# Index

# 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 an ASOG device.

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

# Usage of samples

Samples undergoing test have been selected by: The client.

| Id | Control Number | Description | Model | Serial Nº | Date of Reception | Application |
|---|---|---|---|---|---|---|
| S/01 | 80539B_5.1 | Mobile Network Equipment | ASOG 476254A | L124290545 | 2024-10-03 | Element Under Test |

Notes referenced to samples during the project:

| Id | Type |
|---|---|
| S/01 | Samples used for Conducted and radiated tests. |

# Test sample description

Ports…… :

| Port name and description | Cable | | | |
|---|---|---|---|---|
| | Specified max length [m] | Attached during test | Shielded | Coupled to patient(3) |
| LMP RJ45 | 100m | [X] | [X] | [ ] |
| -48V PSU Connector | - | [X] | [X] | [ ] |
| EIF1-2 SFP | optical | [ ] | [X] | [ ] |
| EIF3 RJ45 | 100m | [ ] | [X] | [ ] |
| SEI SFP | optical | [ ] | [X] | [ ] |
| RF1-15 SFP | optical | [ ] | [X] | [ ] |
| EAC 19-pin | - | [ ] | [X] | [ ] |
| SIN 19-pin | - | [ ] | [X] | [ ] |
| SOUT 19-pin | - | [ ] | [X] | [ ] |

Supplementary information to the ports…… : .....

Rated power supply .....:

| Voltage and Frequency | | Reference poles | | | | |
|---|---|---|---|---|---|---|
| | | L1 | L2 | L3 | N | PE |
| [ ] | AC: - | [ ] | [ ] | [ ] | [ ] | [ ] |
| [ ] | AC: - | [ ] | [ ] | [ ] | [ ] | [ ] |

| | | |
|---|---|---|
| | [X] | DC: -48V |
| | [ ] | DC: - |
| Rated Power .....: | 396.88 W | |
| Clock frequencies.....: | - | |
| Other parameters .....: | - | |
| Software version .....: | MB_PS_REL_2024_07_0021 | |
| Hardware version .....: | ASOG A102 | |
| Dimensions in cm (W x H x D) ....: | 440mm x 365mm x 43.5mm (1U) | |
| Mounting position .....: | [X] | Table top equipment |
| | [X] | Wall/Ceiling mounted equipment |
| | [ ] | Floor standing equipment |
| | [ ] | Hand-held equipment |
| | [X] | Other: Server rack, mobile tower |

| Modules/parts.....: | **Module/parts of test item** | **Type** | **Manufacturer** |
|---|---|---|---|
| | ..... | ..... | ..... |

| Accessories (not part of the test item) .....: | **Description** | **Type** | **Manufacturer** |
|---|---|---|---|
| | ..... | ..... | ..... |

| Documents as provided by the applicant.....: | **Description** | **File name** | **Issue date** |
|---|---|---|---|
| | ..... | ..... | ..... |

(3) Only for Medical Equipment

# Identification of the client

Nokia Solutions and Networks GmbH & Co. KG
Lise-Meitner-Straße 7/1-2, 89081 Ulm, Germany

# Testing period and place

| | |
|---|---|
| **Test Location** | DEKRA Testing and Certification S.A.U. |
| **Date (start)** | 2024-10-22 |
| **Date (finish)** | 2024-10-31 |

# Document history

| Report number | Date | Description |
|---|---|---|
| 80539RRF.005 | 2024-11-14 | First release. |
| 80539RRF.005A1 | 2024-11-22 | Second release. Modification due to typos. This modification test report cancels and replaces the test report 80539RRF.005. |
| 80539RRF.005A2 | 2025-01-17 | Third release. Modification due to typos. This modification test report cancels and replaces the test report 80539RRF.005A1. |

# Environmental conditions

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

| | |
|---|---|
| **Temperature** | Min. = 15 ºC<br>Max. = 35 ºC |
| **Relative humidity** | Min. = 20 %<br>Max. = 75 % |

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

| | |
|---|---|
| **Temperature** | Min. = 15 ºC<br>Max. = 35 ºC |
| **Relative humidity** | Min. = 20 %<br>Max. = 75 % |

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

| | |
|---|---|
| **Temperature** | Min. = 15 ºC<br>Max. = 35 ºC |
| **Relative humidity** | Min. = 20 %<br>Max. = 75 % |

# Remarks and comments

The tests have been performed by the technical personnel: Valentin Andarias Diaz.

Used instrumentation:

| Control No. | Equipment | Model | Manufacturer | Next Calibration |
|---|---|---|---|---|
| 07445 | DC POWER SUPPLY 30V/5A | U8002A | KEYSIGHT TECHNOLOGIES | N/A |
| 07760 | DIGITAL MULTIMETER | 175 | FLUKE | 2024-11-08 |
| 07817 | EMI TEST RECEIVER 2Hz-44GHz | ESW44 | ROHDE AND SCHWARZ | 2026-07-01 |
| 06615 | ETHERNET TEMPERATURE AND HUMIDITY LOGGER | HWg-STE | HW GROUP | 2025-04-04 |
| 06609 | ETHERNET TEMPERATURE AND HUMIDITY LOGGER | HWg-STE | HW GROUP | 2025-04-22 |
| 04953 | HIGH PASS FILTER 1.1-8GHz | WHK10-990-1100-8000-40SS | WAINWRIGHT INSTRUMENTS | 2025-02-14 |
| 09029 | HIGH PASS FILTER 17-40 GHZ | STHP-17-40G-92 | TEMSTRON/TEMWELL | 2025-03-29 |
| 08770 | HIGH PASS FILTER 3-18 GHZ | ST-3GA2833-HS | TEMSTRON/TEMWELL | 2025-08-02 |
| 06496 | HORN ANTENNA 1-18GHz | BBHA 9120 D | SCHWARZBECK | 2026-12-01 |
| 04657 | HORN ANTENNA 18-40GHz | BBHA 9170 | SCHWARZBECK | 2026-06-12 |
| 06143 | HYBRID BILOG ANTENNA 30MHz-6GHz | 3142E | ETS LINDGREN | 2027-01-22 |
| 07656 | LOW PASS FILTER TEMSTRON/TEMWELL DC - 1 GHZ | ST-1GA3250-LS | TEMSTRON/TEMWELL | 2025-02-02 |
| 07193 | MULTI-DEVICE CONTROLLER | CO3000 | INNCO | N/A |
| 08848 | OPEN SWITCH UNIT UP TO 7.5 GHz | OSP-B157W8 PLUS | ROHDE & SCHWARZ | 2024-12-21 |
| 00922 | POWER SUPPLY DC 40 V / 40 A | Type 4231 | BRüEL & KJæR | 2027-10-02 |
| 08856 | PRE-AMPLIFIER G>30dB 18-40GHz | BLMA 1840-4A | BONN ELEKTRONIK | 2025-02-27 |
| 03783 | PRE-AMPLIFIER G>30dB 1GHz-18GHz | BLMA 0118-3A | BONN ELEKTRONIK | 2025-03-15 |
| 06142 | PRE-AMPLIFIER G>38dB 30MHz-6GHz | BLNA 0360-01N | BONN ELEKTRONIK | 2025-07-25 |
| 06144 | PRE-AMPLIFIER G>40dB 10MHz-6GHz | BLNA 0160-01N | BONN ELEKTRONIK | 2025-07-22 |
| 06791 | SEMIANECHOIC ABSORBER LINED CHAMBER IV | FACT 3 200 STP | ETS LINDGREN | N/A |
| 06793 | SHIELDED ROOM | S101 | ETS LINDGREN | N/A |

| Control No. | Equipment | Model | Manufacturer | Next Calibration |
|---|---|---|---|---|
| 07794 | SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz | FSV40 | ROHDE AND SCHWARZ | 2025-04-21 |
| 06668 | SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz | FSV40 | ROHDE AND SCHWARZ | 2024-12-14 |
| 07791 | SIGNAL GENERATOR 8kHz-6GHz | SMB100B | ROHDE AND SCHWARZ | 2026-03-15 |
| 07793 | SIGNAL GENERATOR 8kHz-6GHz | SMBV100B | ROHDE AND SCHWARZ | 2026-03-11 |
| 04848 | SOFTWARE FOR EMC/RF TESTING | EMC32 | ROHDE AND SCHWARZ | N/A |
| 06611 | TEMPERATURE AND HUMIDITY PROBE | HWg-STE | HW GROUP | 2025-04-04 |
| 08847 | VECTOR SIGNAL GENERATOR 100kHz-7.5GHz | SMW200A | ROHDE AND SCHWARZ | 2025-09-29 |
| 07795 | WIRELESS CONNECTIVITY TESTER BW 160 MHz | CMW270 | ROHDE AND SCHWARZ | 2025-03-13 |
| 07798 | WMS32 | WMS32 | ROHDE AND SCHWARZ | N/A |

## 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 | P | |
| Transmitter. 99% Occupied Bandwidth | P | |
| Transmitter. 26 dB Emission Bandwidth (EBW) | P | |
| Supplementary information and remarks:<br>None | | |

## 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:<br>None. | | | |

## C. 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:<br>None. | | | |

# **Appendix A:** Test results of Common requirements for all Bands

# INDEX

# TEST CONDITIONS

(*) Declared by the Client.

POWER SUPPLY (*):

| | |
|---|---|
| Vnominal: | -48 V DC |
| Type of Power Supply: | DC power |

ANTENNA (*):

| | |
|---|---|
| Type of Antennas: | Rod Antenna |
| Maximum Declared Antenna Gain: | +2 dBi |

U-NII-1 & U-NII-3:

TEST FREQUENCIES (*):

| | |
|---|---|
| Technology Tested: | WLAN (IEEE 802.11 a20 / n2040 / ac204080) |
| Modes: | 802.11a: 6, 9, 12, 18, 24, 36, 48 & 54 Mbps<br>802.11n HT20: MCS0 to MCS23<br>802.11n HT40: MCS0 to MCS23<br>802.11ac VHT20: MCS0 to MCS9<br>802.11ac VHT40: MCS0 to MCS9<br>802.11ac VHT80: MCS0 to MCS9 |
| Beamforming: | No. |

Band U-NII-1:

| | | | |
|---|---|---|---|
| Operating Channel Bandwidth: | 20 MHz | | |
| | | Channels | Channel Frequency (MHz) |
| Transmission Channels: | | Low (36) | 5180 |
| | | Middle (40) | 5200 |
| | | Middle (44) | 5220 |
| | | High (48) | 5240 |
| Operating Channel Bandwidth: | 40 MHz | | |
| | | Channels | Channel Frequency (MHz) |
| Transmission Channels: | | Low (38) | 5190 |
| | | High (46) | 5230 |
| Operating Channel Bandwidth: | 80 MHz | | |
| | | Channels | Channel Frequency (MHz) |
| Transmission Channels: | | Single (42) | 5210 |

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 | | |
| | | Channel | Channel Frequency (MHz) |
| Transmission Channels: | | Low (151) | 5755 |
| | | High (159) | 5795 |
| Operating Channel Bandwidth: | 80 MHz | | |
| Transmission Channels: | | Single (155) | 5775 |

POWER SETTING (*):

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 power setting table with the maximum level for each mode and band:

| Mode | POWER CONFIGURED FOR TESTING | | | | | |
|---|---|---|---|---|---|---|
| | Ch.36 | Ch.44 | Ch.48 | Ch.149 | Ch.157 | Ch.165 |
| 802.11a | 14 | 14 | 14 | 16 | 16 | 16 |
| 802.11n-20 | 14 | 14 | 14 | 15,5 | 15,5 | 15,5 |
| 11ac-20 | 12 | 12 | 12 | 13,5 | 13,5 | 13,5 |
| **Mode** | **Ch.38** | **Ch.46** | **Ch.151** | **Ch.159** | | |
| 11n-40 | 14 | 14 | 16 | 16 | | |
| 11ac-40 | 12,5 | 12,5 | 13,5 | 13,5 | | |
| **Mode** | **Ch.42** | **Ch.155** | | | | |
| 11ac-80 | 12 | 18 | | | | |

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 power setting according the table 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.

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

***Limit***

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.

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

MIMO Mode: SISO

| Operation Band (MHz) | Port | Freq (MHz) | Occ Ch BW (MHz) |
|---|---|---|---|
| [5150, 5250] | 1 | 5180.00000 | 18.000 |
| | | 5220.00000 | 18.000 |
| | | 5240.00000 | 18.000 |
| [5725, 5850] | | 5745.00000 | 19.500 |
| | | 5785.00000 | 19.500 |
| | | 5825.00000 | 19.250 |

***Verdict***

Pass

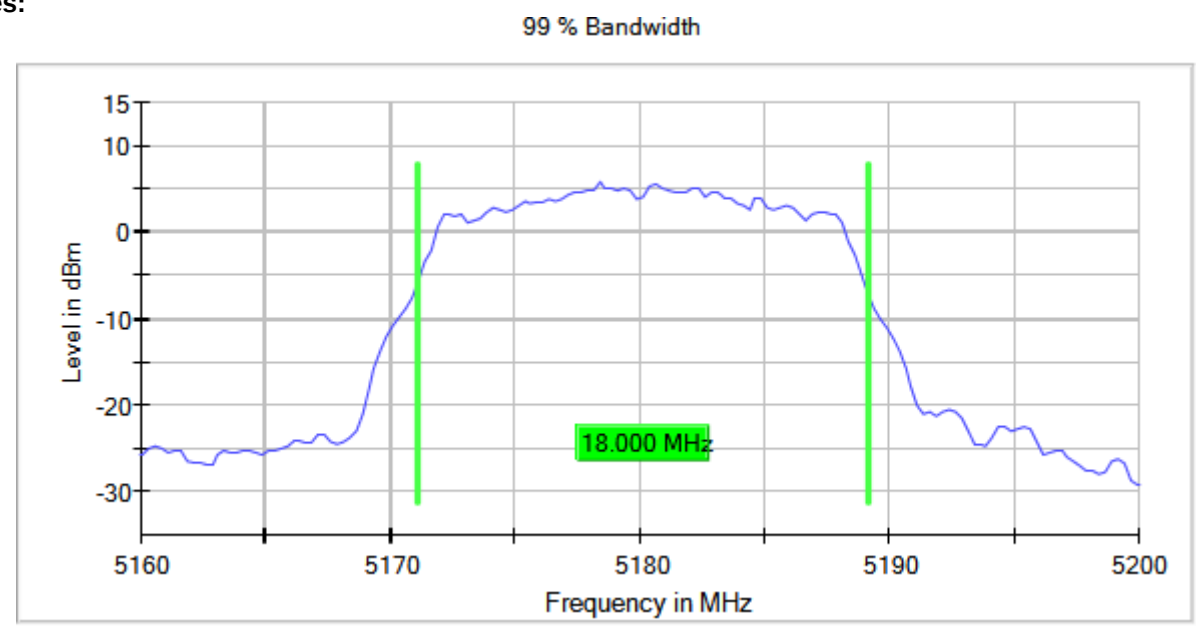
### *Attachments*

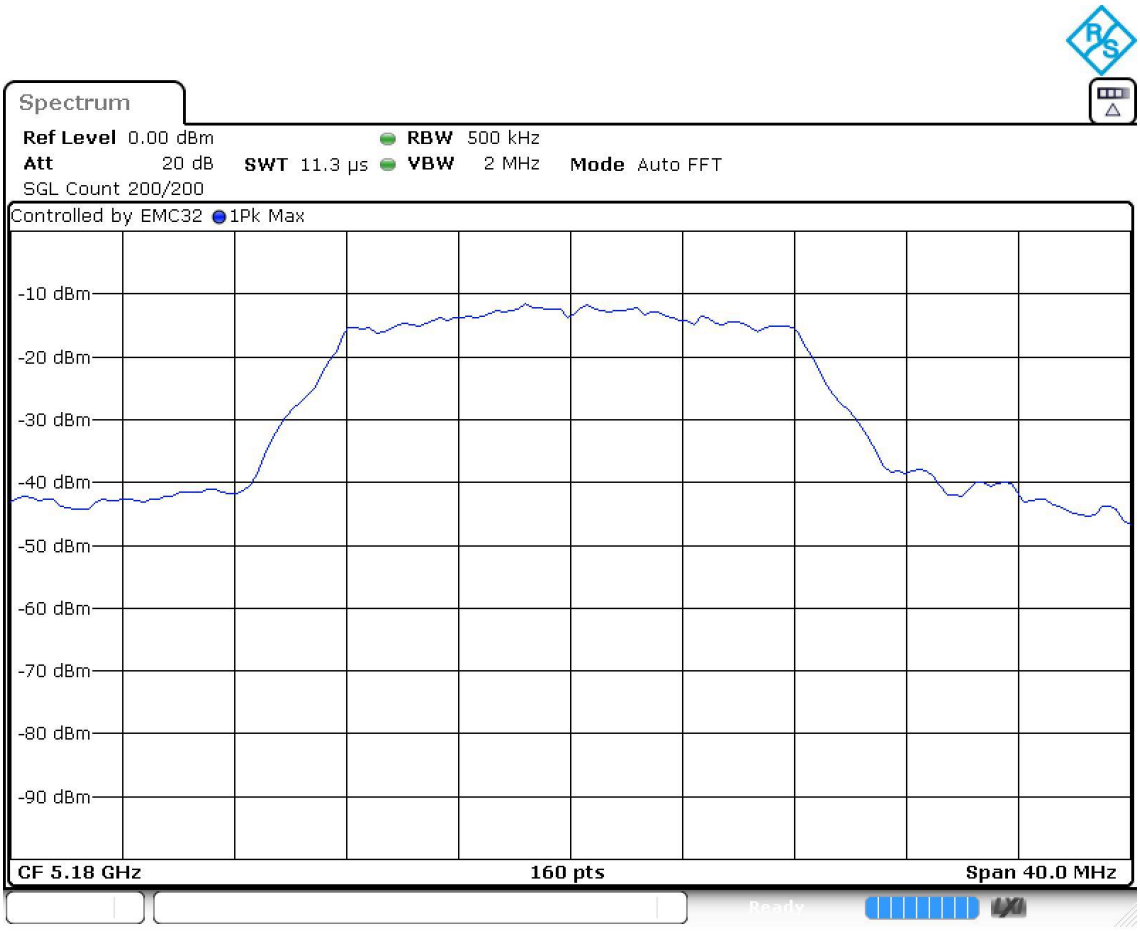
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5180.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



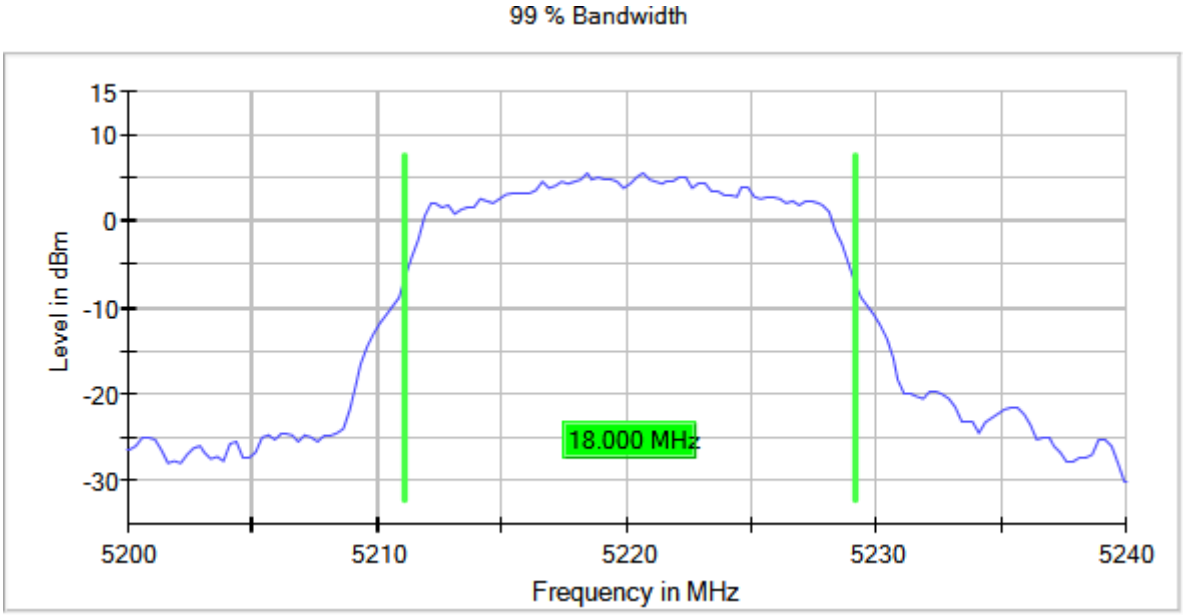



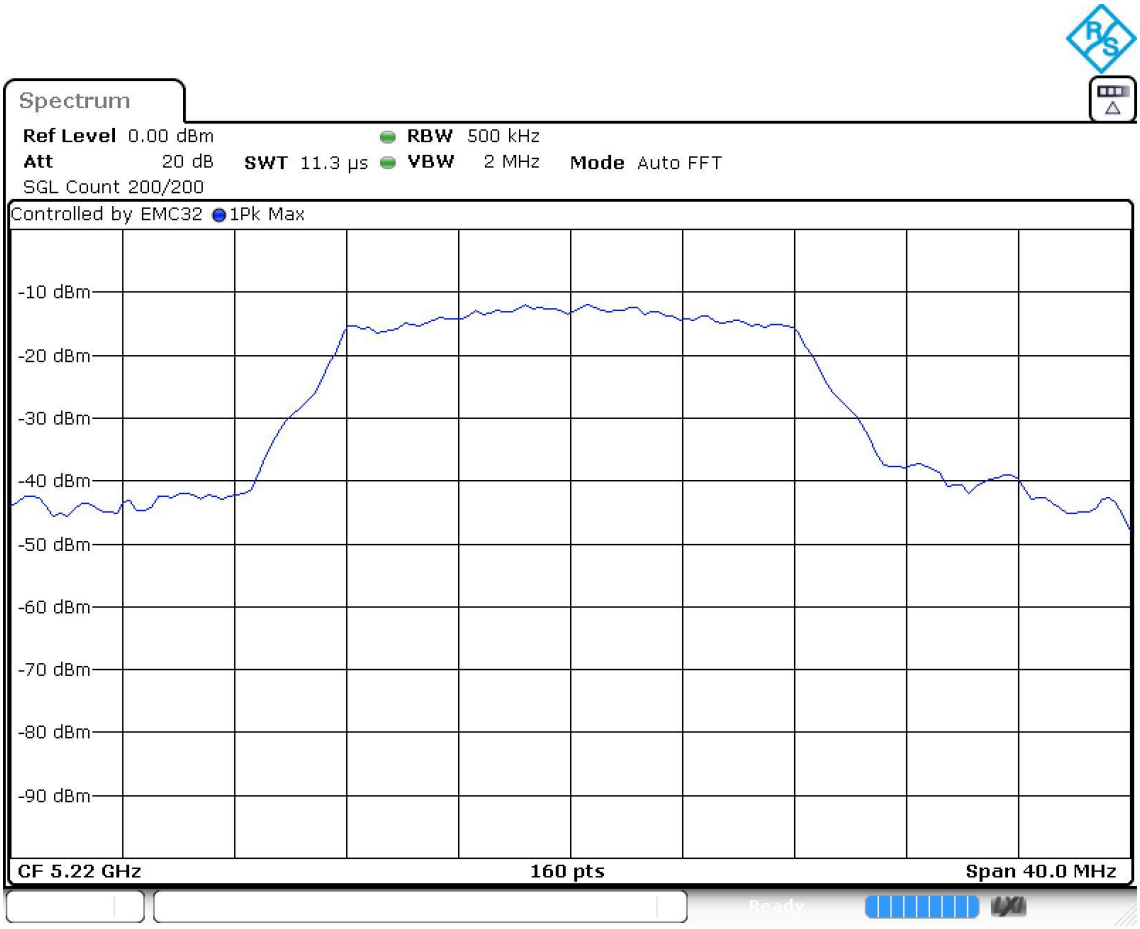
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5220.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



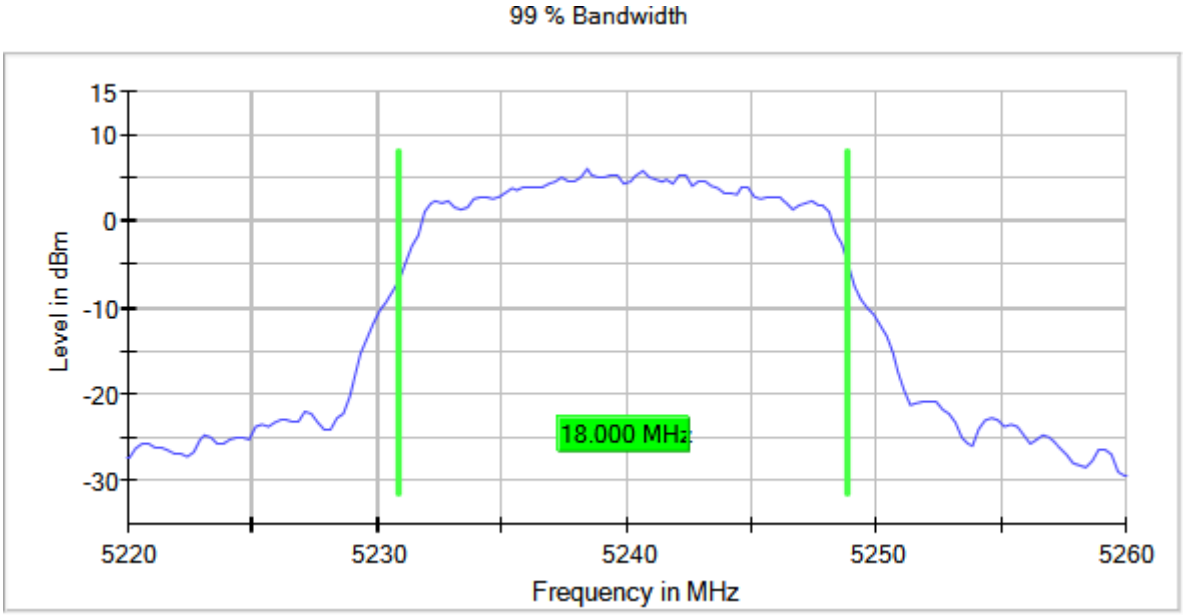



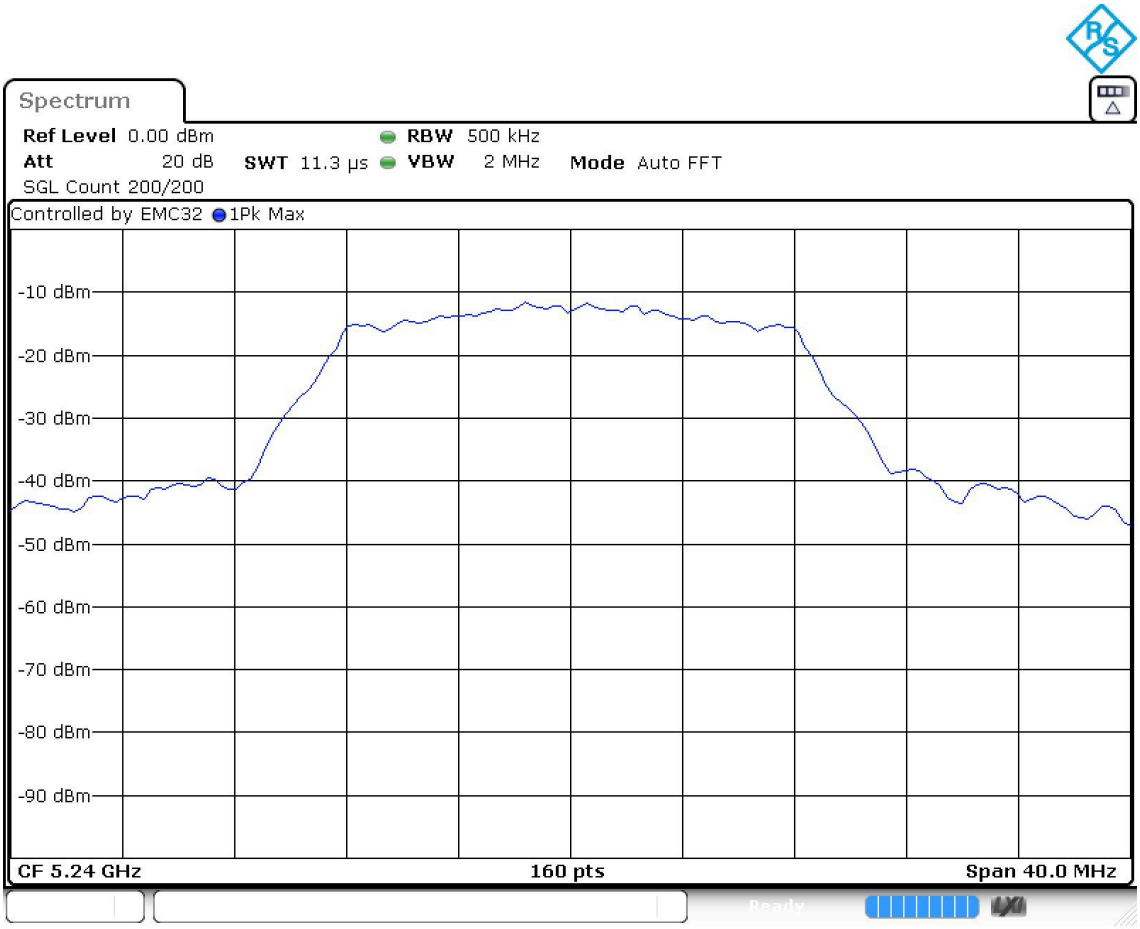
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5240.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



