Johnson Health Tech. Co., Ltd.

# TEST REPORT

**REPORT NUMBER**
180200311TWN-001

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**PAGES**
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**DOCUMENT CONTROL NUMBER**

# Radio Spectrum
## TEST REPORT

| | |
|---|---|
| **Applicant:** | **Johnson Health Tech. Co., Ltd.**<br>**No.999, Sec. 2, Dongda Rd., Daya Dist Taichung City 428, Taiwan** |
| **Product:** | **Console for Exercise Machine** |
| **Model No.:** | **Target Training Console** |
| **Brand Name:** | **Matrix Fitness** |
| **FCC ID:** | **TN7PHOENIX** |
| **Test Method/ Standard:** | **47 CFR FCC Part 15.407**<br>**KDB 789033 D02 v01r02**<br>**ANSI C63.10 2013**<br>**KDB 662911 D01 v02r01** |
| **Test By:** | **Intertek Testing Services Taiwan Ltd.,**<br>**Hsinchu Laboratory**<br>**No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li,**<br>**Shiang-Shan District, Hsinchu City, Taiwan** |

Testing Laboratory
0597

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# Revision History

| Report No. | Issue Date | Revision Summary |
|---|---|---|
| 180200311TWN-001 | May 25, 2018 | Original report |

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## Summary of Test Data

| Test Requirement | Applicable Rule (Section 15.407) | Result |
|---|---|---|
| Maximum Conducted Output Power | 15.407 (a)(1)/(2)/(3)<br>KDB 789033 D02 v01r02 | Pass |
| Power Spectrum Density | 15.407 (a)(1)/(2)/(3)<br>KDB 789033 D02 v01r02 | Pass |
| Minimum Emission Bandwidth | 15.407(a)(5), 15.407(e)<br>KDB 789033 D02 v01r02 | Pass |
| Emissions In Restricted Frequency Bands (Radiated emission measurements) | 15.407(b), 15.209 | Pass |
| Emission on The Band Edge | 15.407(b), 15.209 | Pass |
| AC Line Conducted Emission | 15.407(b)(6)<br>15.207 | Pass |
| Antenna requirement | 15.203 | Pass |

## 1. General Information

### 1.1 Identification of the EUT

| | |
|---|---|
| **Product:** | Console for Exercise Machine |
| **Model No.:** | Target Training Console |
| **Radio Module:** | AP62X2 |
| **Operating Frequency:** | 1. 5180 MHz ~ 5240 MHz for 802.11a, 802.11n(HT20)<br>2. 5190 MHz ~ 5230 MHz for 802.11n (HT40)<br>3. 5745 MHz ~ 5825 MHz for 802.11a, 802.11n (HT20)<br>4. 5755 MHz ~ 5795 MHz for 802.11n (HT40) |
| **Channel Number:** | 1. 4 channels for 5180 MHz ~ 5240 MHz for 802.11a,802.11n (HT20)<br>2. 2 channels for 5190 MHz ~ 5230 MHz for 802.11n (HT40)<br>3. 5 channels for 5745 MHz ~ 5825 MHz for 802.11a, 802.11n (HT20)<br>4. 2 channels for 5755 MHz ~ 5795 MHz for 802.11n (HT40) |
| **Access scheme:** | OFDM |
| **Modulation:** | 64QAM, 16QAM, QPSK, BPSK for OFDM |
| **Rated Power:** | DC 5V |
| **Power Cord:** | N/A |
| **Sample receiving date:** | Mar. 01, 2018 |
| **Sample condition:** | Workable |
| **Test Date(s):** | Apr. 10 ~ Apr. 25, 2018 |

### 1.2 Description of the EUT

| Modulation mode | Transmit path | |
|---|---|---|
| | Chain 0 / Main | Chain 1 / AUX |
| 802.11a | V | V |
| 802.11 n (HT20) | V | V |
| 802.11 n (HT40) | V | V |

### 1.3 Antenna description

**Antenna 1**

The antenna is affixed to the EUT using a unique connector, which allows for replacement of a broken antenna, but DOES NOT use a standard antenna jack or electrical connector.

| | |
|---|---|
| Antenna Gain | : 4.12 dBi max |
| Antenna Type | : PIFA antenna |
| Connector Type | : I-PEX |

**Antenna 2**

The antenna is affixed to the EUT using a unique connector, which allows for replacement of a broken antenna, but DOES NOT use a standard antenna jack or electrical connector.

| | |
|---|---|
| Antenna Gain | : 4.12 dBi max |
| Antenna Type | : PIFA antenna |
| Connector Type | : I-PEX |

### 1.4 Peripherals equipment

| Peripherals | Brand | Model No. | Serial No. | Data cable |
|---|---|---|---|---|
| Adapter | LITEON | PA-1041-0 | N/A | N/A |

### 1.5 Operation mode

TX-MODE is based on a specific test program “AMPAK RFTestTool.apk”, and the program can select different frequency and modulation.

With individual verifying, the maximum output power were found out 6 Mbps data rate for 802.11a mode, 6.5 Mbps data rate for 802.11n(HT20) mode and, 13.5 Mbps data rate for 802.11n(HT40) mode the final tests were executed under these conditions recorded in this report individually.

SISO SISO

| 802.11a ch44 chain0 | | 802.11a ch44 chain1 | |
|---|---|---|---|
| Data rate | AV (dBm) | Data rate | AV (dBm) |
| 6 | 9.08 | 6 | 9.61 |
| 9 | 9.01 | 9 | 9.54 |
| 12 | 8.98 | 12 | 9.37 |
| 18 | 8.97 | 18 | 9.22 |
| 24 | 8.91 | 24 | 9.19 |
| 36 | 8.90 | 36 | 9.11 |
| 48 | 8.89 | 48 | 8.92 |
| 54 | 8.86 | 54 | 8.79 |

SISO SISO SISO SISO

| 802.11n HT20 ch44 chain0 | | 802.11n HT20 ch44 chain1 | | 802.11n HT40 ch46 chain0 | | 802.11n HT40 ch46 chain1 | |
|---|---|---|---|---|---|---|---|
| Data rate | AV (dBm) | Data rate | AV (dBm) | Data rate | AV (dBm) | Data rate | AV (dBm) |
| 6.5 | 7.72 | 6.5 | 8.32 | 13.5 | 7.38 | 13.5 | 6.31 |
| 13 | 7.63 | 13 | 8.14 | 27 | 7.11 | 27 | 6.11 |
| 19.5 | 7.51 | 19.5 | 8.02 | 40.5 | 7.02 | 40.5 | 6.02 |
| 26 | 7.32 | 26 | 7.95 | 54 | 6.98 | 54 | 5.92 |
| 39 | 7.22 | 39 | 7.84 | 81 | 6.87 | 81 | 5.85 |
| 52 | 7.11 | 52 | 7.63 | 108 | 6.71 | 108 | 5.74 |
| 58.5 | 6.92 | 58.5 | 7.33 | 121 | 6.58 | 121 | 5.51 |
| 65 | 6.84 | 65 | 7.19 | 135 | 6.42 | 135 | 5.37 |

MIMO MIMO

| 802.11n HT20 ch44 chain0+1 | | 802.11n HT40 ch46 chain0+1 | |
|---|---|---|---|
| Data rate | AV (dBm) | Data rate | AV (dBm) |
| 13 | 12.71 | 6 | 9.61 |
| 26 | 12.60 | 9 | 9.54 |
| 39 | 12.44 | 12 | 9.37 |
| 52 | 12.32 | 18 | 9.22 |
| 78 | 12.18 | 24 | 9.19 |
| 104 | 12.07 | 36 | 9.11 |
| 117 | 11.99 | 48 | 8.92 |
| 130 | 11.87 | 54 | 8.79 |

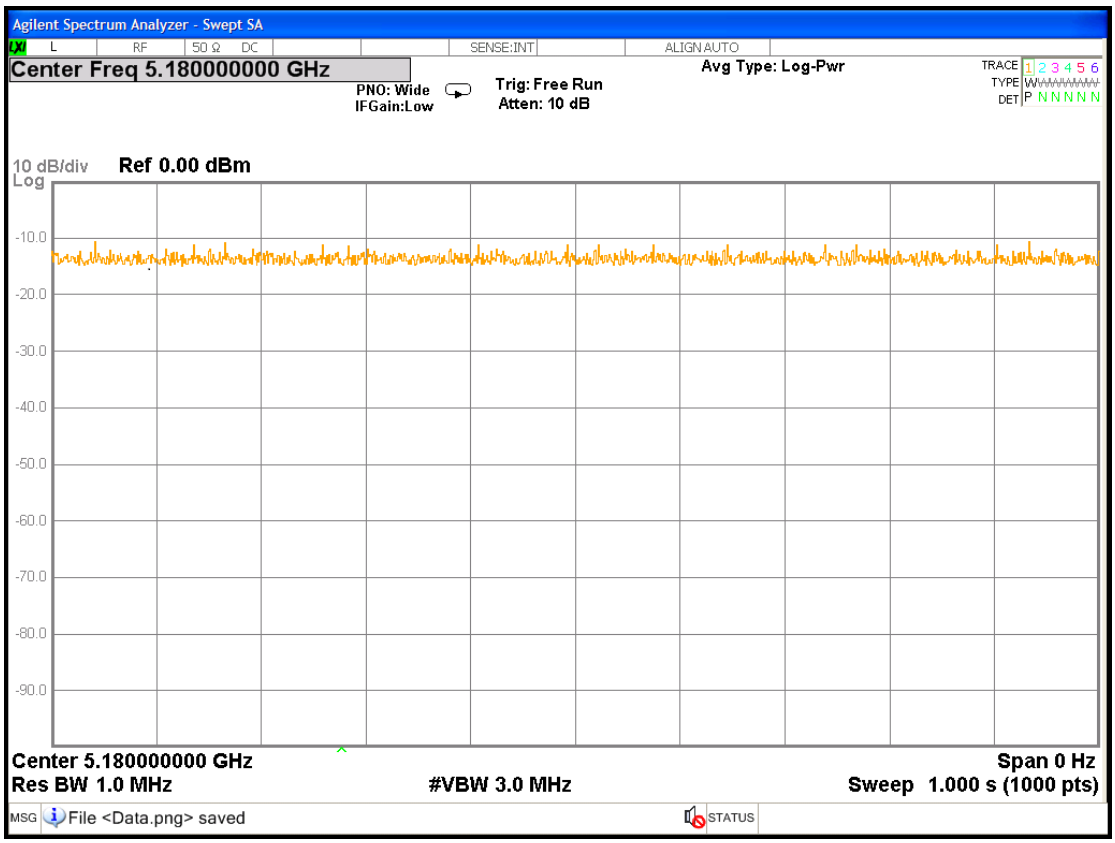
## 1.6 Applied test modes and channels

| Test items | Mode | | Data Rate (Mbps) | Channel | Antenna |
|---|---|---|---|---|---|
| Maximum Conducted Output Power | U-NII-1 | 802.11a | 6 | 36, 44, 48 | Chain0/Chain1 |
| | | 802.11 n (HT20) | 6.5 | 36, 44, 48 | Chain0/Chain1 |
| | | 802.11 n (HT40) | 13.5 | 38, 46 | Chain0/Chain1 |
| | U-NII-3 | 802.11a | 6 | 149,157,165 | Chain0/Chain1 |
| | | 802.11 n (HT20) | 6.5 | 149,157,165 | Chain0/Chain1 |
| | | 802.11 n (HT40) | 13.5 | 151,159 | Chain0/Chain1 |
| Power Spectrum Density | U-NII-1 | 802.11a | 6 | 36, 44, 48 | Chain0/Chain1 |
| | | 802.11 n (HT20) | 6.5 | 36, 44, 48 | Chain0/Chain1 |
| | | 802.11 n (HT40) | 13.5 | 38, 46 | Chain0/Chain1 |
| | U-NII-3 | 802.11a | 6 | 149,157,165 | Chain0/Chain1 |
| | | 802.11 n (HT20) | 6.5 | 149,157,165 | Chain0/Chain1 |
| | | 802.11 n (HT40) | 13.5 | 151,159 | Chain0/Chain1 |
| Emission BW | U-NII-1 | 802.11a | 6 | 36, 44, 48 | Chain0/Chain1 |
| | | 802.11 n (HT20) | 6.5 | 36, 44, 48 | Chain0/Chain1 |
| | | 802.11 n (HT40) | 13.5 | 38, 46 | Chain0/Chain1 |
| | U-NII-3 | 802.11a | 6 | 149,157,165 | Chain0/Chain1 |
| | | 802.11 n (HT20) | 6.5 | 149,157,165 | Chain0/Chain1 |
| | | 802.11 n (HT40) | 13.5 | 151,159 | Chain0/Chain1 |
| Radiated spurious Emission 9kHz~1GHz | Worst Case | | | | |
| Emissions In Restricted Frequency Bands (Radiated emission measurements) | U-NII-1 | 802.11a | 6 | 36, 44, 48 | Chain0/Chain1 |
| | | 802.11 n (HT20) | 13 | 36, 44, 48 | Chain0+1 |
| | | 802.11 n (HT40) | 27 | 38, 46 | Chain0+1 |
| | U-NII-3 | 802.11a | 6 | 149,157,165 | Chain0/Chain1 |
| | | 802.11 n (HT20) | 13 | 149,157,165 | Chain0+1 |
| | | 802.11 n (HT40) | 27 | 151,159 | Chain0+1 |
| Emission on The Band Edge | U-NII-1 | 802.11a | 6 | 36, 44, 48 | Chain0/Chain1 |
| | | 802.11 n (HT20) | 13 | 36, 44, 48 | Chain0+1 |
| | | 802.11 n (HT40) | 27 | 38, 46 | Chain0+1 |
| | U-NII-3 | 802.11a | 6 | 149,157,165 | Chain0/Chain1 |
| | | 802.11 n (HT20) | 13 | 149,157,165 | Chain0+1 |
| | | 802.11 n (HT40) | 27 | 151,159 | Chain0+1 |
| AC Line Conducted Emission | Worst Case | | | | |

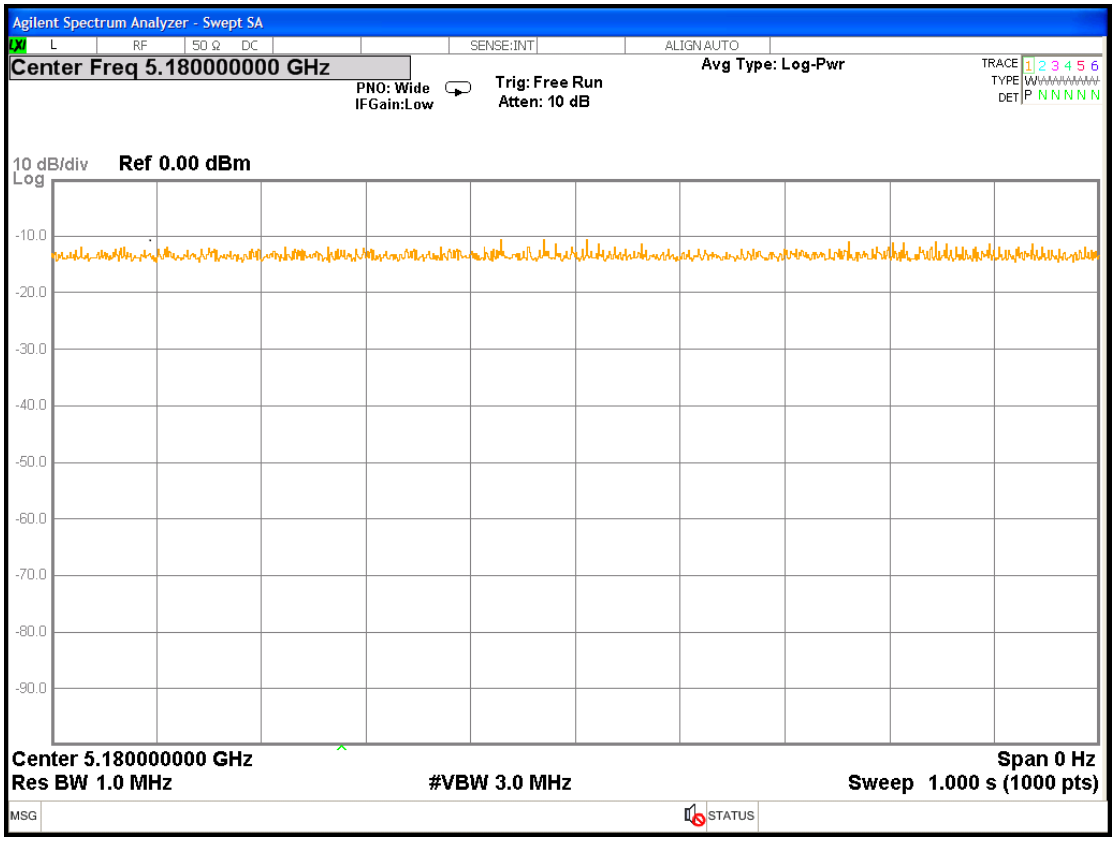
### 1.7 Power setting of test software

| Mode | Chain | Channel | Frequency (MHz) | Data rate(Mbps) | Signal on time(s) | Total signal transmit time(s) | Duty cycle | Duty Cycle factor |
|---|---|---|---|---|---|---|---|---|
| 802.11a | Chain 0 | 36 | 5180 | 6 | 1 | 1 | 1.000 | 0.000 |
| 802.11n(HT20) | Chain 0+1 | 36 | 5180 | 13 | 1 | 1 | 1.000 | 0.000 |
| 802.11n(HT40) | Chain 0+1 | 38 | 5190 | 27 | 1 | 1 | 1.000 | 0.000 |
| 802.11a | Chain 0 | 149 | 5745 | 6 | 1 | 1 | 1.000 | 0.000 |
| 802.11n(HT20) | Chain 0+1 | 149 | 5745 | 13 | 1 | 1 | 1.000 | 0.000 |
| 802.11n(HT40) | Chain 0+1 | 151 | 5755 | 27 | 1 | 1 | 1.000 | 0.000 |

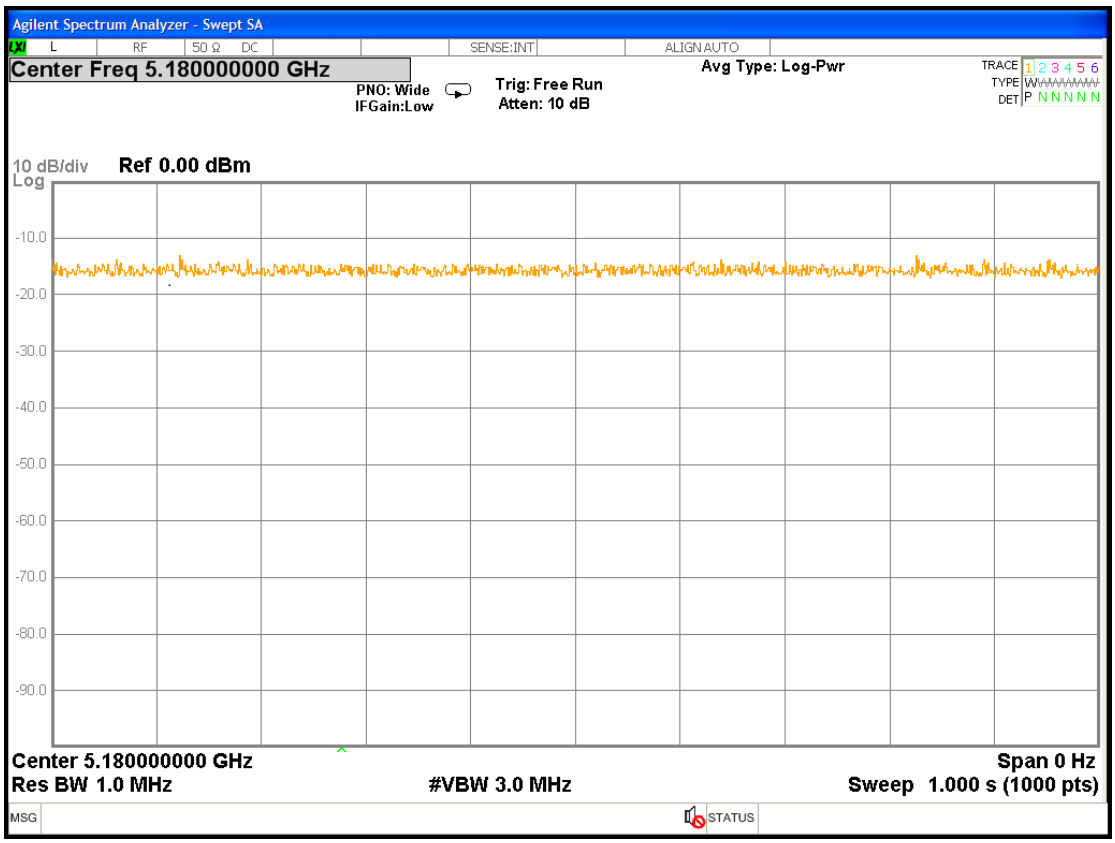
Chain0 : Duty cycle @ 802.11a mode Ch 36



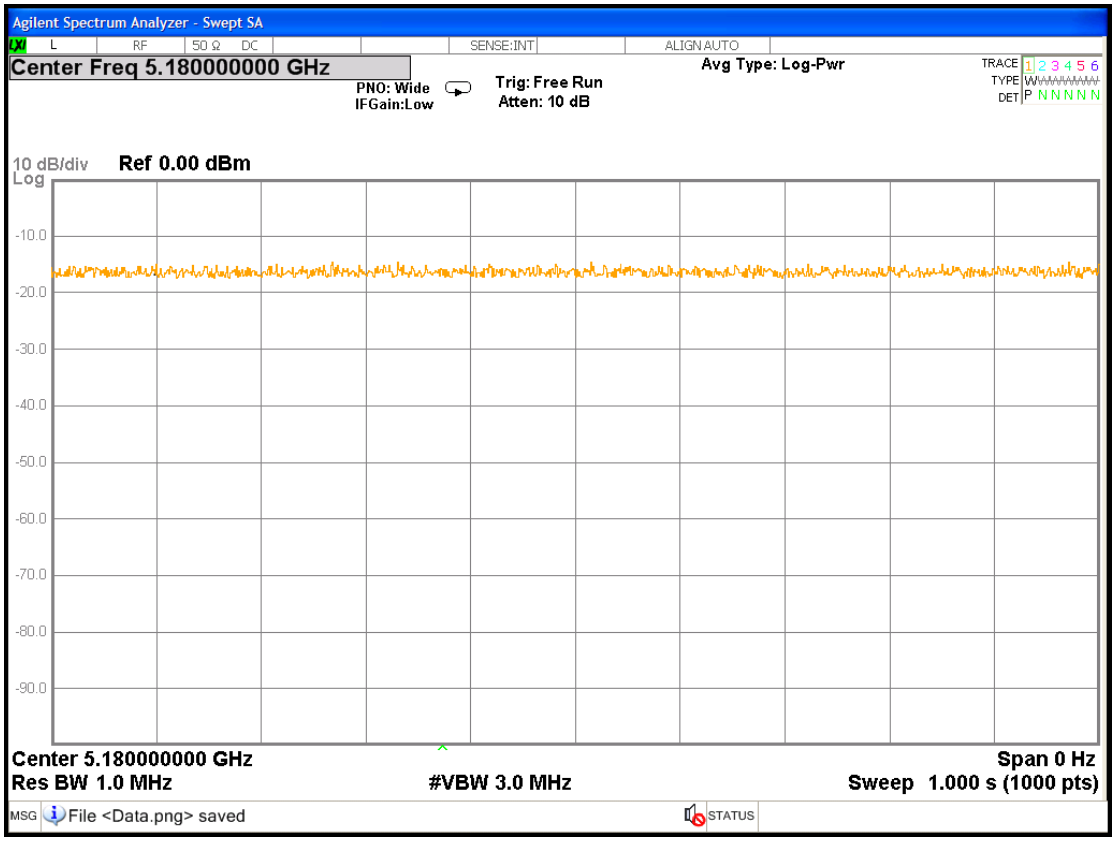

Chain1 : Duty cycle @ 802.11a mode Ch 36



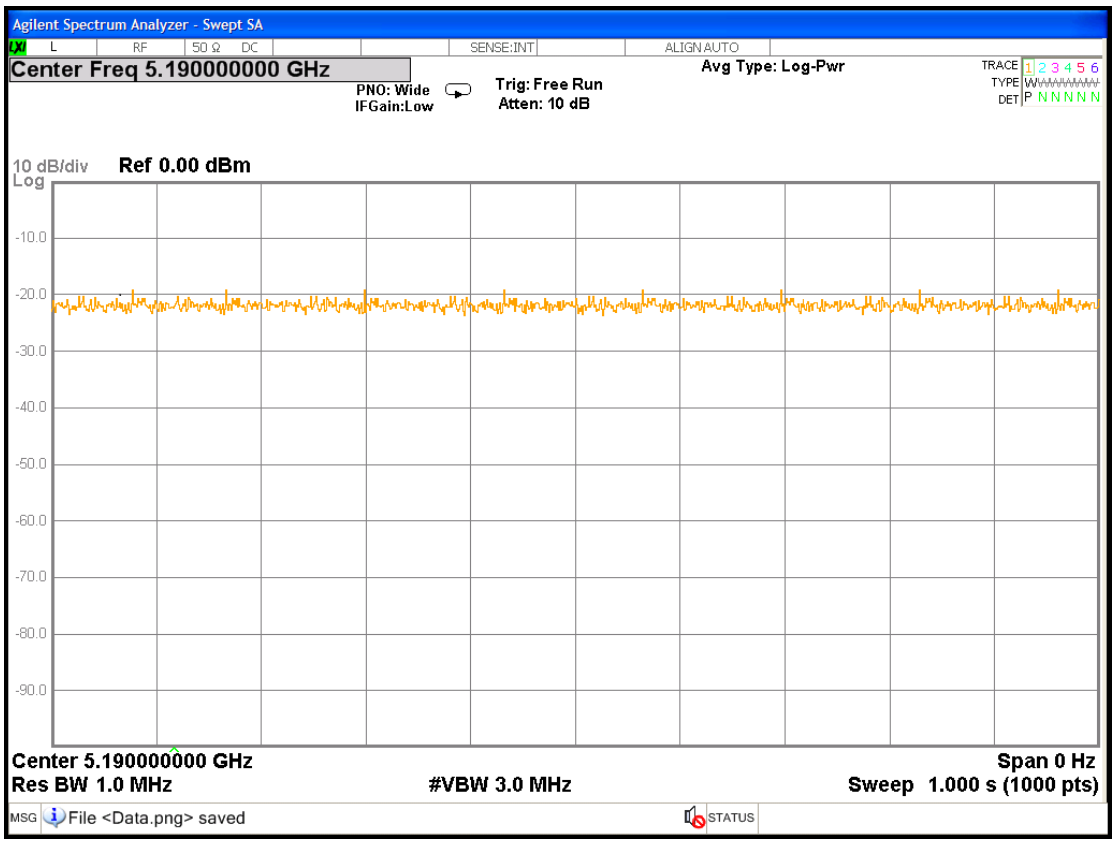
Chain0 : Duty cycle @ 802.11n(HT20) mode Ch 36



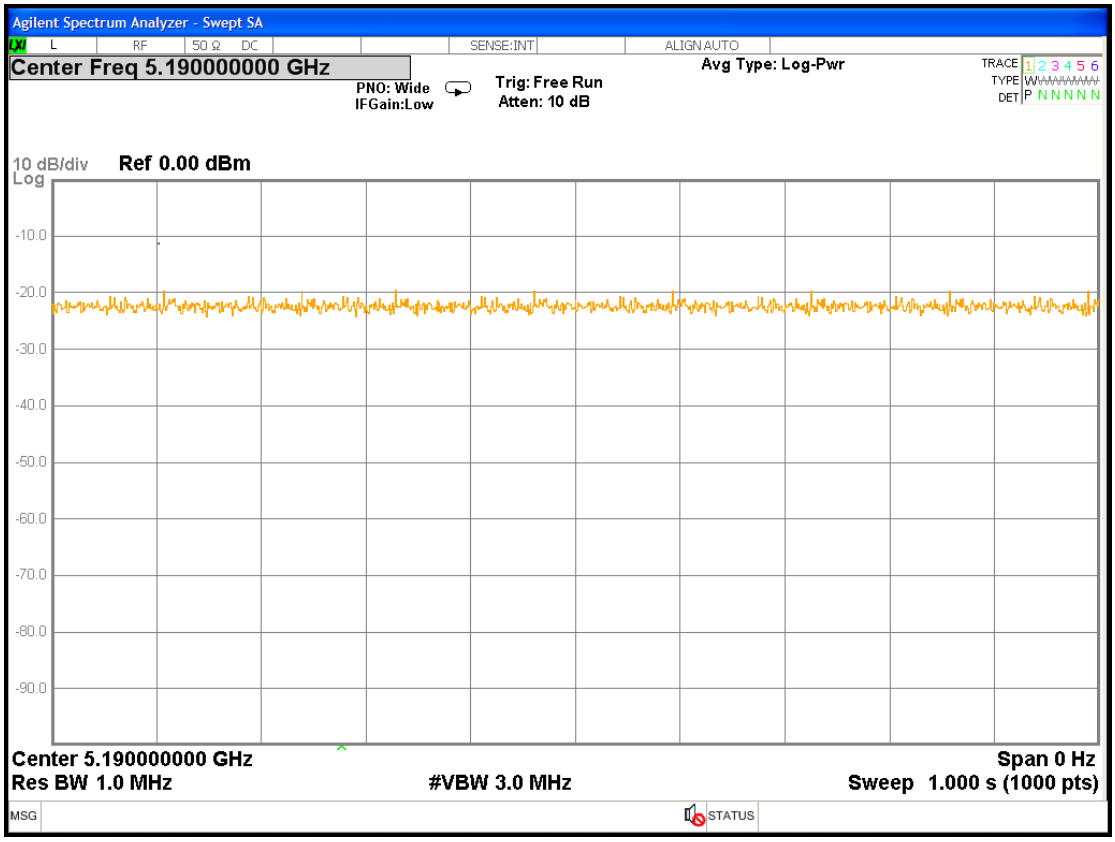

Chain1 : Duty cycle @ 802.11n(HT20) mode Ch 36



Chain0 : Duty cycle @ 802.11n(HT40) mode Ch 38




Chain1 : Duty cycle @ 802.11n(HT40) mode Ch 38



# 2. Maximum Conducted Output Power

## 2.1 Operating environment

| | | |
|---|---|---|
| Temperature: | 25 | ℃ |
| Relative Humidity: | 50 | % |
| Atmospheric Pressure | 1008 | hPa |
| Channel number | 36,44,48,149,157,165 for 20MHz<br>38,46,151,159 for 40MHz | |

## 2.2 Limit for maximum output power

| Operating Frequency (MHz) | Conducted output power limit |
|---|---|
| 5150~5250 | < 0.25 W (24 dBm) |
| 5725~5850 | < 1 W (30 dBm) |

| Operating Frequency (MHz) | Maximum E.I.R.P. limit |
|---|---|
| 5150~5250 | < 1 W (30 dBm) |
| 5725~5850 | < 4 W (36 dBm) |

## 2.3 Measuring instrument setting

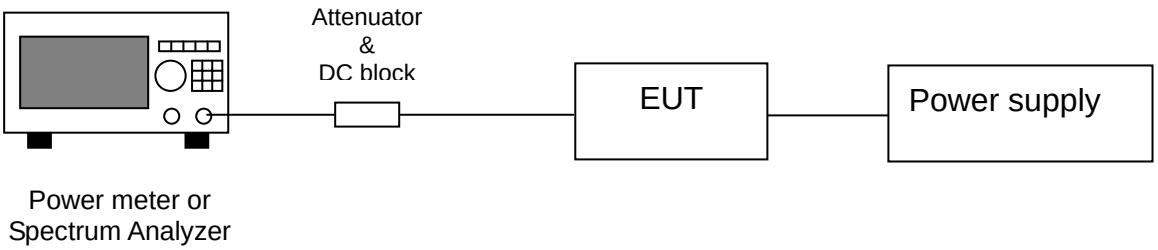
| Power meter for Nominal Bandwidth less than 65MHz | |
|---|---|
| **Power meter** | **Setting** |
| Bandwidth | 65MHz bandwidth is greater than the EUT emission bandwidth |
| Detector | Average |

## 2.4 Test procedure

Test procedures refer to clause E) 3) b) measurement using a gated RF average power meter of KDB 789033 D02 v01r02

Test procedures refer to clause E) 2) b) Method SA-1 of KDB 789033 D02 v01r02

## 2.5 Test diagram




## 2.6 Test results

UNII-1

SISO

| Mode | Channel | Frequency (MHz) | Data Rate (Mbps) | Output Power (AV) | | Antenna Gain (dBi) | E.I.R.P. (dBm) | Limit of Conducted Power (dBm) | Margin (dB) | Limit of E.I.R.P. (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | dBm | mW | | | | | | |
| 802.11a Chain0 | 36 | 5180 | 6 | 8.651 | 7.33 | 4.12 | 12.77 | 24.00 | -15.35 | 30.00 | -17.23 |
| | 44 | 5220 | | 9.075 | 8.08 | 4.12 | 13.20 | 24.00 | -14.93 | 30.00 | -16.81 |
| | 48 | 5240 | | 9.239 | 8.39 | 4.12 | 13.36 | 24.00 | -14.76 | 30.00 | -16.64 |
| 802.11a Chain1 | 36 | 5180 | 6 | 9.583 | 9.08 | 4.12 | 13.70 | 24.00 | -14.42 | 30.00 | -16.30 |
| | 44 | 5220 | | 9.607 | 9.13 | 4.12 | 13.73 | 24.00 | -14.39 | 30.00 | -16.27 |
| | 48 | 5240 | | 9.76 | 9.46 | 4.12 | 13.88 | 24.00 | -14.24 | 30.00 | -16.12 |

MIMO

| Mode | Channel | Frequency (MHz) | Data Rate (Mbps) | Output Power (AV) | | Total Power (AV) | | Antenna0 Gain (dBi) | Antenna1 Gain (dBi) | Caculated E.I.R.P. (dBm) | Limit of Conducted Power (dBm) | Margin (dB) | Limit of E.I.R.P. (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Chain 0 | Chain 1 | | | | | | | | | |
| | | | | dBm | dBm | mW | dBm | | | | | | | |
| 802.11n (HT 20) | 36 | 5180 | 13 | 7.95 | 8.08 | 12.66 | 11.03 | 4.12 | 4.12 | 15.15 | 24.00 | -12.97 | 30.00 | -14.85 |
| | 44 | 5220 | | 7.72 | 8.32 | 12.71 | 11.04 | 4.12 | 4.12 | 15.16 | 24.00 | -12.96 | 30.00 | -14.84 |
| | 48 | 5240 | | 7.709 | 8.251 | 12.59 | 11.00 | 4.12 | 4.12 | 15.12 | 24.00 | -13.00 | 30.00 | -14.88 |
| 802.11n (HT 40) | 38 | 5190 | 27 | 7.717 | 6.583 | 10.46 | 10.20 | 4.12 | 4.12 | 14.32 | 24.00 | -13.80 | 30.00 | -15.68 |
| | 46 | 5230 | | 7.376 | 6.307 | 9.74 | 9.88 | 4.12 | 4.12 | 14.00 | 24.00 | -14.12 | 30.00 | -16.00 |

UNII-3

SISO

| Mode | Channel | Frequency (MHz) | Data Rate (Mbps) | Output Power (AV) | | Antenna Gain (dBi) | E.I.R.P. (dBm) | Limit of Conducted Power (dBm) | Margin (dB) | Limit of E.I.R.P. (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | dBm | mW | | | | | | |
| 802.11a Chain0 | 149 | 5745 | 6 | 7.865 | 6.12 | 4.12 | 11.99 | 30.00 | -22.14 | 36.00 | -24.02 |
| | 157 | 5785 | | 8.862 | 7.69 | 4.12 | 12.98 | 30.00 | -21.14 | 36.00 | -23.02 |
| | 165 | 5825 | | 8.466 | 7.02 | 4.12 | 12.59 | 30.00 | -21.53 | 36.00 | -23.41 |
| 802.11a Chain1 | 149 | 5745 | 6 | 9.025 | 7.99 | 4.12 | 13.15 | 30.00 | -20.98 | 36.00 | -22.86 |
| | 157 | 5785 | | 10.145 | 10.34 | 4.12 | 14.27 | 30.00 | -19.86 | 36.00 | -21.74 |
| | 165 | 5825 | | 10.03 | 10.07 | 4.12 | 14.15 | 30.00 | -19.97 | 36.00 | -21.85 |

MIMO

| Mode | Channel | Frequency (MHz) | Data Rate (Mbps) | Output Power (AV) | | Total Power (AV) | | Antenna0 Gain (dBi) | Antenna1 Gain (dBi) | Caculated E.I.R.P. (dBm) | Limit of Conducted Power (dBm) | Margin (dB) | Limit of E.I.R.P. (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Chain 0 | Chain 1 | | | | | | | | | |
| | | | | dBm | dBm | mW | dBm | | | | | | | |
| 802.11n (HT 20) | 149 | 5745 | 13 | 6.375 | 7.27 | 9.67 | 9.86 | 4.12 | 4.12 | 13.98 | 30.00 | -20.14 | 36.00 | -22.02 |
| | 157 | 5785 | | 7.502 | 8.269 | 12.34 | 10.91 | 4.12 | 4.12 | 15.03 | 30.00 | -19.09 | 36.00 | -20.97 |
| | 165 | 5825 | | 6.997 | 8.225 | 11.65 | 10.66 | 4.12 | 4.12 | 14.78 | 30.00 | -19.34 | 36.00 | -21.22 |
| 802.11n (HT 40) | 151 | 5755 | 27 | 4.944 | 5.665 | 6.81 | 8.33 | 4.12 | 4.12 | 12.45 | 30.00 | -21.67 | 36.00 | -23.55 |
| | 159 | 5795 | | 6.006 | 6.914 | 8.90 | 9.49 | 4.12 | 4.12 | 13.61 | 30.00 | -20.51 | 37.00 | -23.39 |

# 3. Power Spectrum Density

## 3.1 Operating environment

| | | |
|---|---|---|
| Temperature: | 25 | ℃ |
| Relative Humidity: | 50 | % |
| Atmospheric Pressure | 1008 | hPa |
| Channel number | 36,44,48,149,157,165 for 20MHz<br>38,46,151,159 for 40MHz | |

## 3.2 Limit for power spectrum density

| Operating Frequency (MHz) | Power density limit |
|---|---|
| 5150~5250 | < 11 dBm/1MHz |
| 5725~5850 | < 30 dBm/500kHz |

## 3.3 Measuring instrument setting

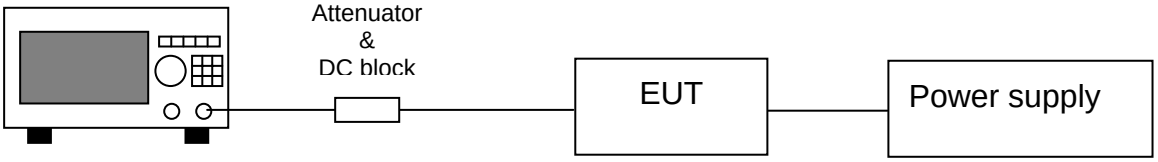
| Spectrum analyzer settings (5150~5250MHz) | |
|---|---|
| **Spectrum Analyzer function** | **Setting** |
| Detector | RMS |
| RBW | =1MHz |
| VBW | ≧3 MHz |
| Sweep | Auto couple |
| Trace | Average |
| Span | Encompass the 26 dB EBW |
| Attenuation | Auto |
| Sweep point | ≥ 2 Span / RBW |

| Spectrum analyzer settings (5725~5850MHz) | |
|---|---|
| **Spectrum Analyzer function** | **Setting** |
| Detector | RMS |
| RBW | =100kHz |
| VBW | ≧300 kHz |
| Sweep | Auto couple |
| Trace | Average |
| Span | Encompass the 6 dB EBW |
| Attenuation | Auto |
| Sweep point | ≥ 2 Span / RBW |

### 3.4 Test procedure

1. Set relevant parameter according to clause 4.3.
2. Trace average at least 100 traces in power averaging mode.
3. Compute power by integrating the spectrum across the 26 dB or 6dB EBW of the signal using the instrument's band power measurement function with band limits set equal to the EBW band edges
4. If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement. The RBW is 100 kHz. So, we will add 6.989 to the results.

### 3.5 Test diagram




### 3.6 Test results

**UNII-1**
**SISO**

| Mode | Channel | Frequency (MHz) | PSD | | Result | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| | | | (dBm) | (mw) | | | |
| 802.11a Chain0 | 36 | 5180 | -1.638 | 0.69 | -1.638 | 11 | -12.64 |
| | 44 | 5220 | -0.939 | 0.81 | -0.939 | 11 | -11.94 |
| | 48 | 5240 | -0.926 | 0.81 | -0.926 | 11 | -11.93 |
| 802.11a Chain1 | 36 | 5180 | -0.662 | 0.86 | -0.662 | 11 | -11.66 |
| | 44 | 5220 | -0.462 | 0.90 | -0.462 | 11 | -11.46 |
| | 48 | 5240 | -0.309 | 0.93 | -0.309 | 11 | -11.31 |

Note: The values of 802.11a Chain1 have modified with Reference level Offset(36.99 dB=30(cable loss) + 10Log(500/100)).

MIMO

| Mode | Channel | Frequency (MHz) | PSD (dBm) | | Total PSD | | MIMO | | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | chain0 | chain1 | mW | dBm | Correction | Result | | |
| 802.11n (HT 20) | 36 | 5180 | -2.419 | -2.122 | 1.19 | 0.74 | 3.01 | 3.75 | 11 | -7.25 |
| | 44 | 5220 | -2.516 | -2.103 | 1.18 | 0.71 | 3.01 | 3.72 | 11 | -7.28 |
| | 48 | 5240 | -2.607 | -1.944 | 1.19 | 0.75 | 3.01 | 3.76 | 11 | -7.24 |
| 802.11n (HT 40) | 38 | 5190 | -6.086 | -7.182 | 0.44 | -3.59 | 3.01 | -0.58 | 11 | -11.58 |
| | 46 | 5230 | -5.805 | -6.931 | 0.47 | -3.32 | 3.01 | -0.31 | 11 | -11.31 |

Note: MIMO Correction: 10log(Nant)
RBW Correction: 10log(500kHz/1MHz) or 10log(500kHz/100kHz)
Note: The values of 802.11a Chain1 have modified with Reference level Offset (36.99 dB=30(cable loss) + 10Log(500/100)).

**UNII-3**

**SISO**

| Mode | Channel | Frequency (MHz) | PSD | | Result | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| | | | (dBm) | (mw) | | | |
| 802.11a Chain0 | 149 | 5745 | -4.558 | 0.35 | -4.558 | 30 | -34.56 |
| | 157 | 5785 | -3.329 | 0.46 | -3.329 | 30 | -33.33 |
| | 165 | 5825 | -3.653 | 0.43 | -3.653 | 30 | -33.65 |
| 802.11a Chain1 | 149 | 5745 | -3.596 | 0.44 | -3.596 | 30 | -33.60 |
| | 157 | 5785 | -2.121 | 0.61 | -2.121 | 30 | -32.12 |
| | 165 | 5825 | -1.969 | 0.64 | -1.969 | 30 | -31.97 |

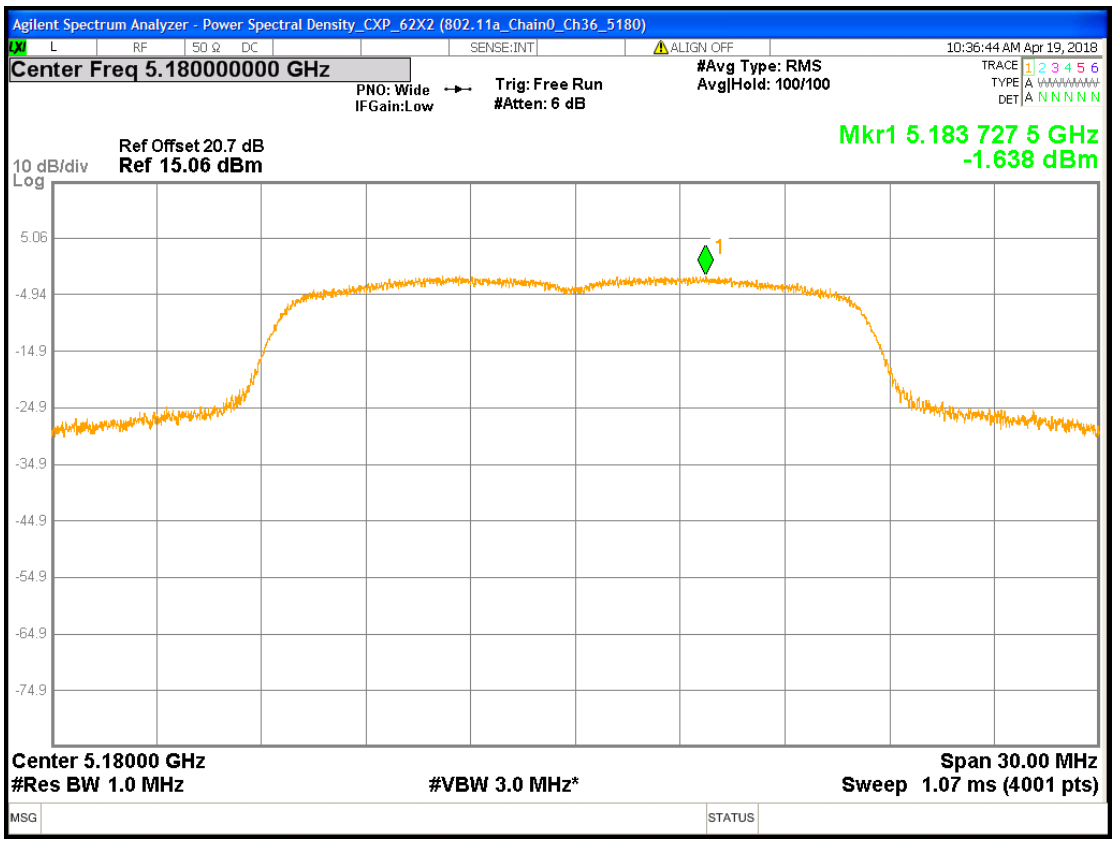
Note: The values of 802.11a Chain1 have modified with Reference level Offset(36.99 dB=30(cable loss) + 10Log(500/100)).

