDE AND SCHWARZ	2025-04-19
8847	VECTOR SIGNAL GENERATOR 100kHz-7.5GHz	SMW200A	ROHDE AND SCHWARZ	2023-08-20

Testing verdicts

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

Summary

A. Common requirements for all Bands:

FCC PART 15 PARAGRAPH / RSS-247		
Requirement – Test case	**Verdict**	**Remark**
Transmitter. Duty Cycle	N/A	(1)
Transmitter. 99% Occupied Bandwidth	P	
Transmitter. 26 dB Emission Bandwidth (EBW)	P	
Supplementary information and remarks: (1) The equipment transmits continuously 100% for all modulations, BW and SISO/MIMO modes.		

B. U-NII-1: 5.15 GHz – 5.25 GHz Band:

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

C. U-NII-2A: 5.25 GHz – 5.35 GHz Band:

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		**Verdict**	**Remark**
FCC 15.407 (a) (2) / RSS-247 6.2.2.1 (a)	Transmitter Maximum conducted Output Power	P	
RSS-247 6.2.2.1 (b)	Transmitter Maximum Equivalent Isotropically Radiated Power EIRP	P	
FCC 15.407 (a) (2) / RSS-247 6.2.2.1 (a)	Transmitter Maximum Power Spectral Density	P	
FCC 15.407 (b) (2) / RSS-247 6.2.2.2	Transmitter Band Edge Radiated Emissions	P	
CC 15.407 (b) (2) (6) / RSS-247 6.2.2.2	Transmitter Out of Band Radiated Emissions	P	
Supplementary information and remarks: None.			

D. U-NII-2C: 5.47 GHz – 5.725 GHz Band:

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		**Verdict**	**Remark**
FCC 15.407 (a) (2) / RSS-247 6.2.3.1	Transmitter Maximum conducted Output Power	P	
RSS-247 6.2.3.1	Transmitter Maximum Equivalent Isotropically Radiated Power	P	
FCC 15.407 (a) (2) / RSS-247 6.2.3.1	Transmitter Maximum Power Spectral Density	P	
FCC 15.407 (b) (3) / RSS-247 6.2.3.2	Transmitter Band Edge Radiated Emissions	P	
FCC 15.407 (b) (3) (6) / RSS-247 6.2.3.2	Transmitter Out of Band Radiated Emissions	P	
Supplementary information and remarks: None.			

E. U-NII-3: 5.725 GHz – 5.85 GHz Band:

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

F. Client Without Radar Detection Operational Mode:

FCC PART 15			
Requirement – Test case		**Verdict**	**Remark**
FCC 15.407 (h)(2), KDB 905462 D02 5.2 / RSS-247 6.3.1	DFS Detection Threshold	N/A	
FCC 15.407 (h)(2), KDB 905462 D02 8.2 / RSS-247 6.3	Radar Waveform calibration	N/A	
FCC 15.407 (h)(2), KDB 905462 D02 7.7 / RSS-247 6.3	Channel Loading	N/A	
FCC 15.407 (h)(2), KDB 905462 D02 7.8.2 / RSS-247 6.3.2	Performance Requirements Check	N/A	
FCC 15.407 (h)(2), KDB 905462 D02 7.8.3 / RSS-247 6.3.2	In-Service Monitoring	P	
FCC 15.407 (h)(2), KDB 905462 D02 7.8.4 / RSS-247 6.3.2	Statistical Performance Check	N/A	
Supplementary information and remarks: None.			

Appendix A: Test results of Common requirements for all Bands

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TEST CONDITIONS

(*) Declared by the Client.

POWER SUPPLY (*):

Vnominal:	115 Vac
Type of Power Supply:	AC/DC power

ANTENNA (*):

Type of Antennas:	Monopoles (printed on PCB). 2 antennas.
Maximum Declared Antenna Gain Chain 0:	+3.1 dBi
Maximum Declared Antenna Gain Chain 1:	+5.0 dBi

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

U-NII-1, U-NII-2A, U-NII-2C & U-NII-3:

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

$N_{SS} = 1$, $N_{ANT} = 2$, $G_{ANT0} = +3.1$ dBi, $G_{ANT1} = +5.0$ dBi

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

$$= 10\log\left[\frac{(g_{1,1}+g_{1,2})^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{G_1}{20}}+10^{\frac{G_2}{20}}\right)^2}{2}\right] = 10\log\left[\frac{\left(10^{\frac{3.1}{20}}+10^{\frac{5.0}{20}}\right)^2}{2}\right] = 7.12 \text{ dBi}$$

TEST FREQUENCIES (*):

Technology Tested:	WLAN (IEEE 802.11 a20 / n2040 / ac204080 1x1 & 2x2)
Modes:	802.11a: 6, 9, 12, 18, 24, 36, 48 & 54 Mbps (SISO)
	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).
Setting of cores / ports:	Chain 0, Chain 1, Chain 0 & 1
Beamforming:	No.

Band U-NII-1:

Operating Channel Bandwidth:	20 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Low (36)	5180
	Middle (40)	5200
	Middle (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:

Operating Channel Bandwidth:	20 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Low (52)	5260
	Middle (56)	5280
	Middle (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:

Operating Channel Bandwidth:	20 MHz	
Transmission Channels:	Channels	Channel Frequency (MHz)
	Low (100)	5500
	Middle (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)
	Single (106)	5530
Straddle Channel U-NII-2C / U-NII-3	Straddle (138)	

(*): Channel not allowed in Canada.

Band U-NII-3:

Operating Channel Bandwidth:	20 MHz	
Transmission Channels:	Channel	Channel Frequency (MHz)
	Low (149)	5745
	Middle (157)	5785
	High (165)	5825
Operating Channel Bandwidth:	40 MHz	
Transmission Channels:	Channel	Channel Frequency (MHz)
	Low (151)	5755
	High (159)	5795
Operating Channel Bandwidth:	80 MHz	
Transmission Channels:	Single (155)	5775

The 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 on 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. They correspond to the next data rates:

- 802.11a: 6 Mbps SISO 1Tx on Chain 0 and 1Tx on Chain 1.
- 802.11n HT20: MCS0 SISO 1Tx on Chain 0 and 1Tx on Chain 1 / MIMO 2Tx on Chain 0 & 1.
- 802.11n HT40: MCS0 SISO 1Tx on Chain 0 and 1Tx on Chain 1 / MIMO 2Tx on Chain 0 & 1.
- 802.11ac VHT20: MCS0 SISO 1Tx on Chain 0 and 1Tx on Chain 1 / MIMO 2Tx on Chain 0 & 1.
- 802.11ac VHT40: MCS0 SISO 1Tx on Chain 0 and 1Tx on Chain 1 / MIMO 2Tx on Chain 0 & 1.
- 802.11ac VHT80: MCS0 SISO 1Tx on Chain 0 and 1Tx on Chain 1 / MIMO 2Tx on Chain 0 & 1.

CONDUCTED MEASUREMENTS:

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

For all modes:

Transmitter. 99% Occupied Bandwidth

SPECIFICATION:

The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained.

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

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

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

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

RESULTS:

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

Preliminary tests determined the SISO worst case: Chain 1.
Preliminary tests determined the MIMO worst case: Chain 0+1.

SISO worst-case

SISO 802.11 a20:

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	16.60	16.80	16.80

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

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	16.90	16.80	16.70

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

Channels	Low Channel 100 (5500 MHz)	Middle Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)	Straddle Channel 144 (5720 MHz)
99% Occupied Bandwidth (MHz)	16.60	16.80	16.80	16.80

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

Channels	Low Channel 149 (5745 MHz)	Middle Channel 157 (5785 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	16.90	16.90	16.80

SISO 802.11 n20 (HT20):

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	17.90	18.00	18.00

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

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	18.10	18.00	17.80

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

Channels	Low Channel 100 (5500 MHz)	Middle Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)	Straddle Channel 144 (5720 MHz)
99% Occupied Bandwidth (MHz)	17.90	18.00	18.00	18.00

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

Channels	Low Channel 149 (5745 MHz)	Middle Channel 157 (5785 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	18.00	18.00	18.00

SISO 802.11 ac20 (VHT20):

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

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	High Channel 48 (5240 MHz)
99% Occupied Bandwidth (MHz)	17.80	17.80	17.80

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

Channels	Low Channel 52 (5260 MHz)	Middle Channel 56 (5280 MHz)	High Channel 64 (5320 MHz)
99% Occupied Bandwidth (MHz)	17.90	17.80	17.80

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

Channels	Low Channel 100 (5500 MHz)	Middle Channel 116 (5580 MHz)	High Channel 140 (5700 MHz)	Straddle Channel 144 (5720 MHz)
99% Occupied Bandwidth (MHz)	17.90	17.80	17.80	17.80

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

Channels	Low Channel 149 (5745 MHz)	Middle Channel 157 (5785 MHz)	High Channel 165 (5825 MHz)
99% Occupied Bandwidth (MHz)	17.80	17.80	17.80

SISO 802.11 n40 (HT40):

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

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	36.50	36.50

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

Channels	Low Channel 54 (5270 MHz)	High Channel 62 (5310 MHz)
99% Occupied Bandwidth (MHz)	36.75	36.50

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

Channels	Low Channel 102 (5510 MHz)	Low Channel (+1) 110 (5550 MHz)	High Channel 134 (5670 MHz)	Straddle Channel 142 (5710 MHz)
99% Occupied Bandwidth (MHz)	36.25	36.75	36.50	36.75

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

Channels	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
99% Occupied Bandwidth (MHz)	36.75	36.75

SISO 802.11 ac40 (VHT40):

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

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
99% Occupied Bandwidth (MHz)	36.50	36.50

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

Channels	Low Channel 54 (5270 MHz)	High Channel 62 (5310 MHz)
99% Occupied Bandwidth (MHz)	36.50	36.50

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

Channels	Low Channel 102 (5510 MHz)	Low Channel (+1) 110 (5550 MHz)	High Channel 134 (5670 MHz)	Straddle Channel 142 (5710 MHz)
99% Occupied Bandwidth (MHz)	36.75	36.50	36.50	36.75

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

Channels	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
99% Occupied Bandwidth (MHz)	36.75	36.50

SISO 802.11 ac80 (VHT80):

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

Channels	Single Channel 42 (5210 MHz)
99% Occupied Bandwidth (MHz)	76.50

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

Channels	Single Channel 58 (5290 MHz)
99% Occupied Bandwidth (MHz)	76.50

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

Channels	Single Channel 106 (5530 MHz)	Straddle Channel 138 (5690 MHz)
99% Occupied Bandwidth (MHz)	76.00	76.50

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

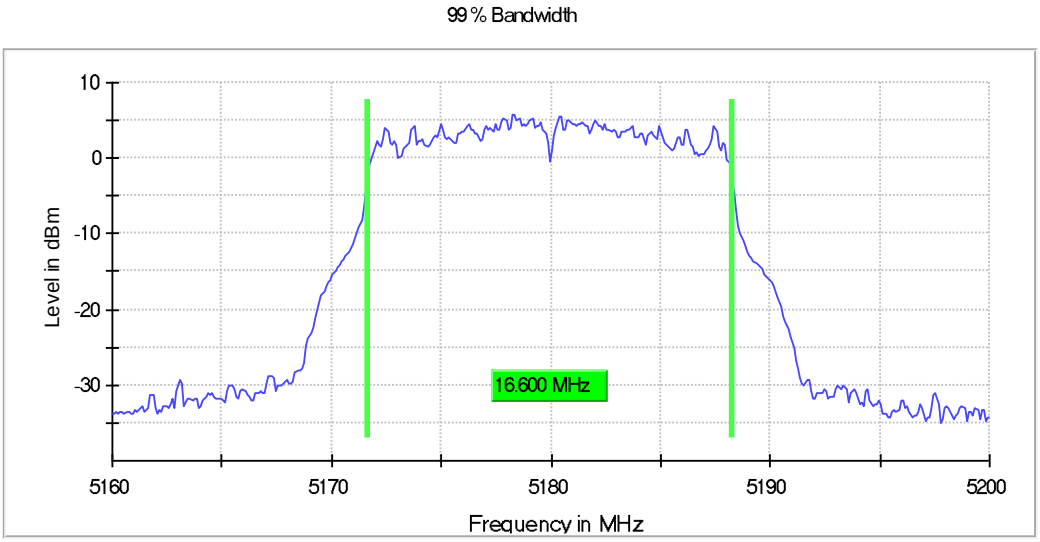
Channels	Single Channel 155 (5775 MHz)
99% Occupied Bandwidth (MHz)	76.50

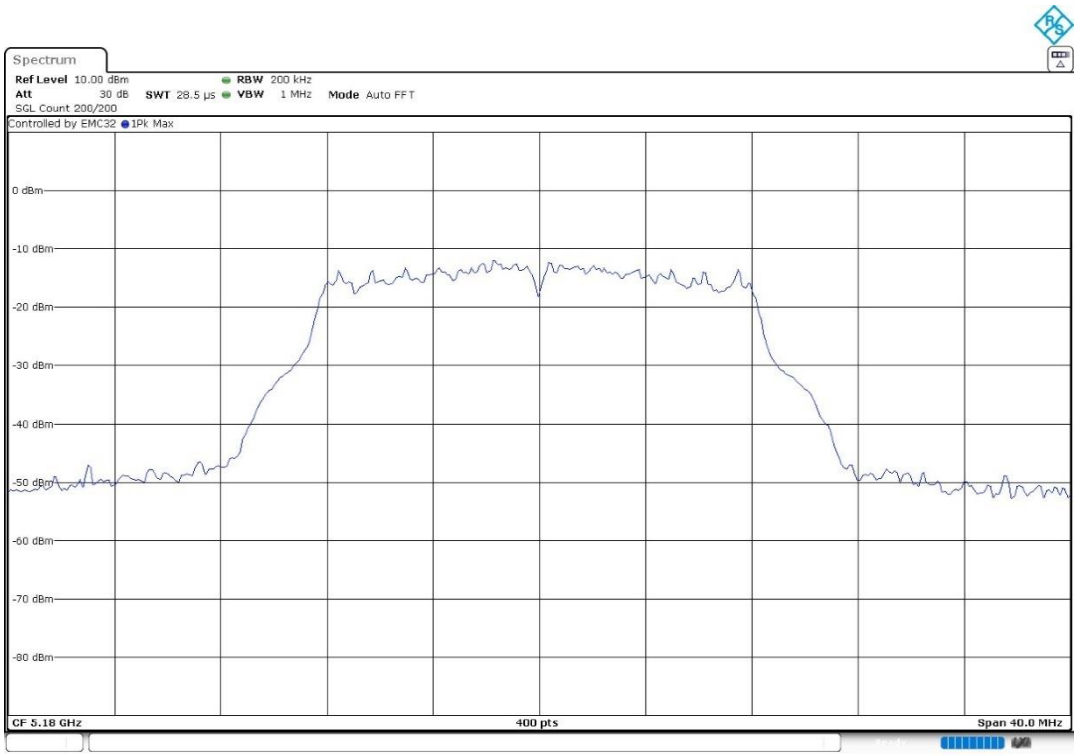
SISO worst case

SISO 802.11 a20:

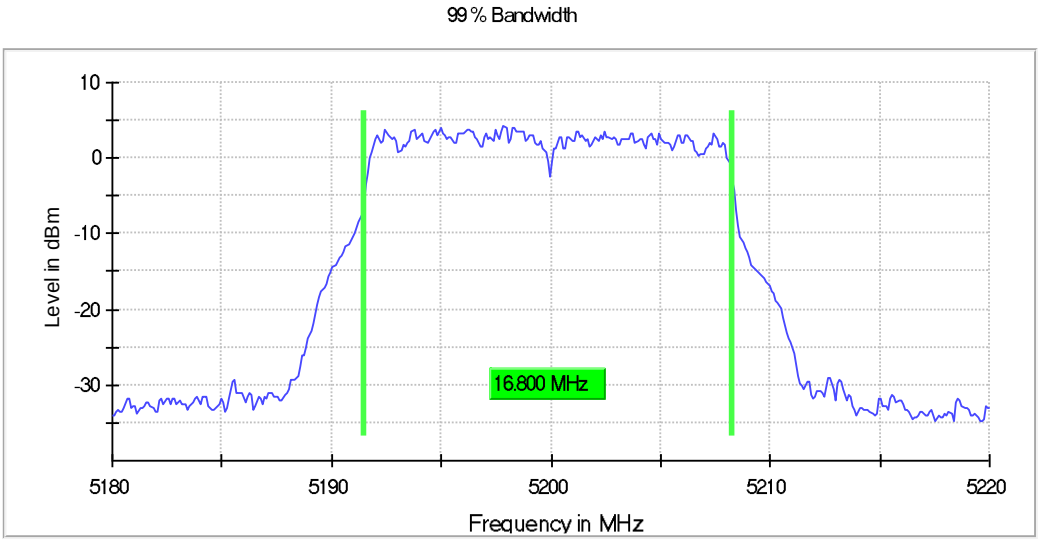
U-NII-1 (5150-5250 MHz)

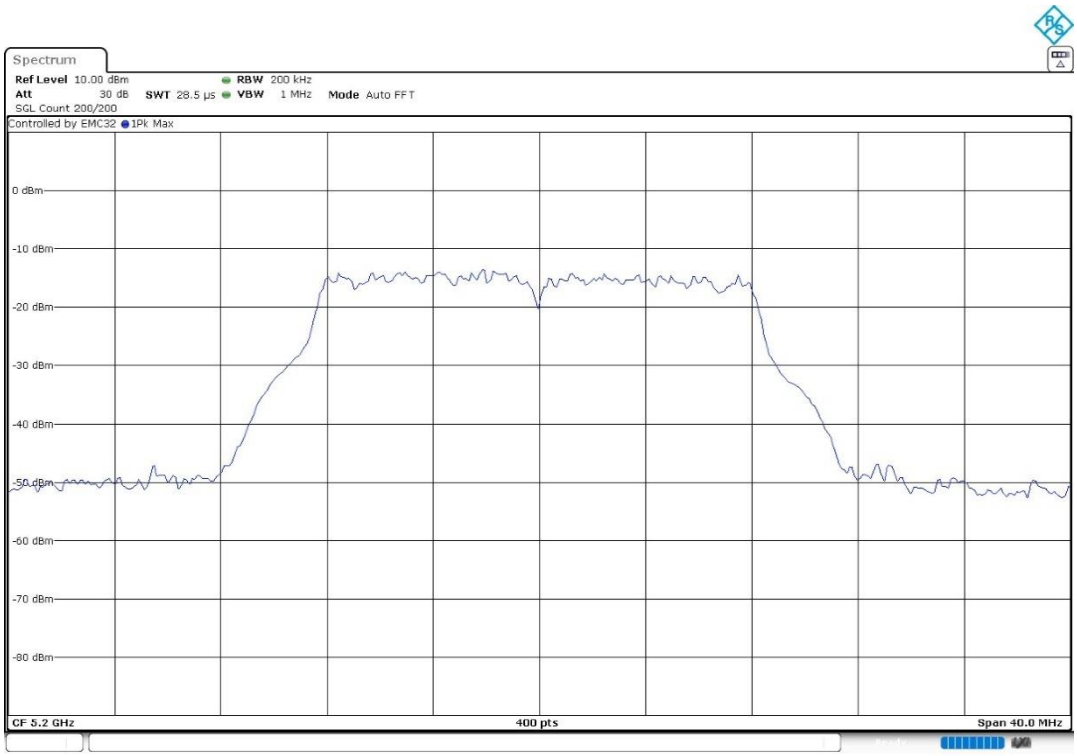
- Low Channel 36 (5180 MHz):



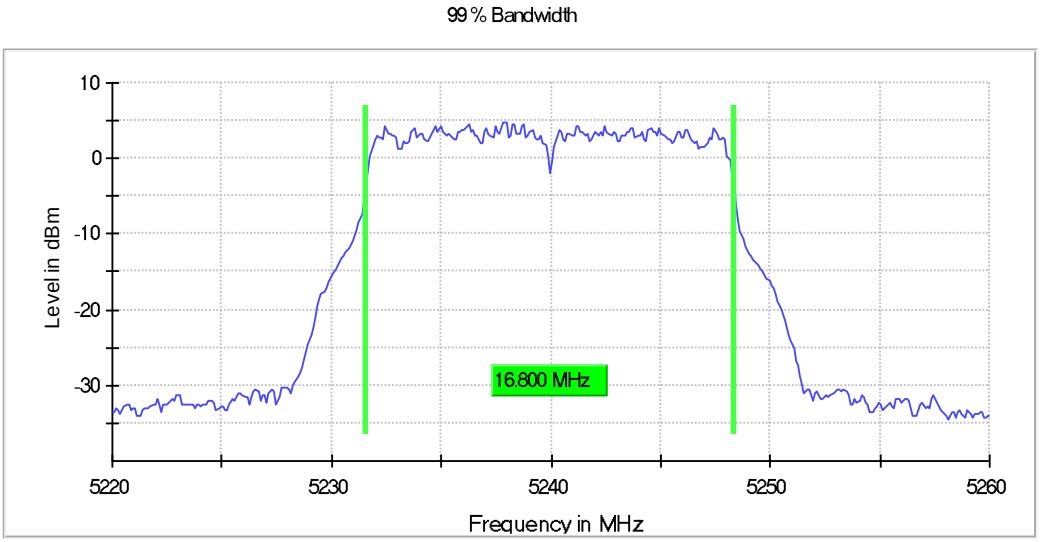


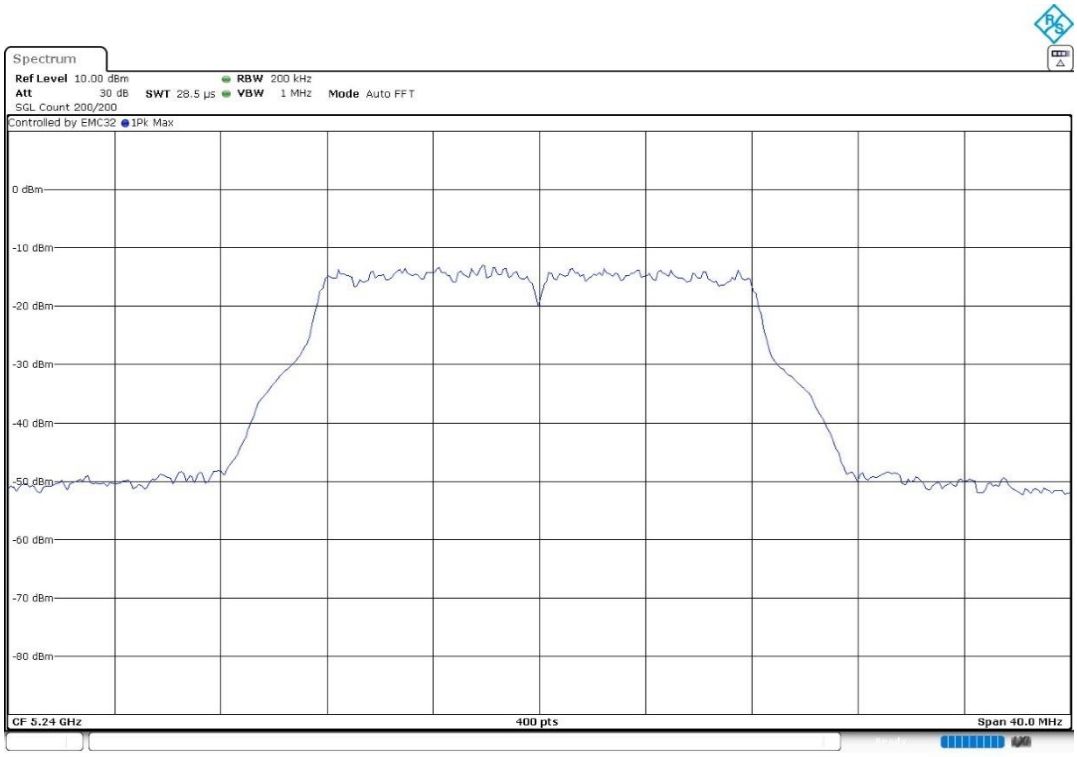
- Middle Channel 40 (5200 MHz):