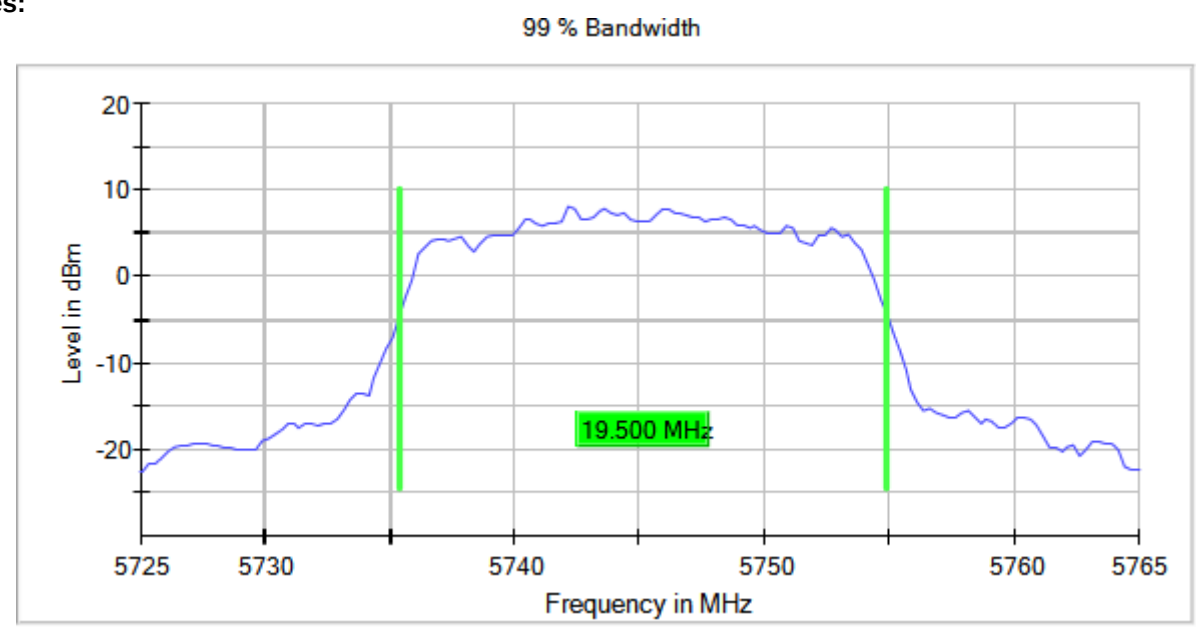



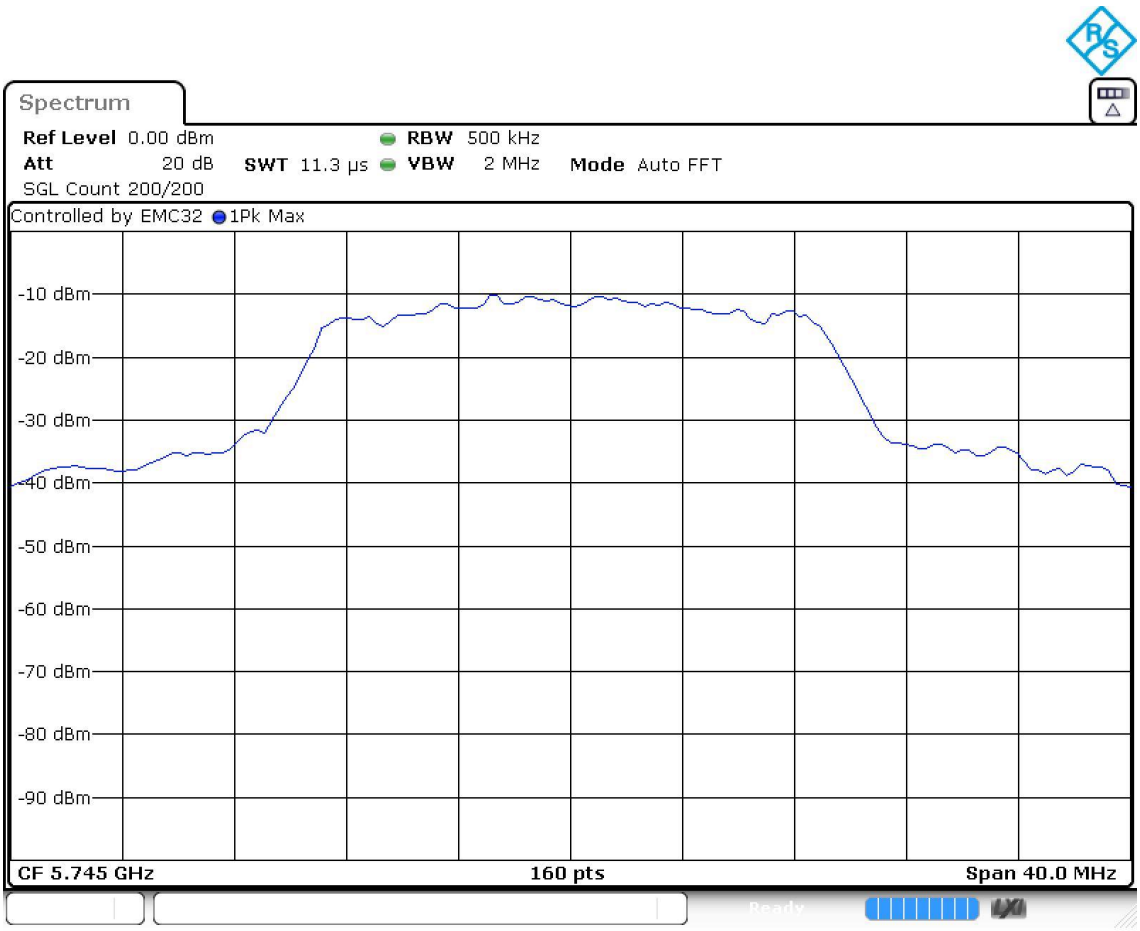
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5745.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



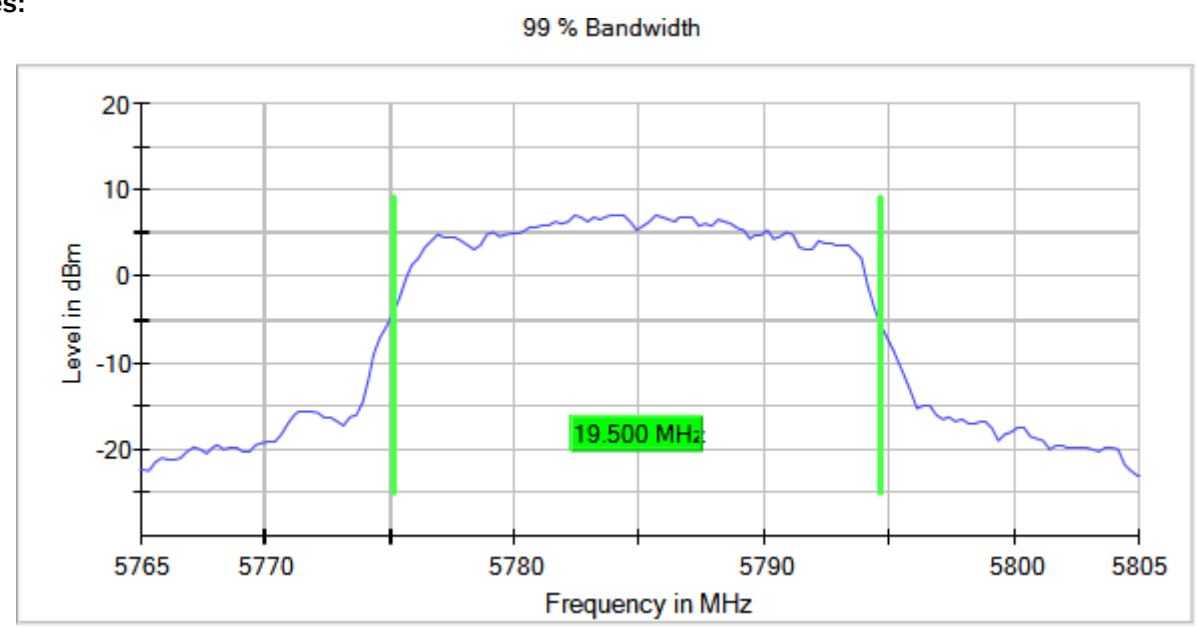



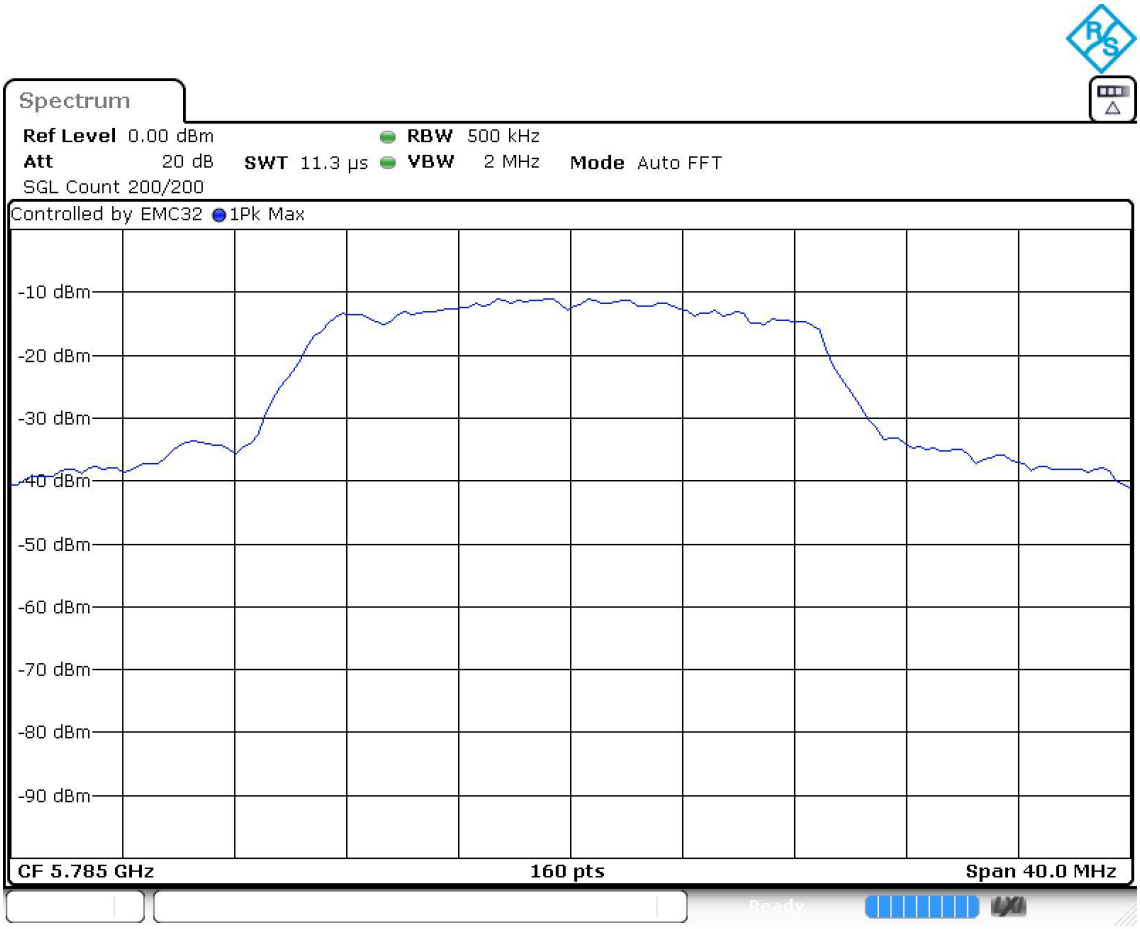
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5785.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



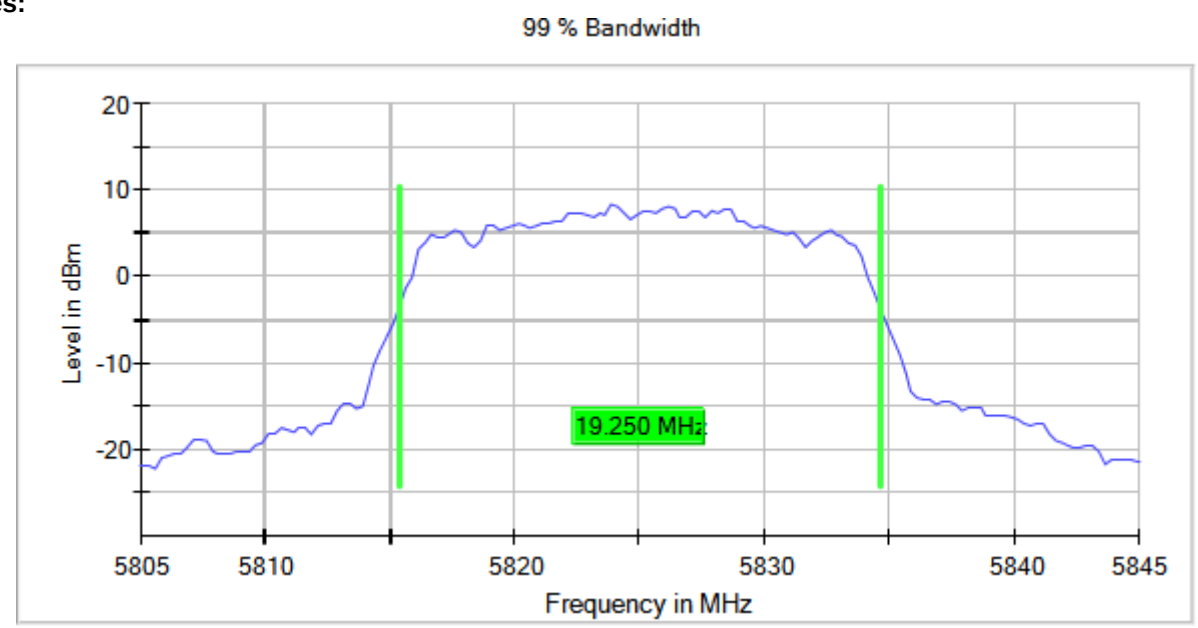



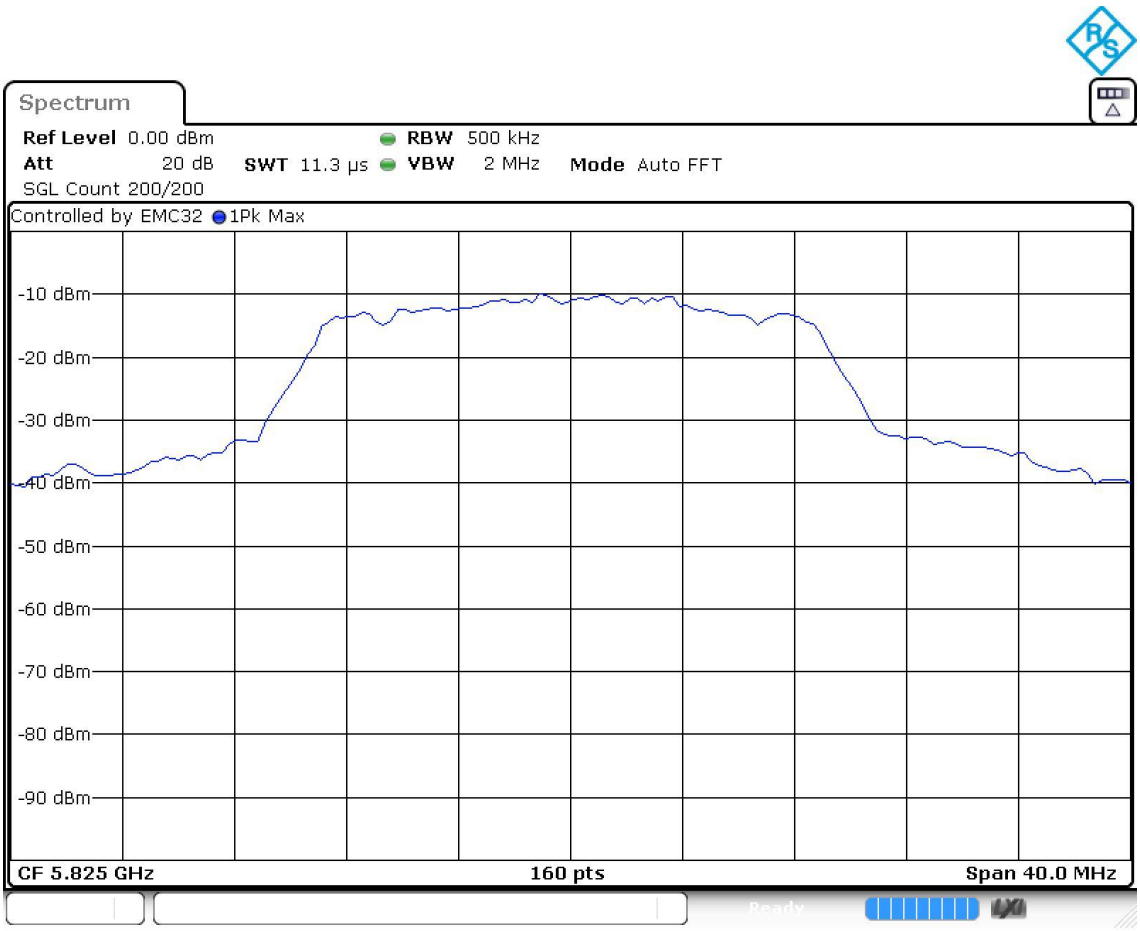
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5825.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



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

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | Occ Ch BW (MHz) |
|---|---|---|---|
| [5150, 5250] | 1 | 5190.00000 | 37.500 |
| | | 5230.00000 | 37.000 |
| [5725, 5850] | | 5755.00000 | 37.500 |
| | | 5795.00000 | 37.500 |

***Verdict***

Pass

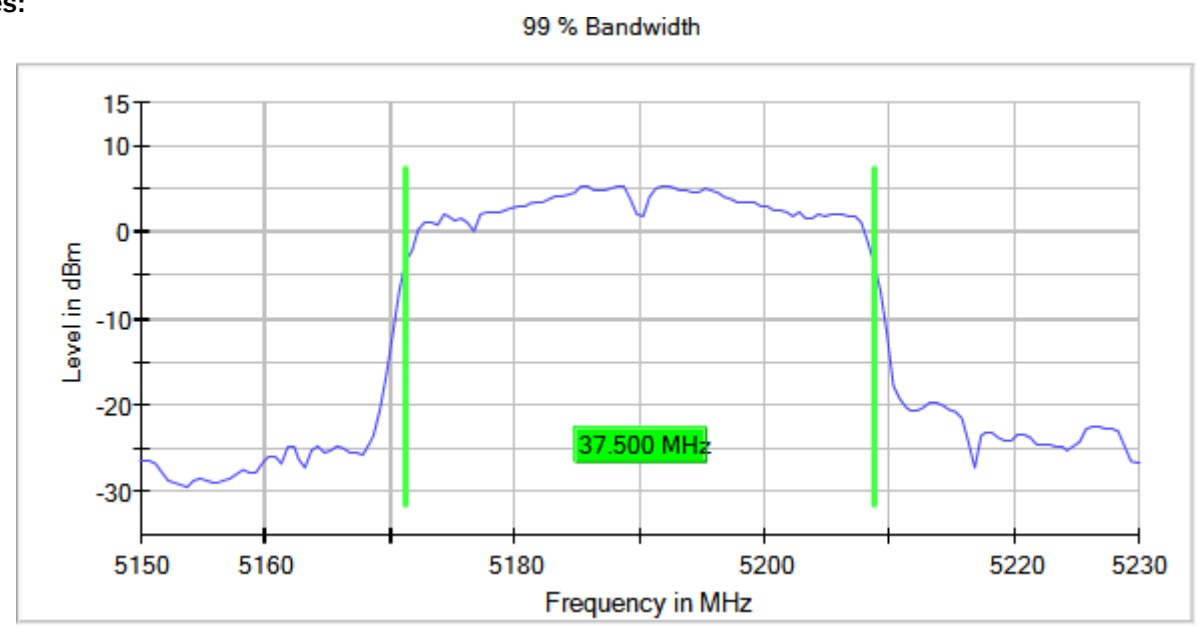
### *Attachments*

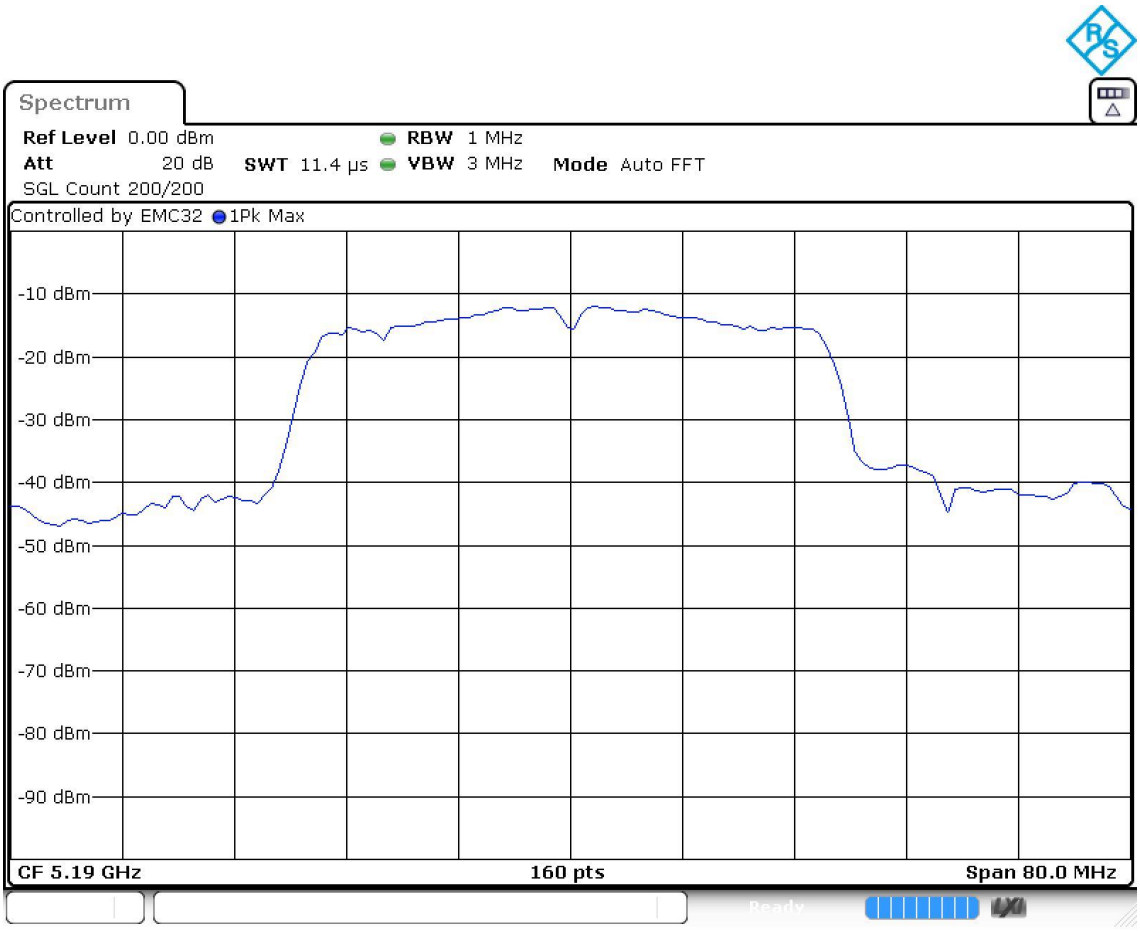
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5190.00000 Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