**MIMO**

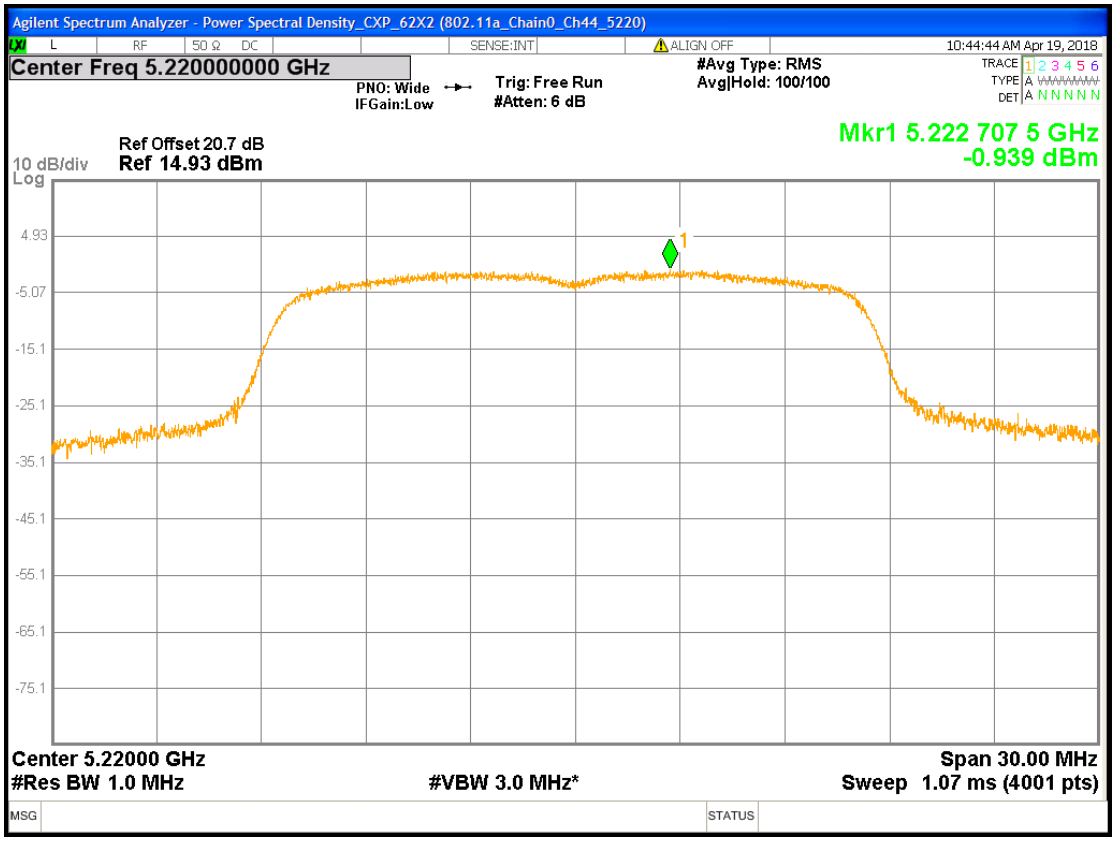
| Mode | Channel | Frequency (MHz) | PSD (dBm) | | Total PSD | | MIMO | | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | chain0 | chain1 | mW | dBm | Correction | Result | | |
| 802.11n (HT 20) | 149 | 5745 | -6.256 | -4.943 | 0.56 | -2.54 | 3.01 | 0.47 | 30 | -29.53 |
| | 157 | 5785 | -5.084 | -4.22 | 0.69 | -1.62 | 3.01 | 1.39 | 30 | -28.61 |
| | 165 | 5825 | -5.458 | -4.38 | 0.65 | -1.88 | 3.01 | 1.13 | 30 | -28.87 |
| 802.11n (HT 40) | 151 | 5755 | -8.975 | -8.709 | 0.26 | -5.83 | 3.01 | -2.82 | 30 | -32.82 |
| | 159 | 5795 | -8.758 | -7.473 | 0.31 | -5.06 | 3.01 | -2.05 | 30 | -32.05 |

Note: MIMO Correction: 10log(Nant)
RBW Correction: 10log(500kHz/1MHz) or 10log(500kHz/100kHz)
Note: The values of 802.11a Chain1 have modified with Reference level Offset(36.99 dB=30(cable loss) + 10Log(500/100)).

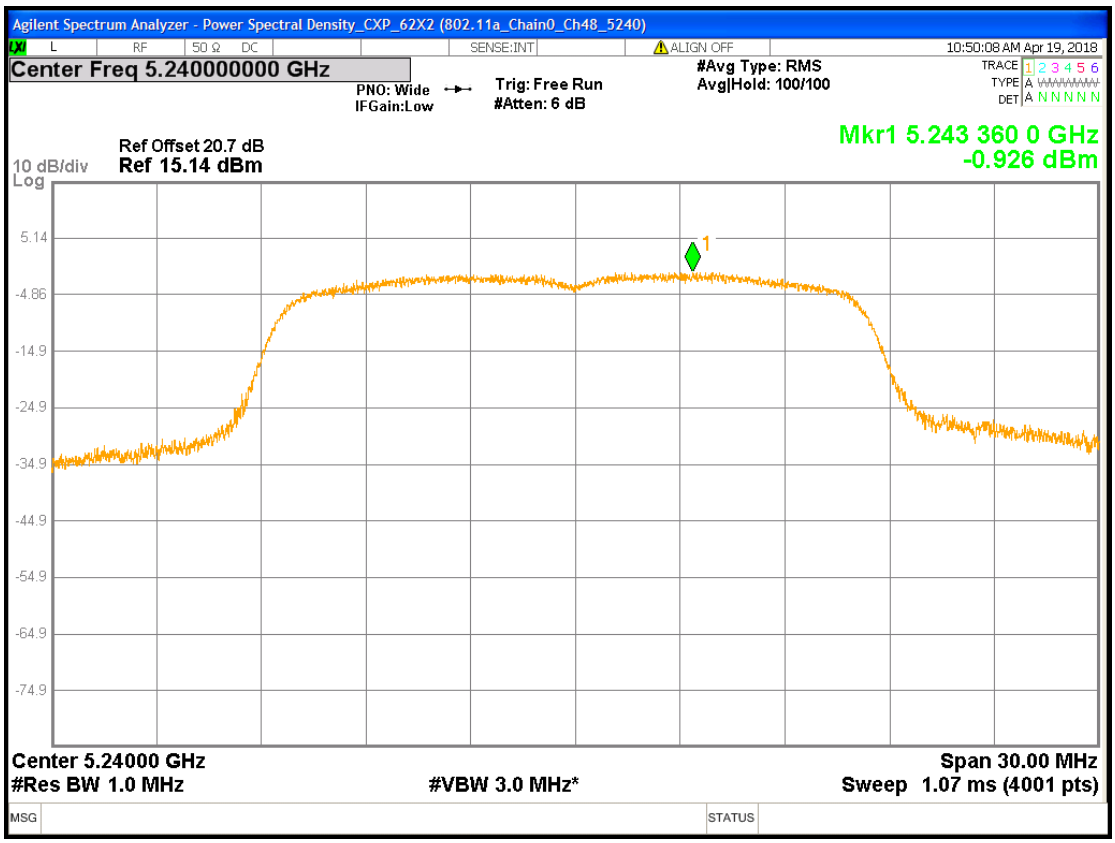
Chain0 : Power Spectral Density @ 802.11a mode Ch36



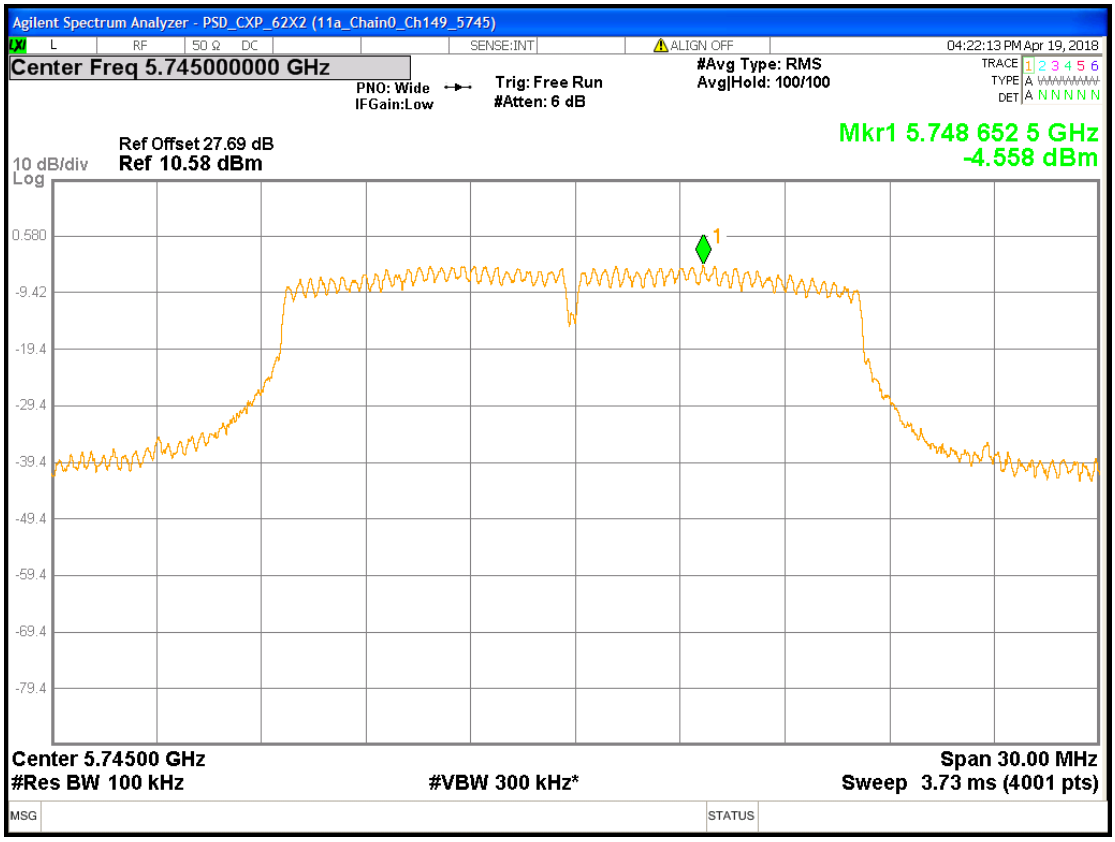

Chain0 : Power Spectral Density @ 802.11a mode Ch44



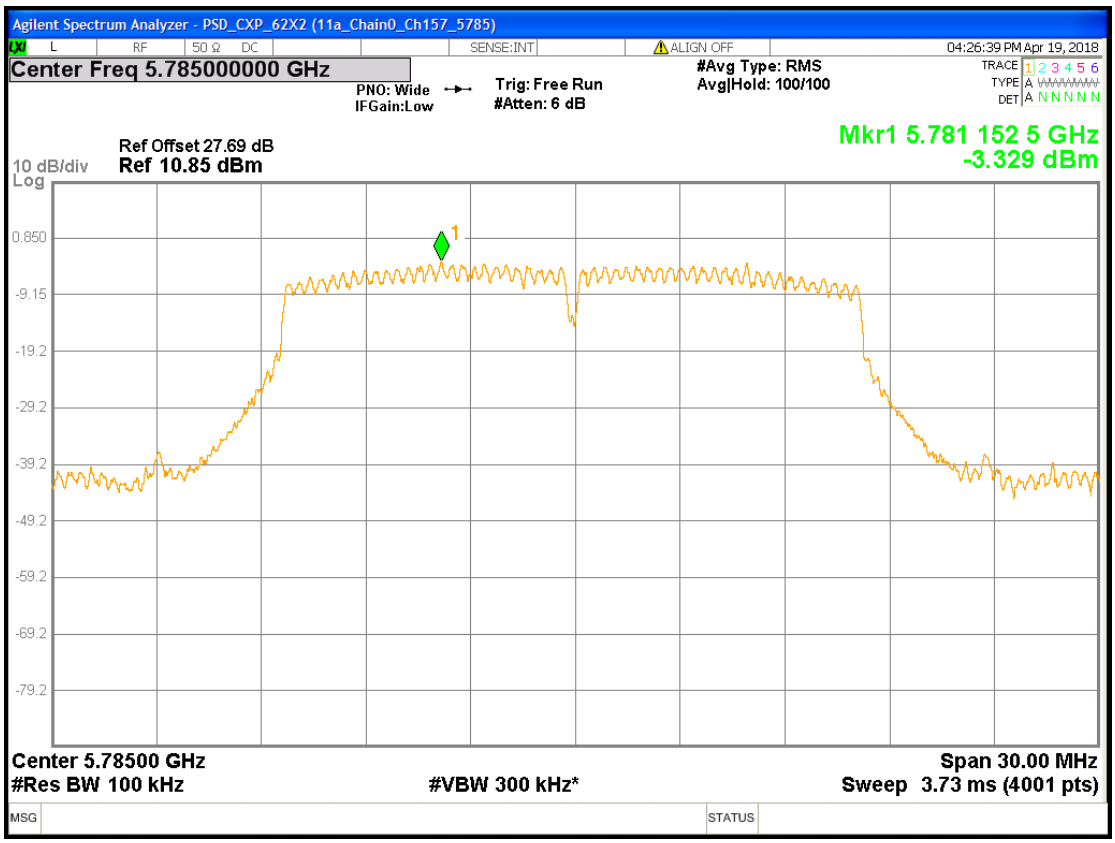
Chain0 : Power Spectral Density @ 802.11a mode Ch48



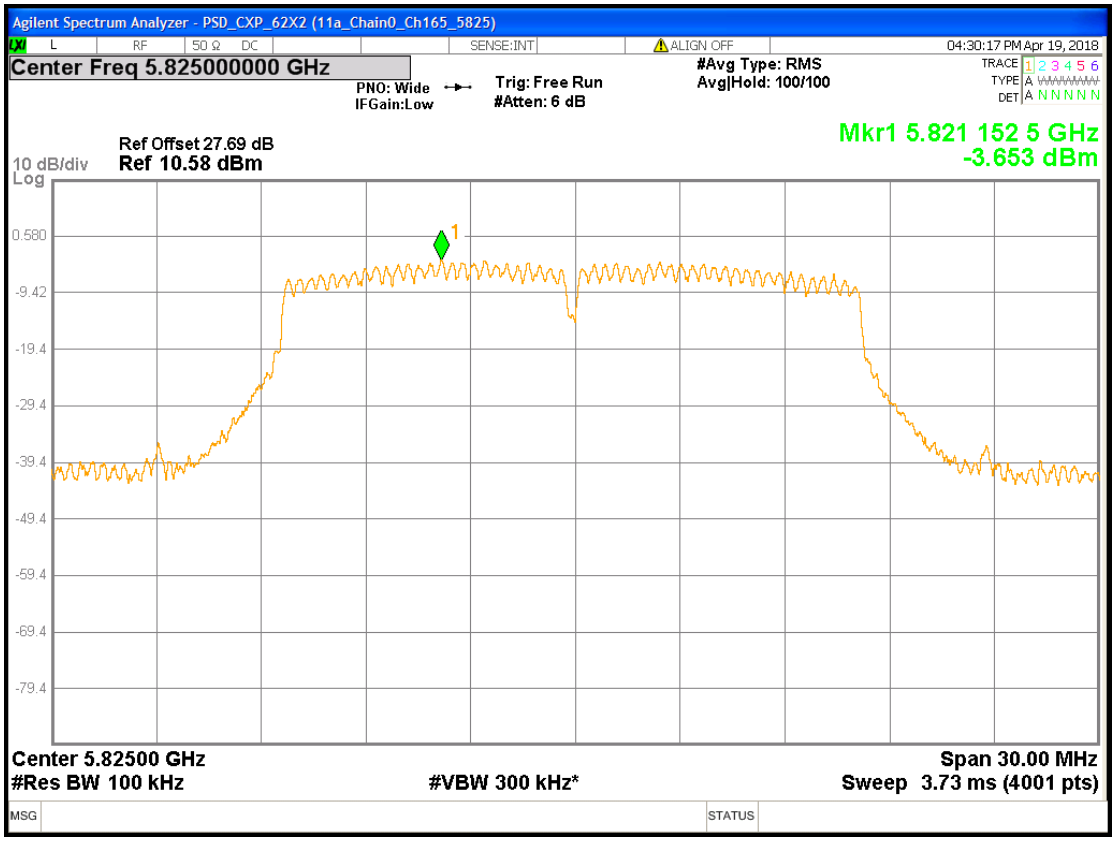

Chain0 : Power Spectral Density @ 802.11a mode Ch149



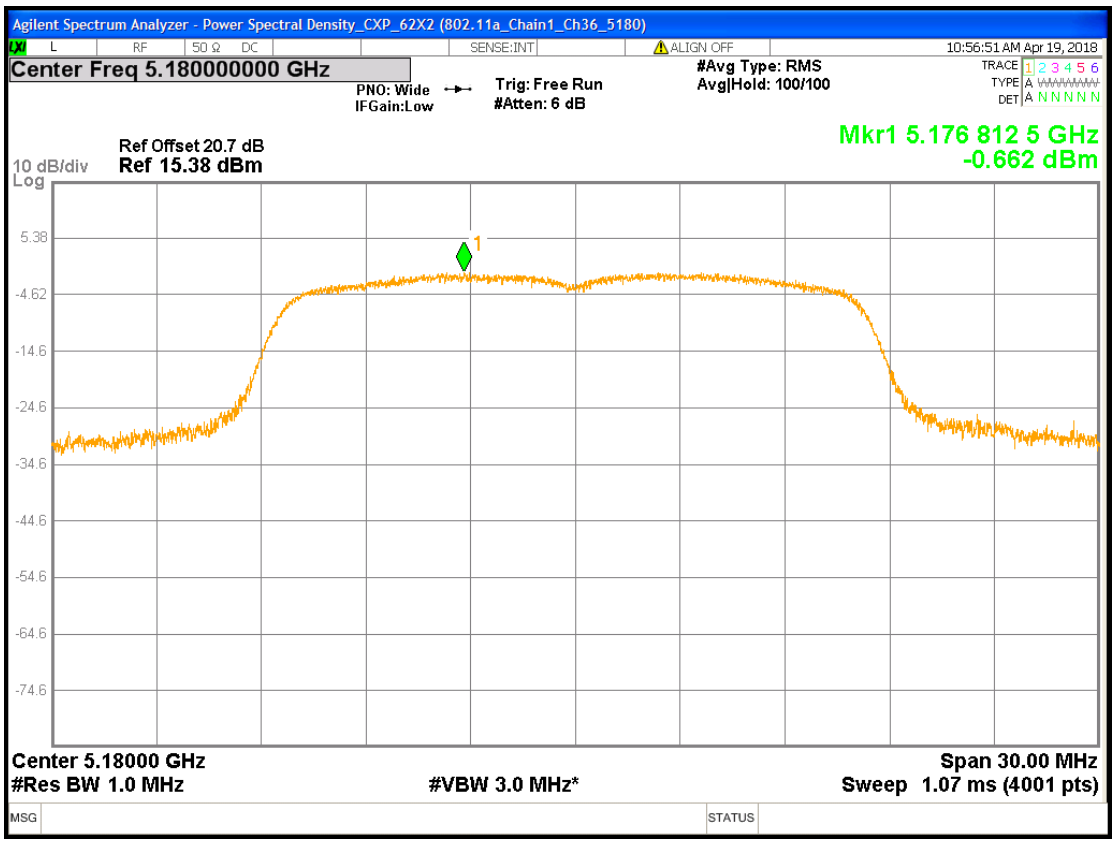
Chain0 : Power Spectral Density @ 802.11a mode Ch157



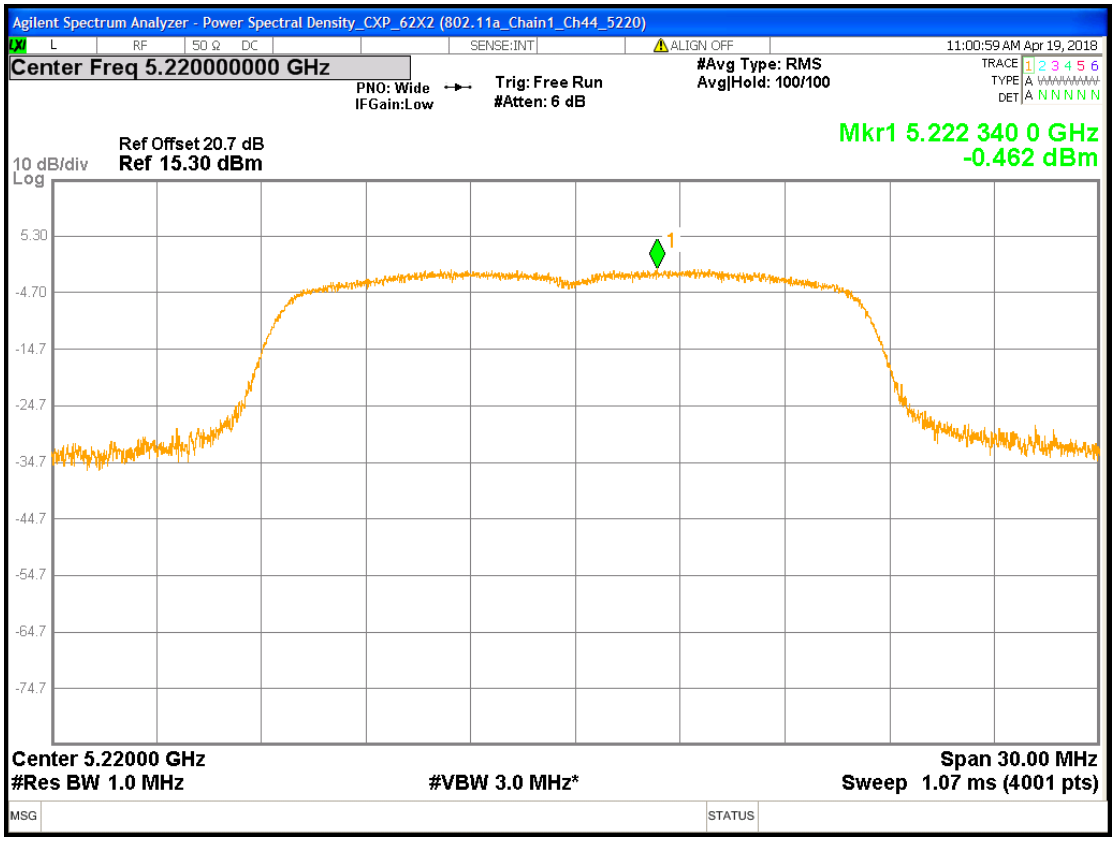

Chain0 : Power Spectral Density @ 802.11a mode Ch165



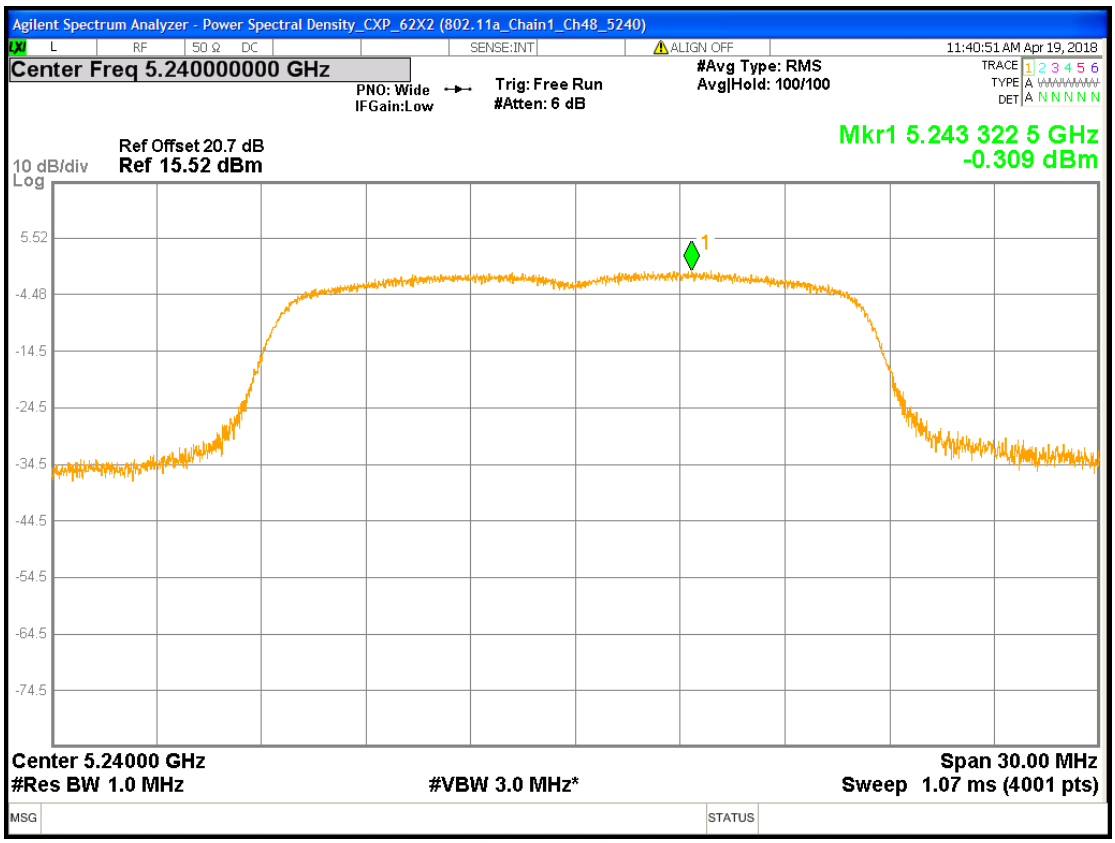
Chain1 : Power Spectral Density @ 802.11a mode Ch36



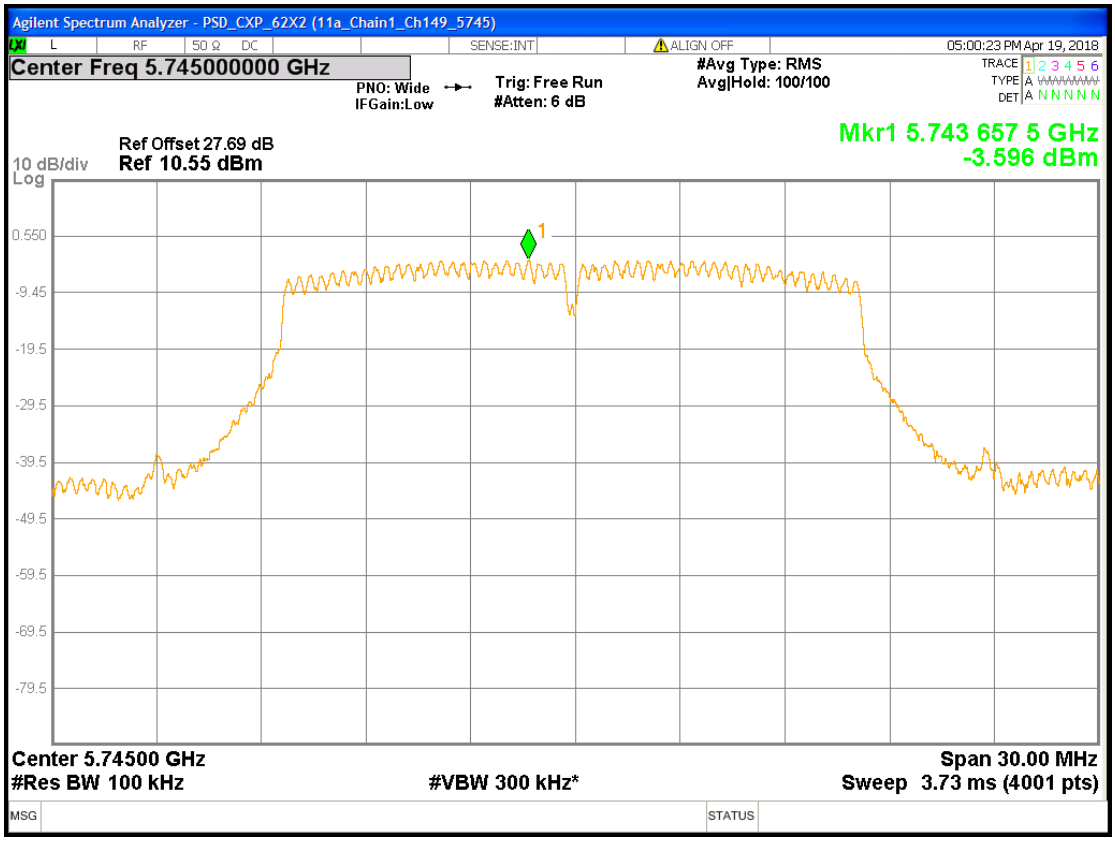

Chain1 : Power Spectral Density @ 802.11a mode Ch44



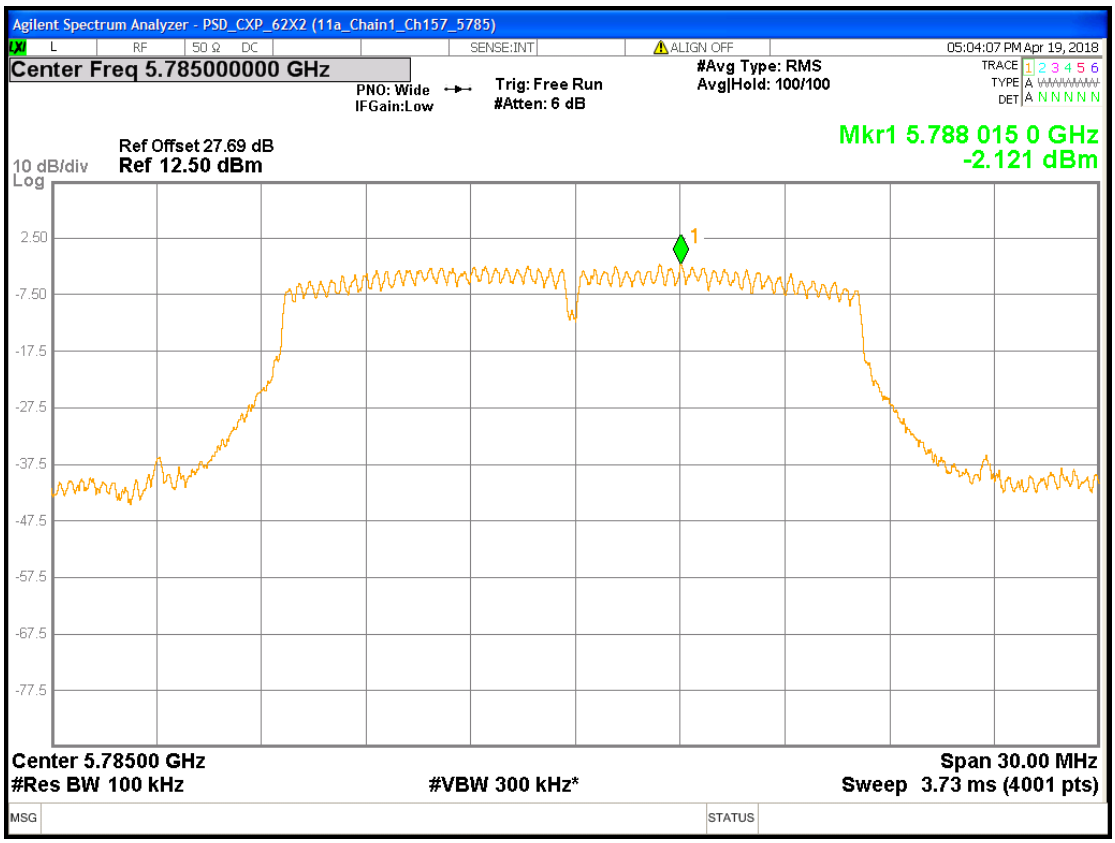
Chain1 : Power Spectral Density @ 802.11a mode Ch48



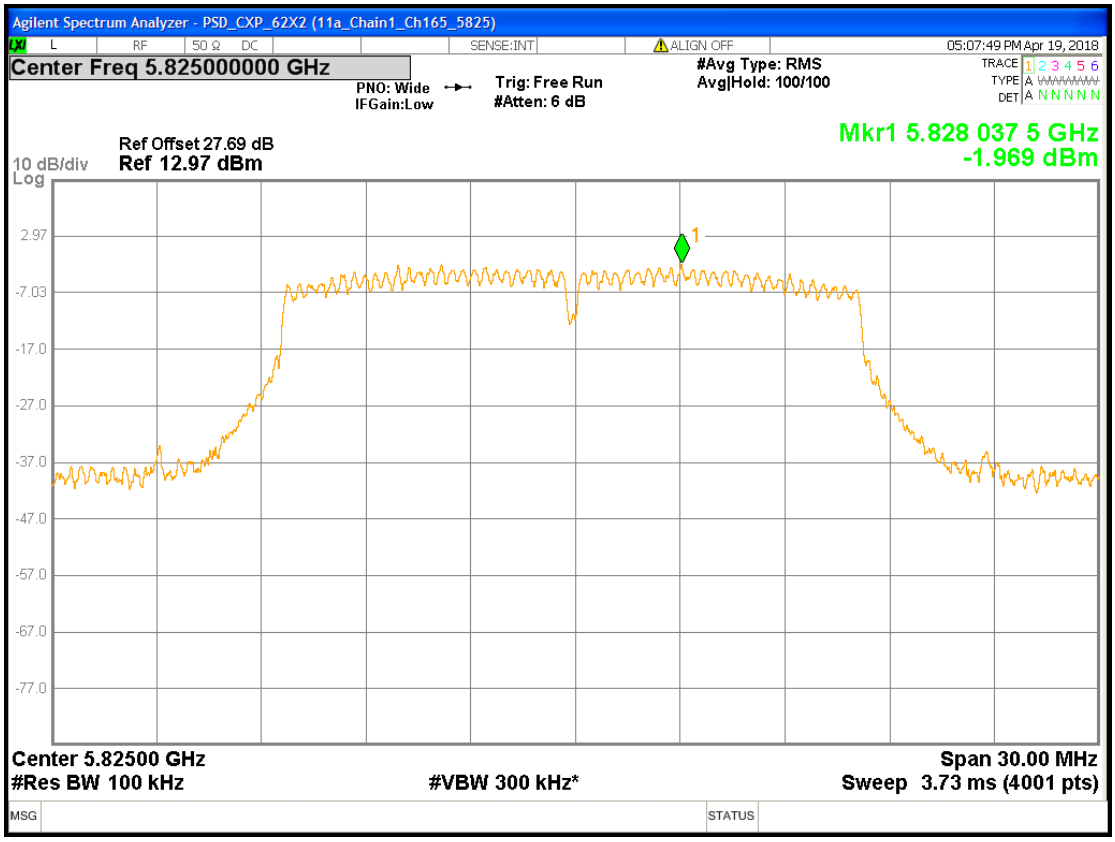

Chain1 : Power Spectral Density @ 802.11a mode Ch149



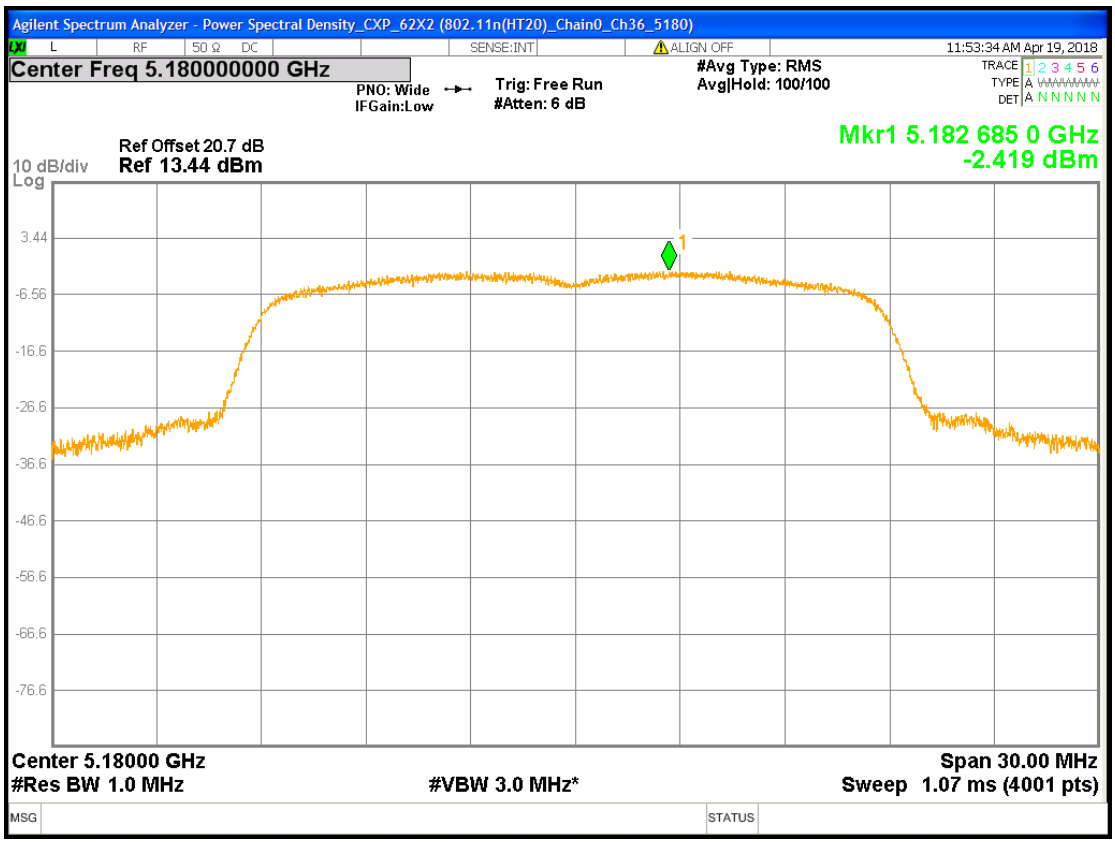
Chain1 : Power Spectral Density @ 802.11a mode Ch157



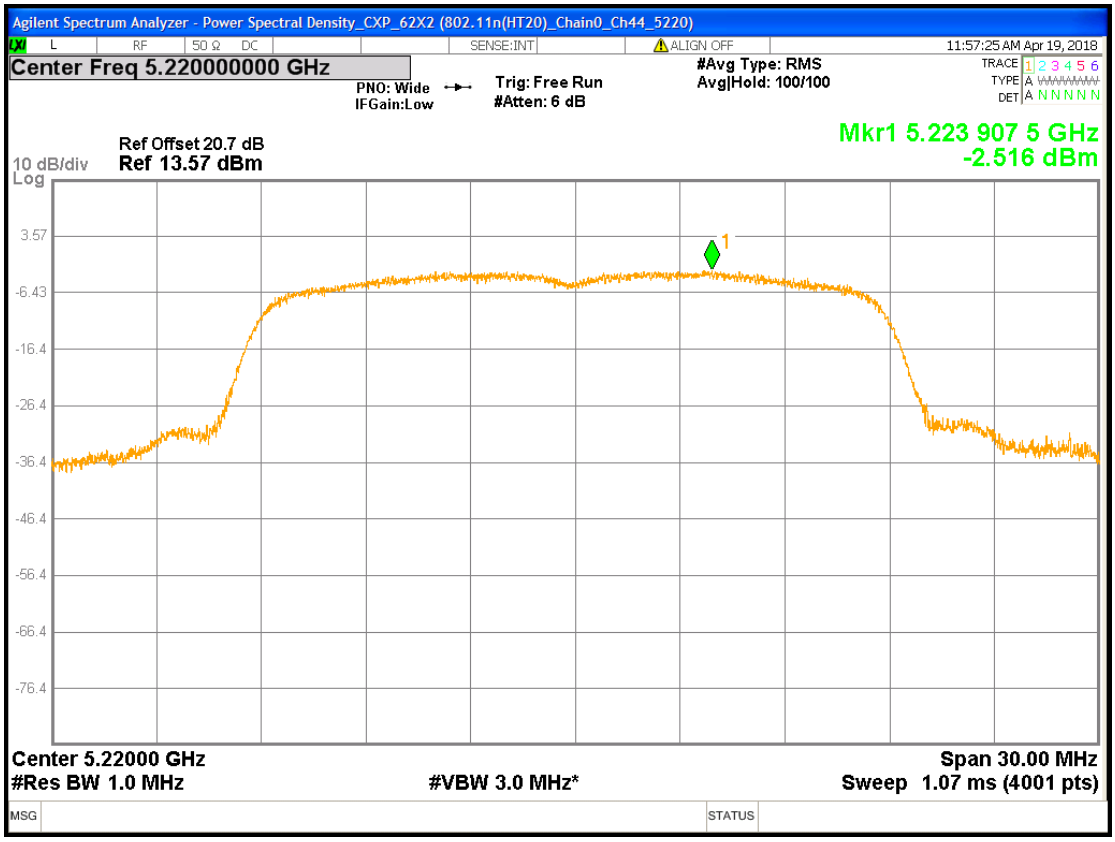

Chain1 : Power Spectral Density @ 802.11a mode Ch165



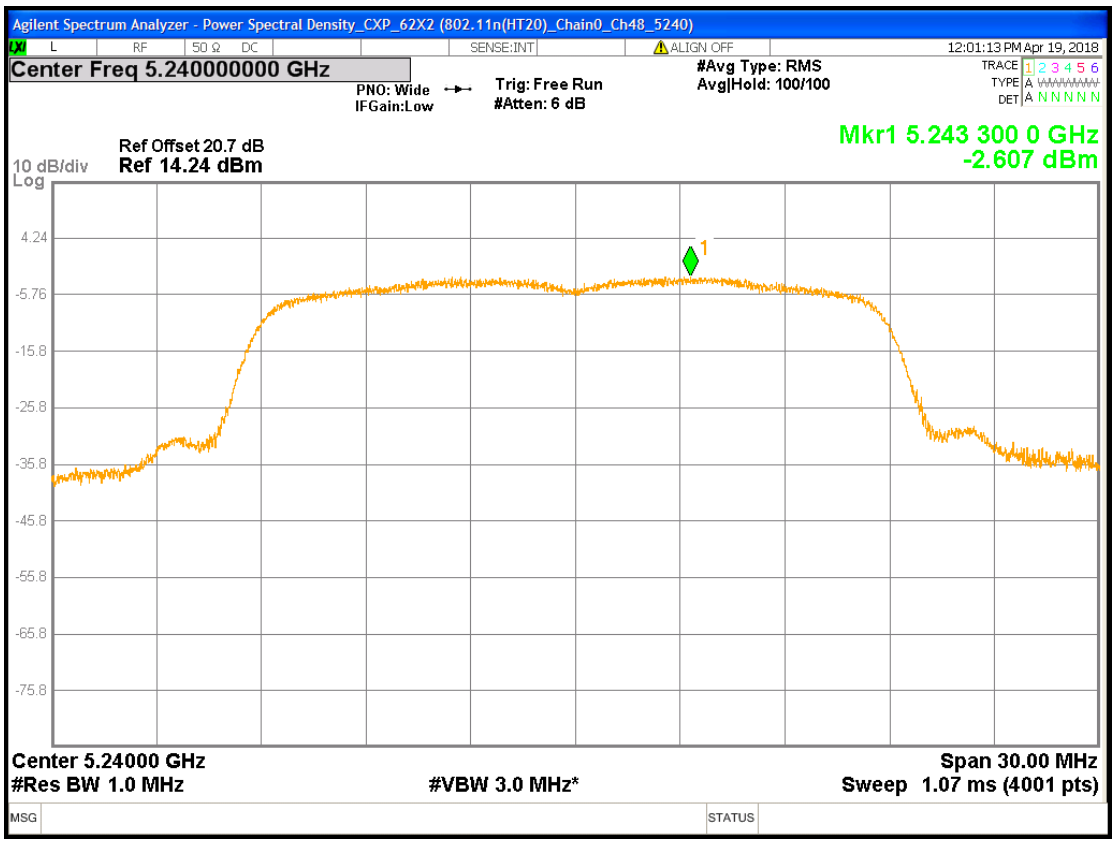
Chain0 : Power Spectral Density @ 802.11n(HT20) mode Ch36



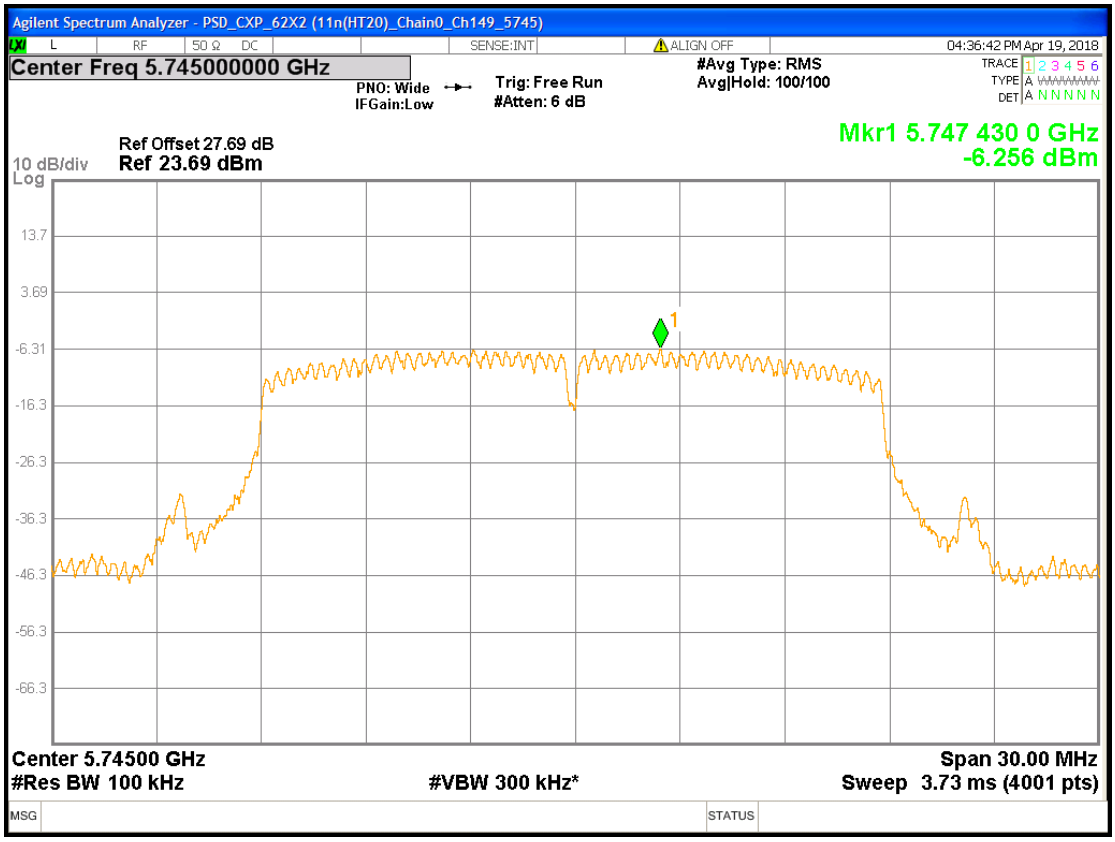

Chain0 : Power Spectral Density @ 802.11n(HT20) mode Ch44



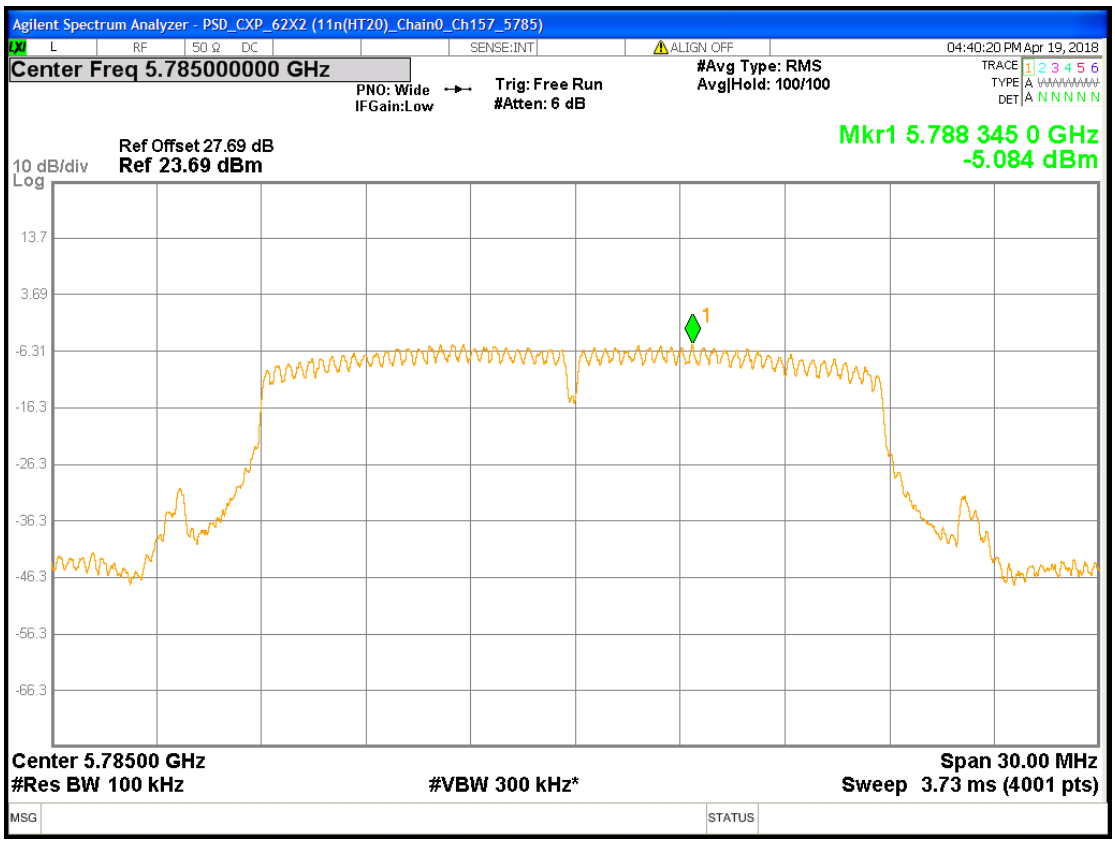
Chain0 : Power Spectral Density @ 802.11n(HT20) mode Ch48