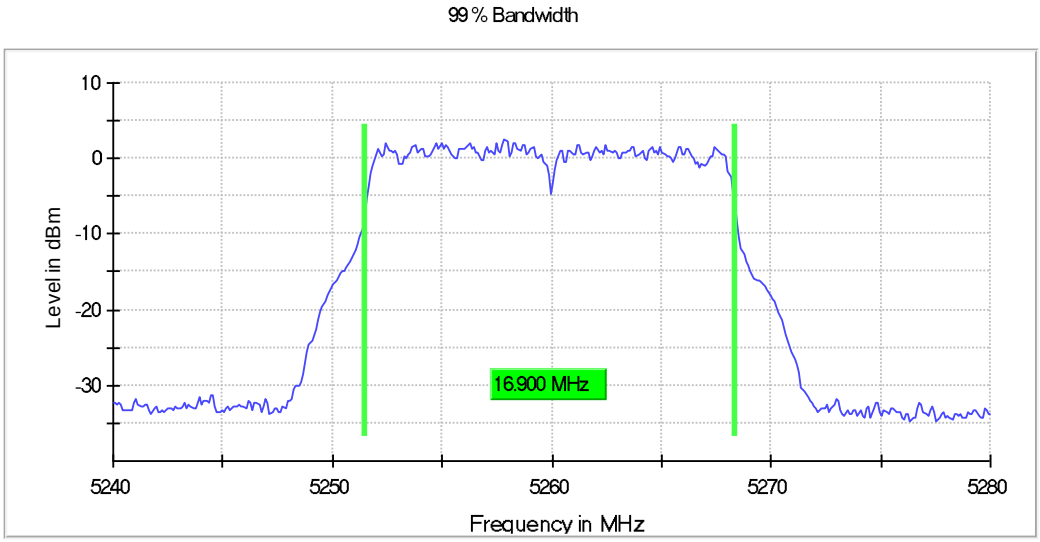
- High Channel 48 (5240 MHz):

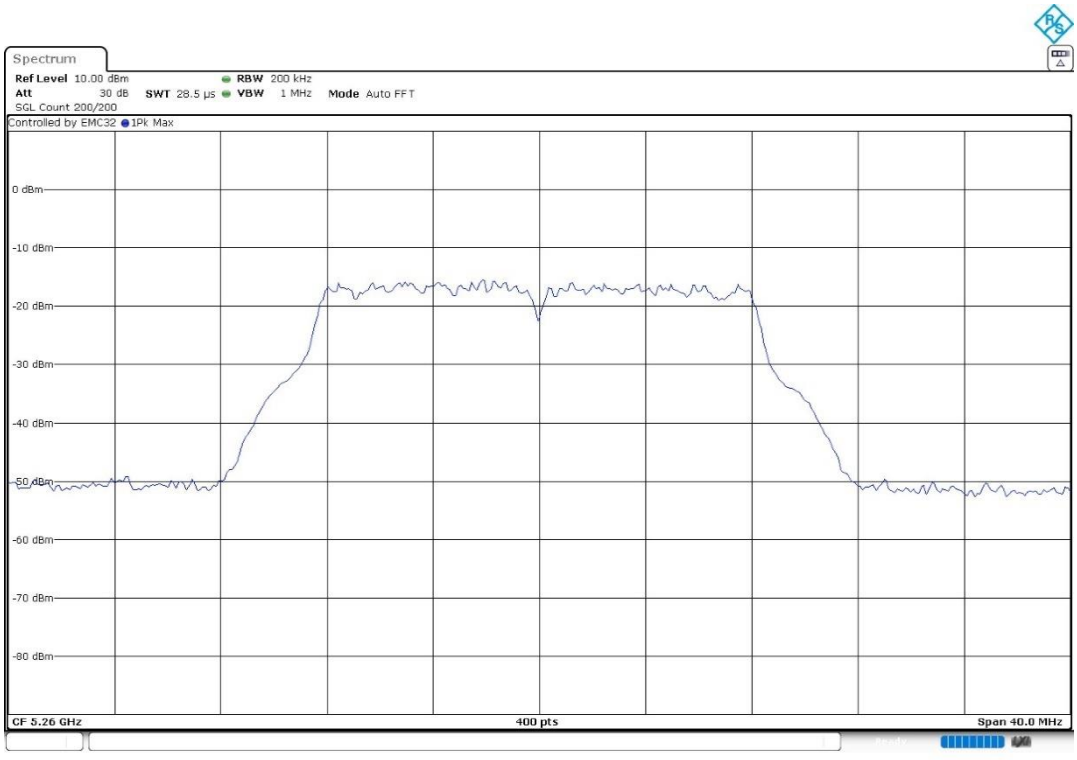




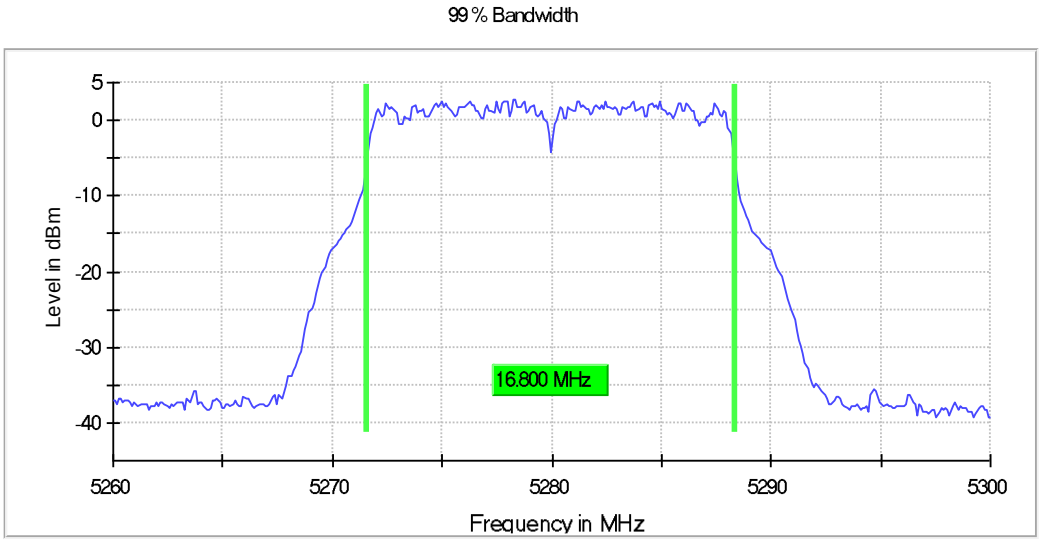
U-NII-2A (5250-5350 MHz)

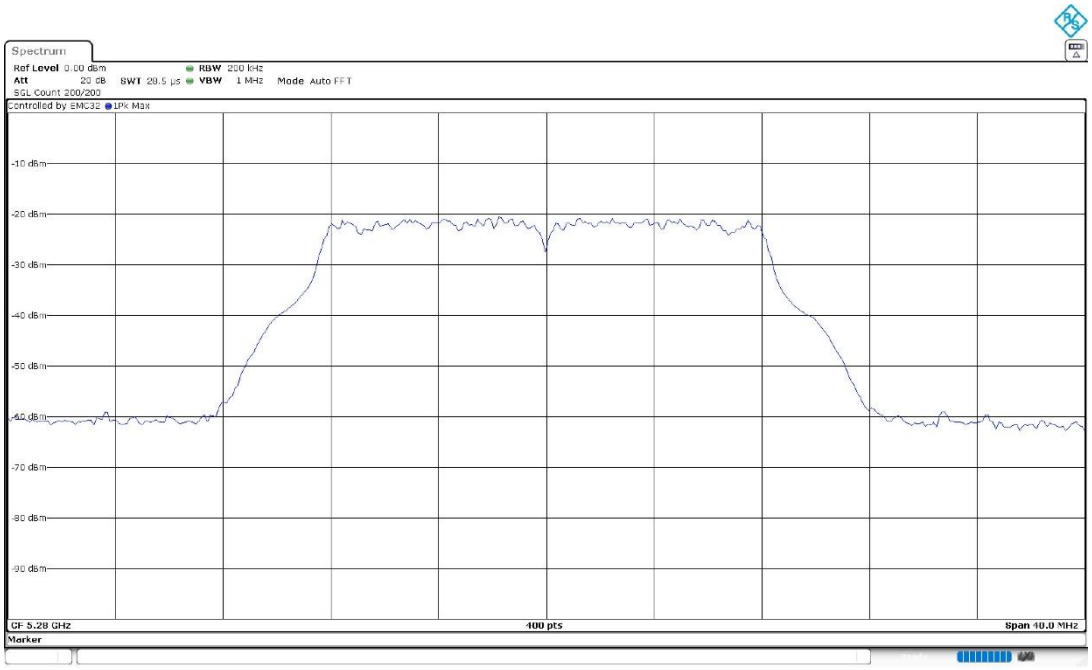
- Low Channel 52 (5260 MHz):



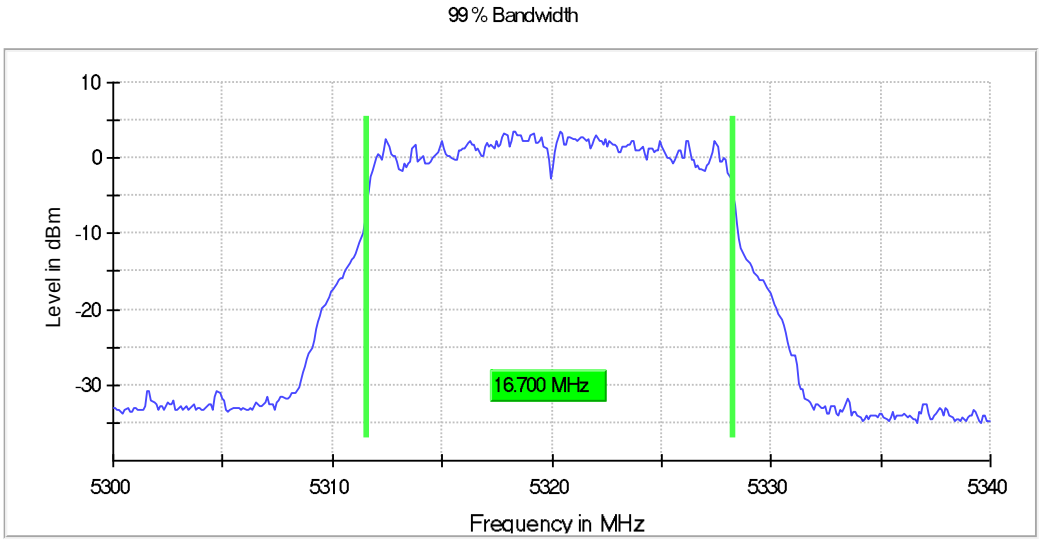


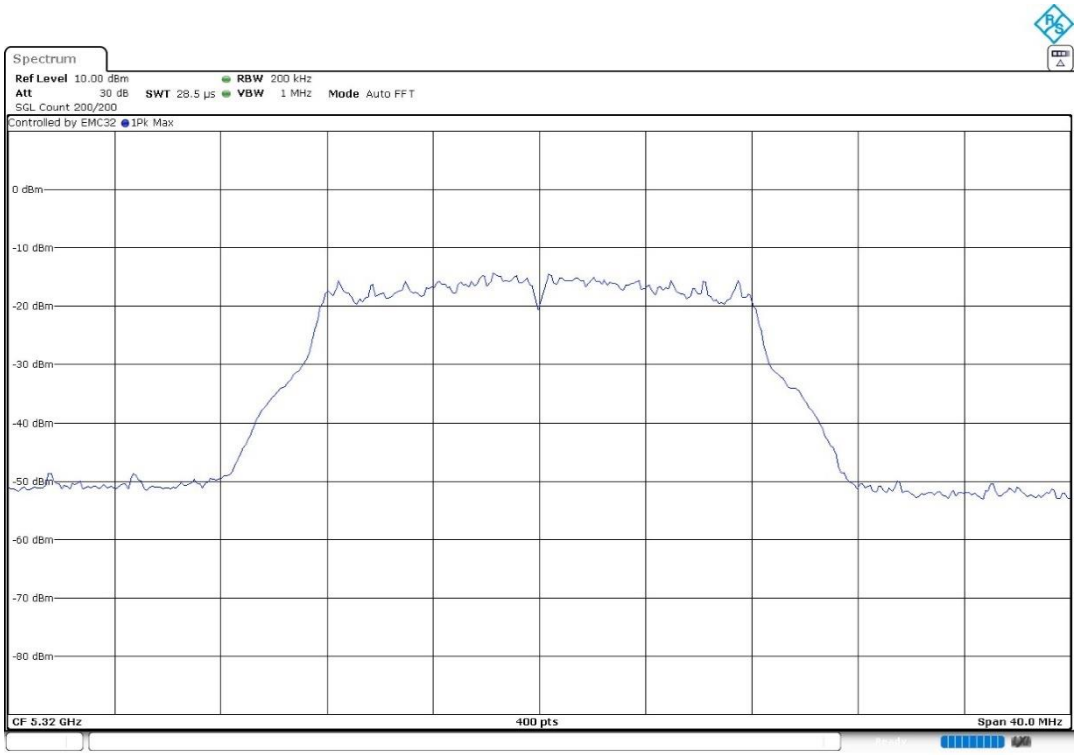
- Middle Channel 56 (5280 MHz):





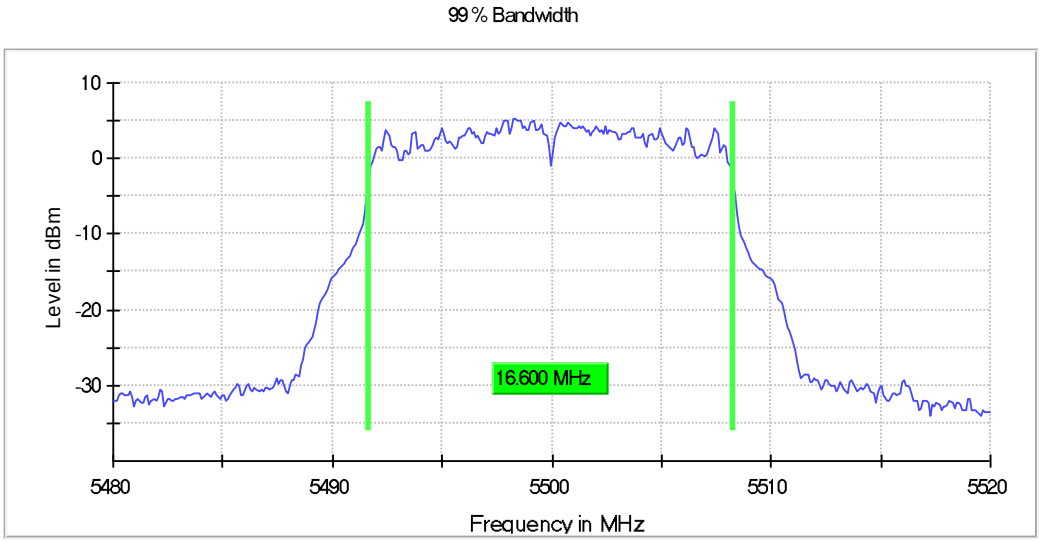
- High Channel 64 (5320 MHz):

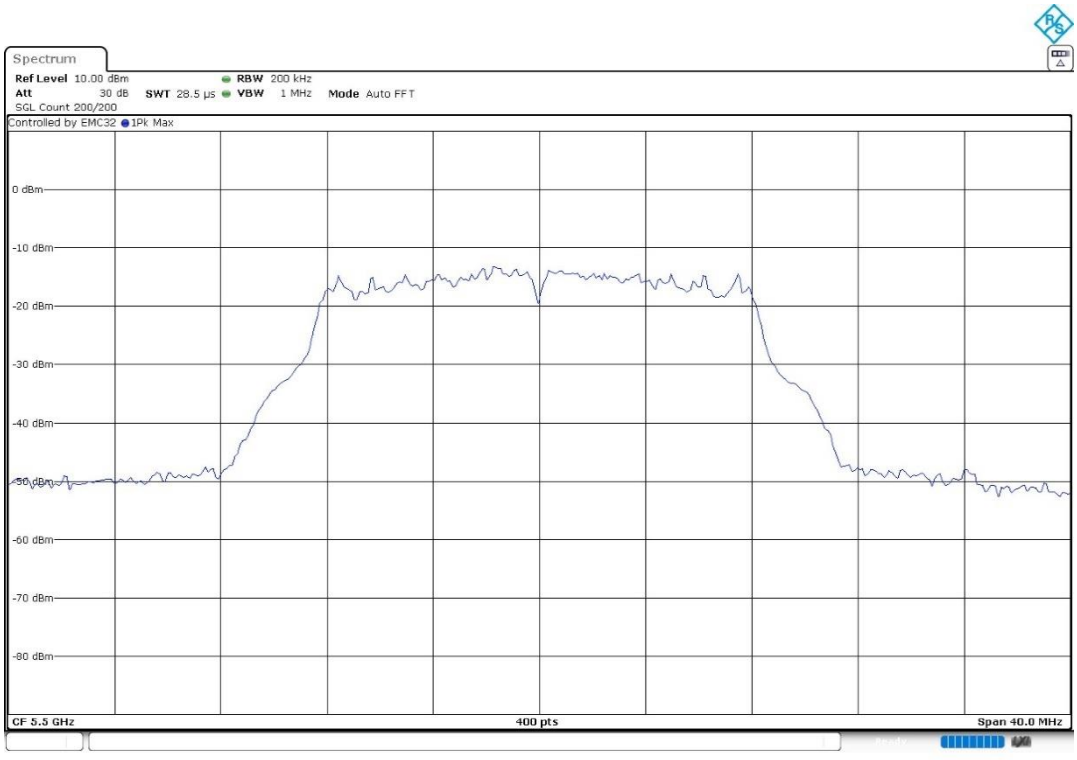




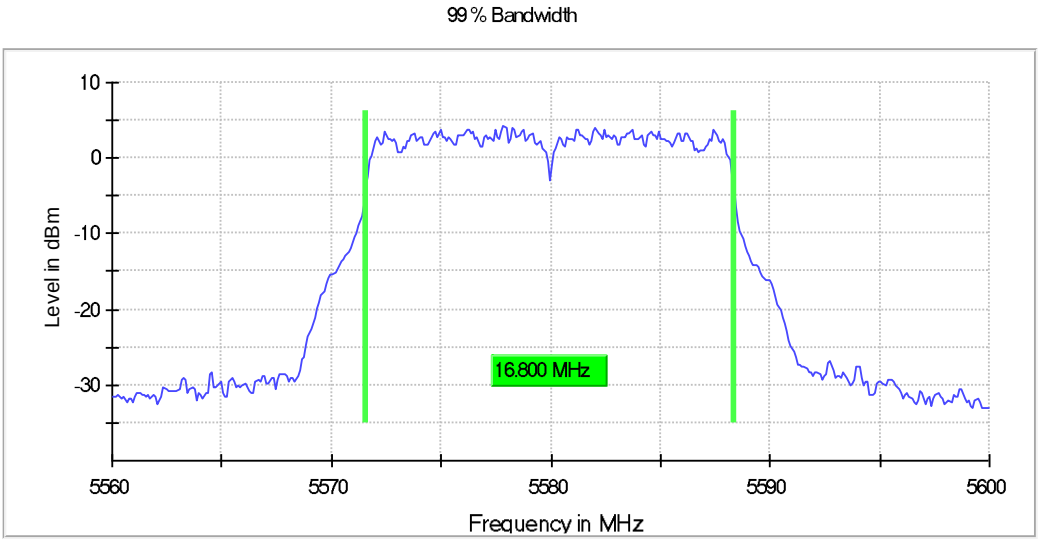
U-NII-2C (5470-5725 MHz)

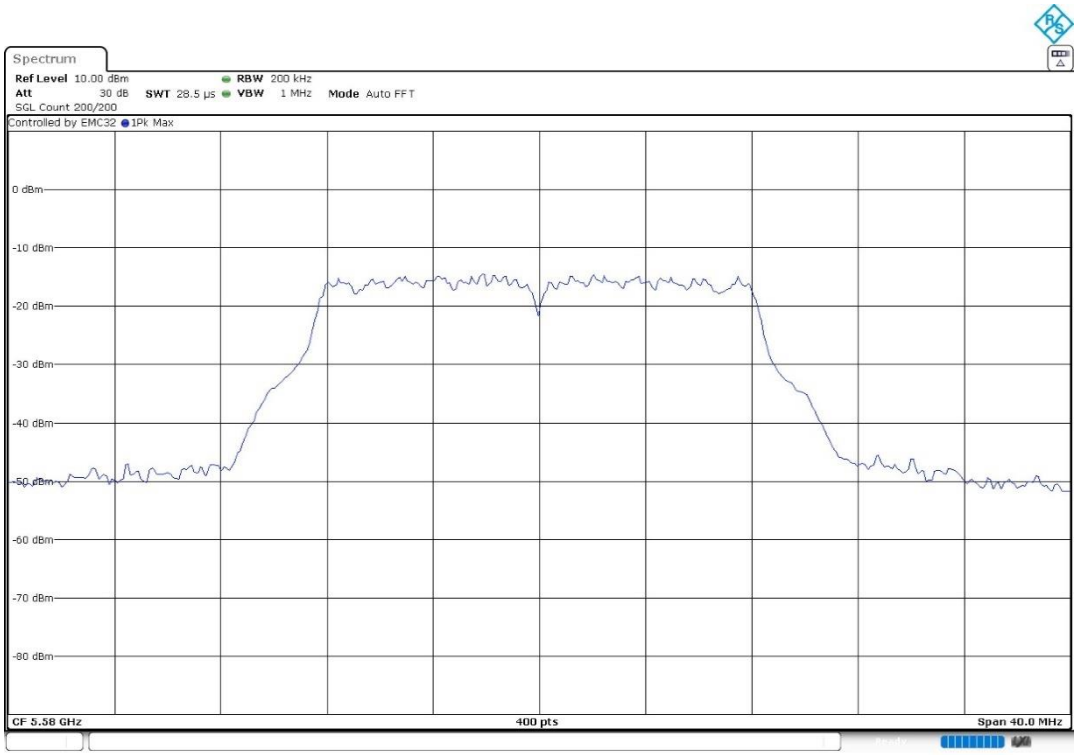
- Low Channel 100 (5500 MHz):



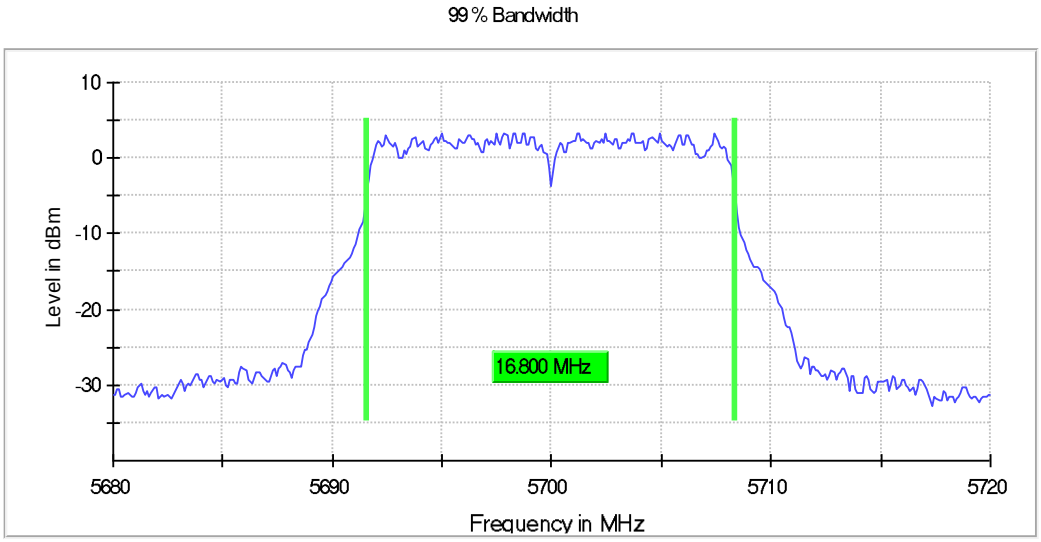


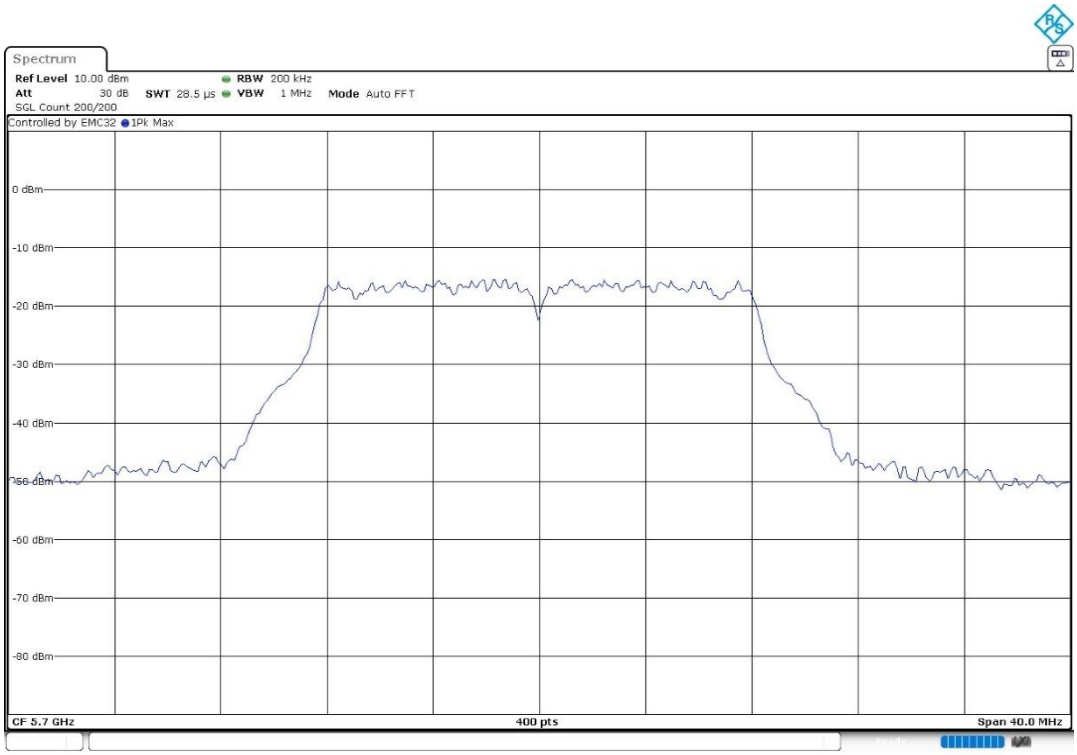
- Middle Channel 116 (5580 MHz):



