



# FCC RADIO TEST REPORT

**FCC ID** : UIDW21  
**Equipment** : Wireless Router  
**Brand Name** : ARRIS  
**Model Name** : W21  
**Applicant** : ARRIS  
3871 Lakefield Drive Suite 300, Suwanee, Georgia,  
30024 United States  
**Manufacturer** : ARRIS  
3871 Lakefield Drive Suite 300, Suwanee, Georgia,  
30024 United States  
**Standard** : 47 CFR FCC Part 15.407

The product was received on Sep. 14, 2019, and testing was started from Sep. 14, 2019 and completed on Feb. 26, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

  
Approved by: Cliff Chang

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**  
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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TEL : 886-3-656-9065  
FAX : 886-3-656-9085  
Report Template No.: CB-A12\_1 Ver1.0



## Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items                     | Result (PASS/FAIL) | Remark |
|---------------|-----------------|--------------------------------|--------------------|--------|
| 1.1.2         | 15.203          | Antenna Requirement            | PASS               | -      |
| 3.1           | 15.407(a)       | Emission Bandwidth             | PASS               | -      |
| 3.2           | 15.407(a)       | Maximum Conducted Output Power | PASS               | -      |
| 3.3           | 15.407(a)       | Peak Power Spectral Density    | PASS               | -      |
| 3.4           | 15.407(b)       | Unwanted Emissions             | PASS               | -      |

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

**Reviewed by: Sam Chen**

**Report Producer: Cindy Peng**



# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

| Frequency Range (MHz) | IEEE Std. 802.11                       | Ch. Frequency (MHz) | Channel Number |
|-----------------------|----------------------------------------|---------------------|----------------|
| 5250-5350             | a, n (HT20), ac (VHT20),<br>ax (HEW20) | 5260-5320           | 52-64 [4]      |
| 5470-5725             |                                        | 5500-5720           | 100-144 [12]   |
| 5725-5850             |                                        | 5745-5825           | 149-165 [5]    |
| 5250-5350             | n (HT40), ac (VHT40),<br>ax (HEW40)    | 5270-5310           | 54-62 [2]      |
| 5470-5725             |                                        | 5510-5710           | 102-142 [6]    |
| 5725-5850             |                                        | 5755-5795           | 151-159 [2]    |
| 5250-5350             | ac (VHT80), ax (HEW80)                 | 5290                | 58 [1]         |
| 5470-5725             |                                        | 5530-5690           | 106-138 [3]    |
| 5725-5850             |                                        | 5775                | 155 [1]        |
| 5470-5725             | ac (VHT160),<br>ax (HEW160)            | 5570                | 114 [1]        |

| Band          | Mode              | BWch (MHz) | Nant |
|---------------|-------------------|------------|------|
| 5.25-5.35GHz  | 802.11a           | 20         | 2TX  |
| 5.25-5.35GHz  | 802.11n HT20      | 20         | 2TX  |
| 5.25-5.35GHz  | 802.11ac VHT20    | 20         | 2TX  |
| 5.25-5.35GHz  | 802.11ax HEW20    | 20         | 2TX  |
| 5.25-5.35GHz  | 802.11n HT40      | 40         | 2TX  |
| 5.25-5.35GHz  | 802.11ac VHT40    | 40         | 2TX  |
| 5.25-5.35GHz  | 802.11ax HEW40    | 40         | 2TX  |
| 5.25-5.35GHz  | 802.11ac VHT80    | 80         | 2TX  |
| 5.25-5.35GHz  | 802.11ax HEW80    | 80         | 2TX  |
| 5.47-5.725GHz | 802.11a           | 20         | 4TX  |
| 5.47-5.725GHz | 802.11n HT20      | 20         | 4TX  |
| 5.47-5.725GHz | 802.11n HT20-BF   | 20         | 4TX  |
| 5.47-5.725GHz | 802.11ac VHT20    | 20         | 4TX  |
| 5.47-5.725GHz | 802.11ac VHT20-BF | 20         | 4TX  |
| 5.47-5.725GHz | 802.11ax HEW20    | 20         | 4TX  |
| 5.47-5.725GHz | 802.11ax HEW20-BF | 20         | 4TX  |
| 5.47-5.725GHz | 802.11n HT40      | 40         | 4TX  |
| 5.47-5.725GHz | 802.11n HT40-BF   | 40         | 4TX  |
| 5.47-5.725GHz | 802.11ac VHT40    | 40         | 4TX  |



| Band          | Mode               | BWch (MHz) | Nant |
|---------------|--------------------|------------|------|
| 5.47-5.725GHz | 802.11ac VHT40-BF  | 40         | 4TX  |
| 5.47-5.725GHz | 802.11ax HEW40     | 40         | 4TX  |
| 5.47-5.725GHz | 802.11ax HEW40-BF  | 40         | 4TX  |
| 5.47-5.725GHz | 802.11ac VHT80     | 80         | 4TX  |
| 5.47-5.725GHz | 802.11ac VHT80-BF  | 80         | 4TX  |
| 5.47-5.725GHz | 802.11ax HEW80     | 80         | 4TX  |
| 5.47-5.725GHz | 802.11ax HEW80-BF  | 80         | 4TX  |
| 5.47-5.725GHz | 802.11ac VHT160    | 160        | 4TX  |
| 5.47-5.725GHz | 802.11ac VHT160-BF | 160        | 4TX  |
| 5.47-5.725GHz | 802.11ax HEW160    | 160        | 4TX  |
| 5.47-5.725GHz | 802.11ax HEW160-BF | 160        | 4TX  |
| 5.725-5.85GHz | 802.11a            | 20         | 4TX  |
| 5.725-5.85GHz | 802.11n HT20       | 20         | 4TX  |
| 5.725-5.85GHz | 802.11n HT20-BF    | 20         | 4TX  |
| 5.725-5.85GHz | 802.11ac VHT20     | 20         | 4TX  |
| 5.725-5.85GHz | 802.11ac VHT20-BF  | 20         | 4TX  |
| 5.725-5.85GHz | 802.11ax HEW20     | 20         | 4TX  |
| 5.725-5.85GHz | 802.11ax HEW20-BF  | 20         | 4TX  |
| 5.725-5.85GHz | 802.11n HT40       | 40         | 4TX  |
| 5.725-5.85GHz | 802.11n HT40-BF    | 40         | 4TX  |
| 5.725-5.85GHz | 802.11ac VHT40     | 40         | 4TX  |
| 5.725-5.85GHz | 802.11ac VHT40-BF  | 40         | 4TX  |
| 5.725-5.85GHz | 802.11ax HEW40     | 40         | 4TX  |
| 5.725-5.85GHz | 802.11ax HEW40-BF  | 40         | 4TX  |
| 5.725-5.85GHz | 802.11ac VHT80     | 80         | 4TX  |
| 5.725-5.85GHz | 802.11ac VHT80-BF  | 80         | 4TX  |
| 5.725-5.85GHz | 802.11ax HEW80     | 80         | 4TX  |
| 5.725-5.85GHz | 802.11ax HEW80-BF  | 80         | 4TX  |

**Note:**

- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40 and VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation for 5GHz band 2, 4
- ♦ VHT20, VHT40, VHT80 and VHT160 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation for 5GHz band 3.
- ♦ HEW20, HEW40 and HEW80 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation for 5GHz band 2, 4.
- ♦ HEW20, HEW40, HEW80 and HEW160 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation for 5GHz band 3.
- ♦ BWch is the nominal channel bandwidth.
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.



## 1.1.2 Antenna Information

| Set | 2.4GHz Port | 5GHz Band 1~2 Port | 5GHz Band 3~4 Port | Brand Name | Model Name     | Type | Connector | Gain (dBi) |
|-----|-------------|--------------------|--------------------|------------|----------------|------|-----------|------------|
| 1   | 1           | -                  | -                  | WHAYU      | C1335-510379-A | PCB  | I-PEX     | Note 1     |
| 2   | 2           | -                  | -                  | WHAYU      | C1335-510382-A | PCB  | I-PEX     |            |
| 3   | -           | 1                  | -                  | WHAYU      | C1335-510380-A | PCB  | I-PEX     |            |
| 4   | -           | 2                  | -                  | WHAYU      | C1335-510383-A | PCB  | I-PEX     |            |
| 5   | -           | -                  | 4                  | WHAYU      | C1335-510381-A | PCB  | I-PEX     |            |
| 6   | -           | -                  | 3                  | WHAYU      | C1335-510384-A | PCB  | I-PEX     |            |
| 7   | -           | -                  | 2                  | WHAYU      | C1335-510385-A | PCB  | I-PEX     |            |
| 8   | -           | -                  | 1                  | WHAYU      | C1335-510386-A | PCB  | I-PEX     |            |

Note1:

| Set | Antenn Gain (dBi)      |               |               |
|-----|------------------------|---------------|---------------|
|     | 2.4GHz                 | 5GHz Band 1~2 | 5GHz Band 3~4 |
| 1   | 3.81                   | -             | -             |
| 2   | 3.59                   | -             | -             |
| 3   | -                      | 4.80          | -             |
| 4   | -                      | 4.03          | -             |
| 5   | -                      | -             | 5.28          |
| 6   | -                      | -             | 3.47          |
| 7   | -                      | -             | 4.74          |
| 8   | -                      | -             | 4.21          |
| Set | Directional Gain (dBi) |               |               |
|     | 2.4GHz                 | 5GHz Band 1~2 | 5GHz Band 3~4 |
| 1   | 4.73                   | -             | -             |
| 2   | 4.73                   | -             | -             |
| 3   | -                      | 6.04          | -             |
| 4   | -                      | 6.04          | -             |
| 5   | -                      | -             | 7.95          |
| 6   | -                      | -             | 7.95          |
| 7   | -                      | -             | 7.95          |
| 8   | -                      | -             | 7.95          |

Note2: The above information was declared by manufacturer.

Note3: The EUT has eight set antennas.

The EUT has two radios, Radio 1 supports WLAN 2.4GHz (802.11b/g/n/ac/ax mode) and WLAN 5GHz band 1~2 (802.11a/n/ac/ax mode), Radio 2 supports WLAN 5GHz band 3~4 (802.11a/n/ac/ax mode).

**For Radio 1 (2.4GHz and 5GHz band 1~2)****For 2TX/2RX:**

Port 1 and Port 2 can be use as transmitting/receiving antenna

Port 1 and Port 2 could receive simultaneously.

**For Radio 2 (5GHz band 3~4)****For 4TX/4RX:**

Port 1, Port 2, Port 3 and Port 4 can be use as transmitting/receiving antenna

Port 1, Port 2, Port 3 and Port 4 could receive simultaneously.



## 1.1.3 Mode Test Duty Cycle

| Mode               | DC    | DCF(dB) | T(s)                 | VBW(Hz) $\geq 1/T$   |
|--------------------|-------|---------|----------------------|----------------------|
| 802.11a            | 0.953 | 0.21    | 2.068m               | 1k                   |
| 802.11ac VHT20     | 0.986 | 0.06    | n/a (DC $\geq$ 0.98) | n/a (DC $\geq$ 0.98) |
| 802.11ac VHT20-BF  | 0.986 | 0.06    | n/a (DC $\geq$ 0.98) | n/a (DC $\geq$ 0.98) |
| 802.11ac VHT40     | 0.973 | 0.12    | 953.8u               | 3k                   |
| 802.11ac VHT40-BF  | 0.969 | 0.14    | 953.75u              | 3k                   |
| 802.11ac VHT80     | 0.943 | 0.25    | 462.333u             | 3k                   |
| 802.11ac VHT80-BF  | 0.943 | 0.25    | 460.625u             | 3k                   |
| 802.11ac VHT160    | 0.9   | 0.46    | 254.6u               | 10k                  |
| 802.11ac VHT160-BF | 0.899 | 0.46    | 252.5u               | 10k                  |
| 802.11ax HEW20     | 0.981 | 0.08    | n/a (DC $\geq$ 0.98) | n/a (DC $\geq$ 0.98) |
| 802.11ax HEW20-BF  | 0.982 | 0.08    | n/a (DC $\geq$ 0.98) | n/a (DC $\geq$ 0.98) |
| 802.11ax HEW40     | 0.964 | 0.16    | 773.75u              | 3k                   |
| 802.11ax HEW40-BF  | 0.961 | 0.17    | 773.75u              | 3k                   |
| 802.11ax HEW80     | 0.929 | 0.32    | 402.5u               | 3k                   |
| 802.11ax HEW80-BF  | 0.931 | 0.31    | 401.875u             | 3k                   |
| 802.11ax HEW160    | 0.887 | 0.52    | 234.333u             | 10k                  |
| 802.11ax HEW160-BF | 0.885 | 0.53    | 232.5u               | 10k                  |

Note:

- ♦ DC is Duty Cycle.
- ♦ DCF is Duty Cycle Factor.

## 1.1.4 EUT Operational Condition

|                       |                                                                                                                  |                   |                                     |                      |
|-----------------------|------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------|----------------------|
| EUT Power Type        | From power adapter                                                                                               |                   |                                     |                      |
| Beamforming Function  | <input checked="" type="checkbox"/>                                                                              | With beamforming  | <input type="checkbox"/>            | Without beamforming  |
|                       | The product has beamforming function for 802.11n/ac/ax in 5GHz band 3 and band 4 (5470-5725MHz and 5725-5850MHz) |                   |                                     |                      |
| Weather Band          | <input checked="" type="checkbox"/>                                                                              | With 5600~5650MHz | <input type="checkbox"/>            | Without 5600~5650MHz |
| Function              | <input type="checkbox"/>                                                                                         | Outdoor P2M       | <input checked="" type="checkbox"/> | Indoor P2M           |
|                       | <input type="checkbox"/>                                                                                         | Fixed P2P         | <input type="checkbox"/>            | Client               |
| TPC Function          | <input checked="" type="checkbox"/>                                                                              | With TPC          | <input type="checkbox"/>            | Without TPC          |
| Test Software Version | For non-beamforming function: MTool V3.1.0.1                                                                     |                   |                                     |                      |
|                       | For beamforming function: Telnet                                                                                 |                   |                                     |                      |

Note: The above information was declared by manufacturer.

**1.1.5 Table for Radio Information**

| Radio | Bandwidth                | Support Function                                                         |
|-------|--------------------------|--------------------------------------------------------------------------|
| 1     | 2.4GHz and 5GHz Band 1~2 | Master (AP Router and Extender)                                          |
| 2     | 5GHz Band 3~4            | Master (Extender) and Client without radar detection (Client and Bridge) |

**1.1.6 Table for Class II Change**

This product is an extension of original one reported under Sporton project number: FR932906AB

Below is the table for the change of the product with respect to the original one.

| Modifications                                                                                                                                                                                                                                                                                                                 | Performance Checking                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Adding the 5GHz band 2 and band 3 (5250~5350 MHz and 5470~5725 MHz), the detail please refer to the section 1.1.5.<br>2. Adding the 802.11ac 160MHz and 802.11ax 160MHz mode for 5GHz band 3 (5570MHz).<br>3. Adding the beamforming function for 802.11n/ac/ax in 5GHz band 3 and band 4 (5470~5725MHz and 5725~5850MHz). | 1. Emission Bandwidth.<br>2. Maximum Conducted Output Power.<br>3. Peak Power Spectral Density.<br>4. Unwanted Emissions Above 1GHz.                                                  |
| 4. Changing the shielded case of Radio 2.                                                                                                                                                                                                                                                                                     | 1. Maximum Conducted Output Power.<br>2. Unwanted Emissions Above 1GHz.<br>Above test items testing 802.11ax HEW20 5745 MHz only and it is max power channel of original test report. |



## 1.2 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 789033 D02 v02r01
- ♦ FCC KDB 662911 D01 v02r01
- ♦ FCC KDB 412172 D01 v01r01

## 1.3 Testing Location Information

| Testing Location                    |        |                                                                                                                               |
|-------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | HWA YA | ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)<br>TEL : 886-3-327-3456 FAX : 886-3-327-0973        |
| <input checked="" type="checkbox"/> | JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.<br>TEL : 886-3-656-9065 FAX : 886-3-656-9085 |

| Test Condition | Test Site No. | Test Engineer | Test Environment     | Test Date                                   |
|----------------|---------------|---------------|----------------------|---------------------------------------------|
| RF Conducted   | TH01-CB       | Ekko Hsieh    | 24.8~25.5°C / 64~66% | Sep. 18, 2019~Feb. 25, 2020                 |
| Radiated       | 03CH05-CB     | Justin Lin    | 24.4~25.7°C / 58~63% | Sep. 14, 2019~Jan. 15, 2020 / Feb. 26, 2020 |

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

## 1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

| Test Items                           | Uncertainty | Remark                   |
|--------------------------------------|-------------|--------------------------|
| Radiated Emission (30MHz ~ 1,000MHz) | 4.3 dB      | Confidence levels of 95% |
| Radiated Emission (1GHz ~ 18GHz)     | 4.3 dB      | Confidence levels of 95% |
| Radiated Emission (18GHz ~ 40GHz)    | 5.1 dB      | Confidence levels of 95% |
| Conducted Emission                   | 2.4 dB      | Confidence levels of 95% |
| Output Power Measurement             | 1.5 dB      | Confidence levels of 95% |
| Power Density Measurement            | 2.4 dB      | Confidence levels of 95% |
| Bandwidth Measurement                | 2%          | Confidence levels of 95% |



## 2 Test Configuration of EUT

### 2.1 Test Channel Mode

For non-beamforming function:

| Mode                           | Power Setting |
|--------------------------------|---------------|
| 802.11a_Nss1,(6Mbps)_2TX       | -             |
| 5260MHz                        | 80            |
| 5300MHz                        | 80            |
| 5320MHz                        | 82            |
| 802.11a_Nss1,(6Mbps)_4TX       | -             |
| 5500MHz                        | 62            |
| 5580MHz                        | 59            |
| 5700MHz                        | 55            |
| 5720MHz Straddle 5.47-5.725GHz | 56            |
| 5720MHz Straddle 5.725-5.85GHz | 56            |
| 802.11ac VHT20_Nss1,(MCS0)_2TX | -             |
| 5260MHz                        | 80            |
| 5300MHz                        | 80            |
| 5320MHz                        | 82            |
| 802.11ac VHT20_Nss1,(MCS0)_4TX | -             |
| 5500MHz                        | 65            |
| 5580MHz                        | 62            |
| 5700MHz                        | 59            |
| 5720MHz Straddle 5.47-5.725GHz | 60            |
| 5720MHz Straddle 5.725-5.85GHz | 60            |
| 802.11ac VHT40_Nss1,(MCS0)_2TX | -             |
| 5270MHz                        | 81            |
| 5310MHz                        | 78            |
| 802.11ac VHT40_Nss1,(MCS0)_4TX | -             |
| 5510MHz                        | 70            |
| 5550MHz                        | 71            |
| 5670MHz                        | 69            |
| 5710MHz Straddle 5.47-5.725GHz | 71            |
| 5710MHz Straddle 5.725-5.85GHz | 71            |
| 802.11ac VHT80_Nss1,(MCS0)_2TX | -             |
| 5290MHz                        | 80            |
| 802.11ac VHT80_Nss1,(MCS0)_4TX | -             |



| Mode                            | Power Setting |
|---------------------------------|---------------|
| 5530MHz                         | 69            |
| 5610MHz                         | 70            |
| 5690MHz Straddle 5.47-5.725GHz  | 71            |
| 5690MHz Straddle 5.725-5.85GHz  | 71            |
| 802.11ac VHT160_Nss1,(MCS0)_4TX | -             |
| 5570MHz                         | 60            |
| 802.11ax HEW20_Nss1,(MCS0)_2TX  | -             |
| 5260MHz                         | 79            |
| 5300MHz                         | 79            |
| 5320MHz                         | 80            |
| 802.11ax HEW20_Nss1,(MCS0)_4TX  | -             |
| 5500MHz                         | 64            |
| 5580MHz                         | 61            |
| 5700MHz                         | 58            |
| 5745MHz                         | 98            |
| 5720MHz Straddle 5.47-5.725GHz  | 59            |
| 5720MHz Straddle 5.725-5.85GHz  | 59            |
| 802.11ax HEW40_Nss1,(MCS0)_2TX  | -             |
| 5270MHz                         | 80            |
| 5310MHz                         | 78            |
| 802.11ax HEW40_Nss1,(MCS0)_4TX  | -             |
| 5510MHz                         | 70            |
| 5550MHz                         | 70            |
| 5670MHz                         | 69            |
| 5710MHz Straddle 5.47-5.725GHz  | 70            |
| 5710MHz Straddle 5.725-5.85GHz  | 70            |
| 802.11ax HEW80_Nss1,(MCS0)_2TX  | -             |
| 5290MHz                         | 80            |
| 802.11ax HEW80_Nss1,(MCS0)_4TX  | -             |
| 5530MHz                         | 69            |
| 5610MHz                         | 69            |
| 5690MHz Straddle 5.47-5.725GHz  | 70            |
| 5690MHz Straddle 5.725-5.85GHz  | 70            |
| 802.11ax HEW160_Nss1,(MCS0)_4TX | -             |
| 5570MHz                         | 60            |



For beamforming function:

| Mode                               | Power Setting |
|------------------------------------|---------------|
| 802.11ac VHT20-BF_Nss1,(MCS0)_4TX  | -             |
| 5500MHz                            | 63            |
| 5580MHz                            | 62            |
| 5700MHz                            | 62            |
| 5720MHz Straddle 5.47-5.725GHz     | 62            |
| 5720MHz Straddle 5.725-5.85GHz     | 62            |
| 5745MHz                            | 87            |
| 5785MHz                            | 87            |
| 5825MHz                            | 88            |
| 802.11ac VHT40-BF_Nss1,(MCS0)_4TX  | -             |
| 5510MHz                            | 64            |
| 5550MHz                            | 64            |
| 5670MHz                            | 64            |
| 5710MHz Straddle 5.47-5.725GHz     | 65            |
| 5710MHz Straddle 5.725-5.85GHz     | 65            |
| 5755MHz                            | 88            |
| 5795MHz                            | 88            |
| 802.11ac VHT80-BF_Nss1,(MCS0)_4TX  | -             |
| 5530MHz                            | 64            |
| 5610MHz                            | 65            |
| 5690MHz Straddle 5.47-5.725GHz     | 64            |
| 5690MHz Straddle 5.725-5.85GHz     | 64            |
| 5775MHz                            | 86            |
| 802.11ac VHT160-BF_Nss1,(MCS0)_4TX | -             |
| 5570MHz                            | 65            |
| 802.11ax HEW20-BF_Nss1,(MCS0)_4TX  | -             |
| 5500MHz                            | 63            |
| 5580MHz                            | 62            |
| 5700MHz                            | 62            |
| 5720MHz Straddle 5.47-5.725GHz     | 62            |
| 5720MHz Straddle 5.725-5.85GHz     | 62            |
| 5745MHz                            | 87            |
| 5785MHz                            | 87            |
| 5825MHz                            | 88            |
| 802.11ax HEW40-BF_Nss1,(MCS0)_4TX  | -             |
| 5510MHz                            | 64            |



| Mode                               | Power Setting |
|------------------------------------|---------------|
| 5550MHz                            | 64            |
| 5670MHz                            | 64            |
| 5710MHz Straddle 5.47-5.725GHz     | 65            |
| 5710MHz Straddle 5.725-5.85GHz     | 65            |
| 5755MHz                            | 88            |
| 5795MHz                            | 88            |
| 802.11ax HEW80-BF_Nss1,(MCS0)_4TX  | -             |
| 5530MHz                            | 64            |
| 5610MHz                            | 65            |
| 5690MHz Straddle 5.47-5.725GHz     | 64            |
| 5690MHz Straddle 5.725-5.85GHz     | 64            |
| 5775MHz                            | 86            |
| 802.11ax HEW160-BF_Nss1,(MCS0)_4TX | -             |
| 5570MHz                            | 65            |

**Note:**

- ♦ VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.
- ♦ There are two modes of EUT for 802.11n/ac/ax in 5GHz band 3 and band 4. One is beamforming function, and the other is non-beamforming function. Both modes have been tested and recorded in this test report.



## 2.2 The Worst Case Measurement Configuration

| The Worst Case Mode for Following Conformance Tests |                                                                                     |
|-----------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Tests Item</b>                                   | Emission Bandwidth<br>Maximum Conducted Output Power<br>Peak Power Spectral Density |
| <b>Test Condition</b>                               | Conducted measurement at transmit chains                                            |

| The Worst Case Mode for Following Conformance Tests |                                                                                                                                                                                                                                                     |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tests Item</b>                                   | Unwanted Emissions                                                                                                                                                                                                                                  |
| <b>Test Condition</b>                               | Radiated measurement<br>If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type. |
| <b>Operating Mode &gt; 1GHz</b>                     | CTX                                                                                                                                                                                                                                                 |

| The Worst Case Mode for Following Conformance Tests                                   |                                                                         |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| <b>Tests Item</b>                                                                     | Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation |
| <b>Operating Mode</b>                                                                 |                                                                         |
| 1                                                                                     | WLAN 2.4GHz + WLAN 5GHz band 1~2 + WLAN 5GHz band 3~4                   |
| Refer to Sporton Test Report No.: FA932906-01 for Co-location RF Exposure Evaluation. |                                                                         |

Note: The EUT can only use Y axis position.

## 2.3 EUT Operation during Test

For non-beamforming function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

During the test, the following programs under WIN 7 were executed.

The program was executed as follows:

1. During the test, the EUT operation to normal function.
2. Executed command fixed test channel under Telnet.
3. Executed "Lantest.exe" to link with the remote workstation to transmit and receive packet by Client device and transmit duty cycle no less than 98%.



## 2.4 Accessories

| Accessories |                |            |            |           |                                                           |
|-------------|----------------|------------|------------|-----------|-----------------------------------------------------------|
| No.         | Equipment Name | Brand Name | Model Name | P/N       | Rating                                                    |
| 1           | Adapter        | APD        | WB-30C12FU | AREP05649 | INPUT: 100-240V~, 50-60Hz, 0.9A Max.<br>OUTPUT: 12V, 2.5A |

## 2.5 Support Equipment

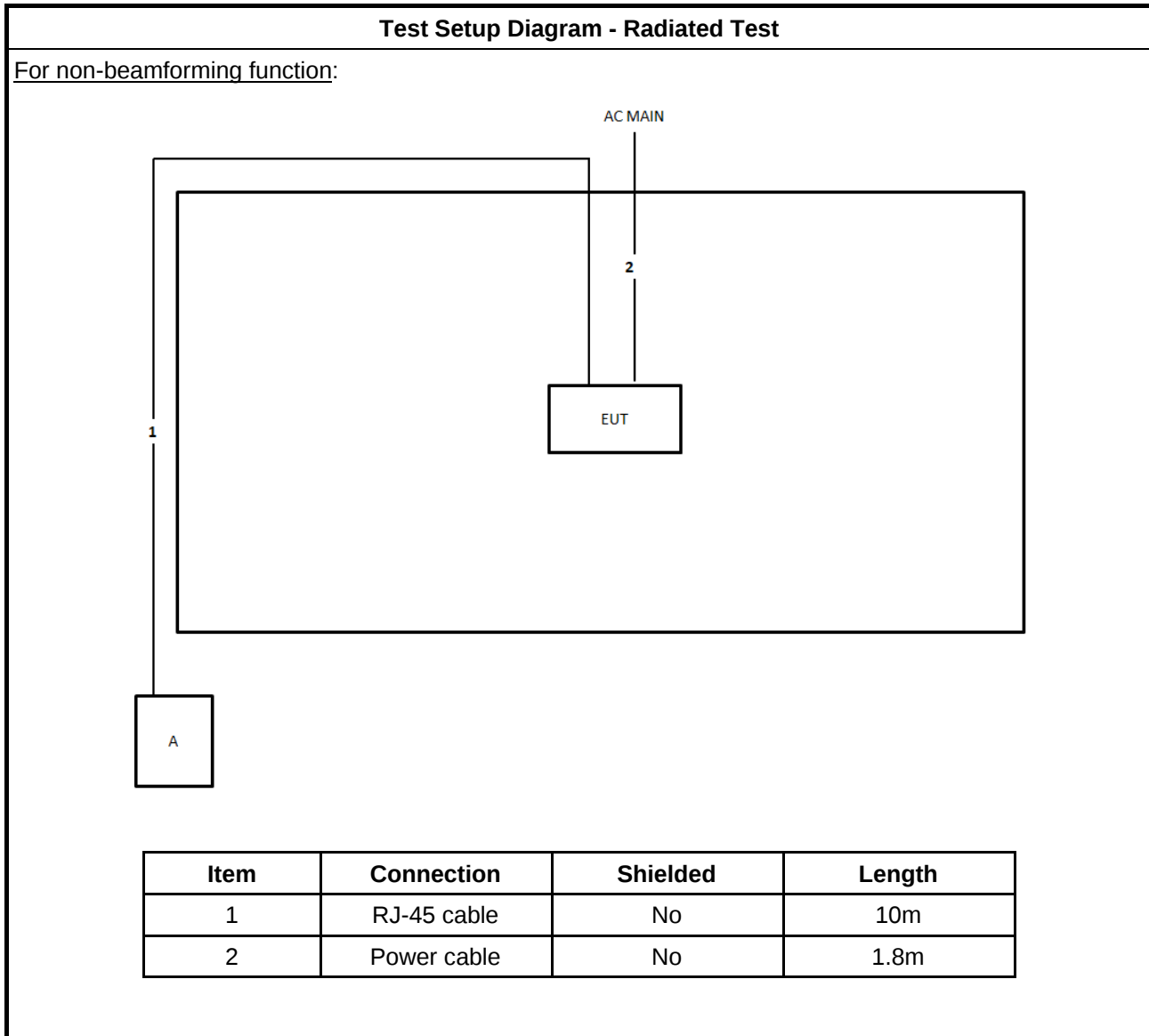
For non-beamforming function:

| Support Equipment |           |            |            |        |
|-------------------|-----------|------------|------------|--------|
| No.               | Equipment | Brand Name | Model Name | FCC ID |
| A                 | Notebook  | DELL       | E4300      | N/A    |

For beamforming function:

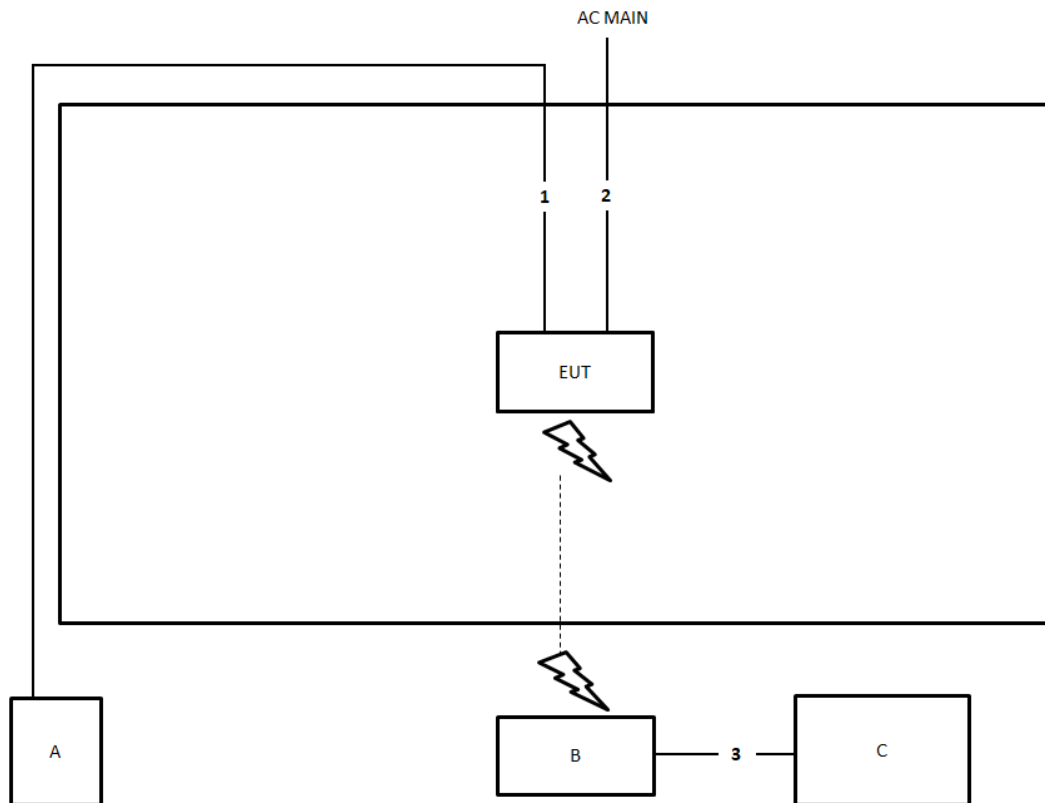
| Support Equipment |                                    |            |            |        |
|-------------------|------------------------------------|------------|------------|--------|
| No.               | Equipment                          | Brand Name | Model Name | FCC ID |
| A                 | Notebook                           | DELL       | E4300      | N/A    |
| B                 | Wireless Router<br>(Client device) | ARRIS      | W21        | UIDW21 |
| C                 | Notebook                           | DELL       | E4300      | N/A    |

## 2.6 Test Setup Diagram



**Test Setup Diagram - Radiated Test**

For beamforming function:



| Item | Connection  | Shielded | Length |
|------|-------------|----------|--------|
| 1    | RJ-45 cable | No       | 10m    |
| 2    | Power cable | No       | 1.8m   |
| 3    | RJ-45 cable | No       | 1.5m   |

### 3 Transmitter Test Result

#### 3.1 Emission Bandwidth

##### 3.1.1 Emission Bandwidth Limit

| Emission Bandwidth Limit            |                                                                                                                                                                                       |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UNII Devices</b>                 |                                                                                                                                                                                       |
| <input type="checkbox"/>            | For the 5.15-5.25 GHz band, N/A                                                                                                                                                       |
| <input checked="" type="checkbox"/> | For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.            |
| <input checked="" type="checkbox"/> | For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.           |
| <input checked="" type="checkbox"/> | For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq$ 500kHz.                                                                                                                   |
| <b>LE-LAN Devices</b>               |                                                                                                                                                                                       |
| <input type="checkbox"/>            | For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.                      |
| <input type="checkbox"/>            | For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz                        |
| <input type="checkbox"/>            | For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz |
| <input type="checkbox"/>            | For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq$ 500kHz.                                                                                                                   |

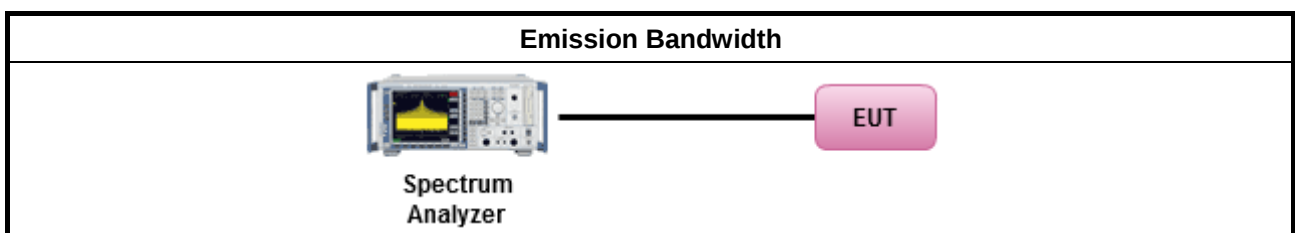
##### 3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

##### 3.1.3 Test Procedures

| Test Method                                                                                                                    |                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>For the emission bandwidth shall be measured using one of the options below:</li> </ul> |                                                                             |
| <input checked="" type="checkbox"/>                                                                                            | Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement. |
| <input type="checkbox"/>                                                                                                       | Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.          |
| <input type="checkbox"/>                                                                                                       | Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.                      |

##### 3.1.4 Test Setup





### **3.1.5 Test Result of Emission Bandwidth**

Refer as Appendix A



## 3.2 Maximum Conducted Output Power

### 3.2.1 Maximum Conducted Output Power Limit

| Maximum Conducted Output Power Limit                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UNII Devices</b>                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> For the 5.15-5.25 GHz band:                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/>                                                                                                                                                                                       | <ul style="list-style-type: none"><li>Outdoor AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>. e.i.r.p. at any elevation angle above 30 degrees <math>\leq 125</math>mW [21dBm]</li><li>Indoor AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math></li><li>Point-to-point AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 23</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 23)</math>.</li><li>Mobile or Portable Client: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 250 mW. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 24 - (G_{TX} - 6)</math>.</li></ul> |
| <input checked="" type="checkbox"/>                                                                                                                                                                            | For the 5.25-5.35 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$ .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <input checked="" type="checkbox"/>                                                                                                                                                                            | For the 5.47-5.725 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$ .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/>                                                                                                                                                                                       | <ul style="list-style-type: none"><li>Point-to-multipoint systems (P2M): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>.</li><li>Point-to-point systems (P2P): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>LE-LAN Devices</b>                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> For the 5.725-5.85 GHz band:                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/>                                                                                                                                                                                       | <ul style="list-style-type: none"><li>Point-to-multipoint systems (P2M): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>.</li><li>Point-to-point systems (P2P): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| $P_{Out}$ = maximum conducted output power in dBm,<br>$G_{TX}$ = the maximum transmitting antenna directional gain in dBi.                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### 3.2.2 Measuring Instruments

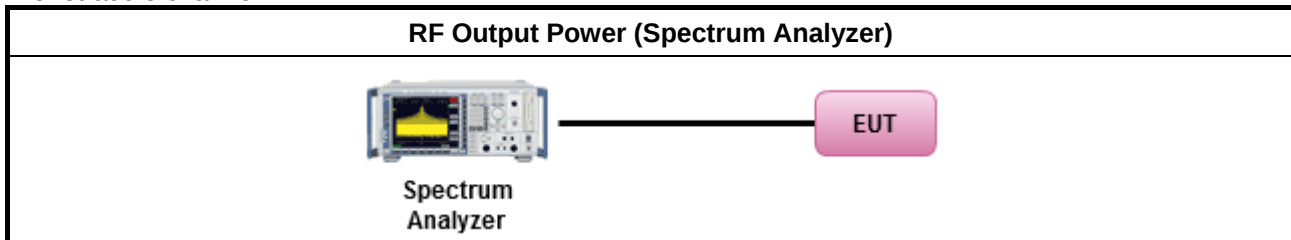
Refer a test equipment and calibration data table in this test report.

### 3.2.3 Test Procedures

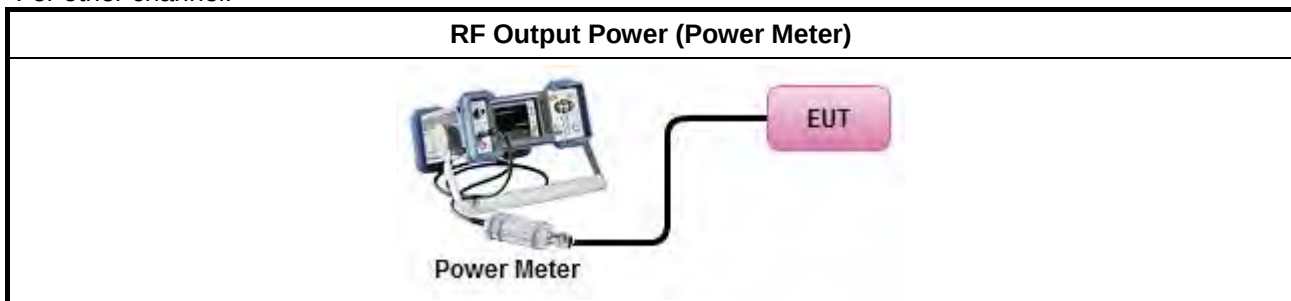
| Test Method                                                                                                                                                                                                                                                                                                                                                            |                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Maximum Conducted Output Power</li> </ul>                                                                                                                                                                                                                                                                                       |                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                        | Average over on/off periods with duty factor                                             |
| <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                    | Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).                |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed) |
|                                                                                                                                                                                                                                                                                                                                                                        | Wideband RF power meter and average over on/off periods with duty factor                 |
| <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                    | Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).         |
| <ul style="list-style-type: none"> <li>For conducted measurement.</li> </ul>                                                                                                                                                                                                                                                                                           |                                                                                          |
| <ul style="list-style-type: none"> <li>If the EUT supports multiple transmit chains using options given below:<br/>Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.</li> </ul> |                                                                                          |
| <ul style="list-style-type: none"> <li>If multiple transmit chains, EIRP calculation could be following as methods:<br/> <math>P_{total} = P_1 + P_2 + \dots + P_n</math><br/> (calculated in linear unit [mW] and transfer to log unit [dBm])<br/> <math>EIRP_{total} = P_{total} + DG</math> </li> </ul>                                                             |                                                                                          |

### 3.2.4 Test Setup

For straddle channel:



For other channel:



### 3.2.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B

### 3.3 Peak Power Spectral Density

#### 3.3.1 Peak Power Spectral Density Limit

| Peak Power Spectral Density Limit                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UNII Devices</b>                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/> For the 5.15-5.25 GHz band:                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 6)</math>.</li> <li>Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 6)</math>.</li> <li>Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 23</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 23)</math>.</li> <li>Mobile or Portable Client: the peak power spectral density (PPSD) <math>\leq 11</math> dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 11 - (G_{TX} - 6)</math>.</li> </ul> |
| <input checked="" type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$ .                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input checked="" type="checkbox"/> For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$ .                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 30 - (G_{TX} - 6)</math>.</li> <li>Point-to-point systems (P2P): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>LE-LAN Devices</b>                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/> For the 5.15-5.25 GHz band, the e.i.r.p. peak power spectral density (PPSD) $\leq 10$ dBm/MHz.                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz.                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where <math>\theta</math> is the angle above the local horizontal plane (of the Earth) as shown below:<br/> -13 dBW/MHz for <math>0^\circ \leq \theta &lt; 8^\circ</math> ; -13 - 0.716 (<math>\theta</math>-8) dBW/MHz for <math>8^\circ \leq \theta &lt; 40^\circ</math><br/> -35.9 - 1.22 (<math>\theta</math>-40) dBW/MHz for <math>40^\circ \leq \theta \leq 45^\circ</math> ; -42 dBW/MHz for <math>\theta &gt; 45^\circ</math></li> </ul>                                                                                                                                                                                                                           |
| <input type="checkbox"/> For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz.                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/> For the 5.725-5.85 GHz band:                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 30 - (G_{TX} - 6)</math>.</li> <li>Point-to-point systems (P2P): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>PPSD</b> = peak power spectral density that he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz<br><b>G<sub>TX</sub></b> = the maximum transmitting antenna directional gain in dBi. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

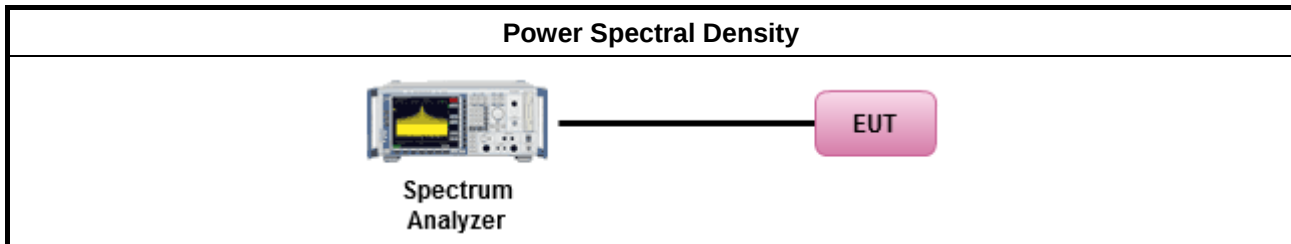
#### 3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

### 3.3.3 Test Procedures

| Test Method                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall be measured using below options:</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                        | Refer as FCC KDB 789033, F5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth<br>[duty cycle ≥ 98% or external video / power trigger]                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                             | Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                        | Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)<br>duty cycle < 98% and average over on/off periods with duty factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                             | Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                        | Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <ul style="list-style-type: none"> <li>For conducted measurement.</li> </ul>                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>If the EUT supports multiple transmit chains using options given below:</li> </ul>                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                             | Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace. |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                        | Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,                                                                                                                                                                                                         |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                        | Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.                                                                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>If multiple transmit chains, EIRP PPSD calculation could be following as methods:<br/> <math display="block">PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n</math>           (calculated in linear unit [mW] and transfer to log unit [dBm])<br/> <math display="block">EIRP_{total} = PPSD_{total} + DG</math> </li> </ul>                                                                                                                                                                                                                                                                                                        |

### 3.3.4 Test Setup



### 3.3.5 Test Result of Peak Power Spectral Density

Refer as Appendix C



### 3.4 Unwanted Emissions

#### 3.4.1 Transmitter Unwanted Emissions Limit

| Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit |                       |                         |                      |
|-------------------------------------------------------------------------------|-----------------------|-------------------------|----------------------|
| Frequency Range (MHz)                                                         | Field Strength (uV/m) | Field Strength (dBuV/m) | Measure Distance (m) |
| 0.009~0.490                                                                   | 2400/F(kHz)           | 48.5 - 13.8             | 300                  |
| 0.490~1.705                                                                   | 24000/F(kHz)          | 33.8 - 23               | 30                   |
| 1.705~30.0                                                                    | 30                    | 29                      | 30                   |
| 30~88                                                                         | 100                   | 40                      | 3                    |
| 88~216                                                                        | 150                   | 43.5                    | 3                    |
| 216~960                                                                       | 200                   | 46                      | 3                    |
| Above 960                                                                     | 500                   | 54                      | 3                    |

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

| Un-restricted band emissions above 1GHz Limit        |                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Band                                       | Limit                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <input type="checkbox"/> 5.15 - 5.25 GHz             | e.i.r.p. -27 dBm [68.2 dBuV/m@3m]                                                                                                                                                                                                                                                                                                                                                                                               |
| <input checked="" type="checkbox"/> 5.25 - 5.35 GHz  | e.i.r.p. -27 dBm [68.2 dBuV/m@3m]                                                                                                                                                                                                                                                                                                                                                                                               |
| <input checked="" type="checkbox"/> 5.47 - 5.725 GHz | e.i.r.p. -27 dBm [68.2 dBuV/m@3m]                                                                                                                                                                                                                                                                                                                                                                                               |
| <input checked="" type="checkbox"/> 5.725 - 5.85 GHz | all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. |

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of



linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

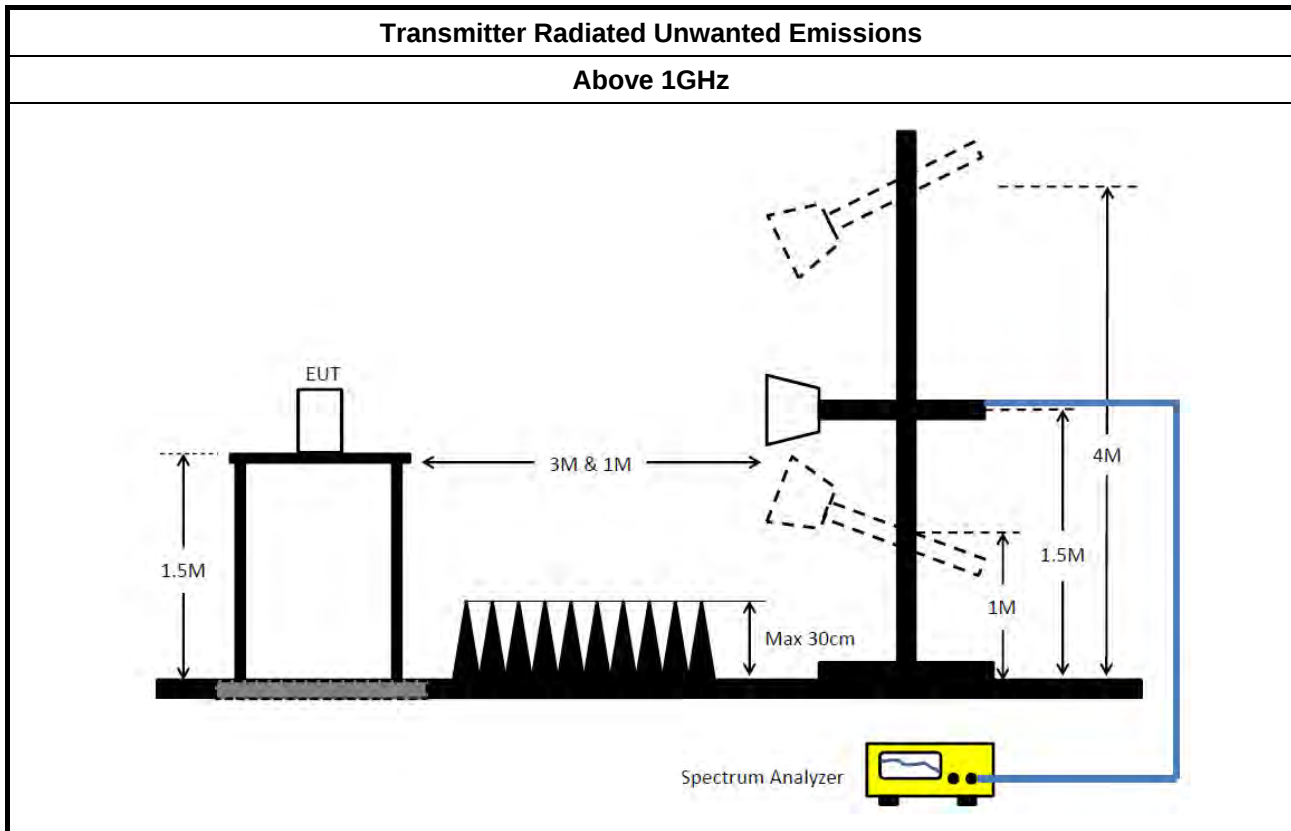
### 3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

### 3.4.3 Test Procedures

| Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).</li></ul> |                                                                                                                                                  |
| <ul style="list-style-type: none"><li>The average emission levels shall be measured in [duty cycle <math>\geq 98</math> or duty factor].</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                  |
| <ul style="list-style-type: none"><li>For the transmitter unwanted emissions shall be measured using following options below:</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>Refer as FCC KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.</li></ul>           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.</li></ul>               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input checked="" type="checkbox"/> Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq 1/T$ , where T is pulse time.                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause G)5) measurement procedure peak limit.                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>For radiated measurement.</li></ul>                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.</li></ul>    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.</li></ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.</li></ul>                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>The any unwanted emissions level shall not exceed the fundamental emission level.</li></ul>                |
| <ul style="list-style-type: none"><li>All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                  |

### 3.4.4 Test Setup



### 3.4.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

### 3.4.6 Test Result of Transmitter Unwanted Emissions

Refer as Appendix D



## 4 Test Equipment and Calibration Data

| Instrument        | Manufacturer | Model No.     | Serial No.      | Characteristics  | Calibration Date | Calibration Due Date | Remark                |
|-------------------|--------------|---------------|-----------------|------------------|------------------|----------------------|-----------------------|
| Spectrum analyzer | R&S          | FSV40         | 101027          | 9kHz~40GHz       | Jul. 02, 2019    | Jul. 01, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-06   | 1 GHz – 26.5 GHz | Oct. 08, 2018    | Oct. 07, 2019        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-06   | 1 GHz – 26.5 GHz | Oct. 07, 2019    | Oct. 06, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-07   | 1 GHz – 26.5 GHz | Oct. 08, 2018    | Oct. 07, 2019        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-07   | 1 GHz – 26.5 GHz | Oct. 07, 2019    | Oct. 06, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-08   | 1 GHz – 26.5 GHz | Oct. 08, 2018    | Oct. 07, 2019        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-08   | 1 GHz – 26.5 GHz | Oct. 07, 2019    | Oct. 06, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-09   | 1 GHz – 26.5 GHz | Oct. 08, 2018    | Oct. 07, 2019        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-09   | 1 GHz – 26.5 GHz | Oct. 07, 2019    | Oct. 06, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-10   | 1 GHz – 26.5 GHz | Oct. 08, 2018    | Oct. 07, 2019        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-10   | 1 GHz – 26.5 GHz | Oct. 07, 2019    | Oct. 06, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-28   | 1 GHz – 26.5 GHz | Nov. 19, 2018    | Nov. 18, 2019        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402         | High Cable-28   | 1 GHz – 26.5 GHz | Nov. 18, 2019    | Nov. 17, 2020        | Conducted (TH01-CB)   |
| Power Sensor      | Anritsu      | MA2411B       | 1126203         | 300MHz~40GHz     | Sep. 11, 2019    | Sep. 10, 2020        | Conducted (TH01-CB)   |
| Power Meter       | Anritsu      | ML2495A       | 1210004         | 300MHz~40GHz     | Sep. 11, 2019    | Sep. 10, 2020        | Conducted (TH01-CB)   |
| Horn Antenna      | SCHWARZBECK  | BBHA9120D     | BBHA 9120D-1291 | 1GHz~18GHz       | Oct. 12, 2018    | Oct. 11, 2019        | Radiation (03CH05-CB) |
| Horn Antenna      | SCHWARZBECK  | BBHA9120D     | BBHA 9120D-1291 | 1GHz~18GHz       | Oct. 05, 2019    | Oct. 04, 2020        | Radiation (03CH05-CB) |
| Horn Antenna      | SCHWARZBECK  | BBHA 9170     | BBHA9170507     | 15GHz ~ 40GHz    | Jun. 12, 2019    | Jun. 11, 2020        | Radiation (03CH05-CB) |
| Pre-Amplifier     | EMCI         | EMC330N       | 980331          | 20MHz ~ 3GHz     | May 01, 2019     | Apr. 30, 2020        | Radiation (03CH05-CB) |
| Pre-Amplifier     | EMCI         | EMC12630SE    | 980287          | 1GHz – 26.5GHz   | Apr. 16, 2019    | Apr. 15, 2020        | Radiation (03CH05-CB) |
| Pre-Amplifier     | MITEQ        | TTA1840-35-HG | 1864479         | 18GHz ~ 40GHz    | Jul. 03, 2019    | Jul. 02, 2020        | Radiation (03CH05-CB) |



| Instrument        | Manufacturer | Model No. | Serial No.       | Characteristics | Calibration Date | Calibration Due Date | Remark                |
|-------------------|--------------|-----------|------------------|-----------------|------------------|----------------------|-----------------------|
| Spectrum Analyzer | R&S          | FSP40     | 100304           | 9kHz ~ 40GHz    | Aug. 15, 2019    | Aug. 14, 2020        | Radiation (03CH05-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-04    | 1GHz~18GHz      | Oct. 08, 2018    | Oct. 07, 2019        | Radiation (03CH05-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-28    | 1GHz~18GHz      | Oct. 07, 2019    | Oct. 06, 2020        | Radiation (03CH05-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-04+23 | 1GHz~18GHz      | Oct. 08, 2018    | Oct. 07, 2019        | Radiation (03CH05-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-04+28 | 1GHz~18GHz      | Oct. 07, 2019    | Oct. 06, 2020        | Radiation (03CH05-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-40G#1 | 18GHz ~ 40 GHz  | Jul. 24, 2019    | Jul. 23, 2020        | Radiation (03CH05-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-40G#2 | 18GHz ~ 40 GHz  | Jul. 24, 2019    | Jul. 23, 2020        | Radiation (03CH05-CB) |

Note: Calibration Interval of instruments listed above is one year.