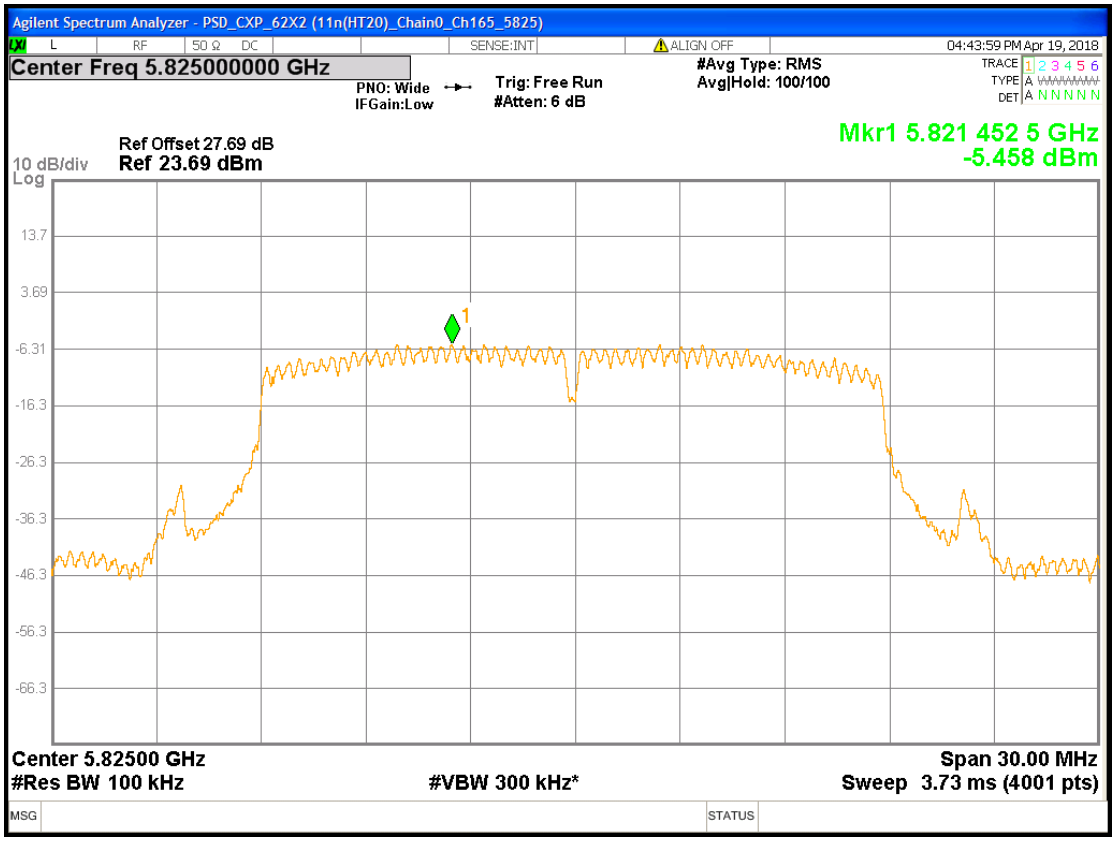

Chain0 : Power Spectral Density @ 802.11n(HT20) mode Ch149



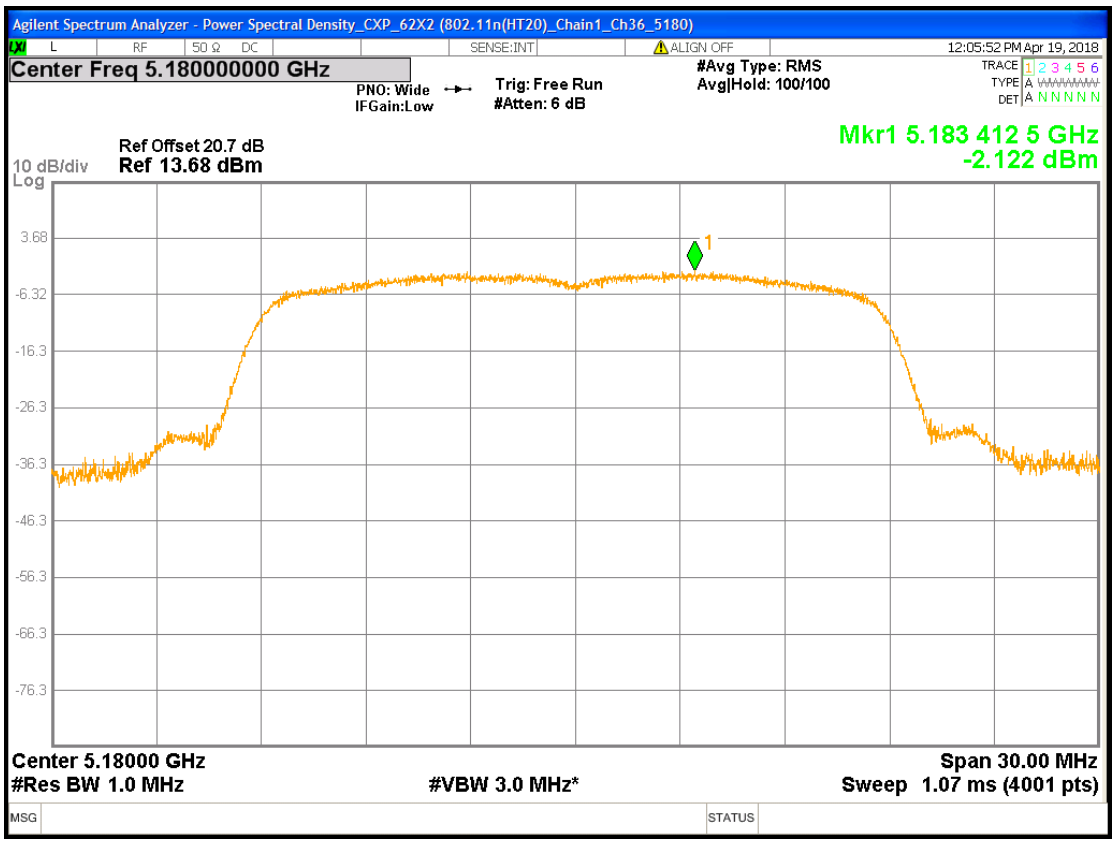
Chain0 : Power Spectral Density @ 802.11n(HT20) mode Ch157



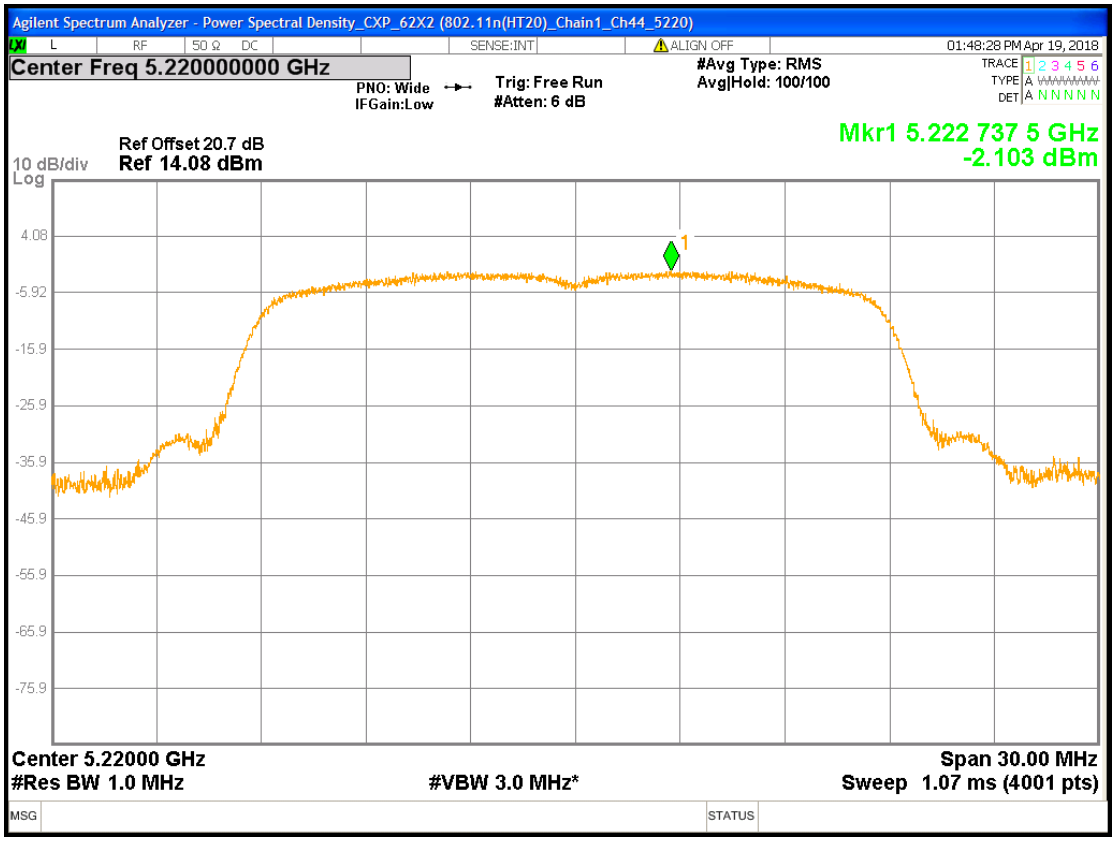

Chain0 : Power Spectral Density @ 802.11n(HT20) mode Ch165



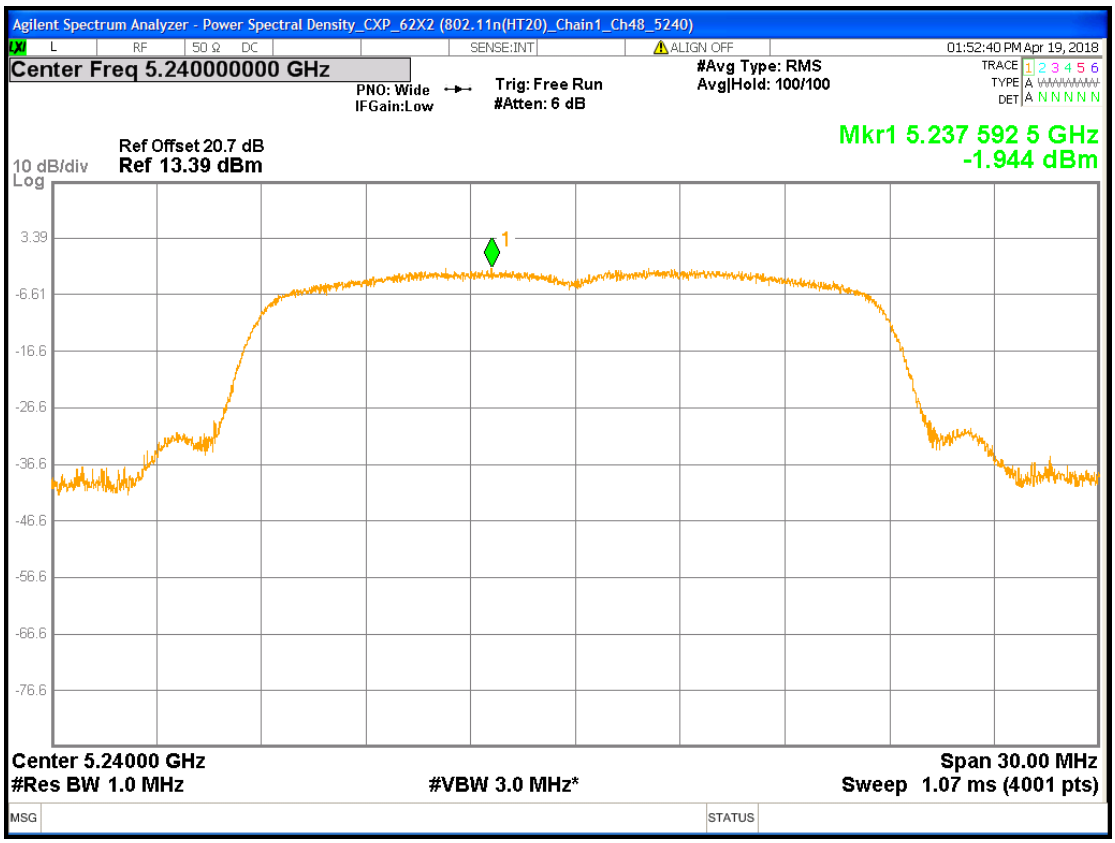
Chain1 : Power Spectral Density @ 802.11n(HT20) mode Ch36



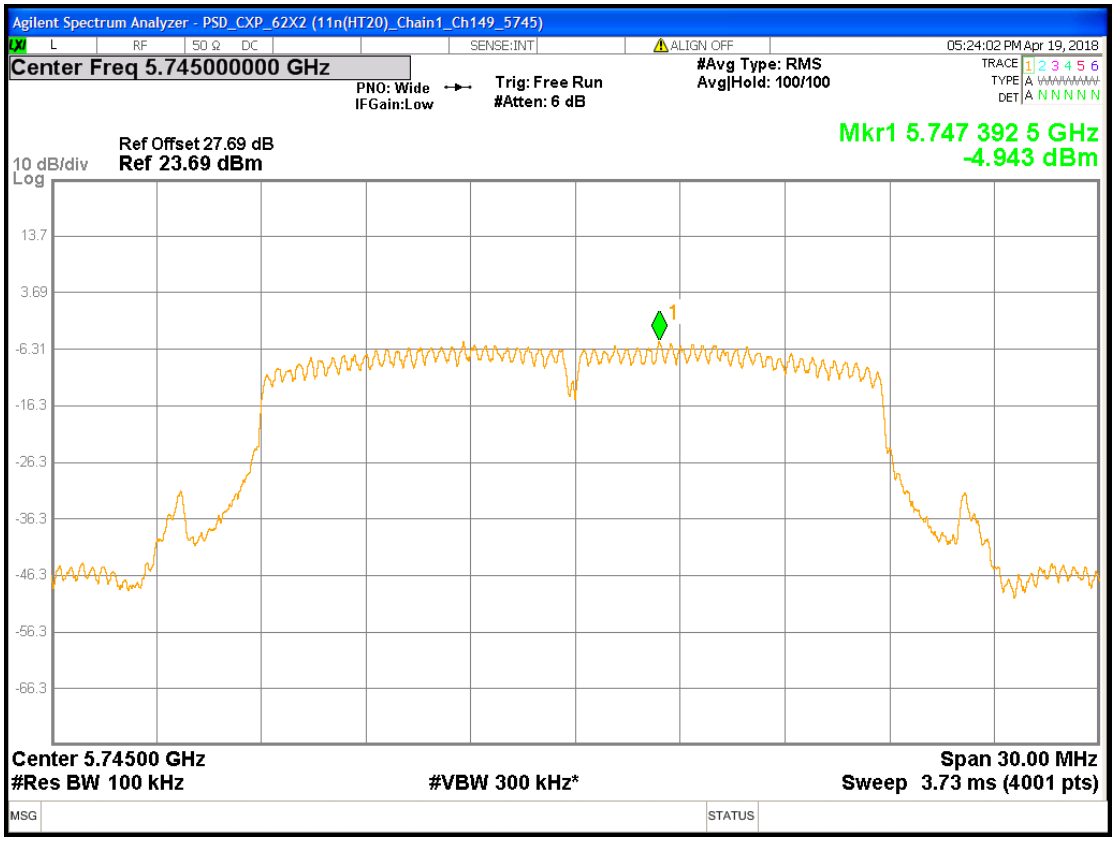

Chain1 : Power Spectral Density @ 802.11n(HT20) mode Ch44



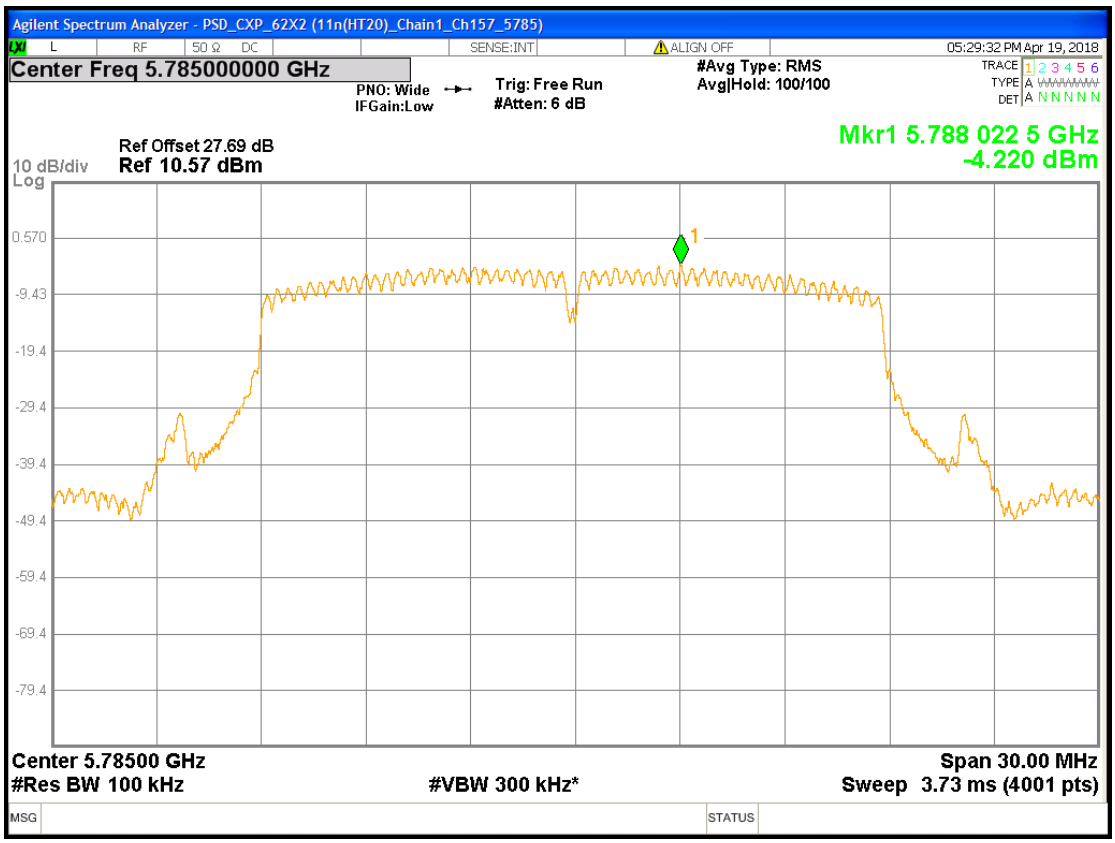
Chain1 : Power Spectral Density @ 802.11n(HT20) mode Ch48



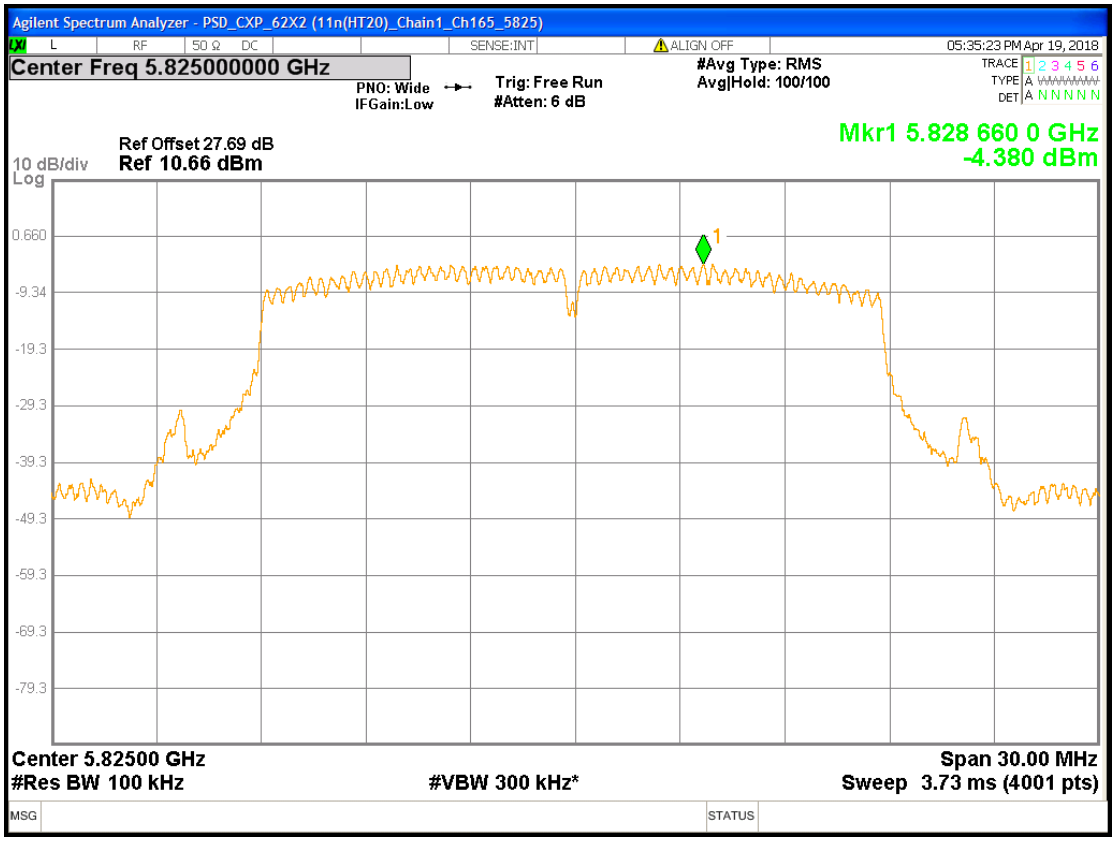

Chain1 : Power Spectral Density @ 802.11n(HT20) mode Ch149



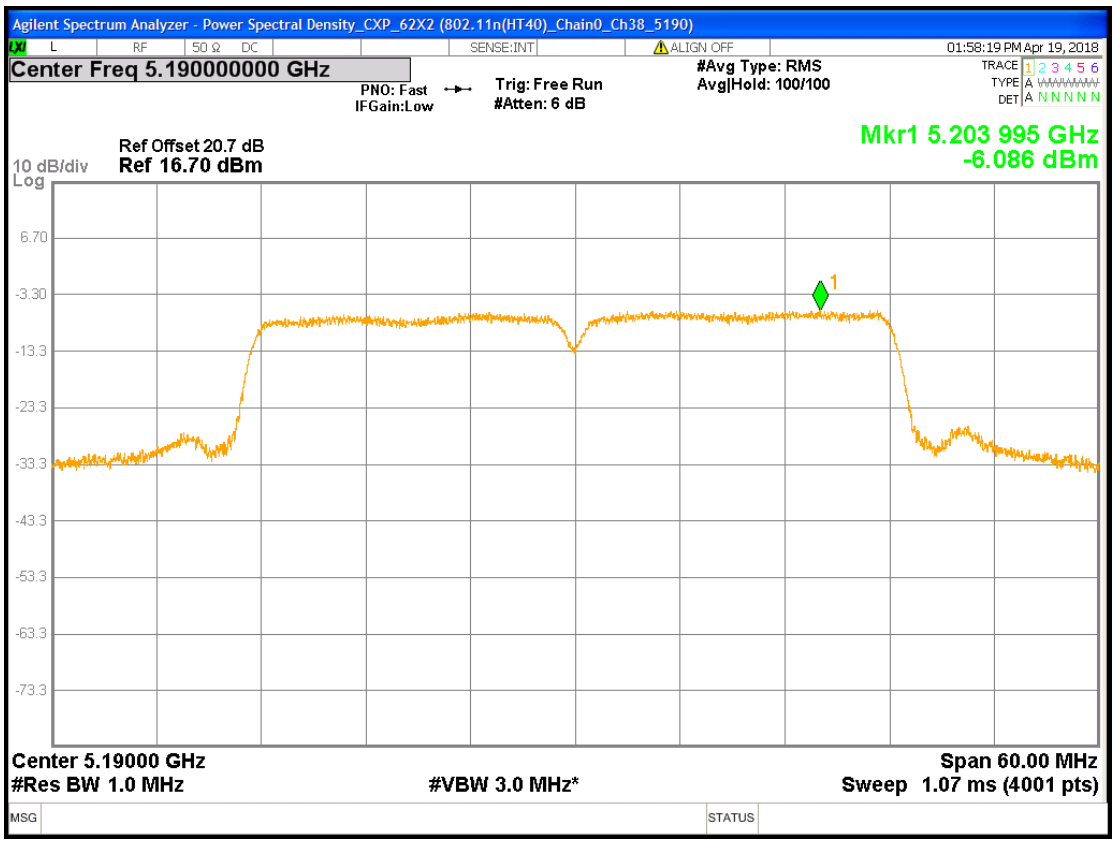
Chain1 : Power Spectral Density @ 802.11n(HT20) mode Ch157



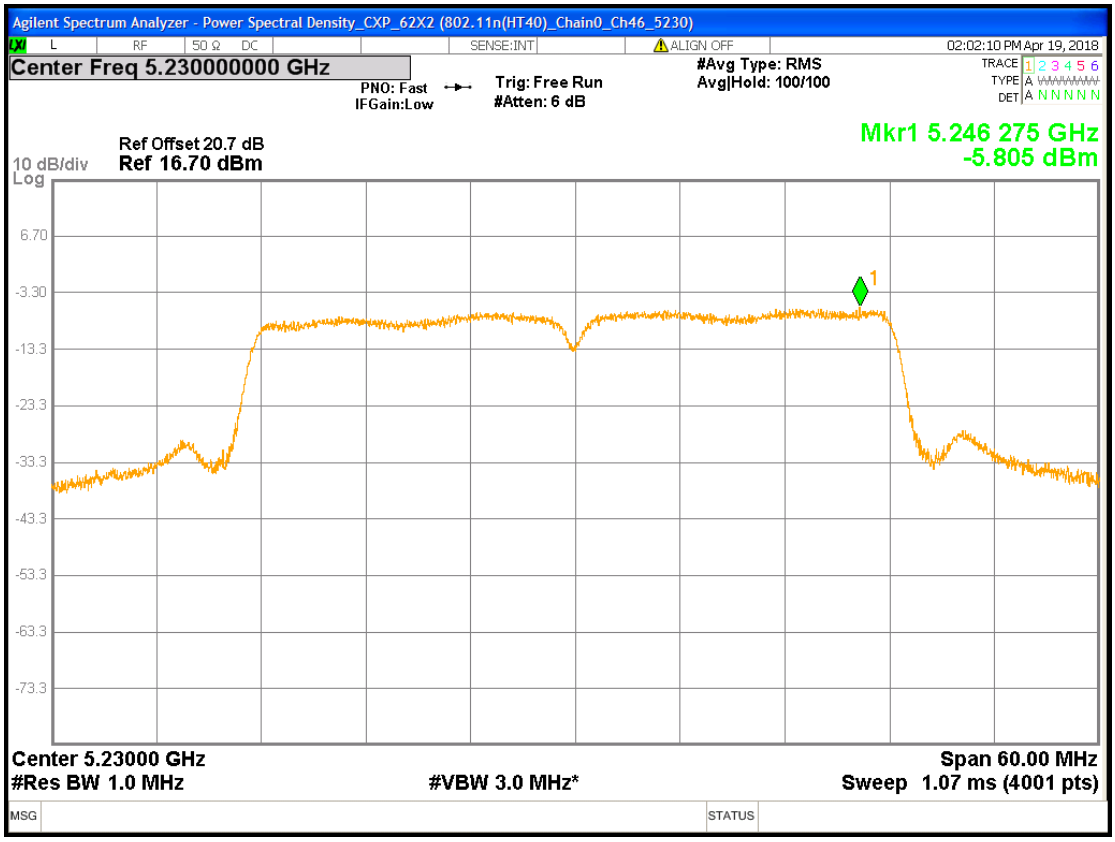

Chain1 : Power Spectral Density @ 802.11n(HT20) mode Ch165



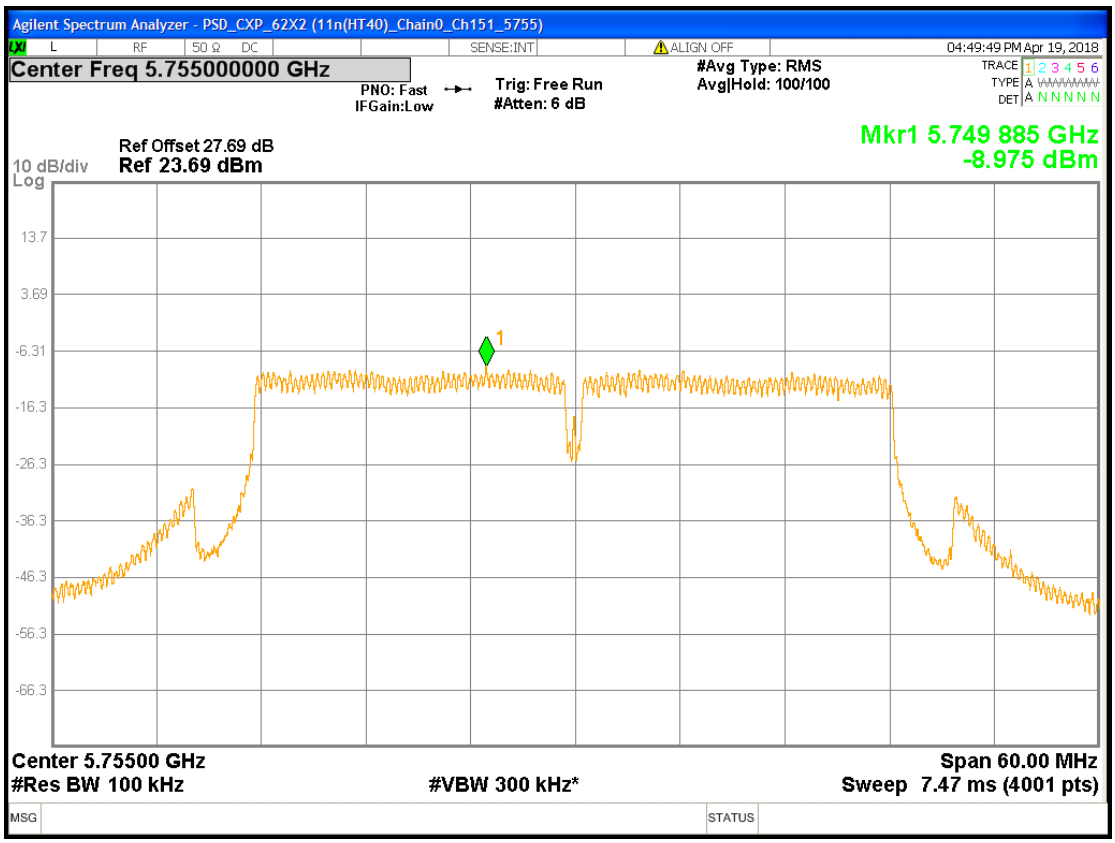
Chain0 : Power Spectral Density @ 802.11n(HT40) mode Ch38



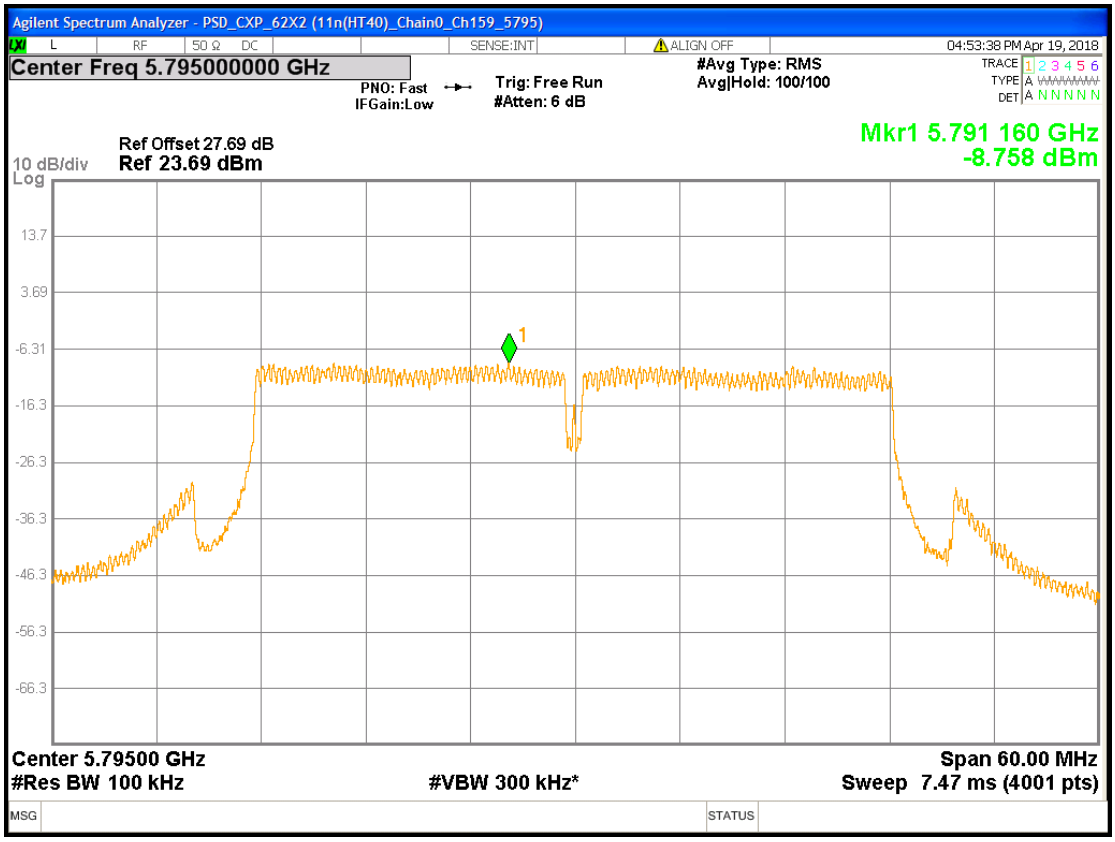

Chain0 : Power Spectral Density @ 802.11n(HT40) mode Ch46



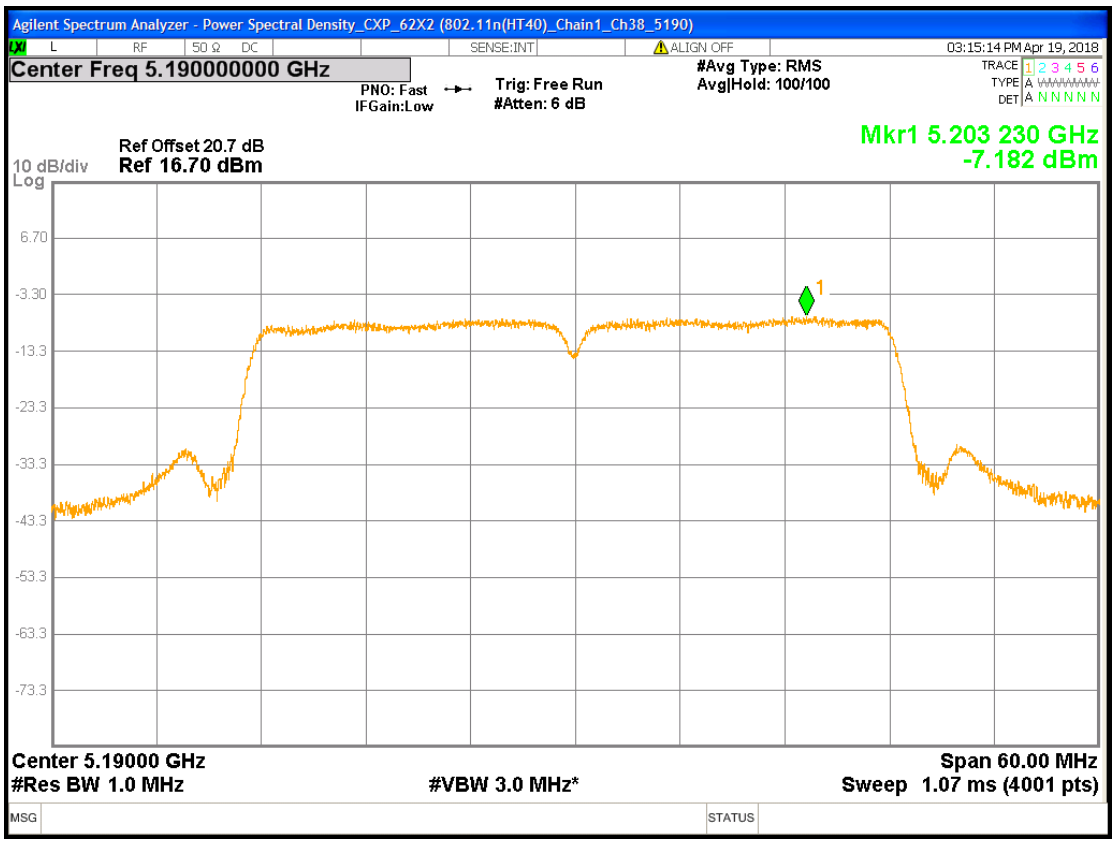
Chain0 : Power Spectral Density @ 802.11n(HT40) mode Ch151



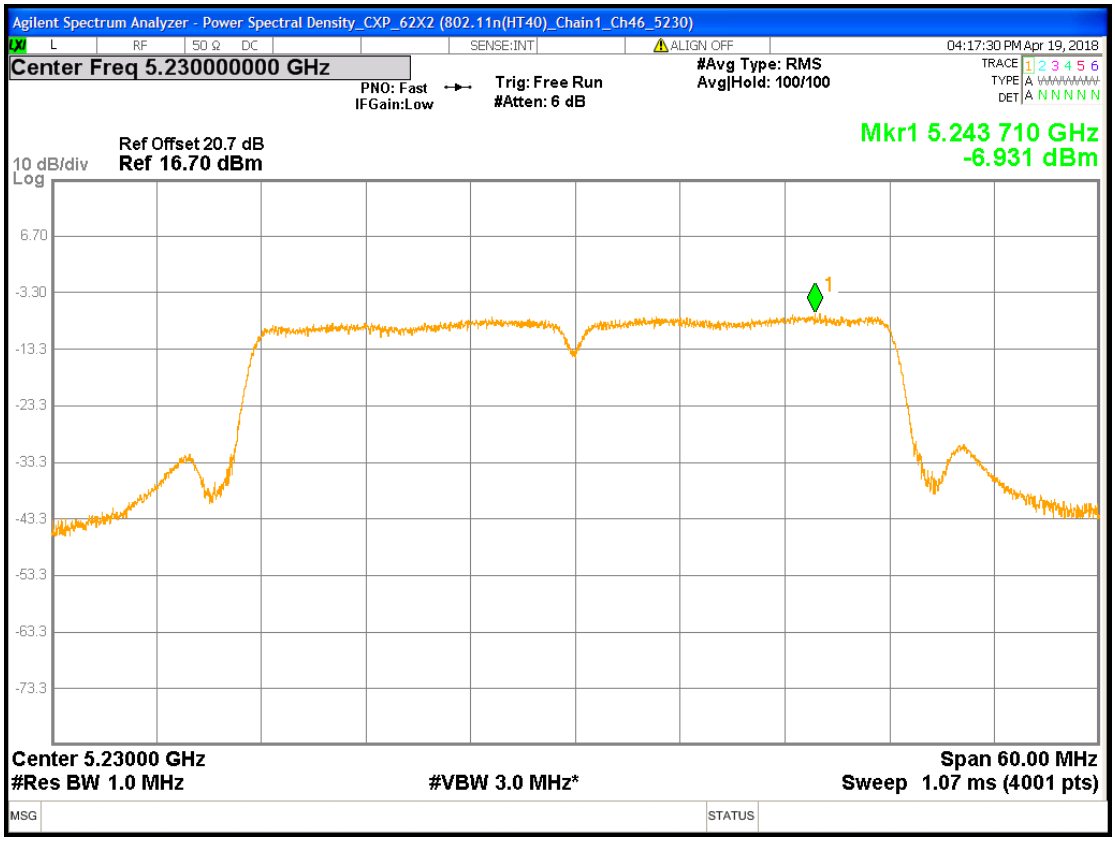

Chain0 : Power Spectral Density @ 802.11n(HT40) mode Ch159



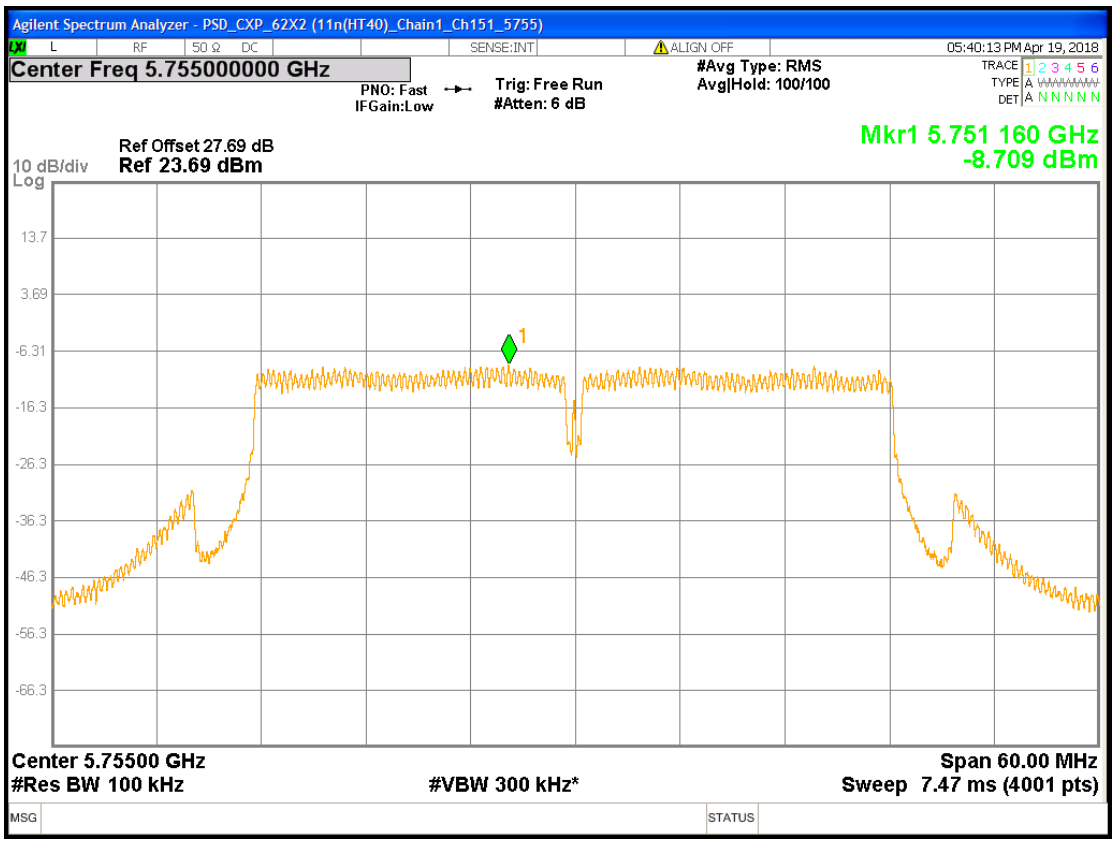
Chain1 : Power Spectral Density @ 802.11n(HT40) mode Ch38



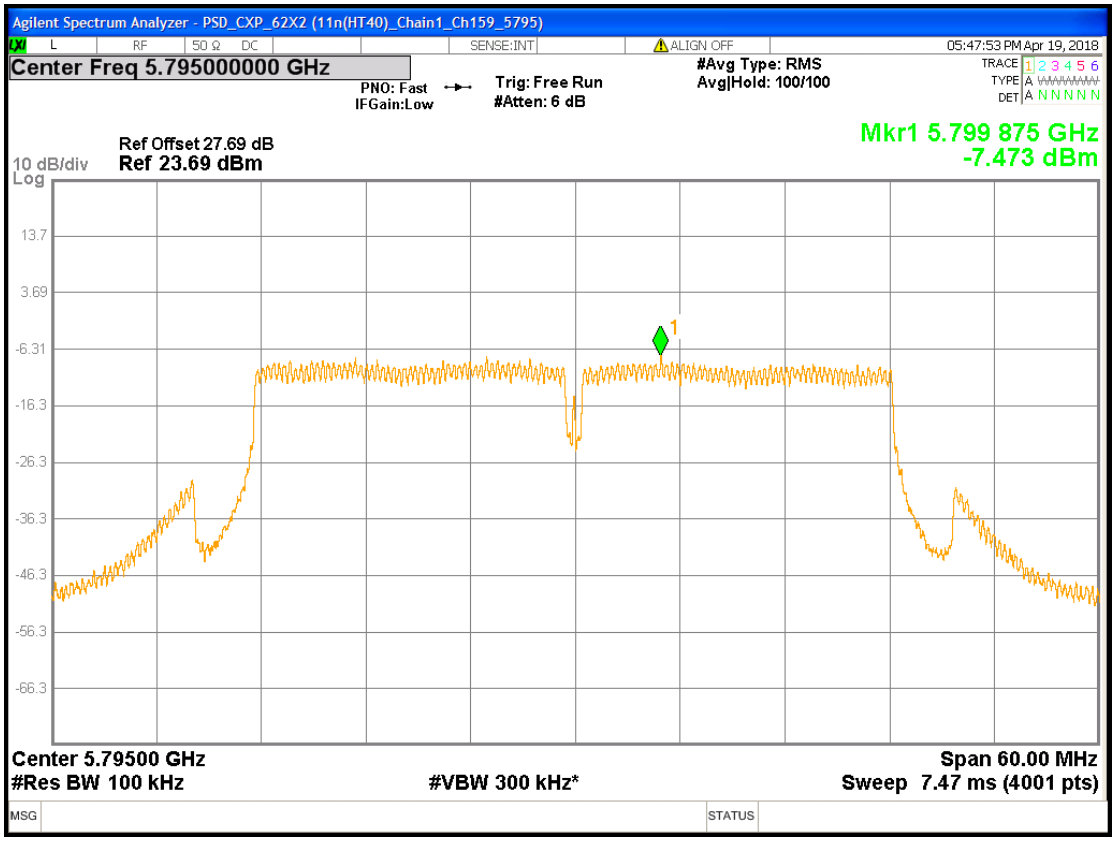

Chain1 : Power Spectral Density @ 802.11n(HT40) mode Ch46



Chain1 : Power Spectral Density @ 802.11n(HT40) mode Ch151




Chain1 : Power Spectral Density @ 802.11n(HT40) mode Ch159



# 4. Minimum Bandwidth

## 4.1 Operating environment

| | | |
|---|---|---|
| Temperature: | 25 | ℃ |
| Relative Humidity: | 50 | % |
| Atmospheric Pressure | 1008 | hPa |
| Requirement & Test method | 15.407(a)(5)<br>15.407(e)<br>KDB 789033 D02 v01r02 | |

## 4.2 Limit for minimum emission bandwidth.

Within the 5.15-5.25 GHz, the 26 dB bandwidth is for reporting purpose only.
Within the 5.725-5.85 GHz, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz..

