



# **TEST REPORT**

**Report Number. :** 13571601-E5V2

**Applicant :** APPLE INC.  
1 APPLE PARK WAY  
CUPERTINO, CA 95014, U.S.A

**Model :** A2483 (Parent Model, Full Test)  
A2640, A2636, A2638, A2639 (Variant Models)

**Brand :** APPLE

**FCC ID :** BCG-E4000A (Parent Model)  
BCG-E4034A, BCG-E4002A, BCG-E4033A (Variant Models)

**EUT Description :** SMARTPHONE

**Test Standard(s) :** FCC 47 CFR PART 15 SUBPART E

**Date Of Issue:**

July 20, 2021

**Prepared by:**

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## REPORT REVISION HISTORY

| Rev. | Issue Date | Revisions                                                              | Revised By |
|------|------------|------------------------------------------------------------------------|------------|
| V1   | 6/24/2021  | Initial Issue                                                          | Chin Pang  |
| V2   | 7/20/2021  | Address TCB's Questions on Section 9.4 and removed page 290 empty page | Chin Pang  |

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** APPLE INC.  
1 APPLE PARK WAY  
CUPERTINO, CA 95014, U.S.A

**EUT DESCRIPTION:** SMARTPHONE

**MODEL:** A2483 (PARENT MODEL)  
A2640, A2636, A2638, A2639 (VARIANT MODELS)

**BRAND:** APPLE

**FCC ID:** BCG-E4000A (PARENT MODEL)  
BCG-E4034A, BCG-E4002A, BCG-E4033A (VARIANT MODELS)

**SERIAL NUMBER:** L7LV2RR670 (CONDUCTED)  
HXKPFXHXK2 (RADIATED)

**SAMPLE RECEIPT DATE:** 10/26/2020, 06/11/2021

**DATE TESTED:** OCTOBER 26, 2020 -JUNE 18, 2021

| APPLICABLE STANDARDS     |              |
|--------------------------|--------------|
| STANDARD                 | TEST RESULTS |
| CFR 47 Part 15 Subpart E | Complies     |

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For  
UL Verification Services Inc. By:

Prepared By:



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Test Engineer  
Consumer Technology Division  
UL Verification Services Inc.

## 2. TEST RESULT SUMMARY

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

| FCC Clause                 | Requirement                  | Result                  | Comment                                  |
|----------------------------|------------------------------|-------------------------|------------------------------------------|
| See Comment                | Duty Cycle                   | Reporting purposes only | Per ANSI C63.10, Section 12.2.           |
| See Comment                | 26dB BW/99% OBW              | Reporting purposes only | Per ANSI C63.10 Sections 6.9.2 and 6.9.3 |
| 15.407 (e)                 | 6 dB BW                      | Complies                | None.                                    |
| 15.407 (a) (1-4), (h) (1)  | Output Power                 | Complies                | None.                                    |
| 15.407 (a) (1-3, 5)        | PSD                          | Complies                | None.                                    |
| 15.209, 15.205, 15.407 (b) | Radiated Emissions           | Complies                | None.                                    |
| 15.207                     | AC Mains Conducted Emissions | Complies                | None.                                    |

## 3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with:

- FCC CFR 47 Part 2
- FCC CFR 47 Part 15
- FCC KDB 662911 D01 v02r01
- FCC KDB 789033 D02 v02r01-
- ANSI C63.10-2013
- KDB 414788 D01 Radiated Test Site v01r01

## 4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

|                                     | Address                                             | ISED CABID | ISED Company Number | FCC Registration |
|-------------------------------------|-----------------------------------------------------|------------|---------------------|------------------|
| <input type="checkbox"/>            | Building 1: 47173 Benicia Street, Fremont, CA 94538 | US0104     | 2324A               | 208313           |
| <input checked="" type="checkbox"/> | Building 2: 47266 Benicia Street, Fremont, CA 94538 | US0104     | 22541               | 208313           |
| <input checked="" type="checkbox"/> | Building 4: 47658 Kato Rd, Fremont, CA 94538        | US0104     | 2324B               | 208313           |

## 5. DECISION RULES AND MEASUREMENT UNCERTAINTY

### 5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

### 5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

### 5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER                                           | U <sub>Lab</sub> |
|-----------------------------------------------------|------------------|
| Worst Case Conducted Disturbance, 9KHz to 0.15 MHz  | 3.78 dB          |
| Worst Case Conducted Disturbance, 0.15 to 30 MHz    | 3.40 dB          |
| Worst Case Radiated Disturbance, 9KHz to 30 MHz     | 2.87 dB          |
| Worst Case Radiated Disturbance, 30 to 1000 MHz     | 6.01 dB          |
| Worst Case Radiated Disturbance, 1000 to 18000 MHz  | 4.73 dB          |
| Worst Case Radiated Disturbance, 18000 to 26000 MHz | 4.51 dB          |
| Worst Case Radiated Disturbance, 26000 to 40000 MHz | 5.29 dB          |

Uncertainty figures are valid to a confidence level of 95%.

### 5.4. SAMPLE CALCULATION

#### RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

#### MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.

36.5 dBuV + 0 dB + 10.1 dB + 0 dB = 46.6 dBuV

## 6. EQUIPMENT UNDER TEST

### 6.1. EUT DESCRIPTION

The Apple iPhone is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G, CDMA, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wideband, GPS and NFC. All models support at least one UICC based SIM. The second SIM is either an UICC based p-SIM (physical SIM) or e-SIM (electronic SIM). The device supports a built-in inductive charging transmitter and receiver. The rechargeable battery is not user accessible.

Testing was performed on the parent model and is used to support the application for the parent and variants identified in this report based on the test plan submitted and approved via KDB inquiry by the FCC and by ISED-Canada.

The Model and FCC ID covered by this report includes:

Parent Model: A2483, FCC ID: BCG-E4000A

Variant Models: A2640; FCC ID: BCG-E4034A  
A2636; FCC ID: BCG-E4002A  
A2638; FCC ID: BCG-E4033A  
A2639; FCC ID: BCG-E4034A

## 6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

### 5.2 GHz BAND (FCC)

| Frequency Range (MHz)    | Mode                        | Output Power (dBm)                | Output Power (mW) |
|--------------------------|-----------------------------|-----------------------------------|-------------------|
| <b>5.2 GHz band, 1TX</b> |                             |                                   |                   |
| 5180-5240                | 802.11a                     | Covered by 802.11n HT20 1TX       |                   |
| 5180-5240                | 802.11n HT20                | 19.88                             | 97.27             |
| 5190-5230                | 802.11n HT40                | 20.39                             | 109.40            |
| 5180-5240                | 802.11ac VHT20              | Covered by 802.11n HT20 1TX       |                   |
| 5190-5230                | 802.11ac VHT40              | Covered by 802.11n HT40 1TX       |                   |
| 5210                     | 802.11ac VHT80              | 17.39                             | 54.83             |
| 5180-5240                | 802.11ax HE20               | 19.96                             | 99.08             |
| 5190-5230                | 802.11ax HE40               | 20.35                             | 108.39            |
| 5210                     | 802.11ax HE80               | 16.91                             | 49.09             |
| <b>5.2 GHz band, 2TX</b> |                             |                                   |                   |
| 5180-5240                | 802.11n HT20 CDD            | 19.88                             | 97.27             |
| 5180-5240                | 802.11n HT20 SDM/STBC       | Covered by 802.11n HT20 2TX CDD   |                   |
| 5190-5230                | 802.11n HT40 CDD            | 22.40                             | 173.78            |
| 5190-5230                | 802.11n HT40 SDM/STBC       | Covered by 802.11n HT40 2TX CDD   |                   |
| 5180-5240                | 802.11ac VHT20 SDM/STBC/CDD | Covered by 802.11n HT20 2TX CDD   |                   |
| 5190-5230                | 802.11ac VHT40 SDM/STBC/CDD | Covered by 802.11n HT40 2TX CDD   |                   |
| 5210                     | 802.11ac VHT80 CDD          | 19.25                             | 84.14             |
| 5210                     | 802.11ac VHT80 SDM/STBC     | Covered by 802.11ac VHT80 2TX CDD |                   |
| 5180-5240                | 802.11ax HE20 OFDMA         | 19.97                             | 99.31             |
| 5190-5230                | 802.11ax HE40 OFDMA         | 22.37                             | 172.58            |
| 5210                     | 802.11ax HE80 OFDMA         | 18.95                             | 78.52             |

**5.3 GHz BAND (FCC)**

| Frequency Range (MHz)    | Mode                        | Output Power (dBm)                | Output Power (mW) |
|--------------------------|-----------------------------|-----------------------------------|-------------------|
| <b>5.3 GHz band, 1TX</b> |                             |                                   |                   |
| 5260 - 5320              | 802.11a                     | Covered by 802.11n HT20 1TX       |                   |
| 5260 - 5320              | 802.11n HT20                | 19.95                             | 98.86             |
| 5270 - 5310              | 802.11n HT40                | 20.40                             | 109.65            |
| 5260 - 5320              | 802.11ac VHT20              | Covered by 802.11n HT20 1TX       |                   |
| 5270 - 5310              | 802.11ac VHT40              | Covered by 802.11n HT40 1TX       |                   |
| 5290                     | 802.11ac VHT80              | 16.97                             | 49.77             |
| 5260 - 5320              | 802.11ax HE20               | 19.89                             | 97.50             |
| 5270 - 5310              | 802.11ax HE40               | 20.43                             | 110.41            |
| 5290                     | 802.11ax HE80               | 16.46                             | 44.26             |
| <b>5.3 GHz band, 2TX</b> |                             |                                   |                   |
| 5260 - 5320              | 802.11n HT20 CDD            | 19.89                             | 97.50             |
| 5260 - 5320              | 802.11n HT20 SDM/STBC       | Covered by 802.11n HT40 2TX CDD   |                   |
| 5270 - 5310              | 802.11n HT40 CDD            | 22.49                             | 177.42            |
| 5270 - 5310              | 802.11n HT40 SDM/STBC       | Covered by 802.11n HT40 2TX CDD   |                   |
| 5260 - 5320              | 802.11ac VHT20 SDM/STBC/CDD | Covered by 802.11n HT20 2TX CDD   |                   |
| 5270 - 5310              | 802.11ac VHT40 SDM/STBC/CDD | Covered by 802.11n HT40 2TX CDD   |                   |
| 5290                     | 802.11ac VHT80 CDD          | 18.35                             | 68.39             |
| 5290                     | 802.11ac VHT80 SDM/STBC     | Covered by 802.11ac VHT80 2TX CDD |                   |
| 5260 - 5320              | 802.11n HT20 CDD MCS0       | Covered by 802.11n HT20 2TX CDD   |                   |
| 5260 - 5320              | 802.11n HT20 STBC MCS0      | Covered by 802.11n HT20 2TX CDD   |                   |
| 5270 - 5310              | 802.11n HT40 CDD MCS0       | Covered by 802.11n HT40 2TX CDD   |                   |
| 5270 - 5310              | 802.11n HT40 STBC MCS0      | Covered by 802.11n HT40 2TX CDD   |                   |
| 5260 - 5320              | 802.11ax HE20 OFDMA         | 19.94                             | 98.63             |
| 5270 - 5310              | 802.11ax HE40 OFDMA         | 22.42                             | 174.58            |
| 5290                     | 802.11ax HE80 OFDMA         | 18.41                             | 69.34             |

**5.6 GHz BAND (FCC)**

| Frequency Range (MHz)    | Mode                        | Output Power (dBm)                | Output Power (mW) |
|--------------------------|-----------------------------|-----------------------------------|-------------------|
| <b>5.6 GHz band, 1TX</b> |                             |                                   |                   |
| 5500-5720                | 802.11a                     | Covered by 802.11n HT20 1TX       |                   |
| 5500-5720                | 802.11n HT20                | 19.94                             | 98.63             |
| 5510-5710                | 802.11n HT40                | 20.45                             | 110.92            |
| 5500-5720                | 802.11ac VHT20              | Covered by 802.11n HT20 1TX       |                   |
| 5510-5710                | 802.11ac VHT40              | Covered by 802.11n HT40 1TX       |                   |
| 5530-5690                | 802.11ac VHT80              | 20.42                             | 110.15            |
| 5500-5720                | 802.11ax HE20               | 19.94                             | 98.63             |
| 5510-5710                | 802.11ax HE40               | 20.44                             | 110.66            |
| 5530-5690                | 802.11ax HE80               | 20.38                             | 109.14            |
| <b>5.6 GHz band, 2TX</b> |                             |                                   |                   |
| 5500-5720                | 802.11n HT20 CDD            | 19.93                             | 98.40             |
| 5500-5720                | 802.11n HT20 SDM/STBC       | Covered by 802.11n HT40 2TX CDD   |                   |
| 5510-5710                | 802.11n HT40 CDD            | 22.43                             | 174.98            |
| 5510-5710                | 802.11n HT40 SDM/STBC       | Covered by 802.11n HT40 2TX CDD   |                   |
| 5500-5720                | 802.11ac VHT20 SDM/STBC/CDD | Covered by 802.11n HT20 2TX CDD   |                   |
| 5510-5710                | 802.11ac VHT40 SDM/STBC/CDD | Covered by 802.11n HT40 2TX CDD   |                   |
| 5530-5690                | 802.11ac VHT80 CDD          | 22.89                             | 194.54            |
| 5530-5690                | 802.11ac VHT80 SDM/STBC     | Covered by 802.11ac VHT80 2TX CDD |                   |
| 5500-5720                | 802.11ax HE20 OFDMA         | 19.92                             | 98.17             |
| 5510-5710                | 802.11ax HE40 OFDMA         | 22.43                             | 174.98            |
| 5530-5690                | 802.11ax HE80 OFDMA         | 22.86                             | 193.20            |

**5.8 GHz BAND (FCC)**

| Frequency Range (MHz)    | Mode                        | Output Power (dBm)                | Output Power (mW) |
|--------------------------|-----------------------------|-----------------------------------|-------------------|
| <b>5.8 GHz band, 1TX</b> |                             |                                   |                   |
| 5745-5825                | 802.11a                     | Covered by 802.11n HT20 1TX       |                   |
| 5745-5825                | 802.11n HT20                | 21.42                             | 138.68            |
| 5755-5795                | 802.11n HT40                | 20.40                             | 109.65            |
| 5745-5825                | 802.11ac VHT20              | Covered by 802.11n HT20 1TX       |                   |
| 5755-5795                | 802.11ac VHT40              | Covered by 802.11n HT40 1TX       |                   |
| 5775                     | 802.11ac VHT80              | 20.46                             | 111.17            |
| 5745-5825                | 802.11ax HE20               | 21.45                             | 139.64            |
| 5755-5795                | 802.11ax HE40               | 20.41                             | 109.90            |
| 5775                     | 802.11ax HE80               | 20.33                             | 107.89            |
| <b>5.8 GHz band, 2TX</b> |                             |                                   |                   |
| 5745-5825                | 802.11n HT20 CDD            | 24.41                             | 276.06            |
| 5745-5825                | 802.11n HT20 SDM/STBC       | Covered by 802.11n HT40 2TX CDD   |                   |
| 5755-5795                | 802.11n HT40 CDD            | 23.35                             | 216.27            |
| 5755-5795                | 802.11n HT40 SDM/STBC       | Covered by 802.11n HT40 2TX CDD   |                   |
| 5745-5825                | 802.11ac VHT20 STM/STBC/CDD | Covered by 802.11n HT20 2TX CDD   |                   |
| 5755-5795                | 802.11ac VHT40 STM/STBC/CDD | Covered by 802.11n HT40 2TX CDD   |                   |
| 5775                     | 802.11ac VHT80 CDD          | 23.31                             | 214.29            |
| 5775                     | 802.11ac VHT80 SDM/STBC     | Covered by 802.11ac VHT80 2TX CDD |                   |
| 5745-5825                | 802.11ax HE20 OFDMA         | 24.43                             | 277.33            |
| 5755-5795                | 802.11ax HE40 OFDMA         | 23.35                             | 216.27            |
| 5775                     | 802.11ax HE80 OFDMA         | 23.33                             | 215.28            |

**6.3. DESCRIPTION OF AVAILABLE ANTENNAS**

The antennas gain and IFA type as provided by the manufacturer' are as follows:

| Frequency Range | ANT 6 (Core 0) | ANT 5 (Core 1) |
|-----------------|----------------|----------------|
| 5180 - 5240     | -6.3           | -4.0           |
| 5260 - 5320     | -3.8           | -4.1           |
| 5500 - 5720     | -3.3           | -3.3           |
| 5745 - 5825     | -2.7           | -3.3           |

**6.4. SOFTWARE AND FIRMWARE**

The EUT firmware installed during testing was WiFi FW Version: 20\_10\_745\_15

## 6.5. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z on Ant 6 (Core 0), Ant 5 (Core 1) and 2TX. It was determined that X (Flatbed) orientation was the worst-case orientation for Ant 6; and Y (Landscape) orientation was the worst case for both Ant 5 and 2TX.

IEEE 802.11 ax modes were used to perform on radiated harmonic spurious final test to cover all modes since it has widest bandwidth modulation, highest power density and power tuned to maximum based on among all the modes. For testing purposes, radiated harmonics spurious below 1GHz, 1-18GHz L/M/H channels, 18-40GHz, and power line conducted emissions were performed with the EUT set at the 2TX CDD mode among the CDD/SDM modes with power setting equal or higher than FCC & IC conducted SISO modes as worst-case scenario.

For Radiated band edge test all test modes have been investigated with power setting equal or higher than FCC & IC conducted SISO modes as worst-case scenario.

Below 1GHz tests were performed with EUT connected to AC power adapter as the worst case; and for above 1GHz, the worst-case configuration reported was tested with EUT only. For AC line conducted emission, test was investigated with AC power adapter and with laptop. There were no emissions found below 30MHz within 20dB of the limit

For simultaneous transmission with the Bluetooth was investigated, no noticeable emission was found.

The output power and psd for the IEEE 802.11 ax mode were investigated between all different tones, and we found that SU mode had the highest output power and the lowest tone had the highest PSD readings. And after investigation, antenna port conducted tests were performed on both SU and lowest tones; radiated spurious emission and radiated band edge tests were performed on full RU and lowest tones

Low data rate was used to test on antenna port conducted tests and radiated spurious emissions since it has the highest maximum power. For radiated bandedge, following are the worst-case data rates set for test:

802.11n HT20mode: MCS7

802.11n HT40mode: MCS7

802.11ac VHT80 mode: MCS9

802.11ax HE20/HE40/HE80 FULL Tones RU & 26 Tones RU, MCS11

There are two vendors of the WiFi/Bluetooth radio modules: variant 1 and variant 2. The WiFi/Bluetooth radio modules have the same mechanical outline (e.g., the same package dimension and pin-out layout), use the same on-board antenna matching circuit, have an identical antenna structure, and are built and tested to conform to the same specifications and to operate within the same tolerances.

Baseline testing was performed on the two variants to determine the worst case on all conducted power and radiated emissions.

## 6.6. DESCRIPTION OF TEST SETUP

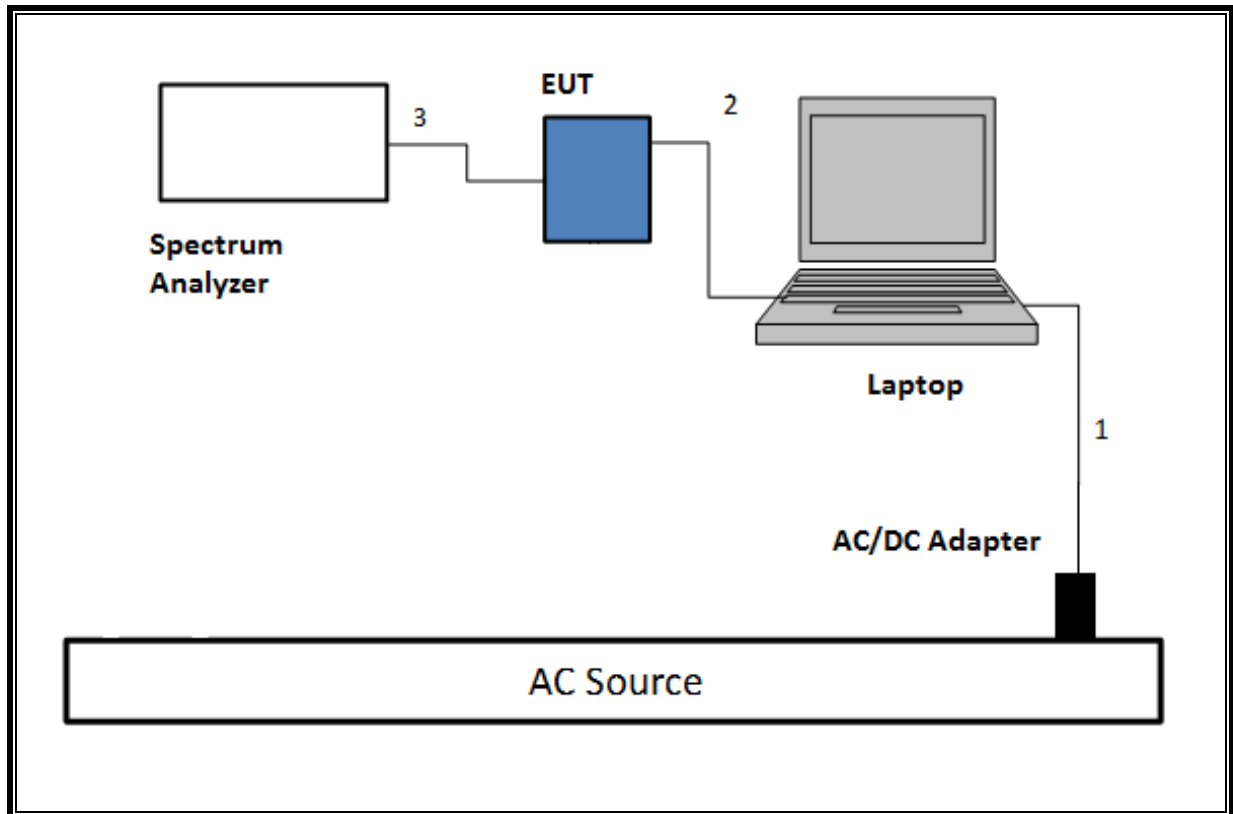
| SUPPORT TEST EQUIPMENT         |         |                      |                |                   |                  |                      |
|--------------------------------|---------|----------------------|----------------|-------------------|------------------|----------------------|
| Description                    |         | Manufacturer         | Model          | Serial Number     |                  | FCC ID/ DoC          |
| Laptop                         |         | Apple                | Macbook Pro    | C02YL3ZMJHC8      |                  | BCGA1989             |
| Laptop AC/DC adapter           |         | Liteon Technology    | A1424          | NSW25679          |                  | DoC                  |
| EUT AC/DC adapter              |         | Apple                | A1720          | C3D8417A7R93KVPA8 |                  | DoC                  |
| I/O CABLES (RF CONDUCTED TEST) |         |                      |                |                   |                  |                      |
| Cable No.                      | Port    | # of Identical Ports | Connector Type | Cable Type        | Cable Length (m) | Remarks              |
| 1                              | AC      | 1                    | AC             | Un-shielded       | 2                | N/A                  |
| 2                              | USB     | 1                    | USB            | Shielded          | 1.0              | N/A                  |
| 3                              | Antenna | 1                    | SMA            | Un-shielded       | 0.2              | To spectrum Analyzer |
| I/O CABLES (RF RADIATED TEST)  |         |                      |                |                   |                  |                      |
| Cable No.                      | Port    | # of Identical Ports | Connector Type | Cable Type        | Cable Length (m) | Remarks              |
| 1                              | AC      | 1                    | AC             | Un-shielded       | 2                | N/A                  |
| 2                              | USB     | 1                    | USB            | Un-shielded       | 1                | N/A                  |

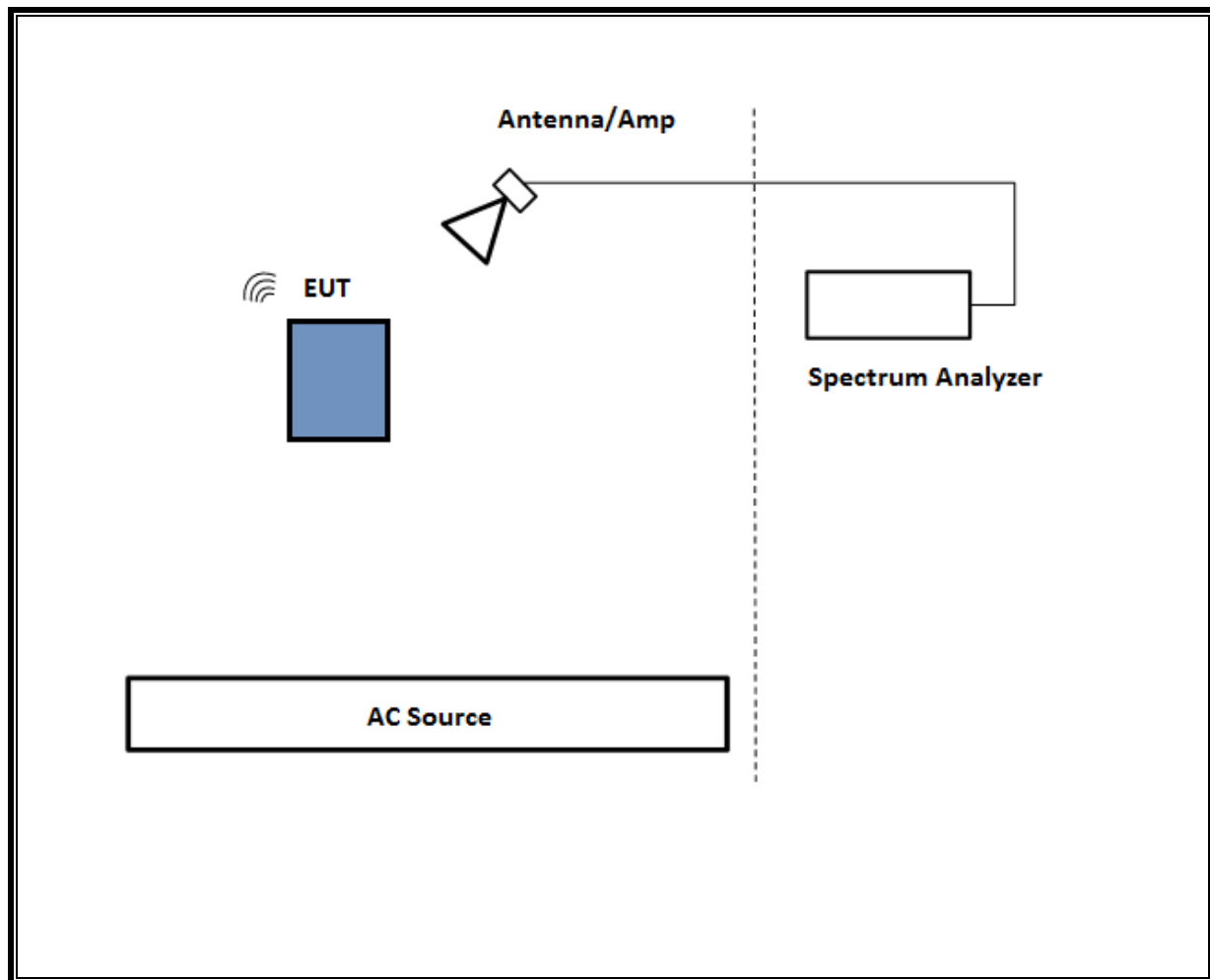
### TEST SETUP

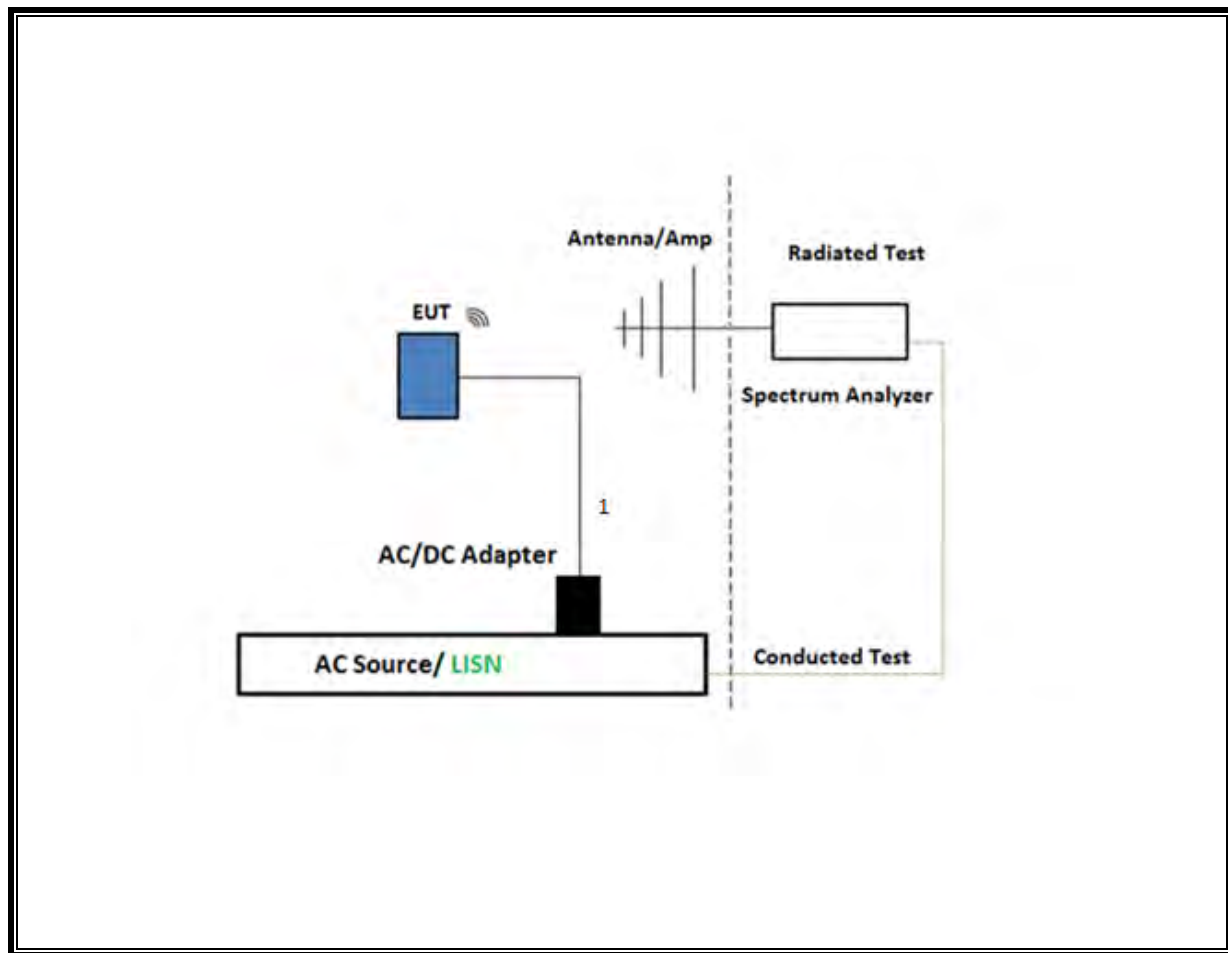
The EUT setup is shown as below. Test software exercised the radio card.

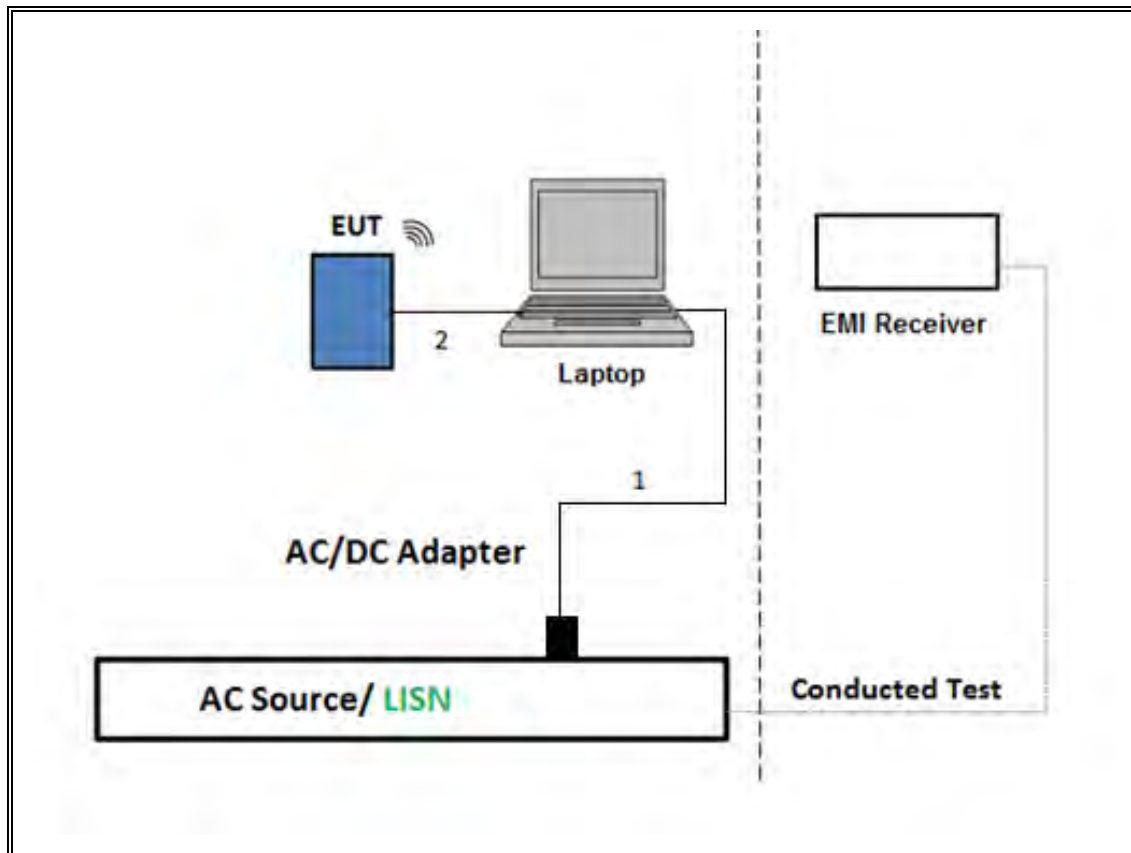
**TEST SETUP - CONDUCTED TESTS**

The EUT was tested connected to a host Laptop via USB cable adapter and spectrum analyzer to antenna port. Test software exercised the EUT.

**SETUP DIAGRAM**

**SETUP DIAGRAM FOR RADIATED TESTS Above 1GHz**

**SETUP DIAGRAM FOR Below 1GHz and AC LINE CONDUCTED TEST**

**TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION**

## 7. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 789033 D02 v02r01, Section B.

6 dB Emission BW: KDB 789033 D02 v02r01, Section C.2

26 dB Emission BW: KDB 789033 D02 v02r01, Section C.1

99% Occupied BW: KDB 789033 D02 v02r01, Section D.

Conducted Output Power: KDB 789033 D02 v02r01

Power Spectral Density: KDB 789033 D02 v02r01, Section F

Unwanted emissions in restricted bands: KDB 789033 D02 v02r01, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v02r01, Sections G.3, G.4, and G.5.

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2013 Section 6.4

## 8. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| TEST EQUIPMENT LIST                      |                                 |                 |            |            |            |
|------------------------------------------|---------------------------------|-----------------|------------|------------|------------|
| Description                              | Manufacturer                    | Model           | ID Num     | Cal Due    | Last Cal   |
| *Antenna, Horn 1-18GHz                   | ETS Lindgren                    | 3117            | T119       | 04/21/2021 | 04/21/2020 |
| *Amplifier, 1 to 18GHz                   | Amplical                        | AMP0.1G18-47-20 | 172121     | 06/10/2021 | 09/29/2020 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz     | Agilent (Keysight) Technologies | N9030A          | T342       | 01/25/2022 | 01/25/2021 |
| Antenna, Horn 1-18GHz                    | ETS-Lindgren                    | 3117            | PRE0213971 | 09/25/2021 | 09/25/2020 |
| RF Amplifier, 1-18GHz                    | AMPLICAL                        | AMP0.1G18-47-20 | 190323     | 12/03/2021 | 12/03/2020 |
| Antenna, Horn 1-18GHz                    | ETS Lindgren                    | 3117            | PRE0078107 | 03/01/2022 | 03/01/2021 |
| Amplifier, 1 to 18GHz                    | Amplical                        | AMP1G18-35      | 138301     | 03/30/2022 | 03/30/2021 |
| Antenna, BroadBand Hybrid, 30MHz to 3GHz | Sunol Sciences Corp.            | JB3             | PRE0184052 | 11/12/2021 | 11/12/2020 |
| Amplifier, 9KHz to 1GHz, 32dB            | SONOMA INSTRUMENT               | 310             | PRE0180174 | 12/29/2021 | 12/29/2020 |
| EMI Test Receiver                        | Rohde & Schwarz                 | ESW44           | 201500     | 11/19/2021 | 11/19/2020 |
| Antenna, Horn 1-18GHz                    | ETS Lindgren                    | 3117            | PRE0213833 | 09/25/2021 | 09/25/2020 |
| Amplifier, 1 to 18GHz                    | Amplical                        | AMP0.1G18-47-20 | 206055     | 03/10/2022 | 03/10/2021 |
| Antenna, Horn 1-18GHz                    | ETS Lindgren                    | 3117            | PRE0213973 | 08/20/2021 | 08/20/2020 |
| RF Amplifier, 1-18GHz                    | AMPLICAL                        | AMP1G7-24-27    | 205876     | 03/14/2022 | 03/14/2021 |
| EMI Test Receiver                        | Rohde & Schwarz                 | ESW44           | 201499     | 11/19/2021 | 11/19/2020 |
| Power Meter, P-series single channel     | Keysight                        | N1912A          | T1244      | 01/25/2022 | 01/25/2021 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz     | Agilent (Keysight) Technologies | N9030A          | T342       | 01/25/2022 | 01/25/2021 |
| Power Sensor                             | Keysight                        | N1921A          | T1224      | 01/25/2022 | 01/25/2021 |
| Antenna, Active Loop 9KHz to 30MHz       | EMCO                            | 6502            | T35        | 11/23/2021 | 11/23/2020 |
| *Antenna Horn, 18 to 26GHz               | ARA                             | SWH-28          | T125       | 04/17/2021 | 04/17/2020 |
| *Pre-Amp 18-26GHz                        | Agilent Technology              | 8449B           | T404       | 04/08/2021 | 04/19/2020 |
| Antenna, Horn 26.5GHz to 40GHz           | ARA                             | MWH-2640        | T90        | 05/03/2022 | 05/03/2021 |
| There's a                                | Miteq                           | TTA2640-35-HG   | T1864      | 04/19/2022 | 04/19/2021 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz     | Agilent (Keysight) Technologies | N9030A          | T1454      | 01/27/2022 | 01/27/2021 |
| Power Meter, P-series single channel     | Keysight                        | N1912A          | T1273      | 01/21/2022 | 01/21/2021 |
| Power Sensor                             | Keysight                        | N1921A          | T1226      | 02/19/2022 | 02/19/2021 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz     | Agilent (Keysight) Technologies | N9030A          | T906       | 07/20/2021 | 07/20/2020 |
| EMI Receiver                             | Rohde & Schwarz                 | ESW44           | 201501     | 09/23/2021 | 09/23/2020 |
| EMI Receiver                             | Rohde & Schwarz                 | ESW44           | 201502     | 09/17/2021 | 09/17/2020 |

| AC Line Conducted                     |                               |                         |                            |            |            |
|---------------------------------------|-------------------------------|-------------------------|----------------------------|------------|------------|
| Description                           | Manufacturer                  | Model                   | ID Num                     | Cal Due    | Last Cal   |
| EMI Test Receiver 9kHz-7GHz           | Rohde & Schwarz               | ESR                     | T1436                      | 02/19/2022 | 02/19/2021 |
| Power Cable, Line Conducted Emissions | UL                            | PR1                     | T861                       | 10/27/2021 | 10/27/2020 |
| LISN for Conducted Emissions CISPR-16 | FISCHER CUSTOM COMMUNICATIONS | FCC-LISN-50/250-25-2-01 | PRE0186446                 | 01/20/2022 | 01/20/2021 |
| UL AUTOMATION SOFTWARE                |                               |                         |                            |            |            |
| Radiated Software                     | UL                            | UL EMC                  | Ver 9.5, Mar 6, 2020       |            |            |
| Conducted Software                    | UL                            | UL EMC                  | 2020.2.26                  |            |            |
| AC Line Conducted Software            | UL                            | UL EMC                  | Ver 9.5, February 21, 2020 |            |            |

Note: \*Testing is completed before equipment expiration date.

## 9. ANTENNA PORT TEST RESULTS

### 9.1. ON TIME AND DUTY CYCLE

#### LIMITS

None; for reporting purposes only.