MIMO Mode = SISO

**Images:**



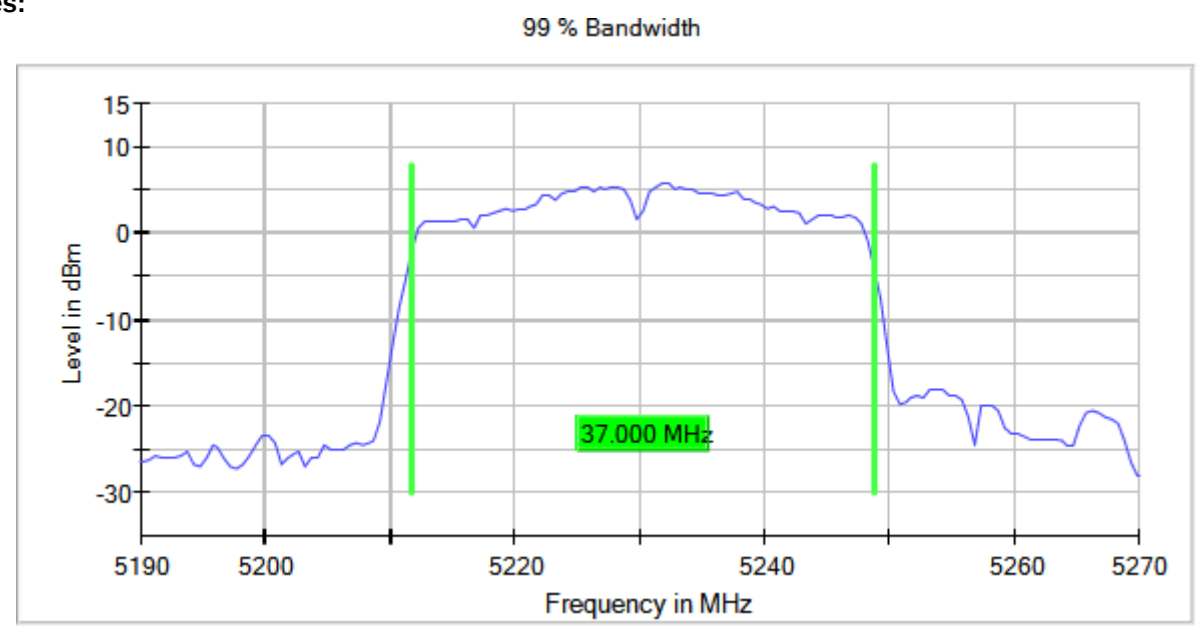



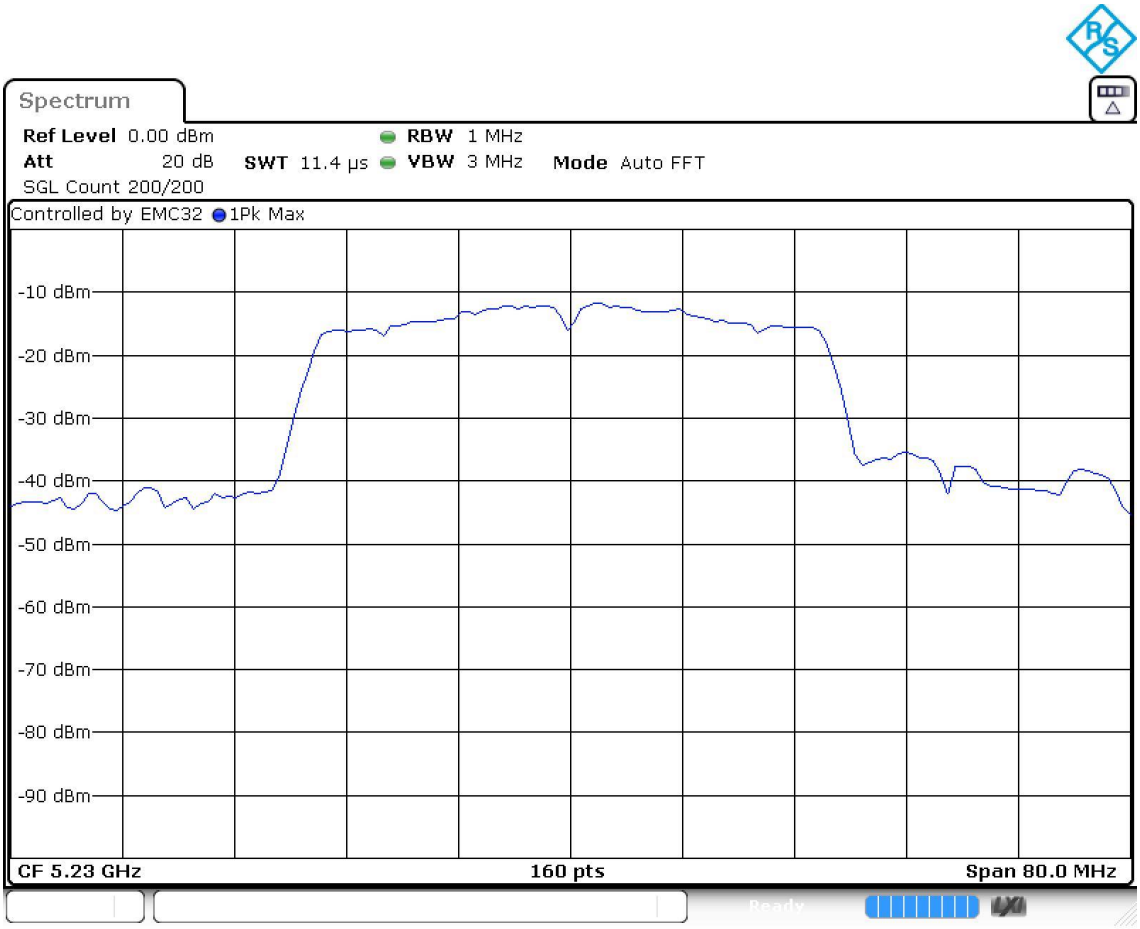
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5230.00000 Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

MIMO Mode = SISO

**Images:**



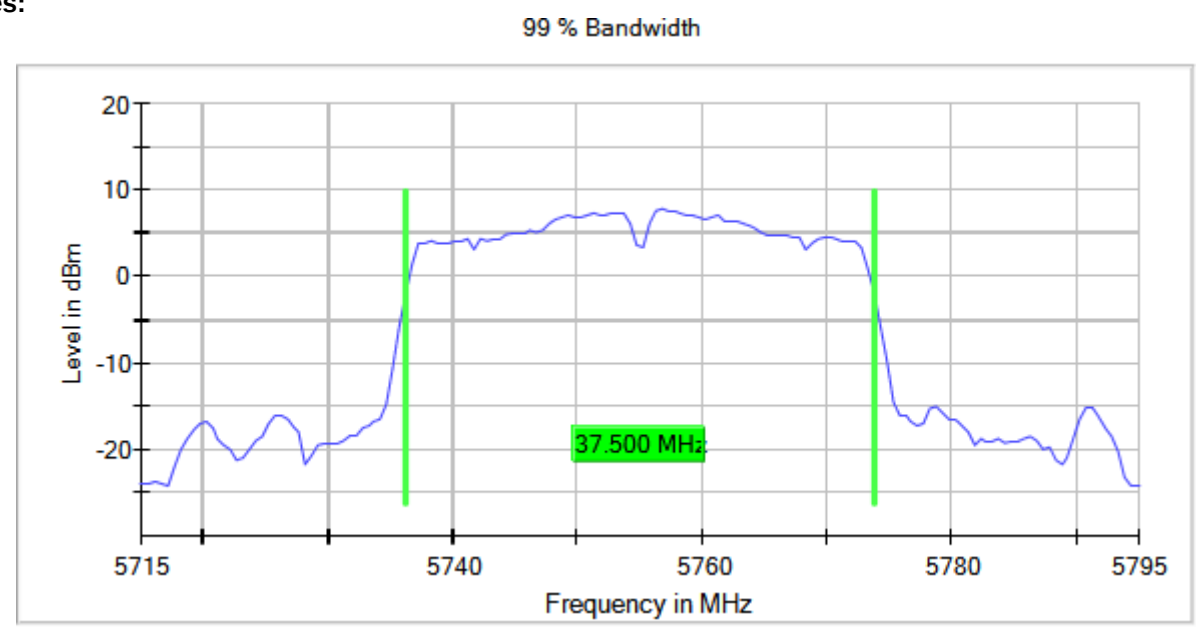



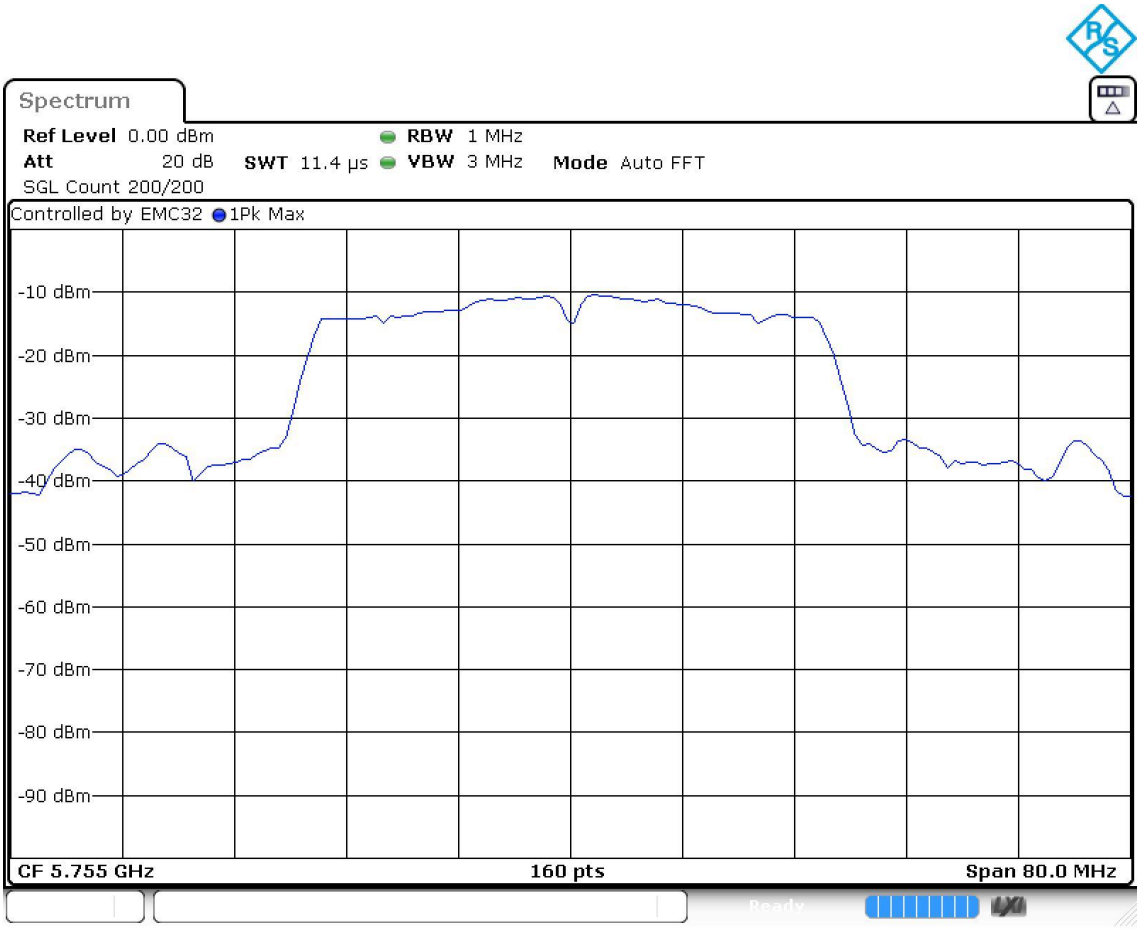
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5755.00000 Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

MIMO Mode = SISO

**Images:**



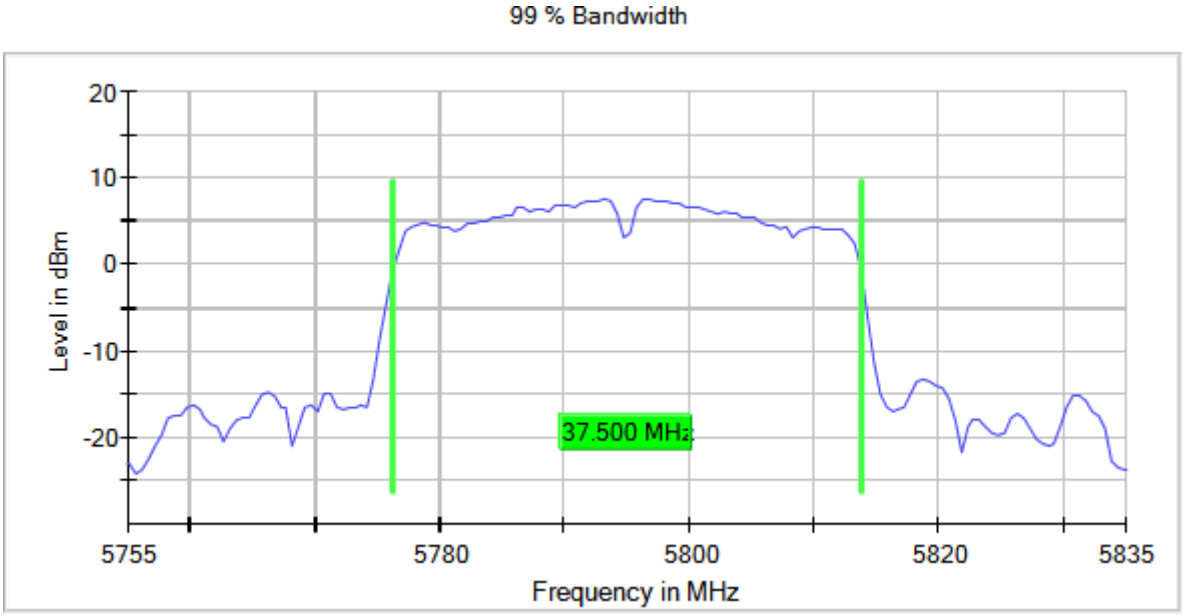



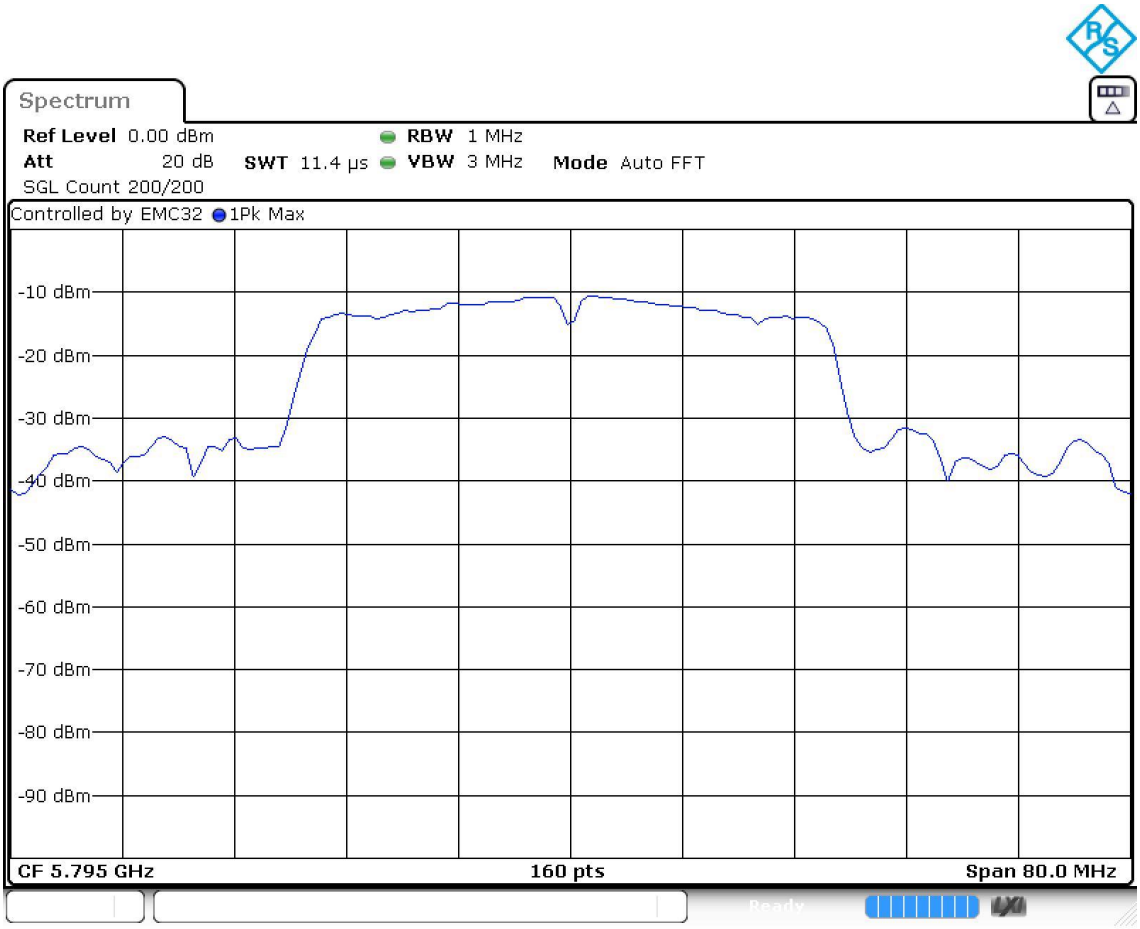
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5795.00000 Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

MIMO Mode = SISO

**Images:**



Modulation: 802.11a (OFDM 6 Mbit/s)

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | Occ Ch BW (MHz) |
|---|---|---|---|
| [5150, 5250] | 1 | 5180.00000 | 17.750 |
| | | 5220.00000 | 18.000 |
| | | 5240.00000 | 17.750 |
| [5725, 5850] | | 5745.00000 | 18.500 |
| | | 5785.00000 | 18.500 |
| | | 5825.00000 | 18.500 |

***Verdict***

Pass

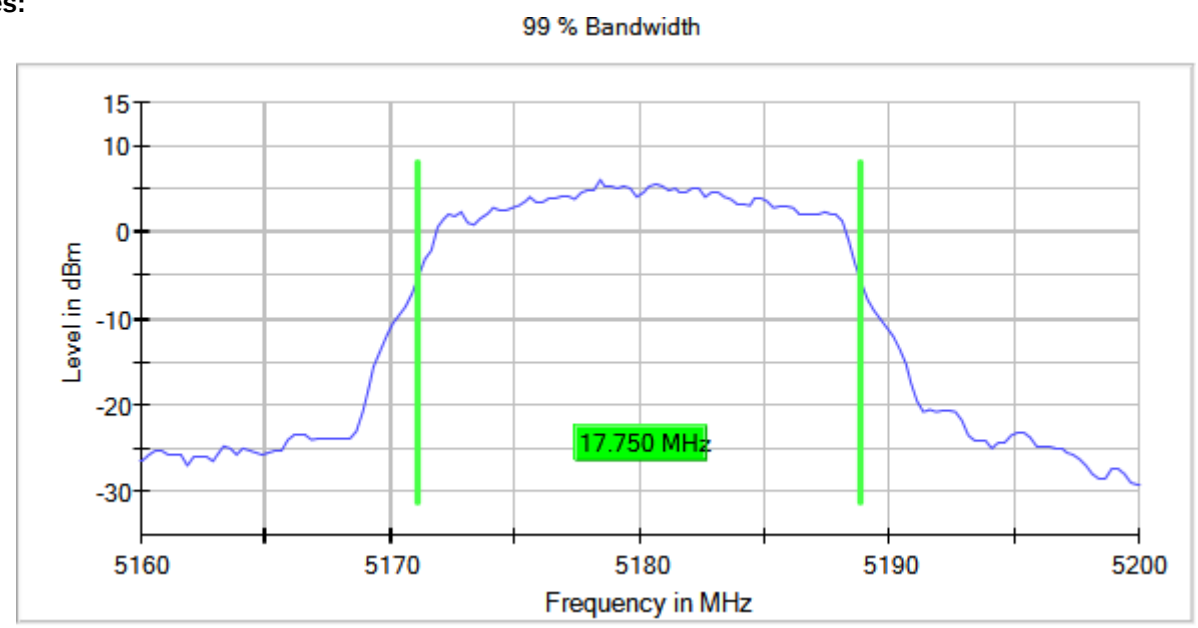
### *Attachments*

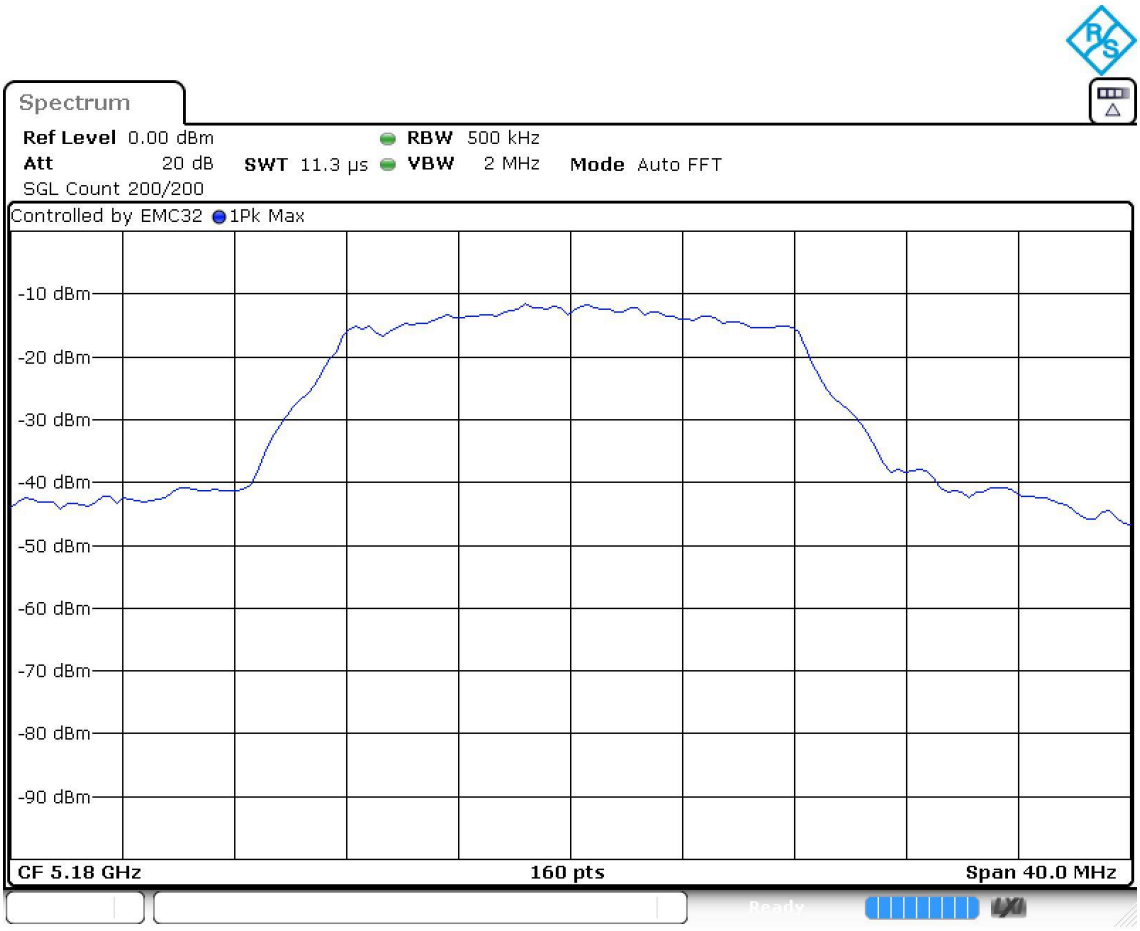
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5180.00000 Modulation = 802.11a (OFDM 6 Mbit/s)

MIMO Mode = SISO

**Images:**



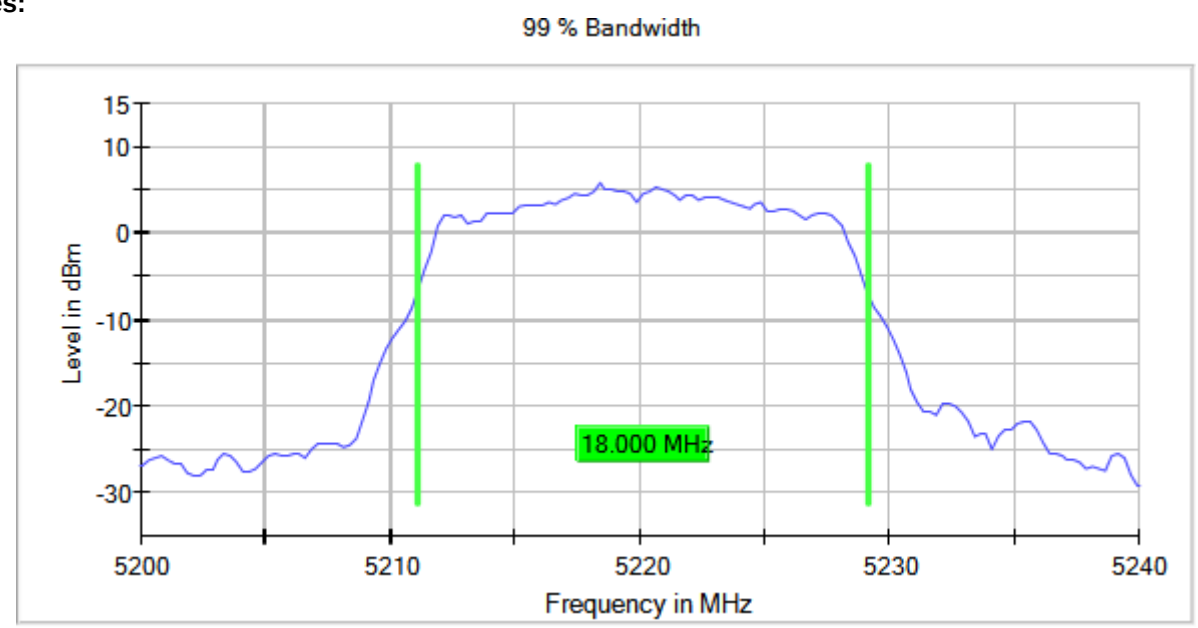



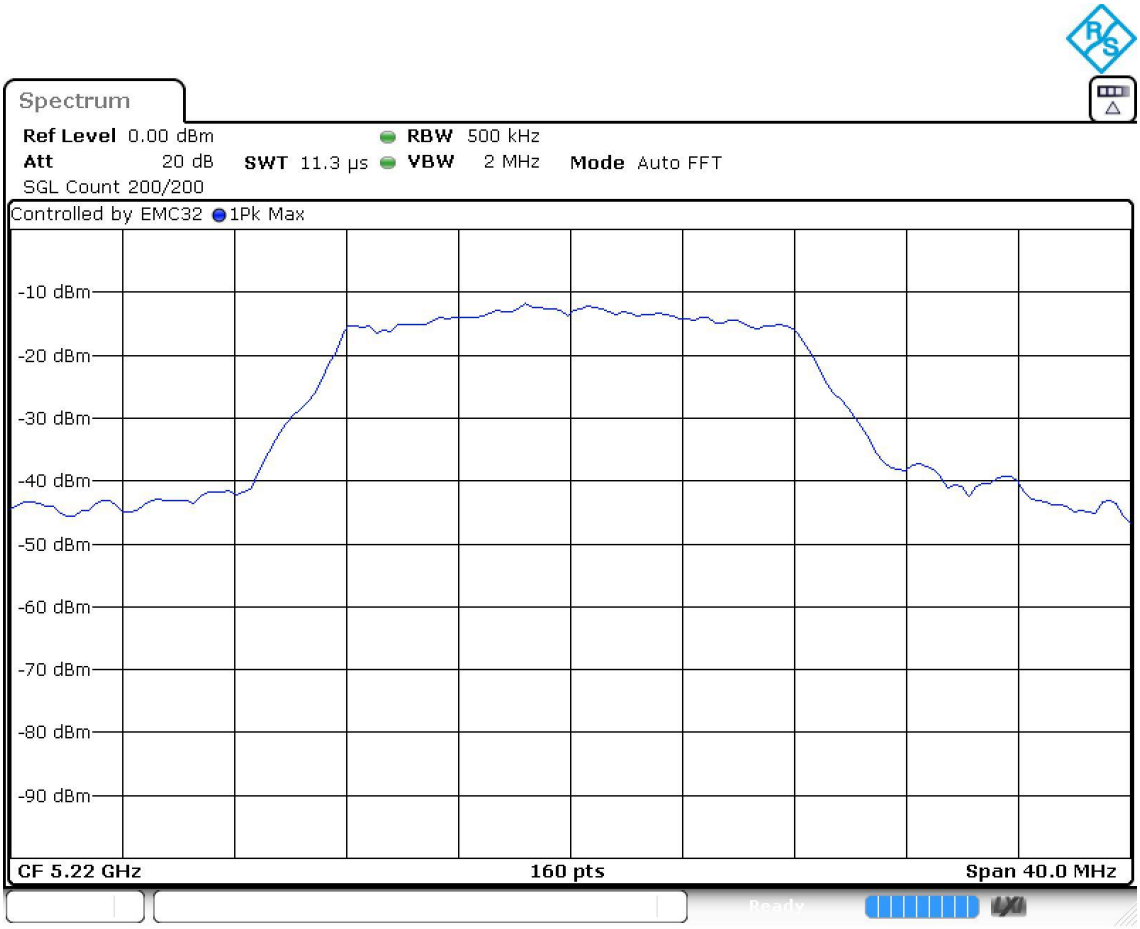
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5220.00000 Modulation = 802.11a (OFDM 6 Mbit/s)