## 4.3 Measuring instrument setting

**For 5.15-5.25 GHz**

| Spectrum analyzer settings | |
|---|---|
| **Spectrum Analyzer function** | **Setting** |
| Detector | Peak |
| RBW | Approximately 1% of the EBW |
| VBW | > RBW |
| Trace mode | Max hold |

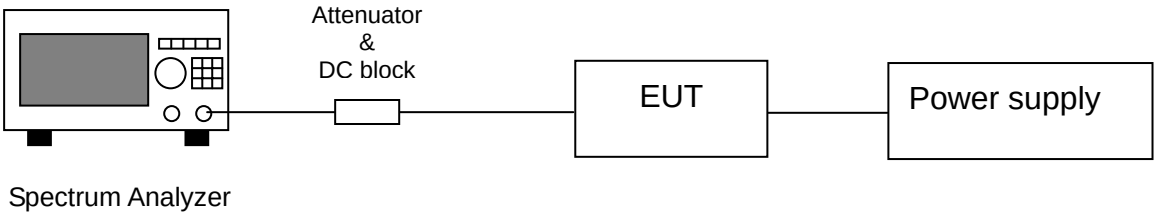
**For 5.725-5.85 GHz**

| Spectrum analyzer settings | |
|---|---|
| **Spectrum Analyzer function** | **Setting** |
| Detector | Peak |
| RBW | 100kHz |
| VBW | ≧3 x RBW |
| Sweep | Auto couple |
| Trace mode | Max hold |

### 4.4 Test procedure

1. The transmitter output was connected to the spectrum analyzer.
2. Test was performed in accordance with section C of KDB 789033 D02 v01r02.
3. For the 5.725-5.85 GHz, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
4. For the 5.15-5.25 GHz and 5.725-5.85 GHz, measure the maximum width of the emission that is 26 dB down from the maximum of the emission.

### 4.5 Test diagram



## 4.6 Test results

### UNII-1

### SISO

| Mode | Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | 26dB Bandwidth (MHz) | Limit (MHz) | Pass/Fail |
|---|---|---|---|---|---|---|
| 802.11a Chain0 | 36 | 5180 | | 38.66 | NA | Pass |
| | 44 | 5220 | | 34.72 | | Pass |
| | 48 | 5240 | | 30.79 | | Pass |
| 802.11a Chain1 | 36 | 5180 | | 35.96 | NA | Pass |
| | 44 | 5220 | | 31.73 | | Pass |
| | 48 | 5240 | | 28.64 | | Pass |

### MIMO

| Mode | Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | 26dB Bandwidth (MHz) | Limit (MHz) | Pass/Fail |
|---|---|---|---|---|---|---|
| 802.11n (HT 20) Chain0 | 36 | 5180 | | 34.2 | NA | Pass |
| | 44 | 5220 | | 27.57 | | Pass |
| | 48 | 5240 | | 30.04 | | Pass |
| 802.11n (HT 20) Chain1 | 36 | 5180 | | 29.56 | NA | Pass |
| | 44 | 5220 | | 27.85 | | Pass |
| | 48 | 5240 | | 28.76 | | Pass |
| 802.11n (HT 40) Chain0 | 38 | 5190 | | 78.03 | NA | Pass |
| | 46 | 5230 | | 66.22 | | Pass |
| 802.11n (HT 40) Chain1 | 38 | 5190 | | 63.25 | NA | Pass |
| | 46 | 5230 | | 50.29 | | Pass |

**UNII-3**

**SISO**

| Mode | Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | 26dB Bandwidth (MHz) | Limit (MHz) | Pass/Fail |
|---|---|---|---|---|---|---|
| 802.11a Chain0 | 149 | 5745 | 14.58 | | >0.5 | Pass |
| | 157 | 5785 | 15.9 | | | Pass |
| | 165 | 5825 | 15.65 | | | Pass |
| 802.11a Chain1 | 149 | 5745 | 15.46 | | >0.5 | Pass |
| | 157 | 5785 | 16.27 | | | Pass |
| | 165 | 5825 | 15.11 | | | Pass |

**MIMO**

| Mode | Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | 26dB Bandwidth (MHz) | Limit (MHz) | Pass/Fail |
|---|---|---|---|---|---|---|
| 802.11n (HT 20) Chain0 | 149 | 5745 | 15.07 | | >0.5 | Pass |
| | 157 | 5785 | 15.44 | | | Pass |
| | 165 | 5825 | 14.29 | | | Pass |
| 802.11n (HT 20) Chain1 | 149 | 5745 | 15.03 | | >0.5 | Pass |
| | 157 | 5785 | 15.06 | | | Pass |
| | 165 | 5825 | 15.04 | | | Pass |
| 802.11n (HT 40) Chain0 | 151 | 5755 | 36.07 | | >0.5 | Pass |
| | 159 | 5795 | 36.03 | | | Pass |
| 802.11n (HT 40) Chain1 | 151 | 5755 | 36.29 | | >0.5 | Pass |
| | 159 | 5795 | 36.34 | | | Pass |

**UNII-1**

**SISO**

| Mode | Channel | Frequency (MHz) | Data rate (Mbps) | 99% Bandwidth (MHz) | lower Frequency (MHz) | lower limit |
|---|---|---|---|---|---|---|
| 802.11a chain0 | 36 | 5180 | 6 | 16.949 | | |
| | 44 | 5220 | | 16.704 | | |
| | 48 | 5240 | | 16.568 | 5248.24 | 5250 |
| 802.11a chain1 | 36 | 5180 | 6 | 16.719 | | |
| | 44 | 5220 | | 16.461 | | |
| | 48 | 5240 | | 16.499 | 5248.2 | 5250 |

**MIMO**

| Mode | Channel | Frequency (MHz) | Data rate (Mbps) | 99% Bandwidth (MHz) | lower Frequency (MHz) | lower limit |
|---|---|---|---|---|---|---|
| 802.11n (HT 20) chain0 | 36 | 5180 | 6.5 | 17.588 | | |
| | 44 | 5220 | | 17.558 | | |
| | 48 | 5240 | | 17.554 | 5248.72 | 5250 |
| 802.11n (HT 20) chain1 | 36 | 5180 | 13.5 | 17.52 | | |
| | 44 | 5220 | | 17.45 | | |
| | 48 | 5240 | | 17.434 | 5248.64 | 5250 |
| 802.11n (HT 40) chain0 | 38 | 5190 | 6.5 | 36.921 | | |
| | 46 | 5230 | | 36.617 | 5248.32 | 5250 |
| 802.11n (HT 40) chain1 | 38 | 5190 | 13.5 | 36.537 | | |
| | 46 | 5230 | | 36.384 | 5248.24 | 5250 |

**UNII-3**

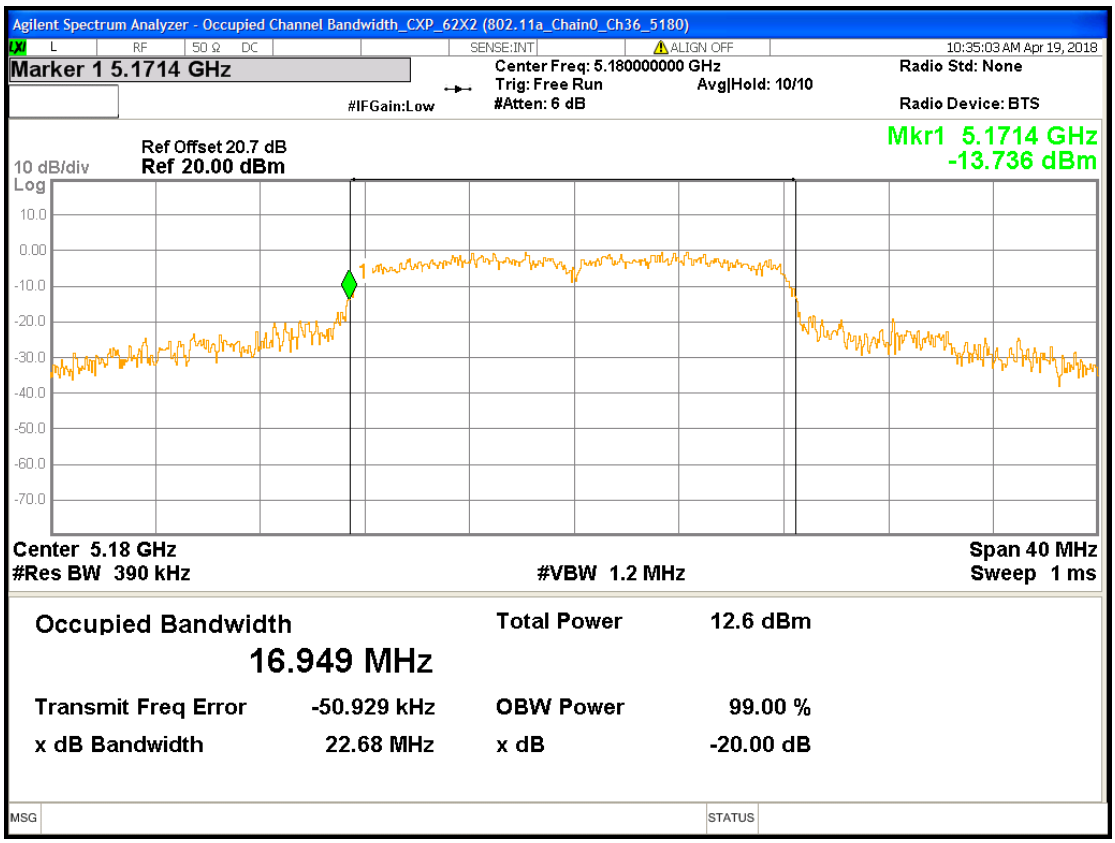
**SISO**

| Mode | Channel | Frequency (MHz) | Data rate (Mbps) | 99% Bandwidth (MHz) | lower Frequency (MHz) | lower limit |
|---|---|---|---|---|---|---|
| 802.11a chain0 | 149 | 5745 | 6 | 16.444 | | |
| | 157 | 5785 | | 16.418 | | |
| | 165 | 5825 | | 16.491 | | |
| 802.11a chain1 | 149 | 5745 | 6 | 16.458 | | |
| | 157 | 5785 | | 16.443 | | |
| | 165 | 5825 | | 16.516 | | |

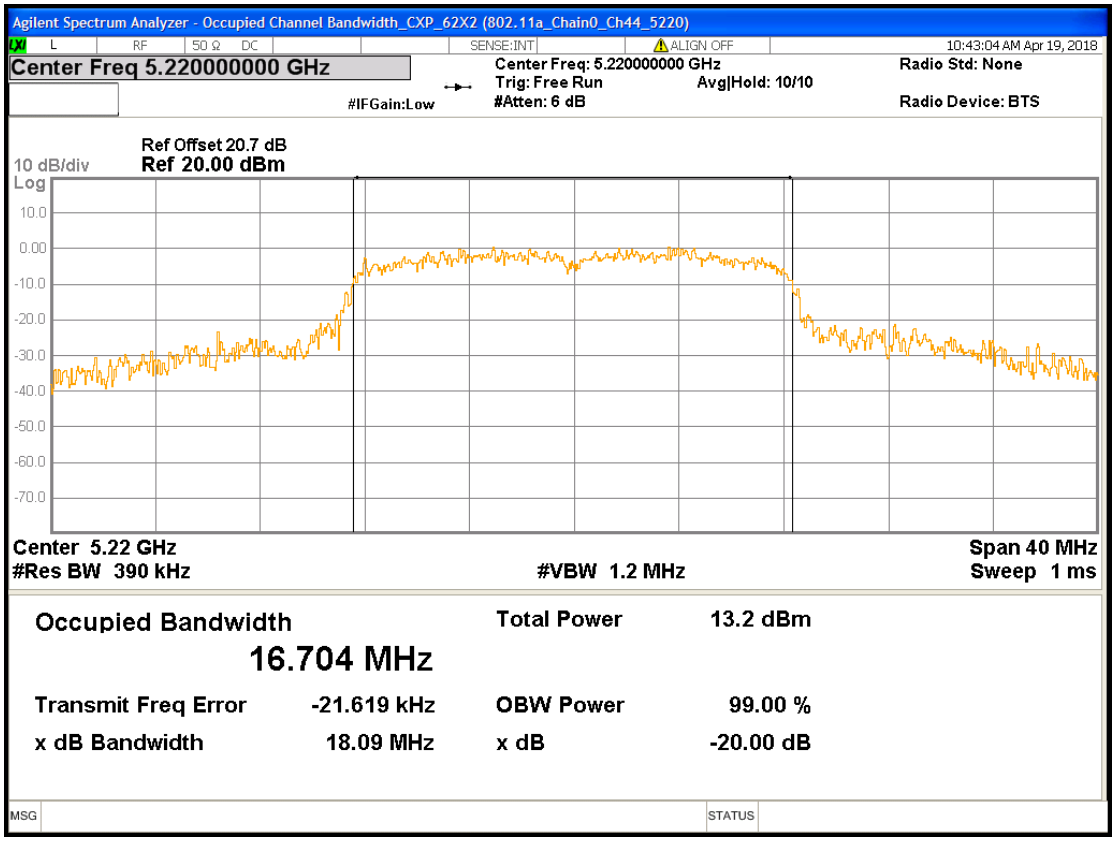
**MIMO**

| Mode | Channel | Frequency (MHz) | Data rate (Mbps) | 99% Bandwidth (MHz) | lower Frequency (MHz) | lower limit |
|---|---|---|---|---|---|---|
| 802.11n (HT 20) chain0 | 149 | 5745 | 6.5 | 17.487 | | |
| | 157 | 5785 | | 17.546 | | |
| | 165 | 5825 | | 17.521 | | |
| 802.11n (HT 20) chain1 | 149 | 5745 | 13.5 | 17.405 | | |
| | 157 | 5785 | | 17.454 | | |
| | 165 | 5825 | | 17.475 | | |
| 802.11n (HT 40) chain0 | 151 | 5755 | 6.5 | 36.323 | | |
| | 159 | 5795 | | 36.431 | | |
| 802.11n (HT 40) chain1 | 151 | 5755 | 13.5 | 36.361 | | |
| | 159 | 5795 | | 36.377 | | |

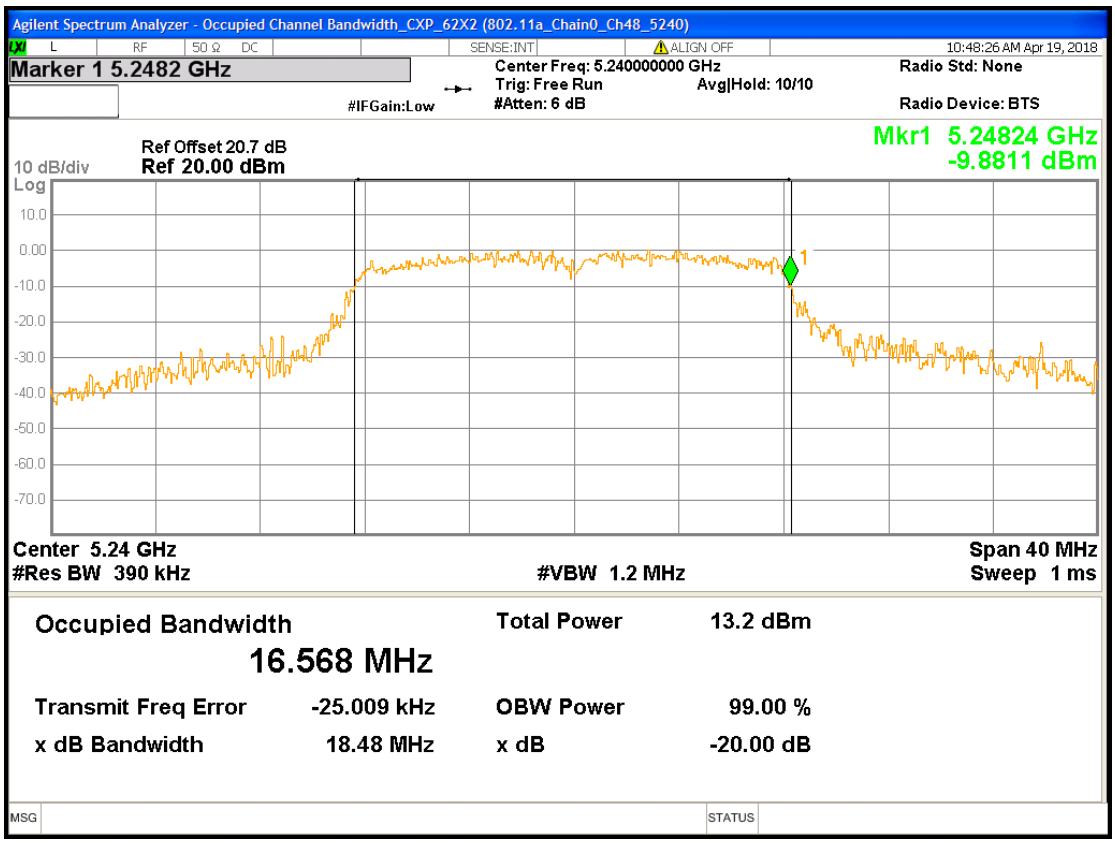
Chain0 : Occupied Channel Bandwidth @ 802.11a mode Ch36



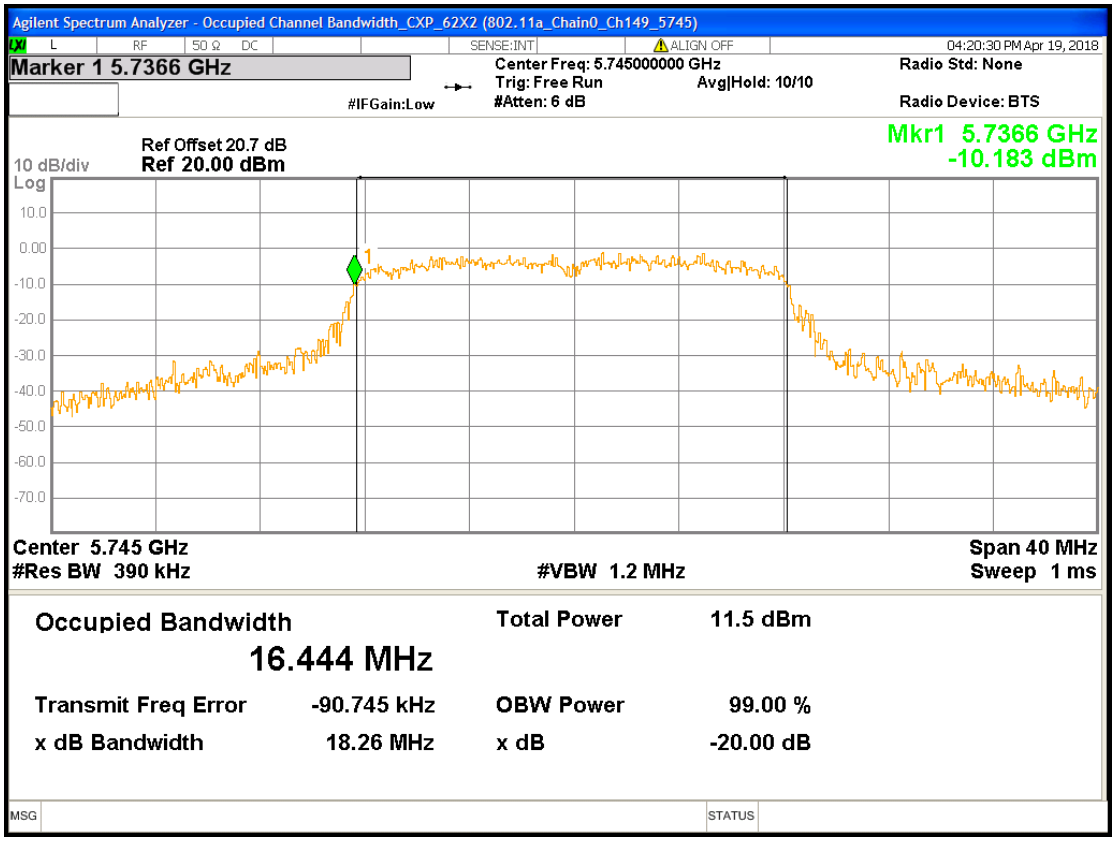

Chain0 : Occupied Channel Bandwidth @ 802.11a mode Ch44



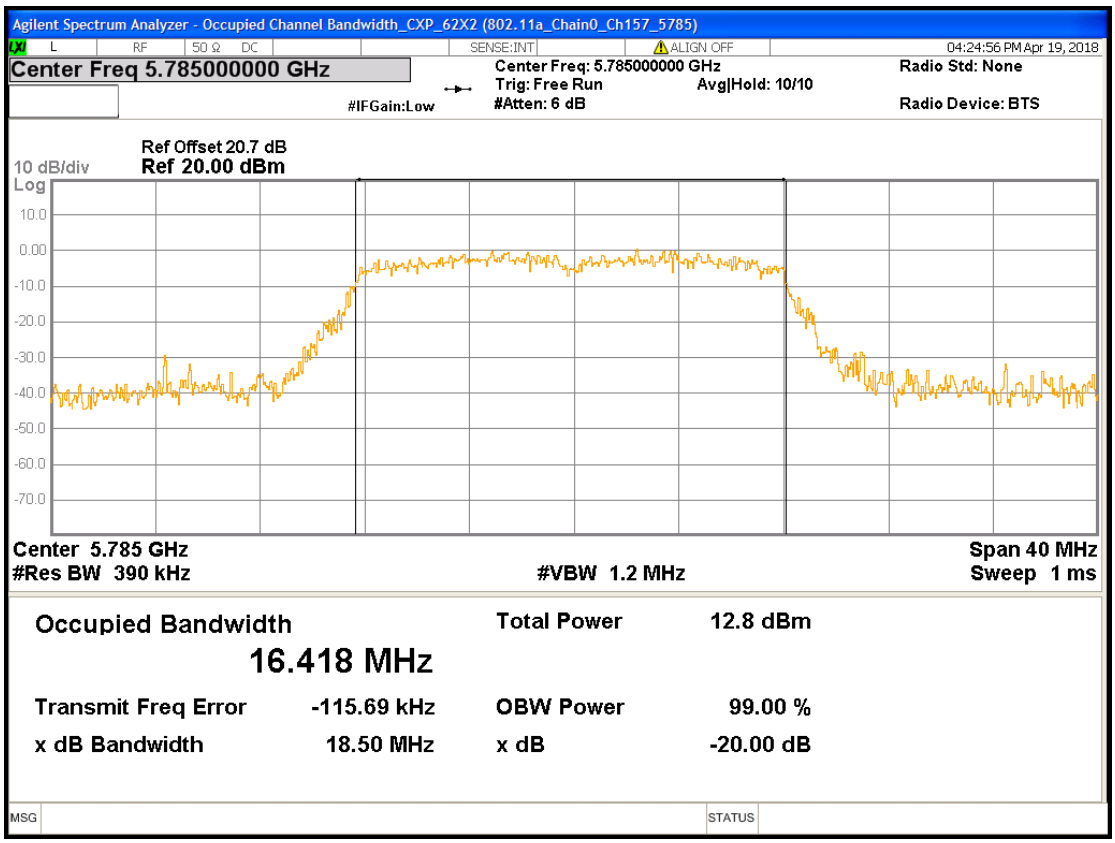
Chain0 : Occupied Channel Bandwidth @ 802.11a mode Ch48



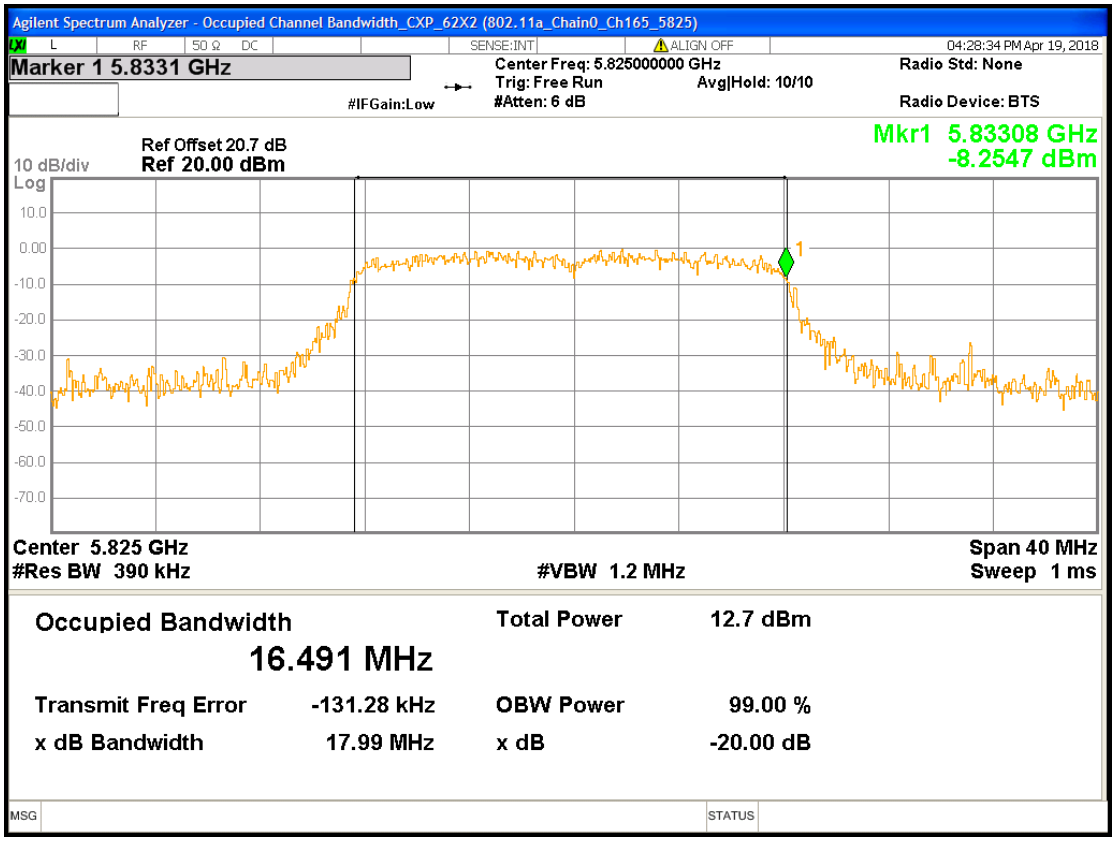

Chain0 : Occupied Channel Bandwidth @ 802.11a mode Ch149



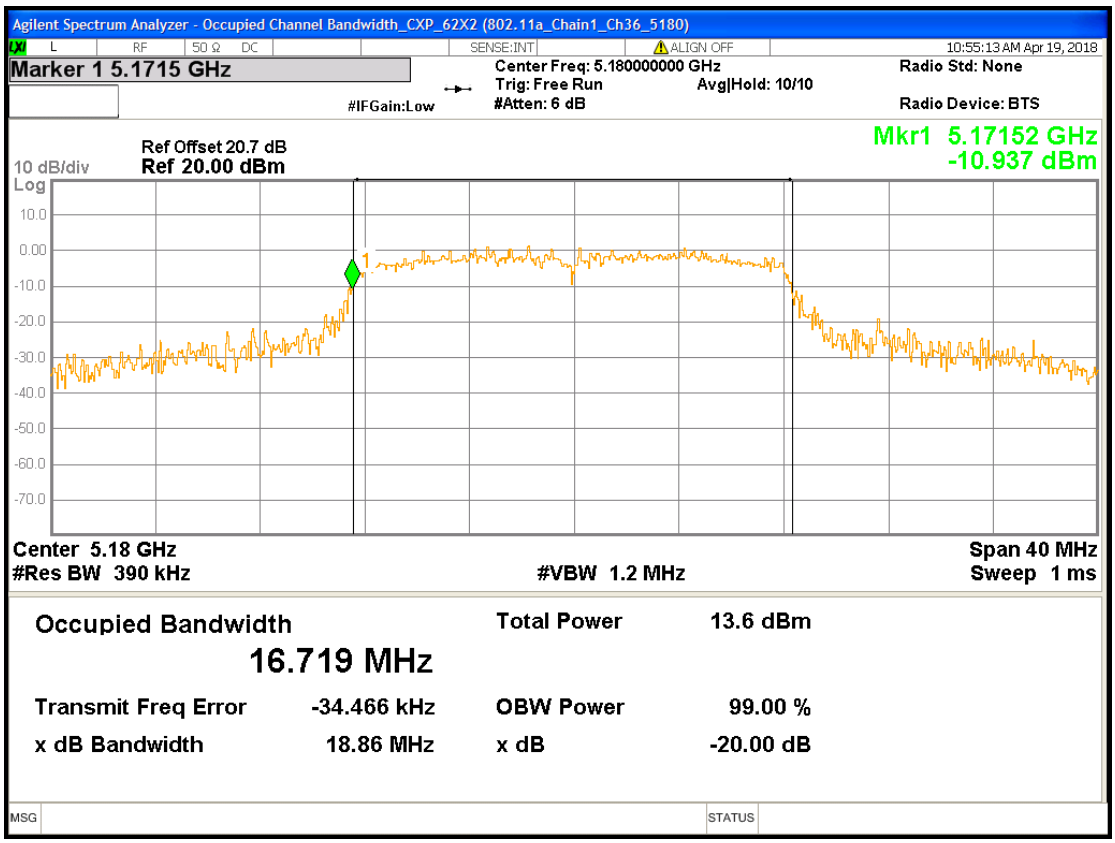
Chain0 : Occupied Channel Bandwidth @ 802.11a mode Ch157



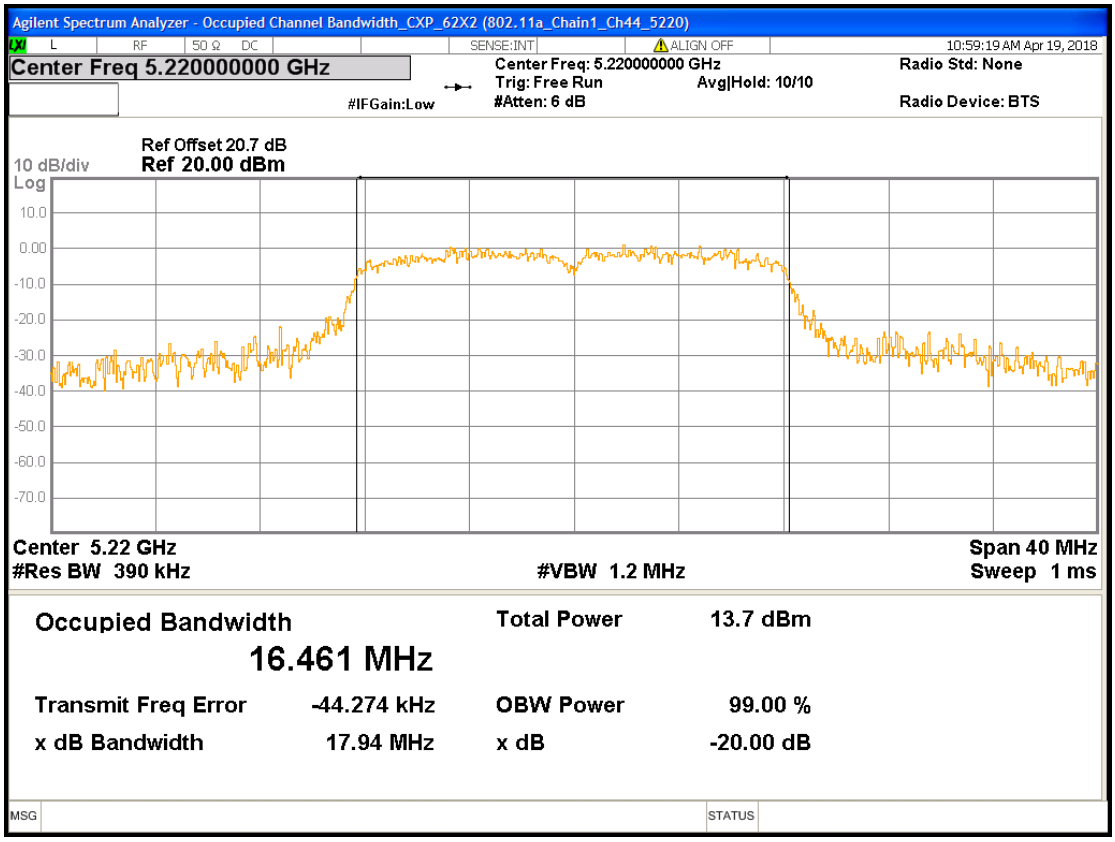

Chain0 : Occupied Channel Bandwidth @ 802.11a mode Ch165



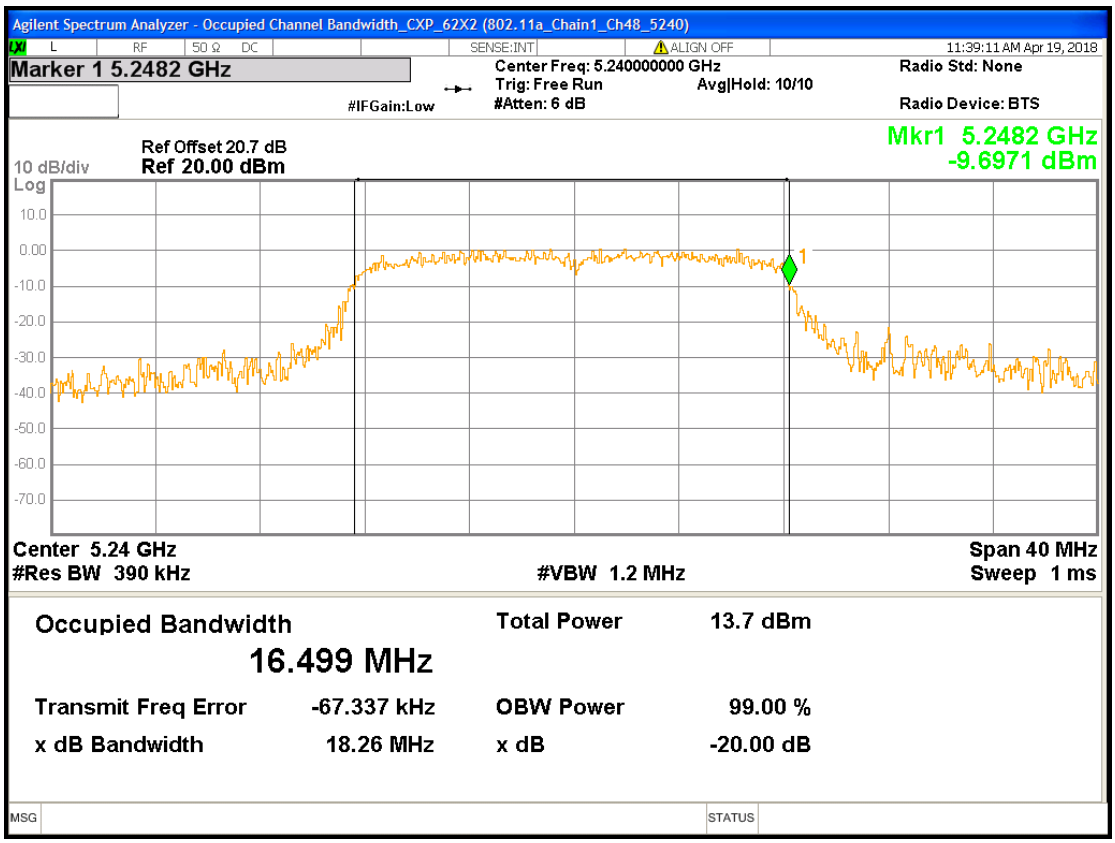
Chain1 : Occupied Channel Bandwidth @ 802.11a mode Ch36



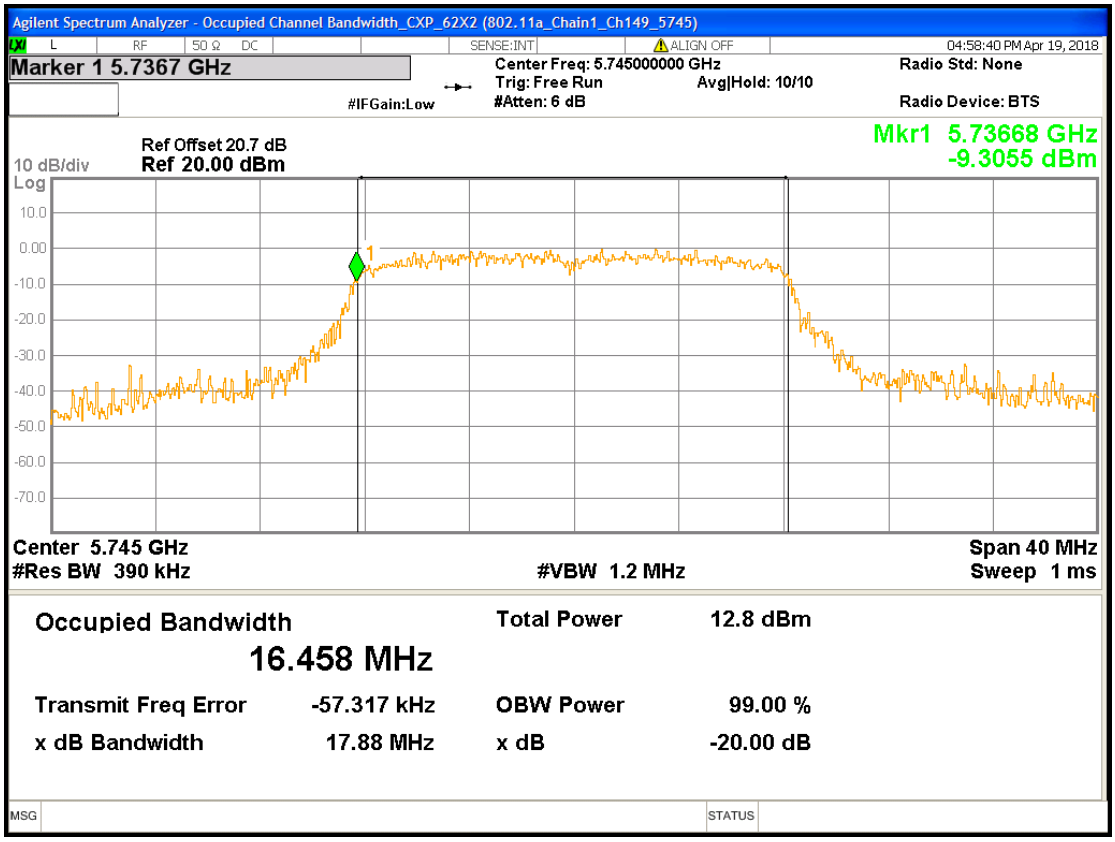

Chain1 : Occupied Channel Bandwidth @ 802.11a mode Ch44



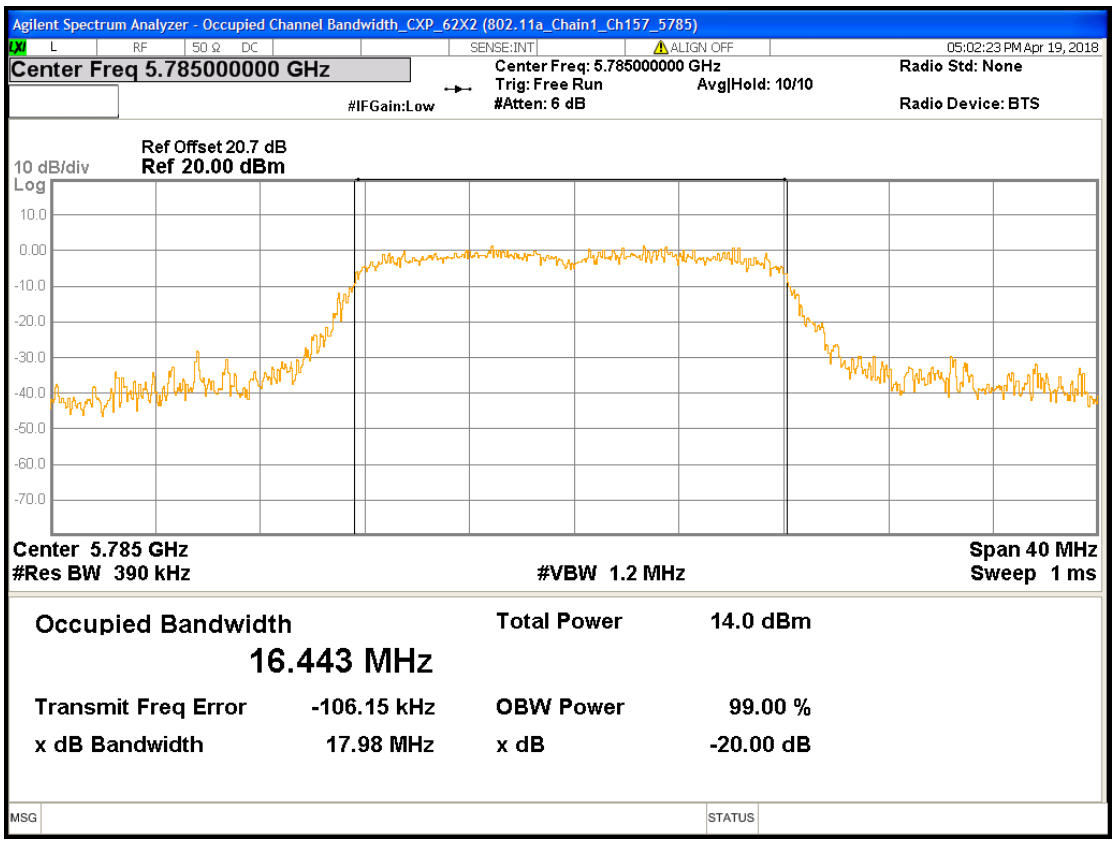
Chain1 : Occupied Channel Bandwidth @ 802.11a mode Ch48



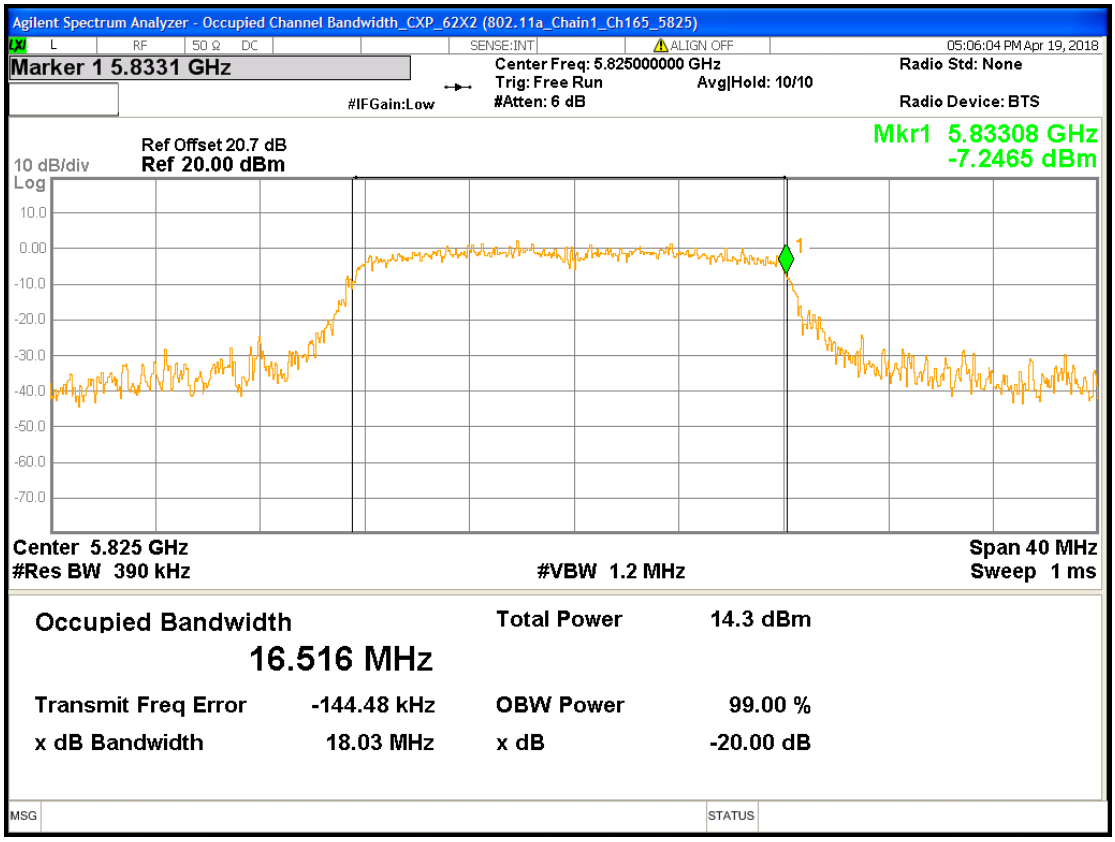

Chain1 : Occupied Channel Bandwidth @ 802.11a mode Ch149



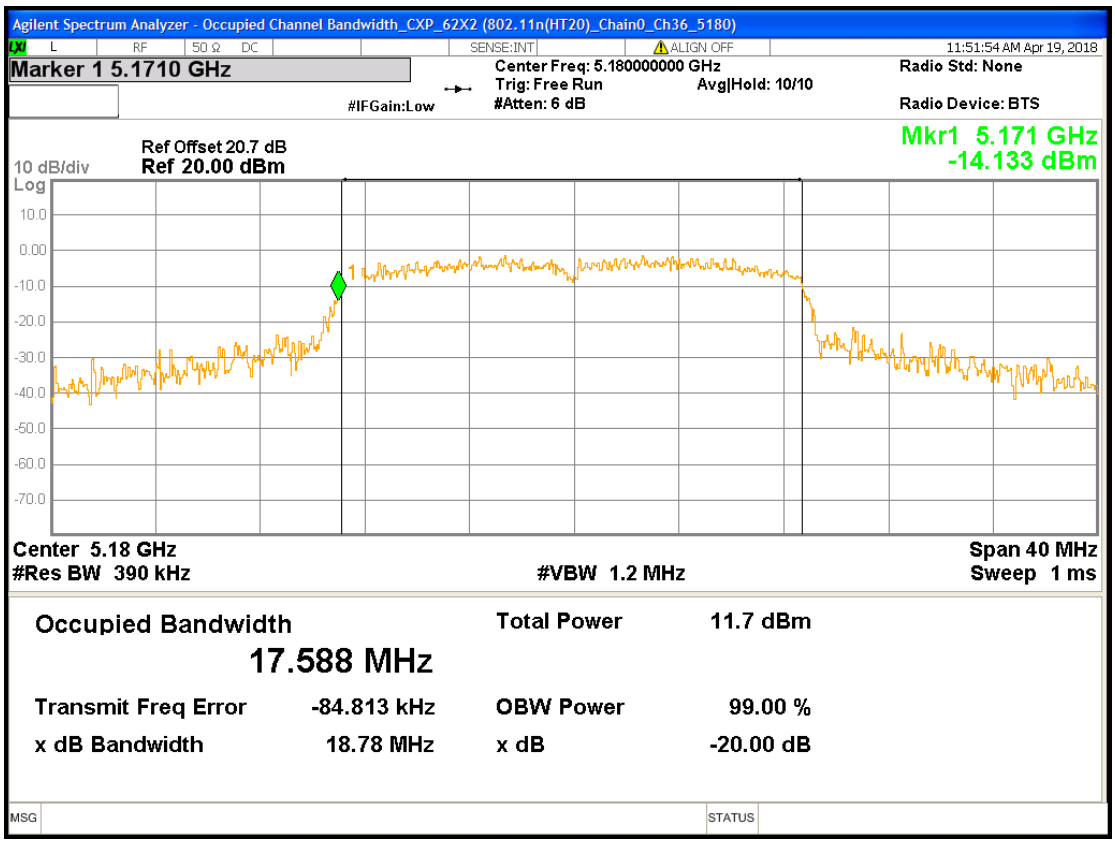
Chain1 : Occupied Channel Bandwidth @ 802.11a mode Ch157