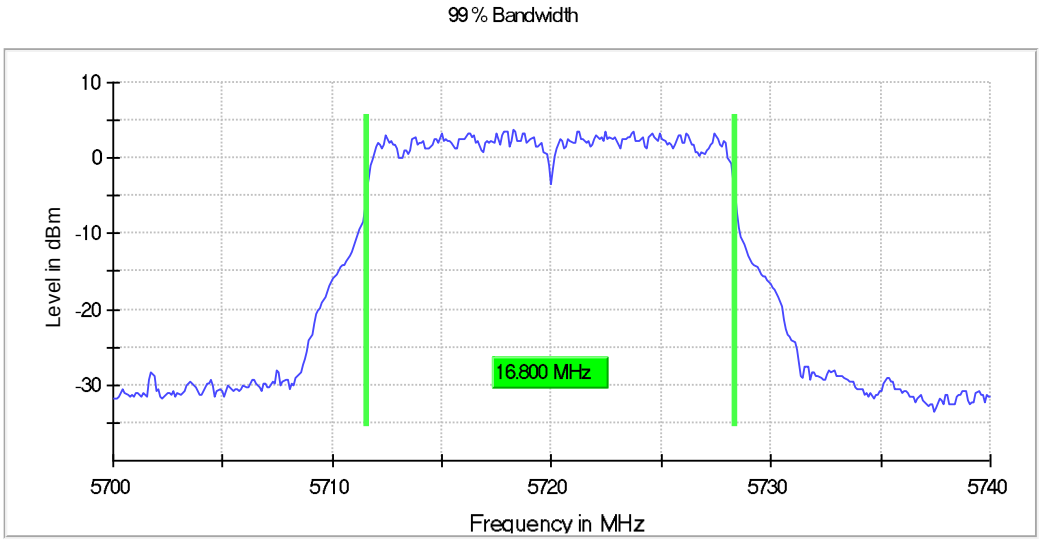


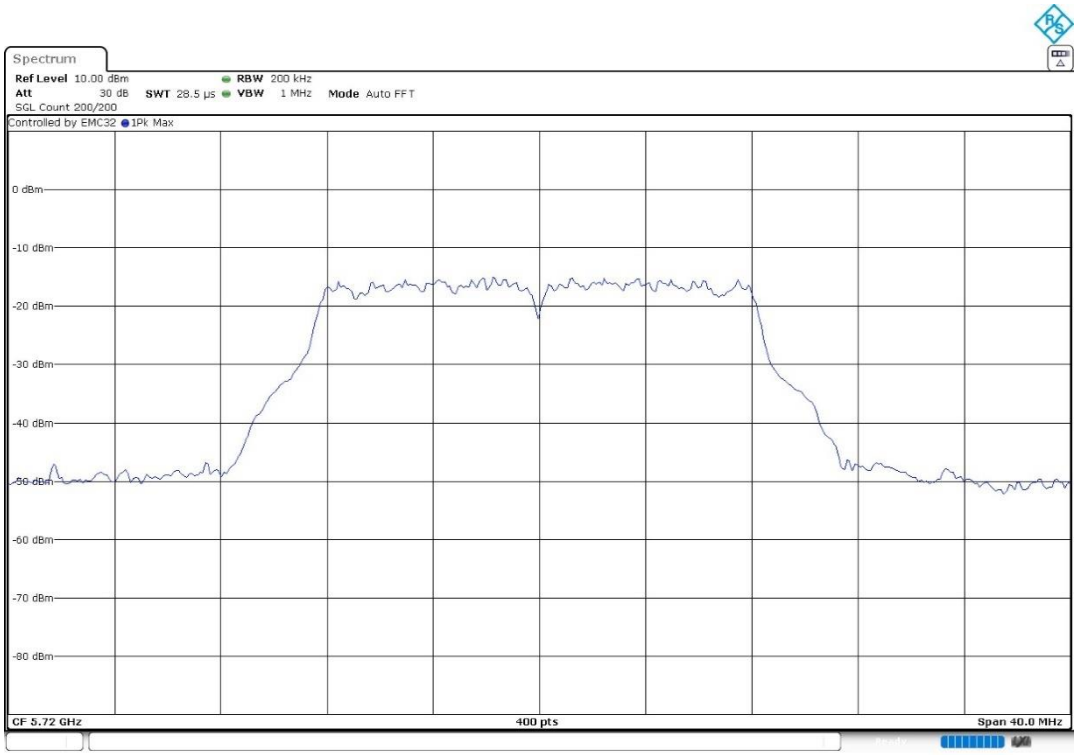
- High Channel 140 (5700 MHz):





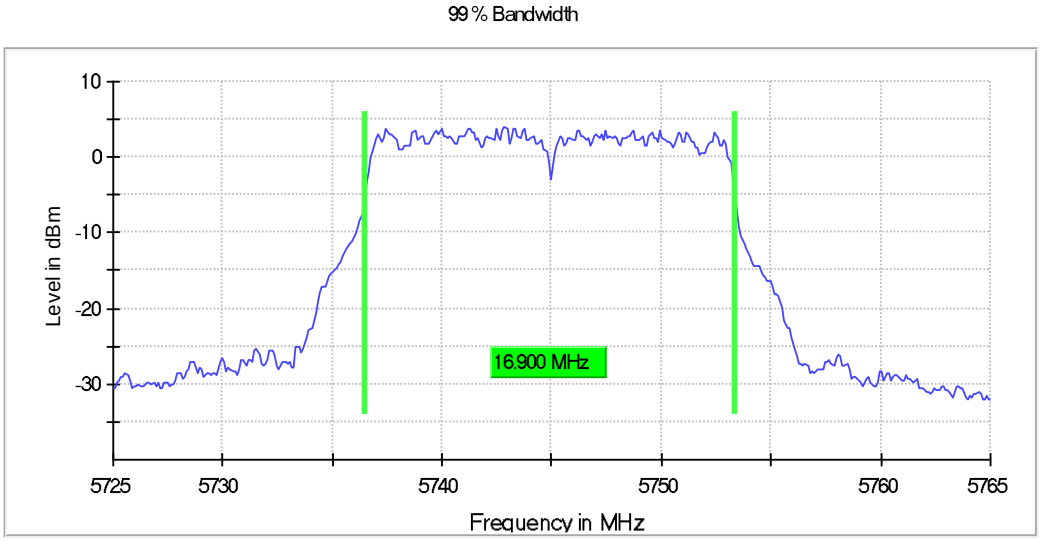
- Straddle Channel 142 (5720 MHz):

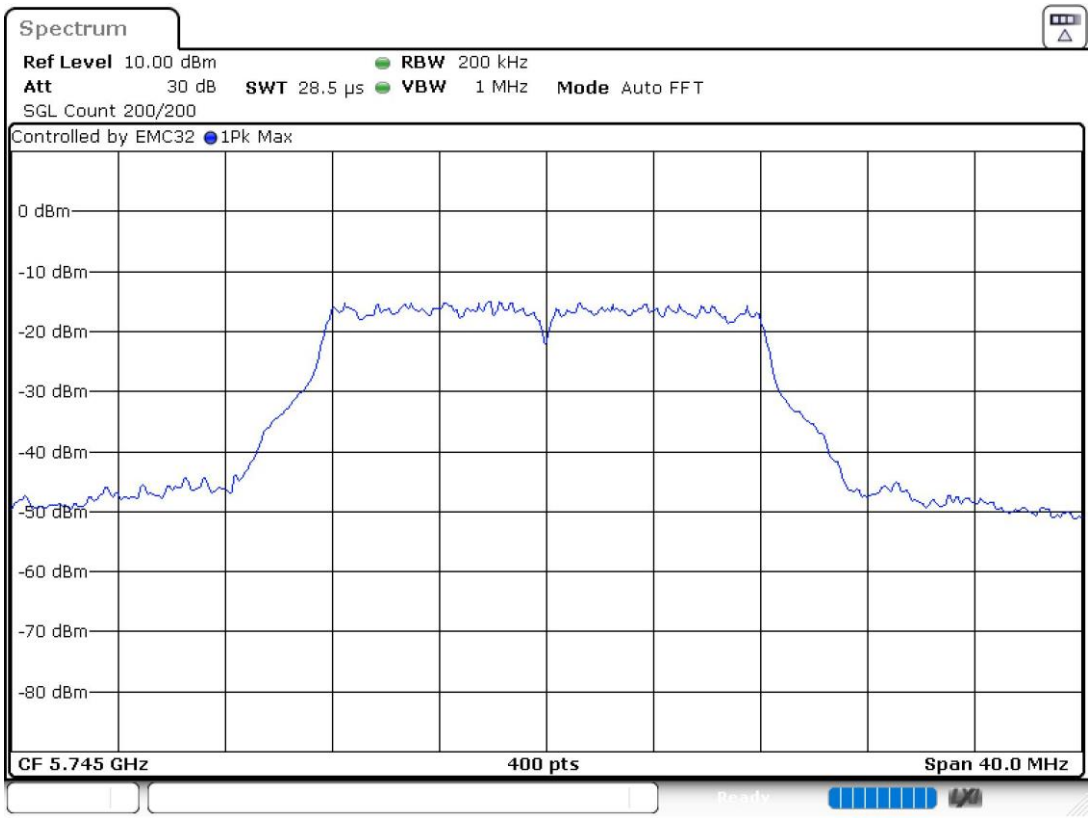




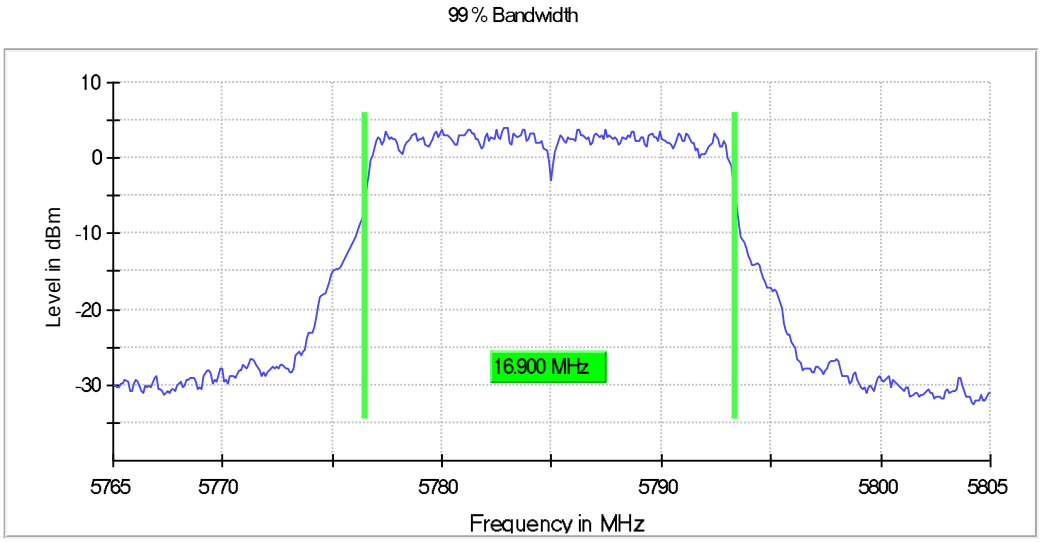
U-NII-3 (5725-5850 MHz)

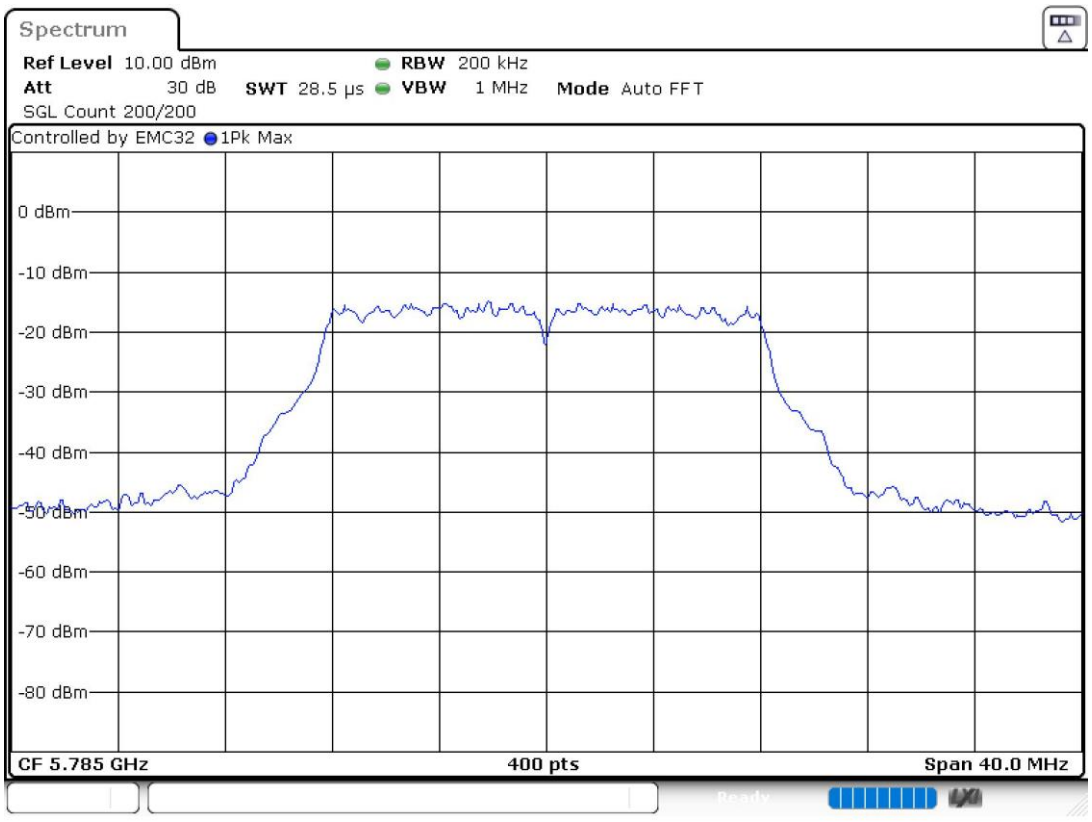
- Low Channel 149 (5745 MHz):



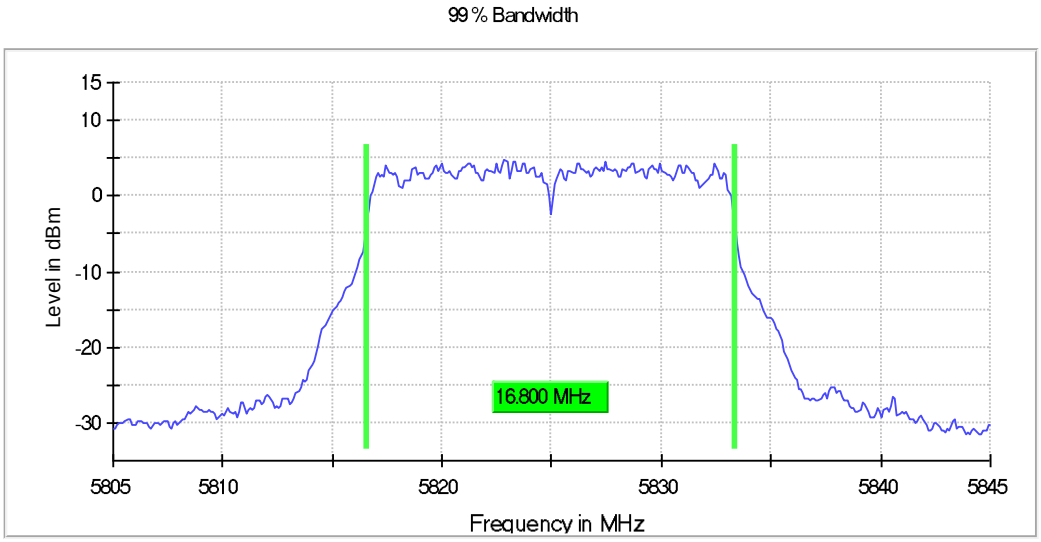


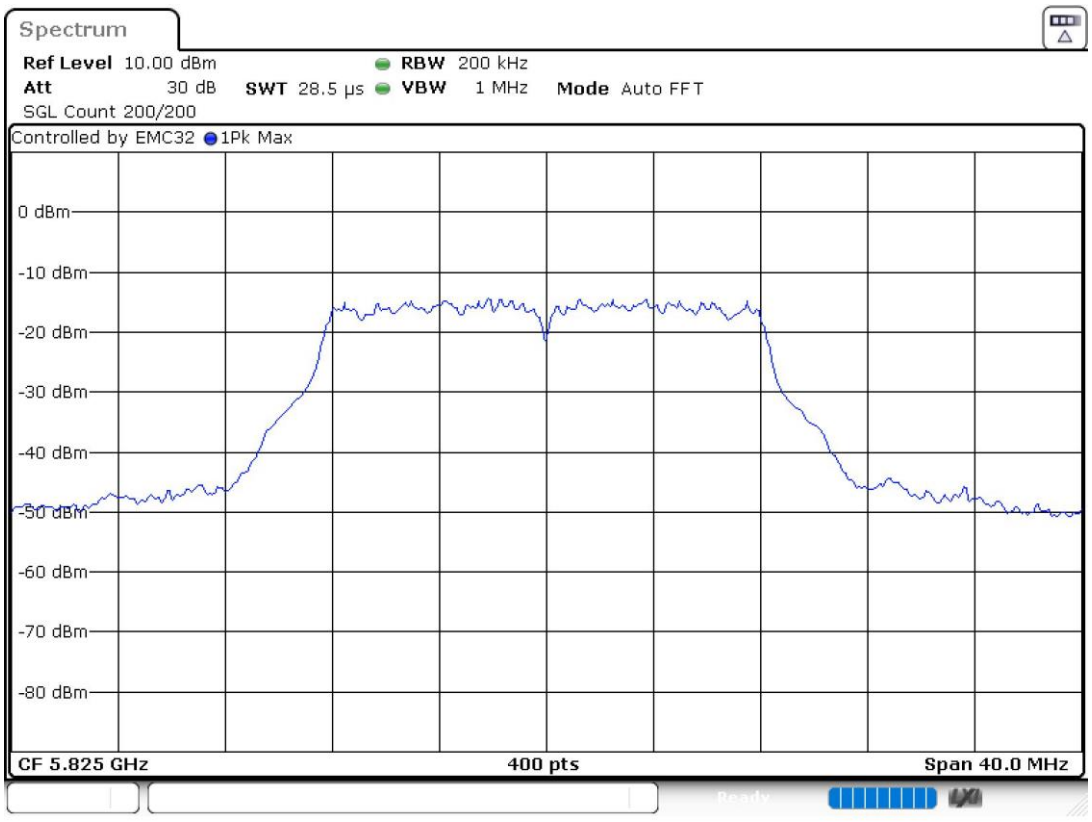
- Middle Channel 157 (5785 MHz):





- High Channel 165 (5825 MHz):

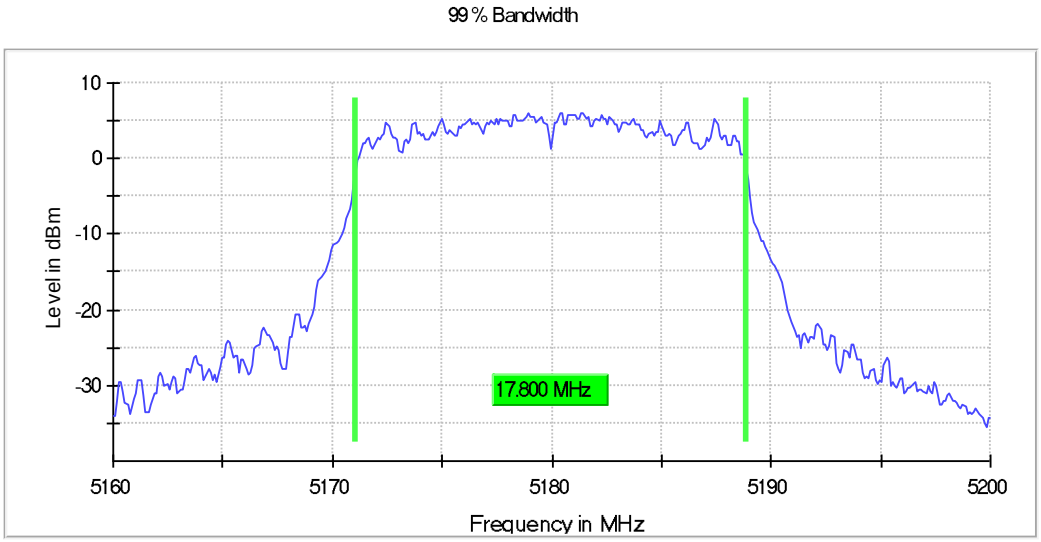


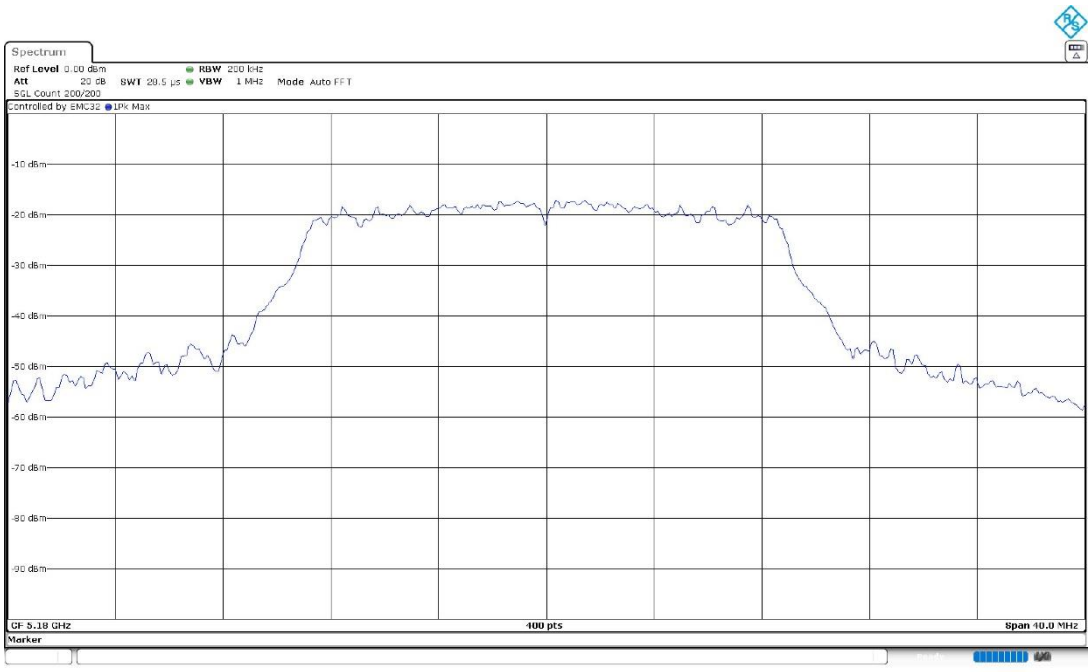


SISO 802.11 n20 (HT20):

