TESTING LABORATORY
CERTIFICATE # 4821.01

# FCC PART 15.407

# TEST REPORT

For

## Thundercomm Technology Co., Ltd

4F, Taixiang Building, 1A Longxiang Rd, Haidian Dist, Beijing, China

**FCC ID: 2AOHHTURBOXSOMD845**

| **Report Type:** | **Product Type:** |
|---|---|
| Original Report | Thundersoft TurboX D845 SOM |

**Report Number:** RSZ181105003-00A

**Report Date:** 2019-01-17

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# GENERAL INFORMATION

## Product Description for Equipment under Test (EUT)

The *Thundercomm Technology Co., Ltd's* product, model number: TurboX-D845-SOM (FC*C ID: 2AOHHTURBOXSOMD845)* or the "EUT" in this report was a *Thundersoft TurboX D845 SOM,* which was measured approximately: 60.0 mm (L) *37.0 mm (W), rated with input voltage: DC 3.8 V.

**All measurement and test data in this report was gathered from production sample serial number: 181105003(Assigned by BACL, shenzhen).The EUT supplied by the applicant was received on 2018-11-05*

## Objective

This type approval report is prepared on behalf of *Thundercomm Technology Co., Ltd* in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

## Related Submittal(s)/Grant(s)

FCC Part 15.247 DTS&DSS submissions with FCC ID: 2AOHHTURBOXSOMD845.

## Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

## Measurement Uncertainty

| Parameter | | uncertainty |
|---|---|---|
| Occupied Channel Bandwidth | | ±5% |
| RF Output Power with Power meter | | ±0.5dB |
| RF conducted test with spectrum | | ±1.5dB |
| AC Power Lines Conducted Emissions | | ±1.95dB |
| Emissions, Radiated | Below 1GHz | ±4.75dB |
| | Above 1GHz | ±4.88dB |
| Temperature | | -30~60 ℃ |
| Humidity | | ±6% |
| Supply voltages | | ±0.4% |

## Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

# SYSTEM TEST CONFIGURATION

## Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacturer.

The device support 802.11a/n20/n40/ac20/ac40/ac80 modes.

For 5150-5250MHz Band, 7 channels are provided to testing:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---|---|---|---|
| 36 | 5180 | 44 | 5220 |
| 38 | 5190 | 46 | 5230 |
| 40 | 5200 | 48 | 5240 |
| 42 | 5210 | / | / |

For 5250-5350MHz Band, 7 channels are provided to testing:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---|---|---|---|
| 52 | 5260 | 60 | 5300 |
| 54 | 5270 | 62 | 5310 |
| 56 | 5280 | 64 | 5320 |
| 58 | 5290 | / | / |

For 5470-5725MHz Band, 18 channels are provided to testing:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---|---|---|---|
| 100 | 5500 | 124 | 5620 |
| 102 | 5510 | 126 | 5630 |
| 104 | 5520 | 128 | 5640 |
| 106 | 5530 | 132 | 5660 |
| 108 | 5540 | 134 | 5670 |
| 110 | 5550 | 136 | 5680 |
| 112 | 5560 | 140 | 5700 |
| 116 | 5580 | / | / |
| 118 | 5590 | / | / |
| 120 | 5600 | / | / |
| 122 | 5610 | / | / |

For 5725-5850MHz Band, 8 channels are provided to testing:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---|---|---|---|
| 149 | 5745 | 157 | 5785 |
| 151 | 5755 | 159 | 5795 |
| 153 | 5765 | 161 | 5805 |
| 155 | 5775 | 165 | 5825 |

## EUT Exercise Software

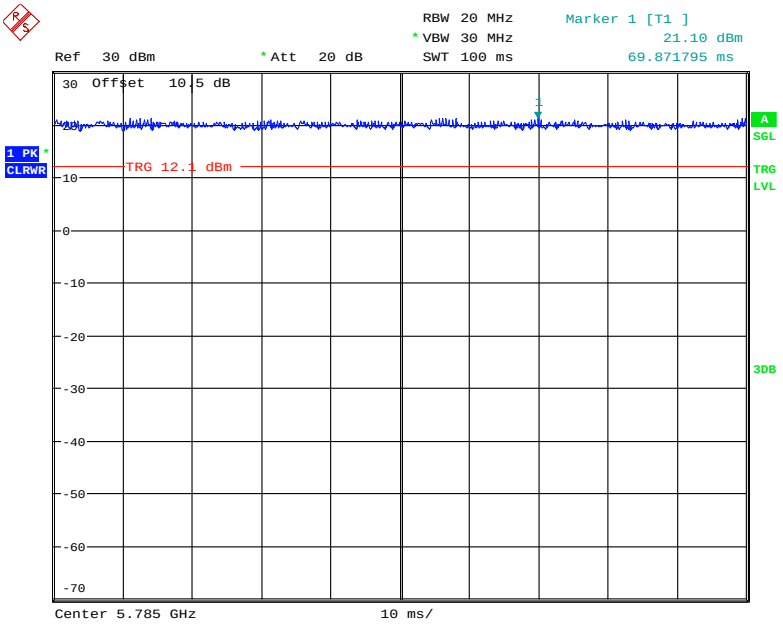
"RFtest tool" software was used. Test frequencies and power level were configured as below:

| U-NII | Mode | Channel Number | Frequency (MHz) | Rate (Mbps) | Power Level |
|---|---|---|---|---|---|
| 5150 – 5250MHz | 802.11 a | CH36 | 5180 | 6 | 15 |
| | | CH40 | 5200 | 6 | 15 |
| | | CH48 | 5240 | 6 | 15 |
| | 802.11 n20 | CH36 | 5180 | MCS0 | 15 |
| | | CH40 | 5200 | MCS0 | 15 |
| | | CH48 | 5240 | MCS0 | 15 |
| | 802.11 n40 | CH38 | 5190 | MCS0 | 13 |
| | | CH46 | 5230 | MCS0 | 13 |
| | 802.11 ac20 | CH36 | 5180 | MCS0 | 15 |
| | | CH40 | 5200 | MCS0 | 15 |
| | | CH48 | 5240 | MCS0 | 15 |
| | 802.11 ac40 | CH38 | 5190 | MCS0 | 13 |
| | | CH46 | 5230 | MCS0 | 13 |
| | 802.11 ac80 | CH42 | 5210 | MCS0 | 13 |
| 5250 – 5350MHz | 802.11 a | CH52 | 5260 | 6 | 15 |
| | | CH56 | 5280 | 6 | 15 |
| | | CH64 | 5320 | 6 | 15 |
| | 802.11 n20 | CH52 | 5260 | MCS0 | 15 |
| | | CH56 | 5280 | MCS0 | 15 |
| | | CH64 | 5320 | MCS0 | 15 |
| | 802.11 n40 | CH54 | 5270 | MCS0 | 13 |
| | | CH62 | 5310 | MCS0 | 13 |
| | 802.11 ac20 | CH52 | 5260 | MCS0 | 15 |
| | | CH56 | 5280 | MCS0 | 15 |
| | | CH64 | 5320 | MCS0 | 15 |
| | 802.11 ac40 | CH54 | 5270 | MCS0 | 13 |
| | | CH62 | 5310 | MCS0 | 13 |
| | 802.11 ac80 | CH58 | 5290 | MCS0 | 13 |

| U-NII | Mode | Channel Number | Frequency (MHz) | Rate (Mbps) | Power Level |
|---|---|---|---|---|---|
| 5470 – 5725MHz | 802.11 a | CH100 | 5500 | 6 | 15 |
| | | CH120 | 5600 | 6 | 15 |
| | | CH140 | 5700 | 6 | 15 |
| | 802.11 n20 | CH100 | 5500 | MCS0 | 13 |
| | | CH120 | 5600 | MCS0 | 13 |
| | | CH140 | 5700 | MCS0 | 13 |
| | 802.11 n40 | CH102 | 5510 | MCS0 | 13 |
| | | CH118 | 5590 | MCS0 | 13 |
| | 802.11 ac20 | CH100 | 5500 | MCS0 | 13 |
| | | CH120 | 5600 | MCS0 | 13 |
| | | CH140 | 5700 | MCS0 | 13 |
| | 802.11 ac40 | CH102 | 5510 | MCS0 | 13 |
| | | CH118 | 5590 | MCS0 | 13 |
| | | CH134 | 5670 | MCS0 | 13 |
| | 802.11 ac80 | CH106 | 5530 | MCS0 | 13 |
| | | CH122 | 5610 | MCS0 | 13 |
| 5725 – 5850MHz | 802.11 a | CH149 | 5745 | 6 | 15 |
| | | CH157 | 5785 | 6 | 15 |
| | | CH165 | 5825 | 6 | 15 |
| | 802.11 n20 | CH149 | 5745 | MCS0 | 15 |
| | | CH157 | 5785 | MCS0 | 15 |
| | | CH165 | 5825 | MCS0 | 15 |
| | 802.11 n40 | CH151 | 5755 | MCS0 | 15 |
| | | CH159 | 5795 | MCS0 | 15 |
| | 802.11 ac20 | CH149 | 5745 | MCS0 | 15 |
| | | CH157 | 5785 | MCS0 | 15 |
| | | CH165 | 5825 | MCS0 | 15 |
| | 802.11 ac40 | CH151 | 5755 | MCS0 | 15 |
| | | CH159 | 5795 | MCS0 | 15 |
| | 802.11 ac80 | CH155 | 5775 | MCS0 | 15 |

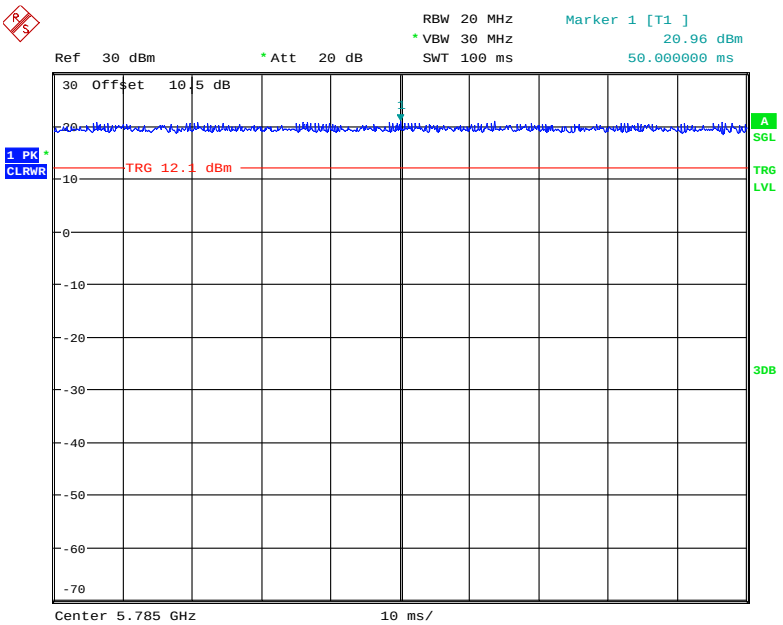
## Duty cycle

### 802.11a mode



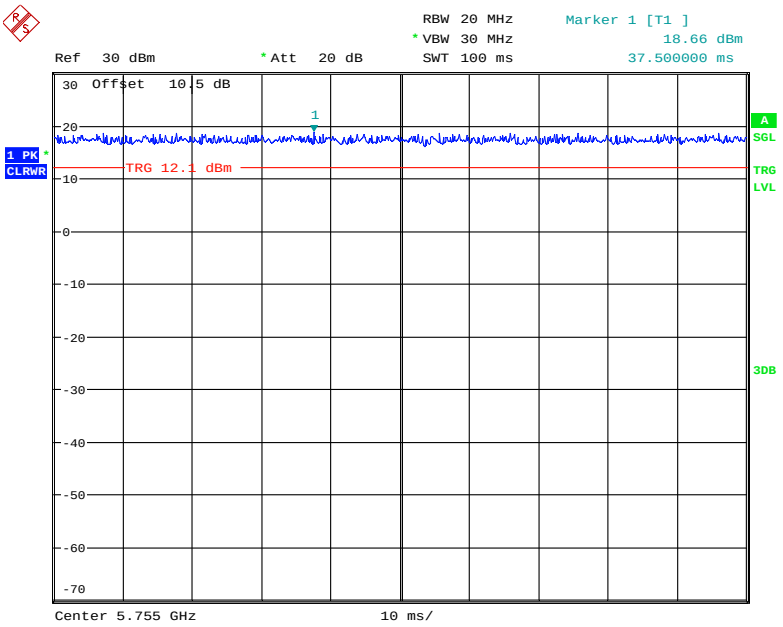

Date: 18.NOV.2018 18:10:33

### 802.11n20 mode



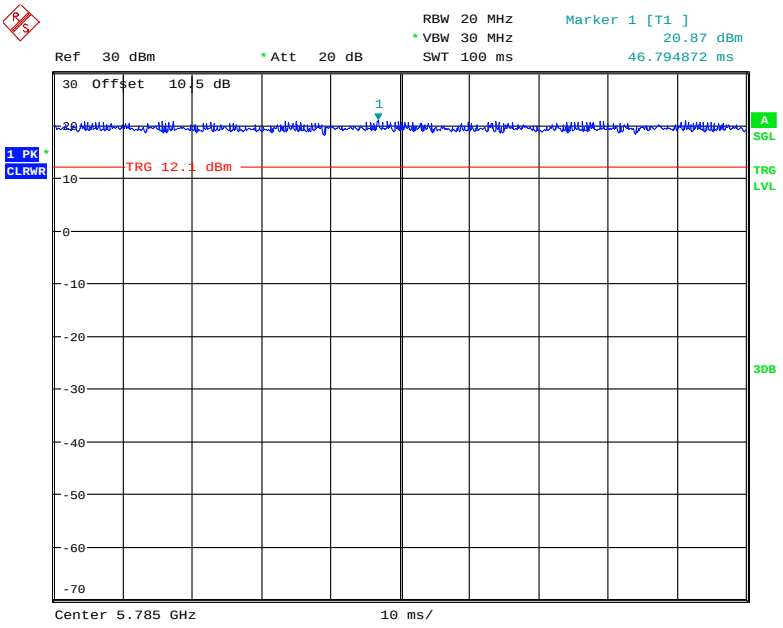

Date: 18.NOV.2018 18:11:19

## 802.11n40 mode



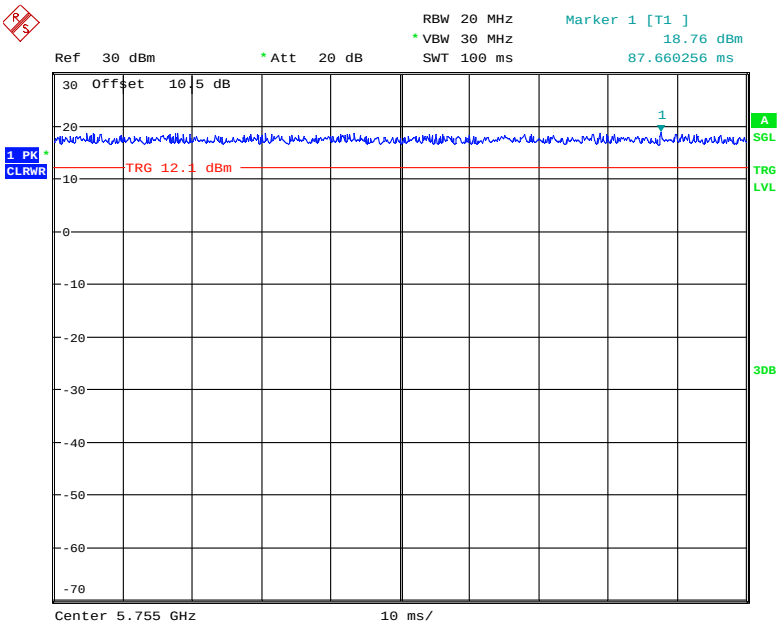

Date: 18.NOV.2018 18:08:34

## 802.11ac20 Mode



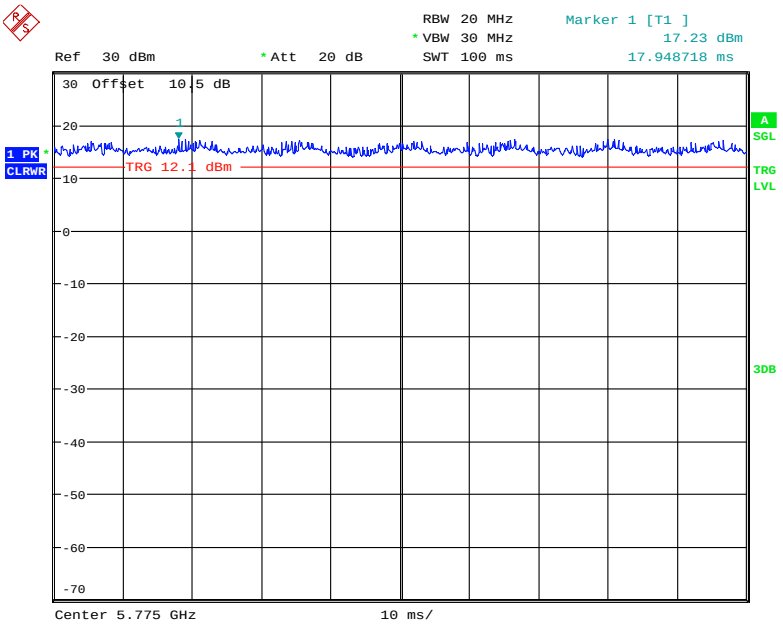

Date: 18.NOV.2018 18:12:09

## 802.11ac40 Mode




Date: 18.NOV.2018 18:06:48

## 802.11ac80 Mode




Date: 18.NOV.2018 18:08:04

| Band | Duty Cycle (%) | T(ms) | 1/T(kHz) | VBW Setting | 10log(1/ducycycle) |
|---|---|---|---|---|---|
| **802.11a** | 100 | - | - | 10Hz | 0 |
| **802.11n20** | 100 | - | - | 10Hz | 0 |
| **802.11n40** | 100 | - | - | 10Hz | 0 |
| **802.11ac20** | 100 | - | - | 10Hz | 0 |
| **802.11ac40** | 100 | - | - | 10Hz | 0 |
| **802.11ac80** | 100 | - | - | 10Hz | 0 |

Dutycycle factor=10* log(1/ducycycle)

## Equipment Modifications

No modification was made to the EUT tested.

### Support Equipment List and Details

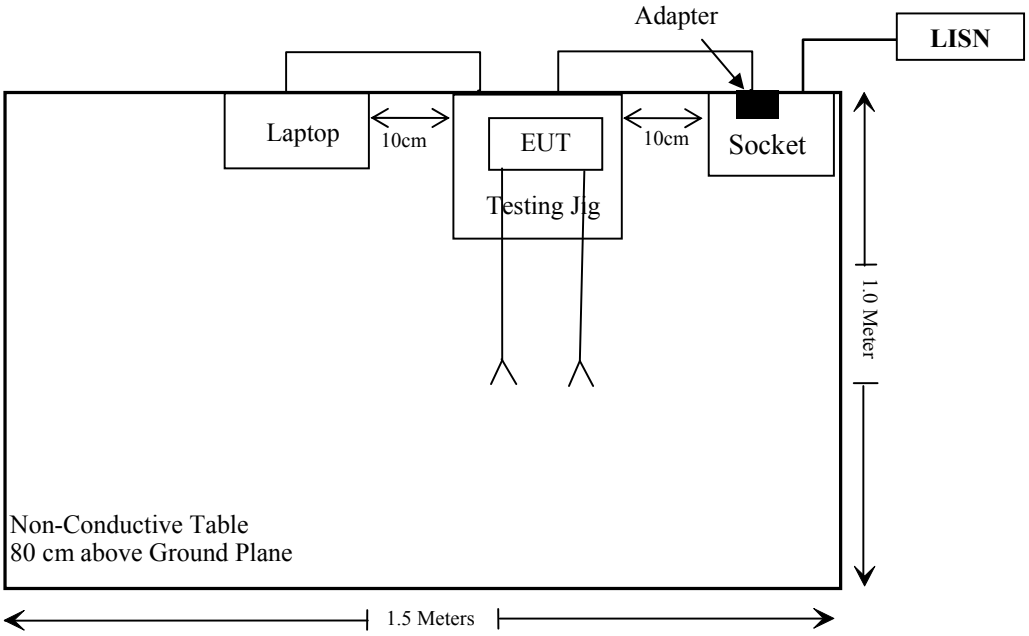
| Manufacturer | Description | Model | Serial Number |
|---|---|---|---|
| Thundersoft | Testing Jig | N/A | N/A |
| STH | Adapter | P24120200 | N/A |
| BULL | Socket | GN-415K | 5503290068073 |
| Compaq | Laptop | CQ45 | CND9524JMW |
| N/A | Chain 0 | N/A | N/A |
| N/A | Chain 1 | N/A | N/A |

### External I/O Cable

| Cable Description | Length (m) | From/Port | To |
|---|---|---|---|
| Unshielded un-detachable AC cable | 1.2 | Socket | LISN |
| Unshielded un-detachable DC cable | 1.4 | Adapter | Testing Jig |
| Unshielded un-detachable DC cable | 1.4 | Testing Jig | Laptop |

## Block Diagram of Test Setup

For conducted emission:



# SUMMARY OF TEST RESULTS

| FCC Rules | Description of Test | Result |
|---|---|---|
| §1.1307 (b) (1) & §2.1091 | MaximuM Permissible exposure (MPE) | Compliance |
| §15.203 | Antenna Requirement | Compliance |
| §15.407(b)(6)& §15.207(a) | Conducted Emissions | Compliance |
| §15.205& §15.209 &§15.407(b) (1), (2), (3), (4),(7) | Undesirable Emission& Restricted Bands | Compliance |
| §15.407(b) (1), (2), (3), (4) | Out Of Band Emission | Compliance |
| §15.407(a) (1), (5),(e) | 26 dB Emission Bandwidth & 6dB Bandwidth | Compliance |
| §15.407(a)(1),(2), (3) | Conducted Transmitter Output Power | Compliance |
| §15.407 (a)(1), (2), (3) | Power Spectral Density | Compliance |

DFS report please refere to RSZ181105006-00 issued by Bay Area Compliance Laboratories Corp. (Dongguan).

# TEST EQUIPMENT LIST

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| **AC Line Conducted test** | | | | | |
| Rohde & Schwarz | EMI Test Receiver | ESCS30 | 100176 | 2018-07-11 | 2019-07-11 |
| Rohde & Schwarz | LISN | ENV216 | 3560.6650.12-101613-Yb | 2018-12-21 | 2019-12-21 |
| Rohde & Schwarz | Transient Limiter | ESH3Z2 | DE25985 | 2018-11-12 | 2019-11-12 |
| Rohde & Schwarz | CE Test software | EMC 32 | V8.53.0 | NCR | NCR |
| N/A | Conducted Emission Cable | 78652 | UF A210B-1-0720-504504 | 2018-11-12 | 2019-11-12 |
| **Radiated Emission Test** | | | | | |
| A.H.System | Horn Antenna | SAS-200/571 | 135 | 2018-09-01 | 2021-08-31 |
| Rohde & Schwarz | Signal Analyzer | FSEM | 845987/005 | 2018-06-23 | 2019-06-23 |
| Agilent | Spectrum Analyzer | 8564E | 3943A01781 | 2018-01-04 | 2019-01-04 |
| Sunol Sciences | Broadband Antenna | JB1 | A040904-1 | 2017-12-22 | 2020-12-21 |
| COM-POWER | Pre-amplifier | PA-122 | 181919 | 2018-11-12 | 2019-11-12 |
| Sonoma instrument | Amplifier | 310N | 186238 | 2018-11-12 | 2019-11-12 |
| Rohde & Schwarz | EMI Test Receiver | ESCI | 101120 | 2018-01-11 | 2019-01-11 |
| Ducommun technologies | RF Cable | UFA147A-2362-100100 | MFR64639 231029-003 | 2018-07-11 | 2021-07-10 |
| Ducommun technologies | RF Cable | 104PEA | 218124002 | 2018-11-12 | 2019-11-12 |
| Ducommun technologies | RF Cable | RG-214 | 1 | 2018-11-19 | 2019-05-21 |
| Ducommun technologies | RF Cable | RG-214 | 2 | 2018-11-12 | 2019-11-12 |
| Ducommun Technologies | Horn Antenna | ARH-4223-02 | 1007726-04 | 2017-12-29 | 2020-12-28 |
| Ducommun Technologies | Horn Antenna | ARH-4223-02 | 1007726-03 | 2017-12-29 | 2020-12-28 |
| Heatsink Required | Amplifier | QLW-18405536-J0 | 15964001002 | 2018-11-12 | 2019-11-12 |
| **RF Conducted Test** | | | | | |
| Rohde & Schwarz | SPECTRUM ANALYZER | FSU26 | 200120 | 2017-12-24 | 2018-12-24 |
| Agilent | USB wideband power meter | U2021XA | MY54250003 | 2018-06-23 | 2019-06-23 |
| Ducommun technologies | RF Cable | RG-214 | 3 | Each Time | |
| WEINSCHEL | 10dB Attenuator | 5324 | AU 3842 | Each Time | |

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

# §1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

## Applicable Standard

According to subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

| Limits for General Population/Uncontrolled Exposure | | | | |
|---|---|---|---|---|
| **Frequency Range (MHz)** | **Electric Field Strength (V/m)** | **Magnetic Field Strength (A/m)** | **Power Density ($mW/cm^2$)** | **Averaging Time (Minutes)** |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *($180/f^2$) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | / | / | f/1500 | 30 |
| 1500-100,000 | / | / | 1.0 | 30 |

f = frequency in MHz
* = Plane-wave equivalent power density

## Result

**Calculated Formulary:**

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. $mW/cm^2$)
P = power input to the antenna (in appropriate units, e.g., mW).
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

| Frequency (MHz) | Antenna Gain | | Conducted Power | | Evaluation Distance (cm) | Power Density ($mW/cm^2$) | MPE Limit ($mW/cm^2$) |
|---|---|---|---|---|---|---|---|
| | (dBi) | (numeric) | (dBm) | (mW) | | | |
| 5150-5250 | 4 | 2.51 | 15 | 31.62 | 20 | 0.016 | 1.0 |
| 5250-5350 | 4 | 2.51 | 15 | 31.62 | 20 | 0.016 | 1.0 |
| 5470-5725 | 4 | 2.51 | 14 | 25.12 | 20 | 0.013 | 1.0 |
| 5725-5850 | 4 | 2.51 | 15 | 31.62 | 20 | 0.016 | 1.0 |

Note:
1) The conducted power is the tune-up power of the Max Conducted Output Power.
2) 2.4GHz or 5GHz Wi-Fi can't transmit simultaneously for this device.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

**Result: Compliance**

# FCC §15.203 – ANTENNA REQUIREMENT

## Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.
And according to FCC 47 CFR section 15.407 (a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

## Antenna Connector Construction

The EUT has two FPC antennas arrangement, which was permanently attached and the antenna gain is 4.0 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

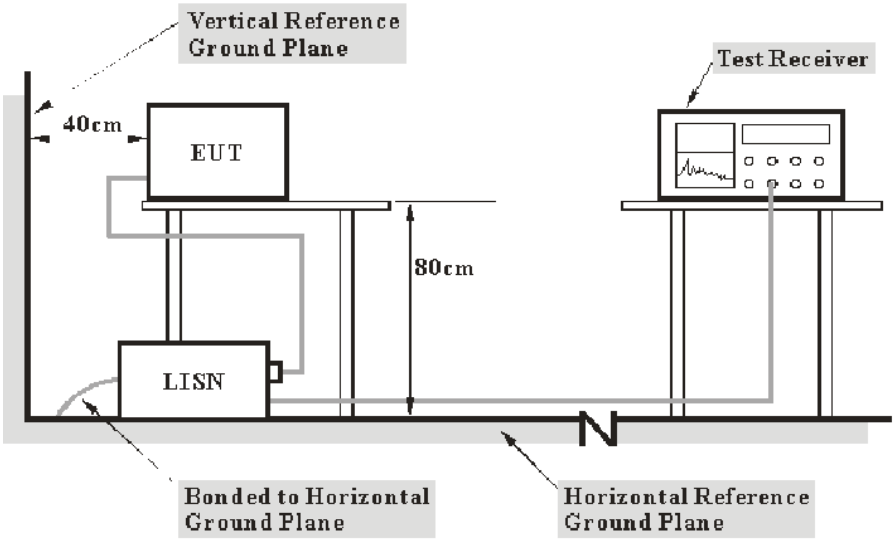
**Result:** Compliance.