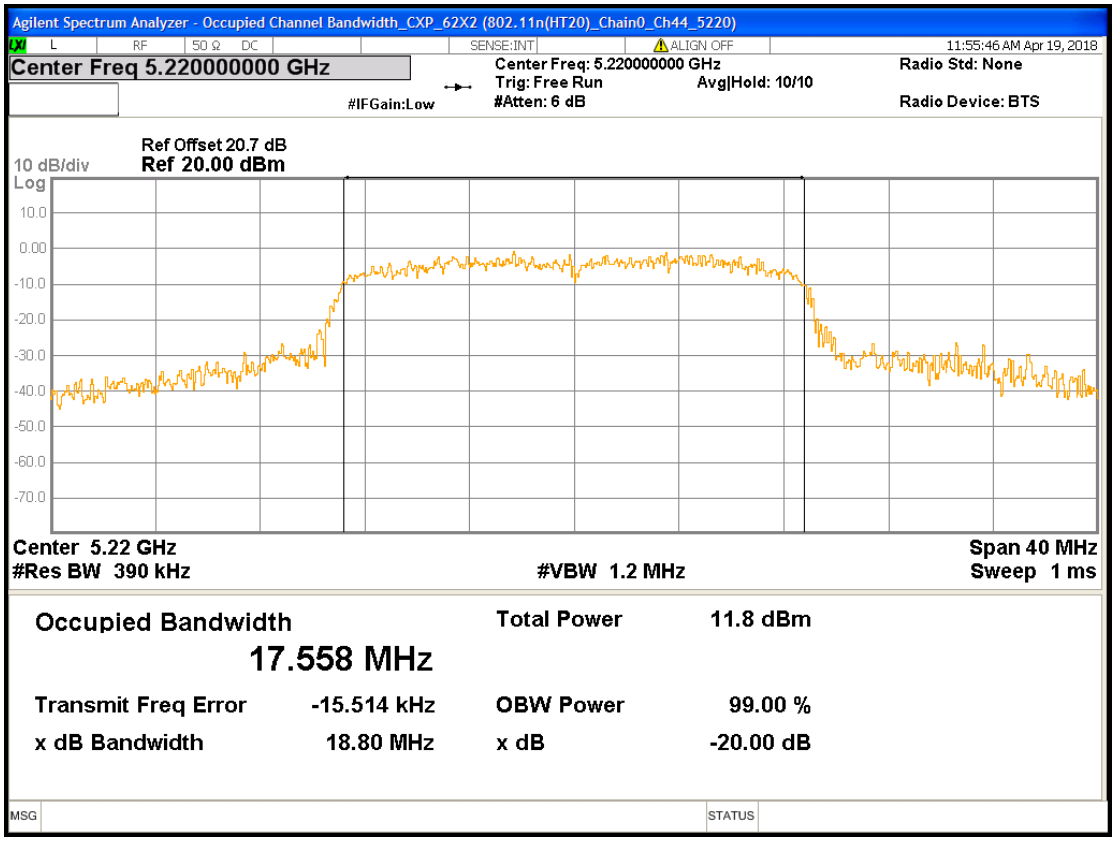

Chain1 : Occupied Channel Bandwidth @ 802.11a mode Ch165



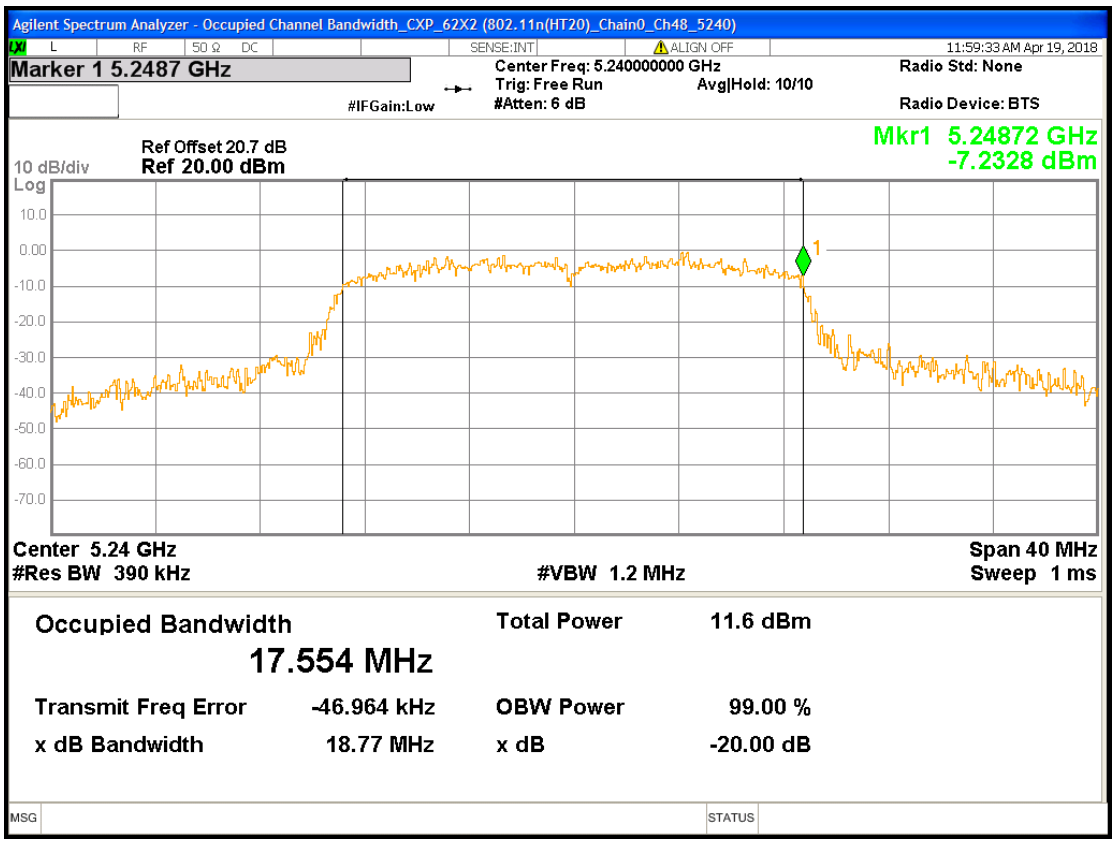
Chain0 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch36



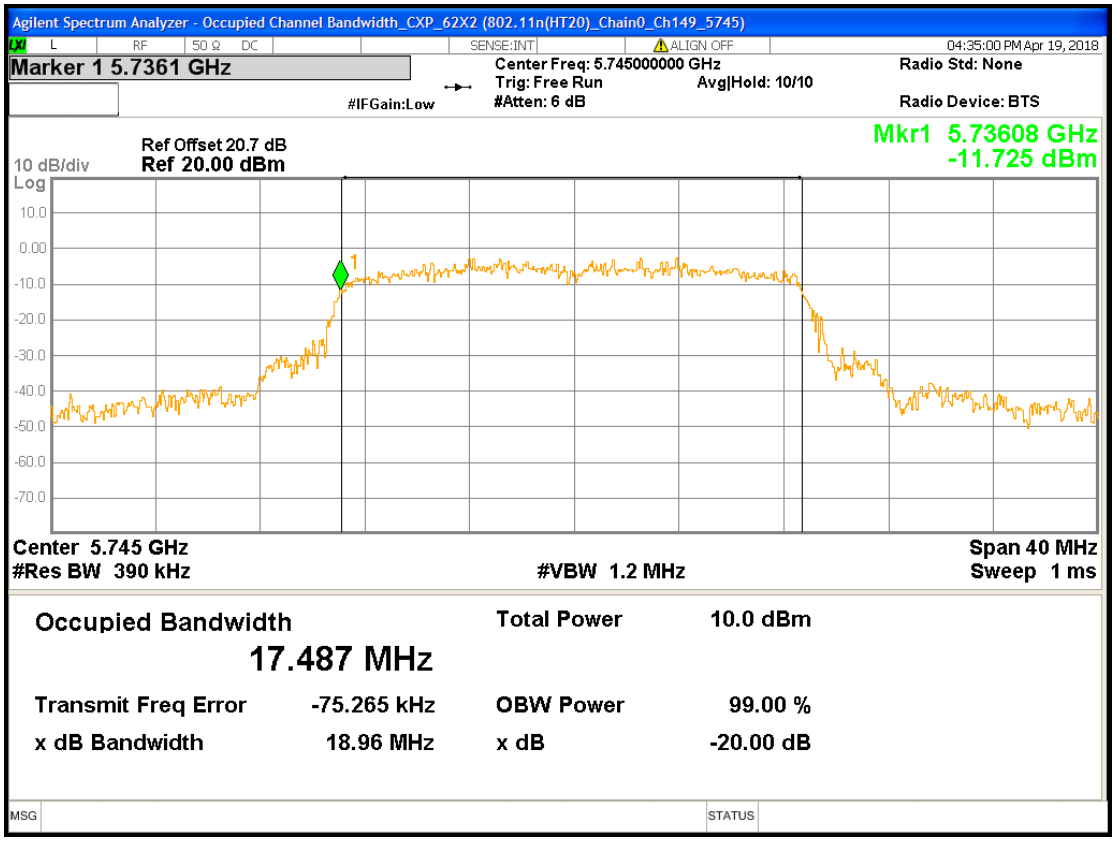

Chain0 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch44



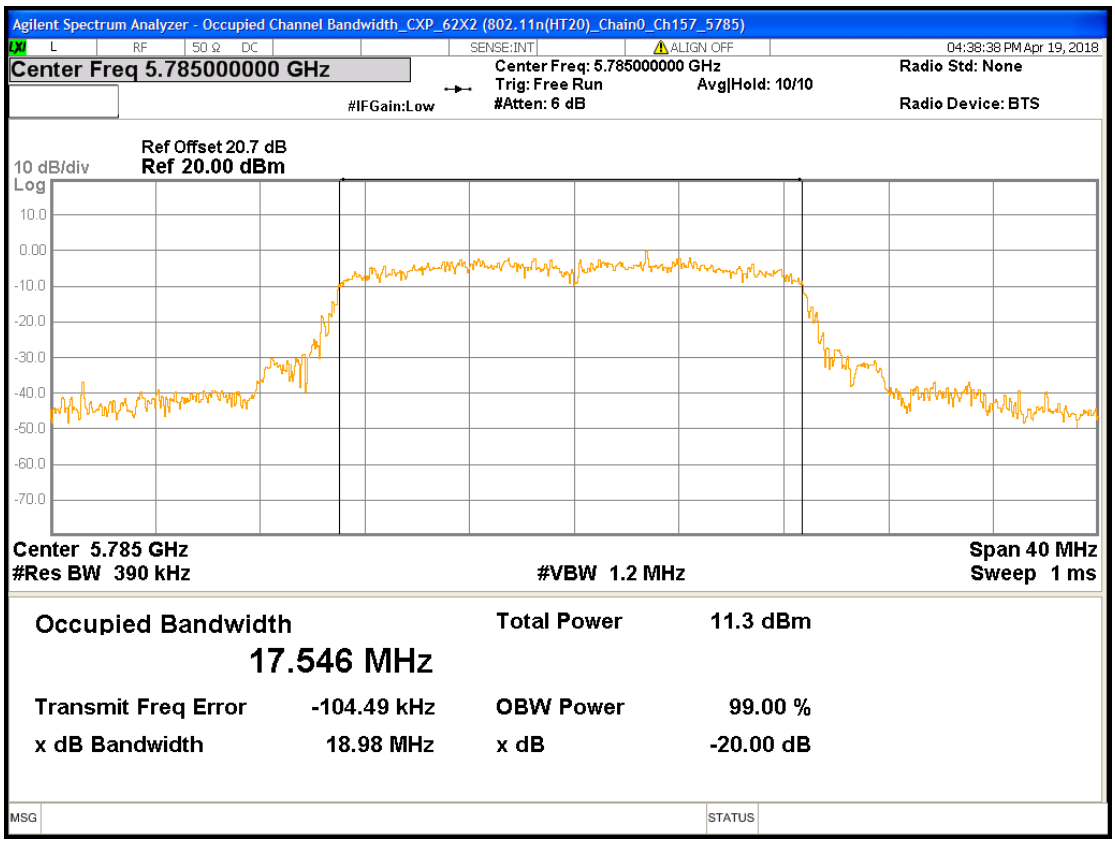
Chain0 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch48



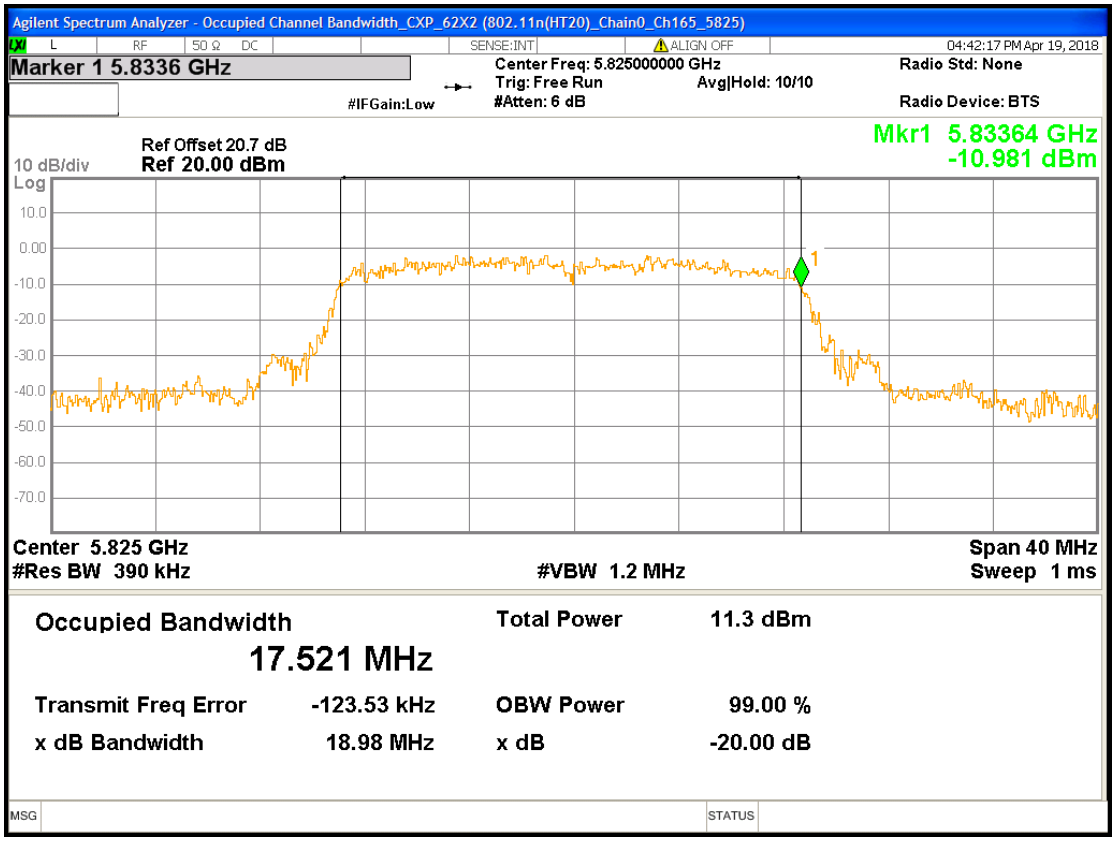

Chain0 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch149



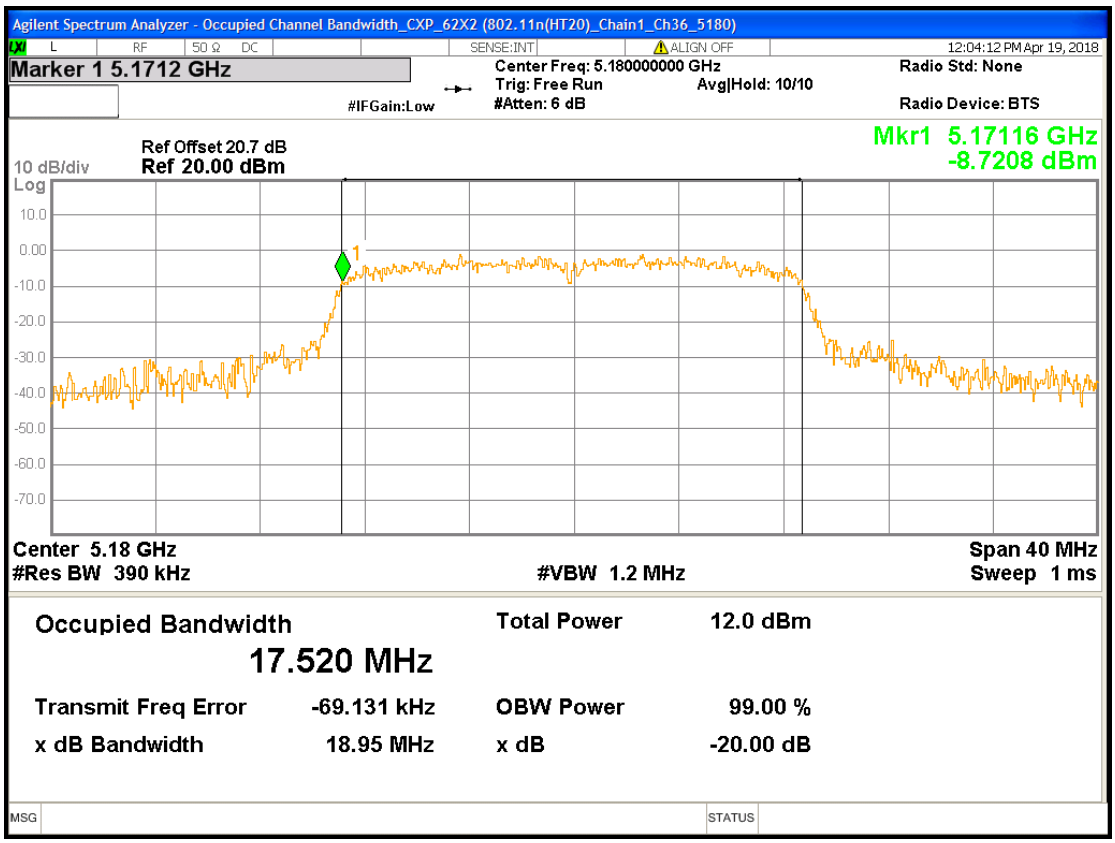
Chain0 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch157



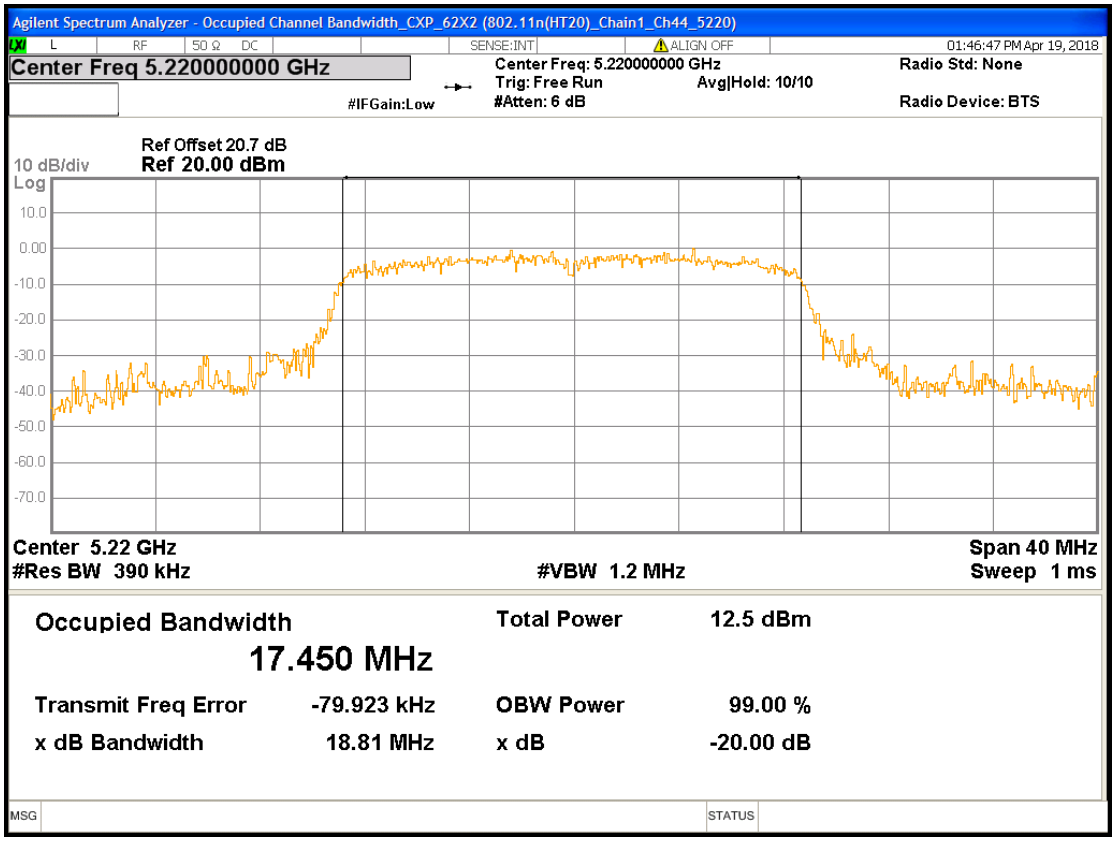

Chain0 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch165



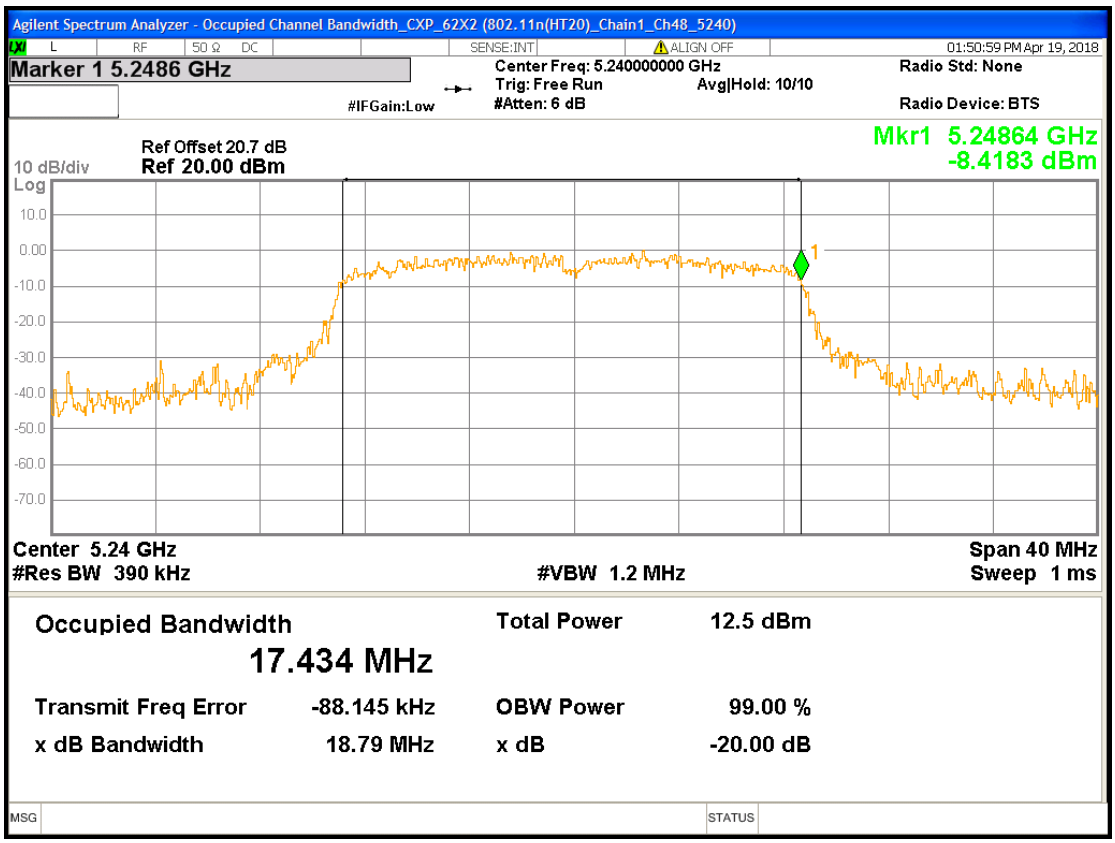
Chain1 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch36



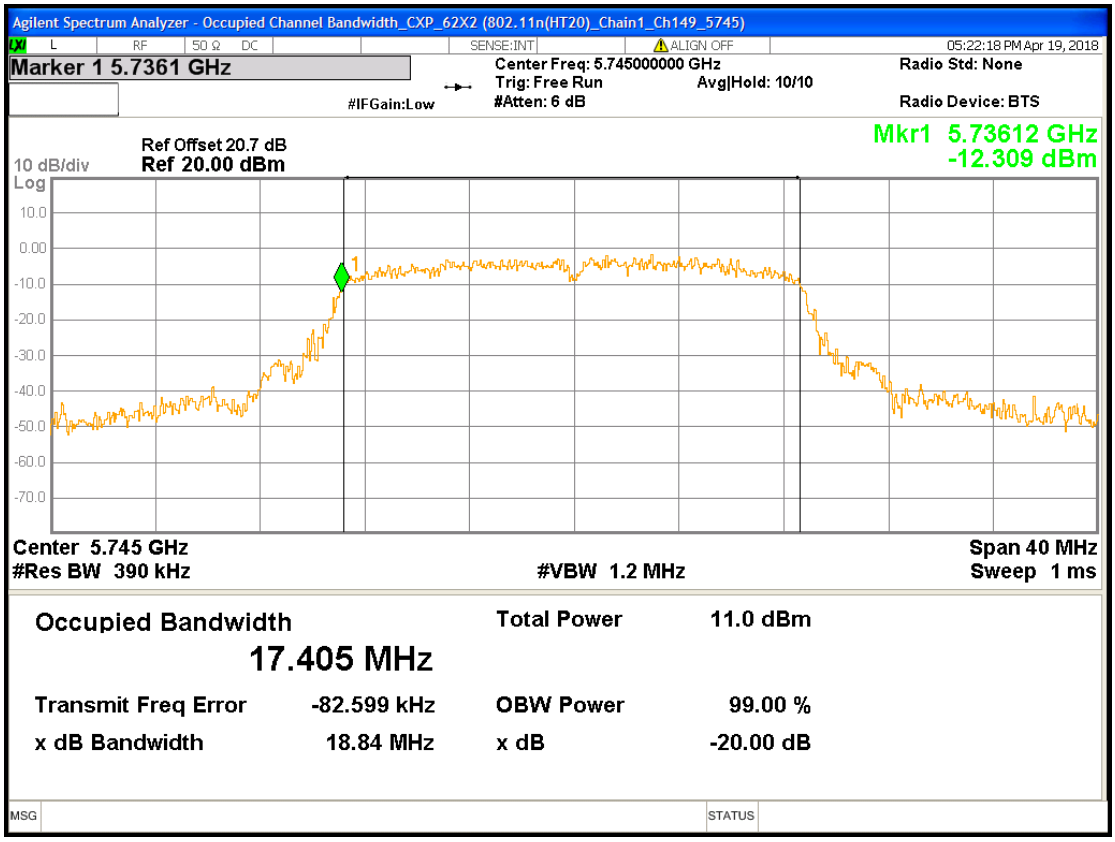

Chain1 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch44



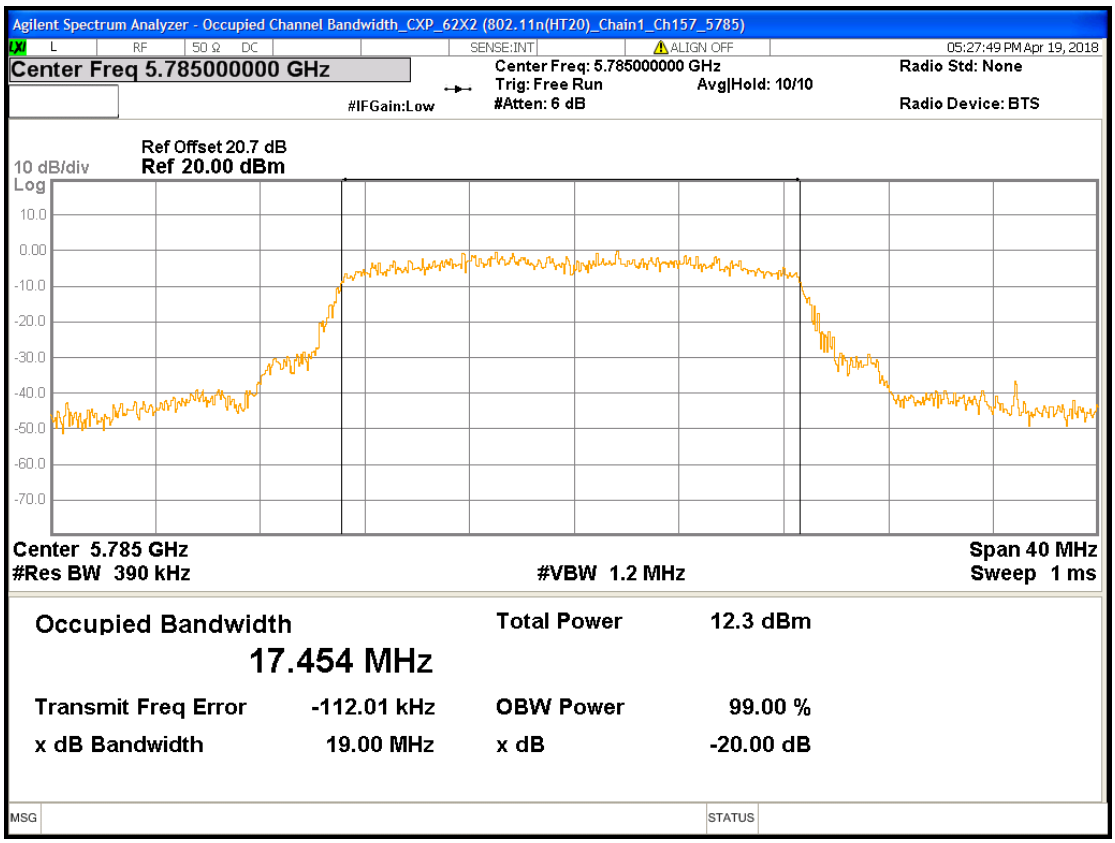
Chain1 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch48



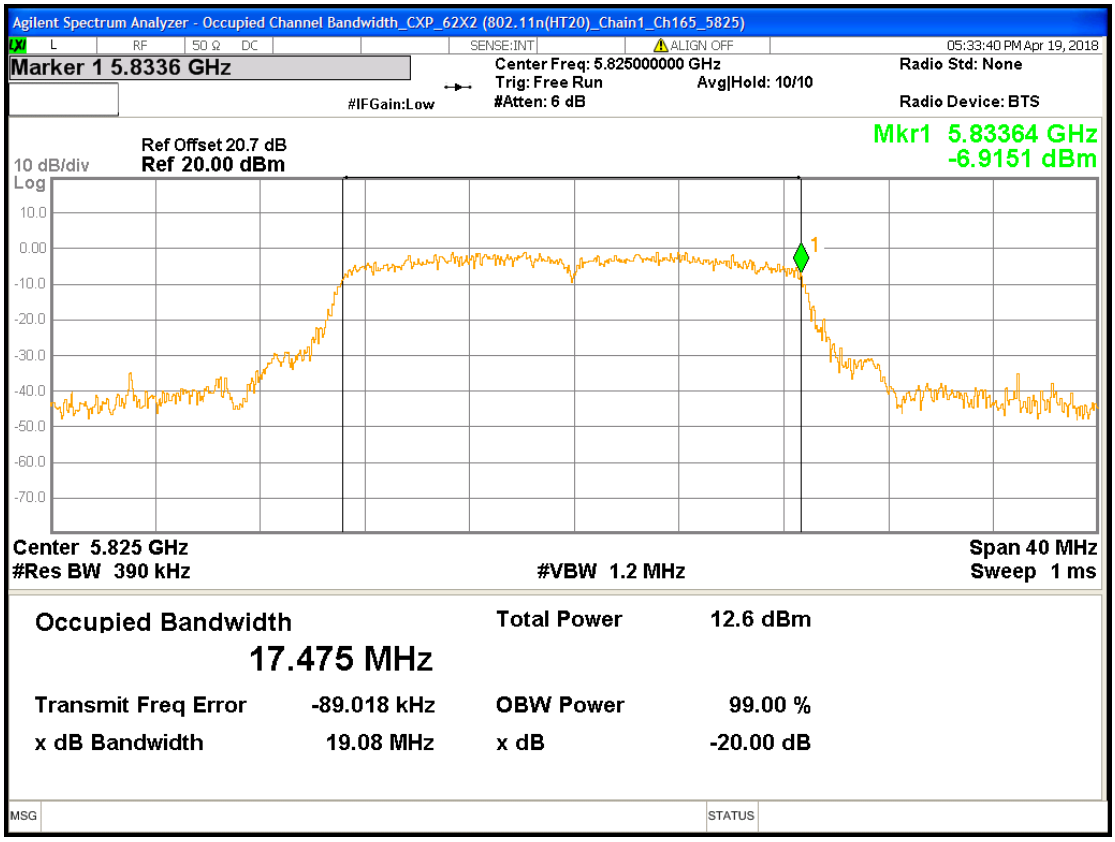

Chain1 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch149



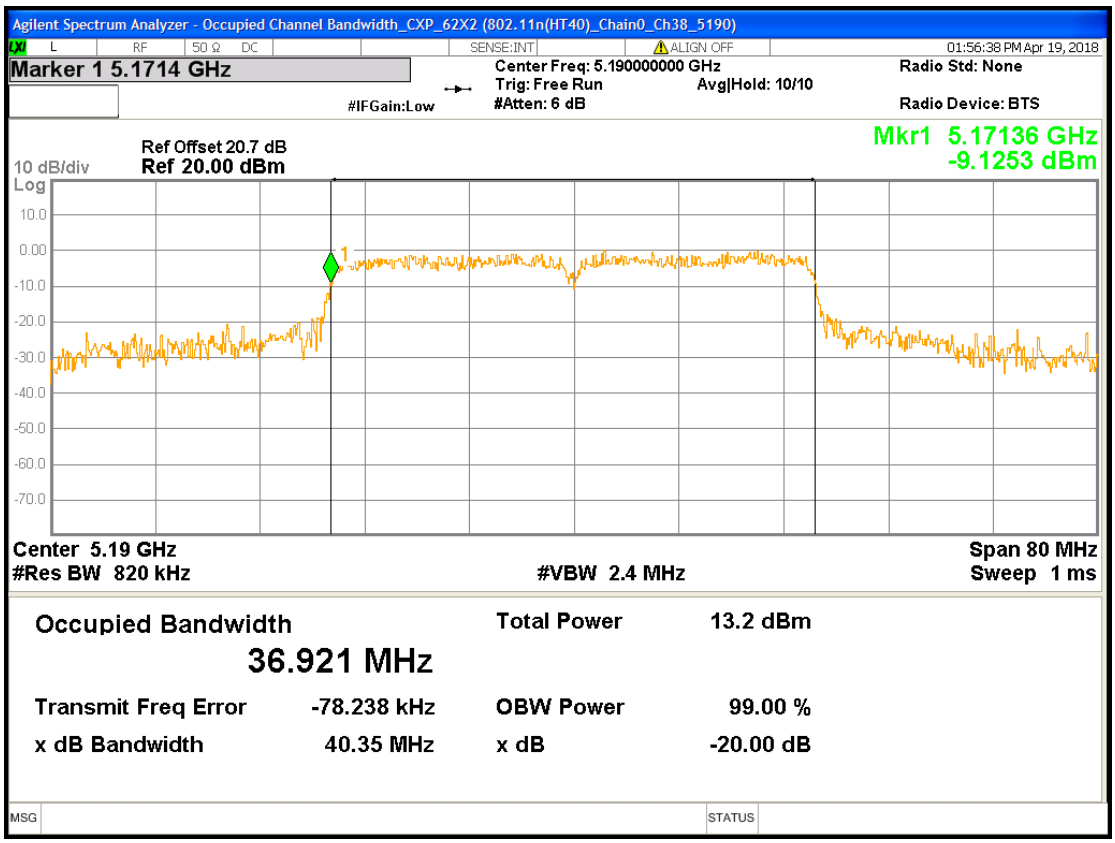
Chain1 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch157



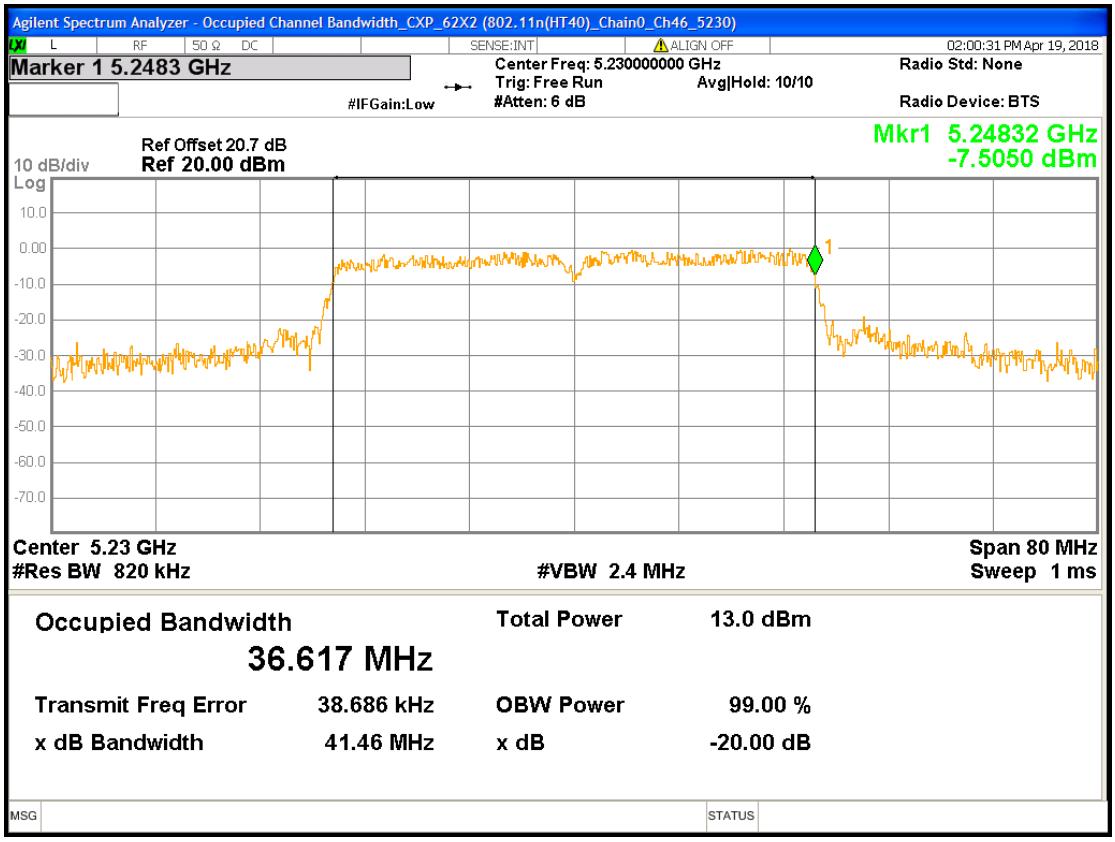

Chain1 : Occupied Channel Bandwidth @ 802.11n(HT20) mode Ch165



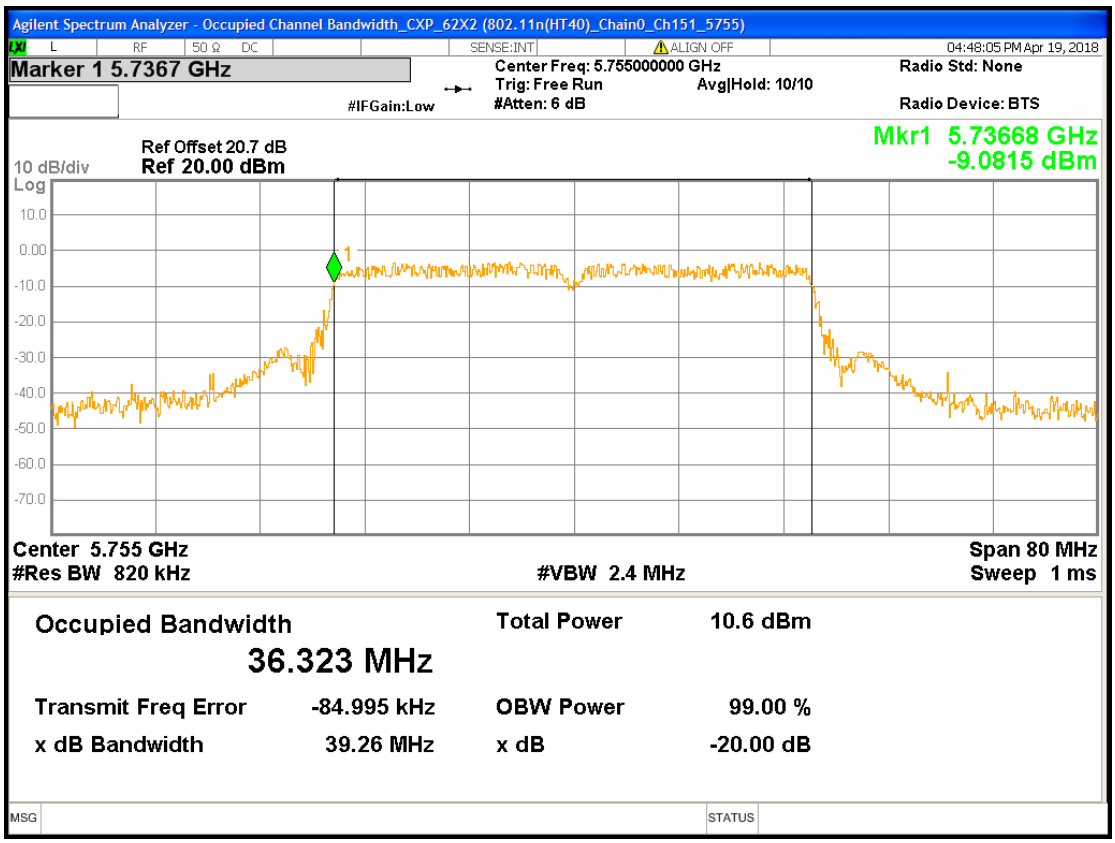
Chain0 : Occupied Channel Bandwidth @ 802.11n(HT40) mode Ch38



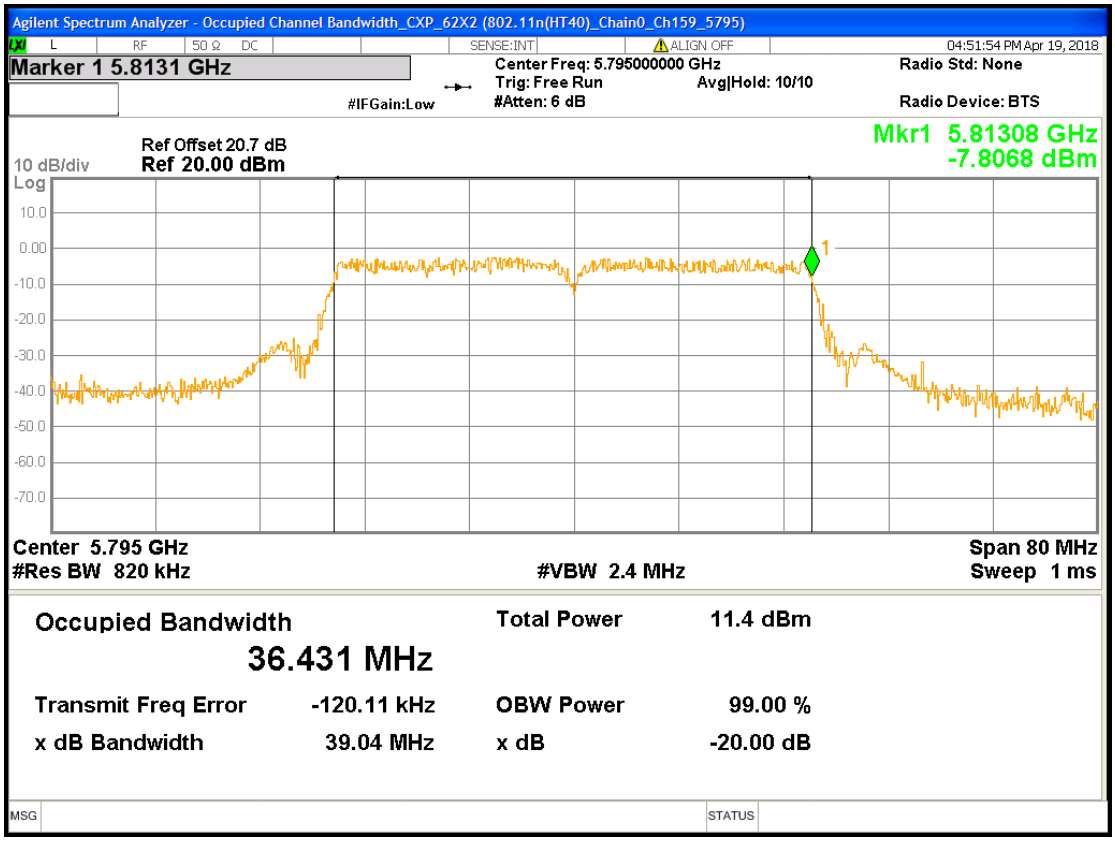

Chain0 : Occupied Channel Bandwidth @ 802.11n(HT40) mode Ch46



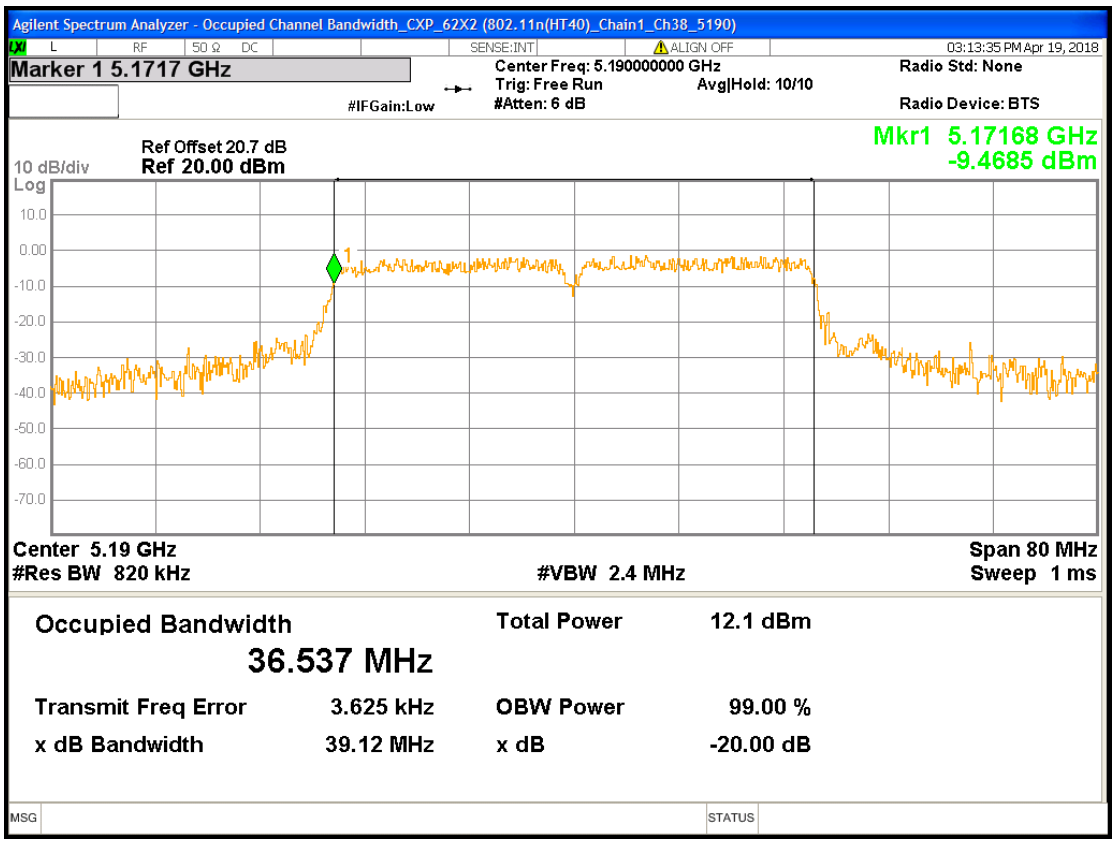
Chain0 : Occupied Channel Bandwidth @ 802.11n(HT40) mode Ch151