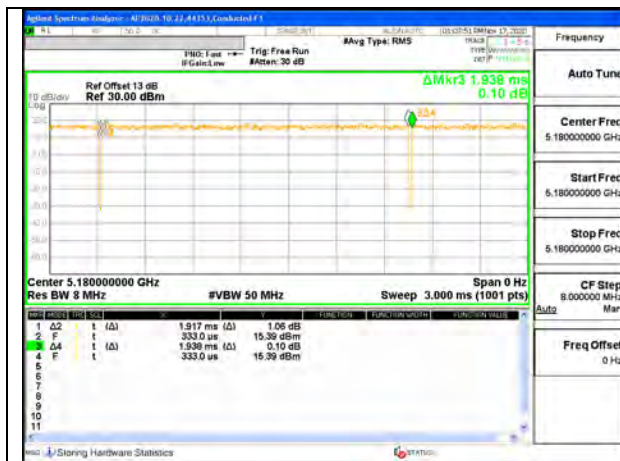
#### PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

#### ON TIME AND DUTY CYCLE RESULTS

| Mode                      | ON Time<br>B<br>(msec) | Period<br>(msec) | Duty Cycle<br>x<br>(linear) | Duty<br>Cycle<br>(%) | Duty Cycle<br>Correction Factor<br>(dB) | 1/B<br>Minimum VBW<br>(kHz) |
|---------------------------|------------------------|------------------|-----------------------------|----------------------|-----------------------------------------|-----------------------------|
| <b>5GHz Band</b>          |                        |                  |                             |                      |                                         |                             |
| 802.11n HT20 1Tx MCS0     | 1.917                  | 1.938            | 0.989                       | 98.92%               | 0.00                                    | 0.010                       |
| 802.11n HT20 1Tx MCS7     | 0.228                  | 0.249            | 0.918                       | 91.75%               | 0.37                                    | 4.386                       |
| 802.11n HT20 CDD MCS0     | 1.920                  | 1.938            | 0.991                       | 99.07%               | 0.00                                    | 0.010                       |
| 802.11n HT20 CDD MCS7     | 0.136                  | 0.157            | 0.869                       | 86.88%               | 0.61                                    | 7.353                       |
| 802.11n HT40 1Tx MCS0     | 0.942                  | 0.962            | 0.979                       | 97.92%               | 0.09                                    | 1.062                       |
| 802.11n HT40 1Tx MCS7     | 0.128                  | 0.148            | 0.866                       | 86.61%               | 0.62                                    | 7.806                       |
| 802.11n HT40 CDD MCS0     | 0.944                  | 0.964            | 0.979                       | 97.93%               | 0.09                                    | 1.059                       |
| 802.11n HT40 CDD MCS7     | 0.128                  | 0.148            | 0.866                       | 86.59%               | 0.63                                    | 7.825                       |
| 802.11ac VHT80 1Tx MCS0   | 0.460                  | 0.480            | 0.958                       | 95.83%               | 0.18                                    | 2.174                       |
| 802.11ac VHT80 1Tx MCS9   | 0.072                  | 0.092            | 0.783                       | 78.26%               | 1.06                                    | 13.889                      |
| 802.11ac VHT80 CDD MCS0   | 0.459                  | 0.478            | 0.960                       | 96.03%               | 0.18                                    | 2.179                       |
| 802.11ac VHT80 CDD MCS9   | 0.060                  | 0.080            | 0.752                       | 75.19%               | 1.24                                    | 16.667                      |
| 802.11ax HE20 1Tx MCS0    | 1.560                  | 1.580            | 0.987                       | 98.73%               | 0.00                                    | 0.010                       |
| 802.11ax HE20 1Tx MCS11   | 3.995                  | 4.025            | 0.993                       | 99.25%               | 0.00                                    | 0.010                       |
| 802.11ax HE20 OFDMA MCS0  | 1.560                  | 1.580            | 0.987                       | 98.73%               | 0.00                                    | 0.010                       |
| 802.11ax HE20 OFDMA MCS11 | 3.990                  | 4.025            | 0.991                       | 99.13%               | 0.00                                    | 0.010                       |
| 802.11ax HE40 1Tx MCS0    | 1.546                  | 1.566            | 0.987                       | 98.72%               | 0.00                                    | 0.010                       |
| 802.11ax HE40 1Tx MCS11   | 3.990                  | 4.025            | 0.991                       | 99.13%               | 0.00                                    | 0.010                       |
| 802.11ax HE40 OFDMA MCS0  | 1.544                  | 1.566            | 0.986                       | 98.60%               | 0.00                                    | 0.010                       |
| 802.11ax HE40 OFDMA MCS11 | 3.995                  | 4.030            | 0.991                       | 99.13%               | 0.00                                    | 0.010                       |
| 802.11ax HE80 1Tx MCS0    | 1.474                  | 1.496            | 0.985                       | 98.53%               | 0.00                                    | 0.010                       |
| 802.11ax HE80 1Tx MCS11   | 3.995                  | 4.025            | 0.993                       | 99.25%               | 0.00                                    | 0.010                       |
| 802.11ax HE80 OFDMA MCS0  | 1.472                  | 1.494            | 0.985                       | 98.53%               | 0.00                                    | 0.010                       |
| 802.11ax HE80 OFDMA MCS11 | 3.995                  | 4.025            | 0.993                       | 99.25%               | 0.00                                    | 0.010                       |

## DUTY CYCLE PLOTS



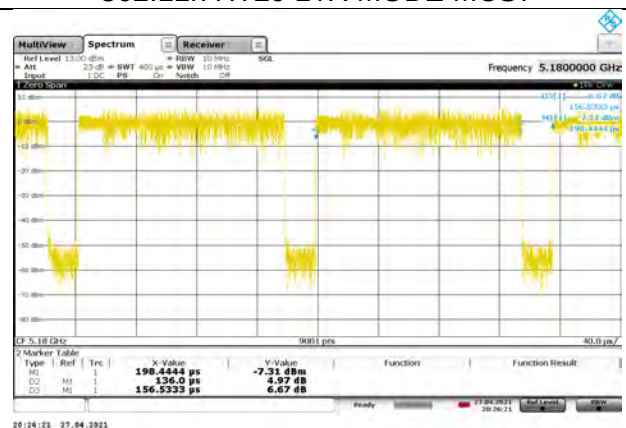
802.11n HT20 1TX MODE MCS0



802.11n HT20 1TX MODE MCS7



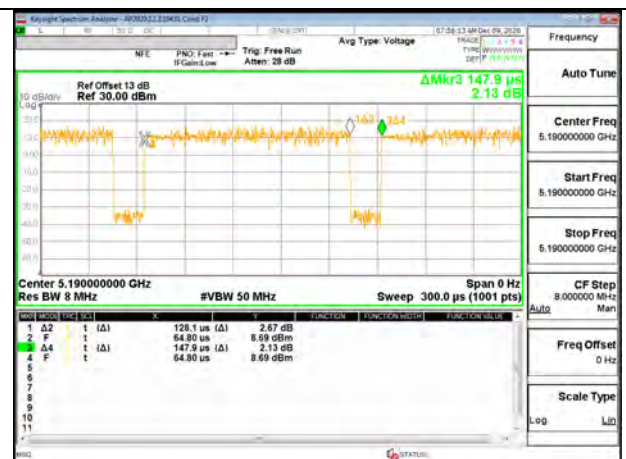
802.11n HT20 CDD MODE MCS0



802.11n HT20 CDD MODE MCS7



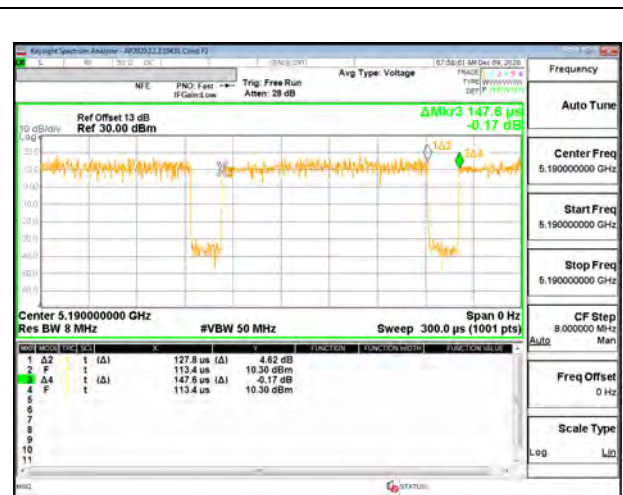
802.11n HT40 1TX MODE MCS0



802.11n HT40 1TX MODE MCS7



802.11n HT40 CDD MODE MCS0



802.11n HT40 CDD MODE MCS7



802.11ac VHT80 1TX MODE MSC0



802.11ac VHT80 1TX MODE MSC9



802.11ac VHT80 CDD MODE MCS0



802.11ac VHT80 CDD MODE MCS9





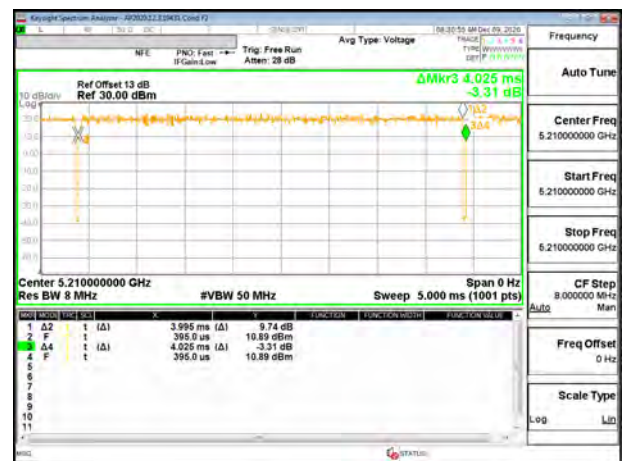
802.11ax HE40 OFDMA MCS0



802.11ax HE40 OFDMA MCS11



802.11ax HE80 1Tx MCS0



802.11ax HE80 1Tx MCS11



802.11ax HE80 OFDMA MCS0



802.11ax HE80 OFDMA MCS11

## **9.2. 26 dB & 99% BANDWIDTHS**

### **LIMITS**

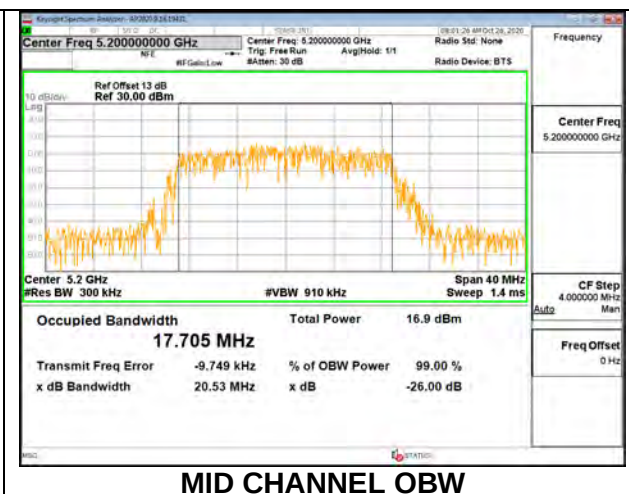
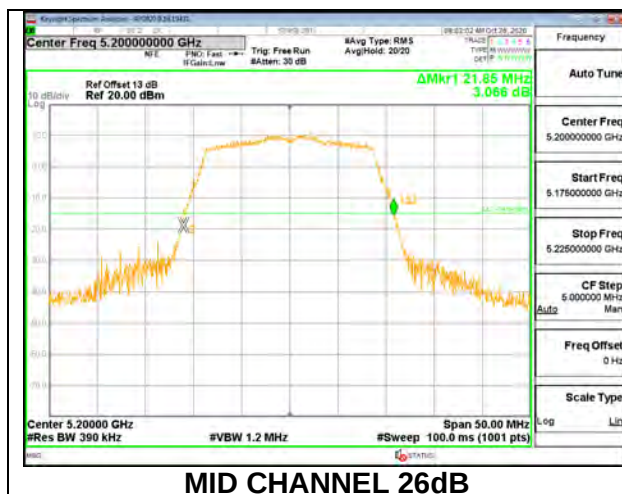
None; for reporting purposes only.

### **RESULTS**

## 9.2.1. 802.11n HT20 MODE IN THE 5.2 GHz BAND

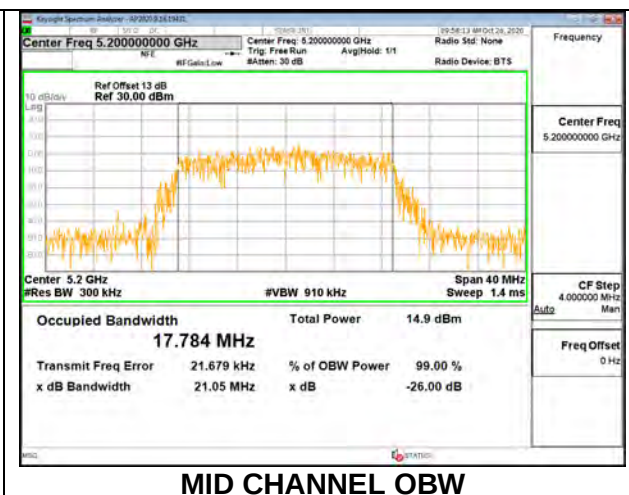
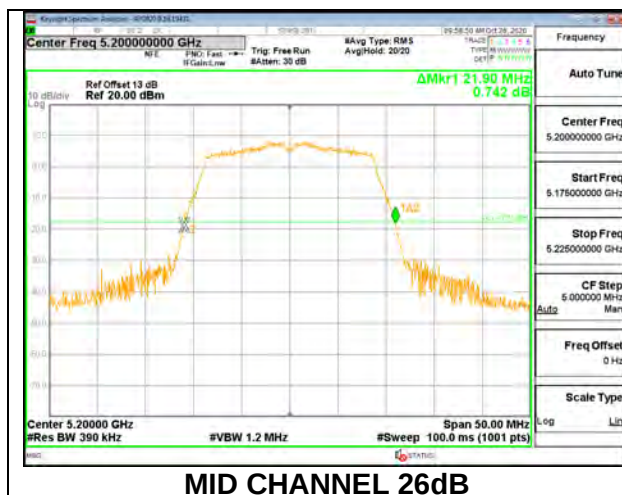
### 1TX Antenna 6 MODE

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5180               | 22.15                   | 17.6170                |
| Mid     | 5200               | 21.85                   | 17.7050                |
| High    | 5240               | 21.95                   | 17.5670                |



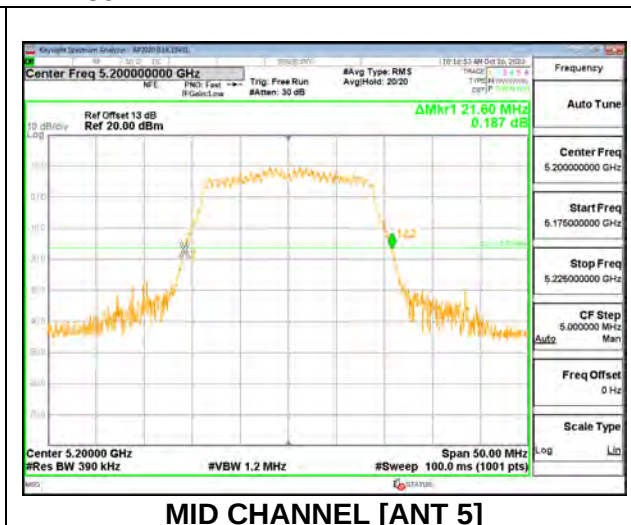
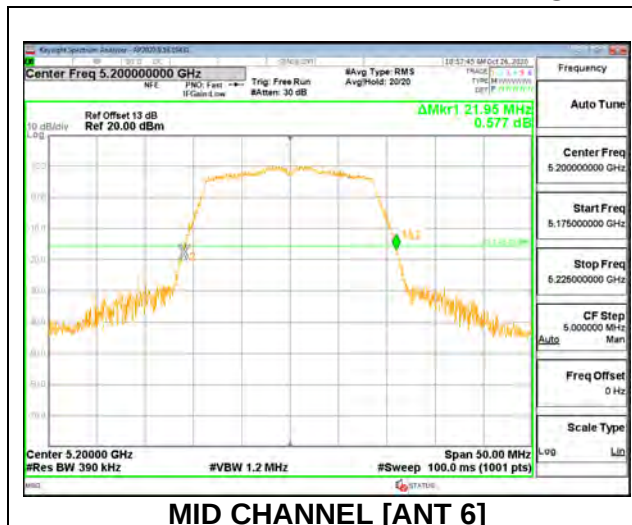
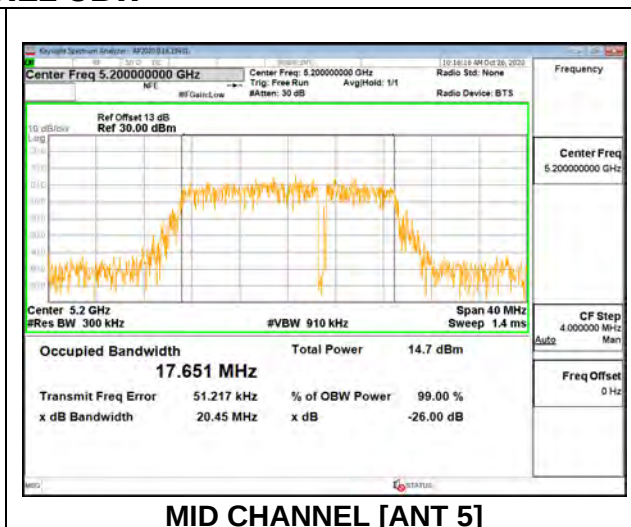
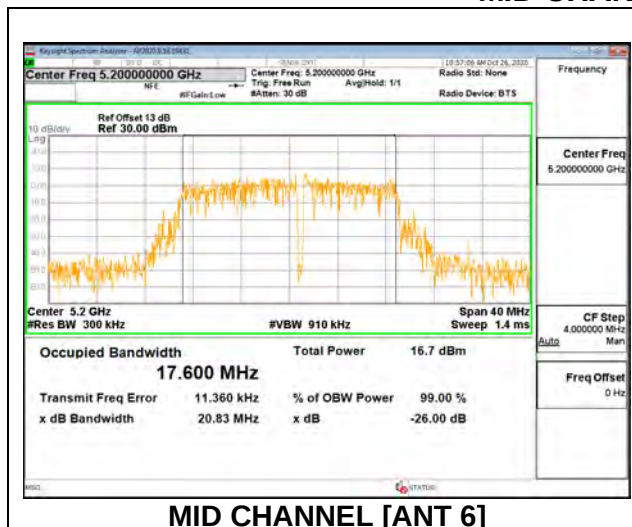
### 1TX Antenna 5 MODE

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5180               | 22.00                   | 17.6080                |
| Mid     | 5200               | 21.90                   | 17.7840                |
| High    | 5240               | 22.10                   | 17.6450                |



**2TX Antenna 6 + Antenna 5 CDD MODE**

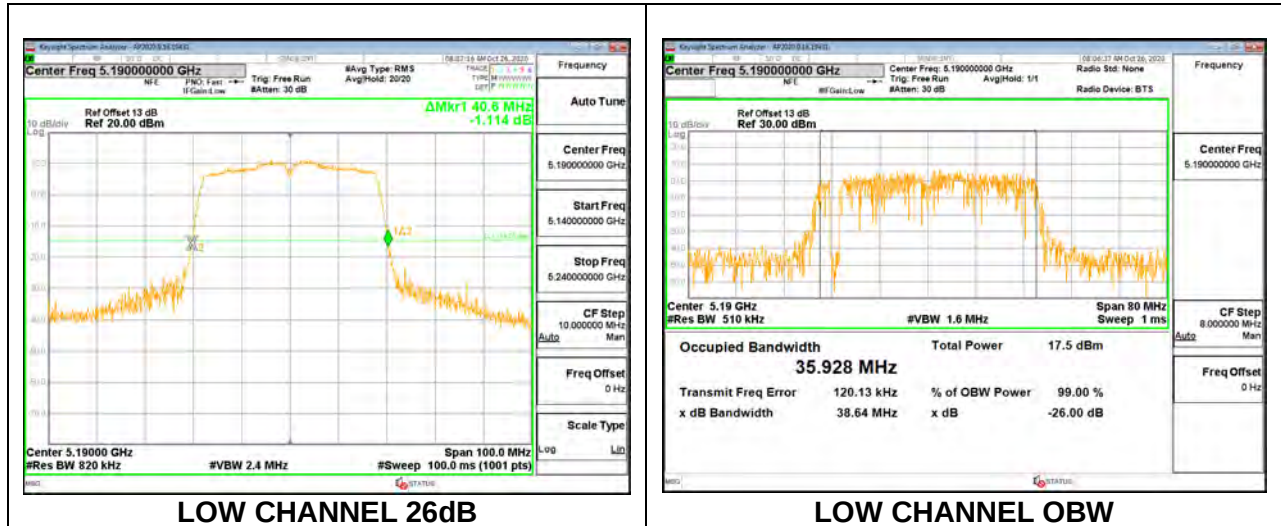
| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>Antenna 6<br>(MHz) | 26dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|--------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5180               | 22.15                                | 21.65                                | 17.6610                             | 17.6300                             |
| Mid     | 5200               | 21.95                                | 21.60                                | 17.6000                             | 17.6510                             |
| High    | 5240               | 22.00                                | 21.75                                | 17.7730                             | 17.6440                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

## 9.2.2. 802.11n HT40 MODE IN THE 5.2 GHz BAND

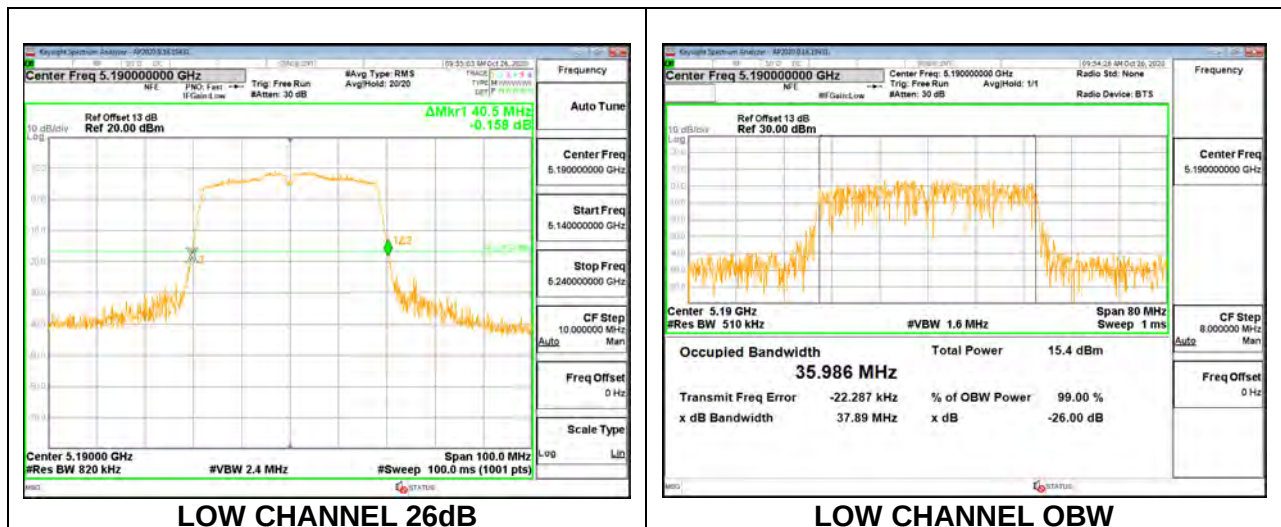
### 1TX Antenna 6 MODE

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5190               | 40.60                   | 35.9280                |
| High    | 5230               | 40.80                   | 36.0570                |



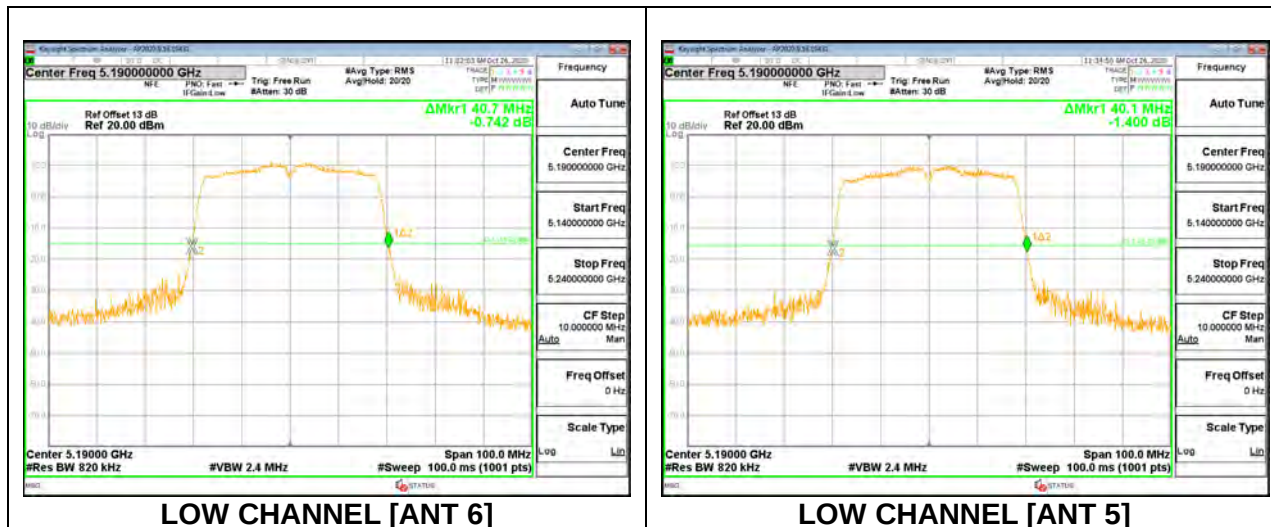
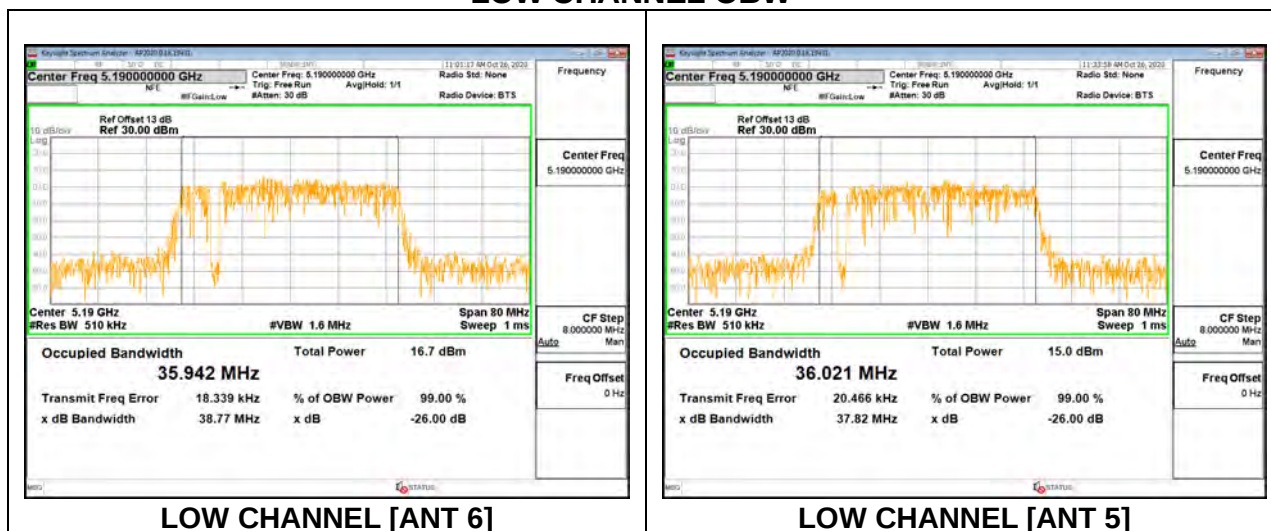
### 1TX Antenna 5 MODE

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5190               | 40.50                   | 35.9860                |
| High    | 5230               | 40.90                   | 36.0160                |



**2TX Antenna 6 + Antenna 5 CDD MODE**

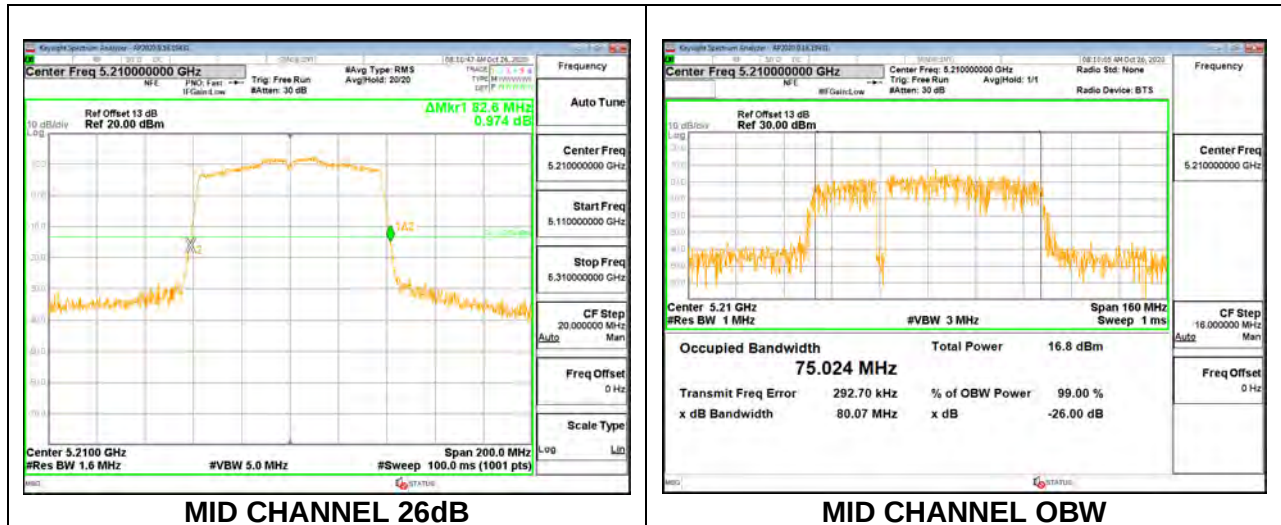
| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>Antenna 6<br>(MHz) | 26dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|--------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5190               | 40.70                                | 40.10                                | 35.9420                             | 36.0210                             |
| High    | 5230               | 40.70                                | 40.30                                | 36.0920                             | 35.9560                             |

**LOW CHANNEL 26dB****LOW CHANNEL OBW**

### 9.2.3. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

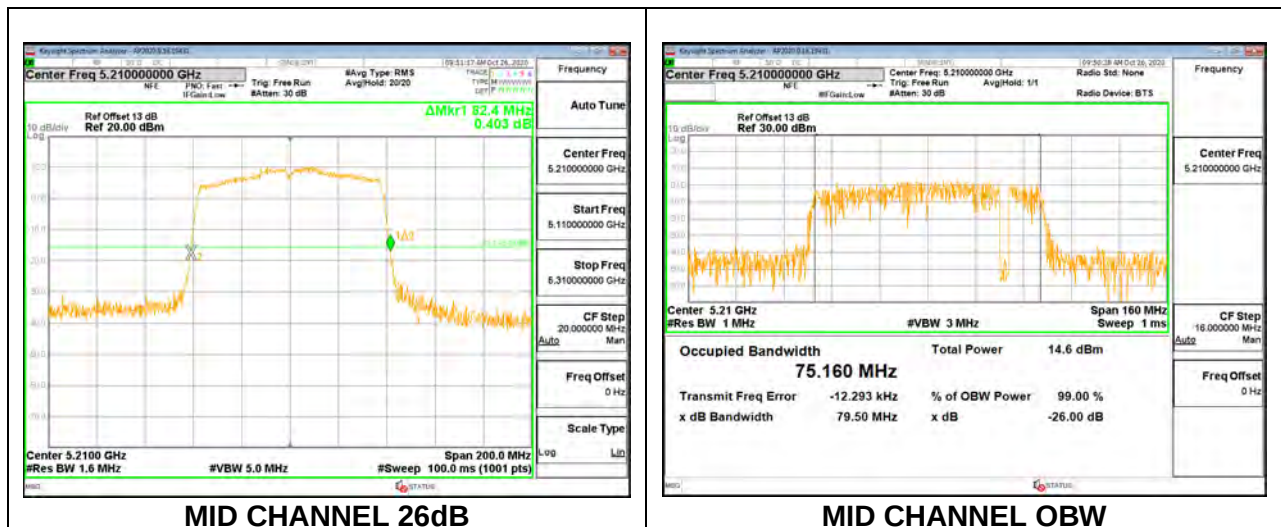
#### 1TX Antenna 6 MODE

| Channel | Frequency | 26dB Bandwidth | 99% Bandwidth |
|---------|-----------|----------------|---------------|
|         | (MHz)     | (MHz)          | (MHz)         |
| Mid     | 5210      | 82.60          | 75.0240       |



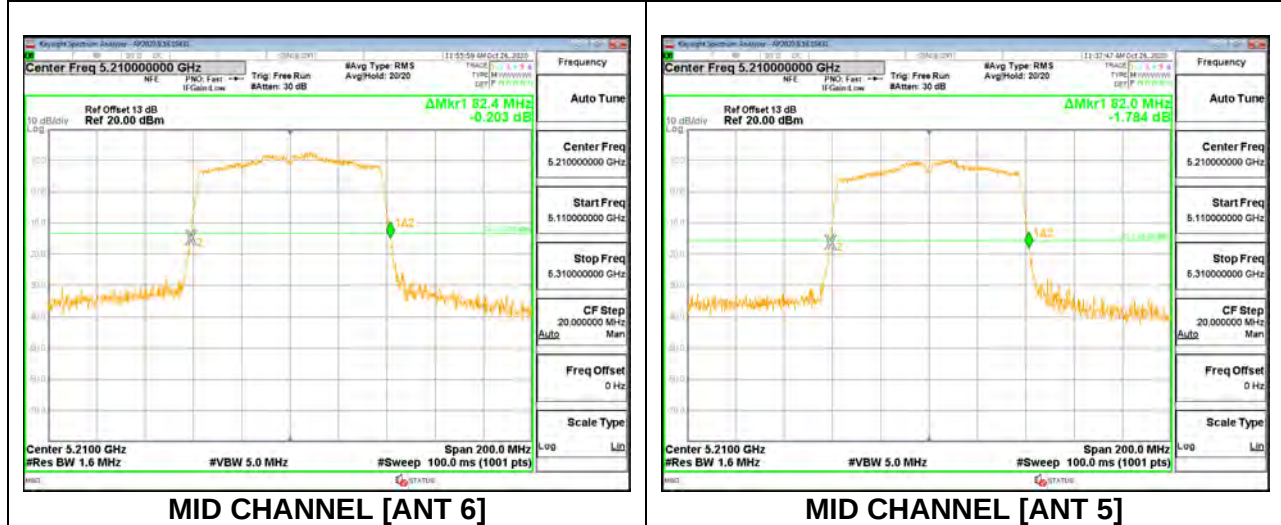
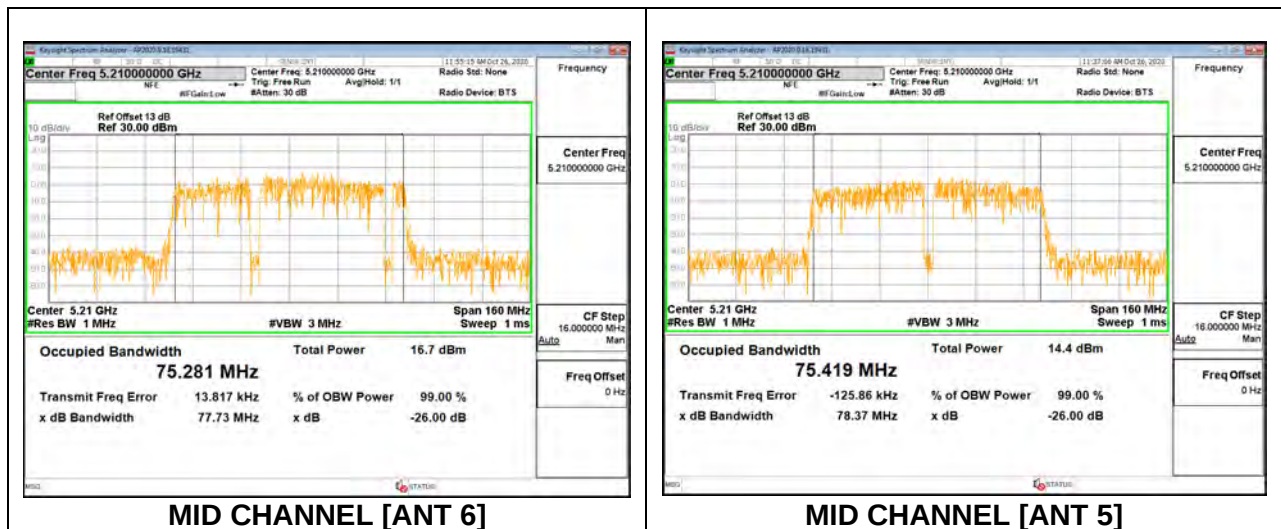
#### 1TX Antenna 5 MODE

| Channel | Frequency | 26dB Bandwidth | 99% Bandwidth |
|---------|-----------|----------------|---------------|
|         | (MHz)     | (MHz)          | (MHz)         |
| Mid     | 5210      | 82.40          | 75.1600       |



**2TX Antenna 6 + Antenna 5 CDD MODE**

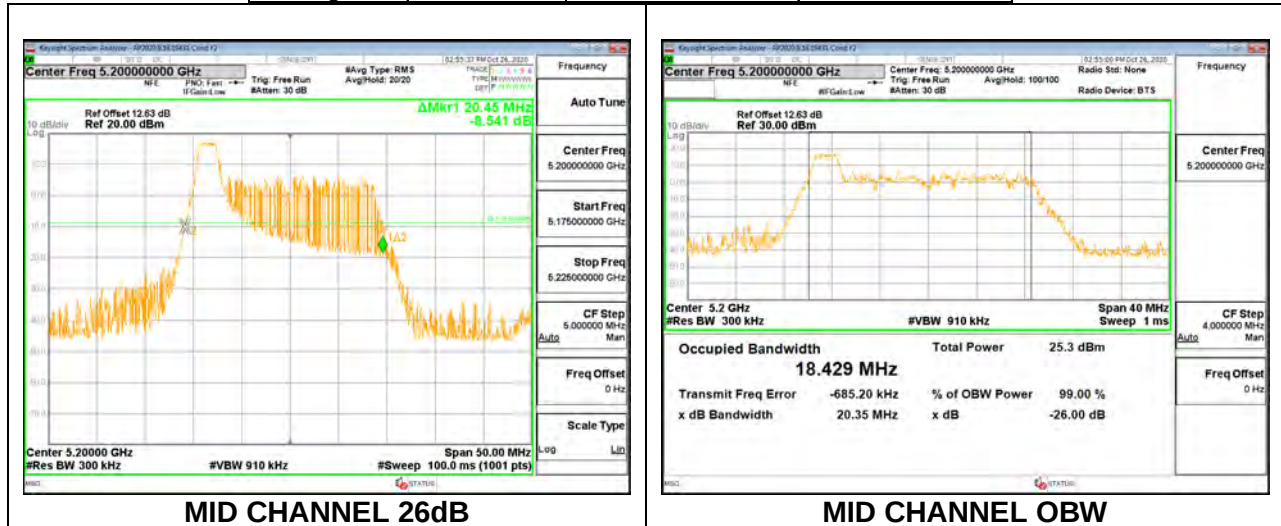
| Channel | Frequency | 26dB Bandwidth<br>Antenna 6<br>(MHz) | 26dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|-----------|--------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| Mid     | 5210      | 82.40                                | 82.00                                | 75.2810                             | 75.4190                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

## 9.2.4. 802.11ax HE20 MODE IN THE 5.2 GHz BAND

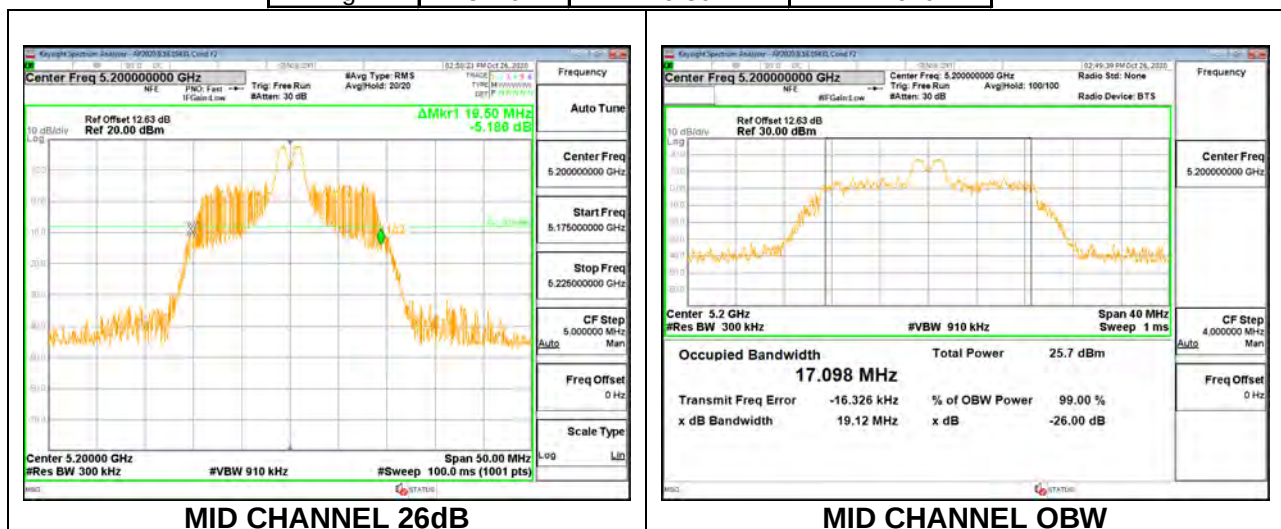
### 1TX Antenna 6 MODE: 26 Tones, RU Index 0

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5180      | 20.35           | 18.4970       |
| Mid     | 5200      | 20.45           | 18.4290       |
| High    | 5240      | 20.35           | 18.9340       |



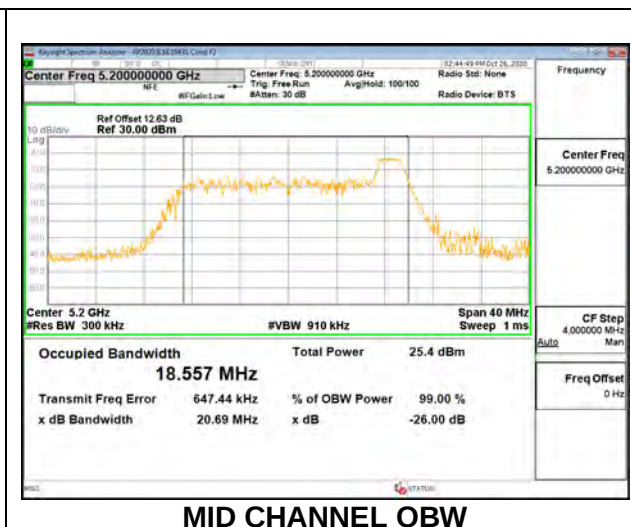
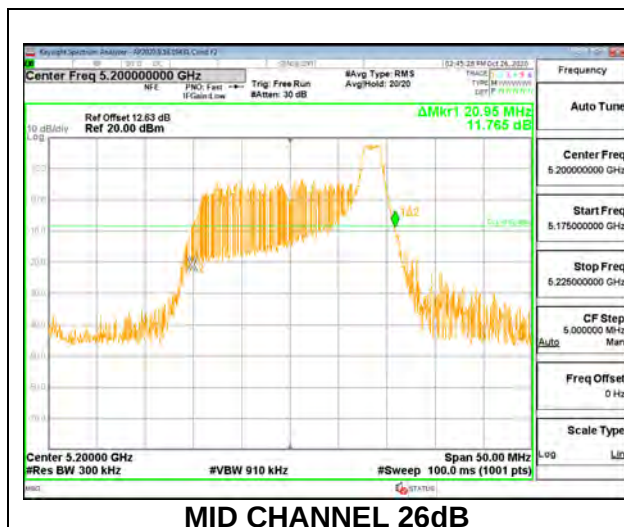
### 1TX Antenna 6 MODE: 26 Tones, RU Index 4