# FCC §15.407 (b) (6) §15.207 (a) – CONDUCTED EMISSIONS

## Applicable Standard

FCC §15.207, §15.407(b) (6)

## EUT Setup




Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to a AC 120V/60 Hz power source.

## EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| Frequency Range | IF B/W |
|---|---|
| 150 kHz – 30 MHz | 9 kHz |

## Test Procedure

During the conducted emission test, the adapter was connected to the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than $U_{cispr}$, if $L_m$ is less than $L_{lim}$, it implies that the EUT complies with the limit.

## Test Data

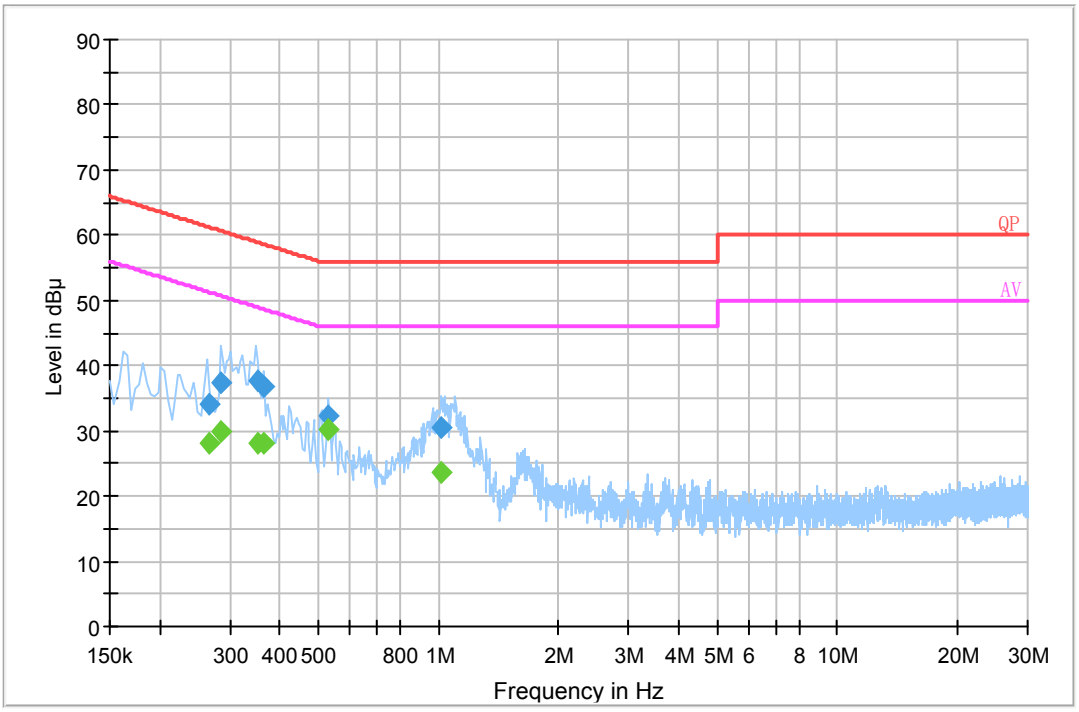
### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 25 ℃ |
| **Relative Humidity:** | 50 % |
| **ATM Pressure:** | 101.0 kPa |

*The testing was performed by Haiguo Li on 2019-01-09.*

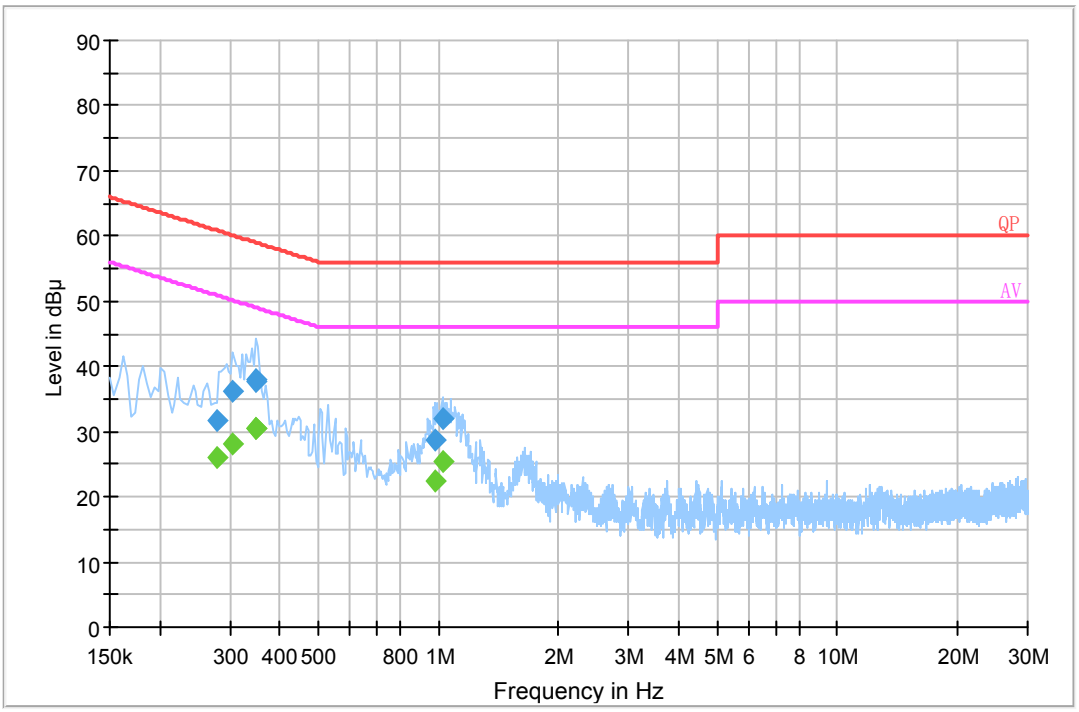
*EUT operation mode: Transmitting (worst case)*

**AC 120V/60 Hz, Line:**




| Frequency (MHz) | Corrected Amplitude (dBµV) | Correction Factor (dB) | Limit (dBµV) | Margin (dB) | Detector (PK/Ave./QP) |
|---|---|---|---|---|---|
| 0.265500 | 34.1 | 19.8 | 61.3 | 27.2 | QP |
| 0.285500 | 37.3 | 19.8 | 60.7 | 23.4 | QP |
| 0.352690 | 37.5 | 19.7 | 58.9 | 21.4 | QP |
| 0.362750 | 36.8 | 19.7 | 58.9 | 22.1 | QP |
| 0.530050 | 32.3 | 19.8 | 56.0 | 23.7 | QP |
| 1.018490 | 30.5 | 19.8 | 56.0 | 25.5 | QP |
| 0.265500 | 28.1 | 19.8 | 51.3 | 23.2 | Ave. |
| 0.285500 | 30.0 | 19.8 | 50.7 | 20.7 | Ave. |
| 0.352690 | 28.2 | 19.7 | 48.9 | 20.7 | Ave. |
| 0.362750 | 28.1 | 19.7 | 48.9 | 20.8 | Ave. |
| 0.530050 | 30.3 | 19.8 | 46.0 | 15.7 | Ave. |
| 1.018490 | 23.7 | 19.8 | 46.0 | 22.3 | Ave. |

**AC 120V/60 Hz, Neutral:**




| Frequency (MHz) | Corrected Amplitude (dBµV) | Correction Factor (dB) | Limit (dBµV) | Margin (dB) | Detector (PK/Ave./QP) |
|---|---|---|---|---|---|
| 0.277500 | 31.8 | 19.7 | 60.9 | 29.1 | QP |
| 0.305410 | 36.0 | 19.8 | 60.1 | 24.1 | QP |
| 0.348690 | 37.9 | 19.7 | 59.0 | 21.1 | QP |
| 0.349750 | 37.5 | 19.7 | 59.0 | 21.5 | QP |
| 0.979270 | 28.7 | 19.8 | 56.0 | 27.3 | QP |
| 1.022670 | 32.0 | 19.8 | 56.0 | 24.0 | QP |
| 0.277500 | 26.2 | 19.7 | 50.9 | 24.7 | Ave. |
| 0.305410 | 28.0 | 19.8 | 50.1 | 22.1 | Ave. |
| 0.348690 | 30.5 | 19.7 | 49.0 | 18.5 | Ave. |
| 0.349750 | 30.5 | 19.7 | 49.0 | 18.5 | Ave. |
| 0.979270 | 22.4 | 19.8 | 46.0 | 23.6 | Ave. |
| 1.022670 | 25.4 | 19.8 | 46.0 | 20.6 | Ave. |

**Note:**
1) Correction Factor =LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter Attenuation
2) Corrected Amplitude = Reading + Correction Factor
3) Margin = Limit – Corrected Amplitude

# §15.205 & §15.209 & §15.407(B) (1), (2), (3), (4),(6),(7) – UNDESIRABLE EMISSION

## Applicable Standard

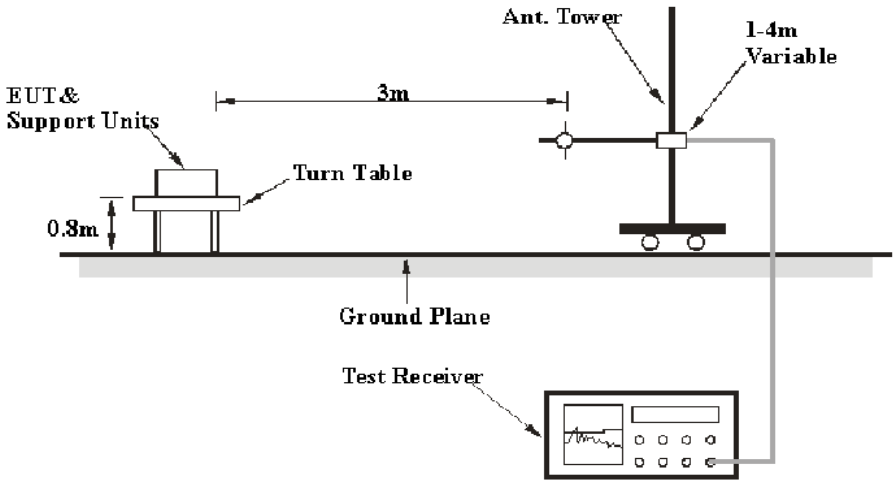
FCC §15.407 (b) (1), (2), (3), (4), (6), (7); §15.209; §15.205;

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) 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:
(i) 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.
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

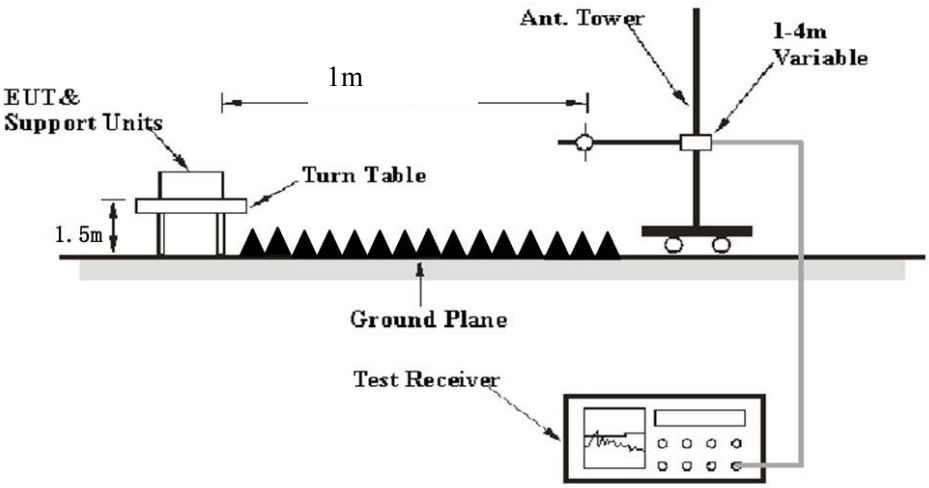
KDB 789033 D02 General UNII Test Procedures New Rules v02r01, clause G),
E[dBμV/m] = EIRP[dBm] - 20 log (d[m]) + 104.77, where E = field strength and d = distance at which field strength limit is specified.
For FCC §15.407 (b) (1), (2), (3), d=1m, non-Restricted bands limit=-27-20*log(1)+104.77=77.77 dBμV/m

## EUT Setup

**Below 1 GHz:**



**Above 1 GHz:**




The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC 15.209 and FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to a 120VAC/60 Hz power source,

## EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

| Frequency Range | RBW | Video B/W | IF B/W | Measurements |
|---|---|---|---|---|
| 30 MHz – 1000 MHz | 100 kHz | 300 kHz | 120 kHz | QP |
| Above 1 GHz | 1 MHz | 3 MHz | / | PK |
| | 1MHz | 10 Hz Note 1 | / | Average |
| | 1MHz | ＞1/T Note 2 | / | Average |

Note 1: when duty cycle is no less than 98%
Note 2: when duty cycle is less than 98%

## Test Procedure

### Radiated Spurious Emission

During the radiated emission test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all the installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

According to ANSI C63.10-2013,9.4: For field strength measurements made at other than the distance at which the applicable limit is specified,extrapolate the measured field strength to the field strength at the distance specified by the limit using an inverse distance correction factor (20 dB/decade of distance). In some cases, a different distance correction factor may be required;

$$E_{\mathrm{SpecLimit}} = E_{\mathrm{Meas}} + 20\log\left(\frac{d_{\mathrm{Meas}}}{d_{\mathrm{SpecLimit}}}\right)$$

where

| | |
|---|---|
| $E_{\mathrm{SpecLimit}}$ | is the field strength of the emission at the distance specified by the limit, in dBμV/m |
| $E_{\mathrm{Meas}}$ | is the field strength of the emission at the measurement distance, in dBμV/m |
| $d_{\mathrm{Meas}}$ | is the measurement distance, in m |
| $d_{\mathrm{SpecLimit}}$ | is the distance specified by the limit, in m |

So the extrapolation factor of 1m is 20*log(1/3)= -9.5 dB

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

## Test Results Summary

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than $U_{cispr}$, if $L_m$ is less than $L_{lim}$, it implies that the EUT complies with the limit.

## Test Data

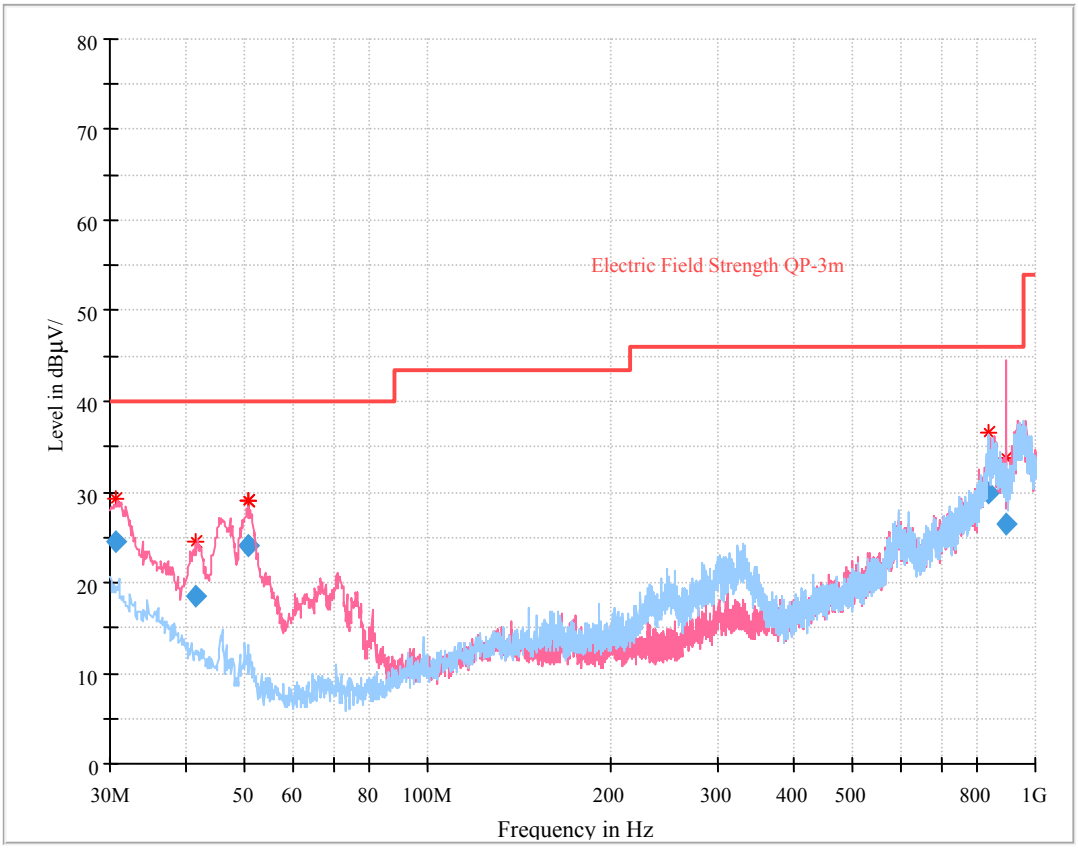
### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 24 ℃ |
| **Relative Humidity:** | 54 % |
| **ATM Pressure:** | 101.0 kPa |

*The testing was performed by Kiki Kong on 2018-12-07.*

*EUT operation mode: Transmitting*

**30 MHz – 1 GHz:** *(worst case)*




| Frequency (MHz) | Corrected Amplitude (dBµV/m) | Antenna height (cm) | Antenna Polarity | Turntable position (degree) | Correction Factor (dB/m) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 30.679750 | 24.60 | 107.0 | V | 278.0 | -8.0 | 40.00 | 15.40 |
| 41.384250 | 18.41 | 107.0 | V | 168.0 | -14.8 | 40.00 | 21.59 |
| 50.659000 | 24.06 | 112.0 | V | 196.0 | -19.7 | 40.00 | 15.94 |
| 50.706250 | 24.13 | 100.0 | V | 240.0 | -19.7 | 40.00 | 15.87 |
| 837.417875 | 29.91 | 205.0 | V | 280.0 | 5.7 | 46.00 | 16.09 |
| 896.326625 | 26.41 | 184.0 | V | 340.0 | 4.3 | 46.00 | 19.59 |

**Above 1GHz:**

**5150-5250 MHz:**

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11a, Chain 0 | | | | | | | | | |
| 5180 MHz | | | | | | | | | |
| 5180.00 | 74.67 | PK | 38 | 1.5 | H | 41.53 | 116.20 | / | / |
| 5180.00 | 62.71 | Ave. | 38 | 1.5 | H | 41.53 | 104.24 | / | / |
| 5180.00 | 68.48 | PK | 314 | 2.1 | V | 41.53 | 110.01 | / | / |
| 5180.00 | 57.12 | Ave. | 314 | 2.1 | V | 41.53 | 98.65 | / | / |
| 5134.97 | 27.56 | PK | 129 | 1.4 | H | 41.60 | 69.16 | 83.5 | 14.34 |
| 5134.97 | 14.37 | Ave. | 129 | 1.4 | H | 41.60 | 55.97 | 63.5 | 7.53 |
| 5355.73 | 28.03 | PK | 295 | 1.5 | H | 42.06 | 70.09 | 83.5 | 13.41 |
| 5355.73 | 14.19 | Ave. | 295 | 1.5 | H | 42.06 | 56.25 | 63.5 | 7.25 |
| 10360.00 | 40.82 | PK | 46 | 2.1 | H | 21.69 | 62.51 | 77.77 | 15.26 |
| 5200 MHz | | | | | | | | | |
| 5200.00 | 74.98 | PK | 319 | 2.3 | H | 41.53 | 116.51 | / | / |
| 5200.00 | 63.11 | Ave. | 319 | 2.3 | H | 41.53 | 104.64 | / | / |
| 5200.00 | 68.09 | PK | 110 | 1.9 | V | 41.53 | 109.62 | / | / |
| 5200.00 | 56.24 | Ave. | 110 | 1.9 | V | 41.53 | 97.77 | / | / |
| 10400.00 | 40.79 | PK | 57 | 1.5 | H | 21.79 | 62.58 | 77.77 | 15.19 |
| 5240 MHz | | | | | | | | | |
| 5240.00 | 75.11 | PK | 43 | 1.3 | H | 41.63 | 116.74 | / | / |
| 5240.00 | 63.23 | Ave. | 43 | 1.3 | H | 41.63 | 104.86 | / | / |
| 5240.00 | 68.99 | PK | 304 | 1.5 | V | 41.63 | 110.62 | / | / |
| 5240.00 | 56.74 | Ave. | 304 | 1.5 | V | 41.63 | 98.37 | / | / |
| 5058.82 | 27.71 | PK | 261 | 1.4 | H | 41.40 | 69.11 | 83.5 | 14.39 |
| 5058.82 | 13.64 | Ave. | 261 | 1.4 | H | 41.40 | 55.04 | 63.5 | 8.46 |
| 5445.23 | 28.70 | PK | 320 | 1.7 | H | 42.26 | 70.96 | 83.5 | 12.54 |
| 5445.23 | 14.49 | Ave. | 320 | 1.7 | H | 42.26 | 56.75 | 63.5 | 6.75 |
| 10480.00 | 40.39 | PK | 189 | 2.2 | H | 21.49 | 61.88 | 77.77 | 15.89 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11a, Chain 1 | | | | | | | | | |
| 5180 MHz | | | | | | | | | |
| 5180.00 | 78.10 | PK | 279 | 1.2 | H | 41.53 | 119.63 | / | / |
| 5180.00 | 65.74 | Ave. | 279 | 1.2 | H | 41.53 | 107.27 | / | / |
| 5180.00 | 68.90 | PK | 218 | 1.1 | V | 41.53 | 110.43 | / | / |
| 5180.00 | 57.05 | Ave. | 218 | 1.1 | V | 41.53 | 98.58 | / | / |
| 5119.34 | 27.72 | PK | 290 | 2.3 | H | 41.60 | 69.32 | 83.5 | 14.18 |
| 5119.34 | 14.72 | Ave. | 290 | 2.3 | H | 41.60 | 56.32 | 63.5 | 7.18 |
| 5360.66 | 28.78 | PK | 92 | 2.2 | H | 42.06 | 70.84 | 83.5 | 12.66 |
| 5360.66 | 14.21 | Ave. | 92 | 2.2 | H | 42.06 | 56.27 | 63.5 | 7.23 |
| 10360.00 | 42.82 | PK | 264 | 2.1 | H | 21.69 | 64.51 | 77.77 | 13.26 |
| 5200 MHz | | | | | | | | | |
| 5200.00 | 77.89 | PK | 65 | 2.4 | H | 41.53 | 119.42 | / | / |
| 5200.00 | 65.72 | Ave. | 65 | 2.4 | H | 41.53 | 107.25 | / | / |
| 5200.00 | 69.22 | PK | 343 | 1.2 | V | 41.53 | 110.75 | / | / |
| 5200.00 | 58.58 | Ave. | 343 | 1.2 | V | 41.53 | 100.11 | / | / |
| 10400.00 | 44.40 | PK | 272 | 2.0 | H | 21.79 | 66.19 | 77.77 | 11.58 |
| 5240 MHz | | | | | | | | | |
| 5240.00 | 77.96 | PK | 129 | 1.6 | H | 41.63 | 119.59 | / | / |
| 5240.00 | 65.56 | Ave. | 129 | 1.6 | H | 41.63 | 107.19 | / | / |
| 5240.00 | 69.10 | PK | 216 | 1.5 | V | 41.63 | 110.73 | / | / |
| 5240.00 | 56.80 | Ave. | 216 | 1.5 | V | 41.63 | 98.43 | / | / |
| 5084.77 | 27.44 | PK | 176 | 1.5 | H | 41.50 | 68.94 | 83.5 | 14.56 |
| 5084.77 | 13.54 | Ave. | 176 | 1.5 | H | 41.50 | 55.04 | 63.5 | 8.46 |
| 5390.78 | 27.96 | PK | 96 | 2.3 | H | 42.16 | 70.12 | 83.5 | 13.38 |
| 5390.78 | 14.13 | Ave. | 96 | 2.3 | H | 42.16 | 56.29 | 63.5 | 7.21 |
| 10480.00 | 44.01 | PK | 313 | 1.6 | H | 21.49 | 65.50 | 77.77 | 12.27 |