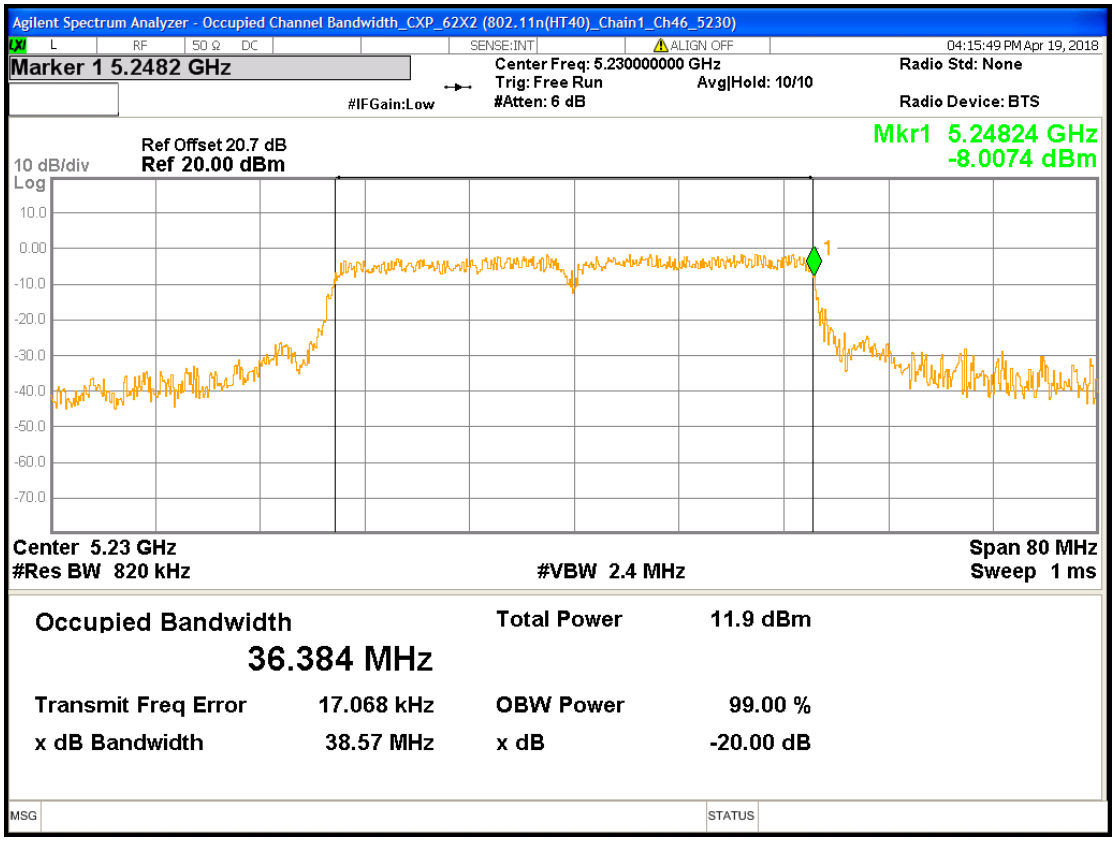

Chain0 : Occupied Channel Bandwidth @ 802.11n(HT40) mode Ch159



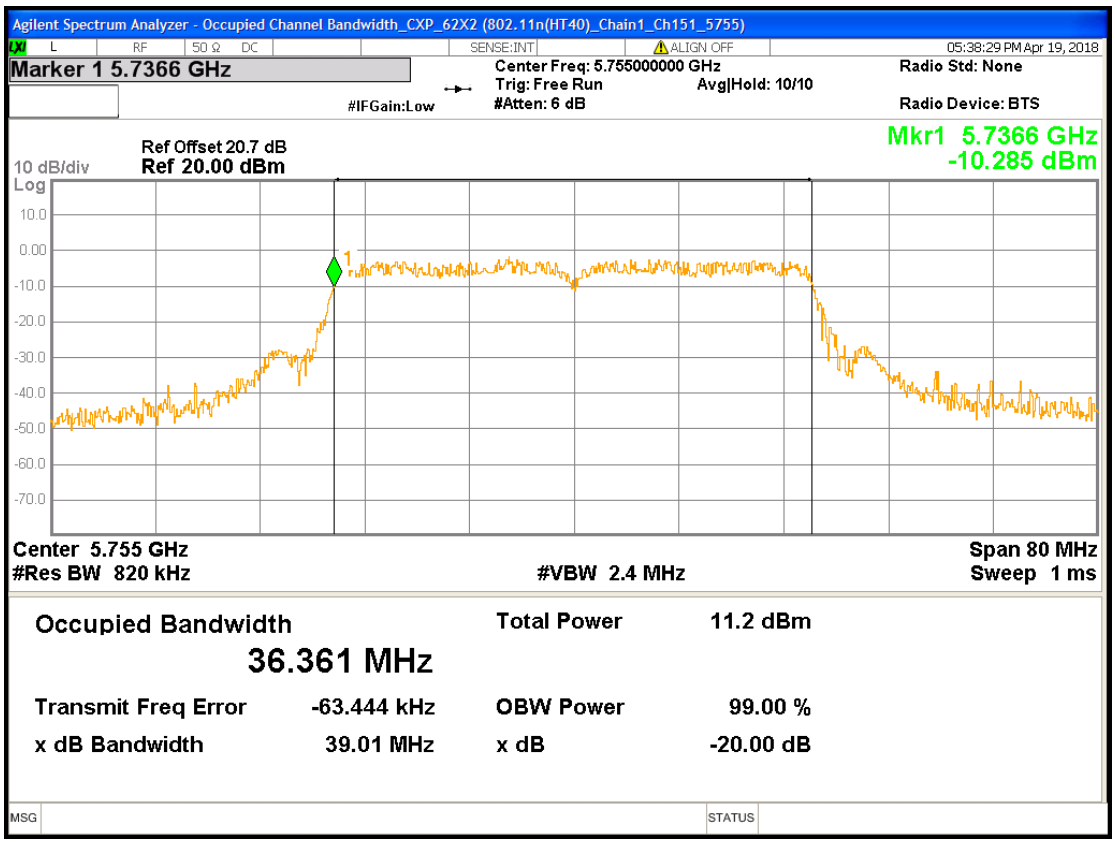
Chain1 : Occupied Channel Bandwidth @ 802.11n(HT40) mode Ch38



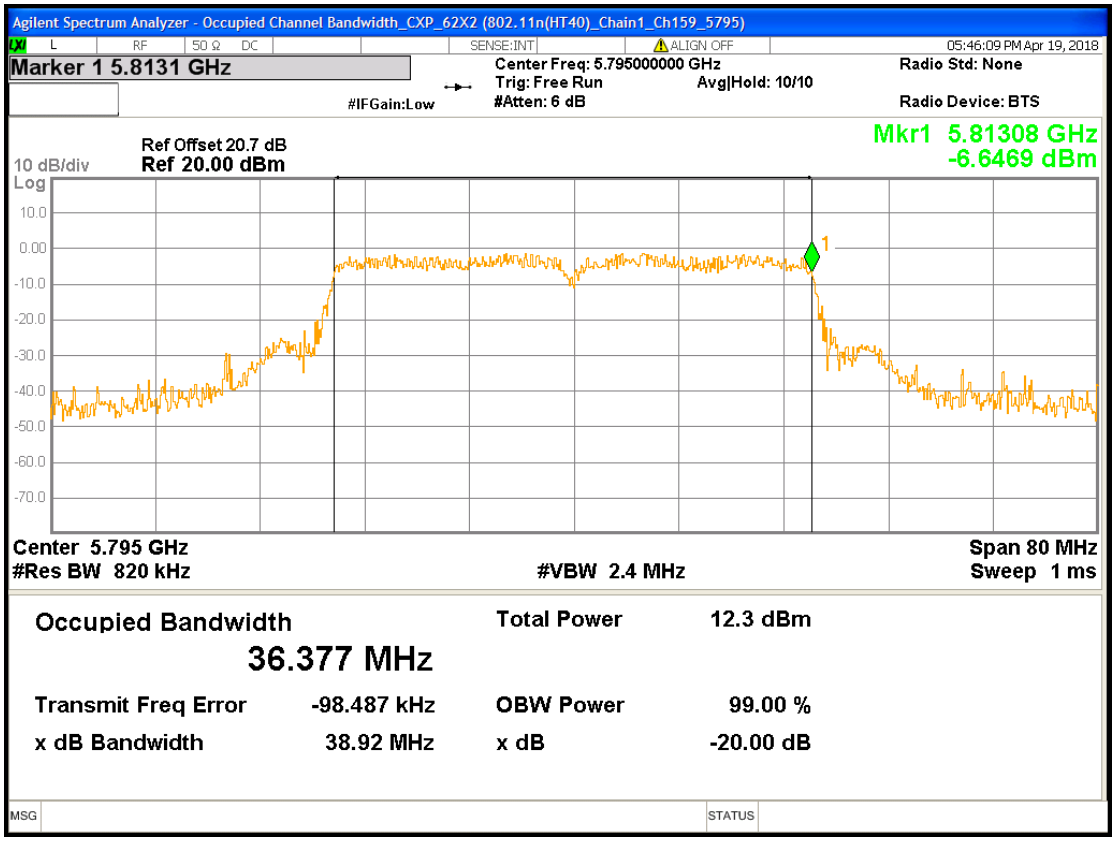

Chain1 : Occupied Channel Bandwidth @ 802.11n(HT40) mode Ch46



Chain1 : Occupied Channel Bandwidth @ 802.11n(HT40) mode Ch151




Chain1 : Occupied Channel Bandwidth @ 802.11n(HT40) mode Ch159



# 5. Emissions in Restricted Frequency Bands (Radiated emission measurements)

## 5.1 Operating environment

| | | |
|---|---|---|
| Temperature: | 25 | ℃ |
| Relative Humidity: | 55 | % |
| Atmospheric Pressure | 1008 | hPa |
| Channel number | 36,44,48,149,157,161 for 20MHz<br>38,46,151,159 for 40MHz | |

## 5.2 Limit for emission in restricted frequency bands (Radiated emission measurement)

| Frequency (MHz) | Field Strength (microvolts/meter) | Measurement distance (meters) |
|---|---|---|
| 0.009~0.490 | 2400/F(kHz) | 300 |
| 0.490~1.705 | 2400/F(kHz) | 30 |
| 1.705~30 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

As specified in 15.407(b), For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:
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.

However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

### 5.3 Measuring instrument setting

**Below 1GHz measurement**

| Receiver settings | |
|---|---|
| **Receiver function** | **Setting** |
| Detector | QP |
| RBW | 9-150 kHz ; 200-300 Hz<br>0.15-30 MHz; 9-10 kHz<br>30-1000 MHz; 100-120 kHz |
| VBW | ≧3 x RBW |
| Sweep | Auto couple |
| Attenuation | Auto |

**Above 1GHz measurement**

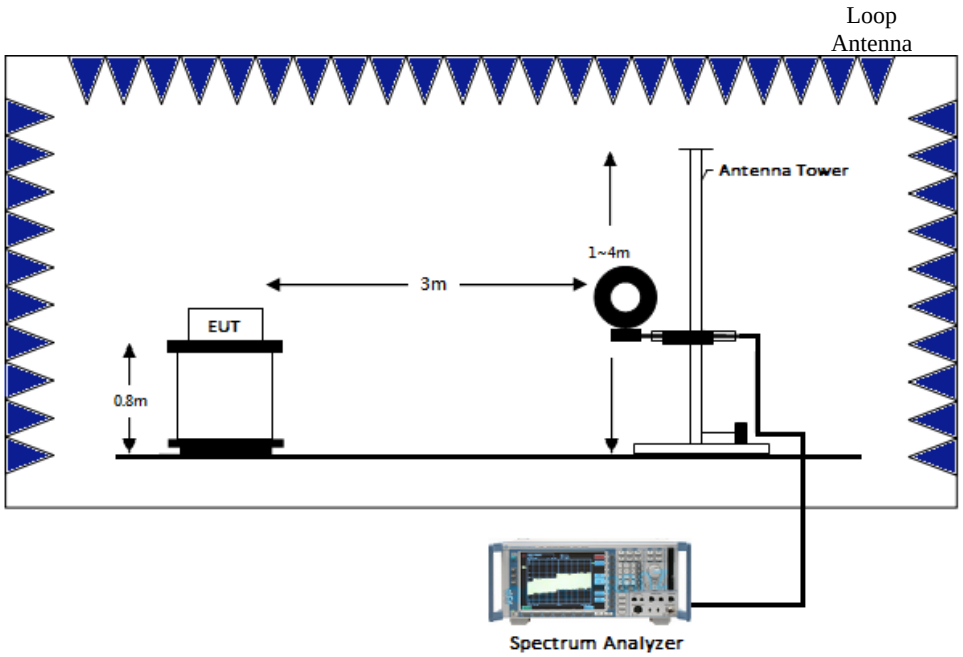
| Spectrum analyzer settings | |
|---|---|
| **Spectrum Analyzer function** | **Setting** |
| Detector | Peak |
| RBW | 1MHz |
| VBW | 3MHz for Peak; 10Hz for Average |
| Sweep | Auto couple |
| Start Frequency | 1GHz |
| Stop Frequency | Tenth harmonic |
| Attenuation | Auto |

**5.4 Test procedure**

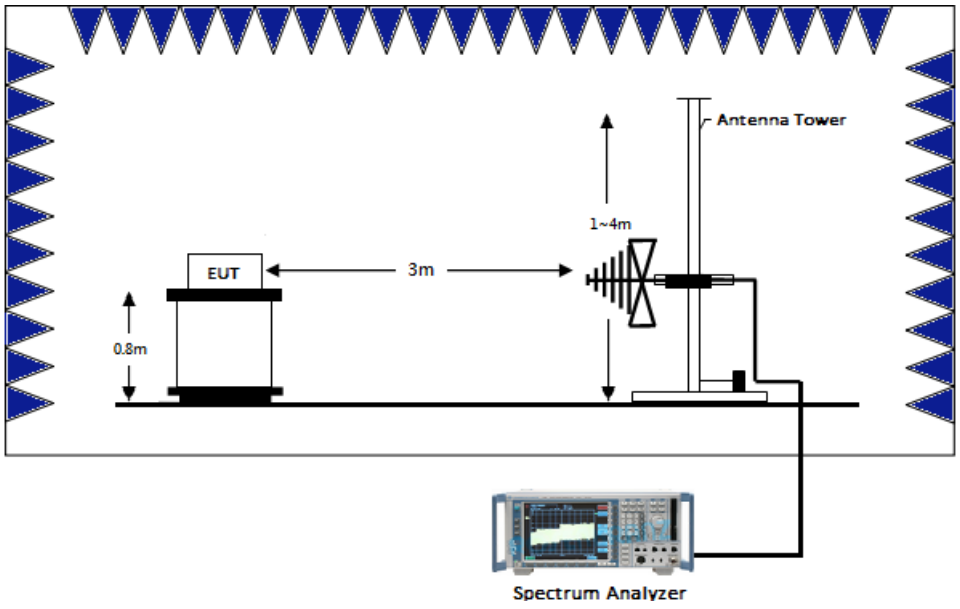
1. Configure the EUT according to ANSI C63.10: 2013 The EUT was placed on the top of the turntable 1.5 meter above ground for above 1GHz and placed on the top of the turntable 0.8 meter above ground for below 1GHz. The center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the companion devices. The turntable was rotated by 360 degree to find the position of the maximum emission level.
3. The height of the receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of the both horizontal and vertical polarization
4. If find the frequencies above the limit or below within 3dB, the antenna tower was scan (from 1m to 4m) and then the turntable was rotated to find the maximum reading.
5. Set the test-receiver system to peak or CISPR quasi-peak detector with specified bandwidth under maximum hold mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
   Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.
7. If the emissions level of the EUT in peak mode was 3dB lower than the average limit specified then testing will be stopped and peak values of the EUT will be reported. Otherwise, the emissions which do not have 3dB margin will be measured using the quasi-peak method for below 1GHz.
8. For testing above 1GHz, The emissions level of the EUT in peak mode was lower than average limit, then testing will be stopped and peak values of the EUT will be reported, otherwise, the emission will be measured in average mode again and reported.
9. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be quasi-peak measured by receiver.

## 5.5 Test configuration

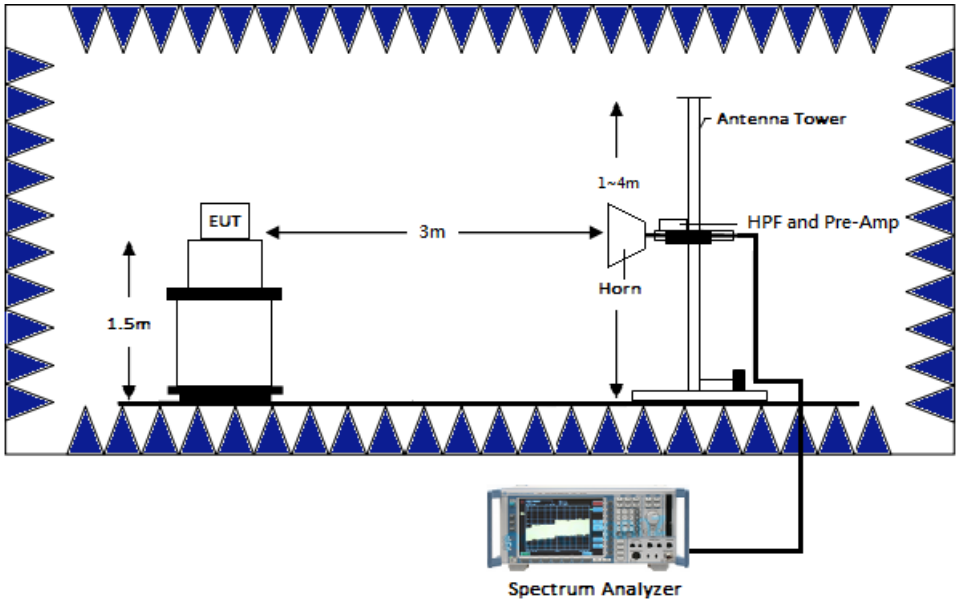
### 5.5.1 Radiated emission from 9 kHz to 30MHz using Loop Antenna




### 5.5.2 Radiated emission below 1GHz using Bilog Antenna



### 5.5.3 Radiated emission above 1GHz using Horn Antenna

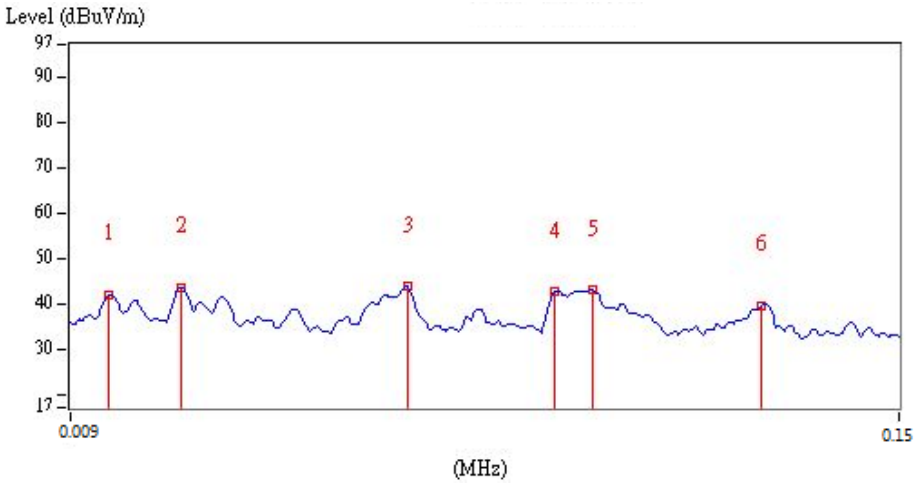


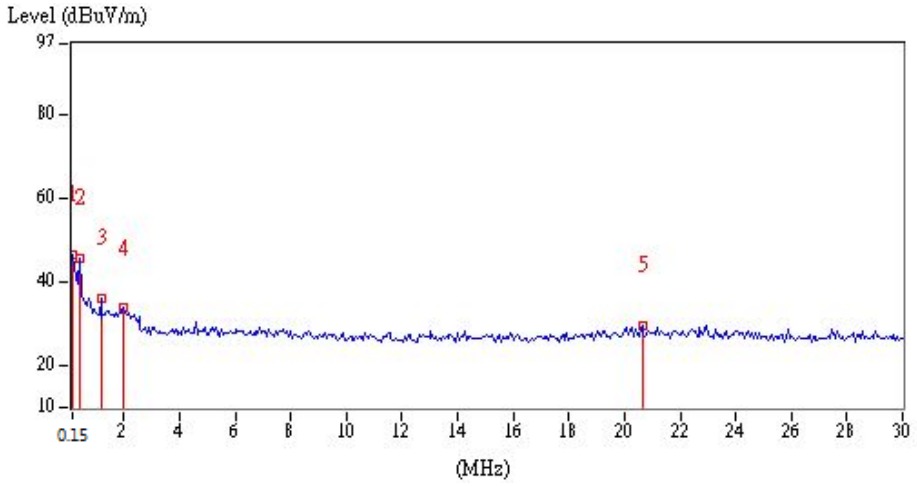

### 5.6 Test results

### 5.6.1 Measurement results: frequencies from 9 kHz to 30MHz

| Frequency (MHz) | Detection value | factor (dB/m) | Reading (dBµV) | value (dBµV/m) | Limit @ 3m (dBµV/m) | Tolerance (dB) |
|---|---|---|---|---|---|---|
| 0.02 | PK | 20.29 | 21.63 | 41.92 | 200.00 | -158.08 |
| 0.03 | PK | 20.42 | 23.08 | 43.50 | 160.00 | -116.50 |
| 0.07 | PK | 19.55 | 24.10 | 43.65 | 114.29 | -70.64 |
| 0.09 | PK | 19.25 | 23.17 | 42.42 | 106.67 | -64.25 |
| 0.10 | QP | 19.16 | 23.77 | 42.93 | 104.00 | -61.07 |
| 0.13 | PK | 19.11 | 20.49 | 39.60 | 98.46 | -58.86 |
| 0.15 | PK | 19.08 | 27.63 | 46.71 | 96.00 | -49.29 |
| 0.39 | PK | 18.96 | 26.86 | 45.82 | 86.15 | -40.33 |
| 1.16 | QP | 19.07 | 17.09 | 36.16 | 82.07 | -45.91 |
| 2.00 | QP | 18.87 | 14.98 | 33.85 | 81.20 | -47.35 |
| 20.63 | QP | 21.96 | 7.74 | 29.70 | 80.12 | -50.42 |

Remark: Corr. Factor = Antenna Factor + Cable Loss - PreAmplifier Gain


Level (dBuV/m)
97
90
80
70
60
50
40
30
17
1
2
3
4
5
6
0.009
0.15
(MHz)


Level (dBuV/m)
97
80
60
40
20
10
2
3
4
5
0.15
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
(MHz)

### 5.6.2 Measurement results: frequencies from 30 MHz to 1GHz

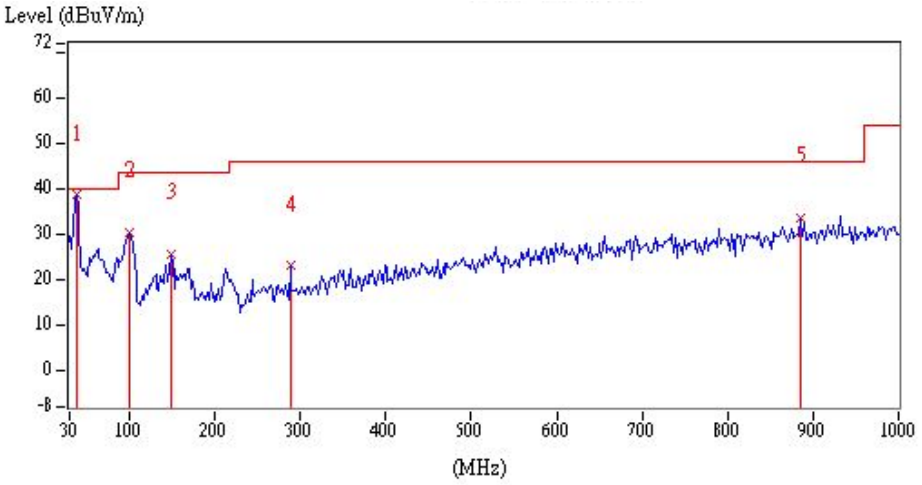
The test was performed on EUT under 802.11a/an continuously transmitting mode. The worst case occurred at 802.11a Tx channel 36.

| Antenna Polariz. (V/H) | Freq. (MHz) | Receiver Detector | Corr. Factor (dB/m) | Reading (dBuV) | Corrected Level (dBuV/m) | Limit @ 3 m (dBuV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Vertical | 37.76 | QP | 16.09 | 22.54 | 38.63 | 40.00 | -1.37 |
| Vertical | 99.84 | QP | 11.41 | 19.03 | 30.44 | 43.50 | -13.06 |
| Vertical | 148.34 | QP | 16.45 | 9.15 | 25.60 | 43.50 | -17.90 |
| Vertical | 288.02 | QP | 17.06 | 6.00 | 23.06 | 46.00 | -22.94 |
| Vertical | 885.54 | QP | 28.44 | 5.18 | 33.62 | 46.00 | -12.38 |
| Horizontal | 37.76 | QP | 13.31 | 10.01 | 23.32 | 40.00 | -16.68 |
| Horizontal | 101.78 | QP | 14.43 | 16.63 | 31.06 | 43.50 | -12.44 |
| Horizontal | 183.26 | QP | 15.86 | 18.03 | 33.89 | 43.50 | -9.61 |
| Horizontal | 288.02 | QP | 17.70 | 16.95 | 34.65 | 46.00 | -11.35 |
| Horizontal | 870.02 | QP | 27.91 | 6.43 | 34.34 | 46.00 | -11.66 |

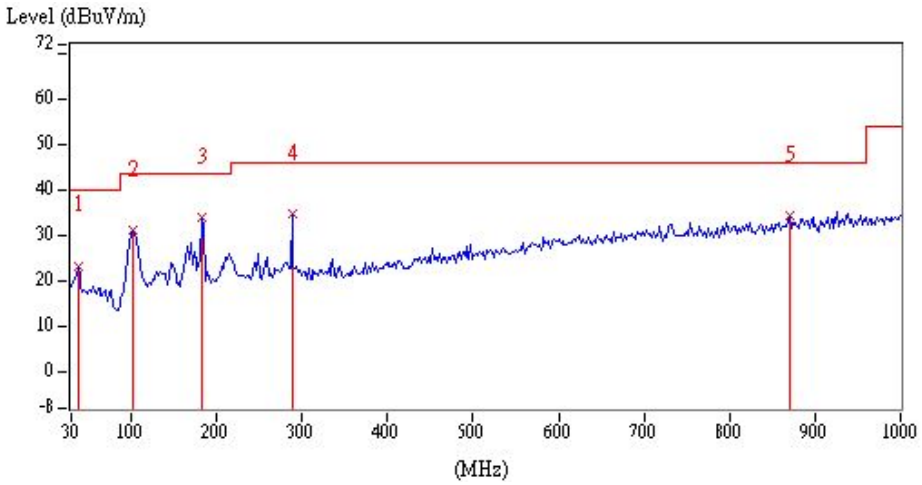
Remark:

1. Corr. Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Corr. Factor

## Vertical




## Horizontal



### 5.6.3 Measurement results: frequency above 1GHz to 40GHz

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11a , Ch36 , Chain0 | 1583 | PK | V | 38.74 | -6.39 | 55.44 | 49.05 | 74.00 | -24.95 |
| | 3024 | PK | V | 39.73 | 0.50 | 48.10 | 48.60 | 74.00 | -25.40 |
| | 3563 | PK | V | 40.06 | 1.37 | 61.09 | 62.46 | 74.00 | -11.54 |
| | 3563 | AV | V | 40.06 | 1.37 | 50.12 | 51.49 | 54.00 | -2.51 |
| | 6159 | PK | V | 38.24 | 7.98 | 40.91 | 48.89 | 74.00 | -25.11 |
| | 3489 | PK | V | 40.01 | 9.09 | 42.27 | 51.36 | 74.00 | -22.64 |
| | 10360 | PK | V | 38.95 | 19.98 | 27.71 | 47.69 | 74.00 | -26.31 |
| | 15540 | PK | V | 38.21 | 22.39 | 22.90 | 45.29 | 74.00 | -28.71 |
| | 2375 | PK | H | 39.01 | -1.99 | 53.40 | 51.41 | 74.00 | -22.59 |
| | 3024 | PK | H | 39.73 | 0.50 | 45.42 | 45.92 | 74.00 | -28.08 |
| | 3563 | PK | H | 40.06 | 1.37 | 57.65 | 59.02 | 74.00 | -14.98 |
| | 3563 | AV | H | 40.06 | 1.37 | 44.28 | 45.65 | 54.00 | -8.35 |
| | 6159 | PK | H | 38.24 | 7.98 | 42.48 | 50.46 | 74.00 | -23.54 |
| | 6489 | PK | H | 38.38 | 9.09 | 41.50 | 50.59 | 74.00 | -23.41 |
| | 10360 | PK | H | 38.95 | 19.99 | 26.67 | 46.66 | 74.00 | -27.34 |
| | 15540 | PK | H | 38.21 | 22.38 | 18.84 | 41.22 | 54.00 | -12.78 |
| 802.11a , Ch44 , Chain0 | 1583 | PK | V | 38.74 | -6.39 | 56.22 | 49.83 | 74.00 | -24.17 |
| | 3090 | PK | V | 39.77 | 0.59 | 45.17 | 45.76 | 74.00 | -28.24 |
| | 3629 | PK | V | 40.11 | 1.60 | 57.72 | 59.32 | 74.00 | -14.68 |
| | 3633 | AV | V | 40.11 | 1.62 | 40.05 | 41.67 | 54.00 | -12.33 |
| | 6236 | PK | V | 38.27 | 8.25 | 44.18 | 52.43 | 74.00 | -21.57 |
| | 10440 | PK | V | 39.00 | 20.49 | 25.94 | 46.43 | 74.00 | -27.57 |
| | 15660 | PK | V | 38.12 | 22.36 | 21.74 | 44.10 | 74.00 | -29.90 |
| | 1583 | PK | H | 38.74 | -6.39 | 47.09 | 40.70 | 74.00 | -33.30 |
| | 2375 | PK | H | 39.01 | -1.99 | 52.31 | 50.32 | 74.00 | -23.68 |
| | 3629 | PK | H | 40.11 | 1.61 | 56.84 | 58.45 | 74.00 | -15.55 |
| | 3633 | AV | H | 40.11 | 1.62 | 38.61 | 40.23 | 54.00 | -13.77 |
| | 6236 | PK | H | 38.27 | 8.24 | 44.01 | 52.25 | 74.00 | -21.75 |
| | 10440 | PK | H | 39.00 | 20.49 | 25.67 | 46.16 | 74.00 | -27.84 |
| | 15660 | PK | H | 38.12 | 22.35 | 17.18 | 39.53 | 54.00 | -14.47 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11a , Ch48 , Chain0 | 1583 | PK | V | 38.74 | -6.39 | 55.55 | 49.16 | 74.00 | -24.84 |
| | 3123 | PK | V | 39.79 | 0.63 | 43.60 | 44.23 | 74.00 | -29.77 |
| | 3650 | AV | V | 40.13 | 1.68 | 39.87 | 41.55 | 54.00 | -12.45 |
| | 3651 | PK | V | 40.13 | 1.68 | 58.88 | 60.56 | 74.00 | -13.44 |
| | 6280 | PK | V | 38.29 | 8.39 | 45.46 | 53.85 | 74.00 | -20.15 |
| | 10480 | PK | V | 39.03 | 20.74 | 26.66 | 47.40 | 74.00 | -26.60 |
| | 15720 | PK | V | 38.08 | 22.35 | 20.12 | 42.47 | 74.00 | -31.53 |
| | 1583 | PK | H | 38.74 | -6.39 | 46.46 | 40.07 | 74.00 | -33.93 |
| | 2375 | PK | H | 39.01 | -1.98 | 52.45 | 50.47 | 74.00 | -23.53 |
| | 3650 | AV | H | 40.13 | 1.68 | 39.21 | 40.89 | 54.00 | -13.11 |
| | 3651 | PK | H | 40.13 | 1.68 | 55.27 | 56.95 | 74.00 | -17.05 |
| | 6280 | PK | H | 38.29 | 8.40 | 43.80 | 52.20 | 74.00 | -21.80 |
| | 10480 | PK | H | 39.03 | 20.74 | 26.44 | 47.18 | 74.00 | -26.82 |
| | 15720 | PK | H | 38.08 | 22.34 | 17.64 | 39.98 | 74.00 | -34.02 |
| 802.11a , Ch149 , Chain0 | 1583 | PK | V | 38.74 | -6.39 | 55.93 | 49.54 | 74.00 | -24.46 |
| | 3167 | PK | V | 39.82 | 0.69 | 42.24 | 42.93 | 74.00 | -31.07 |
| | 4410 | PK | V | 40.54 | 3.76 | 46.09 | 49.85 | 74.00 | -24.15 |
| | 11490 | PK | V | 39.01 | 22.96 | 25.23 | 48.19 | 74.00 | -25.81 |
| | 17235 | PK | V | 37.91 | 27.52 | 19.13 | 46.65 | 74.00 | -27.35 |
| | 1583 | PK | H | 38.74 | -6.39 | 45.67 | 39.28 | 74.00 | -34.72 |
| | 2375 | PK | H | 39.01 | -1.98 | 53.15 | 51.17 | 74.00 | -22.83 |
| | 4960 | PK | H | 39.80 | 5.44 | 39.54 | 44.98 | 74.00 | -29.02 |
| | 11490 | PK | H | 39.01 | 22.97 | 24.60 | 47.57 | 74.00 | -26.43 |
| | 17235 | PK | H | 37.91 | 27.52 | 19.01 | 46.53 | 74.00 | -27.47 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11a , Ch157 , Chain0 | 1583 | PK | V | 38.74 | -6.39 | 56.50 | 50.11 | 74.00 | -23.89 |
| | 2375 | PK | V | 39.01 | -1.99 | 45.01 | 43.02 | 74.00 | -30.98 |
| | 4476 | PK | V | 40.57 | 3.89 | 45.32 | 49.21 | 74.00 | -24.79 |
| | 11570 | PK | V | 38.98 | 22.87 | 25.04 | 47.91 | 74.00 | -26.09 |
| | 17355 | PK | V | 37.97 | 27.88 | 19.30 | 47.18 | 74.00 | -26.82 |
| | 1583 | PK | H | 38.74 | -6.39 | 46.69 | 40.30 | 74.00 | -33.70 |
| | 2375 | PK | H | 39.01 | -1.98 | 52.22 | 50.24 | 74.00 | -23.76 |
| | 4960 | PK | H | 39.80 | 5.44 | 40.06 | 45.50 | 74.00 | -28.50 |
| | 5356 | PK | H | 38.63 | 5.80 | 38.54 | 44.34 | 74.00 | -29.66 |
| | 11570 | PK | H | 38.98 | 22.87 | 26.86 | 49.73 | 74.00 | -24.27 |
| | 17355 | PK | H | 37.97 | 27.88 | 18.19 | 46.07 | 74.00 | -27.93 |
| 802.11a , Ch165 , Chain0 | 1583 | PK | V | 38.74 | -6.39 | 56.62 | 50.23 | 74.00 | -23.77 |
| | 2375 | PK | V | 39.01 | -1.98 | 43.85 | 41.87 | 74.00 | -32.13 |
| | 3167 | PK | V | 39.82 | 0.70 | 42.24 | 42.94 | 74.00 | -31.06 |
| | 4531 | PK | V | 40.53 | 4.05 | 45.50 | 49.55 | 74.00 | -24.45 |
| | 11650 | PK | V | 38.94 | 22.76 | 24.86 | 47.62 | 74.00 | -26.38 |
| | 17475 | PK | V | 38.04 | 28.25 | 17.35 | 45.60 | 74.00 | -28.40 |
| | 1583 | PK | H | 38.74 | -6.39 | 47.24 | 40.85 | 74.00 | -33.15 |
| | 2375 | PK | H | 39.01 | -1.98 | 52.24 | 50.26 | 74.00 | -23.74 |
| | 4960 | PK | H | 39.80 | 5.44 | 40.01 | 45.45 | 74.00 | -28.55 |
| | 5400 | PK | H | 38.49 | 5.83 | 39.56 | 45.39 | 74.00 | -28.61 |
| | 11650 | PK | H | 38.94 | 22.76 | 24.04 | 46.80 | 74.00 | -27.20 |
| | 17475 | PK | H | 38.04 | 28.25 | 17.95 | 46.20 | 74.00 | -27.80 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11a , Ch36 , Chain1 | 1583 | PK | V | 38.74 | -6.39 | 43.63 | 37.24 | 74.00 | -36.76 |
| | 3563 | PK | V | 40.06 | 1.38 | 48.96 | 50.34 | 74.00 | -23.66 |
| | 6159 | PK | V | 38.24 | 7.99 | 40.71 | 48.70 | 74.00 | -25.30 |
| | 6489 | PK | V | 38.38 | 9.09 | 39.20 | 48.29 | 74.00 | -25.71 |
| | 10360 | PK | V | 38.95 | 19.98 | 26.10 | 46.08 | 74.00 | -27.92 |
| | 15540 | PK | V | 38.21 | 22.38 | 22.48 | 44.86 | 74.00 | -29.14 |
| | 2375 | PK | H | 39.01 | -1.98 | 48.36 | 46.38 | 74.00 | -27.62 |
| | 3563 | PK | H | 40.06 | 1.37 | 46.74 | 48.11 | 74.00 | -25.89 |
| | 6159 | PK | H | 38.24 | 7.99 | 40.62 | 48.61 | 74.00 | -25.39 |
| | 6478 | PK | H | 38.37 | 9.06 | 37.85 | 46.91 | 74.00 | -27.09 |
| | 10360 | PK | H | 38.95 | 19.98 | 27.06 | 47.04 | 74.00 | -26.96 |
| | 15540 | PK | H | 38.21 | 22.38 | 22.96 | 45.34 | 74.00 | -28.66 |
| 802.11a , Ch44 , Chain1 | 1583 | PK | V | 38.74 | -6.40 | 43.80 | 37.40 | 74.00 | -36.60 |
| | 3629 | PK | V | 40.11 | 1.60 | 46.93 | 48.53 | 74.00 | -25.47 |
| | 6236 | PK | V | 38.27 | 8.24 | 40.94 | 49.18 | 74.00 | -24.82 |
| | 10440 | PK | V | 39.00 | 20.49 | 26.19 | 46.68 | 74.00 | -27.32 |
| | 15660 | PK | V | 38.12 | 22.36 | 19.67 | 42.03 | 74.00 | -31.97 |
| | 2375 | PK | H | 39.01 | -1.99 | 49.51 | 47.52 | 74.00 | -26.48 |
| | 3629 | PK | H | 40.11 | 1.60 | 48.17 | 49.77 | 74.00 | -24.23 |
| | 6236 | PK | H | 38.27 | 8.25 | 40.47 | 48.72 | 74.00 | -25.28 |
| | 10440 | PK | H | 39.00 | 20.49 | 26.66 | 47.15 | 74.00 | -26.85 |
| | 15660 | PK | H | 38.12 | 22.36 | 21.90 | 44.26 | 74.00 | -29.74 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11a , Ch48 , Chain1 | 1583 | PK | V | 38.74 | -6.39 | 43.40 | 37.01 | 74.00 | -36.99 |
| | 2375 | PK | V | 39.01 | -1.98 | 41.76 | 39.78 | 74.00 | -34.22 |
| | 6280 | PK | V | 38.29 | 8.39 | 39.69 | 48.08 | 74.00 | -25.92 |
| | 10480 | PK | V | 39.03 | 20.74 | 26.98 | 47.72 | 74.00 | -26.28 |
| | 15720 | PK | V | 38.08 | 22.34 | 18.84 | 41.18 | 74.00 | -32.82 |
| | 2375 | PK | H | 39.01 | -1.98 | 42.40 | 40.42 | 74.00 | -33.58 |
| | 3651 | PK | H | 40.13 | 1.68 | 46.29 | 47.97 | 74.00 | -26.03 |
| | 6280 | PK | H | 38.29 | 8.39 | 40.87 | 49.26 | 74.00 | -24.74 |
| | 10480 | PK | H | 39.03 | 20.75 | 26.22 | 46.97 | 74.00 | -27.03 |
| | 15720 | PK | H | 38.08 | 22.34 | 22.39 | 44.73 | 74.00 | -29.27 |
| 802.11a , Ch149 , Chain1 | 1583 | PK | V | 38.74 | -6.39 | 48.99 | 42.60 | 74.00 | -31.40 |
| | 2375 | PK | V | 39.01 | -1.98 | 51.72 | 49.74 | 74.00 | -24.26 |
| | 3167 | PK | V | 39.82 | 0.69 | 41.50 | 42.19 | 74.00 | -31.81 |
| | 11490 | PK | V | 39.01 | 22.96 | 25.29 | 48.25 | 74.00 | -25.75 |
| | 17235 | PK | V | 37.91 | 27.52 | 18.62 | 46.14 | 74.00 | -27.86 |
| | 2375 | PK | H | 39.01 | -1.99 | 43.81 | 41.82 | 74.00 | -32.18 |
| | 3167 | PK | H | 39.82 | 0.69 | 43.35 | 44.04 | 74.00 | -29.96 |
| | 3277 | PK | H | 39.89 | 0.84 | 47.83 | 48.67 | 74.00 | -25.33 |
| | 4421 | PK | H | 40.55 | 3.78 | 39.43 | 43.21 | 74.00 | -30.79 |
| | 11490 | PK | H | 39.01 | 22.96 | 24.69 | 47.65 | 74.00 | -26.35 |
| | 17235 | PK | H | 37.91 | 27.52 | 18.09 | 45.61 | 74.00 | -28.39 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11a , Ch157 , Chain1 | 1583 | PK | V | 38.74 | -6.40 | 56.53 | 50.13 | 74.00 | -23.87 |
| | 2375 | PK | V | 39.01 | -1.98 | 45.22 | 43.24 | 74.00 | -30.76 |
| | 3167 | PK | V | 39.82 | 0.69 | 42.21 | 42.90 | 74.00 | -31.10 |
| | 4465 | PK | V | 40.57 | 3.87 | 47.10 | 50.97 | 74.00 | -23.03 |
| | 3624 | PK | V | 40.11 | 8.54 | 37.80 | 46.34 | 74.00 | -27.66 |
| | 11570 | PK | V | 38.98 | 22.88 | 24.59 | 47.47 | 74.00 | -26.53 |
| | 17355 | PK | V | 37.97 | 27.88 | 18.98 | 46.86 | 74.00 | -27.14 |
| | 1583 | PK | H | 38.74 | -6.40 | 46.53 | 40.13 | 74.00 | -33.87 |
| | 2375 | PK | H | 39.01 | -1.99 | 52.27 | 50.28 | 74.00 | -23.72 |
| | 4960 | PK | H | 39.80 | 5.44 | 39.58 | 45.02 | 74.00 | -28.98 |
| | 11570 | PK | H | 38.98 | 22.87 | 24.47 | 47.34 | 74.00 | -26.66 |
| | 17355 | PK | H | 37.97 | 27.88 | 18.42 | 46.30 | 74.00 | -27.70 |
| 802.11a , Ch165 , Chain1 | 1583 | PK | V | 38.74 | -6.39 | 56.24 | 49.85 | 74.00 | -24.15 |
| | 3167 | PK | V | 39.82 | 0.70 | 43.07 | 43.77 | 74.00 | -30.23 |
| | 4531 | PK | V | 40.53 | 4.05 | 43.97 | 48.02 | 74.00 | -25.98 |
| | 11650 | PK | V | 38.94 | 22.76 | 24.36 | 47.12 | 74.00 | -26.88 |
| | 17475 | PK | V | 38.04 | 28.24 | 18.05 | 46.29 | 74.00 | -27.71 |
| | 2375 | PK | H | 39.01 | -1.98 | 50.84 | 48.86 | 74.00 | -25.14 |
| | 4531 | PK | H | 40.53 | 4.05 | 38.08 | 42.13 | 74.00 | -31.87 |
| | 11650 | PK | H | 38.94 | 22.76 | 24.86 | 47.62 | 74.00 | -26.38 |
| | 17475 | PK | H | 38.04 | 28.25 | 17.54 | 45.79 | 74.00 | -28.21 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11n(HT20) , Ch36 | 2375 | PK | V | 39.01 | -1.98 | 47.44 | 45.46 | 74.00 | -28.54 |
| | 3563 | PK | V | 40.06 | 1.37 | 58.60 | 59.97 | 74.00 | -14.03 |
| | 3563 | AV | V | 40.06 | 1.37 | 41.30 | 42.67 | 54.00 | -11.33 |
| | 6159 | PK | V | 38.24 | 7.99 | 42.90 | 50.89 | 74.00 | -23.11 |
| | 6478 | PK | V | 38.37 | 9.05 | 40.49 | 49.54 | 74.00 | -24.46 |
| | 10360 | PK | V | 38.95 | 19.99 | 25.59 | 45.58 | 74.00 | -28.42 |
| | 15540 | PK | V | 38.21 | 22.38 | 25.44 | 47.82 | 74.00 | -26.18 |
| | 1583 | PK | H | 38.74 | -6.39 | 50.36 | 43.97 | 74.00 | -30.03 |
| | 2375 | PK | H | 39.01 | -1.98 | 51.32 | 49.34 | 74.00 | -24.66 |
| | 3035 | PK | H | 39.74 | 0.51 | 43.66 | 44.17 | 74.00 | -29.83 |
| | 3563 | PK | H | 40.06 | 1.37 | 58.04 | 59.41 | 74.00 | -14.59 |
| | 3564 | AV | H | 40.06 | 1.37 | 41.19 | 42.56 | 54.00 | -11.44 |
| | 6159 | PK | H | 38.24 | 7.98 | 41.41 | 49.39 | 74.00 | -24.61 |
| | 6478 | PK | H | 38.37 | 9.05 | 40.78 | 49.83 | 74.00 | -24.17 |
| | 10360 | PK | H | 38.95 | 19.98 | 25.78 | 45.76 | 74.00 | -28.24 |
| | 15540 | PK | H | 38.21 | 22.39 | 23.11 | 45.50 | 74.00 | -28.50 |
| 802.11n(HT20) , Ch44 | 2375 | PK | V | 39.01 | -1.98 | 40.26 | 38.28 | 74.00 | -35.72 |
| | 3618 | PK | V | 40.10 | 1.57 | 49.94 | 51.51 | 74.00 | -22.49 |
| | 6247 | PK | V | 38.28 | 8.28 | 40.47 | 48.75 | 74.00 | -25.25 |
| | 10440 | PK | V | 39.00 | 20.49 | 25.14 | 45.63 | 74.00 | -28.37 |
| | 15660 | PK | V | 38.12 | 22.36 | 22.99 | 45.35 | 74.00 | -28.65 |
| | 1583 | PK | H | 38.74 | -6.39 | 49.61 | 43.22 | 74.00 | -30.78 |
| | 2375 | PK | H | 39.01 | -1.98 | 49.45 | 47.47 | 74.00 | -26.53 |
| | 3629 | PK | H | 40.11 | 1.61 | 57.26 | 58.87 | 74.00 | -15.13 |
| | 3629 | AV | H | 40.11 | 1.61 | 41.24 | 42.85 | 54.00 | -11.15 |
| | 6236 | PK | H | 38.27 | 8.25 | 42.81 | 51.06 | 74.00 | -22.94 |
| | 10440 | PK | H | 39.00 | 20.49 | 25.54 | 46.03 | 74.00 | -27.97 |
| | 15660 | PK | H | 38.12 | 22.35 | 22.17 | 44.52 | 74.00 | -29.48 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11n(HT20) , Ch48 | 2375 | PK | V | 39.01 | -1.99 | 43.14 | 41.15 | 74.00 | -32.85 |
| | 3662 | PK | V | 40.13 | 1.72 | 46.40 | 48.12 | 74.00 | -25.88 |
| | 6280 | PK | V | 38.29 | 8.39 | 42.37 | 50.76 | 74.00 | -23.24 |
| | 10480 | PK | V | 39.03 | 20.74 | 24.78 | 45.52 | 74.00 | -28.48 |
| | 15720 | PK | V | 38.08 | 22.34 | 21.41 | 43.75 | 74.00 | -30.25 |
| | 1583 | PK | H | 38.74 | -6.40 | 49.91 | 43.51 | 74.00 | -30.49 |
| | 2375 | PK | H | 39.01 | -1.98 | 47.97 | 45.99 | 74.00 | -28.01 |
| | 3662 | AV | H | 40.13 | 1.72 | 40.61 | 42.33 | 54.00 | -11.67 |
| | 3662 | PK | H | 40.13 | 1.72 | 55.29 | 57.01 | 74.00 | -16.99 |
| | 6280 | PK | H | 38.29 | 8.39 | 43.48 | 51.87 | 74.00 | -22.13 |
| | 10480 | PK | H | 39.03 | 20.75 | 25.51 | 46.26 | 74.00 | -27.74 |
| | 15720 | PK | H | 38.08 | 22.35 | 21.39 | 43.74 | 74.00 | -30.26 |
| 802.11n(HT20) , Ch149 | 1583 | PK | V | 38.74 | -6.40 | 54.66 | 48.26 | 74.00 | -25.74 |
| | 2375 | PK | V | 39.01 | -1.98 | 42.86 | 40.88 | 74.00 | -33.12 |
| | 3167 | PK | V | 39.82 | 0.69 | 41.48 | 42.17 | 74.00 | -31.83 |
| | 4410 | PK | V | 40.54 | 3.76 | 43.34 | 47.10 | 74.00 | -26.90 |
| | 11490 | PK | V | 39.01 | 22.97 | 23.71 | 46.68 | 74.00 | -27.32 |
| | 17235 | PK | V | 37.91 | 27.52 | 18.96 | 46.48 | 74.00 | -27.52 |
| | 1583 | PK | H | 38.74 | -6.39 | 47.91 | 41.52 | 74.00 | -32.48 |
| | 2375 | PK | H | 39.01 | -1.98 | 48.64 | 46.66 | 74.00 | -27.34 |
| | 4410 | PK | H | 40.54 | 3.76 | 41.49 | 45.25 | 74.00 | -28.75 |
| | 4960 | PK | H | 39.80 | 5.44 | 39.17 | 44.61 | 74.00 | -29.39 |
| | 11490 | PK | H | 39.01 | 22.97 | 24.31 | 47.28 | 74.00 | -26.72 |
| | 17235 | PK | H | 37.91 | 27.52 | 19.31 | 46.83 | 74.00 | -27.17 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11n(HT20) , Ch157 | 1583 | PK | V | 38.74 | -6.39 | 55.42 | 49.03 | 74.00 | -24.97 |
| | 2375 | PK | V | 39.01 | -1.99 | 42.85 | 40.86 | 74.00 | -33.14 |
| | 4476 | PK | V | 40.57 | 3.90 | 46.74 | 50.64 | 74.00 | -23.36 |
| | 6324 | PK | V | 38.31 | 8.54 | 39.51 | 48.05 | 74.00 | -25.95 |
| | 11570 | PK | V | 38.98 | 22.87 | 24.16 | 47.03 | 74.00 | -26.97 |
| | 17355 | PK | V | 37.97 | 27.89 | 19.77 | 47.66 | 74.00 | -26.34 |
| | 1583 | PK | H | 38.74 | -6.39 | 47.31 | 40.92 | 74.00 | -33.08 |
| | 2375 | PK | H | 39.01 | -1.98 | 49.78 | 47.80 | 74.00 | -26.20 |
| | 4476 | PK | H | 40.57 | 3.90 | 43.06 | 46.96 | 74.00 | -27.04 |
| | 4960 | PK | H | 39.80 | 5.44 | 39.61 | 45.05 | 74.00 | -28.95 |
| | 11570 | PK | H | 38.98 | 22.87 | 24.90 | 47.77 | 74.00 | -26.23 |
| | 17355 | PK | H | 37.97 | 27.88 | 19.47 | 47.35 | 74.00 | -26.65 |
| 802.11n(HT20) , Ch165 | 1583 | PK | V | 38.74 | -6.39 | 57.94 | 51.55 | 74.00 | -22.45 |
| | 2375 | PK | V | 39.01 | -1.98 | 43.92 | 41.94 | 74.00 | -32.06 |
| | 4542 | PK | V | 40.51 | 4.08 | 47.73 | 51.81 | 74.00 | -22.19 |
| | 6478 | PK | V | 38.37 | 9.05 | 39.30 | 48.35 | 74.00 | -25.65 |
| | 11650 | PK | V | 38.94 | 22.76 | 23.96 | 46.72 | 74.00 | -27.28 |
| | 17475 | PK | V | 38.04 | 28.24 | 17.82 | 46.06 | 74.00 | -27.94 |
| | 1583 | PK | H | 38.74 | -6.40 | 49.81 | 43.41 | 74.00 | -30.59 |
| | 2375 | PK | H | 39.01 | -1.99 | 50.58 | 48.59 | 74.00 | -25.41 |
| | 4531 | PK | H | 40.53 | 4.04 | 46.23 | 50.27 | 74.00 | -23.73 |
| | 11650 | PK | H | 38.94 | 22.76 | 24.85 | 47.61 | 74.00 | -26.39 |
| | 17475 | PK | H | 38.04 | 28.24 | 18.28 | 46.52 | 74.00 | -27.48 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11n(HT40) , Ch38 | 1968 | PK | V | 38.42 | -1.81 | 42.33 | 40.52 | 74.00 | -33.48 |
| | 2375 | PK | V | 39.01 | -1.99 | 43.53 | 41.54 | 74.00 | -32.46 |
| | 3574 | PK | V | 40.07 | 1.41 | 46.18 | 47.59 | 74.00 | -26.41 |
| | 6170 | PK | V | 38.25 | 8.03 | 38.27 | 46.30 | 74.00 | -27.70 |
| | 10380 | PK | V | 38.96 | 20.11 | 25.86 | 45.97 | 74.00 | -28.03 |
| | 15570 | PK | V | 38.19 | 22.38 | 19.50 | 41.88 | 74.00 | -32.12 |
| | 2375 | PK | H | 39.01 | -1.98 | 46.64 | 44.66 | 74.00 | -29.34 |
| | 3585 | PK | H | 40.08 | 1.45 | 47.81 | 49.26 | 74.00 | -24.74 |
| | 6181 | PK | H | 38.25 | 8.06 | 37.57 | 45.63 | 74.00 | -28.37 |
| | 10380 | PK | H | 38.96 | 20.11 | 24.01 | 44.12 | 74.00 | -29.88 |
| | 15570 | PK | H | 38.19 | 22.38 | 19.22 | 41.60 | 74.00 | -32.40 |
| 802.11n(HT40) , Ch46 | 2375 | PK | V | 39.01 | -1.99 | 43.08 | 41.09 | 74.00 | -32.91 |
| | 3640 | PK | V | 40.12 | 1.65 | 45.08 | 46.73 | 74.00 | -27.27 |
| | 6258 | PK | V | 38.28 | 8.32 | 38.38 | 46.70 | 74.00 | -27.30 |
| | 10460 | PK | V | 39.01 | 20.62 | 27.08 | 47.70 | 74.00 | -26.30 |
| | 15690 | PK | V | 38.10 | 22.35 | 20.18 | 42.53 | 74.00 | -31.47 |
| | 1583 | PK | H | 38.74 | -6.40 | 44.99 | 38.59 | 74.00 | -35.41 |
| | 2375 | PK | H | 39.01 | -1.99 | 41.73 | 39.74 | 74.00 | -34.26 |
| | 3640 | PK | H | 40.12 | 1.65 | 42.17 | 43.82 | 74.00 | -30.18 |
| | 6258 | PK | H | 38.28 | 8.32 | 37.69 | 46.01 | 74.00 | -27.99 |
| | 10460 | PK | H | 39.01 | 20.62 | 25.97 | 46.59 | 74.00 | -27.41 |
| | 15690 | PK | H | 38.10 | 22.35 | 17.57 | 39.92 | 74.00 | -34.08 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