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5180      | 19.45           | 17.1600       |
| Mid     | 5200      | 19.50           | 17.0980       |
| High    | 5240      | 19.50           | 17.1670       |

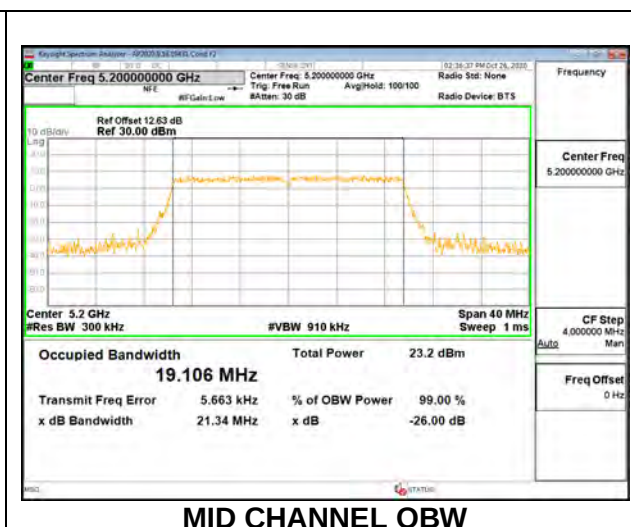
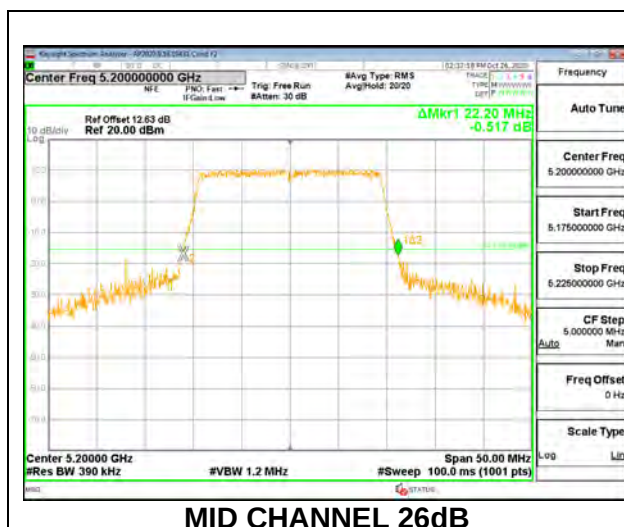


**1TX Antenna 6 MODE: 26 Tones, RU Index 8**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5180      | 20.95           | 18.5530       |
| Mid     | 5200      | 20.95           | 18.5570       |
| High    | 5240      | 21.00           | 18.6340       |

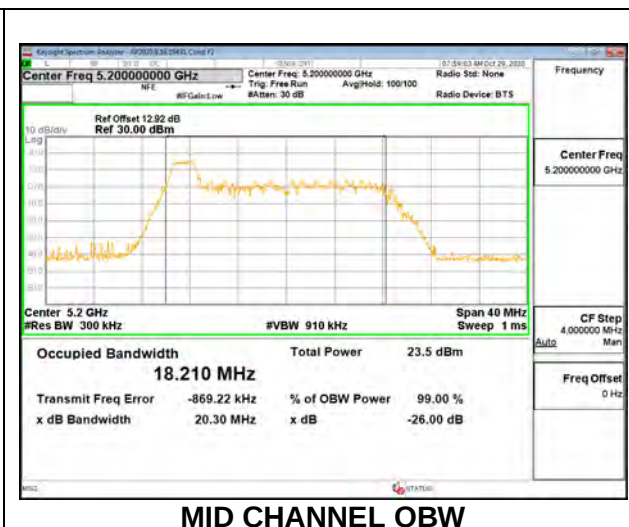
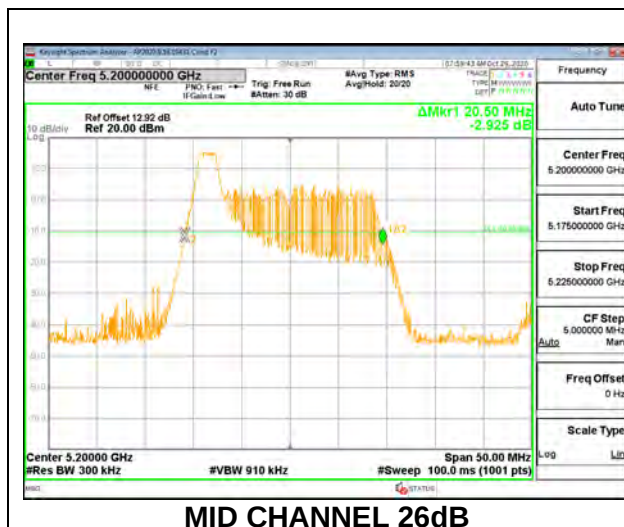
**1TX Antenna 6 MODE: SU Mode**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5180      | 21.90           | 19.0090       |
| Mid     | 5200      | 22.00           | 19.1060       |
| High    | 5240      | 22.10           | 19.0420       |

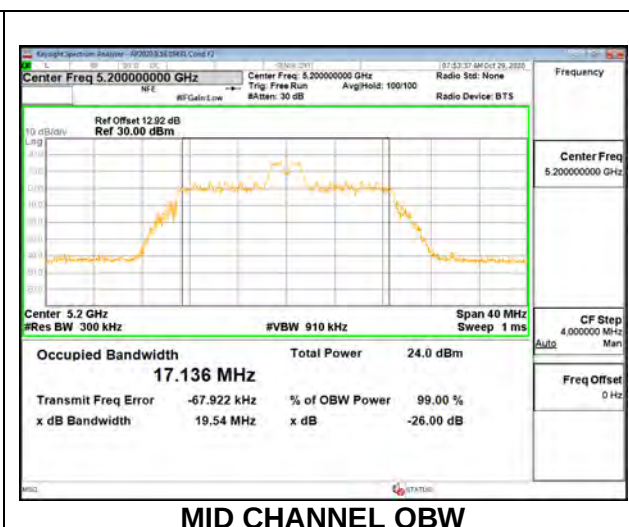
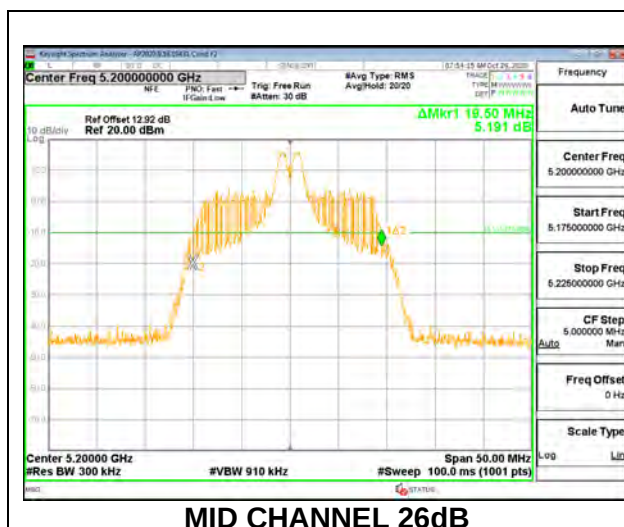


**1TX Antenna 5 MODE: 26 Tones, RU Index 0**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5180      | 20.55           | 18.4970       |
| Mid     | 5200      | 20.50           | 18.2100       |
| High    | 5240      | 20.25           | 18.3290       |

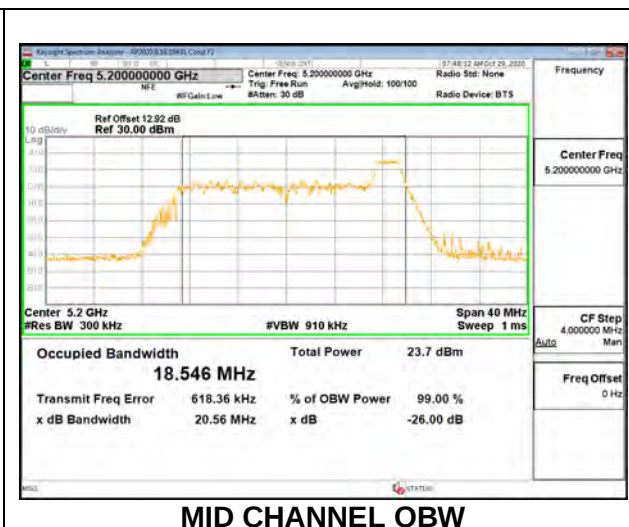
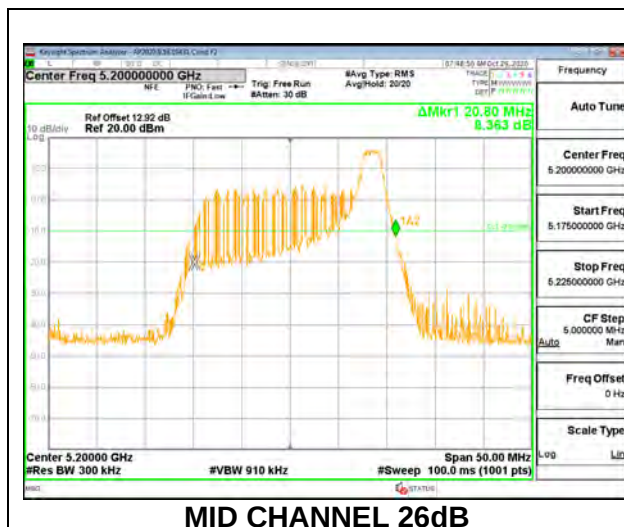
**1TX Antenna 5 MODE: 26 Tones, RU Index 4**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5180      | 19.55           | 17.1320       |
| Mid     | 5200      | 19.50           | 17.1360       |
| High    | 5240      | 19.70           | 17.1230       |

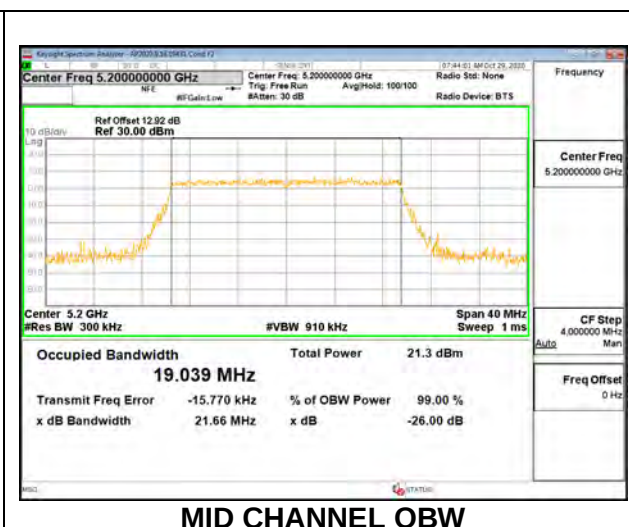
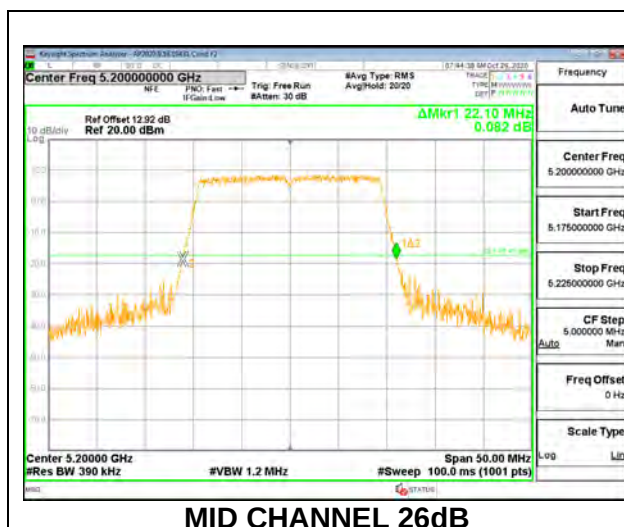


**1TX Antenna 5 MODE: 26 Tones, RU Index 8**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5180      | 20.95           | 18.6870       |
| Mid     | 5200      | 20.80           | 18.5460       |
| High    | 5240      | 20.95           | 18.6000       |

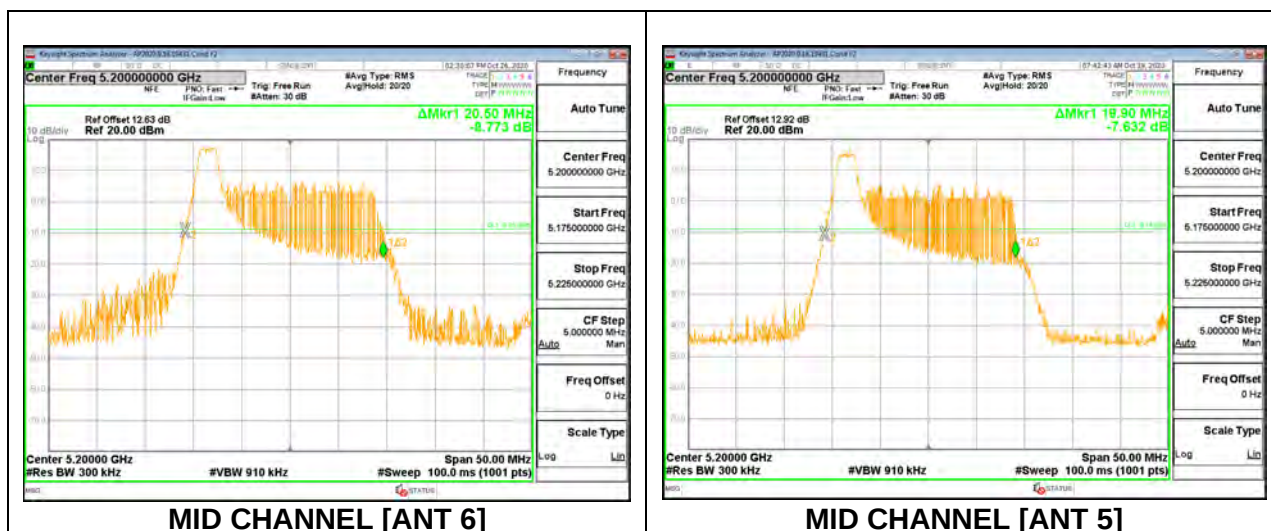
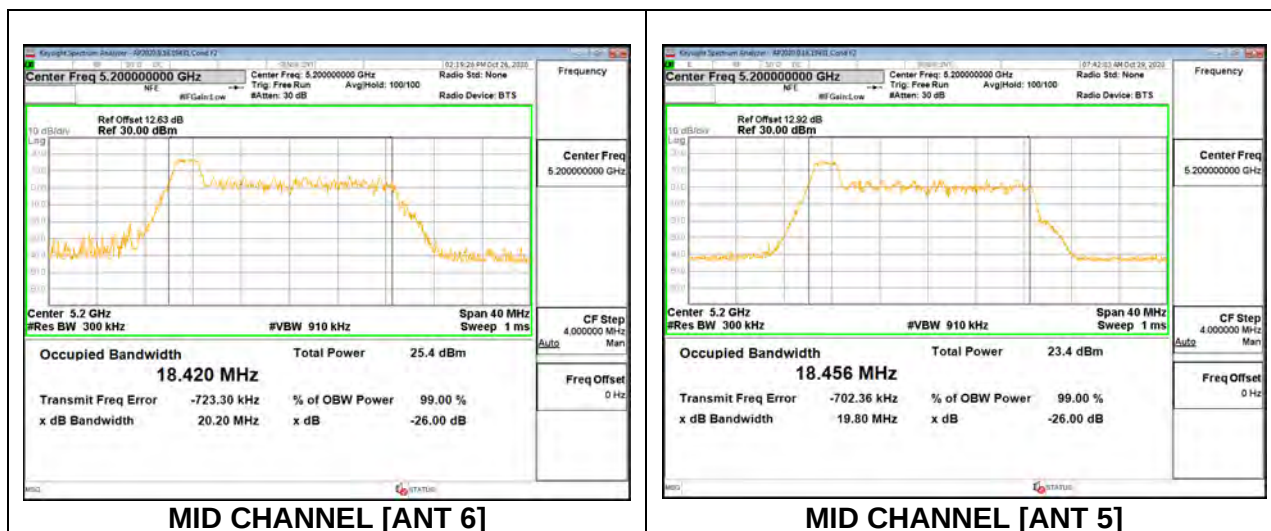
**1TX Antenna 5 MODE: SU Mode**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5180      | 22.10           | 19.0600       |
| Mid     | 5200      | 22.10           | 19.0390       |
| High    | 5240      | 22.10           | 19.0640       |



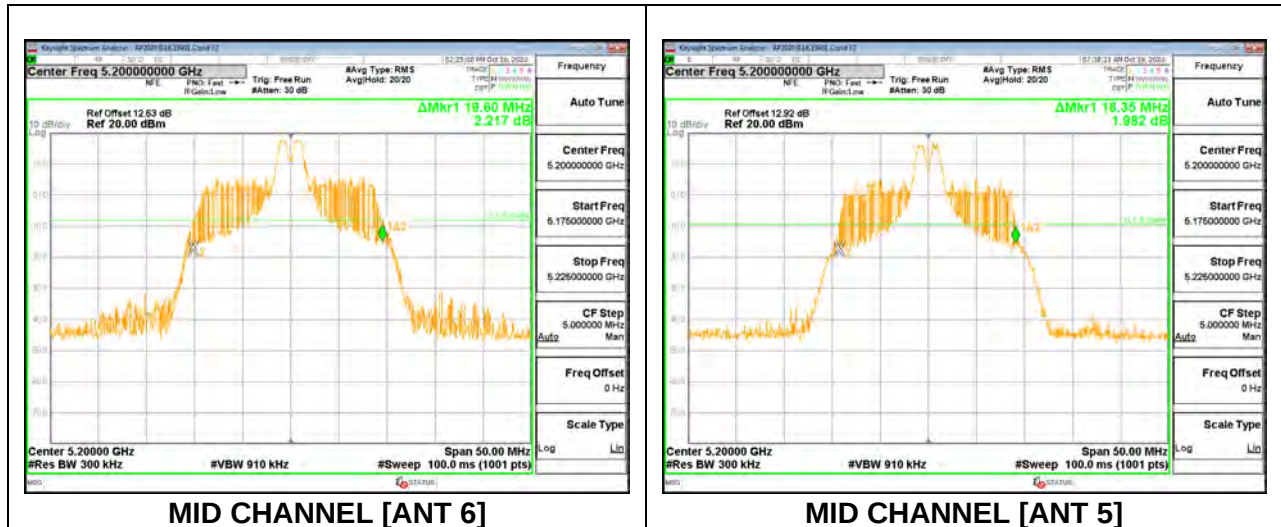
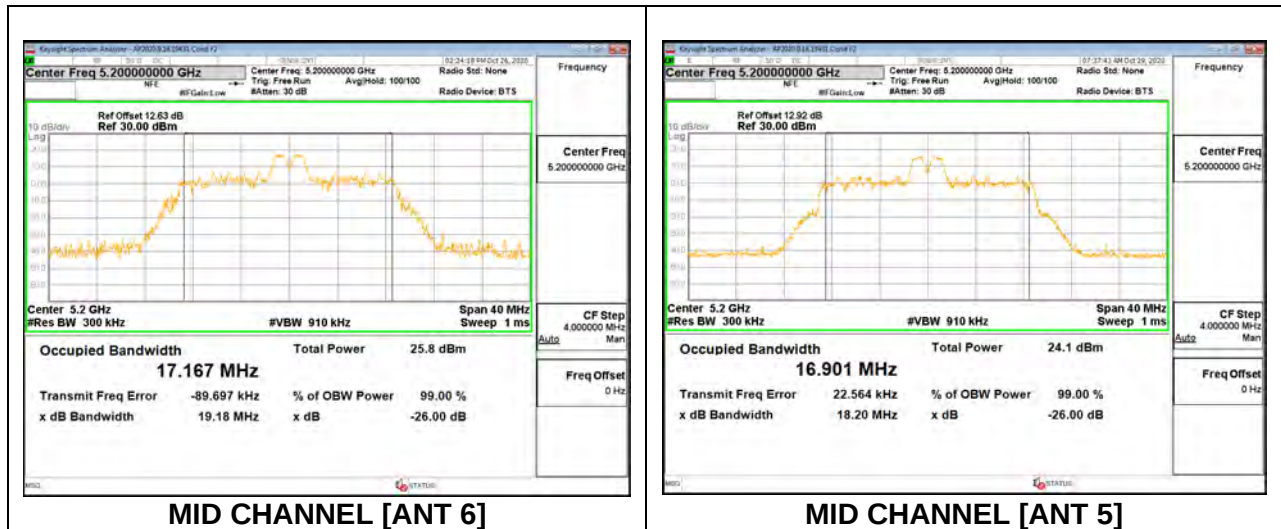
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 0**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5180               | 20.45                                 | 20.00                                 | 18.4790                             | 18.4080                             |
| Mid     | 5200               | 20.50                                 | 19.90                                 | 18.4200                             | 18.4560                             |
| High    | 5240               | 20.30                                 | 19.70                                 | 18.3520                             | 18.3560                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

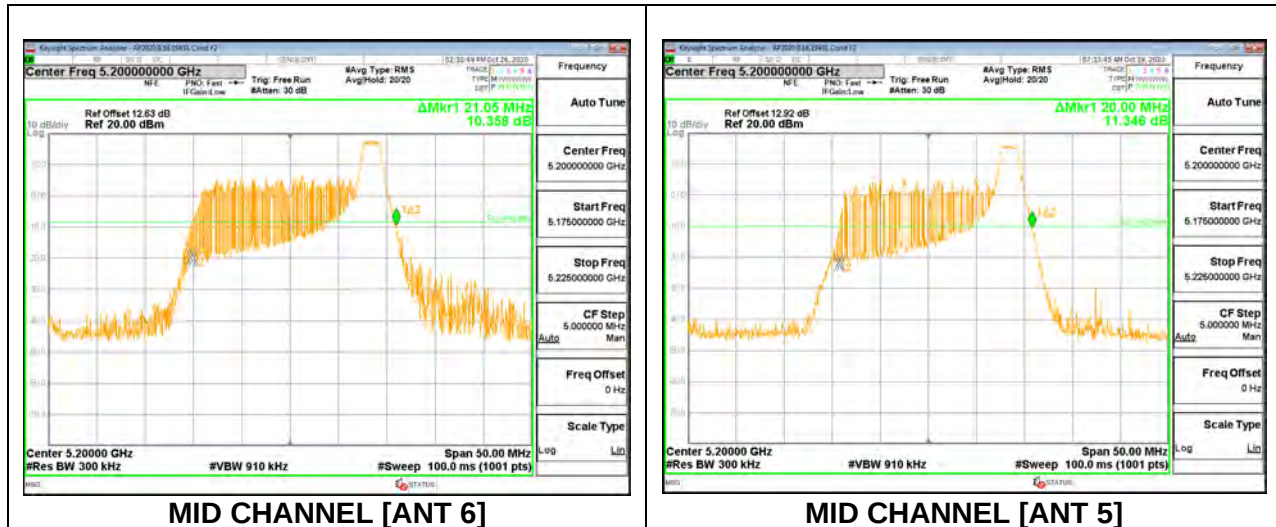
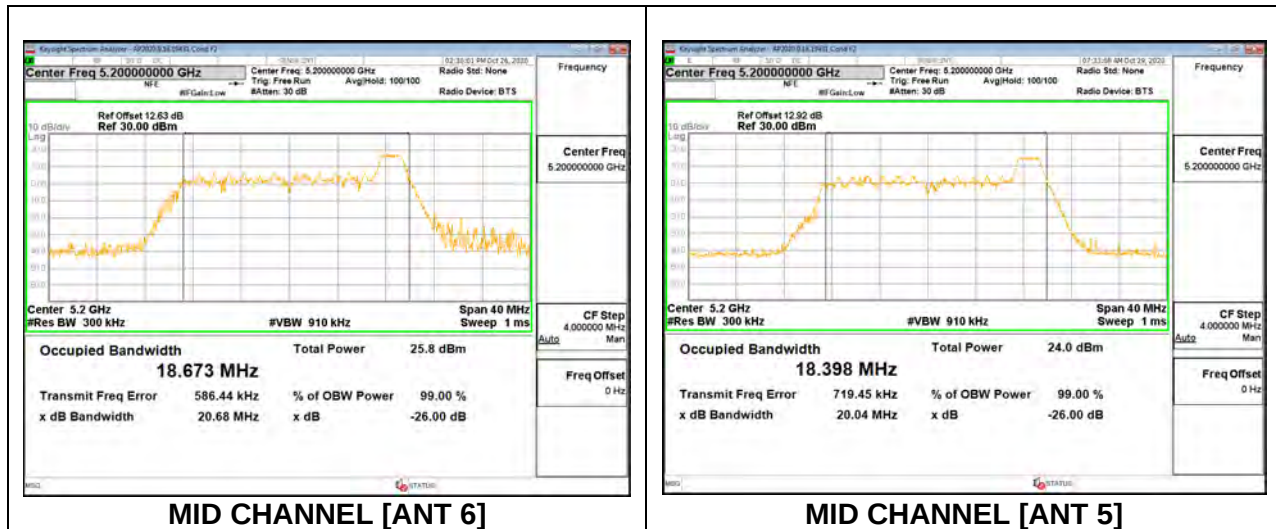
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 4**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5180               | 19.50                                 | 18.25                                 | 17.0880                             | 16.8570                             |
| Mid     | 5200               | 19.60                                 | 18.35                                 | 17.1670                             | 16.9010                             |
| High    | 5240               | 19.60                                 | 18.50                                 | 17.1710                             | 16.8930                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

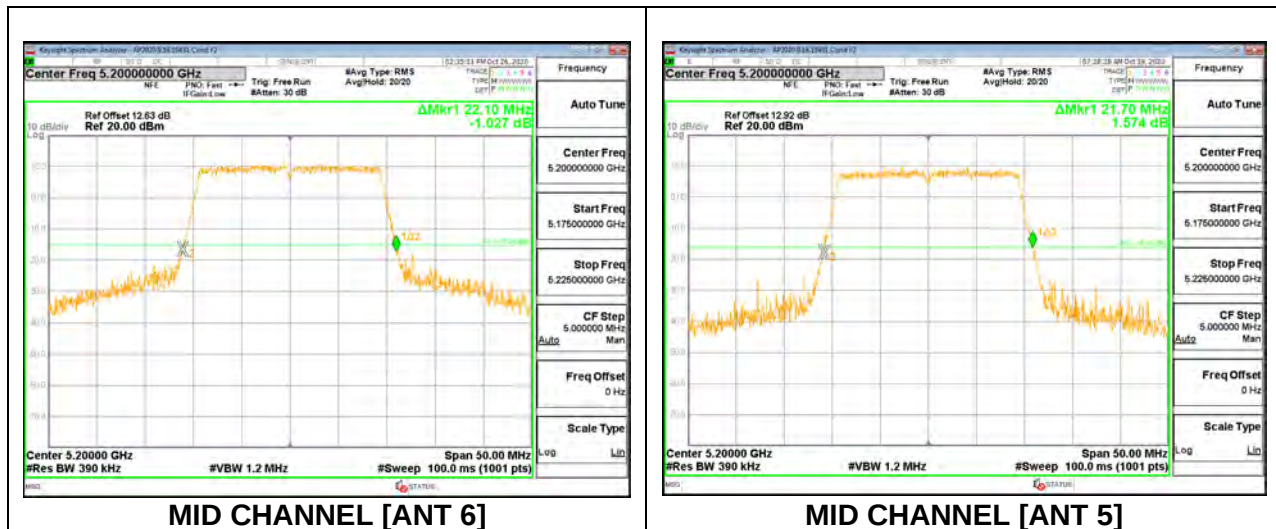
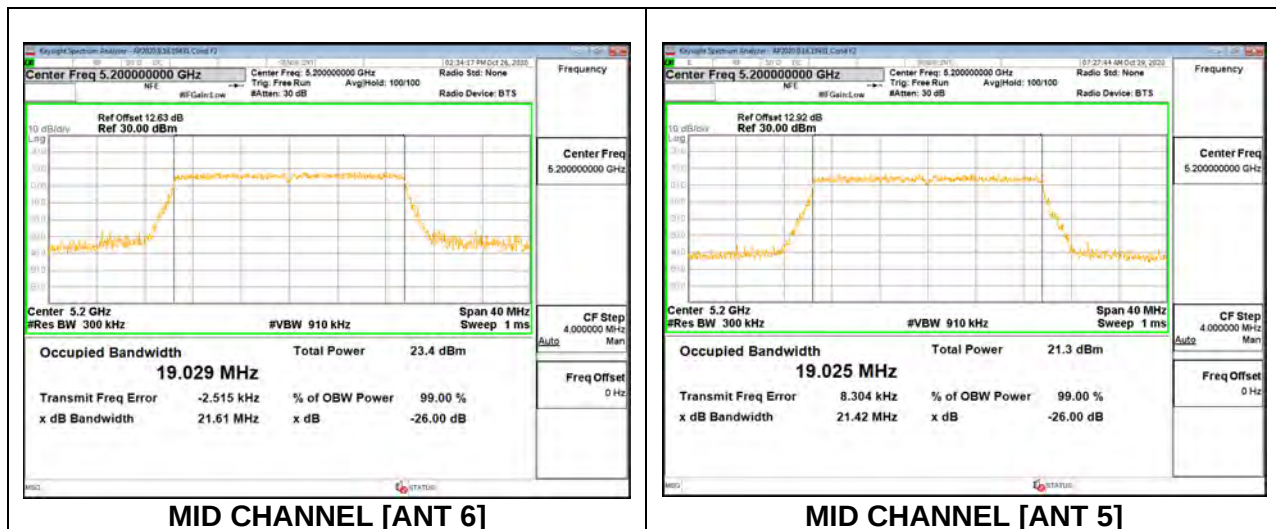
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 8**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5180               | 20.90                                 | 20.00                                 | 18.5920                             | 18.4170                             |
| Mid     | 5200               | 21.05                                 | 20.00                                 | 18.6730                             | 18.3980                             |
| High    | 5240               | 20.90                                 | 20.20                                 | 18.5060                             | 18.4250                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

**2TX Antenna 6 + Antenna 5 CDD MODE: SU Mode**

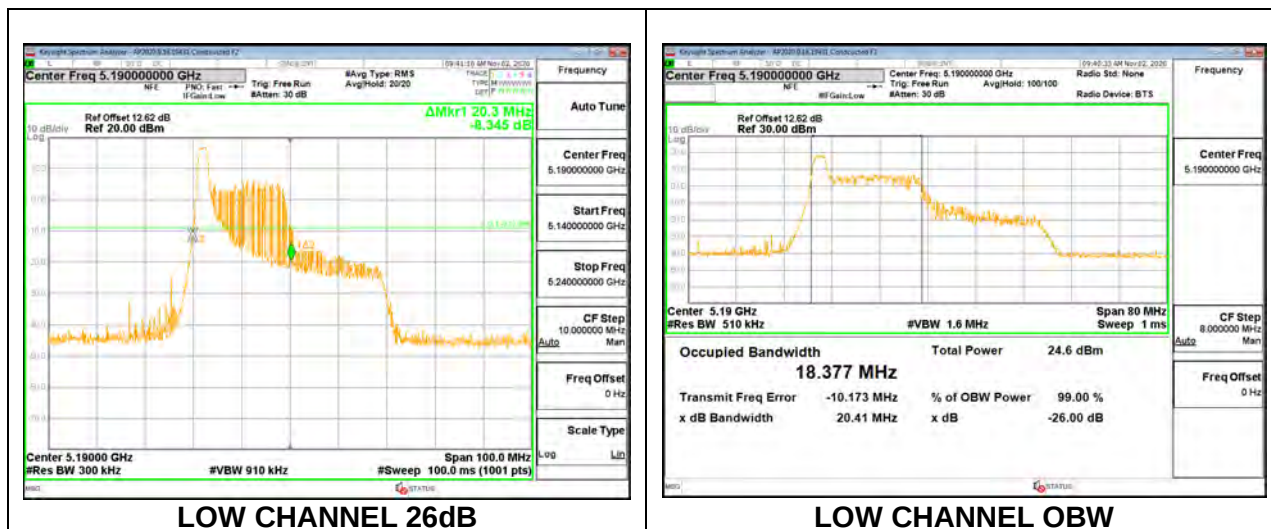
| Channel | Frequency | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|-----------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5180      | 22.00                                 | 21.85                                 | 19.0430                             | 19.0000                             |
| Mid     | 5200      | 22.10                                 | 21.70                                 | 19.0290                             | 19.0250                             |
| High    | 5240      | 22.05                                 | 21.95                                 | 19.0560                             | 19.0370                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

## 9.2.5. 802.11ax HE40 MODE IN THE 5.2 GHz BAND

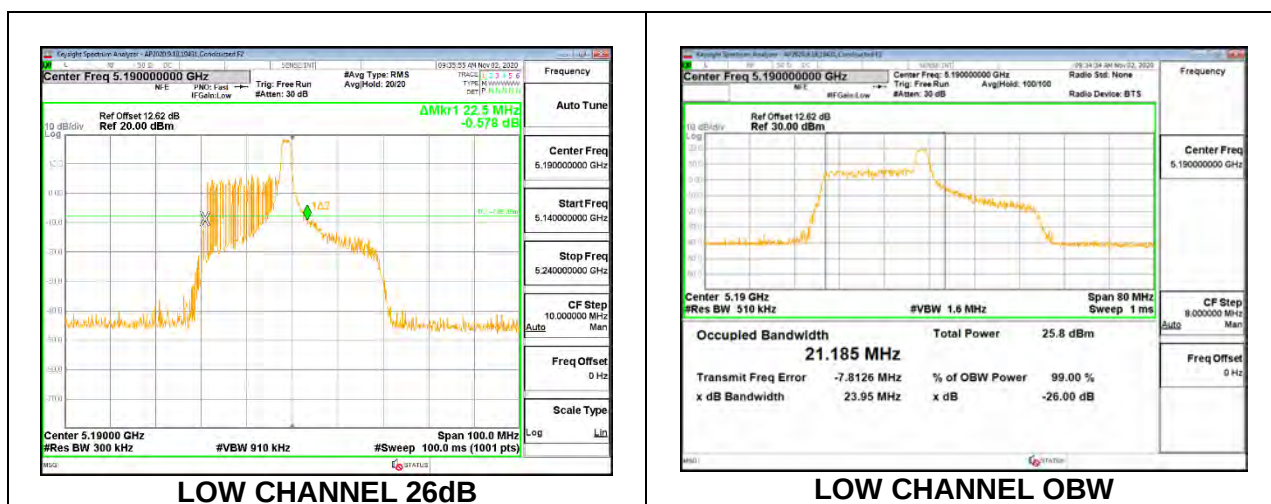
### 1TX Antenna 6 MODE: 26 Tones, RU Index 0

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|--------------------------|------------------------|
| Low     | 5190               | 20.30                    | 18.3770                |
| High    | 5230               | 20.30                    | 18.0520                |



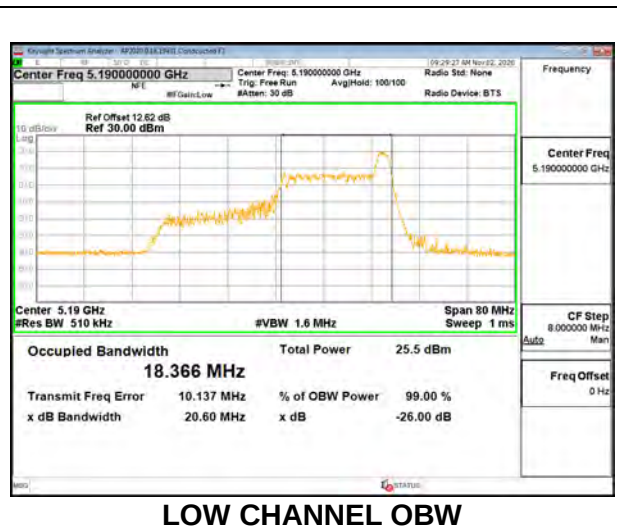
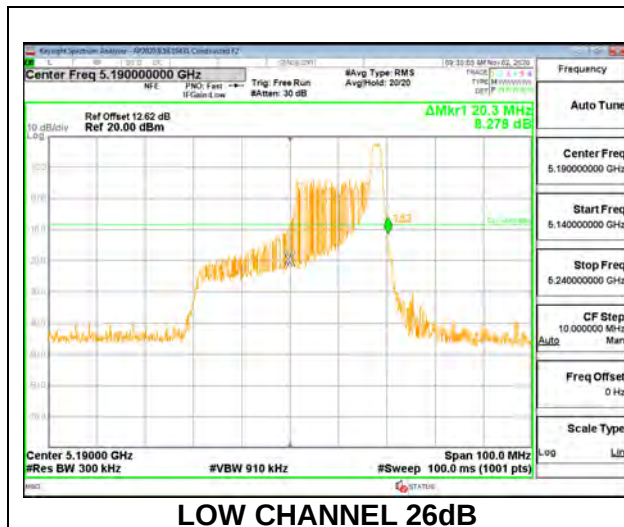
### 1TX Antenna 6 MODE: 26 Tones, RU Index 8

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|--------------------------|------------------------|
| Low     | 5190               | 22.50                    | 21.1850                |
| High    | 5230               | 22.90                    | 21.5000                |

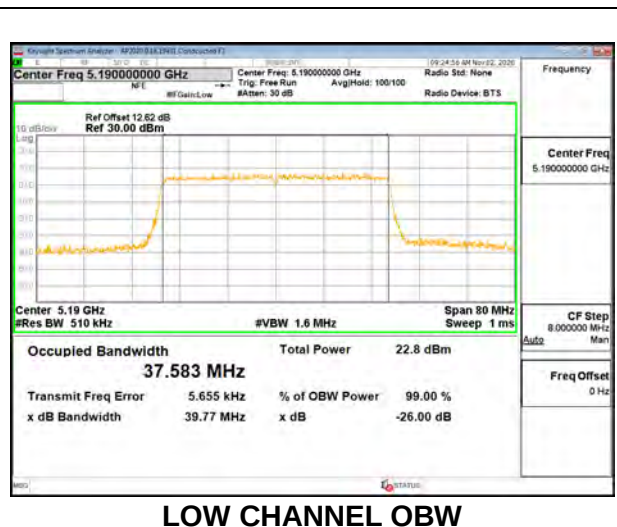
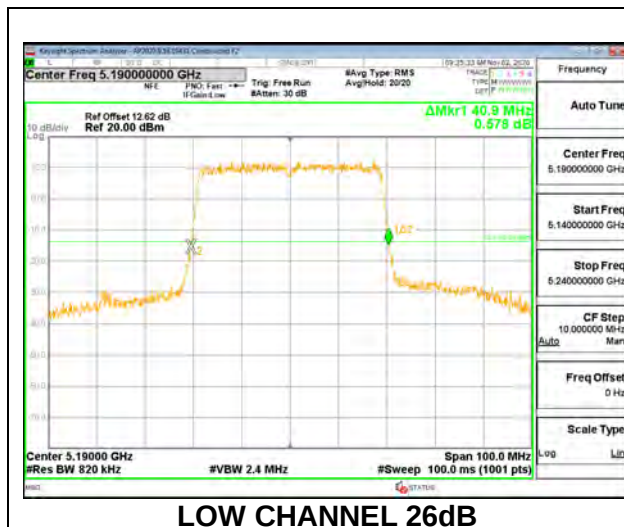


**1TX Antenna 6 MODE: 26 Tones, RU Index 17**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5190      | 20.30           | 18.3660       |
| High    | 5230      | 20.20           | 18.2130       |

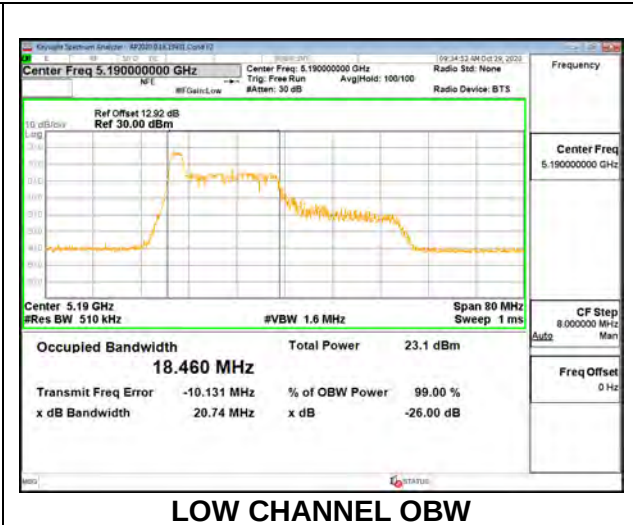
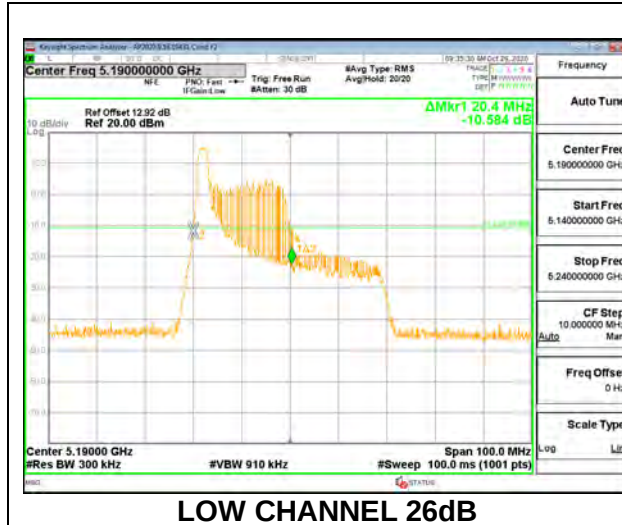
**1TX Antenna 6 MODE: SU Mode**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5190      | 40.90           | 37.5830       |
| High    | 5230      | 41.10           | 37.6320       |