For non-beamforming function:

### Summary

| Mode                            | Max-N dB<br>(Hz) | Max-OBW<br>(Hz) | ITU-Code | Min-N dB<br>(Hz) | Min-OBW<br>(Hz) |
|---------------------------------|------------------|-----------------|----------|------------------|-----------------|
| 5.25-5.35GHz                    | -                | -               | -        | -                | -               |
| 802.11a_Nss1,(6Mbps)_2TX        | 21.81M           | 16.614M         | 16M6D1D  | 21.36M           | 16.551M         |
| 802.11ac VHT20_Nss1,(MCS0)_2TX  | 21.81M           | 17.759M         | 17M8D1D  | 21.6M            | 17.726M         |
| 802.11ac VHT40_Nss1,(MCS0)_2TX  | 40.32M           | 36.309M         | 36M3D1D  | 39.78M           | 36.169M         |
| 802.11ac VHT80_Nss1,(MCS0)_2TX  | 81.96M           | 75.886M         | 75M9D1D  | 81.24M           | 75.765M         |
| 802.11ax HEW20_Nss1,(MCS0)_2TX  | 21.72M           | 19.01M          | 19M0D1D  | 21.45M           | 18.948M         |
| 802.11ax HEW40_Nss1,(MCS0)_2TX  | 40.02M           | 37.552M         | 37M6D1D  | 39.66M           | 37.456M         |
| 802.11ax HEW80_Nss1,(MCS0)_2TX  | 81.96M           | 77.214M         | 77M2D1D  | 81.24M           | 76.846M         |
| 5.47-5.725GHz                   | -                | -               | -        | -                | -               |
| 802.11a_Nss1,(6Mbps)_4TX        | 21.72M           | 16.7M           | 16M7D1D  | 13.86M           | 10.831M         |
| 802.11ac VHT20_Nss1,(MCS0)_4TX  | 21.66M           | 17.797M         | 17M8D1D  | 15.33M           | 13.87M          |
| 802.11ac VHT40_Nss1,(MCS0)_4TX  | 40.14M           | 36.361M         | 36M4D1D  | 34.65M           | 32.812M         |
| 802.11ac VHT80_Nss1,(MCS0)_4TX  | 81.6M            | 75.931M         | 75M9D1D  | 75.3M            | 72.144M         |
| 802.11ac VHT160_Nss1,(MCS0)_4TX | 163.92M          | 154.3M          | 154MD1D  | 162.72M          | 153.318M        |
| 802.11ax HEW20_Nss1,(MCS0)_4TX  | 21.69M           | 19.016M         | 19M0D1D  | 15.465M          | 14.399M         |
| 802.11ax HEW40_Nss1,(MCS0)_4TX  | 40.08M           | 37.615M         | 37M6D1D  | 34.86M           | 33.003M         |
| 802.11ax HEW80_Nss1,(MCS0)_4TX  | 82.08M           | 77.24M          | 77M2D1D  | 75.375M          | 72.545M         |
| 802.11ax HEW160_Nss1,(MCS0)_4TX | 164.64M          | 155.212M        | 155MD1D  | 162.72M          | 154.571M        |
| 5.725-5.85GHz                   | -                | -               | -        | -                | -               |
| 802.11a_Nss1,(6Mbps)_4TX        | 3.22M            | 3.927M          | 3M93D1D  | 2.84M            | 3.583M          |
| 802.11ac VHT20_Nss1,(MCS0)_4TX  | 3.84M            | 4.291M          | 4M29D1D  | 3.48M            | 4.153M          |
| 802.11ac VHT40_Nss1,(MCS0)_4TX  | 3.2M             | 3.667M          | 3M67D1D  | 3.12M            | 3.453M          |
| 802.11ac VHT80_Nss1,(MCS0)_4TX  | 3.22M            | 3.684M          | 3M68D1D  | 2.34M            | 3.506M          |
| 802.11ax HEW20_Nss1,(MCS0)_4TX  | 4.5M             | 4.526M          | 4M53D1D  | 4.14M            | 4.472M          |
| 802.11ax HEW40_Nss1,(MCS0)_4TX  | 3.84M            | 4.028M          | 4M03D1D  | 2.74M            | 3.982M          |
| 802.11ax HEW80_Nss1,(MCS0)_4TX  | 3.78M            | 4.045M          | 4M05D1D  | 2.72M            | 4.014M          |

**Max-N dB** = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

**Max-OBW** = Maximum 99% occupied bandwidth;

**Min-N dB** = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

**Min-OBW** = Minimum 99% occupied bandwidth;

**Result**

| Mode                            | Result | Limit<br>(Hz) | Port 1-N dB<br>(Hz) | Port 1-OBW<br>(Hz) | Port 2-N dB<br>(Hz) | Port 2-OBW<br>(Hz) | Port 3-N dB<br>(Hz) | Port 3-OBW<br>(Hz) | Port 4-N dB<br>(Hz) | Port 4-OBW<br>(Hz) |
|---------------------------------|--------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 802.11a_Nss1,(6Mbps)_2TX        | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5260MHz                         | Pass   | Inf           | 21.45M              | 16.559M            | 21.66M              | 16.551M            |                     |                    |                     |                    |
| 5300MHz                         | Pass   | Inf           | 21.63M              | 16.586M            | 21.78M              | 16.571M            |                     |                    |                     |                    |
| 5320MHz                         | Pass   | Inf           | 21.36M              | 16.614M            | 21.81M              | 16.573M            |                     |                    |                     |                    |
| 802.11a_Nss1,(6Mbps)_4TX        | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5500MHz                         | Pass   | Inf           | 21.3M               | 16.546M            | 21.72M              | 16.615M            | 21.54M              | 16.602M            | 21.39M              | 16.632M            |
| 5580MHz                         | Pass   | Inf           | 20.79M              | 16.448M            | 21.6M               | 16.7M              | 21.57M              | 16.574M            | 21.45M              | 16.558M            |
| 5700MHz                         | Pass   | Inf           | 21.12M              | 16.36M             | 21.54M              | 16.534M            | 20.61M              | 15.671M            | 21.27M              | 16.505M            |
| 5720MHz Straddle 5.47-5.725GHz  | Pass   | Inf           | 15.465M             | 13.464M            | 15.645M             | 13.23M             | 13.86M              | 10.831M            | 15.66M              | 13.288M            |
| 5720MHz Straddle 5.725-5.85GHz  | Pass   | 500k          | 2.84M               | 3.583M             | 3.16M               | 3.927M             | 3.1M                | 3.645M             | 3.22M               | 3.875M             |
| 802.11ac VHT20_Nss1,(MCS0)_2TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5260MHz                         | Pass   | Inf           | 21.72M              | 17.739M            | 21.78M              | 17.759M            |                     |                    |                     |                    |
| 5300MHz                         | Pass   | Inf           | 21.75M              | 17.75M             | 21.6M               | 17.726M            |                     |                    |                     |                    |
| 5320MHz                         | Pass   | Inf           | 21.78M              | 17.748M            | 21.81M              | 17.759M            |                     |                    |                     |                    |
| 802.11ac VHT20_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5500MHz                         | Pass   | Inf           | 21.54M              | 17.779M            | 21.42M              | 17.759M            | 21.42M              | 17.704M            | 21.66M              | 17.797M            |
| 5580MHz                         | Pass   | Inf           | 21.51M              | 17.697M            | 21.45M              | 17.757M            | 21.36M              | 17.667M            | 21.6M               | 17.787M            |
| 5700MHz                         | Pass   | Inf           | 21.48M              | 17.757M            | 21.36M              | 17.754M            | 21.24M              | 17.592M            | 21.54M              | 17.735M            |
| 5720MHz Straddle 5.47-5.725GHz  | Pass   | Inf           | 15.57M              | 14.013M            | 15.72M              | 13.896M            | 15.33M              | 13.87M             | 15.75M              | 13.878M            |
| 5720MHz Straddle 5.725-5.85GHz  | Pass   | 500k          | 3.48M               | 4.291M             | 3.84M               | 4.24M              | 3.68M               | 4.153M             | 3.74M               | 4.287M             |
| 802.11ac VHT40_Nss1,(MCS0)_2TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5270MHz                         | Pass   | Inf           | 40.2M               | 36.251M            | 39.84M              | 36.242M            |                     |                    |                     |                    |
| 5310MHz                         | Pass   | Inf           | 40.32M              | 36.309M            | 39.78M              | 36.169M            |                     |                    |                     |                    |
| 802.11ac VHT40_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5510MHz                         | Pass   | Inf           | 40.02M              | 36.109M            | 39.96M              | 36.315M            | 39.9M               | 36.355M            | 39.6M               | 36.333M            |
| 5550MHz                         | Pass   | Inf           | 39.72M              | 36.084M            | 39.72M              | 36.253M            | 40.14M              | 36.361M            | 39.78M              | 36.233M            |
| 5670MHz                         | Pass   | Inf           | 40.14M              | 36.329M            | 39.84M              | 36.275M            | 39.78M              | 36.344M            | 39.72M              | 36.294M            |
| 5710MHz Straddle 5.47-5.725GHz  | Pass   | Inf           | 34.93M              | 32.812M            | 34.965M             | 33.039M            | 34.65M              | 32.814M            | 34.86M              | 33.011M            |
| 5710MHz Straddle 5.725-5.85GHz  | Pass   | 500k          | 3.16M               | 3.538M             | 3.12M               | 3.453M             | 3.2M                | 3.667M             | 3.12M               | 3.478M             |
| 802.11ac VHT80_Nss1,(MCS0)_2TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5290MHz                         | Pass   | Inf           | 81.96M              | 75.765M            | 81.24M              | 75.886M            |                     |                    |                     |                    |
| 802.11ac VHT80_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5530MHz                         | Pass   | Inf           | 81.6M               | 75.695M            | 81.24M              | 75.416M            | 81.48M              | 75.841M            | 81.48M              | 75.753M            |
| 5610MHz                         | Pass   | Inf           | 81.12M              | 75.894M            | 80.88M              | 75.725M            | 81.36M              | 75.931M            | 81.48M              | 75.585M            |
| 5690MHz Straddle 5.47-5.725GHz  | Pass   | Inf           | 75.3M               | 72.144M            | 75.6M               | 72.444M            | 75.45M              | 72.492M            | 75.975M             | 72.444M            |
| 5690MHz Straddle 5.725-5.85GHz  | Pass   | 500k          | 2.34M               | 3.654M             | 3.1M                | 3.507M             | 3.22M               | 3.684M             | 3.12M               | 3.506M             |
| 802.11ac VHT160_Nss1,(MCS0)_4TX | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5570MHz                         | Pass   | Inf           | 163.92M             | 154.162M           | 162.72M             | 153.318M           | 163.92M             | 154.158M           | 162.96M             | 154.3M             |
| 802.11ax HEW20_Nss1,(MCS0)_2TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5260MHz                         | Pass   | Inf           | 21.57M              | 18.986M            | 21.72M              | 18.948M            |                     |                    |                     |                    |
| 5300MHz                         | Pass   | Inf           | 21.51M              | 18.953M            | 21.6M               | 18.998M            |                     |                    |                     |                    |
| 5320MHz                         | Pass   | Inf           | 21.45M              | 18.984M            | 21.51M              | 19.01M             |                     |                    |                     |                    |
| 802.11ax HEW20_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5500MHz                         | Pass   | Inf           | 21.54M              | 19.016M            | 21.45M              | 18.976M            | 21.6M               | 18.957M            | 21.36M              | 18.971M            |

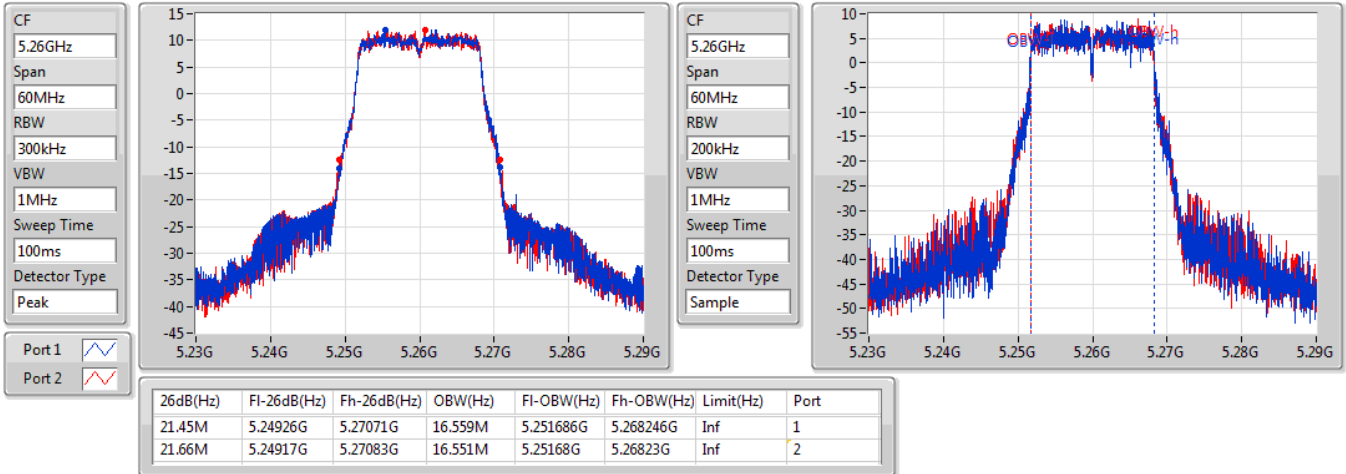
| Mode                            | Result | Limit<br>(Hz) | Port 1-N dB<br>(Hz) | Port 1-OBW<br>(Hz) | Port 2-N dB<br>(Hz) | Port 2-OBW<br>(Hz) | Port 3-N dB<br>(Hz) | Port 3-OBW<br>(Hz) | Port 4-N dB<br>(Hz) | Port 4-OBW<br>(Hz) |
|---------------------------------|--------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 5580MHz                         | Pass   | Inf           | 21.48M              | 18.937M            | 21.51M              | 18.869M            | 21.6M               | 18.947M            | 21.69M              | 18.967M            |
| 5700MHz                         | Pass   | Inf           | 21.36M              | 18.9M              | 21.6M               | 18.987M            | 21.18M              | 18.888M            | 21.66M              | 18.942M            |
| 5720MHz Straddle 5.47-5.725GHz  | Pass   | Inf           | 15.465M             | 14.399M            | 15.69M              | 14.511M            | 15.6M               | 14.55M             | 15.705M             | 14.483M            |
| 5720MHz Straddle 5.725-5.85GHz  | Pass   | 500k          | 4.42M               | 4.513M             | 4.46M               | 4.526M             | 4.14M               | 4.472M             | 4.5M                | 4.521M             |
| 802.11ax HEW40_Nss1,(MCS0)_2TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5270MHz                         | Pass   | Inf           | 40.02M              | 37.552M            | 39.84M              | 37.456M            |                     |                    |                     |                    |
| 5310MHz                         | Pass   | Inf           | 39.66M              | 37.516M            | 39.84M              | 37.534M            |                     |                    |                     |                    |
| 802.11ax HEW40_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5510MHz                         | Pass   | Inf           | 39.72M              | 37.525M            | 39.9M               | 37.615M            | 39.96M              | 37.507M            | 40.02M              | 37.592M            |
| 5550MHz                         | Pass   | Inf           | 39.42M              | 37.552M            | 39.9M               | 37.558M            | 39.84M              | 37.518M            | 39.96M              | 37.563M            |
| 5670MHz                         | Pass   | Inf           | 39.78M              | 37.481M            | 39.72M              | 37.442M            | 39.6M               | 37.043M            | 40.08M              | 37.599M            |
| 5710MHz Straddle 5.47-5.725GHz  | Pass   | Inf           | 34.86M              | 33.712M            | 34.93M              | 33.755M            | 34.86M              | 33.003M            | 35.14M              | 33.582M            |
| 5710MHz Straddle 5.725-5.85GHz  | Pass   | 500k          | 2.74M               | 3.992M             | 3.46M               | 4.028M             | 3.7M                | 3.982M             | 3.84M               | 4.027M             |
| 802.11ax HEW80_Nss1,(MCS0)_2TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5290MHz                         | Pass   | Inf           | 81.96M              | 76.846M            | 81.24M              | 77.214M            |                     |                    |                     |                    |
| 802.11ax HEW80_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5530MHz                         | Pass   | Inf           | 81.24M              | 76.813M            | 81.12M              | 76.959M            | 82.08M              | 77.002M            | 81.84M              | 77.24M             |
| 5610MHz                         | Pass   | Inf           | 81.36M              | 76.768M            | 81.72M              | 77.095M            | 81.48M              | 77.019M            | 81.6M               | 76.956M            |
| 5690MHz Straddle 5.47-5.725GHz  | Pass   | Inf           | 75.75M              | 73.055M            | 75.825M             | 73.353M            | 75.375M             | 72.545M            | 75.825M             | 73.099M            |
| 5690MHz Straddle 5.725-5.85GHz  | Pass   | 500k          | 2.72M               | 4.041M             | 3.76M               | 4.045M             | 3.78M               | 4.014M             | 3.76M               | 4.043M             |
| 802.11ax HEW160_Nss1,(MCS0)_4TX | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5570MHz                         | Pass   | Inf           | 164.16M             | 155.165M           | 162.72M             | 154.571M           | 164.64M             | 154.877M           | 164.4M              | 155.212M           |

**Port X-N dB** = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

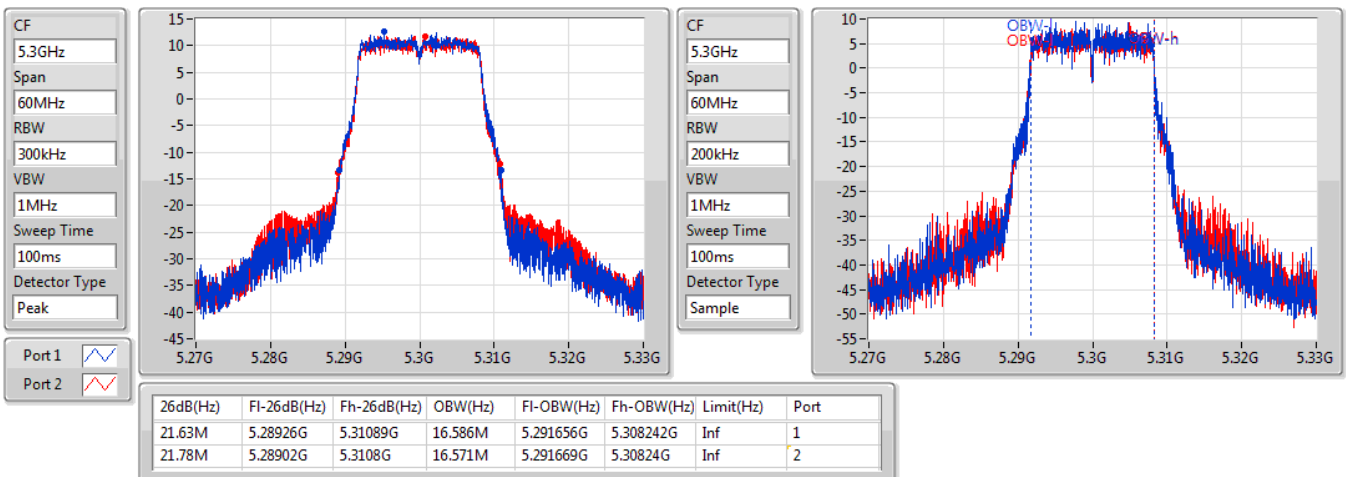
**Port X-OBW** = Port X 99% occupied bandwidth;