**Transmitting with two antennas:**

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11n20 | | | | | | | | | |
| 5180MHz | | | | | | | | | |
| 5180.00 | 78.71 | PK | 195 | 1.3 | H | 41.53 | 120.24 | / | / |
| 5180.00 | 66.19 | Ave. | 195 | 1.3 | H | 41.53 | 107.72 | / | / |
| 5180.00 | 72.79 | PK | 69 | 2.4 | V | 41.53 | 114.32 | / | / |
| 5180.00 | 60.85 | Ave. | 69 | 2.4 | V | 41.53 | 102.38 | / | / |
| 5146.39 | 28.76 | PK | 70 | 1.9 | H | 41.60 | 70.36 | 83.5 | 13.14 |
| 5146.39 | 14.95 | Ave. | 70 | 1.9 | H | 41.60 | 56.55 | 63.5 | 6.95 |
| 5453.83 | 28.93 | PK | 224 | 1.8 | H | 42.36 | 71.29 | 83.5 | 12.21 |
| 5453.83 | 14.62 | Ave. | 224 | 1.8 | H | 42.36 | 56.98 | 63.5 | 6.52 |
| 10360.00 | 46.50 | PK | 147 | 1.5 | H | 21.69 | 68.19 | 77.77 | 9.58 |
| 5200MHz | | | | | | | | | |
| 5200.00 | 78.57 | PK | 85 | 2.3 | H | 41.53 | 120.10 | / | / |
| 5200.00 | 68.86 | Ave. | 85 | 2.3 | H | 41.53 | 110.39 | / | / |
| 5200.00 | 72.41 | PK | 44 | 1.0 | V | 41.53 | 113.94 | / | / |
| 5200.00 | 60.86 | Ave. | 44 | 1.0 | V | 41.53 | 102.39 | / | / |
| 10400.00 | 45.85 | PK | 24 | 2.4 | H | 21.79 | 67.64 | 77.77 | 10.13 |
| 5240 MHz | | | | | | | | | |
| 5240.00 | 78.56 | PK | 150 | 1.9 | H | 41.63 | 120.19 | / | / |
| 5240.00 | 66.13 | Ave. | 150 | 1.9 | H | 41.63 | 107.76 | / | / |
| 5240.00 | 71.95 | PK | 211 | 1.3 | V | 41.63 | 113.58 | / | / |
| 5240.00 | 60.36 | Ave. | 211 | 1.3 | V | 41.63 | 101.99 | / | / |
| 5149.90 | 27.17 | PK | 196 | 2.2 | H | 41.60 | 68.77 | 83.5 | 14.73 |
| 5149.90 | 14.36 | Ave. | 196 | 2.2 | H | 41.60 | 55.96 | 63.5 | 7.54 |
| 5424.73 | 27.90 | PK | 94 | 2.2 | H | 42.16 | 70.06 | 83.5 | 13.44 |
| 5424.73 | 14.56 | Ave. | 94 | 2.2 | H | 42.16 | 56.72 | 63.5 | 6.78 |
| 10480.00 | 45.36 | PK | 302 | 2.1 | H | 21.49 | 66.85 | 77.77 | 10.92 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11n40 | | | | | | | | | |
| 5190 MHz | | | | | | | | | |
| 5190.00 | 74.05 | PK | 286 | 2.2 | H | 41.53 | 115.58 | / | / |
| 5190.00 | 61.34 | Ave. | 286 | 2.2 | H | 41.53 | 102.87 | / | / |
| 5190.00 | 68.09 | PK | 219 | 2.4 | V | 41.53 | 109.62 | / | / |
| 5190.00 | 55.05 | Ave. | 219 | 2.4 | V | 41.53 | 96.58 | / | / |
| 5150.00 | 33.74 | PK | 65 | 1.5 | H | 41.43 | 75.17 | 83.5 | 8.33 |
| 5150.00 | 17.71 | Ave. | 65 | 1.5 | H | 41.43 | 59.14 | 63.5 | 4.36 |
| 5424.86 | 28.61 | PK | 52 | 1.6 | H | 42.16 | 70.77 | 83.5 | 12.73 |
| 5424.86 | 14.45 | Ave. | 52 | 1.6 | H | 42.16 | 56.61 | 63.5 | 6.89 |
| 10380.00 | 42.31 | PK | 138 | 1.0 | H | 21.69 | 64.00 | 77.77 | 13.77 |
| 5230MHz | | | | | | | | | |
| 5230.00 | 73.17 | PK | 59 | 1.7 | H | 41.63 | 114.80 | / | / |
| 5230.00 | 60.59 | Ave. | 59 | 1.7 | H | 41.63 | 102.22 | / | / |
| 5230.00 | 67.36 | PK | 232 | 1.2 | V | 41.63 | 108.99 | / | / |
| 5230.00 | 54.60 | Ave. | 232 | 1.2 | V | 41.63 | 96.23 | / | / |
| 5137.66 | 27.70 | PK | 76 | 1.0 | H | 41.60 | 69.30 | 83.5 | 14.20 |
| 5137.66 | 14.62 | Ave. | 76 | 1.0 | H | 41.60 | 56.22 | 63.5 | 7.28 |
| 5391.23 | 27.94 | PK | 345 | 2.0 | H | 42.16 | 70.10 | 83.5 | 13.40 |
| 5391.23 | 14.52 | Ave. | 345 | 2.0 | H | 42.16 | 56.68 | 63.5 | 6.82 |
| 10460.00 | 42.33 | PK | 231 | 1.8 | H | 21.39 | 63.72 | 77.77 | 14.05 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11ac20 | | | | | | | | | |
| 5180 MHz | | | | | | | | | |
| 5180.00 | 78.95 | PK | 152 | 1.3 | H | 41.53 | 120.48 | / | / |
| 5180.00 | 66.36 | Ave. | 152 | 1.3 | H | 41.53 | 107.89 | / | / |
| 5180.00 | 72.07 | PK | 317 | 1.6 | V | 41.53 | 113.60 | / | / |
| 5180.00 | 60.01 | Ave. | 317 | 1.6 | V | 41.53 | 101.54 | / | / |
| 5148.80 | 27.20 | PK | 138 | 1.5 | H | 41.60 | 68.80 | 83.5 | 14.70 |
| 5148.80 | 14.43 | Ave. | 138 | 1.5 | H | 41.60 | 56.03 | 63.5 | 7.47 |
| 5453.61 | 27.98 | PK | 256 | 2.1 | H | 42.36 | 70.34 | 83.5 | 13.16 |
| 5453.61 | 14.26 | Ave. | 256 | 2.1 | H | 42.36 | 56.62 | 63.5 | 6.88 |
| 10360.00 | 46.36 | PK | 71 | 2.3 | H | 21.69 | 68.05 | 77.77 | 9.72 |
| 5200MHz | | | | | | | | | |
| 5200.00 | 79.08 | PK | 142 | 1.4 | H | 41.53 | 120.61 | / | / |
| 5200.00 | 66.69 | Ave. | 142 | 1.4 | H | 41.53 | 108.22 | / | / |
| 5200.00 | 72.65 | PK | 88 | 1.8 | V | 41.53 | 114.18 | / | / |
| 5200.00 | 60.55 | Ave. | 88 | 1.8 | V | 41.53 | 102.08 | / | / |
| 10400.00 | 47.15 | PK | 19 | 2.0 | H | 21.79 | 68.94 | 77.77 | 8.83 |
| 5240MHz | | | | | | | | | |
| 5240.00 | 78.56 | PK | 153 | 1.8 | H | 41.63 | 120.19 | / | / |
| 5240.00 | 66.23 | Ave. | 153 | 1.8 | H | 41.63 | 107.86 | / | / |
| 5240.00 | 71.98 | PK | 76 | 1.3 | V | 41.63 | 113.61 | / | / |
| 5240.00 | 59.79 | Ave. | 76 | 1.3 | V | 41.63 | 101.42 | / | / |
| 5054.09 | 27.07 | PK | 257 | 1.0 | H | 41.40 | 68.47 | 83.5 | 15.03 |
| 5054.09 | 14.43 | Ave. | 257 | 1.0 | H | 41.40 | 55.83 | 63.5 | 7.67 |
| 5351.32 | 27.81 | PK | 275 | 2.0 | H | 42.06 | 69.87 | 83.5 | 13.63 |
| 5351.32 | 14.37 | Ave. | 275 | 2.0 | H | 42.06 | 56.43 | 63.5 | 7.07 |
| 10480.00 | 43.83 | PK | 209 | 2.2 | H | 21.49 | 65.32 | 77.77 | 12.45 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11ac40 | | | | | | | | | |
| 5190 MHz | | | | | | | | | |
| 5190.00 | 74.59 | PK | 185 | 1.9 | H | 41.53 | 116.12 | / | / |
| 5190.00 | 61.64 | Ave. | 185 | 1.9 | H | 41.53 | 103.17 | / | / |
| 5190.00 | 69.31 | PK | 109 | 1.4 | V | 41.53 | 110.84 | / | / |
| 5190.00 | 56.42 | Ave. | 109 | 1.4 | V | 41.53 | 97.95 | / | / |
| 5147.39 | 28.22 | PK | 283 | 2.4 | H | 41.60 | 69.82 | 83.5 | 13.68 |
| 5147.39 | 14.31 | Ave. | 283 | 2.4 | H | 41.60 | 55.91 | 63.5 | 7.59 |
| 5387.47 | 28.63 | PK | 213 | 1.5 | H | 42.16 | 70.79 | 83.5 | 12.71 |
| 5387.47 | 13.67 | Ave. | 213 | 1.5 | H | 42.16 | 55.83 | 63.5 | 7.67 |
| 10380.00 | 43.56 | PK | 44 | 2.2 | H | 21.69 | 65.25 | 77.77 | 12.52 |
| 5230MHz | | | | | | | | | |
| 5230.00 | 73.62 | PK | 355 | 2.3 | H | 41.63 | 115.25 | / | / |
| 5230.00 | 60.54 | Ave. | 355 | 2.3 | H | 41.63 | 102.17 | / | / |
| 5230.00 | 67.43 | PK | 25 | 1.5 | V | 41.63 | 109.06 | / | / |
| 5230.00 | 53.96 | Ave. | 25 | 1.5 | V | 41.63 | 95.59 | / | / |
| 5141.26 | 27.38 | PK | 227 | 2.3 | H | 41.60 | 68.98 | 83.5 | 14.52 |
| 5141.26 | 14.52 | Ave. | 227 | 2.3 | H | 41.60 | 56.12 | 63.5 | 7.38 |
| 5361.23 | 28.13 | PK | 62 | 1.4 | H | 42.06 | 70.19 | 83.5 | 13.31 |
| 5361.23 | 14.41 | Ave. | 62 | 1.4 | H | 42.06 | 56.47 | 63.5 | 7.03 |
| 10460.00 | 43.31 | PK | 5 | 1.3 | H | 21.39 | 64.70 | 77.77 | 13.07 |
| 802.11ac80 | | | | | | | | | |
| 5210 MHz | | | | | | | | | |
| 5210.00 | 71.89 | PK | 335 | 2.0 | H | 41.63 | 113.52 | / | / |
| 5210.00 | 56.70 | Ave. | 335 | 2.0 | H | 41.63 | 98.33 | / | / |
| 5210.00 | 67.66 | PK | 304 | 1.5 | V | 41.63 | 109.29 | / | / |
| 5210.00 | 53.97 | Ave. | 304 | 1.5 | V | 41.63 | 95.60 | / | / |
| 5133.07 | 37.23 | PK | 230 | 1.1 | H | 41.60 | 78.83 | 83.5 | 4.67 |
| 5133.07 | 18.86 | Ave. | 230 | 1.1 | H | 41.60 | 60.46 | 63.5 | 3.04 |
| 5376.90 | 29.87 | PK | 354 | 2.2 | H | 42.06 | 71.93 | 83.5 | 11.57 |
| 5376.90 | 14.23 | Ave. | 354 | 2.2 | H | 42.06 | 56.29 | 63.5 | 7.21 |
| 10420.00 | 41.12 | PK | 82 | 2.4 | H | 21.79 | 62.91 | 77.77 | 14.86 |

**5250-5350 MHz & 5470-5725 MHz:**

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11a, Chain 0 | | | | | | | | | |
| 5250-5350 MHz | | | | | | | | | |
| 5260 MHz | | | | | | | | | |
| 5260.00 | 78.67 | PK | 107 | 2.2 | H | 41.79 | 120.46 | / | / |
| 5260.00 | 66.43 | Ave. | 107 | 2.2 | H | 41.79 | 108.22 | / | / |
| 5260.00 | 70.49 | PK | 306 | 2.0 | V | 41.79 | 112.28 | / | / |
| 5260.00 | 58.23 | Ave. | 306 | 2.0 | V | 41.79 | 100.02 | / | / |
| 5124.23 | 28.81 | PK | 251 | 1.1 | H | 41.60 | 70.41 | 83.5 | 13.09 |
| 5124.23 | 14.37 | Ave. | 251 | 1.1 | H | 41.60 | 55.97 | 63.5 | 7.53 |
| 5361.52 | 27.69 | PK | 10 | 2.2 | H | 42.06 | 69.75 | 83.5 | 13.75 |
| 5361.52 | 14.26 | Ave. | 10 | 2.2 | H | 42.06 | 56.32 | 63.5 | 7.18 |
| 10520.00 | 41.26 | PK | 199 | 2.2 | H | 21.49 | 62.75 | 77.77 | 15.02 |
| 5280 MHz | | | | | | | | | |
| 5280.00 | 79.10 | PK | 236 | 1.7 | H | 41.79 | 120.89 | / | / |
| 5280.00 | 66.23 | Ave. | 236 | 1.7 | H | 41.79 | 108.02 | / | / |
| 5280.00 | 71.04 | PK | 234 | 1.3 | V | 41.79 | 112.83 | / | / |
| 5280.00 | 58.26 | Ave. | 234 | 1.3 | V | 41.79 | 100.05 | / | / |
| 10560.00 | 41.13 | PK | 266 | 1.5 | H | 21.94 | 63.07 | 77.77 | 14.70 |
| 5320MHz | | | | | | | | | |
| 5320.00 | 78.68 | PK | 149 | 2.2 | H | 41.89 | 120.57 | / | / |
| 5320.00 | 66.25 | Ave. | 149 | 2.2 | H | 41.89 | 108.14 | / | / |
| 5320.00 | 70.37 | PK | 121 | 1.7 | V | 41.89 | 112.26 | / | / |
| 5320.00 | 59.05 | Ave. | 121 | 1.7 | V | 41.89 | 100.94 | / | / |
| 5075.24 | 28.71 | PK | 2 | 1.4 | H | 41.50 | 70.21 | 83.5 | 13.29 |
| 5075.24 | 14.24 | Ave. | 2 | 1.4 | H | 41.50 | 55.74 | 63.5 | 7.76 |
| 5401.29 | 28.13 | PK | 103 | 2.4 | H | 42.16 | 70.29 | 83.5 | 13.21 |
| 5401.29 | 14.11 | Ave. | 103 | 2.4 | H | 42.16 | 56.27 | 63.5 | 7.23 |
| 10640.00 | 41.23 | PK | 185 | 2.3 | H | 22.04 | 63.27 | 83.5 | 20.23 |
| 10640.00 | 28.22 | Ave. | 185 | 2.3 | H | 22.04 | 50.26 | 63.5 | 13.24 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 5470 MHz ~ 5725 MHz | | | | | | | | | |
| 5500 MHz | | | | | | | | | |
| 5500.00 | 76.86 | PK | 286 | 1.7 | H | 42.46 | 119.32 | / | / |
| 5500.00 | 63.63 | Ave. | 286 | 1.7 | H | 42.46 | 106.09 | / | / |
| 5500.00 | 69.97 | PK | 179 | 1.6 | V | 42.46 | 112.43 | / | / |
| 5500.00 | 57.62 | Ave. | 179 | 1.6 | V | 42.46 | 100.08 | / | / |
| 5463.36 | 28.49 | PK | 155 | 1.7 | H | 42.36 | 70.85 | 77.77 | 6.92 |
| 5761.43 | 28.13 | PK | 126 | 2.1 | H | 42.92 | 71.05 | 77.77 | 6.72 |
| 11000.00 | 41.58 | PK | 337 | 2.0 | H | 22.24 | 63.82 | 83.5 | 19.68 |
| 11000.00 | 28.47 | Ave. | 337 | 2.0 | H | 22.24 | 50.71 | 63.5 | 12.79 |
| 5600 MHz | | | | | | | | | |
| 5600.00 | 77.67 | PK | 358 | 2.2 | H | 42.55 | 120.22 | / | / |
| 5600.00 | 64.13 | Ave. | 358 | 2.2 | H | 42.55 | 106.68 | / | / |
| 5600.00 | 71.34 | PK | 297 | 2.1 | V | 42.55 | 113.89 | / | / |
| 5600.00 | 58.73 | Ave. | 297 | 2.1 | V | 42.55 | 101.28 | / | / |
| 11200.00 | 41.86 | PK | 343 | 2.1 | H | 22.48 | 64.34 | 83.5 | 19.16 |
| 11200.00 | 28.46 | Ave. | 343 | 2.1 | H | 22.48 | 50.94 | 63.5 | 12.56 |
| 5700MHz | | | | | | | | | |
| 5700.00 | 77.13 | PK | 342 | 1.3 | H | 42.78 | 119.91 | / | / |
| 5700.00 | 63.56 | Ave. | 342 | 1.3 | H | 42.78 | 106.34 | / | / |
| 5700.00 | 71.34 | PK | 299 | 2.4 | V | 42.78 | 114.12 | / | / |
| 5700.00 | 59.33 | Ave. | 299 | 2.4 | V | 42.78 | 102.11 | / | / |
| 5462.53 | 27.88 | PK | 6 | 1.3 | H | 42.36 | 70.24 | 77.77 | 7.53 |
| 5743.55 | 27.62 | PK | 179 | 1.9 | H | 42.78 | 70.40 | 77.77 | 7.37 |
| 11400.00 | 42.05 | PK | 53 | 1.1 | H | 23.33 | 65.38 | 83.5 | 18.12 |
| 11400.00 | 28.37 | Ave. | 53 | 1.1 | H | 23.33 | 51.70 | 63.5 | 11.80 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11a, Chain 1 | | | | | | | | | |
| 5250-5350 MHz | | | | | | | | | |
| 5260 MHz | | | | | | | | | |
| 5260.00 | 79.04 | PK | 319 | 1.2 | H | 41.79 | 120.83 | / | / |
| 5260.00 | 66.37 | Ave. | 319 | 1.2 | H | 41.79 | 108.16 | / | / |
| 5260.00 | 71.19 | PK | 2 | 2.3 | V | 41.79 | 112.98 | / | / |
| 5260.00 | 58.85 | Ave. | 2 | 2.3 | V | 41.79 | 100.64 | / | / |
| 5123.51 | 28.34 | PK | 144 | 1.1 | H | 41.60 | 69.94 | 83.5 | 13.56 |
| 5123.51 | 14.11 | Ave. | 144 | 1.1 | H | 41.60 | 55.71 | 63.5 | 7.79 |
| 5394.85 | 28.43 | PK | 19 | 1.5 | H | 42.16 | 70.59 | 83.5 | 12.91 |
| 5394.85 | 14.21 | Ave. | 19 | 1.5 | H | 42.16 | 56.37 | 63.5 | 7.13 |
| 10520.00 | 40.25 | PK | 252 | 1.5 | H | 21.49 | 61.74 | 77.77 | 16.03 |
| 5280 MHz | | | | | | | | | |
| 5280.00 | 78.96 | PK | 126 | 1.9 | H | 41.79 | 120.75 | / | / |
| 5280.00 | 66.26 | Ave. | 126 | 1.9 | H | 41.79 | 108.05 | / | / |
| 5280.00 | 71.24 | PK | 124 | 2.2 | V | 41.79 | 113.03 | / | / |
| 5280.00 | 60.17 | Ave. | 124 | 2.2 | V | 41.79 | 101.96 | / | / |
| 10560.00 | 40.16 | PK | 61 | 2.3 | H | 21.94 | 62.10 | 77.77 | 15.67 |
| 5320MHz | | | | | | | | | |
| 5320.00 | 79.13 | PK | 329 | 2.2 | H | 41.89 | 121.02 | / | / |
| 5320.00 | 66.42 | Ave. | 329 | 2.2 | H | 41.89 | 108.31 | / | / |
| 5320.00 | 70.34 | PK | 273 | 1.8 | V | 41.89 | 112.23 | / | / |
| 5320.00 | 58.33 | Ave. | 273 | 1.8 | V | 41.89 | 100.22 | / | / |
| 5094.66 | 28.34 | PK | 339 | 1.7 | H | 41.50 | 69.84 | 83.5 | 13.66 |
| 5094.66 | 14.15 | Ave. | 339 | 1.7 | H | 41.50 | 55.65 | 63.5 | 7.85 |
| 5381.72 | 27.62 | PK | 6 | 1.4 | H | 42.06 | 69.68 | 83.5 | 13.82 |
| 5381.72 | 13.86 | Ave. | 6 | 1.4 | H | 42.06 | 55.92 | 63.5 | 7.58 |
| 10640.00 | 40.33 | PK | 59 | 2.2 | H | 22.04 | 62.37 | 83.5 | 21.13 |
| 10640.00 | 27.81 | Ave. | 59 | 2.2 | H | 22.04 | 49.85 | 63.5 | 13.65 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 5470 MHz ~ 5725 MHz | | | | | | | | | |
| 5500 MHz | | | | | | | | | |
| 5500.00 | 77.69 | PK | 330 | 1.4 | H | 42.46 | 120.15 | / | / |
| 5500.00 | 64.57 | Ave. | 330 | 1.4 | H | 42.46 | 107.03 | / | / |
| 5500.00 | 71.26 | PK | 63 | 1.1 | V | 42.46 | 113.72 | / | / |
| 5500.00 | 60.53 | Ave. | 63 | 1.1 | V | 42.46 | 102.99 | / | / |
| 5459.63 | 28.52 | PK | 108 | 1.4 | H | 42.36 | 70.88 | 83.5 | 12.62 |
| 5459.63 | 14.15 | Ave. | 108 | 1.4 | H | 42.36 | 56.51 | 63.5 | 6.99 |
| 5747.22 | 27.98 | PK | 254 | 2.3 | H | 42.78 | 70.76 | 77.77 | 7.01 |
| 11000.00 | 42.13 | PK | 200 | 1.9 | H | 22.24 | 64.37 | 83.5 | 19.13 |
| 11000.00 | 27.46 | Ave. | 200 | 1.9 | H | 22.24 | 49.70 | 63.5 | 13.80 |
| 5600 MHz | | | | | | | | | |
| 5600.00 | 77.49 | PK | 359 | 2.0 | H | 42.55 | 120.04 | / | / |
| 5600.00 | 63.86 | Ave. | 359 | 2.0 | H | 42.55 | 106.41 | / | / |
| 5600.00 | 71.56 | PK | 266 | 1.7 | V | 42.55 | 114.11 | / | / |
| 5600.00 | 60.71 | Ave. | 266 | 1.7 | V | 42.55 | 103.26 | / | / |
| 11200.00 | 42.08 | PK | 357 | 2.3 | H | 22.48 | 64.56 | 83.5 | 18.94 |
| 11200.00 | 28.13 | Ave. | 357 | 2.3 | H | 22.48 | 50.61 | 63.5 | 12.89 |
| 5700MHz | | | | | | | | | |
| 5700.00 | 76.56 | PK | 161 | 1.1 | H | 42.78 | 119.34 | / | / |
| 5700.00 | 63.45 | Ave. | 161 | 1.1 | H | 42.78 | 106.23 | / | / |
| 5700.00 | 70.43 | PK | 52 | 2.0 | V | 42.78 | 113.21 | / | / |
| 5700.00 | 58.74 | Ave. | 52 | 2.0 | V | 42.78 | 101.52 | / | / |
| 5462.06 | 28.52 | PK | 9 | 1.6 | H | 42.36 | 70.88 | 77.77 | 6.89 |
| 5754.22 | 27.98 | PK | 54 | 1.7 | H | 42.92 | 70.90 | 77.77 | 6.87 |
| 11400.00 | 41.63 | PK | 282 | 2.3 | H | 23.33 | 64.96 | 83.5 | 18.54 |
| 11400.00 | 28.23 | Ave. | 282 | 2.3 | H | 23.33 | 51.56 | 63.5 | 11.94 |

Transmitting with two antennas:

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11n20 | | | | | | | | | |
| 5250 MHz ~ 5350 MHz | | | | | | | | | |
| 5260MHz | | | | | | | | | |
| 5260.00 | 79.13 | PK | 106 | 2.3 | H | 41.79 | 120.92 | / | / |
| 5260.00 | 66.54 | Ave. | 106 | 2.3 | H | 41.79 | 108.33 | / | / |
| 5260.00 | 74.73 | PK | 262 | 1.3 | V | 41.79 | 116.52 | / | / |
| 5260.00 | 61.23 | Ave. | 262 | 1.3 | V | 41.79 | 103.02 | / | / |
| 5023.43 | 28.34 | PK | 22 | 1.6 | H | 41.23 | 69.57 | 83.5 | 13.93 |
| 5023.43 | 14.61 | Ave. | 22 | 1.6 | H | 41.23 | 55.84 | 63.5 | 7.66 |
| 5359.62 | 28.13 | PK | 195 | 2.1 | H | 42.06 | 70.19 | 83.5 | 13.31 |
| 5359.62 | 14.26 | Ave. | 195 | 2.1 | H | 42.06 | 56.32 | 63.5 | 7.18 |
| 10360.00 | 46.50 | PK | 147 | 1.5 | H | 21.69 | 68.19 | 77.77 | 9.58 |
| 5280MHz | | | | | | | | | |
| 5280.00 | 78.64 | PK | 299 | 2.0 | H | 41.79 | 120.43 | / | / |
| 5280.00 | 66.13 | Ave. | 299 | 2.0 | H | 41.79 | 107.92 | / | / |
| 5280.00 | 74.21 | PK | 264 | 2.0 | V | 41.79 | 116.00 | / | / |
| 5280.00 | 61.32 | Ave. | 264 | 2.0 | V | 41.79 | 103.11 | / | / |
| 10560.00 | 46.34 | PK | 148 | 2.0 | H | 21.94 | 68.28 | 77.77 | 9.49 |
| 5320 MHz | | | | | | | | | |
| 5320.00 | 78.89 | PK | 302 | 1.6 | H | 41.89 | 120.78 | / | / |
| 5320.00 | 65.87 | Ave. | 302 | 1.6 | H | 41.89 | 107.76 | / | / |
| 5320.00 | 73.86 | PK | 151 | 2.3 | V | 41.89 | 115.75 | / | / |
| 5320.00 | 61.42 | Ave. | 151 | 2.3 | V | 41.89 | 103.31 | / | / |
| 5111.41 | 28.66 | PK | 301 | 1.5 | H | 41.50 | 70.16 | 83.5 | 13.34 |
| 5111.41 | 14.34 | Ave. | 301 | 1.5 | H | 41.50 | 55.84 | 63.5 | 7.66 |
| 5374.56 | 27.45 | PK | 102 | 2.4 | H | 42.06 | 69.51 | 83.5 | 13.99 |
| 5374.56 | 14.51 | Ave. | 102 | 2.4 | H | 42.06 | 56.57 | 63.5 | 6.93 |
| 10640.00 | 46.67 | PK | 123 | 2.1 | H | 22.04 | 68.71 | 83.5 | 14.79 |
| 10640.00 | 29.81 | Ave. | 123 | 2.1 | H | 22.04 | 51.85 | 63.5 | 11.65 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 5470 MHz ~ 5725 MHz | | | | | | | | | |
| 5500 MHz | | | | | | | | | |
| 5500.00 | 76.86 | PK | 169 | 1.9 | H | 42.46 | 119.32 | / | / |
| 5500.00 | 63.59 | Ave. | 169 | 1.9 | H | 42.46 | 106.05 | / | / |
| 5500.00 | 70.43 | PK | 259 | 1.6 | V | 42.46 | 112.89 | / | / |
| 5500.00 | 59.87 | Ave. | 259 | 1.6 | V | 42.46 | 102.33 | / | / |
| 5468.56 | 28.41 | PK | 8 | 2.5 | H | 42.36 | 70.77 | 77.77 | 7.00 |
| 5762.23 | 28.31 | PK | 121 | 2.4 | H | 42.92 | 71.23 | 77.77 | 6.54 |
| 11000.00 | 41.55 | PK | 205 | 1.0 | H | 22.24 | 63.79 | 83.5 | 19.71 |
| 11000.00 | 27.65 | Ave. | 205 | 1.0 | H | 22.24 | 49.89 | 63.5 | 13.61 |
| 5600 MHz | | | | | | | | | |
| 5600.00 | 77.43 | PK | 112 | 2.2 | H | 42.55 | 119.98 | / | / |
| 5600.00 | 64.10 | Ave. | 112 | 2.2 | H | 42.55 | 106.65 | / | / |
| 5600.00 | 71.79 | PK | 92 | 1.2 | V | 42.55 | 114.34 | / | / |
| 5600.00 | 60.64 | Ave. | 92 | 1.2 | V | 42.55 | 103.19 | / | / |
| 11200.00 | 42.34 | PK | 99 | 1.7 | H | 22.48 | 64.82 | 83.5 | 18.68 |
| 11200.00 | 28.18 | Ave. | 99 | 1.7 | H | 22.48 | 50.66 | 63.5 | 12.84 |
| 5700MHz | | | | | | | | | |
| 5700.00 | 77.54 | PK | 229 | 1.1 | H | 42.78 | 120.32 | / | / |
| 5700.00 | 63.81 | Ave. | 229 | 1.1 | H | 42.78 | 106.59 | / | / |
| 5700.00 | 72.20 | PK | 69 | 1.3 | V | 42.78 | 114.98 | / | / |
| 5700.00 | 60.51 | Ave. | 69 | 1.3 | V | 42.78 | 103.29 | / | / |
| 5461.32 | 28.21 | PK | 124 | 2.5 | H | 42.36 | 70.57 | 77.77 | 7.20 |
| 5741.26 | 27.57 | PK | 216 | 2.3 | H | 42.78 | 70.35 | 77.77 | 7.42 |
| 11400.00 | 42.13 | PK | 263 | 2.0 | H | 23.33 | 65.46 | 83.5 | 18.04 |
| 11400.00 | 28.21 | Ave. | 263 | 2.0 | H | 23.33 | 51.54 | 63.5 | 11.96 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11ac20 | | | | | | | | | |
| 5250 MHz ~ 5350 MHz | | | | | | | | | |
| 5260MHz | | | | | | | | | |
| 5260.00 | 78.94 | PK | 144 | 1.1 | H | 41.79 | 120.73 | / | / |
| 5260.00 | 65.37 | Ave. | 144 | 1.1 | H | 41.79 | 107.16 | / | / |
| 5260.00 | 74.73 | PK | 285 | 1.1 | V | 41.79 | 116.52 | / | / |
| 5260.00 | 61.23 | Ave. | 285 | 1.1 | V | 41.79 | 103.02 | / | / |
| 5078.53 | 27.36 | PK | 244 | 1.5 | H | 41.50 | 68.86 | 83.5 | 14.64 |
| 5078.53 | 14.17 | Ave. | 244 | 1.5 | H | 41.50 | 55.67 | 63.5 | 7.83 |
| 5411.20 | 28.13 | PK | 116 | 1.5 | H | 42.16 | 70.29 | 83.5 | 13.21 |
| 5411.20 | 14.33 | Ave. | 116 | 1.5 | H | 42.16 | 56.49 | 63.5 | 7.01 |
| 10520.00 | 45.64 | PK | 140 | 2.1 | H | 21.49 | 67.13 | 77.77 | 10.64 |
| 5280MHz | | | | | | | | | |
| 5280.00 | 79.62 | PK | 210 | 1.0 | H | 41.79 | 121.41 | / | / |
| 5280.00 | 66.78 | Ave. | 210 | 1.0 | H | 41.79 | 108.57 | / | / |
| 5280.00 | 74.87 | PK | 144 | 1.7 | V | 41.79 | 116.66 | / | / |
| 5280.00 | 61.83 | Ave. | 144 | 1.7 | V | 41.79 | 103.62 | / | / |
| 10560.00 | 46.21 | PK | 156 | 2.4 | H | 21.94 | 68.15 | 77.77 | 9.62 |
| 5320 MHz | | | | | | | | | |
| 5320.00 | 79.20 | PK | 259 | 2.3 | H | 41.89 | 121.09 | / | / |
| 5320.00 | 66.94 | Ave. | 259 | 2.3 | H | 41.89 | 108.83 | / | / |
| 5320.00 | 75.08 | PK | 96 | 1.5 | V | 41.89 | 116.97 | / | / |
| 5320.00 | 61.74 | Ave. | 96 | 1.5 | V | 41.89 | 103.63 | / | / |
| 5112.22 | 27.90 | PK | 268 | 1.6 | H | 41.50 | 69.40 | 83.5 | 14.10 |
| 5112.22 | 14.26 | Ave. | 268 | 1.6 | H | 41.50 | 55.76 | 63.5 | 7.74 |
| 5351.10 | 32.73 | PK | 169 | 2.0 | H | 42.06 | 74.79 | 83.5 | 8.71 |
| 5351.10 | 15.50 | Ave. | 169 | 2.0 | H | 42.06 | 57.56 | 63.5 | 5.94 |
| 10640.00 | 46.26 | PK | 21 | 1.2 | H | 22.04 | 68.30 | 83.5 | 15.20 |
| 10640.00 | 29.94 | Ave. | 21 | 1.2 | H | 22.04 | 51.98 | 63.5 | 11.52 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 5470 MHz ~ 5725 MHz | | | | | | | | | |
| 5500 MHz | | | | | | | | | |
| 5500.00 | 76.93 | PK | 13 | 1.2 | H | 42.46 | 119.39 | / | / |
| 5500.00 | 63.67 | Ave. | 13 | 1.2 | H | 42.46 | 106.13 | / | / |
| 5500.00 | 72.70 | PK | 17 | 1.9 | V | 42.46 | 115.16 | / | / |
| 5500.00 | 60.91 | Ave. | 17 | 1.9 | V | 42.46 | 103.37 | / | / |
| 5464.23 | 29.01 | PK | 40 | 2.1 | H | 42.36 | 71.37 | 77.77 | 6.4 |
| 5736.79 | 27.38 | PK | 184 | 2.3 | H | 42.78 | 70.16 | 77.77 | 7.61 |
| 11000.00 | 41.34 | PK | 119 | 1.9 | H | 22.24 | 63.58 | 83.5 | 19.92 |
| 11000.00 | 27.56 | Ave. | 119 | 1.9 | H | 22.24 | 49.80 | 63.5 | 13.70 |
| 5600 MHz | | | | | | | | | |
| 5600.00 | 77.15 | PK | 111 | 2.4 | H | 42.55 | 119.70 | / | / |
| 5600.00 | 64.12 | Ave. | 111 | 2.4 | H | 42.55 | 106.67 | / | / |
| 5600.00 | 71.42 | PK | 61 | 1.8 | V | 42.55 | 113.97 | / | / |
| 5600.00 | 60.22 | Ave. | 61 | 1.8 | V | 42.55 | 102.77 | / | / |
| 11200.00 | 41.26 | PK | 152 | 1.6 | H | 22.48 | 63.74 | 83.5 | 19.76 |
| 11200.00 | 27.33 | Ave. | 152 | 1.6 | H | 22.48 | 49.81 | 63.5 | 13.69 |
| 5700MHz | | | | | | | | | |
| 5700.00 | 77.49 | PK | 324 | 2.4 | H | 42.78 | 120.27 | / | / |
| 5700.00 | 64.31 | Ave. | 324 | 2.4 | H | 42.78 | 107.09 | / | / |
| 5700.00 | 74.09 | PK | 287 | 1.5 | V | 42.78 | 116.87 | / | / |
| 5700.00 | 61.84 | Ave. | 287 | 1.5 | V | 42.78 | 104.62 | / | / |
| 5433.45 | 27.45 | PK | 44 | 2.1 | V | 42.26 | 69.71 | 83.5 | 13.79 |
| 5433.45 | 14.21 | Ave. | 44 | 2.1 | V | 42.26 | 56.47 | 63.5 | 7.03 |
| 5748.70 | 28.64 | PK | 13 | 1.3 | V | 42.78 | 71.42 | 77.77 | 6.35 |
| 11400.00 | 42.74 | PK | 263 | 2.0 | H | 23.33 | 66.07 | 83.5 | 17.43 |
| 11400.00 | 28.02 | Ave. | 263 | 2.0 | H | 23.33 | 51.35 | 63.5 | 12.15 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11n40 | | | | | | | | | |
| 5250 MHz ~ 5350 MHz | | | | | | | | | |
| 5270MHz | | | | | | | | | |
| 5270.00 | 73.16 | PK | 142 | 1.1 | H | 41.79 | 114.95 | / | / |
| 5270.00 | 60.21 | Ave. | 142 | 1.1 | H | 41.79 | 102.00 | / | / |
| 5270.00 | 69.83 | PK | 346 | 2.4 | V | 41.79 | 111.62 | / | / |
| 5270.00 | 58.77 | Ave. | 346 | 2.4 | V | 41.79 | 100.56 | / | / |
| 5089.63 | 28.13 | PK | 43 | 1.6 | H | 41.50 | 69.63 | 83.5 | 13.87 |
| 5089.63 | 14.21 | Ave. | 43 | 1.6 | H | 41.50 | 55.71 | 63.5 | 7.79 |
| 5386.47 | 28.67 | PK | 238 | 1.3 | H | 42.16 | 70.83 | 83.5 | 12.67 |
| 5386.47 | 14.33 | Ave. | 238 | 1.3 | H | 42.16 | 56.49 | 63.5 | 7.01 |
| 10540.00 | 41.36 | PK | 28 | 2.1 | H | 21.49 | 62.85 | 77.77 | 14.92 |
| 5310MHz | | | | | | | | | |
| 5310.00 | 73.64 | PK | 90 | 1.4 | H | 41.89 | 115.53 | / | / |
| 5310.00 | 60.43 | Ave. | 90 | 1.4 | H | 41.89 | 102.32 | / | / |
| 5310.00 | 70.36 | PK | 109 | 1.2 | V | 41.89 | 112.25 | / | / |
| 5310.00 | 58.63 | Ave. | 109 | 1.2 | V | 41.89 | 100.52 | / | / |
| 5089.63 | 28.32 | PK | 299 | 1.9 | H | 41.50 | 69.82 | 83.5 | 13.68 |
| 5089.63 | 14.34 | Ave. | 299 | 1.9 | H | 41.50 | 55.84 | 63.5 | 7.66 |
| 5386.47 | 29.62 | PK | 123 | 1.2 | H | 42.16 | 71.78 | 83.5 | 11.72 |
| 5386.47 | 15.21 | Ave. | 123 | 1.2 | H | 42.16 | 57.37 | 63.5 | 6.13 |
| 10620.00 | 40.99 | PK | 34 | 1.9 | H | 22.04 | 63.03 | 83.5 | 20.47 |
| 10620.00 | 26.73 | Ave. | 34 | 1.9 | H | 22.04 | 48.77 | 63.5 | 14.73 |
| 5470 MHz ~ 5725 MHz | | | | | | | | | |
| 5510MHz | | | | | | | | | |
| 5510.00 | 74.12 | PK | 273 | 1.6 | H | 42.46 | 116.58 | / | / |
| 5510.00 | 60.90 | Ave. | 273 | 1.6 | H | 42.46 | 103.36 | / | / |
| 5510.00 | 69.79 | PK | 124 | 1.7 | V | 42.46 | 112.25 | / | / |
| 5510.00 | 56.01 | Ave. | 124 | 1.7 | V | 42.46 | 98.47 | / | / |
| 5469.73 | 29.18 | PK | 194 | 1.2 | H | 42.36 | 71.54 | 77.77 | 6.23 |
| 5757.12 | 27.77 | PK | 186 | 1.4 | H | 42.92 | 70.69 | 77.77 | 7.08 |
| 11020.00 | 42.78 | PK | 83 | 2.2 | H | 22.24 | 65.02 | 83.5 | 18.48 |
| 11020.00 | 27.90 | Ave. | 83 | 2.2 | H | 22.24 | 50.14 | 63.5 | 13.36 |
| 5670MHz | | | | | | | | | |
| 5670.00 | 75.05 | PK | 254 | 1.2 | H | 42.78 | 117.83 | / | / |
| 5670.00 | 61.42 | Ave. | 254 | 1.2 | H | 42.78 | 104.20 | / | / |
| 5670.00 | 70.76 | PK | 321 | 2.4 | V | 42.78 | 113.54 | / | / |
| 5670.00 | 58.19 | Ave. | 321 | 2.4 | V | 42.78 | 100.97 | / | / |
| 5437.94 | 28.24 | PK | 249 | 1.2 | H | 42.26 | 70.50 | 83.5 | 13.00 |
| 5437.94 | 14.24 | Ave. | 249 | 1.2 | H | 42.26 | 56.50 | 63.5 | 7.00 |
| 5737.42 | 28.25 | PK | 328 | 1.6 | H | 42.78 | 71.03 | 77.77 | 6.74 |
| 11340.00 | 40.82 | PK | 268 | 1.3 | H | 23.09 | 63.91 | 83.5 | 19.59 |
| 11340.00 | 27.68 | Ave. | 268 | 1.3 | H | 23.09 | 50.77 | 63.5 | 12.73 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11ac40 | | | | | | | | | |
| 5250 MHz ~ 5350 MHz | | | | | | | | | |
| 5270MHz | | | | | | | | | |
| 5270.00 | 73.85 | PK | 61 | 2.4 | H | 41.79 | 115.64 | / | / |
| 5270.00 | 60.79 | Ave. | 61 | 2.4 | H | 41.79 | 102.58 | / | / |
| 5270.00 | 70.38 | PK | 286 | 1.1 | V | 41.79 | 112.17 | / | / |
| 5270.00 | 56.51 | Ave. | 286 | 1.1 | V | 41.79 | 98.30 | / | / |
| 5002.81 | 28.19 | PK | 298 | 2.3 | H | 41.13 | 69.32 | 83.5 | 14.18 |
| 5002.81 | 14.56 | Ave. | 298 | 2.3 | H | 41.13 | 55.69 | 63.5 | 7.81 |
| 5427.59 | 27.36 | PK | 313 | 1.1 | H | 42.16 | 69.52 | 83.5 | 13.98 |
| 5427.59 | 14.36 | Ave. | 313 | 1.1 | H | 42.16 | 56.52 | 63.5 | 6.98 |
| 10540.00 | 40.00 | PK | 129 | 1.4 | H | 21.49 | 61.49 | 77.77 | 16.28 |
| 5310MHz | | | | | | | | | |
| 5310.00 | 73.84 | PK | 118 | 2.0 | H | 41.89 | 115.73 | / | / |
| 5310.00 | 60.69 | Ave. | 118 | 2.0 | H | 41.89 | 102.58 | / | / |
| 5310.00 | 70.04 | PK | 151 | 2.4 | V | 41.89 | 111.93 | / | / |
| 5310.00 | 57.19 | Ave. | 151 | 2.4 | V | 41.89 | 99.08 | / | / |
| 5112.44 | 27.86 | PK | 58 | 1.6 | H | 41.50 | 69.36 | 83.5 | 14.14 |
| 5112.44 | 13.54 | Ave. | 58 | 1.6 | H | 41.50 | 55.04 | 63.5 | 8.46 |
| 5359.12 | 29.74 | PK | 71 | 2.2 | H | 42.06 | 71.80 | 83.5 | 11.70 |
| 5359.12 | 15.36 | Ave. | 71 | 2.2 | H | 42.06 | 57.42 | 63.5 | 6.08 |
| 10620.00 | 41.71 | PK | 142 | 2.1 | H | 22.04 | 63.75 | 83.5 | 19.75 |
| 10620.00 | 26.77 | Ave. | 142 | 2.1 | H | 22.04 | 48.81 | 63.5 | 14.69 |
| 5470 MHz ~ 5725 MHz | | | | | | | | | |
| 5510MHz | | | | | | | | | |
| 5510.00 | 74.65 | PK | 216 | 2.2 | H | 42.46 | 117.11 | / | / |
| 5510.00 | 61.13 | Ave. | 216 | 2.2 | H | 42.46 | 103.59 | / | / |
| 5510.00 | 70.31 | PK | 247 | 2.2 | V | 42.46 | 112.77 | / | / |
| 5510.00 | 57.26 | Ave. | 247 | 2.2 | V | 42.46 | 99.72 | / | / |
| 5459.63 | 28.79 | PK | 335 | 1.2 | H | 42.36 | 71.15 | 83.5 | 12.35 |
| 5459.63 | 14.63 | Ave. | 335 | 1.2 | H | 42.36 | 56.99 | 63.5 | 6.51 |
| 5736.54 | 27.64 | PK | 83 | 1.4 | H | 42.78 | 70.42 | 77.77 | 7.35 |
| 11020.00 | 41.52 | PK | 56 | 1.8 | H | 22.24 | 63.76 | 83.5 | 19.74 |
| 11020.00 | 27.28 | Ave. | 56 | 1.8 | H | 22.24 | 49.52 | 63.5 | 13.98 |
| 5670MHz | | | | | | | | | |
| 5670.00 | 75.13 | PK | 144 | 2.5 | H | 42.78 | 117.91 | / | / |
| 5670.00 | 62.35 | Ave. | 144 | 2.5 | H | 42.78 | 105.13 | / | / |
| 5670.00 | 70.55 | PK | 9 | 1.3 | V | 42.78 | 113.33 | / | / |
| 5670.00 | 57.43 | Ave. | 9 | 1.3 | V | 42.78 | 100.21 | / | / |
| 5465.47 | 27.86 | PK | 241 | 1.3 | H | 42.36 | 70.22 | 77.77 | 7.55 |
| 5783.24 | 28.31 | PK | 121 | 1.8 | H | 42.92 | 71.23 | 77.77 | 6.54 |
| 11340.00 | 41.41 | PK | 184 | 2.0 | H | 23.09 | 64.50 | 83.5 | 19.00 |
| 11340.00 | 27.89 | Ave. | 184 | 2.0 | H | 23.09 | 50.98 | 63.5 | 12.52 |

| Frequency (MHz) | Receiver | | Turntable | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | Degree | Height (m) | Polar (H / V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11ac80 | | | | | | | | | |
| 5250 MHz ~ 5350 MHz | | | | | | | | | |
| 5290MHz | | | | | | | | | |
| 5290.00 | 69.42 | PK | 25 | 1.2 | H | 41.79 | 111.21 | / | / |
| 5290.00 | 54.67 | Ave. | 25 | 1.2 | H | 41.79 | 96.46 | / | / |
| 5290.00 | 63.58 | PK | 170 | 2.0 | V | 41.79 | 105.37 | / | / |
| 5290.00 | 49.37 | Ave. | 170 | 2.0 | V | 41.79 | 91.16 | / | / |
| 5073.29 | 27.38 | PK | 96 | 2.5 | H | 41.50 | 68.88 | 83.5 | 14.62 |
| 5073.29 | 14.12 | Ave. | 96 | 2.5 | H | 41.50 | 55.62 | 63.5 | 7.88 |
| 5350.22 | 34.55 | PK | 301 | 2.1 | H | 42.06 | 76.61 | 83.5 | 6.89 |
| 5350.22 | 18.02 | Ave. | 301 | 2.1 | H | 42.06 | 60.08 | 63.5 | 3.42 |
| 10580.00 | 40.07 | PK | 44 | 1.5 | H | 21.94 | 62.01 | 77.77 | 15.76 |
| 5470 MHz ~ 5725 MHz | | | | | | | | | |
| 5610MHz | | | | | | | | | |
| 5610.00 | 72.64 | PK | 160 | 1.2 | H | 42.55 | 115.19 | / | / |
| 5610.00 | 56.50 | Ave. | 160 | 1.2 | H | 42.55 | 99.05 | / | / |
| 5610.00 | 68.95 | PK | 115 | 1.7 | V | 42.55 | 111.50 | / | / |
| 5610.00 | 54.01 | Ave. | 115 | 1.7 | V | 42.55 | 96.56 | / | / |
| 5469.36 | 27.68 | PK | 255 | 2.3 | H | 42.36 | 70.04 | 77.77 | 7.73 |
| 5736.23 | 28.37 | PK | 303 | 1.2 | H | 42.78 | 71.15 | 77.77 | 6.62 |
| 11220.00 | 43.01 | PK | 122 | 1.5 | H | 22.48 | 65.49 | 83.5 | 18.01 |
| 11220.00 | 27.90 | Ave. | 122 | 1.5 | H | 22.48 | 50.38 | 63.5 | 13.12 |
| 5530MHz | | | | | | | | | |
| 5530.00 | 71.65 | PK | 38 | 2.1 | H | 42.46 | 114.11 | / | / |
| 5530.00 | 55.47 | AV | 38 | 2.1 | H | 42.46 | 97.93 | / | / |
| 5530.00 | 66.83 | PK | 30 | 2.2 | V | 42.46 | 109.29 | / | / |
| 5530.00 | 50.31 | AV | 30 | 2.2 | V | 42.46 | 92.77 | / | / |
| 5462.13 | 27.64 | PK | 10 | 2.2 | H | 42.36 | 70.00 | 77.77 | 7.77 |
| 5749.50 | 28.43 | PK | 163 | 1.2 | H | 42.78 | 71.21 | 77.77 | 6.56 |
| 11060.00 | 43.61 | PK | 230 | 2.3 | H | 21.97 | 65.58 | 83.5 | 17.92 |
| 11060.00 | 28.41 | AV | 230 | 2.3 | H | 21.97 | 50.38 | 63.5 | 13.12 |

**5725-5850 MHz:**

| Frequency (MHz) | Receiver | | Turntable Degree | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | | Height (m) | Polar (H/V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11a, Chain 0 | | | | | | | | | |
| 5745 MHz | | | | | | | | | |
| 5745.00 | 77.46 | PK | 20 | 2.2 | H | 42.78 | 120.24 | / | / |
| 5745.00 | 63.21 | Ave. | 20 | 2.2 | H | 42.78 | 105.99 | / | / |
| 5745.00 | 73.13 | PK | 136 | 1.0 | V | 42.78 | 115.91 | / | / |
| 5745.00 | 60.14 | Ave. | 136 | 1.0 | V | 42.78 | 102.92 | / | / |
| 5667.93 | 33.29 | PK | 145 | 2.2 | H | 42.78 | 76.07 | 90.97 | 14.90 |
| 5704.68 | 34.54 | PK | 43 | 2.2 | V | 42.78 | 77.32 | 116.01 | 38.69 |
| 5723.16 | 44.31 | PK | 235 | 1.8 | H | 42.78 | 87.09 | 127.5 | 40.41 |
| 11490.00 | 43.73 | PK | 3 | 1.6 | H | 24.17 | 67.90 | 83.5 | 15.60 |
| 11490.00 | 28.15 | Ave. | 3 | 1.6 | H | 24.17 | 52.32 | 63.5 | 11.18 |
| 5785MHz | | | | | | | | | |
| 5785.00 | 77.62 | PK | 142 | 1.8 | H | 42.92 | 120.54 | / | / |
| 5785.00 | 63.16 | Ave. | 142 | 1.8 | H | 42.92 | 106.08 | / | / |
| 5785.00 | 73.54 | PK | 1 | 1.1 | V | 42.92 | 116.46 | / | / |
| 5785.00 | 60.23 | Ave. | 1 | 1.1 | V | 42.92 | 103.15 | / | / |
| 11570.00 | 44.62 | PK | 15 | 1.3 | H | 23.10 | 67.72 | 83.5 | 15.78 |
| 11570.00 | 28.45 | Ave. | 15 | 1.3 | H | 23.10 | 51.55 | 63.5 | 11.95 |
| 5825MHz | | | | | | | | | |
| 5825.00 | 77.58 | PK | 269 | 1.9 | H | 42.92 | 120.50 | / | / |
| 5825.00 | 63.41 | Ave. | 269 | 1.9 | H | 42.92 | 106.33 | / | / |
| 5825.00 | 72.98 | PK | 215 | 2.4 | V | 42.92 | 115.90 | / | / |
| 5825.00 | 60.06 | Ave. | 215 | 2.4 | V | 42.92 | 102.98 | / | / |
| 5854.69 | 33.46 | PK | 258 | 1.7 | H | 42.87 | 76.33 | 121.01 | 44.68 |
| 5859.31 | 32.45 | PK | 39 | 2.2 | H | 42.87 | 75.32 | 119.09 | 43.77 |
| 5887.45 | 31.63 | PK | 297 | 1.2 | H | 42.87 | 74.50 | 105.49 | 30.99 |
| 11650.00 | 43.64 | PK | 50 | 1.8 | H | 22.37 | 66.01 | 83.5 | 17.49 |
| 11650.00 | 28.91 | Ave. | 50 | 1.8 | H | 22.37 | 51.28 | 63.5 | 12.22 |

| Frequency (MHz) | Receiver | | Turntable Degree | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | | Height (m) | Polar (H/V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11a, Chain 1 | | | | | | | | | |
| 5745 MHz | | | | | | | | | |
| 5745.00 | 76.93 | PK | 3 | 2.2 | H | 42.78 | 119.71 | / | / |
| 5745.00 | 63.10 | Ave. | 3 | 2.2 | H | 42.78 | 105.88 | / | / |
| 5745.00 | 72.84 | PK | 286 | 1.5 | V | 42.78 | 115.62 | / | / |
| 5745.00 | 60.02 | Ave. | 286 | 1.5 | V | 42.78 | 102.80 | / | / |
| 5668.73 | 32.26 | PK | 167 | 1.4 | H | 42.78 | 75.04 | 91.56 | 16.52 |
| 5718.42 | 36.66 | PK | 114 | 2.1 | H | 42.78 | 79.44 | 119.86 | 40.42 |
| 5724.30 | 46.37 | PK | 267 | 1.1 | H | 42.78 | 89.15 | 130.1 | 40.95 |
| 11490.00 | 43.26 | PK | 338 | 2.4 | H | 24.17 | 67.43 | 83.5 | 16.07 |
| 11490.00 | 30.17 | Ave. | 338 | 2.4 | H | 24.17 | 54.34 | 63.5 | 9.16 |
| 5785MHz | | | | | | | | | |
| 5785.00 | 77.81 | PK | 168 | 2.3 | H | 42.92 | 120.73 | / | / |
| 5785.00 | 63.52 | Ave. | 168 | 2.3 | H | 42.92 | 106.44 | / | / |
| 5785.00 | 73.46 | PK | 290 | 1.5 | V | 42.92 | 116.38 | / | / |
| 5785.00 | 60.27 | Ave. | 290 | 1.5 | V | 42.92 | 103.19 | / | / |
| 11570.00 | 43.25 | PK | 262 | 1.7 | H | 23.10 | 66.35 | 83.5 | 17.15 |
| 11570.00 | 30.34 | Ave. | 262 | 1.7 | H | 23.10 | 53.44 | 63.5 | 10.06 |
| 5825MHz | | | | | | | | | |
| 5825.00 | 77.61 | PK | 40 | 2.0 | H | 42.92 | 120.53 | / | / |
| 5825.00 | 63.48 | Ave. | 40 | 2.0 | H | 42.92 | 106.40 | / | / |
| 5825.00 | 73.26 | PK | 86 | 2.2 | V | 42.92 | 116.18 | / | / |
| 5825.00 | 60.27 | Ave. | 86 | 2.2 | V | 42.92 | 103.19 | / | / |
| 5860.50 | 30.43 | PK | 309 | 1.6 | H | 46.05 | 76.48 | 118.76 | 42.28 |
| 5857.43 | 32.61 | PK | 181 | 1.3 | H | 42.87 | 75.48 | 119.62 | 44.14 |
| 5879.81 | 30.43 | PK | 60 | 1.4 | H | 42.87 | 73.30 | 111.14 | 37.84 |
| 11650.00 | 45.64 | PK | 195 | 2.5 | H | 22.37 | 68.01 | 83.5 | 15.49 |
| 11650.00 | 31.26 | Ave. | 195 | 2.5 | H | 22.37 | 53.63 | 63.5 | 9.87 |