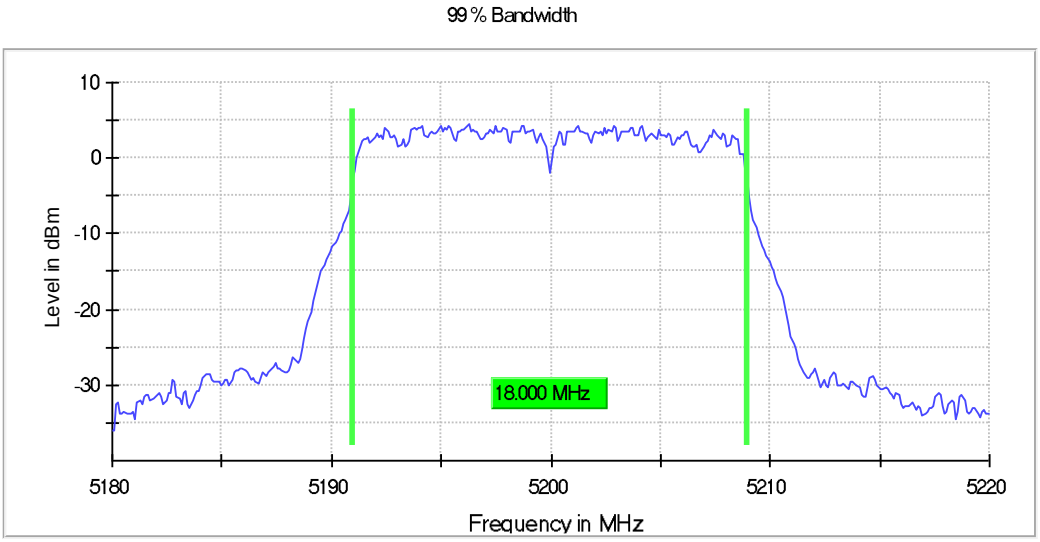
U-NII-1 (5150-5250 MHz)

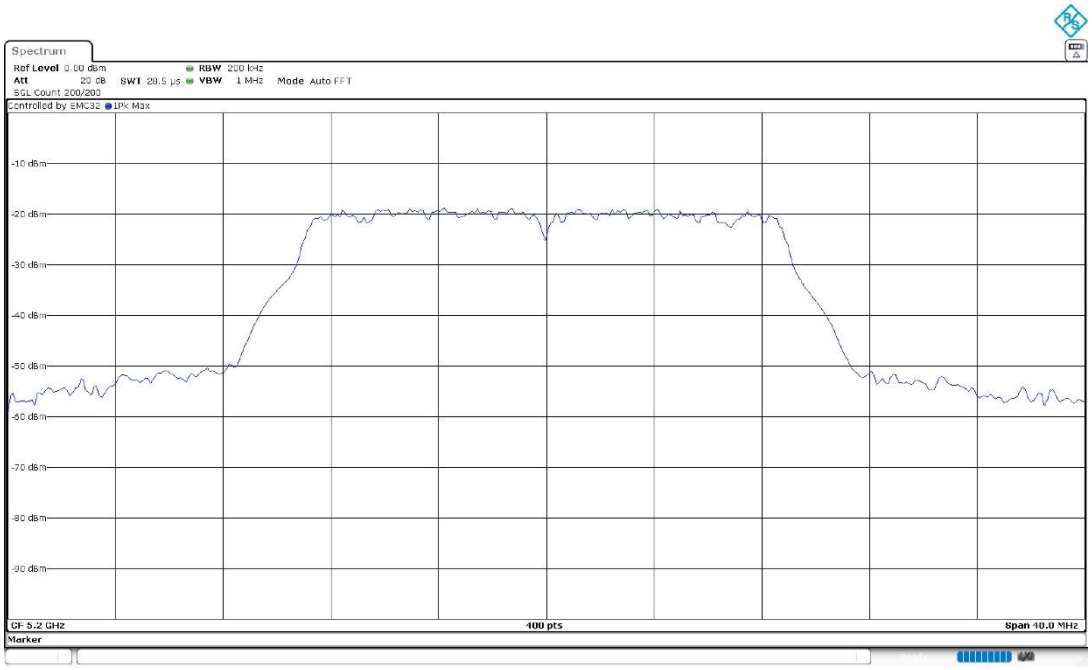
- Low Channel 36 (5180 MHz):



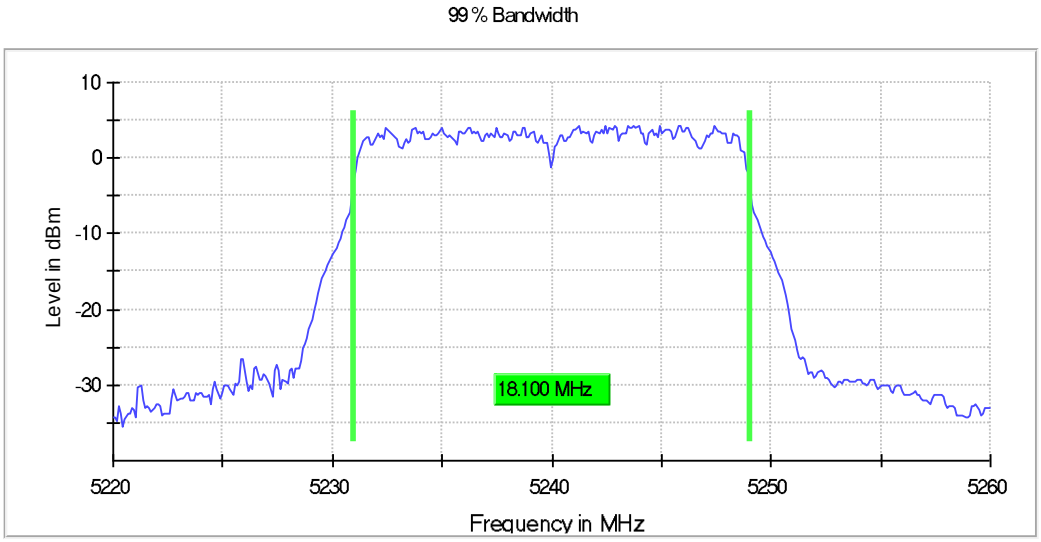


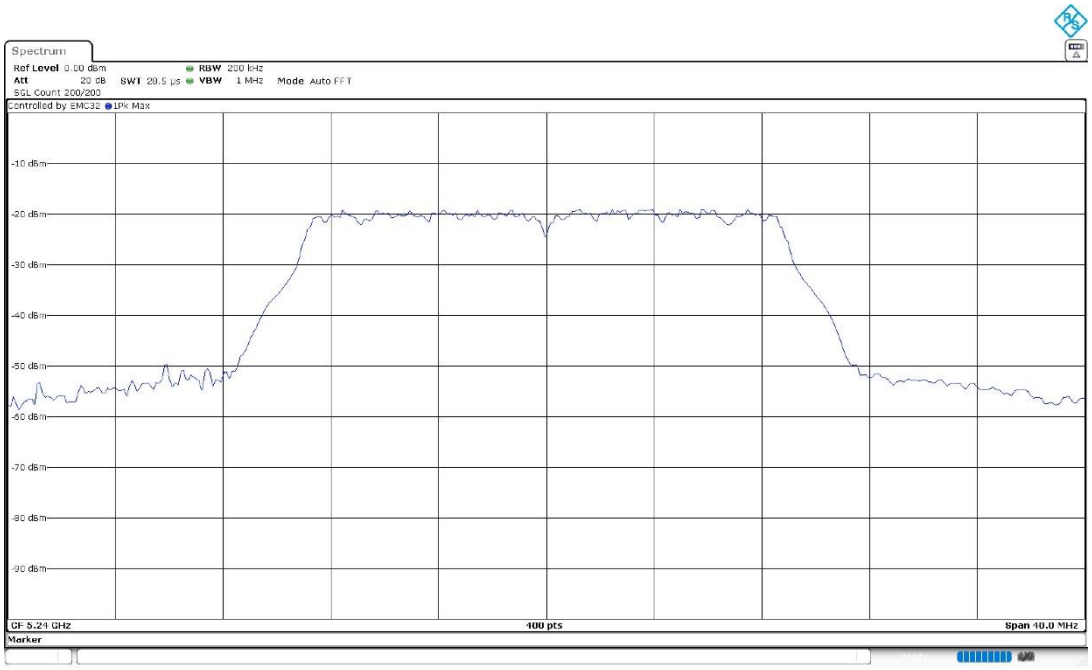
- Middle Channel 40 (5200 MHz):





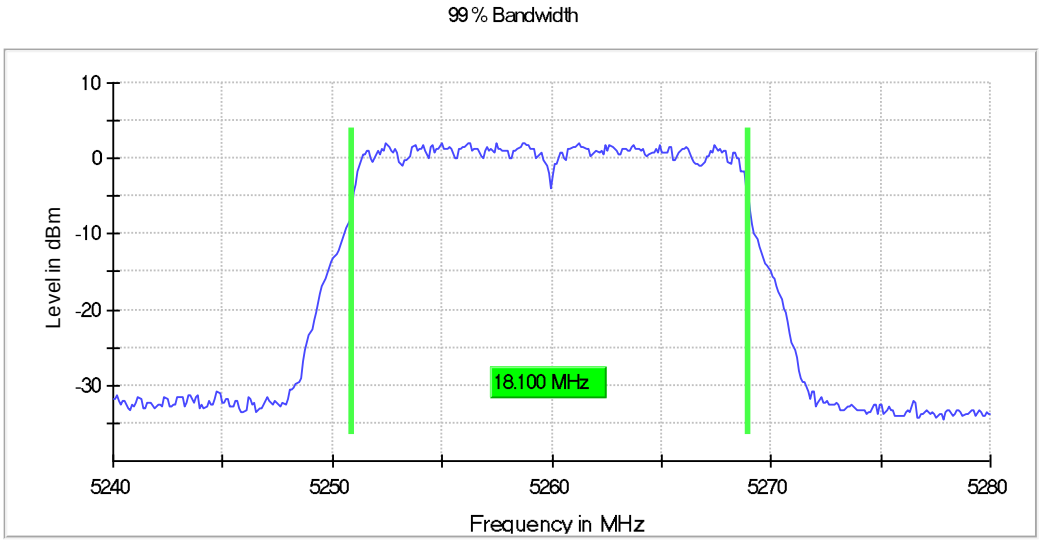
- High Channel 48 (5240 MHz):

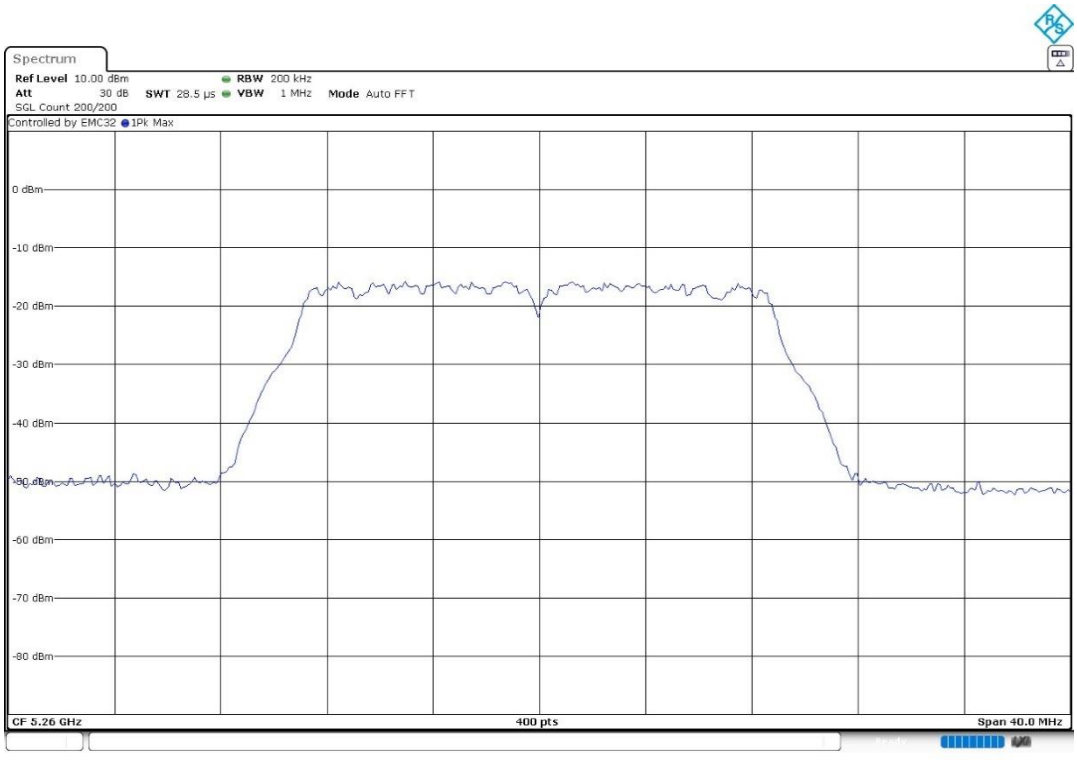




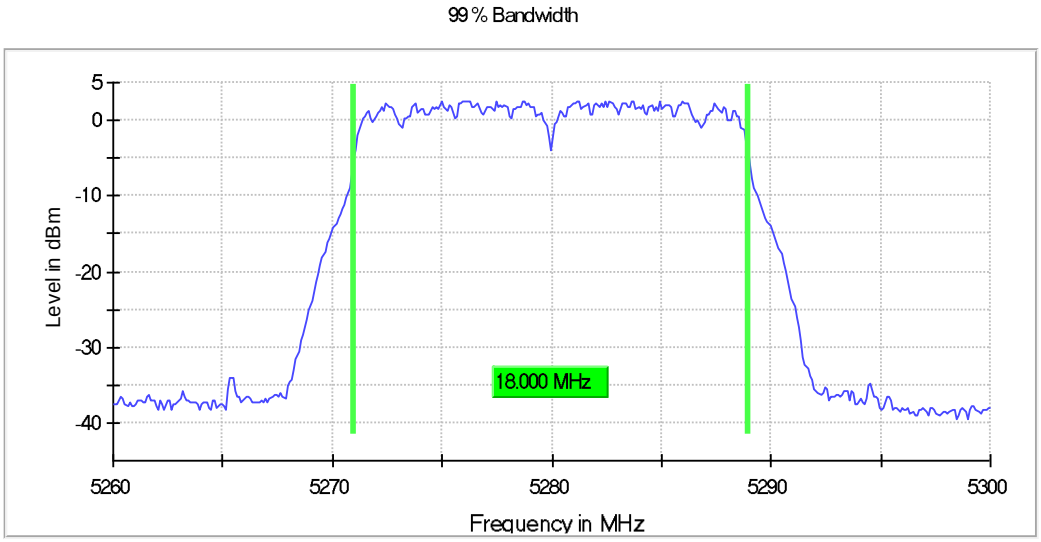
U-NII-2A (5250-5350 MHz)

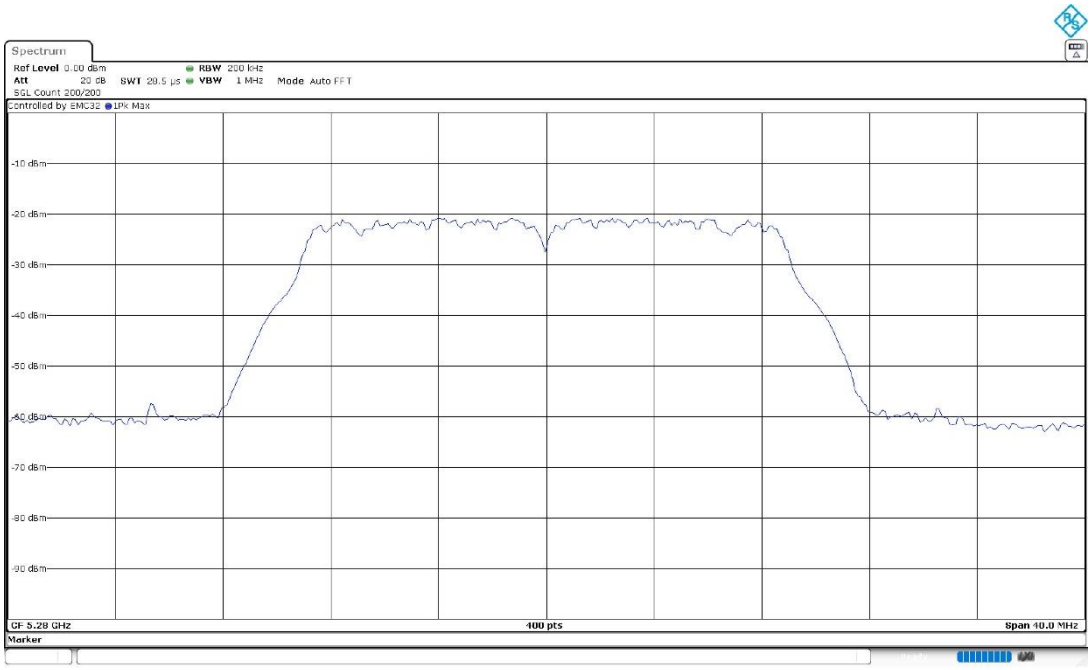
- Low Channel 52 (5260 MHz):



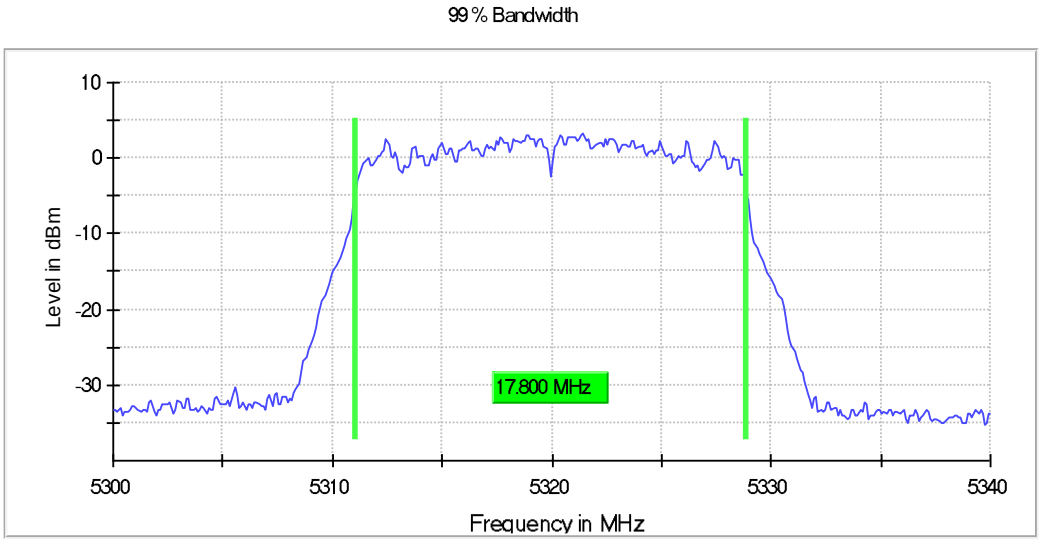


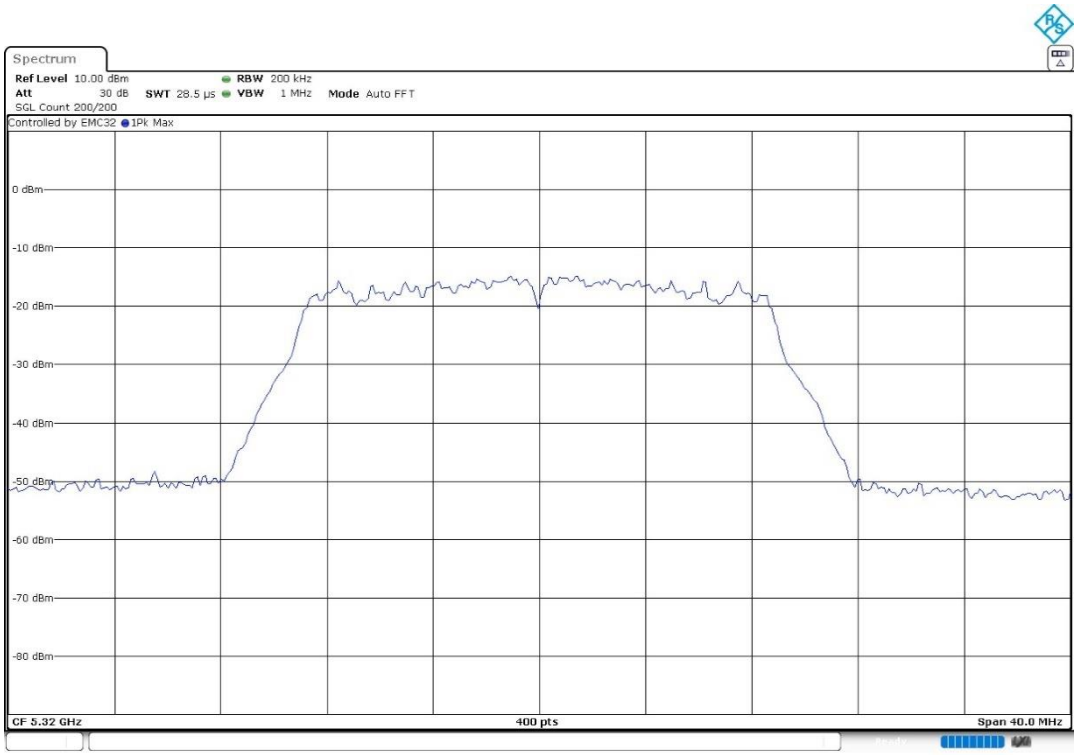
- Middle Channel 56 (5280 MHz):





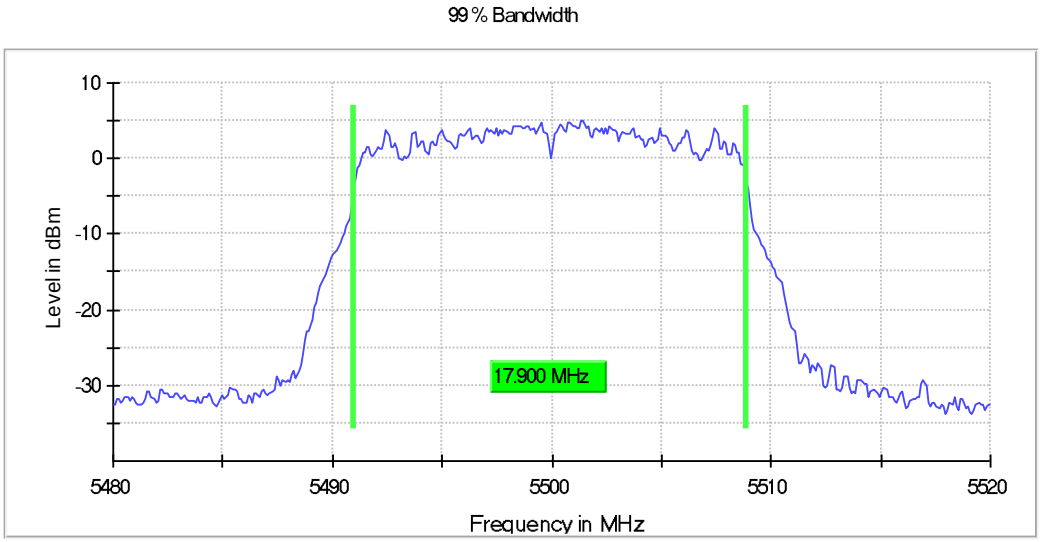
- High Channel 64 (5320 MHz):