| Mode | Frequency (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 802.11n(HT40) , Ch151 | 1583 | PK | V | 38.74 | -6.39 | 54.01 | 47.62 | 74.00 | -26.38 |
| | 2375 | PK | V | 39.01 | -1.98 | 43.15 | 41.17 | 74.00 | -32.83 |
| | 4432 | PK | V | 40.55 | 3.81 | 40.55 | 44.36 | 74.00 | -29.64 |
| | 11510 | PK | V | 39.01 | 22.95 | 24.10 | 47.05 | 74.00 | -26.95 |
| | 17265 | PK | V | 37.92 | 27.61 | 19.66 | 47.27 | 74.00 | -26.73 |
| | 1583 | PK | H | 38.74 | -6.39 | 49.40 | 43.01 | 74.00 | -30.99 |
| | 2375 | PK | H | 39.01 | -1.98 | 49.55 | 47.57 | 74.00 | -26.43 |
| | 4432 | PK | H | 40.55 | 3.81 | 41.66 | 45.47 | 74.00 | -28.53 |
| | 11510 | PK | H | 39.01 | 22.96 | 25.05 | 48.01 | 74.00 | -25.99 |
| | 17265 | PK | H | 37.92 | 27.61 | 19.58 | 47.19 | 74.00 | -26.81 |
| 802.11n(HT40) , Ch159 | 1583 | PK | V | 38.74 | -6.39 | 56.75 | 50.36 | 74.00 | -23.64 |
| | 2375 | PK | V | 39.01 | -1.98 | 44.37 | 42.39 | 74.00 | -31.61 |
| | 4487 | PK | V | 40.57 | 3.92 | 40.35 | 44.27 | 74.00 | -29.73 |
| | 11590 | PK | V | 38.97 | 22.85 | 24.07 | 46.92 | 74.00 | -27.08 |
| | 17385 | PK | V | 37.99 | 27.97 | 18.10 | 46.07 | 74.00 | -27.93 |
| | 1583 | PK | H | 38.74 | -6.39 | 49.78 | 43.39 | 74.00 | -30.61 |
| | 2375 | PK | H | 39.01 | -1.99 | 50.40 | 48.41 | 74.00 | -25.59 |
| | 4487 | PK | H | 40.57 | 3.92 | 40.49 | 44.41 | 74.00 | -29.59 |
| | 11590 | PK | H | 38.97 | 22.84 | 24.40 | 47.24 | 74.00 | -26.76 |
| | 17385 | PK | H | 37.99 | 27.97 | 18.54 | 46.51 | 74.00 | -27.49 |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

# 6. Emission on The Band Edge

## 6.1 Operating environment

| | | |
|---|---|---|
| Temperature: | 25 | ℃ |
| Relative Humidity: | 50 | % |
| Atmospheric Pressure | 1008 | hPa |
| Requirement | 15.407(b), 15.209 | |
| Channel | 36, 38, 42, 46, 48 149, 157, 165, 151, 159, 155 | |

## 6.2 Measuring instrument setting

| Spectrum analyzer settings | |
|---|---|
| **Spectrum Analyzer function** | **Setting** |
| Detector | Peak |
| RBW | 1MHz |
| VBW | 3MHz for Peak; 10Hz for Average |
| Sweep | Auto couple |
| Restrict bands | 4500~5150MHz |
| | 5350 ~5460MHz |
| Attenuation | Auto |

| **Applicable to** | **Limit** | |
|---|---|---|
| | **EIRP Limit (dBm)** | **Equivalent Field Strength at 3m (dBμV/m)** |
| 5715-5725MHz | PK | PK |
| 5850-5860MHz | -17 | 78.2 |

## 6.3 Test procedure

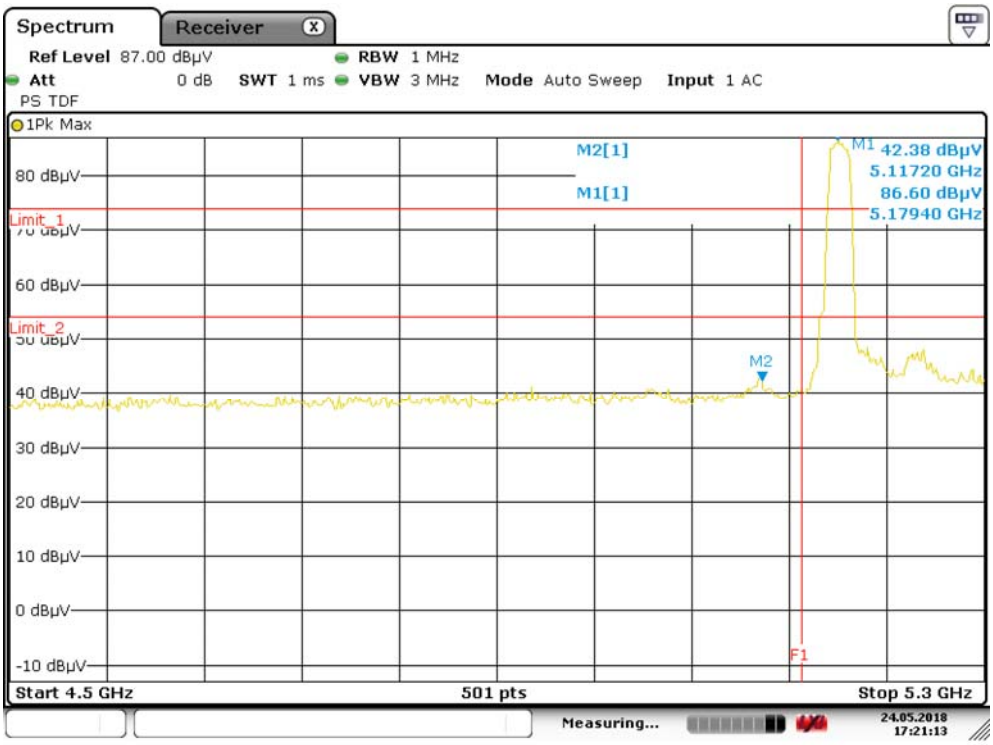
The test procedure is the same as clause 5.4

## 6.4 Test Result

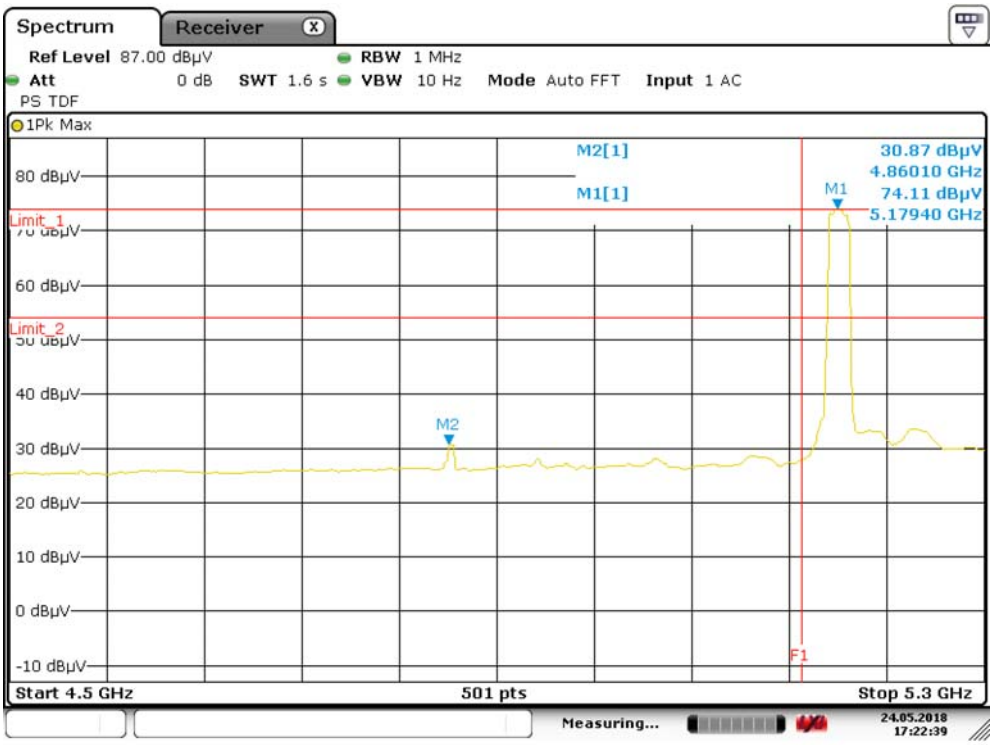
| Mode | CH | Freq. (MHz) | Spectrum Analyzer Detector | Ant. Pol. (H/V) | Preamp. Gain (dB) | Correction Factor (dB/m) | Reading (dBµV) | Corrected Reading (dBµV/m) | Limit @ 3 m (dBµV/m) | Margin (dB) | Restricted band (MHz) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 802.11a Chain 0 | 36 | 5150.00 | PK | V | 39.27 | 1.50 | 40.88 | 42.38 | 74 | -31.62 | 4500~5150 |
| | | 5150.00 | AV | V | 39.27 | 1.50 | 29.37 | 30.87 | 54 | -23.13 | |
| | 48 | 5447.96 | PK | V | 38.34 | 3.30 | 33.41 | 36.71 | 74 | -37.29 | 5350~5460 |
| | | 5447.43 | AV | V | 38.34 | 3.30 | 23.36 | 26.66 | 54 | -27.34 | |
| 802.11a Chain 1 | 36 | 5150.00 | PK | V | 39.27 | 1.50 | 41.47 | 42.97 | 74 | -31.03 | 4500~5150 |
| | | 5150.00 | AV | V | 39.27 | 1.50 | 29.36 | 30.86 | 54 | -23.14 | |
| | 48 | 5391.83 | PK | V | 38.52 | 2.96 | 33.88 | 36.84 | 74 | -37.16 | 5350~5460 |
| | | 5385.36 | AV | V | 38.54 | 2.92 | 24.44 | 27.36 | 54 | -26.64 | |
| 802.11n (HT20) Chain 0+1 | 36 | 5150.00 | PK | V | 39.27 | 1.50 | 37.08 | 38.58 | 74 | -35.42 | 4500~5150 |
| | | 4864.40 | AV | V | 39.96 | 0.16 | 30.36 | 30.52 | 54 | -23.48 | |
| | 48 | 5386.44 | PK | V | 38.53 | 2.93 | 34.25 | 37.18 | 74 | -36.82 | 5350~5460 |
| | | 5447.34 | AV | V | 38.34 | 3.30 | 24.04 | 27.34 | 54 | -26.66 | |
| 802.11n (HT40) Chain 0+1 | 38 | 5144.00 | PK | V | 39.28 | 1.46 | 43.36 | 44.82 | 74 | -29.18 | 4500~5150 |
| | | 5150.00 | AV | V | 39.27 | 1.50 | 28.97 | 30.47 | 54 | -23.53 | |
| | 46 | 5449.82 | PK | V | 38.34 | 3.32 | 34.73 | 38.05 | 74 | -35.95 | 5350~5460 |
| | | 5447.03 | AV | V | 38.34 | 3.30 | 24.06 | 27.36 | 54 | -26.64 | |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