**Transmitting with two antennas:**

| Frequency (MHz) | Receiver | | Turntable Degree | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | | Height (m) | Polar (H/V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11n20 | | | | | | | | | |
| 5745 MHz | | | | | | | | | |
| 5745.00 | 76.95 | PK | 104 | 1.1 | H | 42.78 | 119.73 | / | / |
| 5745.00 | 62.57 | Ave. | 104 | 1.1 | H | 42.78 | 105.35 | / | / |
| 5745.00 | 72.49 | PK | 102 | 2.3 | V | 42.78 | 115.27 | / | / |
| 5745.00 | 59.87 | Ave. | 102 | 2.3 | V | 42.78 | 102.65 | / | / |
| 5669.83 | 30.43 | PK | 86 | 1.1 | H | 42.78 | 73.21 | 92.37 | 19.16 |
| 5718.94 | 31.23 | PK | 146 | 1.4 | H | 42.78 | 74.01 | 120 | 45.99 |
| 5723.65 | 41.33 | PK | 99 | 2.1 | H | 42.78 | 84.11 | 128.62 | 44.51 |
| 11490.00 | 46.57 | PK | 305 | 1.8 | H | 24.17 | 70.74 | 83.5 | 12.76 |
| 11490.00 | 31.23 | Ave. | 305 | 1.8 | H | 24.17 | 55.40 | 63.5 | 8.10 |
| 5785MHz | | | | | | | | | |
| 5785.00 | 77.63 | PK | 72 | 2.1 | H | 42.92 | 120.55 | / | / |
| 5785.00 | 63.47 | Ave. | 72 | 2.1 | H | 42.92 | 106.39 | / | / |
| 5785.00 | 73.52 | PK | 148 | 2.2 | V | 42.92 | 116.44 | / | / |
| 5785.00 | 60.29 | Ave. | 148 | 2.2 | V | 42.92 | 103.21 | / | / |
| 11570.00 | 47.62 | PK | 165 | 2.1 | H | 23.10 | 70.72 | 83.5 | 12.78 |
| 11570.00 | 32.16 | Ave. | 165 | 2.1 | H | 23.10 | 55.26 | 63.5 | 8.24 |
| 5825 MHz | | | | | | | | | |
| 5825.00 | 77.63 | PK | 89 | 1.5 | H | 42.92 | 120.55 | / | / |
| 5825.00 | 63.47 | Ave. | 89 | 1.5 | H | 42.92 | 106.39 | / | / |
| 5825.00 | 73.26 | PK | 178 | 1.7 | V | 42.92 | 116.18 | / | / |
| 5825.00 | 60.43 | Ave. | 178 | 1.7 | V | 42.92 | 103.35 | / | / |
| 5852.36 | 30.27 | PK | 342 | 1.3 | H | 42.87 | 73.14 | 126.32 | 53.18 |
| 5857.19 | 31.23 | PK | 103 | 1.7 | H | 42.87 | 74.10 | 119.69 | 45.59 |
| 5884.46 | 28.79 | PK | 55 | 1.8 | H | 42.87 | 71.66 | 107.7 | 36.04 |
| 11650.00 | 47.56 | PK | 201 | 2.2 | H | 22.37 | 69.93 | 83.5 | 13.57 |
| 11650.00 | 31.49 | Ave. | 201 | 2.2 | H | 22.37 | 53.86 | 63.5 | 9.64 |

| Frequency (MHz) | Receiver | | Turntable Degree | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | | Height (m) | Polar (H/V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11n40 | | | | | | | | | |
| 5755 MHz | | | | | | | | | |
| 5755.00 | 75.88 | PK | 233 | 2.1 | H | 42.92 | 118.80 | / | / |
| 5755.00 | 61.23 | Ave. | 233 | 2.1 | H | 42.92 | 104.15 | / | / |
| 5755.00 | 71.57 | PK | 203 | 1.8 | V | 42.92 | 114.49 | / | / |
| 5755.00 | 57.63 | Ave. | 203 | 1.8 | V | 42.92 | 100.55 | / | / |
| 5687.64 | 42.62 | PK | 208 | 1.6 | H | 42.78 | 85.40 | 105.55 | 20.15 |
| 5719.46 | 42.38 | PK | 134 | 2.4 | H | 42.78 | 85.16 | 120.15 | 34.99 |
| 5720.52 | 43.12 | PK | 282 | 1.0 | H | 42.78 | 85.90 | 121.49 | 35.59 |
| 11510.00 | 41.72 | PK | 83 | 1.6 | H | 23.10 | 64.82 | 83.5 | 18.68 |
| 11510.00 | 29.83 | Ave. | 83 | 1.6 | H | 23.10 | 52.93 | 63.5 | 10.57 |
| 5795MHz | | | | | | | | | |
| 5795.00 | 76.17 | PK | 164 | 2.2 | H | 42.92 | 119.09 | / | / |
| 5795.00 | 61.84 | Ave. | 164 | 2.2 | H | 42.92 | 104.76 | / | / |
| 5795.00 | 71.43 | PK | 279 | 2.3 | V | 42.92 | 114.35 | / | / |
| 5795.00 | 57.65 | Ave. | 279 | 2.3 | V | 42.92 | 100.57 | / | / |
| 5852.36 | 33.62 | PK | 106 | 1.7 | H | 42.87 | 76.49 | 126.32 | 49.83 |
| 5859.73 | 34.21 | PK | 291 | 1.4 | H | 42.87 | 77.08 | 118.98 | 41.90 |
| 5881.47 | 32.65 | PK | 360 | 2.3 | H | 42.87 | 75.52 | 109.91 | 34.39 |
| 11590.00 | 41.76 | PK | 131 | 1.6 | H | 23.10 | 64.86 | 83.5 | 18.64 |
| 11590.00 | 29.84 | Ave. | 131 | 1.6 | H | 23.10 | 52.94 | 63.5 | 10.56 |

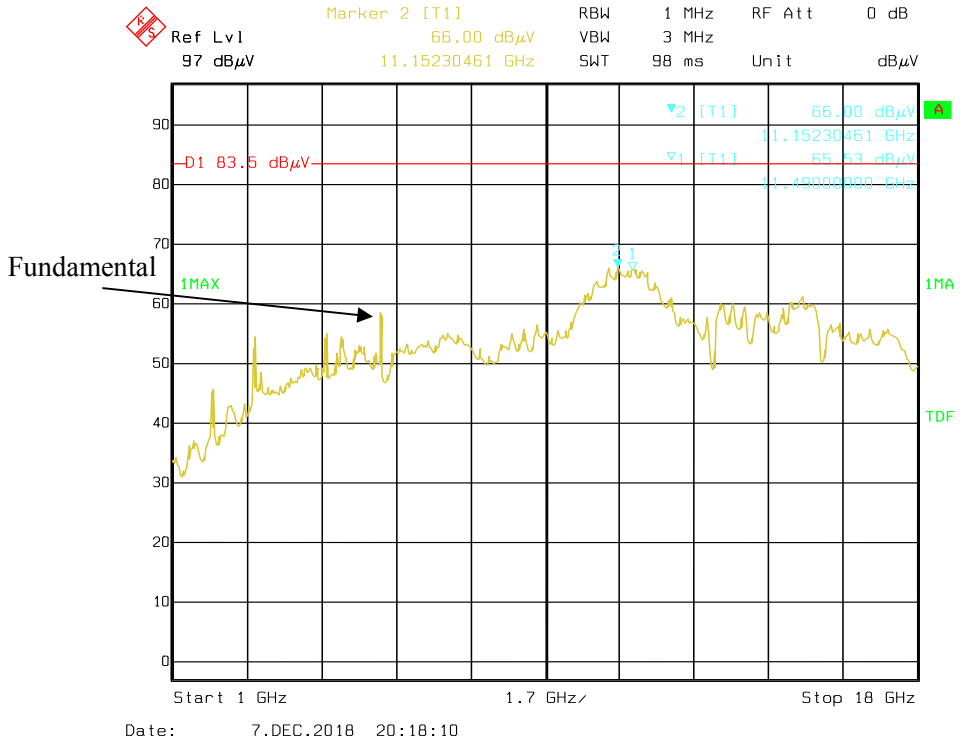
| Frequency (MHz) | Receiver | | Turntable Degree | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | | Height (m) | Polar (H/V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11ac20 | | | | | | | | | |
| 5745 MHz | | | | | | | | | |
| 5745.00 | 77.59 | PK | 202 | 2.4 | H | 42.78 | 120.37 | / | / |
| 5745.00 | 63.43 | Ave. | 202 | 2.4 | H | 42.78 | 106.21 | / | / |
| 5745.00 | 73.24 | PK | 68 | 2.1 | V | 42.78 | 116.02 | / | / |
| 5745.00 | 60.27 | Ave. | 68 | 2.1 | V | 42.78 | 103.05 | / | / |
| 5699.30 | 28.02 | PK | 96 | 1.0 | H | 42.78 | 70.80 | 114.18 | 43.38 |
| 5719.88 | 34.47 | PK | 183 | 1.3 | H | 42.78 | 77.25 | 120.27 | 43.02 |
| 5724.82 | 42.46 | PK | 70 | 1.2 | H | 42.78 | 85.24 | 131.29 | 46.05 |
| 11490.00 | 48.09 | PK | 46 | 2.4 | H | 24.17 | 72.26 | 83.5 | 11.24 |
| 11490.00 | 32.31 | Ave. | 46 | 2.4 | H | 24.17 | 56.48 | 63.5 | 7.02 |
| 5785 MHz | | | | | | | | | |
| 5785.00 | 77.49 | PK | 85 | 1.7 | H | 42.92 | 120.41 | / | / |
| 5785.00 | 63.43 | Ave. | 85 | 1.7 | H | 42.92 | 106.35 | / | / |
| 5785.00 | 73.54 | PK | 283 | 1.1 | V | 42.92 | 116.46 | / | / |
| 5785.00 | 60.31 | Ave. | 283 | 1.1 | V | 42.92 | 103.23 | / | / |
| 11570.00 | 47.86 | PK | 291 | 1.6 | H | 23.10 | 70.96 | 83.5 | 12.54 |
| 11570.00 | 31.45 | Ave. | 291 | 1.6 | H | 23.10 | 54.55 | 63.5 | 8.95 |
| 5825MHz | | | | | | | | | |
| 5825.00 | 77.77 | PK | 137 | 2.1 | H | 42.92 | 120.69 | / | / |
| 5825.00 | 65.69 | Ave. | 137 | 2.1 | H | 42.92 | 108.61 | / | / |
| 5825.00 | 73.54 | PK | 49 | 2.2 | V | 42.92 | 116.46 | / | / |
| 5825.00 | 61.63 | Ave. | 49 | 2.2 | V | 42.92 | 104.55 | / | / |
| 5851.91 | 32.65 | PK | 51 | 1.9 | H | 42.87 | 75.52 | 127.35 | 51.83 |
| 5856.76 | 34.47 | PK | 12 | 1.1 | H | 42.87 | 77.34 | 119.81 | 42.47 |
| 5904.96 | 29.09 | PK | 226 | 2.4 | H | 42.87 | 71.96 | 92.53 | 20.57 |
| 11650.00 | 45.97 | PK | 207 | 2.2 | H | 22.37 | 68.34 | 83.5 | 15.16 |
| 11650.00 | 31.12 | Ave. | 207 | 2.2 | H | 22.37 | 53.49 | 63.5 | 10.01 |

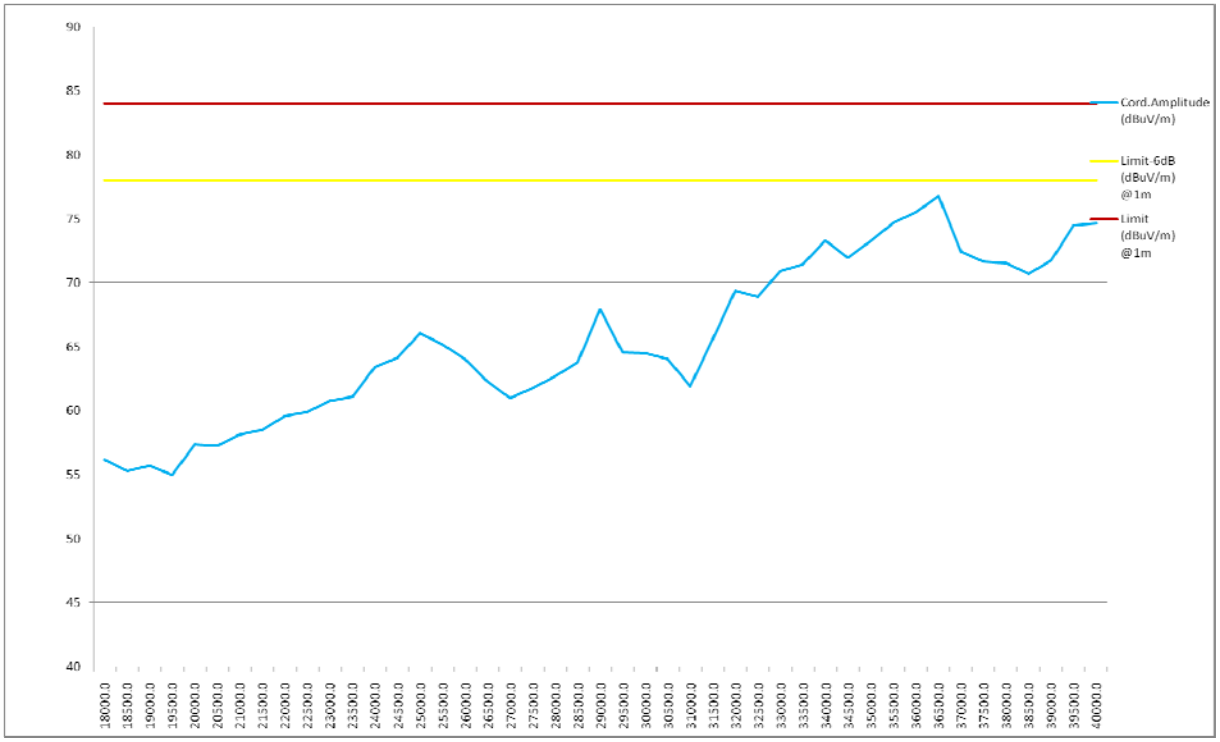
| Frequency (MHz) | Receiver | | Turntable Degree | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | | Height (m) | Polar (H/V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11ac40 | | | | | | | | | |
| 5795 MHz | | | | | | | | | |
| 5795.00 | 76.05 | PK | 8 | 1.4 | H | 42.92 | 118.97 | / | / |
| 5795.00 | 61.87 | Ave. | 8 | 1.4 | H | 42.92 | 104.79 | / | / |
| 5795.00 | 71.74 | PK | 16 | 1.0 | V | 42.92 | 114.66 | / | / |
| 5795.00 | 58.74 | Ave. | 16 | 1.0 | V | 42.92 | 101.66 | / | / |
| 5852.98 | 29.33 | PK | 141 | 2.4 | H | 46.05 | 75.38 | 125.02 | 49.64 |
| 5859.46 | 30.68 | PK | 148 | 2.1 | H | 46.05 | 76.73 | 119.05 | 42.32 |
| 5886.49 | 29.46 | PK | 231 | 2.5 | H | 46.05 | 75.51 | 106.2 | 30.69 |
| 11590.00 | 42.64 | PK | 306 | 1.0 | H | 23.10 | 65.74 | 83.5 | 17.76 |
| 11590.00 | 30.11 | Ave. | 306 | 1.0 | H | 23.10 | 53.21 | 63.5 | 10.29 |
| 5755 MHz | | | | | | | | | |
| 5755.00 | 73.84 | PK | 130 | 1.9 | H | 42.92 | 116.76 | / | / |
| 5755.00 | 60.69 | AV | 130 | 1.9 | H | 42.92 | 103.61 | / | / |
| 5755.00 | 70.04 | PK | 21 | 1.9 | V | 42.92 | 112.96 | / | / |
| 5755.00 | 57.19 | AV | 21 | 1.9 | V | 42.92 | 100.11 | / | / |
| 5692.48 | 29.29 | PK | 355 | 1.6 | H | 42.78 | 72.07 | 109.14 | 37.07 |
| 5718.20 | 42.77 | PK | 100 | 1.7 | H | 42.78 | 85.55 | 119.8 | 34.25 |
| 5720.27 | 43.01 | PK | 14 | 2.2 | H | 42.78 | 85.79 | 120.92 | 35.13 |
| 11510.00 | 42.64 | PK | 237 | 2.0 | H | 24.17 | 66.81 | 83.5 | 16.69 |
| 11510.00 | 29.72 | AV | 237 | 2.0 | H | 24.17 | 53.89 | 63.5 | 9.61 |

| Frequency (MHz) | Receiver | | Turntable Degree | Rx Antenna | | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) @1m | FCC Part 15.407/205/209 | |
|---|---|---|---|---|---|---|---|---|---|
| | Reading (dBμV) @1m | PK/QP/Ave. | | Height (m) | Polar (H/V) | | | Limit (dBμV/m) @1m | Margin (dB) |
| 802.11ac80 | | | | | | | | | |
| 5775 MHz | | | | | | | | | |
| 5775.00 | 70.83 | PK | 346 | 2.3 | H | 42.92 | 113.75 | / | / |
| 5775.00 | 54.53 | Ave. | 346 | 2.3 | H | 42.92 | 97.45 | / | / |
| 5775.00 | 66.43 | PK | 84 | 2.3 | V | 42.92 | 109.35 | / | / |
| 5775.00 | 52.68 | Ave. | 84 | 2.3 | V | 42.92 | 95.60 | / | / |
| 5695.49 | 34.96 | PK | 154 | 1.1 | H | 42.78 | 77.74 | 111.36 | 33.62 |
| 5717.15 | 36.16 | PK | 344 | 1.2 | H | 42.78 | 78.94 | 119.5 | 40.56 |
| 5720.27 | 36.82 | PK | 194 | 2.0 | H | 42.78 | 79.60 | 120.92 | 41.32 |
| 5854.71 | 35.76 | PK | 102 | 1.0 | H | 42.87 | 78.63 | 120.96 | 42.33 |
| 5855.44 | 35.06 | PK | 85 | 1.8 | H | 42.87 | 77.93 | 120.18 | 42.25 |
| 5876.30 | 30.90 | PK | 86 | 1.3 | H | 42.87 | 73.77 | 113.74 | 39.97 |
| 11550.00 | 41.61 | PK | 119 | 1.5 | H | 23.10 | 64.71 | 83.5 | 18.79 |
| 11550.00 | 27.16 | Ave. | 119 | 1.5 | H | 23.10 | 50.26 | 63.5 | 13.24 |

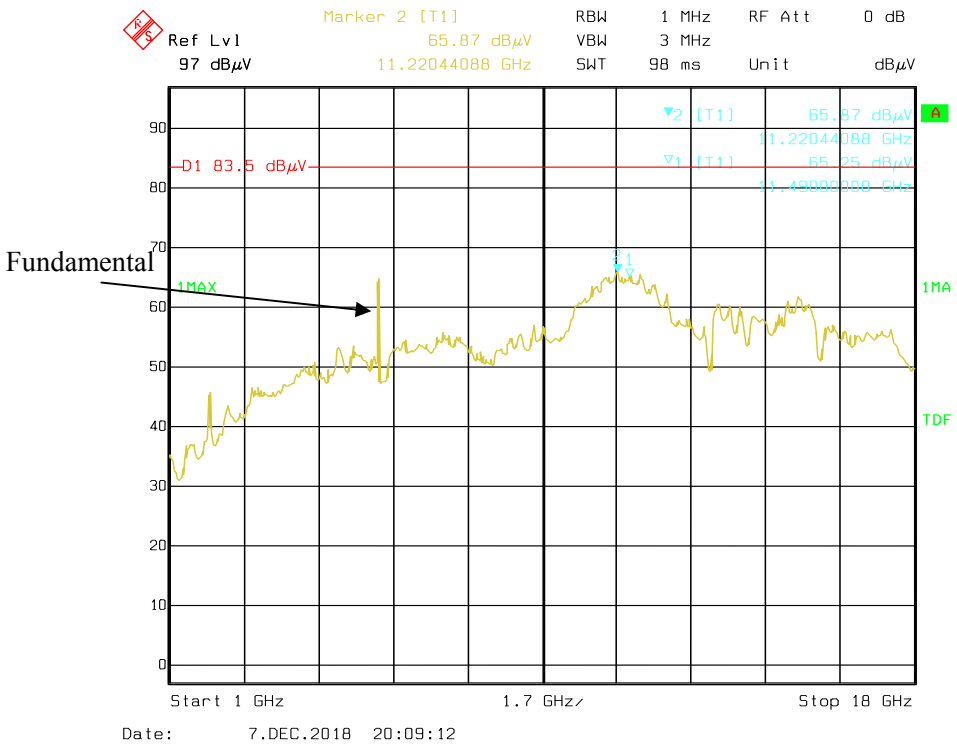
**Note:**
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor
Margin = Limit- Corr. Amplitude
All other spurious emissions are 20 dB below the limit or are on the system noise floor level.