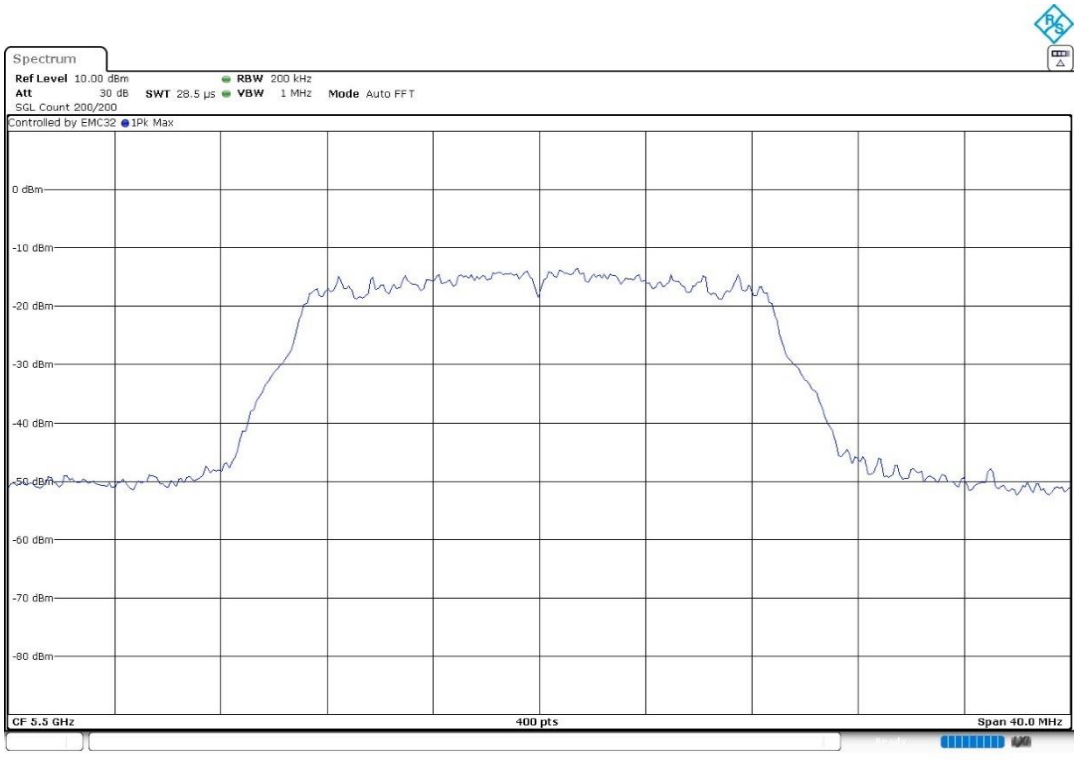




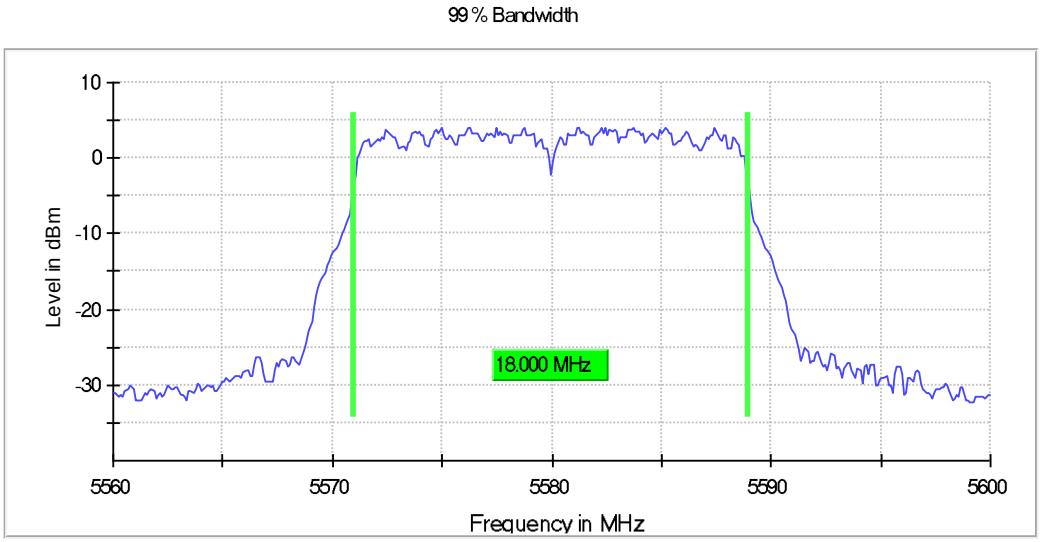
U-NII-2C (5470-5725 MHz)

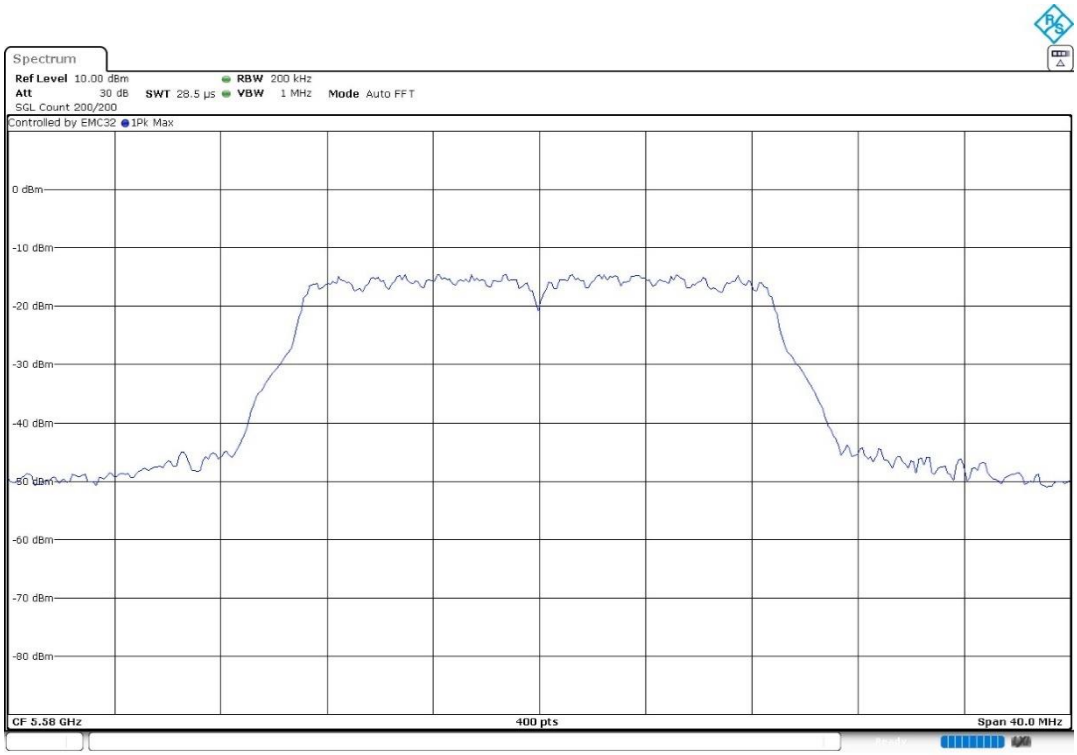
- Low Channel 100 (5500 MHz):



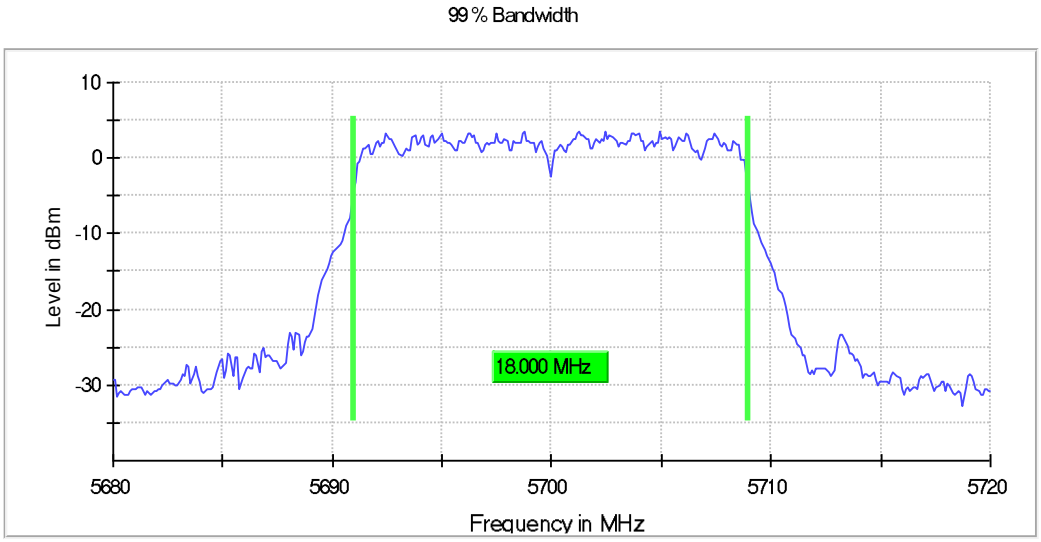


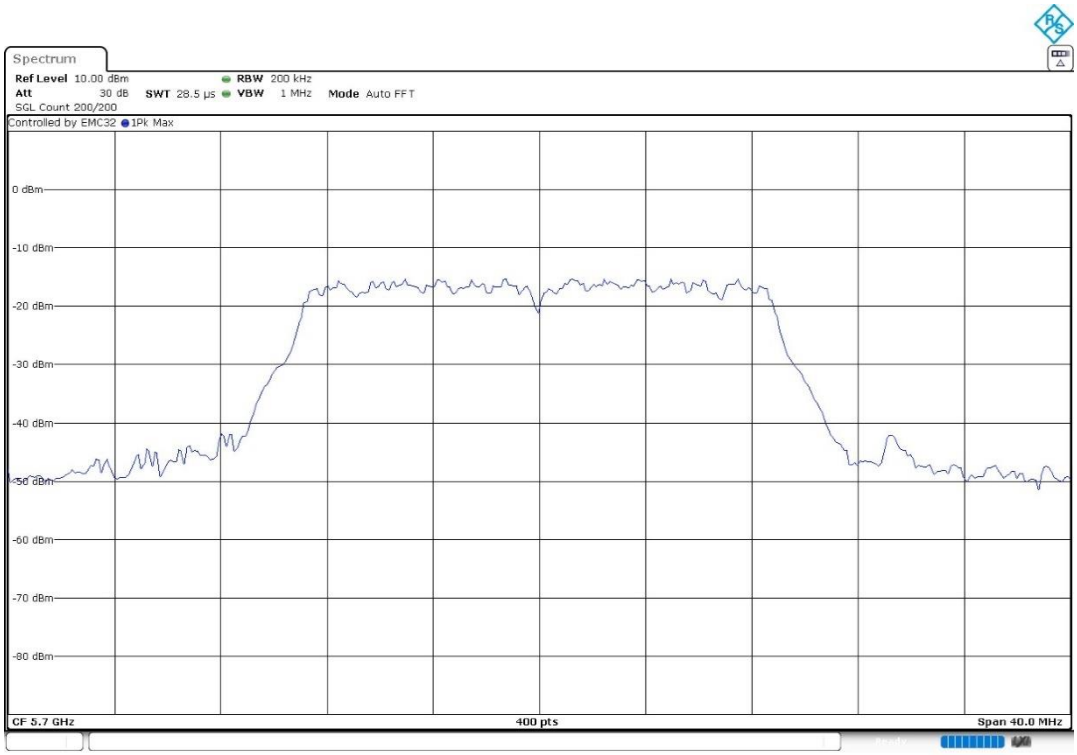
- Middle Channel 116 (5580 MHz):



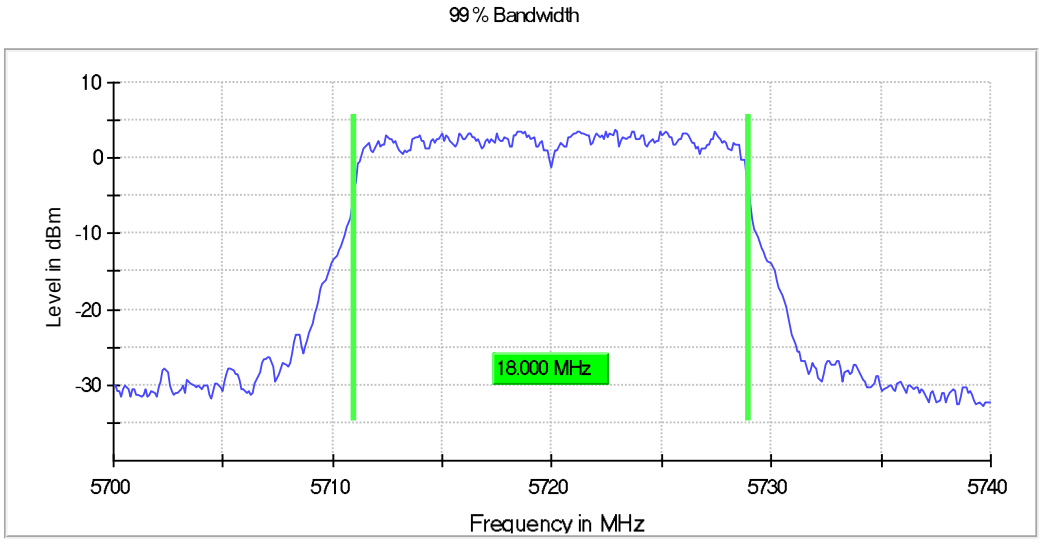


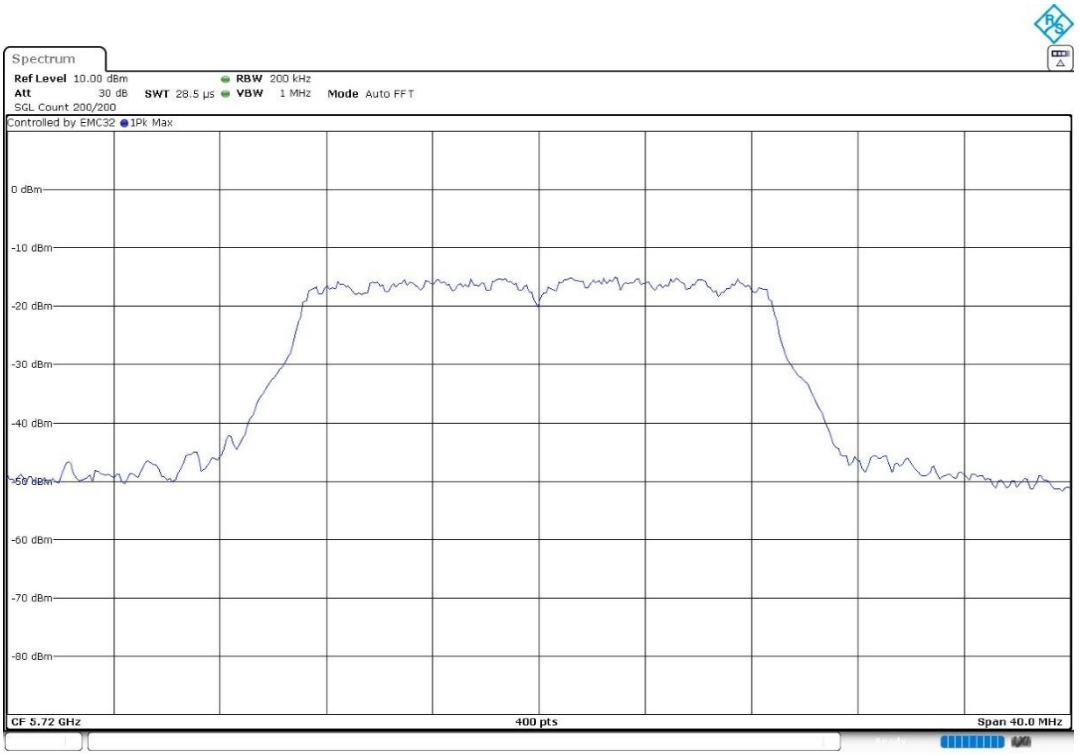
- High Channel 140 (5700 MHz):





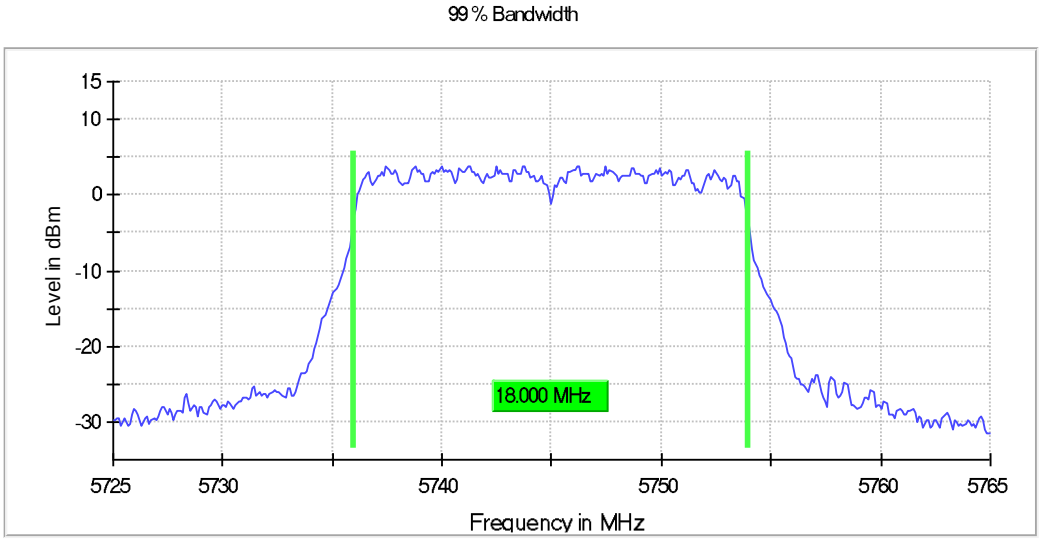
- Straddle Channel 142 (5720 MHz):

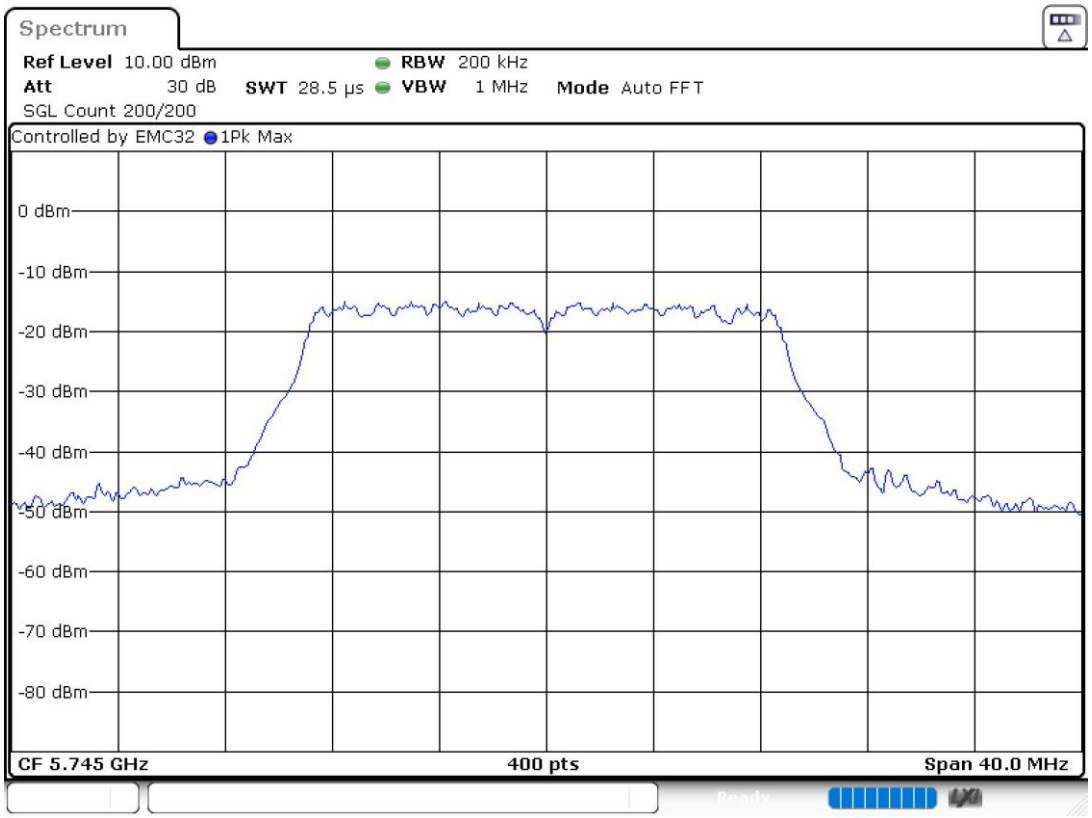




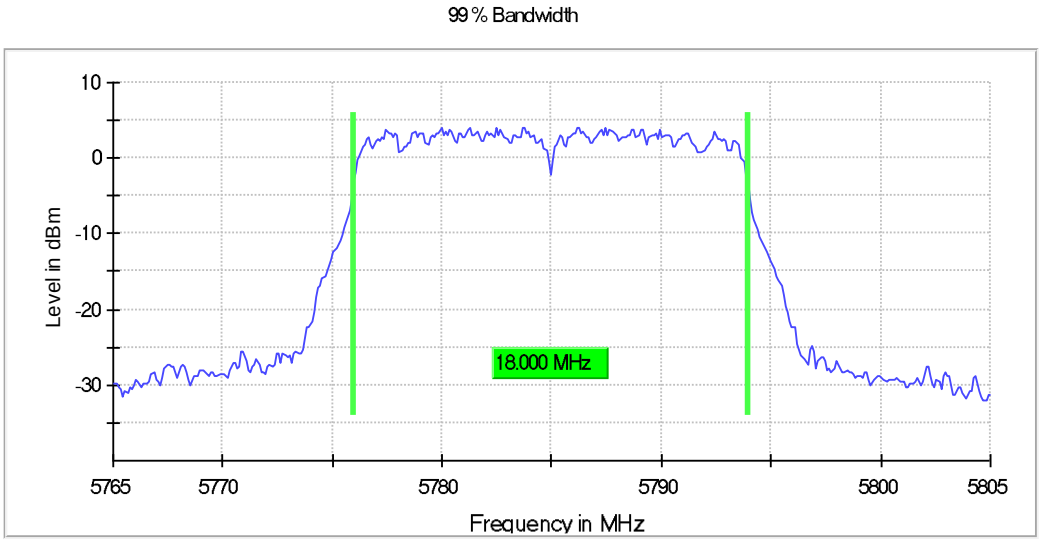
U-NII-3 (5725-5850 MHz)

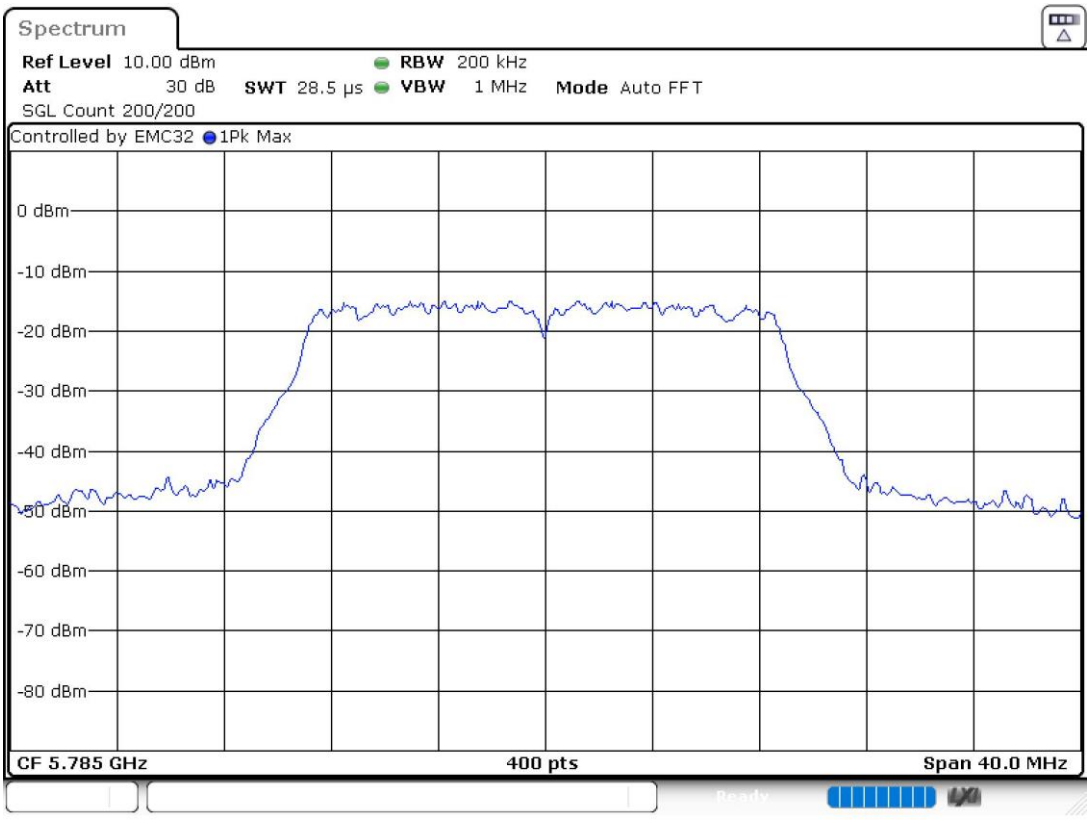
- Low Channel 149 (5745 MHz):