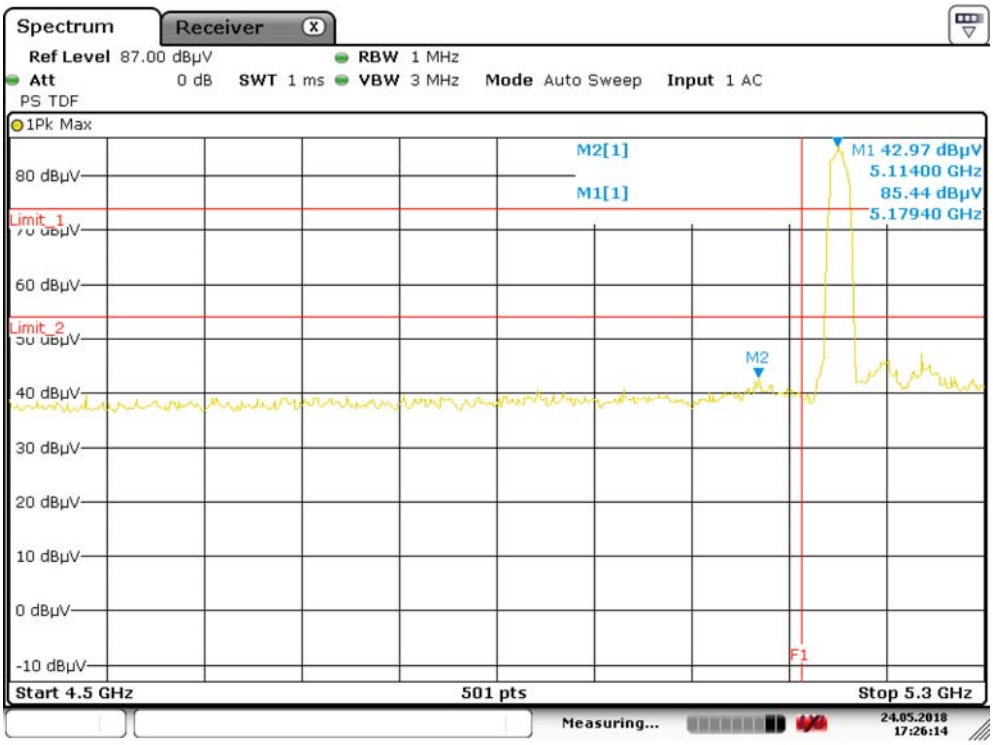
802.11a_Ch36_Chain0_Pk



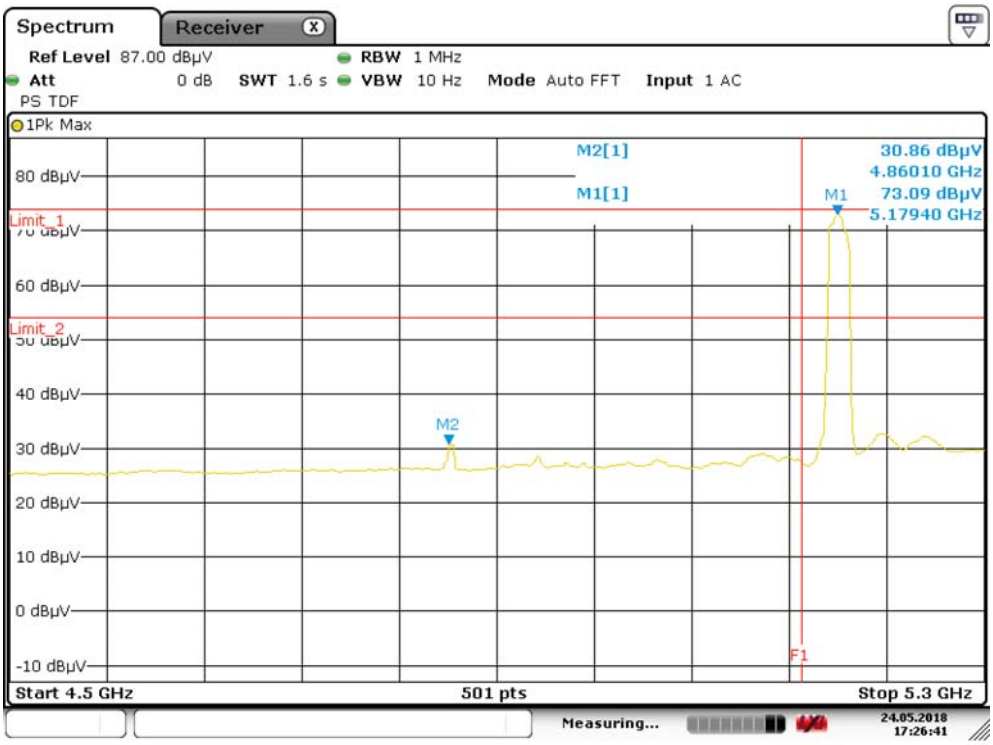

802.11a_Ch36_Chain0_Av



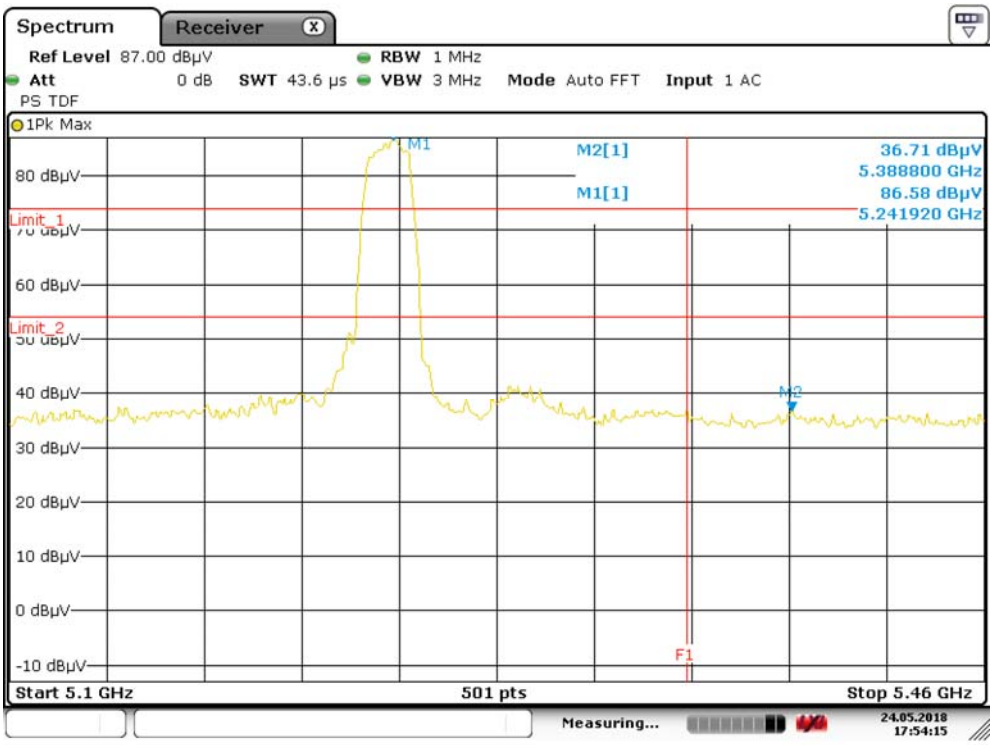
802.11a_Ch36_Chain1_Pk



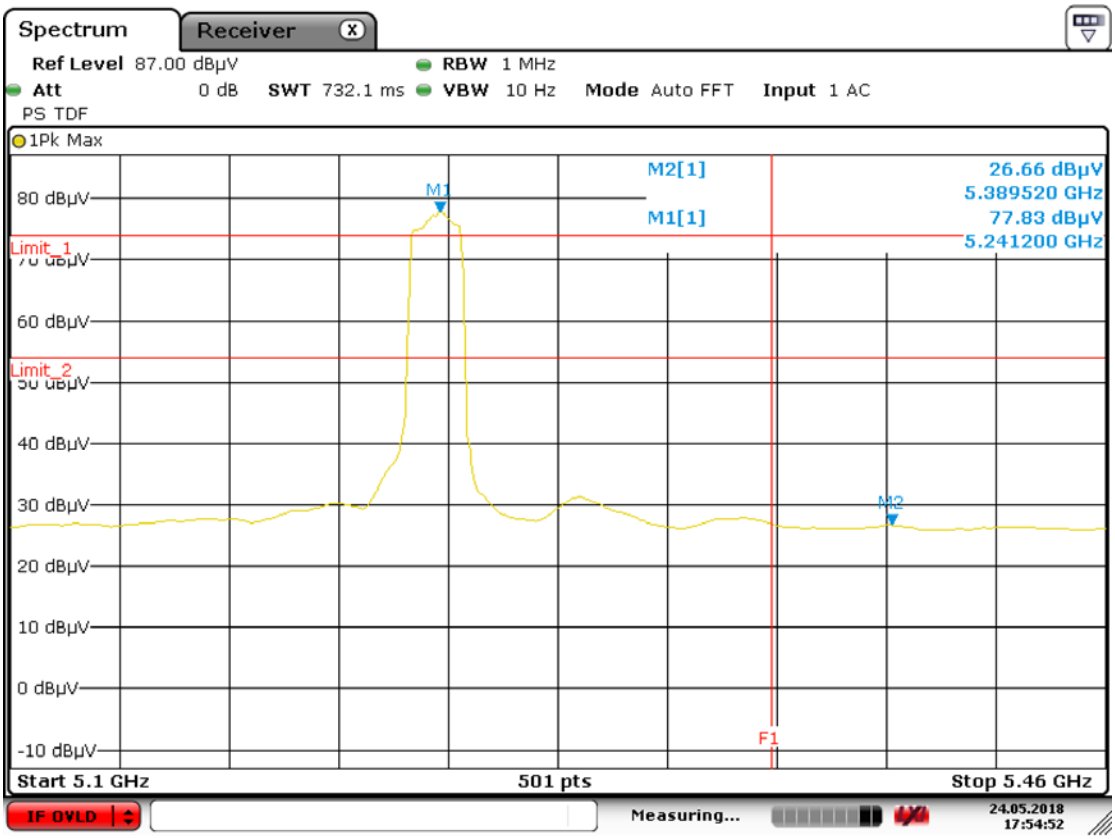

802.11a_Ch36_Chain1_Av



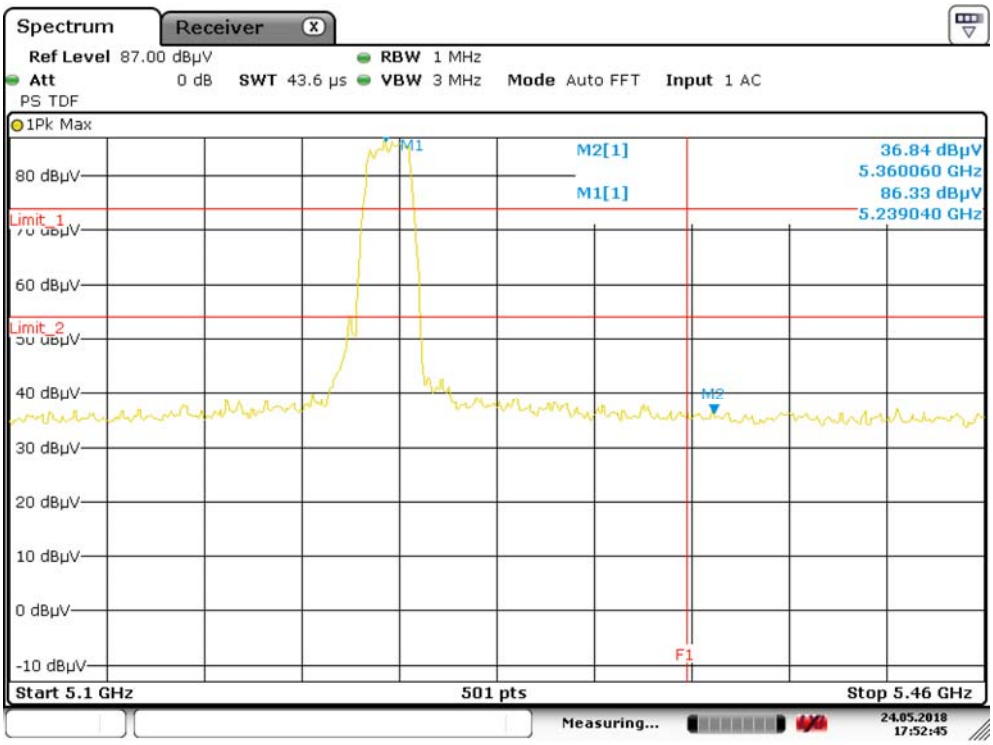
802.11a_Ch48_Chain0_Pk



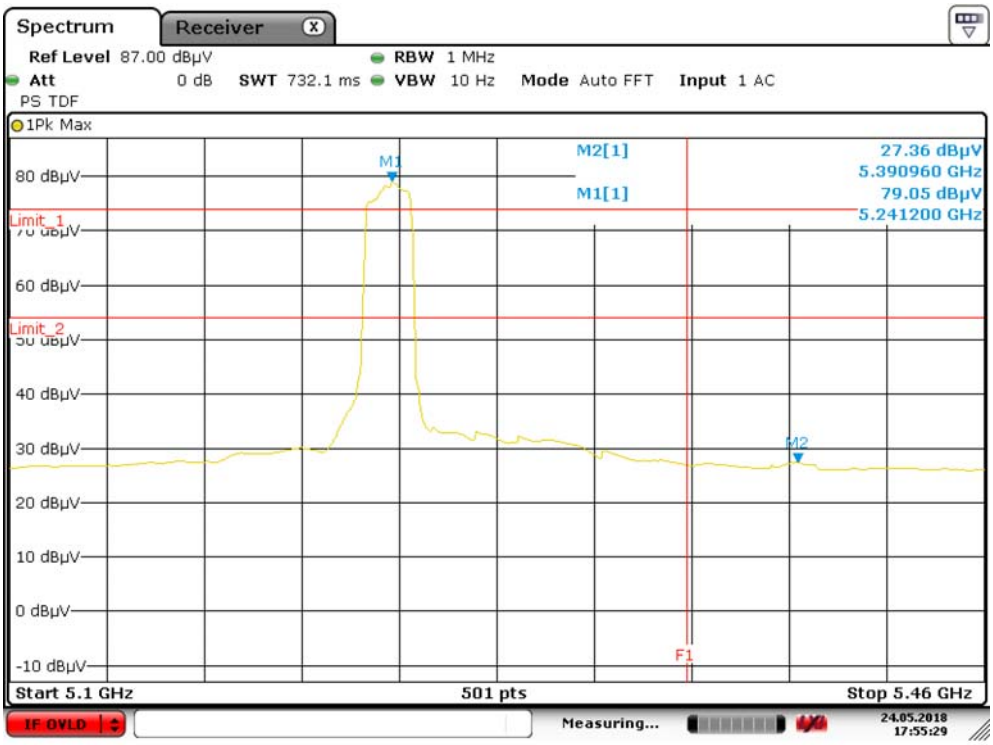

802.11a_Ch48_Chain0_Av



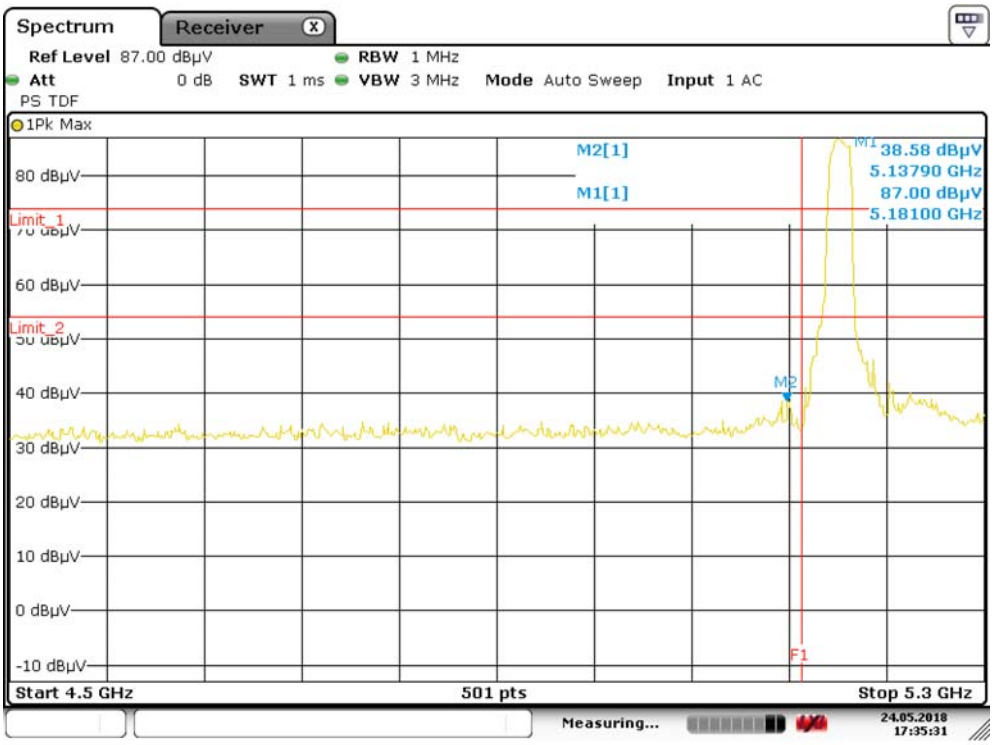
802.11a_Ch48_Chain1_Pk



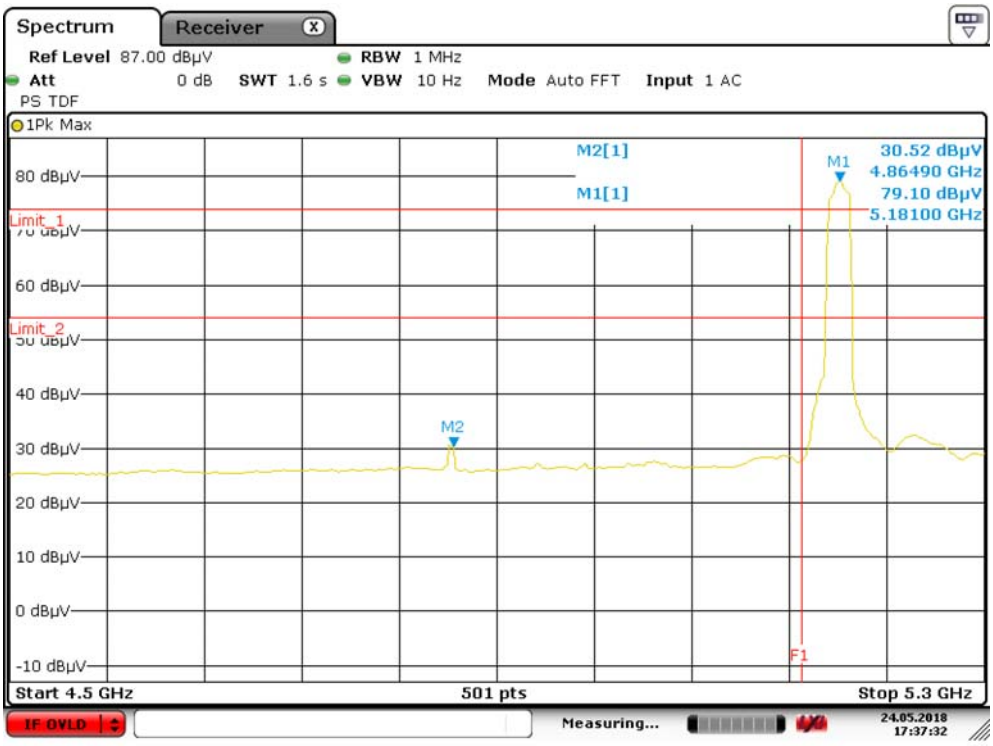

802.11a_Ch48_Chain1_Av



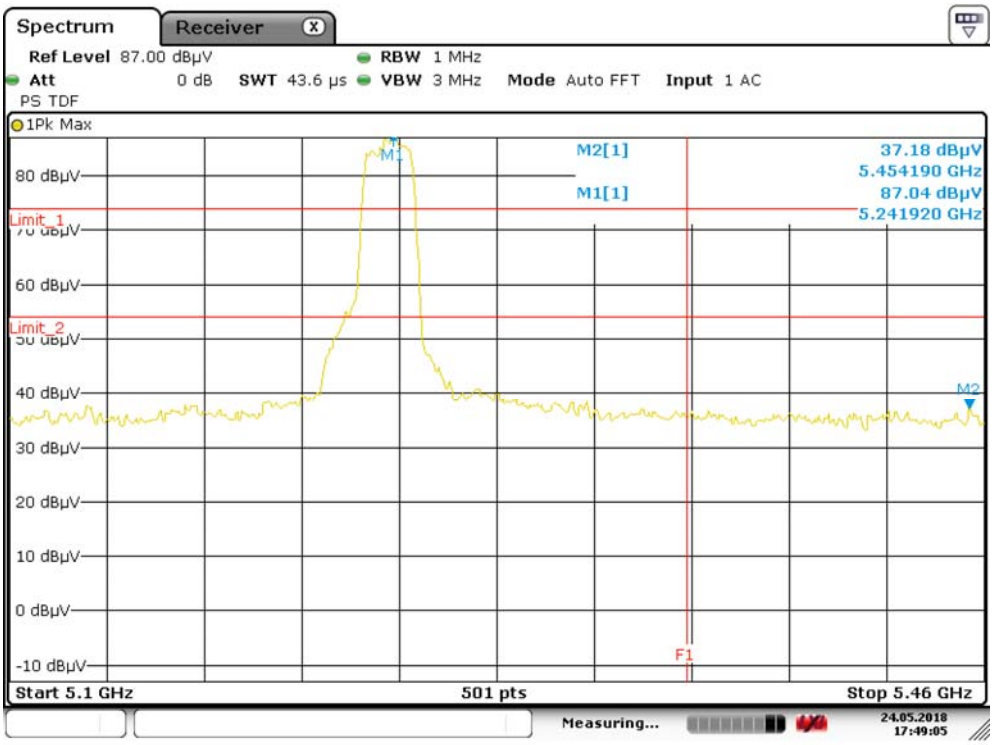
802.11n(HT20)_Ch36_Chain0+1_Pk



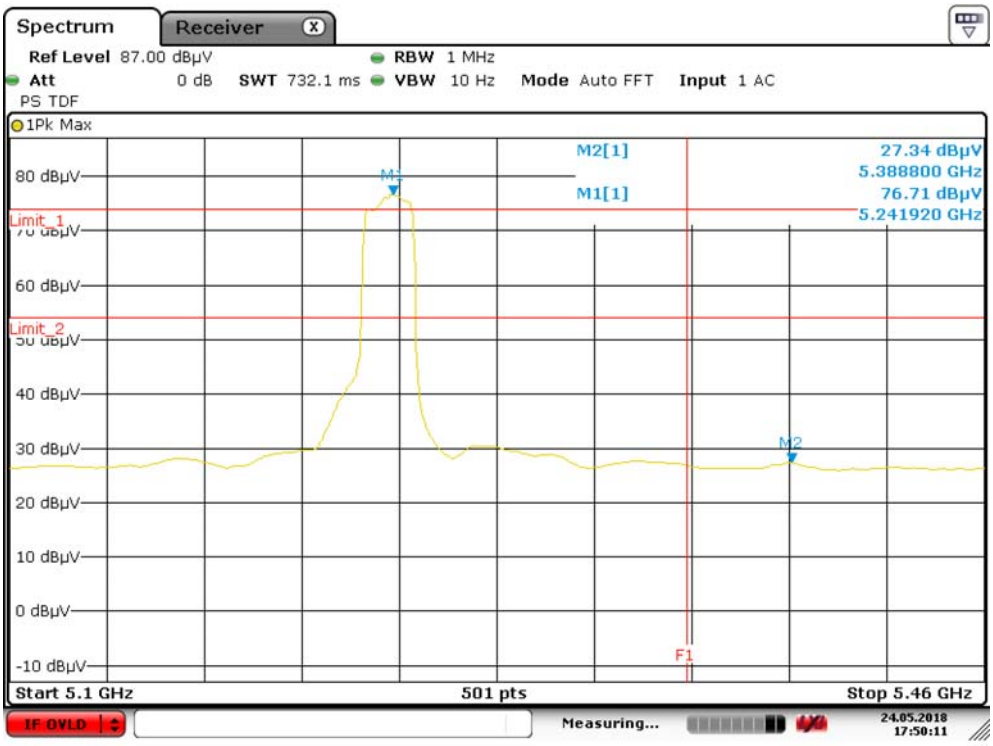

802.11n(HT20)_Ch36_Chain0+1_Av



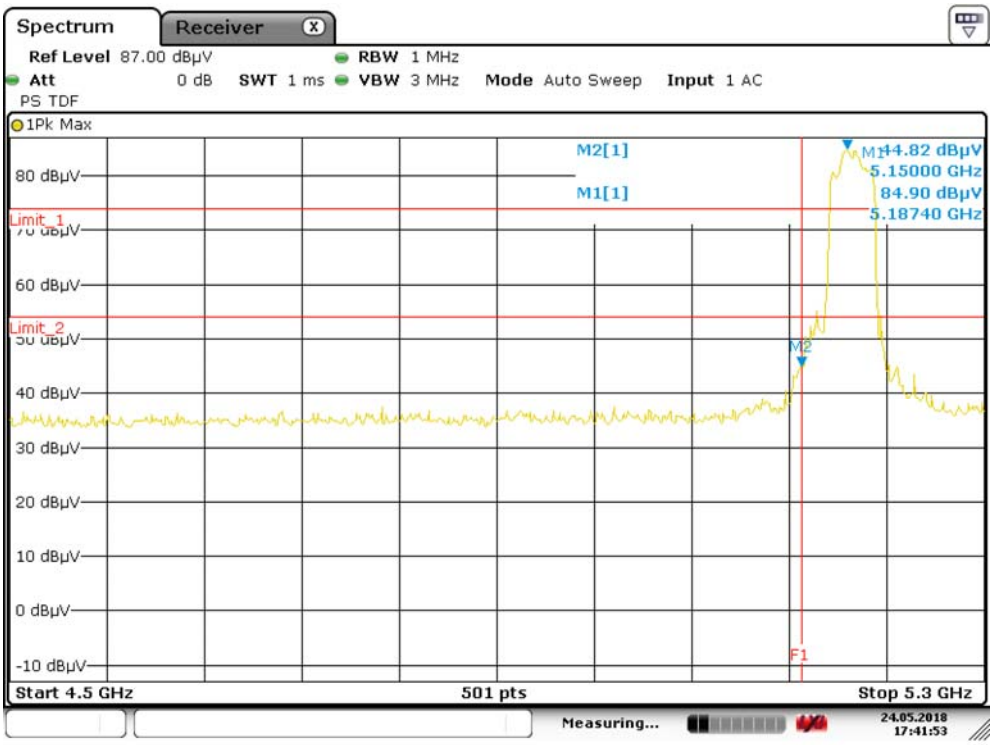
802.11n(HT20)_Ch48_Chain0+1_Pk



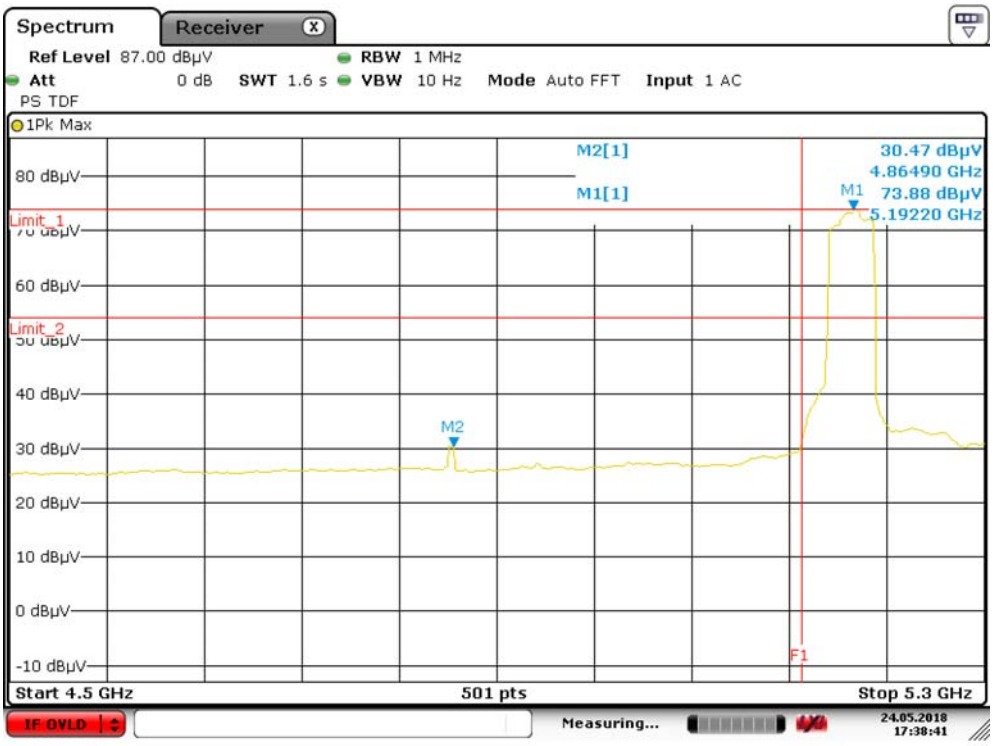

802.11n(HT20)_Ch48_Chain0+1_Av



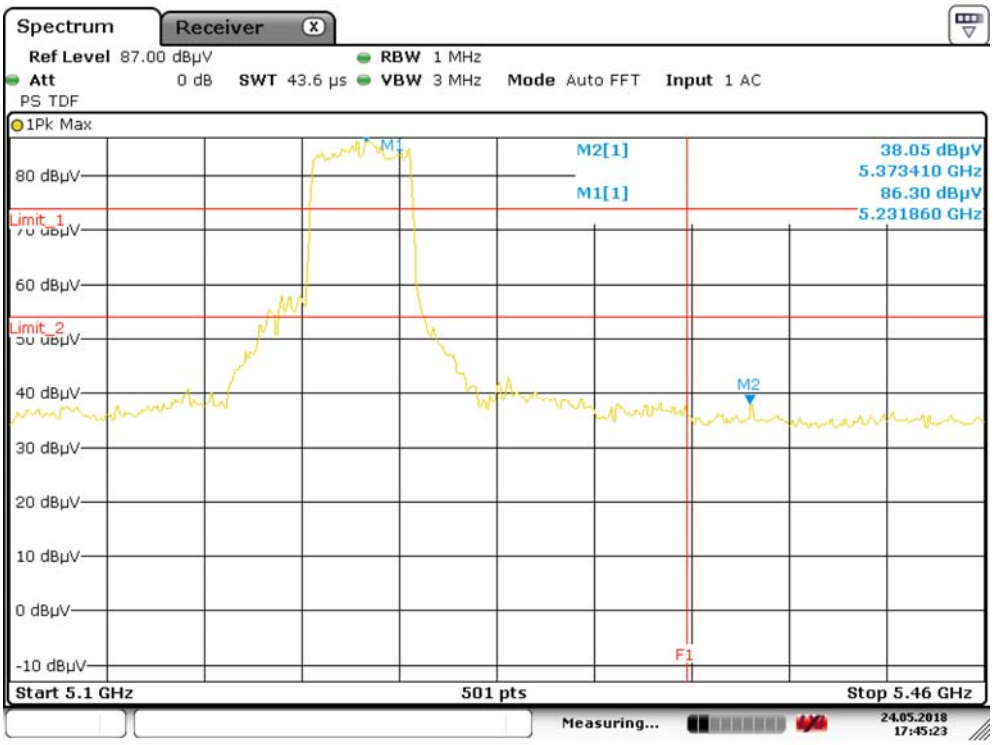
802.11n(HT40)_Ch38_Chain0+1_Pk



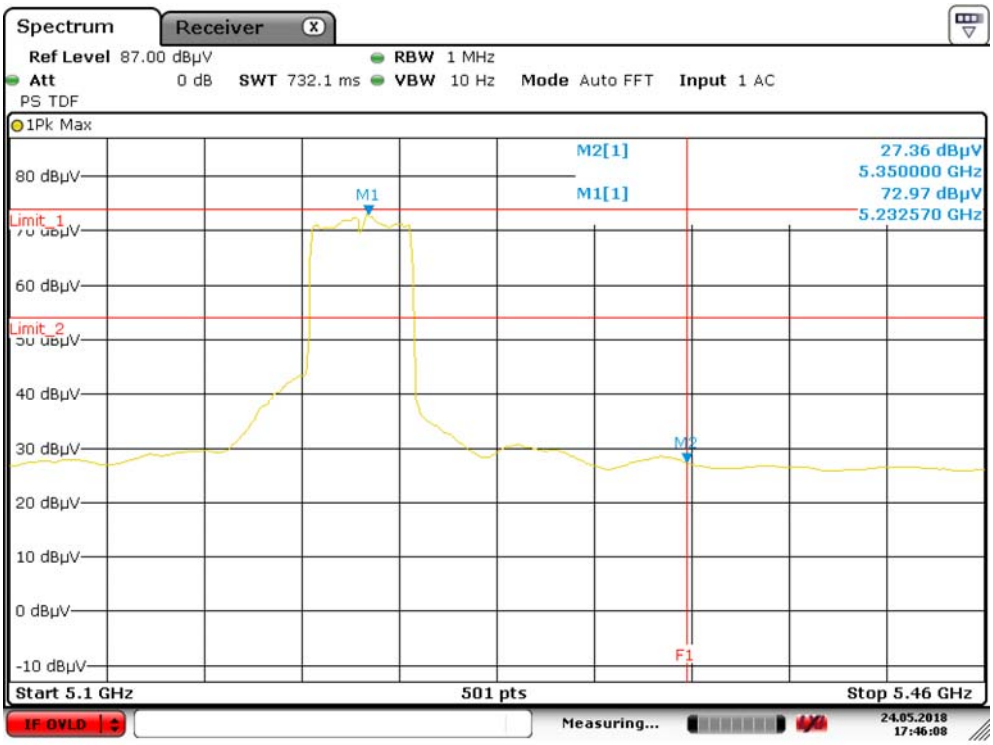

802.11n(HT40)_Ch38_Chain0+1_Av



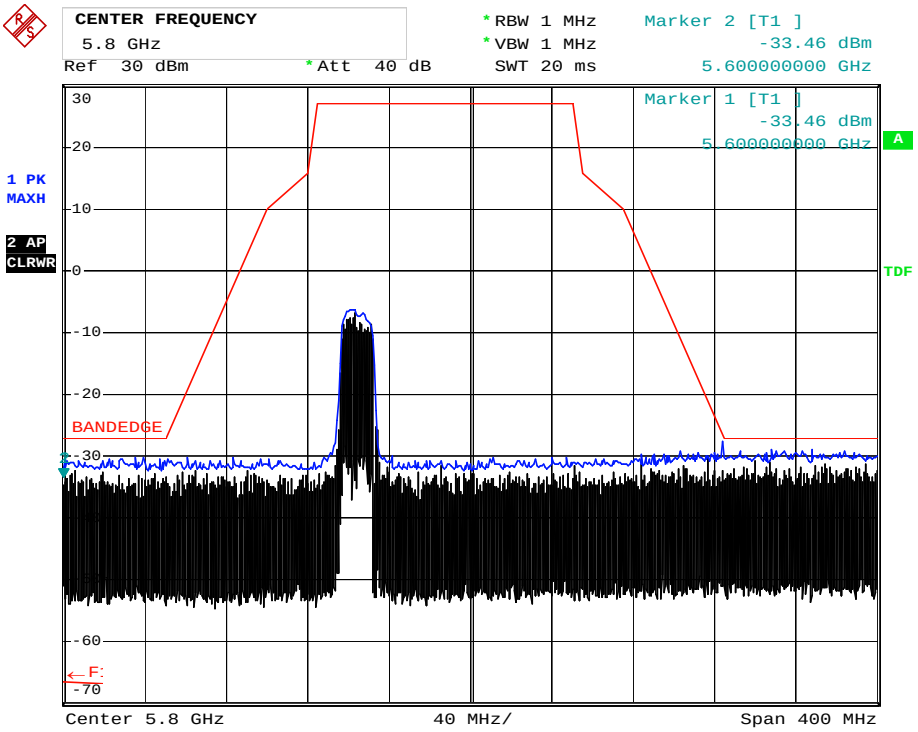
802.11n(HT40)_Ch46_Chain0+1_Pk



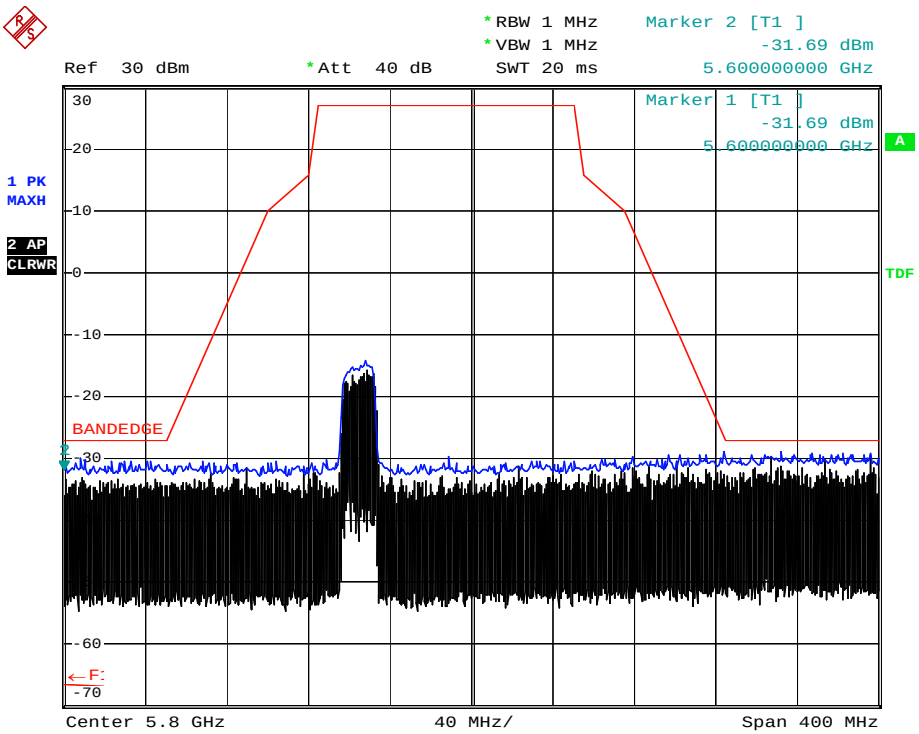

802.11n(HT40)_Ch46_Chain0+1_Av



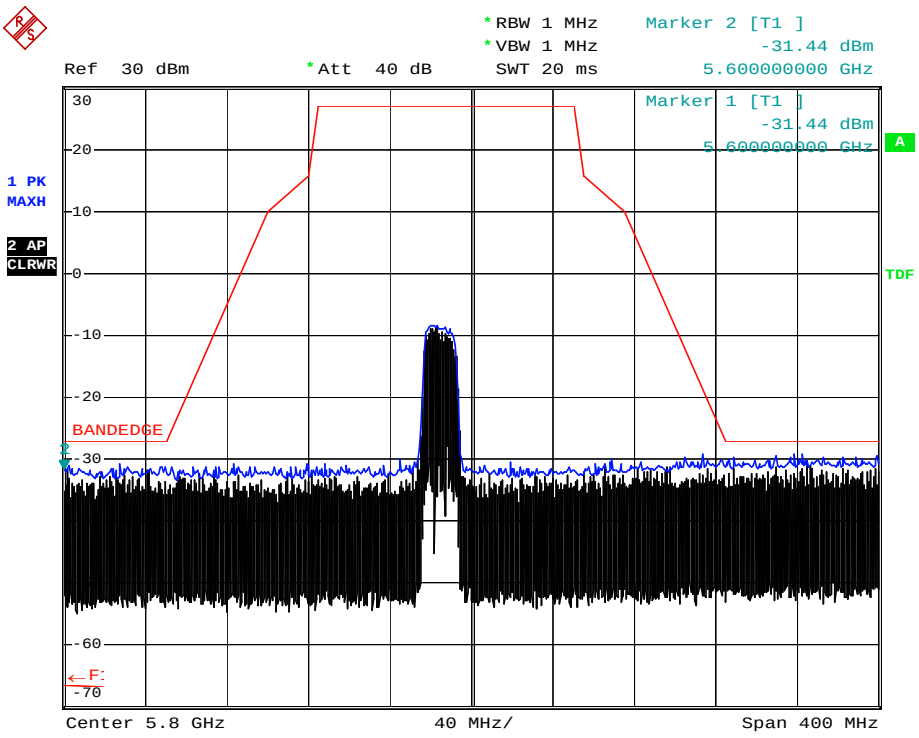
802.11a_Ch149_5745MHz_Chain0



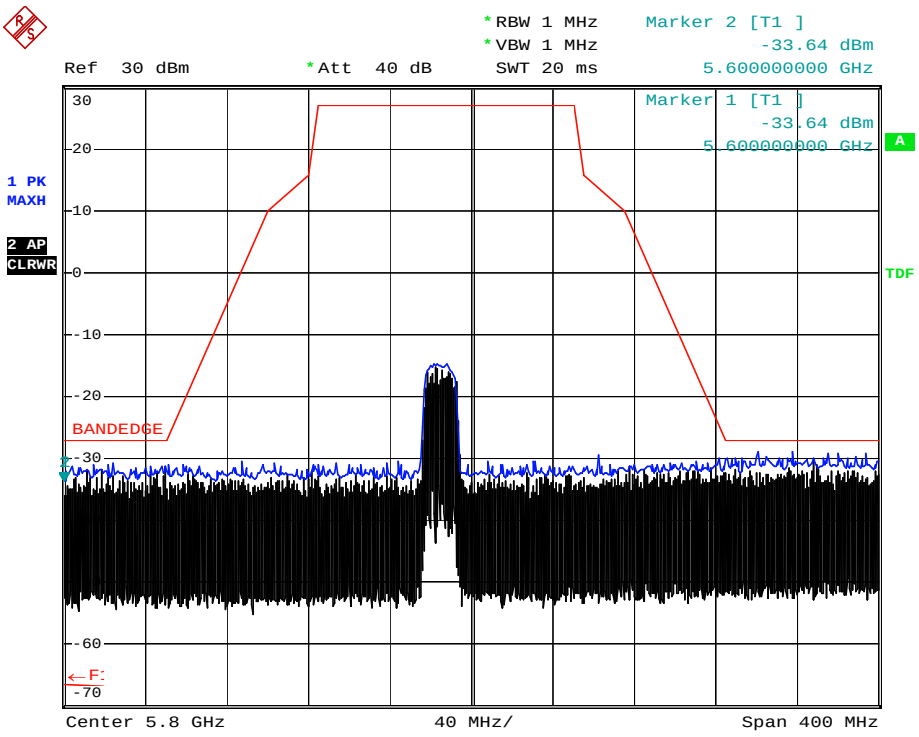

802.11a_Ch149_5745MHz_Chain1



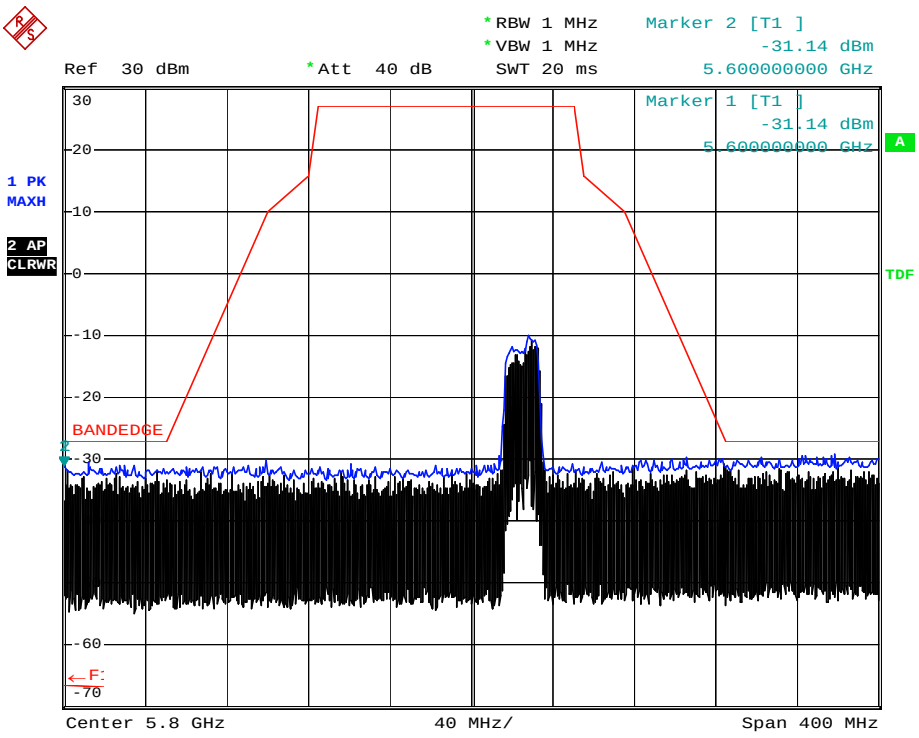
802.11a_Ch157_5785MHz_Chain0



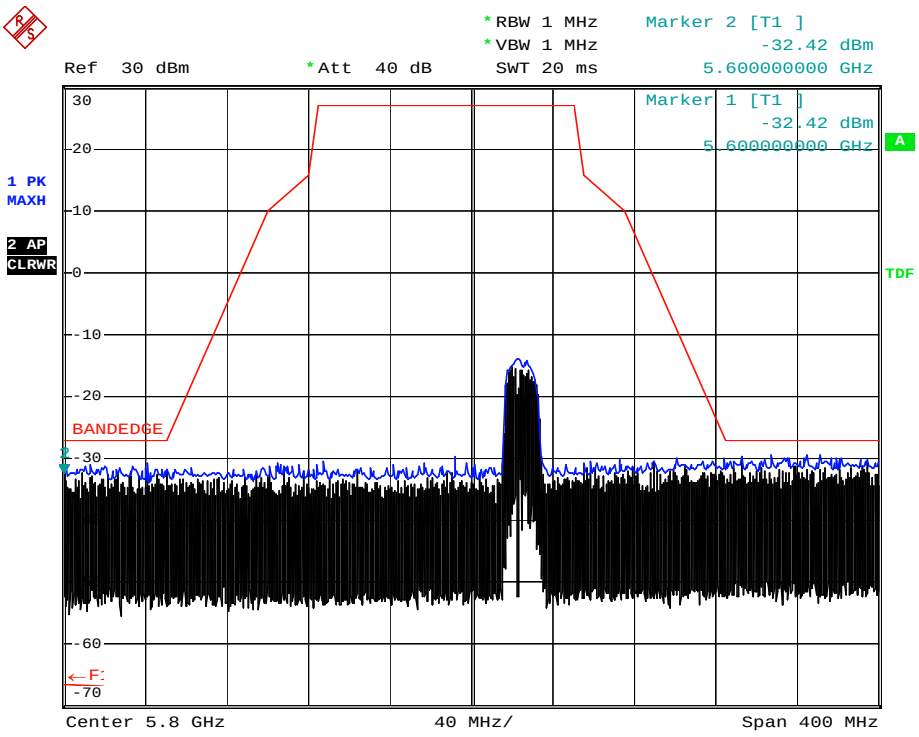

802.11a_Ch157_5785MHz_Chain1



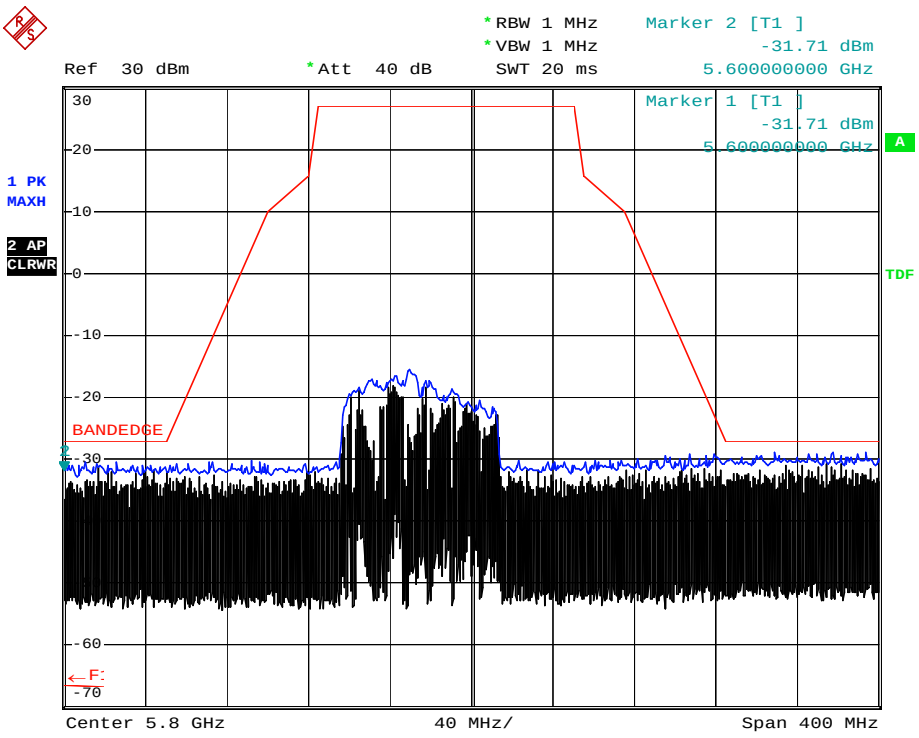
802.11a_Ch165_5825MHz_Chain0



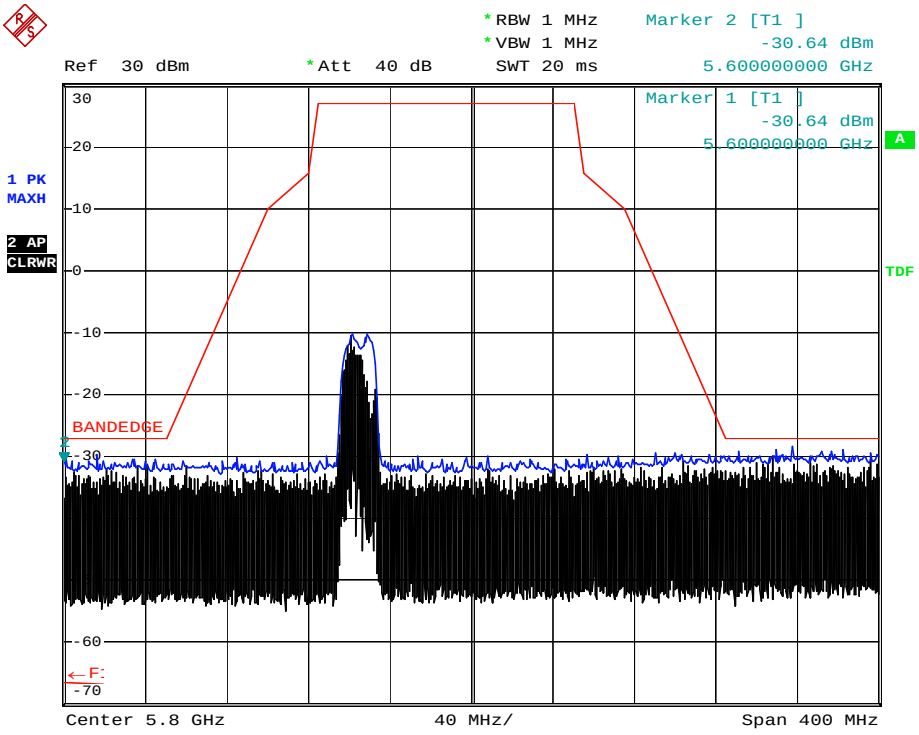

802.11a_Ch165_5825MHz_Chain1



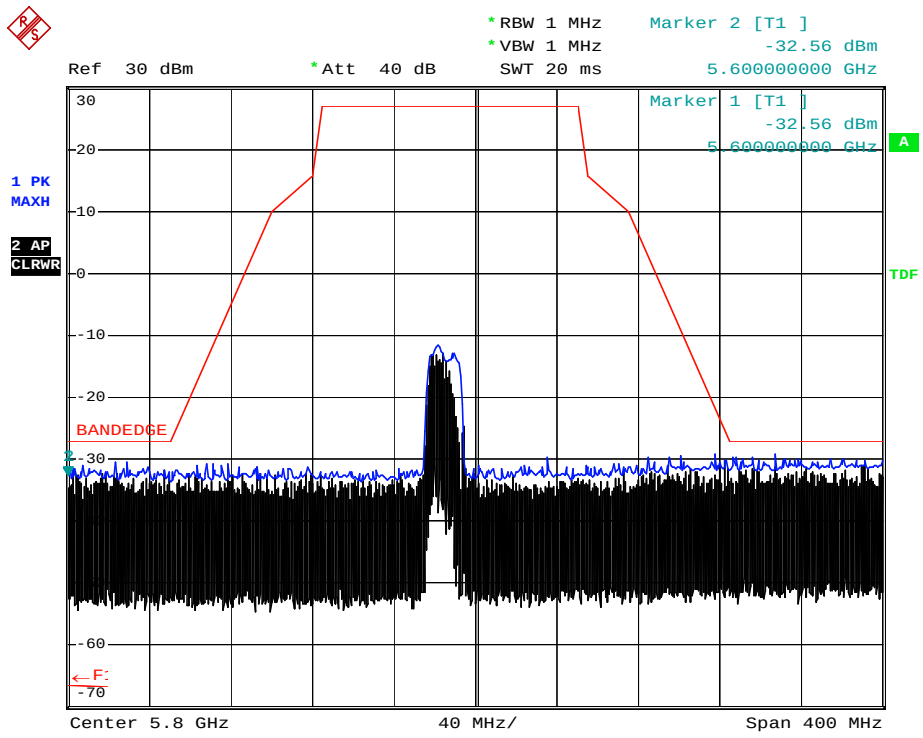
802.11ac(HT80)_Ch155_5775MHz_Chain0+1



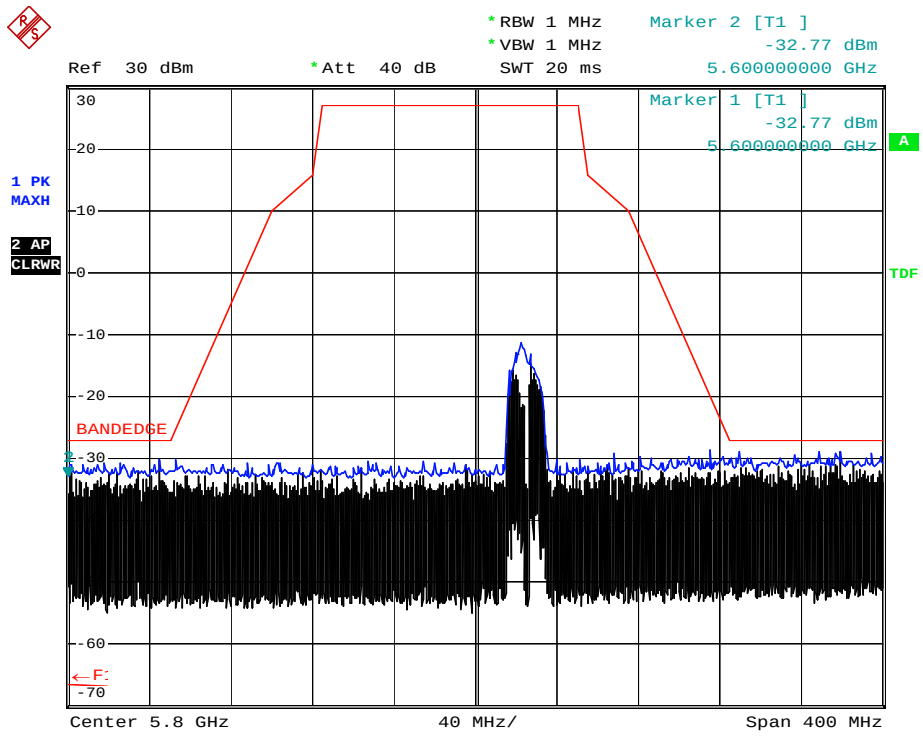

802.11n(HT20)_Ch149_5745MHz_Chain0+1



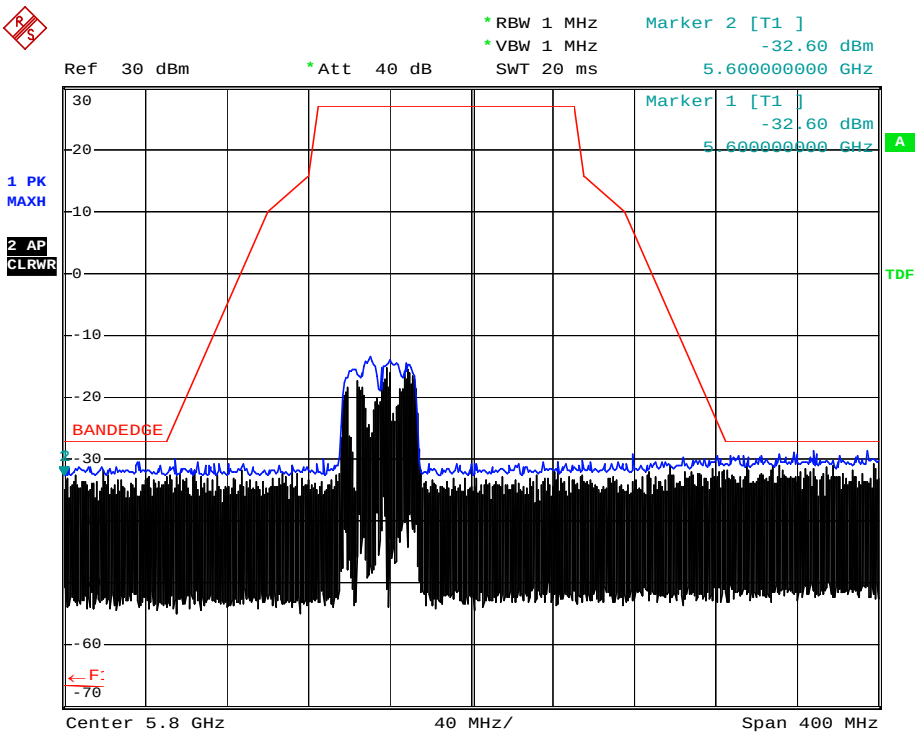
802.11n(HT20)_Ch157_5785MHz_Chain0+1



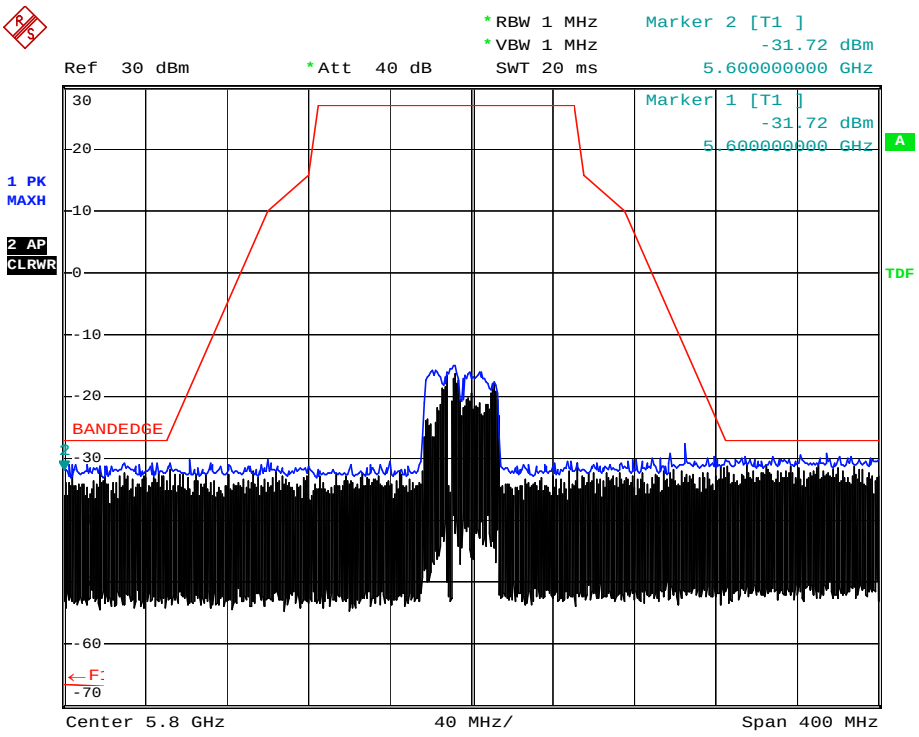

802.11n(HT20)_Ch165_5825MHz_Chain0+1



802.11n(HT40)_Ch151_5755MHz_Chain0+1




802.11n(HT40)_Ch159_5795MHz_Chain0+1



# 7. Power Line Conducted Emission

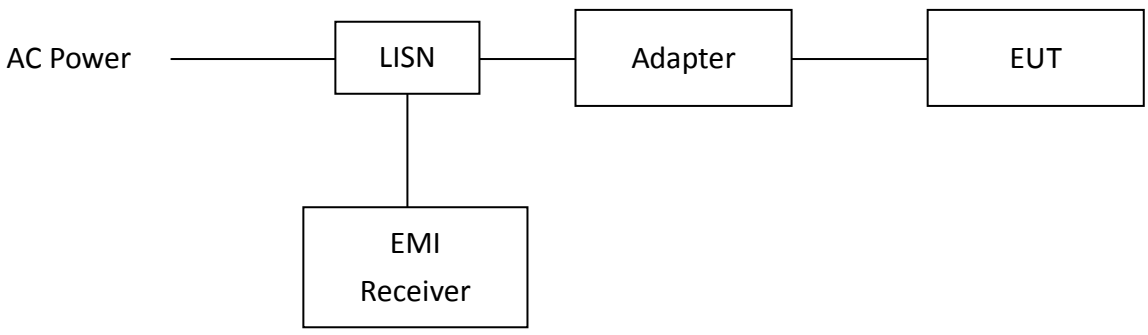
## 7.1 Measuring instrument setting

| Receiver Function | Setting |
|---|---|
| Detector | QP |
| Start frequency | 0.15MHz |
| Stop frequency | 30MHz |
| IF bandwidth | 9 kHz |
| Attenuation | 10dB |

## 7.2 Test Procedure

| | |
|---|---|
| Step 1 | Configure the EUT according to ANSI C63.10:2013. The EUT or host of EHT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface. |
| Step 2 | Connect EUT or host of EUT to the power mains through a line impedance stabilization network. |
| Step 3 | All the companion devices are connected to the other LISN. The LISN should provide 50Uh/50ohms coupling impedance. |
| Step 4 | The frequency range from 150 kHz to 30MHz was searched. |
| Step 5 | Set the test-receiver system to peak detector and specified bandwidth with maximum hold mode. |
| Step 6 | The measurement has to be done between each power line and ground at the power terminal. |

## 7.3 Test Diagram



### 7.4 Limit

| Frequency (MHz) | Conducted Limit (dBuV) | |
|---|---|---|
| | Q.P. | Ave. |
| 0.15~0.50 | 66 – 56 | 56 – 46 |
| 0.50~5.00 | 56 | 46 |
| 5.00~30.0 | 60 | 50 |

### 7.5 Operating Environment Condition

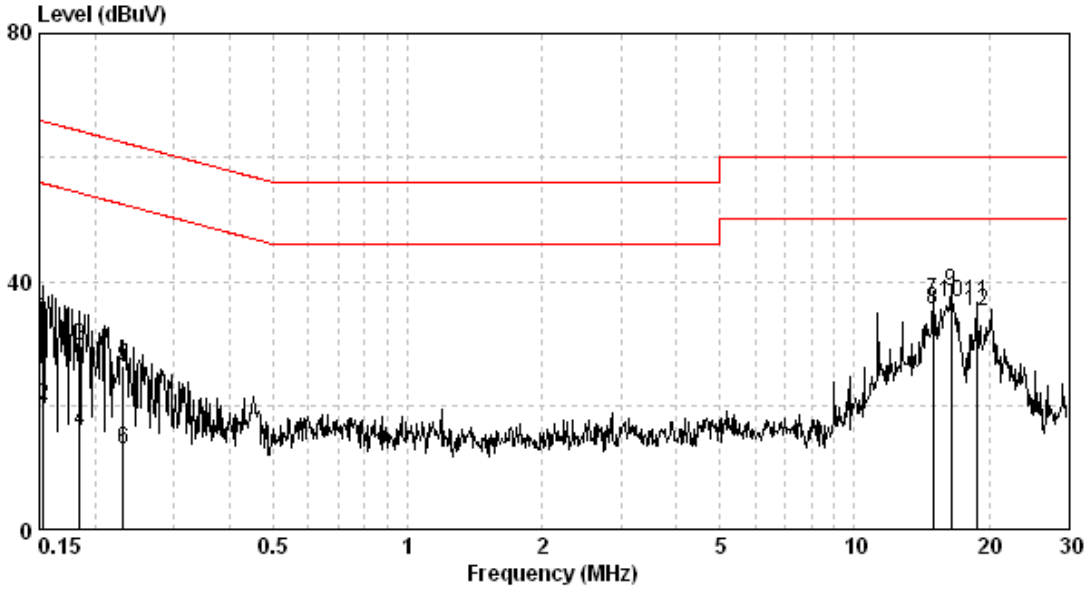
| | |
|---|---|
| Temperature (℃) : | 26 |
| Relative Humidity (%) : | 52 |
| Atmospheric Pressure (hPa) : | 1005 |
| Test Date : | 2018/4/25 |

## 7.6 Test Results

Phase: Live Line
Model No.: Target Training Console
Test Condition: Tx mode

| Frequency (MHz) | Corr. Factor (dB) | Reading QP (dBuV) | Level QP (dBuV) | Limit QP (dBuV) | Reading AV (dBuV) | Level AV (dBuV) | Limit AV (dBuV) | Margin (dB) QP | Margin (dB) AV |
|---|---|---|---|---|---|---|---|---|---|
| 0.153 | 9.34 | 24.66 | 34.00 | 65.82 | 10.59 | 19.93 | 55.82 | -31.83 | -35.90 |
| 0.184 | 9.34 | 20.23 | 29.57 | 64.28 | 6.48 | 15.82 | 54.28 | -34.71 | -38.46 |
| 0.232 | 9.35 | 16.94 | 26.28 | 62.39 | 3.52 | 12.87 | 52.39 | -36.11 | -39.52 |
| 14.986 | 9.54 | 27.38 | 36.92 | 60.00 | 25.79 | 35.33 | 50.00 | -23.08 | -14.67 |
| 16.486 | 9.54 | 28.71 | 38.25 | 60.00 | 27.21 | 36.74 | 50.00 | -21.75 | -13.26 |
| 18.721 | 9.53 | 26.97 | 36.50 | 60.00 | 25.55 | 35.08 | 50.00 | -23.50 | -14.92 |

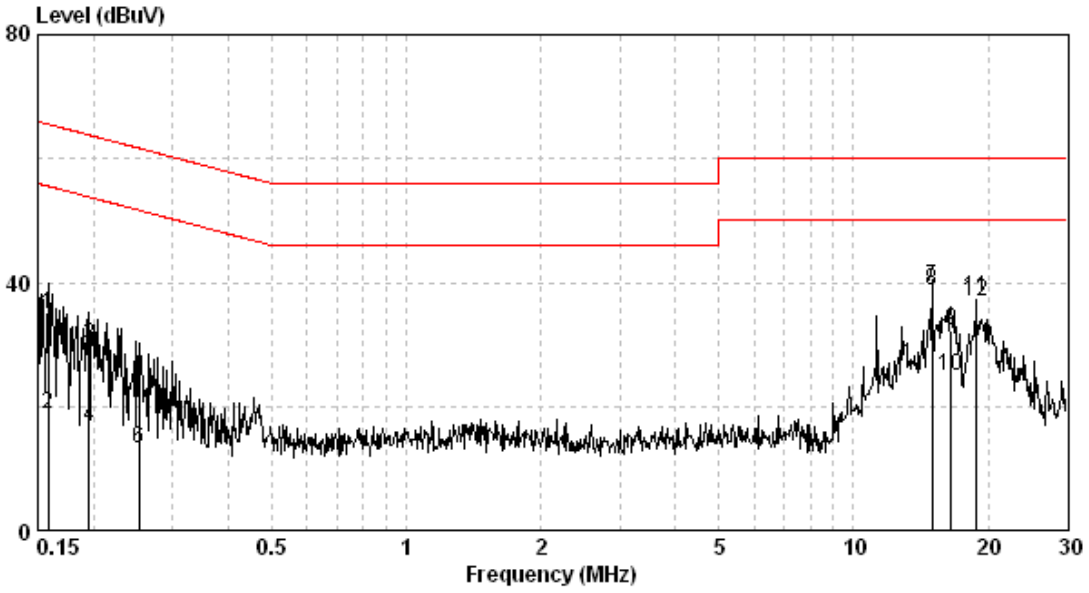
Remark:
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Level (dBuV) = Corr. Factor (dB) + Reading (dBuV)
3. Margin (dB) = Level (dBuV) – Limit (dBuV)



Phase: Neutral Line
Model No.: Target Training Console
Test Condition: Tx mode

| Frequency (MHz) | Corr. Factor (dB) | Reading QP (dBuV) | Level QP (dBuV) | Limit QP (dBuV) | Reading AV (dBuV) | Level AV (dBuV) | Limit AV (dBuV) | Margin (dB) QP | Margin (dB) AV |
|---|---|---|---|---|---|---|---|---|---|
| 0.158 | 9.60 | 25.15 | 34.75 | 65.56 | 9.12 | 18.72 | 55.56 | -30.81 | -36.84 |
| 0.195 | 9.60 | 20.27 | 29.87 | 63.80 | 6.96 | 16.56 | 53.80 | -33.93 | -37.24 |
| 0.252 | 9.61 | 14.75 | 24.36 | 61.69 | 3.71 | 13.31 | 51.69 | -37.33 | -38.38 |
| 14.986 | 9.85 | 29.48 | 39.33 | 60.00 | 28.73 | 38.58 | 50.00 | -20.67 | -11.42 |
| 16.573 | 9.86 | 22.44 | 32.29 | 60.00 | 14.93 | 24.79 | 50.00 | -27.71 | -25.21 |
| 18.721 | 9.87 | 27.77 | 37.63 | 60.00 | 27.02 | 36.89 | 50.00 | -22.37 | -13.11 |

Remark:
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Level (dBuV) = Corr. Factor (dB) + Reading (dBuV)
3. Margin (dB) = Level (dBuV) – Limit (dBuV)



## Appendix A: Test equipment list

| Equipment | Brand | Model No. | Serial No. | Calibration Date | Next Calibration Date |
|---|---|---|---|---|---|
| ESCI EMI Test Receiver | Rohde & Schwarz | ESCI | 100018 | 2017/11/21 | 2018/11/20 |
| Spectrum Analyzer | Rohde & Schwarz | FSP30 | 100137 | 2017/08/09 | 2018/08/08 |
| Horn Antenna (1-18G) | SHWARZBECK | BBHA 9120 D | 9120D-456 | 2018/01/23 | 2019/01/22 |
| Horn Antenna (14-42G) | SHWARZBECK | BBHA 9170 | BBHA9170159 | 2017/09/04 | 2020/09/02 |
| Broadband Antenna | SHWARZBECK | VULB 9168 | 9168-172 | 2017/04/05 | 2018/04/04 |
| Broadband Antenna | SHWARZBECK | VULB 9168 | 9168-172 | 2018/04/23 | 2019/04/22 |
| Pre-Amplifier | EMC Co. | EMC12635SE | 980205 | 2017/11/28 | 2018/11/27 |
| Pre-Amplifier | MITEQ | JS4-26004000--27-8A | 828825 | 2017/08/23 | 2018/08/22 |
| Power Meter | Anritsu | ML2495A | 0844001 | 2017/10/18 | 2018/10/17 |
| Power Sensor | Anritsu | MA2411B | 0738452 | 2017/05/23 | 2018/05/22 |
| Signal Analyzer | Agilent | N9030A | MY51380492 | 2017/08/29 | 2018/08/28 |
| 966-2(A) Cable 9kHz~26.5GHz | SUHNER | SMA / EX 100 | N/A | 2017/08/15 | 2018/08/14 |
| 966-2(B) Cable 9kHz~26.5GHz | SUHNER | SMA / SUCOFLEX 104P | CB0005 | 2017/08/15 | 2018/08/14 |

Note: No Calibration Required (NCR).

| Equipment | Brand | Model No. | Serial No. | Calibration Date | Next Calibration Date |
|---|---|---|---|---|---|
| RF Cable 9kHz~26.5GHz | SUHNER | SUCOFLEX 102 | CB0006 | 2017/05/04 | 2018/05/03 |
| 966-2_3m Semi-Anechoic Chamber | 966_2 | CEM-966_2 | N/A | 2018/03/28 | 2019/03/27 |
| High Pass Filter | Reactel | 7HS-3G/18G-S11 | N/A | 2017/06/02 | 2018/06/01 |
| Active Loop Antenna | SCHWARZBECK MESS-ELEKTRONIC | FMZB1519 | 1519-067 | 2018/04/17 | 2019/04/16 |
| EMI Test Receiver | Rohde & Schwarz | ESR-7 | 101232 | 2018/02/01 | 2019/01/31 |
| Test software | ADT | Radiated test system | 7.5.14 | NCR | NCR |

Note: No Calibration Required (NCR).

| Test Equipment/ Test site | Brand | Model No. | Serial No. | Calibration Date | Next Calibration Date |
|---|---|---|---|---|---|
| EMI Receiver | R&S | ESCI | 100059 | 2017/11/13 | 2018/11/12 |
| Two-Line V-Network | R&S | ENV216 | 101159 | 2017/06/03 | 2018/06/02 |
| Artificial Mains Network (LISN) | SCHAFFNER | MN2050D | 1586 | 2017/05/31 | 2018/05/30 |
| CON-1 Shielded Room | N/A | N/A | N/A | NCR | NCR |
| CON-1 Cable | SUHNER | SUCOFLEX-104 | 26438414 | 2017/05/04 | 2018/05/03 |
| Test software | Audix | e3 | 4.20040112L | NCR | NCR |

Note: No Calibration Required (NCR).

## Appendix B: Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of *k*=2.

| Item | Uncertainty |
|---|---|
| Vertically polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m | 5.14 dB |
| Horizontally polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m | 5.22 dB |
| Vertically polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m | 3.64 dB |
| Horizontally polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m | 3.64 dB |
| Vertically polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m | 2.68 dB |
| Horizontally polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m | 2.68 dB |
| Radiated disturbances from 9kHz~30MHz in a semi-anechoic chamber at a distance of 3m | 3.54 dB |
| Emission on the Band Edge Test | 3.64 dB |
| Minimum 6dB Bandwidth | 0.85 dB |
| Maximum Conducted Output Power | 0.42 dB |
| Power Spectral Density | 0.85 dB |
| Emissions In Non-Restricted Frequency Bands | 0.85 dB |
| AC Power Line Conducted Emission | 2.48 dB |