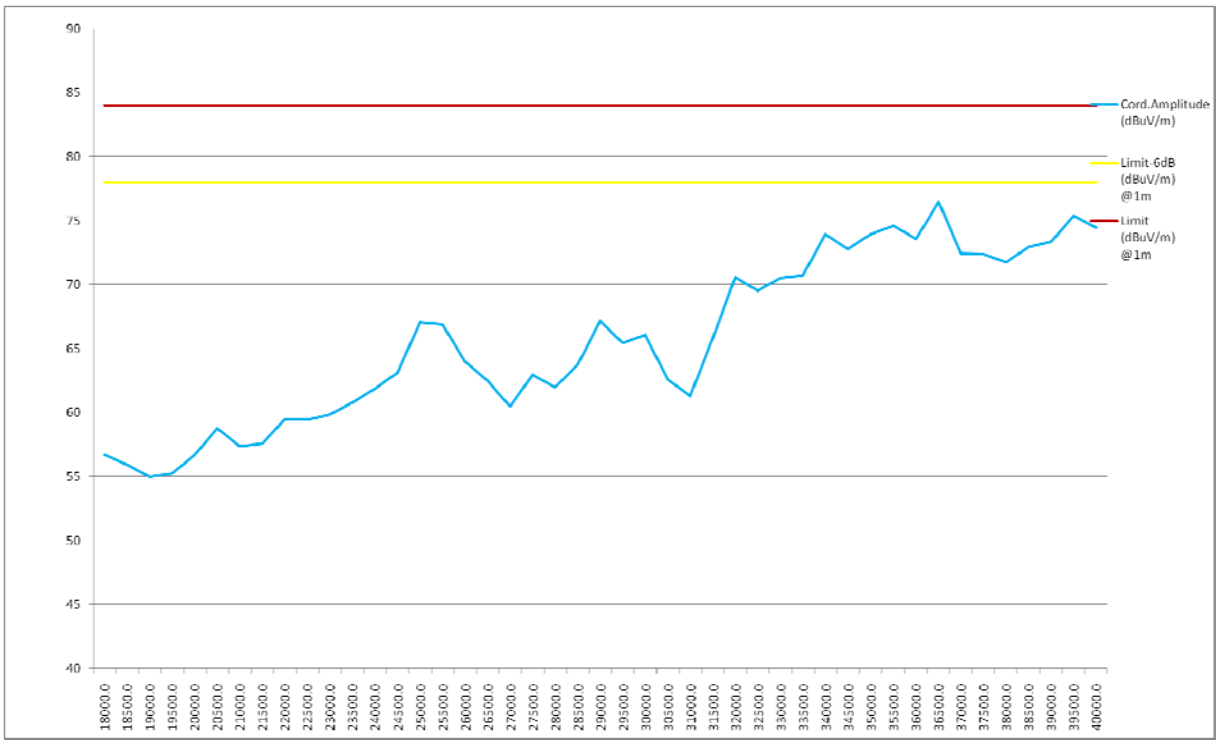
Pre-scan with 802.11a 5745MHz, for Peak
Horizontal



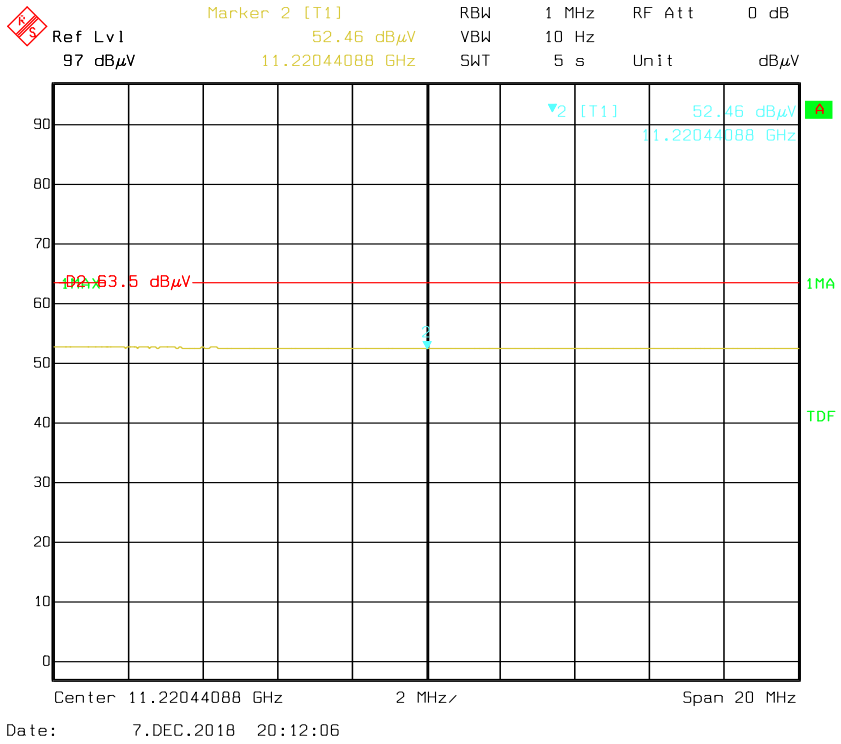



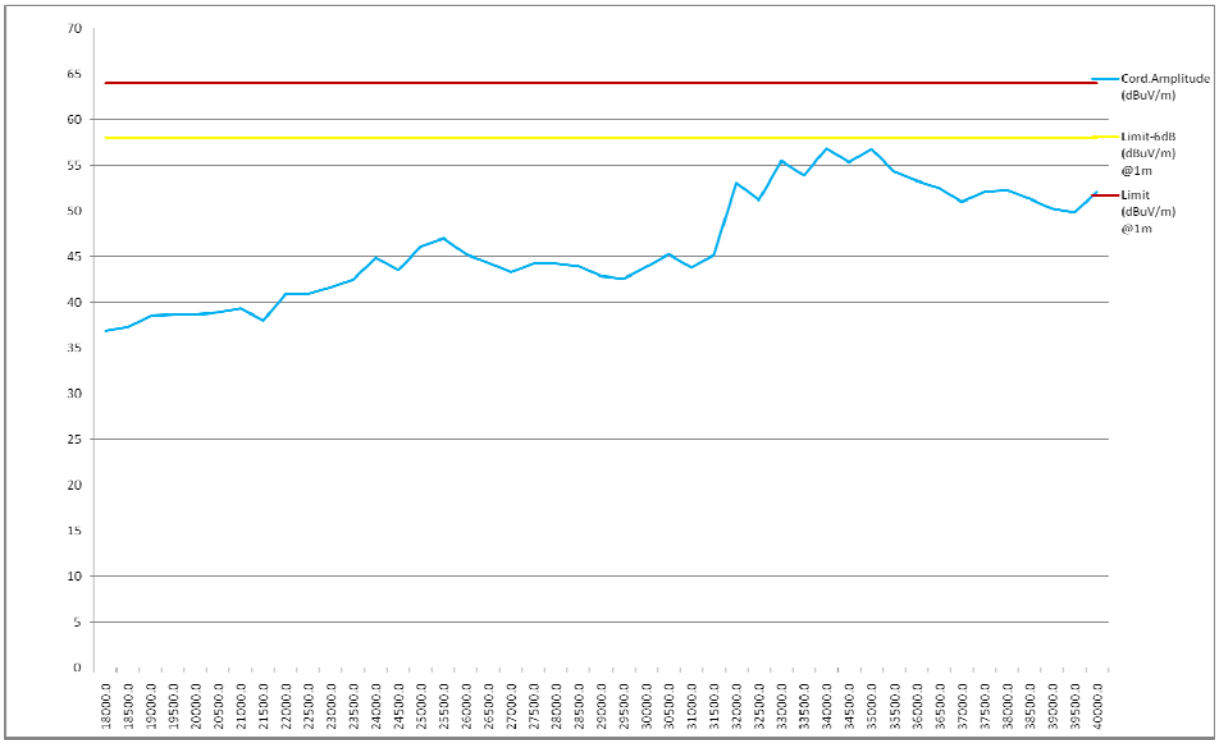
Vertical


Marker 2 [T1]
65.87 dBµV
11.22044088 GHz
RBW 1 MHz
VBW 3 MHz
SWT 98 ms
RF Att 0 dB
Unit dBµV
Ref Lvl
97 dBµV
D1 83.5 dBµV
Fundamental
1MAX
1MA
TDF
Start 1 GHz
1.7 GHz
Stop 18 GHz
Date: 7.DEC.2018 20:09:12

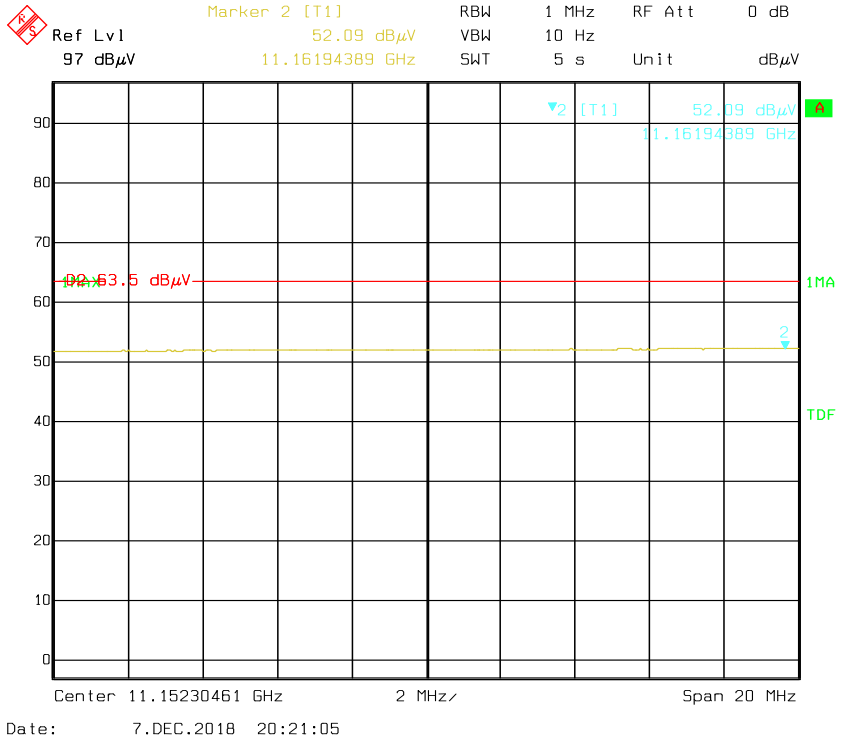

Cord.Amplitude (dBuV/m)
Limit-6dB (dBuV/m) @1m
Limit (dBuV/m) @1m

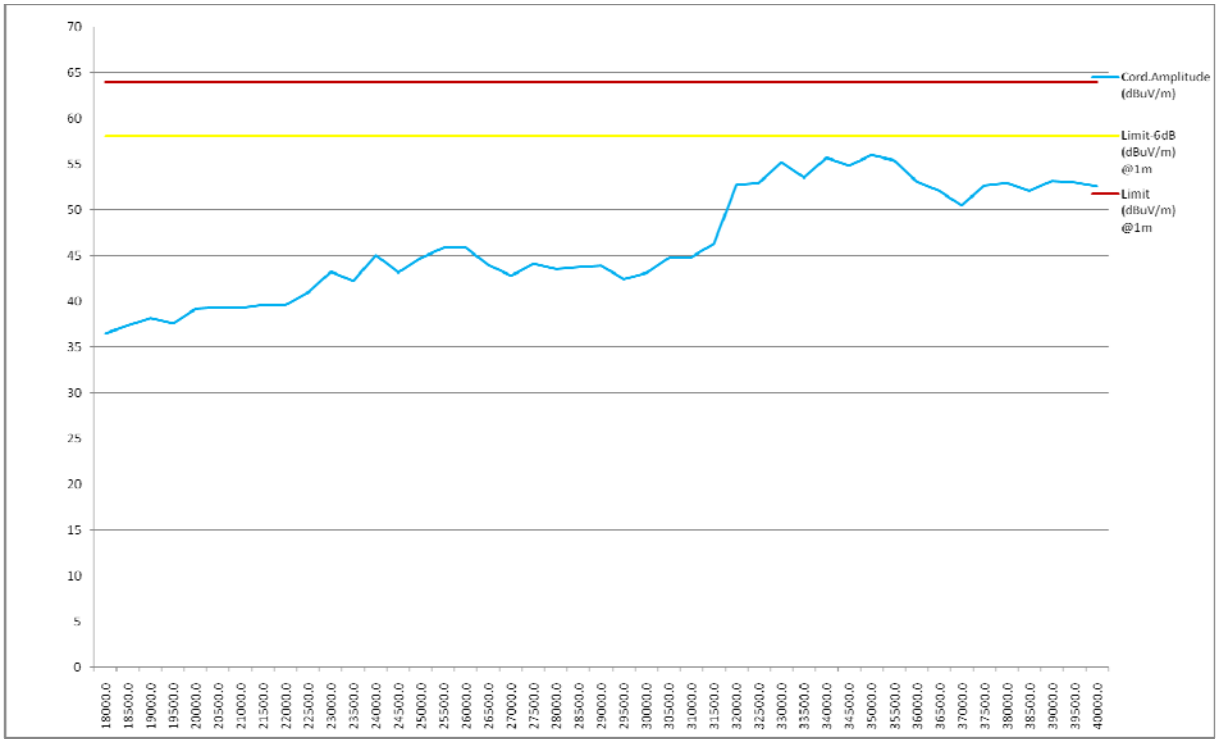
For **Average**
Horizontal



Vertical


Marker 2 [T1]
52.09 dBμV
11.16194389 GHz
RBW 1 MHz
VBW 10 Hz
SWT 5 s
RF Att 0 dB
Unit dBμV
Ref Lvl
97 dBμV
▼2 [T1] 52.09 dBμV
11.16194389 GHz
A
PK>63.5 dBμV
1MA
2
TDF
Center 11.15230461 GHz
2 MHz/
Span 20 MHz
Date: 7.DEC.2018 20:21:05


Cord.Amplitude (dBuV/m)
Limit-6dB (dBuV/m) @1m
Limit (dBuV/m) @1m

# §15.407(B) (1), (2), (3), (4) –OUT OF BAND EMISSION

## Applicable Standard

FCC §15.407 (b) (1), (2), (3), (4);

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 EIRP of –27dBm/MHz.

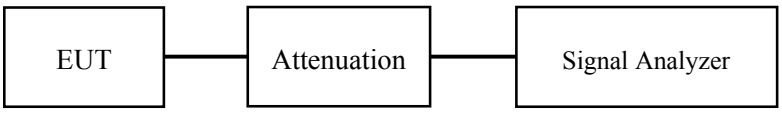
For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

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.

For transmitters operating in the 5.725–5.825 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.

## Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The Resolution bandwidth is set to 1MHz, The Video bandwidth is set to ≥ 1MHz, report the peak value out of the oprating band.
3. Repeat above procedures until all frequencies measured were complete.




## Test Data

### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 23.5~25 ℃ |
| **Relative Humidity:** | 49~56 % |
| **ATM Pressure:** | 109.0~101.0 kPa |

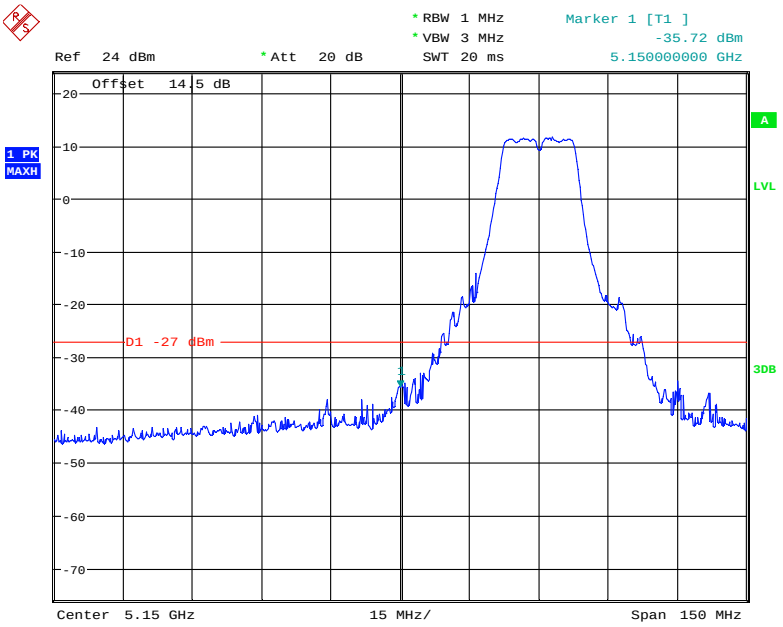
*The testing was performed by Kiki Kong from 2018-11-15 to 2018-11-30.*

*EUT operation mode: Transmitting*

Note: Antenna gain was added into the test result.
All the bandedge data is below the limit 3dB, so the result of MIMO mode will compliance the rule.