MIMO Mode = SISO

**Images:**



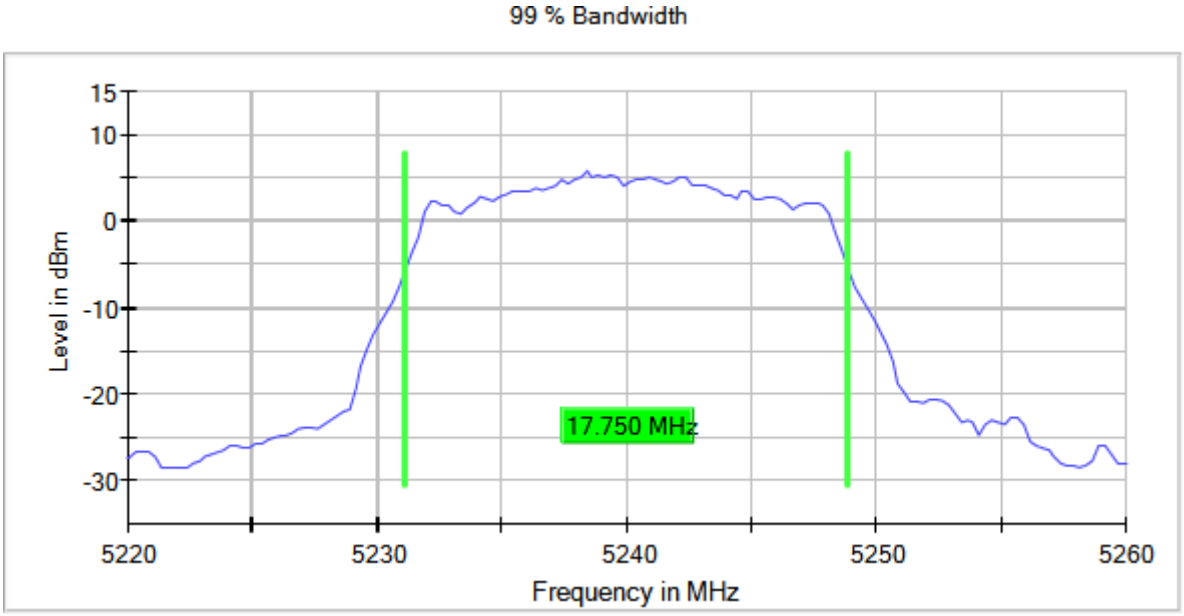



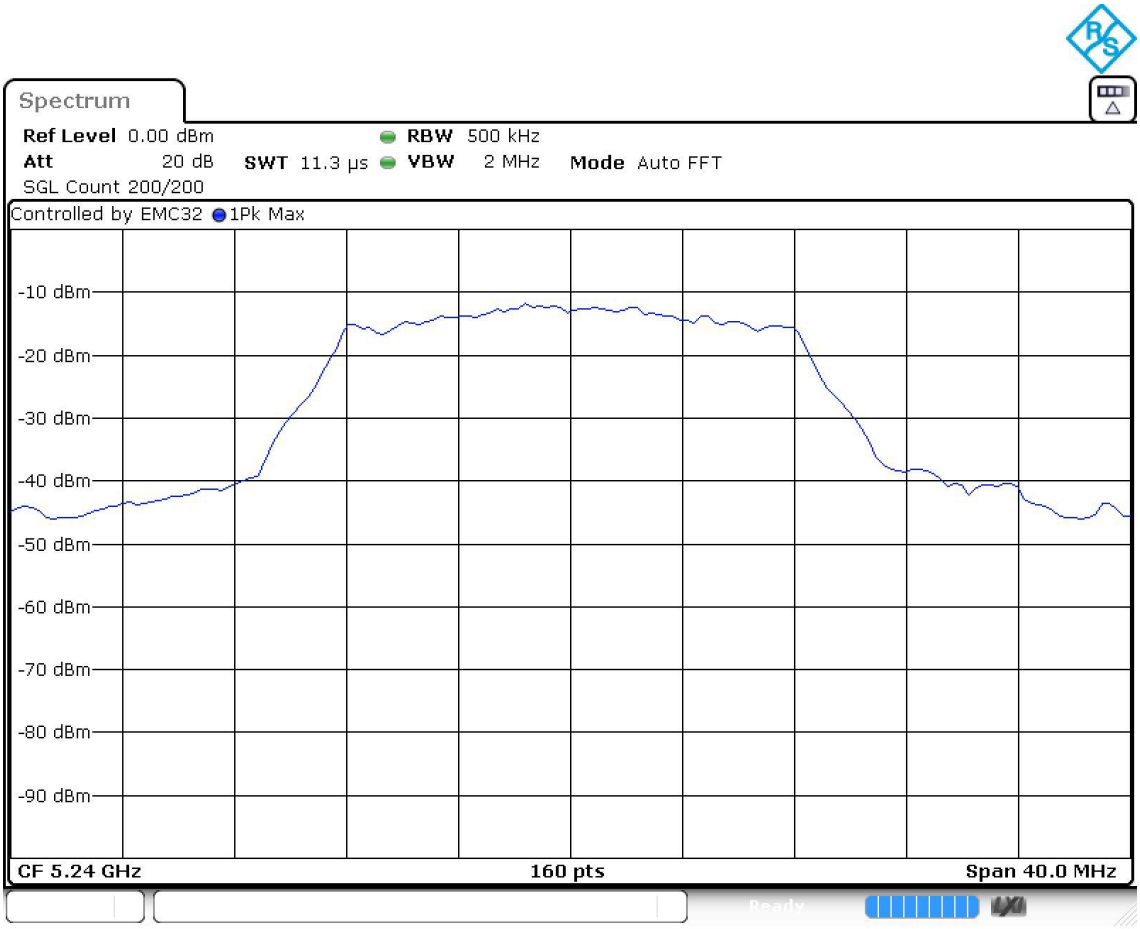
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5240.00000 Modulation = 802.11a (OFDM 6 Mbit/s)

MIMO Mode = SISO

**Images:**



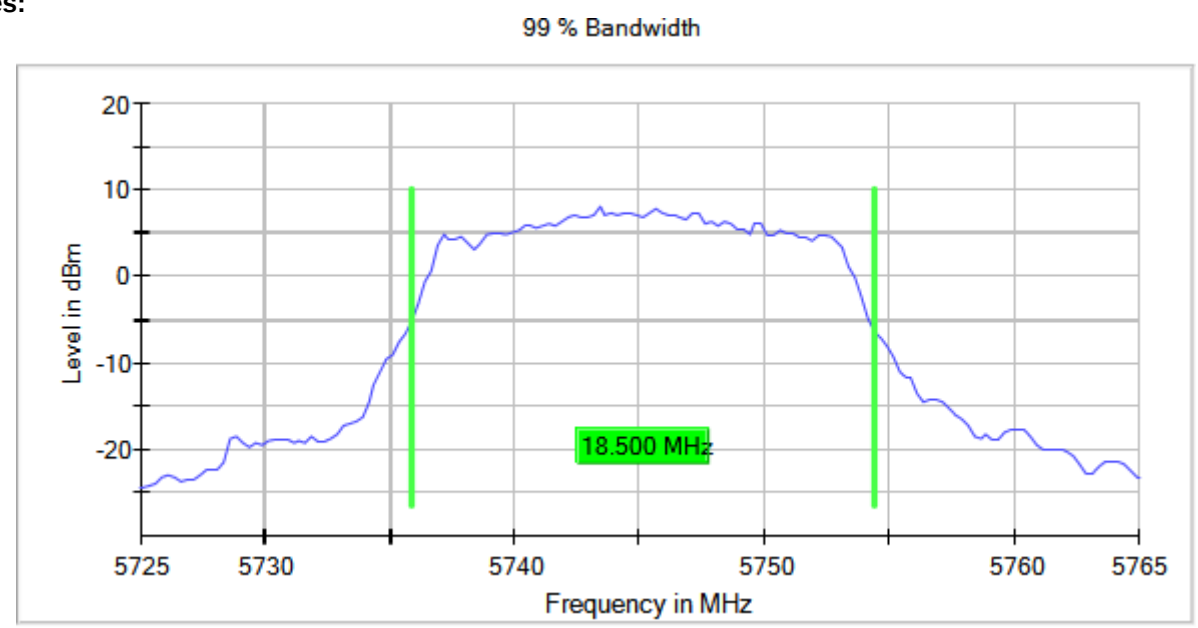



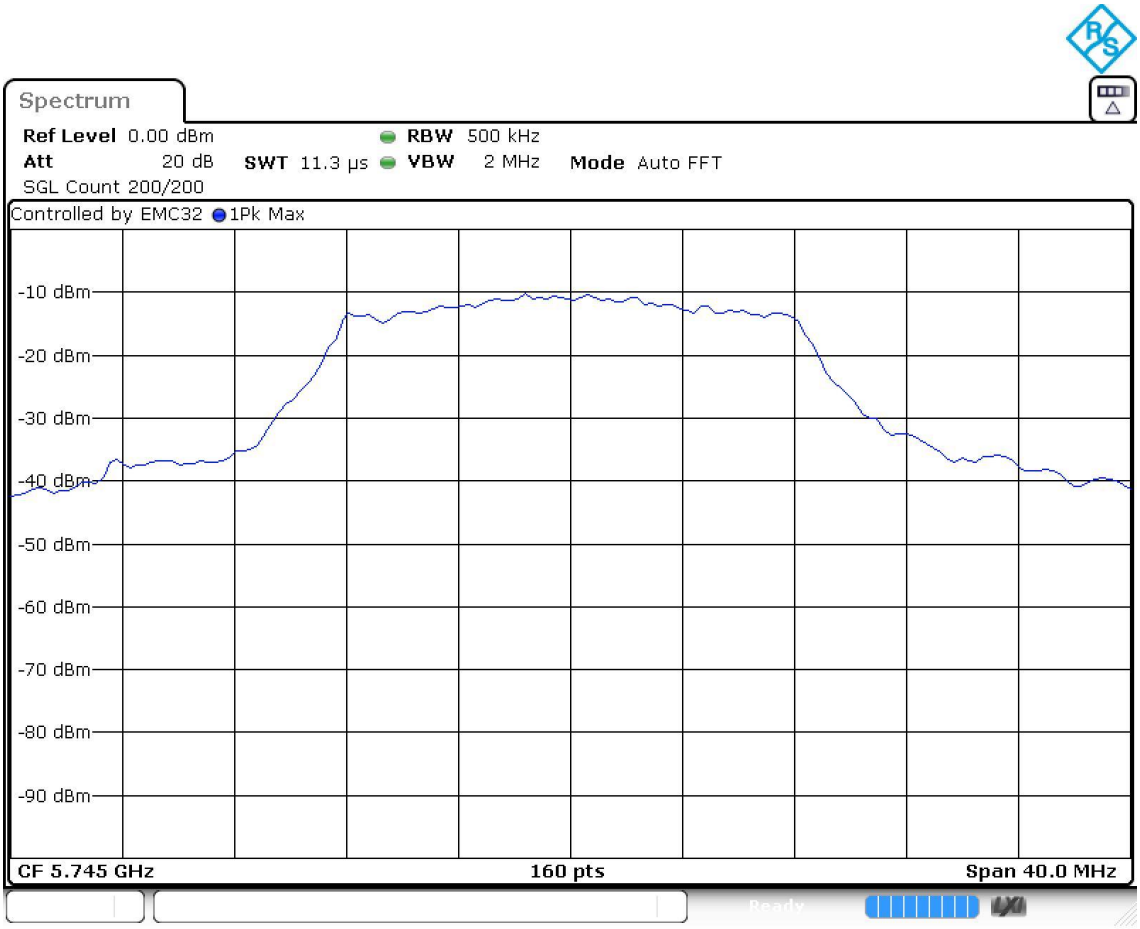
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5745.00000 Modulation = 802.11a (OFDM 6 Mbit/s)

MIMO Mode = SISO

**Images:**



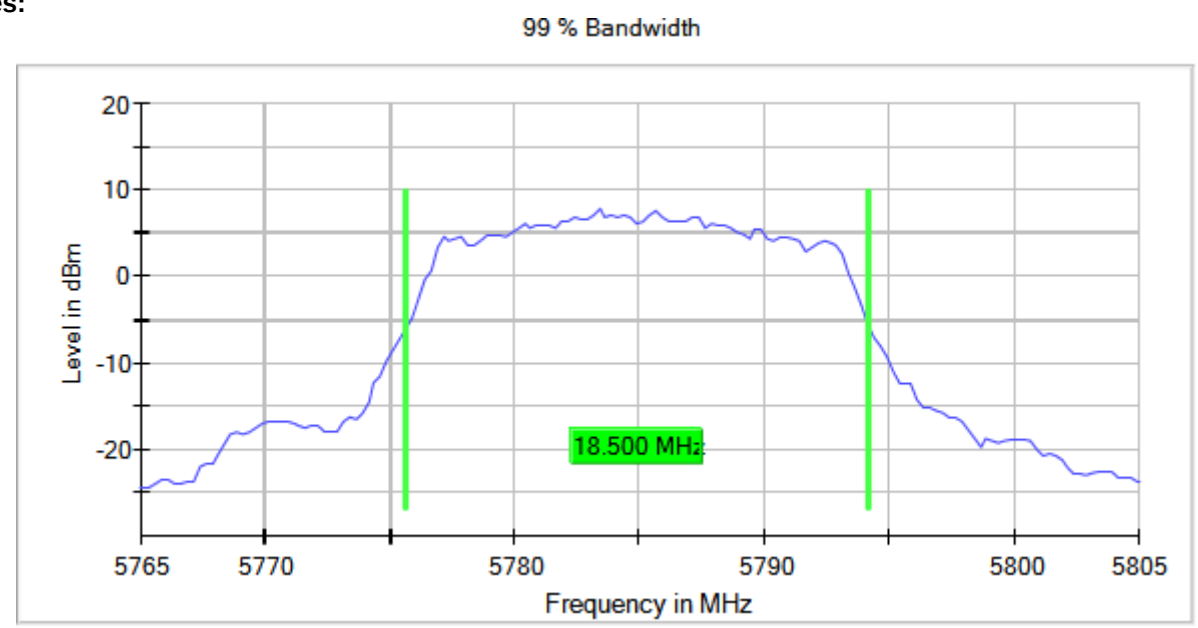



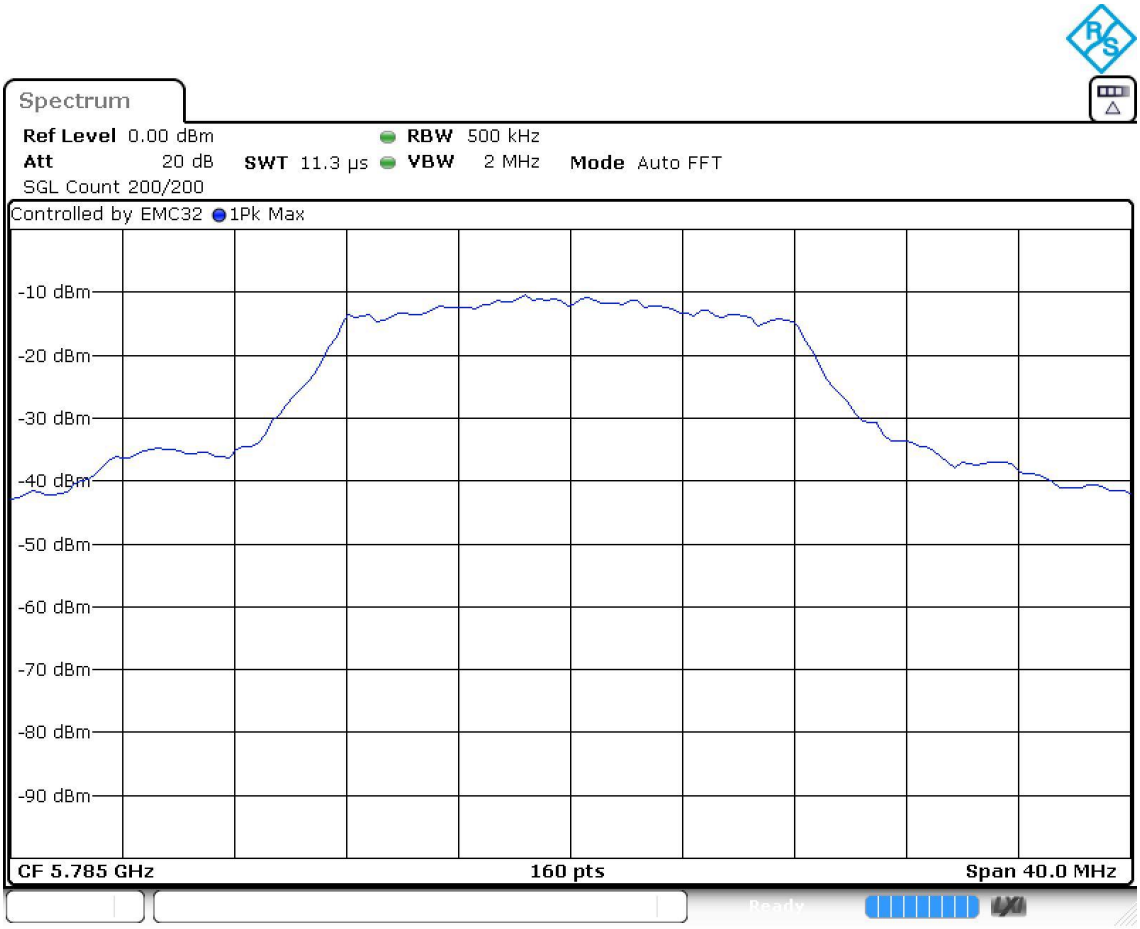
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5785.00000 Modulation = 802.11a (OFDM 6 Mbit/s)

MIMO Mode = SISO

**Images:**



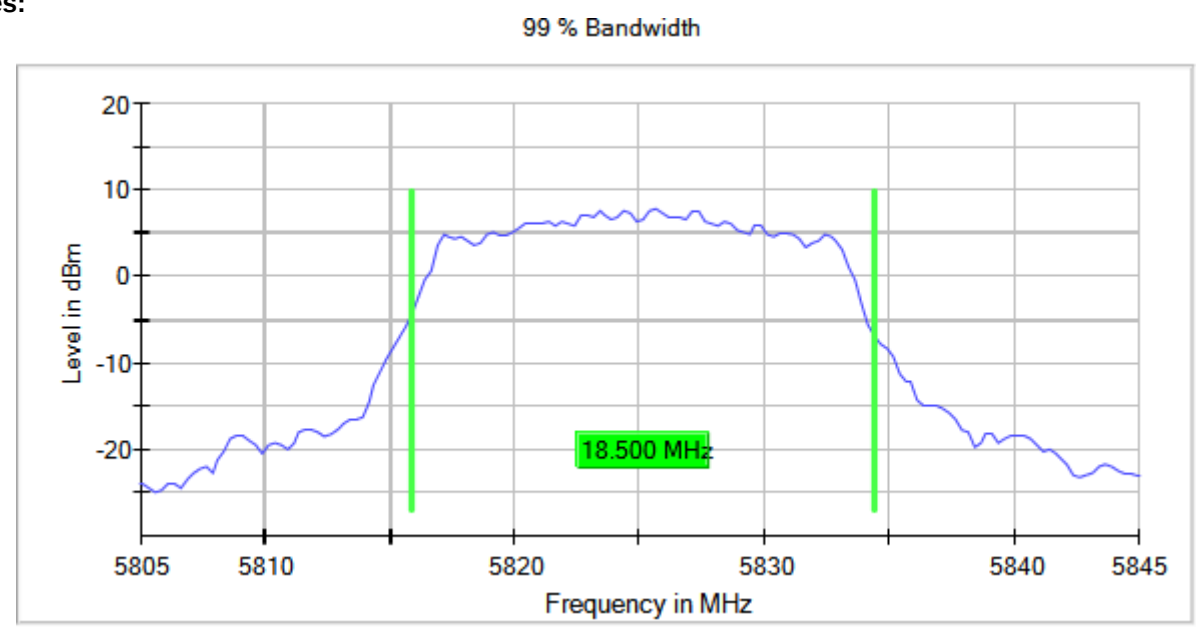



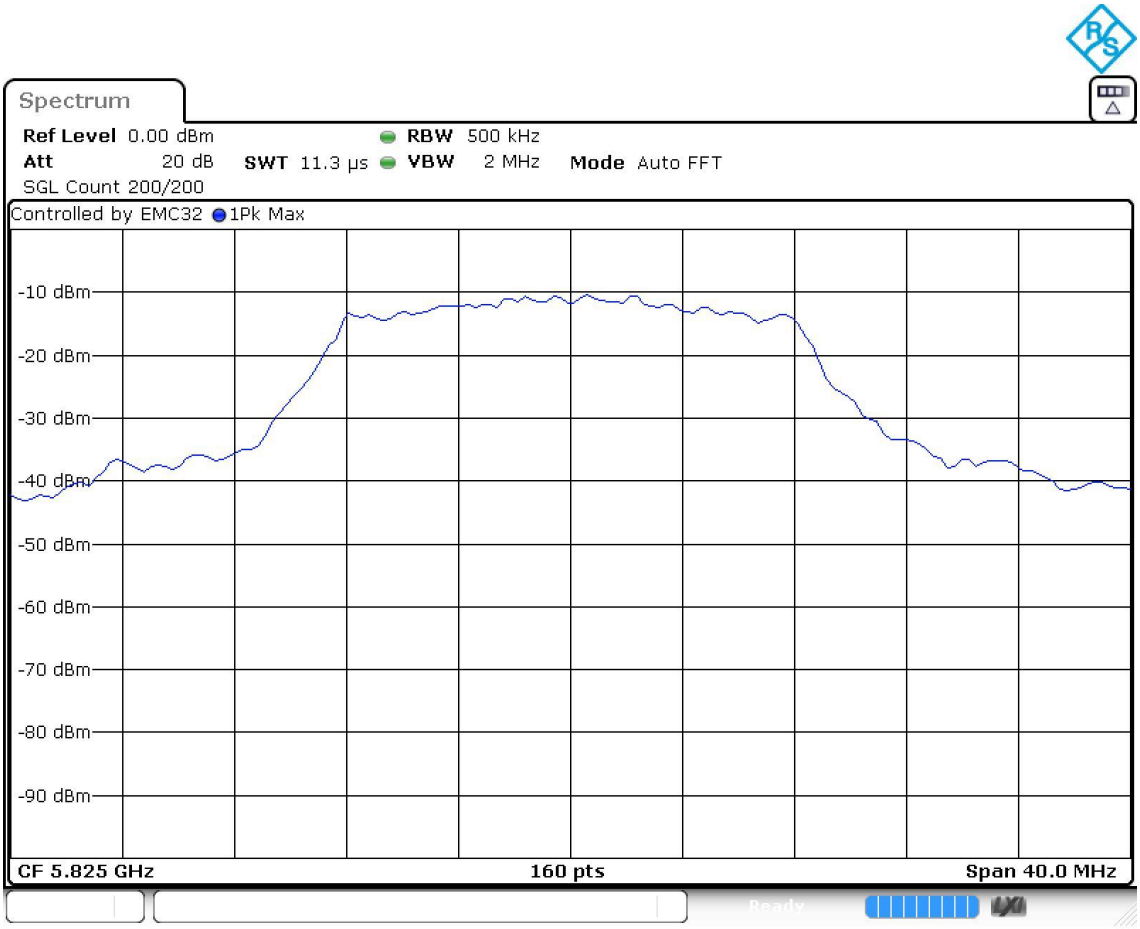
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5825.00000 Modulation = 802.11a (OFDM 6 Mbit/s)

MIMO Mode = SISO

**Images:**




Modulation: 802.11ac VHT20 (OFDM MCS0)

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | Occ Ch BW (MHz) |
|---|---|---|---|
| [5150, 5250] | 1 | 5180.00000 | 17.500 |
| | | 5220.00000 | 17.500 |
| | | 5240.00000 | 17.250 |
| [5725, 5850] | | 5745.00000 | 19.000 |
| | | 5785.00000 | 19.000 |
| | | 5825.00000 | 18.750 |