**802.11a\_Nss1,(6Mbps)\_2TX**
**EBW**
**5260MHz**

18/09/2019

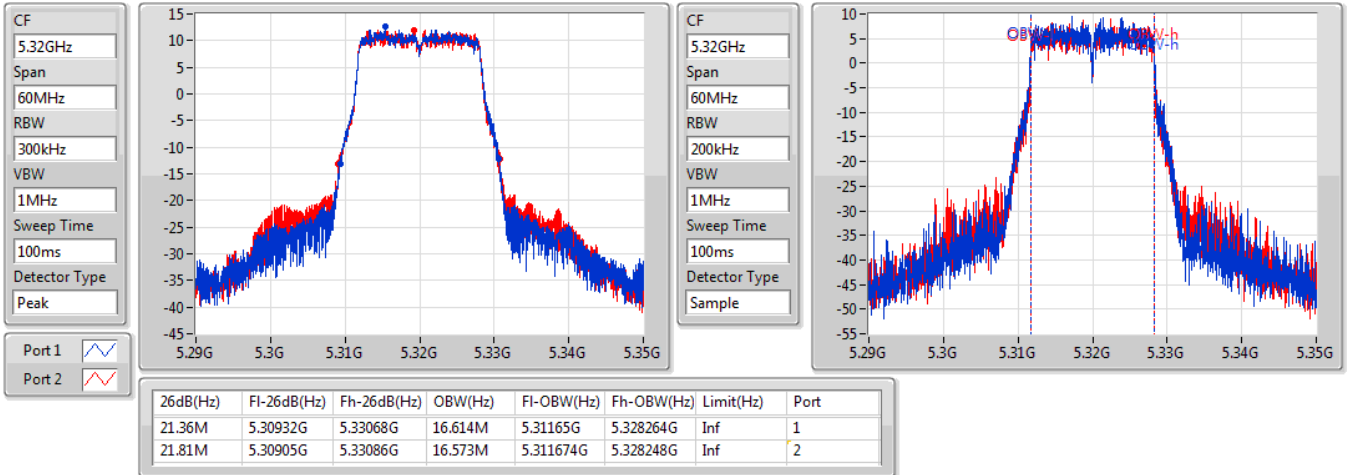

**802.11a\_Nss1,(6Mbps)\_2TX**
**EBW**
**5300MHz**

18/09/2019

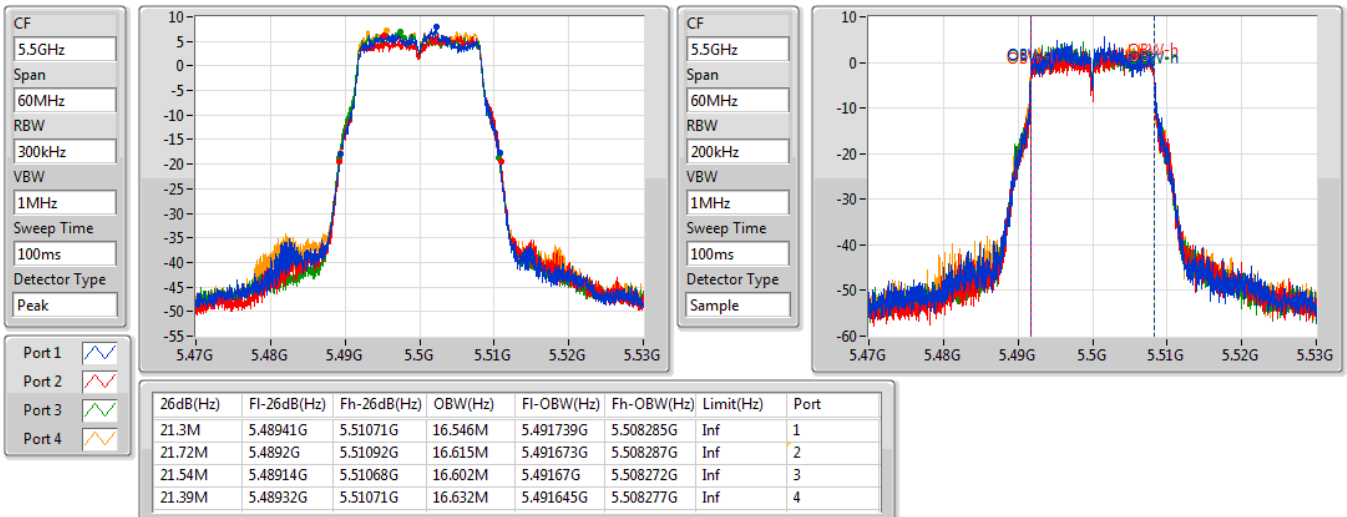


**802.11a\_Nss1,(6Mbps)\_2TX**
**EBW**
**5320MHz**

18/09/2019

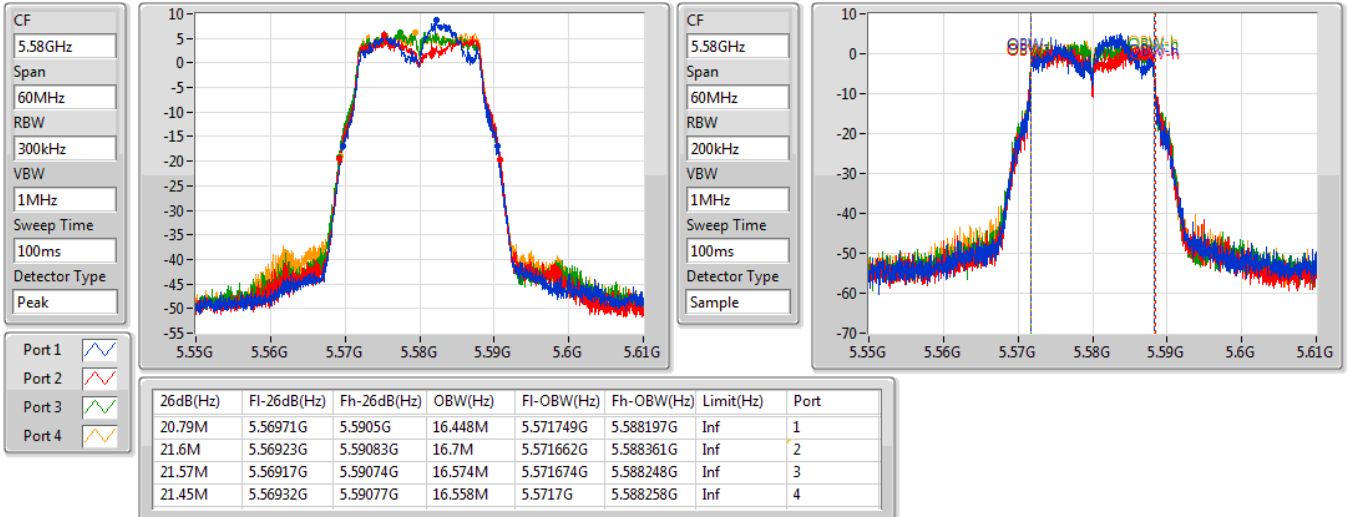

**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5500MHz**

18/09/2019

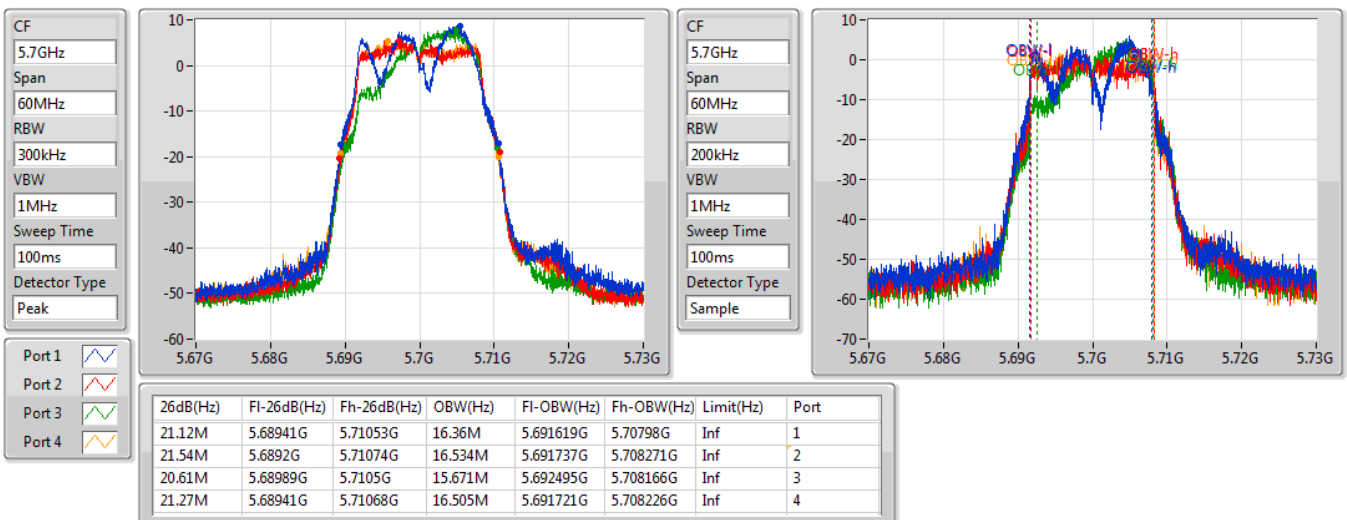


**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5580MHz**

18/09/2019

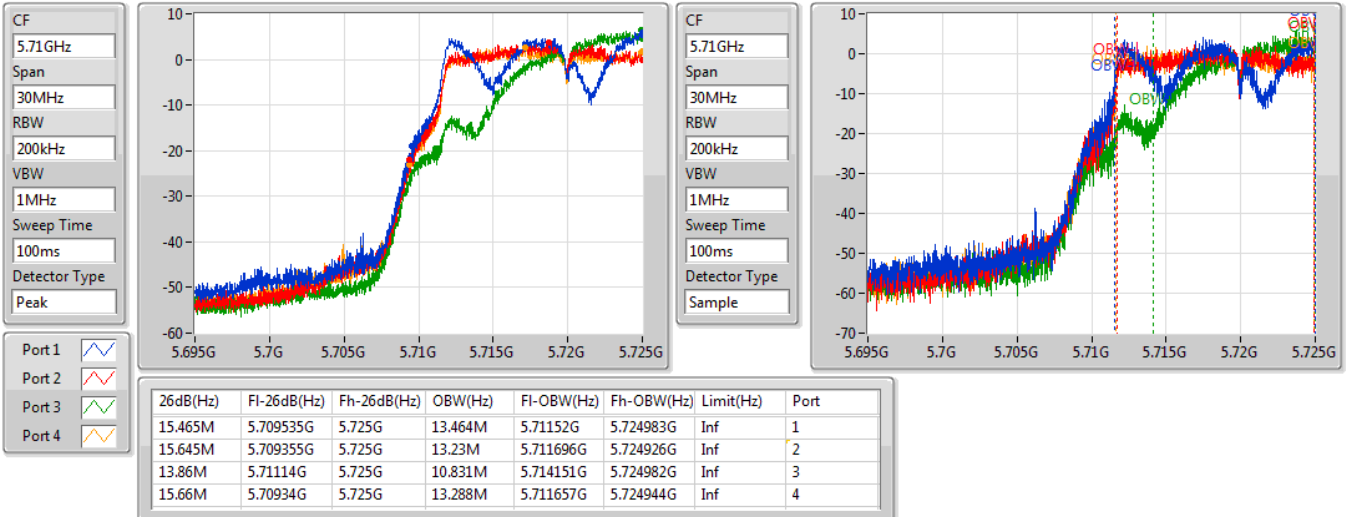

**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5700MHz**

18/09/2019

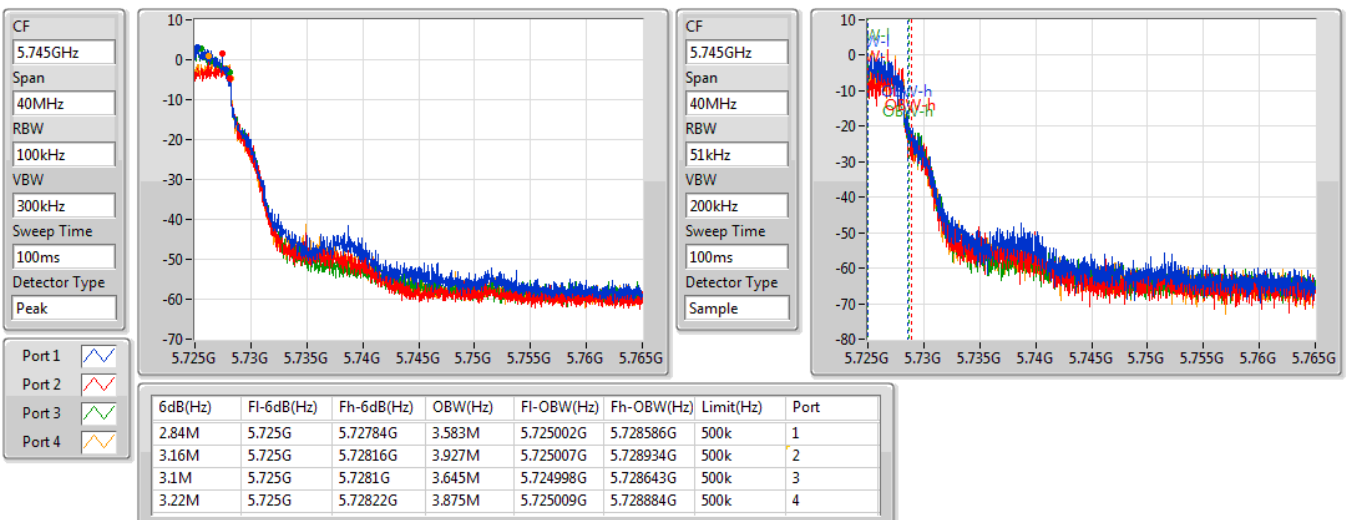


**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5720MHz Straddle 5.47-5.725GHz**

18/09/2019

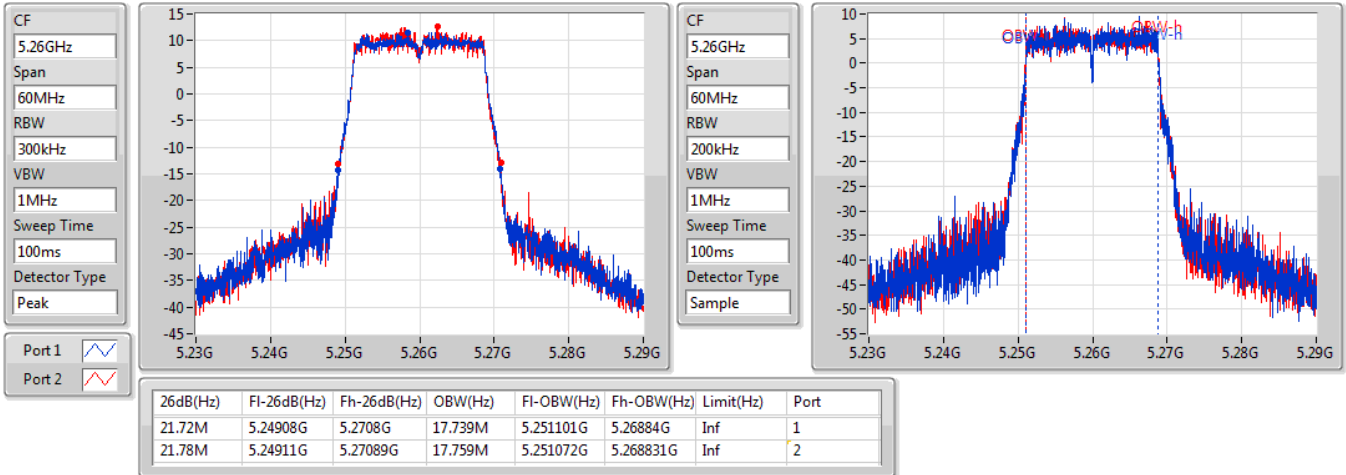

**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5720MHz Straddle 5.725-5.85GHz**

18/09/2019

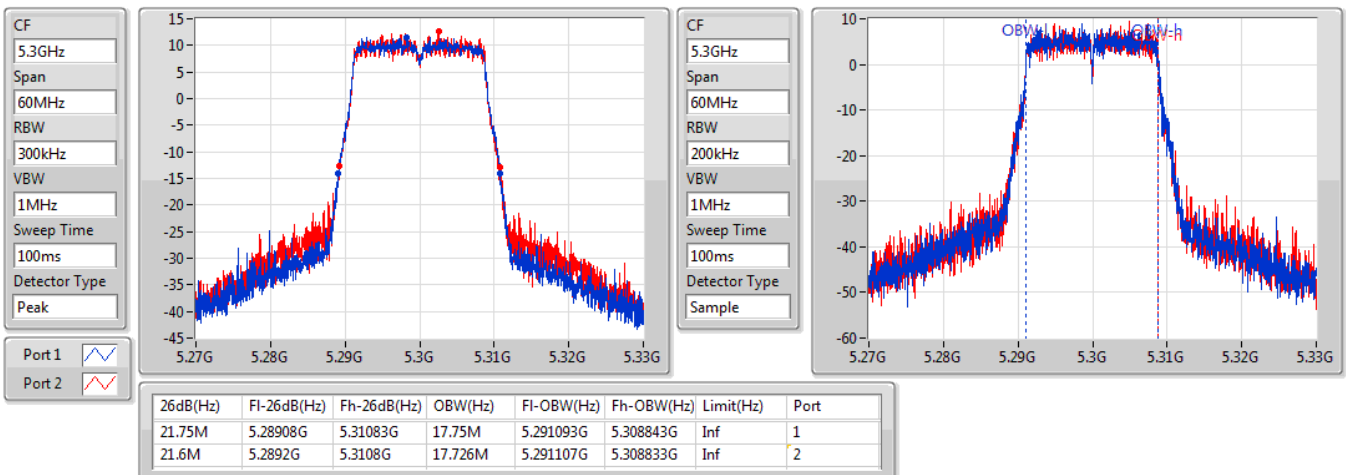


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**EBW**
**5260MHz**

18/09/2019

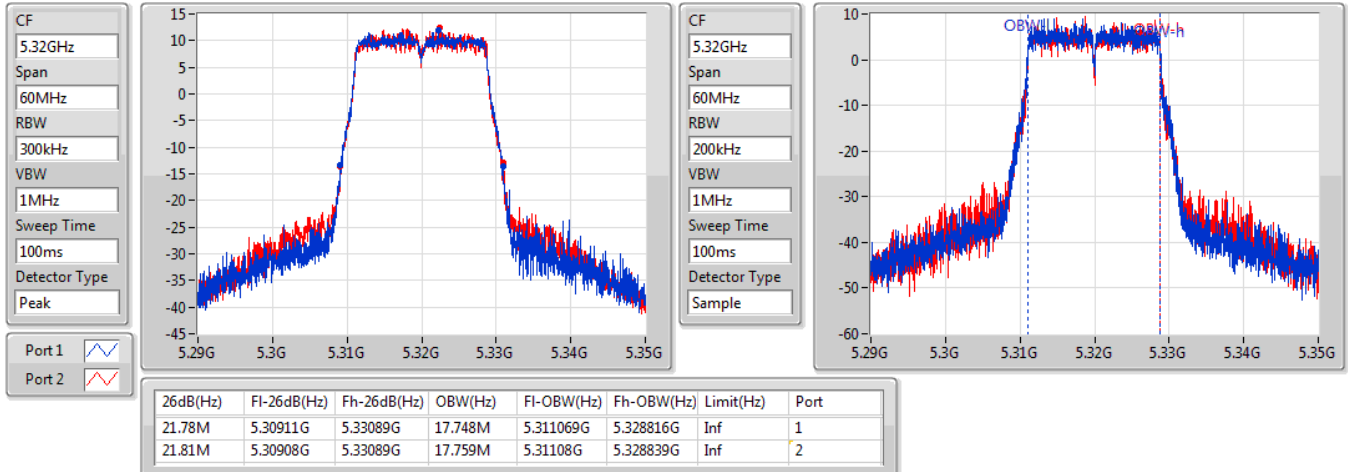

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**EBW**
**5300MHz**

18/09/2019

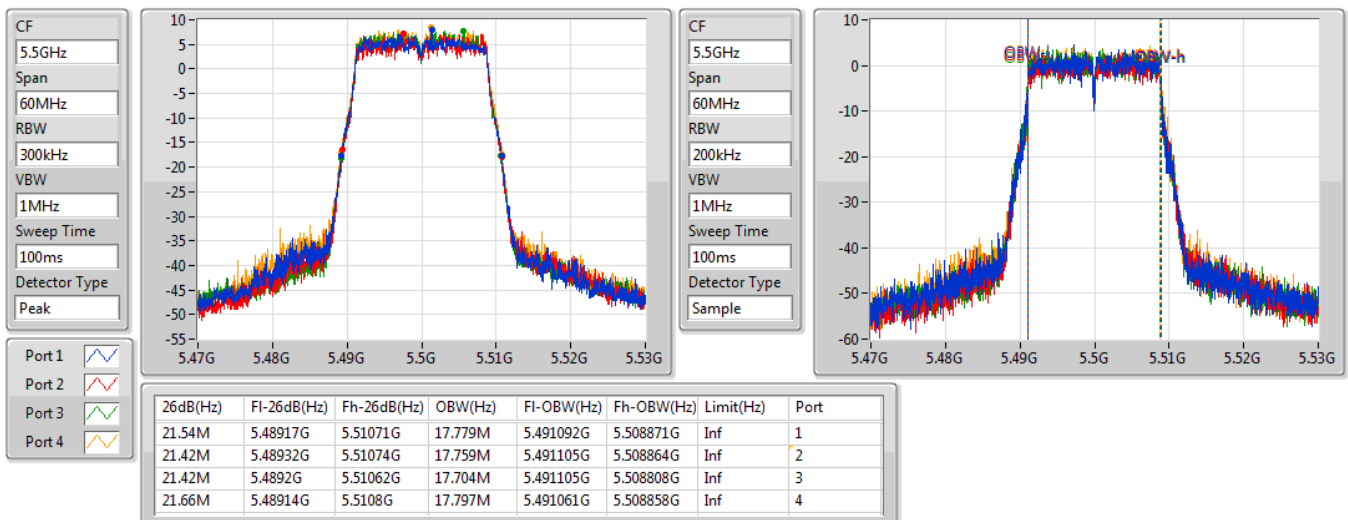


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**EBW**
**5320MHz**

18/09/2019

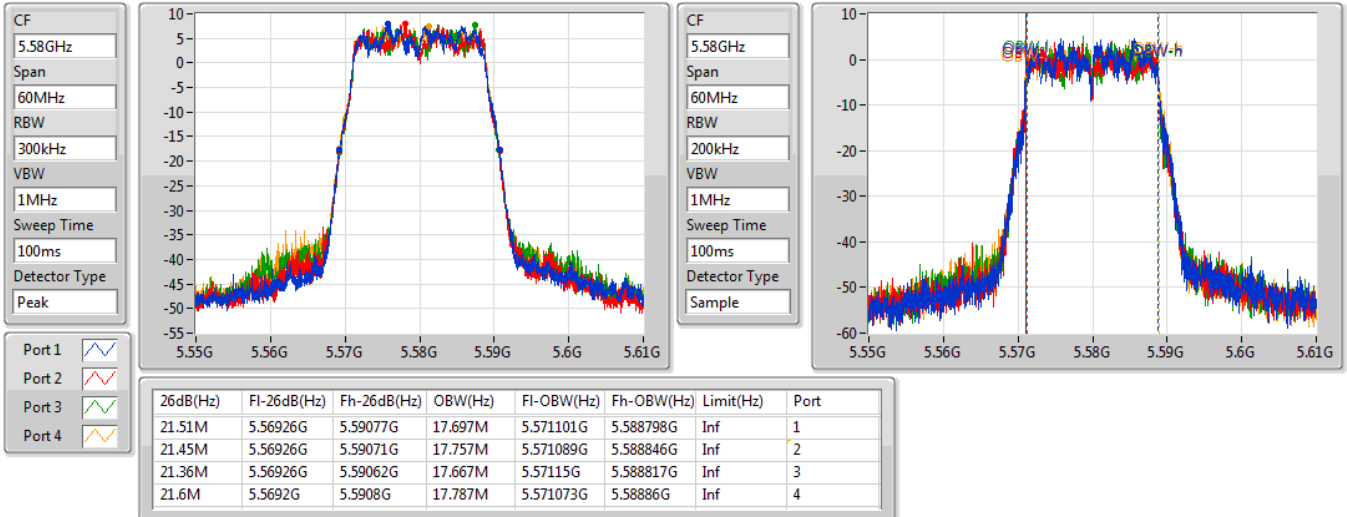

**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**EBW**
**5500MHz**

18/09/2019

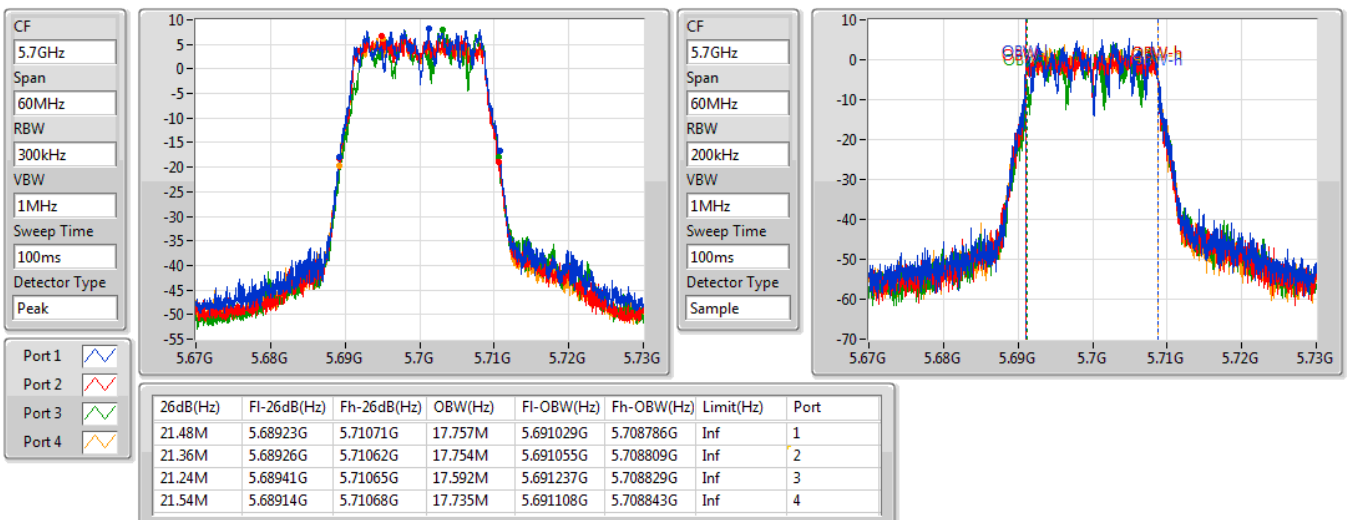


**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**EBW**
**5580MHz**

18/09/2019

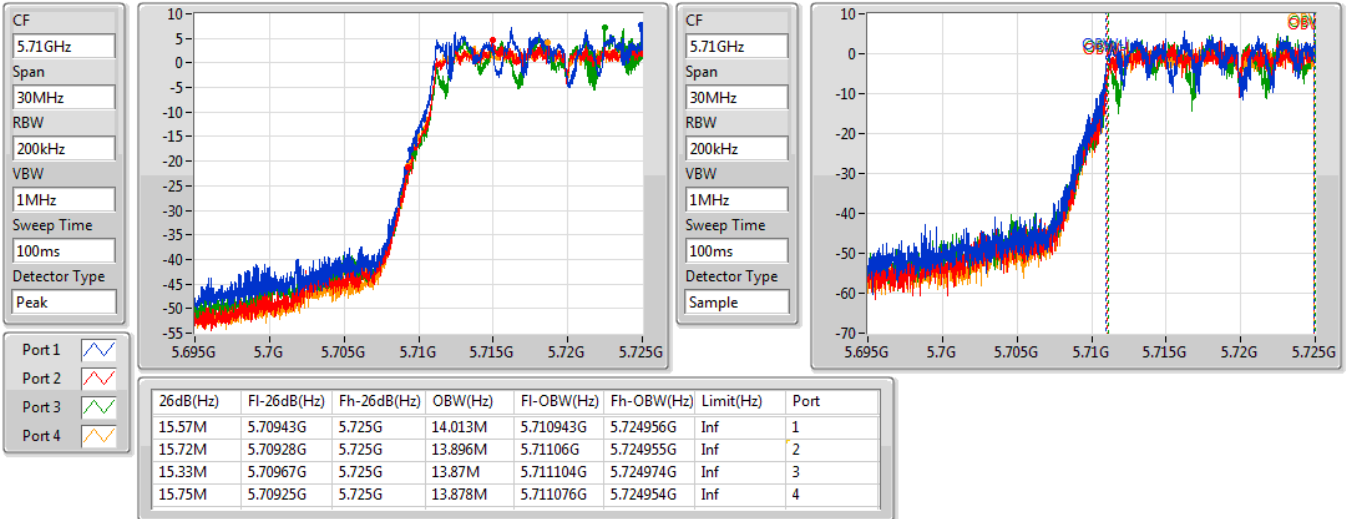

**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**EBW**
**5700MHz**

18/09/2019

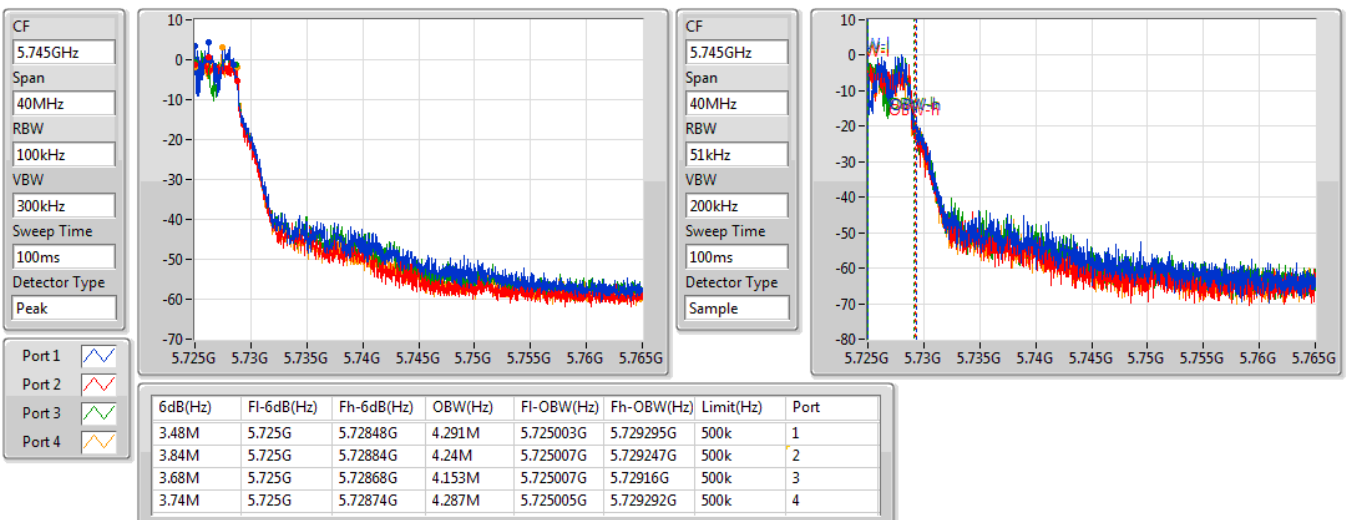


**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**EBW**
**5720MHz Straddle 5.47-5.725GHz**

18/09/2019

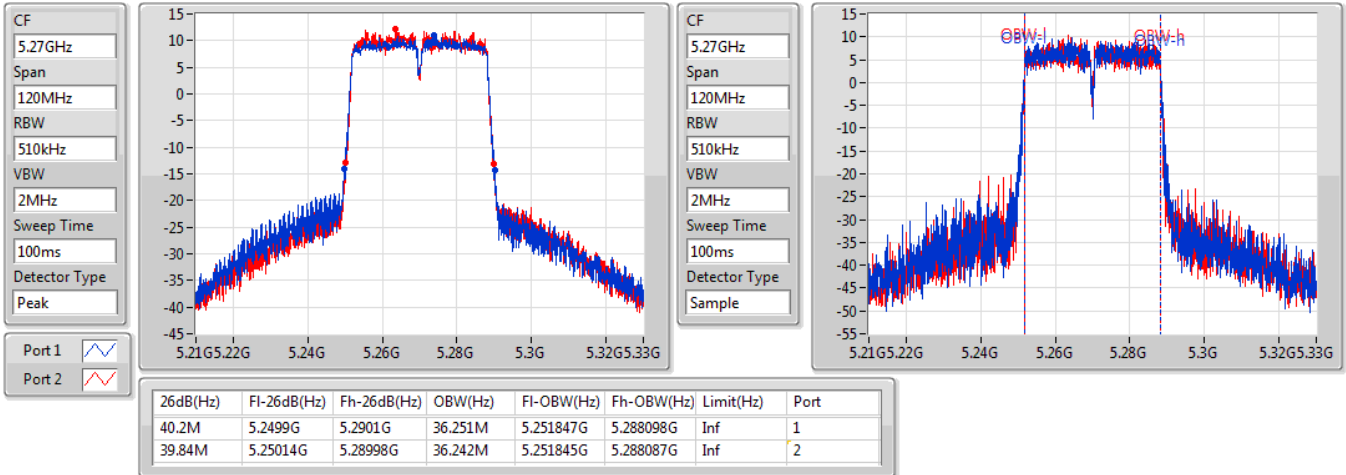

**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**EBW**
**5720MHz Straddle 5.725-5.85GHz**

18/09/2019

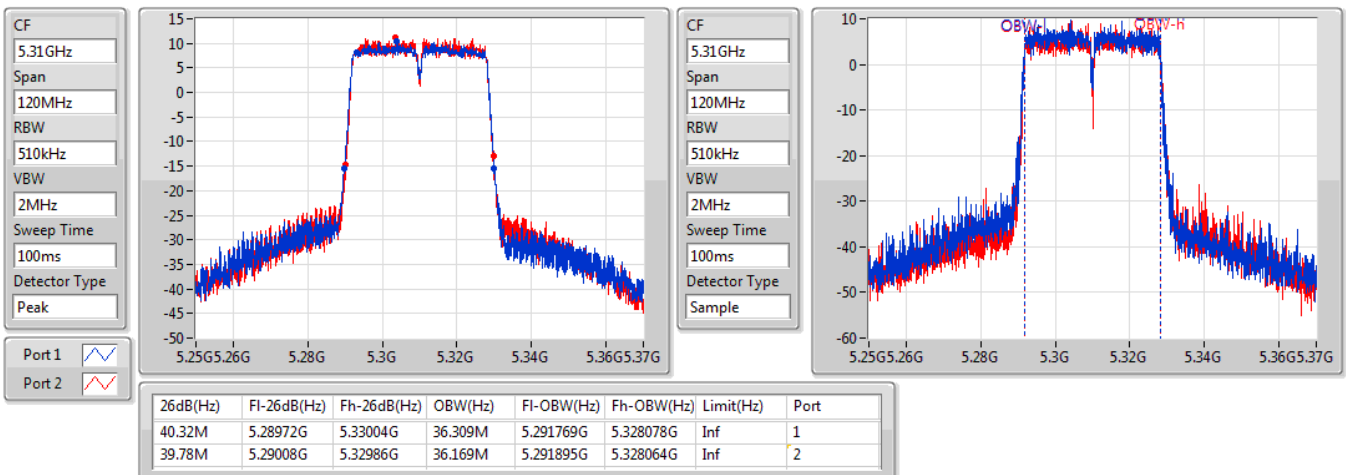


**802.11ac VHT40\_Nss1,(MCS0)\_2TX**
**EBW**
**5270MHz**

18/09/2019

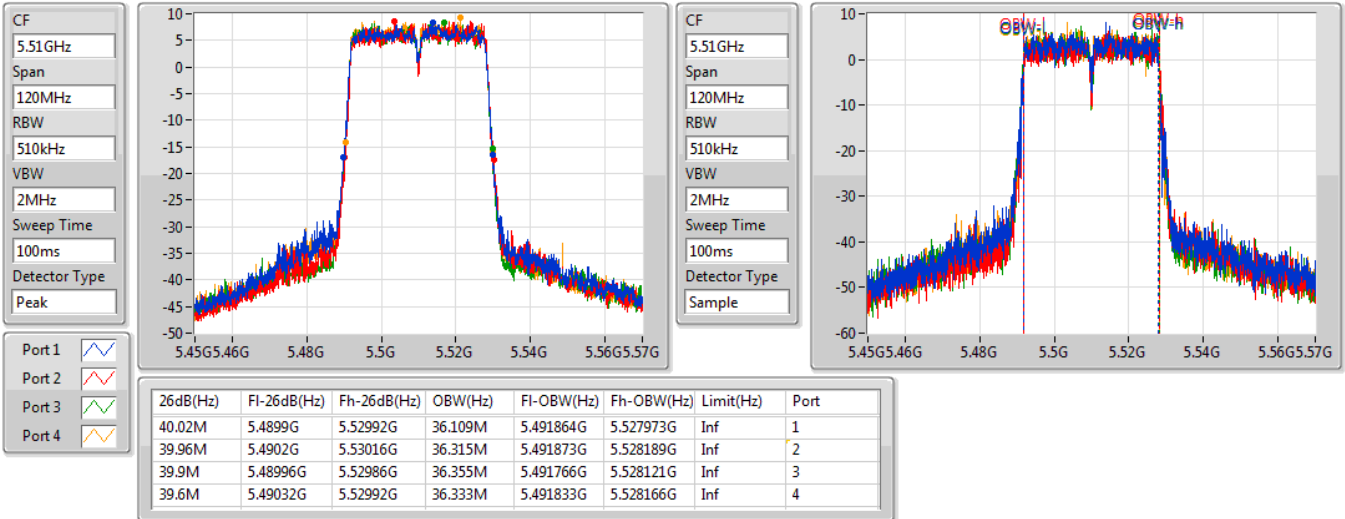

**802.11ac VHT40\_Nss1,(MCS0)\_2TX**
**EBW**
**5310MHz**

18/09/2019

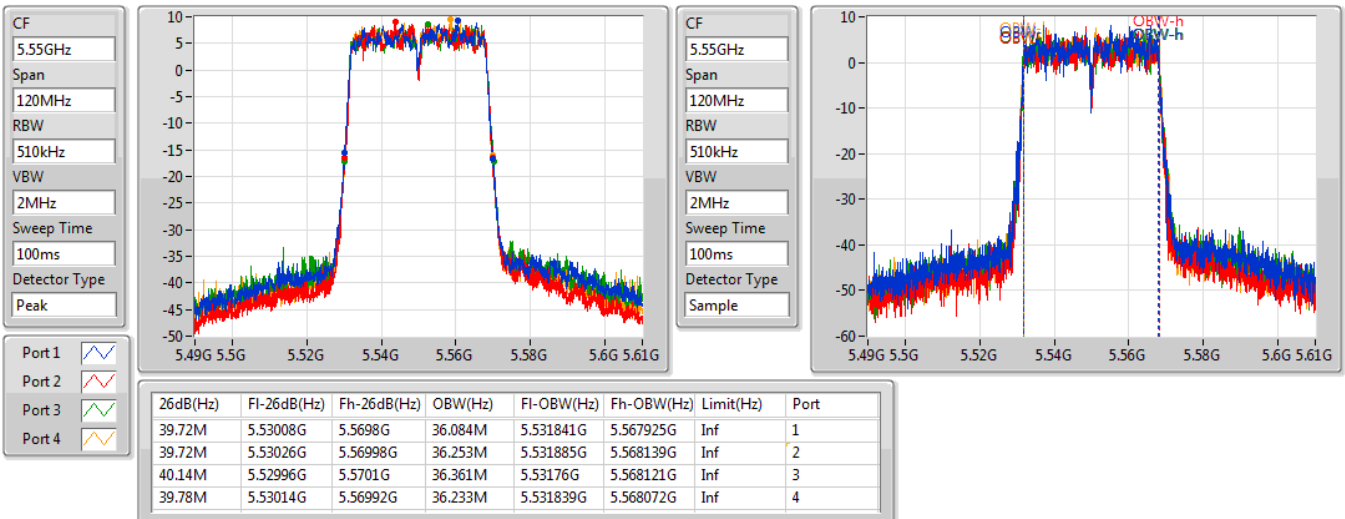


**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**EBW**
**5510MHz**

18/09/2019

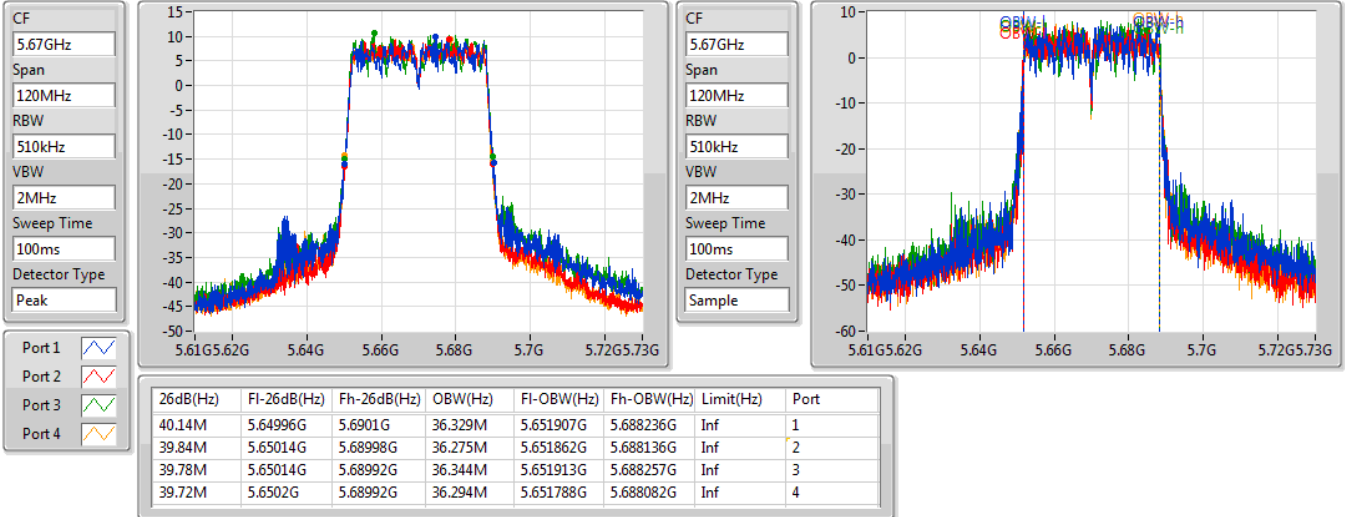

**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**EBW**
**5550MHz**

18/09/2019

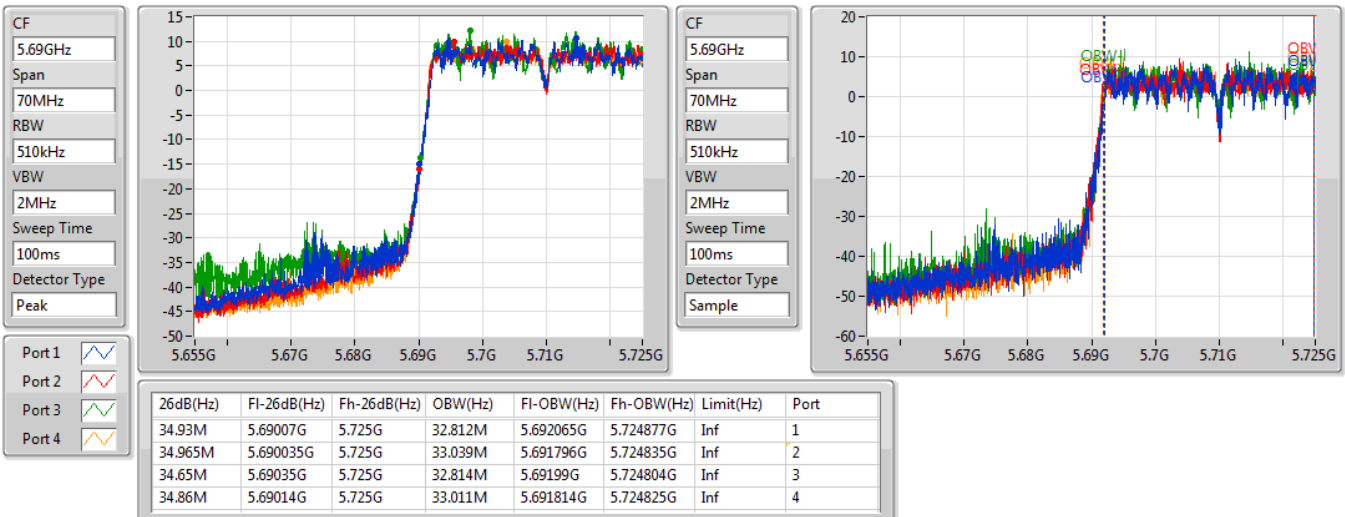


**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**EBW**
**5670MHz**

18/09/2019

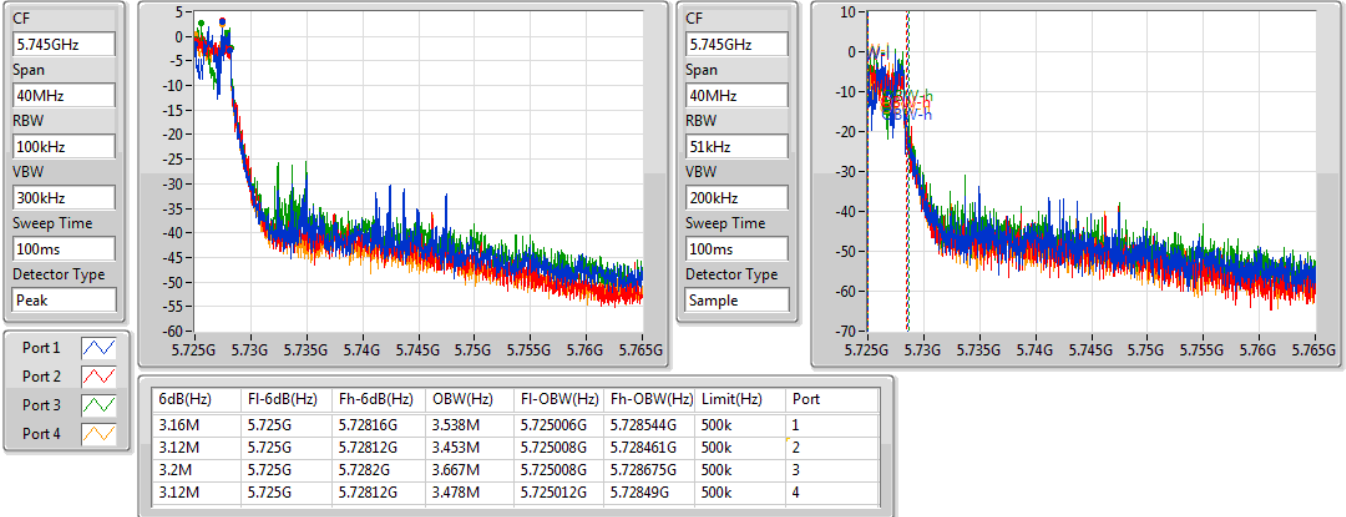

**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**EBW**
**5710MHz Straddle 5.47-5.725GHz**

18/09/2019

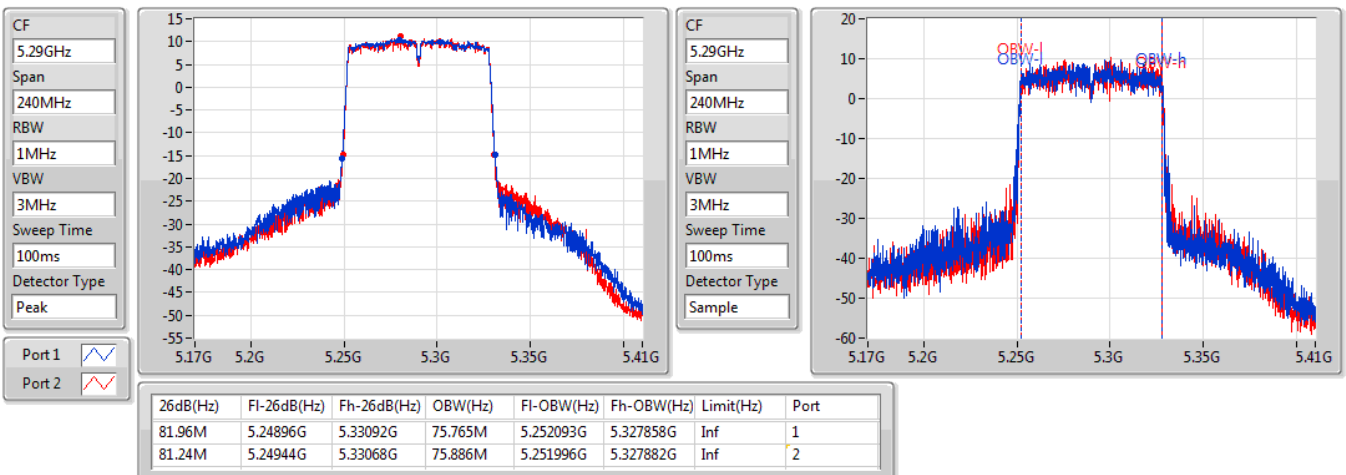


**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**EBW**
**5710MHz Straddle 5.725-5.85GHz**

18/09/2019

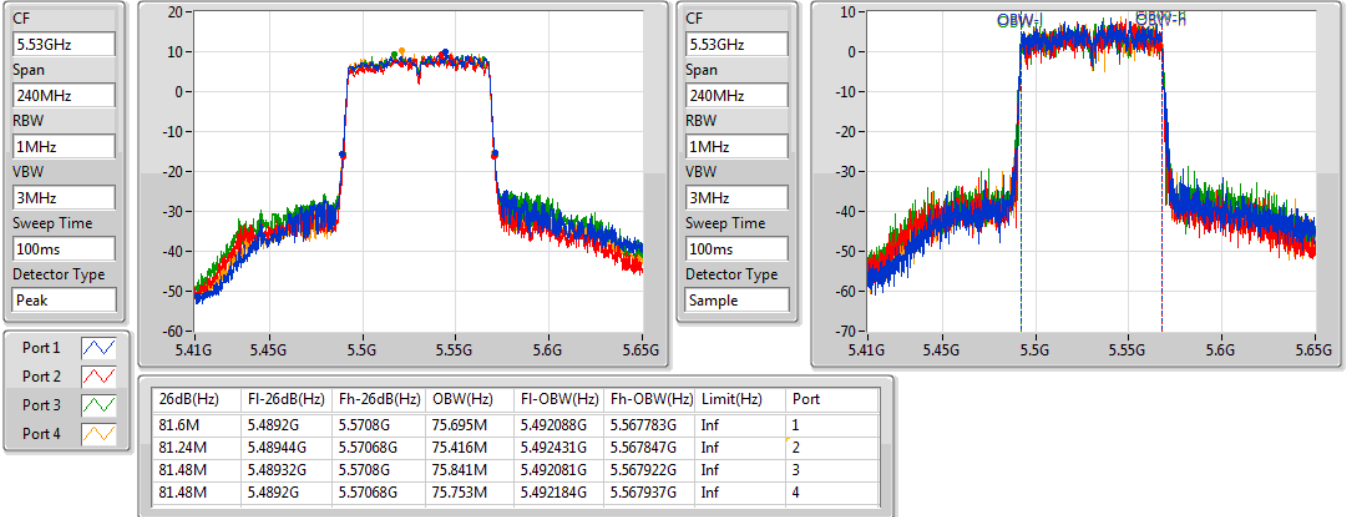

**802.11ac VHT80\_Nss1,(MCS0)\_2TX**
**EBW**
**5290MHz**

18/09/2019

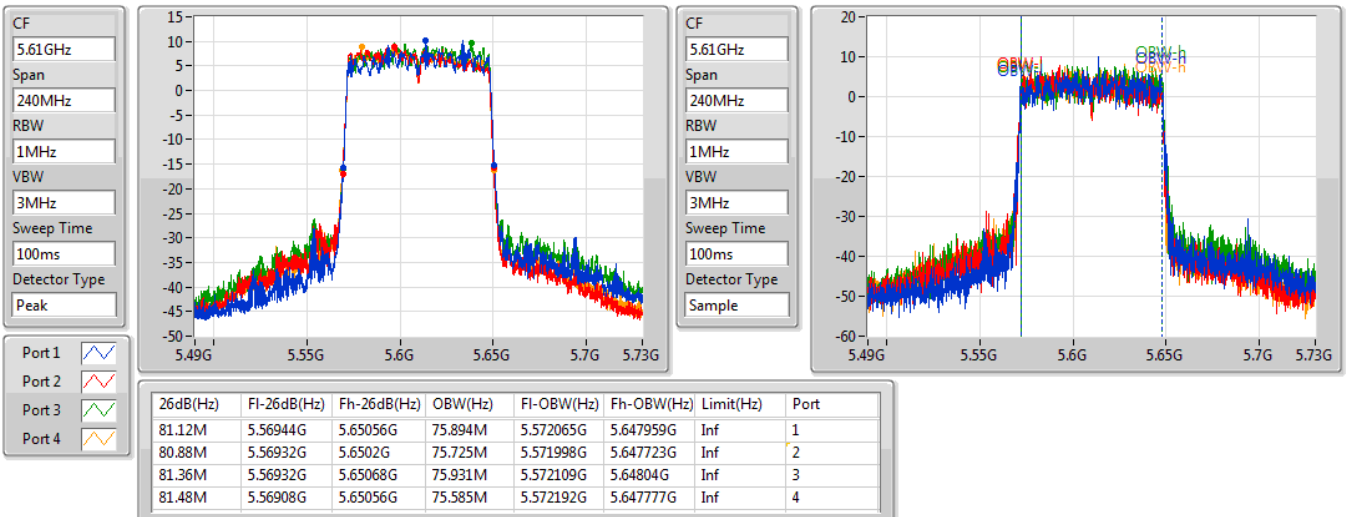


**802.11ac VHT80\_Nss1,(MCS0)\_4TX**
**EBW**
**5530MHz**

18/09/2019

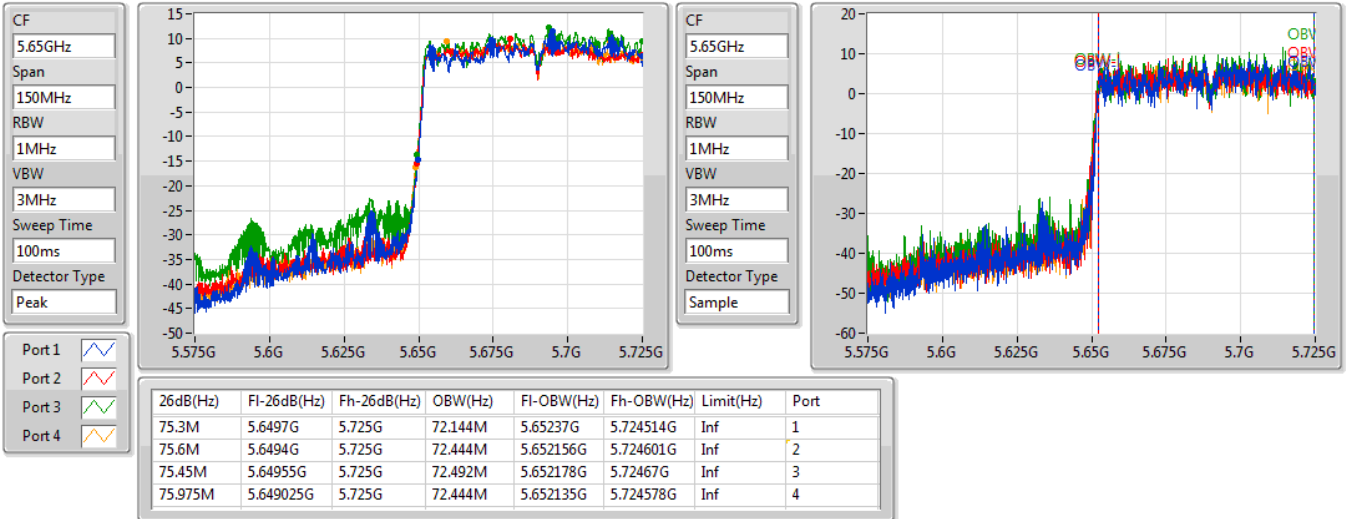

**802.11ac VHT80\_Nss1,(MCS0)\_4TX**
**EBW**
**5610MHz**

18/09/2019

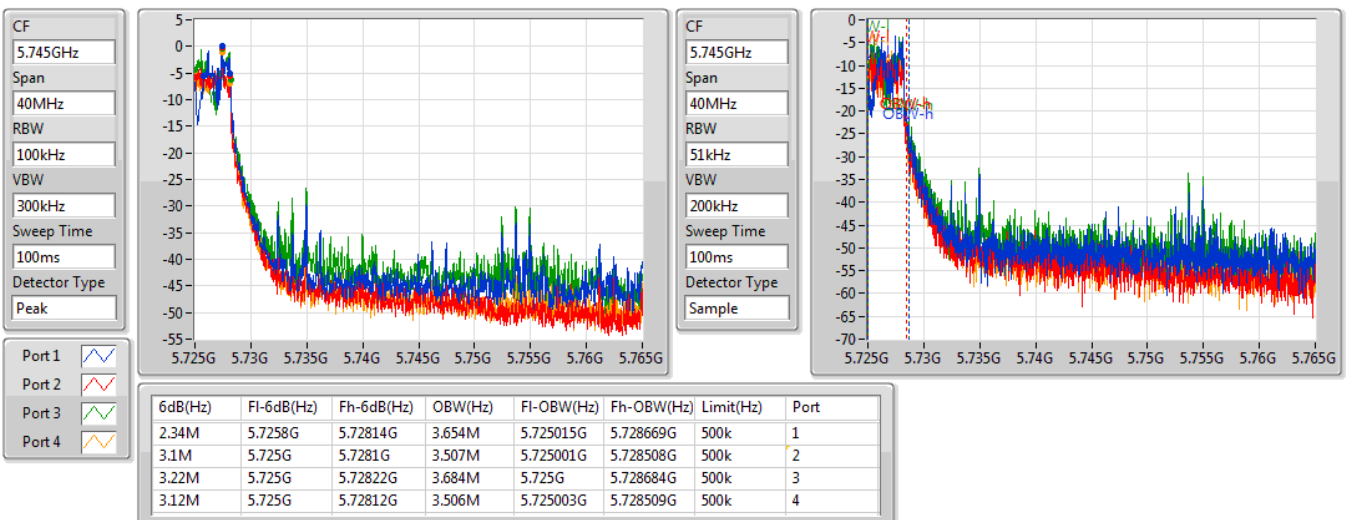


**802.11ac VHT80\_Nss1,(MCS0)\_4TX**
**EBW**
**5690MHz Straddle 5.47-5.725GHz**

18/09/2019

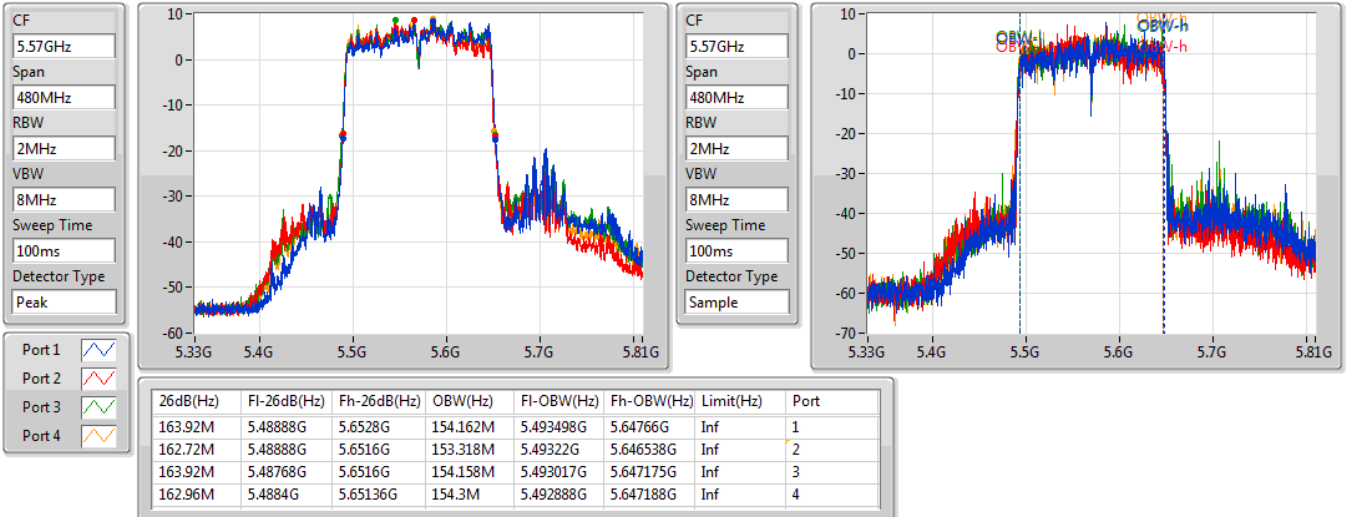

**802.11ac VHT80\_Nss1,(MCS0)\_4TX**
**EBW**
**5690MHz Straddle 5.725-5.85GHz**

18/09/2019

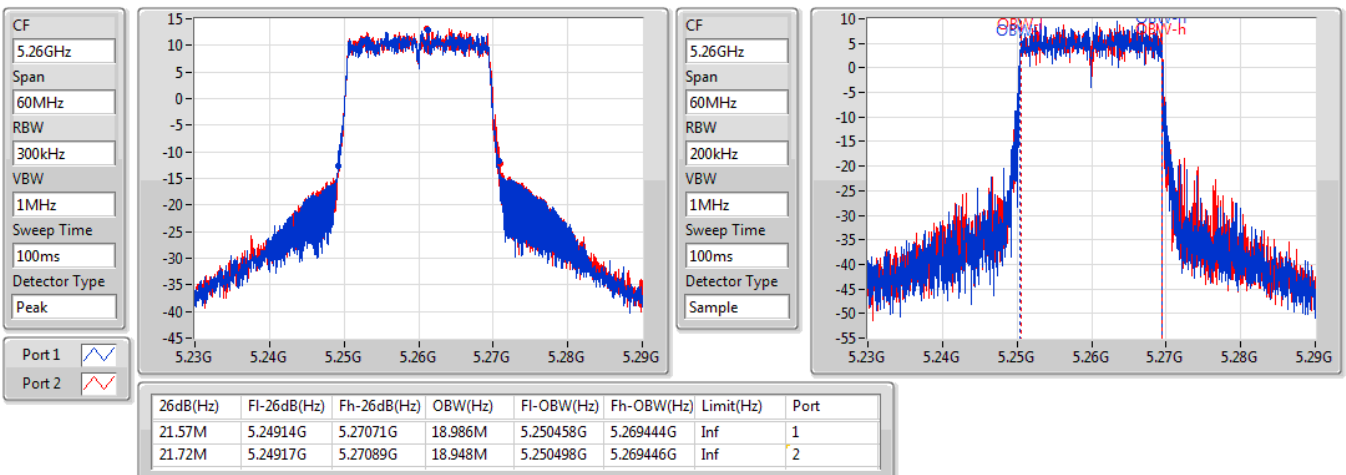


**802.11ac VHT160\_Nss1,(MCS0)\_4TX**
**EBW**
**5570MHz**

18/09/2019

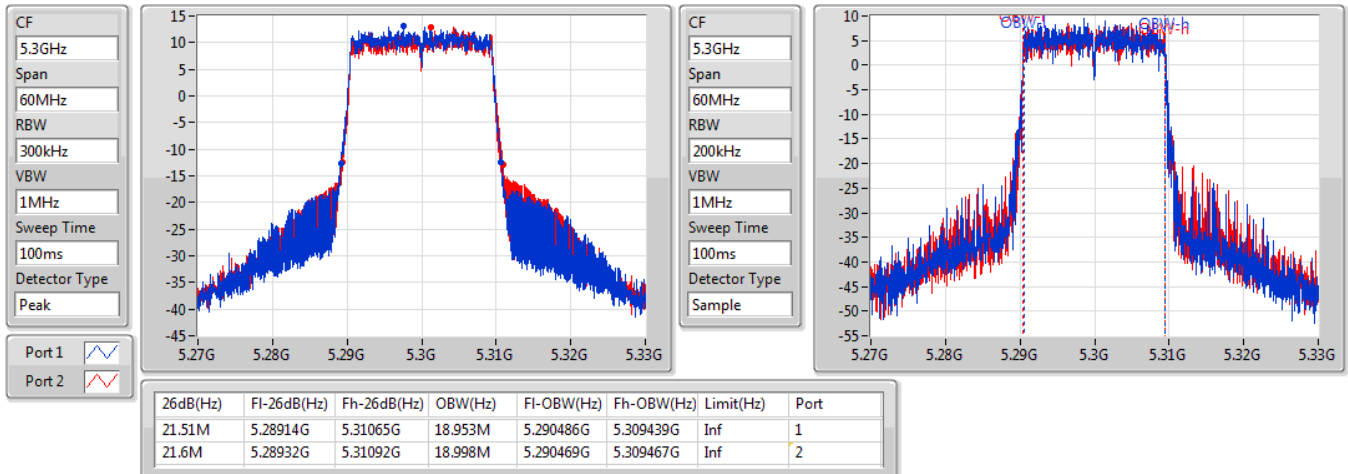

**802.11ax HEW20\_Nss1,(MCS0)\_2TX**
**EBW**
**5260MHz**

18/09/2019

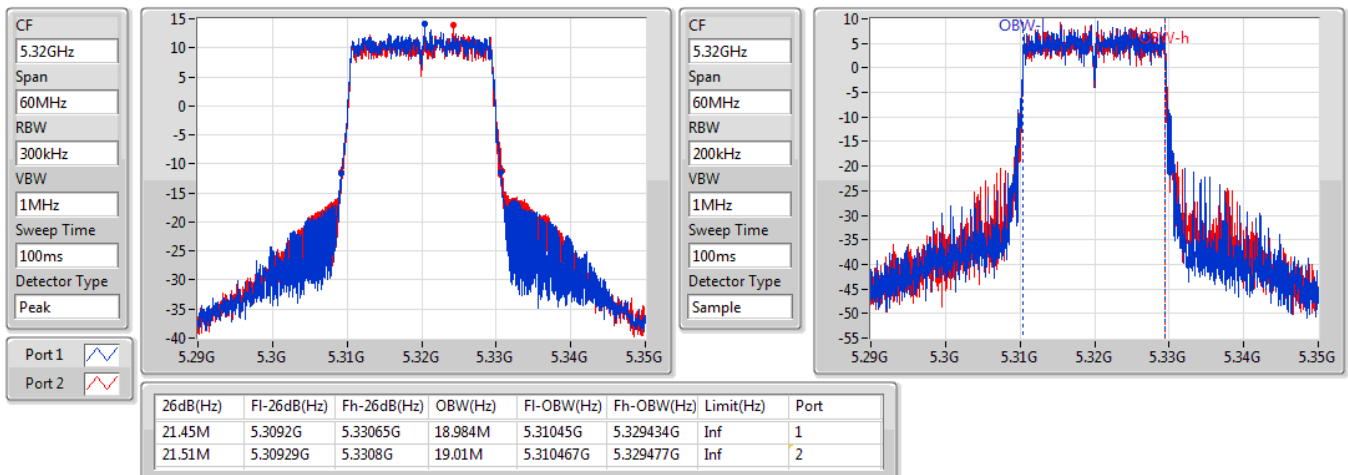


**802.11ax HEW20\_Nss1,(MCS0)\_2TX**
**EBW**
**5300MHz**

18/09/2019

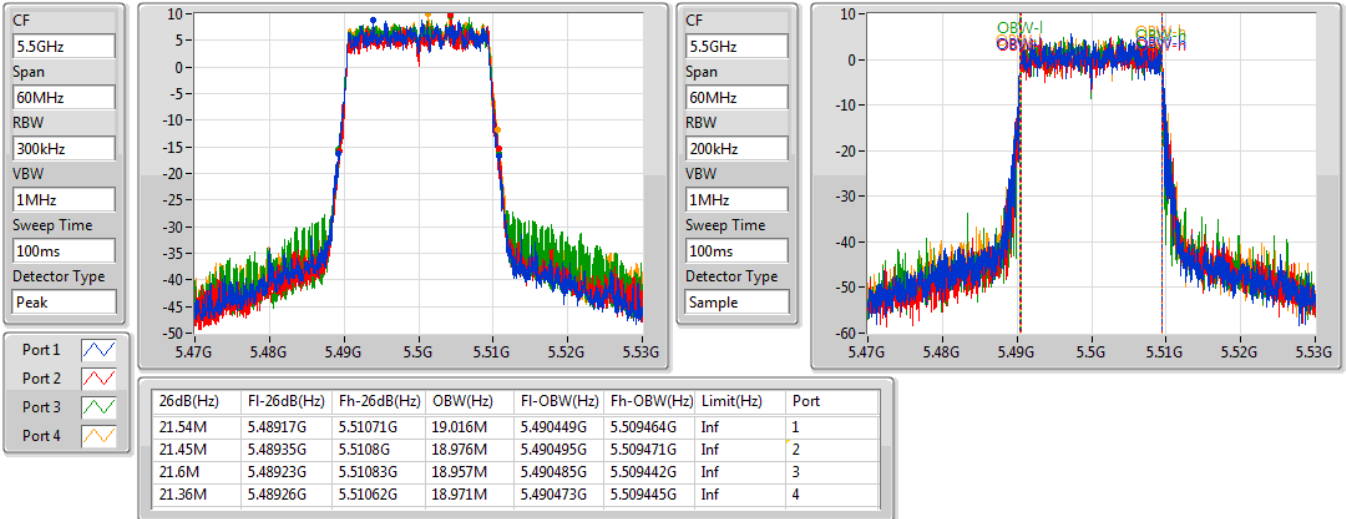

**802.11ax HEW20\_Nss1,(MCS0)\_2TX**
**EBW**
**5320MHz**

18/09/2019

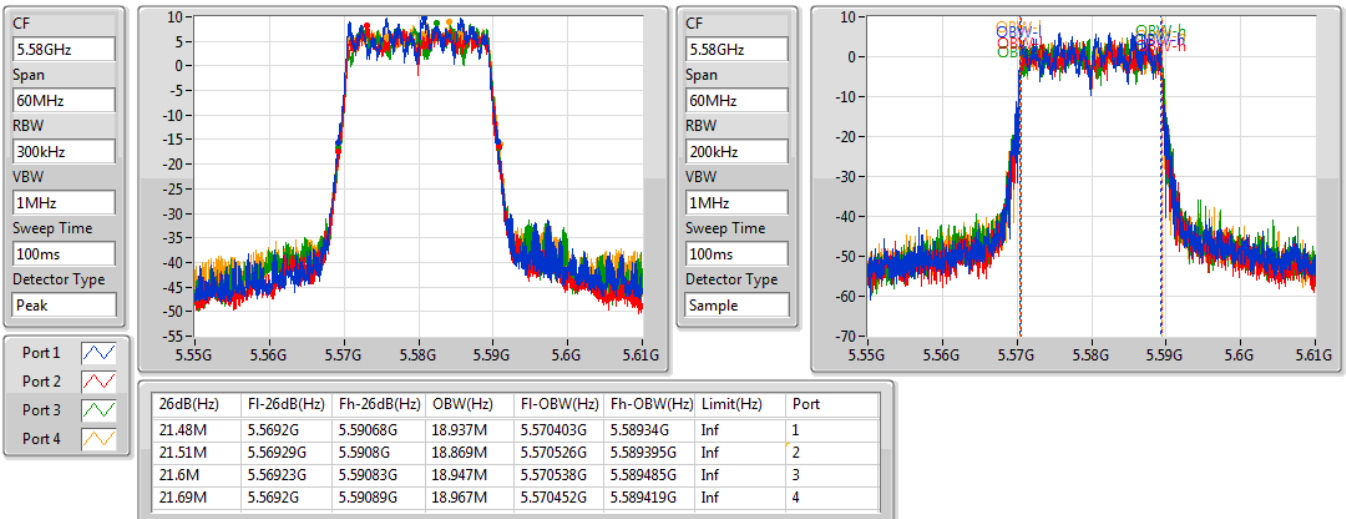


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5500MHz**

18/09/2019

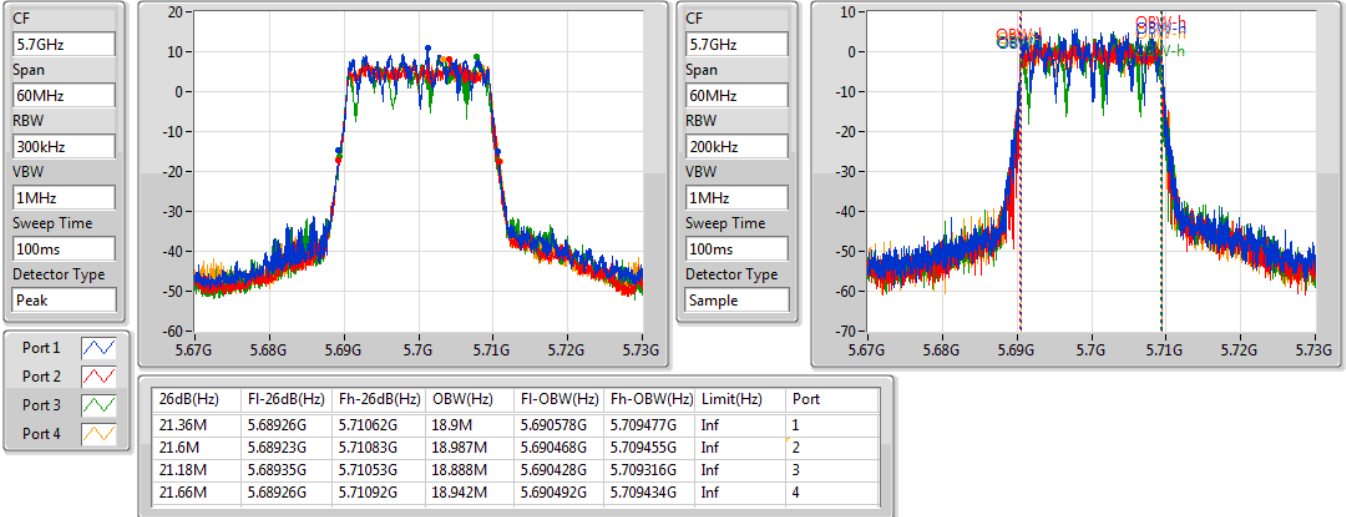

**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5580MHz**

18/09/2019

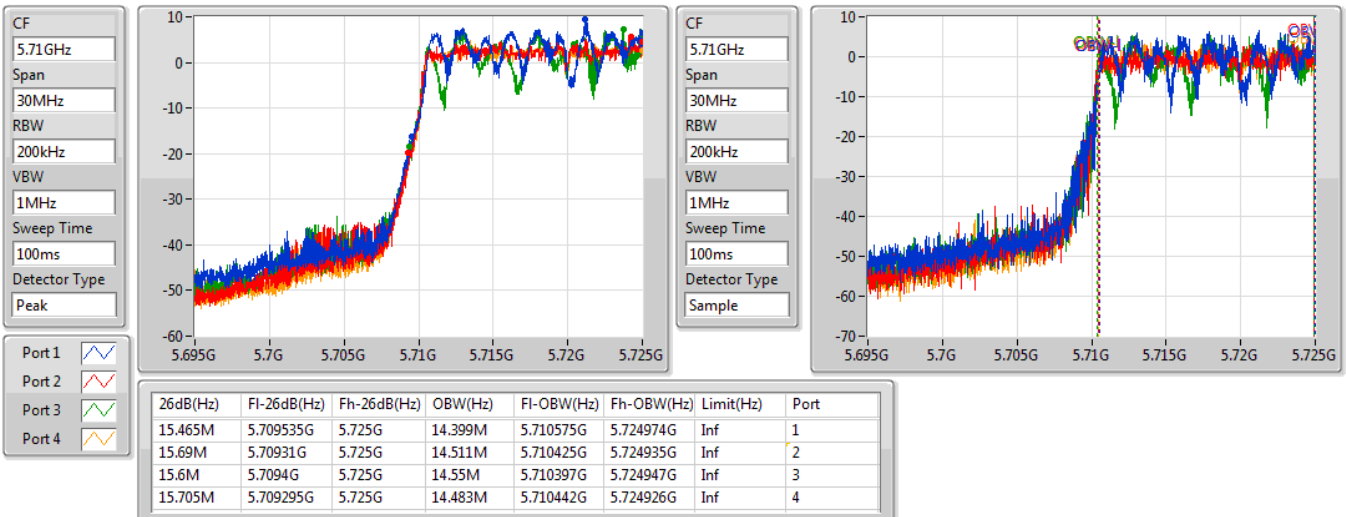


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5700MHz**

18/09/2019

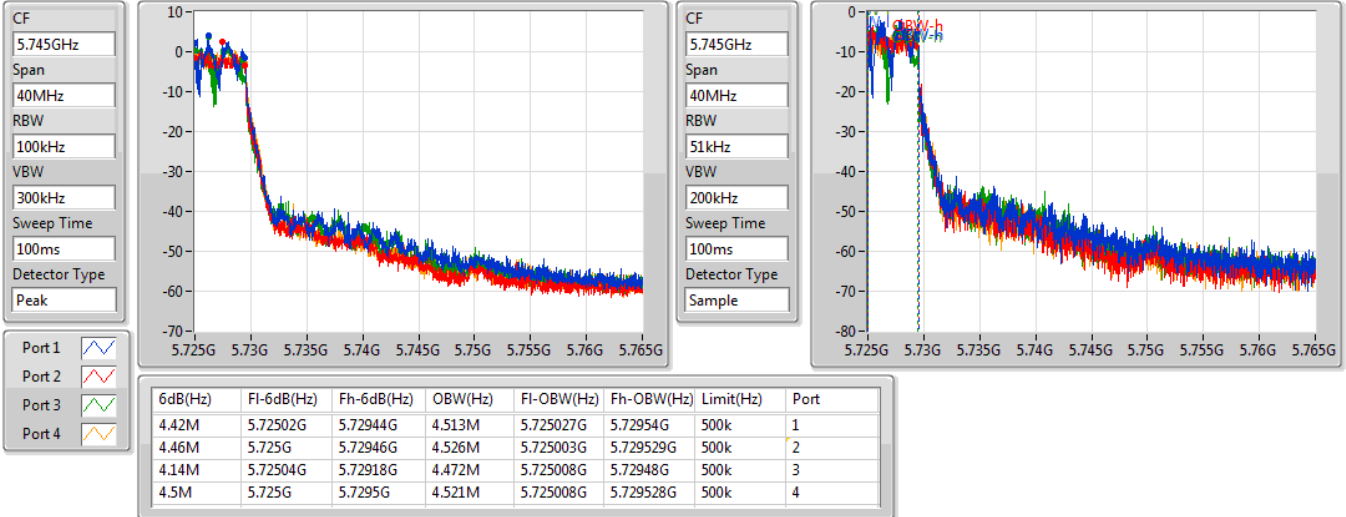

**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5720MHz Straddle 5.47-5.725GHz**

18/09/2019

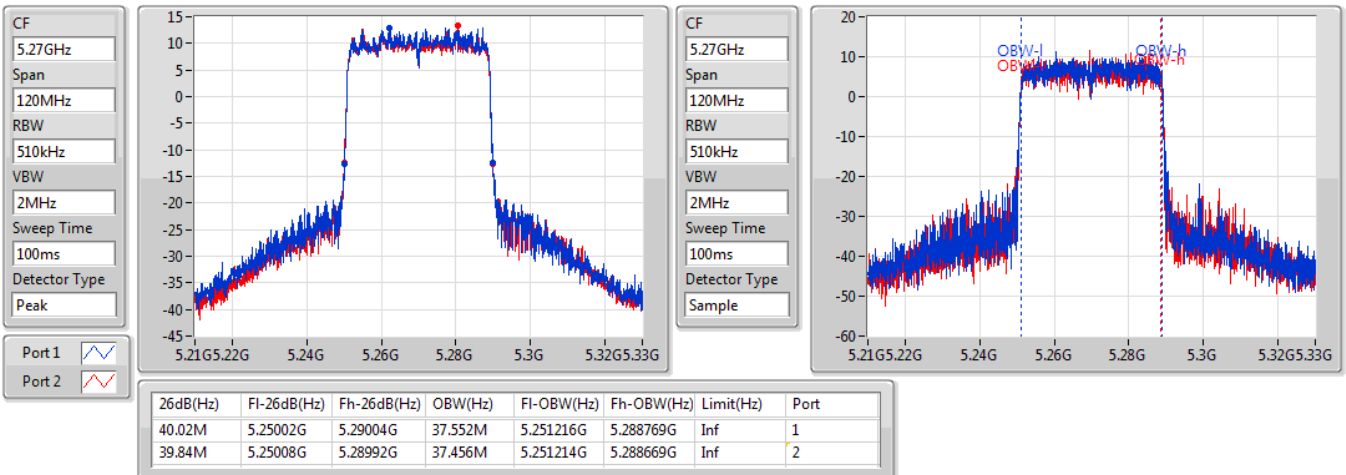


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5720MHz Straddle 5.725-5.85GHz**

18/09/2019

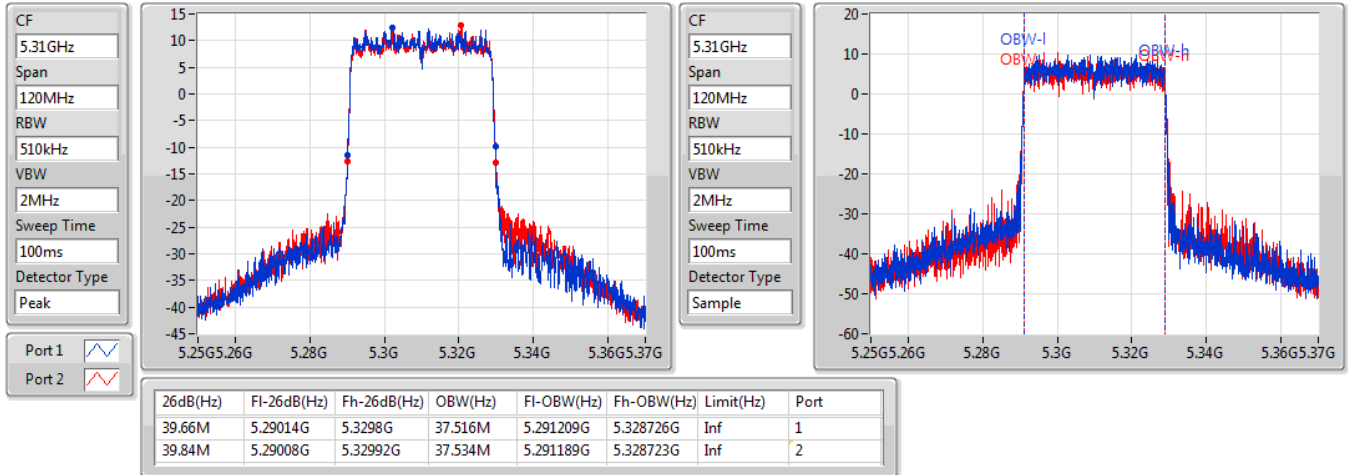

**802.11ax HEW40\_Nss1,(MCS0)\_2TX**
**EBW**
**5270MHz**

18/09/2019

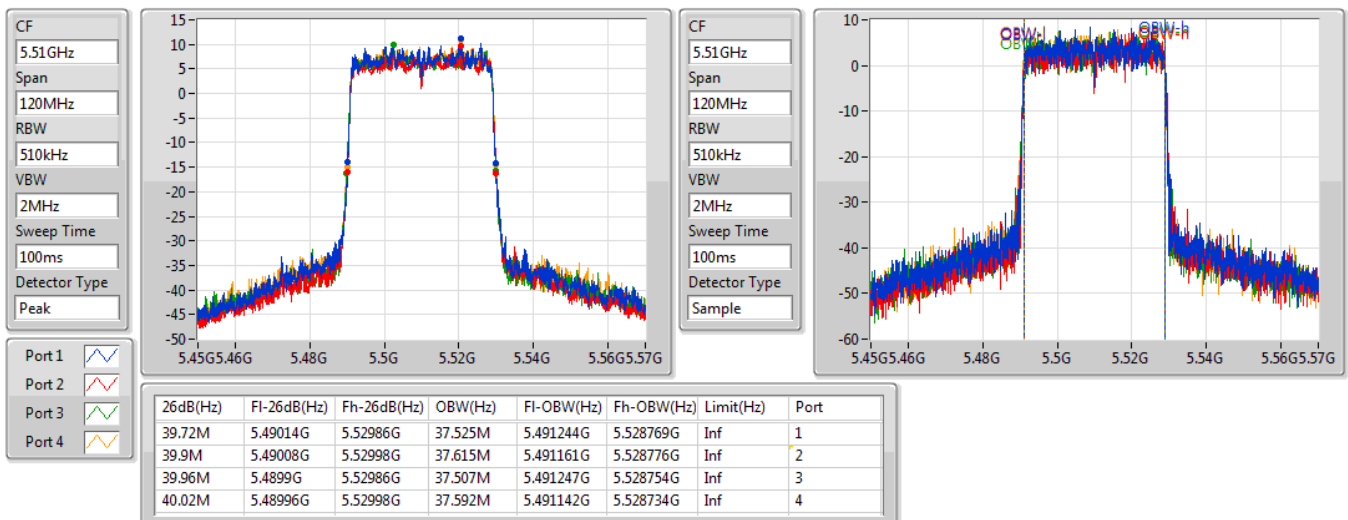


**802.11ax HEW40\_Nss1,(MCS0)\_2TX**
**EBW**
**5310MHz**

18/09/2019

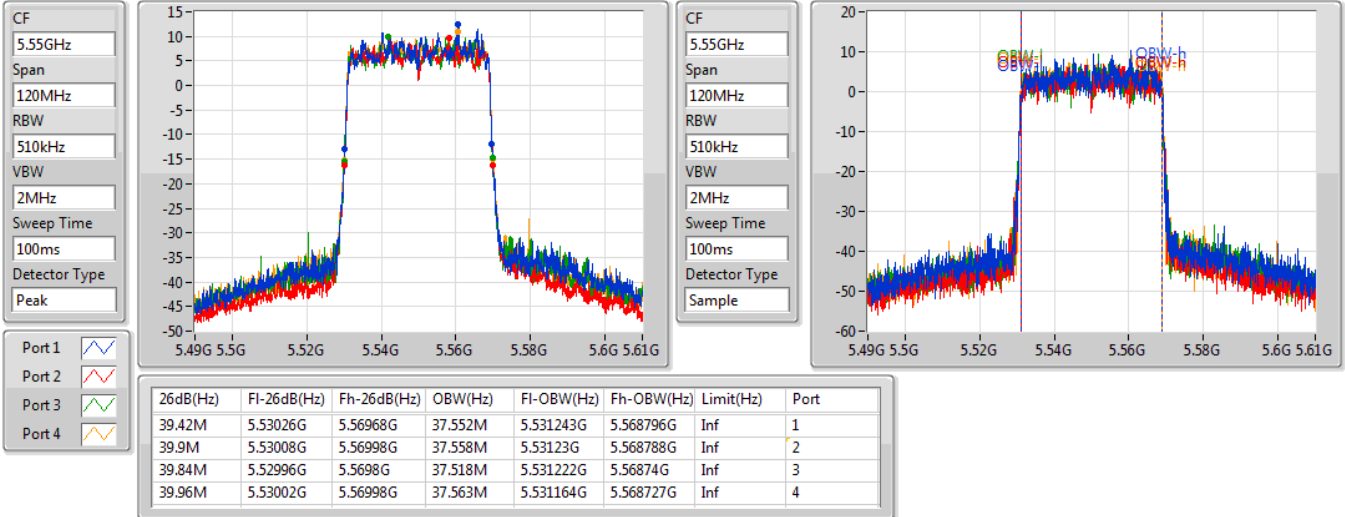

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**EBW**
**5510MHz**

18/09/2019

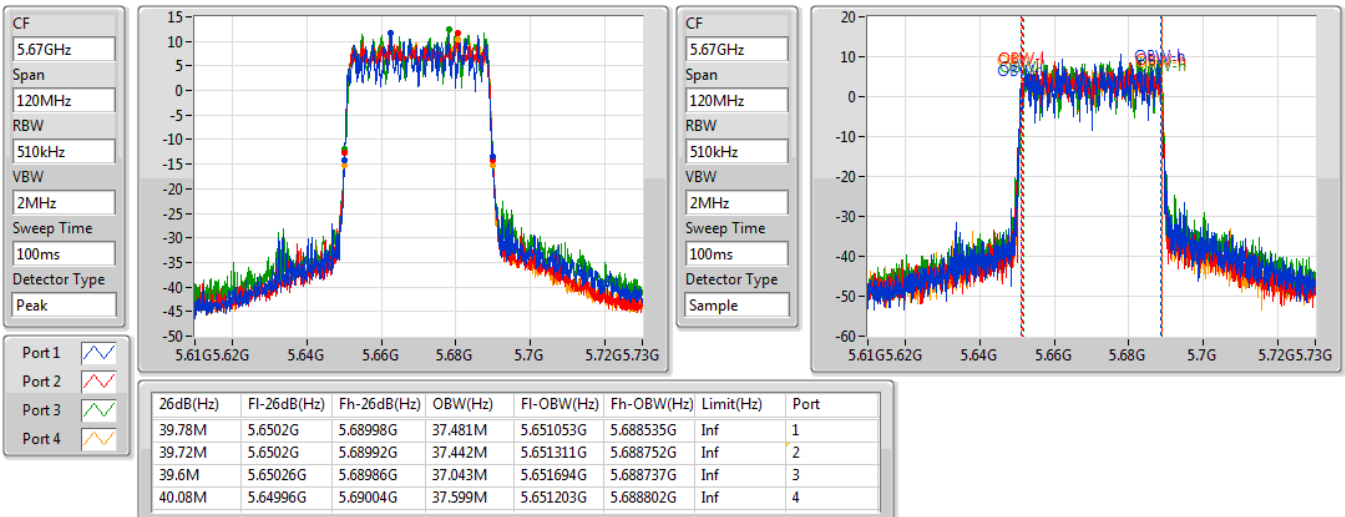


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**EBW**
**5550MHz**

18/09/2019

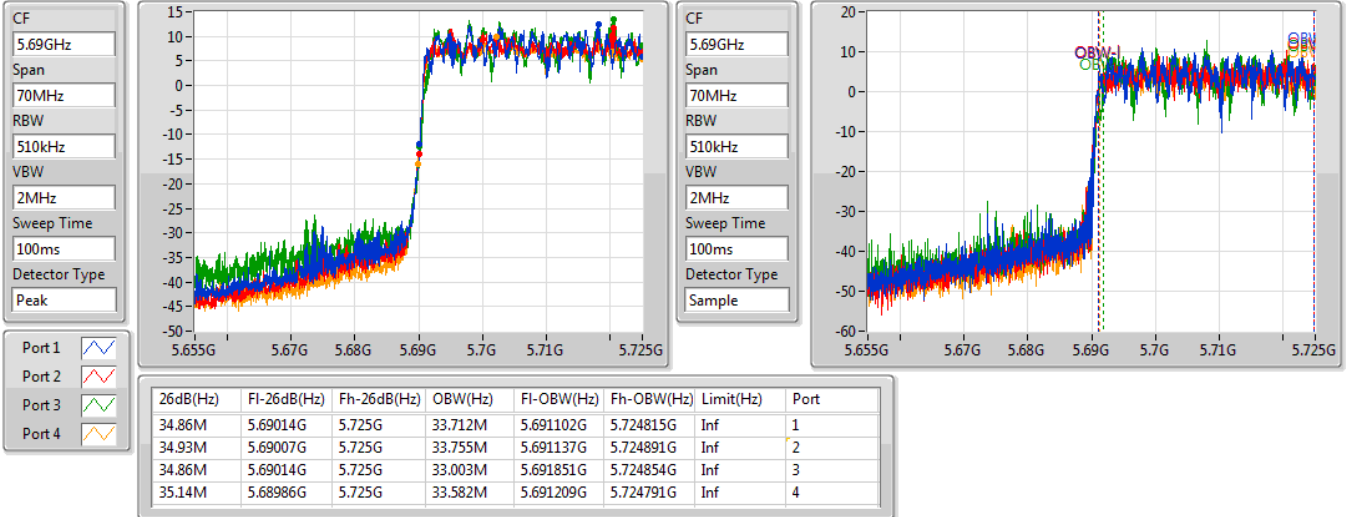

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**EBW**
**5670MHz**

18/09/2019

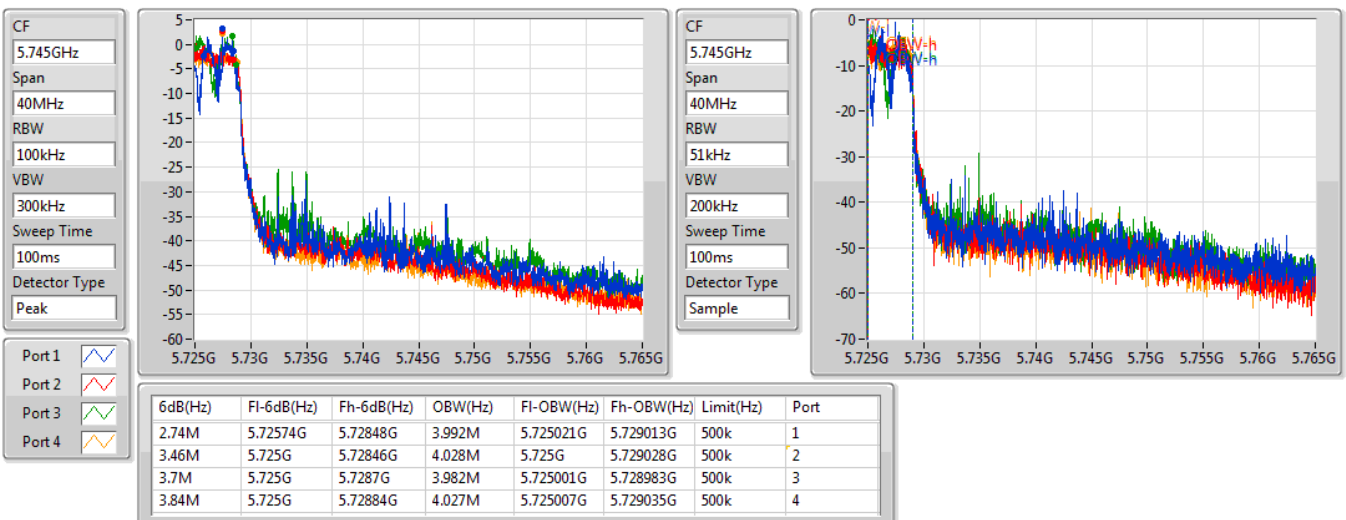


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**EBW**
**5710MHz Straddle 5.47-5.725GHz**

18/09/2019

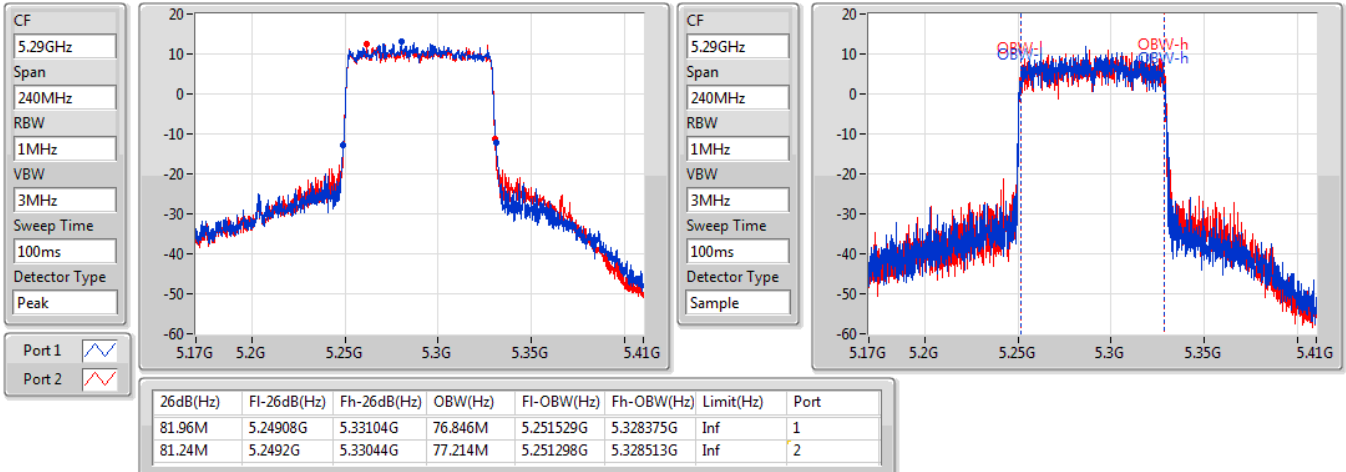

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**EBW**
**5710MHz Straddle 5.725-5.85GHz**

18/09/2019

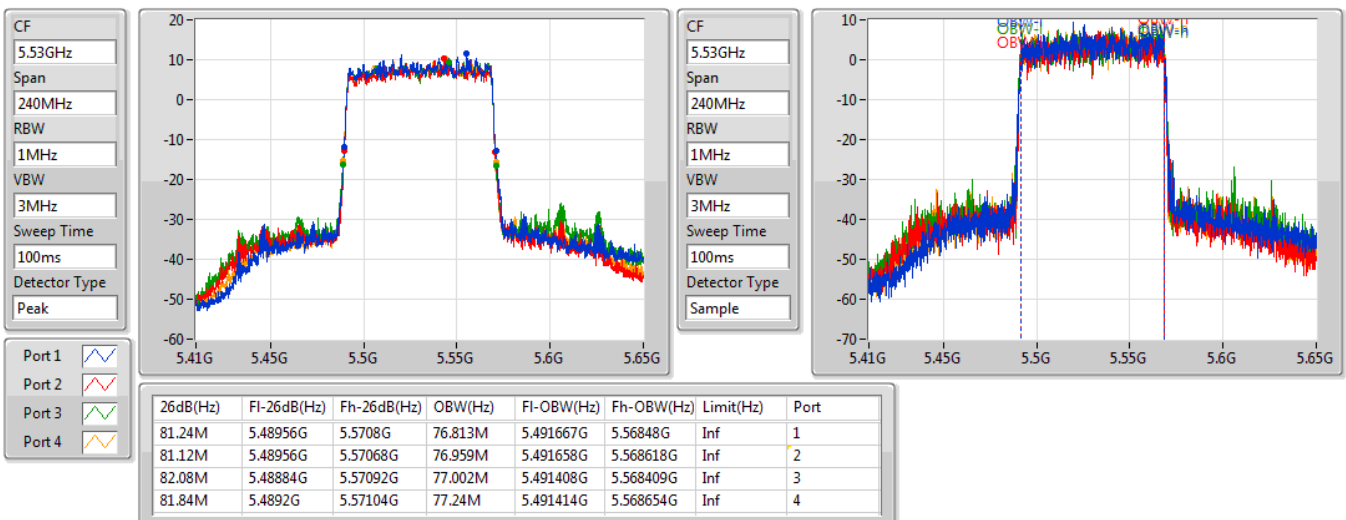


**802.11ax HEW80\_Nss1,(MCS0)\_2TX**
**EBW**
**5290MHz**

18/09/2019

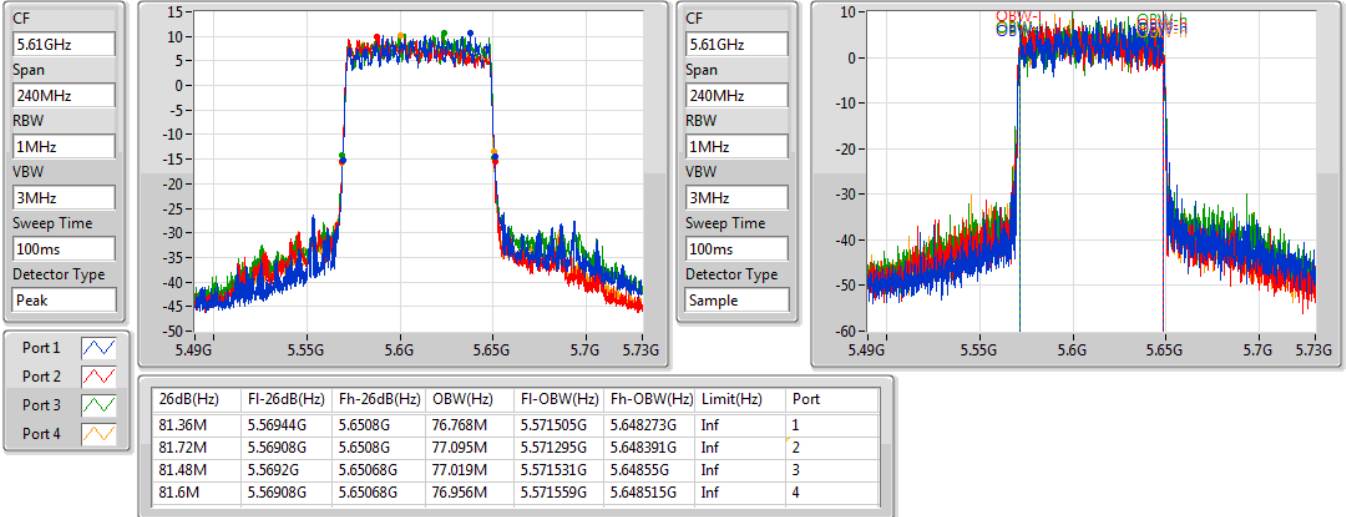

**802.11ax HEW80\_Nss1,(MCS0)\_4TX**
**EBW**
**5530MHz**

18/09/2019

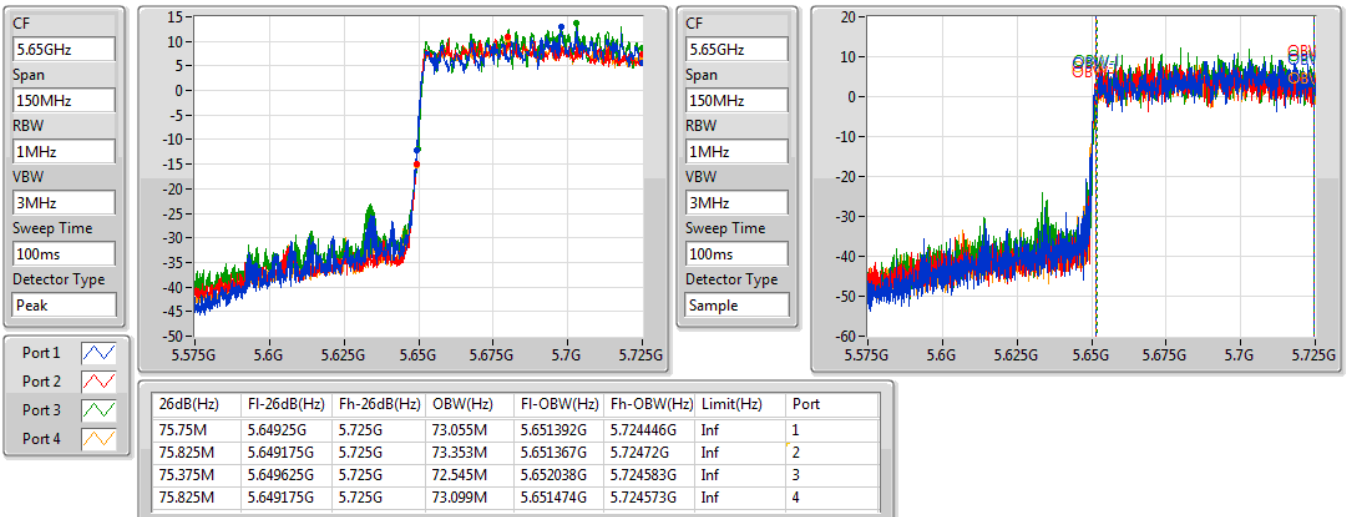


**802.11ax HEW80\_Nss1,(MCS0)\_4TX**
**EBW**
**5610MHz**

18/09/2019

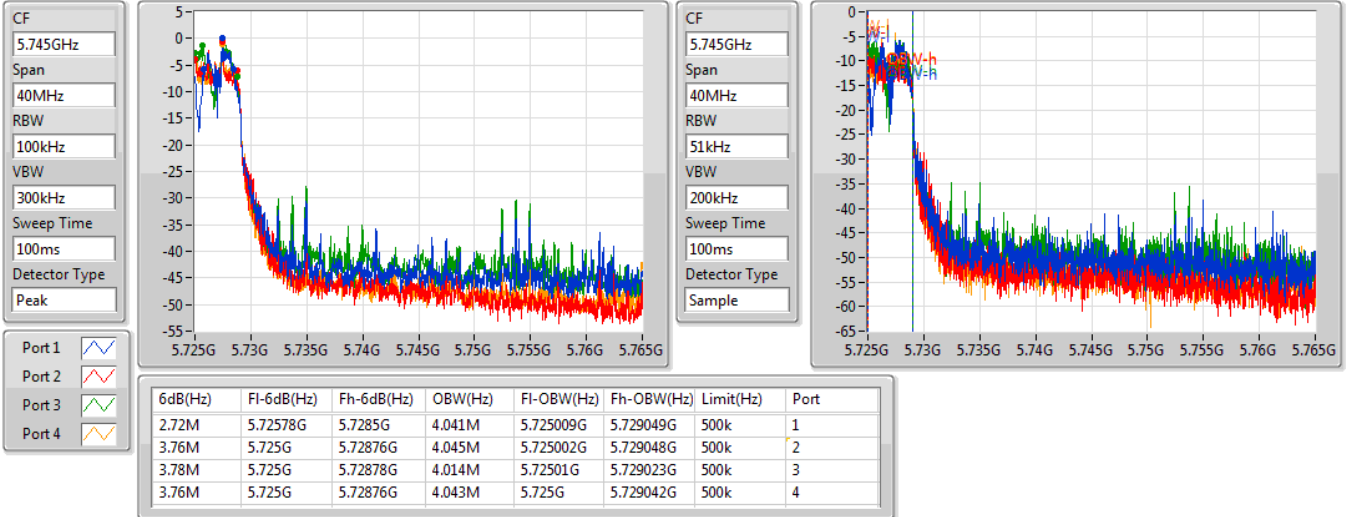

**802.11ax HEW80\_Nss1,(MCS0)\_4TX**
**EBW**
**5690MHz Straddle 5.47-5.725GHz**

18/09/2019

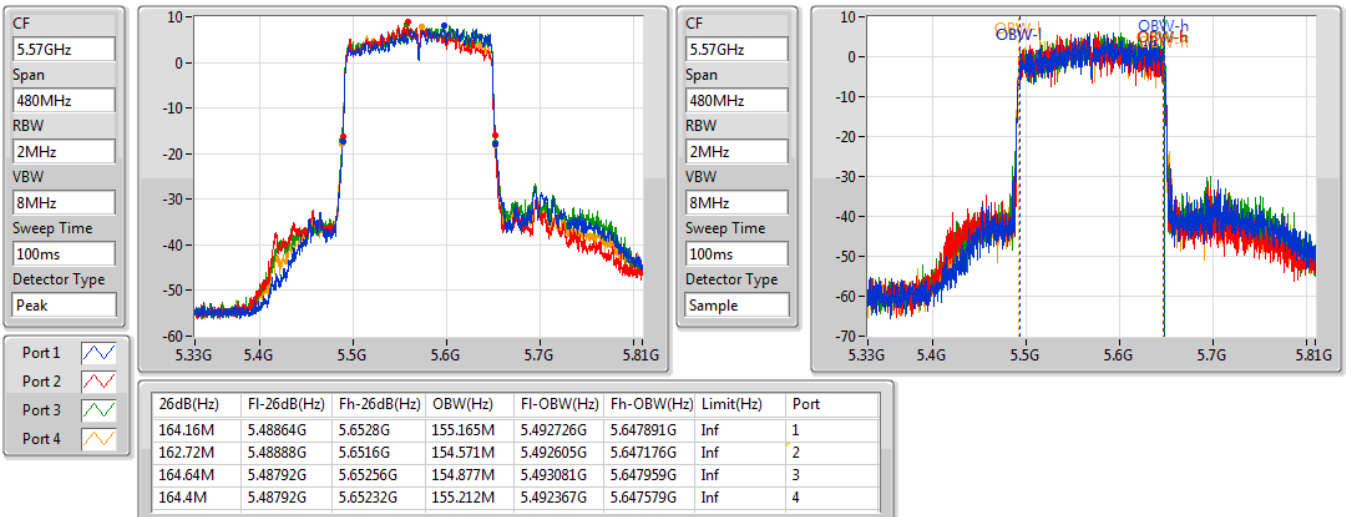


**802.11ax HEW80\_Nss1,(MCS0)\_4TX**
**EBW**
**5690MHz Straddle 5.725-5.85GHz**

18/09/2019


**802.11ax HEW160\_Nss1,(MCS0)\_4TX**
**EBW**
**5570MHz**

18/09/2019



For beamforming function:

### Summary

| Mode                               | Max-N dB<br>(Hz) | Max-OBW<br>(Hz) | ITU-Code | Min-N dB<br>(Hz) | Min-OBW<br>(Hz) |
|------------------------------------|------------------|-----------------|----------|------------------|-----------------|
| 5.47-5.725GHz                      | -                | -               | -        | -                | -               |
| 802.11ac VHT20-BF_Nss1,(MCS0)_4TX  | 21.57M           | 17.901M         | 17M9D1D  | 15.54M           | 13.853M         |
| 802.11ac VHT40-BF_Nss1,(MCS0)_4TX  | 40.32M           | 36.522M         | 36M5D1D  | 34.875M          | 33.021M         |
| 802.11ac VHT80-BF_Nss1,(MCS0)_4TX  | 82.44M           | 76.162M         | 76M2D1D  | 75.64M           | 72.504M         |
| 802.11ac VHT160-BF_Nss1,(MCS0)_4TX | 164.88M          | 154.723M        | 155MD1D  | 163.44M          | 154.243M        |
| 802.11ax HEW20-BF_Nss1,(MCS0)_4TX  | 21.63M           | 19.16M          | 19M2D1D  | 15.628M          | 14.395M         |
| 802.11ax HEW40-BF_Nss1,(MCS0)_4TX  | 40.14M           | 37.601M         | 37M6D1D  | 34.95M           | 33.358M         |
| 802.11ax HEW80-BF_Nss1,(MCS0)_4TX  | 82.32M           | 77.361M         | 77M4D1D  | 75.795M          | 72.814M         |
| 802.11ax HEW160-BF_Nss1,(MCS0)_4TX | 165.12M          | 155.682M        | 156MD1D  | 163.68M          | 155.202M        |
| 5.725-5.85GHz                      | -                | -               | -        | -                | -               |
| 802.11ac VHT20-BF_Nss1,(MCS0)_4TX  | 17.61M           | 17.931M         | 17M9D1D  | 3.72M            | 4.438M          |
| 802.11ac VHT40-BF_Nss1,(MCS0)_4TX  | 36.36M           | 36.402M         | 36M4D1D  | 2.34M            | 3.883M          |
| 802.11ac VHT80-BF_Nss1,(MCS0)_4TX  | 76.32M           | 75.922M         | 75M9D1D  | 2.025M           | 5.517M          |
| 802.11ax HEW20-BF_Nss1,(MCS0)_4TX  | 18.99M           | 19.19M          | 19M2D1D  | 4.38M            | 4.663M          |
| 802.11ax HEW40-BF_Nss1,(MCS0)_4TX  | 37.62M           | 37.661M         | 37M7D1D  | 3.495M           | 4.078M          |
| 802.11ax HEW80-BF_Nss1,(MCS0)_4TX  | 76.92M           | 77.121M         | 77M1D1D  | 3.495M           | 4.693M          |

**Max-N dB** = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

**Max-OBW** = Maximum 99% occupied bandwidth;

**Min-N dB** = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

**Min-OBW** = Minimum 99% occupied bandwidth;

**Result**

| Mode                               | Result | Limit<br>(Hz) | Port 1-N dB<br>(Hz) | Port 1-OBW<br>(Hz) | Port 2-N dB<br>(Hz) | Port 2-OBW<br>(Hz) | Port 3-N dB<br>(Hz) | Port 3-OBW<br>(Hz) | Port 4-N dB<br>(Hz) | Port 4-OBW<br>(Hz) |
|------------------------------------|--------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 802.11ac VHT20-BF_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5500MHz                            | Pass   | Inf           | 21.42M              | 17.871M            | 21.54M              | 17.841M            | 21.57M              | 17.811M            | 21.51M              | 17.871M            |
| 5580MHz                            | Pass   | Inf           | 21.18M              | 17.811M            | 21.57M              | 17.811M            | 21.3M               | 17.781M            | 21.51M              | 17.871M            |
| 5700MHz                            | Pass   | Inf           | 21.36M              | 17.901M            | 21.3M               | 17.811M            | 21.18M              | 17.721M            | 21.54M              | 17.901M            |
| 5720MHz Straddle 5.47-5.725GHz     | Pass   | Inf           | 15.68M              | 13.958M            | 15.75M              | 13.958M            | 15.54M              | 13.853M            | 15.908M             | 13.958M            |
| 5720MHz Straddle 5.725-5.85GHz     | Pass   | 500k          | 3.72M               | 4.543M             | 3.765M              | 4.528M             | 3.735M              | 4.438M             | 3.78M               | 4.558M             |
| 5745MHz                            | Pass   | 500k          | 17.55M              | 17.931M            | 17.58M              | 17.781M            | 16.32M              | 17.751M            | 17.58M              | 17.901M            |
| 5785MHz                            | Pass   | 500k          | 17.55M              | 17.901M            | 17.55M              | 17.781M            | 17.55M              | 17.871M            | 17.55M              | 17.901M            |
| 5825MHz                            | Pass   | 500k          | 17.28M              | 17.901M            | 17.55M              | 17.811M            | 17.61M              | 17.901M            | 17.61M              | 17.901M            |
| 802.11ac VHT40-BF_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5510MHz                            | Pass   | Inf           | 40.32M              | 36.462M            | 39.9M               | 36.342M            | 40.08M              | 36.462M            | 39.72M              | 36.282M            |
| 5550MHz                            | Pass   | Inf           | 40.2M               | 36.462M            | 40.02M              | 36.342M            | 40.02M              | 36.462M            | 39.78M              | 36.342M            |
| 5670MHz                            | Pass   | Inf           | 40.26M              | 36.522M            | 39.96M              | 36.342M            | 39.84M              | 36.522M            | 39.66M              | 36.402M            |
| 5710MHz Straddle 5.47-5.725GHz     | Pass   | Inf           | 35.063M             | 33.058M            | 34.95M              | 33.021M            | 34.988M             | 33.133M            | 34.875M             | 33.058M            |
| 5710MHz Straddle 5.725-5.85GHz     | Pass   | 500k          | 2.34M               | 3.928M             | 3.105M              | 3.988M             | 3.21M               | 3.883M             | 3.12M               | 3.958M             |
| 5755MHz                            | Pass   | 500k          | 35.46M              | 36.342M            | 36.3M               | 36.222M            | 35.76M              | 36.402M            | 36.36M              | 36.402M            |
| 5795MHz                            | Pass   | 500k          | 35.64M              | 36.282M            | 36.24M              | 36.342M            | 35.76M              | 36.342M            | 36.36M              | 36.402M            |
| 802.11ac VHT80-BF_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5530MHz                            | Pass   | Inf           | 82.44M              | 75.802M            | 81.72M              | 75.922M            | 81.6M               | 75.802M            | 81.48M              | 75.562M            |
| 5610MHz                            | Pass   | Inf           | 81.96M              | 76.162M            | 81.36M              | 75.682M            | 81.72M              | 75.922M            | 81.6M               | 75.682M            |
| 5690MHz Straddle 5.47-5.725GHz     | Pass   | Inf           | 75.873M             | 72.504M            | 75.873M             | 72.581M            | 75.64M              | 72.581M            | 76.338M             | 72.504M            |
| 5690MHz Straddle 5.725-5.85GHz     | Pass   | 500k          | 2.025M              | 7.166M             | 3.105M              | 8.936M             | 3.135M              | 5.517M             | 3.12M               | 9.76M              |
| 5775MHz                            | Pass   | 500k          | 74.64M              | 75.202M            | 75.96M              | 75.802M            | 71.28M              | 75.442M            | 76.32M              | 75.922M            |
| 802.11ac VHT160-BF_Nss1,(MCS0)_4TX | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5570MHz                            | Pass   | Inf           | 164.88M             | 154.723M           | 164.16M             | 154.243M           | 164.16M             | 154.483M           | 163.44M             | 154.243M           |
| 802.11ax HEW20-BF_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5500MHz                            | Pass   | Inf           | 21.42M              | 19.01M             | 21.45M              | 19.04M             | 21.54M              | 19.07M             | 21.51M              | 19.1M              |
| 5580MHz                            | Pass   | Inf           | 21.48M              | 19.07M             | 21.42M              | 19.01M             | 21.45M              | 19.01M             | 21.45M              | 19.16M             |
| 5700MHz                            | Pass   | Inf           | 21.18M              | 18.981M            | 21.51M              | 19.1M              | 21.33M              | 19.01M             | 21.63M              | 19.1M              |
| 5720MHz Straddle 5.47-5.725GHz     | Pass   | Inf           | 15.628M             | 14.395M            | 15.715M             | 14.535M            | 15.698M             | 14.588M            | 15.75M              | 14.535M            |
| 5720MHz Straddle 5.725-5.85GHz     | Pass   | 500k          | 4.425M              | 4.678M             | 4.545M              | 4.723M             | 4.38M               | 4.663M             | 4.5M                | 4.813M             |
| 5745MHz                            | Pass   | 500k          | 18.27M              | 18.921M            | 18.96M              | 19.16M             | 18.45M              | 19.13M             | 18.96M              | 19.1M              |
| 5785MHz                            | Pass   | 500k          | 18.06M              | 19.01M             | 18.99M              | 19.16M             | 18.18M              | 19.07M             | 18.87M              | 19.13M             |
| 5825MHz                            | Pass   | 500k          | 18.75M              | 19.1M              | 18.96M              | 19.19M             | 18.69M              | 19.1M              | 18.9M               | 19.13M             |
| 802.11ax HEW40-BF_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5510MHz                            | Pass   | Inf           | 40.02M              | 37.541M            | 39.84M              | 37.541M            | 39.84M              | 37.541M            | 40.08M              | 37.481M            |
| 5550MHz                            | Pass   | Inf           | 39.9M               | 37.481M            | 39.84M              | 37.481M            | 40.02M              | 37.601M            | 40.02M              | 37.601M            |
| 5670MHz                            | Pass   | Inf           | 39.9M               | 37.601M            | 39.96M              | 37.481M            | 39.9M               | 37.241M            | 40.14M              | 37.541M            |
| 5710MHz Straddle 5.47-5.725GHz     | Pass   | Inf           | 34.988M             | 33.621M            | 34.95M              | 33.658M            | 35.063M             | 33.358M            | 35.138M             | 33.508M            |
| 5710MHz Straddle 5.725-5.85GHz     | Pass   | 500k          | 3.495M              | 4.093M             | 3.72M               | 4.108M             | 3.795M              | 4.078M             | 3.825M              | 4.138M             |
| 5755MHz                            | Pass   | 500k          | 37.56M              | 37.541M            | 36.66M              | 37.541M            | 36.12M              | 37.481M            | 37.62M              | 37.601M            |
| 5795MHz                            | Pass   | 500k          | 37.5M               | 37.541M            | 36.9M               | 37.601M            | 33.78M              | 37.661M            | 37.2M               | 37.541M            |
| 802.11ax HEW80-BF_Nss1,(MCS0)_4TX  | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5530MHz                            | Pass   | Inf           | 81.84M              | 77.121M            | 82.32M              | 77.361M            | 82.32M              | 77.121M            | 81.96M              | 77.121M            |

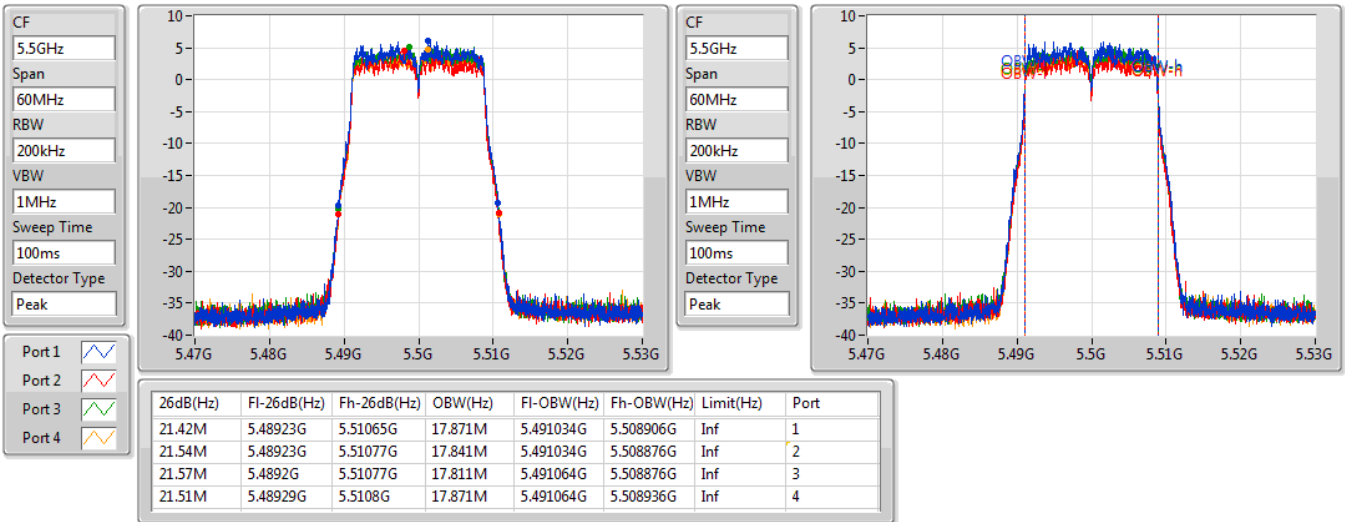
| Mode                               | Result | Limit<br>(Hz) | Port 1-N dB<br>(Hz) | Port 1-OBW<br>(Hz) | Port 2-N dB<br>(Hz) | Port 2-OBW<br>(Hz) | Port 3-N dB<br>(Hz) | Port 3-OBW<br>(Hz) | Port 4-N dB<br>(Hz) | Port 4-OBW<br>(Hz) |
|------------------------------------|--------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 5610MHz                            | Pass   | Inf           | 81.84M              | 76.882M            | 81.6M               | 76.882M            | 82.2M               | 77.121M            | 81.84M              | 77.241M            |
| 5690MHz Straddle 5.47-5.725GHz     | Pass   | Inf           | 75.95M              | 72.969M            | 75.95M              | 73.201M            | 75.95M              | 72.814M            | 75.795M             | 73.201M            |
| 5690MHz Straddle 5.725-5.85GHz     | Pass   | 500k          | 3.495M              | 5.427M             | 3.525M              | 6.252M             | 3.75M               | 4.693M             | 3.69M               | 5.352M             |
| 5775MHz                            | Pass   | 500k          | 72.48M              | 76.882M            | 76.32M              | 77.121M            | 70.32M              | 76.762M            | 76.92M              | 77.121M            |
| 802.11ax HEW160-BF_Nss1,(MCS0)_4TX | -      | -             | -                   | -                  | -                   | -                  | -                   | -                  | -                   | -                  |
| 5570MHz                            | Pass   | Inf           | 164.4M              | 155.442M           | 163.68M             | 155.202M           | 165.12M             | 155.682M           | 164.16M             | 155.442M           |

**Port X-N dB** = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

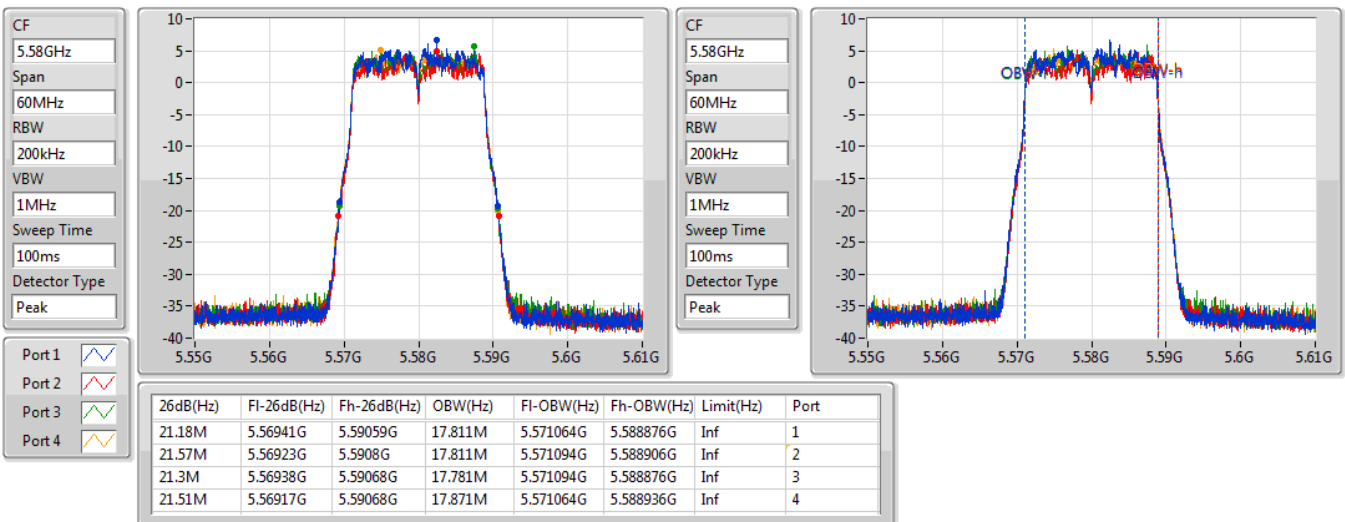
**Port X-OBW** = Port X 99% occupied bandwidth;

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5500MHz**

01/02/2020

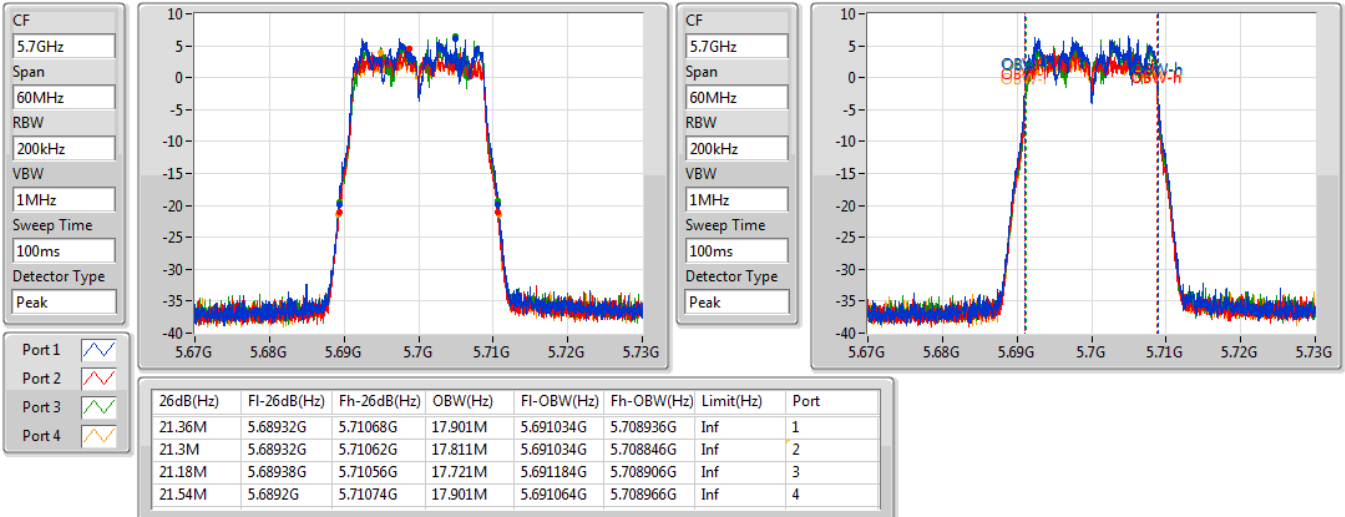

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5580MHz**

01/02/2020

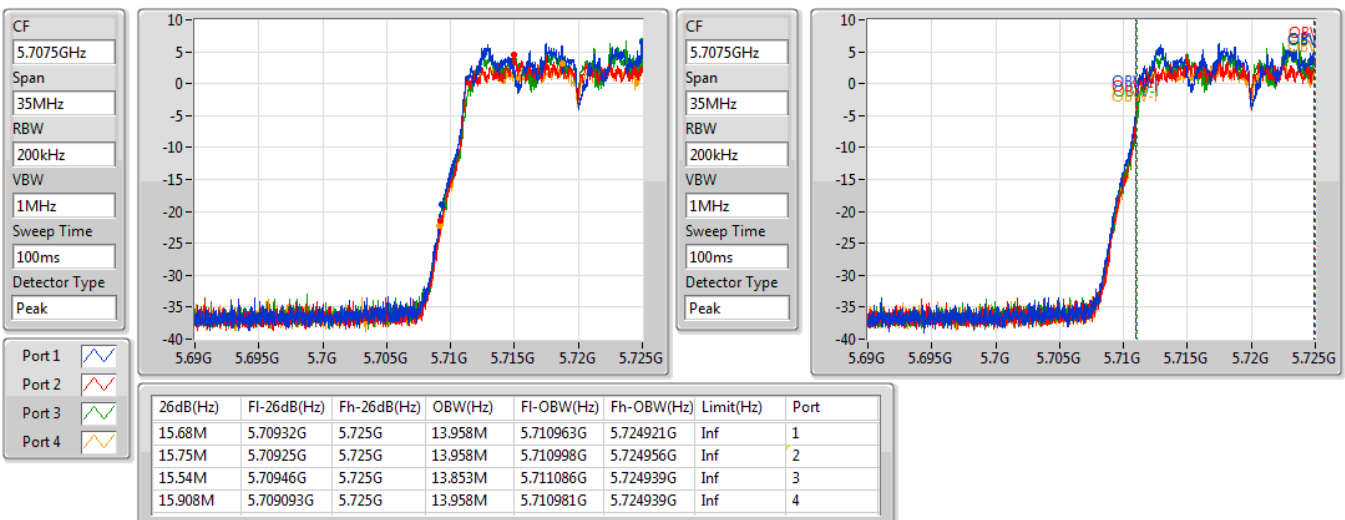


**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5700MHz**

01/02/2020

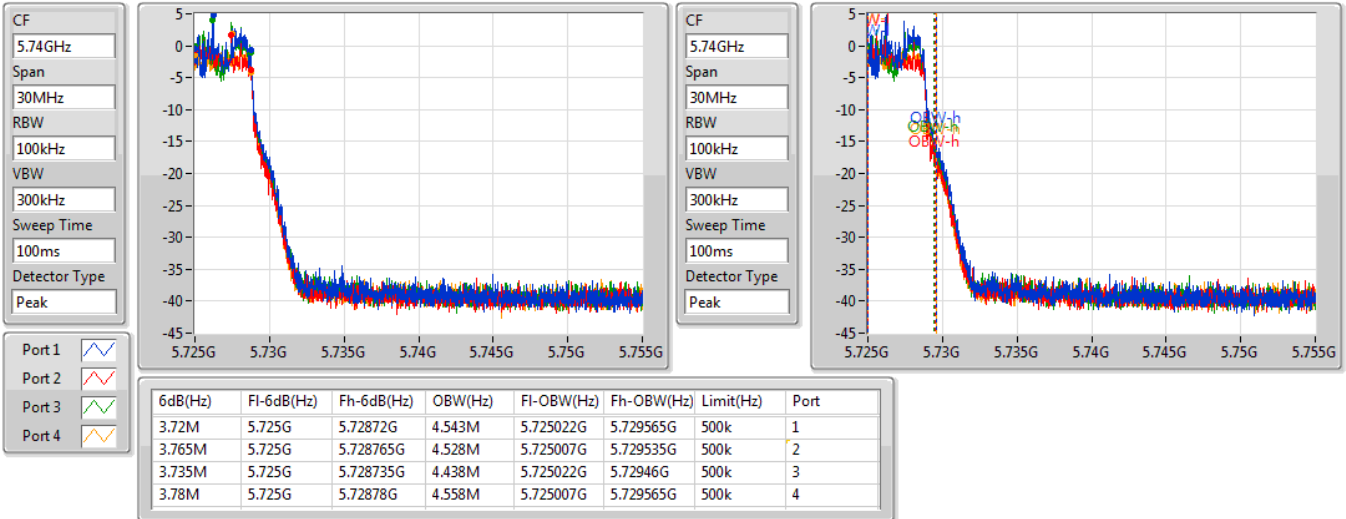

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5720MHz Straddle 5.47-5.725GHz**

01/02/2020

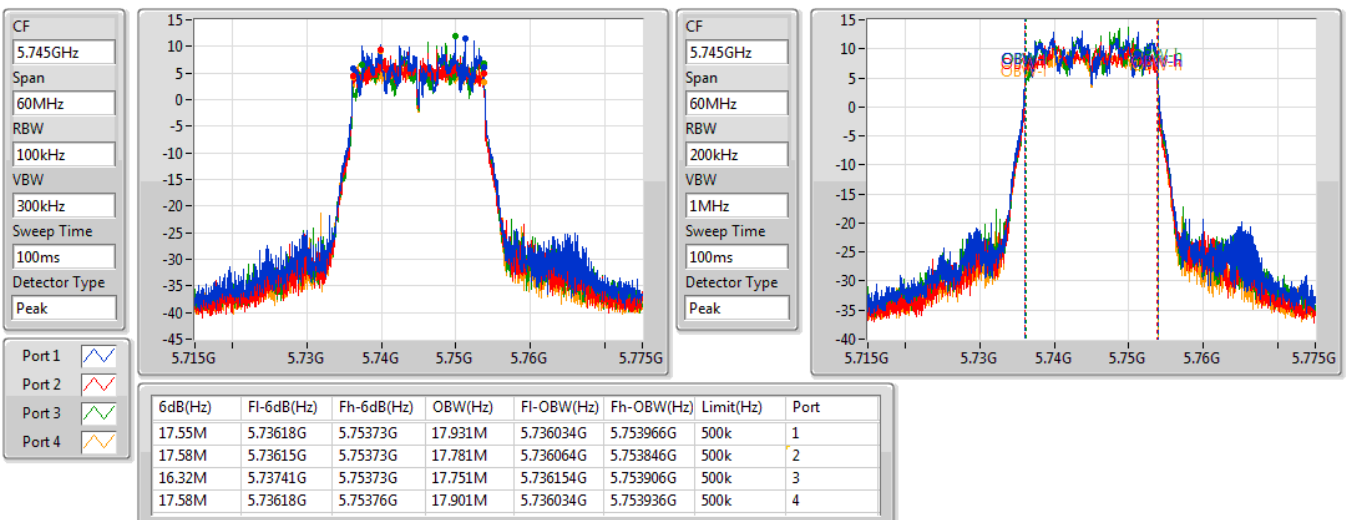


**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5720MHz Straddle 5.725-5.85GHz**

01/02/2020

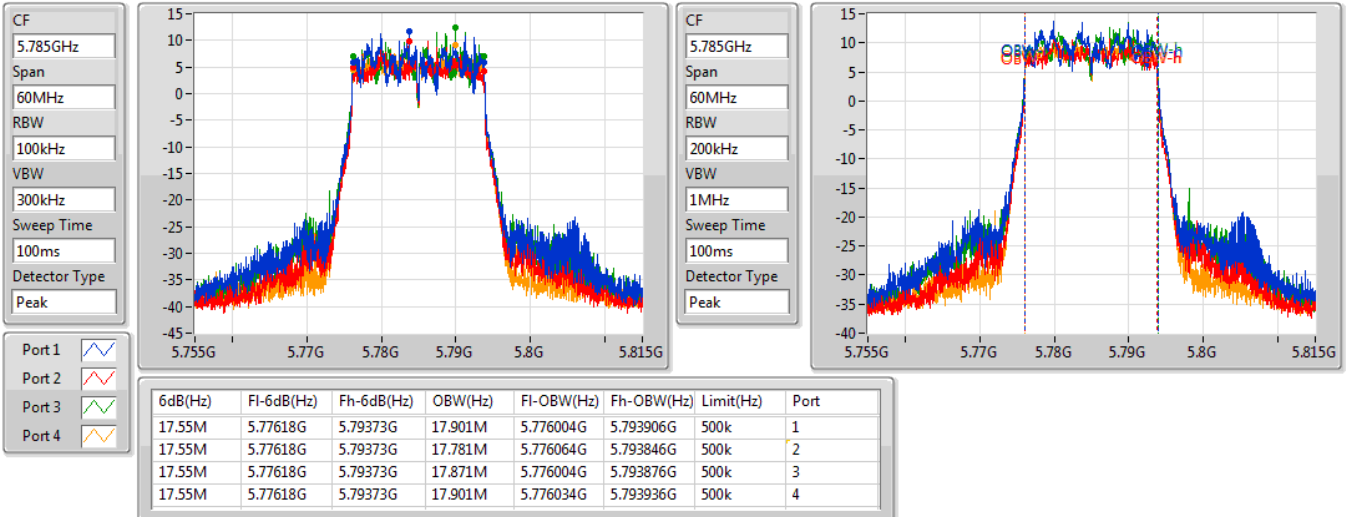

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5745MHz**

01/02/2020

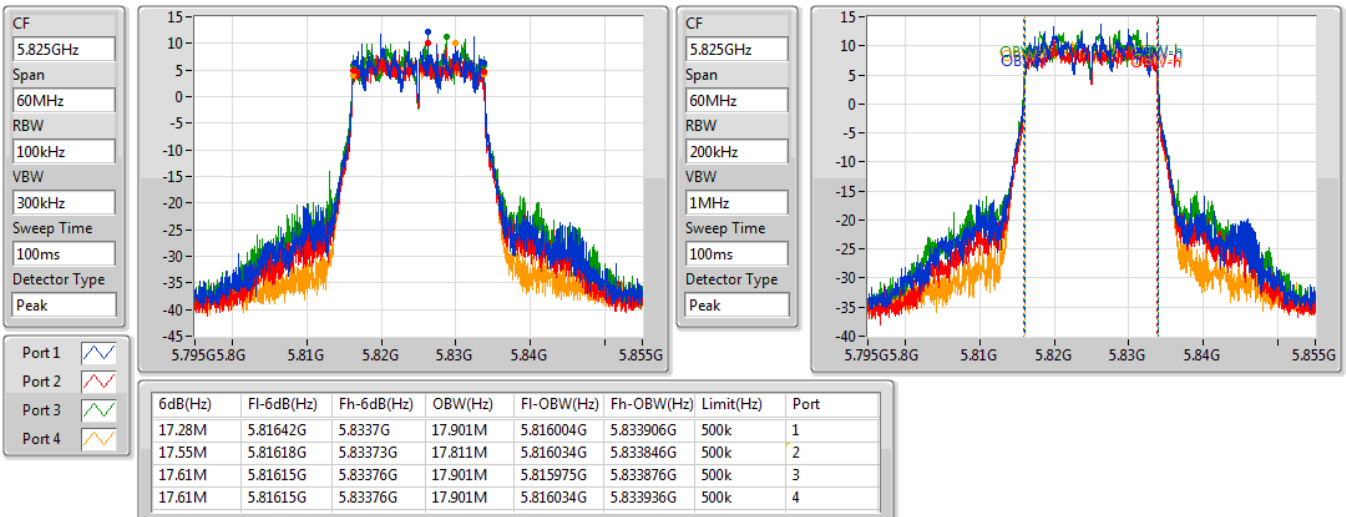


**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5785MHz**

01/02/2020

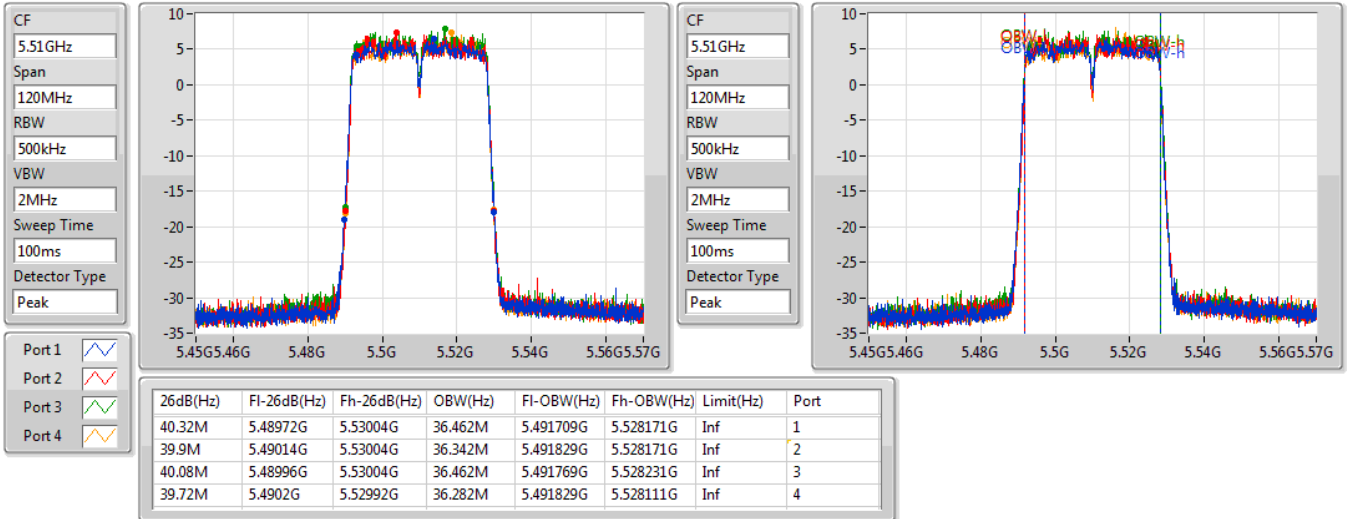

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5825MHz**

01/02/2020

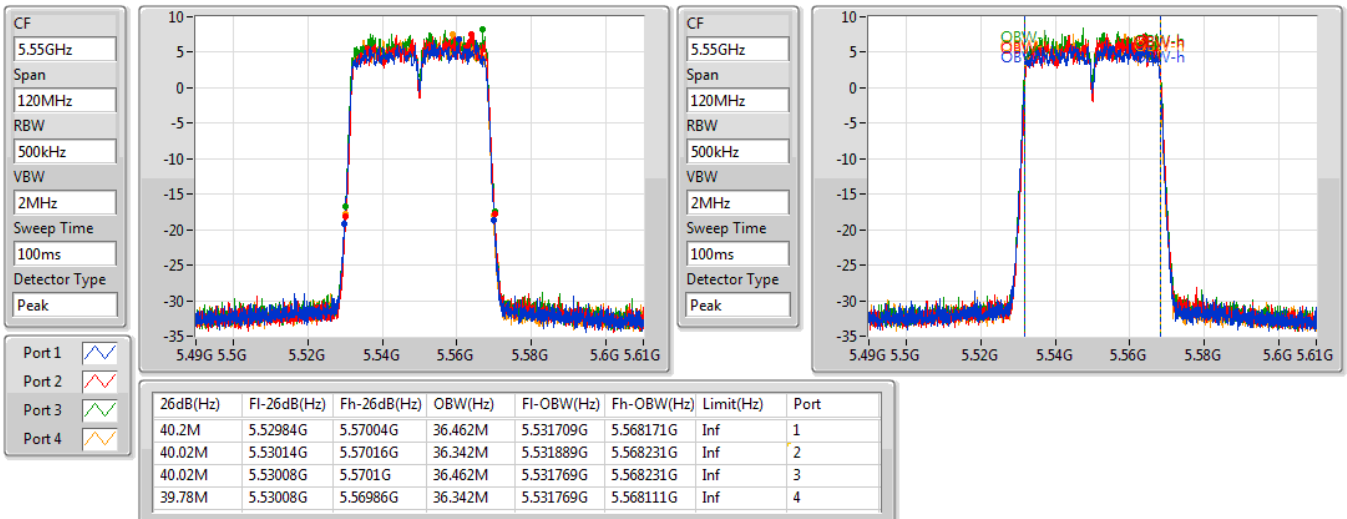


**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5510MHz**

01/02/2020

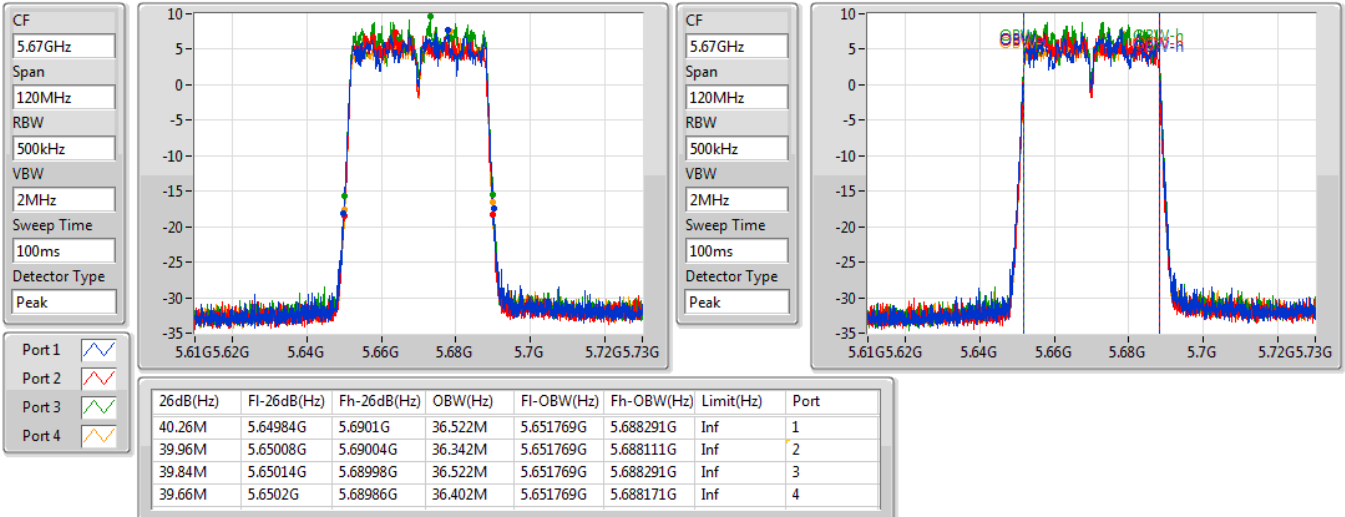

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5550MHz**

01/02/2020

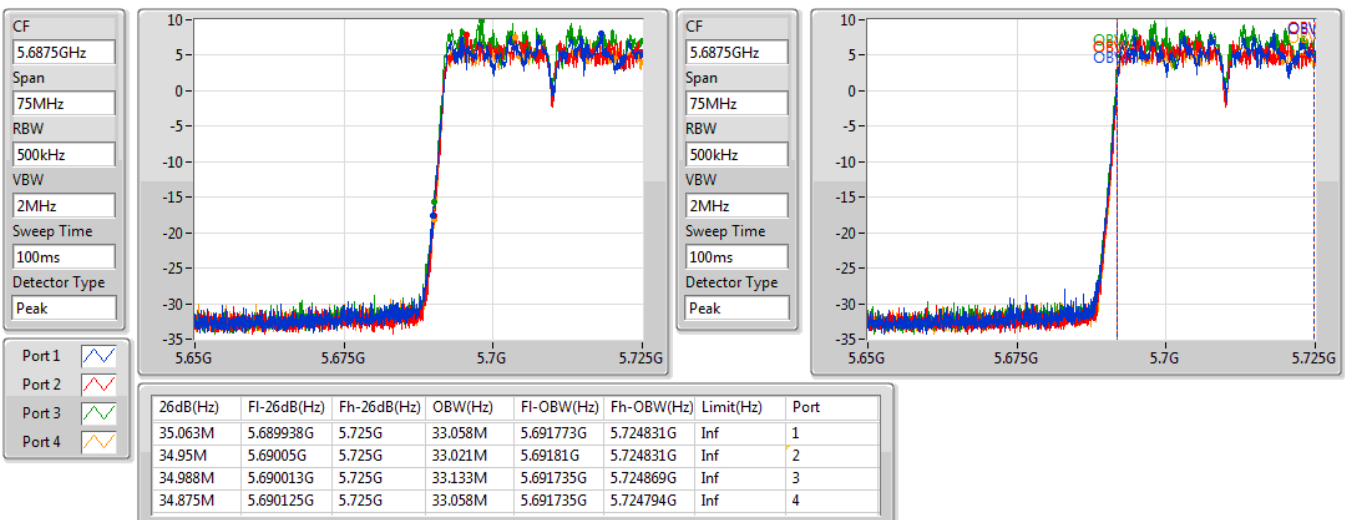


**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5670MHz**

01/02/2020

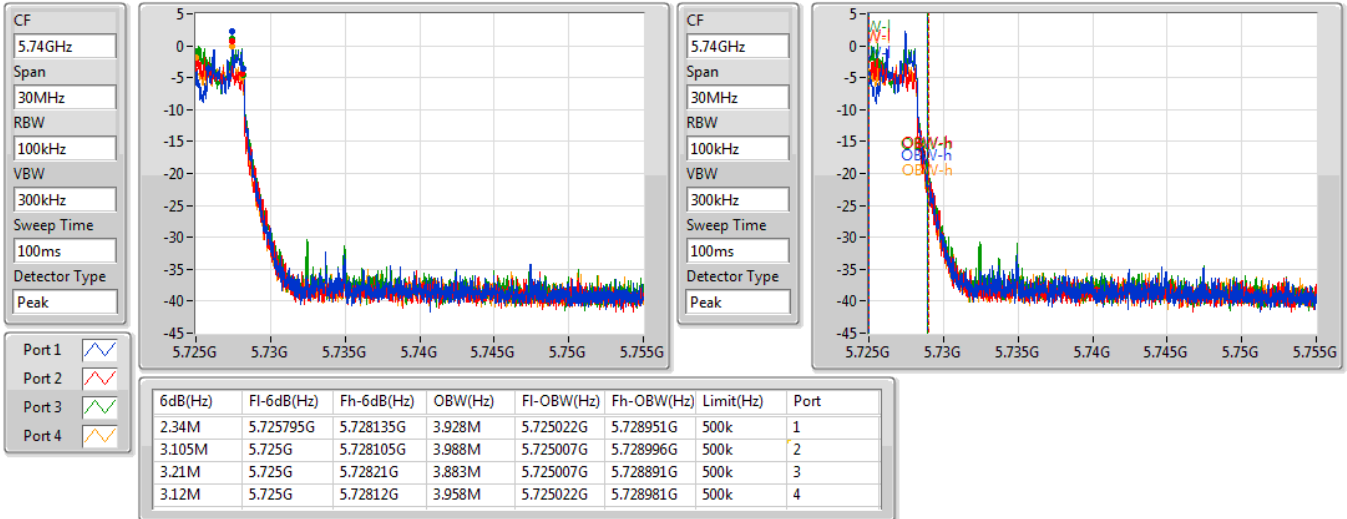

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5710MHz Straddle 5.47-5.725GHz**