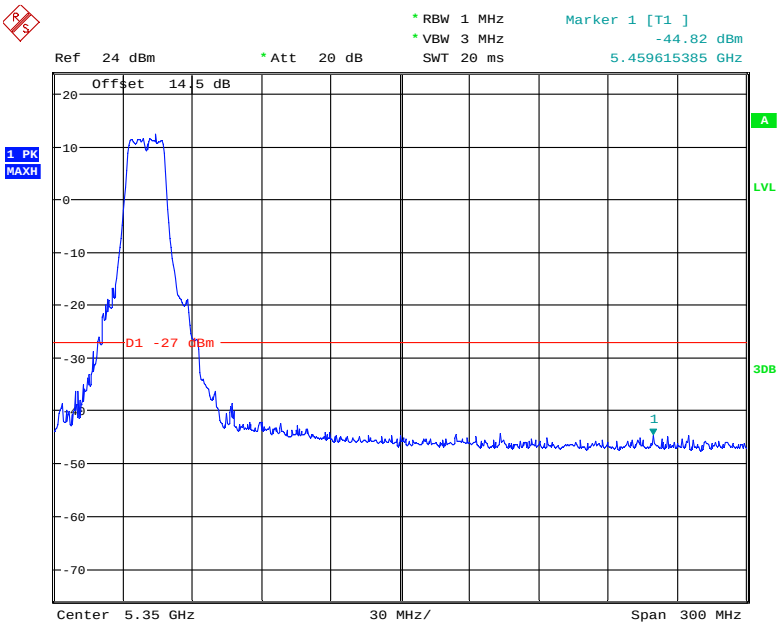
**5150 – 5250 MHz, Chain 0:**

**802.11a mode, Band Edge, Left Side**



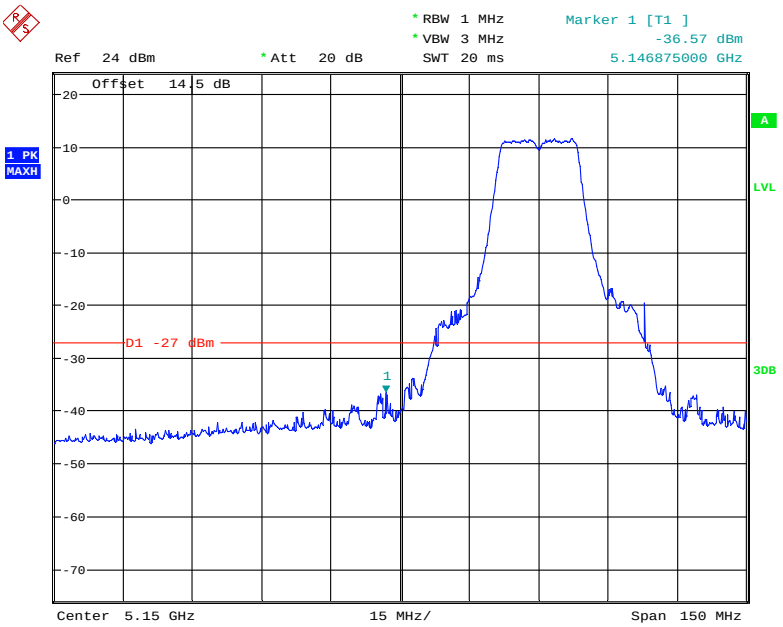

Date: 18.NOV.2018 13:06:43

**802.11a mode, Band Edge, Right Side**



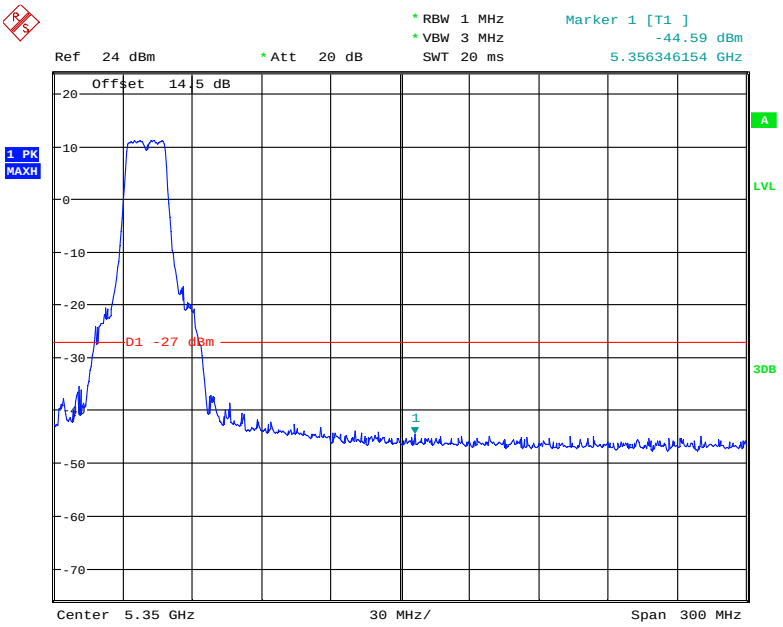

Date: 18.NOV.2018 13:07:36

## 802.11n20 mode, Band Edge, Left Side



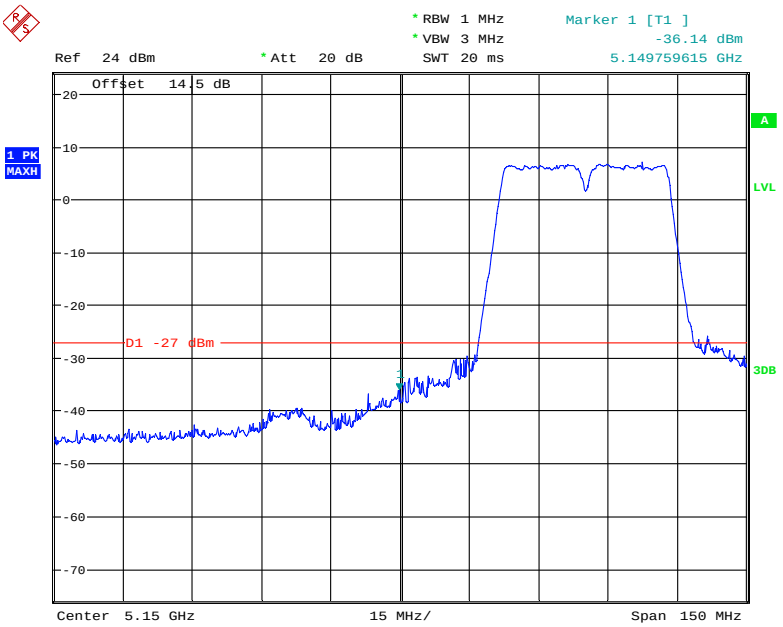

Date: 18.NOV.2018 13:05:41

## 802.11n20 mode, Band Edge, Right Side



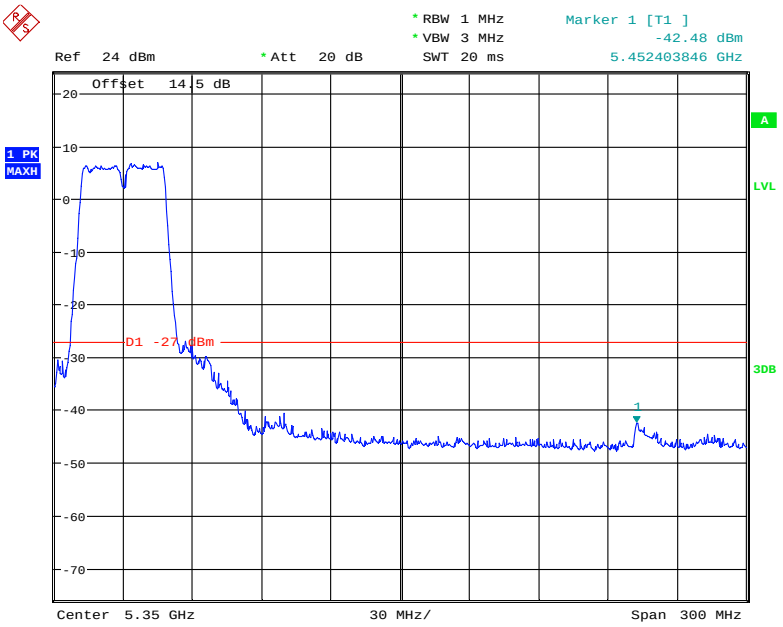

Date: 18.NOV.2018 13:04:55

## 802.11n40 mode, Band Edge, Left Side



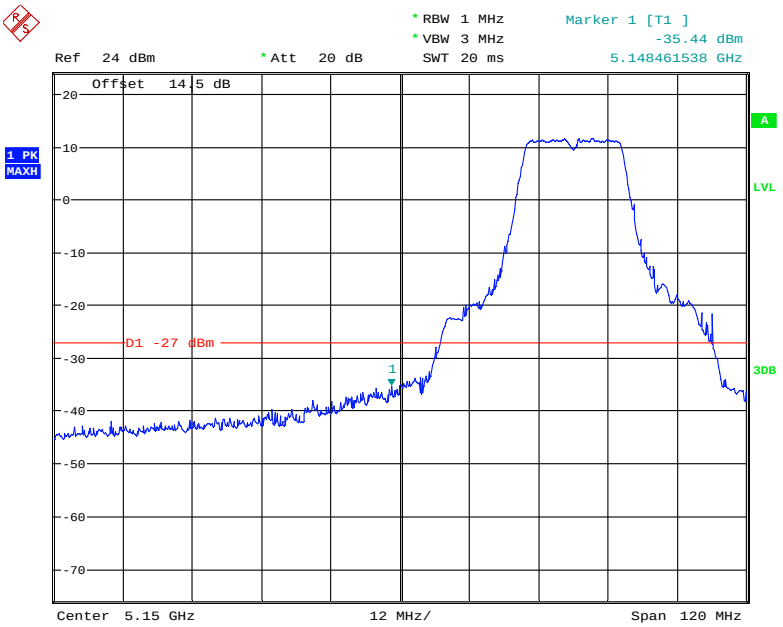

Date: 18.NOV.2018 13:11:22

## 802.11n40 mode, Band Edge, Right Side



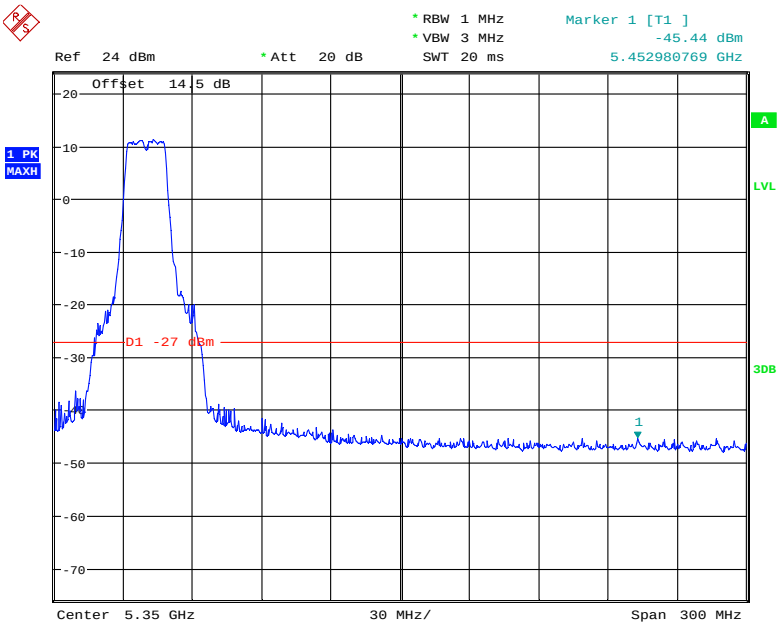

Date: 18.NOV.2018 13:13:04

## 802.11ac20 mode, Band Edge, Left Side



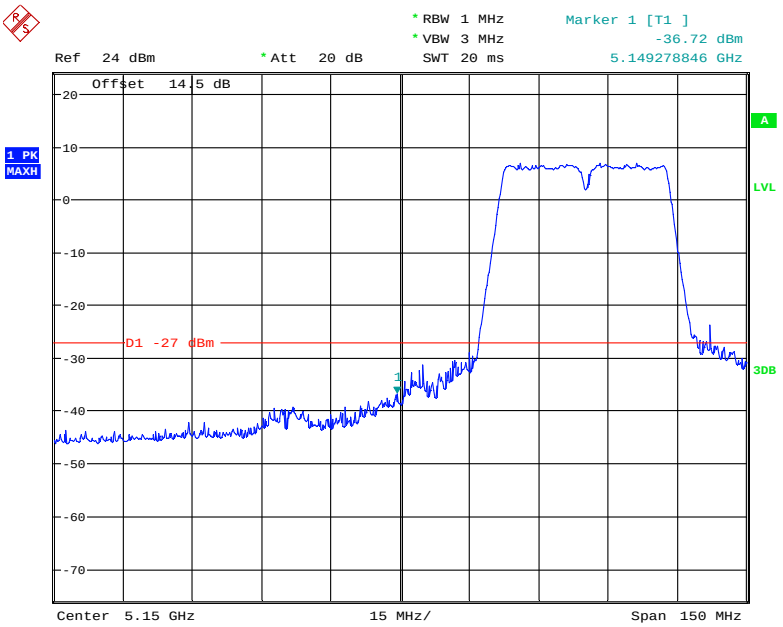

Date: 18.NOV.2018 13:01:47

## 802.11ac20 mode, Band Edge, Right Side



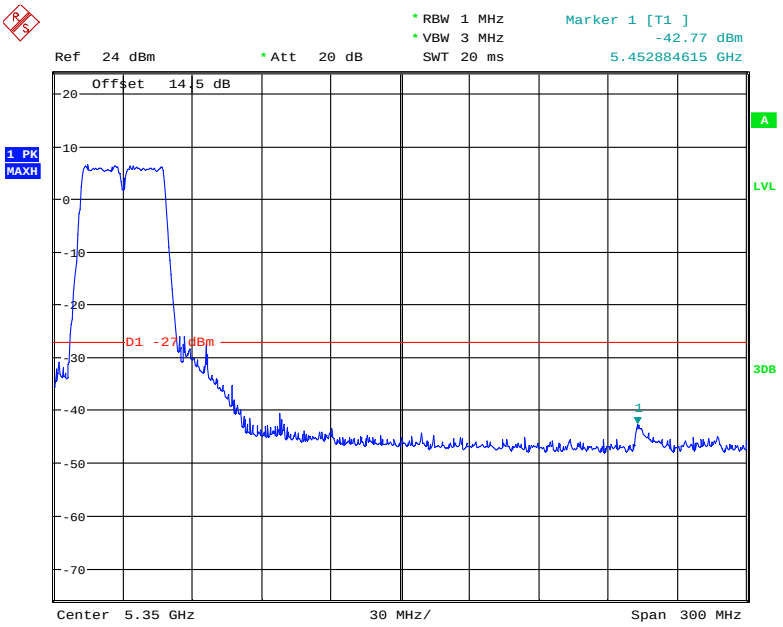

Date: 18.NOV.2018 13:03:01

## 802.11ac40 mode, Band Edge, Left Side



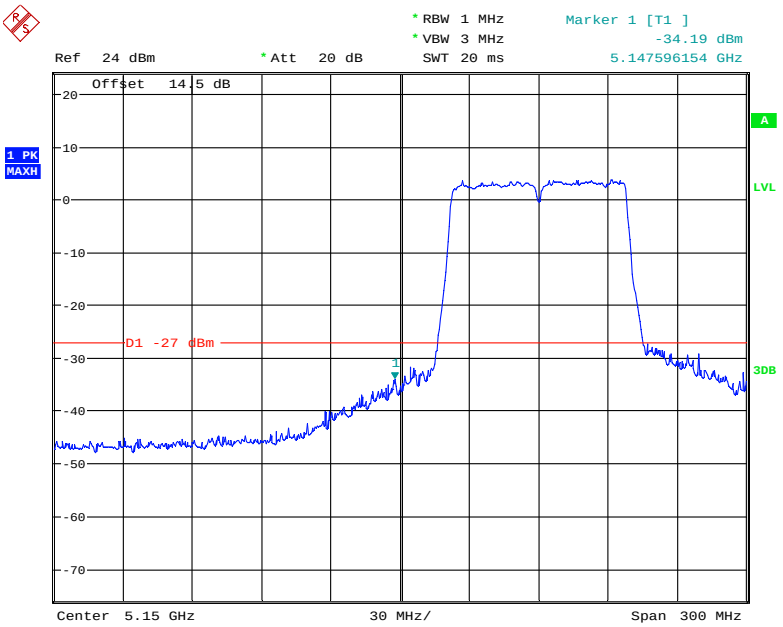

Date: 18.NOV.2018 13:14:17

## 802.11ac40 mode, Band Edge, Right Side



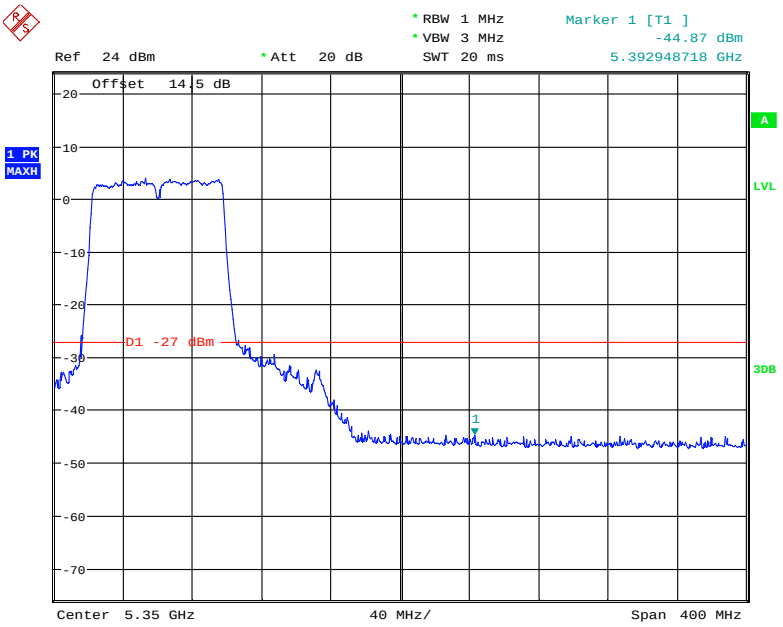

Date: 18.NOV.2018 13:15:04

## 802.11ac80 mode, Band Edge, Left Side




Date: 18.NOV.2018 13:17:09

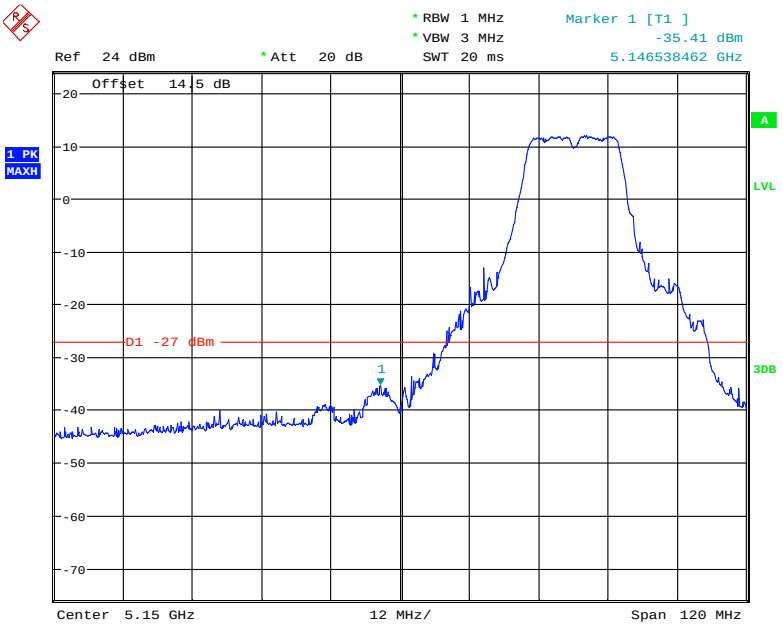
## 802.11ac80 mode, Band Edge, Right Side




Date: 18.NOV.2018 13:18:04

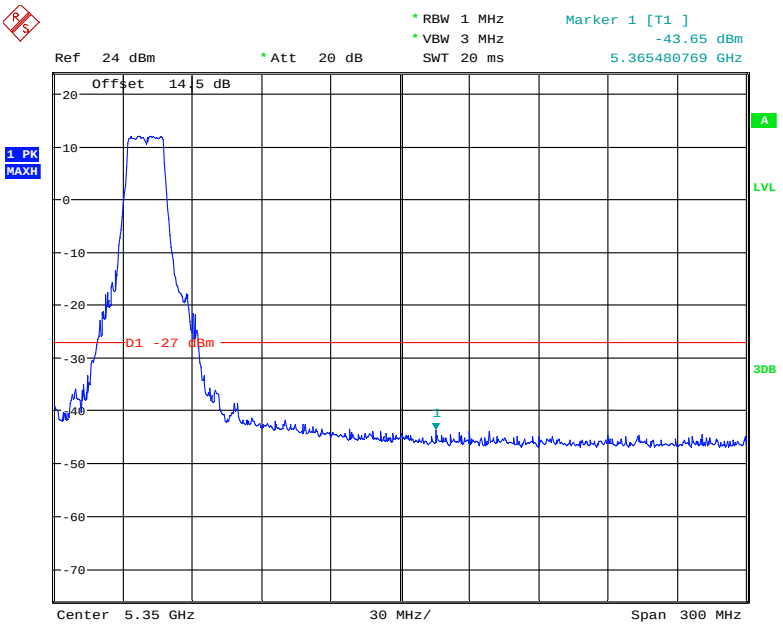
**5150 – 5250 MHz, Chain 1:**

**802.11a mode, Band Edge, Left Side**



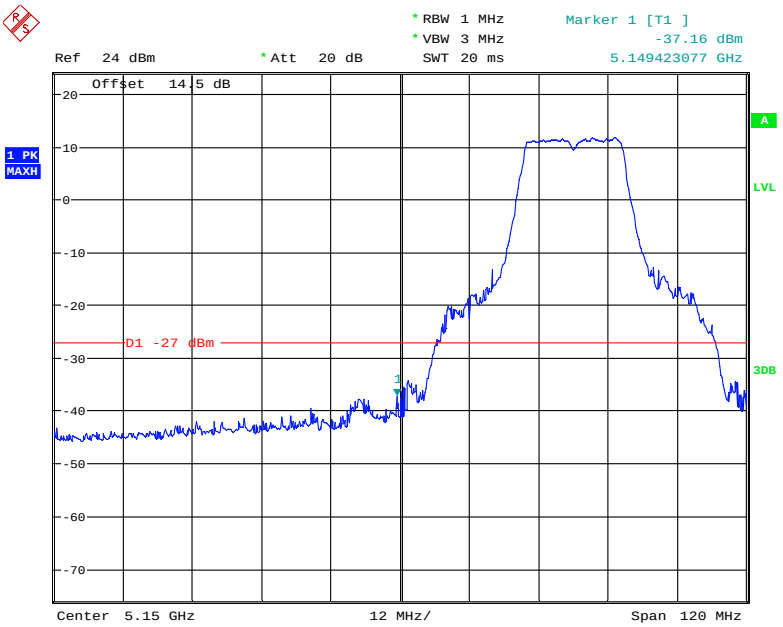

Date: 15.NOV.2018 22:12:21

**802.11a mode, Band Edge, Right Side**



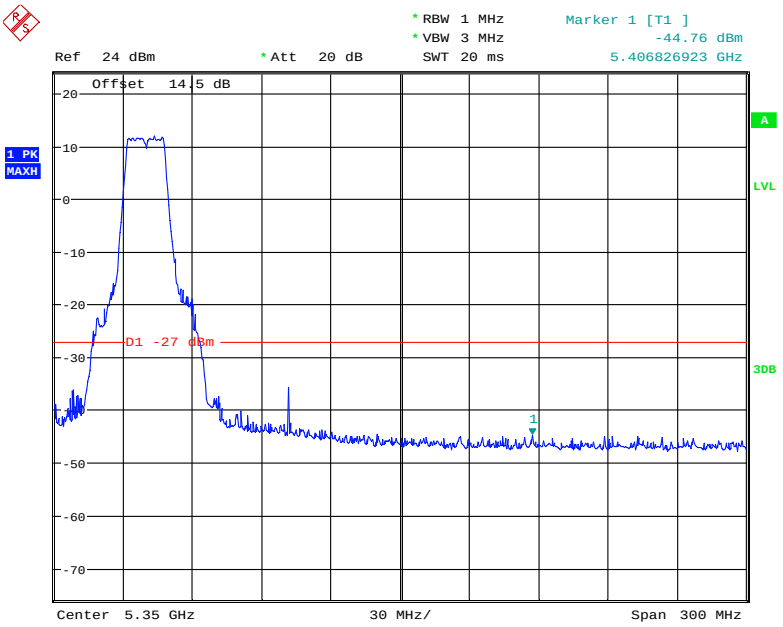

Date: 15.NOV.2018 22:13:44

## 802.11n20 mode, Band Edge, Left Side



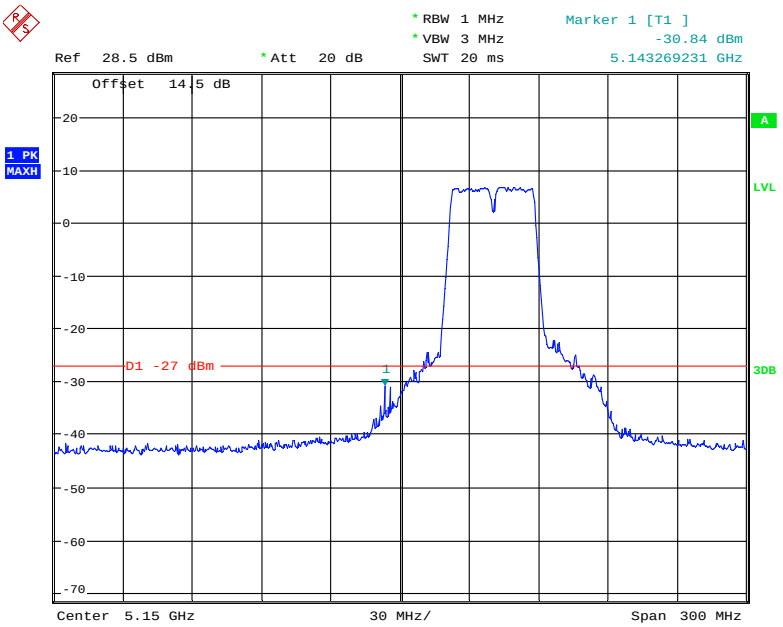

Date: 15.NOV.2018 22:09:20

## 802.11n20 mode, Band Edge, Right Side



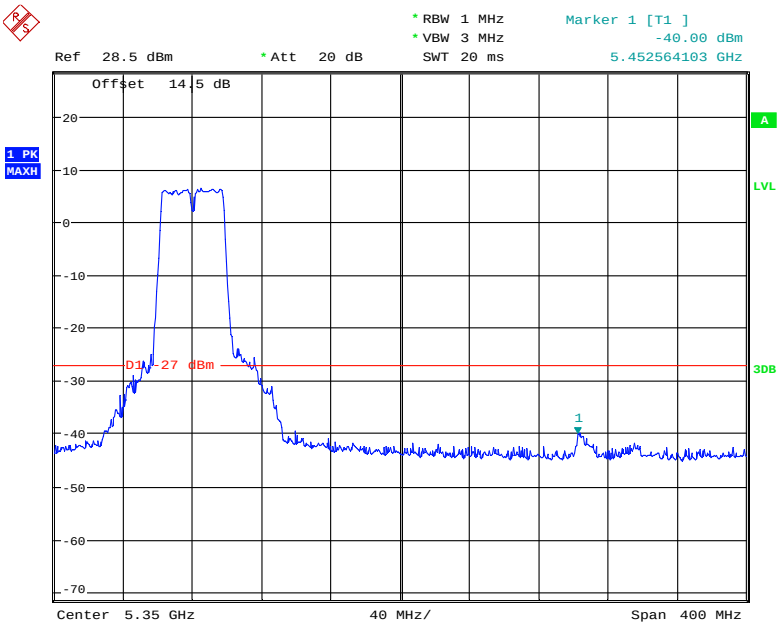

Date: 15.NOV.2018 22:10:16

## 802.11n40 mode, Band Edge, Left Side



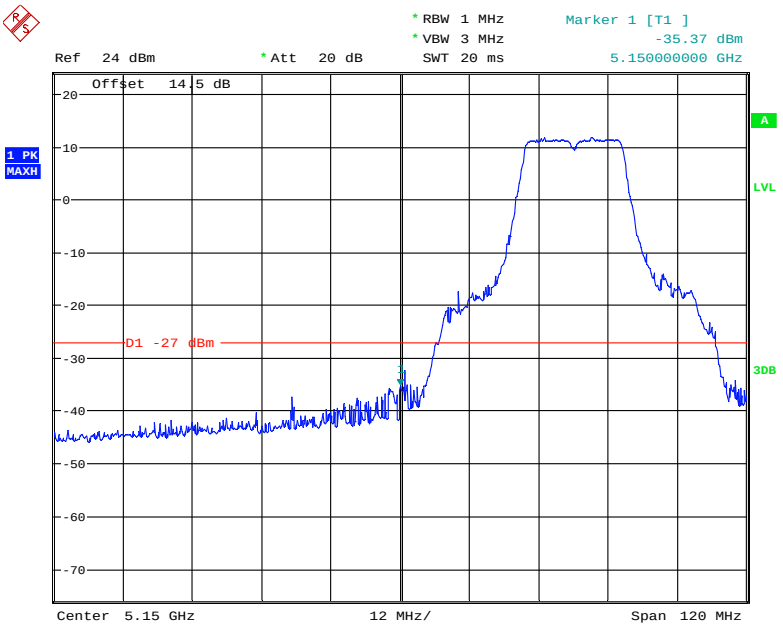

Date: 16.NOV.2018 20:05:28

## 802.11n40 mode, Band Edge, Right Side



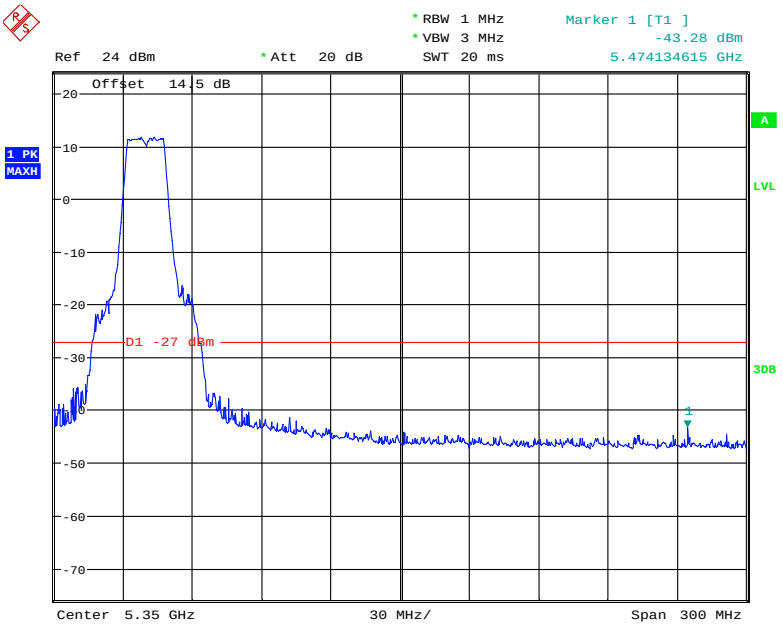

Date: 16.NOV.2018 20:07:08

## 802.11ac20 mode, Band Edge, Left Side



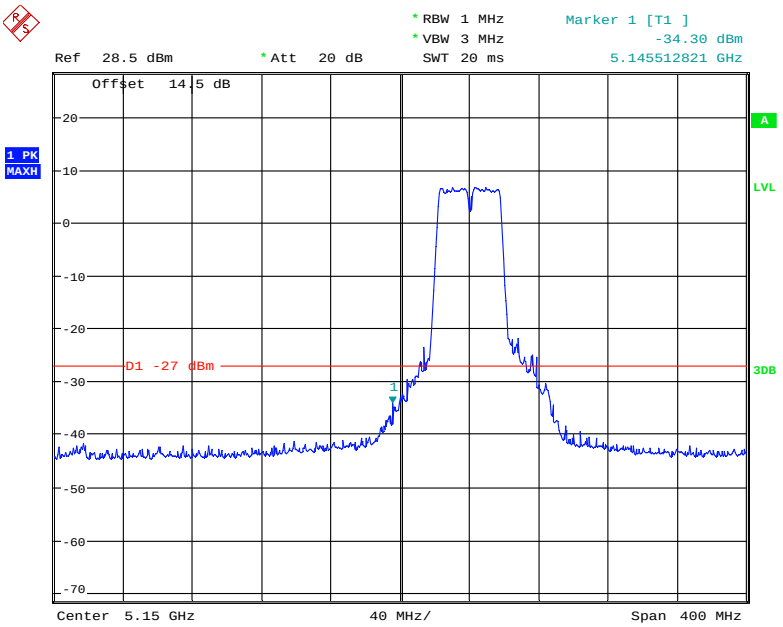

Date: 15.NOV.2018 22:07:59

## 802.11ac20 mode, Band Edge, Right Side



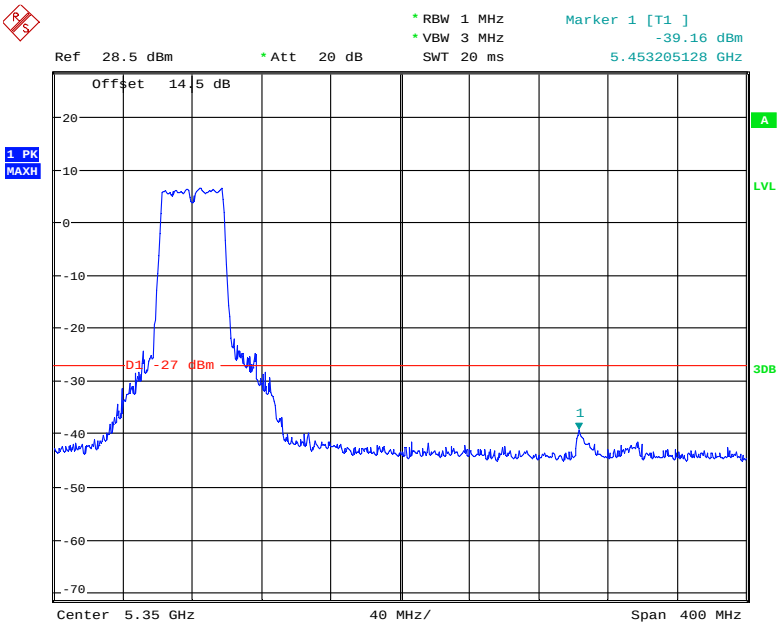

Date: 15.NOV.2018 22:06:55

## 802.11ac40 mode, Band Edge, Left Side



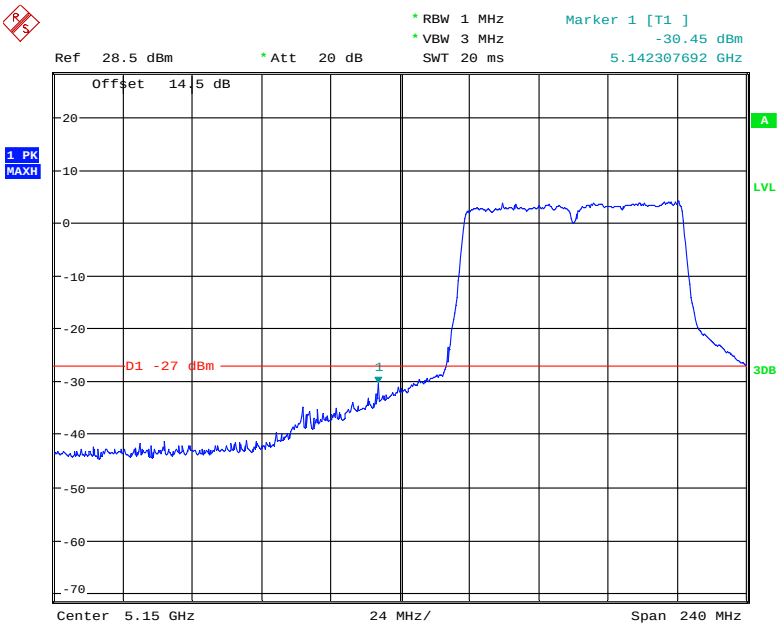

Date: 16.NOV.2018 20:07:59

## 802.11ac40 mode, Band Edge, Right Side



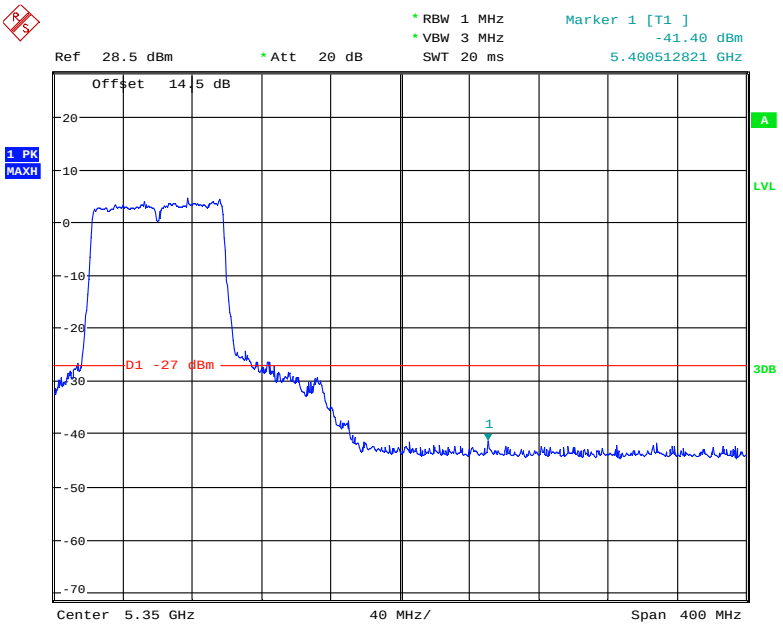

Date: 16.NOV.2018 20:08:36

## 802.11ac80 mode, Band Edge, Left Side




Date: 16.NOV.2018 20:13:28

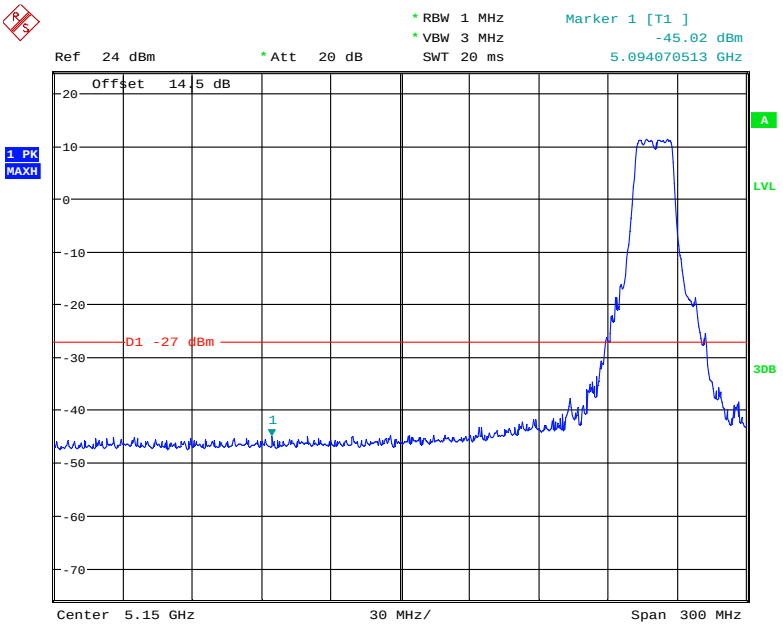
## 802.11ac80 mode, Band Edge, Right Side