***Verdict***

Pass

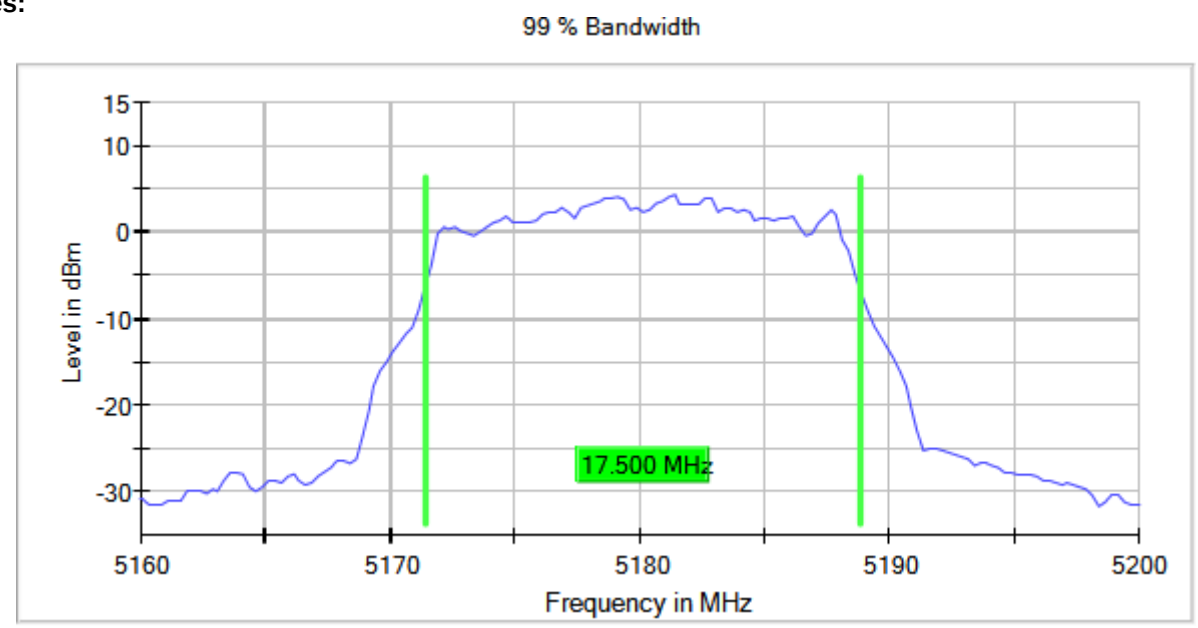
***Attachments***

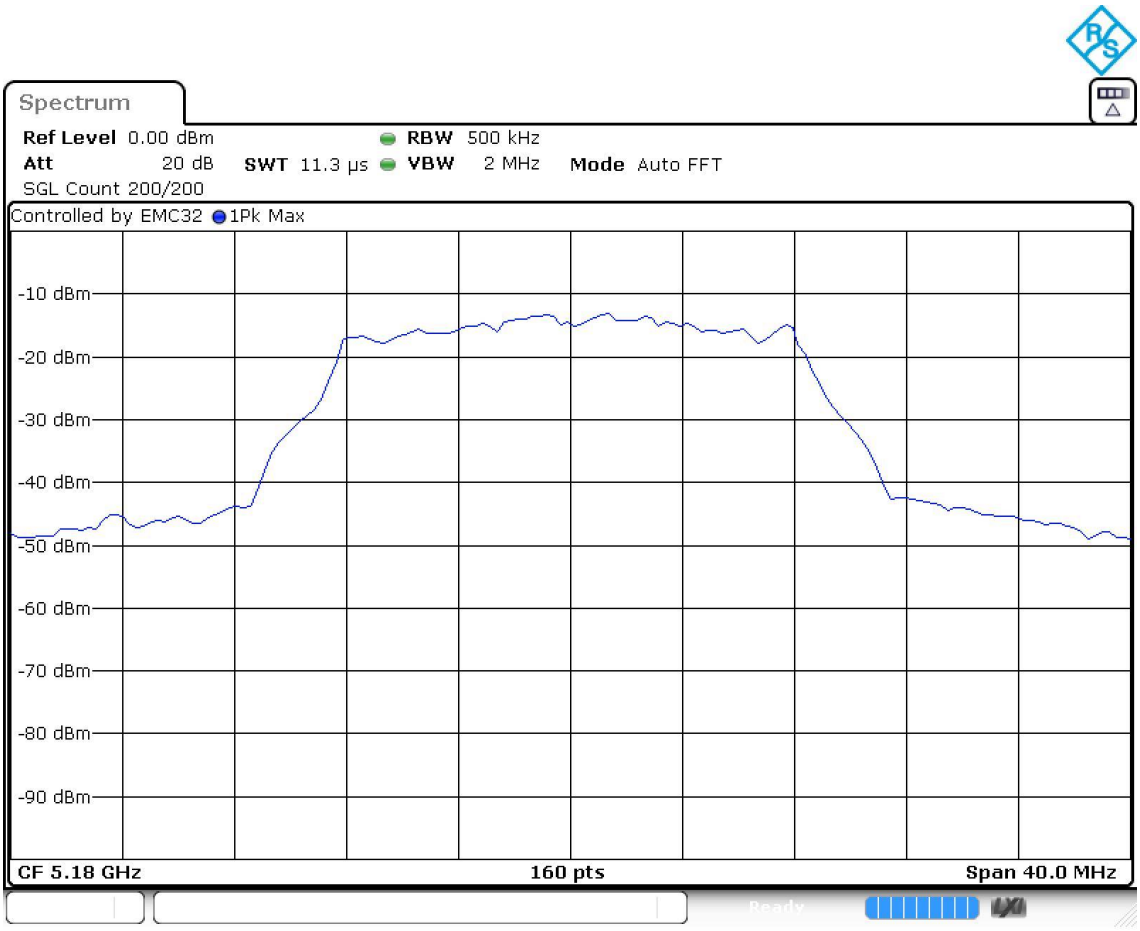
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5180.00000 Modulation = 802.11ac VHT20 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



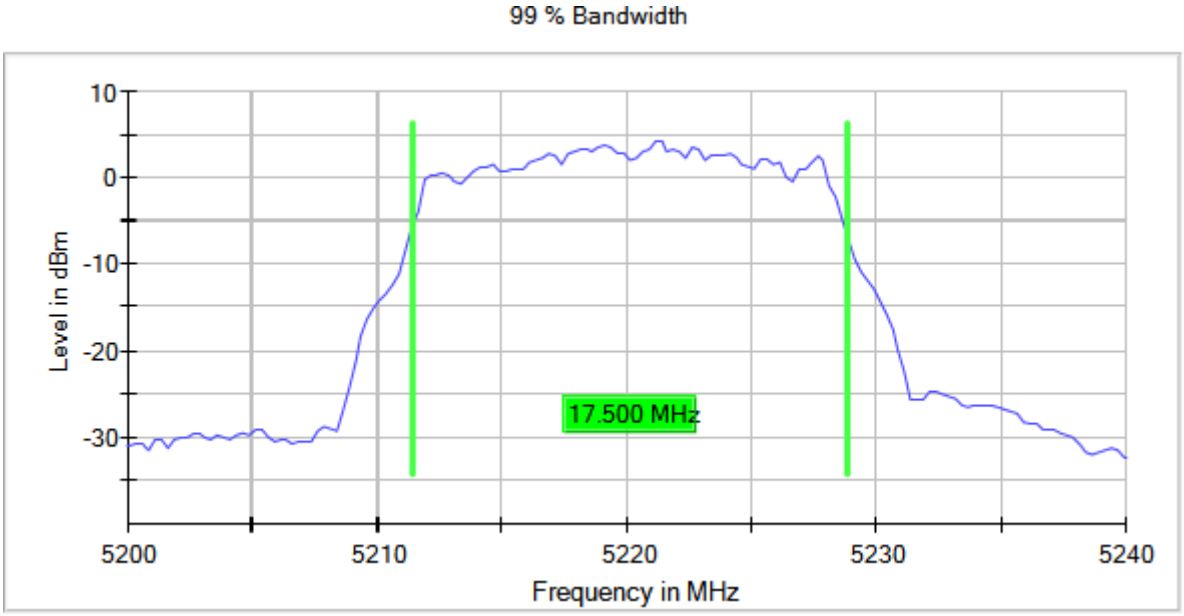



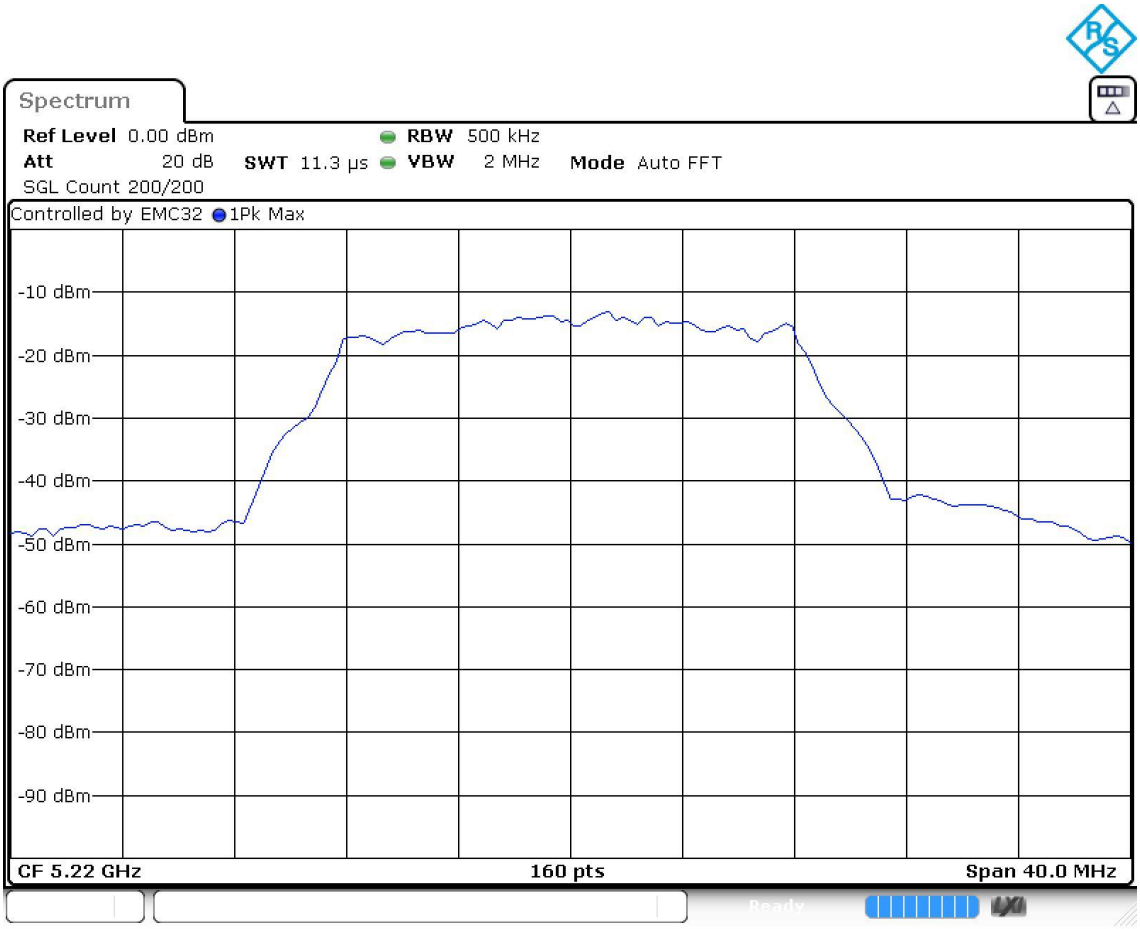
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5220.00000 Modulation = 802.11ac VHT20 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



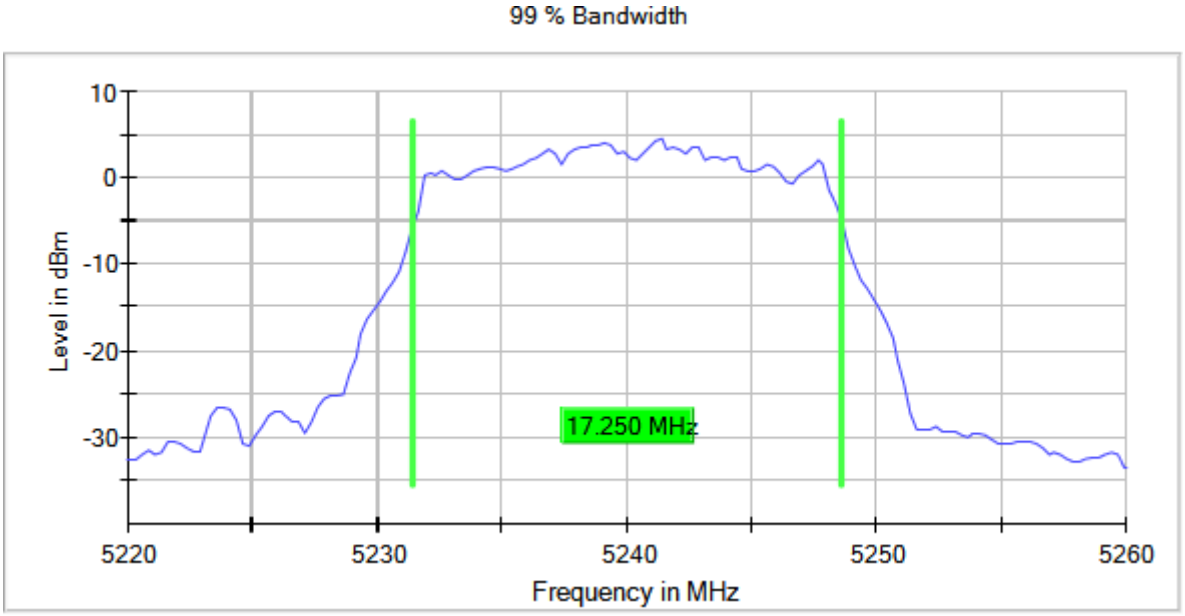



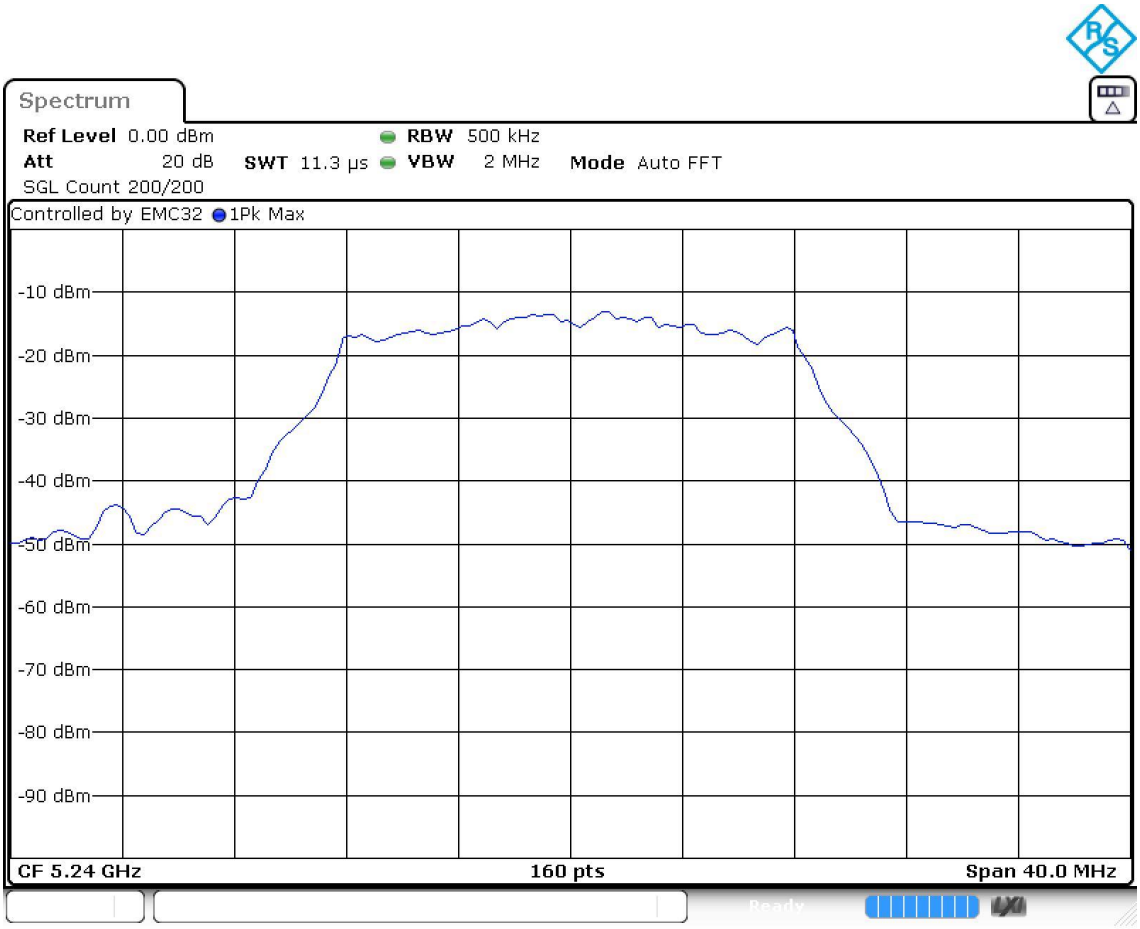
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5240.00000 Modulation = 802.11ac VHT20 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



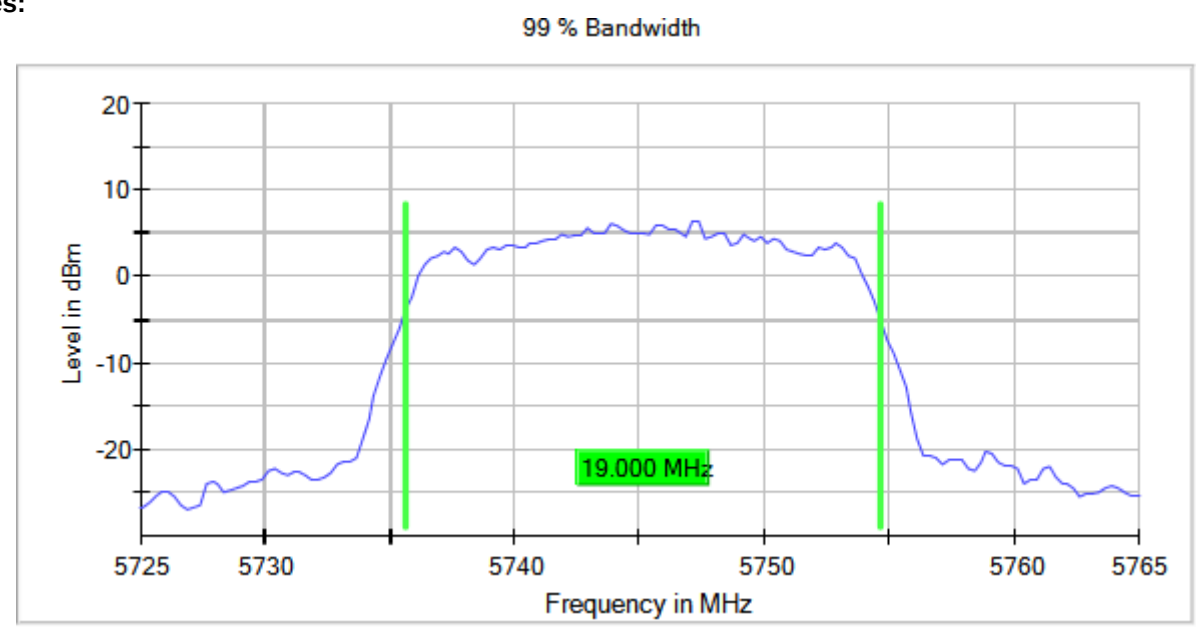



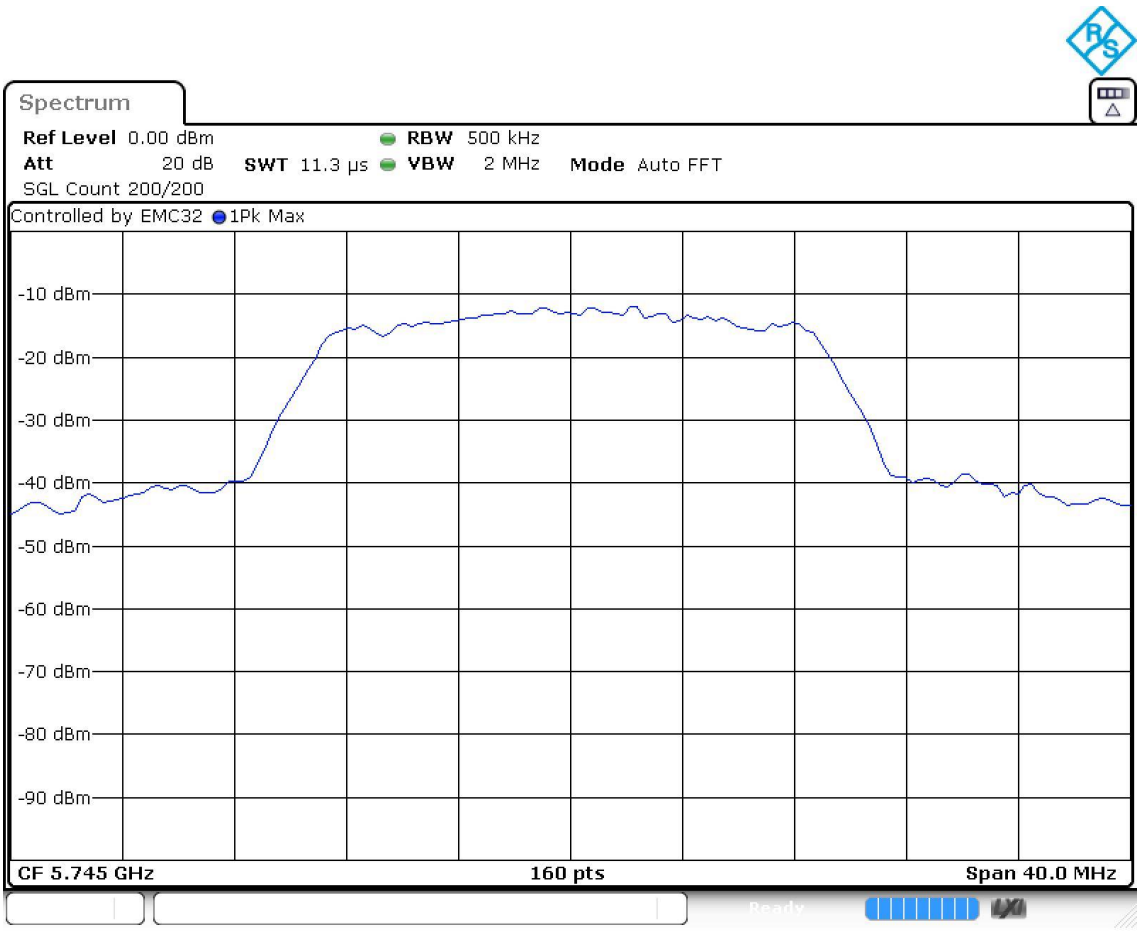
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5745.00000 Modulation = 802.11ac VHT20 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



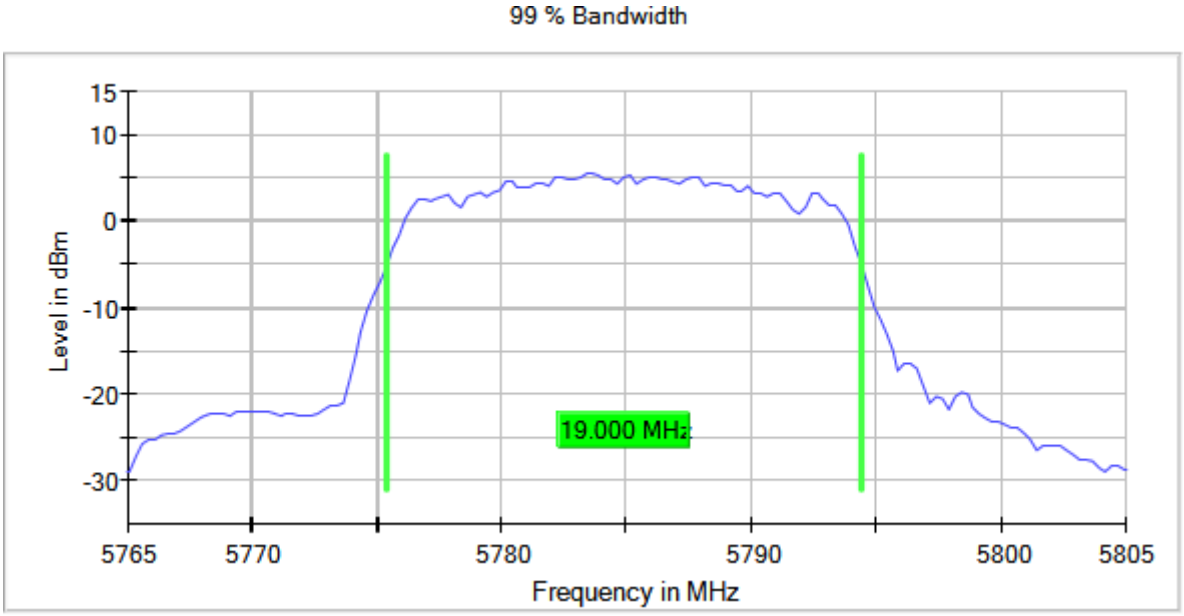



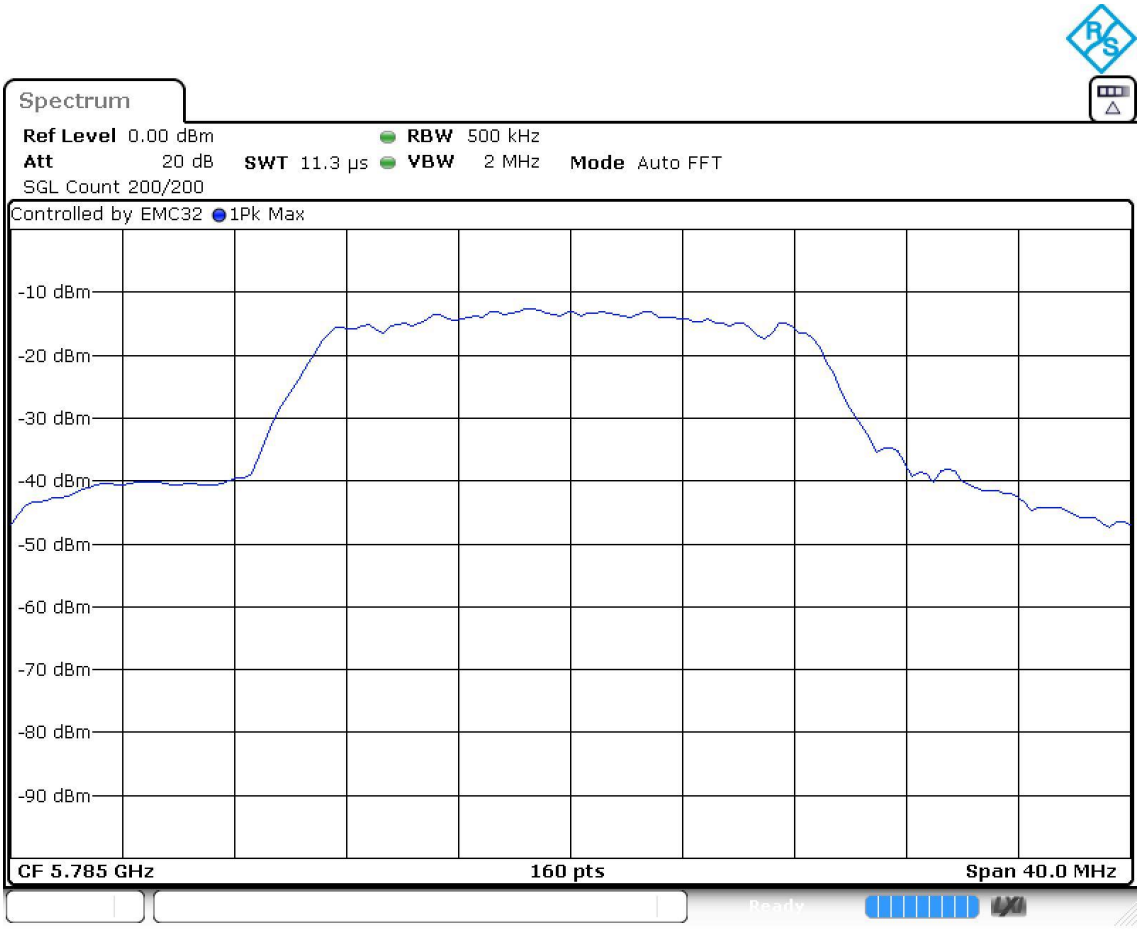
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5785.00000 Modulation = 802.11ac VHT20 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