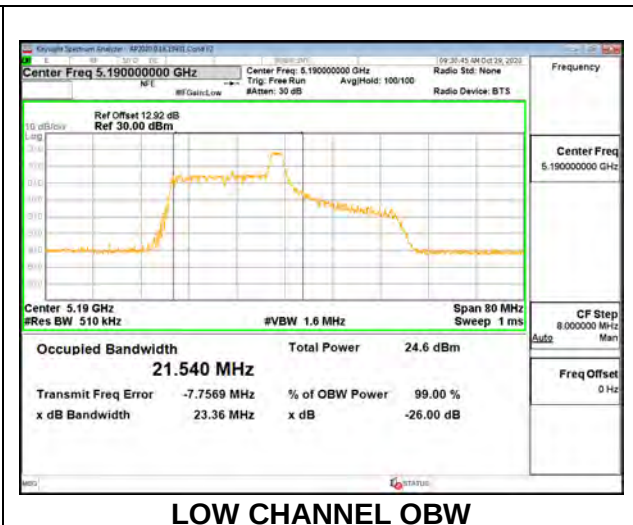
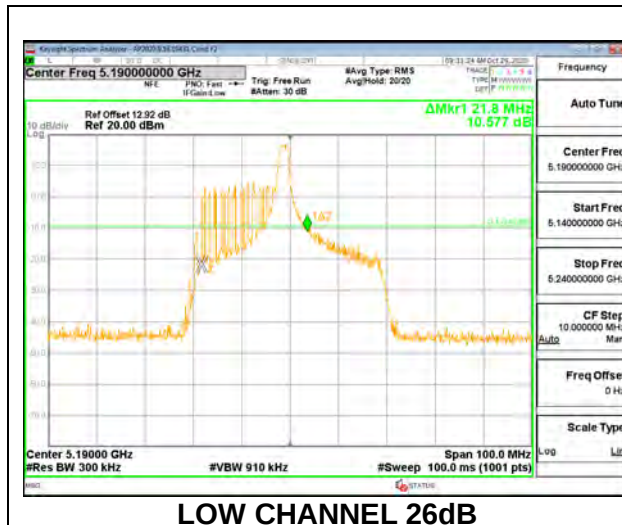


**1TX Antenna 5 MODE: 26 Tones, RU Index 0**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5190      | 20.40           | 18.4600       |
| High    | 5230      | 19.90           | 18.3750       |

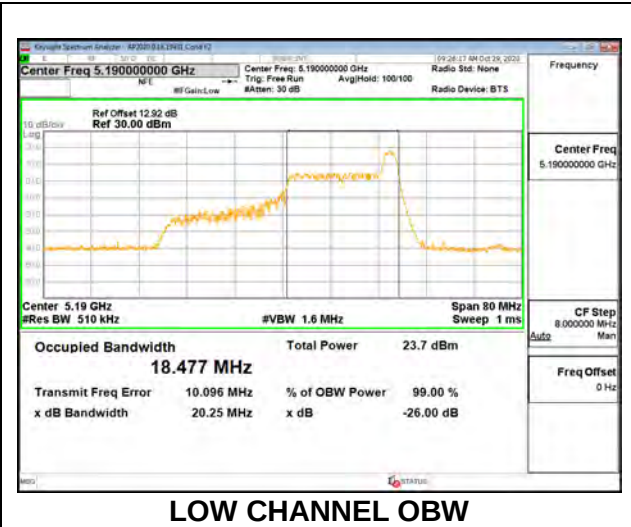
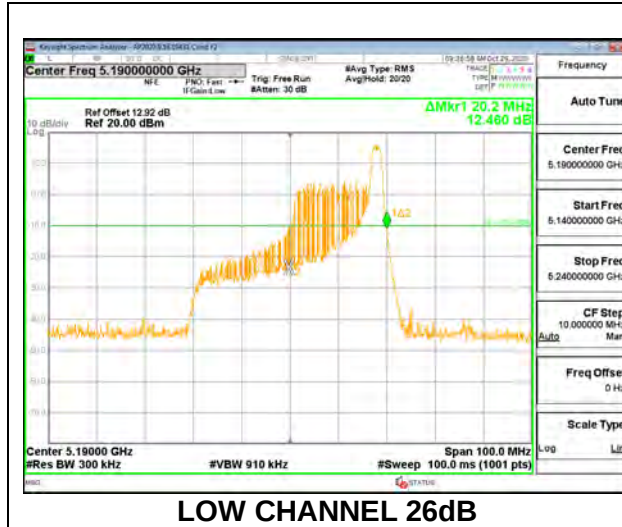
**1TX Antenna 5 MODE: 26 Tones, RU Index 8**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5190      | 21.80           | 21.5400       |
| High    | 5230      | 22.60           | 21.3250       |

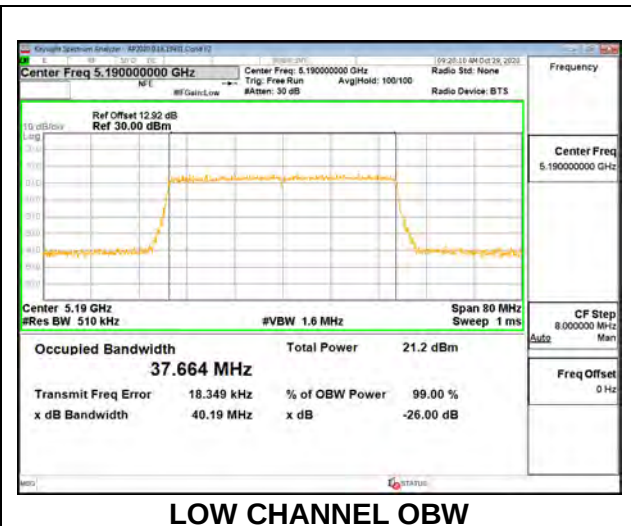
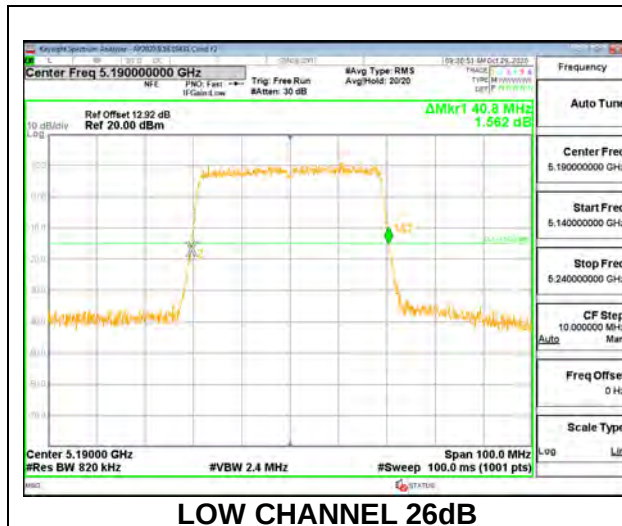


**1TX Antenna 5 MODE: 26 Tones, RU Index 17**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5190      | 20.20           | 18.4770       |
| High    | 5230      | 20.30           | 18.3090       |

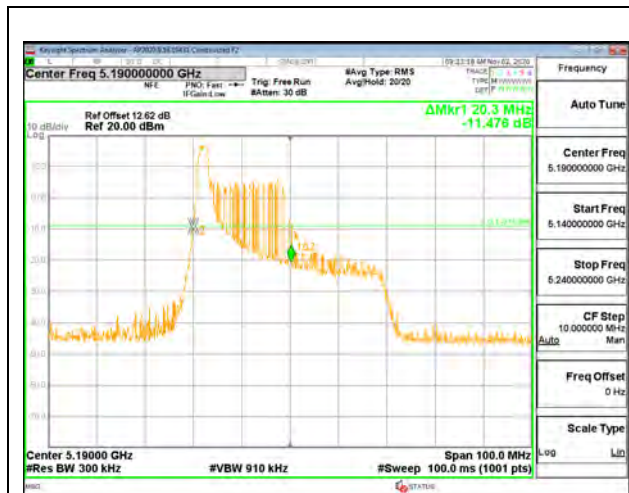
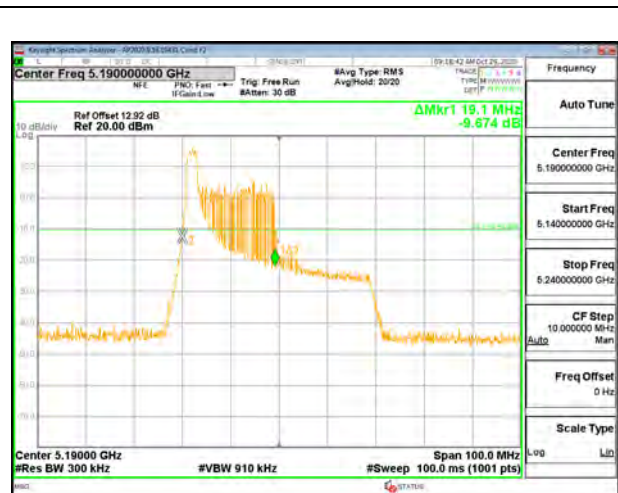
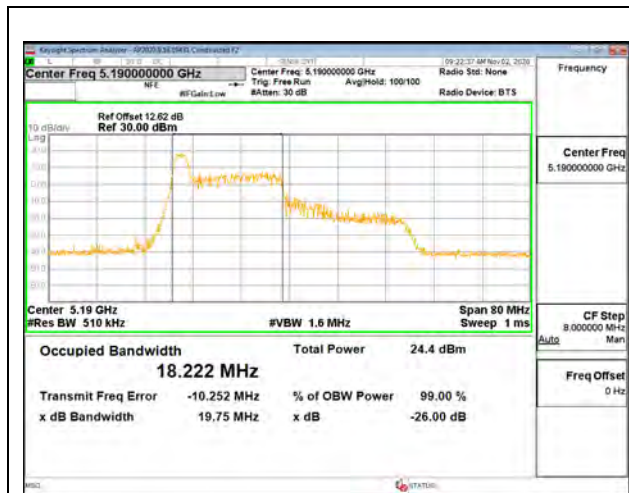
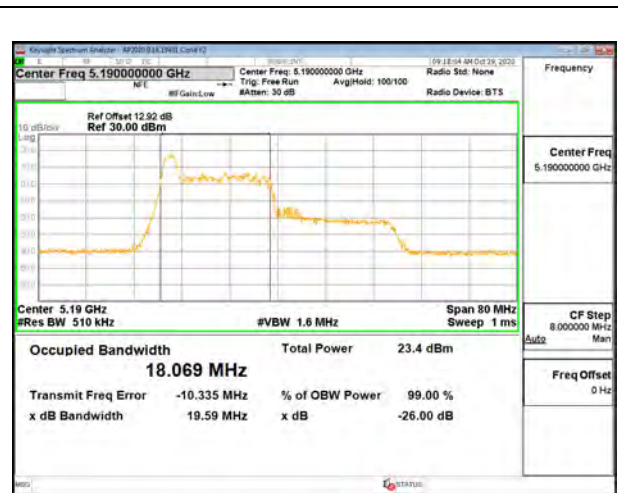
**1TX Antenna 5 MODE: SU Mode**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5190      | 40.80           | 37.6640       |
| High    | 5230      | 41.00           | 37.5230       |



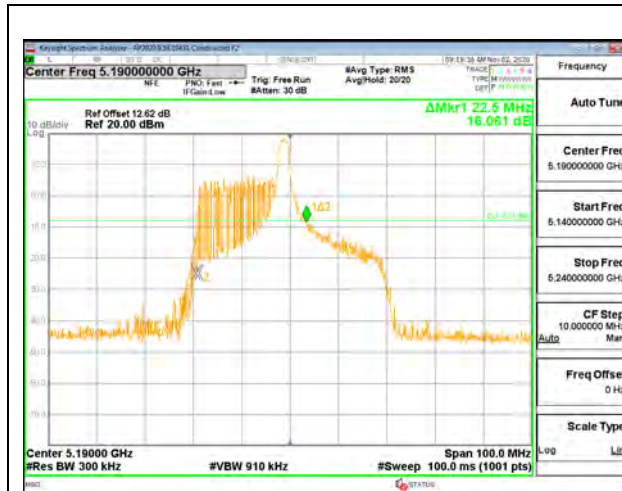
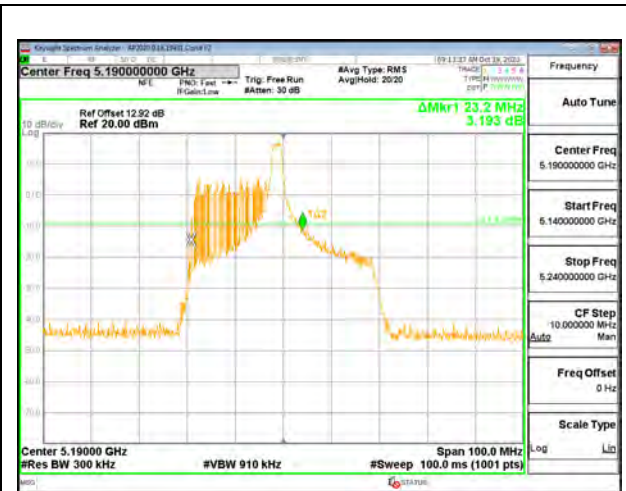
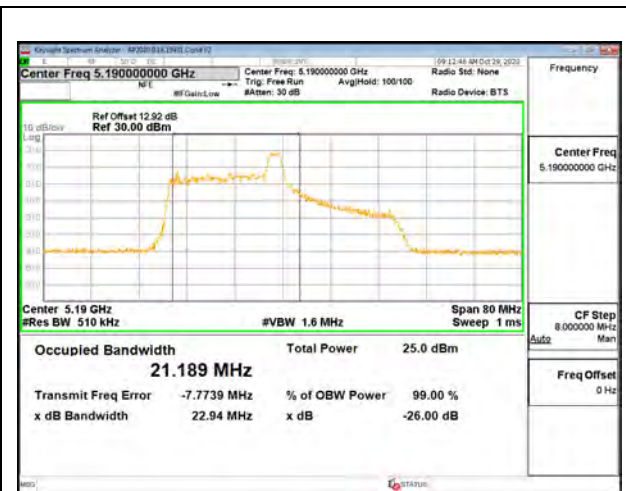
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 0**

| Channel | Frequency | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|-----------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5190      | 20.30                                 | 19.10                                 | 18.2220                             | 18.0690                             |
| High    | 5230      | 20.00                                 | 19.60                                 | 18.1240                             | 18.0460                             |

**LOW CHANNEL 26dB****LOW CHANNEL [ANT 6]****LOW CHANNEL [ANT 5]****LOW CHANNEL OBW****LOW CHANNEL [ANT 6]****LOW CHANNEL [ANT 5]**

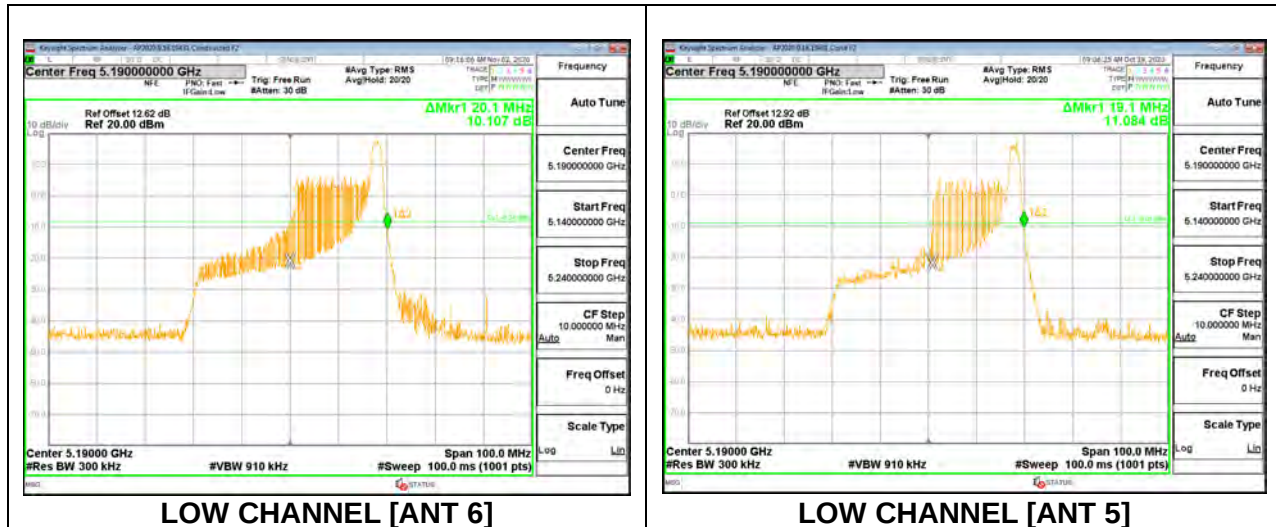
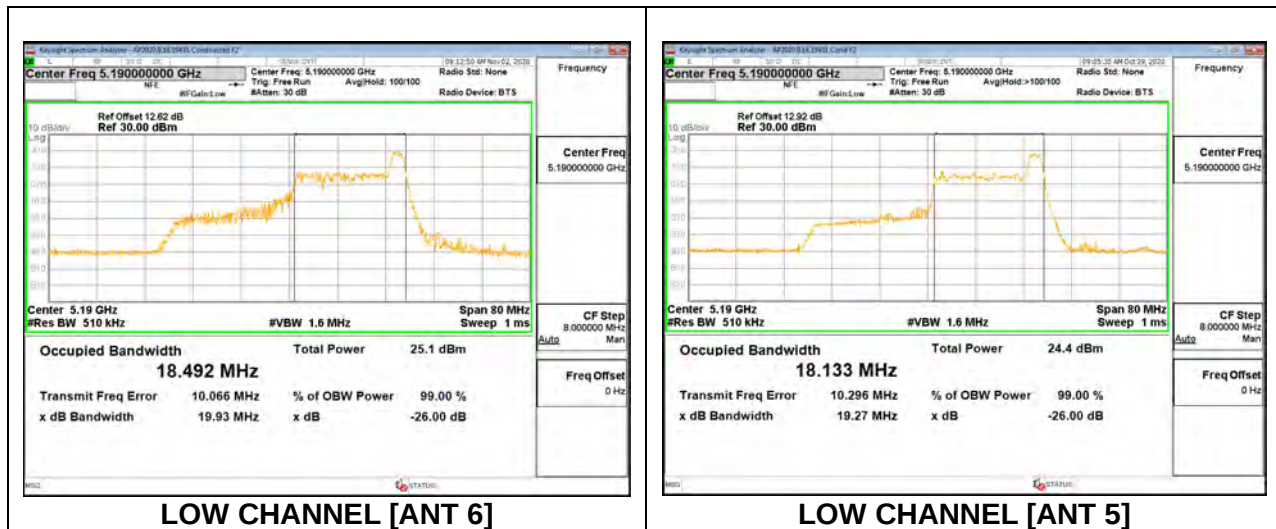
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 8**

| Channel | Frequency | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|-----------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5190      | 22.50                                 | 23.20                                 | 20.9800                             | 21.1890                             |
| High    | 5230      | 22.50                                 | 22.10                                 | 20.9700                             | 21.0700                             |

**LOW CHANNEL 26dB****LOW CHANNEL [ANT 6]****LOW CHANNEL [ANT 5]****LOW CHANNEL OBW****LOW CHANNEL [ANT 6]****LOW CHANNEL [ANT 5]**

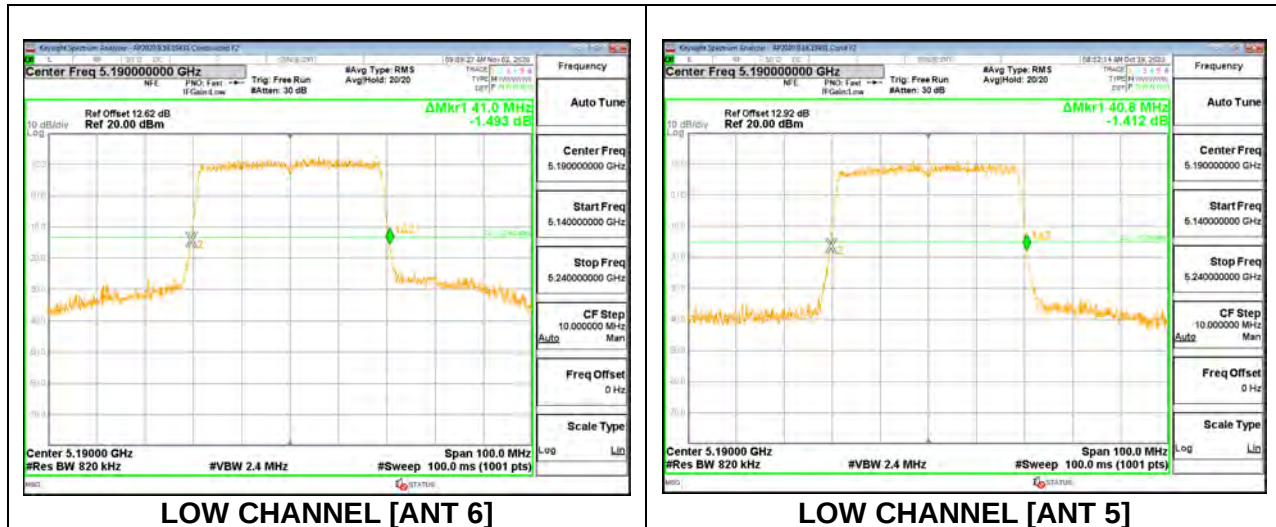
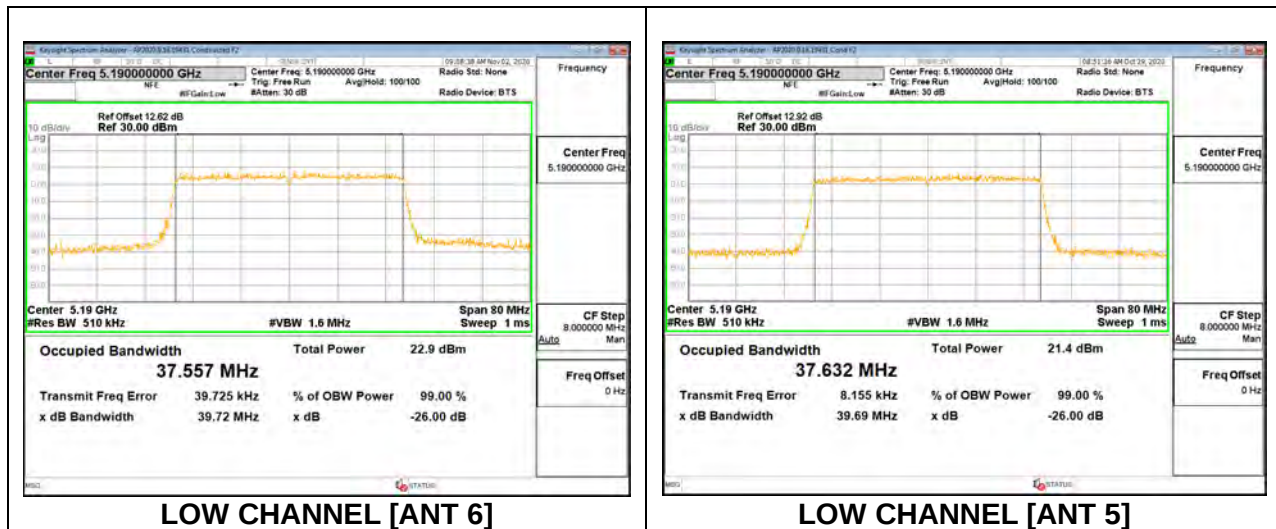
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 17**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5190               | 20.10                                 | 19.10                                 | 18.4920                             | 18.1330                             |
| High    | 5230               | 20.10                                 | 19.20                                 | 18.3170                             | 17.9560                             |

**LOW CHANNEL 26dB****LOW CHANNEL OBW**

**2TX Antenna 6 + Antenna 5 CDD MODE: SU Mode**

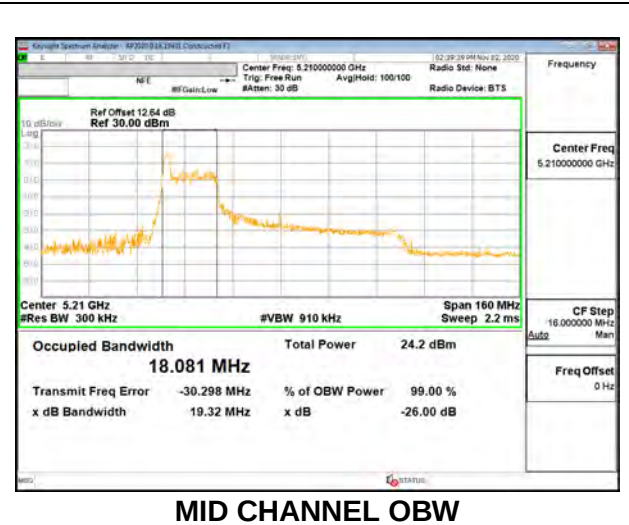
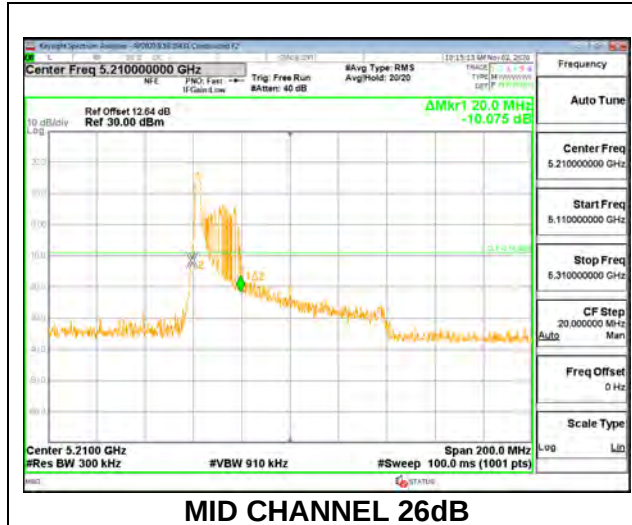
| Channel | Frequency | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|-----------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5190      | 41.00                                 | 40.80                                 | 37.5570                             | 37.6320                             |
| High    | 5230      | 40.90                                 | 40.70                                 | 37.5930                             | 37.5340                             |

**LOW CHANNEL 26dB****LOW CHANNEL OBW**

### 9.2.6. 802.11ax HE80 MODE IN THE 5.2 GHz BAND

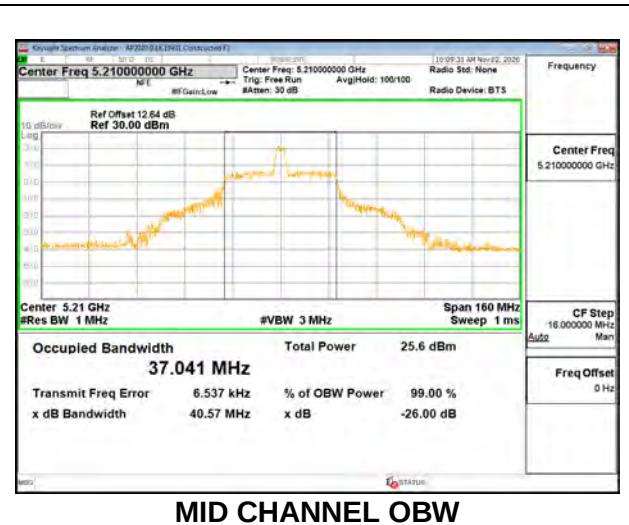
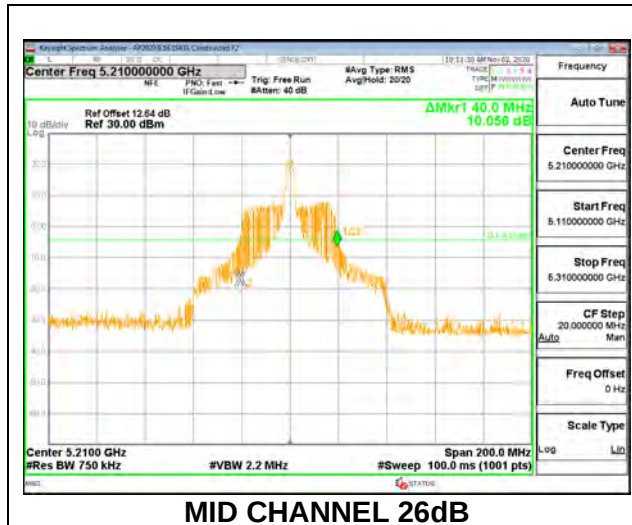
#### 1TX Antenna 6 MODE: 26 Tones, RU Index 0

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5210      | 20.00           | 18.0810       |



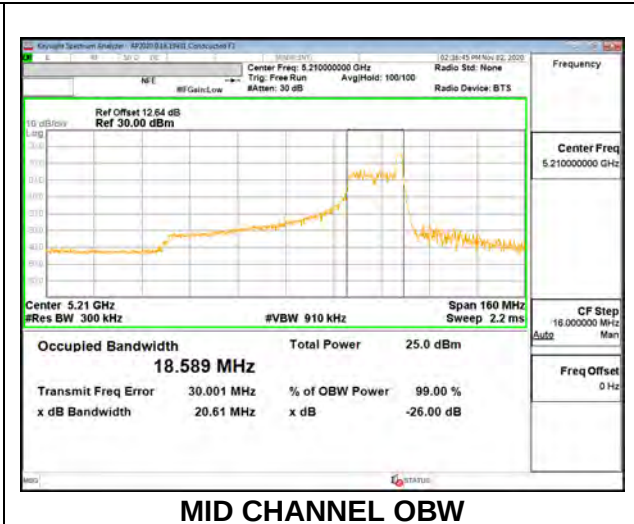
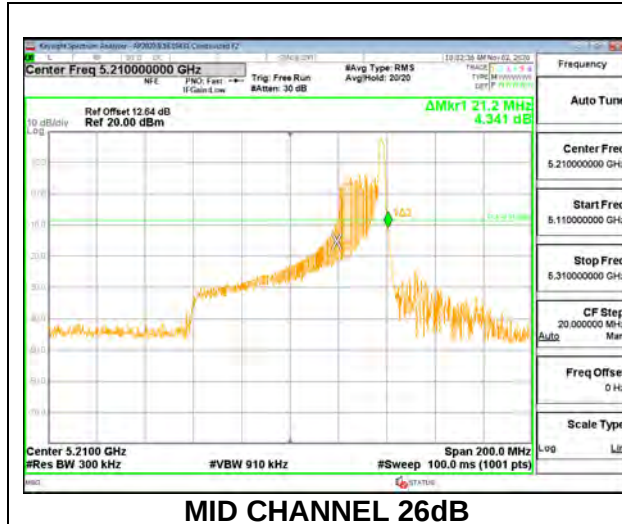
#### 1TX Antenna 6 MODE: 26 Tones, RU Index 18

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5210      | 40.00           | 37.0410       |

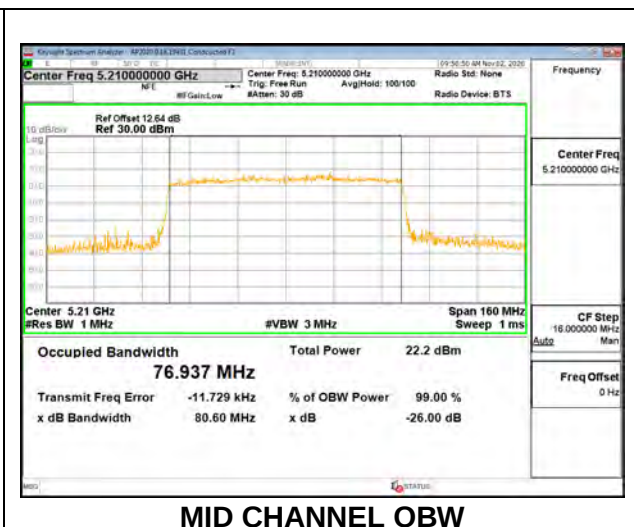
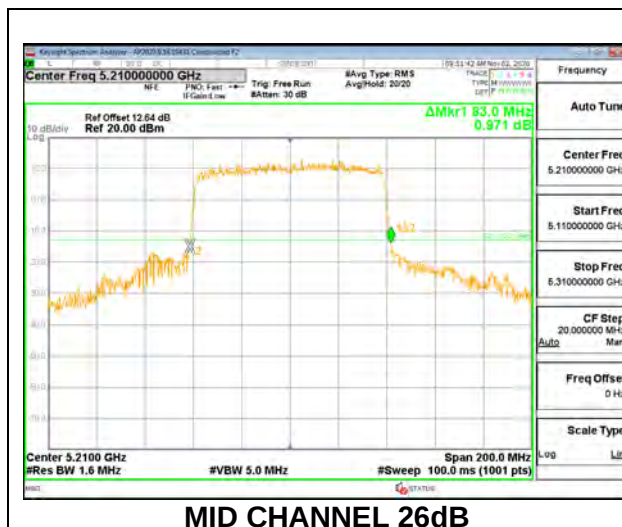


**1TX Antenna 6 MODE: 26 Tones, RU Index 36**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5210      | 21.20           | 18.5890       |

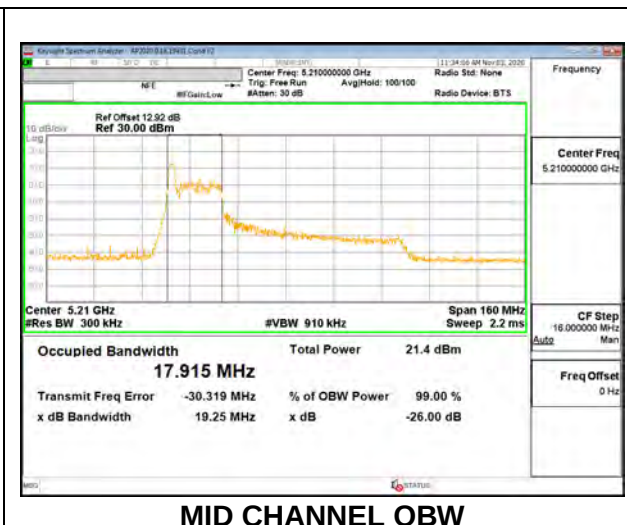
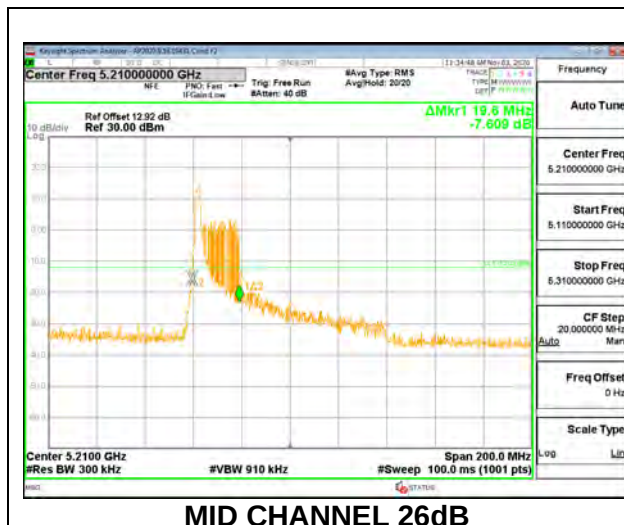
**1TX Antenna 6 MODE: SU Mode**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5210      | 83.00           | 76.9370       |

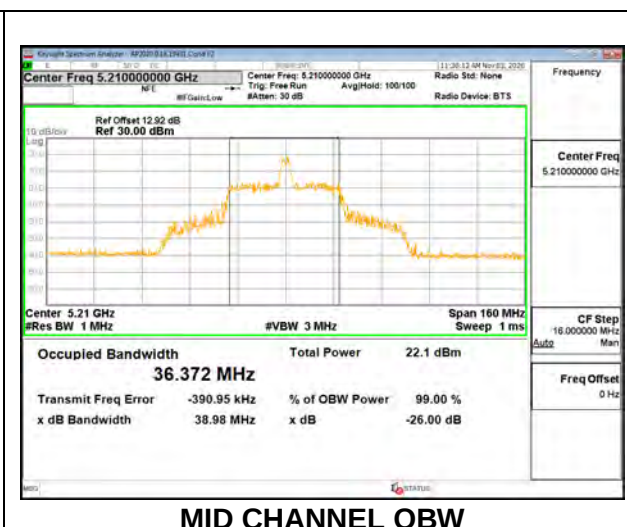
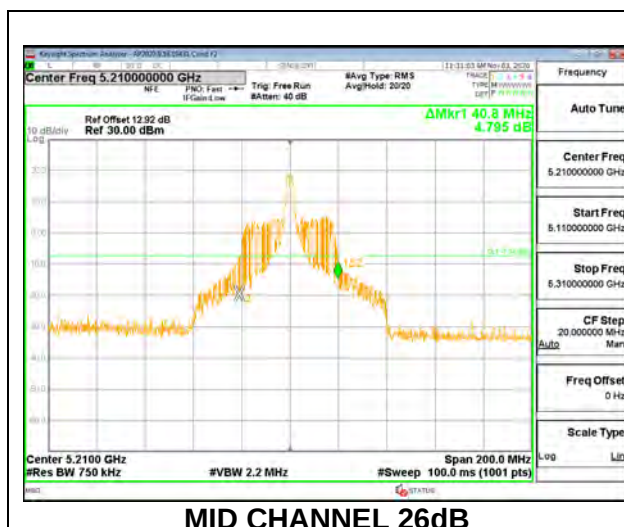


**1TX Antenna 5 MODE: 26 Tones, RU Index 0**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5210      | 19.60           | 17.9150       |

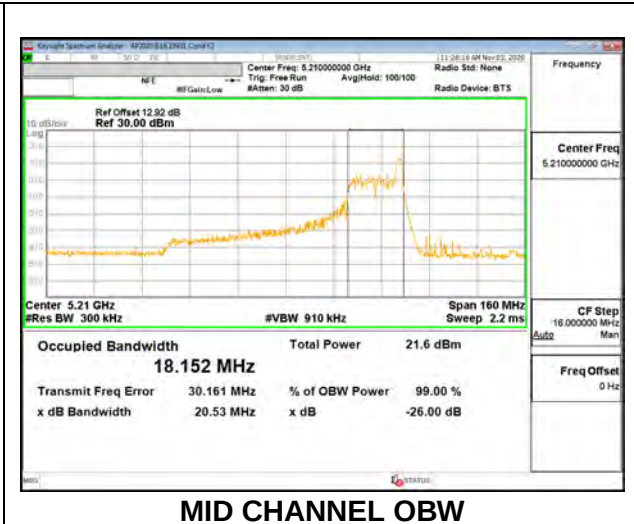
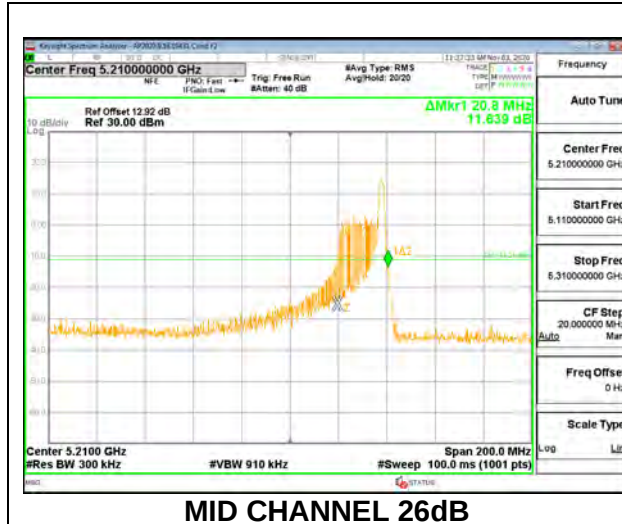
**1TX Antenna 5 MODE: 26 Tones, RU Index 18**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5210      | 40.80           | 36.3720       |

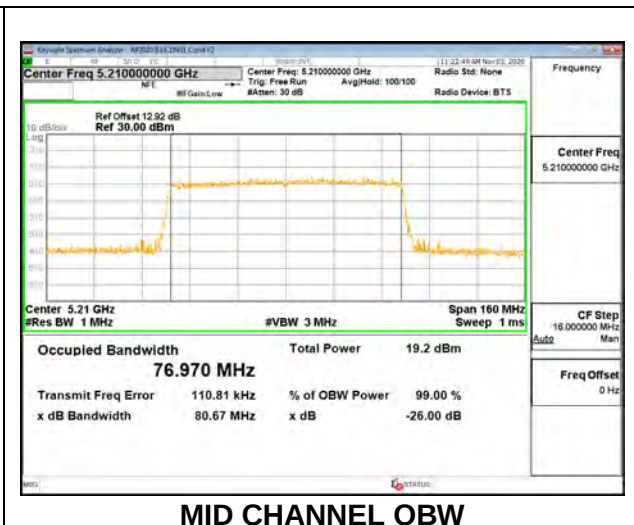
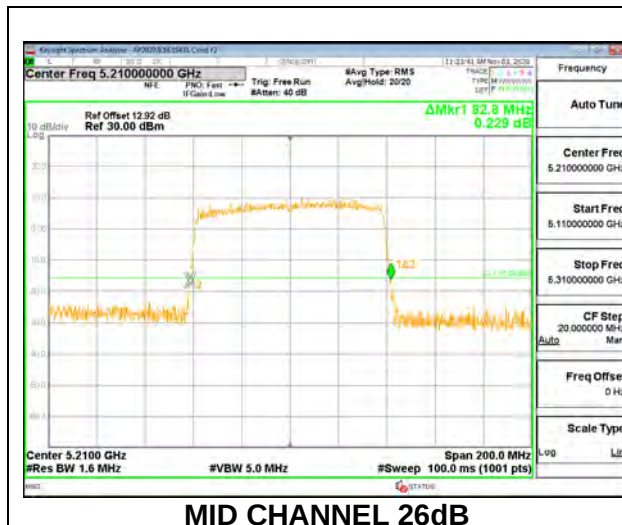


**1TX Antenna 5 MODE: 26 Tones, RU Index 36**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5210      | 20.80           | 18.1520       |