01/02/2020

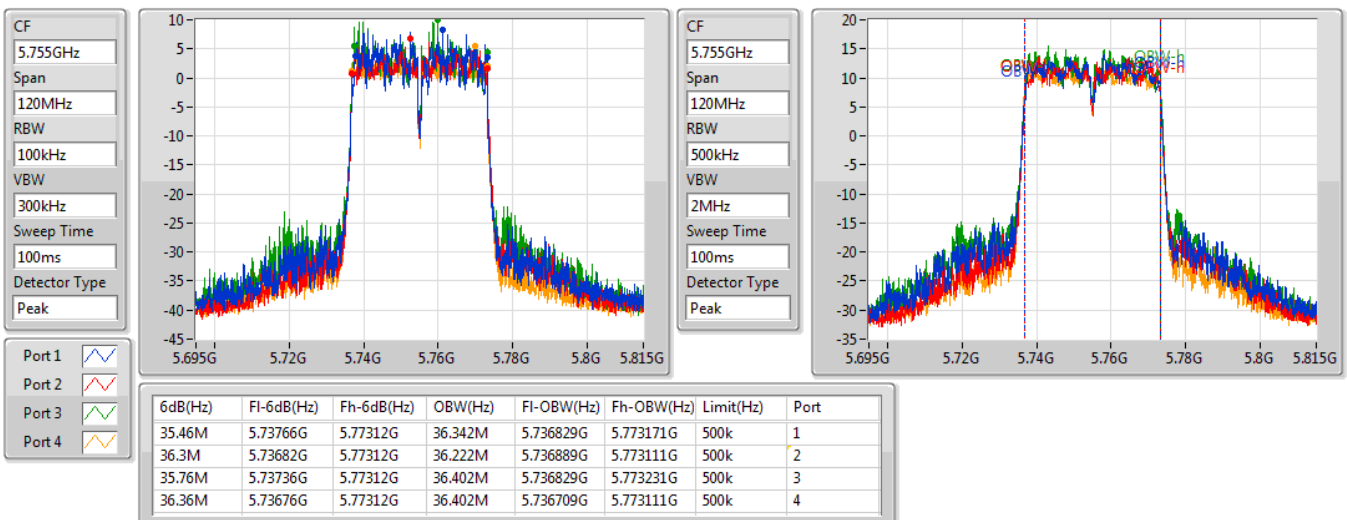


**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5710MHz Straddle 5.725-5.85GHz**

01/02/2020

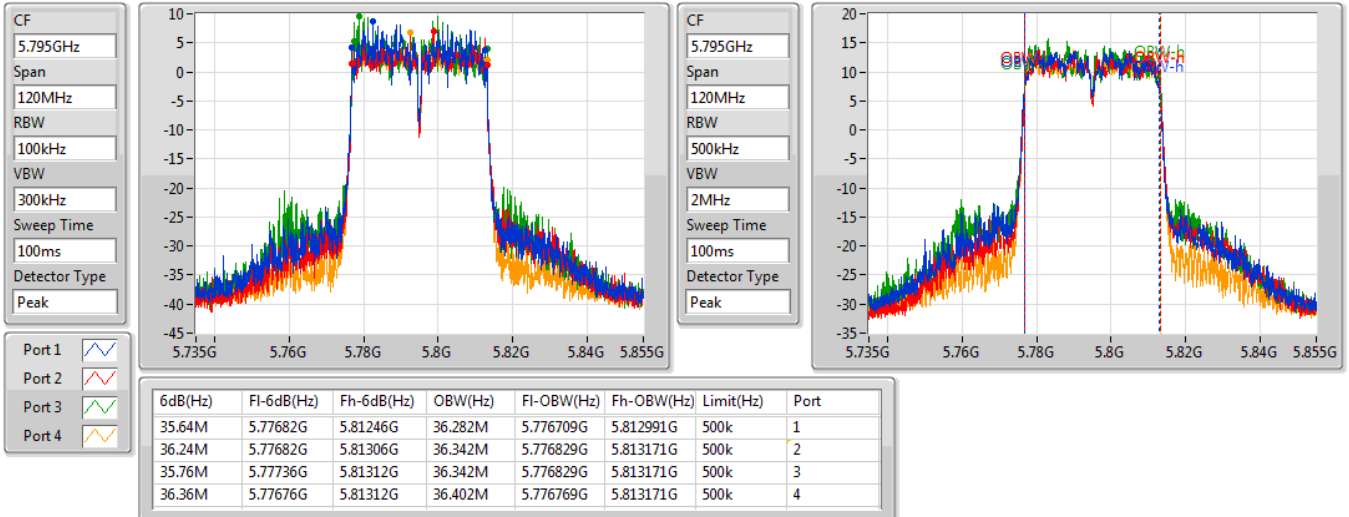

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5755MHz**

01/02/2020

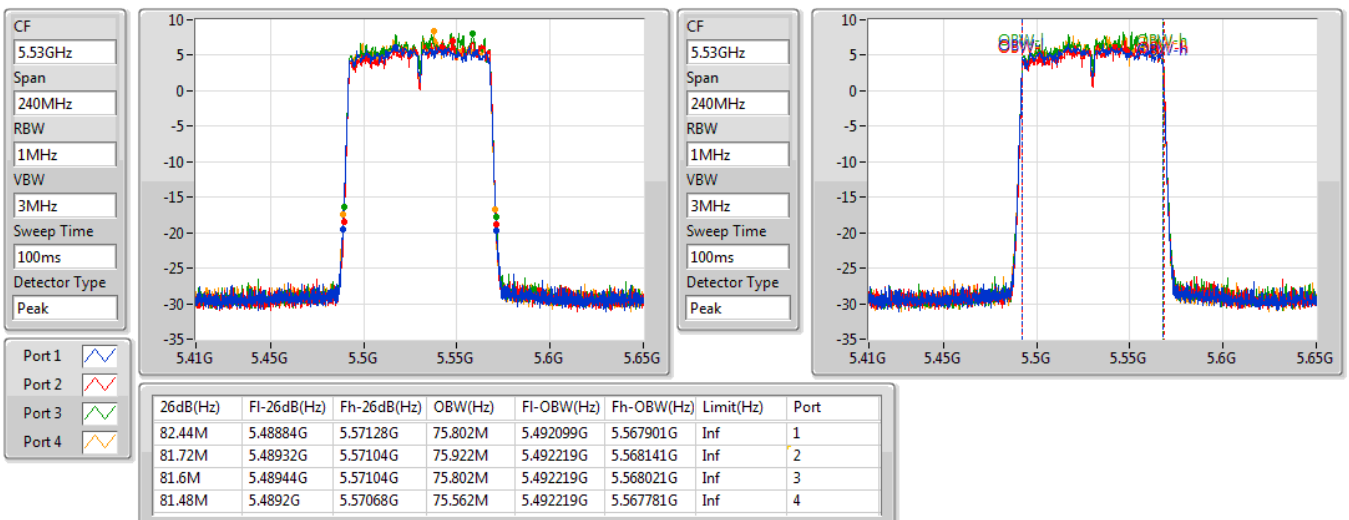


**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5795MHz**

01/02/2020

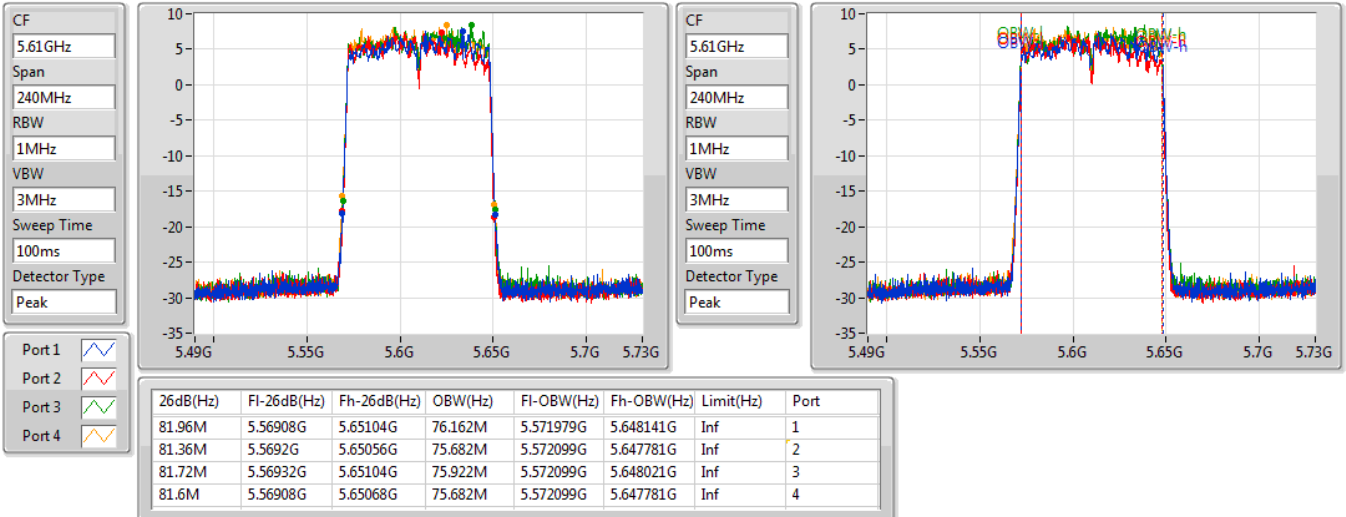

**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5530MHz**

01/02/2020

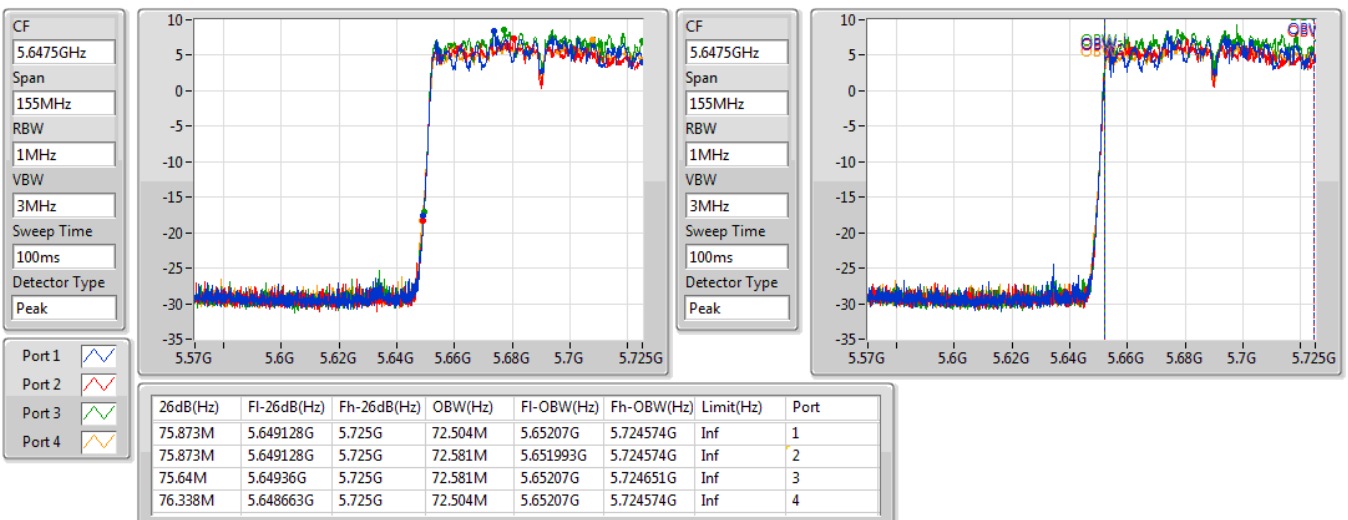


**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5610MHz**

01/02/2020

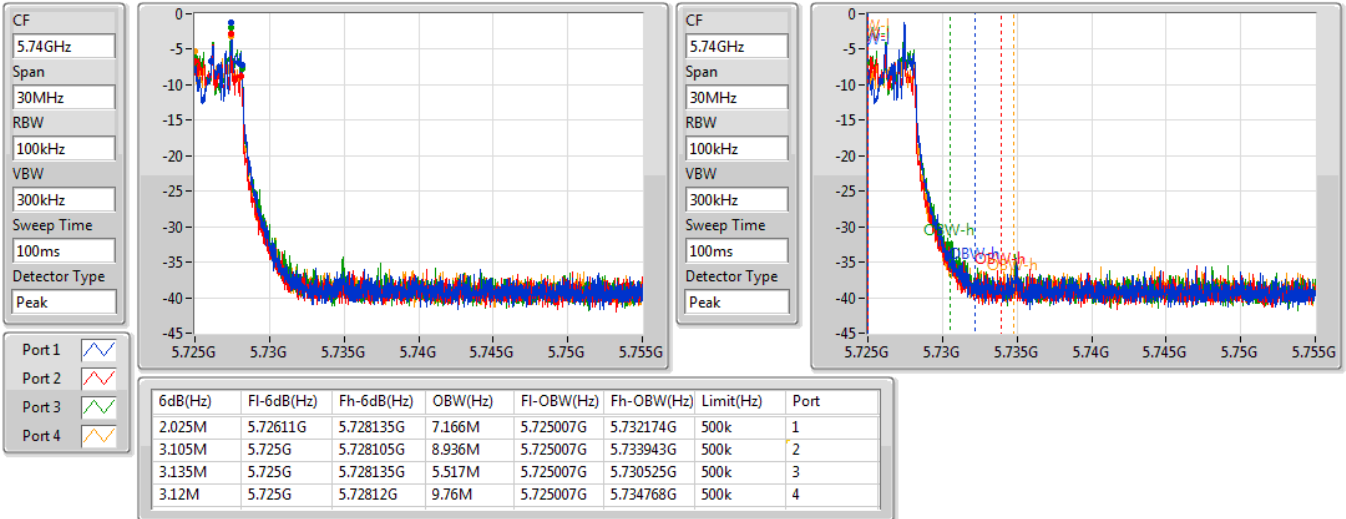

**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5690MHz Straddle 5.47-5.725GHz**

01/02/2020

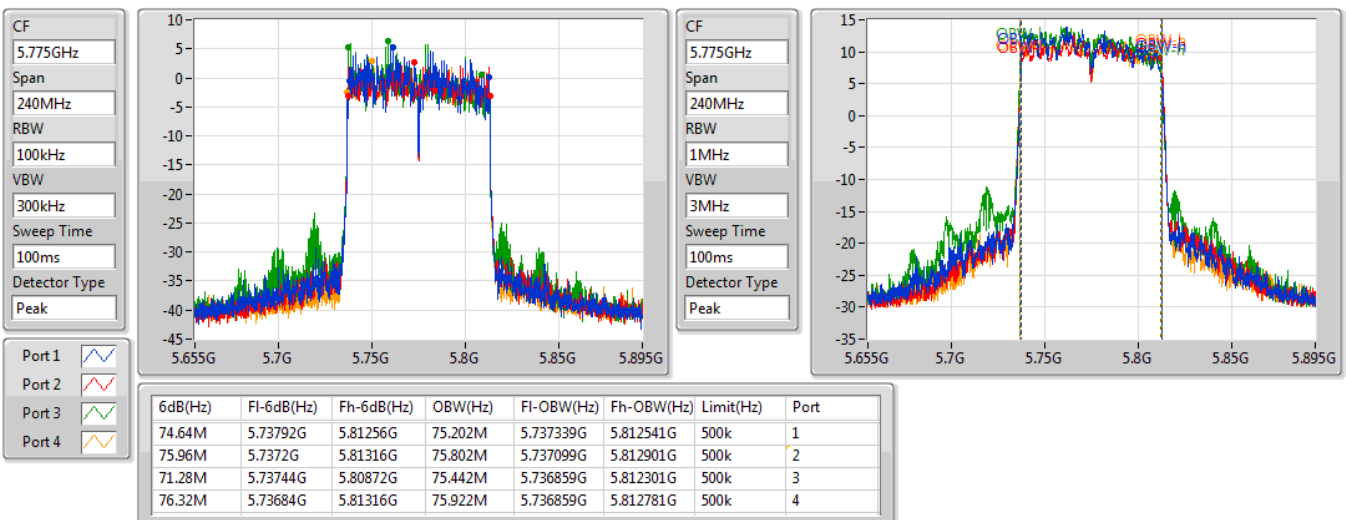


**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5690MHz Straddle 5.725-5.85GHz**

01/02/2020

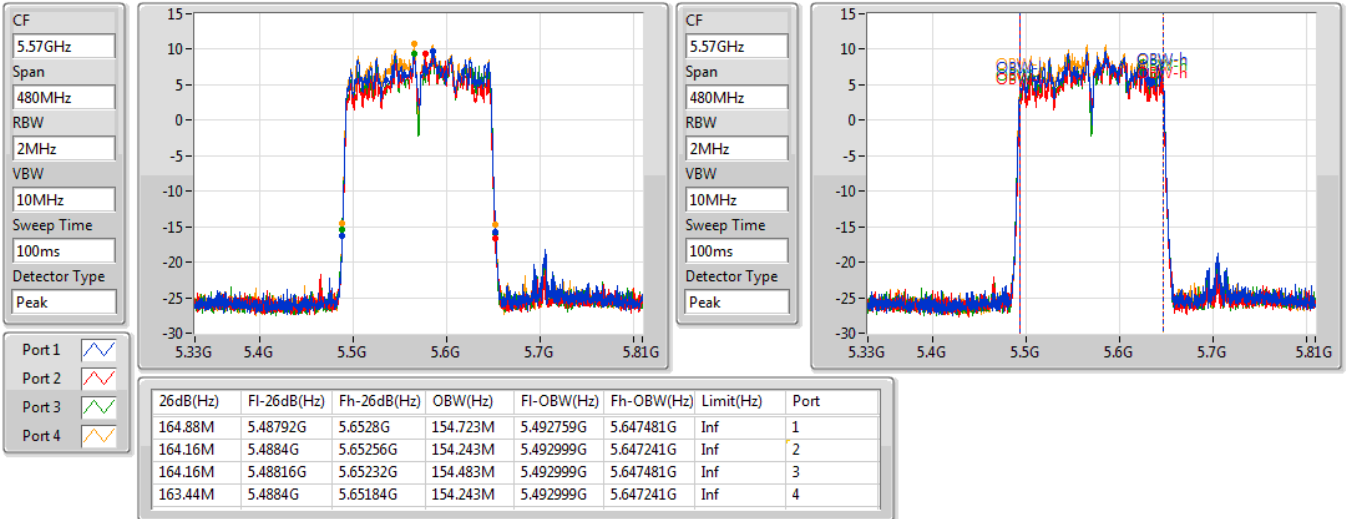

**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5775MHz**

03/02/2020

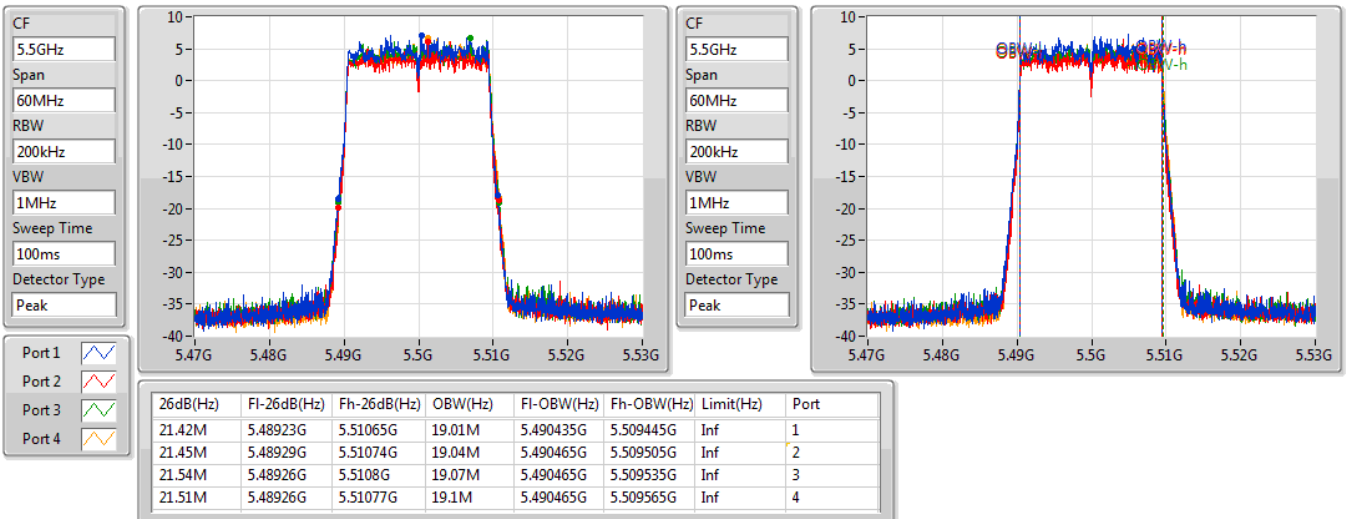


**802.11ac VHT160-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5570MHz**

01/02/2020

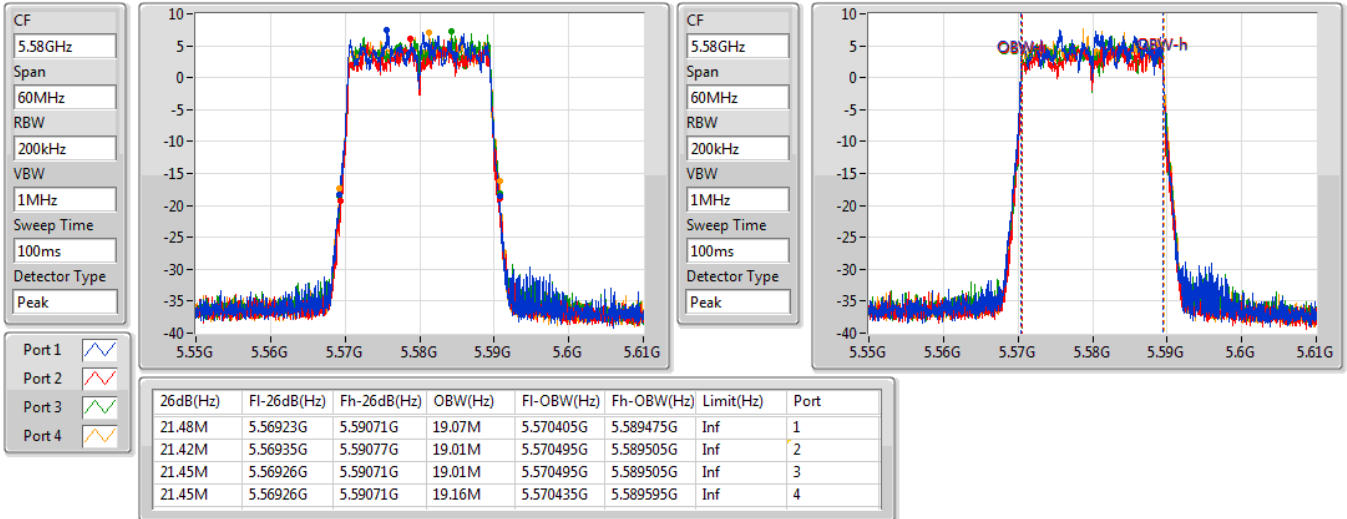

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5500MHz**

01/02/2020

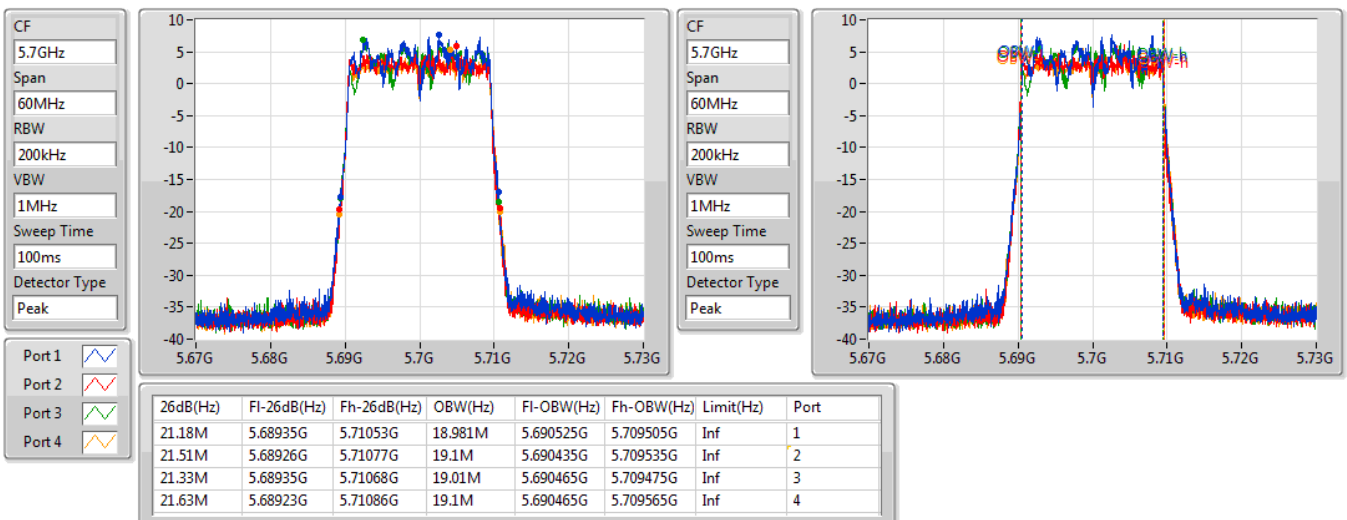


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5580MHz**

01/02/2020

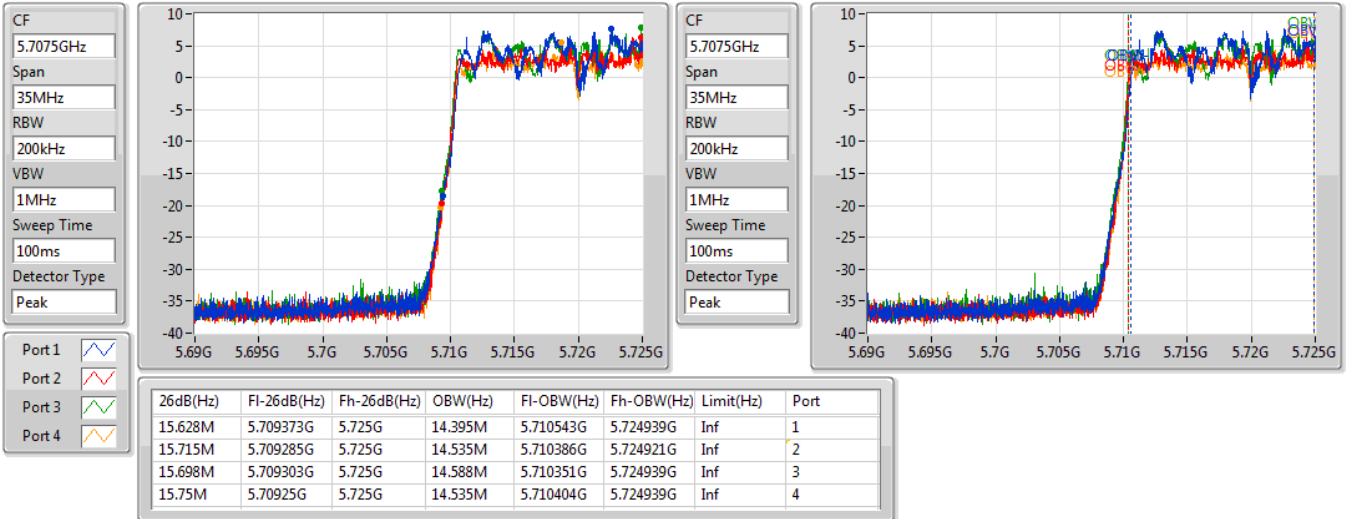

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5700MHz**

01/02/2020

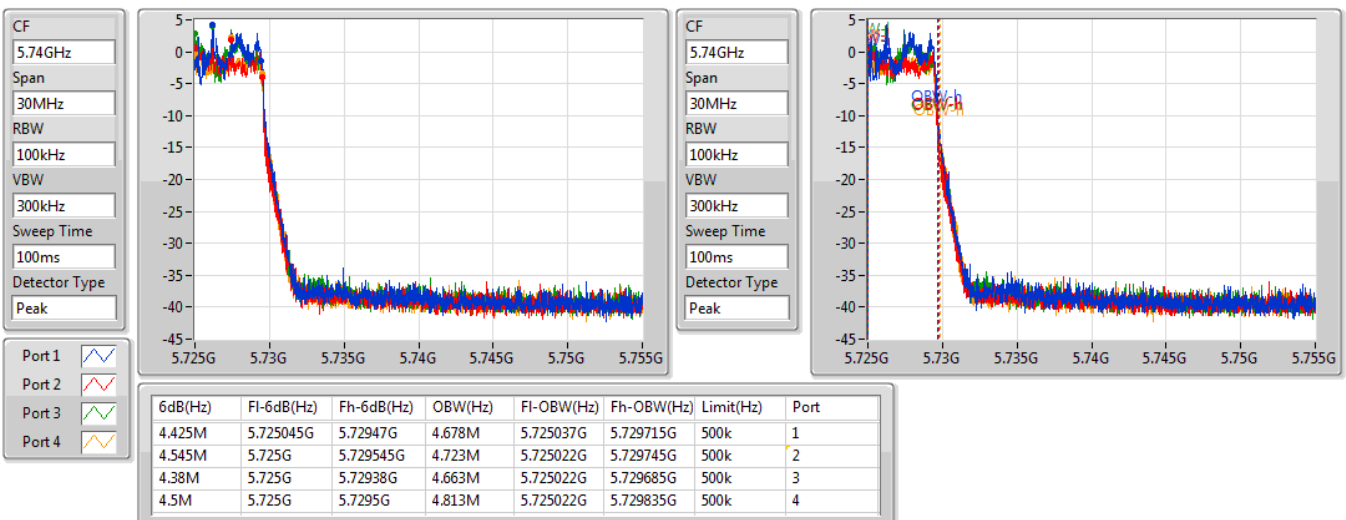


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5720MHz Straddle 5.47-5.725GHz**

01/02/2020

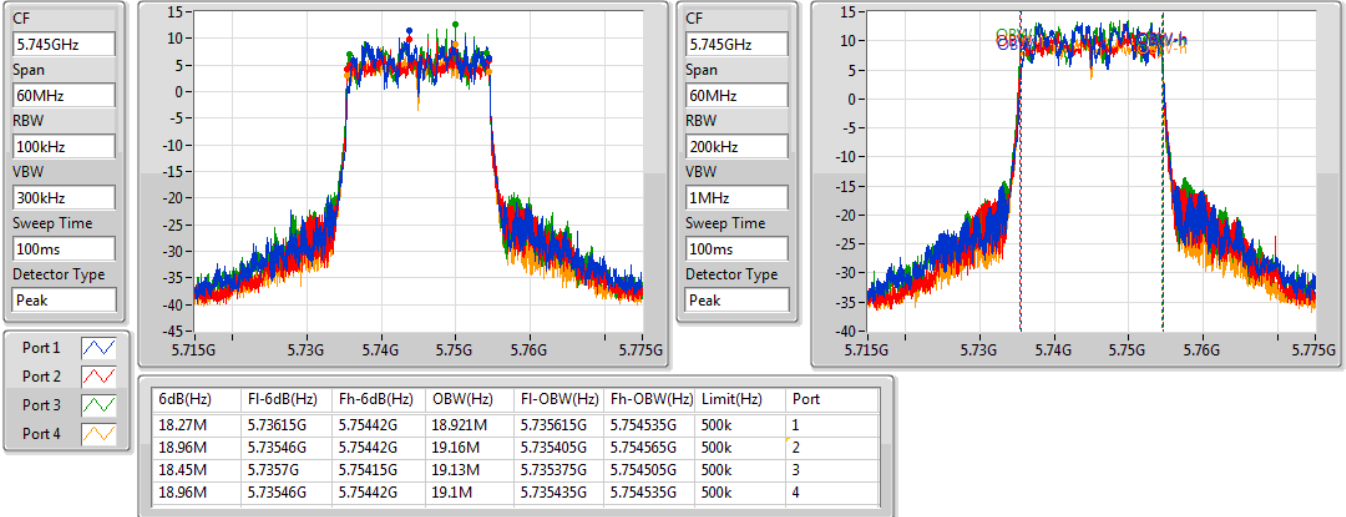

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5720MHz Straddle 5.725-5.85GHz**

01/02/2020

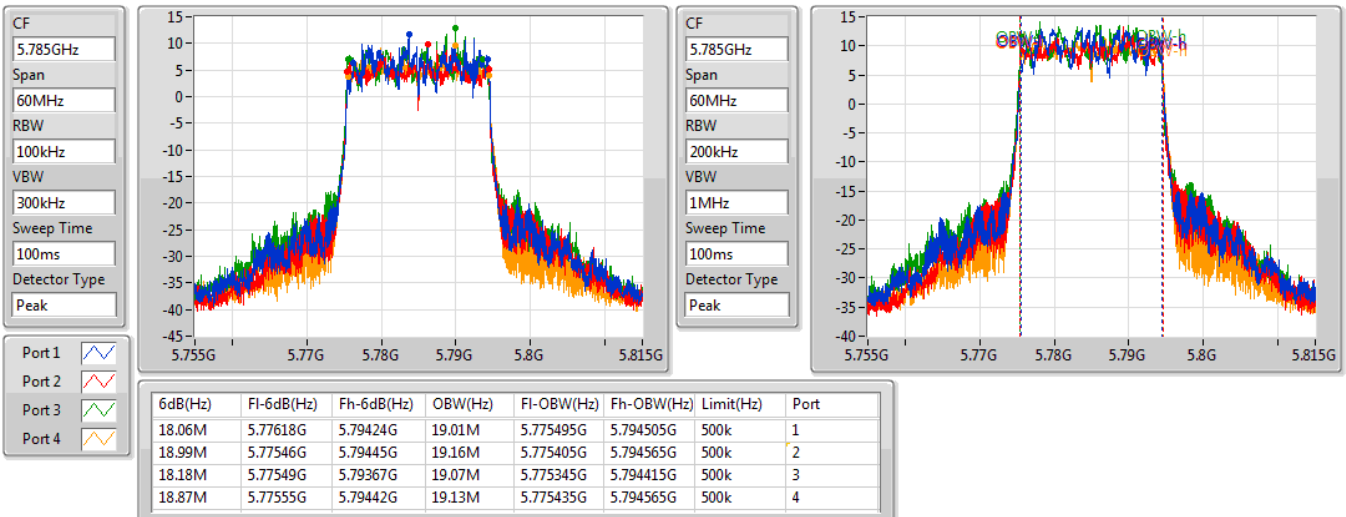


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5745MHz**

01/02/2020

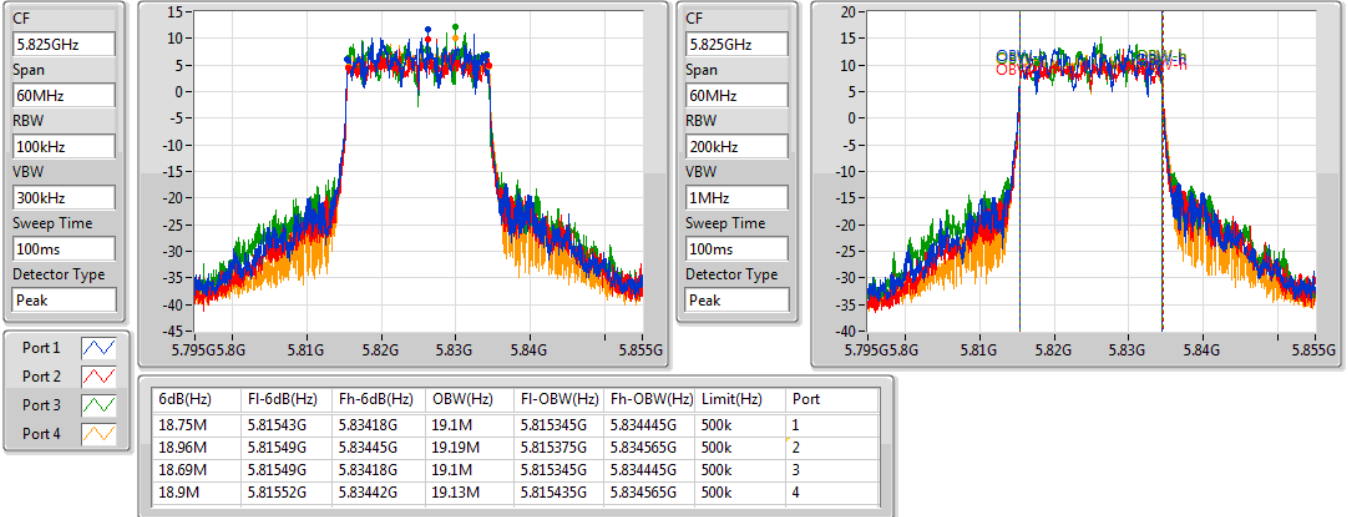

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5785MHz**

01/02/2020

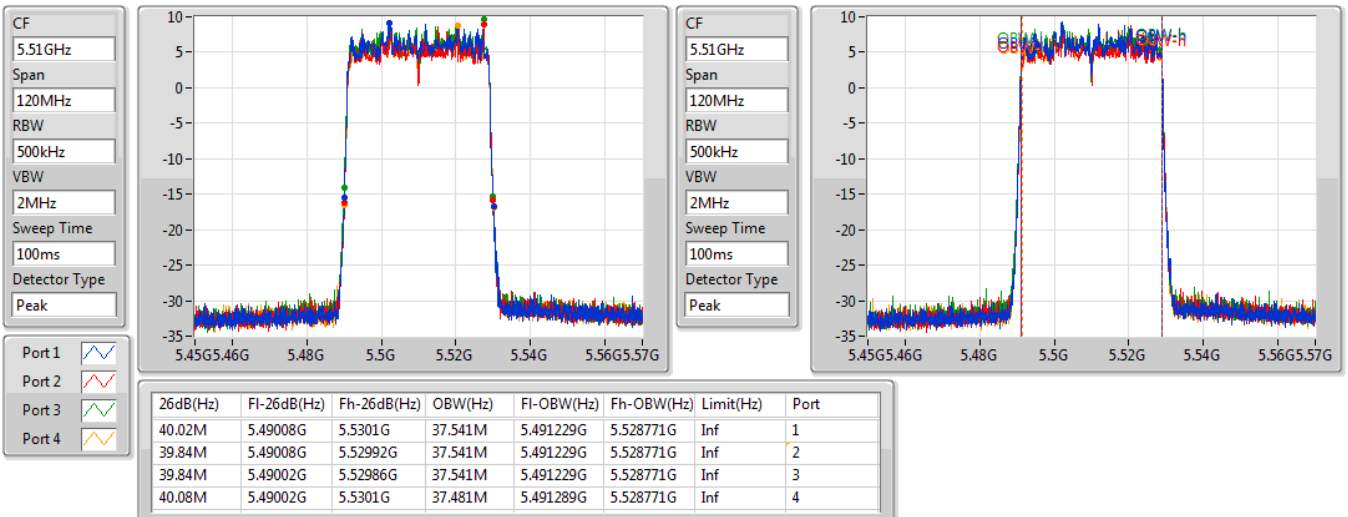


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5825MHz**

01/02/2020


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5510MHz**

01/02/2020

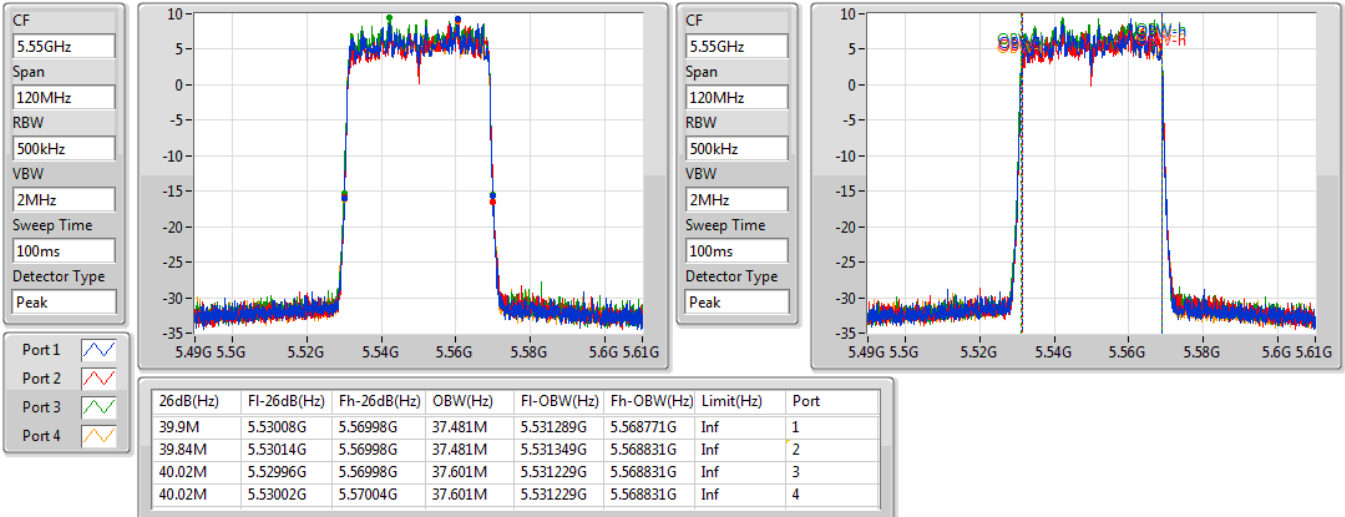


## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

EBW

5550MHz

01/02/2020

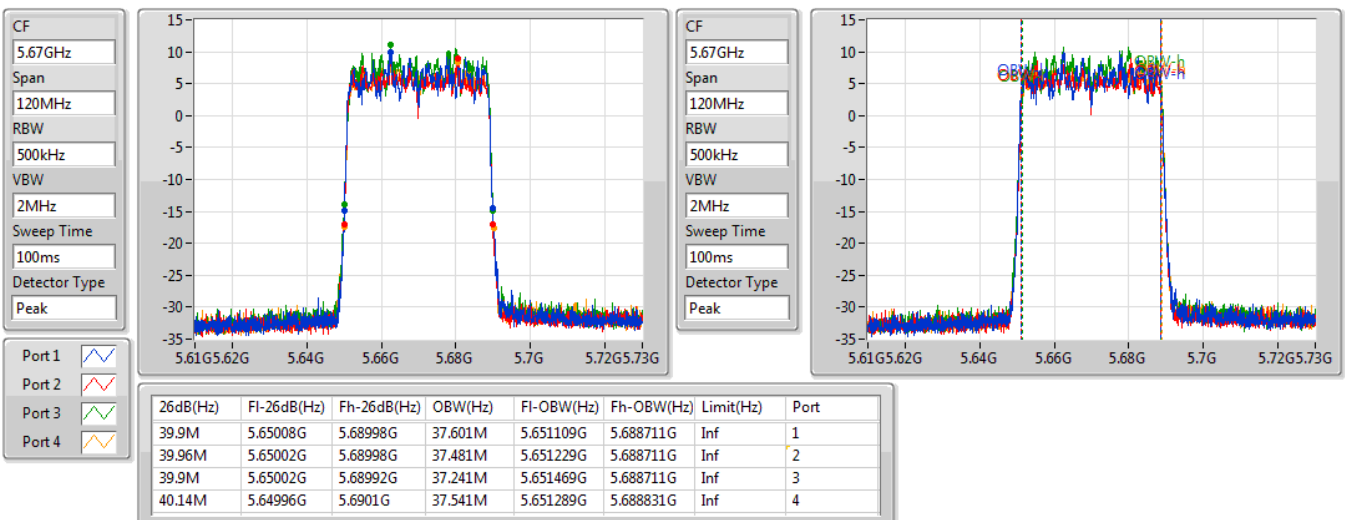


## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

EBW

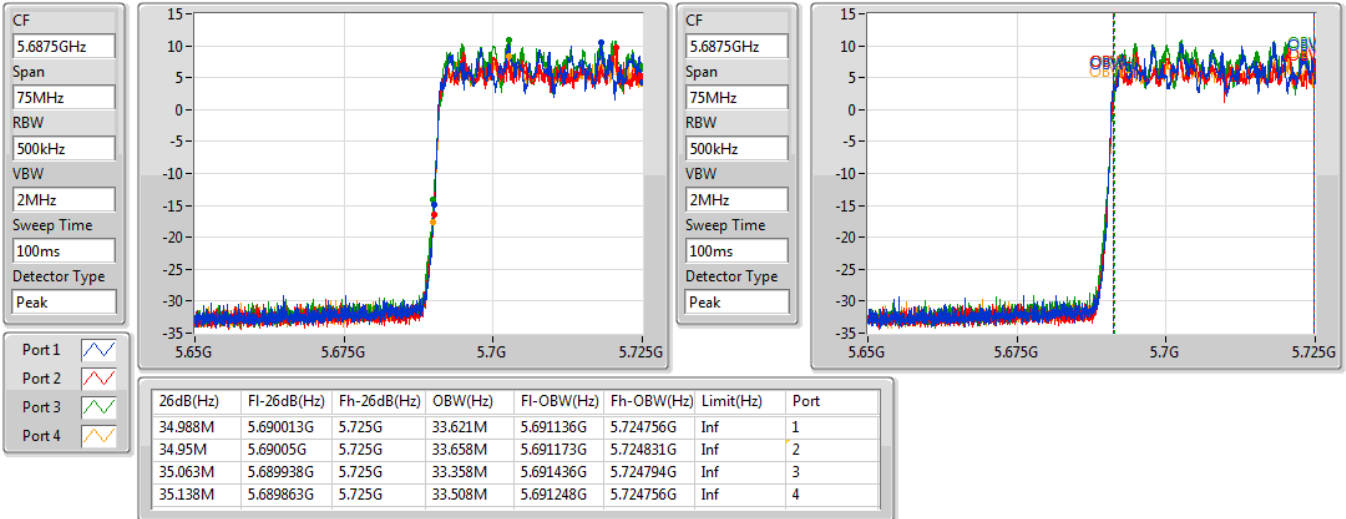
5670MHz

01/02/2020

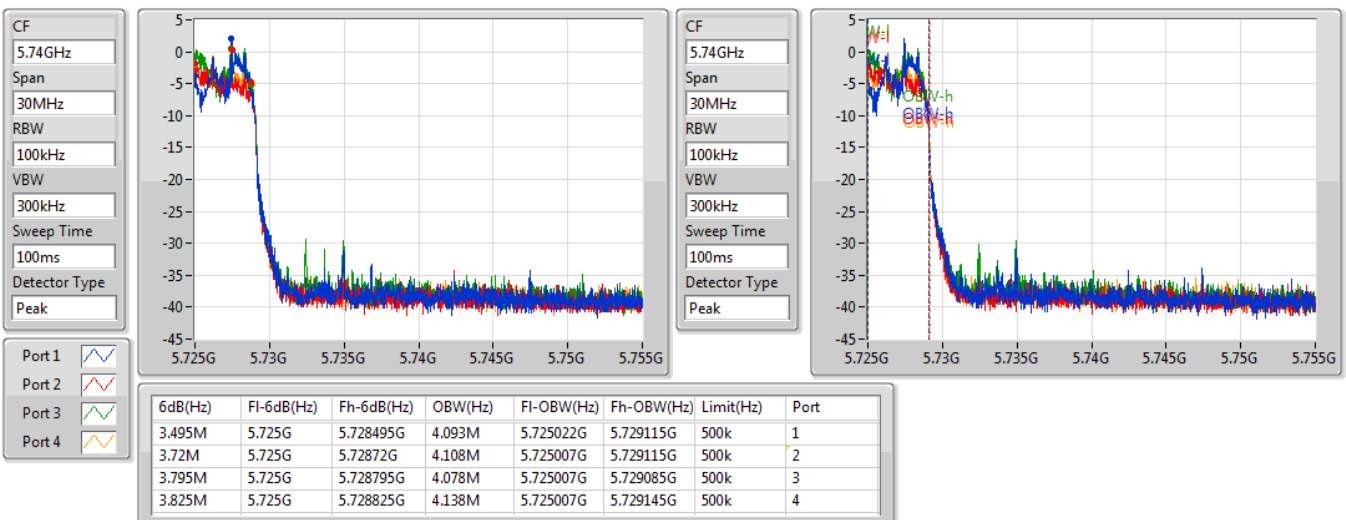


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5710MHz Straddle 5.47-5.725GHz**

01/02/2020

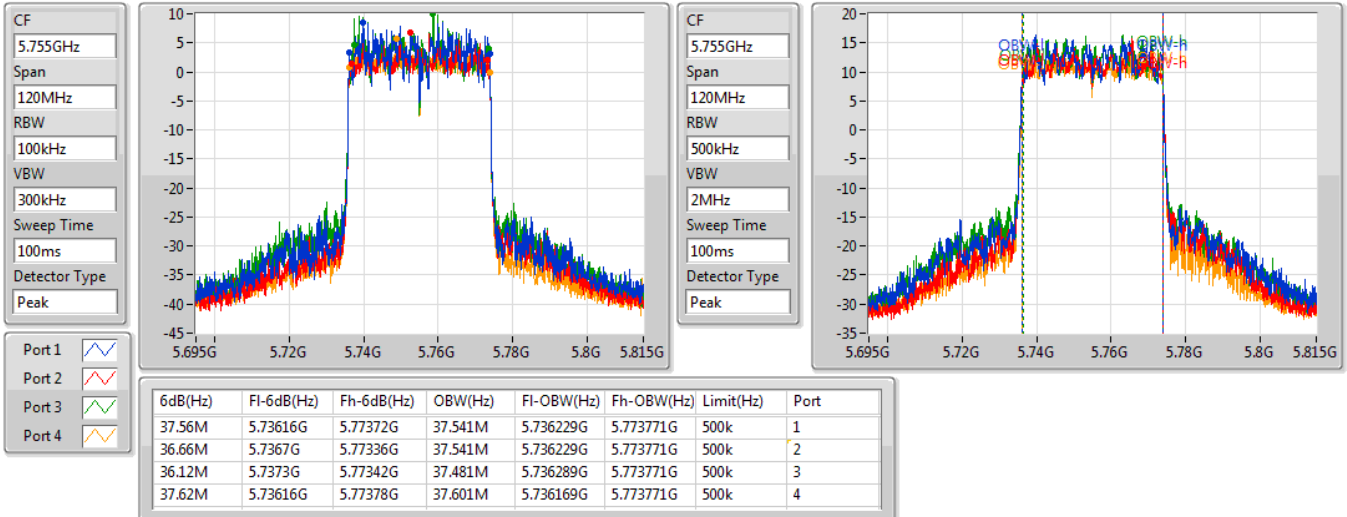

**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5710MHz Straddle 5.725-5.85GHz**

01/02/2020

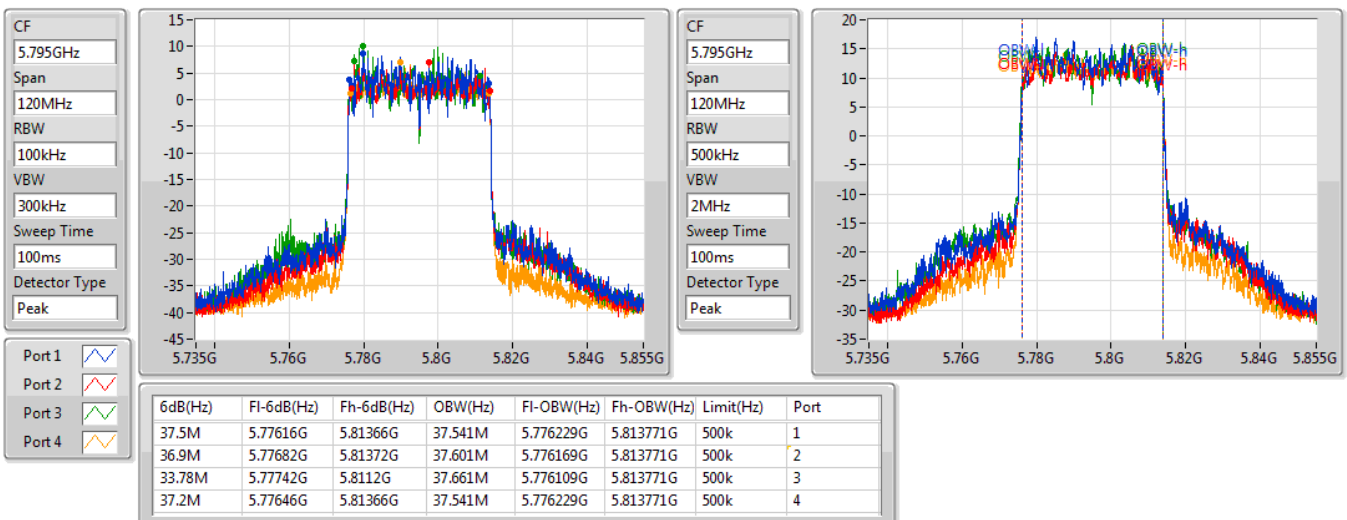


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5755MHz**

01/02/2020

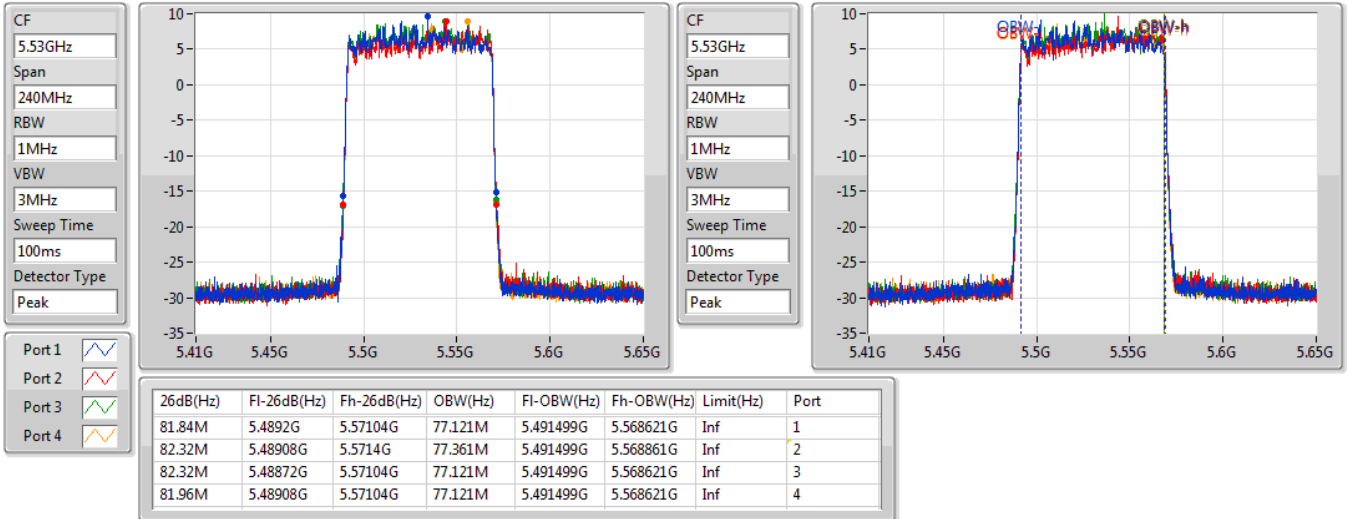

**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5795MHz**

01/02/2020

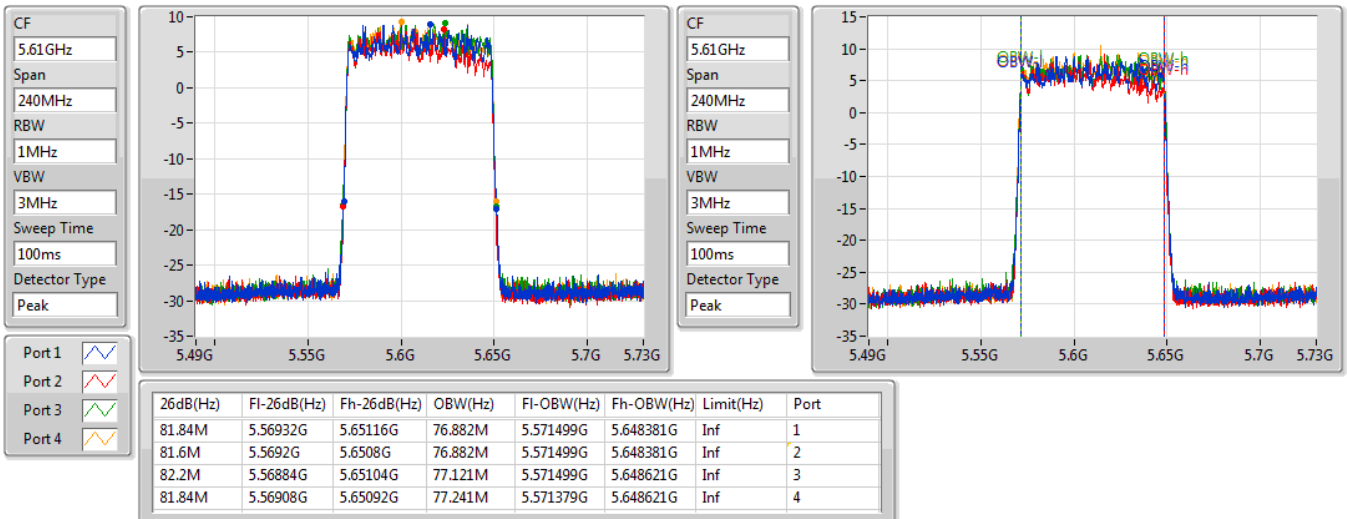


**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5530MHz**

01/02/2020

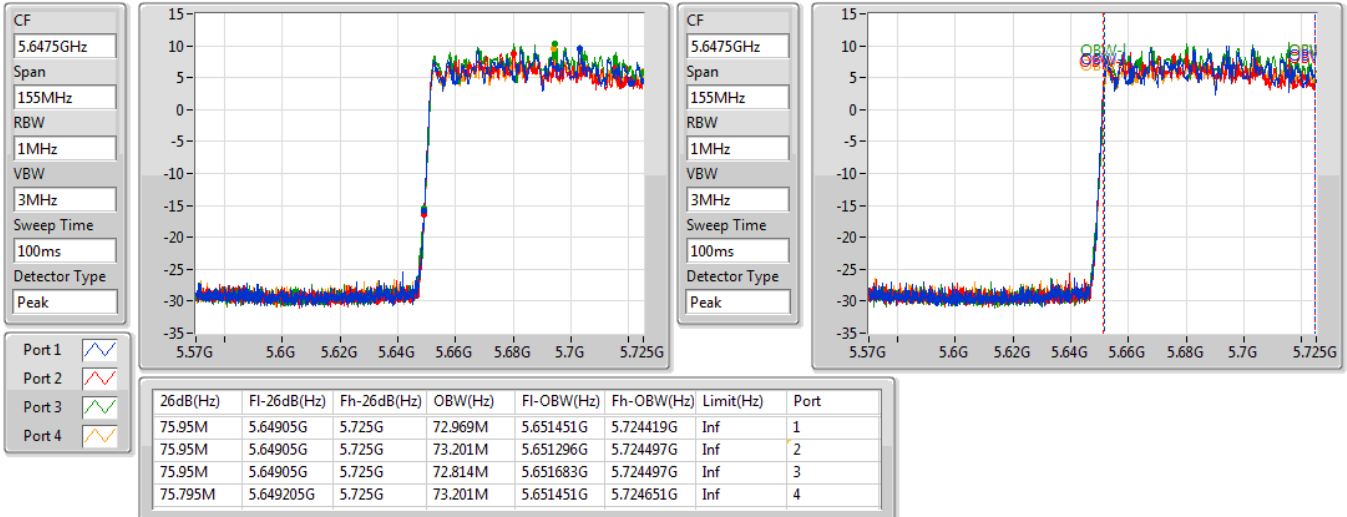

**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5610MHz**

01/02/2020

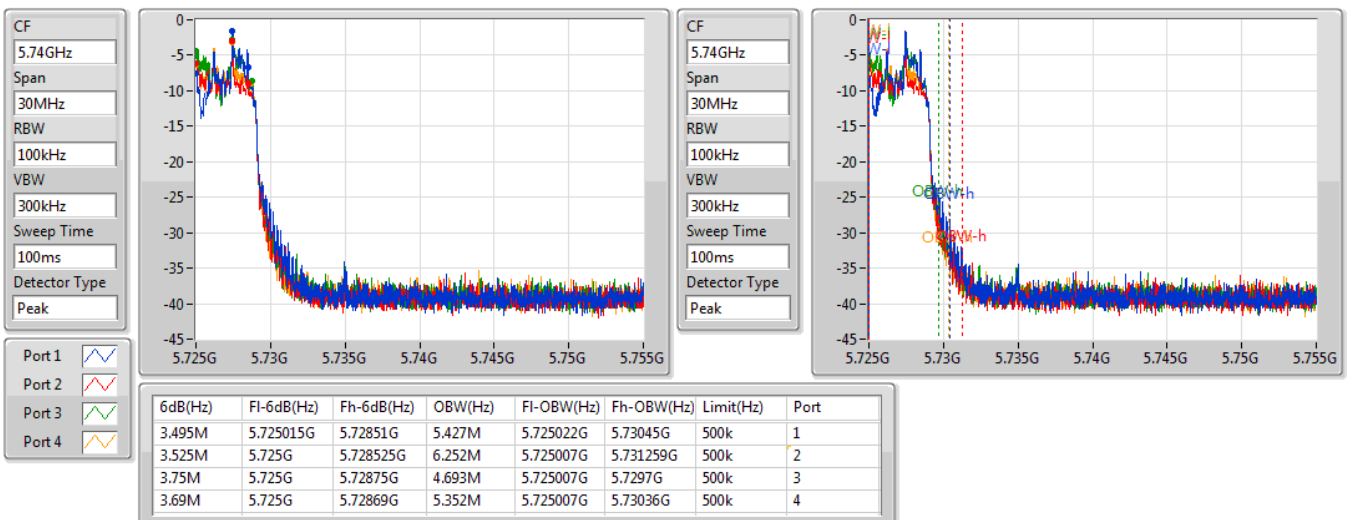


**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5690MHz Straddle 5.47-5.725GHz**

01/02/2020

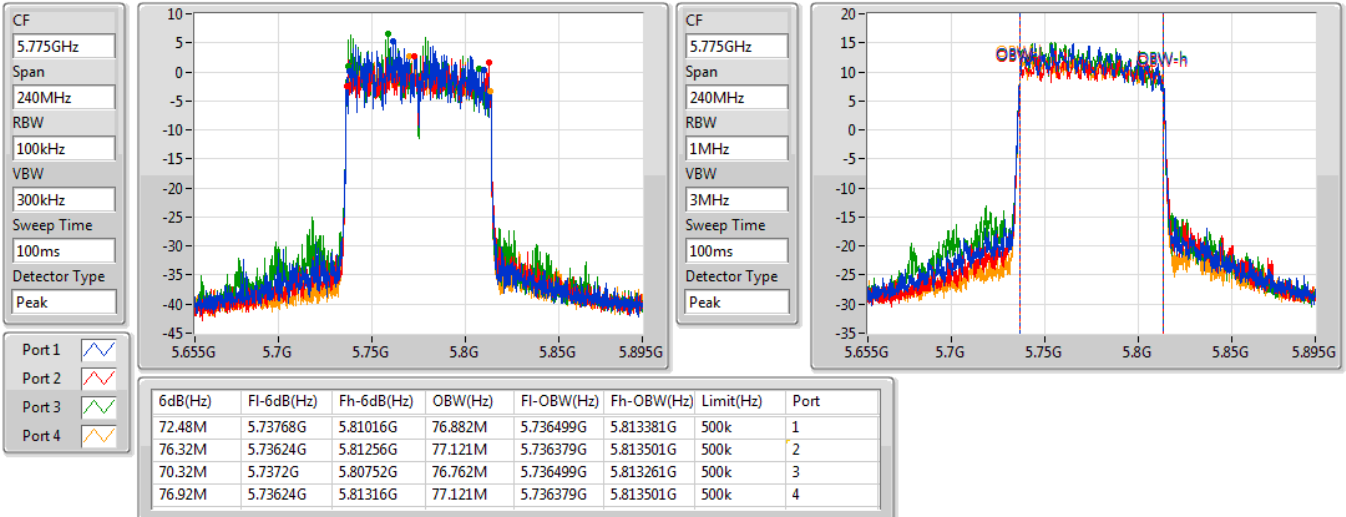

**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5690MHz Straddle 5.725-5.85GHz**

01/02/2020

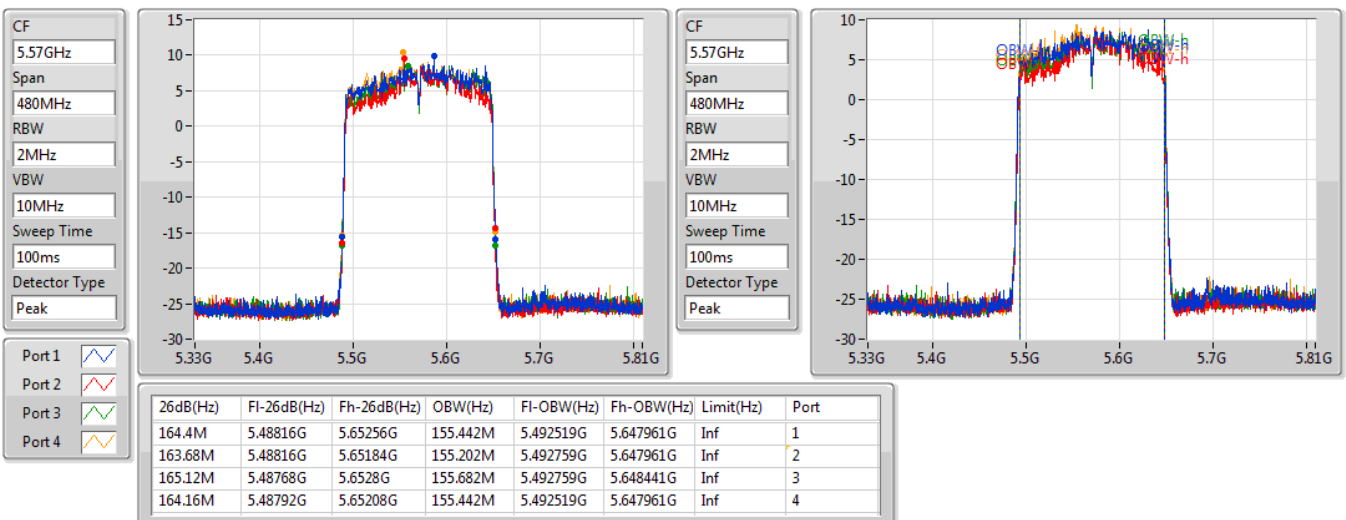


**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5775MHz**

03/02/2020


**802.11ax HEW160-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5570MHz**

01/02/2020





## Average Power Result

Appendix B.1

For non-beamforming function:

For 802.11ax HEW20 5745 MHz:

### Summary

| Mode                           | Total Power<br>(dBm) | Total Power<br>(W) |
|--------------------------------|----------------------|--------------------|
| 5.725-5.85GHz                  | -                    | -                  |
| 802.11ax HEW20_Nss1,(MCS0)_4TX | 29.99                | 0.99770            |



## Average Power Result

Appendix B.1

### Result

| Mode                           | Result | DG<br>(dBi) | Port 1<br>(dBm) | Port 2<br>(dBm) | Port 3<br>(dBm) | Port 4<br>(dBm) | Total Power<br>(dBm) | Power Limit<br>(dBm) |
|--------------------------------|--------|-------------|-----------------|-----------------|-----------------|-----------------|----------------------|----------------------|
| 802.11ax HEW20_Nss1,(MCS0)_4TX | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5745MHz                        | Pass   | 5.28        | 24.36           | 23.88           | 23.85           | 23.75           | 29.99                | 30.00                |

**DG** = Directional Gain; **Port X** = Port X output power



## Average Power Result

Appendix B.1

### For other channel: Summary

| Mode                            | Total Power<br>(dBm) | Total Power<br>(W) |
|---------------------------------|----------------------|--------------------|
| 5.25-5.35GHz                    | -                    | -                  |
| 802.11a_Nss1,(6Mbps)_2TX        | 23.96                | 0.24889            |
| 802.11ac VHT20_Nss1,(MCS0)_2TX  | 23.95                | 0.24831            |
| 802.11ac VHT40_Nss1,(MCS0)_2TX  | 23.88                | 0.24434            |
| 802.11ac VHT80_Nss1,(MCS0)_2TX  | 23.44                | 0.22080            |
| 802.11ax HEW20_Nss1,(MCS0)_2TX  | 23.88                | 0.24434            |
| 802.11ax HEW40_Nss1,(MCS0)_2TX  | 23.82                | 0.24099            |
| 802.11ax HEW80_Nss1,(MCS0)_2TX  | 23.69                | 0.23388            |
| 5.47-5.725GHz                   | -                    | -                  |
| 802.11a_Nss1,(6Mbps)_4TX        | 21.95                | 0.15668            |
| 802.11ac VHT20_Nss1,(MCS0)_4TX  | 22.72                | 0.18707            |
| 802.11ac VHT40_Nss1,(MCS0)_4TX  | 23.93                | 0.24717            |
| 802.11ac VHT80_Nss1,(MCS0)_4TX  | 23.85                | 0.24266            |
| 802.11ac VHT160_Nss1,(MCS0)_4TX | 21.19                | 0.13152            |
| 802.11ax HEW20_Nss1,(MCS0)_4TX  | 22.82                | 0.19143            |
| 802.11ax HEW40_Nss1,(MCS0)_4TX  | 23.94                | 0.24774            |
| 802.11ax HEW80_Nss1,(MCS0)_4TX  | 23.95                | 0.24831            |
| 802.11ax HEW160_Nss1,(MCS0)_4TX | 21.43                | 0.13900            |
| 5.725-5.85GHz                   | -                    | -                  |
| 802.11a_Nss1,(6Mbps)_4TX        | 14.08                | 0.02559            |
| 802.11ac VHT20_Nss1,(MCS0)_4TX  | 14.22                | 0.02642            |
| 802.11ac VHT40_Nss1,(MCS0)_4TX  | 12.90                | 0.01950            |
| 802.11ac VHT80_Nss1,(MCS0)_4TX  | 9.56                 | 0.00904            |
| 802.11ax HEW20_Nss1,(MCS0)_4TX  | 14.67                | 0.02931            |
| 802.11ax HEW40_Nss1,(MCS0)_4TX  | 13.52                | 0.02249            |
| 802.11ax HEW80_Nss1,(MCS0)_4TX  | 10.26                | 0.01062            |

## Result

| Mode                            | Result | DG<br>(dBi) | Port 1<br>(dBm) | Port 2<br>(dBm) | Port 3<br>(dBm) | Port 4<br>(dBm) | Total Power<br>(dBm) | Power Limit<br>(dBm) |
|---------------------------------|--------|-------------|-----------------|-----------------|-----------------|-----------------|----------------------|----------------------|
| 802.11a_Nss1,(6Mbps)_2TX        | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5260MHz                         | Pass   | 4.80        | 20.86           | 20.92           |                 |                 | 23.90                | 23.98                |
| 5300MHz                         | Pass   | 4.80        | 20.96           | 20.64           |                 |                 | 23.81                | 23.98                |
| 5320MHz                         | Pass   | 4.80        | 21.04           | 20.85           |                 |                 | 23.96                | 23.98                |
| 802.11a_Nss1,(6Mbps)_4TX        | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5500MHz                         | Pass   | 5.28        | 16.03           | 15.25           | 16.07           | 16.28           | 21.95                | 23.98                |
| 5580MHz                         | Pass   | 5.28        | 15.78           | 14.86           | 15.84           | 15.70           | 21.58                | 23.98                |
| 5700MHz                         | Pass   | 5.28        | 15.22           | 14.15           | 14.64           | 14.16           | 20.59                | 23.98                |
| 5720MHz Straddle 5.47-5.725GHz  | Pass   | 5.28        | 13.18           | 12.79           | 12.86           | 12.48           | 18.86                | 22.42                |
| 5720MHz Straddle 5.725-5.85GHz  | Pass   | 5.28        | 9.24            | 6.28            | 9.03            | 6.96            | 14.08                | 30.00                |
| 802.11ac VHT20_Nss1,(MCS0)_2TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5260MHz                         | Pass   | 4.80        | 20.94           | 20.93           |                 |                 | 23.95                | 23.98                |
| 5300MHz                         | Pass   | 4.80        | 21.07           | 20.72           |                 |                 | 23.91                | 23.98                |
| 5320MHz                         | Pass   | 4.80        | 21.00           | 20.72           |                 |                 | 23.87                | 23.98                |
| 802.11ac VHT20_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5500MHz                         | Pass   | 5.28        | 16.67           | 16.15           | 16.98           | 16.93           | 22.72                | 23.98                |
| 5580MHz                         | Pass   | 5.28        | 16.54           | 15.60           | 16.15           | 16.40           | 22.21                | 23.98                |
| 5700MHz                         | Pass   | 5.28        | 16.10           | 15.33           | 14.99           | 15.08           | 21.42                | 23.98                |
| 5720MHz Straddle 5.47-5.725GHz  | Pass   | 5.28        | 14.62           | 13.57           | 13.63           | 13.45           | 19.86                | 22.86                |
| 5720MHz Straddle 5.725-5.85GHz  | Pass   | 5.28        | 8.69            | 7.68            | 8.48            | 7.86            | 14.22                | 30.00                |
| 802.11ac VHT40_Nss1,(MCS0)_2TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5270MHz                         | Pass   | 4.80        | 21.07           | 20.65           |                 |                 | 23.88                | 23.98                |
| 5310MHz                         | Pass   | 4.80        | 20.29           | 19.69           |                 |                 | 23.01                | 23.98                |
| 802.11ac VHT40_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5510MHz                         | Pass   | 5.28        | 18.02           | 17.14           | 17.63           | 18.13           | 23.77                | 23.98                |
| 5550MHz                         | Pass   | 5.28        | 18.28           | 17.49           | 17.54           | 18.19           | 23.91                | 23.98                |
| 5670MHz                         | Pass   | 5.28        | 17.58           | 17.74           | 18.43           | 17.82           | 23.93                | 23.98                |
| 5710MHz Straddle 5.47-5.725GHz  | Pass   | 5.28        | 17.35           | 17.34           | 18.09           | 17.26           | 23.54                | 23.98                |
| 5710MHz Straddle 5.725-5.85GHz  | Pass   | 5.28        | 6.51            | 6.75            | 7.59            | 6.59            | 12.90                | 30.00                |
| 802.11ac VHT80_Nss1,(MCS0)_2TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5290MHz                         | Pass   | 4.80        | 20.56           | 20.29           |                 |                 | 23.44                | 23.98                |
| 802.11ac VHT80_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5530MHz                         | Pass   | 5.28        | 18.12           | 17.36           | 17.60           | 17.94           | 23.79                | 23.98                |
| 5610MHz                         | Pass   | 5.28        | 17.57           | 17.47           | 18.31           | 17.76           | 23.81                | 23.98                |
| 5690MHz Straddle 5.47-5.725GHz  | Pass   | 5.28        | 17.74           | 17.34           | 18.77           | 17.32           | 23.85                | 23.98                |
| 5690MHz Straddle 5.725-5.85GHz  | Pass   | 5.28        | 3.66            | 2.78            | 4.64            | 2.81            | 9.56                 | 30.00                |
| 802.11ac VHT160_Nss1,(MCS0)_4TX | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5570MHz                         | Pass   | 5.28        | 15.02           | 14.99           | 15.41           | 15.26           | 21.19                | 23.98                |
| 802.11ax HEW20_Nss1,(MCS0)_2TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5260MHz                         | Pass   | 4.80        | 20.81           | 20.92           |                 |                 | 23.88                | 23.98                |
| 5300MHz                         | Pass   | 4.80        | 20.93           | 20.80           |                 |                 | 23.88                | 23.98                |
| 5320MHz                         | Pass   | 4.80        | 20.98           | 20.61           |                 |                 | 23.81                | 23.98                |
| 802.11ax HEW20_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5500MHz                         | Pass   | 5.28        | 16.78           | 16.11           | 17.03           | 17.20           | 22.82                | 23.98                |