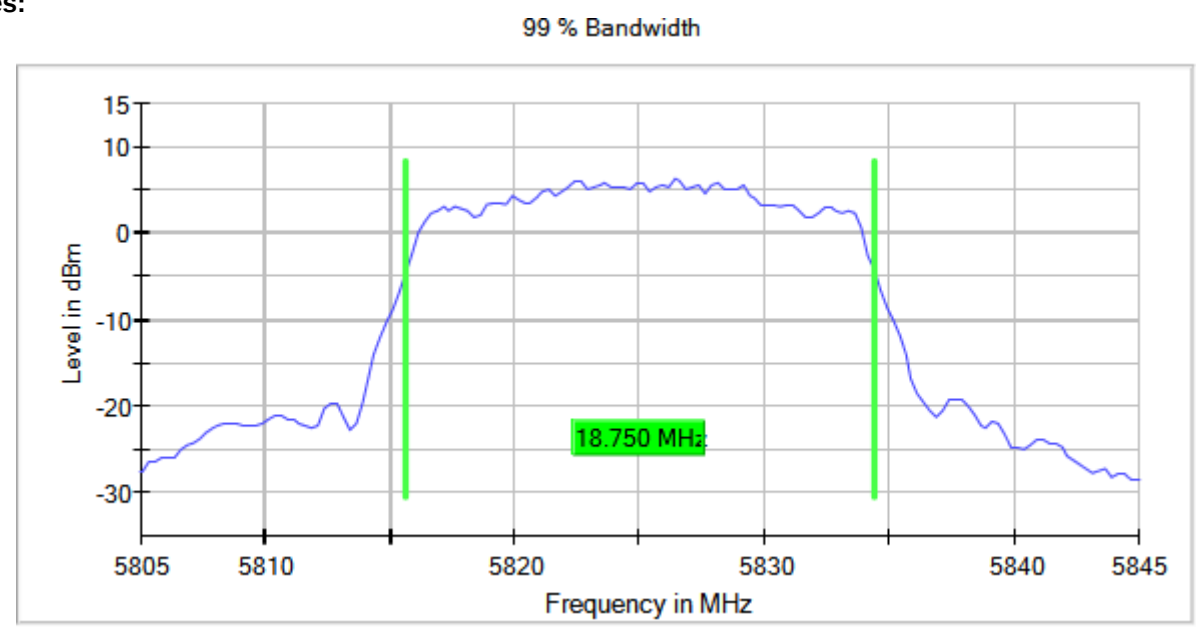



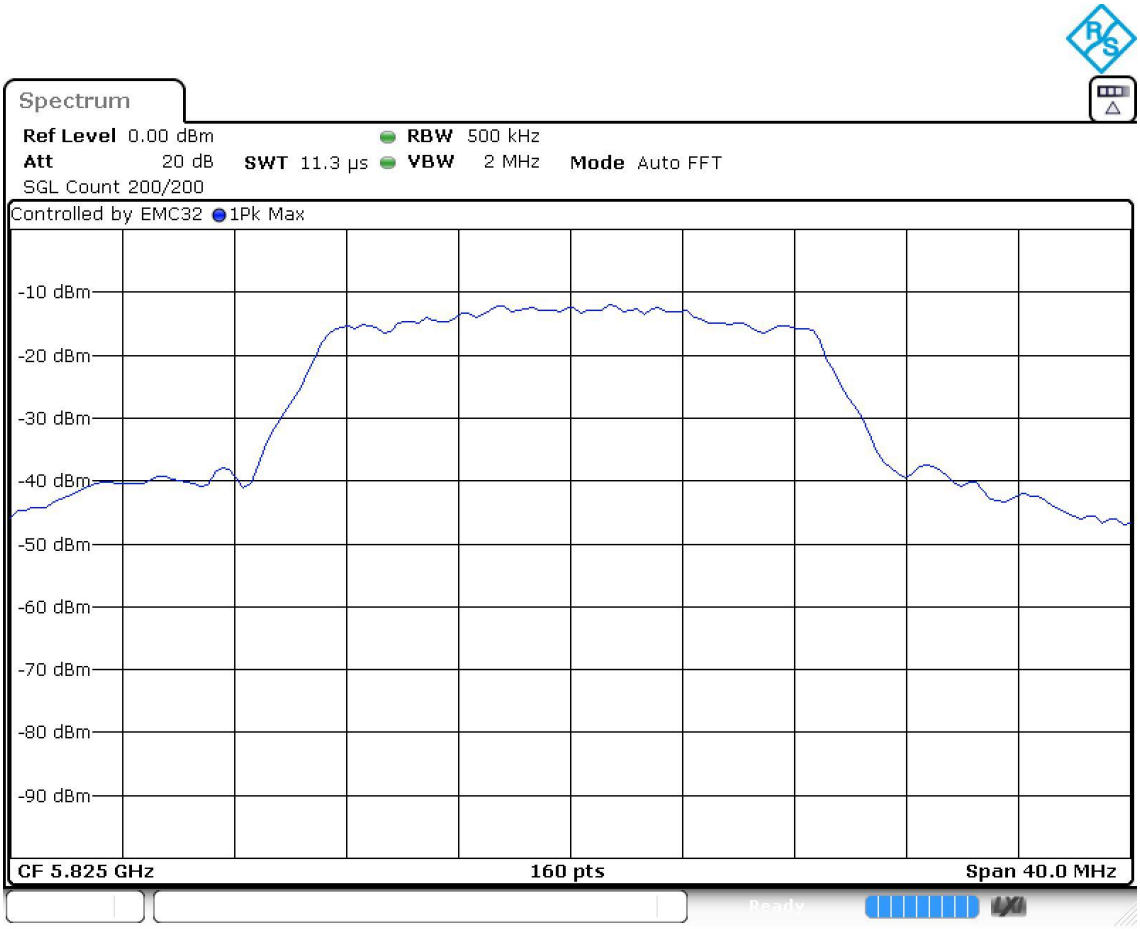
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5825.00000 Modulation = 802.11ac VHT20 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



Modulation: 802.11ac VHT40 (OFDM MCS0)

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | Occ Ch BW (MHz) |
|---|---|---|---|
| [5150, 5250] | 1 | 5190.00000 | 36.500 |
| | | 5230.00000 | 36.500 |
| [5725, 5850] | | 5755.00000 | 36.500 |
| | | 5795.00000 | 37.000 |

***Verdict***

Pass

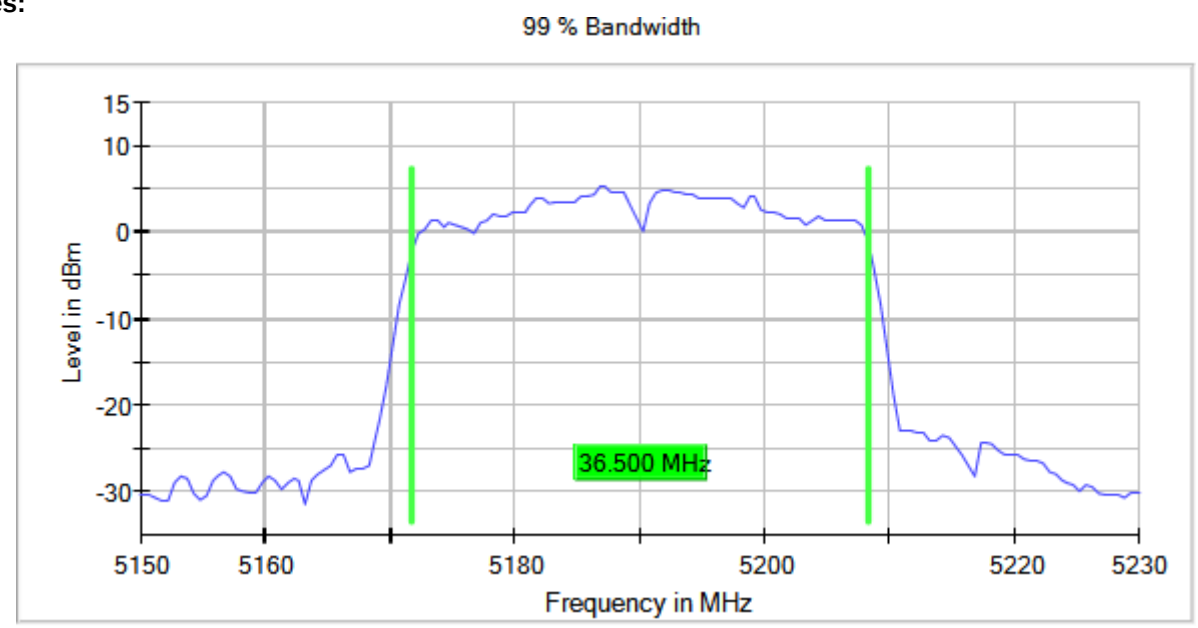
### *Attachments*

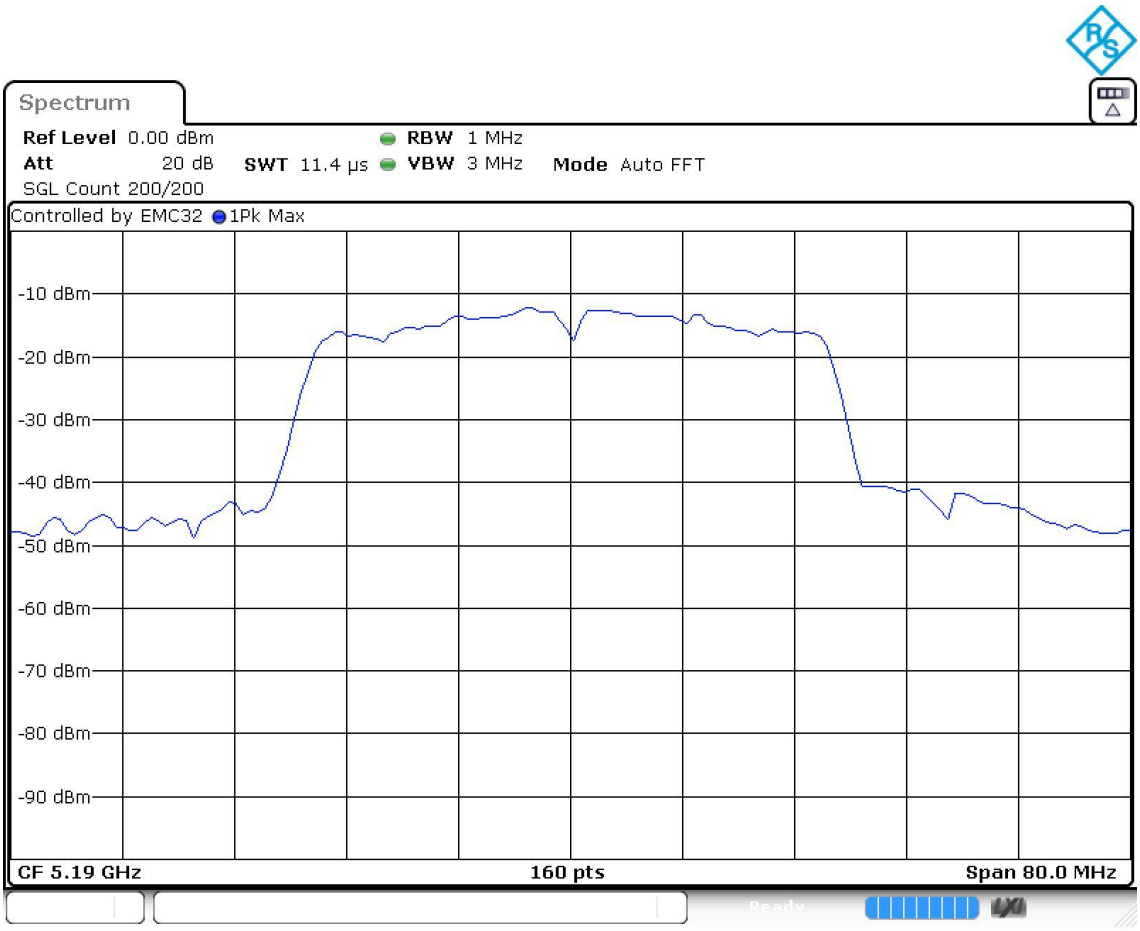
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5190.00000 Modulation = 802.11ac VHT40 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



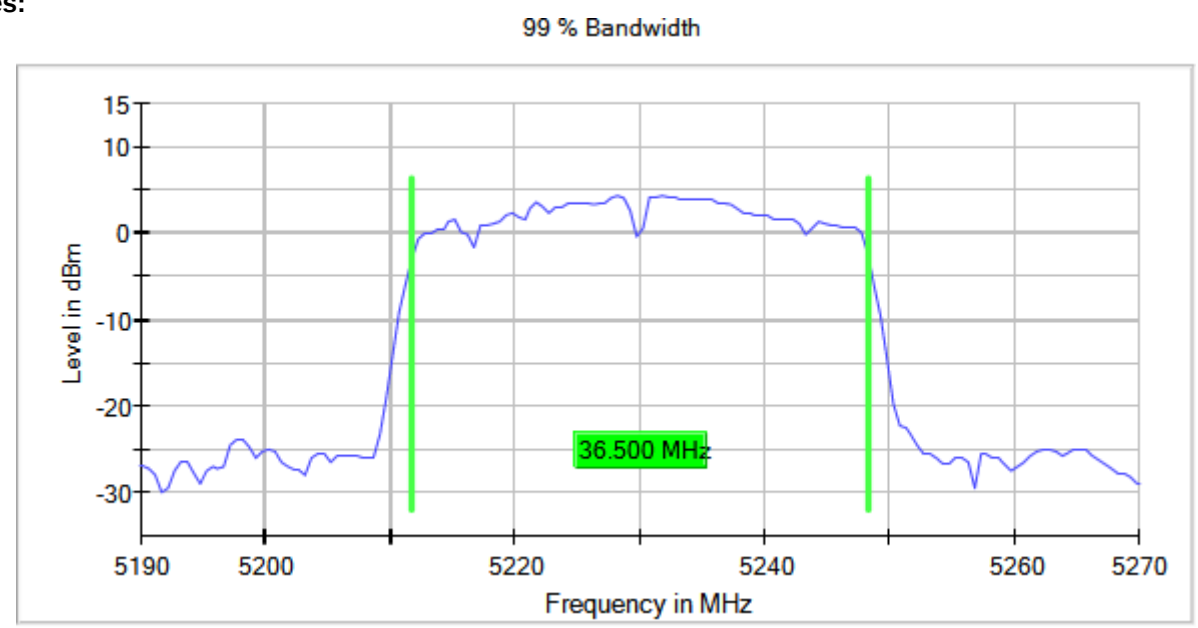



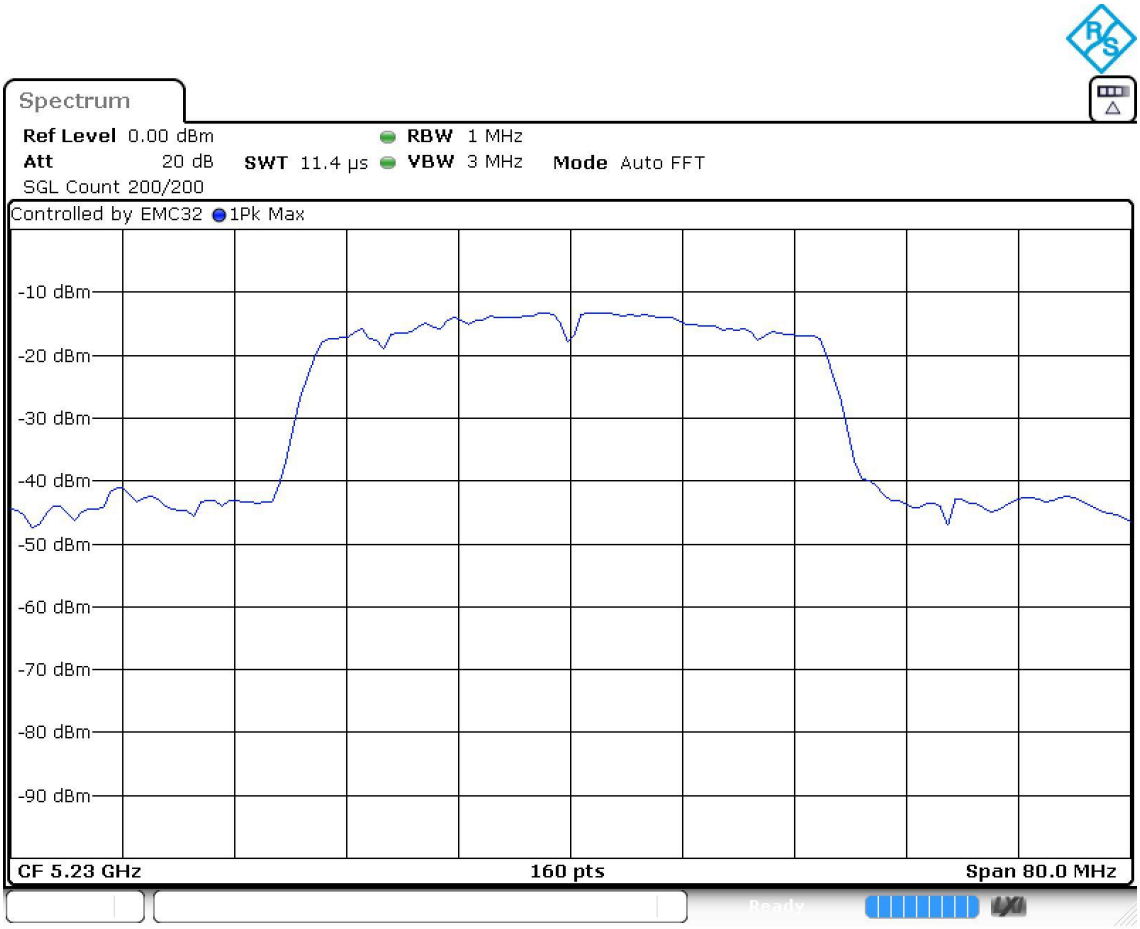
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5230.00000 Modulation = 802.11ac VHT40 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



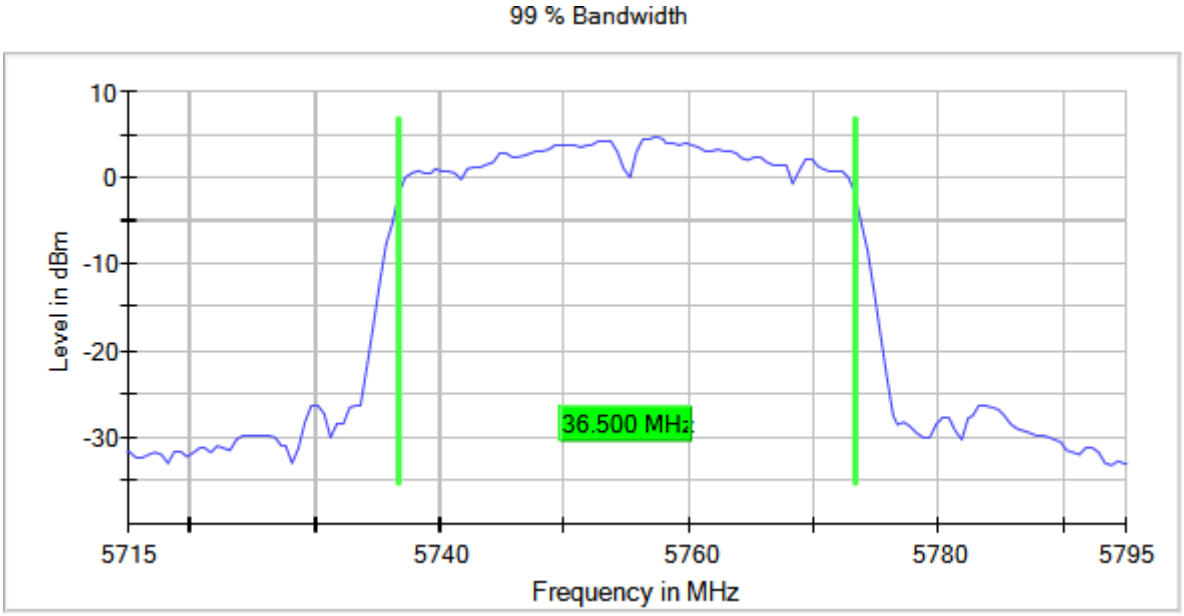



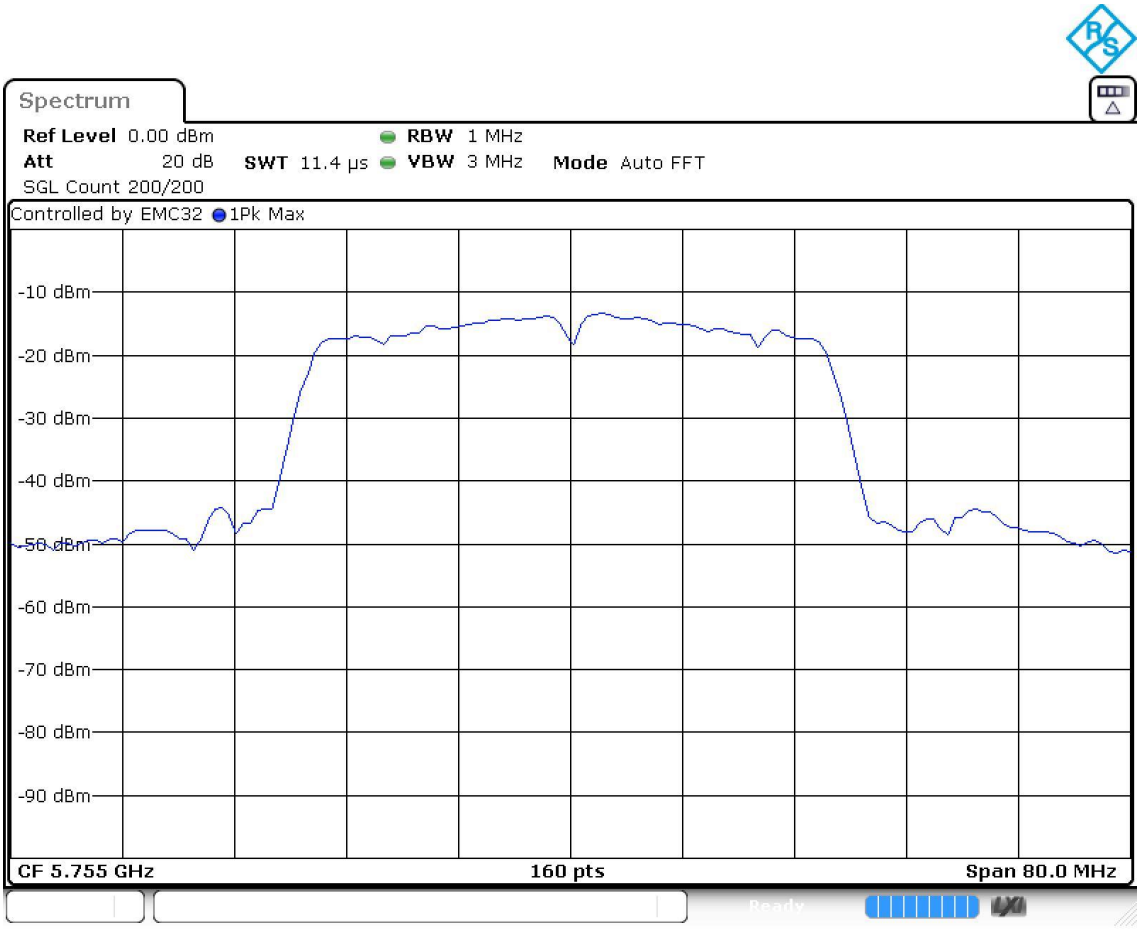
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5755.00000 Modulation = 802.11ac VHT40 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