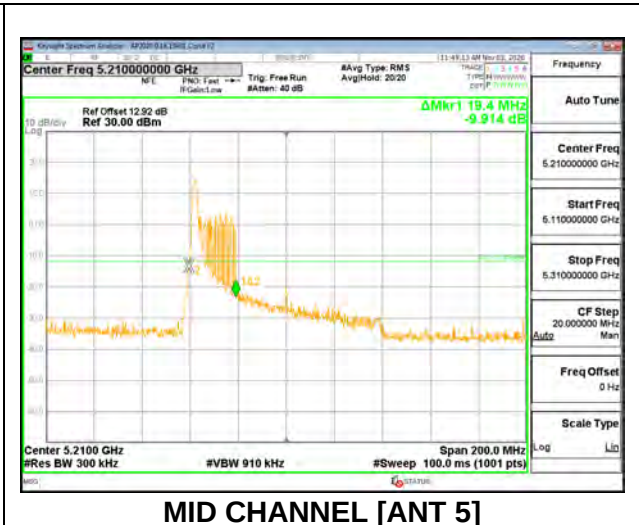
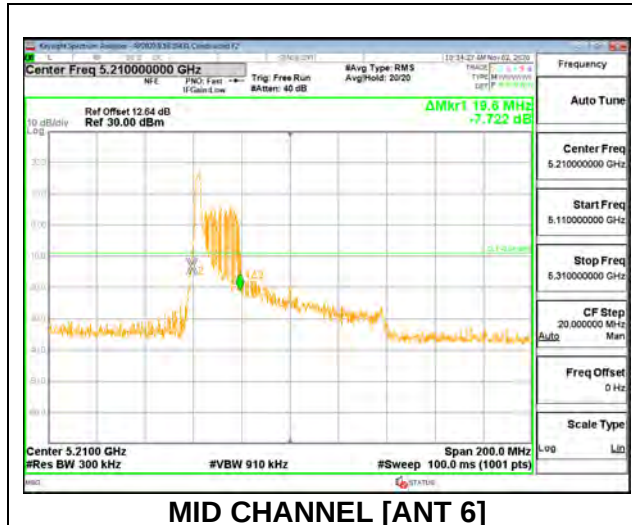
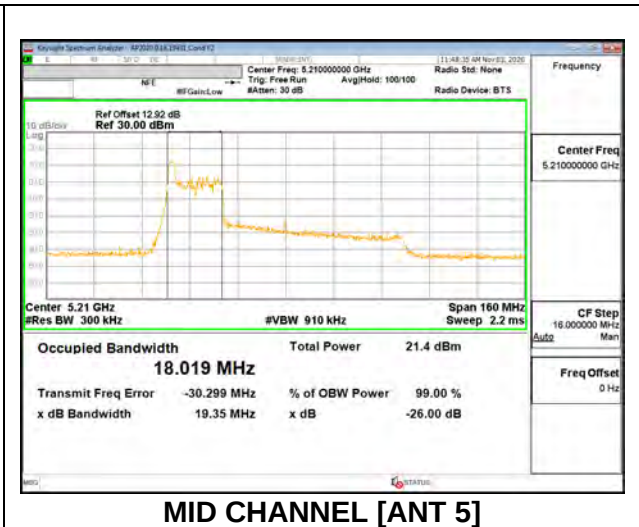
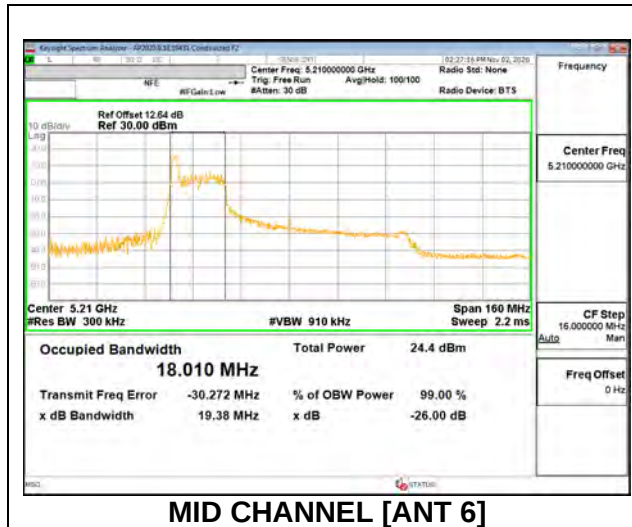
**1TX Antenna 5 MODE: SU Mode**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5210      | 82.80           | 76.9700       |



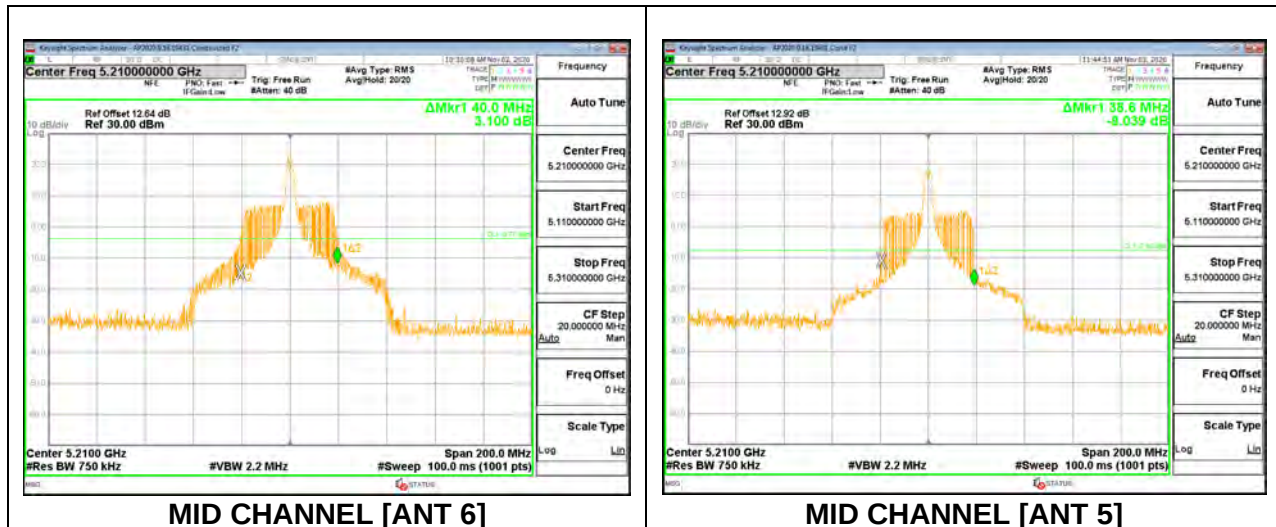
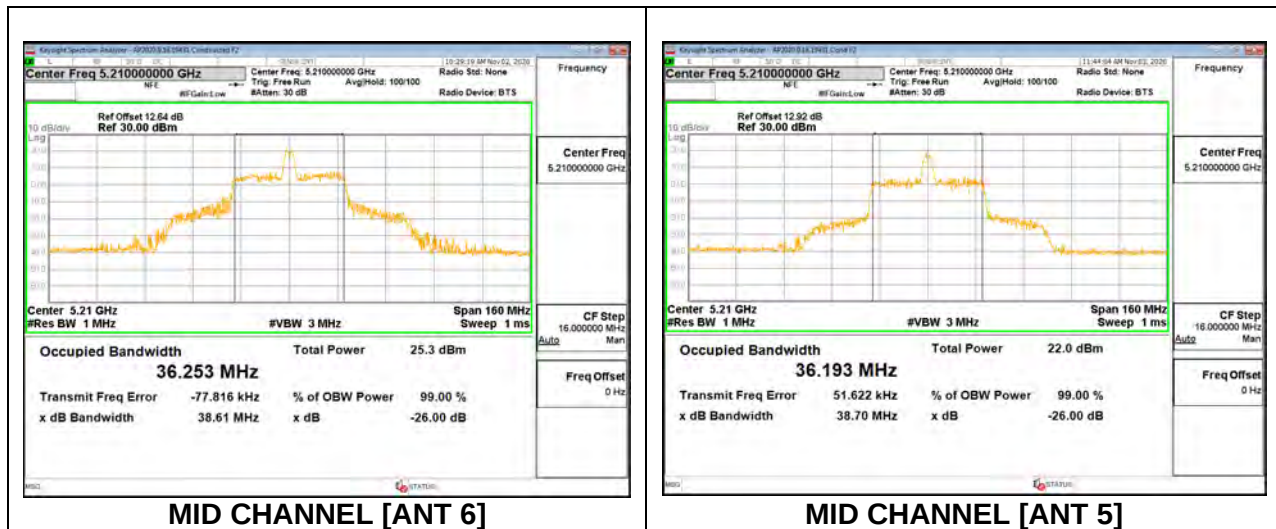
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 0**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Mid     | 5210               | 19.60                                 | 19.40                                 | 18.0100                             | 18.0190                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

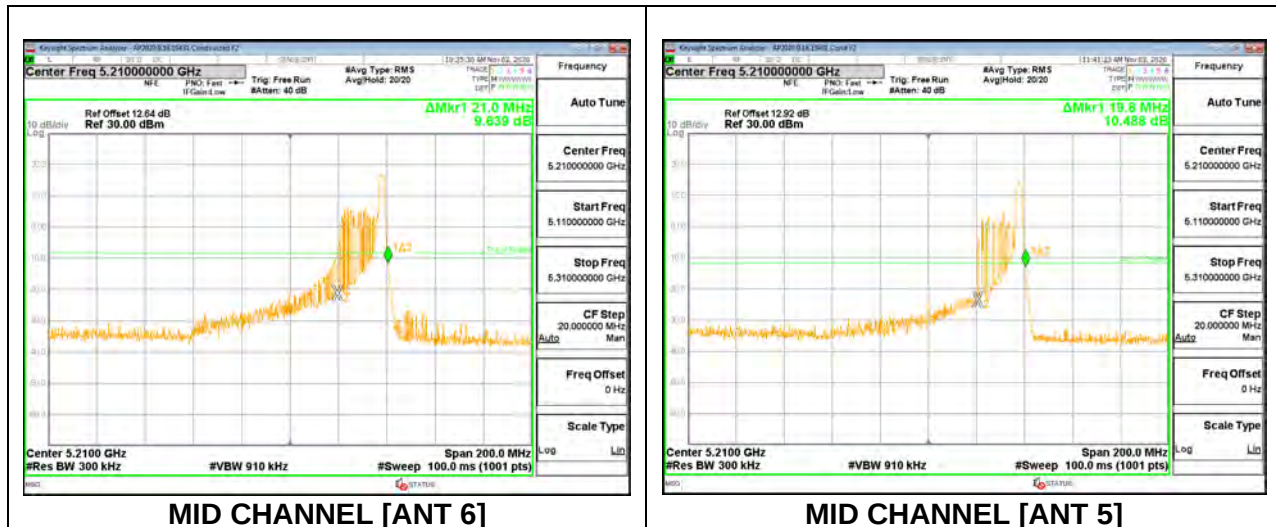
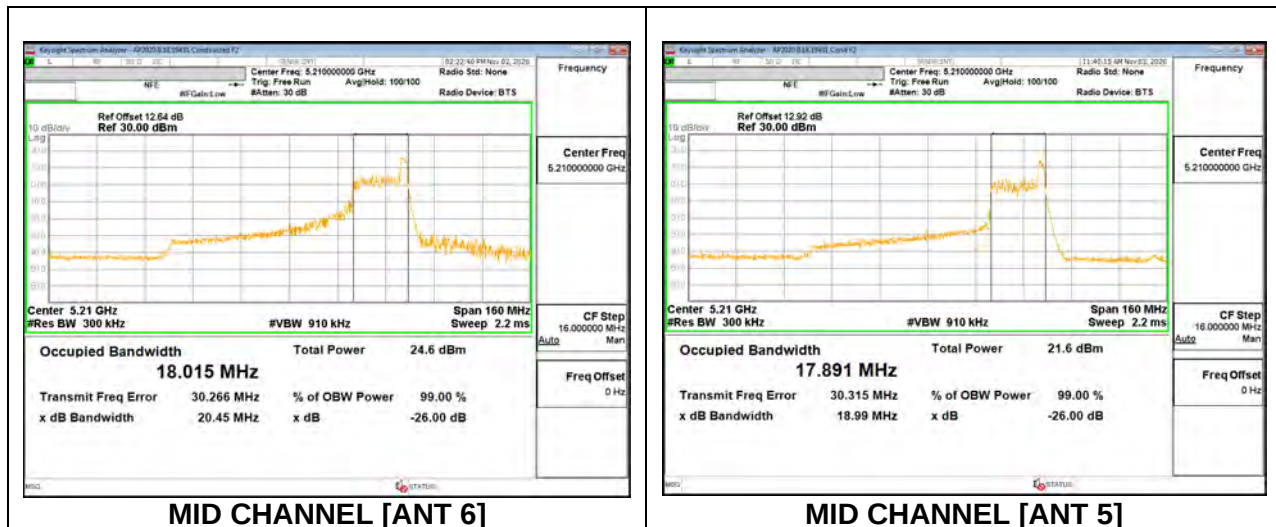
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 18**

| Channel | Frequency | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|-----------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Mid     | 5210      | 40.00                                 | 38.60                                 | 36.2530                             | 36.1930                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

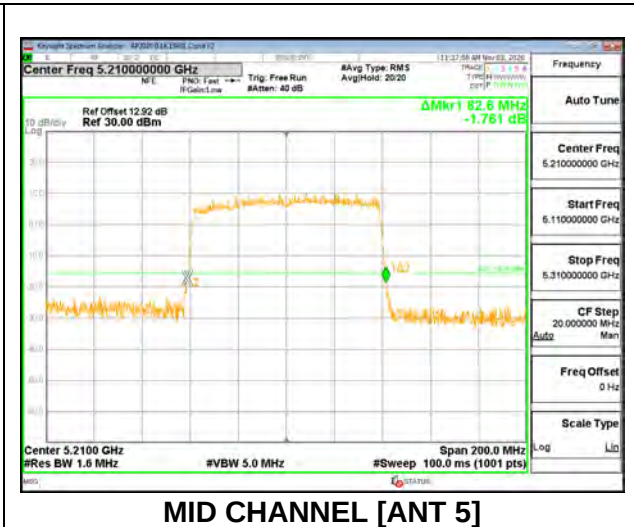
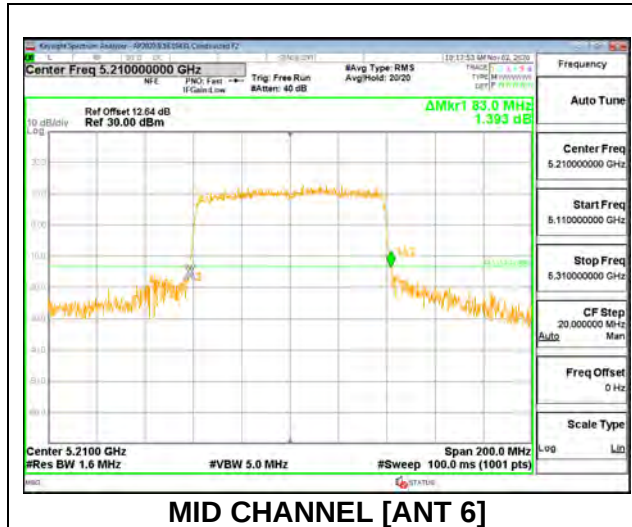
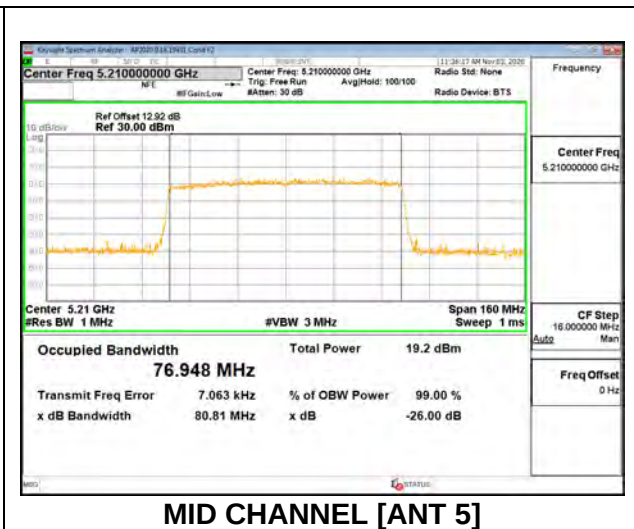
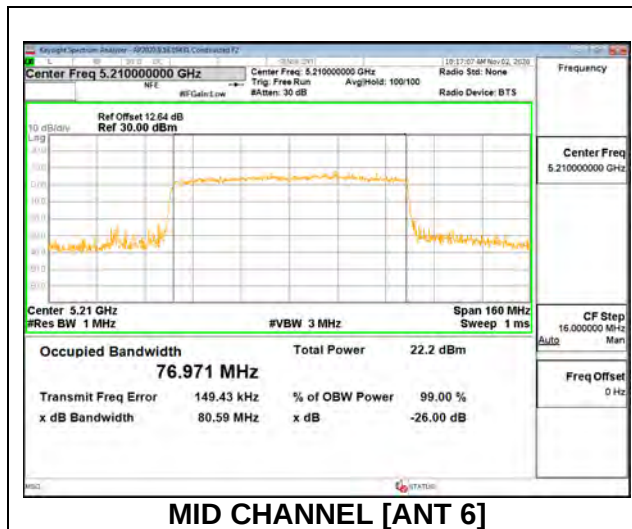
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 36**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Mid     | 5210               | 21.00                                 | 19.80                                 | 18.0150                             | 17.8910                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

**2TX Antenna 6 + Antenna 5 CDD MODE: SU Mode**

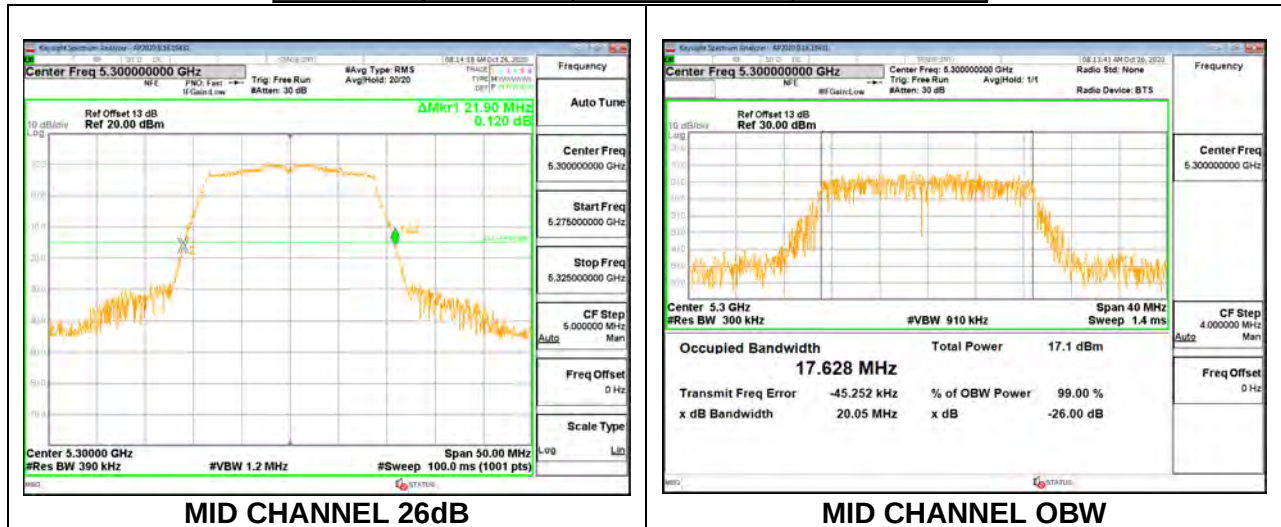
| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Mid     | 5210               | 83.00                                 | 82.60                                 | 76.9710                             | 76.9480                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

## 9.2.7. 802.11n HT20 MODE IN THE 5.3 GHz BAND

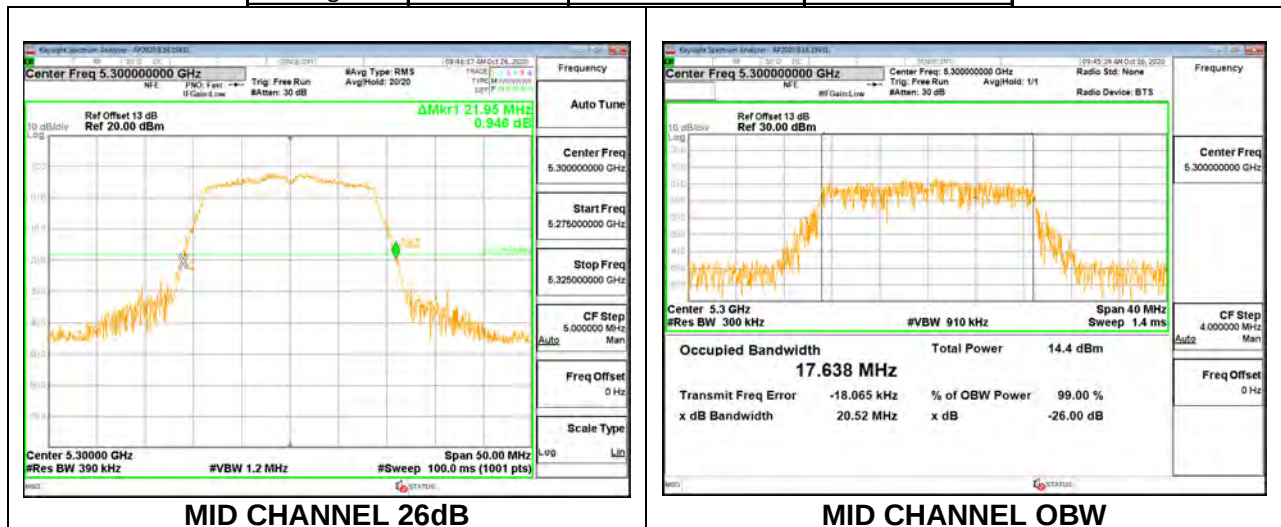
### 1TX Antenna 6 MODE

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5260               | 21.90                   | 17.6930                |
| Mid     | 5300               | 21.90                   | 17.6280                |
| High    | 5320               | 21.95                   | 17.6630                |



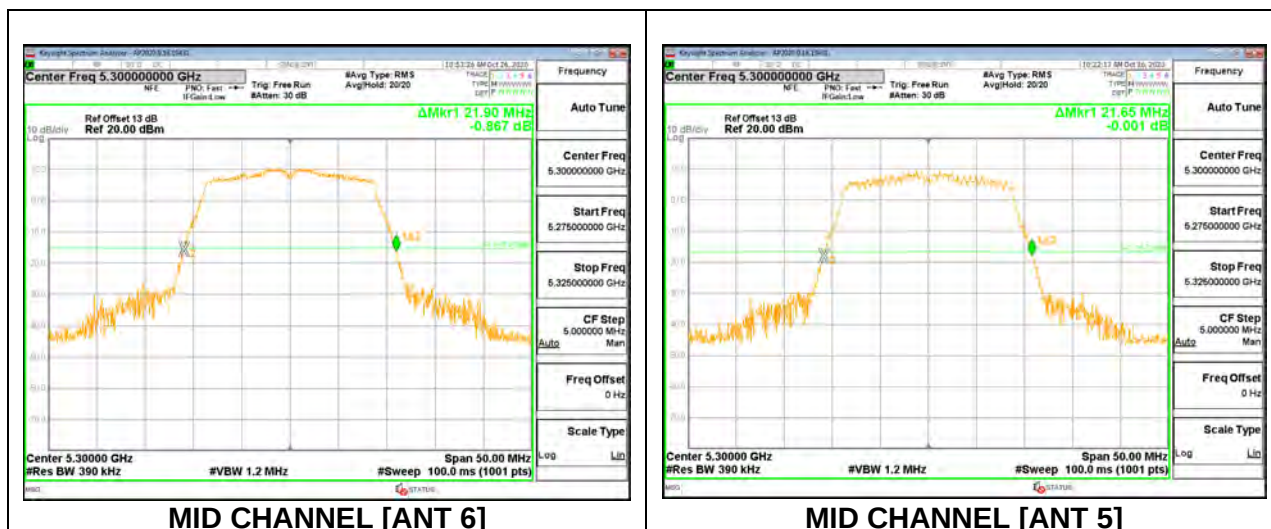
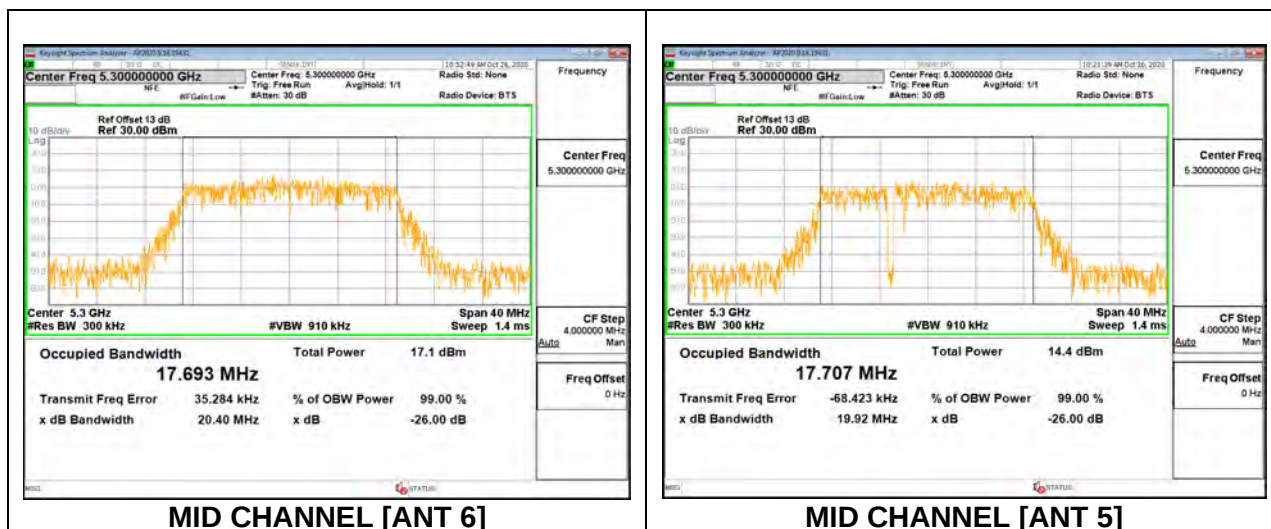
### 1TX Antenna 5 MODE

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5260               | 21.90                   | 17.7040                |
| Mid     | 5300               | 21.95                   | 17.6380                |
| High    | 5320               | 22.00                   | 17.7290                |



**2TX Antenna 6 + Antenna 5 CDD MODE**

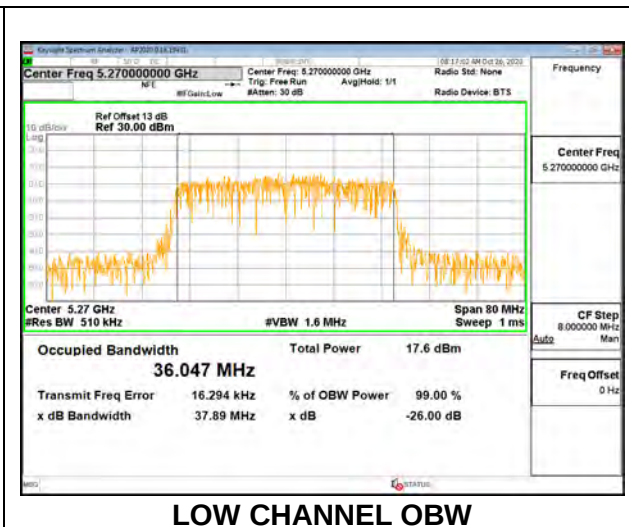
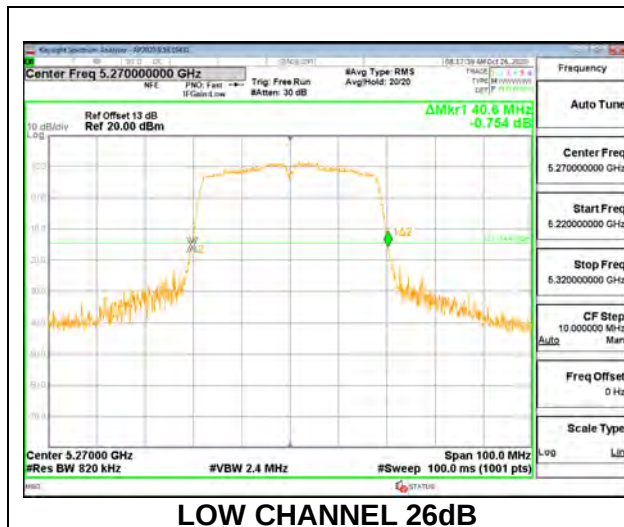
| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5260               | 21.80                                 | 21.50                                 | 17.7040                             | 17.6350                             |
| Mid     | 5300               | 21.90                                 | 21.65                                 | 17.6930                             | 17.7070                             |
| High    | 5320               | 22.10                                 | 21.55                                 | 17.6590                             | 17.7120                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

## 9.2.8. 802.11n HT40 MODE IN THE 5.3 GHz BAND

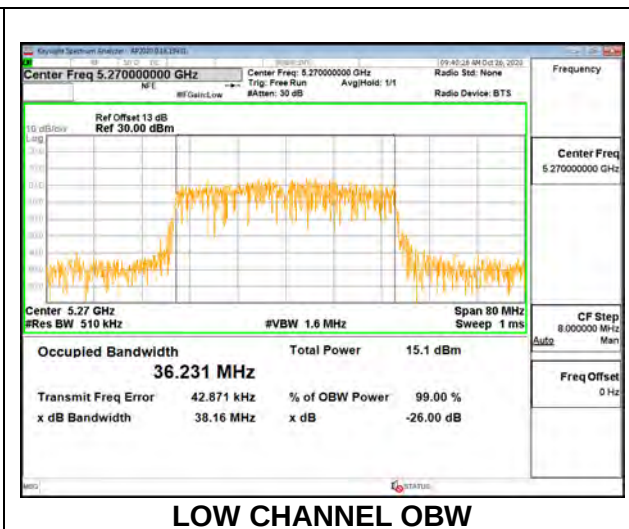
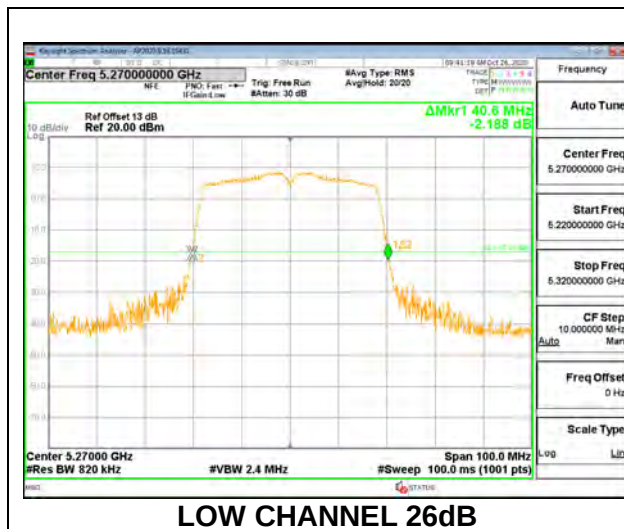
### 1TX Antenna 6 MODE

| Channel | Frequency | 26dB Bandwidth | 99% Bandwidth |
|---------|-----------|----------------|---------------|
|         | (MHz)     | (MHz)          | (MHz)         |
| Low     | 5270      | 40.60          | 36.0470       |
| High    | 5310      | 40.70          | 36.0370       |



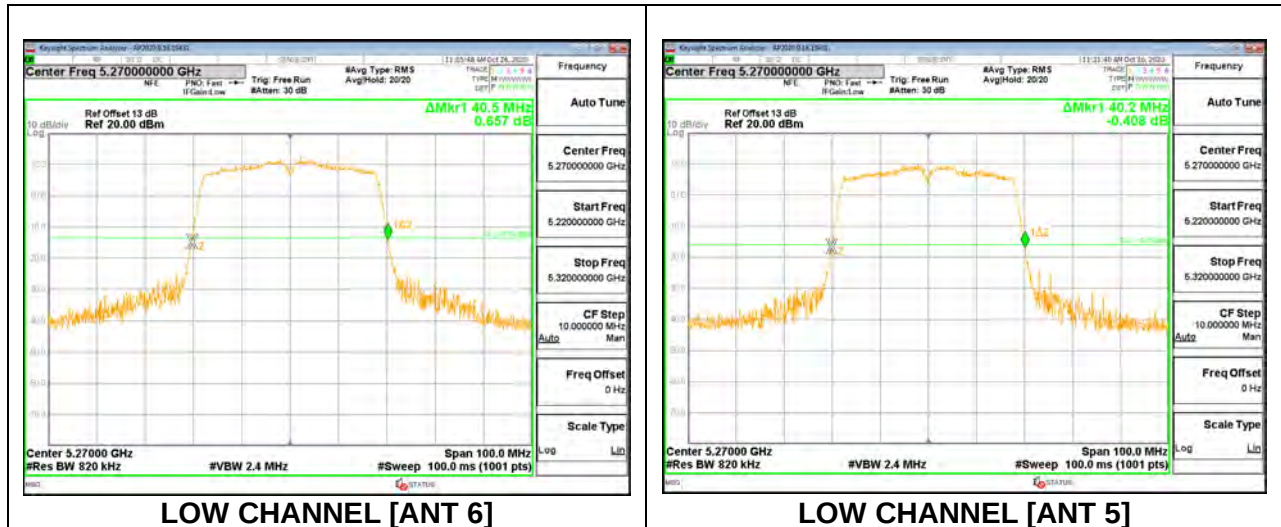
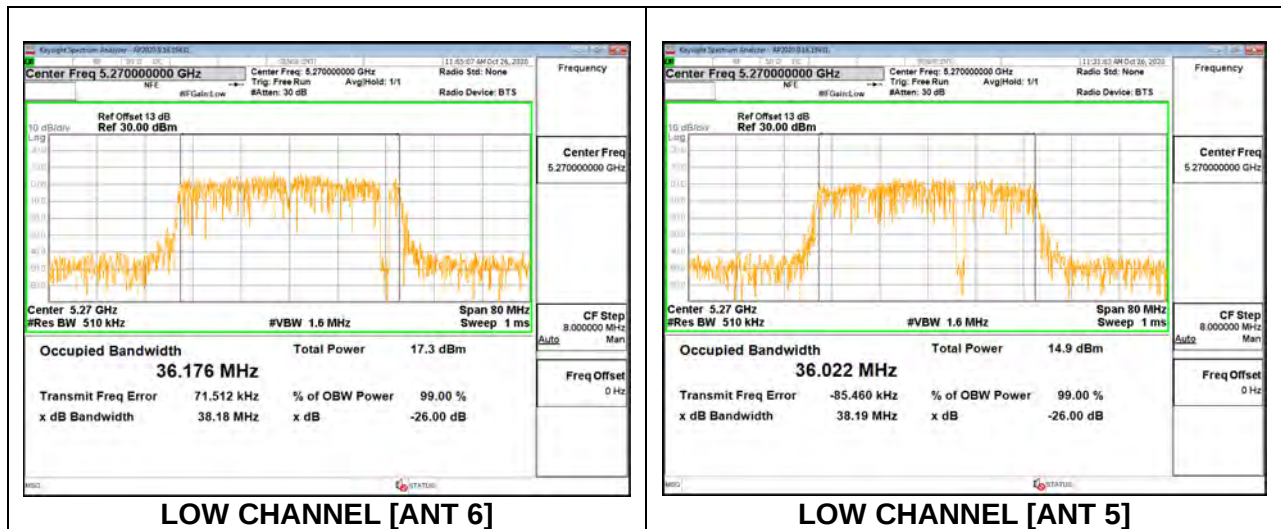
### 1TX Antenna 5 MODE

| Channel | Frequency | 26dB Bandwidth | 99% Bandwidth |
|---------|-----------|----------------|---------------|
|         | (MHz)     | (MHz)          | (MHz)         |
| Low     | 5270      | 40.60          | 36.2310       |
| High    | 5310      | 40.60          | 36.2310       |



**2TX Antenna 6 + Antenna 5 CDD MODE**

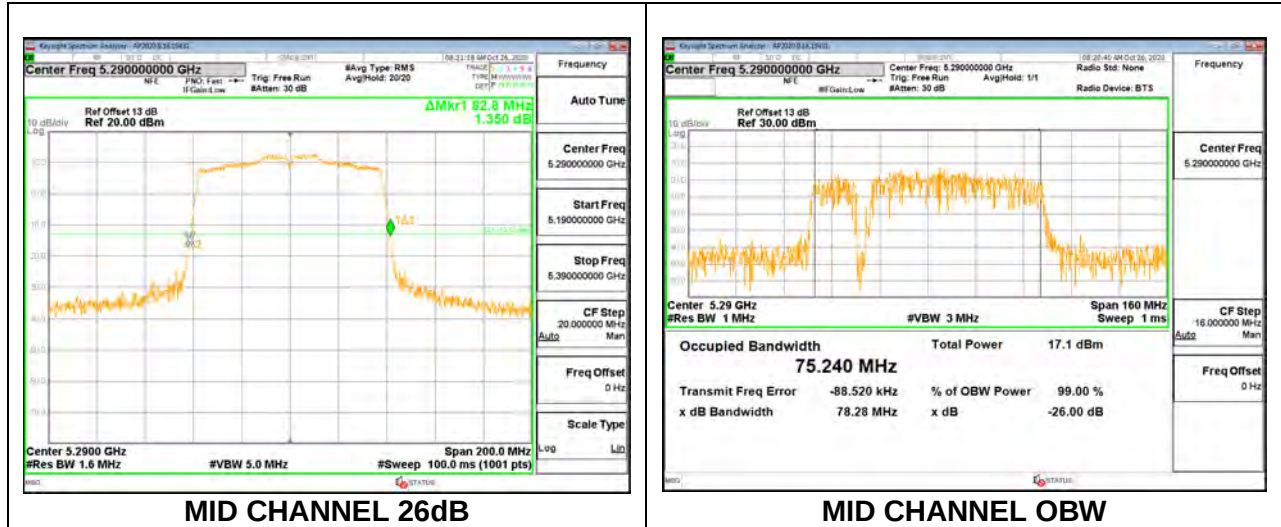
| Channel | Frequency | 26dB Bandwidth<br>Antenna 6<br>(MHz) | 26dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|-----------|--------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5270      | 40.50                                | 40.20                                | 36.1760                             | 36.0220                             |
| High    | 5310      | 40.60                                | 40.40                                | 36.1610                             | 35.9520                             |

**LOW CHANNEL 26dB****LOW CHANNEL OBW**

## 9.2.9. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

### 1TX Antenna 6 MODE

| Channel | Frequency | 26dB Bandwidth | 99% Bandwidth |
|---------|-----------|----------------|---------------|
|         | (MHz)     | (MHz)          | (MHz)         |
| Mid     | 5290      | 82.80          | 75.2400       |



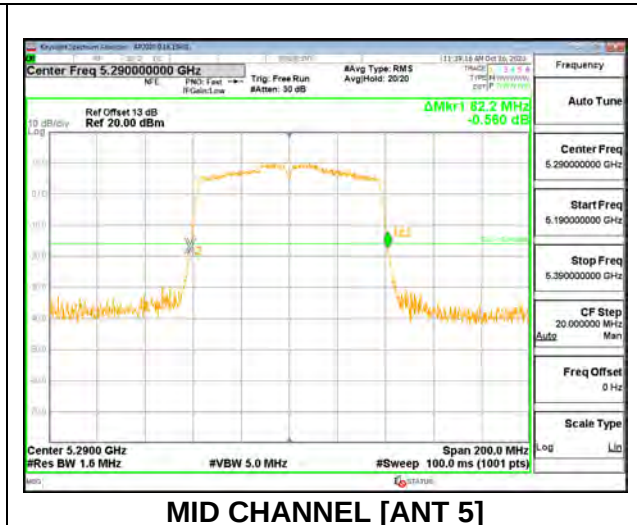
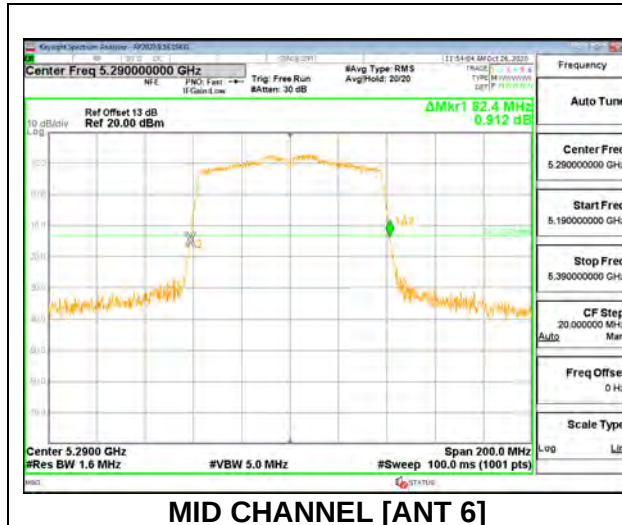
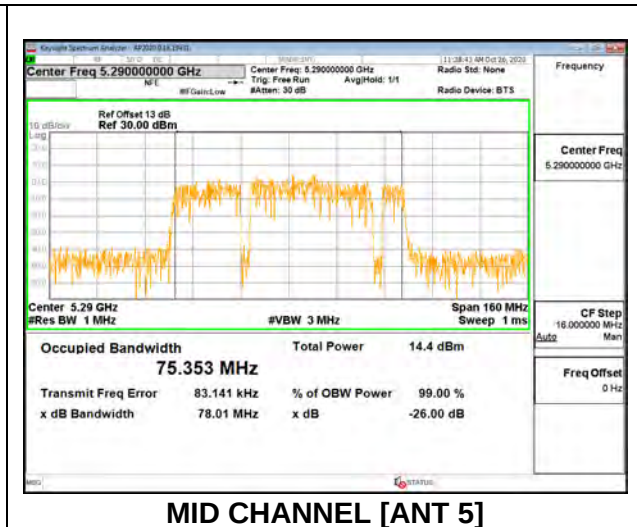
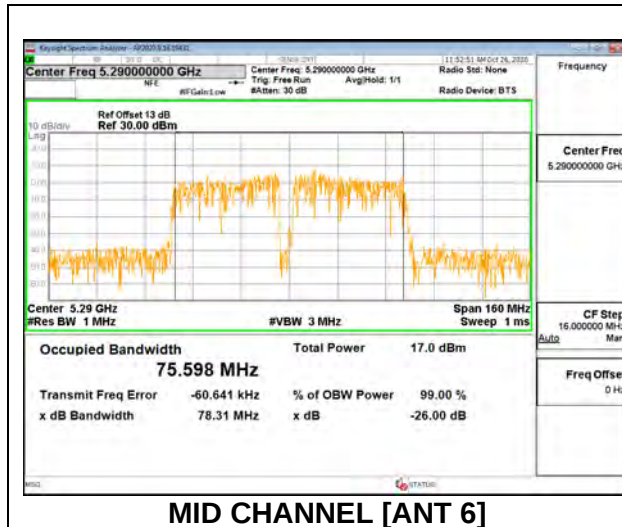
### 1TX Antenna 5 MODE

| Channel | Frequency | 26dB Bandwidth | 99% Bandwidth |
|---------|-----------|----------------|---------------|
|         | (MHz)     | (MHz)          | (MHz)         |
| Mid     | 5290      | 82.40          | 75.7070       |