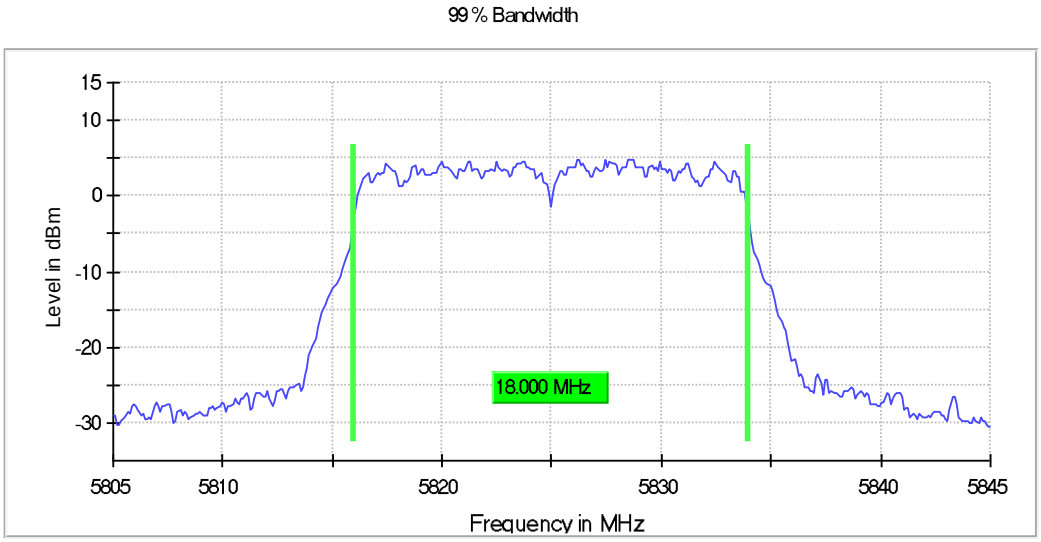


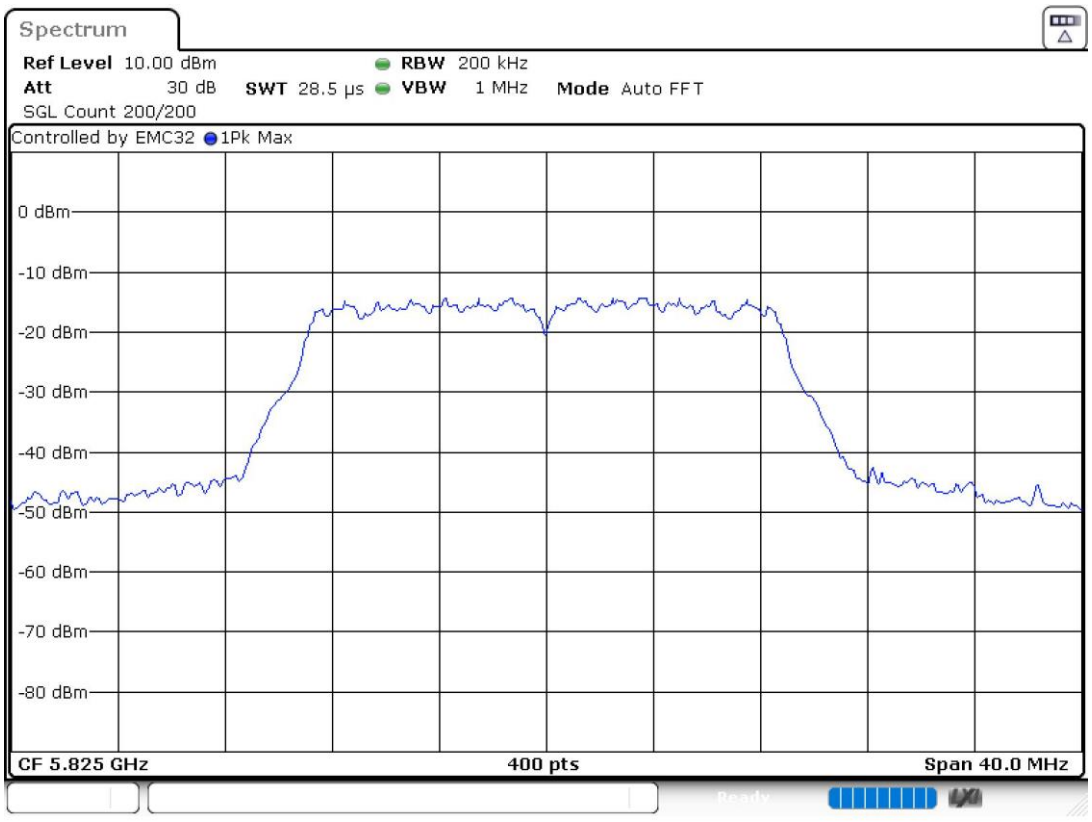
- Middle Channel 157 (5785 MHz):





- High Channel 165 (5825 MHz):

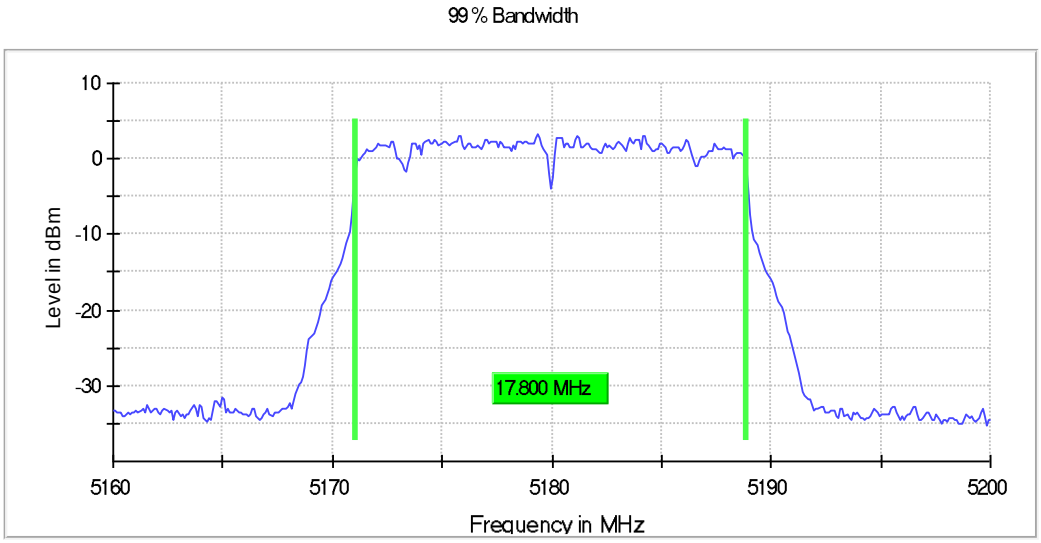


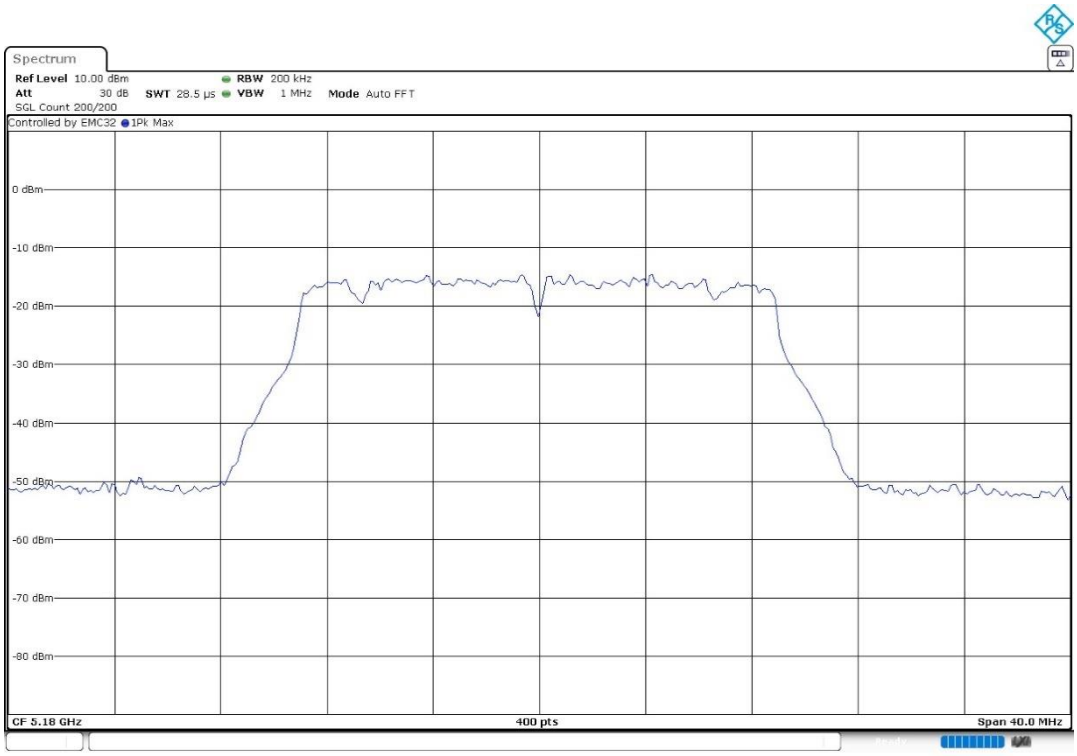


SISO 802.11 ac20 (VHT20):

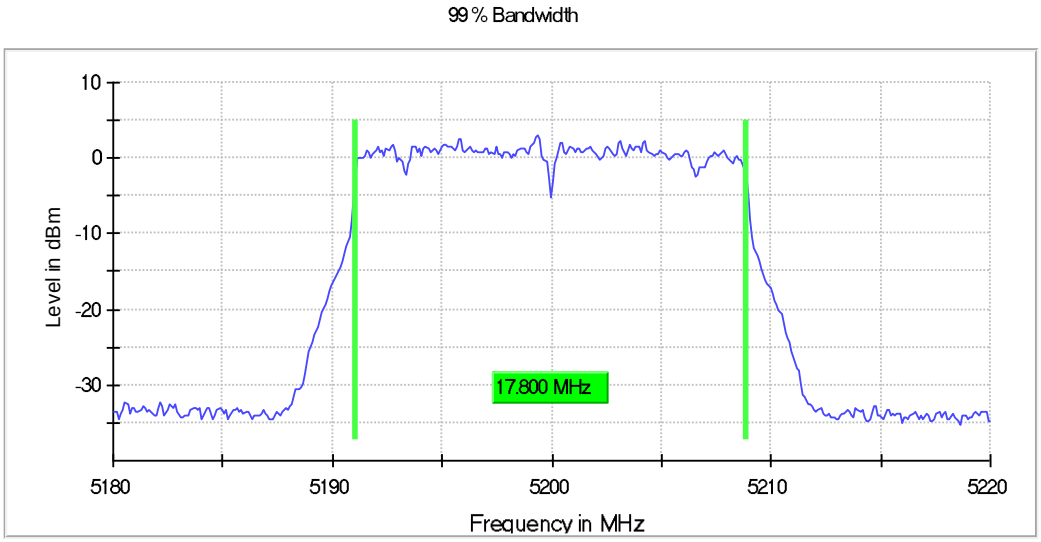
U-NII-1 (5150-5250 MHz)

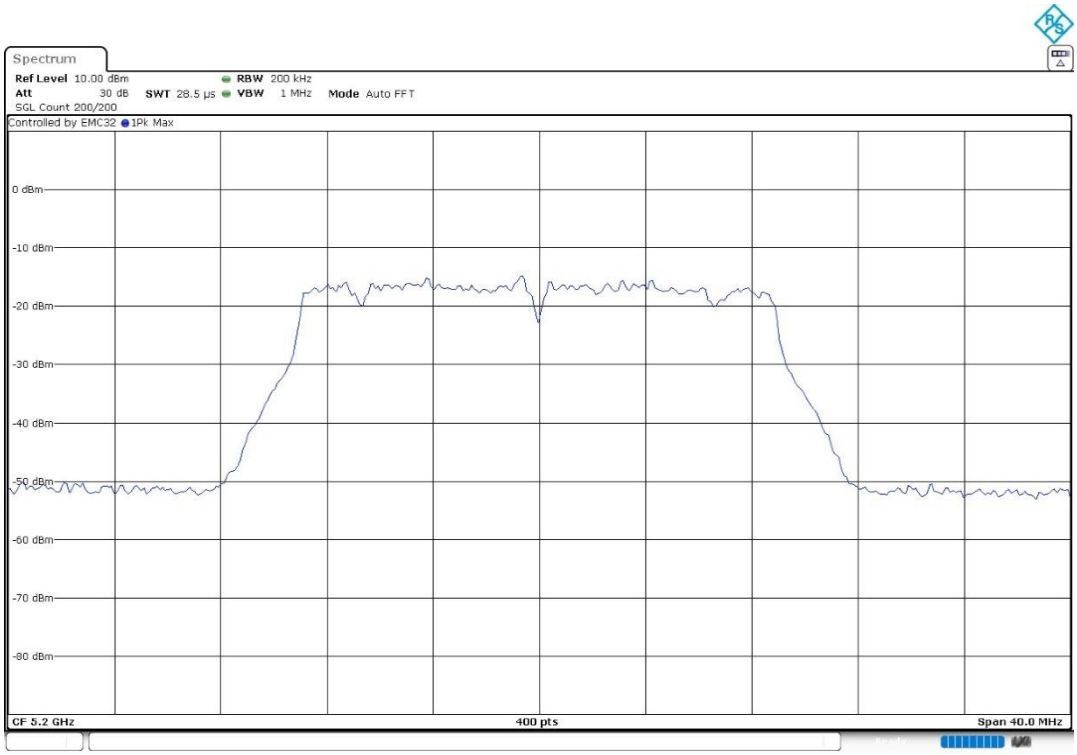
- Low Channel 36 (5180 MHz):



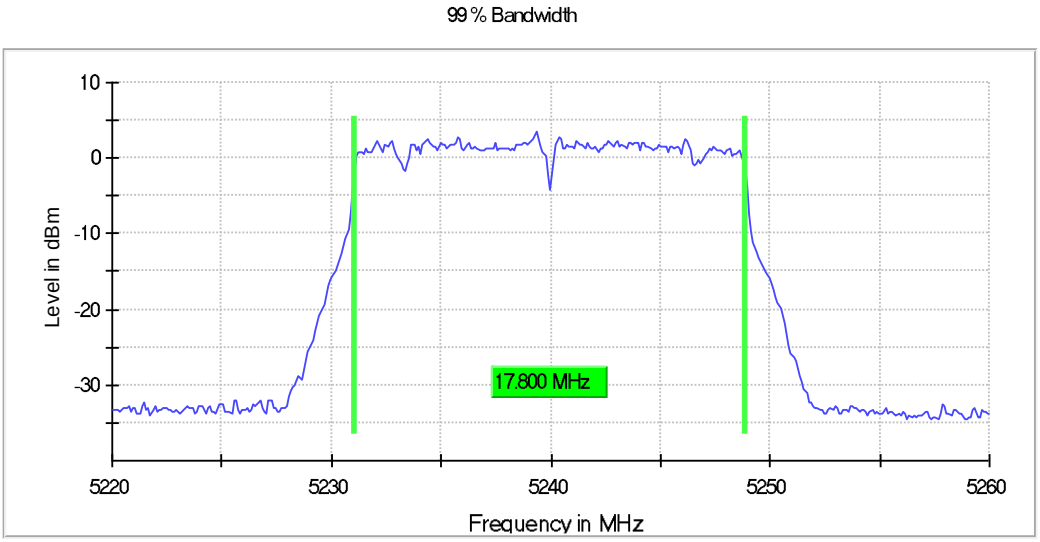


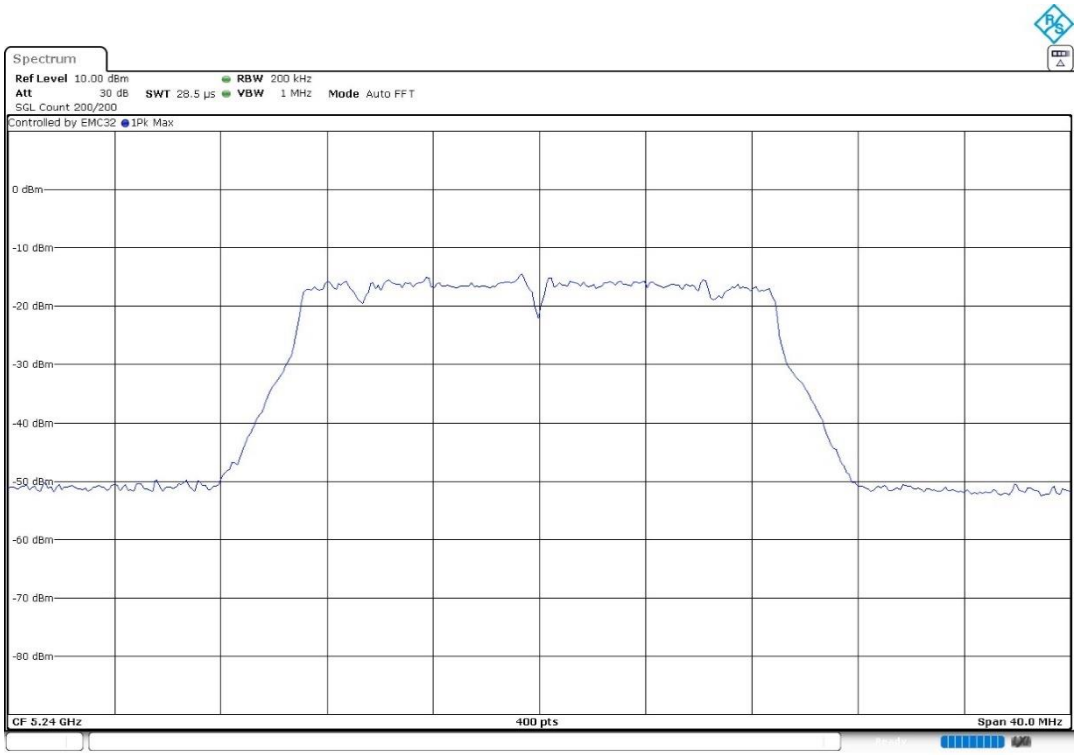
- Middle Channel 40 (5200 MHz):





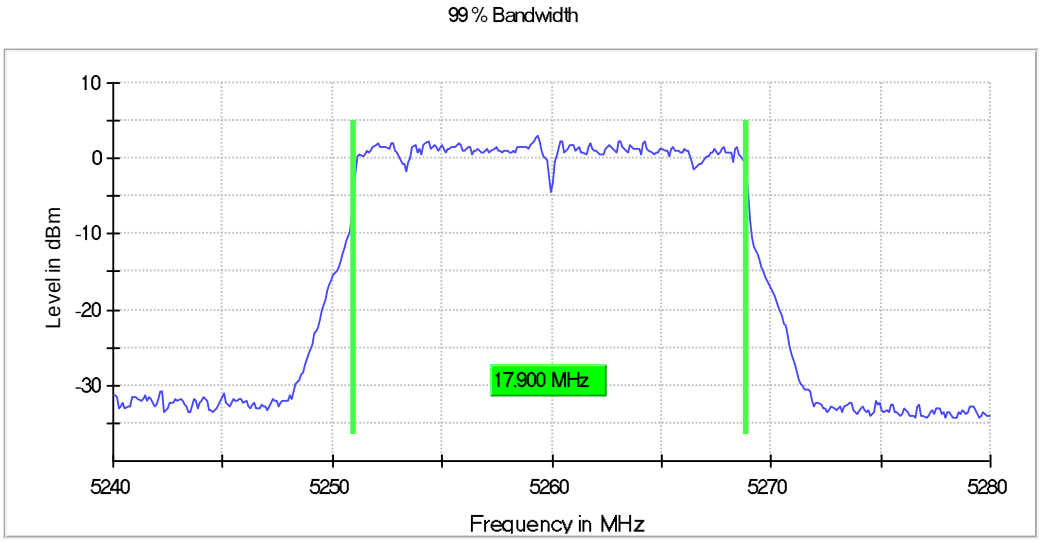
- High Channel 48 (5240 MHz):

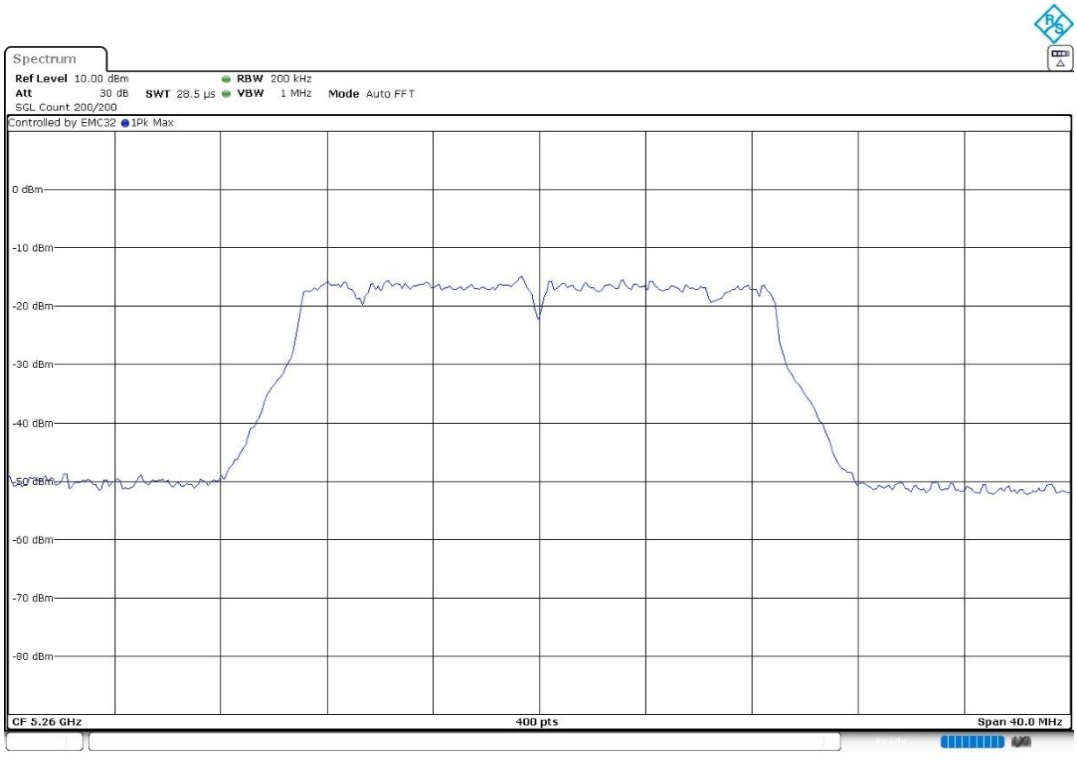




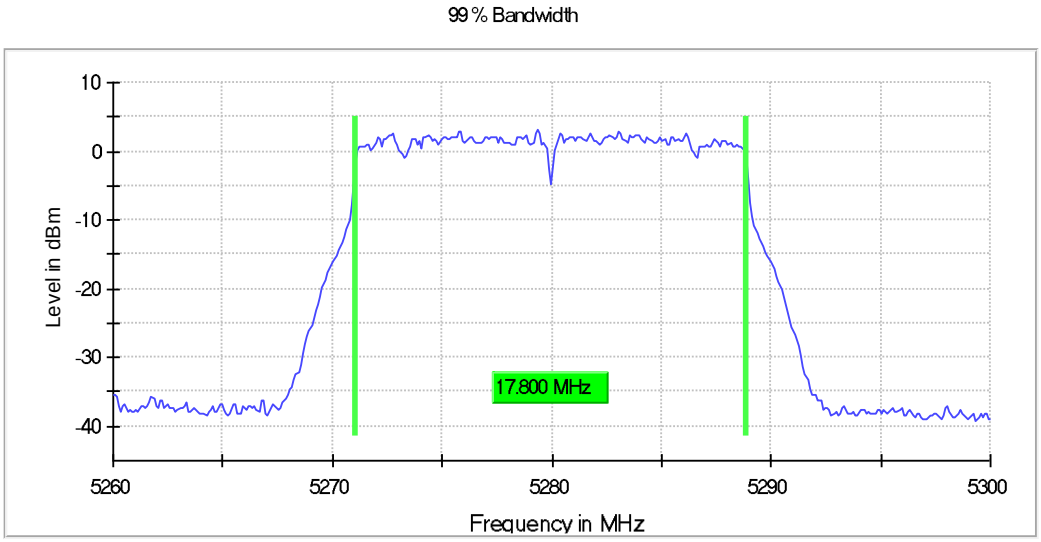
U-NII-2A (5250-5350 MHz)