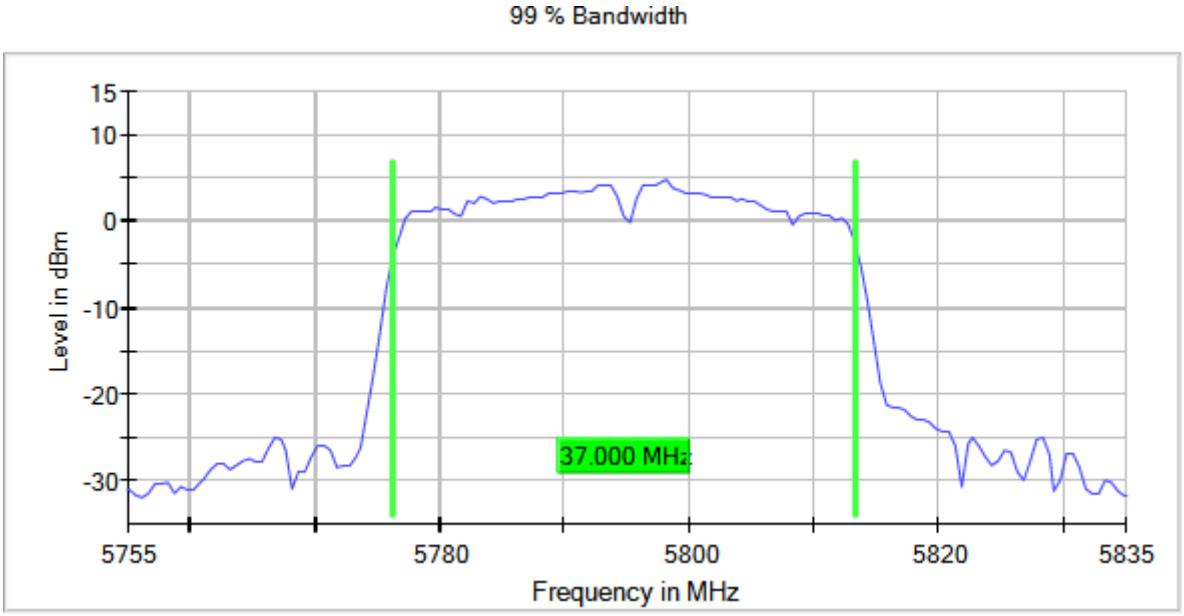



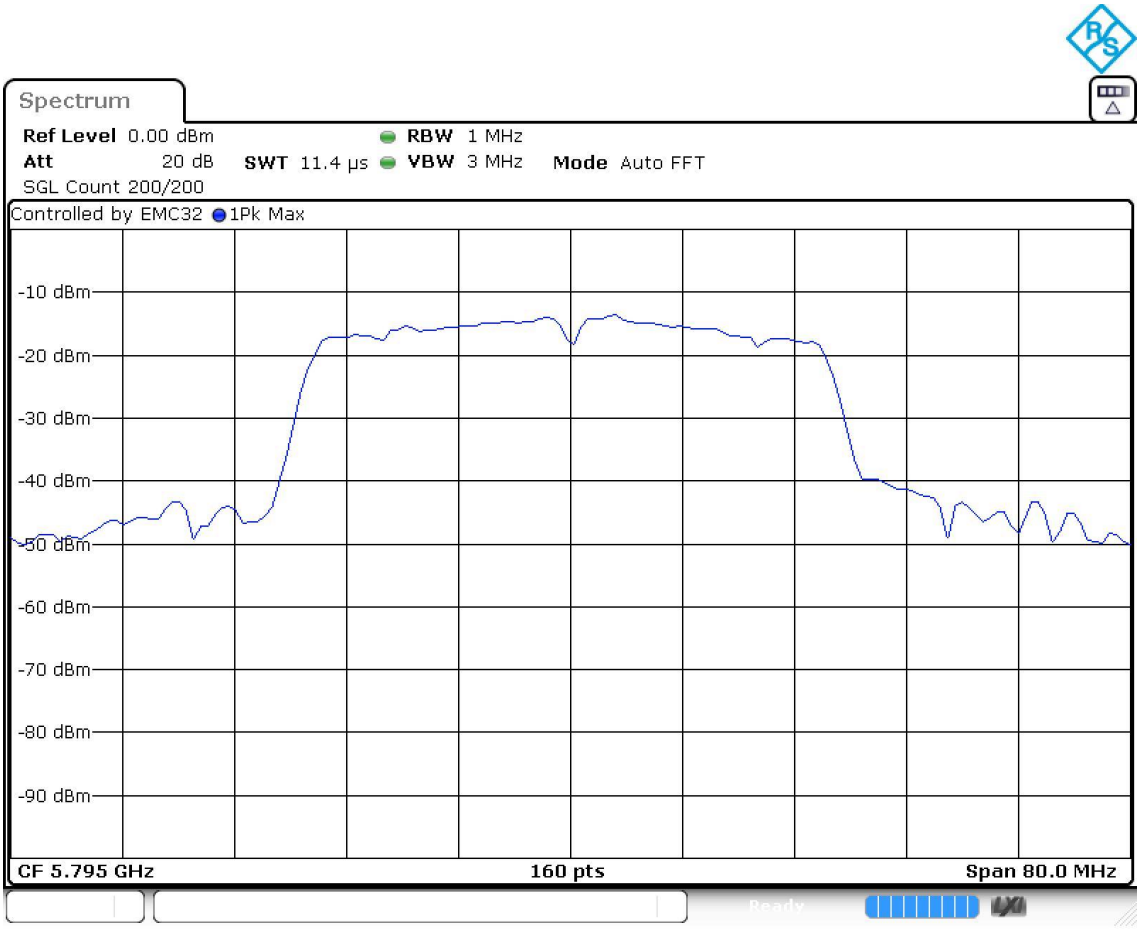
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5795.00000 Modulation = 802.11ac VHT40 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



Modulation: 802.11ac VHT80 (OFDM MCS0)

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | Occ Ch BW (MHz) |
|---|---|---|---|
| [5150, 5250] | 1 | 5210.00000 | 76.000 |
| [5725, 5850] | | 5775.00000 | 77.000 |

***Verdict***

Pass

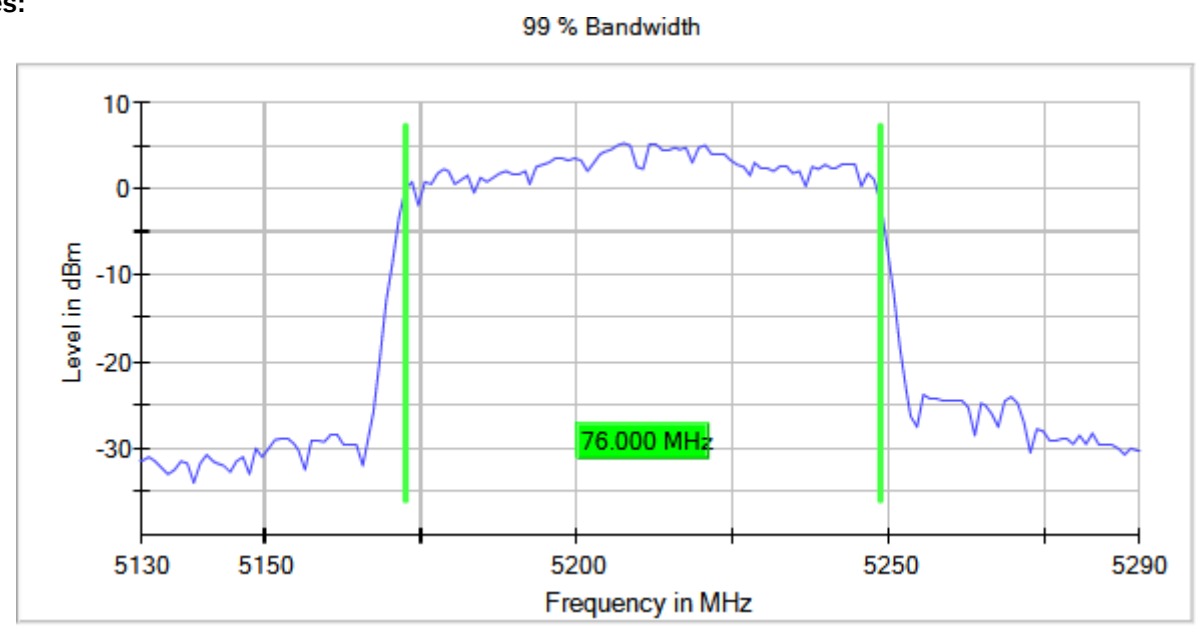
### *Attachments*

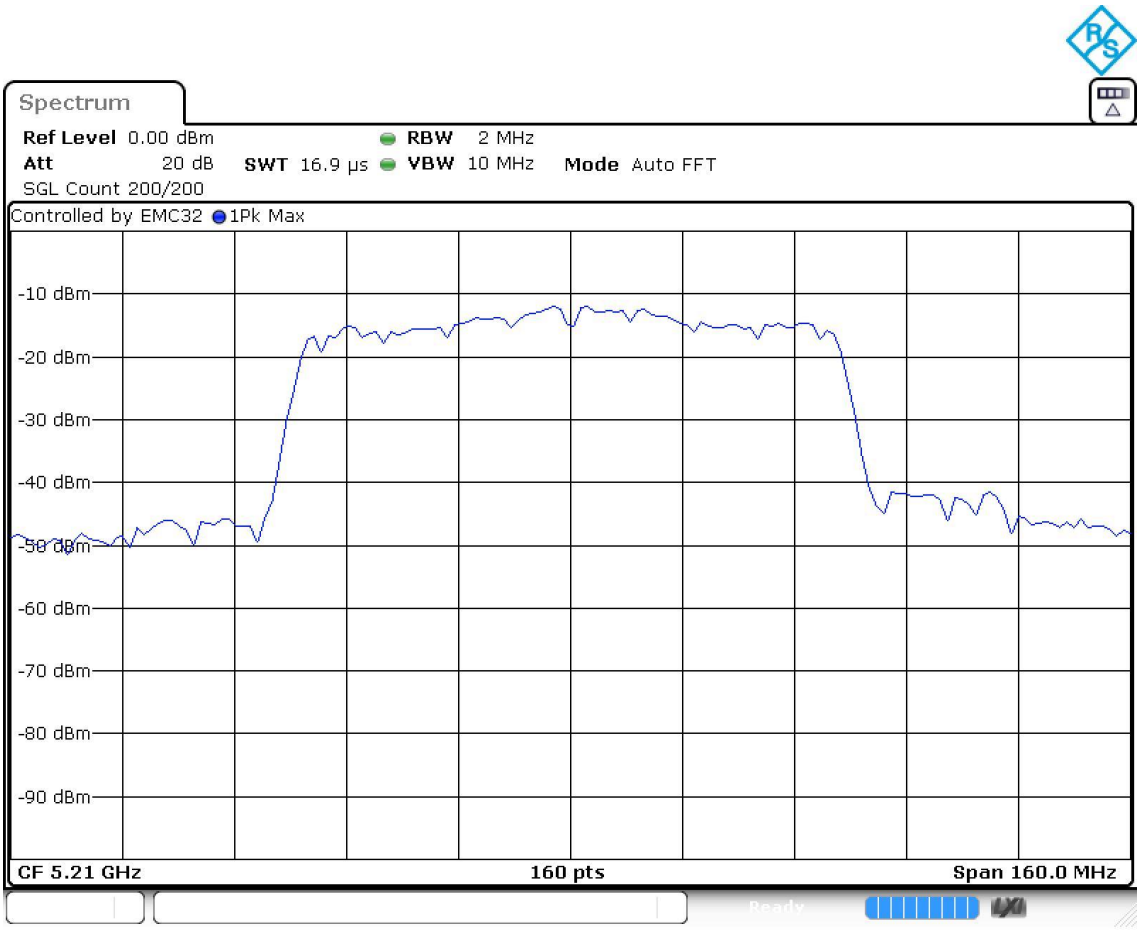
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5210.00000 Modulation = 802.11ac VHT80 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



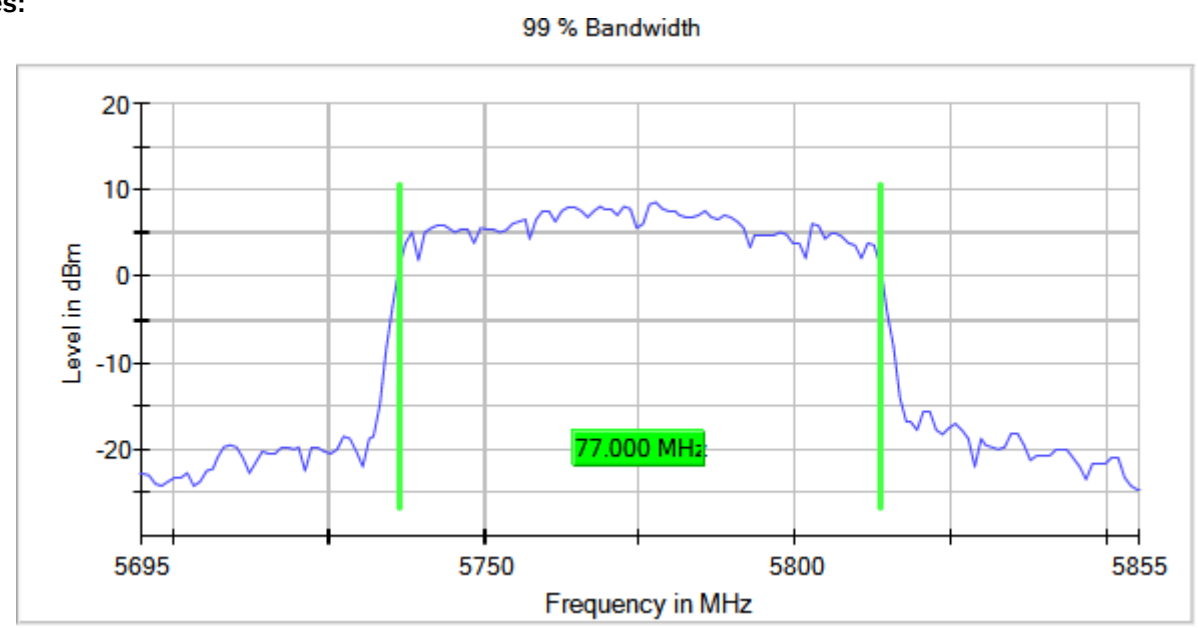



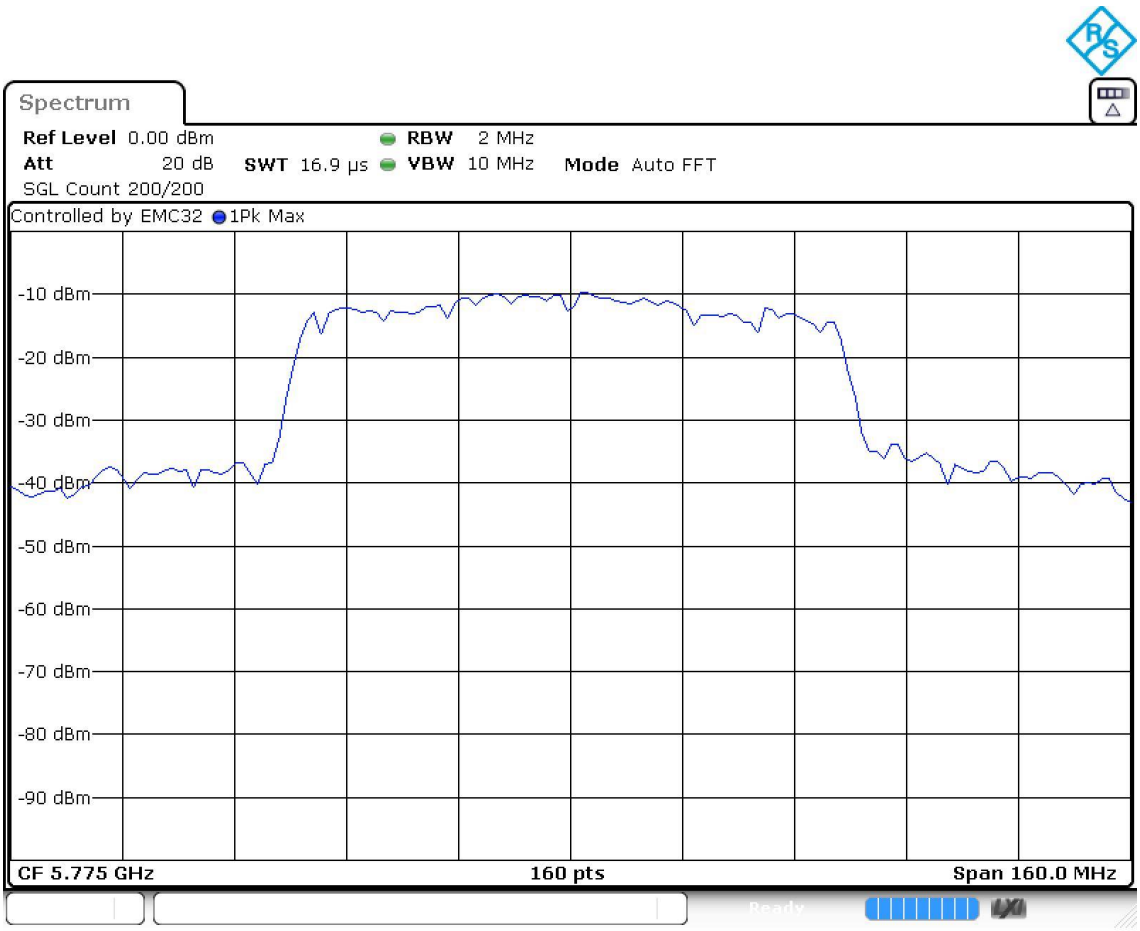
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5775.00000 Modulation = 802.11ac VHT80 (OFDM MCS0)

MIMO Mode = SISO

**Images:**



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

***Limits***

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

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

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | DC (%) |
|---|---|---|---|
| [5150, 5250] | 1 | 5180.00000 | 98.62 |
| | | 5220.00000 | 98.52 |
| | | 5240.00000 | 98.61 |
| [5725, 5850] | | 5745.00000 | 98.53 |
| | | 5785.00000 | 98.53 |
| | | 5825.00000 | 98.53 |

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

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | DC (%) |
|---|---|---|---|
| [5150, 5250] | 1 | 5190.00000 | 97.09 |
| | | 5230.00000 | 97.10 |
| [5725, 5850] | | 5755.00000 | 97.11 |
| | | 5795.00000 | 97.11 |

Modulation: 802.11a (OFDM 6 Mbit/s)

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | DC (%) |
|---|---|---|---|
| [5150, 5250] | 1 | 5180.00000 | 98.51 |
| | | 5220.00000 | 98.62 |
| | | 5240.00000 | 98.62 |
| [5725, 5850] | | 5745.00000 | 98.62 |
| | | 5785.00000 | 98.62 |
| | | 5825.00000 | 98.62 |

Modulation: 802.11ac VHT20 (OFDM MCS0)

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | DC (%) |
|---|---|---|---|
| [5150, 5250] | 1 | 5180.00000 | 97.30 |
| | | 5220.00000 | 97.31 |
| | | 5240.00000 | 97.30 |
| [5725, 5850] | | 5745.00000 | 98.54 |
| | | 5785.00000 | 98.54 |
| | | 5825.00000 | 98.54 |

Modulation: 802.11ac VHT40 (OFDM MCS0)

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | DC (%) |
|---|---|---|---|
| [5150, 5250] | 1 | 5190.00000 | 97.10 |
| | | 5230.00000 | 97.12 |
| [5725, 5850] | | 5755.00000 | 97.13 |
| | | 5795.00000 | 97.14 |

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | DC (%) |
|---|---|---|---|
| [5150, 5250] | 1 | 5210.00000 | 94.32 |
| [5725, 5850] | | 5775.00000 | 94.40 |

***Verdict***

Pass

# Transmitter. 26 dB Emission Bandwidth (EBW)

***Results***

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

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.

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

MIMO Mode: SISO

| Operation Band (MHz) | Port | Freq (MHz) | Ebw (MHz) |
|---|---|---|---|
| [5150, 5250] | 1 | 5180.00000 | 21.500 |
| | | 5220.00000 | 21.700 |
| | | 5240.00000 | 21.300 |
| [5725, 5850] | | 5745.00000 | 27.700 |
| | | 5785.00000 | 29.400 |
| | | 5825.00000 | 29.000 |

***Verdict***

Pass

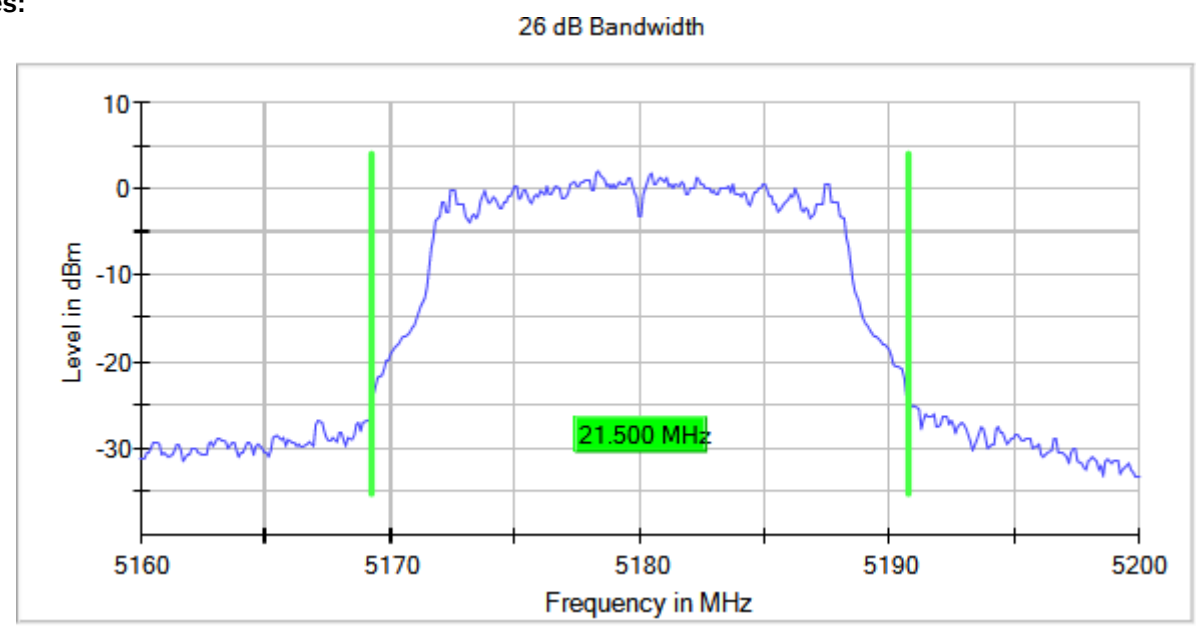
### *Attachments*

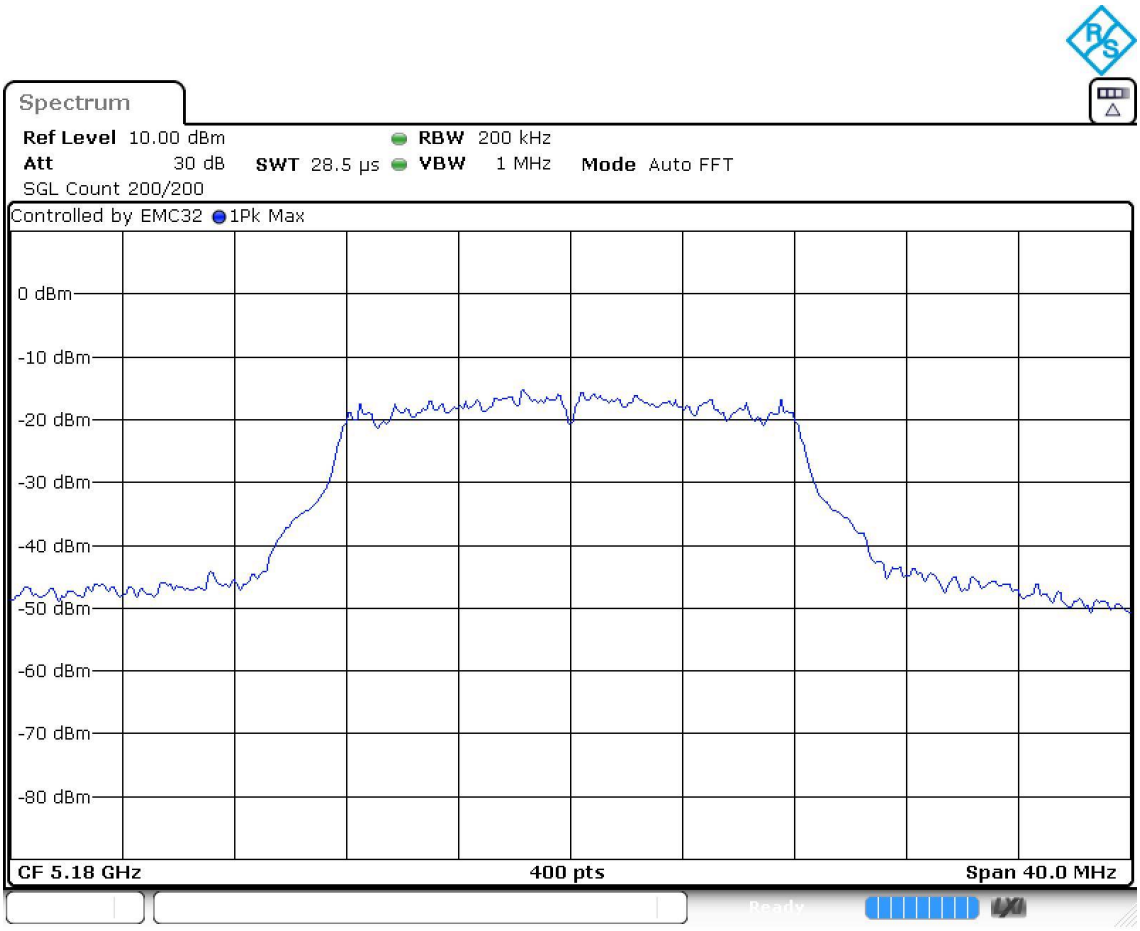
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5180.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