**2TX Antenna 6 + Antenna 5 CDD MODE**

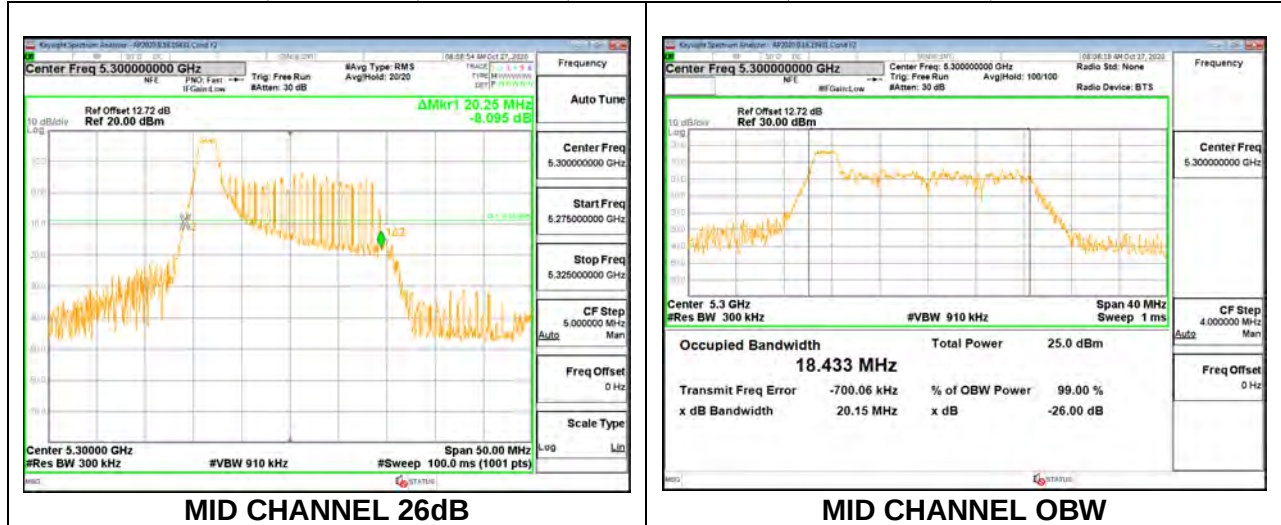
| Channel | Frequency | 26dB Bandwidth<br>Antenna 6<br>(MHz) | 26dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|-----------|--------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| Mid     | 5290      | 82.40                                | 82.20                                | 75.5980                             | 75.3530                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

## 9.2.10. 802.11ax HE20 MODE IN THE 5.3 GHz BAND

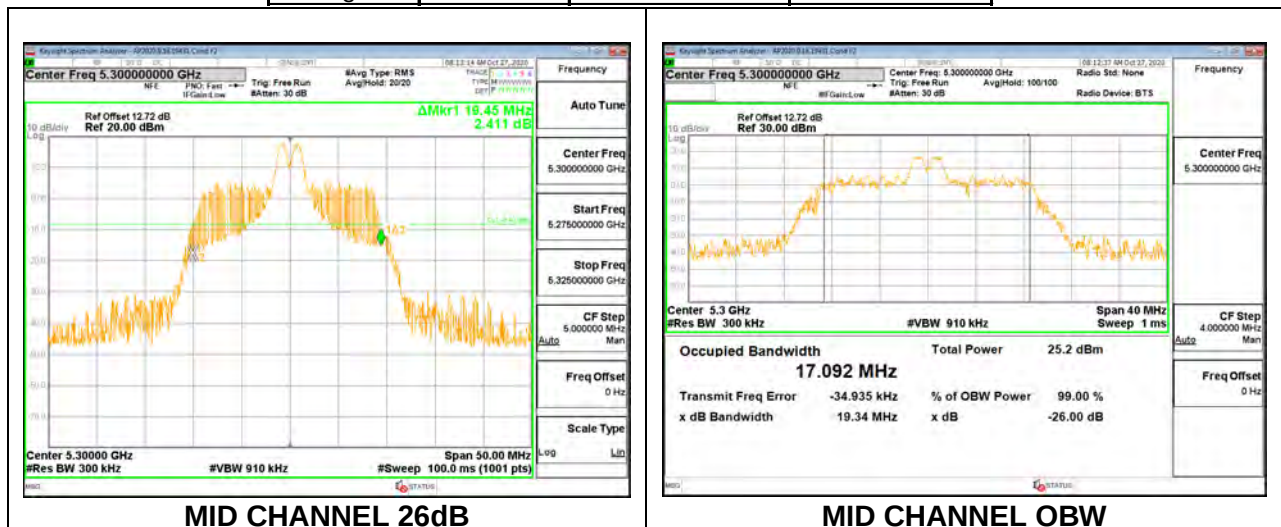
### 1TX Antenna 6 MODE: 26 Tones, RU Index 0

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|--------------------------|------------------------|
| Low     | 5260               | 20.35                    | 18.0920                |
| Mid     | 5300               | 20.25                    | 18.4330                |
| High    | 5320               | 20.45                    | 18.3960                |



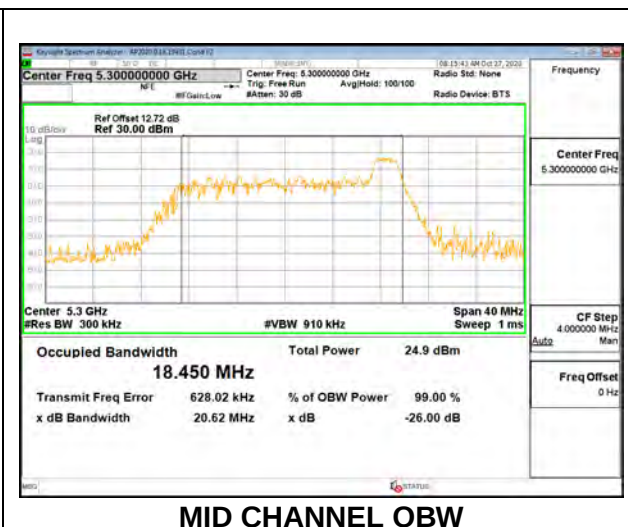
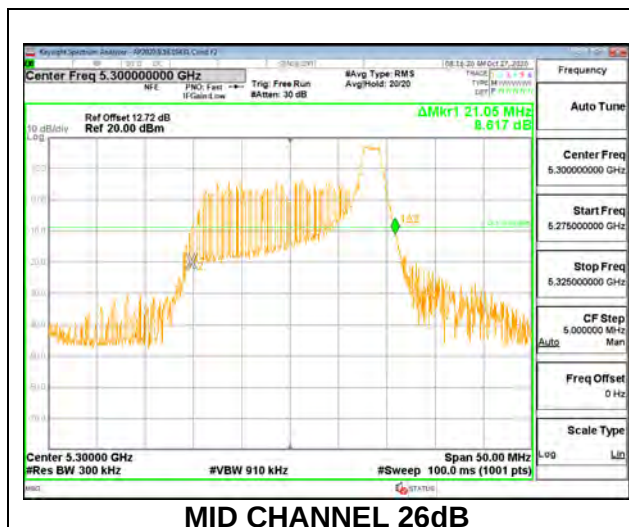
### 1TX Antenna 6 MODE: 26 Tones, RU Index 4

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|--------------------------|------------------------|
| Low     | 5260               | 19.45                    | 17.1920                |
| Mid     | 5300               | 19.45                    | 17.0920                |
| High    | 5320               | 19.45                    | 17.1410                |

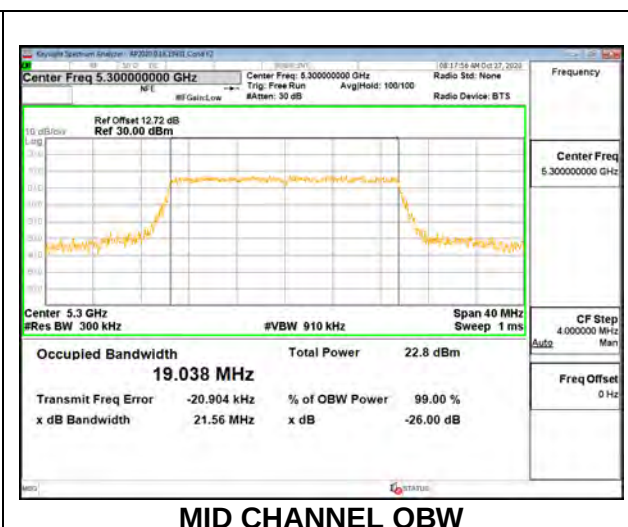
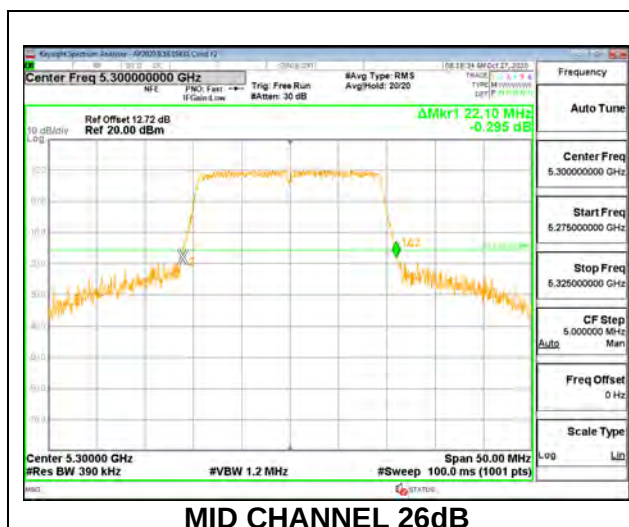


**1TX Antenna 6 MODE: 26 Tones, RU Index 8**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5260      | 21.10           | 18.5000       |
| Mid     | 5300      | 21.05           | 18.4500       |
| High    | 5320      | 20.85           | 18.7280       |

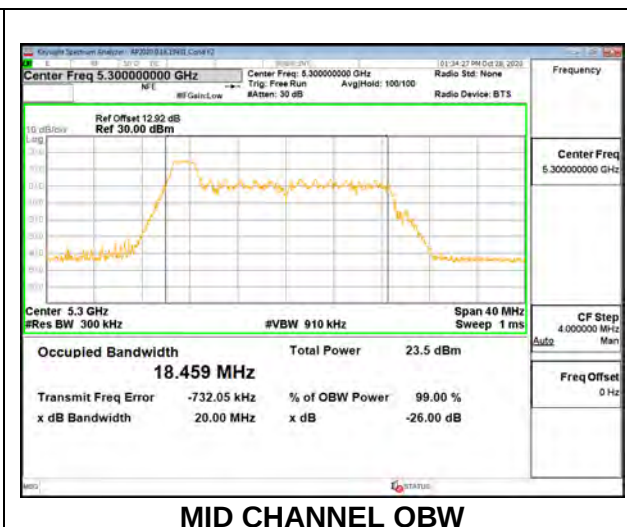
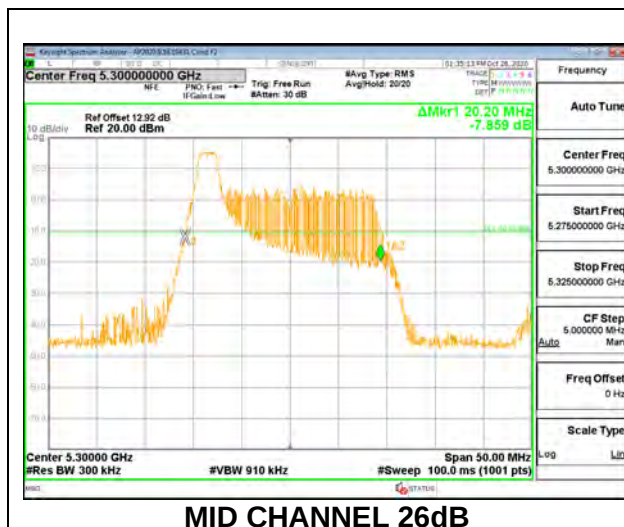
**1TX Antenna 6 MODE: SU Mode**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5260      | 22.10           | 19.0370       |
| Mid     | 5300      | 22.10           | 19.0380       |
| High    | 5320      | 22.15           | 19.0210       |

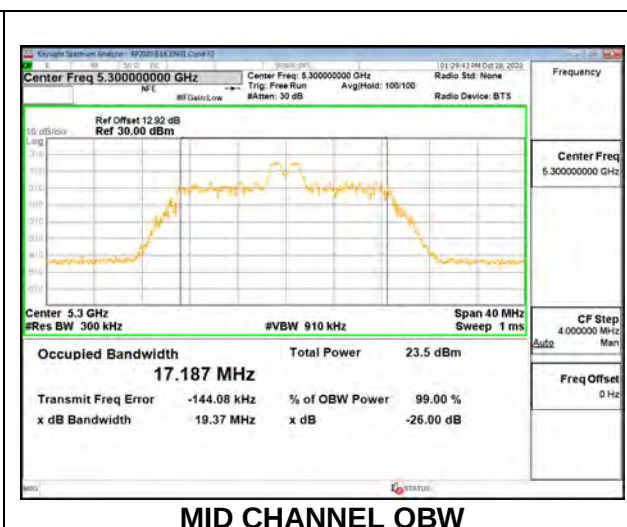
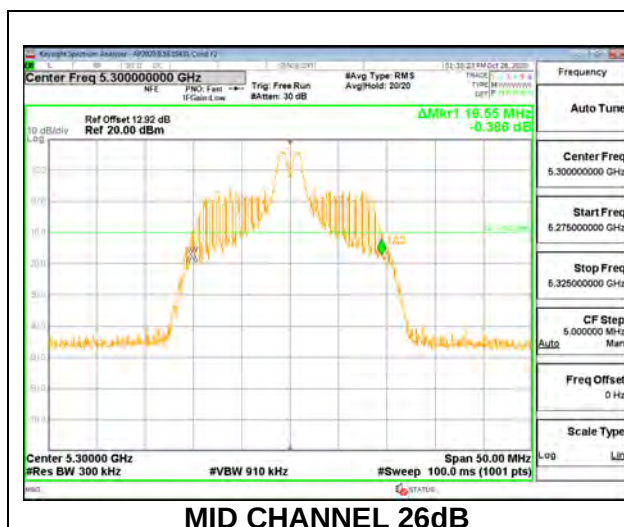


**1TX Antenna 5 MODE: 26 Tones, RU Index 0**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5260      | 20.45           | 18.4300       |
| Mid     | 5300      | 20.20           | 18.4590       |
| High    | 5320      | 20.10           | 18.1650       |

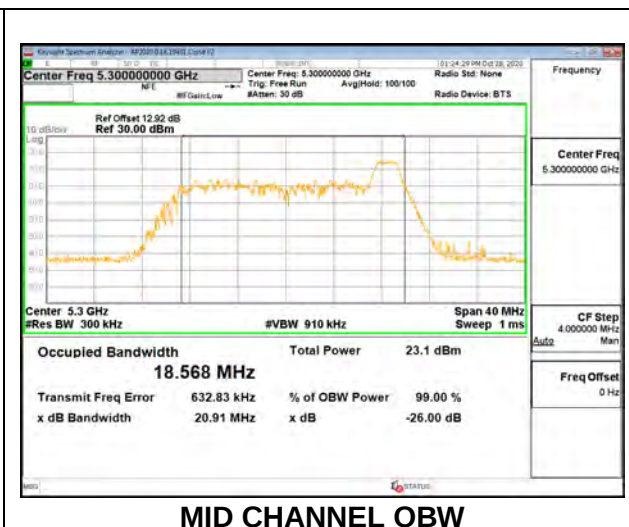
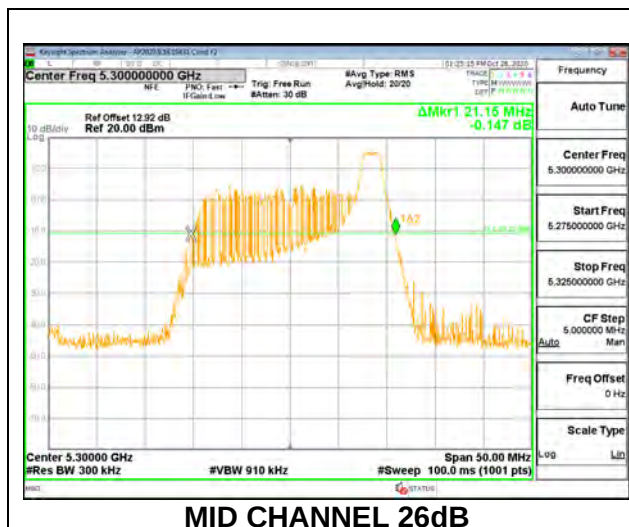
**1TX Antenna 5 MODE: 26 Tones, RU Index 4**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5260      | 19.50           | 17.0540       |
| Mid     | 5300      | 19.55           | 17.1870       |
| High    | 5320      | 19.60           | 17.2330       |

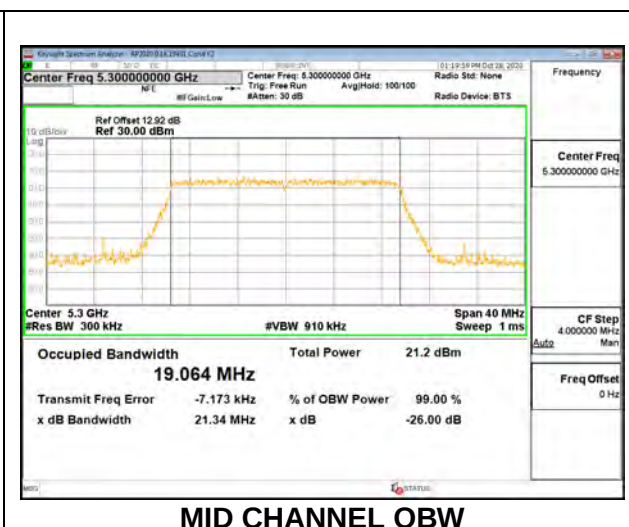
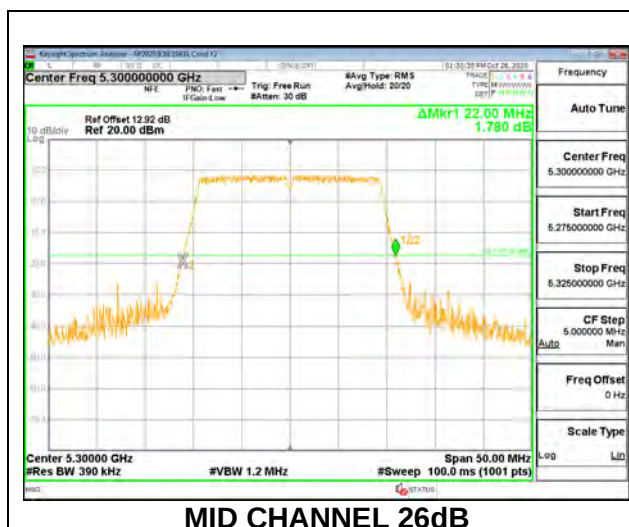


**1TX Antenna 5 MODE: 26 Tones, RU Index 8**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5260      | 21.00           | 18.5090       |
| Mid     | 5300      | 21.15           | 18.5680       |
| High    | 5320      | 20.90           | 18.6470       |

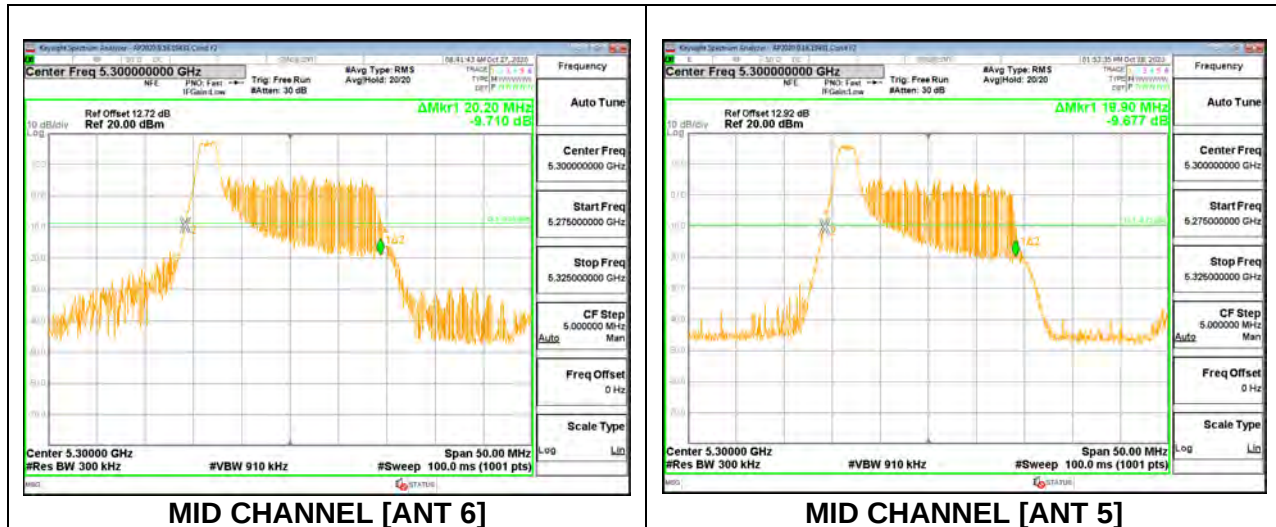
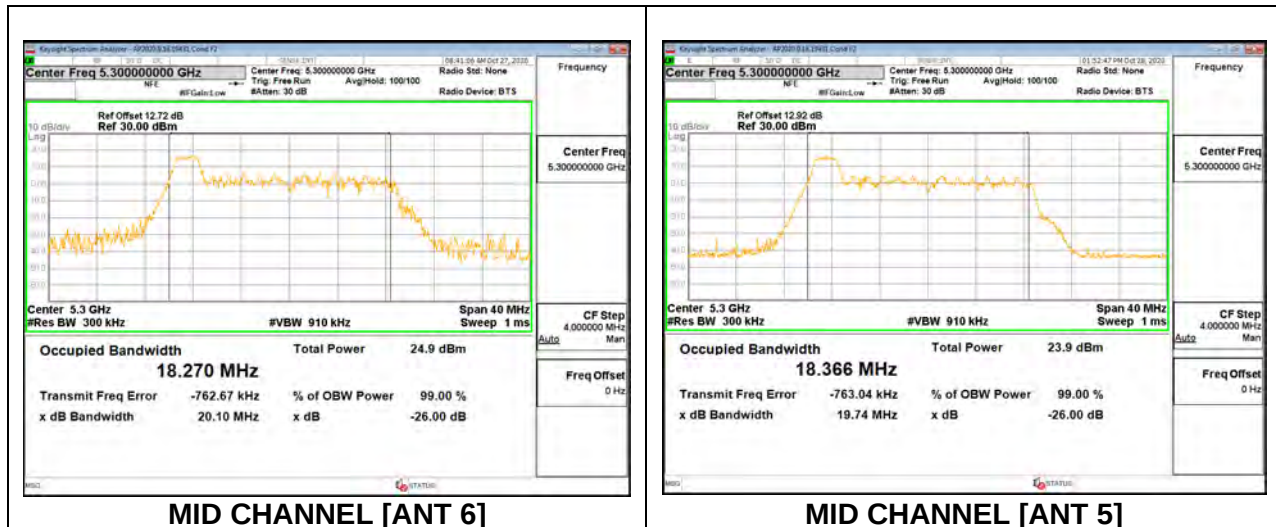
**1TX Antenna 5 MODE: SU Mode**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5260      | 22.10           | 19.0720       |
| Mid     | 5300      | 22.00           | 19.0640       |
| High    | 5320      | 22.05           | 19.0710       |



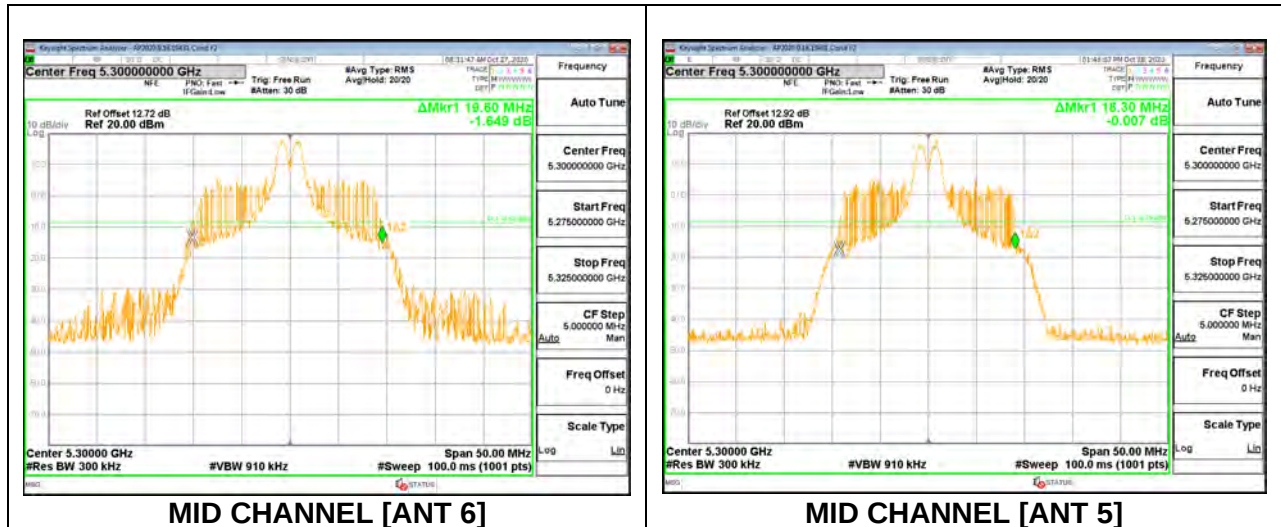
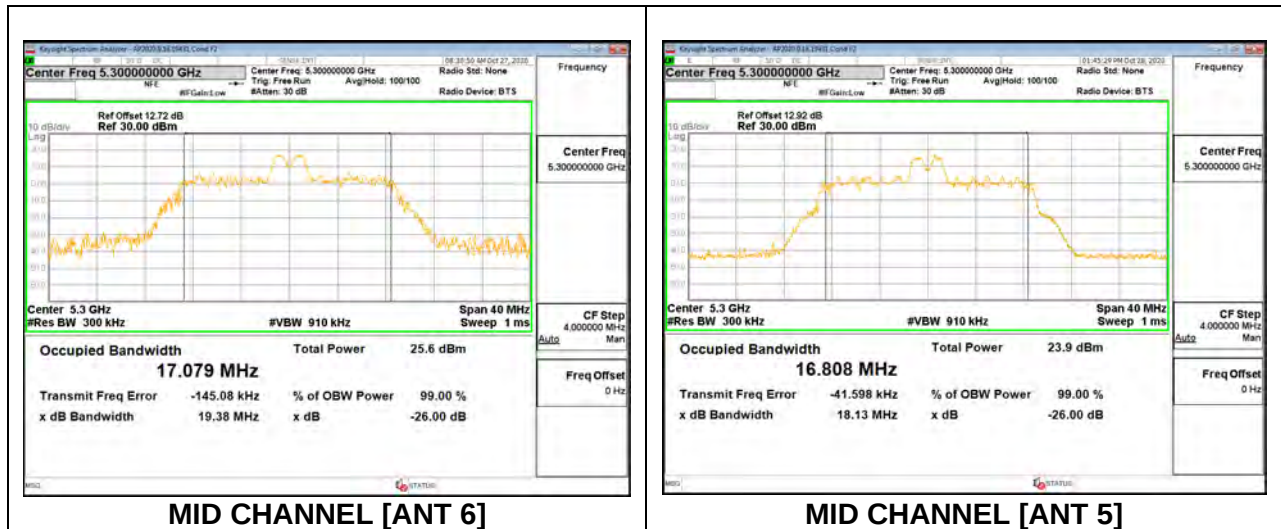
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 0**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5260               | 20.30                                 | 19.85                                 | 18.4030                             | 18.1760                             |
| Mid     | 5300               | 20.20                                 | 19.90                                 | 18.2700                             | 18.3660                             |
| High    | 5320               | 20.10                                 | 20.00                                 | 18.3370                             | 18.2980                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

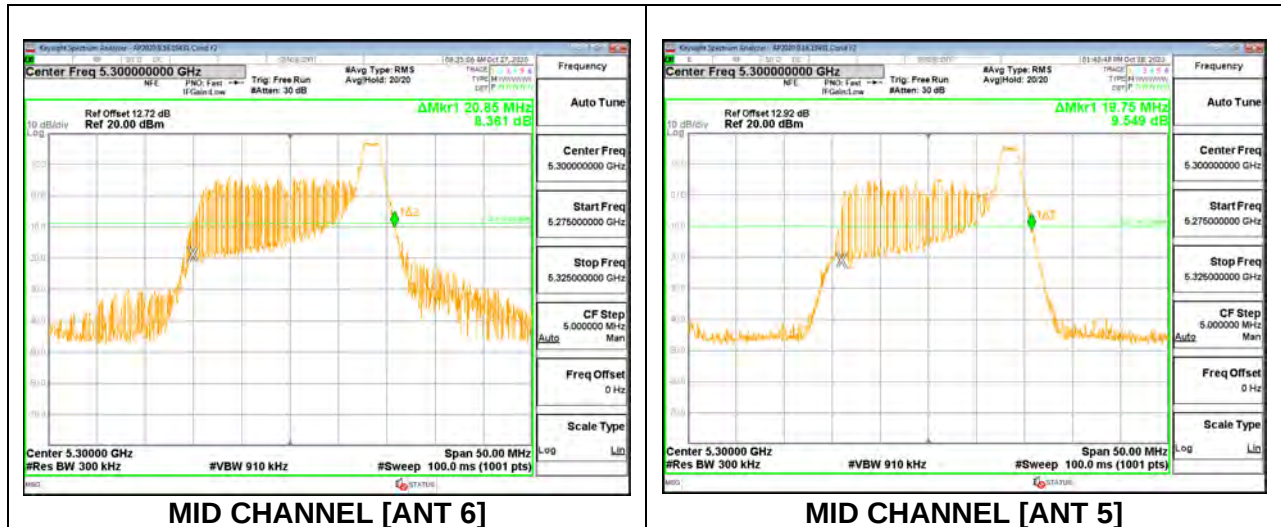
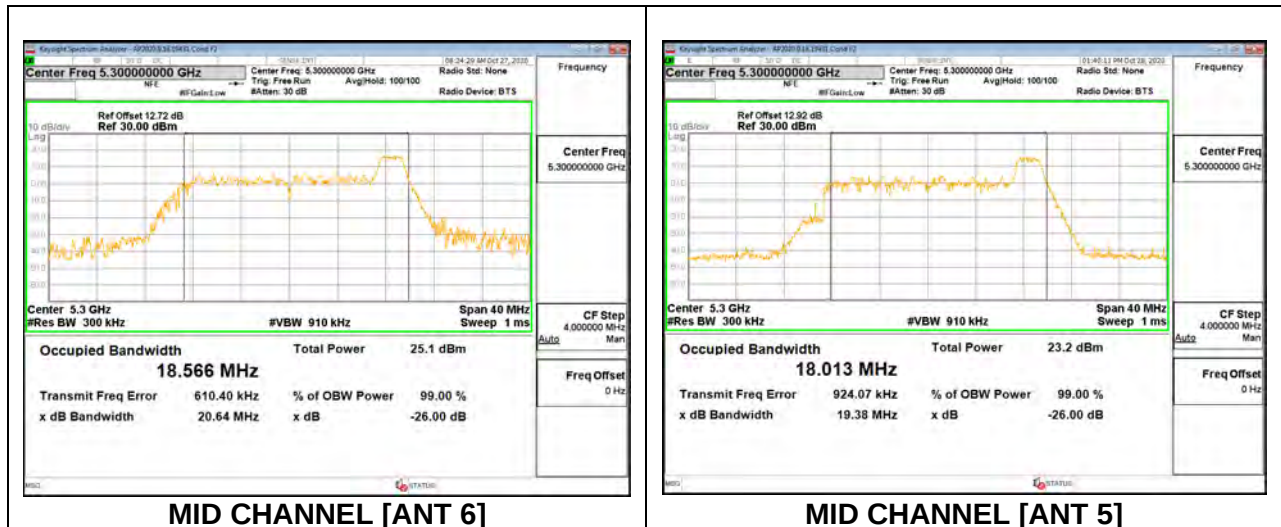
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 4**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5260               | 19.65                                 | 18.35                                 | 17.1030                             | 16.7760                             |
| Mid     | 5300               | 19.60                                 | 18.30                                 | 17.0790                             | 16.8080                             |
| High    | 5320               | 19.60                                 | 18.35                                 | 17.1420                             | 16.8490                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

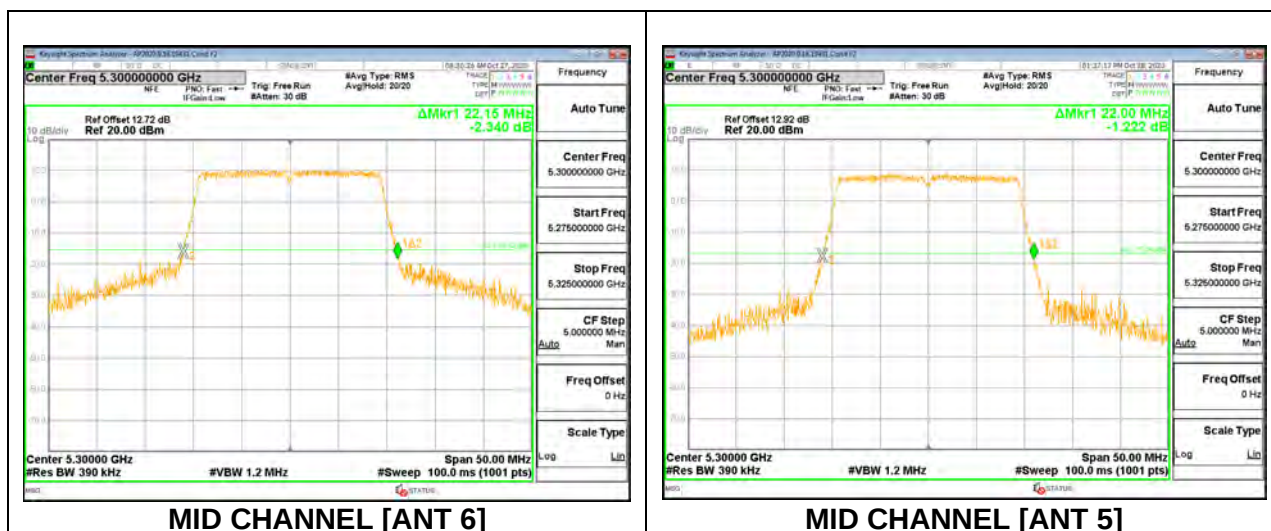
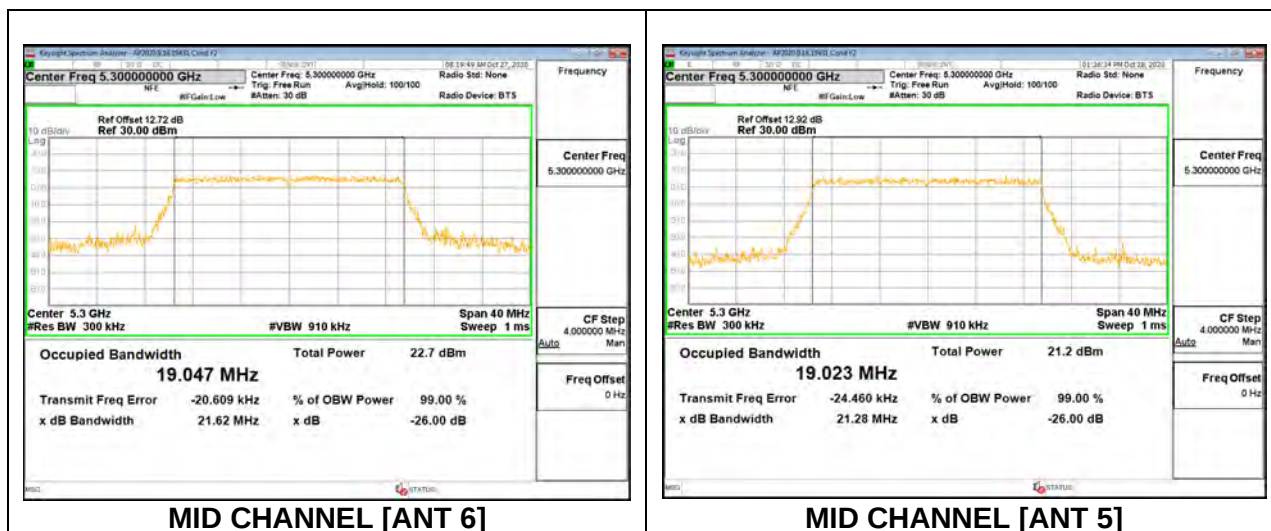
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 8**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5260               | 21.10                                 | 20.00                                 | 18.5510                             | 18.4730                             |
| Mid     | 5300               | 20.85                                 | 19.76                                 | 18.5660                             | 18.0130                             |
| High    | 5320               | 20.95                                 | 19.95                                 | 18.6220                             | 18.3920                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

**2TX Antenna 6 + Antenna 5 CDD MODE: SU Mode**

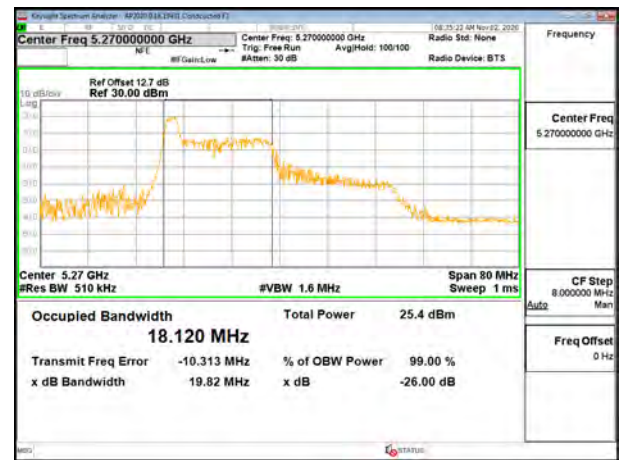
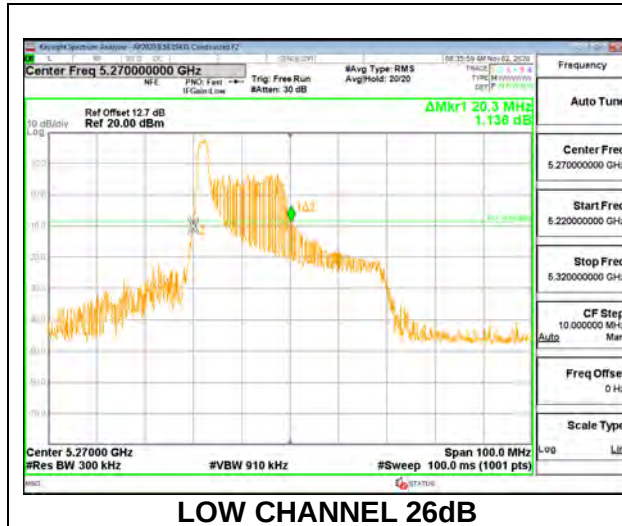
| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5260               | 22.00                                 | 21.80                                 | 19.0310                             | 19.0440                             |
| Mid     | 5300               | 22.15                                 | 22.00                                 | 19.0470                             | 19.0230                             |
| High    | 5320               | 22.05                                 | 21.95                                 | 19.0370                             | 19.0780                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

## 9.2.11. 802.11ax HE40 MODE IN THE 5.3 GHz BAND

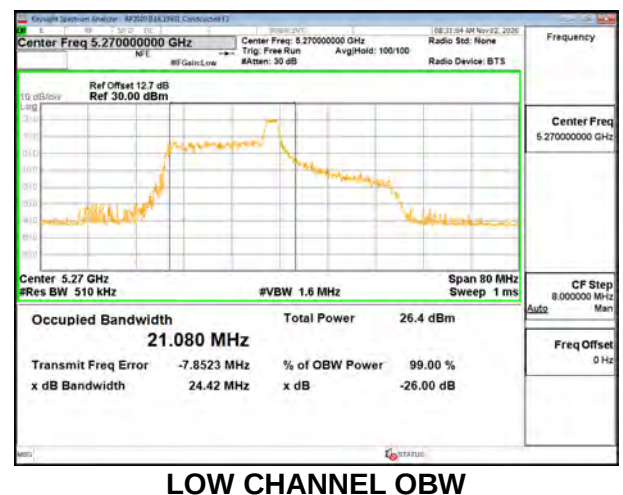
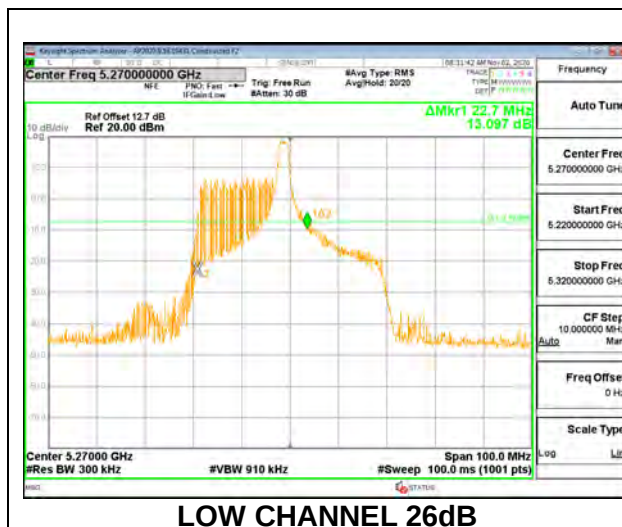
### 1TX Antenna 6 MODE: 26 Tones, RU Index 0

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5270      | 20.30           | 18.1200       |
| High    | 5310      | 20.00           | 18.3080       |