## Average Power Result

## Appendix B.1

| Mode                            | Result | DG<br>(dBi) | Port 1<br>(dBm) | Port 2<br>(dBm) | Port 3<br>(dBm) | Port 4<br>(dBm) | Total Power<br>(dBm) | Power Limit<br>(dBm) |
|---------------------------------|--------|-------------|-----------------|-----------------|-----------------|-----------------|----------------------|----------------------|
| 5580MHz                         | Pass   | 5.28        | 16.49           | 15.70           | 16.26           | 16.88           | 22.37                | 23.98                |
| 5700MHz                         | Pass   | 5.28        | 16.06           | 15.23           | 15.09           | 15.36           | 21.47                | 23.98                |
| 5720MHz Straddle 5.47-5.725GHz  | Pass   | 5.28        | 14.93           | 13.62           | 13.55           | 13.47           | 19.96                | 22.89                |
| 5720MHz Straddle 5.725-5.85GHz  | Pass   | 5.28        | 9.26            | 8.41            | 8.51            | 8.36            | 14.67                | 30.00                |
| 802.11ax HEW40_Nss1,(MCS0)_2TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5270MHz                         | Pass   | 4.80        | 21.10           | 20.49           |                 |                 | 23.82                | 23.98                |
| 5310MHz                         | Pass   | 4.80        | 20.37           | 20.01           |                 |                 | 23.20                | 23.98                |
| 802.11ax HEW40_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5510MHz                         | Pass   | 5.28        | 18.28           | 17.29           | 17.81           | 18.21           | 23.94                | 23.98                |
| 5550MHz                         | Pass   | 5.28        | 18.29           | 17.11           | 17.58           | 18.17           | 23.83                | 23.98                |
| 5670MHz                         | Pass   | 5.28        | 17.71           | 17.69           | 18.37           | 17.89           | 23.94                | 23.98                |
| 5710MHz Straddle 5.47-5.725GHz  | Pass   | 5.28        | 17.63           | 17.18           | 18.03           | 17.00           | 23.50                | 23.98                |
| 5710MHz Straddle 5.725-5.85GHz  | Pass   | 5.28        | 7.18            | 7.34            | 8.17            | 7.23            | 13.52                | 30.00                |
| 802.11ax HEW80_Nss1,(MCS0)_2TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5290MHz                         | Pass   | 4.80        | 20.85           | 20.51           |                 |                 | 23.69                | 23.98                |
| 802.11ax HEW80_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5530MHz                         | Pass   | 5.28        | 18.19           | 17.41           | 17.79           | 18.29           | 23.95                | 23.98                |
| 5610MHz                         | Pass   | 5.28        | 17.53           | 17.45           | 18.33           | 17.78           | 23.81                | 23.98                |
| 5690MHz Straddle 5.47-5.725GHz  | Pass   | 5.28        | 17.69           | 17.29           | 18.75           | 17.24           | 23.81                | 23.98                |
| 5690MHz Straddle 5.725-5.85GHz  | Pass   | 5.28        | 4.24            | 3.35            | 5.38            | 3.70            | 10.26                | 30.00                |
| 802.11ax HEW160_Nss1,(MCS0)_4TX | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5570MHz                         | Pass   | 5.28        | 15.27           | 15.32           | 15.70           | 15.35           | 21.43                | 23.98                |

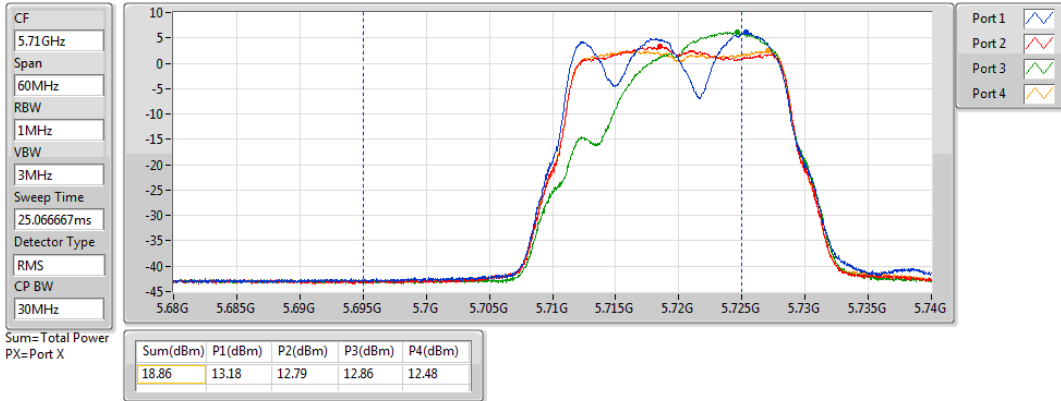
DG = Directional Gain; Port X = Port X output power

## 802.11a\_Nss1,(6Mbps)\_4TX

## AV Power

### 5720MHz Straddle 5.47-5.725GHz

18/09/2019

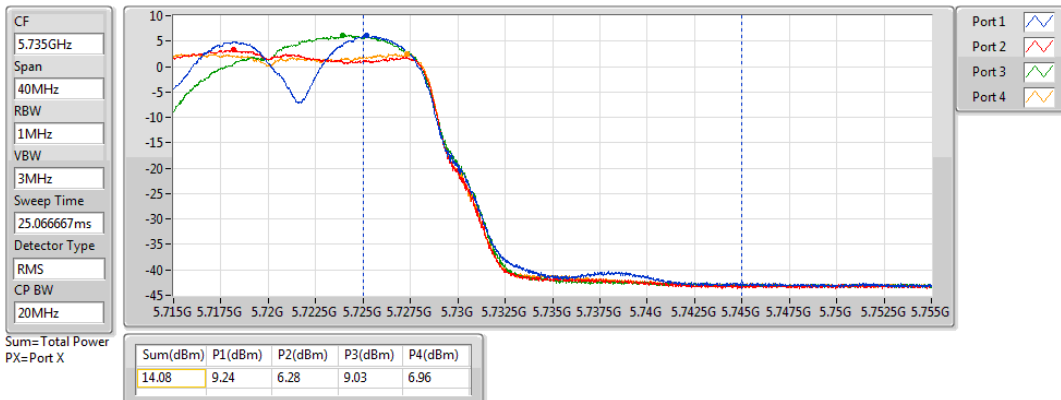


## 802.11a\_Nss1,(6Mbps)\_4TX

## AV Power

### 5720MHz Straddle 5.725-5.85GHz

18/09/2019

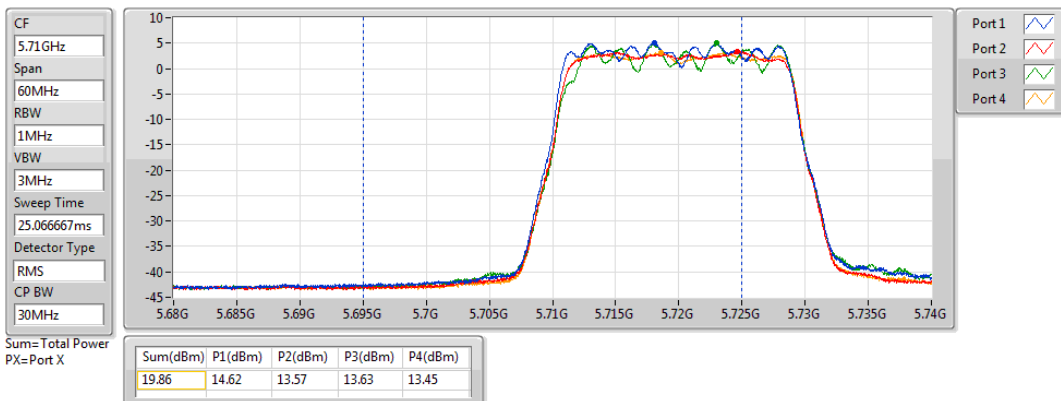


## 802.11ac VHT20\_Nss1,(MCS0)\_4TX

## AV Power

### 5720MHz Straddle 5.47-5.725GHz

18/09/2019

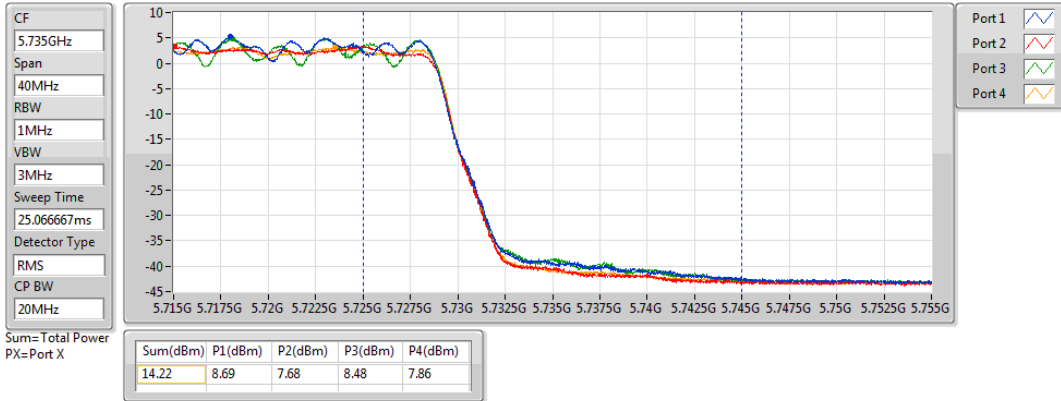


## 802.11ac VHT20\_Nss1,(MCS0)\_4TX

## AV Power

5720MHz Straddle 5.725-5.85GHz

18/09/2019

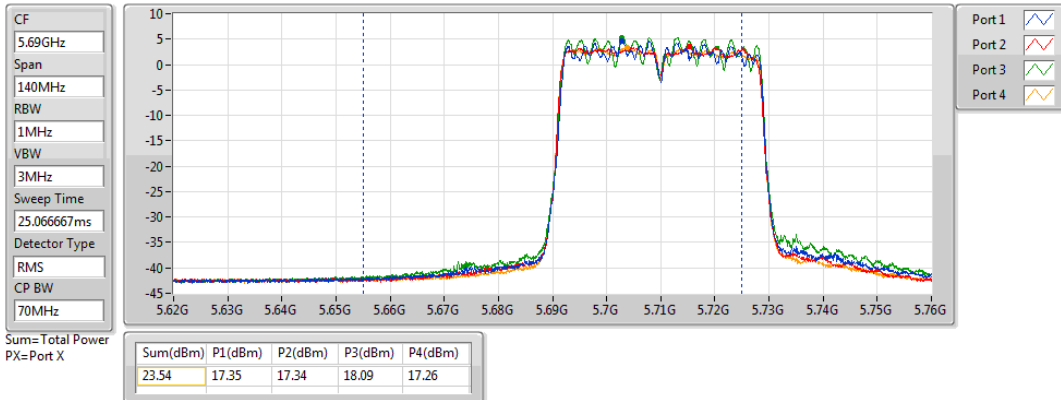


## 802.11ac VHT40\_Nss1,(MCS0)\_4TX

## AV Power

5710MHz Straddle 5.47-5.725GHz

18/09/2019

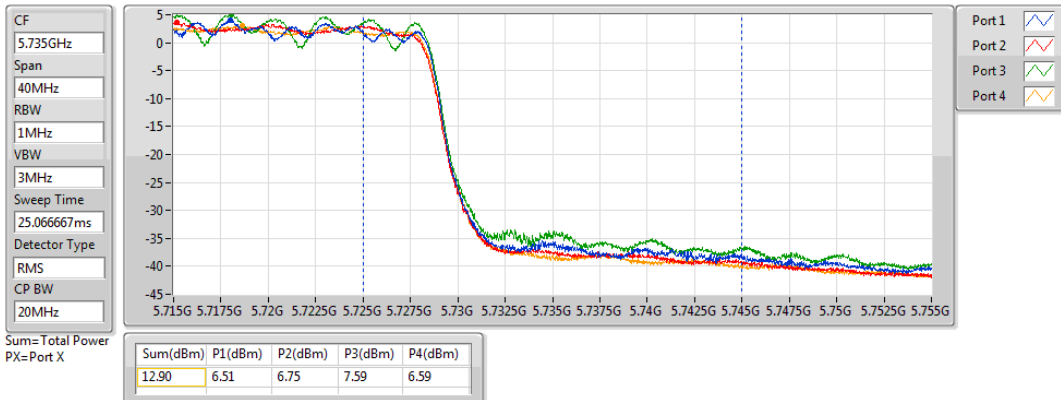


## 802.11ac VHT40\_Nss1,(MCS0)\_4TX

## AV Power

5710MHz Straddle 5.725-5.85GHz

18/09/2019

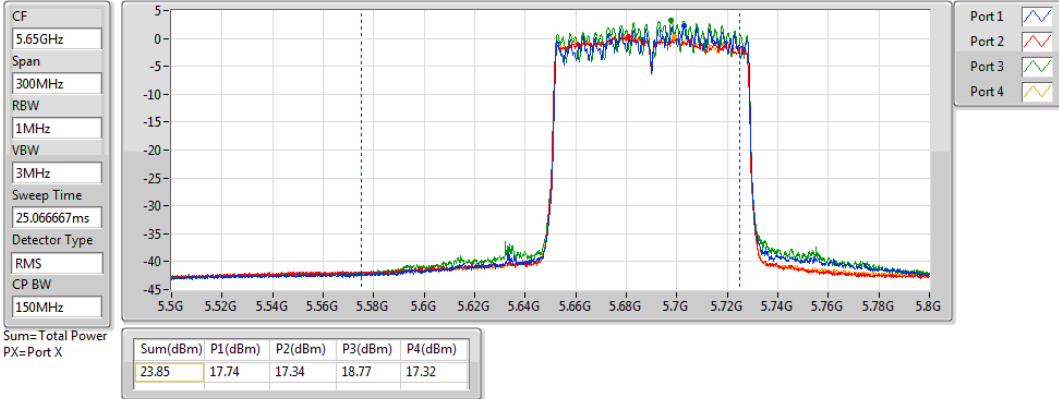


## 802.11ac VHT80\_Nss1,(MCS0)\_4TX

## AV Power

5690MHz Straddle 5.47-5.725GHz

18/09/2019

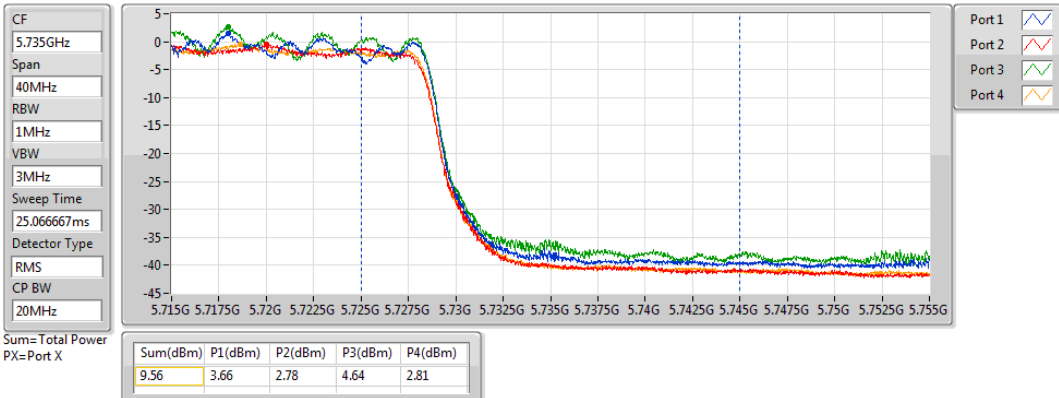


## 802.11ac VHT80\_Nss1,(MCS0)\_4TX

## AV Power

5690MHz Straddle 5.725-5.85GHz

18/09/2019

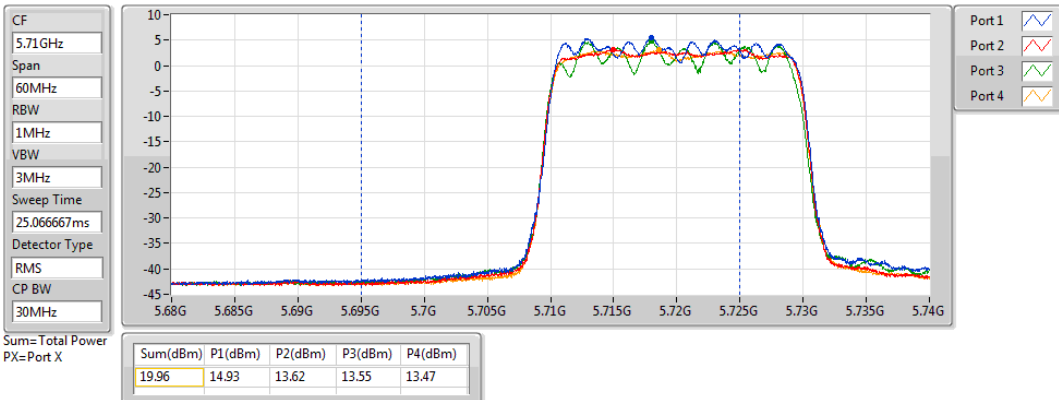


## 802.11ax HEW20\_Nss1,(MCS0)\_4TX

## AV Power

5720MHz Straddle 5.47-5.725GHz

18/09/2019

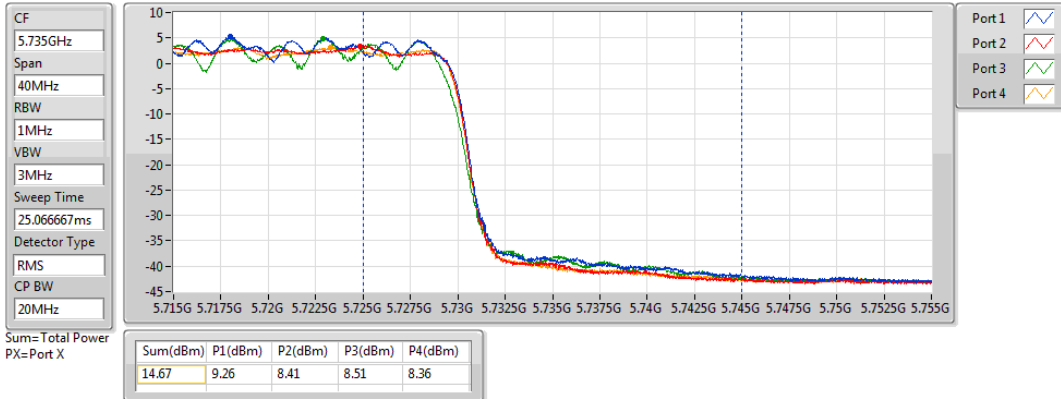


## 802.11ax HEW20\_Nss1,(MCS0)\_4TX

## AV Power

### 5720MHz Straddle 5.725-5.85GHz

18/09/2019

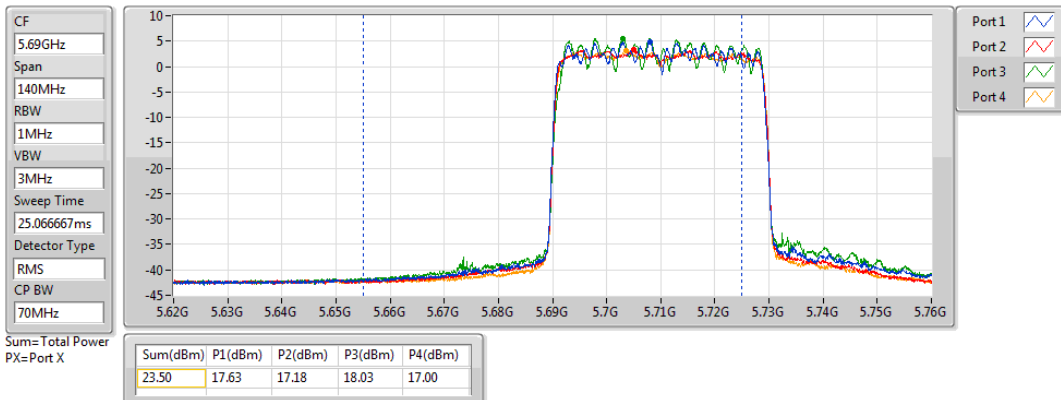


## 802.11ax HEW40\_Nss1,(MCS0)\_4TX

## AV Power

### 5710MHz Straddle 5.47-5.725GHz

18/09/2019

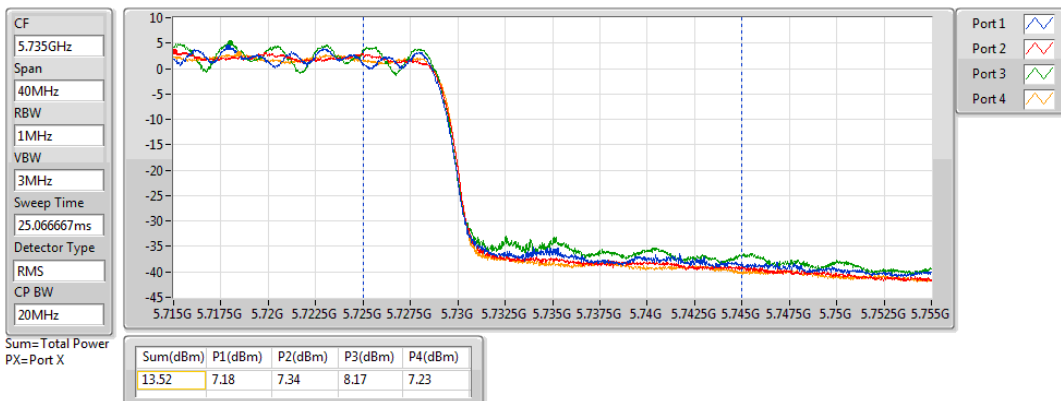


## 802.11ax HEW40\_Nss1,(MCS0)\_4TX

## AV Power

### 5710MHz Straddle 5.725-5.85GHz

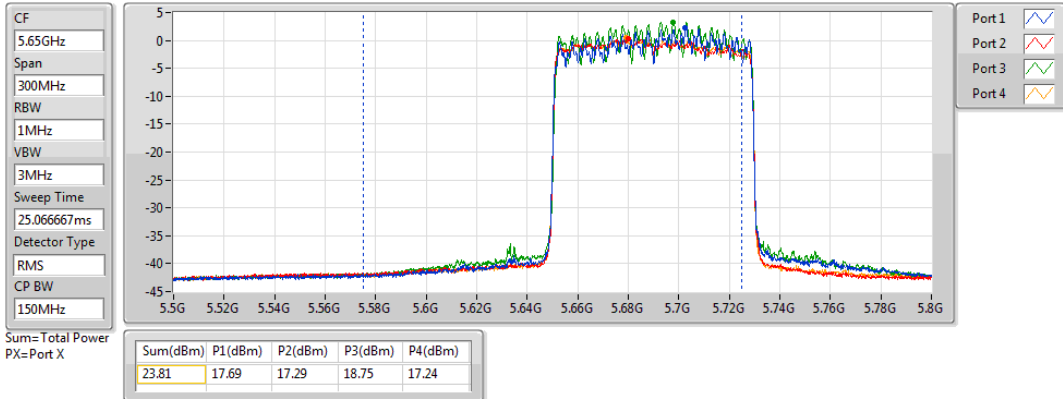
18/09/2019



## 802.11ax HEW80\_Nss1,(MCS0)\_4TX

## AV Power

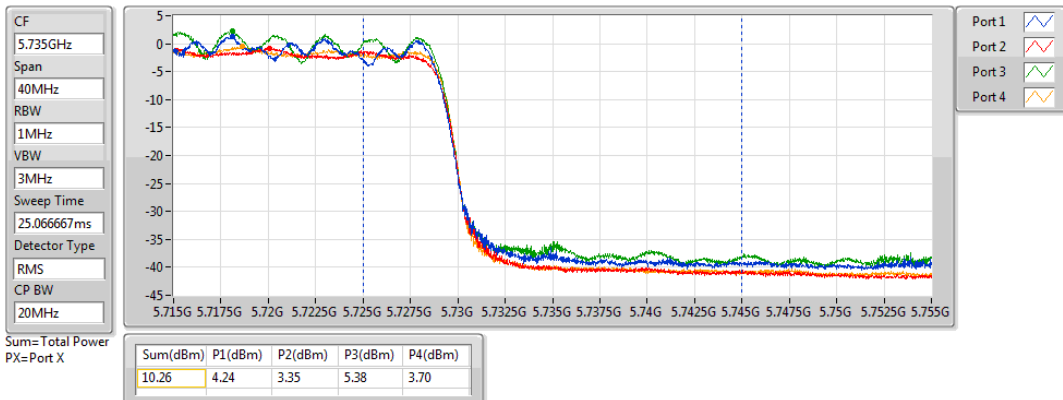
### 5690MHz Straddle 5.47-5.725GHz



## 802.11ax HEW80\_Nss1,(MCS0)\_4TX

## AV Power

### 5690MHz Straddle 5.725-5.85GHz





## Average Power Result

Appendix B.2

For beamforming function:

### Summary

| Mode                               | Total Power<br>(dBm) | Total Power<br>(W) |
|------------------------------------|----------------------|--------------------|
| 5.47-5.725GHz                      | -                    | -                  |
| 802.11ac VHT20-BF_Nss1,(MCS0)_4TX  | 21.72                | 0.14859            |
| 802.11ac VHT40-BF_Nss1,(MCS0)_4TX  | 21.80                | 0.15136            |
| 802.11ac VHT80-BF_Nss1,(MCS0)_4TX  | 21.75                | 0.14962            |
| 802.11ac VHT160-BF_Nss1,(MCS0)_4TX | 21.70                | 0.14791            |
| 802.11ax HEW20-BF_Nss1,(MCS0)_4TX  | 21.98                | 0.15776            |
| 802.11ax HEW40-BF_Nss1,(MCS0)_4TX  | 22.00                | 0.15849            |
| 802.11ax HEW80-BF_Nss1,(MCS0)_4TX  | 21.97                | 0.15740            |
| 802.11ax HEW160-BF_Nss1,(MCS0)_4TX | 22.01                | 0.15885            |
| 5.725-5.85GHz                      | -                    | -                  |
| 802.11ac VHT20-BF_Nss1,(MCS0)_4TX  | 27.69                | 0.58749            |
| 802.11ac VHT40-BF_Nss1,(MCS0)_4TX  | 27.71                | 0.59020            |
| 802.11ac VHT80-BF_Nss1,(MCS0)_4TX  | 27.15                | 0.51880            |
| 802.11ax HEW20-BF_Nss1,(MCS0)_4TX  | 27.89                | 0.61518            |
| 802.11ax HEW40-BF_Nss1,(MCS0)_4TX  | 27.96                | 0.62517            |
| 802.11ax HEW80-BF_Nss1,(MCS0)_4TX  | 27.31                | 0.53827            |



## Average Power Result

## Appendix B.2

### Result

| Mode                               | Result | DG<br>(dBi) | Port 1<br>(dBm) | Port 2<br>(dBm) | Port 3<br>(dBm) | Port 4<br>(dBm) | Total Power<br>(dBm) | Power Limit<br>(dBm) |
|------------------------------------|--------|-------------|-----------------|-----------------|-----------------|-----------------|----------------------|----------------------|
| 802.11ac VHT20-BF_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5500MHz                            | Pass   | 7.95        | 16.24           | 15.14           | 15.82           | 15.51           | 21.72                | 22.03                |
| 5580MHz                            | Pass   | 7.95        | 15.85           | 15.12           | 15.65           | 15.78           | 21.63                | 22.03                |
| 5700MHz                            | Pass   | 7.95        | 15.63           | 14.60           | 15.37           | 14.53           | 21.08                | 22.03                |
| 5720MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | 14.85           | 13.60           | 14.32           | 13.18           | 20.06                | 20.96                |
| 5720MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | 9.03            | 7.81            | 8.82            | 7.62            | 14.38                | 28.05                |
| 5745MHz                            | Pass   | 7.95        | 21.97           | 21.25           | 22.14           | 21.02           | 27.64                | 28.05                |
| 5785MHz                            | Pass   | 7.95        | 22.17           | 21.14           | 22.09           | 21.18           | 27.69                | 28.05                |
| 5825MHz                            | Pass   | 7.95        | 21.70           | 21.03           | 22.16           | 21.40           | 27.61                | 28.05                |
| 802.11ac VHT40-BF_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5510MHz                            | Pass   | 7.95        | 15.80           | 15.11           | 16.07           | 15.24           | 21.59                | 22.03                |
| 5550MHz                            | Pass   | 7.95        | 15.62           | 15.15           | 16.19           | 15.39           | 21.63                | 22.03                |
| 5670MHz                            | Pass   | 7.95        | 15.52           | 15.12           | 16.47           | 15.24           | 21.64                | 22.03                |
| 5710MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | 15.84           | 15.09           | 16.83           | 15.10           | 21.80                | 22.03                |
| 5710MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | 5.08            | 4.53            | 6.21            | 4.58            | 11.18                | 28.05                |
| 5755MHz                            | Pass   | 7.95        | 22.01           | 21.12           | 22.35           | 21.05           | 27.69                | 28.05                |
| 5795MHz                            | Pass   | 7.95        | 22.20           | 21.14           | 22.03           | 21.29           | 27.71                | 28.05                |
| 802.11ac VHT80-BF_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5530MHz                            | Pass   | 7.95        | 15.43           | 15.15           | 15.94           | 15.49           | 21.53                | 22.03                |
| 5610MHz                            | Pass   | 7.95        | 15.45           | 15.17           | 16.08           | 16.14           | 21.75                | 22.03                |
| 5690MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | 15.64           | 15.18           | 16.52           | 15.26           | 21.70                | 22.03                |
| 5690MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | 0.82            | 0.25            | 1.88            | 0.94            | 7.03                 | 28.05                |
| 5775MHz                            | Pass   | 7.95        | 21.38           | 20.60           | 21.73           | 20.72           | 27.15                | 28.05                |
| 802.11ac VHT160-BF_Nss1,(MCS0)_4TX | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5570MHz                            | Pass   | 7.95        | 15.96           | 15.12           | 15.25           | 16.28           | 21.70                | 22.03                |
| 802.11ax HEW20-BF_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5500MHz                            | Pass   | 7.95        | 16.46           | 15.30           | 16.25           | 15.72           | 21.98                | 22.03                |
| 5580MHz                            | Pass   | 7.95        | 16.20           | 15.24           | 15.90           | 15.88           | 21.84                | 22.03                |
| 5700MHz                            | Pass   | 7.95        | 15.65           | 14.93           | 15.62           | 14.73           | 21.27                | 22.03                |
| 5720MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | 14.99           | 13.81           | 15.06           | 13.37           | 20.39                | 20.99                |
| 5720MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | 9.70            | 8.44            | 9.60            | 8.26            | 15.07                | 28.05                |
| 5745MHz                            | Pass   | 7.95        | 22.36           | 21.39           | 22.42           | 21.15           | 27.89                | 28.05                |
| 5785MHz                            | Pass   | 7.95        | 22.09           | 21.17           | 22.54           | 21.43           | 27.86                | 28.05                |
| 5825MHz                            | Pass   | 7.95        | 21.87           | 21.18           | 22.47           | 21.71           | 27.85                | 28.05                |
| 802.11ax HEW40-BF_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5510MHz                            | Pass   | 7.95        | 16.12           | 15.34           | 16.31           | 15.52           | 21.86                | 22.03                |
| 5550MHz                            | Pass   | 7.95        | 15.80           | 15.37           | 16.46           | 15.49           | 21.82                | 22.03                |
| 5670MHz                            | Pass   | 7.95        | 15.91           | 15.32           | 16.75           | 15.55           | 21.94                | 22.03                |
| 5710MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | 15.96           | 15.17           | 17.08           | 15.45           | 22.00                | 22.03                |
| 5710MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | 5.83            | 5.16            | 7.08            | 5.58            | 11.99                | 28.05                |
| 5755MHz                            | Pass   | 7.95        | 22.39           | 21.37           | 22.63           | 21.21           | 27.96                | 28.05                |
| 5795MHz                            | Pass   | 7.95        | 22.31           | 21.22           | 22.26           | 21.40           | 27.85                | 28.05                |
| 802.11ax HEW80-BF_Nss1,(MCS0)_4TX  | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5530MHz                            | Pass   | 7.95        | 15.73           | 15.59           | 16.15           | 15.67           | 21.81                | 22.03                |



## Average Power Result

## Appendix B.2

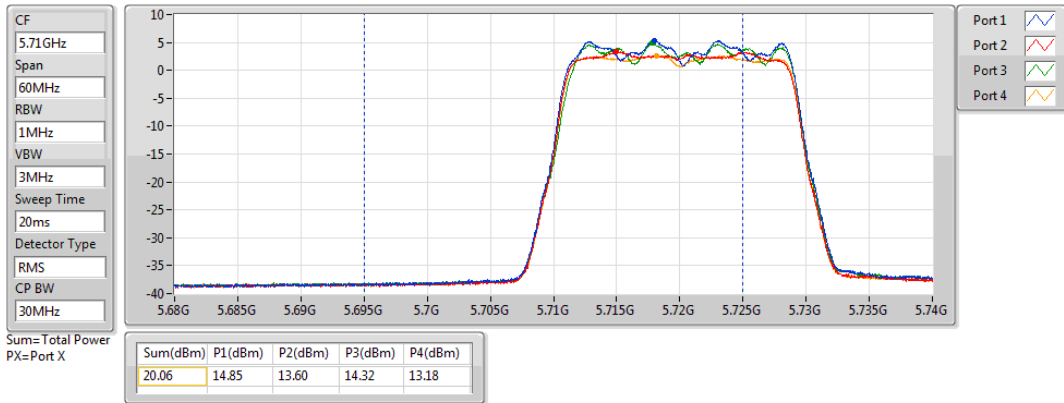
| Mode                               | Result | DG<br>(dBi) | Port 1<br>(dBm) | Port 2<br>(dBm) | Port 3<br>(dBm) | Port 4<br>(dBm) | Total Power<br>(dBm) | Power Limit<br>(dBm) |
|------------------------------------|--------|-------------|-----------------|-----------------|-----------------|-----------------|----------------------|----------------------|
| 5610MHz                            | Pass   | 7.95        | 15.56           | 15.37           | 16.22           | 16.36           | 21.92                | 22.03                |
| 5690MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | 15.82           | 15.49           | 16.90           | 15.42           | 21.97                | 22.03                |
| 5690MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | 1.99            | 1.29            | 2.87            | 1.98            | 8.09                 | 28.05                |
| 5775MHz                            | Pass   | 7.95        | 21.54           | 20.81           | 21.87           | 20.86           | 27.31                | 28.05                |
| 802.11ax HEW160-BF_Nss1,(MCS0)_4TX | -      | -           | -               | -               | -               | -               | -                    | -                    |
| 5570MHz                            | Pass   | 7.95        | 16.24           | 15.35           | 15.78           | 16.49           | 22.01                | 22.03                |

**DG** = Directional Gain; **Port X** = Port X output power

## 802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX

## AV Power

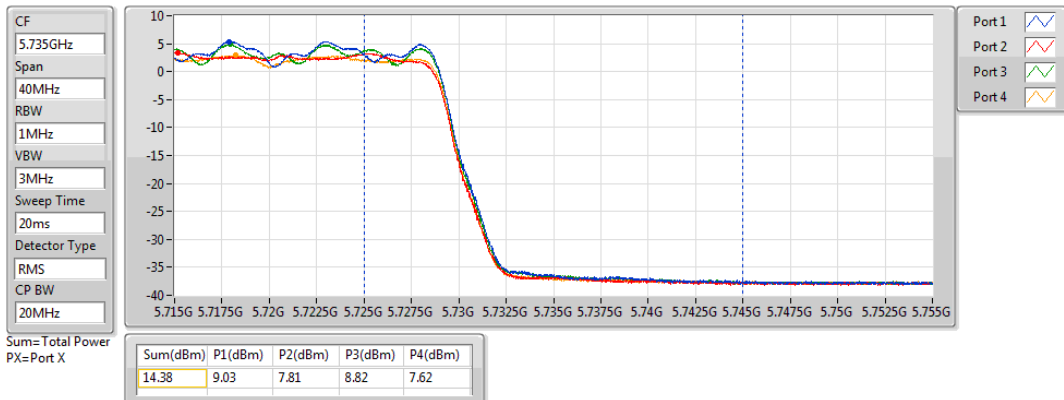
### 5720MHz Straddle 5.47-5.725GHz



## 802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX

## AV Power

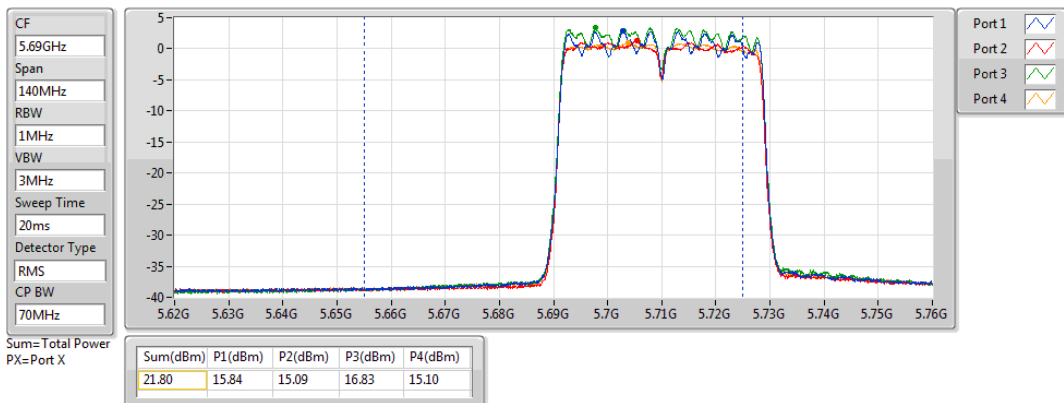
### 5720MHz Straddle 5.725-5.85GHz



## 802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX

## AV Power

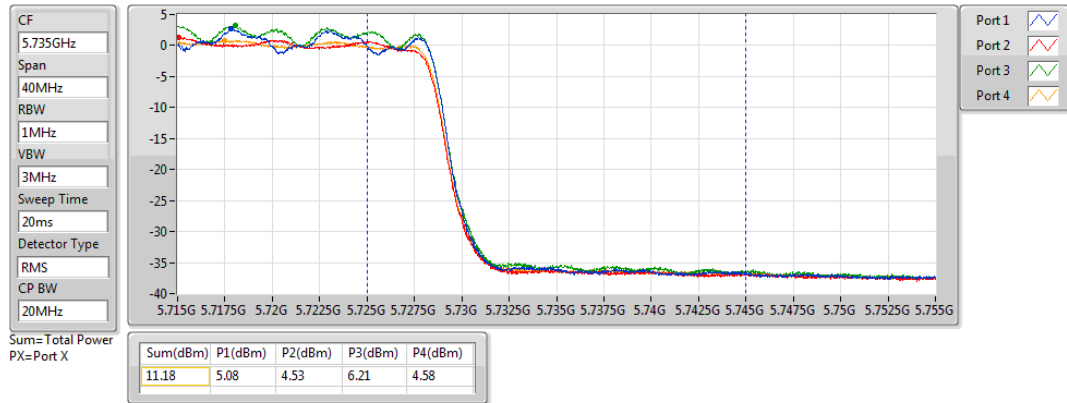
### 5710MHz Straddle 5.47-5.725GHz



## 802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX

## AV Power

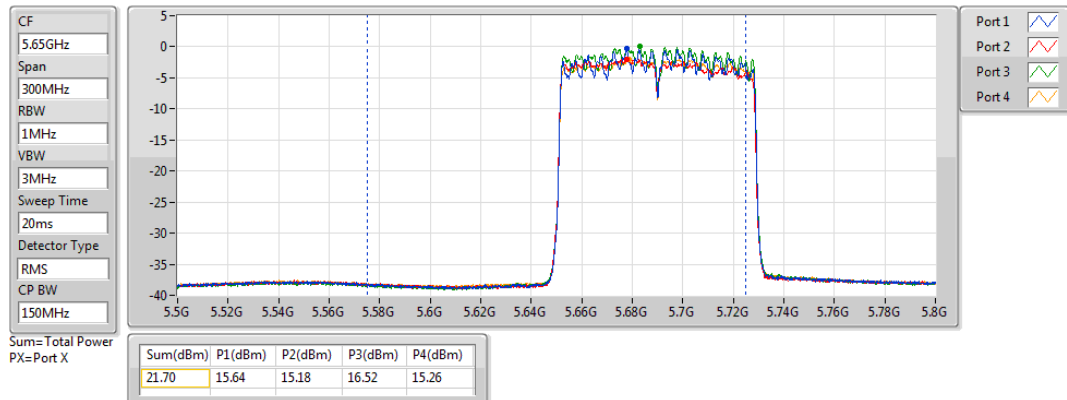
### 5710MHz Straddle 5.725-5.85GHz



## 802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX

## AV Power

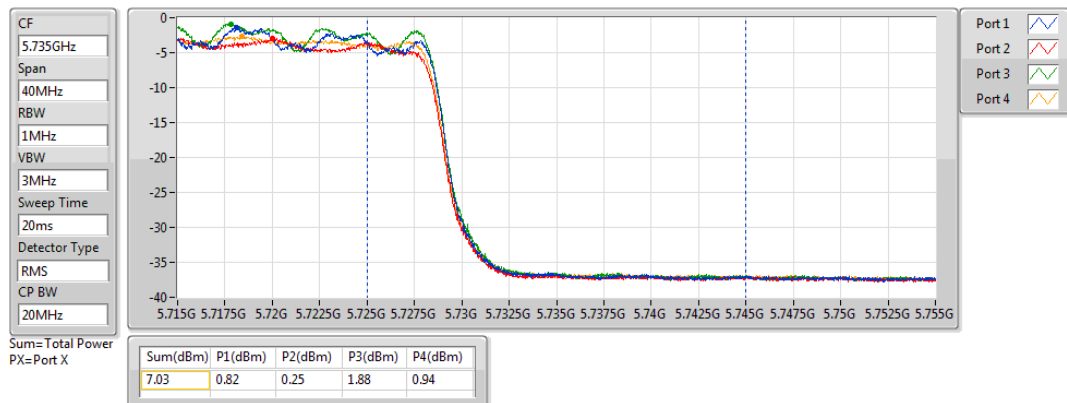
### 5690MHz Straddle 5.47-5.725GHz



## 802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX

## AV Power

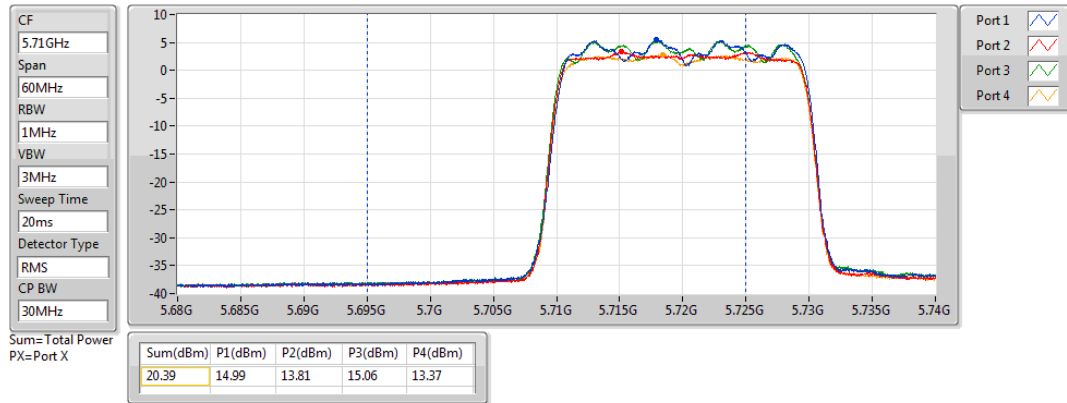
### 5690MHz Straddle 5.725-5.85GHz



## 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

## AV Power

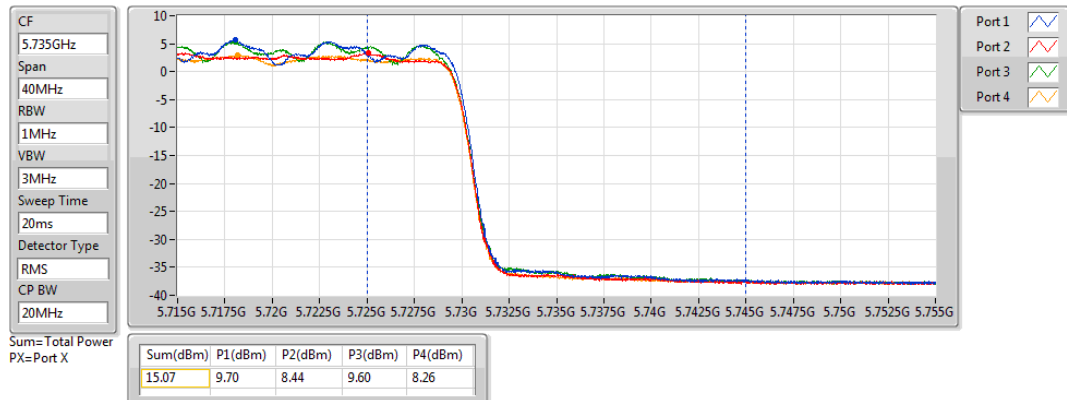
### 5720MHz Straddle 5.47-5.725GHz



## 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

## AV Power

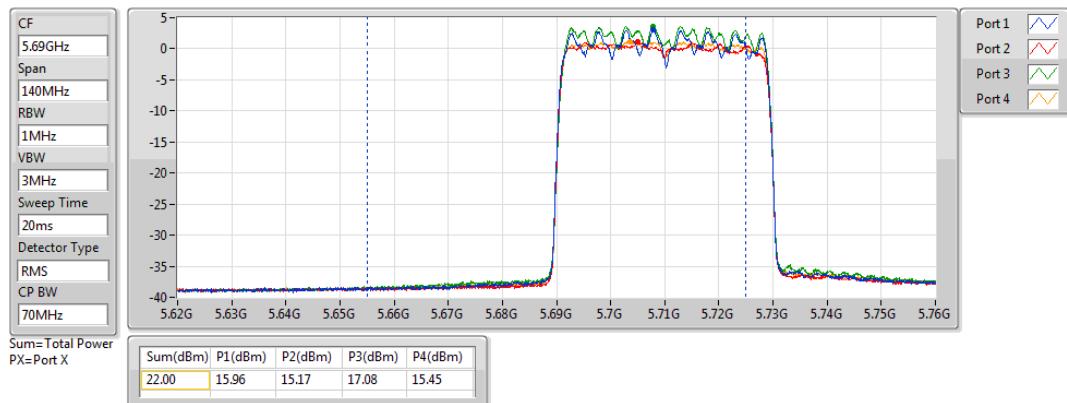
### 5720MHz Straddle 5.725-5.85GHz



## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

## AV Power

### 5710MHz Straddle 5.47-5.725GHz

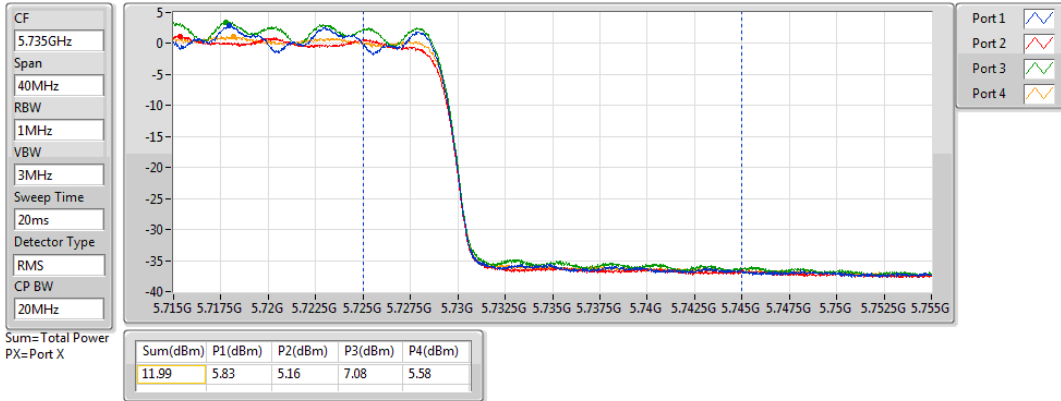


## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

## AV Power

5710MHz Straddle 5.725-5.85GHz

01/02/2020

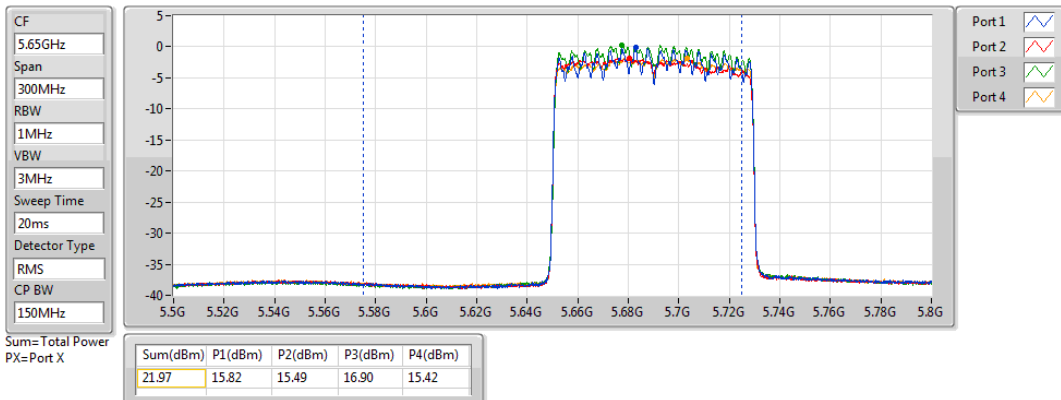


## 802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX

## AV Power

5690MHz Straddle 5.47-5.725GHz

01/02/2020

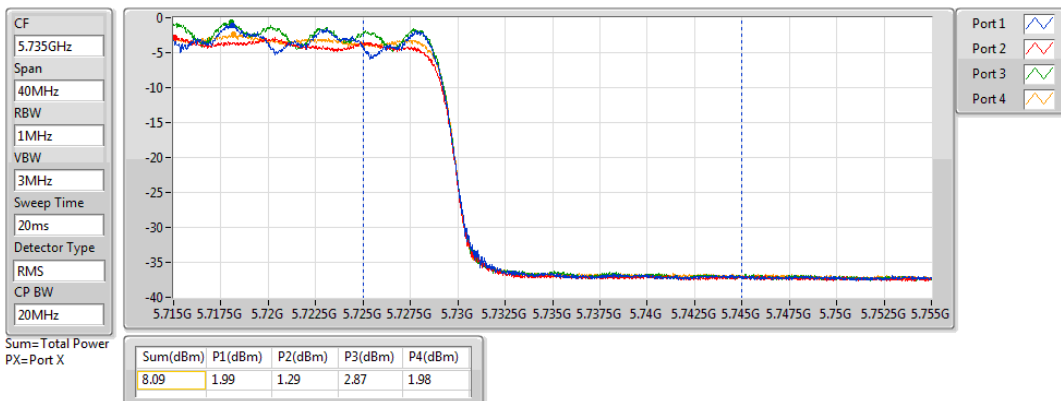


## 802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX

## AV Power

5690MHz Straddle 5.725-5.85GHz

01/02/2020

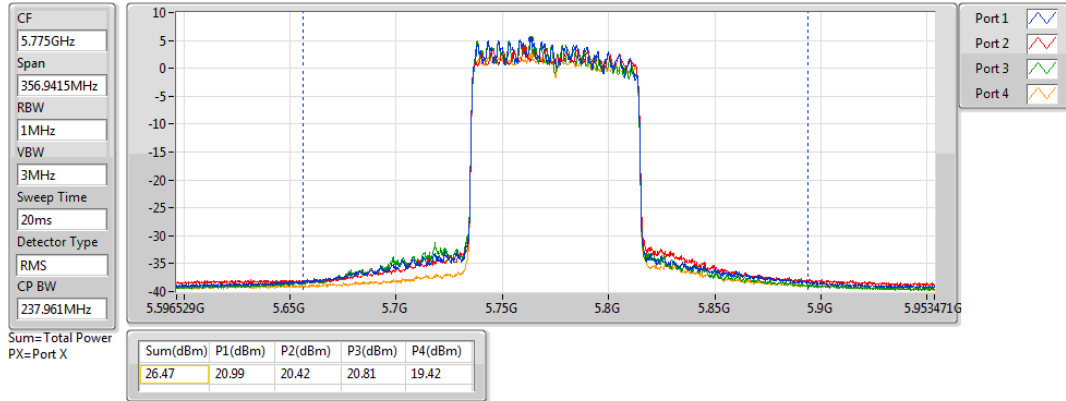


802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX

AV Power

5775MHz

03/02/2020



For non-beamforming function:

**Summary**

| Mode                            | PD<br>(dBm/RBW) |
|---------------------------------|-----------------|
| 5.25-5.35GHz                    | -               |
| 802.11a_Nss1,(6Mbps)_2TX        | 10.92           |
| 802.11ac VHT20_Nss1,(MCS0)_2TX  | 10.47           |
| 802.11ac VHT40_Nss1,(MCS0)_2TX  | 7.29            |
| 802.11ac VHT80_Nss1,(MCS0)_2TX  | 4.19            |
| 802.11ax HEW20_Nss1,(MCS0)_2TX  | 10.09           |
| 802.11ax HEW40_Nss1,(MCS0)_2TX  | 7.21            |
| 802.11ax HEW80_Nss1,(MCS0)_2TX  | 4.34            |
| 5.47-5.725GHz                   | -               |
| 802.11a_Nss1,(6Mbps)_4TX        | 9.03            |
| 802.11ac VHT20_Nss1,(MCS0)_4TX  | 9.03            |
| 802.11ac VHT40_Nss1,(MCS0)_4TX  | 8.94            |
| 802.11ac VHT80_Nss1,(MCS0)_4TX  | 6.46            |
| 802.11ac VHT160_Nss1,(MCS0)_4TX | -0.07           |
| 802.11ax HEW20_Nss1,(MCS0)_4TX  | 8.97            |
| 802.11ax HEW40_Nss1,(MCS0)_4TX  | 8.95            |
| 802.11ax HEW80_Nss1,(MCS0)_4TX  | 6.36            |
| 802.11ax HEW160_Nss1,(MCS0)_4TX | -0.00           |
| 5.725-5.85GHz                   | -               |
| 802.11a_Nss1,(6Mbps)_4TX        | 7.41            |
| 802.11ac VHT20_Nss1,(MCS0)_4TX  | 7.03            |
| 802.11ac VHT40_Nss1,(MCS0)_4TX  | 6.08            |
| 802.11ac VHT80_Nss1,(MCS0)_4TX  | 3.19            |
| 802.11ax HEW20_Nss1,(MCS0)_4TX  | 7.05            |
| 802.11ax HEW40_Nss1,(MCS0)_4TX  | 6.26            |
| 802.11ax HEW80_Nss1,(MCS0)_4TX  | 3.17            |

RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

**Result**

| Mode                            | Result | DG<br>(dBi) | Port 1<br>(dBm/RBW) | Port 2<br>(dBm/RBW) | Port 3<br>(dBm/RBW) | Port 4<br>(dBm/RBW) | PD<br>(dBm/RBW) | PD Limit<br>(dBm/RBW) |
|---------------------------------|--------|-------------|---------------------|---------------------|---------------------|---------------------|-----------------|-----------------------|
| 802.11a_Nss1,(6Mbps)_2TX        | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5260MHz                         | Pass   | 6.04        | 7.71                | 7.80                |                     |                     | 10.74           | 10.96                 |
| 5300MHz                         | Pass   | 6.04        | 7.91                | 7.52                |                     |                     | 10.64           | 10.96                 |
| 5320MHz                         | Pass   | 6.04        | 8.18                | 7.77                |                     |                     | 10.92           | 10.96                 |
| 802.11a_Nss1,(6Mbps)_4TX        | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5500MHz                         | Pass   | 7.95        | 3.86                | 2.55                | 3.54                | 3.05                | 8.87            | 9.05                  |
| 5580MHz                         | Pass   | 7.95        | 5.36                | 2.27                | 2.80                | 2.58                | 8.84            | 9.05                  |
| 5700MHz                         | Pass   | 7.95        | 5.25                | 1.77                | 4.45                | 1.43                | 9.03            | 9.05                  |
| 5720MHz Straddle 5.47-5.725GHz  | Pass   | 7.95        | 4.80                | 2.03                | 4.97                | 1.08                | 9.01            | 9.05                  |
| 5720MHz Straddle 5.725-5.85GHz  | Pass   | 7.95        | 3.20                | -1.14               | 3.07                | -0.42               | 7.41            | 28.05                 |
| 802.11ac VHT20_Nss1,(MCS0)_2TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5260MHz                         | Pass   | 6.04        | 7.41                | 7.68                |                     |                     | 10.47           | 10.96                 |
| 5300MHz                         | Pass   | 6.04        | 7.70                | 7.39                |                     |                     | 10.46           | 10.96                 |
| 5320MHz                         | Pass   | 6.04        | 7.60                | 7.34                |                     |                     | 10.40           | 10.96                 |
| 802.11ac VHT20_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5500MHz                         | Pass   | 7.95        | 3.33                | 2.82                | 3.43                | 3.62                | 9.03            | 9.05                  |
| 5580MHz                         | Pass   | 7.95        | 4.47                | 3.03                | 3.48                | 2.93                | 8.99            | 9.05                  |
| 5700MHz                         | Pass   | 7.95        | 4.30                | 1.96                | 3.77                | 1.92                | 8.87            | 9.05                  |
| 5720MHz Straddle 5.47-5.725GHz  | Pass   | 7.95        | 4.31                | 1.98                | 3.98                | 1.80                | 8.93            | 9.05                  |
| 5720MHz Straddle 5.725-5.85GHz  | Pass   | 7.95        | 2.43                | 0.46                | 2.19                | -0.13               | 7.03            | 28.05                 |
| 802.11ac VHT40_Nss1,(MCS0)_2TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5270MHz                         | Pass   | 6.04        | 4.56                | 4.20                |                     |                     | 7.29            | 10.96                 |
| 5310MHz                         | Pass   | 6.04        | 4.02                | 3.28                |                     |                     | 6.60            | 10.96                 |
| 802.11ac VHT40_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5510MHz                         | Pass   | 7.95        | 2.39                | 1.17                | 1.30                | 1.73                | 7.20            | 9.05                  |
| 5550MHz                         | Pass   | 7.95        | 3.44                | 1.73                | 1.92                | 1.90                | 7.50            | 9.05                  |
| 5670MHz                         | Pass   | 7.95        | 3.16                | 1.38                | 3.65                | 1.63                | 8.43            | 9.05                  |
| 5710MHz Straddle 5.47-5.725GHz  | Pass   | 7.95        | 3.74                | 2.20                | 4.48                | 2.37                | 8.94            | 9.05                  |
| 5710MHz Straddle 5.725-5.85GHz  | Pass   | 7.95        | 0.73                | 0.02                | 1.71                | -0.63               | 6.08            | 28.05                 |
| 802.11ac VHT80_Nss1,(MCS0)_2TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5290MHz                         | Pass   | 6.04        | 1.51                | 1.11                |                     |                     | 4.19            | 10.96                 |
| 802.11ac VHT80_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5530MHz                         | Pass   | 7.95        | 0.07                | -1.24               | -0.90               | -1.47               | 4.43            | 9.05                  |
| 5610MHz                         | Pass   | 7.95        | 0.01                | -0.90               | 0.11                | -1.34               | 4.97            | 9.05                  |
| 5690MHz Straddle 5.47-5.725GHz  | Pass   | 7.95        | 1.54                | -0.88               | 2.37                | -0.91               | 6.46            | 9.05                  |
| 5690MHz Straddle 5.725-5.85GHz  | Pass   | 7.95        | -1.76               | -3.75               | -1.00               | -4.16               | 3.19            | 28.05                 |
| 802.11ac VHT160_Nss1,(MCS0)_4TX | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5570MHz                         | Pass   | 7.95        | -5.18               | -5.75               | -5.36               | -6.16               | -0.07           | 9.05                  |
| 802.11ax HEW20_Nss1,(MCS0)_2TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5260MHz                         | Pass   | 6.04        | 7.05                | 7.09                |                     |                     | 10.02           | 10.96                 |
| 5300MHz                         | Pass   | 6.04        | 7.25                | 7.06                |                     |                     | 10.09           | 10.96                 |
| 5320MHz                         | Pass   | 6.04        | 7.29                | 6.95                |                     |                     | 10.07           | 10.96                 |
| 802.11ax HEW20_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5500MHz                         | Pass   | 7.95        | 3.41                | 2.65                | 3.35                | 3.38                | 8.89            | 9.05                  |

| Mode                            | Result | DG<br>(dBi) | Port 1<br>(dBm/RBW) | Port 2<br>(dBm/RBW) | Port 3<br>(dBm/RBW) | Port 4<br>(dBm/RBW) | PD<br>(dBm/RBW) | PD Limit<br>(dBm/RBW) |
|---------------------------------|--------|-------------|---------------------|---------------------|---------------------|---------------------|-----------------|-----------------------|
| 5580MHz                         | Pass   | 7.95        | 4.48                | 2.62                | 3.54                | 3.00                | 8.97            | 9.05                  |
| 5700MHz                         | Pass   | 7.95        | 4.33                | 1.73                | 3.91                | 2.00                | 8.90            | 9.05                  |
| 5720MHz Straddle 5.47-5.725GHz  | Pass   | 7.95        | 4.59                | 1.96                | 3.75                | 1.82                | 8.97            | 9.05                  |
| 5720MHz Straddle 5.725-5.85GHz  | Pass   | 7.95        | 2.58                | 0.58                | 2.07                | -0.10               | 7.05            | 28.05                 |
| 802.11ax HEW40_Nss1,(MCS0)_2TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5270MHz                         | Pass   | 6.04        | 4.58                | 3.99                |                     |                     | 7.21            | 10.96                 |
| 5310MHz                         | Pass   | 6.04        | 3.97                | 3.42                |                     |                     | 6.62            | 10.96                 |
| 802.11ax HEW40_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5510MHz                         | Pass   | 7.95        | 2.35                | 1.07                | 1.19                | 1.54                | 7.02            | 9.05                  |
| 5550MHz                         | Pass   | 7.95        | 3.20                | 1.45                | 1.73                | 1.56                | 7.29            | 9.05                  |
| 5670MHz                         | Pass   | 7.95        | 3.34                | 1.47                | 3.89                | 1.60                | 8.49            | 9.05                  |
| 5710MHz Straddle 5.47-5.725GHz  | Pass   | 7.95        | 4.21                | 2.07                | 4.44                | 1.88                | 8.95            | 9.05                  |
| 5710MHz Straddle 5.725-5.85GHz  | Pass   | 7.95        | 1.14                | 0.16                | 1.64                | -0.81               | 6.26            | 28.05                 |
| 802.11ax HEW80_Nss1,(MCS0)_2TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5290MHz                         | Pass   | 6.04        | 1.75                | 1.24                |                     |                     | 4.34            | 10.96                 |
| 802.11ax HEW80_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5530MHz                         | Pass   | 7.95        | 0.53                | -0.76               | -0.76               | -0.99               | 4.78            | 9.05                  |
| 5610MHz                         | Pass   | 7.95        | 0.06                | -1.09               | 0.02                | -1.05               | 4.83            | 9.05                  |
| 5690MHz Straddle 5.47-5.725GHz  | Pass   | 7.95        | 1.73                | -1.16               | 2.45                | -0.71               | 6.36            | 9.05                  |
| 5690MHz Straddle 5.725-5.85GHz  | Pass   | 7.95        | -1.49               | -4.17               | -1.30               | -4.26               | 3.17            | 28.05                 |
| 802.11ax HEW160_Nss1,(MCS0)_4TX | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5570MHz                         | Pass   | 7.95        | -4.81               | -5.35               | -4.93               | -6.06               | -0.00           | 9.05                  |

**DG** = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

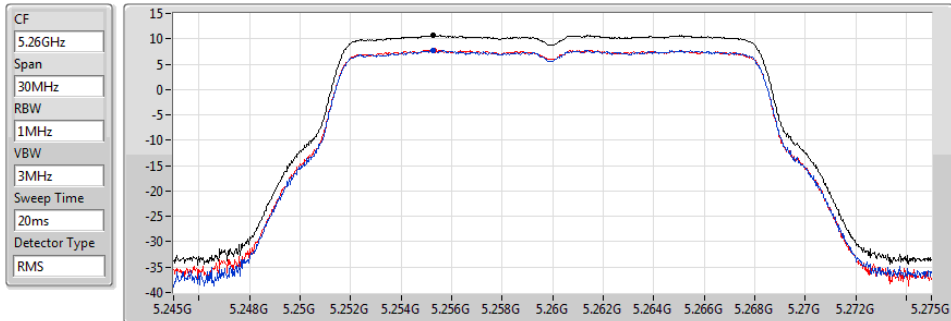
**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

### 802.11a\_Nss1,(6Mbps)\_2TX

### PSD

5260MHz

18/09/2019



| Sum       | PD        | Port 1    | Port 2    |
|-----------|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| 10.74     | 10.74     | 7.71      | 7.80      |

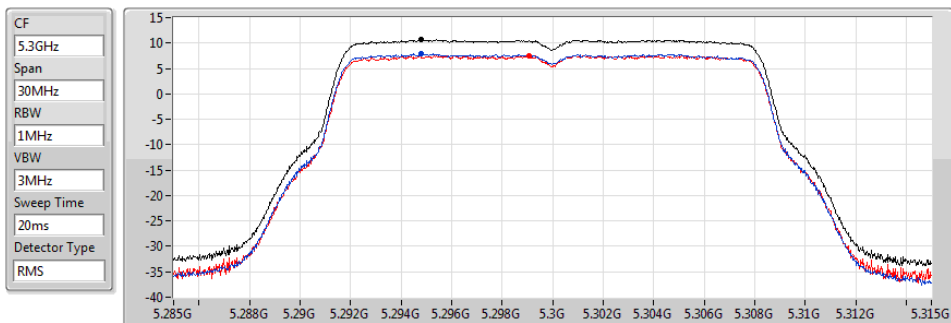
Sum  
Port 1  
Port 2

### 802.11a\_Nss1,(6Mbps)\_2TX

### PSD

5300MHz

18/09/2019



| Sum       | PD        | Port 1    | Port 2    |
|-----------|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| 10.64     | 10.64     | 7.91      | 7.52      |

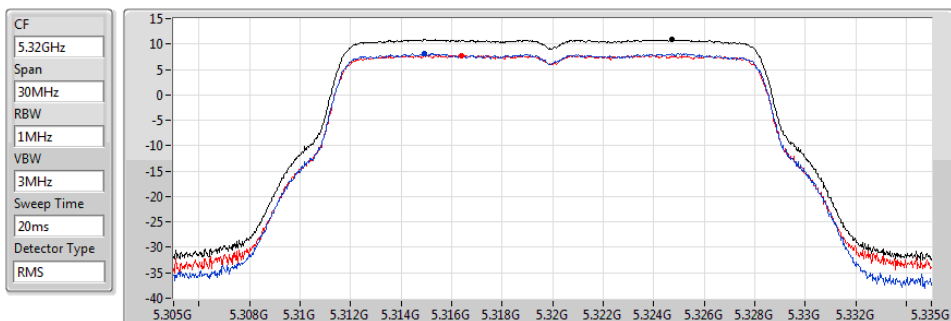
Sum  
Port 1  
Port 2

### 802.11a\_Nss1,(6Mbps)\_2TX

### PSD

5320MHz

18/09/2019



| Sum       | PD        | Port 1    | Port 2    |
|-----------|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| 10.92     | 10.92     | 8.18      | 7.77      |

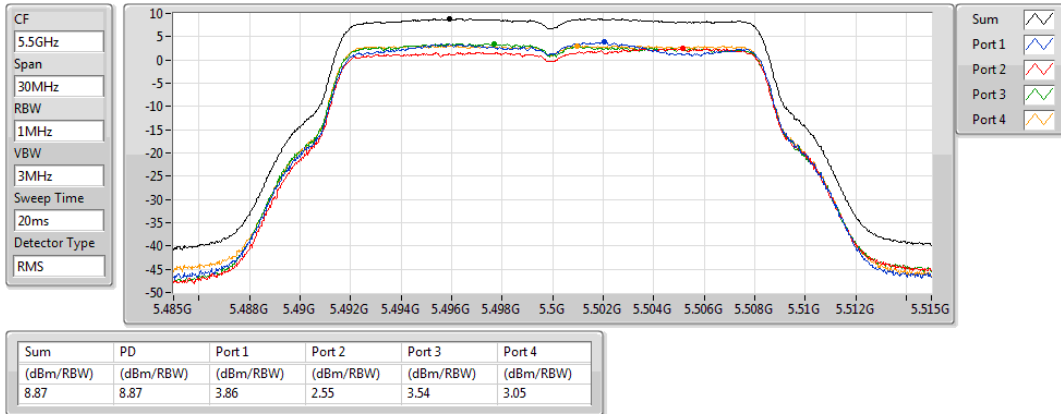
Sum  
Port 1  
Port 2

### 802.11a\_Nss1,(6Mbps)\_4TX

### PSD

5500MHz

18/09/2019

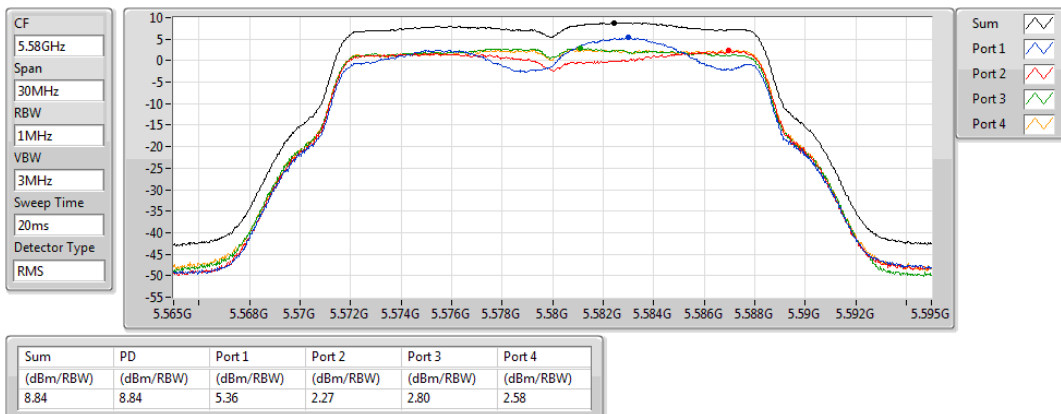


### 802.11a\_Nss1,(6Mbps)\_4TX

### PSD

5580MHz

18/09/2019

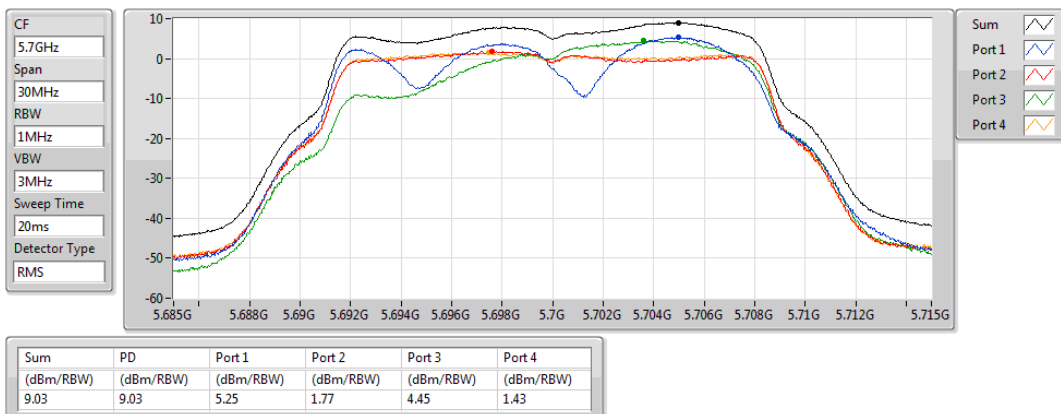


### 802.11a\_Nss1,(6Mbps)\_4TX

### PSD

5700MHz

18/09/2019

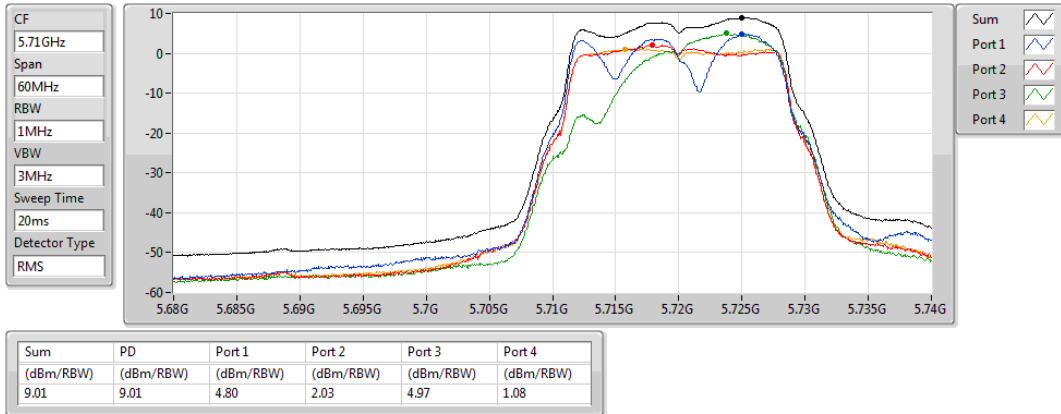


### 802.11a\_Nss1,(6Mbps)\_4TX

#### 5720MHz Straddle 5.47-5.725GHz

### PSD

18/09/2019

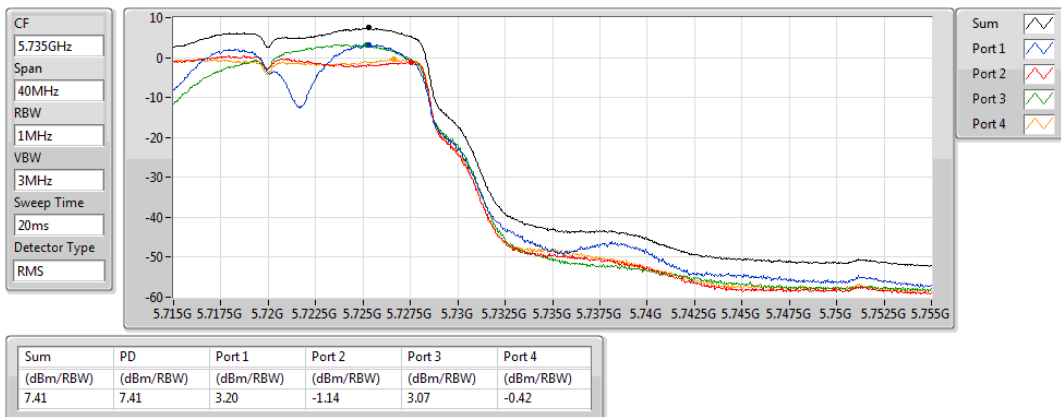


### 802.11a\_Nss1,(6Mbps)\_4TX

#### 5720MHz Straddle 5.725-5.85GHz

### PSD

18/09/2019

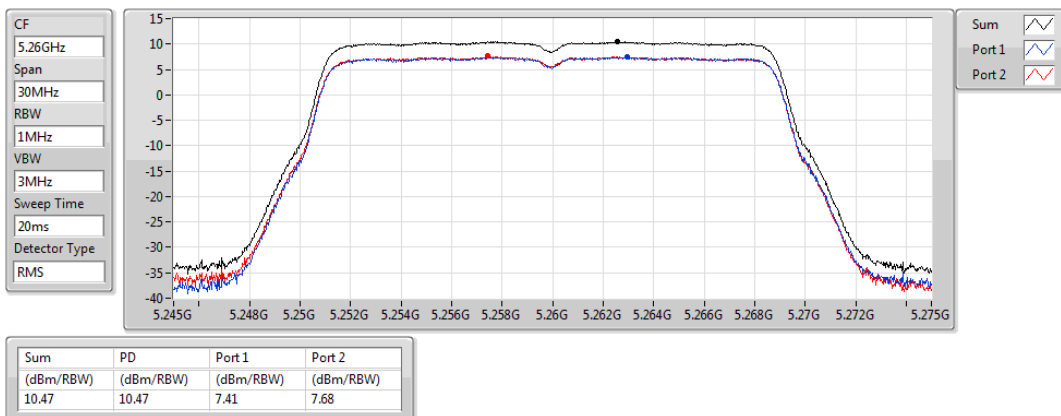


### 802.11ac VHT20\_Nss1,(MCS0)\_2TX

#### 5260MHz

### PSD

18/09/2019



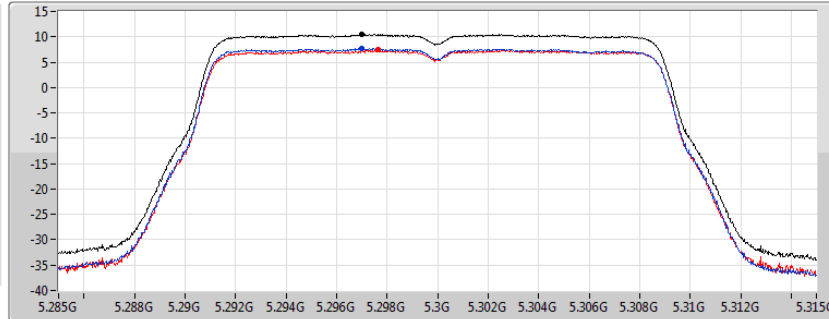
### 802.11ac VHT20\_Nss1,(MCS0)\_2TX

PSD

5300MHz

18/09/2019

CF  
5.3GHz  
Span  
30MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS



| Sum      | PD       | Port 1   | Port 2   |
|----------|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| 10.46    | 10.46    | 7.70     | 7.39     |

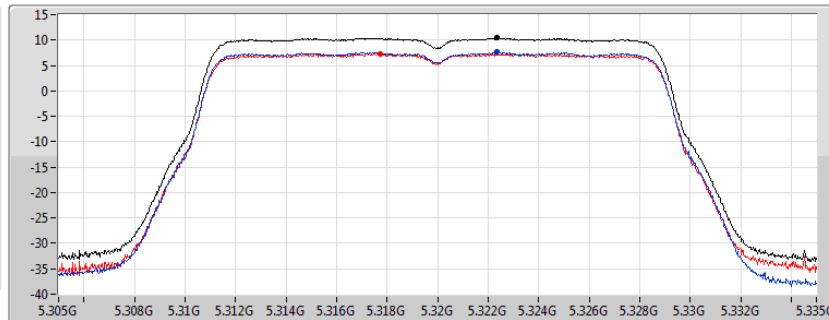
### 802.11ac VHT20\_Nss1,(MCS0)\_2TX

PSD

5320MHz

18/09/2019

CF  
5.32GHz  
Span  
30MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS



| Sum      | PD       | Port 1   | Port 2   |
|----------|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| 10.40    | 10.40    | 7.60     | 7.34     |

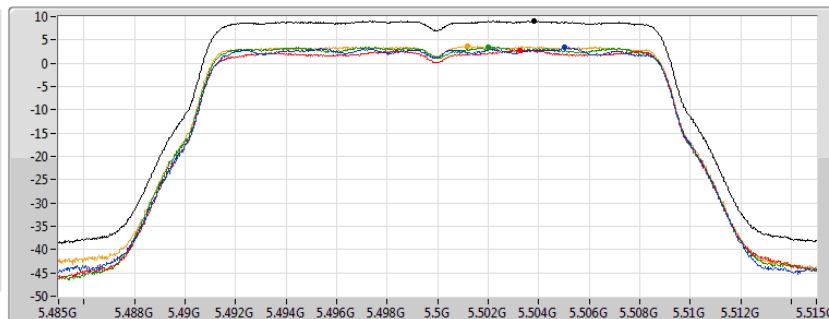
### 802.11ac VHT20\_Nss1,(MCS0)\_4TX

PSD

5500MHz

18/09/2019

CF  
5.5GHz  
Span  
30MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS



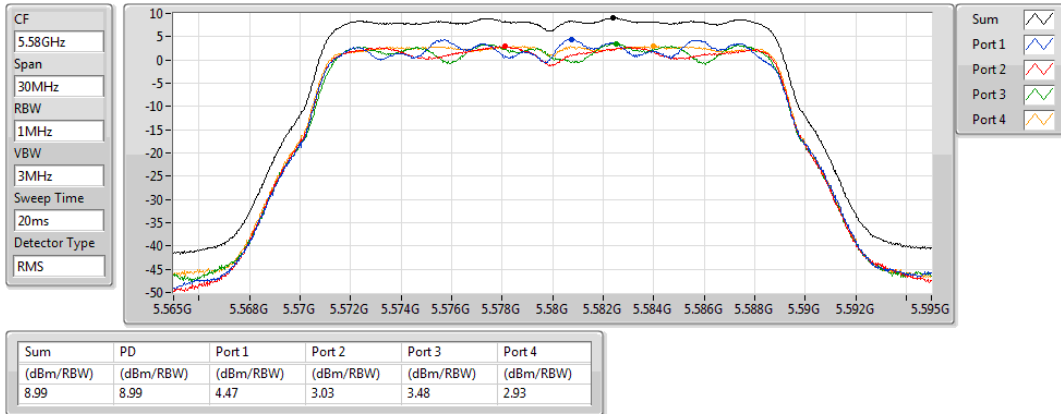
| Sum      | PD       | Port 1   | Port 2   | Port 3   | Port 4   |
|----------|----------|----------|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| 9.03     | 9.03     | 3.33     | 2.82     | 3.43     | 3.62     |

### 802.11ac VHT20\_Nss1,(MCS0)\_4TX

PSD

5580MHz

18/09/2019

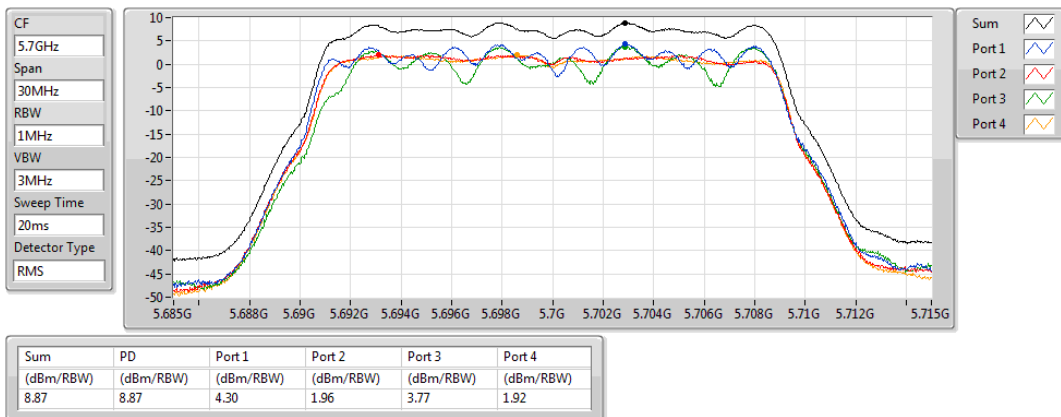


### 802.11ac VHT20\_Nss1,(MCS0)\_4TX

PSD

5700MHz

18/09/2019

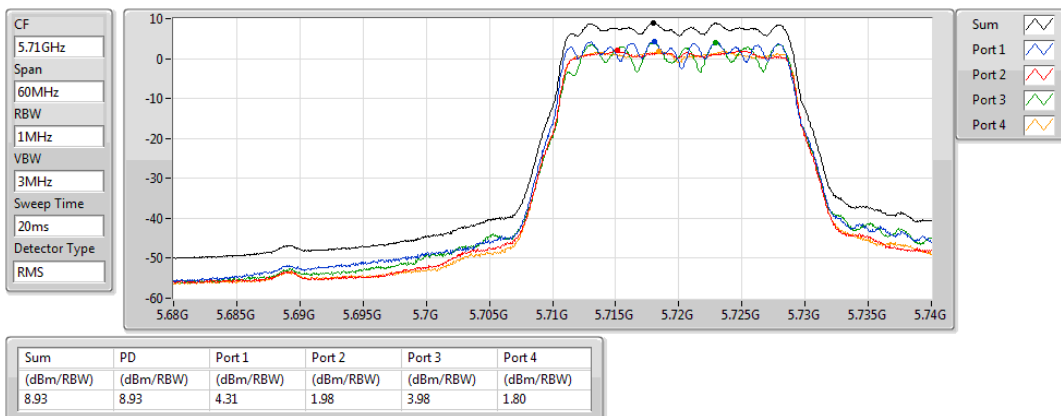


### 802.11ac VHT20\_Nss1,(MCS0)\_4TX

PSD

5720MHz Straddle 5.47-5.725GHz

18/09/2019

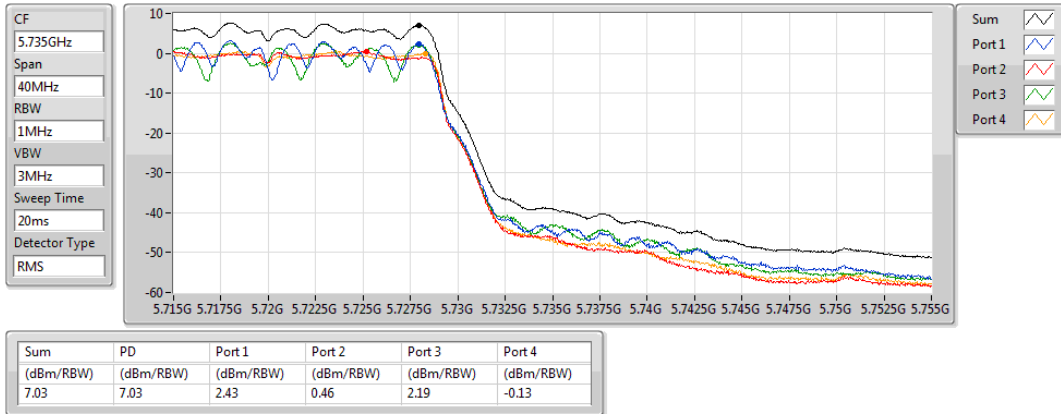


### 802.11ac VHT20\_Nss1,(MCS0)\_4TX

5720MHz Straddle 5.725-5.85GHz

PSD

18/09/2019

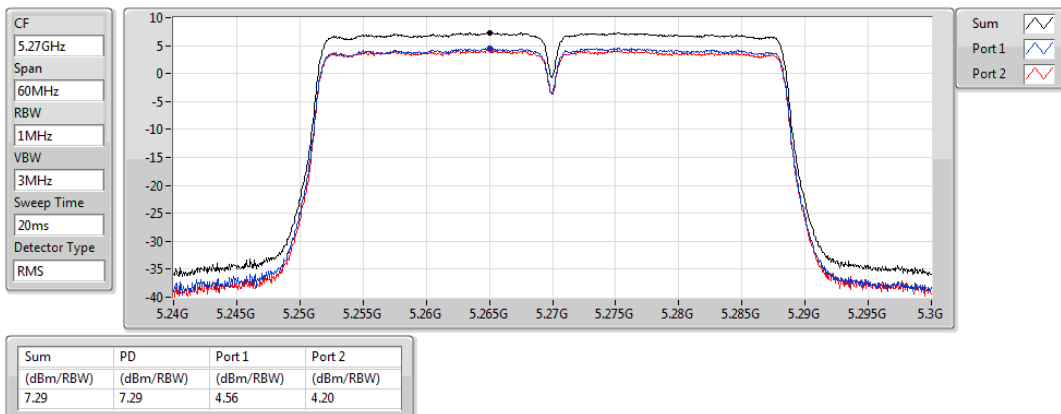


### 802.11ac VHT40\_Nss1,(MCS0)\_2TX

5270MHz

PSD

18/09/2019

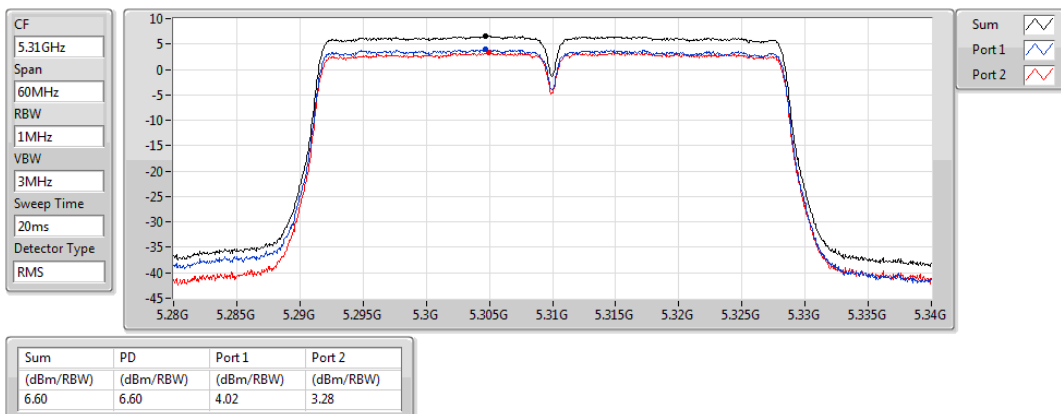


### 802.11ac VHT40\_Nss1,(MCS0)\_2TX

5310MHz

PSD

18/09/2019

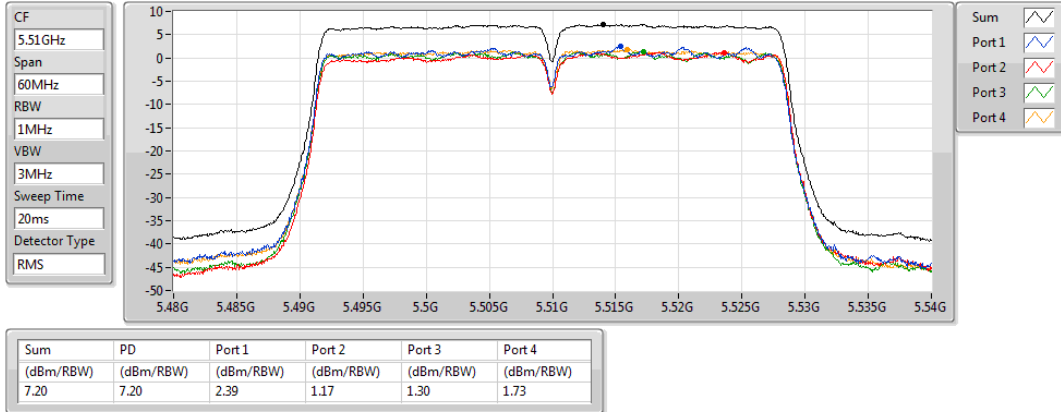


### 802.11ac VHT40\_Nss1,(MCS0)\_4TX

### PSD

5510MHz

18/09/2019

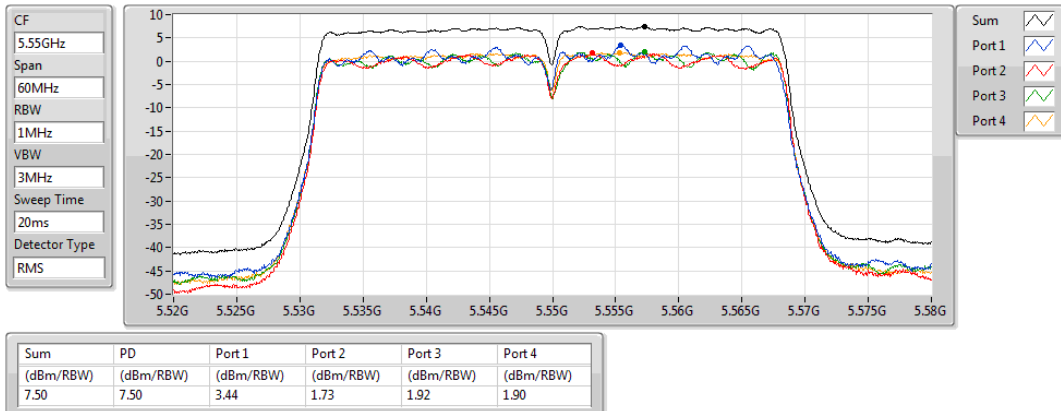


### 802.11ac VHT40\_Nss1,(MCS0)\_4TX

### PSD

5550MHz

18/09/2019

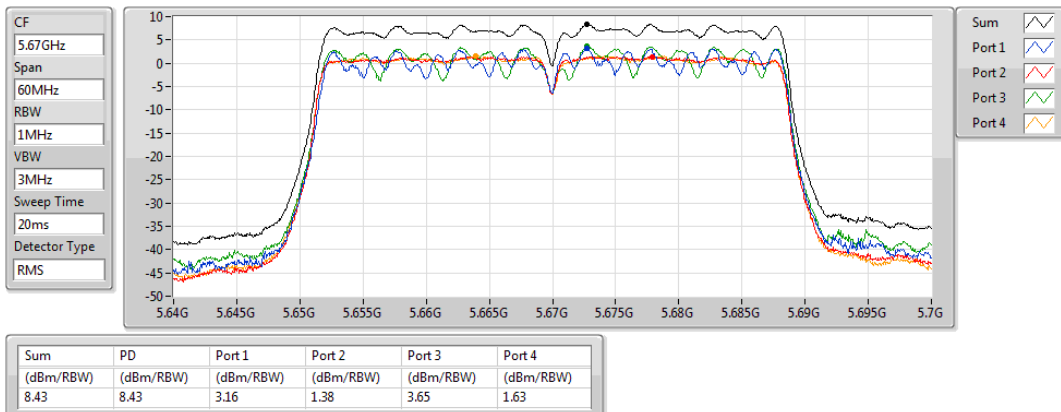


### 802.11ac VHT40\_Nss1,(MCS0)\_4TX

### PSD

5670MHz

18/09/2019

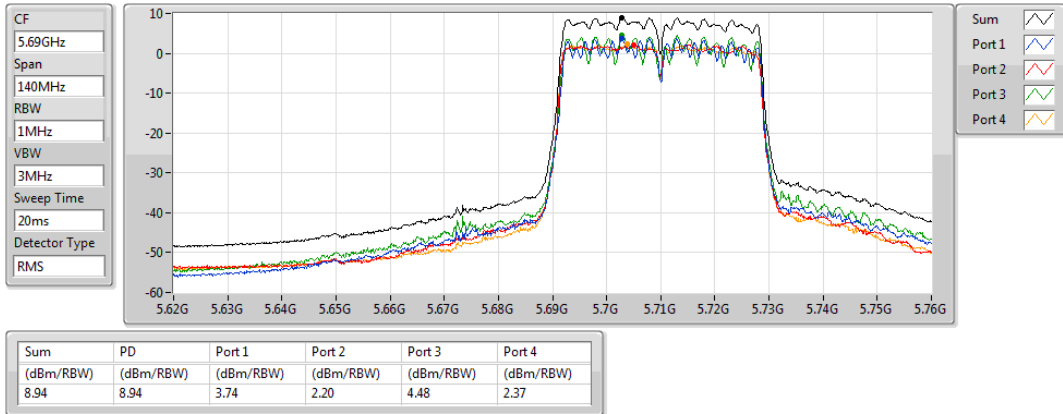


### 802.11ac VHT40\_Nss1,(MCS0)\_4TX

#### 5710MHz Straddle 5.47-5.725GHz

### PSD

18/09/2019

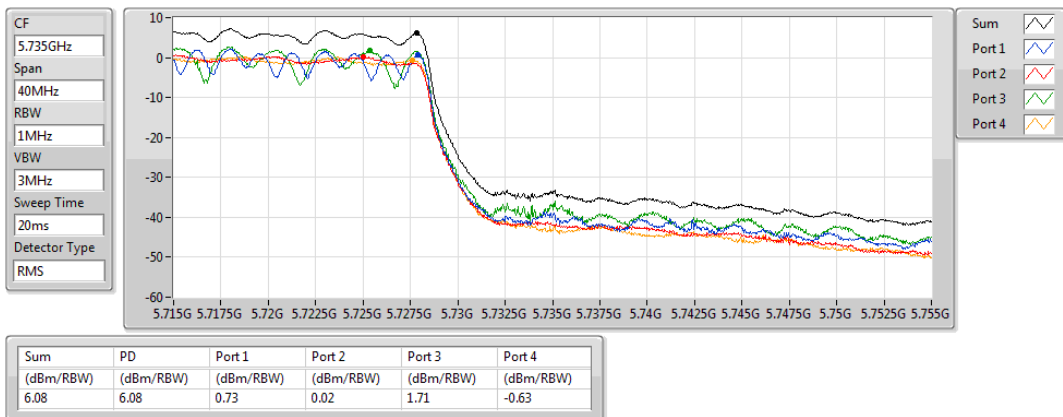


### 802.11ac VHT40\_Nss1,(MCS0)\_4TX

#### 5710MHz Straddle 5.725-5.85GHz

### PSD

18/09/2019

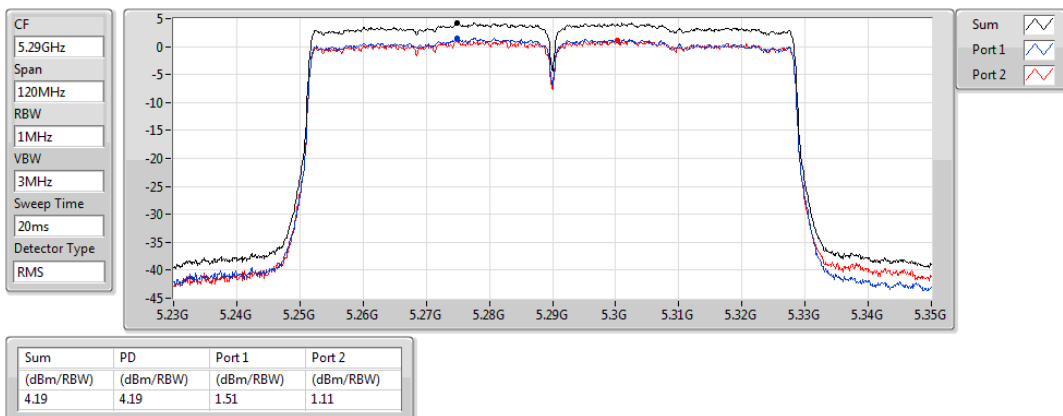


### 802.11ac VHT80\_Nss1,(MCS0)\_2TX

#### 5290MHz

### PSD

18/09/2019

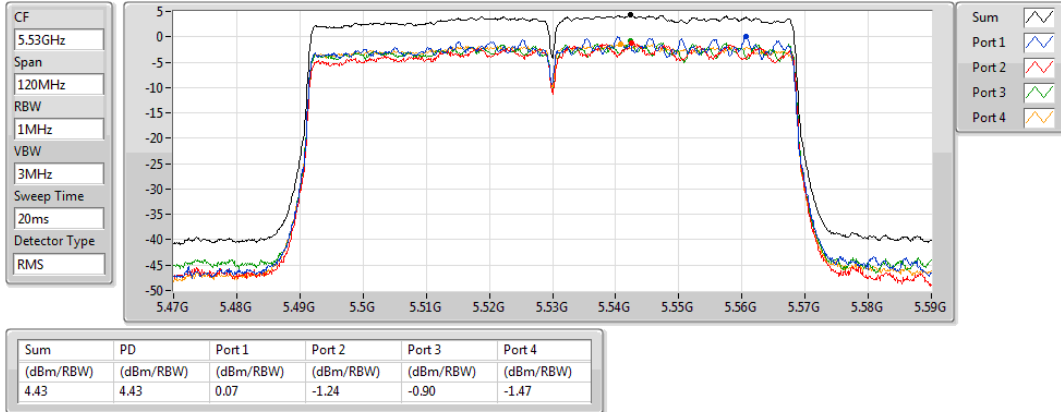


### 802.11ac VHT80\_Nss1,(MCS0)\_4TX

PSD

5530MHz

18/09/2019

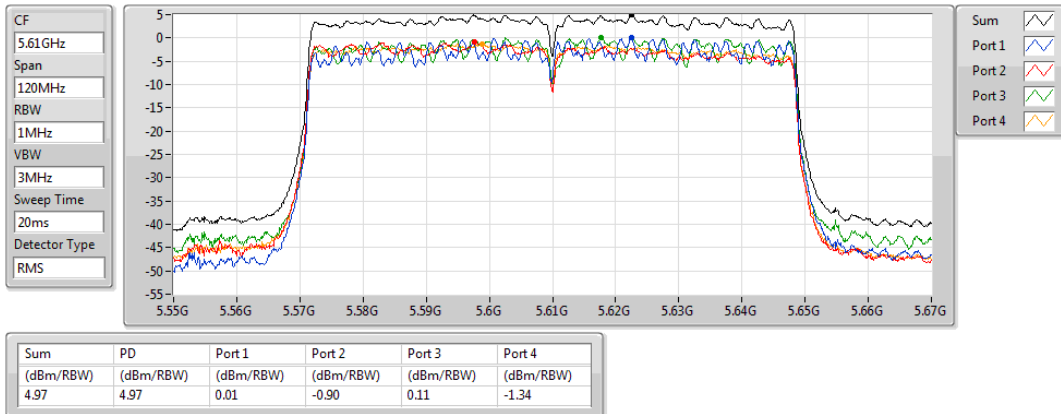


### 802.11ac VHT80\_Nss1,(MCS0)\_4TX

PSD

5610MHz

18/09/2019

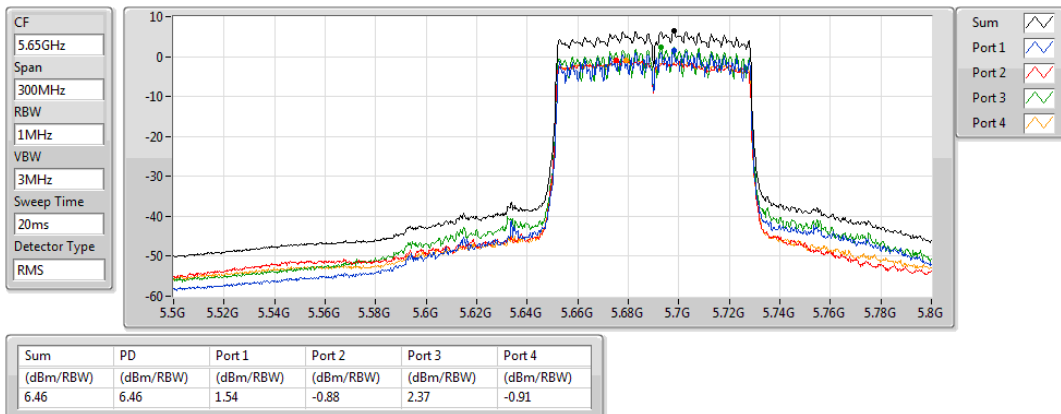


### 802.11ac VHT80\_Nss1,(MCS0)\_4TX

PSD

5690MHz Straddle 5.47-5.725GHz

18/09/2019

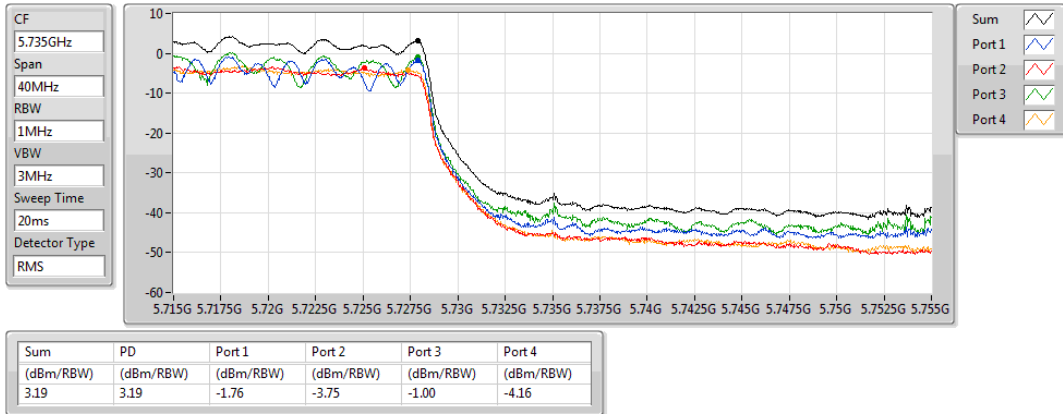


### 802.11ac VHT80\_Nss1,(MCS0)\_4TX

5690MHz Straddle 5.725-5.85GHz

PSD

18/09/2019

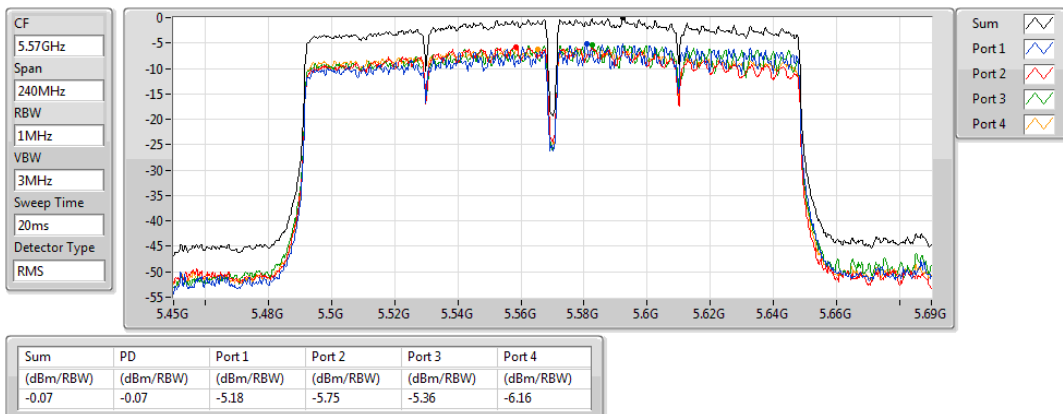


### 802.11ac VHT160\_Nss1,(MCS0)\_4TX

5570MHz

PSD

18/09/2019

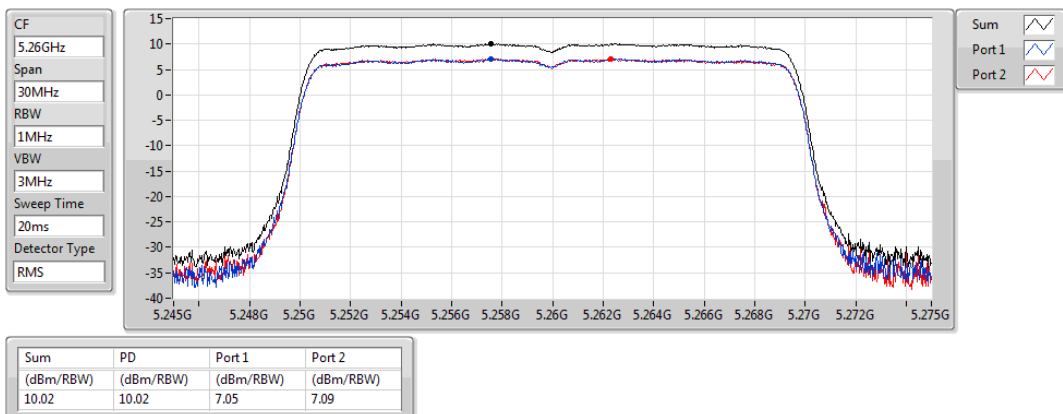


### 802.11ax HEW20\_Nss1,(MCS0)\_2TX

5260MHz

PSD

18/09/2019

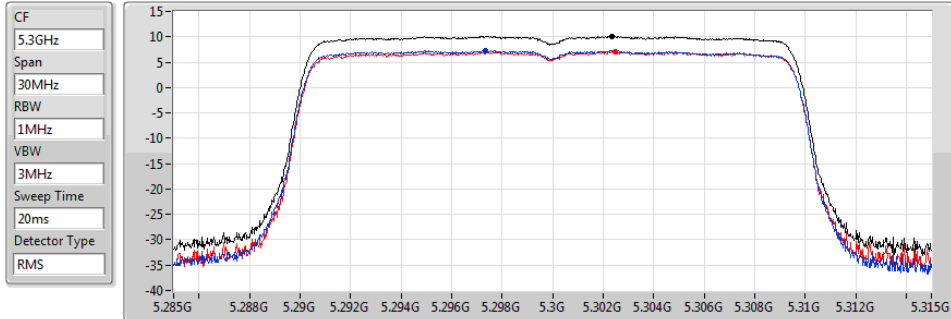


### 802.11ax HEW20\_Nss1,(MCS0)\_2TX

PSD

5300MHz

18/09/2019



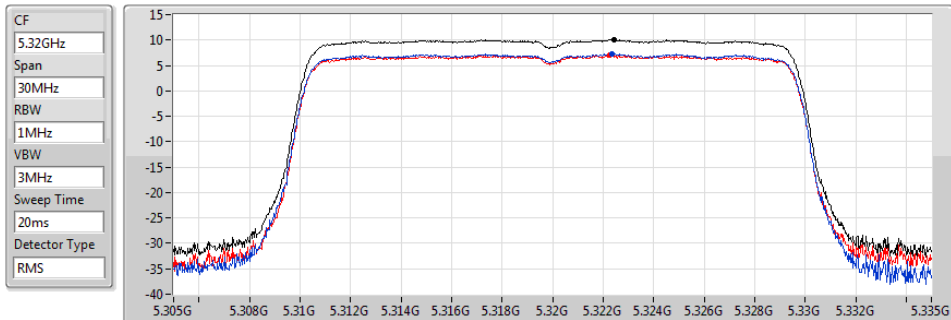
| Sum      | PD       | Port 1   | Port 2   |
|----------|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| 10.09    | 10.09    | 7.25     | 7.06     |

### 802.11ax HEW20\_Nss1,(MCS0)\_2TX

PSD

5320MHz

18/09/2019



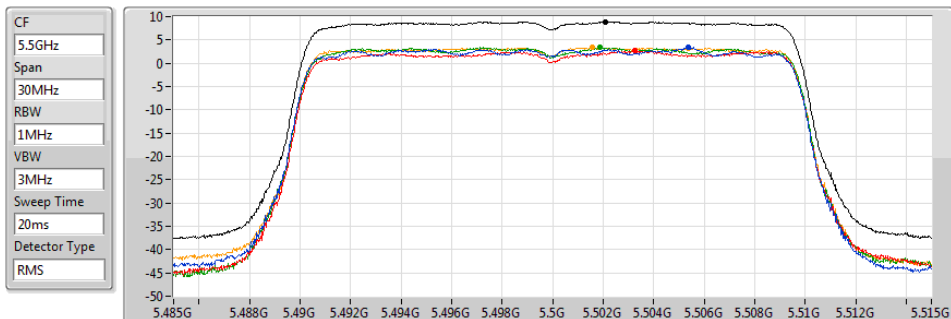
| Sum      | PD       | Port 1   | Port 2   |
|----------|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| 10.07    | 10.07    | 7.29     | 6.95     |

### 802.11ax HEW20\_Nss1,(MCS0)\_4TX

PSD

5500MHz

18/09/2019



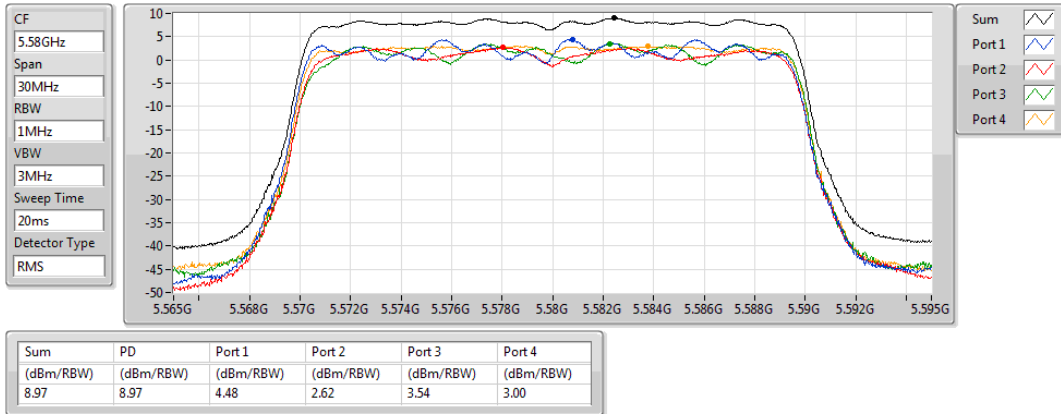
| Sum      | PD       | Port 1   | Port 2   | Port 3   | Port 4   |
|----------|----------|----------|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| 8.89     | 8.89     | 3.41     | 2.65     | 3.35     | 3.38     |