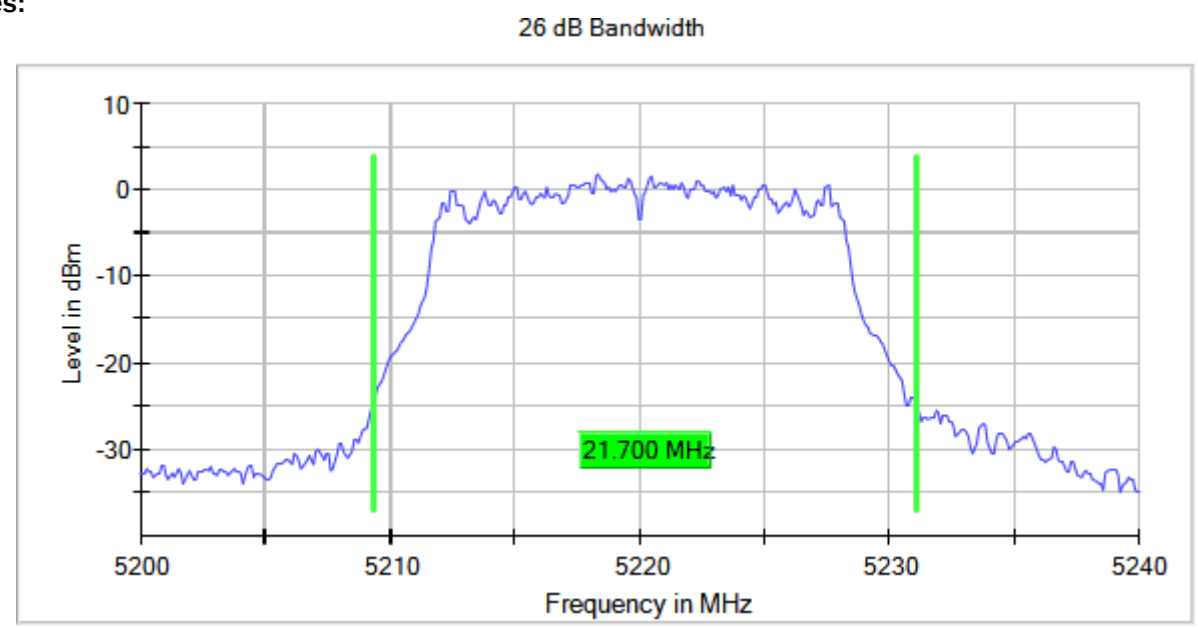



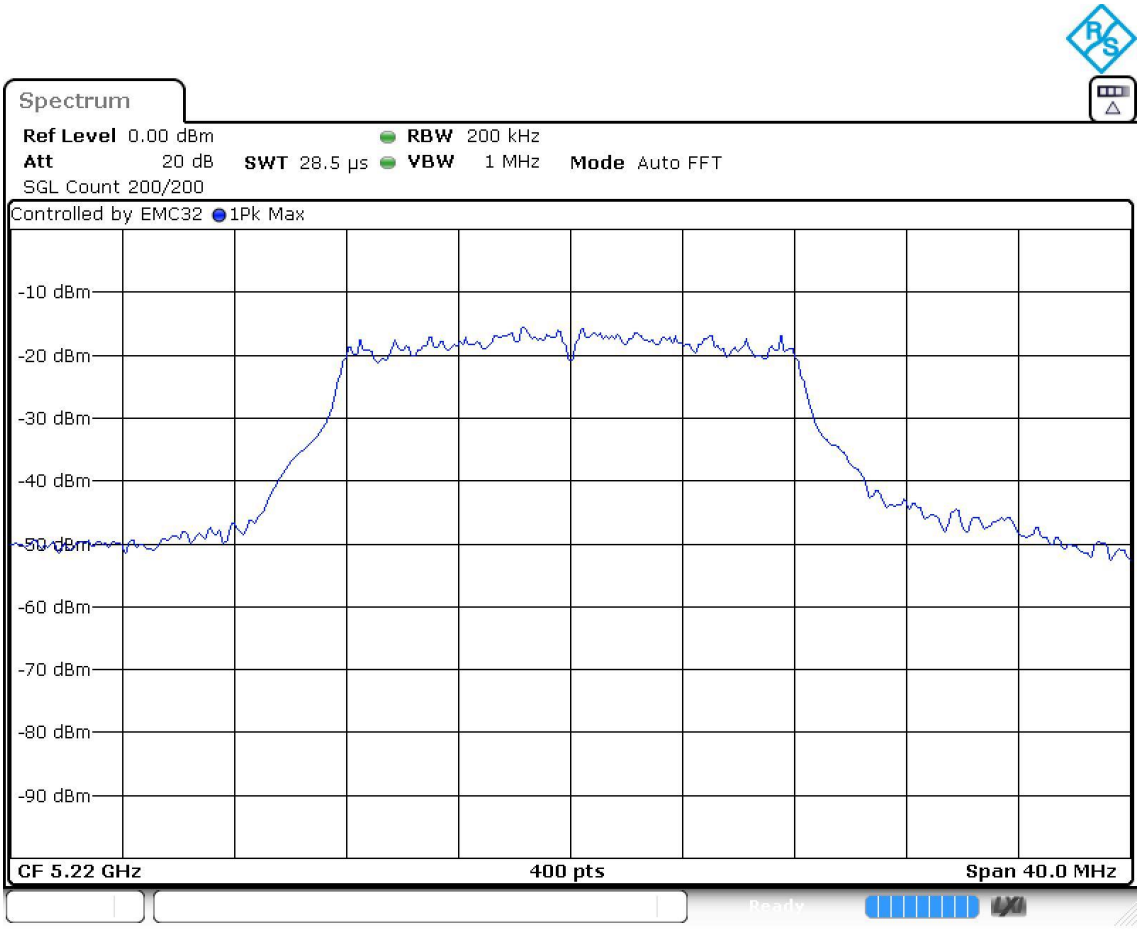
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5220.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



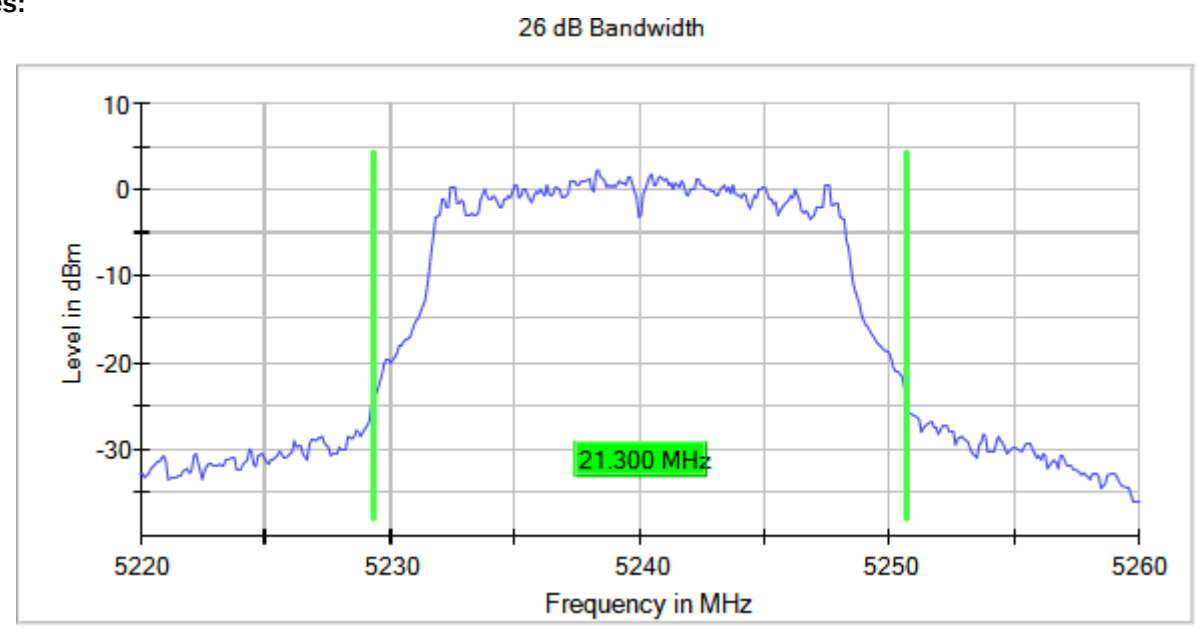



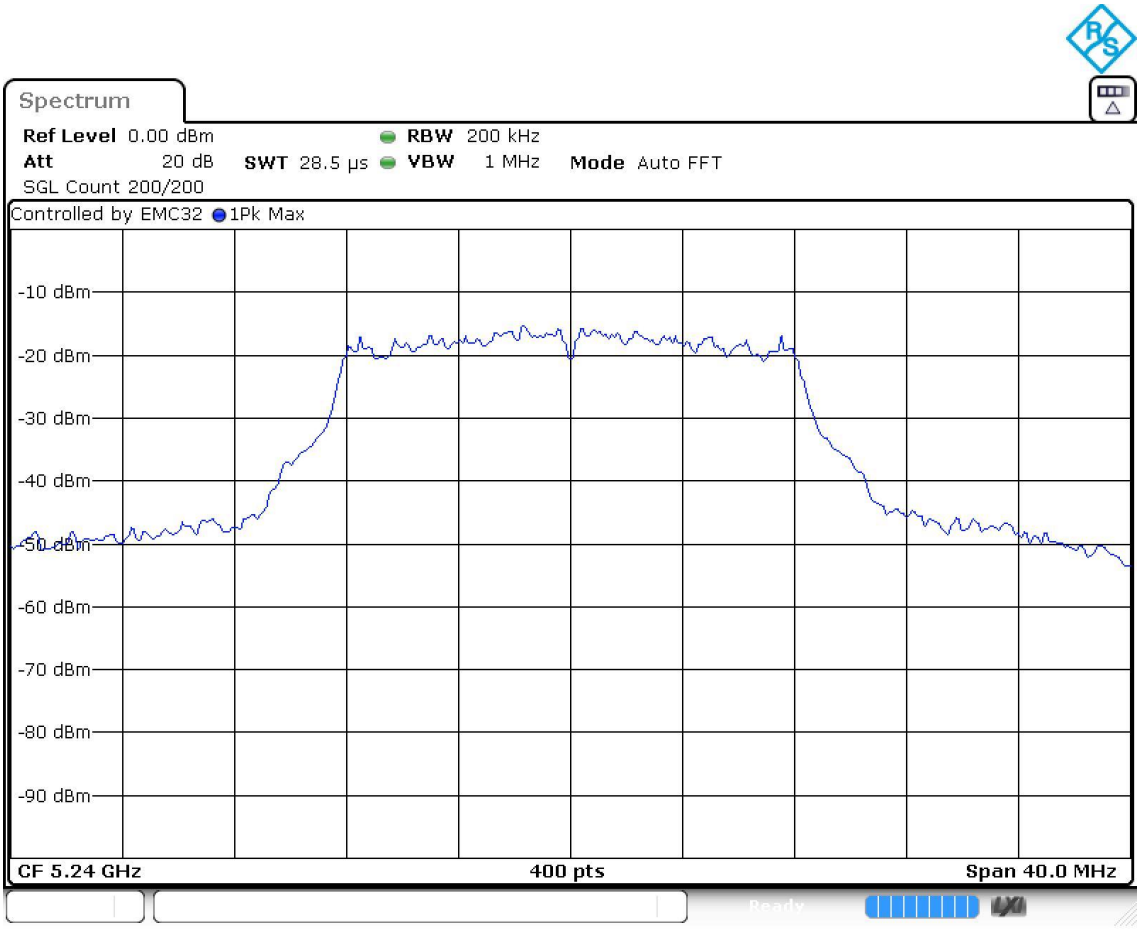
Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5240.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



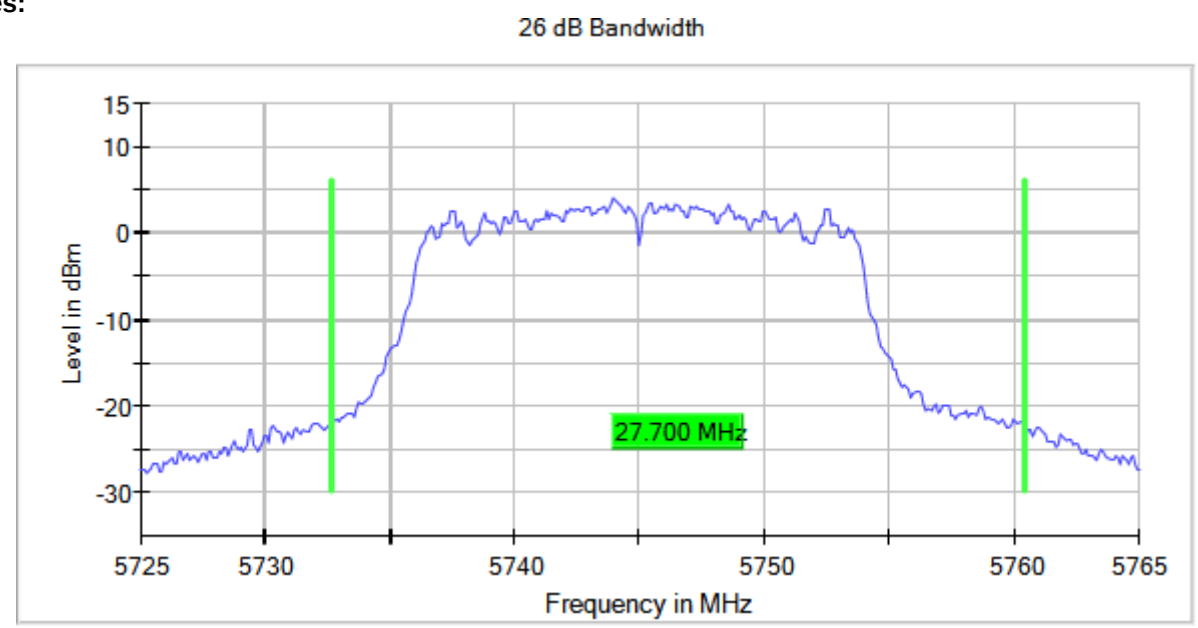



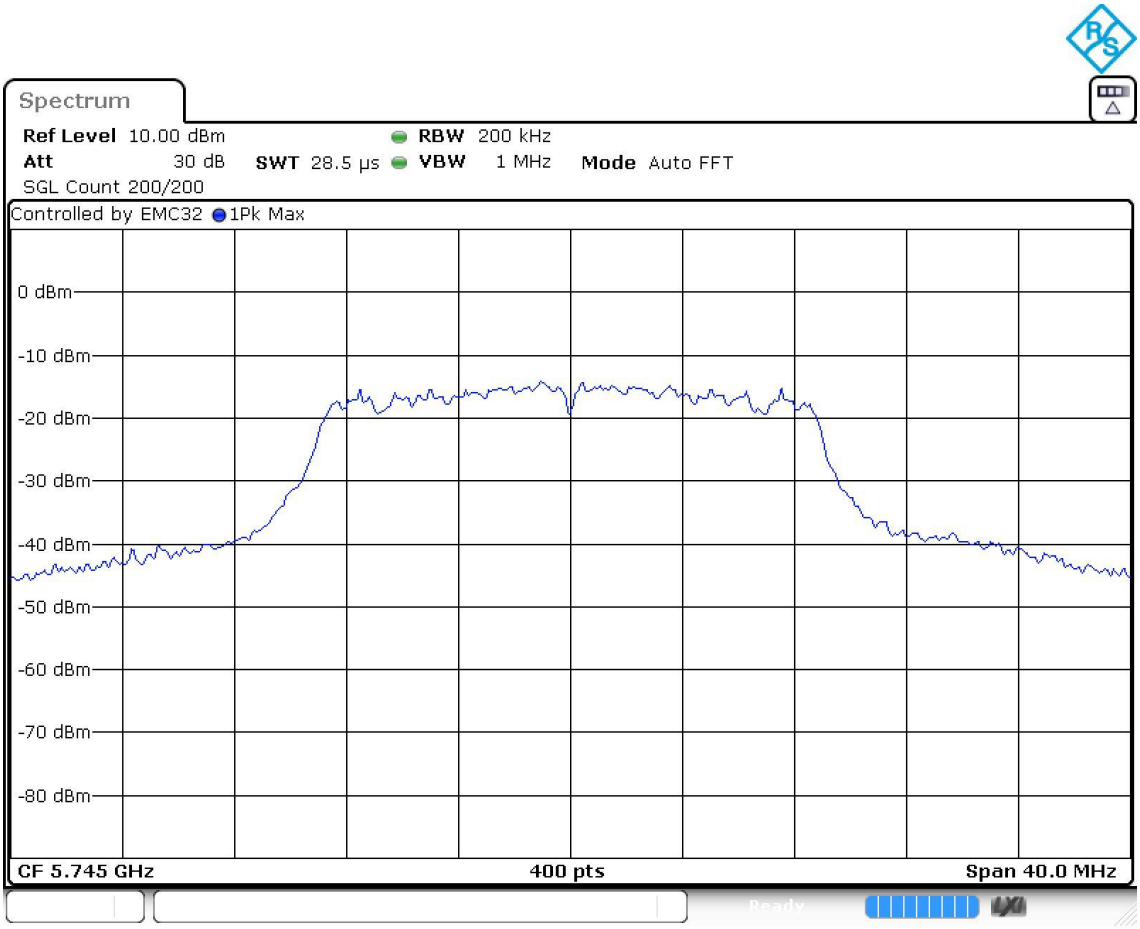
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5745.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



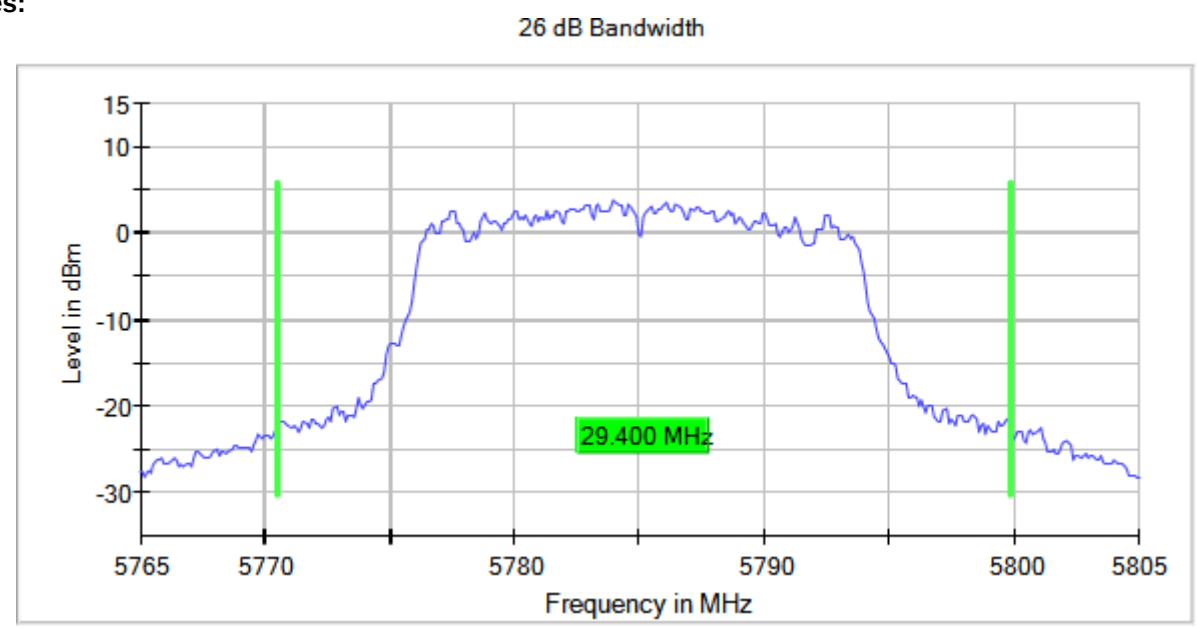



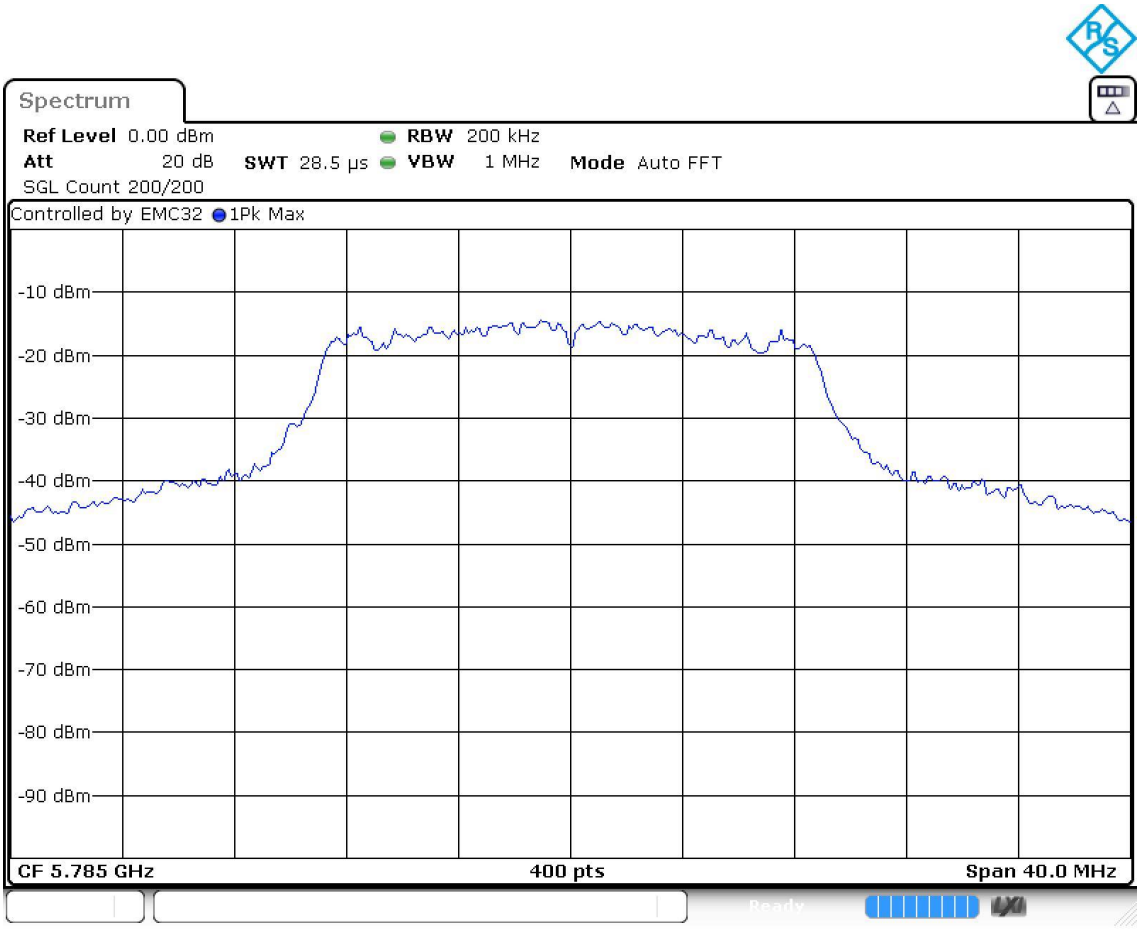
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5785.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



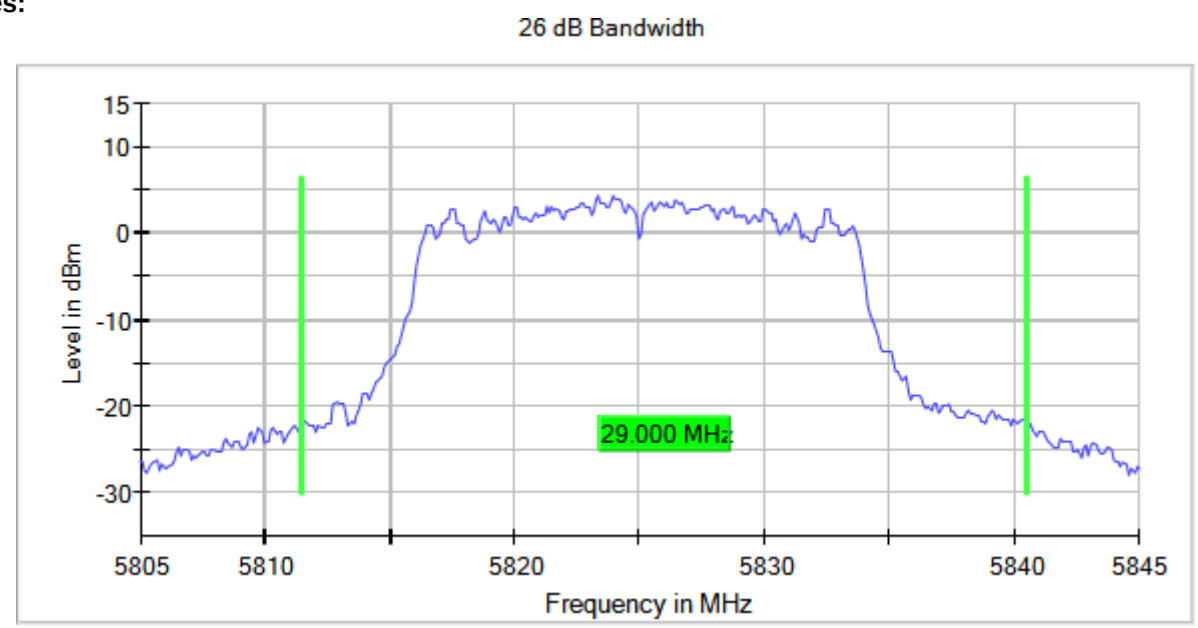



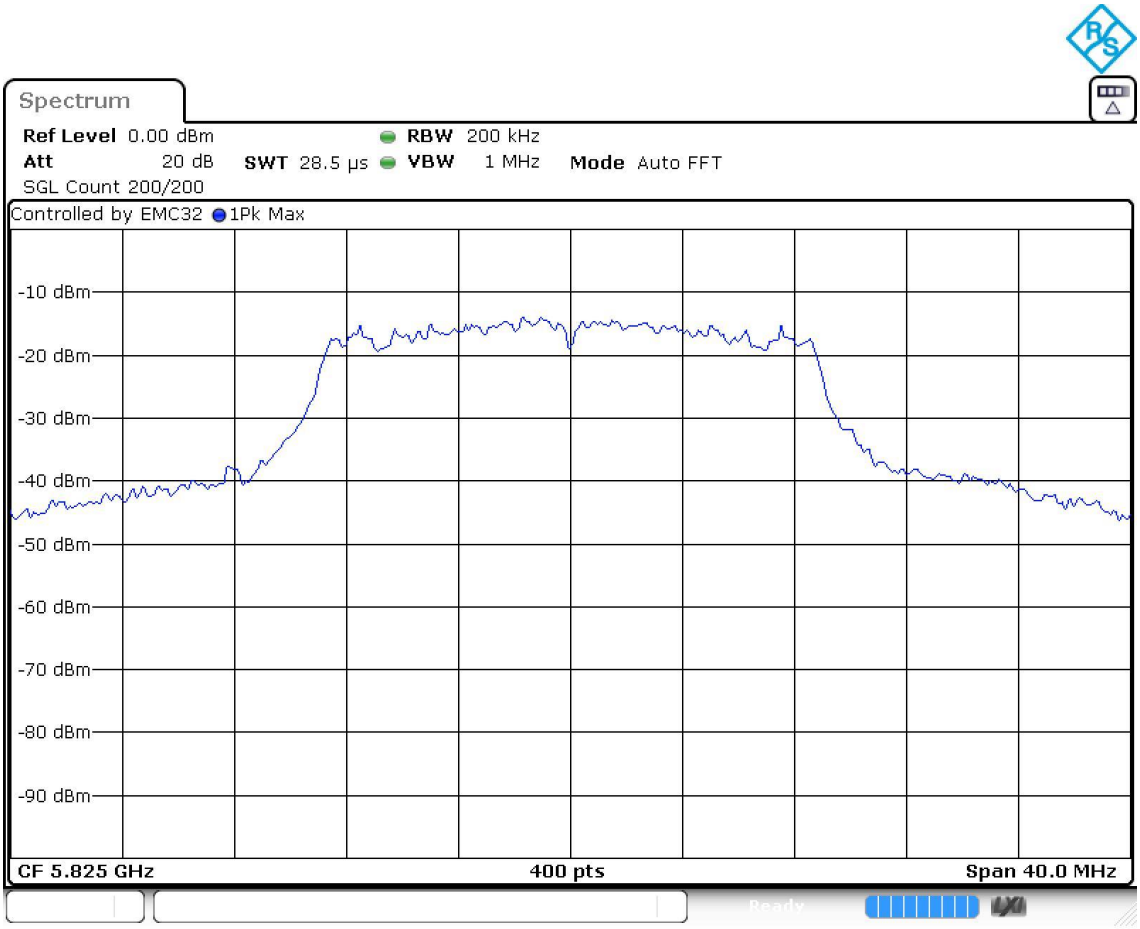
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5825.00000 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

MIMO Mode = SISO

**Images:**



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

MIMO Mode: SISO

***Results***

| Operation Band (MHz) | Port | Freq (MHz) | Ebw (MHz) |
|---|---|---|---|
| [5150, 5250] | 1 | 5190.00000 | 40.075 |
| | | 5230.00000 | 39.925 |
| [5725, 5850] | | 5755.00000 | 65.441 |
| | | 5795.00000 | 65.441 |

***Verdict***

Pass

### *Attachments*

Operation Band MHz = [5150, 5250] Active Port = 1

Frequency MHz = 5190.00000 Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

MIMO Mode = SISO

**Images:**