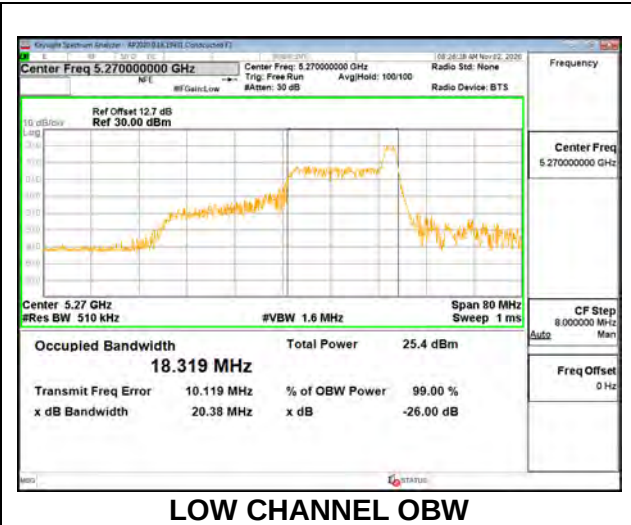
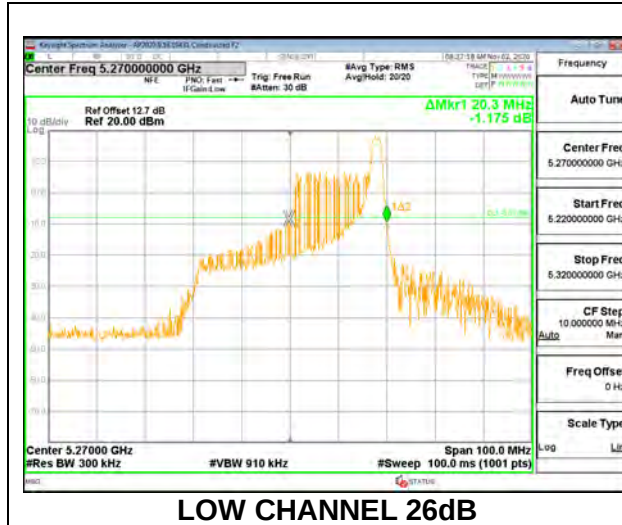
### 1TX Antenna 6 MODE: 26 Tones, RU Index 8

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5270      | 22.70           | 21.0800       |
| High    | 5310      | 24.10           | 20.9210       |

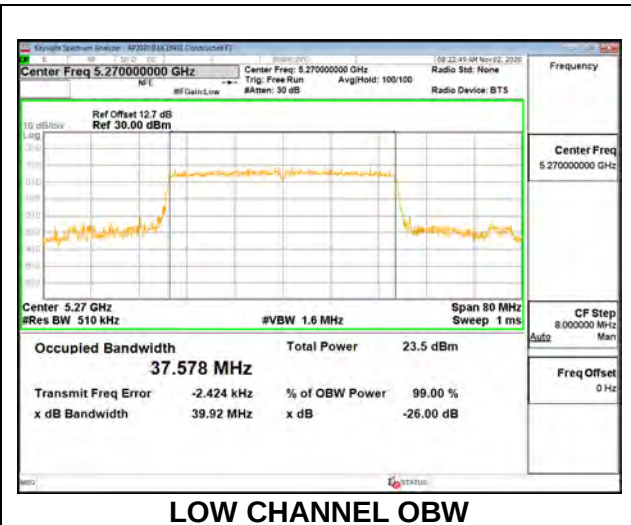
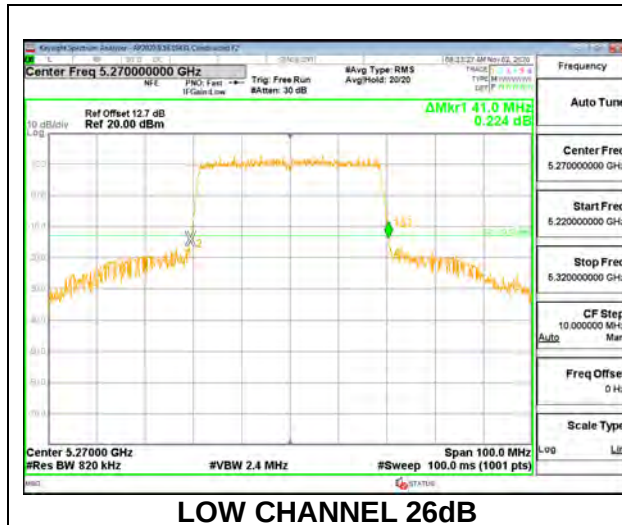


**1TX Antenna 6 MODE: 26 Tones, RU Index 17**

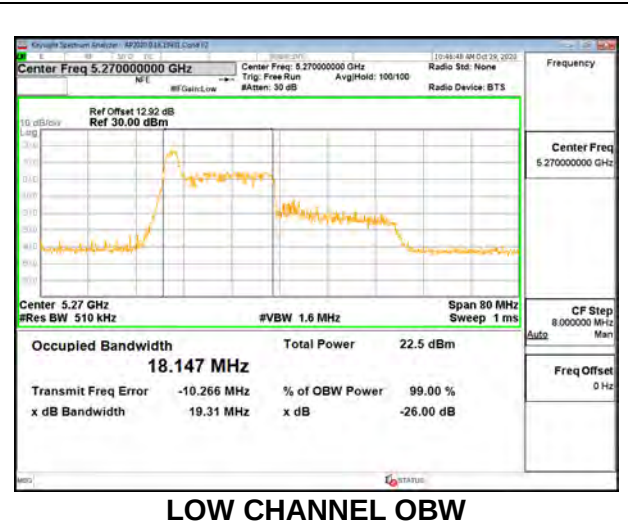
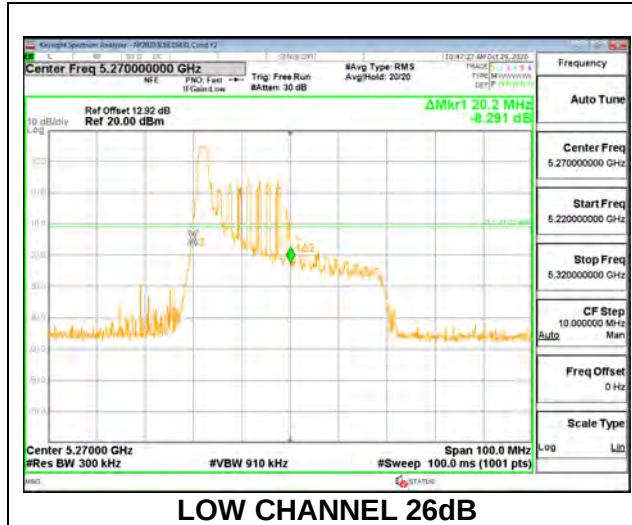
| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5270      | 20.30           | 18.3190       |
| High    | 5310      | 20.10           | 18.4420       |

**1TX Antenna 6 MODE: SU Mode**

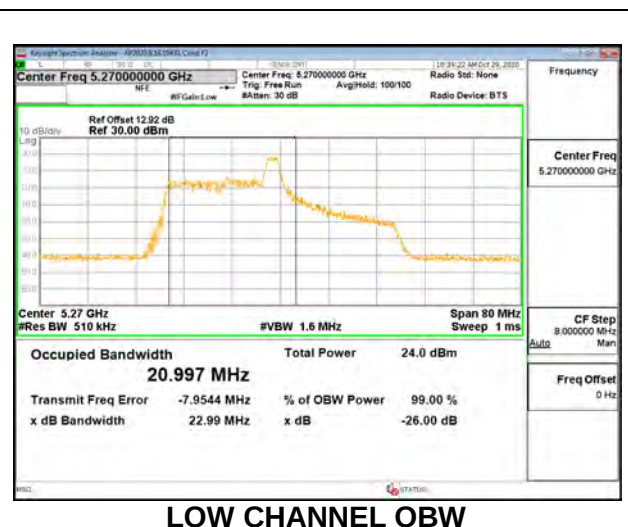
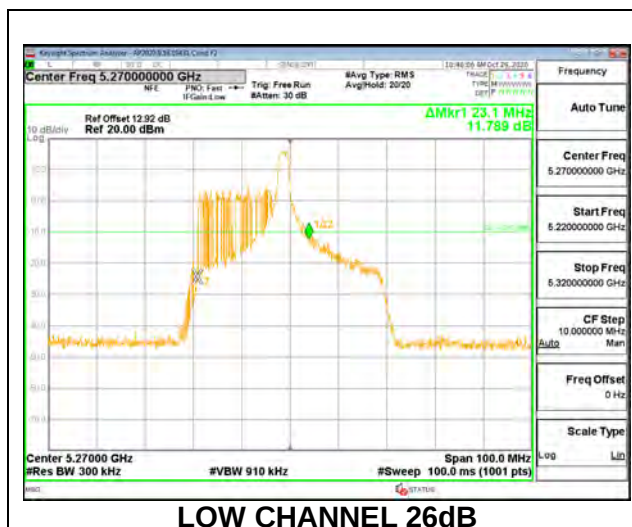
| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5270      | 41.00           | 37.5780       |
| High    | 5310      | 41.00           | 37.6320       |



| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Low     | 5270      | 20.20           | 18.1470       |
| High    | 5310      | 20.20           | 18.2000       |

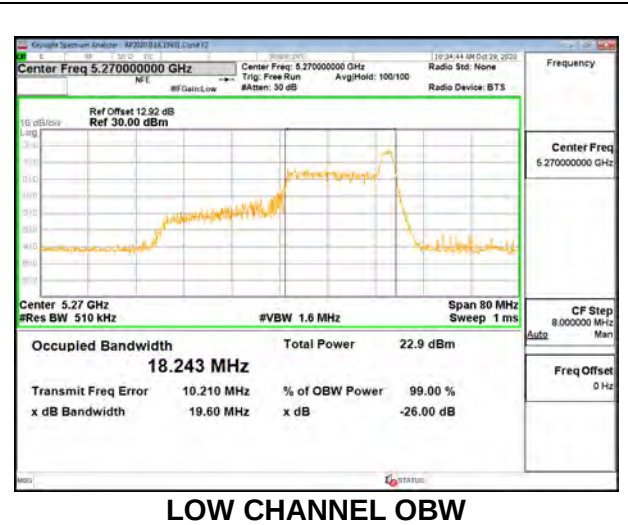
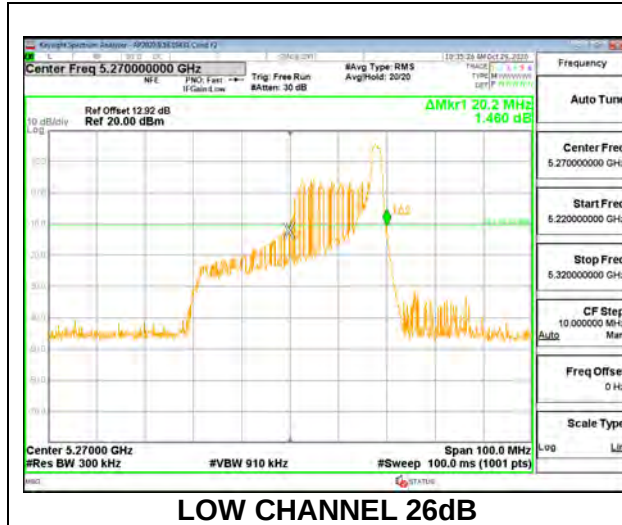


| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|--------------------------|------------------------|
| Low     | 5270               | 23.10                    | 20.9970                |
| High    | 5310               | 22.90                    | 21.0280                |

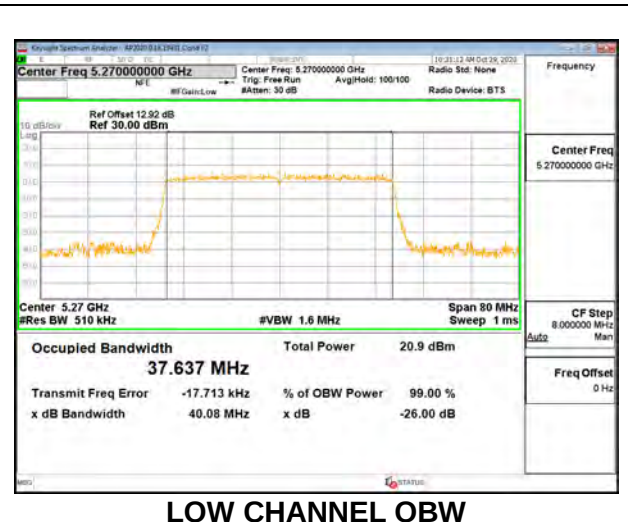
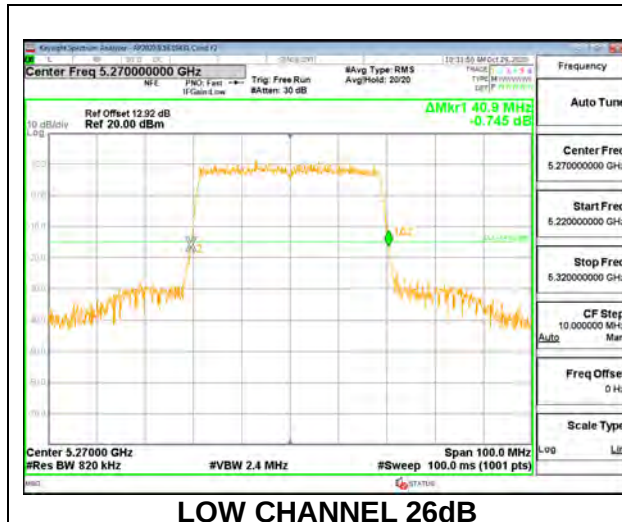


**1TX Antenna 5 MODE: 26 Tones, RU Index 17**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|--------------------------|------------------------|
| Low     | 5270               | 20.20                    | 18.2430                |
| High    | 5310               | 20.40                    | 18.2770                |

**1TX Antenna 5 MODE: SU Mode**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|--------------------------|------------------------|
| Low     | 5270               | 40.90                    | 37.6370                |
| High    | 5310               | 41.00                    | 37.5140                |



| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5270               | 20.30                                 | 18.80                                 | 18.1290                             | 18.0890                             |
| High    | 5310               | 20.40                                 | 19.40                                 | 18.1760                             | 18.0700                             |

The figure displays two side-by-side screenshots of a Keysight Spectrum Analyzer, showing the Low Channel for Ant 6 (left) and Ant 5 (right). Both plots show a signal with a peak at 5.27 GHz. The Ant 6 plot shows a peak level of 20.3 MHz and 1.689 dB. The Ant 5 plot shows a peak level of 18.8 MHz and -9.780 dB. Both plots have a center frequency of 5.270000000 GHz, a span of 100.0 MHz, and a resolution bandwidth of 300 kHz.

**LOW CHANNEL [ANT 6]**

Center Freq 5.27000000 GHz

Ref Offset 12.7 dB  
Ref 30.00 dBm

Center 5.27 GHz  
#Res BW 510 kHz  
#VBW 1.6 MHz  
Span 80 MHz  
Sweep 1 ms

Occupied Bandwidth 18.129 MHz

Transmit Freq Error -10.271 MHz  
x dB Bandwidth 21.09 MHz

Total Power 25.2 dBm  
x dB -26.00 dB

CF Step 8.000000 MHz  
Freq Offset 0 Hz

**LOW CHANNEL [ANT 5]**

Center Freq 5.27000000 GHz

Ref Offset 12.82 dB  
Ref 30.00 dBm

Center 5.27 GHz  
#Res BW 510 kHz  
#VBW 1.6 MHz  
Span 80 MHz  
Sweep 1 ms

Occupied Bandwidth 18.089 MHz

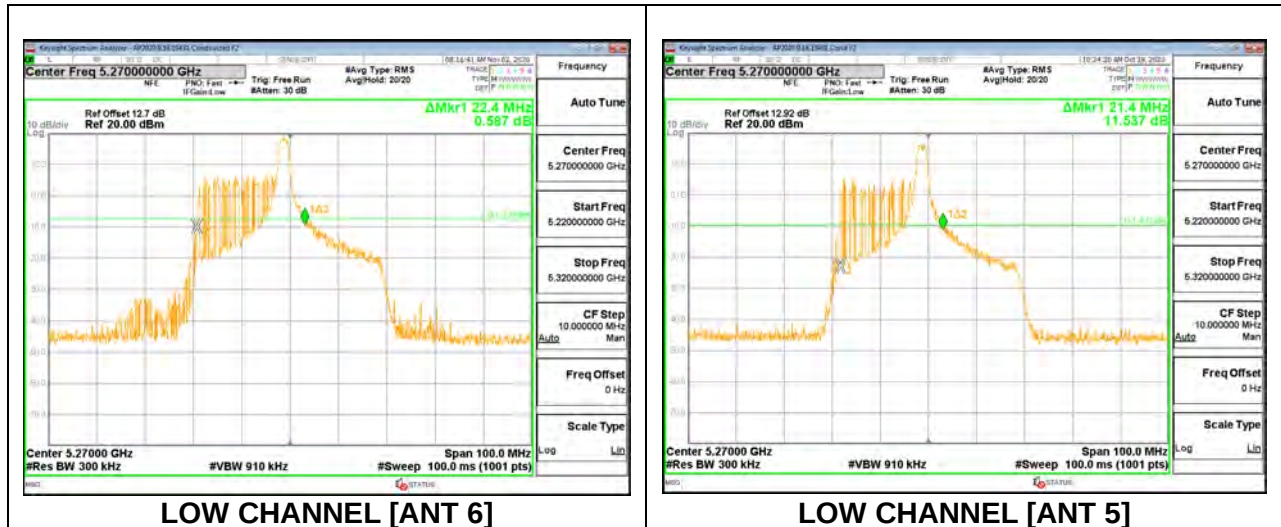
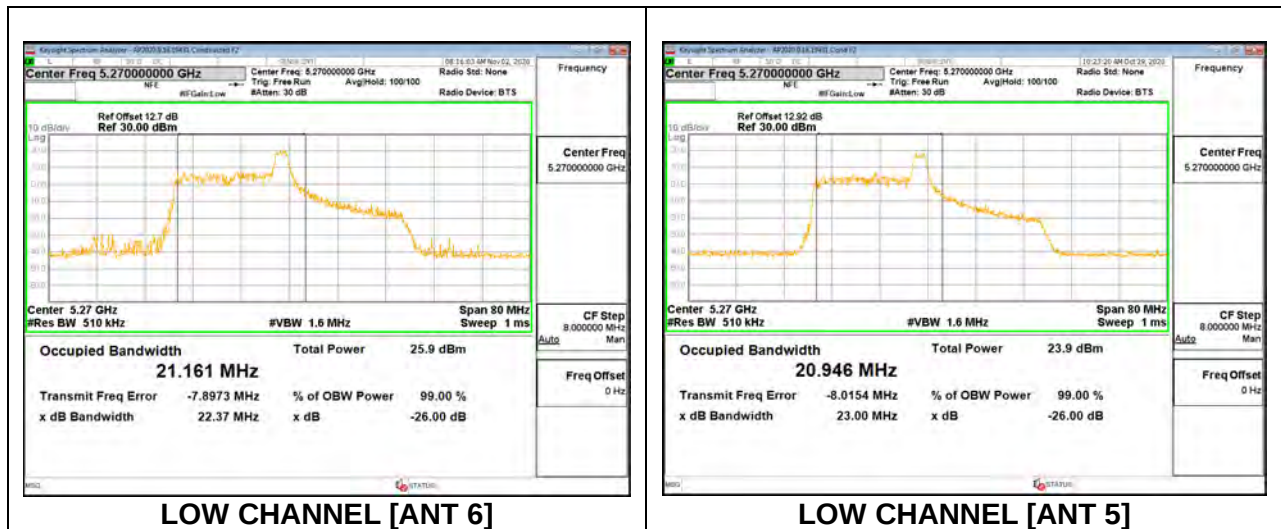
Transmit Freq Error -10.312 MHz  
x dB Bandwidth 19.52 MHz

Total Power 23.1 dBm  
x dB -26.00 dB

CF Step 8.000000 MHz  
Freq Offset 0 Hz

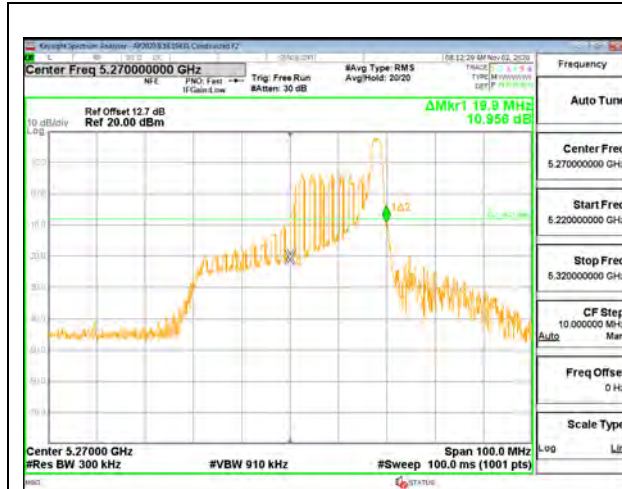
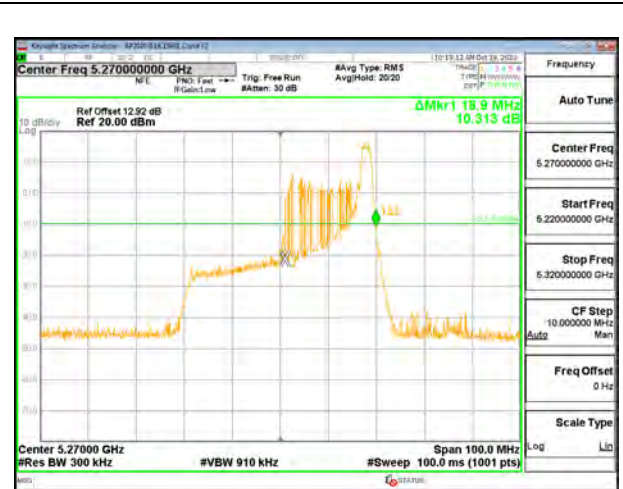
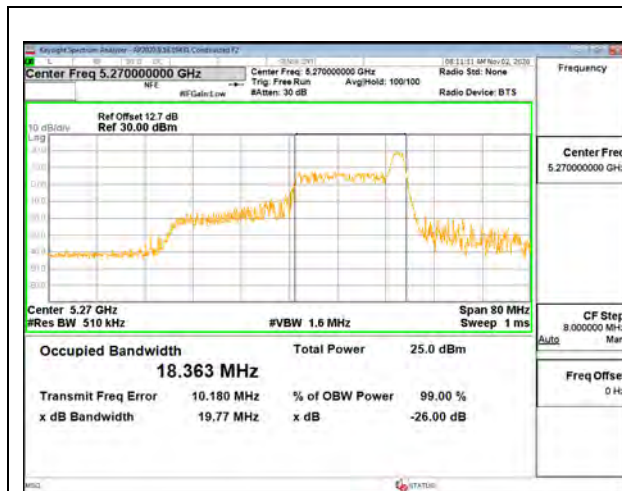
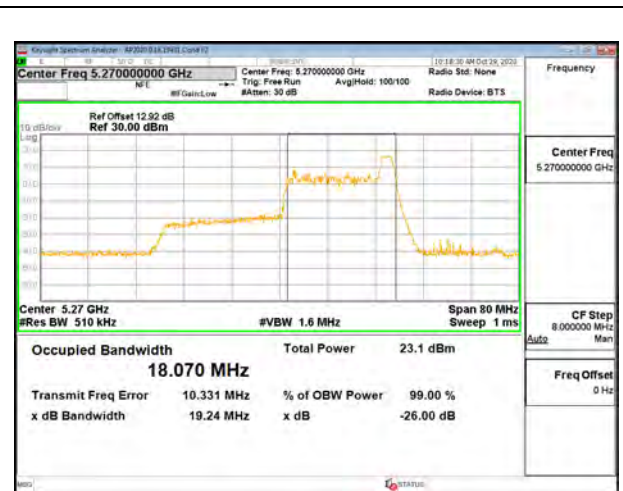
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 8**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5270               | 22.40                                 | 21.40                                 | 21.1610                             | 20.9460                             |
| High    | 5310               | 22.40                                 | 22.20                                 | 20.8140                             | 20.9670                             |

**LOW CHANNEL 26dB****LOW CHANNEL OBW**

**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 17**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5270               | 19.90                                 | 18.90                                 | 18.3630                             | 18.0700                             |
| High    | 5310               | 20.10                                 | 19.10                                 | 18.4880                             | 18.0110                             |

**LOW CHANNEL 26dB****LOW CHANNEL [ANT 6]****LOW CHANNEL [ANT 5]****LOW CHANNEL OBW****LOW CHANNEL [ANT 6]****LOW CHANNEL [ANT 5]**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5270               | 41.00                                 | 40.70                                 | 37.5900                             | 37.5770                             |
| High    | 5310               | 40.90                                 | 41.10                                 | 37.6030                             | 37.5610                             |

**LOW CHANNEL [ANT 6]**

Center Freq 5.270000000 GHz  
#Res BW 820 kHz  
#Sweep 100.0 ms (1001 pts)

**LOW CHANNEL [ANT 5]**

Center Freq 5.270000000 GHz  
#Res BW 820 kHz  
#Sweep 100.0 ms (1001 pts)

**LOW CHANNEL [ANT 6]**

Center Freq 5.27000000 GHz  
 Ref Offset 12.7 dB  
 Ref 30.00 dBm  
 Occupied Bandwidth 37.590 MHz  
 Total Power 23.5 dBm  
 Transmit Freq Error 40.014 kHz  
 % of OBW Power 99.00 %  
 x dB Bandwidth 39.95 MHz  
 x dB -26.00 dB

**LOW CHANNEL [ANT 5]**

Center Freq 5.27000000 GHz  
 Ref Offset 12.92 dB  
 Ref 30.00 dBm  
 Occupied Bandwidth 37.577 MHz  
 Total Power 21.0 dBm  
 Transmit Freq Error -10.932 kHz  
 % of OBW Power 99.00 %  
 x dB Bandwidth 39.69 MHz  
 x dB -26.00 dB

## 9.2.12. 802.11ax HE80 MODE IN THE 5.3 GHz BAND

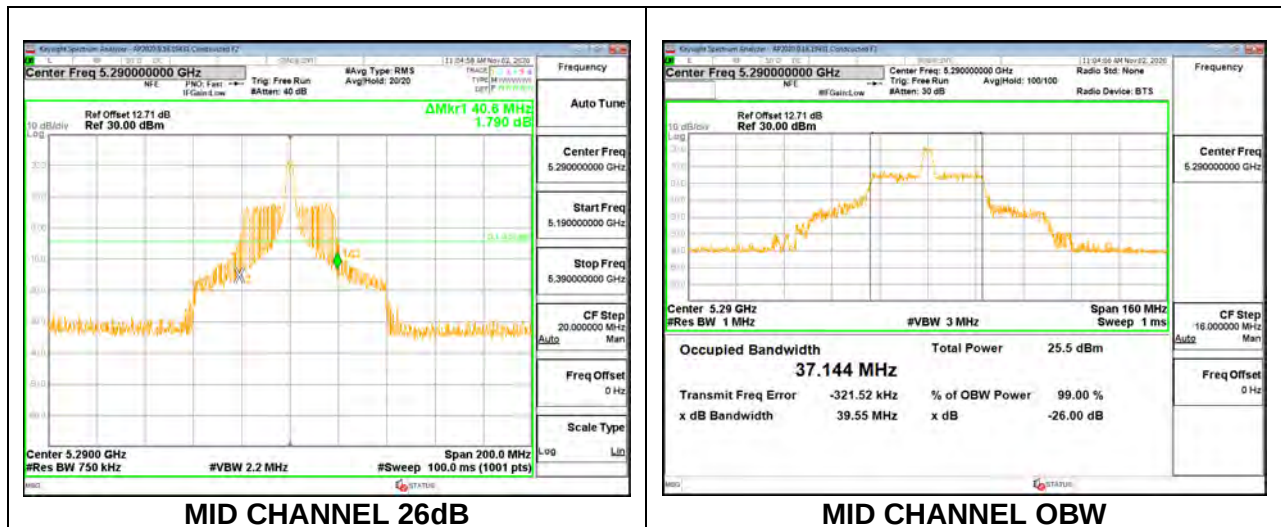
### 1TX Antenna 6 MODE: 26 Tones, RU Index 0

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5290      | 20.00           | 17.9490       |



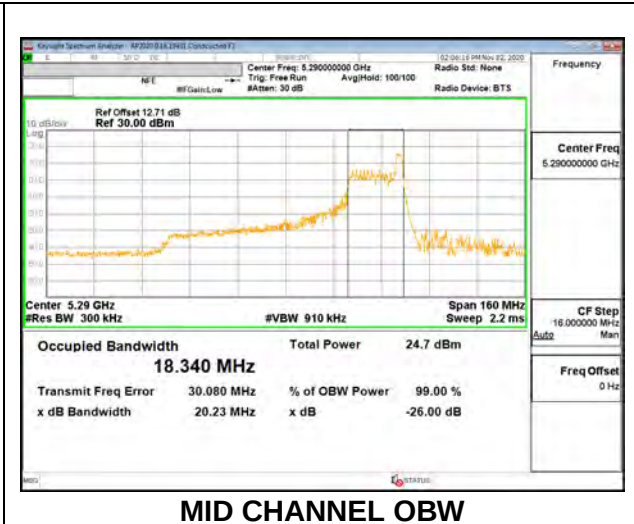
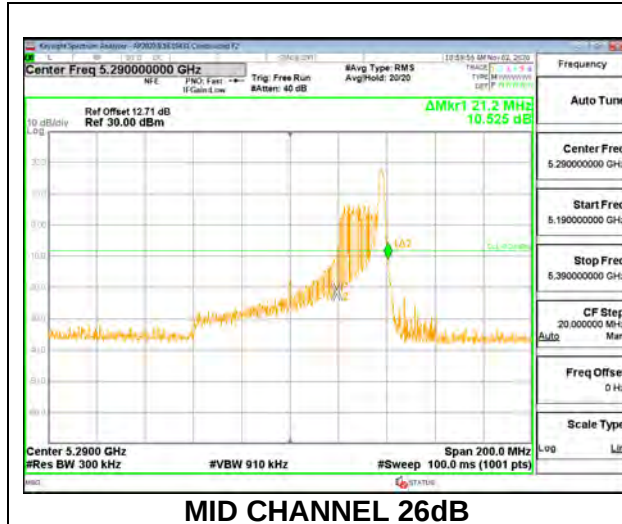
### 1TX Antenna 6 MODE: 26 Tones, RU Index 18

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5290      | 40.60           | 37.1440       |

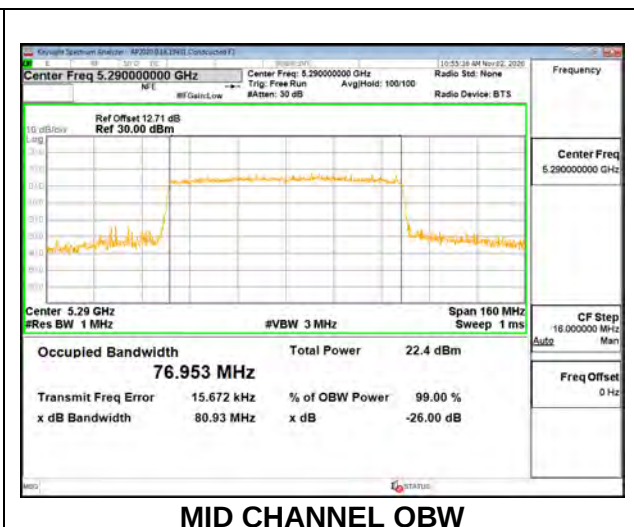
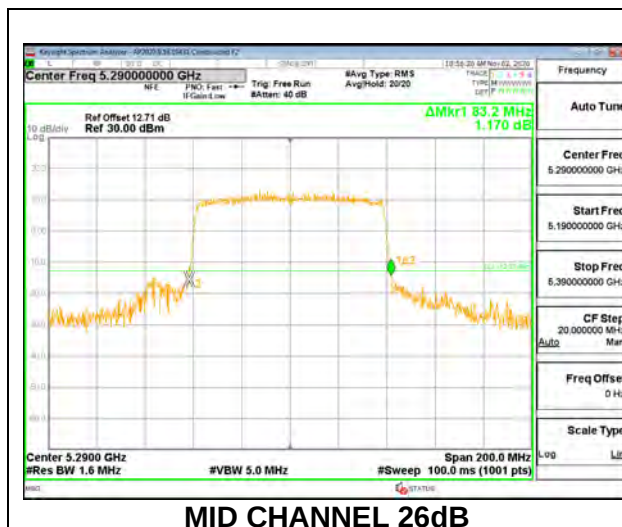


**1TX Antenna 6 MODE: 26 Tones, RU Index 36**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5290      | 21.20           | 18.3400       |

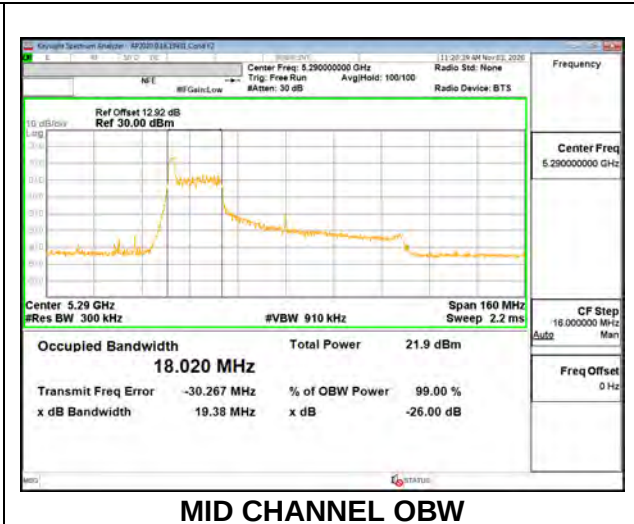
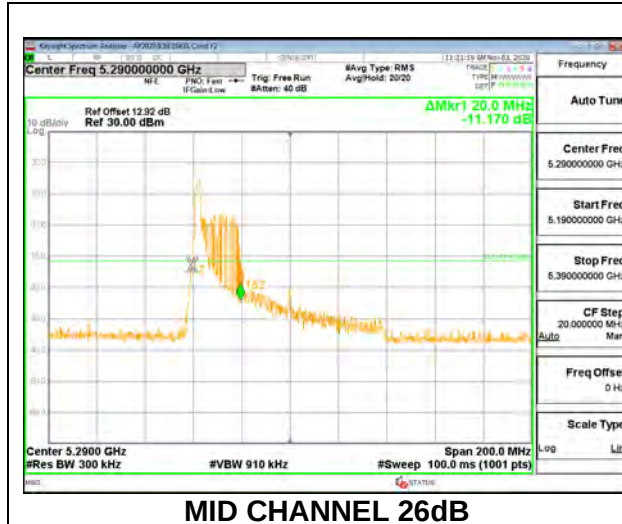
**1TX Antenna 6 MODE: SU Mode**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5290      | 83.20           | 76.9530       |

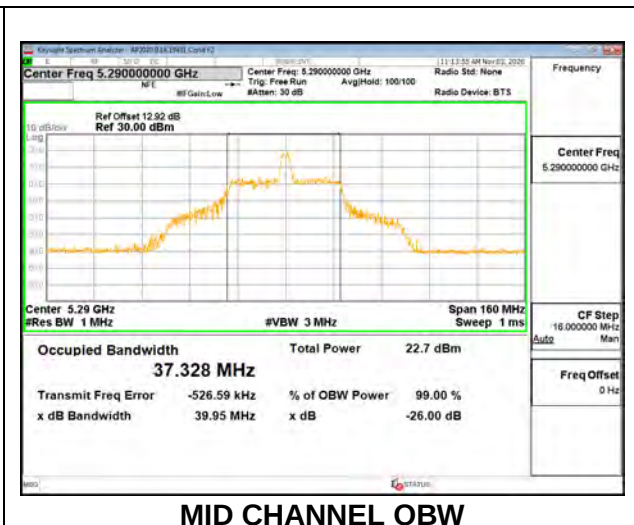
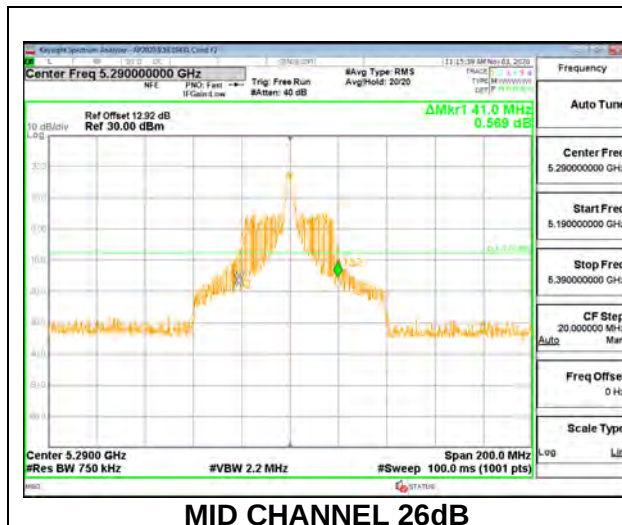


**1TX Antenna 5 MODE: 26 Tones, RU Index 0**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5290      | 20.00           | 18.0200       |

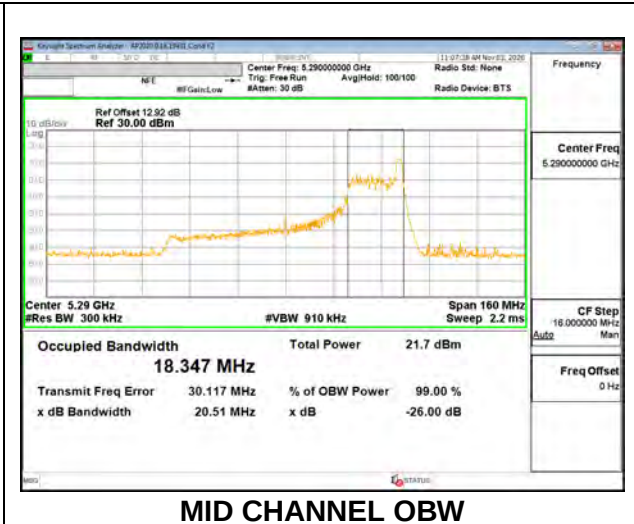
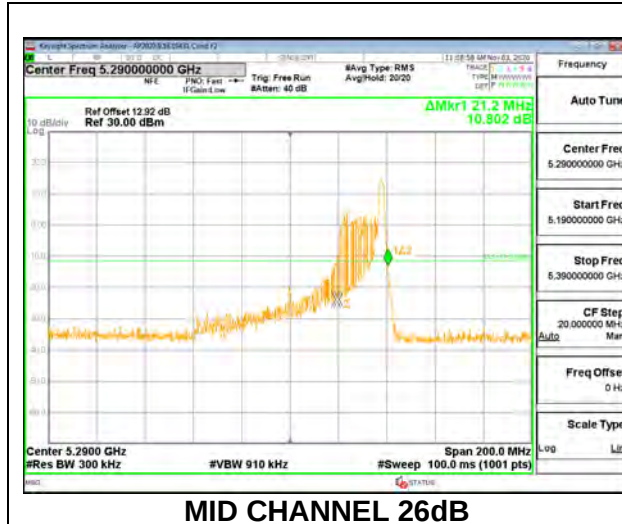
**1TX Antenna 5 MODE: 26 Tones, RU Index 18**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5290      | 41.00           | 37.3280       |

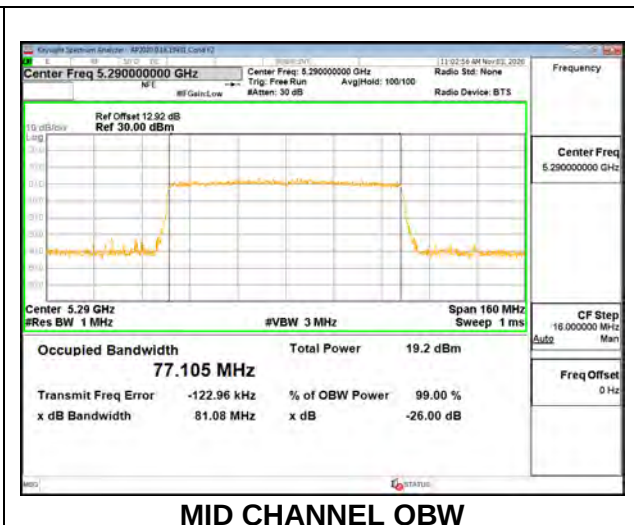
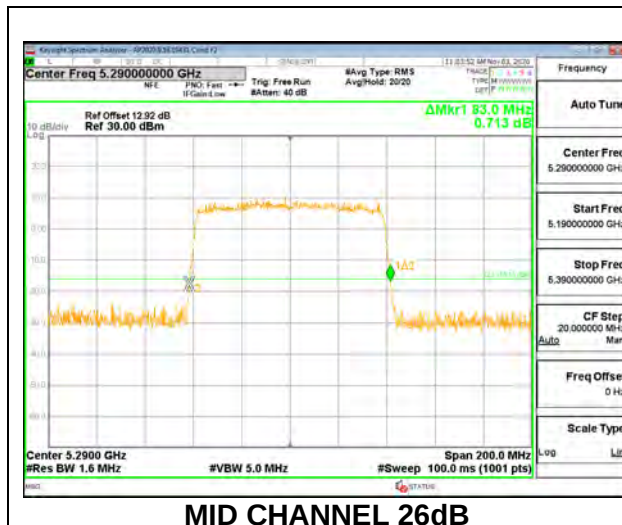


**1TX Antenna 5 MODE: 26 Tones, RU Index 36**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5290      | 21.20           | 18.3470       |