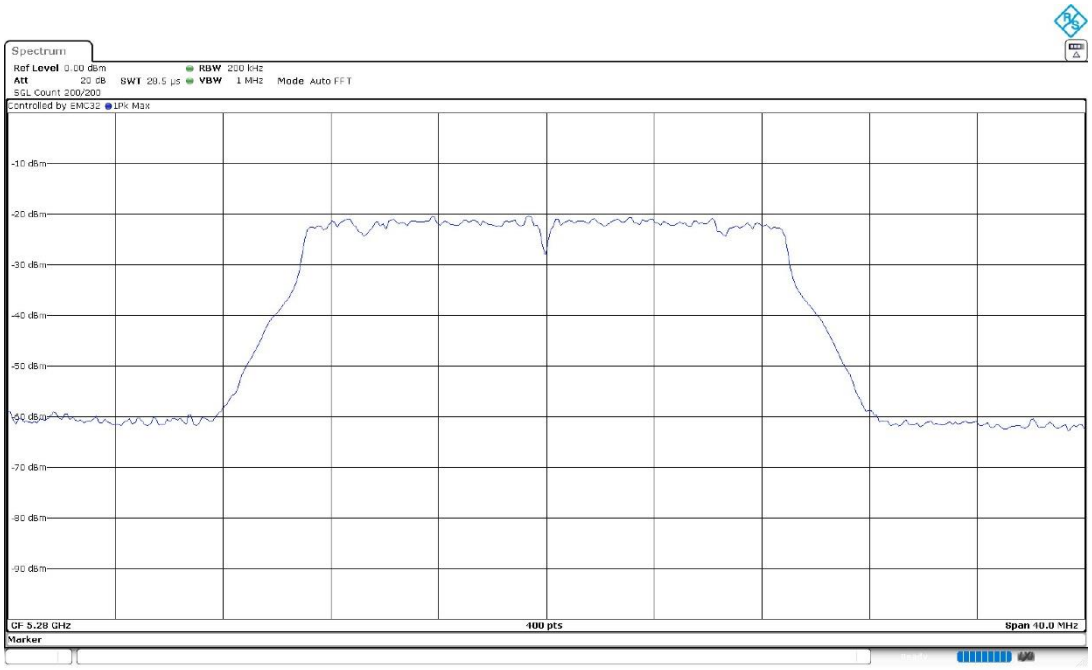
- Low Channel 52 (5260 MHz):



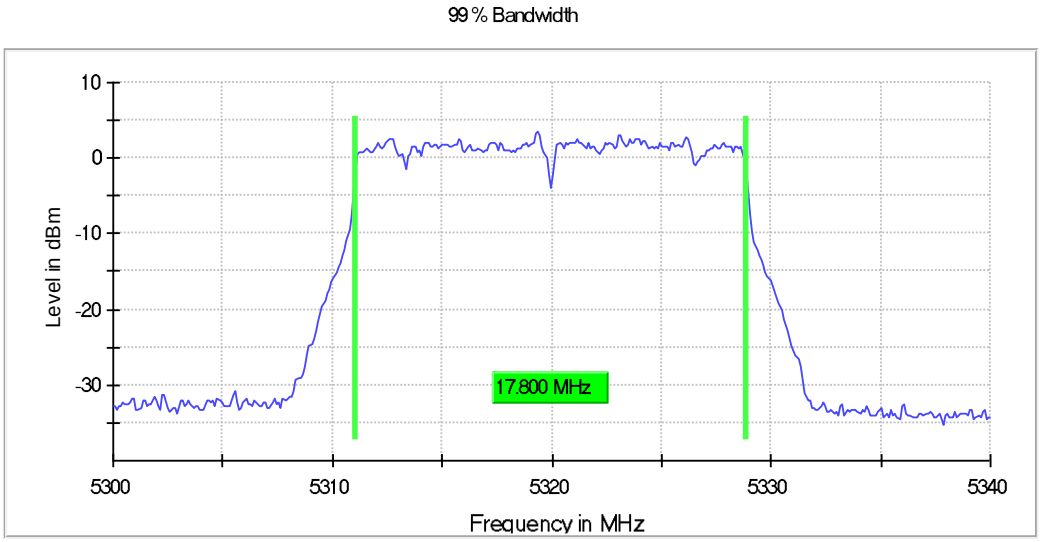


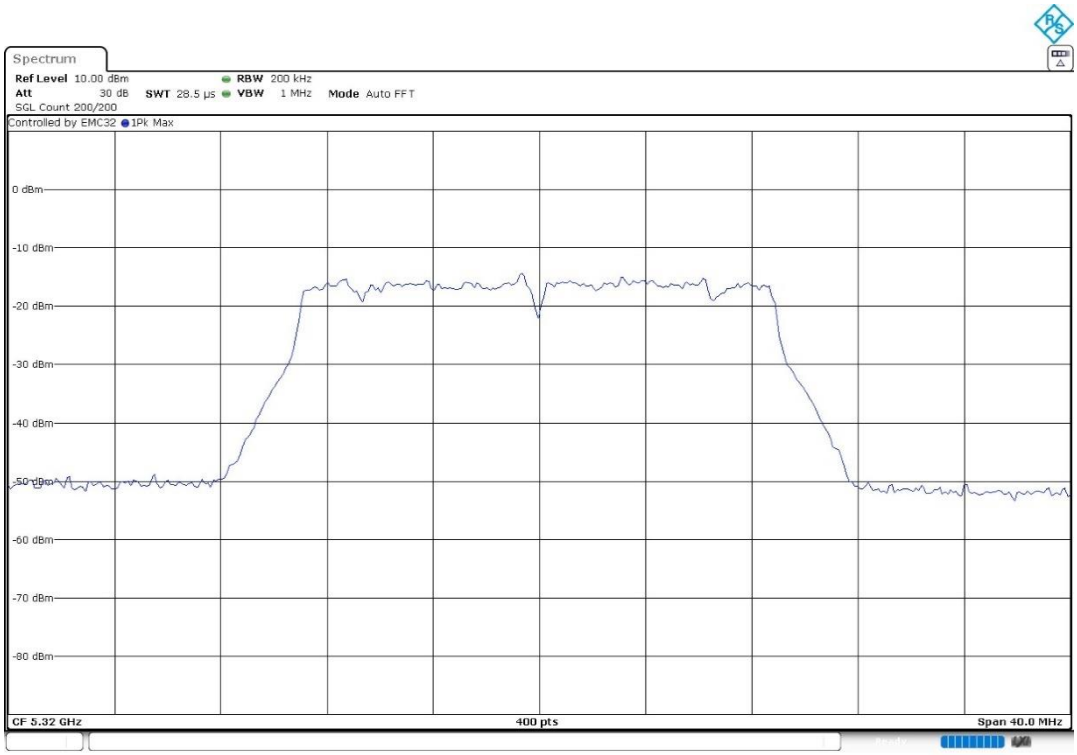
- Middle Channel 56 (5280 MHz):





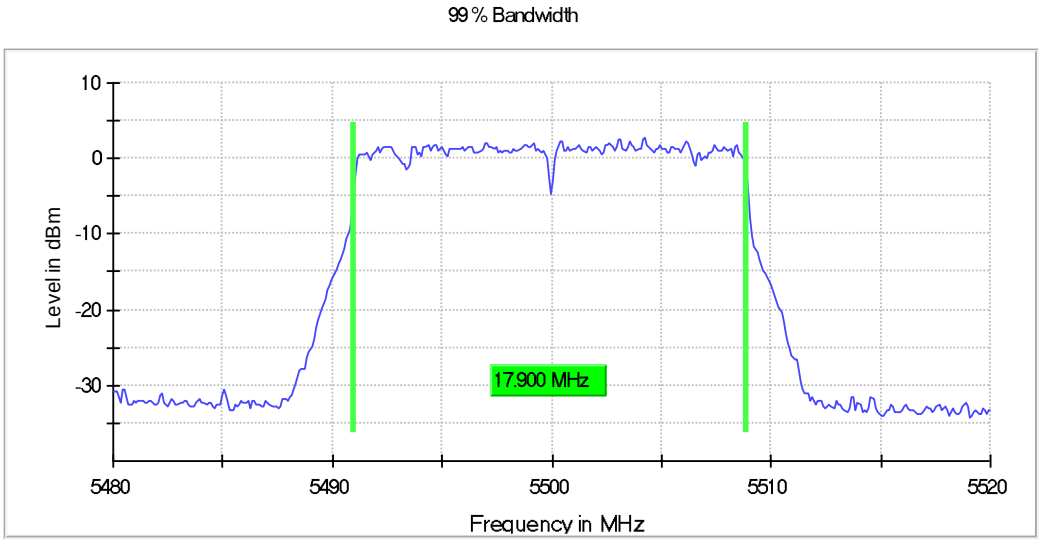
- High Channel 64 (5320 MHz):

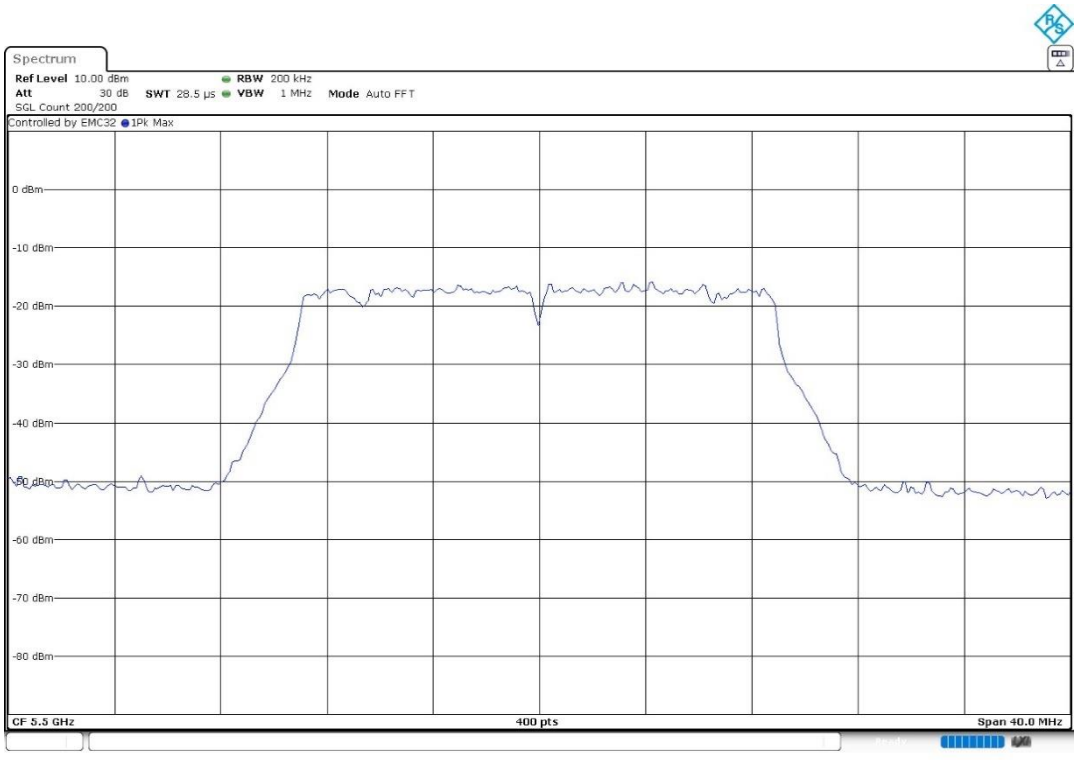




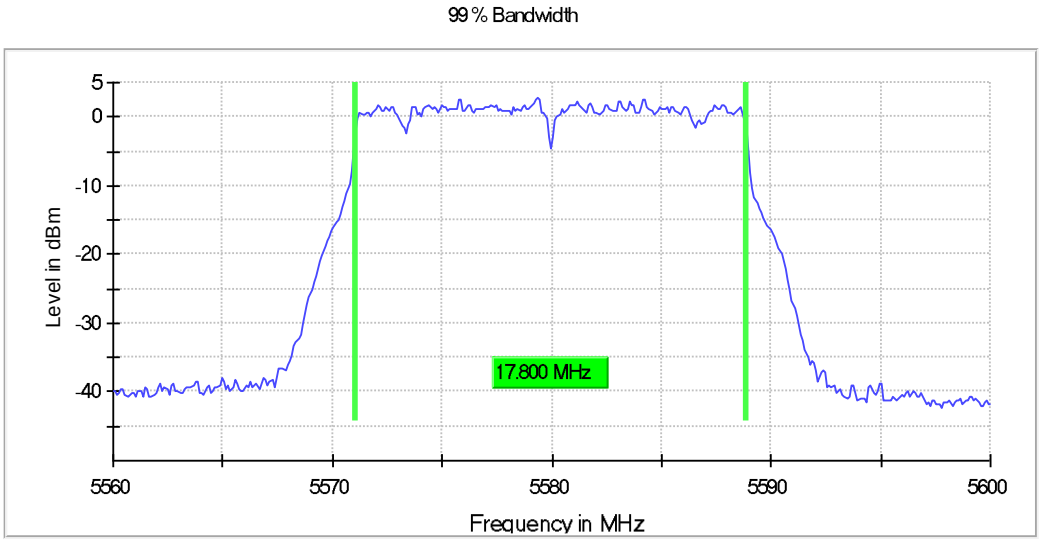
U-NII-2C (5470-5725 MHz)

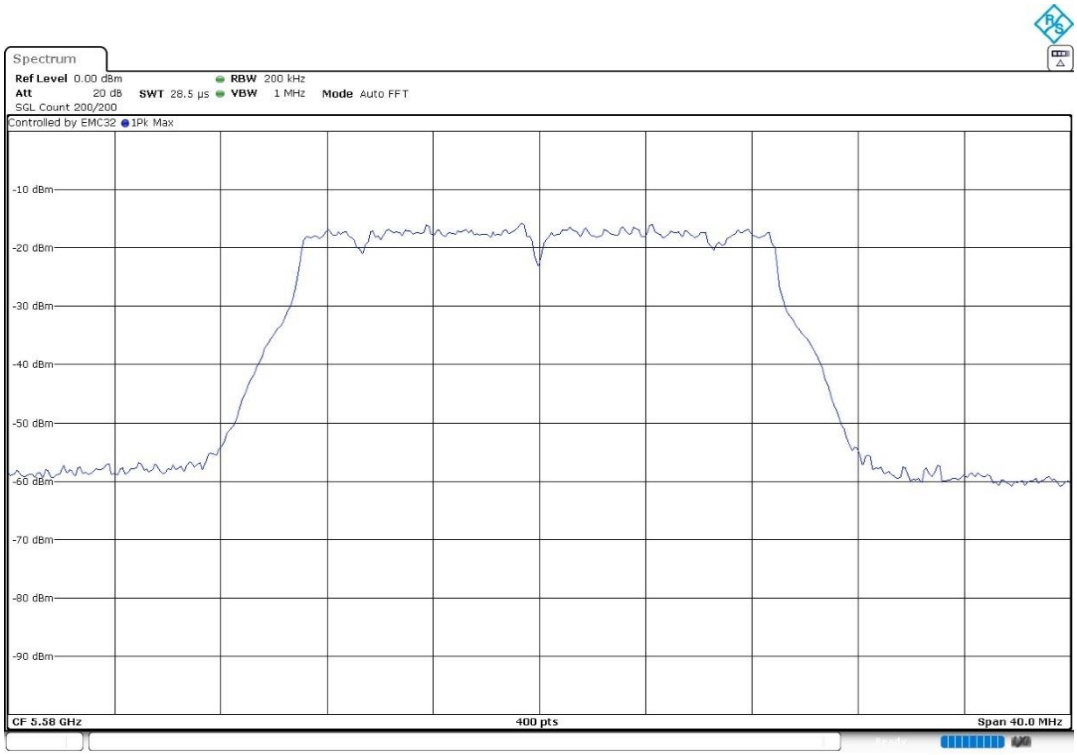
- Low Channel 100 (5500 MHz):



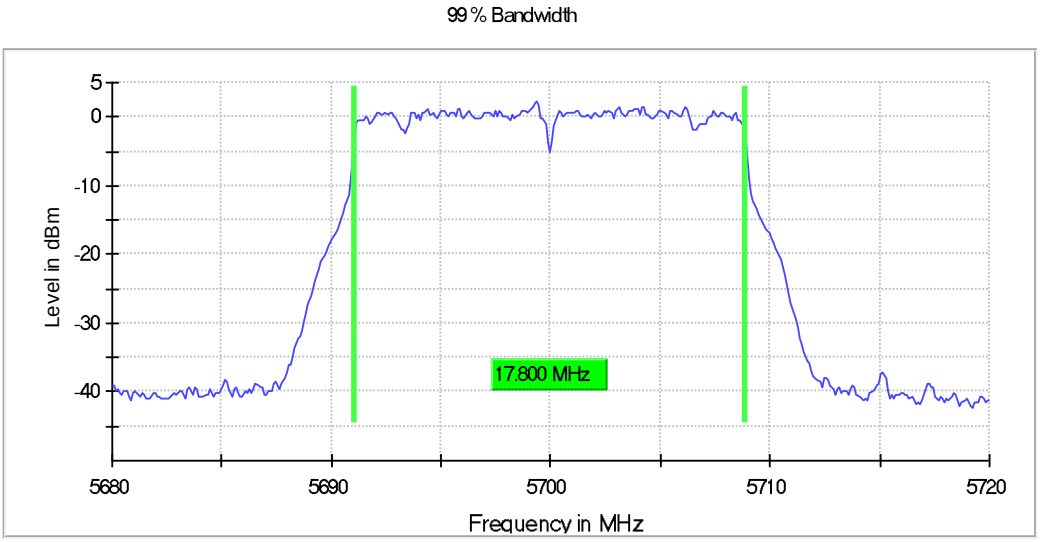


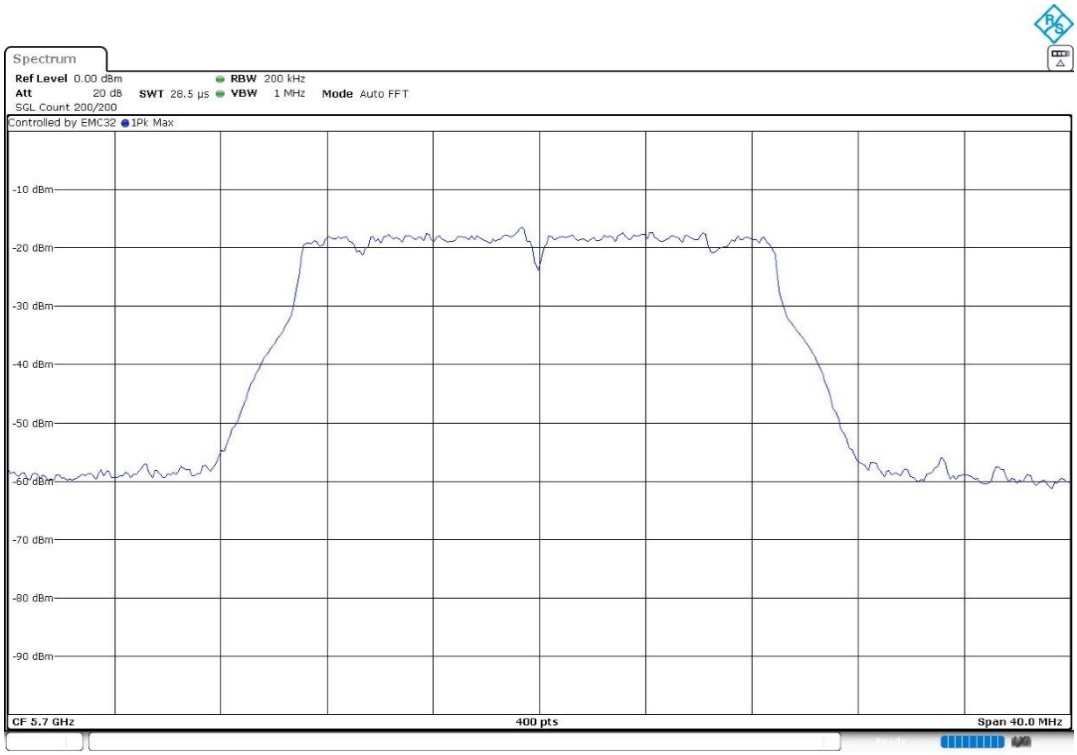
- Middle Channel 116 (5580 MHz):



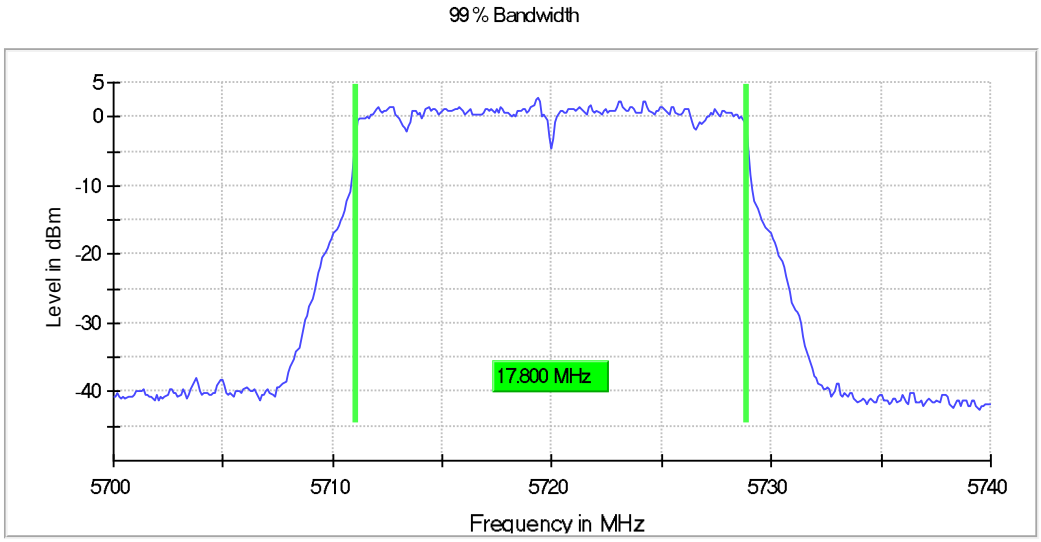


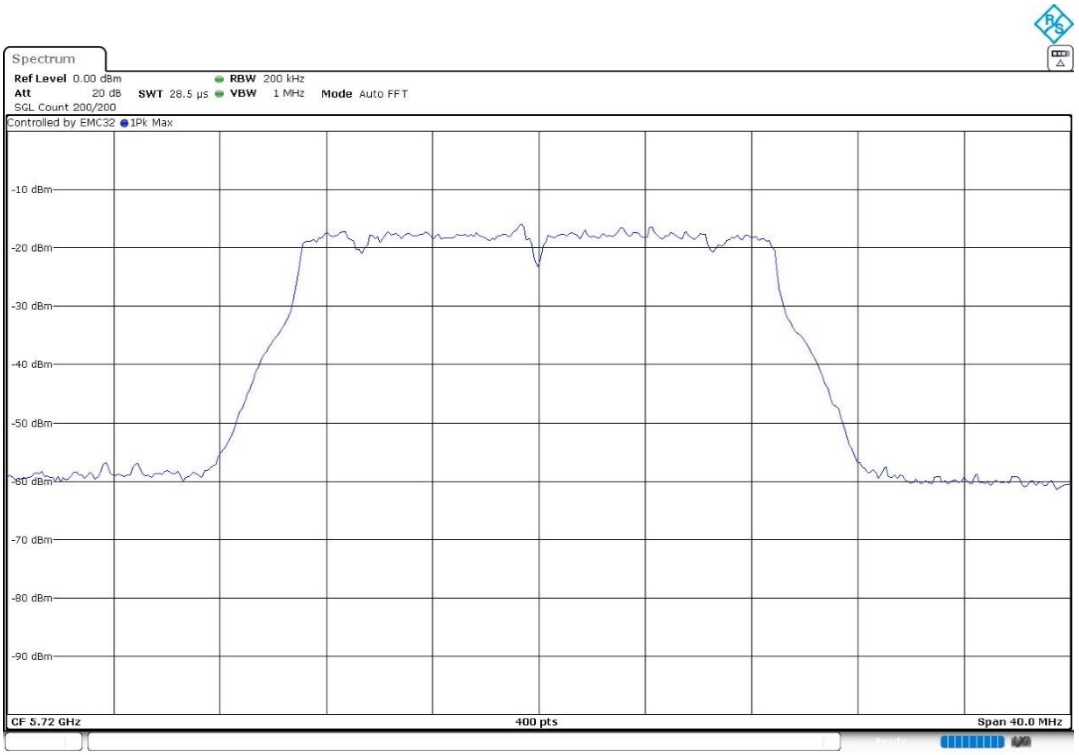
- High Channel 140 (5700 MHz):