### 802.11ax HEW20\_Nss1,(MCS0)\_4TX

### PSD

5580MHz

18/09/2019

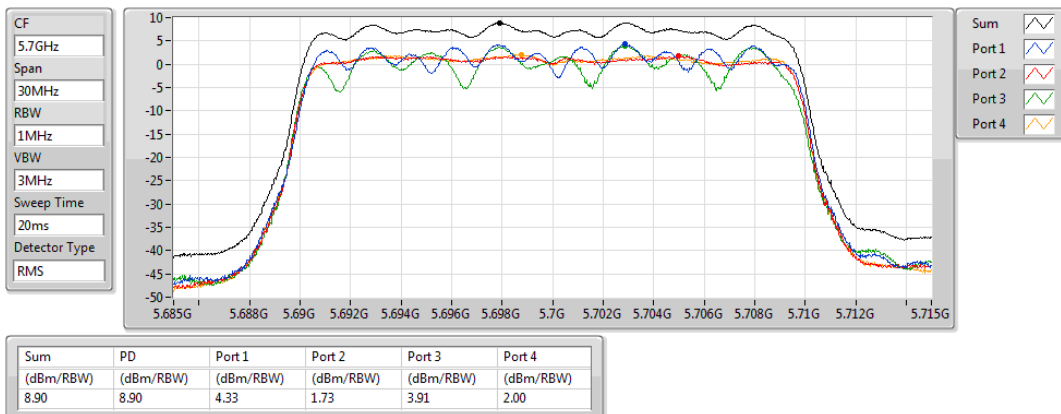


### 802.11ax HEW20\_Nss1,(MCS0)\_4TX

### PSD

5700MHz

18/09/2019

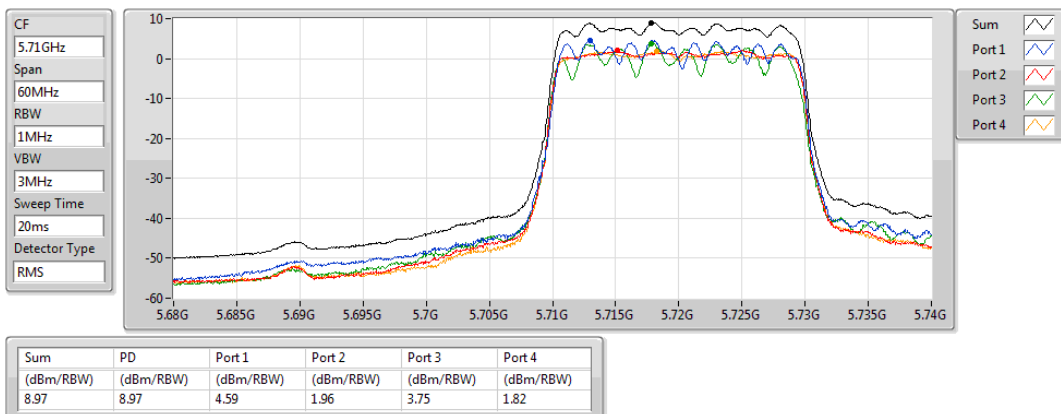


### 802.11ax HEW20\_Nss1,(MCS0)\_4TX

### PSD

5720MHz Straddle 5.47-5.725GHz

18/09/2019

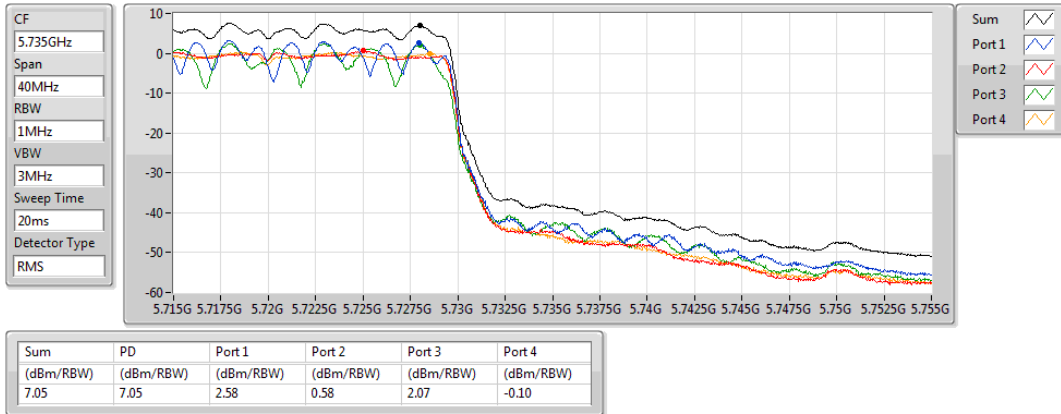


### 802.11ax HEW20\_Nss1,(MCS0)\_4TX

#### 5720MHz Straddle 5.725-5.85GHz

### PSD

18/09/2019

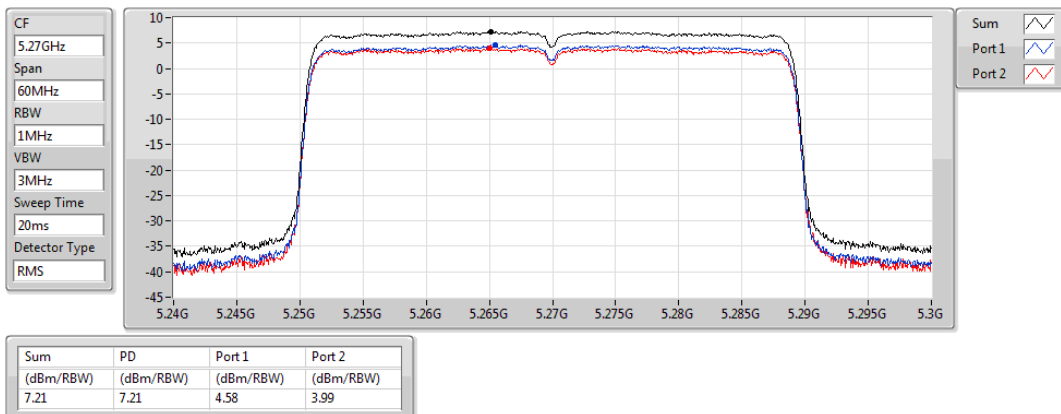


### 802.11ax HEW40\_Nss1,(MCS0)\_2TX

#### 5270MHz

### PSD

18/09/2019

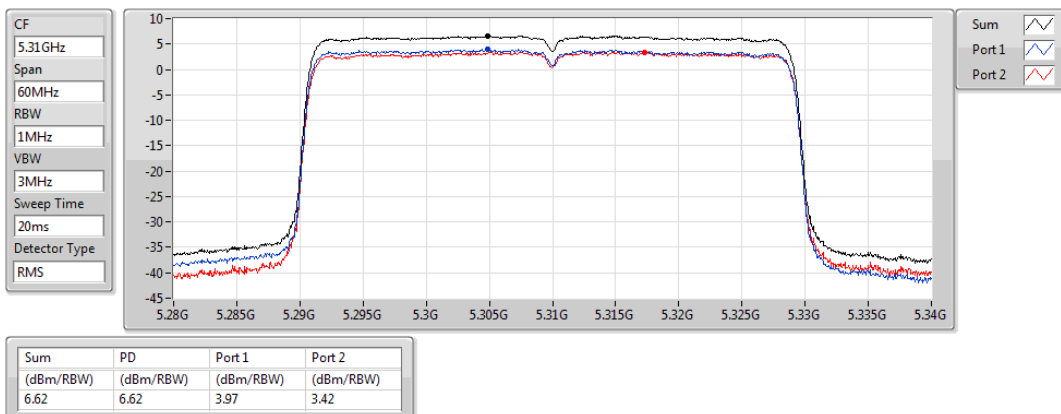


### 802.11ax HEW40\_Nss1,(MCS0)\_2TX

#### 5310MHz

### PSD

18/09/2019

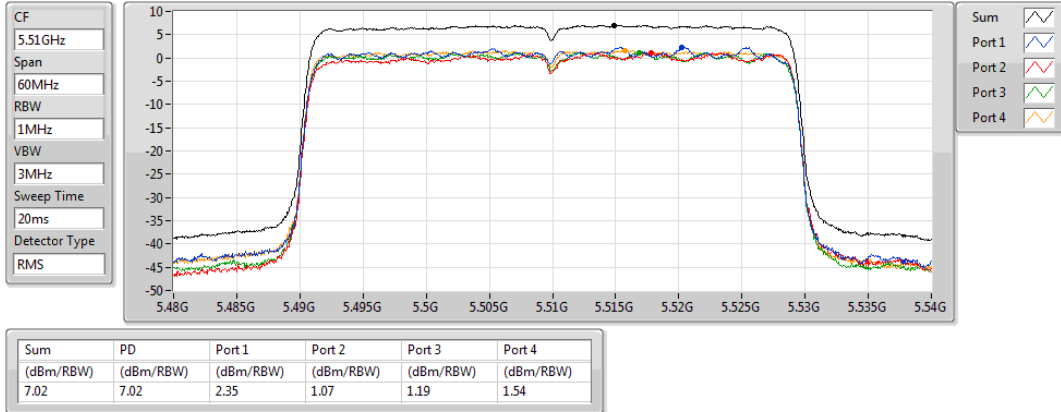


### 802.11ax HEW40\_Nss1,(MCS0)\_4TX

### PSD

5510MHz

18/09/2019

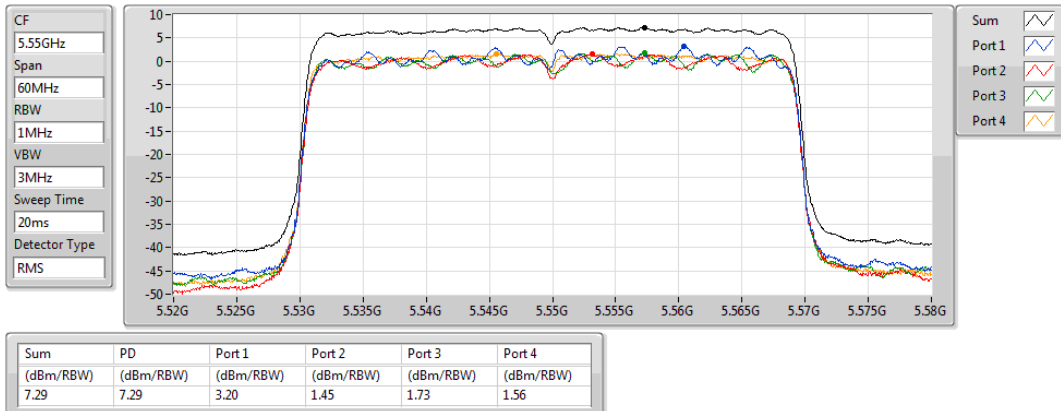


### 802.11ax HEW40\_Nss1,(MCS0)\_4TX

### PSD

5550MHz

18/09/2019

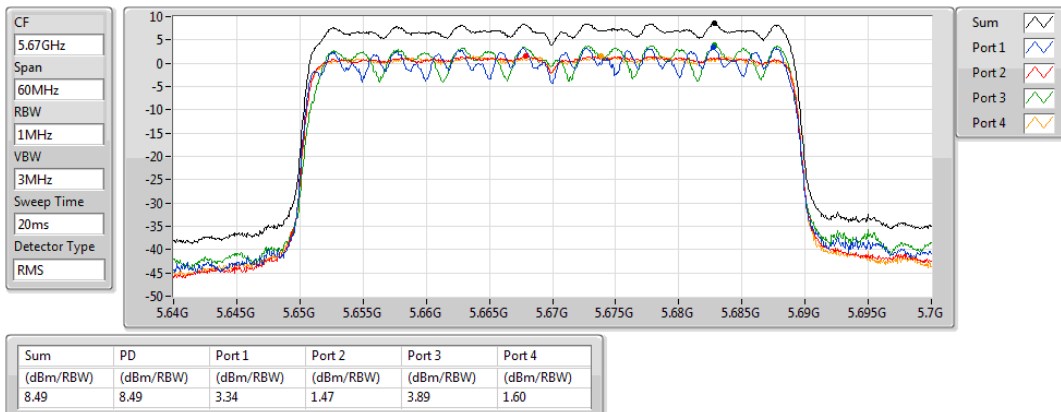


### 802.11ax HEW40\_Nss1,(MCS0)\_4TX

### PSD

5670MHz

18/09/2019

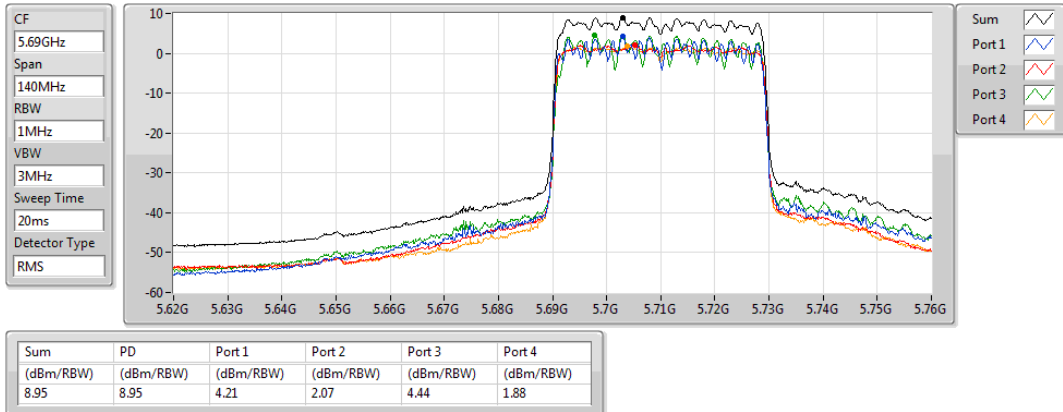


### 802.11ax HEW40\_Nss1,(MCS0)\_4TX

#### 5710MHz Straddle 5.47-5.725GHz

### PSD

18/09/2019

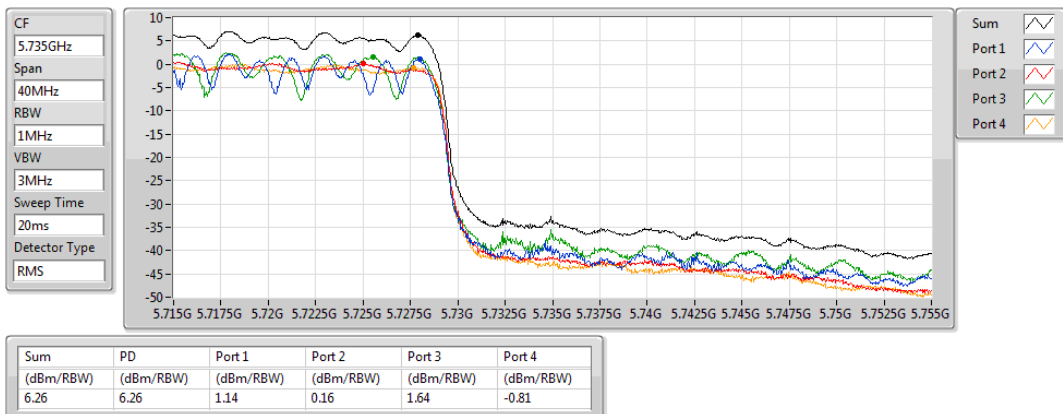


### 802.11ax HEW40\_Nss1,(MCS0)\_4TX

#### 5710MHz Straddle 5.725-5.85GHz

### PSD

18/09/2019

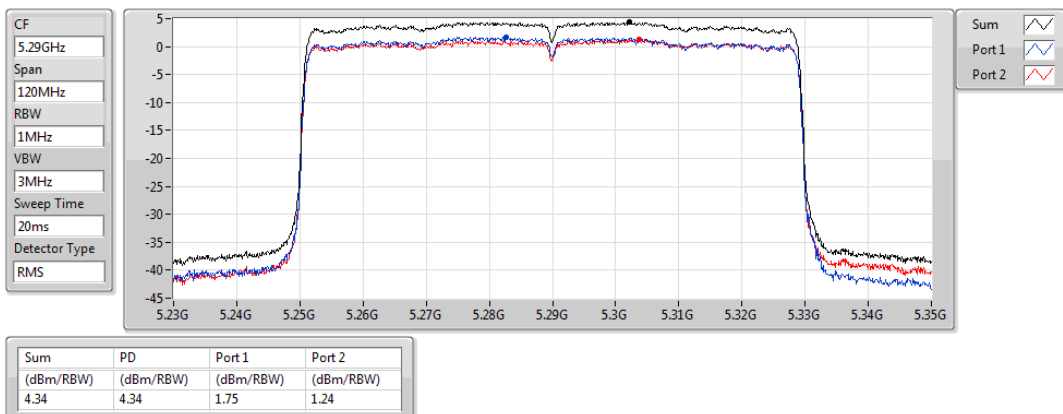


### 802.11ax HEW80\_Nss1,(MCS0)\_2TX

#### 5290MHz

### PSD

18/09/2019

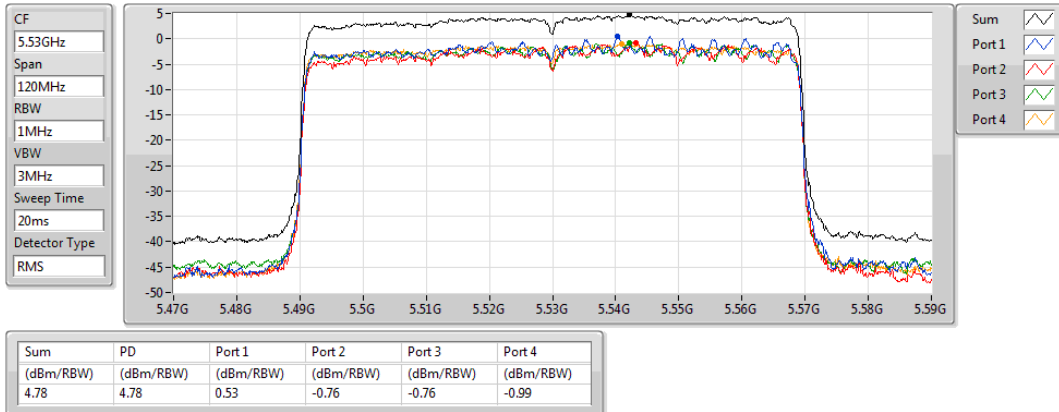


### 802.11ax HEW80\_Nss1,(MCS0)\_4TX

PSD

5530MHz

18/09/2019

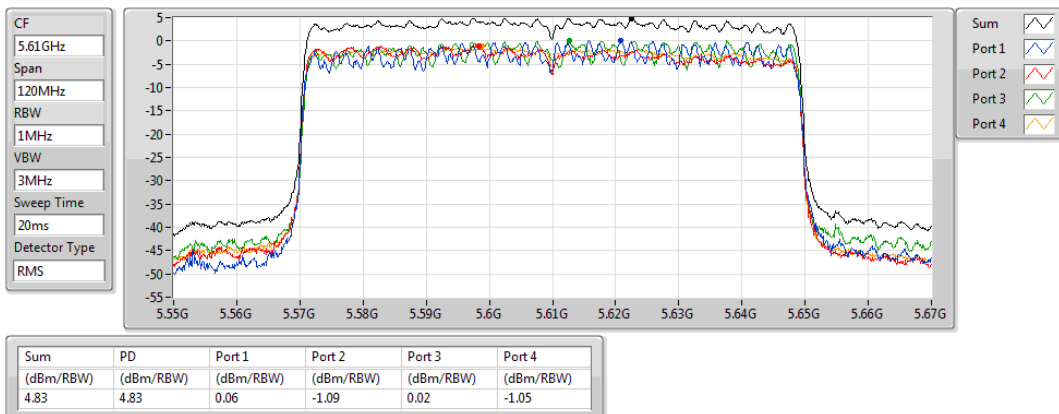


### 802.11ax HEW80\_Nss1,(MCS0)\_4TX

PSD

5610MHz

18/09/2019

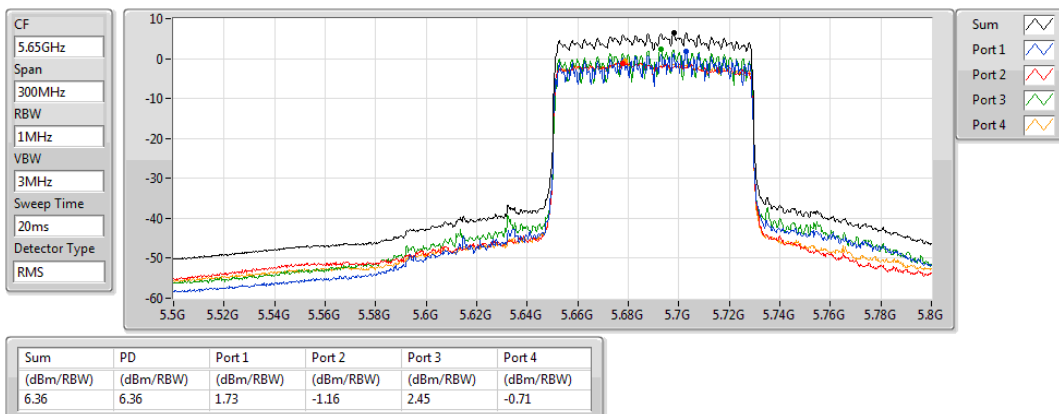


### 802.11ax HEW80\_Nss1,(MCS0)\_4TX

PSD

5690MHz Straddle 5.47-5.725GHz

18/09/2019

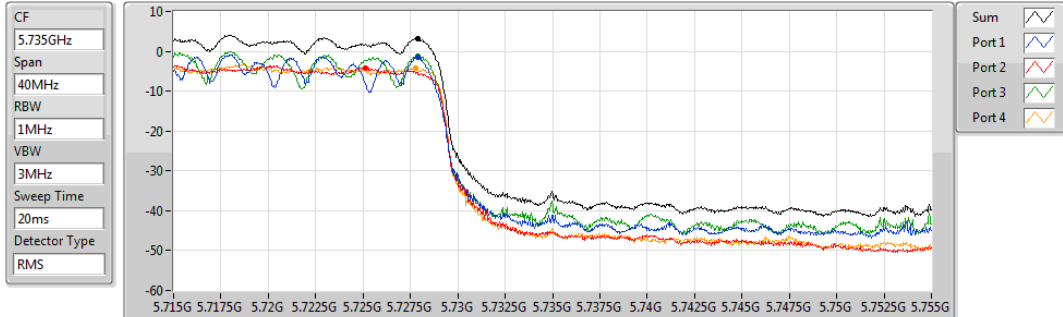


### 802.11ax HEW80\_Nss1,(MCS0)\_4TX

### PSD

5690MHz Straddle 5.725-5.85GHz

18/09/2019



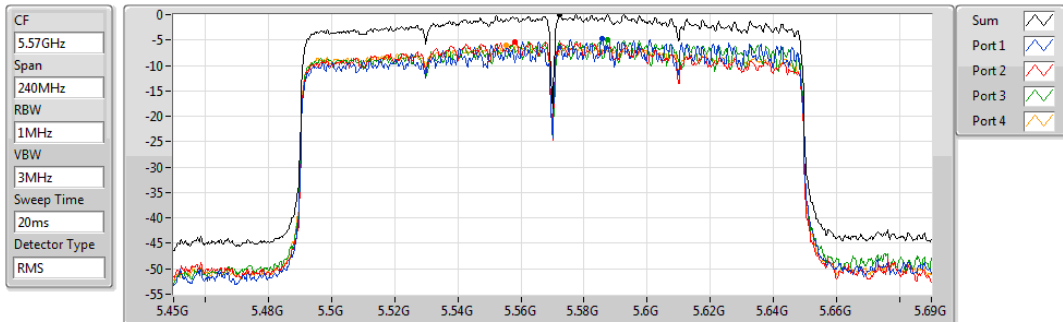
| Sum       | PD        | Port 1    | Port 2    | Port 3    | Port 4    |
|-----------|-----------|-----------|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| 3.17      | 3.17      | -1.49     | -4.17     | -1.30     | -4.26     |

### 802.11ax HEW160\_Nss1,(MCS0)\_4TX

### PSD

5570MHz

18/09/2019



| Sum       | PD        | Port 1    | Port 2    | Port 3    | Port 4    |
|-----------|-----------|-----------|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| -0.00     | -0.00     | -4.81     | -5.35     | -4.93     | -6.06     |

For beamforming function:

**Summary**

| Mode                               | PD<br>(dBm/RBW) |
|------------------------------------|-----------------|
| 5.47-5.725GHz                      | -               |
| 802.11ac VHT20-BF_Nss1,(MCS0)_4TX  | 8.95            |
| 802.11ac VHT40-BF_Nss1,(MCS0)_4TX  | 6.72            |
| 802.11ac VHT80-BF_Nss1,(MCS0)_4TX  | 3.55            |
| 802.11ac VHT160-BF_Nss1,(MCS0)_4TX | 0.32            |
| 802.11ax HEW20-BF_Nss1,(MCS0)_4TX  | 9.02            |
| 802.11ax HEW40-BF_Nss1,(MCS0)_4TX  | 6.90            |
| 802.11ax HEW80-BF_Nss1,(MCS0)_4TX  | 3.74            |
| 802.11ax HEW160-BF_Nss1,(MCS0)_4TX | 0.63            |
| 5.725-5.85GHz                      | -               |
| 802.11ac VHT20-BF_Nss1,(MCS0)_4TX  | 13.73           |
| 802.11ac VHT40-BF_Nss1,(MCS0)_4TX  | 10.93           |
| 802.11ac VHT80-BF_Nss1,(MCS0)_4TX  | 7.28            |
| 802.11ax HEW20-BF_Nss1,(MCS0)_4TX  | 13.66           |
| 802.11ax HEW40-BF_Nss1,(MCS0)_4TX  | 11.02           |
| 802.11ax HEW80-BF_Nss1,(MCS0)_4TX  | 7.53            |

RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

**Result**

| Mode                               | Result | DG<br>(dBi) | Port 1<br>(dBm/RBW) | Port 2<br>(dBm/RBW) | Port 3<br>(dBm/RBW) | Port 4<br>(dBm/RBW) | PD<br>(dBm/RBW) | PD Limit<br>(dBm/RBW) |
|------------------------------------|--------|-------------|---------------------|---------------------|---------------------|---------------------|-----------------|-----------------------|
| 802.11ac VHT20-BF_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5500MHz                            | Pass   | 7.95        | 3.69                | 2.06                | 2.85                | 2.36                | 8.61            | 9.05                  |
| 5580MHz                            | Pass   | 7.95        | 3.69                | 2.75                | 3.35                | 2.70                | 8.65            | 9.05                  |
| 5700MHz                            | Pass   | 7.95        | 4.21                | 2.10                | 3.82                | 1.66                | 8.95            | 9.05                  |
| 5720MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | 4.29                | 2.03                | 3.46                | 1.18                | 8.71            | 9.05                  |
| 5720MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | 2.55                | 0.40                | 1.61                | -0.68               | 6.83            | 28.05                 |
| 5745MHz                            | Pass   | 7.95        | 9.01                | 7.48                | 9.04                | 6.32                | 13.66           | 28.05                 |
| 5785MHz                            | Pass   | 7.95        | 9.43                | 7.43                | 8.96                | 6.73                | 13.73           | 28.05                 |
| 5825MHz                            | Pass   | 7.95        | 9.57                | 6.85                | 9.59                | 7.23                | 13.68           | 28.05                 |
| 802.11ac VHT40-BF_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5510MHz                            | Pass   | 7.95        | 0.32                | -0.98               | 0.20                | -0.62               | 5.60            | 9.05                  |
| 5550MHz                            | Pass   | 7.95        | 0.17                | -0.06               | 0.86                | -0.45               | 5.74            | 9.05                  |
| 5670MHz                            | Pass   | 7.95        | 1.24                | -0.52               | 1.67                | -0.57               | 6.46            | 9.05                  |
| 5710MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | 1.87                | -0.22               | 2.11                | -0.49               | 6.72            | 9.05                  |
| 5710MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | -0.59               | -2.25               | -0.32               | -2.97               | 4.23            | 28.05                 |
| 5755MHz                            | Pass   | 7.95        | 6.41                | 4.49                | 6.49                | 3.46                | 10.81           | 28.05                 |
| 5795MHz                            | Pass   | 7.95        | 6.90                | 4.43                | 6.54                | 4.07                | 10.93           | 28.05                 |
| 802.11ac VHT80-BF_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5530MHz                            | Pass   | 7.95        | -2.86               | -2.76               | -2.32               | -3.02               | 2.79            | 9.05                  |
| 5610MHz                            | Pass   | 7.95        | -2.07               | -2.83               | -1.83               | -2.46               | 3.32            | 9.05                  |
| 5690MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | -1.49               | -3.47               | -1.31               | -3.43               | 3.55            | 9.05                  |
| 5690MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | -5.19               | -6.38               | -4.27               | -6.05               | 0.10            | 28.05                 |
| 5775MHz                            | Pass   | 7.95        | 2.81                | 0.92                | 2.84                | 0.17                | 7.28            | 28.05                 |
| 802.11ac VHT160-BF_Nss1,(MCS0)_4TX | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5570MHz                            | Pass   | 7.95        | -4.66               | -5.35               | -5.57               | -4.97               | 0.32            | 9.05                  |
| 802.11ax HEW20-BF_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5500MHz                            | Pass   | 7.95        | 3.53                | 1.80                | 2.71                | 2.15                | 8.53            | 9.05                  |
| 5580MHz                            | Pass   | 7.95        | 3.74                | 2.59                | 3.50                | 2.68                | 8.70            | 9.05                  |
| 5700MHz                            | Pass   | 7.95        | 4.43                | 1.94                | 4.00                | 1.51                | 9.02            | 9.05                  |
| 5720MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | 4.51                | 1.88                | 3.98                | 1.33                | 8.89            | 9.05                  |
| 5720MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | 2.48                | 0.36                | 2.07                | -0.65               | 6.94            | 28.05                 |
| 5745MHz                            | Pass   | 7.95        | 9.05                | 7.13                | 9.03                | 6.30                | 13.62           | 28.05                 |
| 5785MHz                            | Pass   | 7.95        | 9.23                | 7.27                | 9.04                | 6.74                | 13.66           | 28.05                 |
| 5825MHz                            | Pass   | 7.95        | 9.44                | 6.71                | 9.35                | 7.15                | 13.54           | 28.05                 |
| 802.11ax HEW40-BF_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5510MHz                            | Pass   | 7.95        | 0.24                | -1.00               | 0.33                | -0.66               | 5.66            | 9.05                  |
| 5550MHz                            | Pass   | 7.95        | 0.49                | 0.02                | 0.99                | -0.47               | 5.88            | 9.05                  |
| 5670MHz                            | Pass   | 7.95        | 1.37                | -0.50               | 1.90                | -0.52               | 6.58            | 9.05                  |
| 5710MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | 1.92                | -0.25               | 2.40                | -0.30               | 6.90            | 9.05                  |
| 5710MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | -0.32               | -2.20               | -0.01               | -2.72               | 4.54            | 28.05                 |
| 5755MHz                            | Pass   | 7.95        | 6.65                | 4.77                | 6.58                | 3.56                | 10.99           | 28.05                 |
| 5795MHz                            | Pass   | 7.95        | 6.97                | 4.59                | 6.35                | 4.03                | 11.02           | 28.05                 |
| 802.11ax HEW80-BF_Nss1,(MCS0)_4TX  | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5530MHz                            | Pass   | 7.95        | -2.83               | -2.70               | -2.02               | -2.97               | 3.14            | 9.05                  |

| Mode                               | Result | DG<br>(dBi) | Port 1<br>(dBm/RBW) | Port 2<br>(dBm/RBW) | Port 3<br>(dBm/RBW) | Port 4<br>(dBm/RBW) | PD<br>(dBm/RBW) | PD Limit<br>(dBm/RBW) |
|------------------------------------|--------|-------------|---------------------|---------------------|---------------------|---------------------|-----------------|-----------------------|
| 5610MHz                            | Pass   | 7.95        | -1.80               | -2.74               | -1.71               | -2.29               | 3.31            | 9.05                  |
| 5690MHz Straddle 5.47-5.725GHz     | Pass   | 7.95        | -1.48               | -3.19               | -1.05               | -3.20               | 3.74            | 9.05                  |
| 5690MHz Straddle 5.725-5.85GHz     | Pass   | 7.95        | -4.29               | -6.48               | -4.14               | -6.08               | 0.65            | 28.05                 |
| 5775MHz                            | Pass   | 7.95        | 2.81                | 0.93                | 3.01                | 0.31                | 7.53            | 28.05                 |
| 802.11ax HEW160-BF_Nss1,(MCS0)_4TX | -      | -           | -                   | -                   | -                   | -                   | -               | -                     |
| 5570MHz                            | Pass   | 7.95        | -4.72               | -5.04               | -5.07               | -4.86               | 0.63            | 9.05                  |

**DG** = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

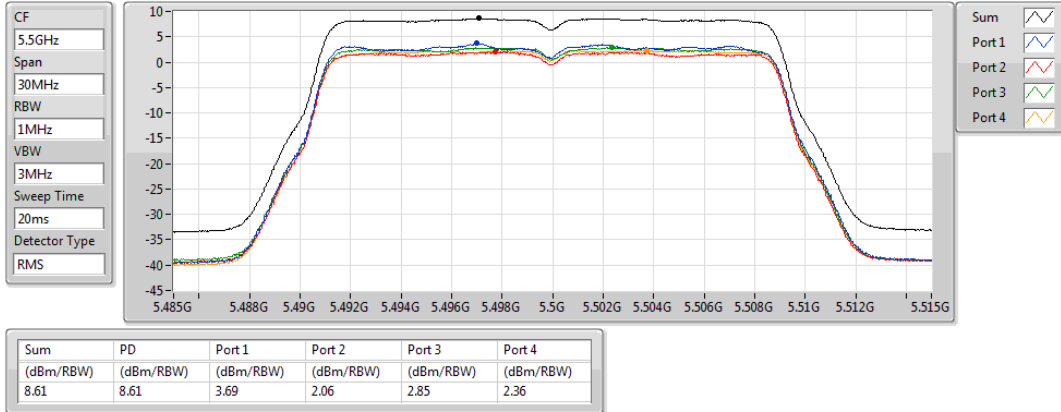
**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

### 802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX

PSD

5500MHz

01/02/2020

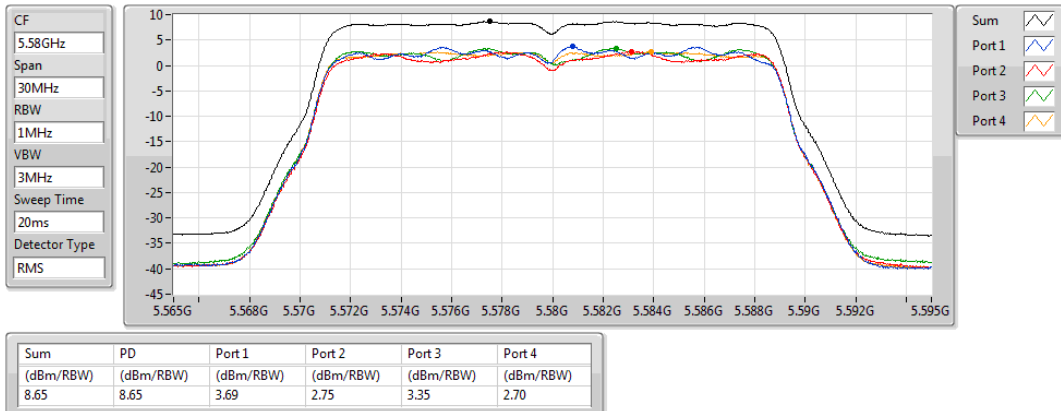


### 802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX

PSD

5580MHz

01/02/2020

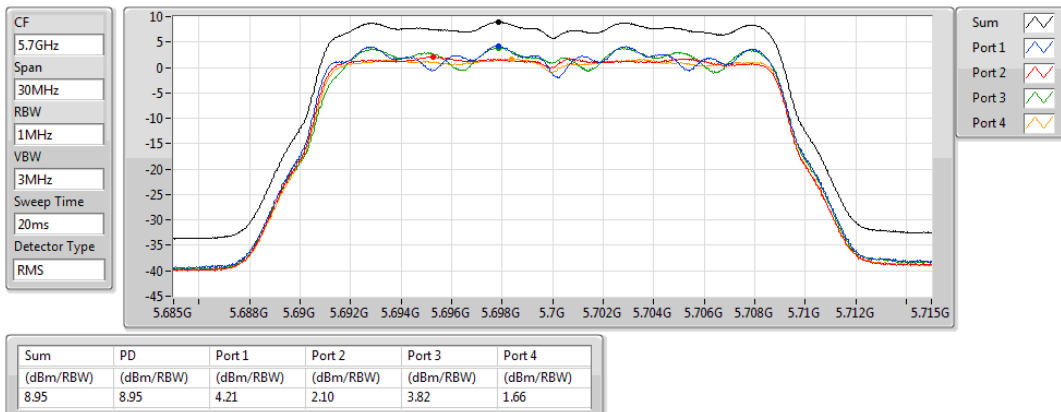


### 802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX

PSD

5700MHz

01/02/2020

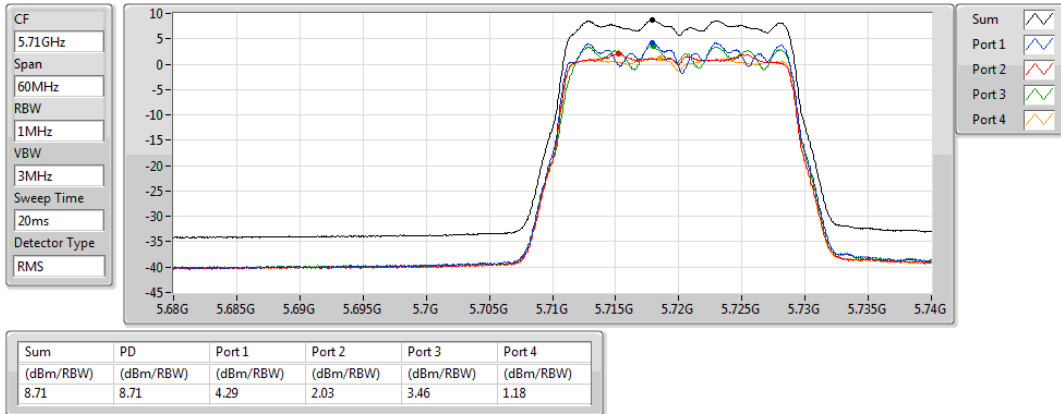


### 802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX

#### 5720MHz Straddle 5.47-5.725GHz

PSD

01/02/2020

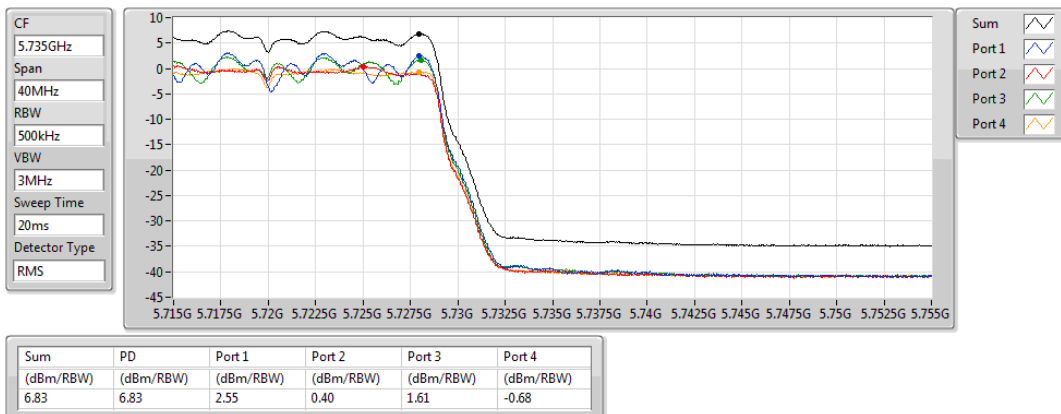


### 802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX

#### 5720MHz Straddle 5.725-5.85GHz

PSD

01/02/2020

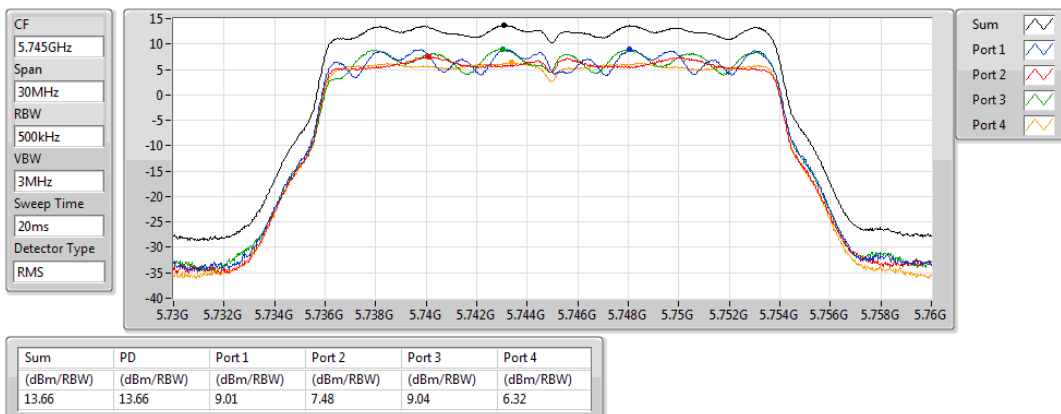


### 802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX

#### 5745MHz

PSD

01/02/2020

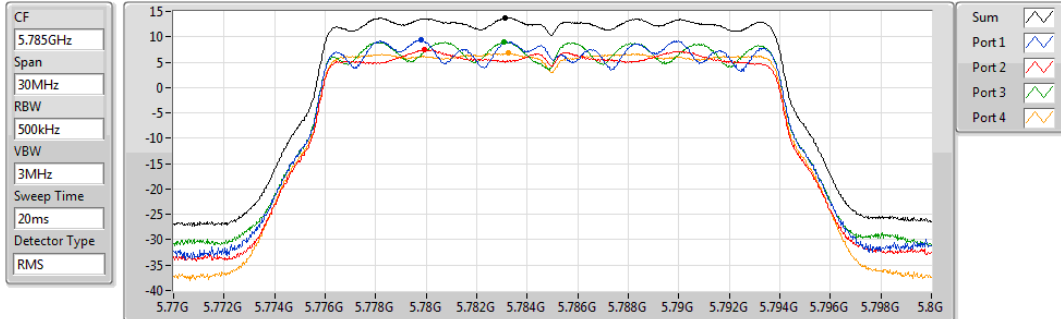


## 802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX

## PSD

5785MHz

01/02/2020



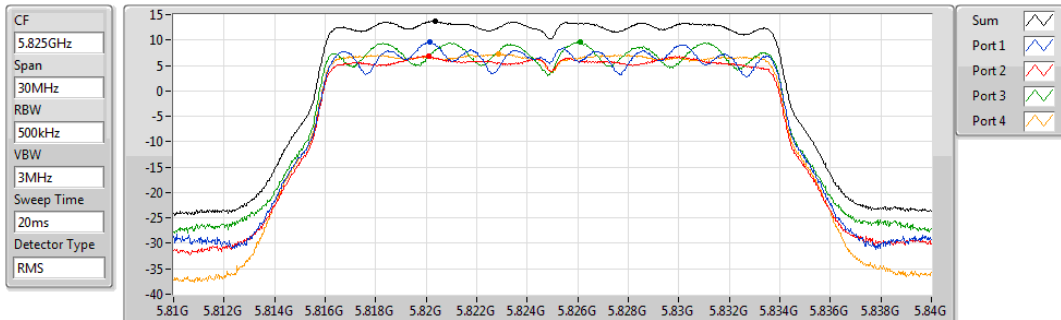
| Sum       | PD        | Port 1    | Port 2    | Port 3    | Port 4    |
|-----------|-----------|-----------|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| 13.73     | 13.73     | 9.43      | 7.43      | 8.96      | 6.73      |

## 802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX

## PSD

5825MHz

01/02/2020



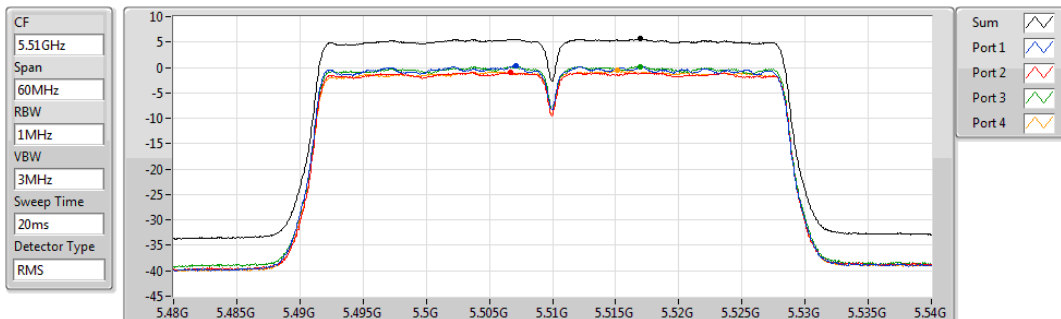
| Sum       | PD        | Port 1    | Port 2    | Port 3    | Port 4    |
|-----------|-----------|-----------|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| 13.68     | 13.68     | 9.57      | 6.85      | 9.59      | 7.23      |

## 802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX

## PSD

5510MHz

01/02/2020



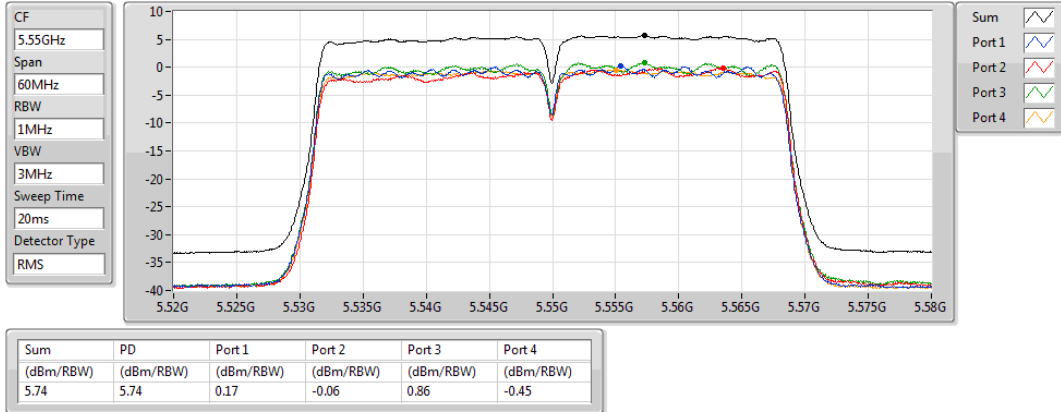
| Sum       | PD        | Port 1    | Port 2    | Port 3    | Port 4    |
|-----------|-----------|-----------|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| 5.60      | 5.60      | 0.32      | -0.98     | 0.20      | -0.62     |

## 802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX

## PSD

5550MHz

01/02/2020

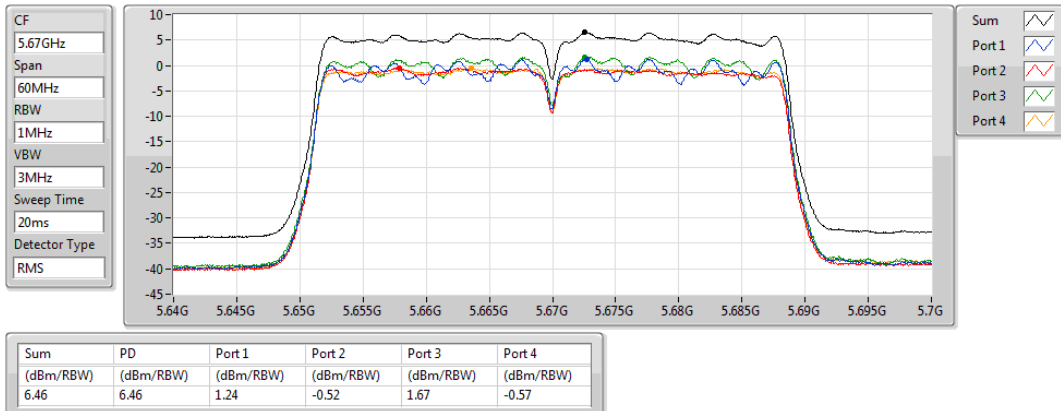


## 802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX

## PSD

5670MHz

01/02/2020

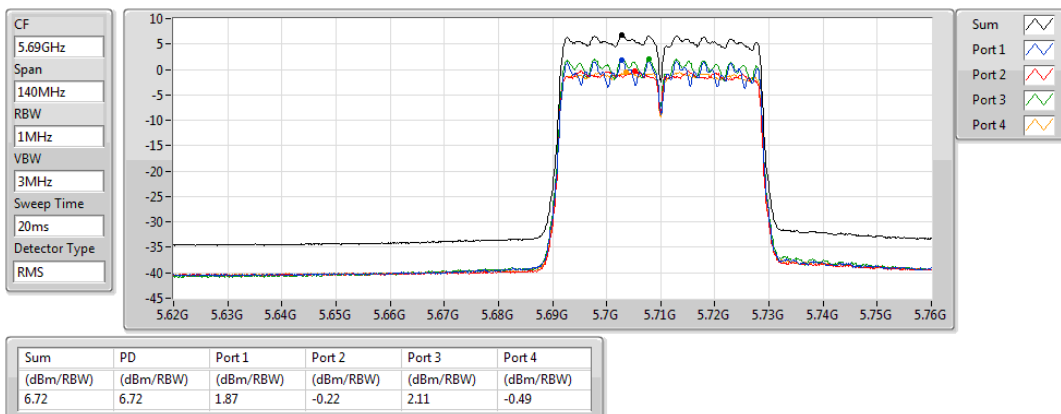


## 802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX

## PSD

5710MHz Straddle 5.47-5.725GHz

01/02/2020

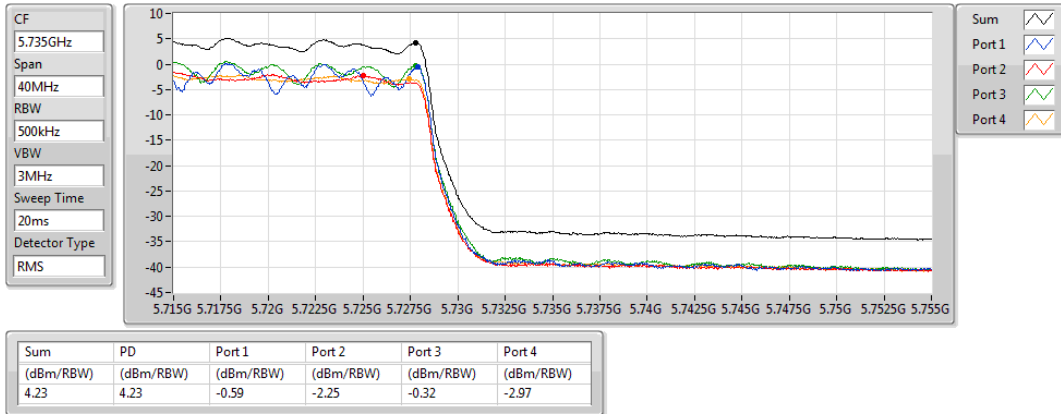


### 802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX

#### 5710MHz Straddle 5.725-5.85GHz

### PSD

01/02/2020

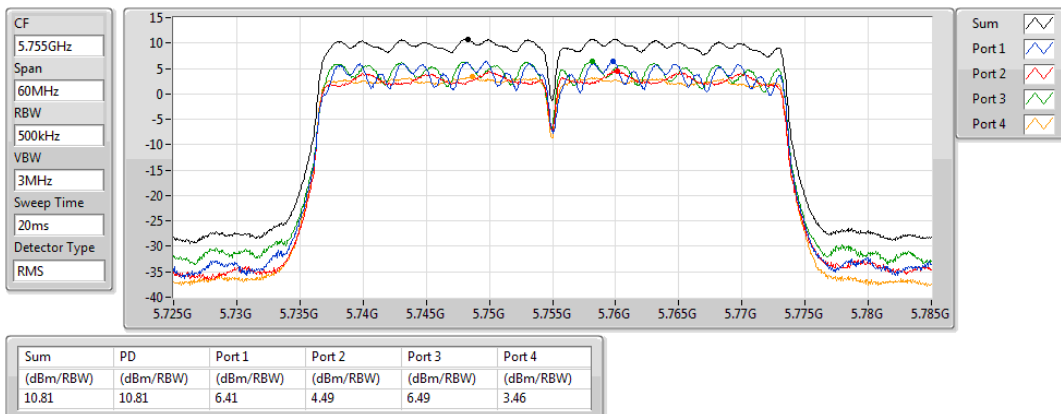


### 802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX

#### 5755MHz

### PSD

01/02/2020

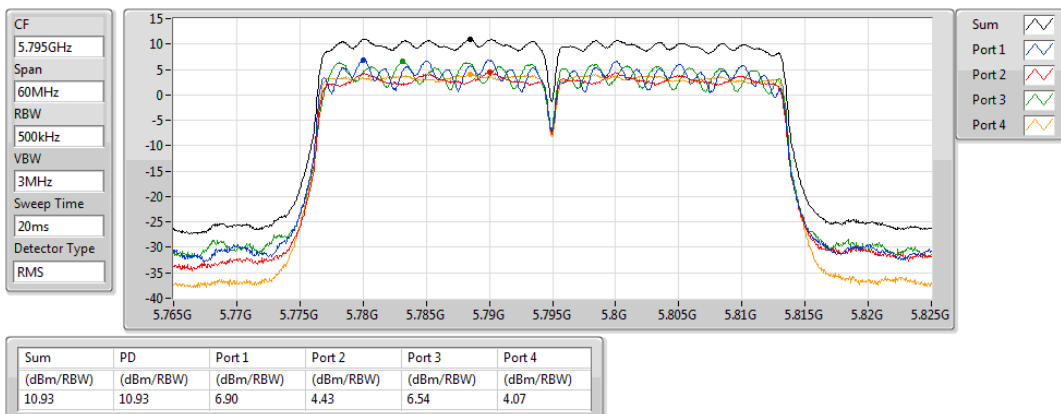


### 802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX

#### 5795MHz

### PSD

01/02/2020

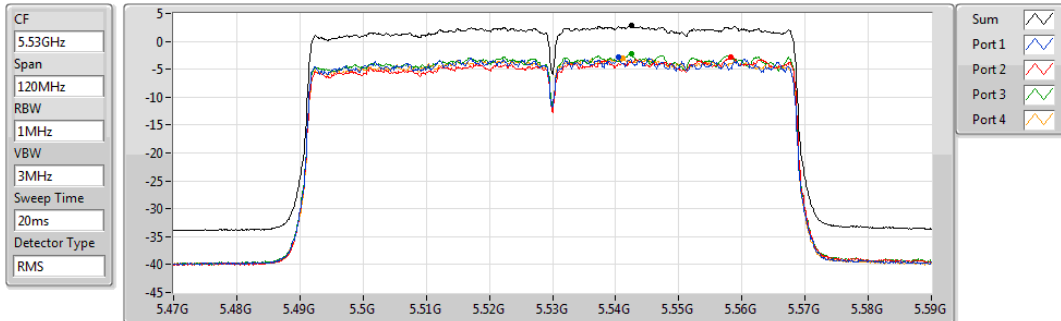


### 802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX

PSD

5530MHz

01/02/2020



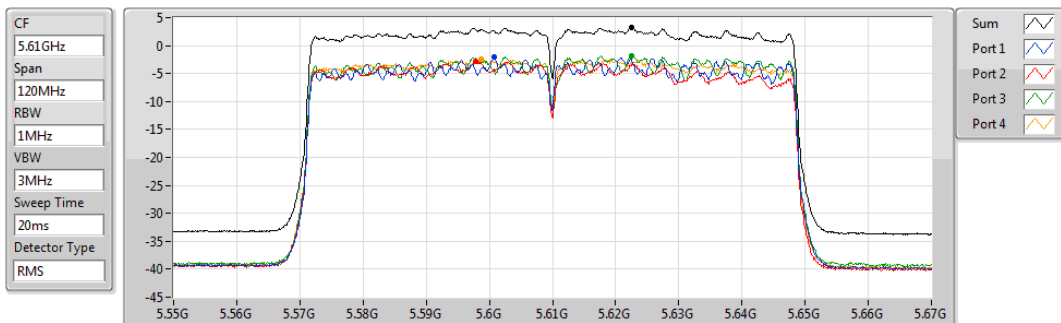
| Sum      | PD       | Port 1   | Port 2   | Port 3   | Port 4   |
|----------|----------|----------|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| 2.79     | 2.79     | -2.86    | -2.76    | -2.32    | -3.02    |

### 802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX

PSD

5610MHz

01/02/2020



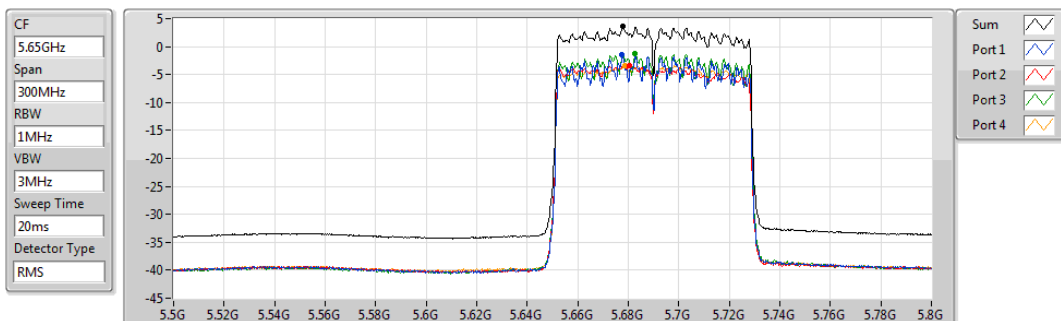
| Sum      | PD       | Port 1   | Port 2   | Port 3   | Port 4   |
|----------|----------|----------|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| 3.32     | 3.32     | -2.07    | -2.83    | -1.83    | -2.46    |

### 802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX

PSD

5690MHz Straddle 5.47-5.725GHz

01/02/2020



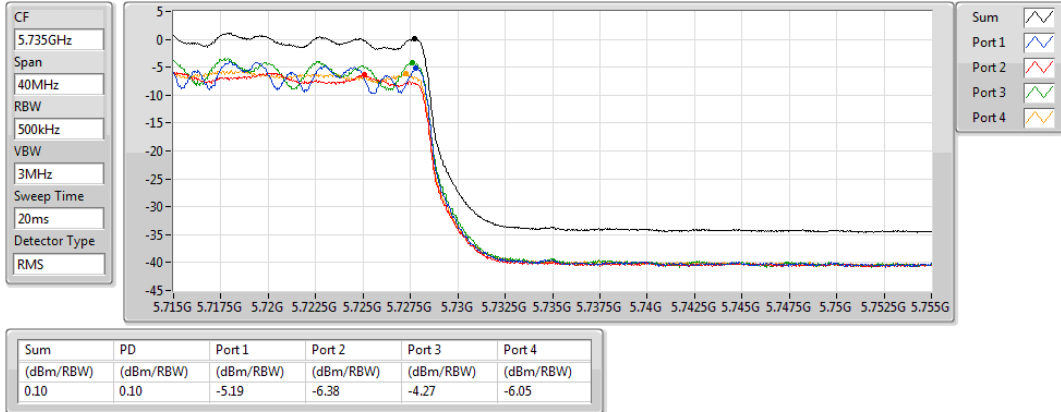
| Sum      | PD       | Port 1   | Port 2   | Port 3   | Port 4   |
|----------|----------|----------|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| 3.55     | 3.55     | -1.49    | -3.47    | -1.31    | -3.43    |

### 802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX

PSD

5690MHz Straddle 5.725-5.85GHz

01/02/2020

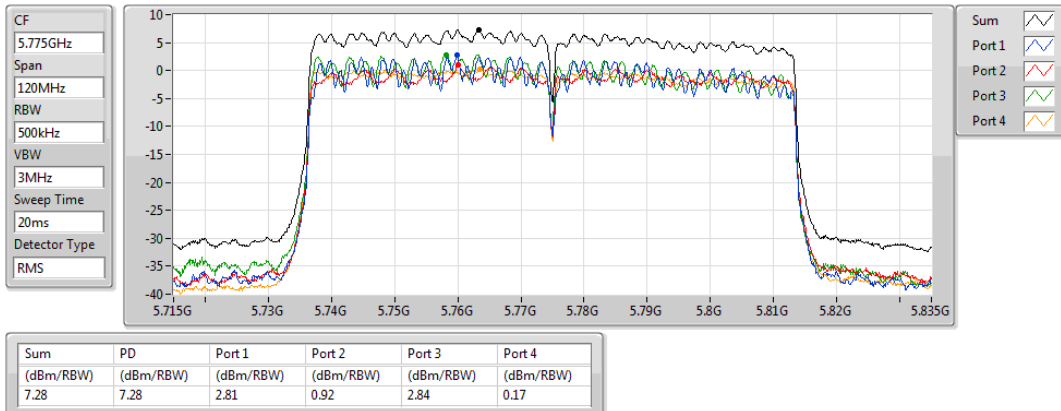


### 802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX

PSD

5775MHz

03/02/2020

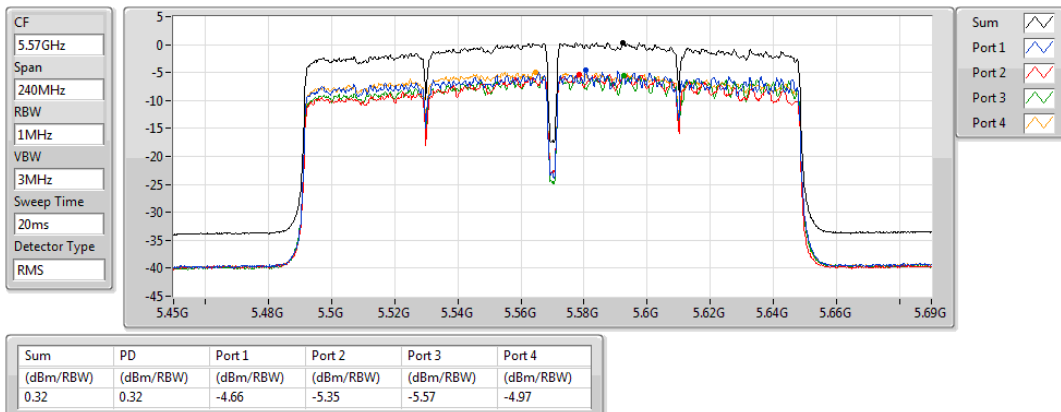


### 802.11ac VHT160-BF\_Nss1,(MCS0)\_4TX

PSD

5570MHz

01/02/2020

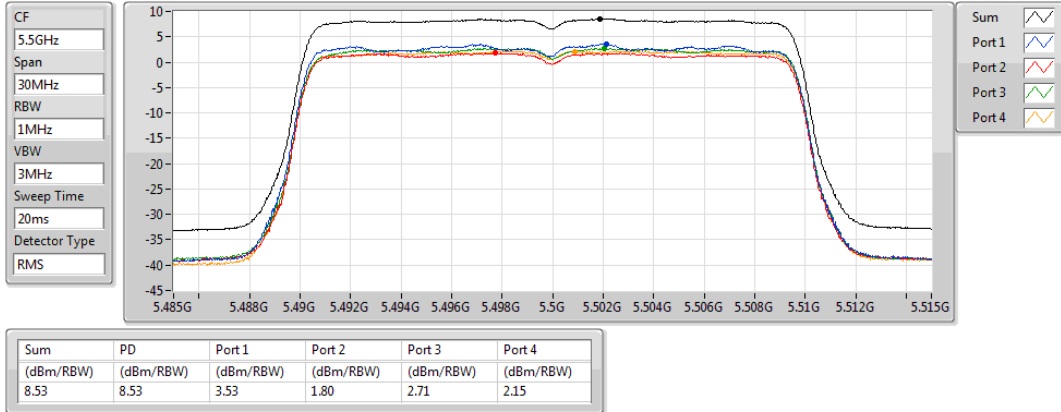


### 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

PSD

5500MHz

01/02/2020

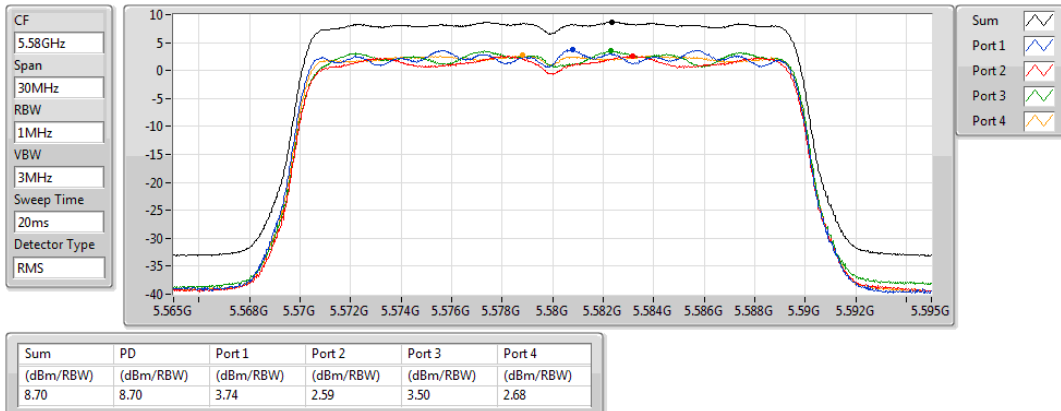


### 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

PSD

5580MHz

01/02/2020



### 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

PSD

5700MHz

01/02/2020