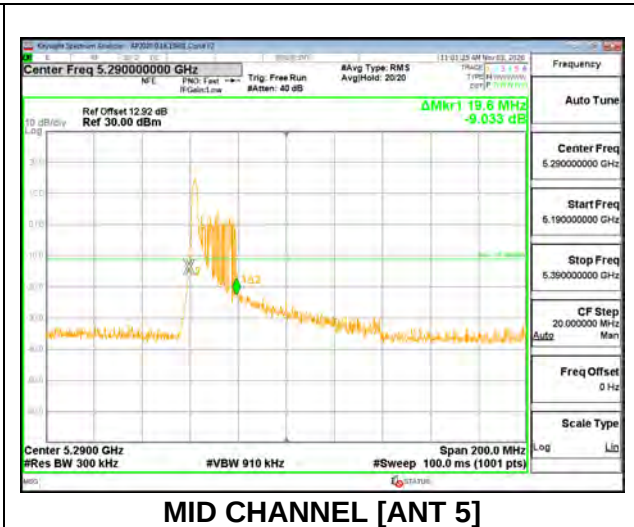
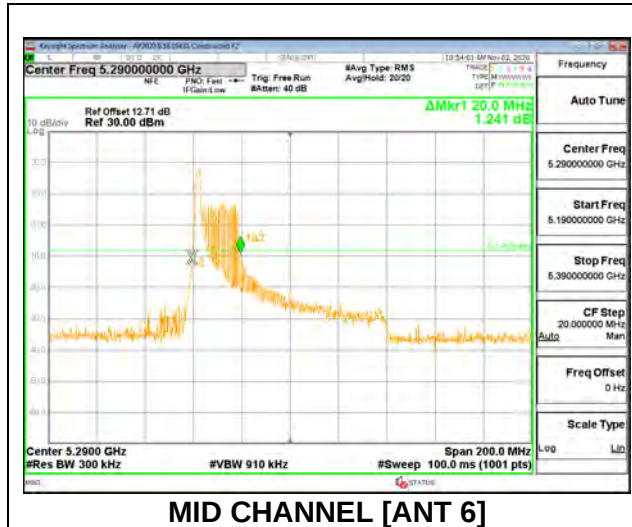
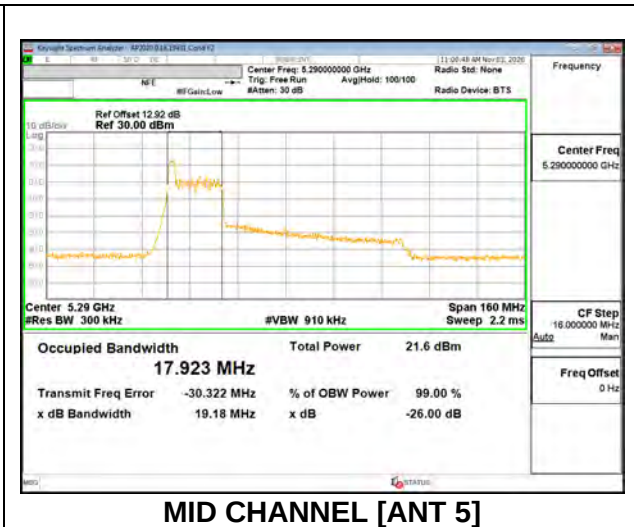
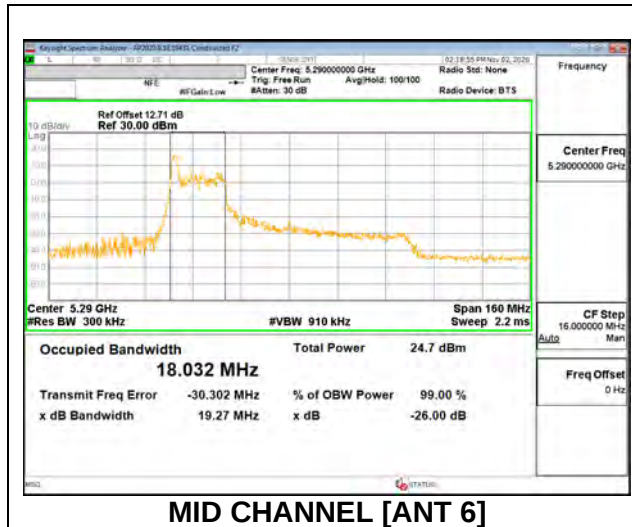
**1TX Antenna 5 MODE: SU Mode**

| Channel | Frequency | 26 dB Bandwidth | 99% Bandwidth |
|---------|-----------|-----------------|---------------|
|         | (MHz)     | (MHz)           | (MHz)         |
| Mid     | 5290      | 83.00           | 77.1050       |



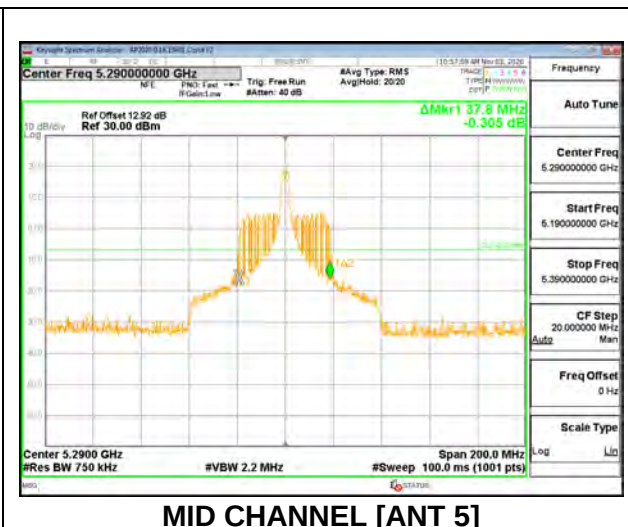
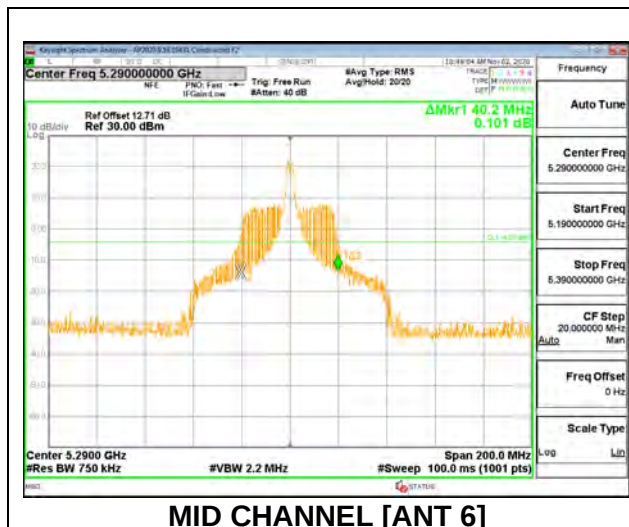
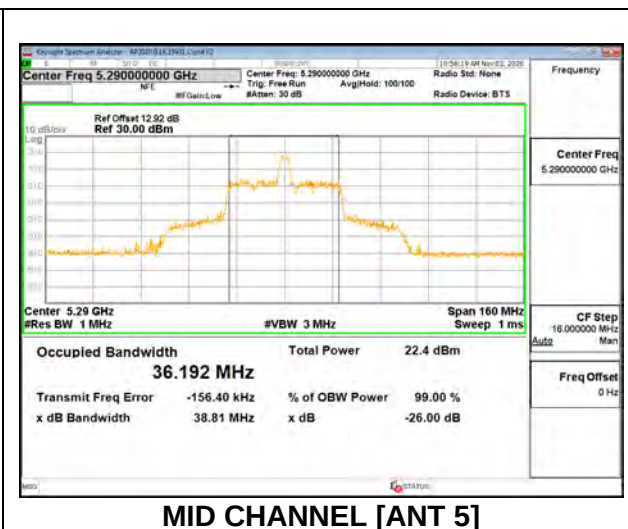
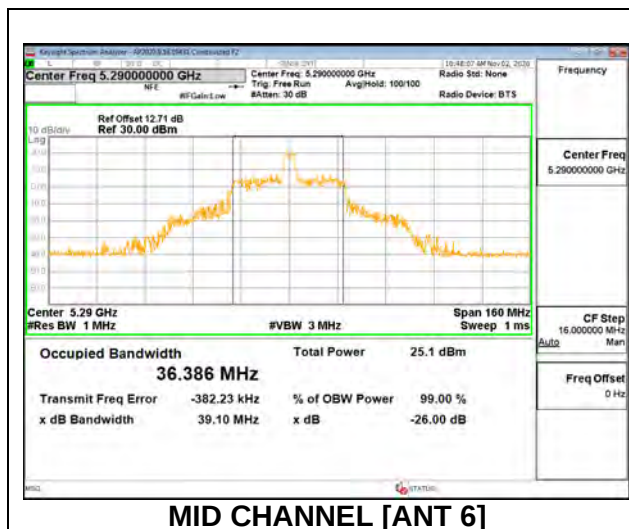
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 0**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Mid     | 5290               | 20.00                                 | 19.60                                 | 18.0320                             | 17.9230                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

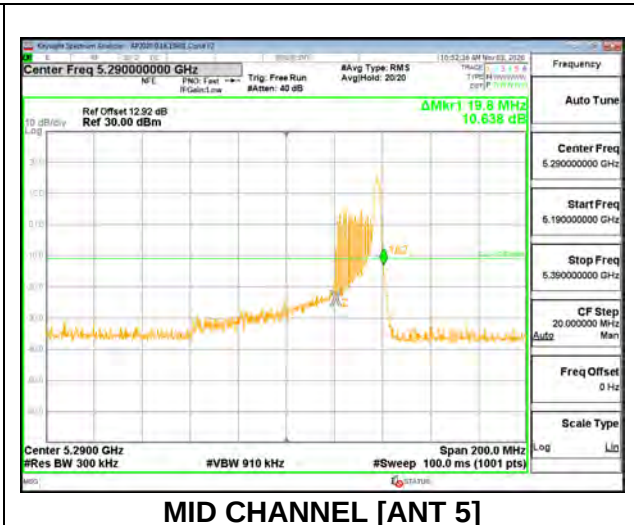
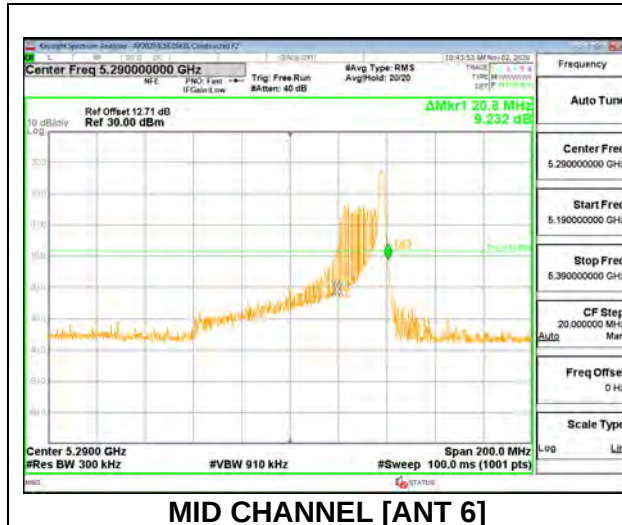
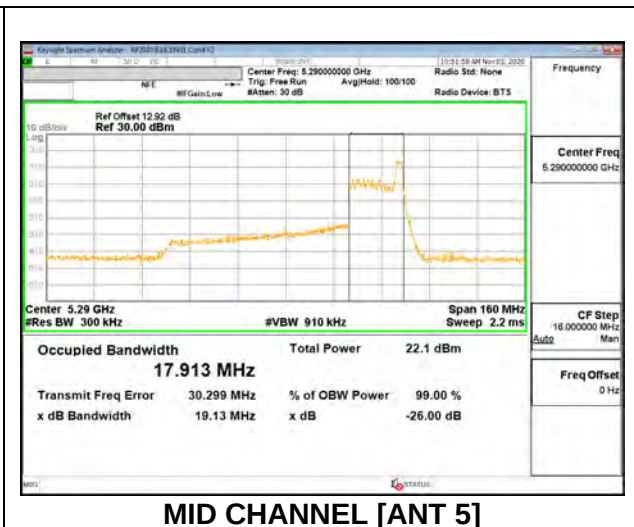
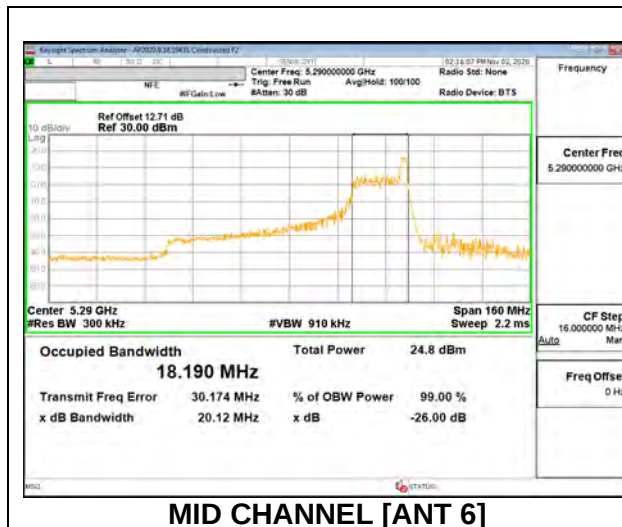
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 18**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Mid     | 5290               | 40.20                                 | 37.80                                 | 36.3860                             | 36.1920                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

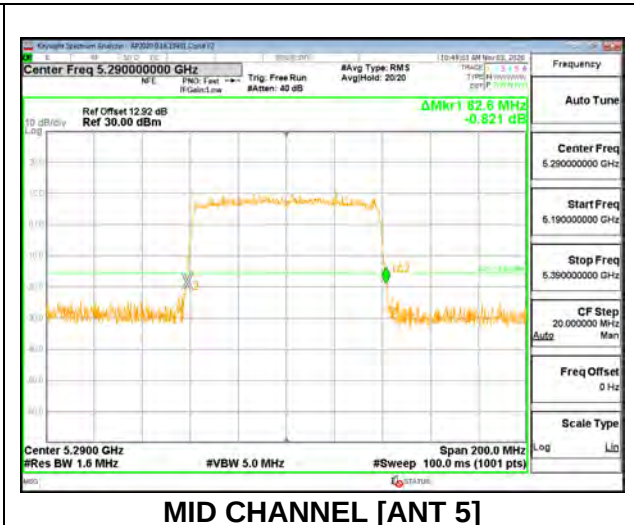
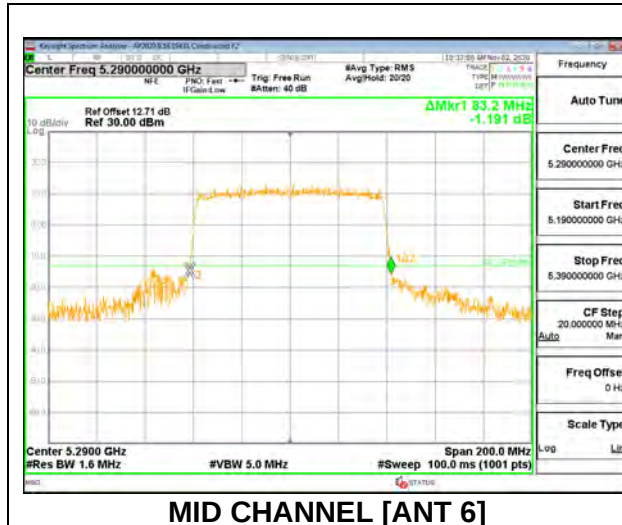
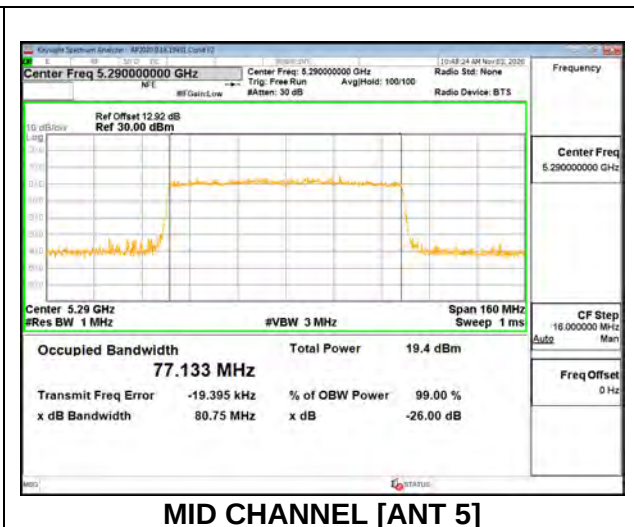
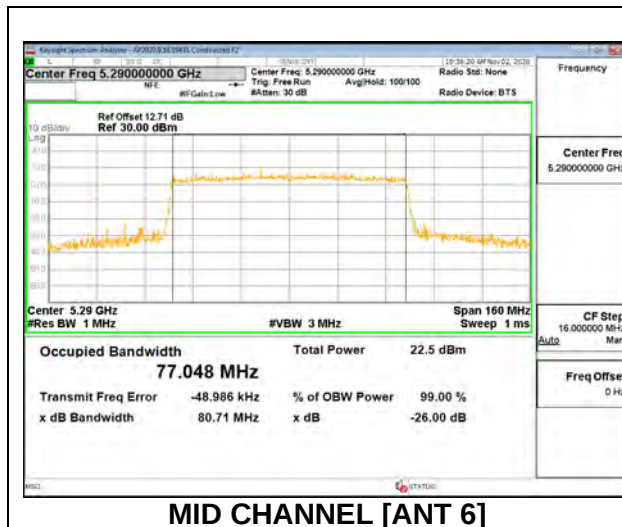
**2TX Antenna 6 + Antenna 5 CDD MODE: 26 Tones, RU Index 36**

| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Mid     | 5290               | 20.80                                 | 19.80                                 | 18.1900                             | 17.9130                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

**2TX Antenna 6 + Antenna 5 CDD MODE: SU Mode**

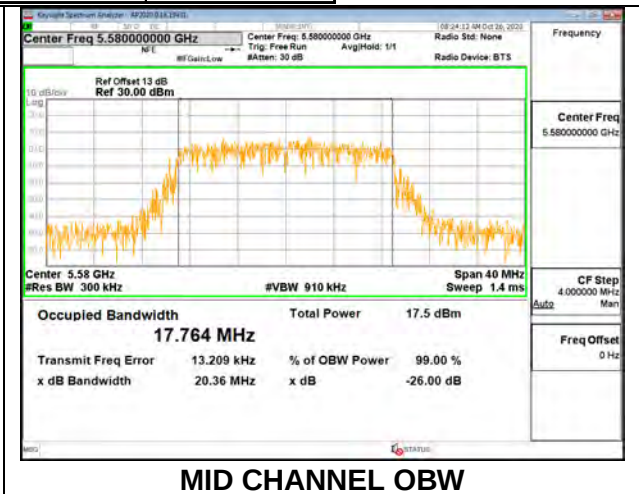
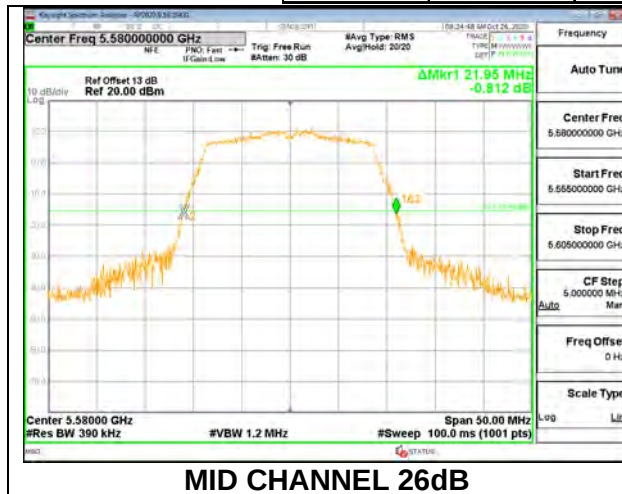
| Channel | Frequency<br>(MHz) | 26 dB Bandwidth<br>Antenna 6<br>(MHz) | 26 dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| Mid     | 5290               | 83.20                                 | 82.60                                 | 77.0480                             | 77.1330                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

## 9.2.13. 802.11n HT20 MODE IN THE 5.6 GHz BAND

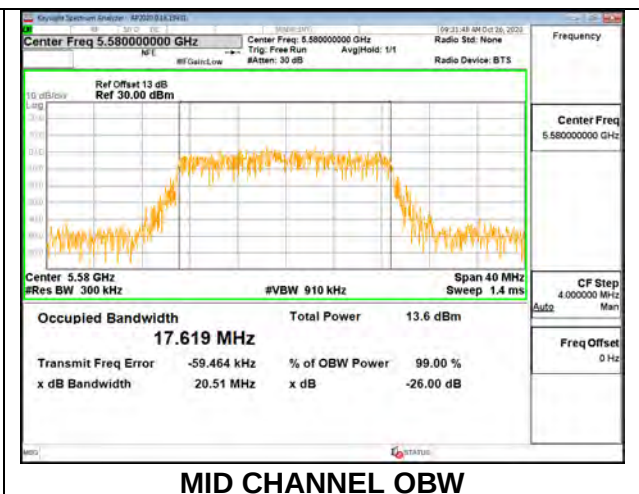
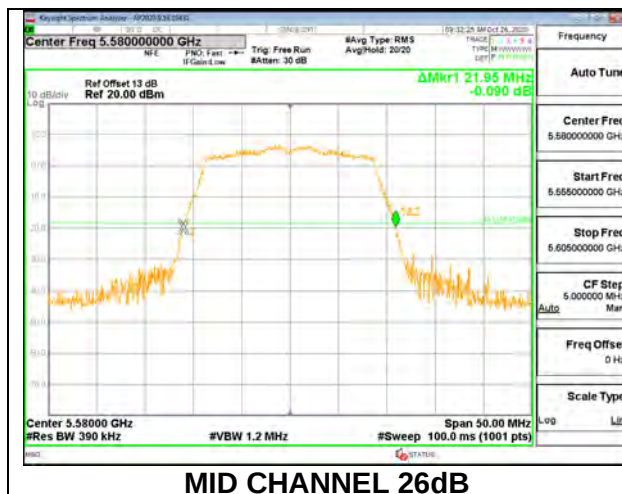
### 1TX Antenna 6 MODE

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5500               | 22.00                   | 17.7780                |
| Mid     | 5580               | 21.95                   | 17.7640                |
| High    | 5700               | 22.00                   | 17.7500                |
| 144     | 5720               | 21.90                   | 17.6820                |



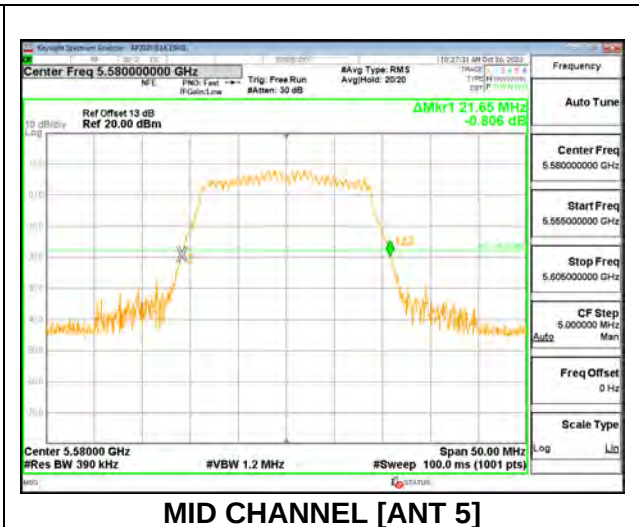
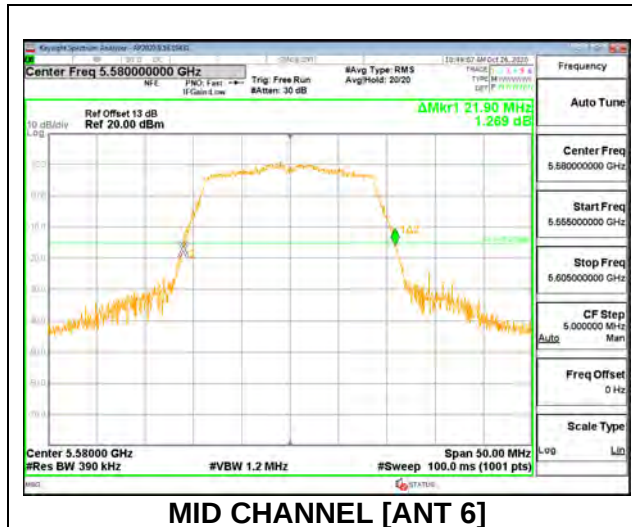
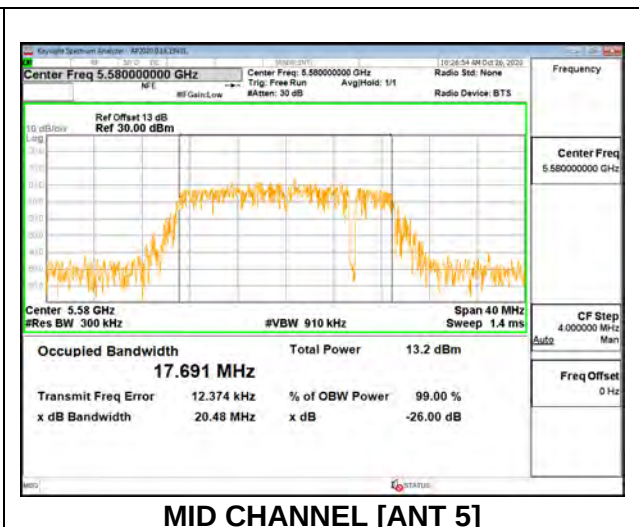
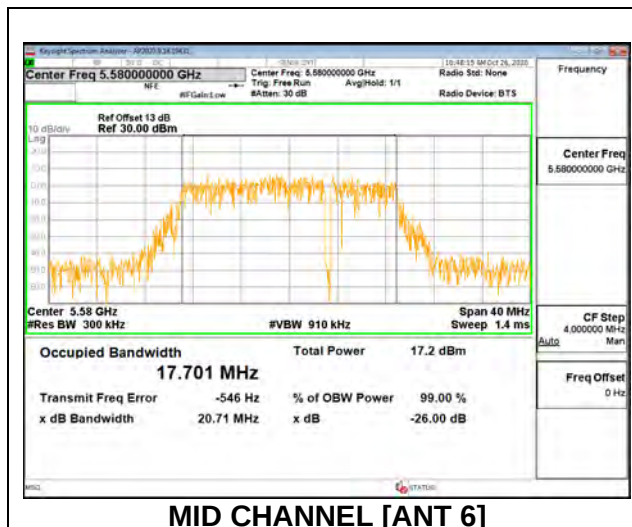
### 1TX Antenna 5 MODE

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5500               | 21.70                   | 17.6180                |
| Mid     | 5580               | 21.95                   | 17.6190                |
| High    | 5700               | 21.90                   | 17.6780                |
| 144     | 5720               | 21.70                   | 17.6830                |



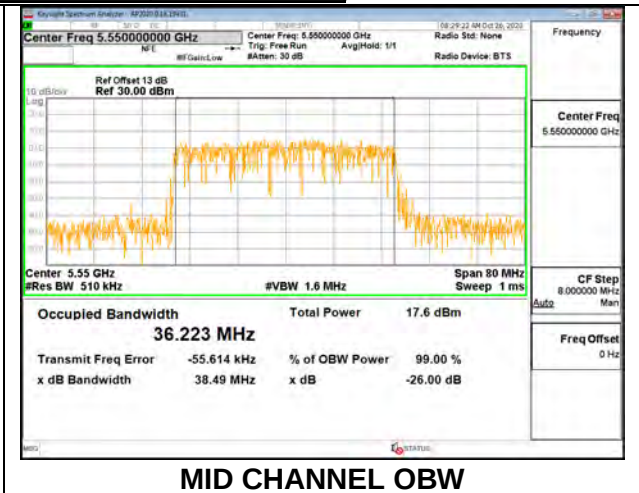
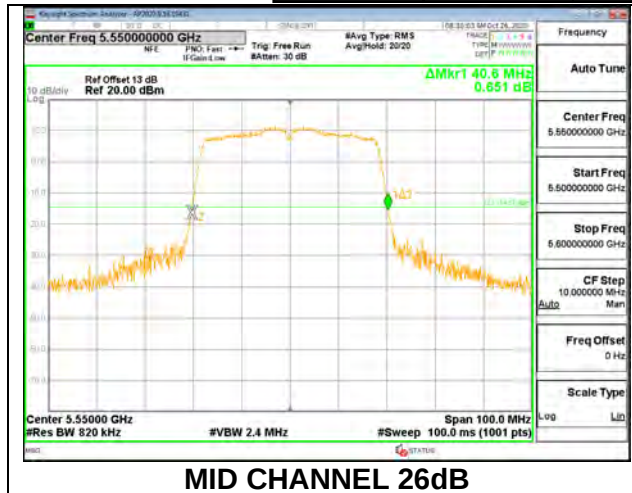
**2TX Antenna 6 + Antenna 5 CDD MODE**

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>Antenna 6<br>(MHz) | 26dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|--------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5500               | 21.75                                | 21.55                                | 17.7350                             | 17.7100                             |
| Mid     | 5580               | 21.90                                | 21.65                                | 17.7010                             | 17.6910                             |
| High    | 5700               | 21.95                                | 21.70                                | 17.6030                             | 17.7120                             |
| 144     | 5720               | 21.80                                | 21.65                                | 17.7160                             | 17.7070                             |

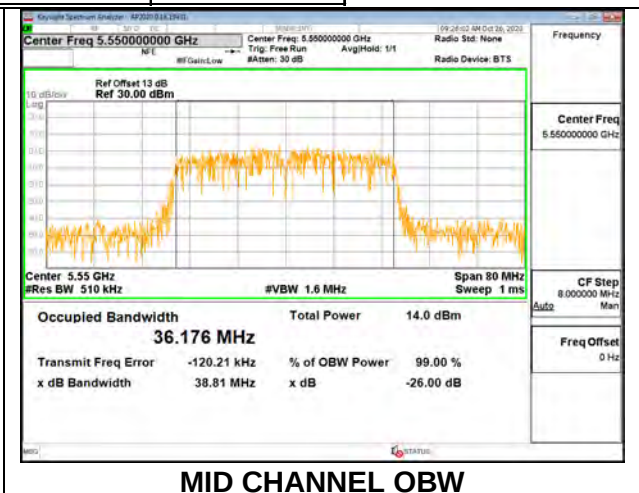
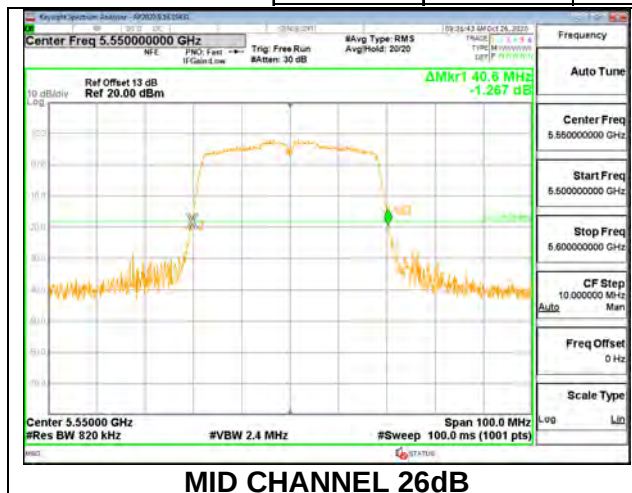
**MID CHANNEL 26dB****MID CHANNEL OBW**

**9.2.14. 802.11n HT40 MODE IN THE 5.6 GHz BAND****1TX Antenna 6 MODE**

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5510               | 40.70                   | 36.1100                |
| Mid     | 5550               | 40.60                   | 36.2230                |
| High    | 5670               | 40.80                   | 36.4030                |
| 142     | 5710               | 40.50                   | 36.1640                |

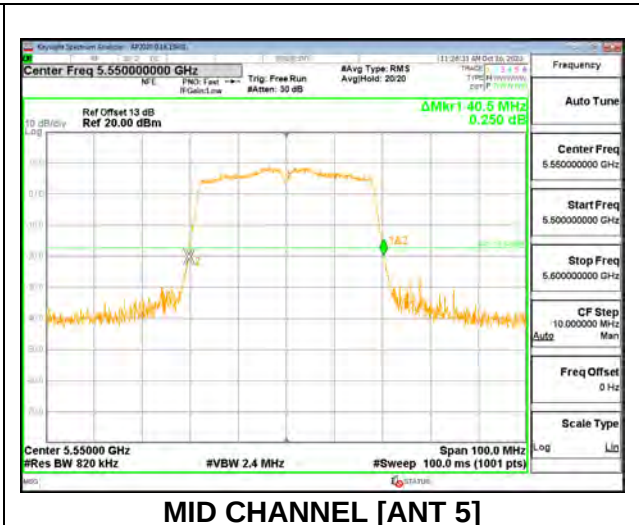
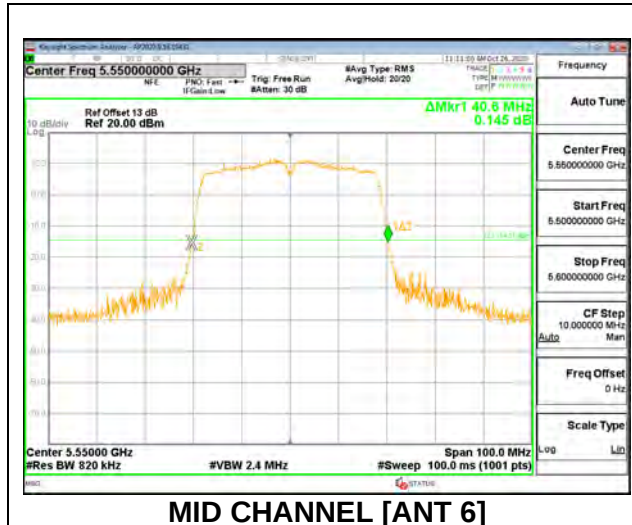
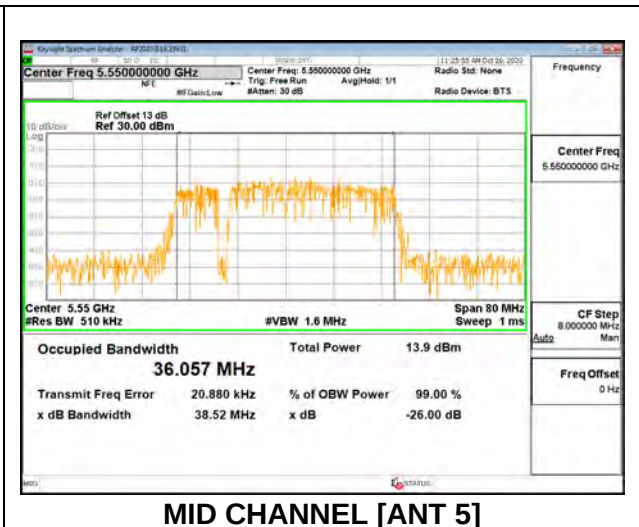
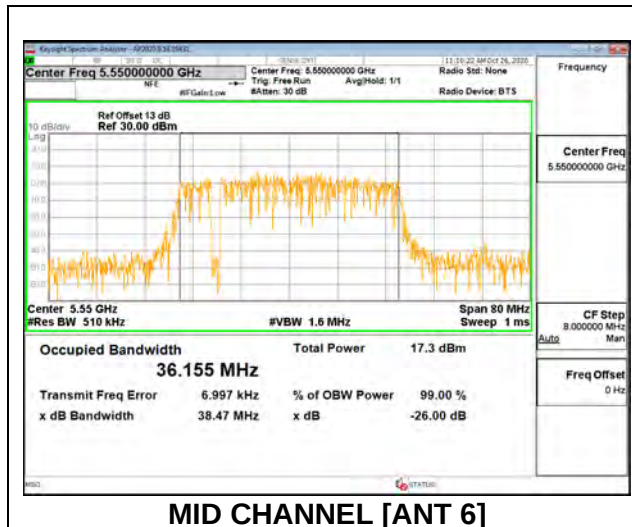
**1TX Antenna 5 MODE**

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5510               | 40.80                   | 35.9850                |
| Mid     | 5550               | 40.60                   | 36.1760                |
| High    | 5670               | 40.90                   | 36.0820                |
| 142     | 5710               | 40.60                   | 36.2030                |



**2TX Antenna 6 + Antenna 5 CDD MODE**

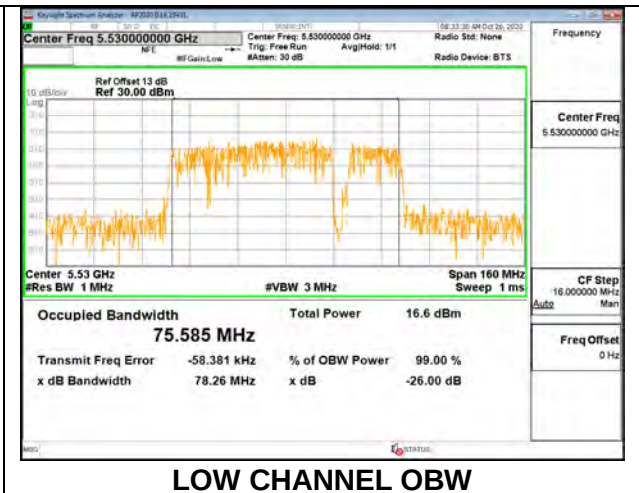
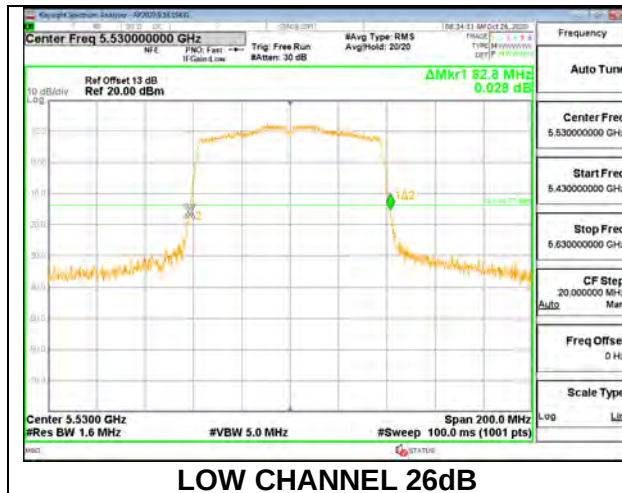
| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>Antenna 6<br>(MHz) | 26dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|--------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5510               | 40.70                                | 40.20                                | 36.1730                             | 36.0700                             |
| Mid     | 5550               | 40.60                                | 40.50                                | 36.1550                             | 36.0570                             |
| High    | 5670               | 40.70                                | 40.10                                | 35.9280                             | 36.0420                             |
| 142     | 5710               | 40.60                                | 40.40                                | 36.3730                             | 36.3060                             |

**MID CHANNEL 26dB****MID CHANNEL OBW**

## 9.2.15. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

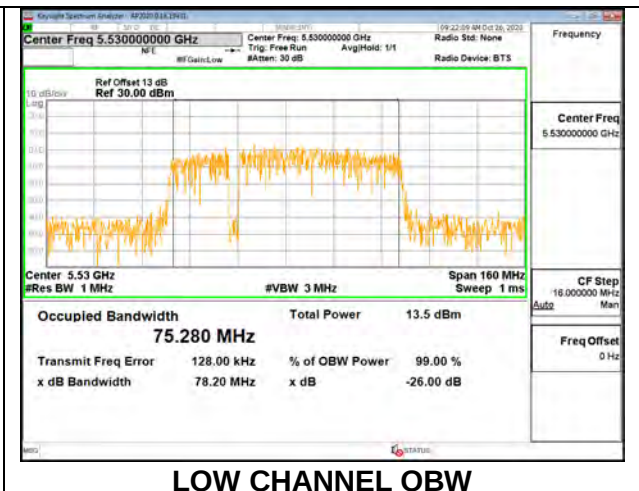
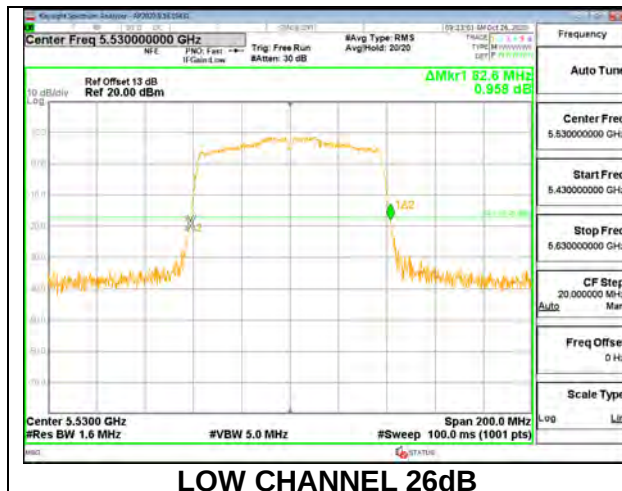
### 1TX Antenna 6 MODE

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5530               | 82.80                   | 75.5850                |
| High    | 5610               | 82.60                   | 75.1460                |
| 138     | 5690               | 82.80                   | 74.8030                |



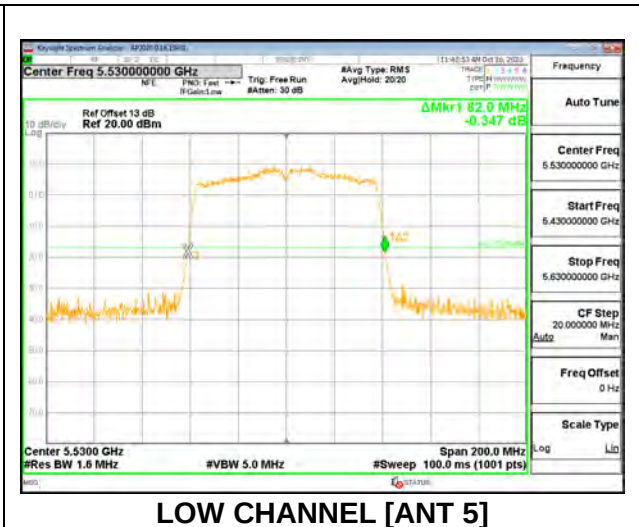
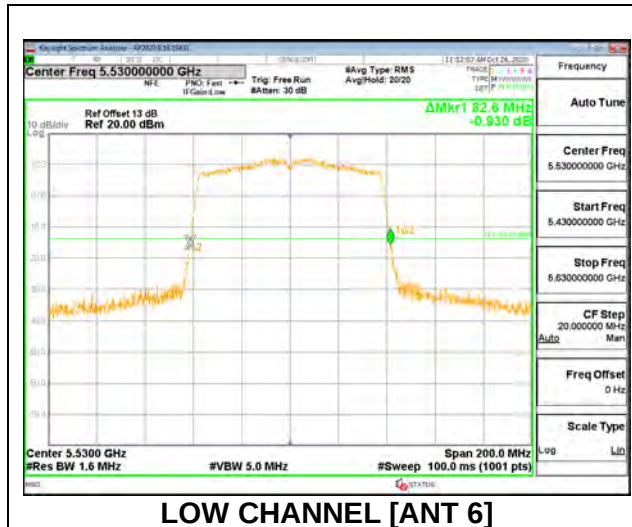
### 1TX Antenna 5 MODE

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 5530               | 82.60                   | 75.2800                |
| High    | 5610               | 82.80                   | 75.5420                |
| 138     | 5690               | 82.60                   | 75.5520                |



**2TX Antenna 6 + Antenna 5 CDD MODE**

| Channel | Frequency<br>(MHz) | 26dB Bandwidth<br>Antenna 6<br>(MHz) | 26dB Bandwidth<br>Antenna 5<br>(MHz) | 99% Bandwidth<br>Antenna 6<br>(MHz) | 99% Bandwidth<br>Antenna 5<br>(MHz) |
|---------|--------------------|--------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| Low     | 5530               | 82.60                                | 82.00                                | 75.2250                             | 75.6770                             |
| High    | 5610               | 82.60                                | 82.40                                | 75.6780                             | 75.0000                             |
| 138     | 5690               | 82.80                                | 82.40                                | 75.7610                             | 75.4730                             |

**LOW CHANNEL 26dB****LOW CHANNEL OBW**