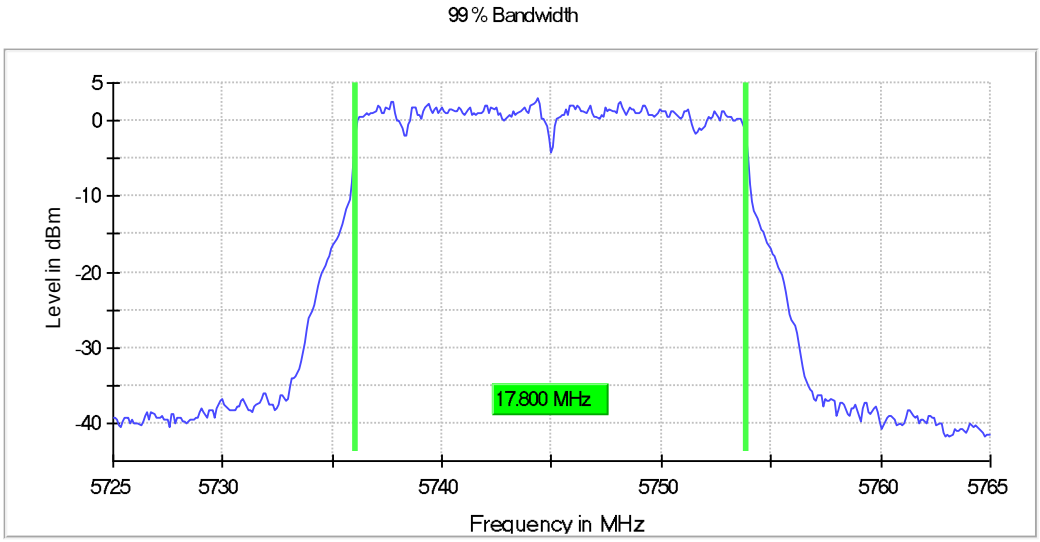
- Straddle Channel 142 (5720 MHz):

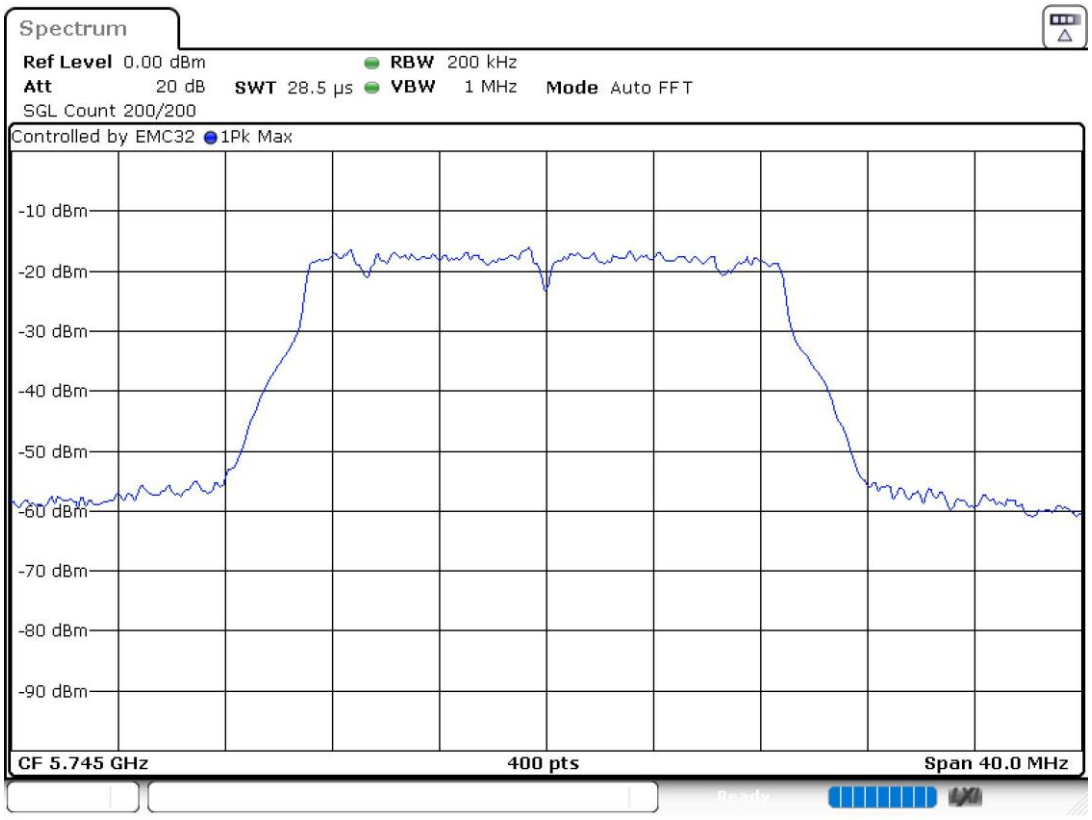




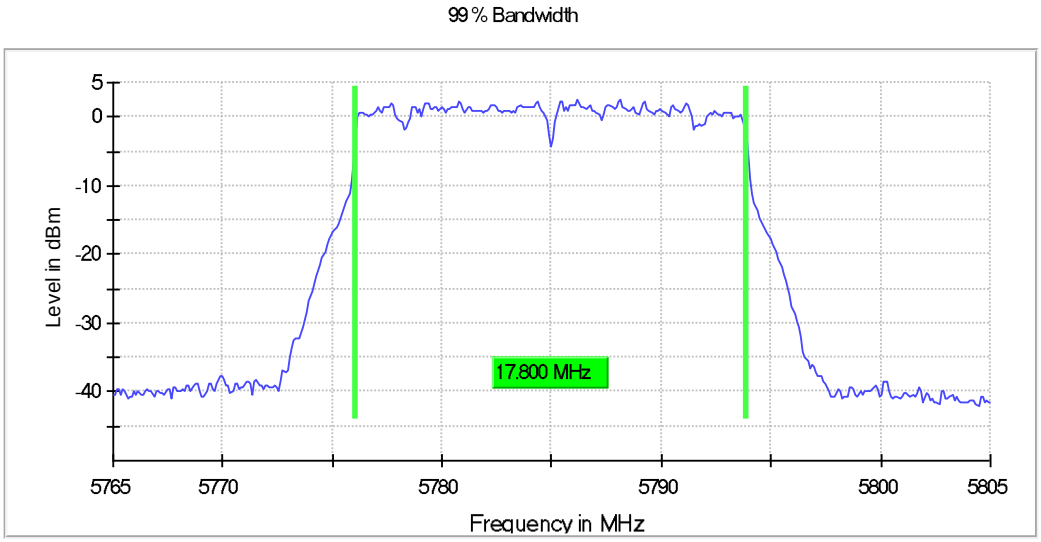
U-NII-3 (5725-5850 MHz)

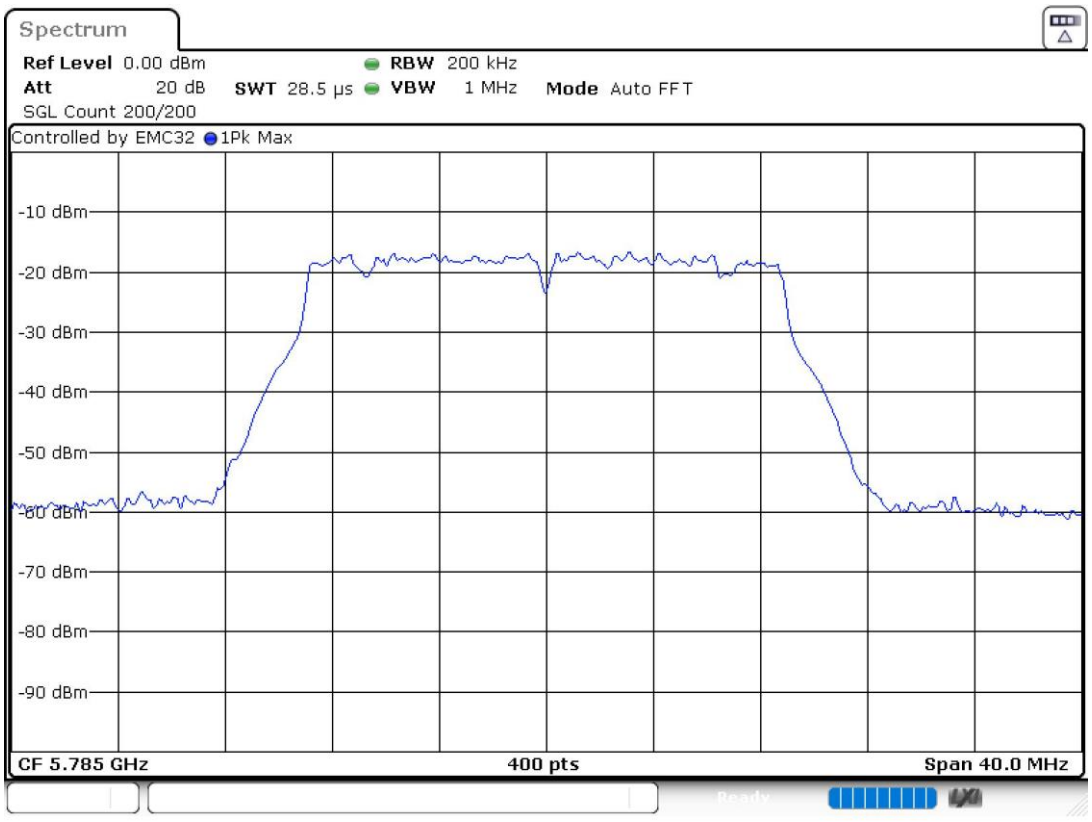
- Low Channel 149 (5745 MHz):



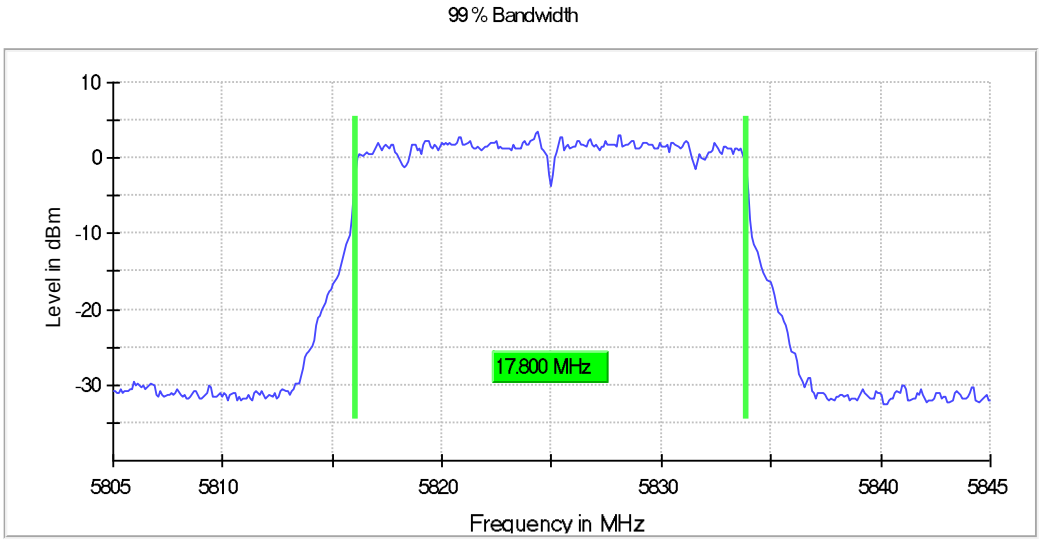


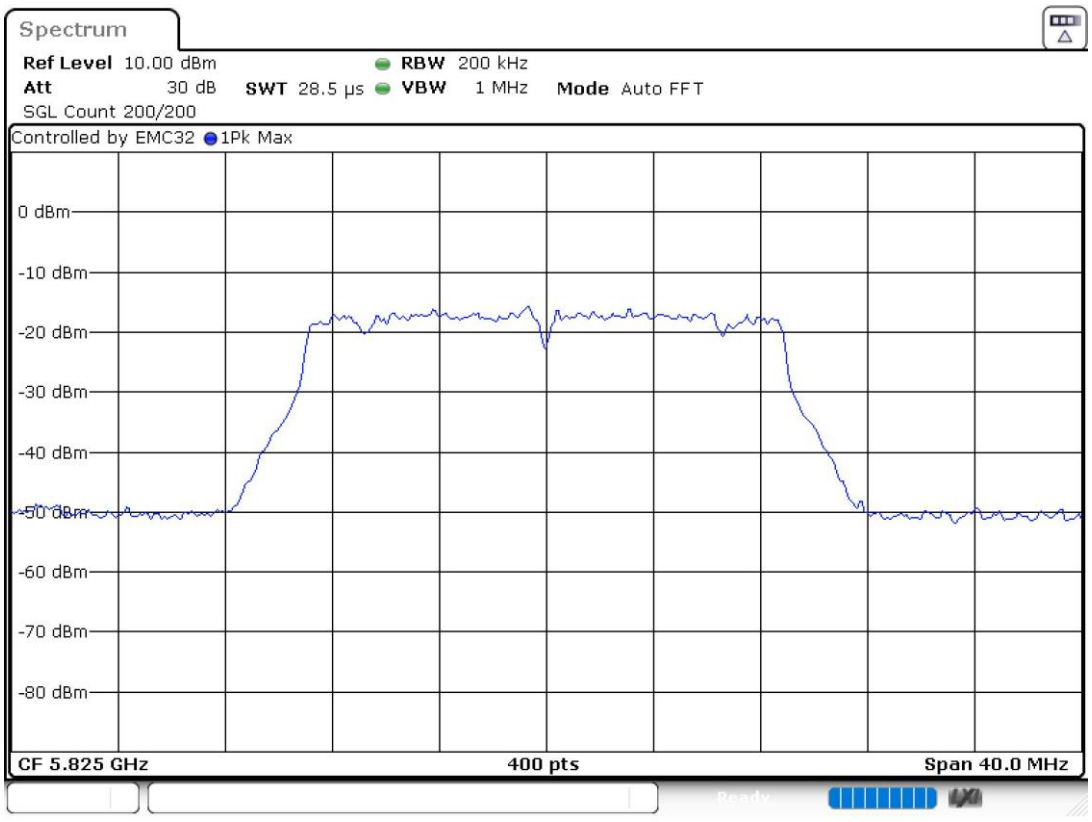
- Middle Channel 157 (5785 MHz):





- High Channel 165 (5825 MHz):

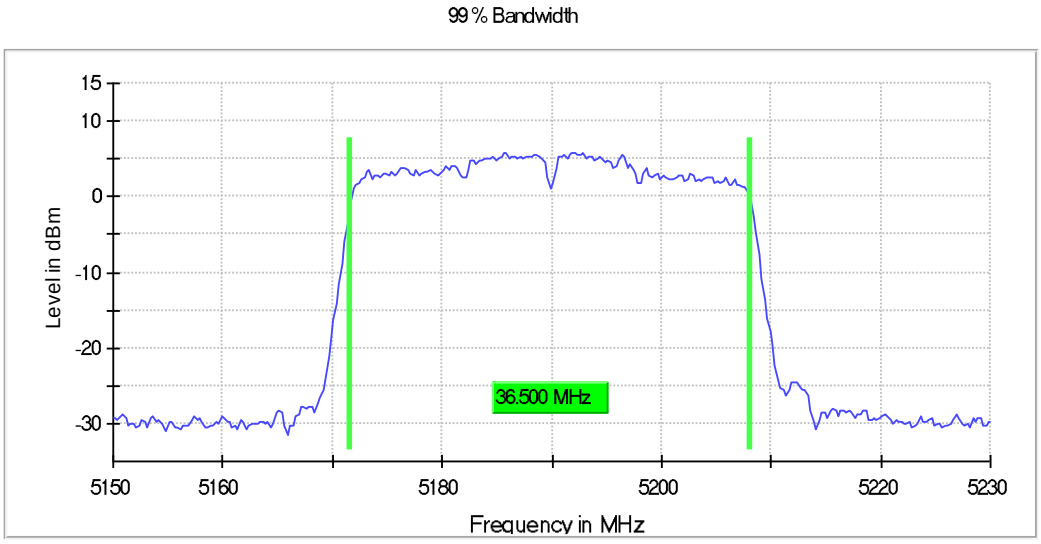


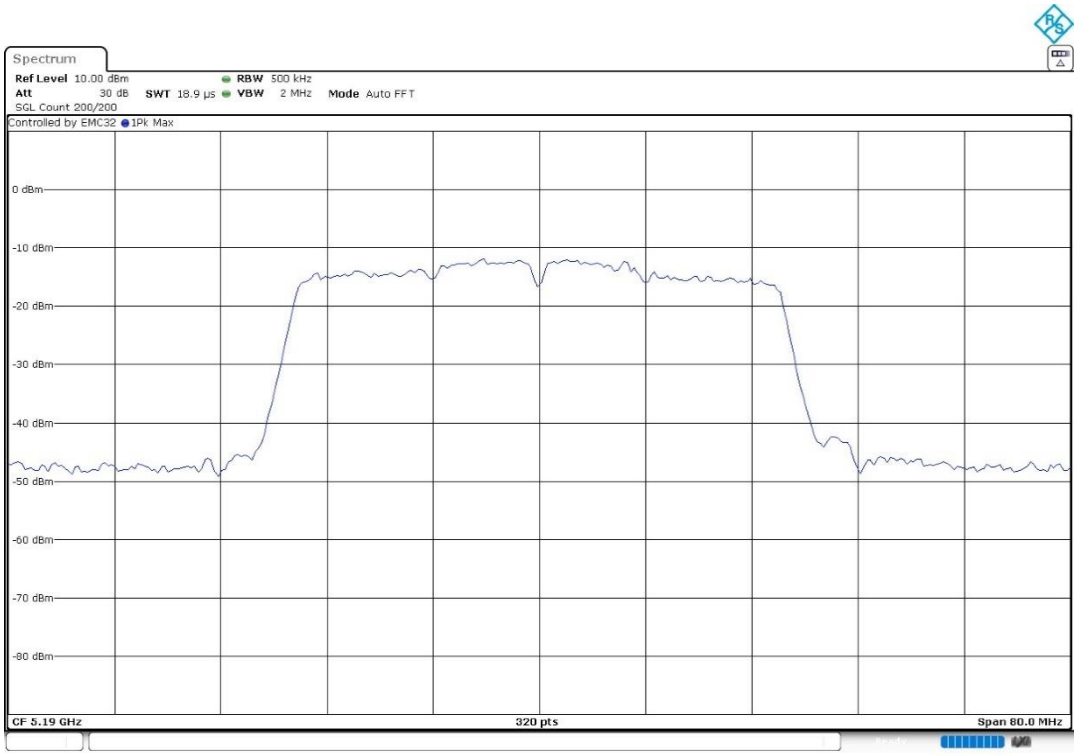


SISO 802.11 n40 (HT40):

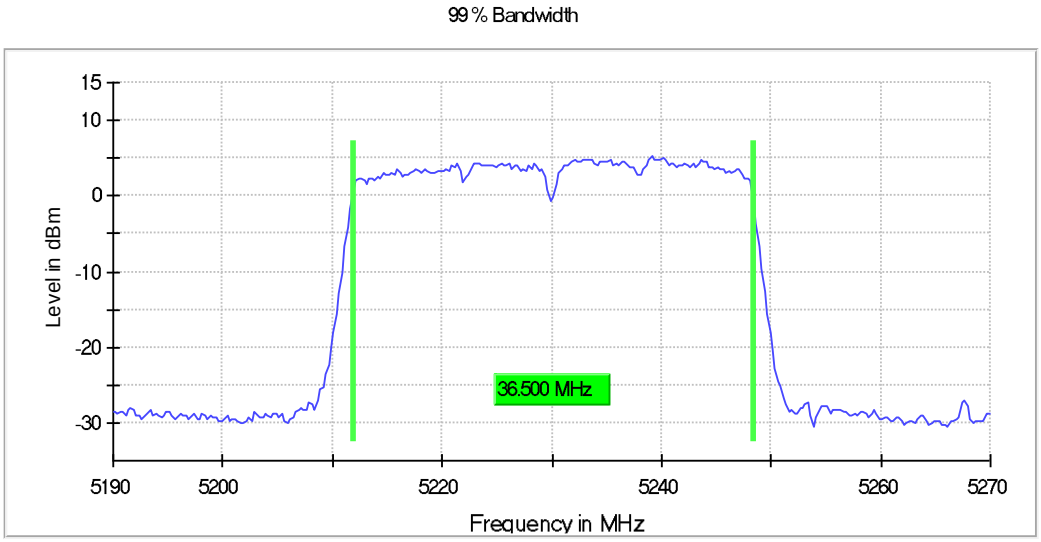
U-NII-1 (5150-5250 MHz)

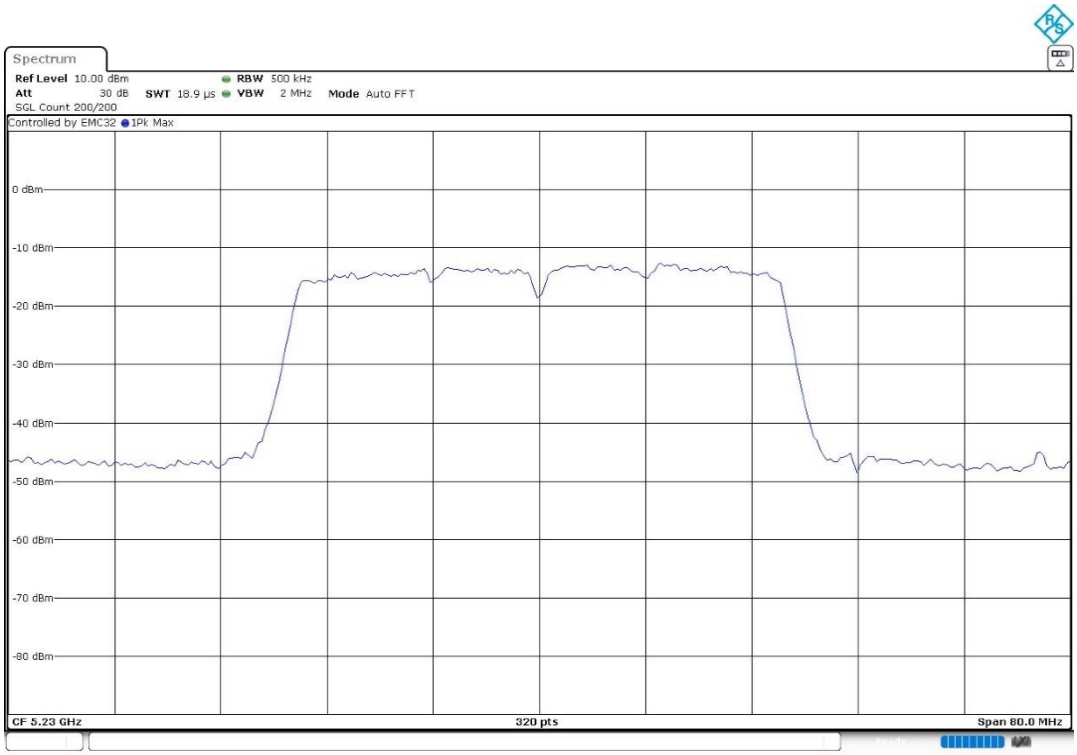
- Low Channel 38 (5190 MHz):





- High Channel 46 (5230 MHz):





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

- Low Channel 54 (5270 MHz):