Date: 16.NOV.2018 20:14:20

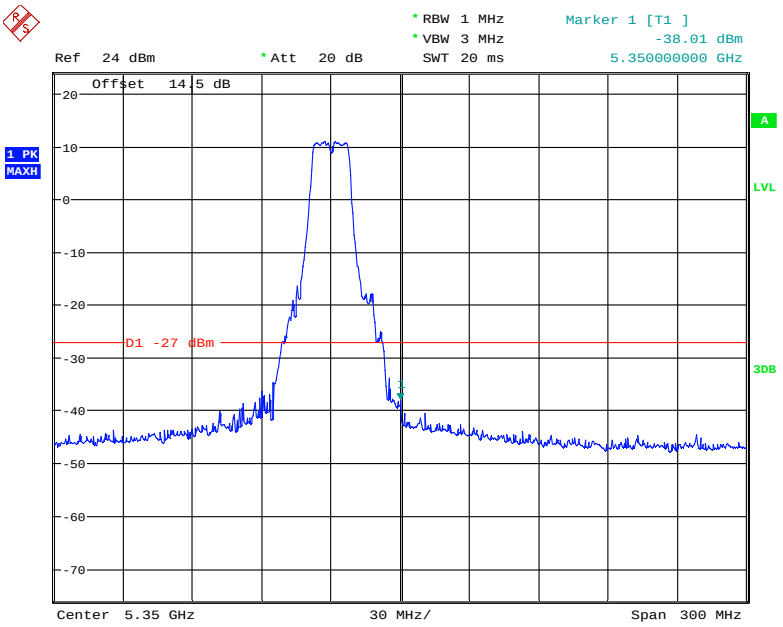
**5250 – 5350 MHz, Chain 0:**

## 802.11a mode, Band Edge, Left Side



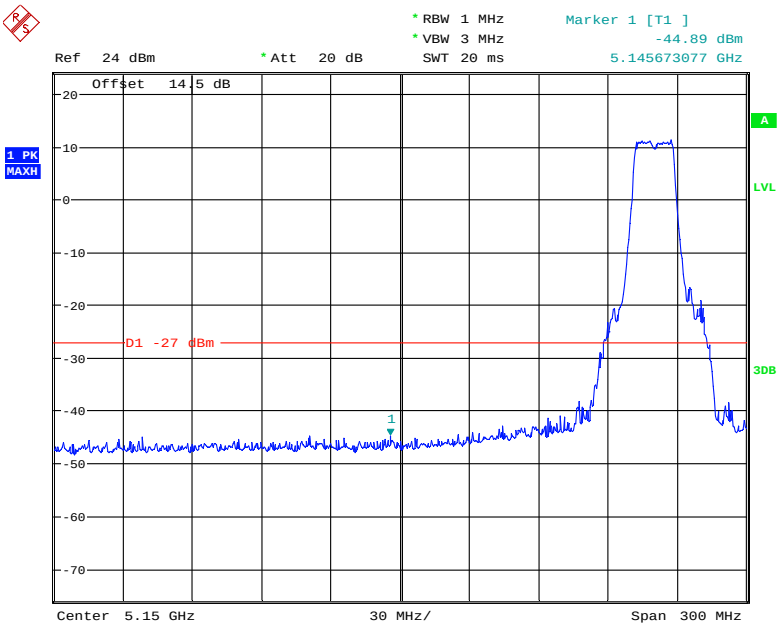

Date: 18.NOV.2018 14:29:44

## 802.11a mode, Band Edge, Right Side



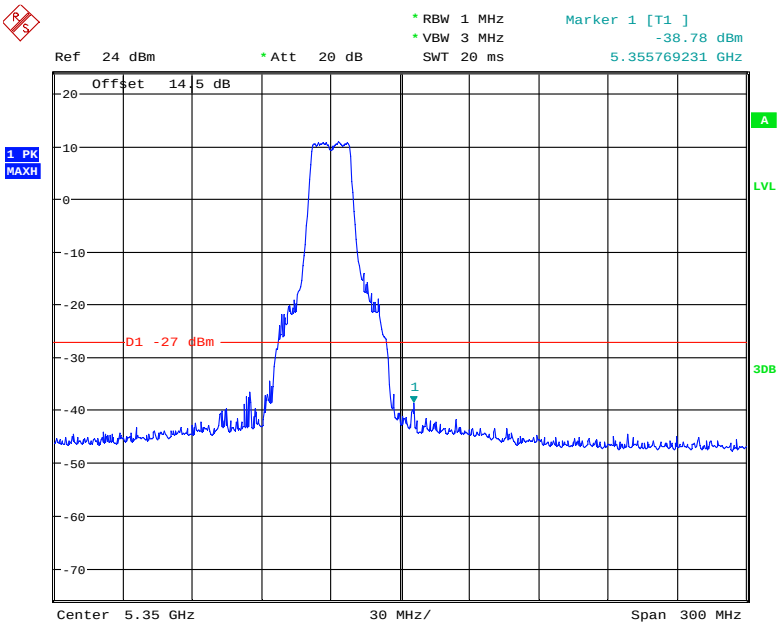

Date: 18.NOV.2018 14:30:18

## 802.11n20 mode, Band Edge, Left Side



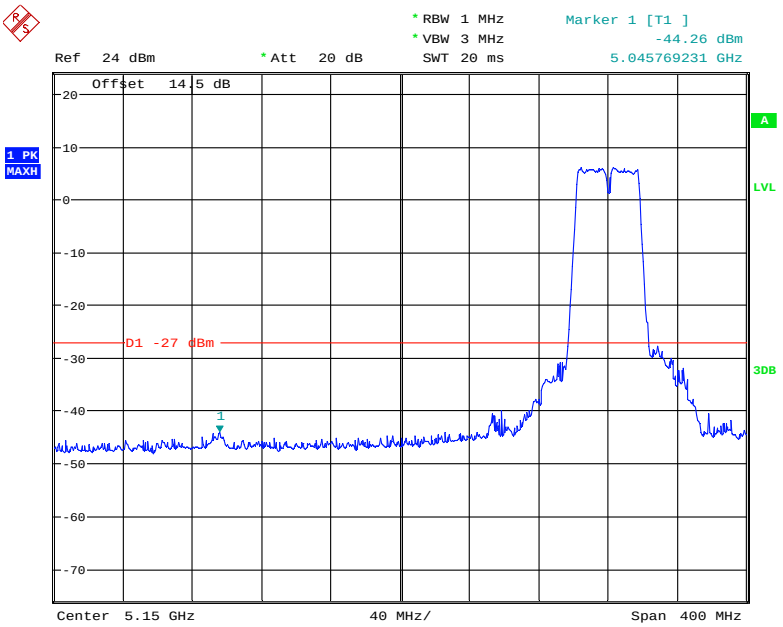

Date: 18.NOV.2018 14:31:58

## 802.11n20 mode, Band Edge, Right Side



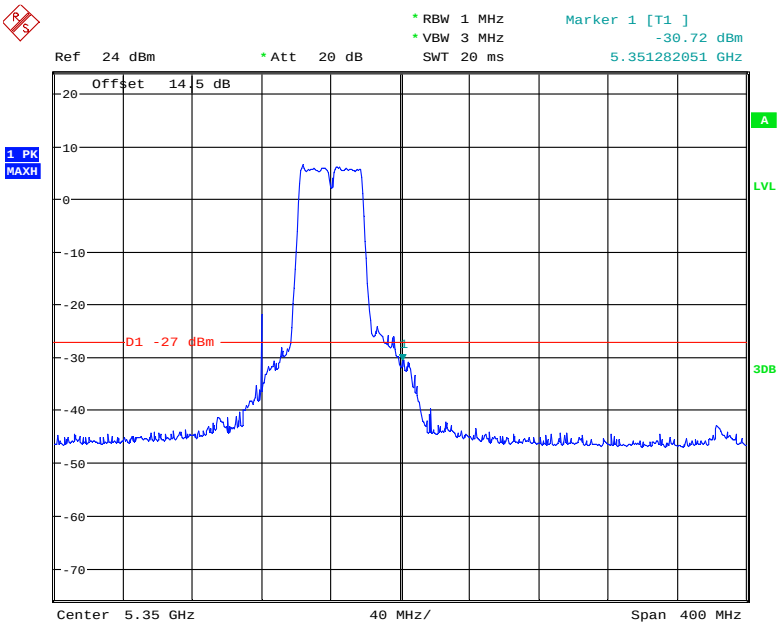

Date: 18.NOV.2018 14:31:22

## 802.11n40 mode, Band Edge, Left Side



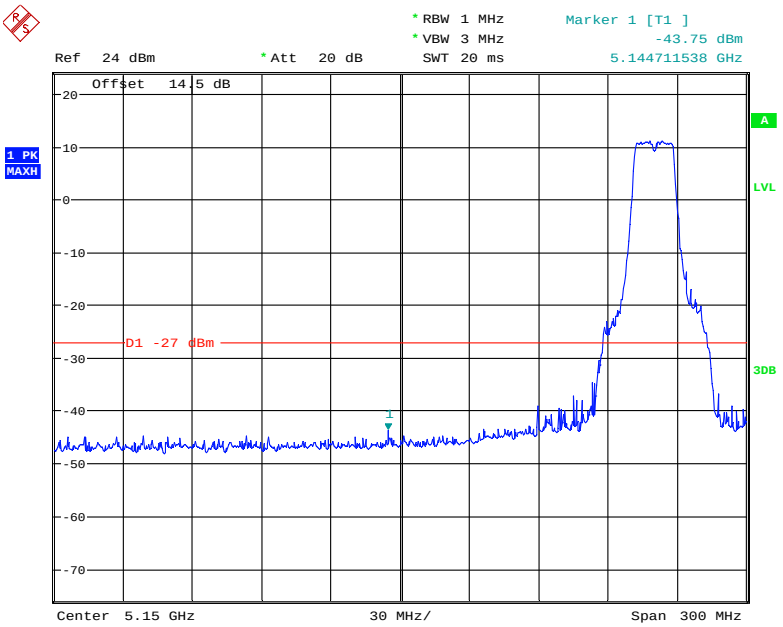

Date: 18.NOV.2018 14:20:28

## 802.11n40 mode, Band Edge, Right Side



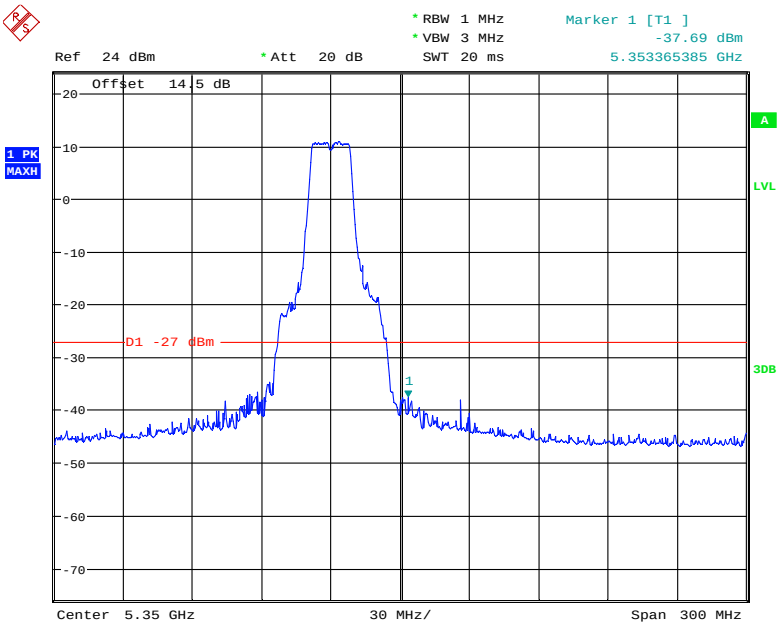

Date: 18.NOV.2018 14:22:21

## 802.11ac20 mode, Band Edge, Left Side



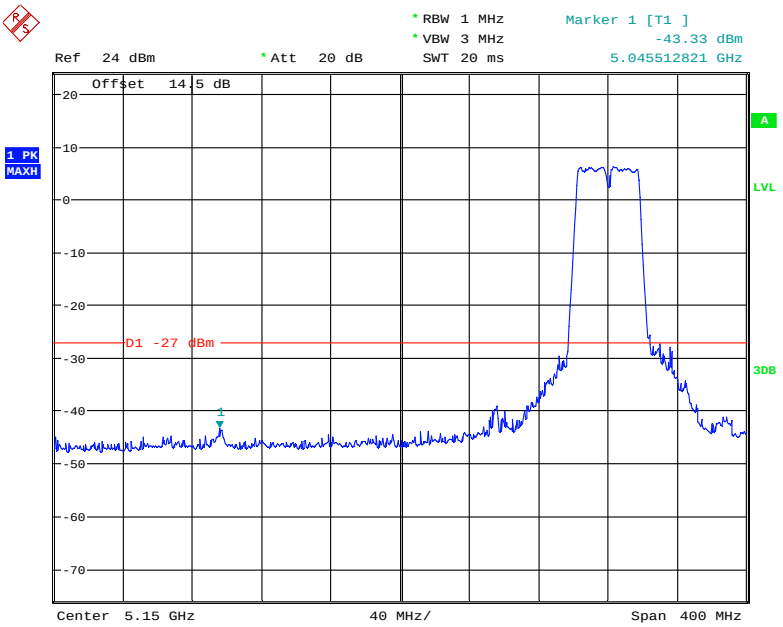

Date: 18.NOV.2018 14:32:42

## 802.11ac20 mode, Band Edge, Right Side



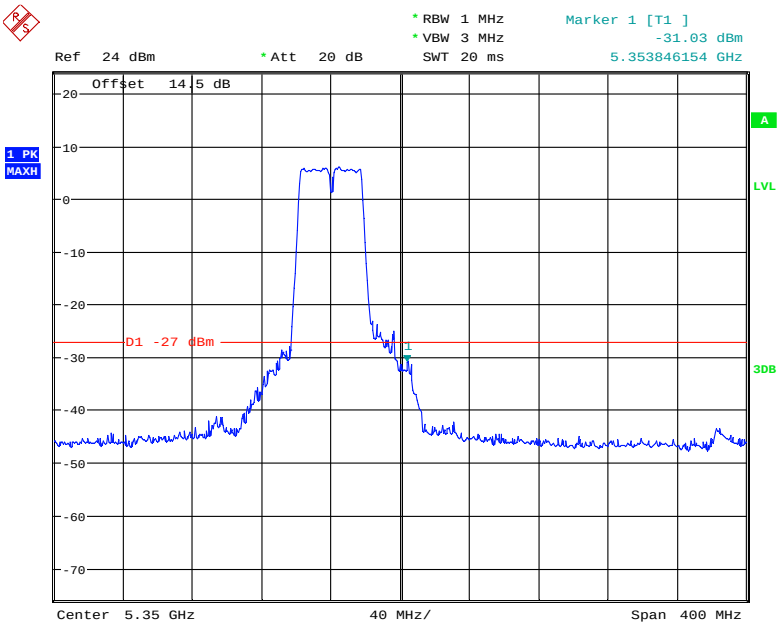

Date: 18.NOV.2018 14:34:06

## 802.11ac40 mode, Band Edge, Left Side



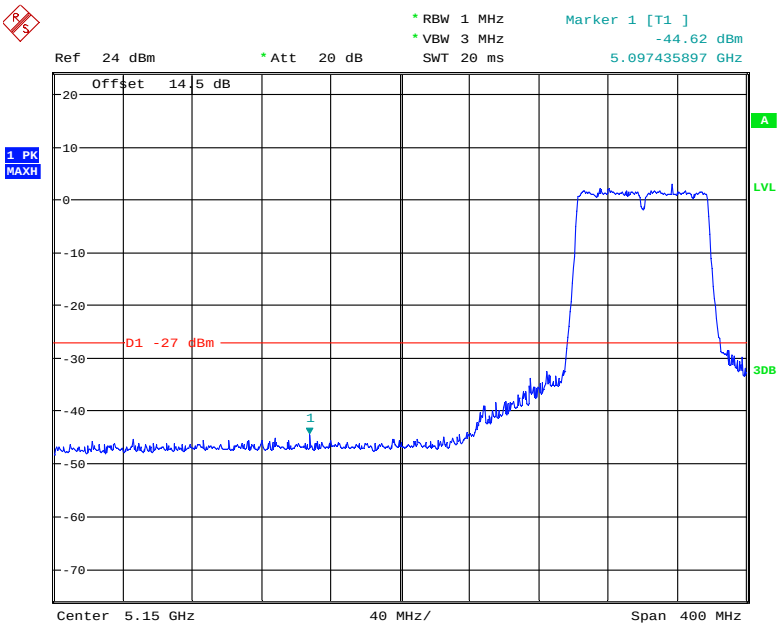

Date: 18.NOV.2018 14:24:16

## 802.11ac40 mode, Band Edge, Right Side



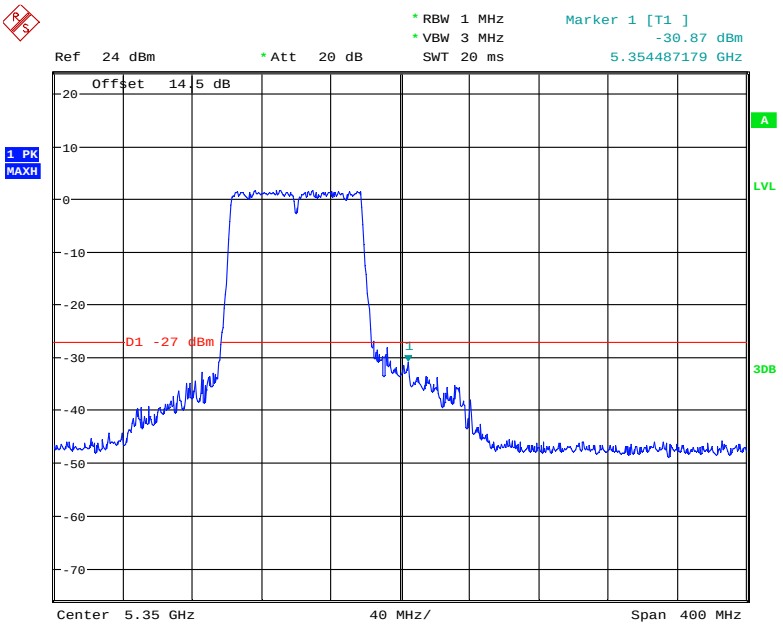

Date: 18.NOV.2018 14:25:17

## 802.11ac80 mode, Band Edge, Left Side




Date: 18.NOV.2018 14:28:28

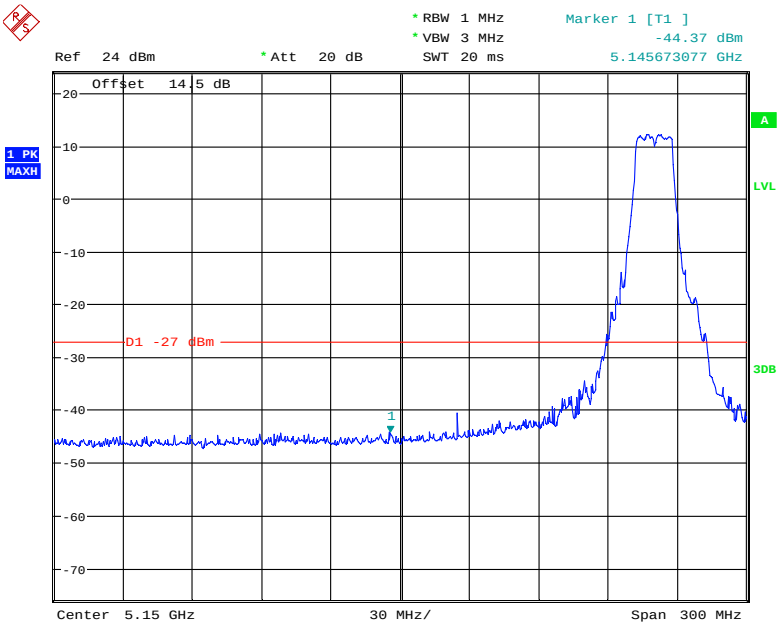
## 802.11ac80 mode, Band Edge, Right Side




Date: 18.NOV.2018 14:28:02

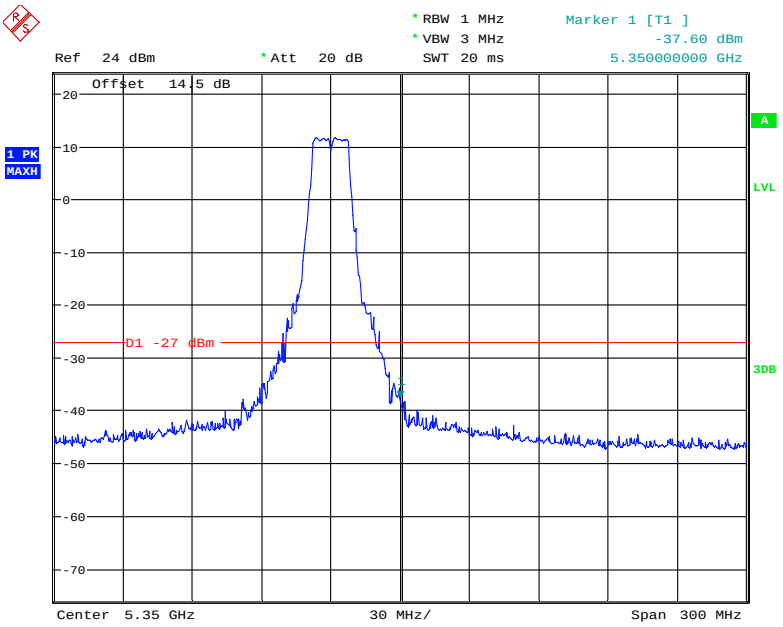
**5250 – 5350 MHz, Chain 1:**

## 802.11a mode, Band Edge, Left Side



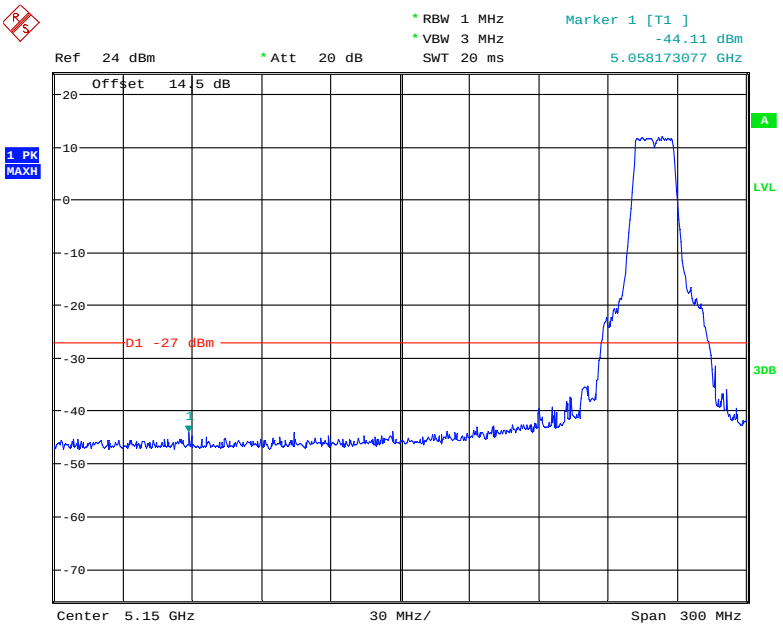

Date: 15.NOV.2018 22:34:02

## 802.11a mode, Band Edge, Right Side



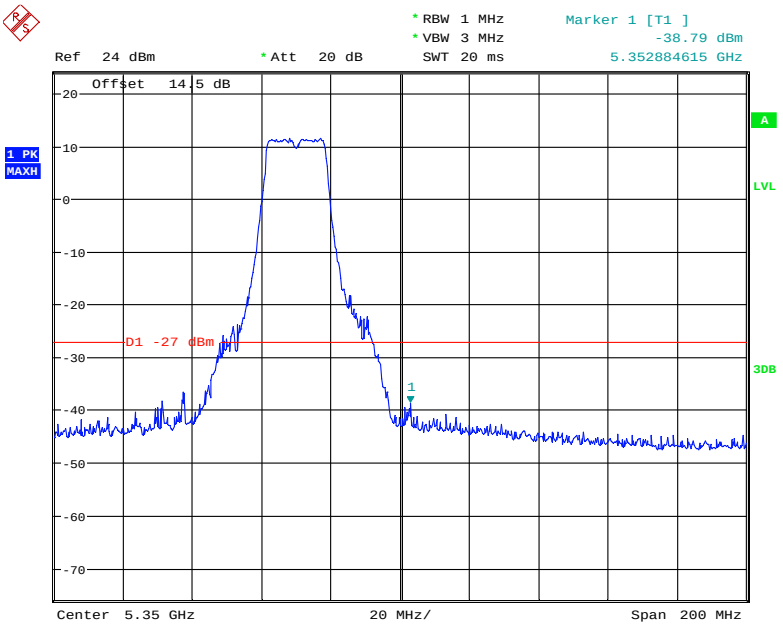

Date: 15.NOV.2018 22:35:11

## 802.11n20 mode, Band Edge, Left Side



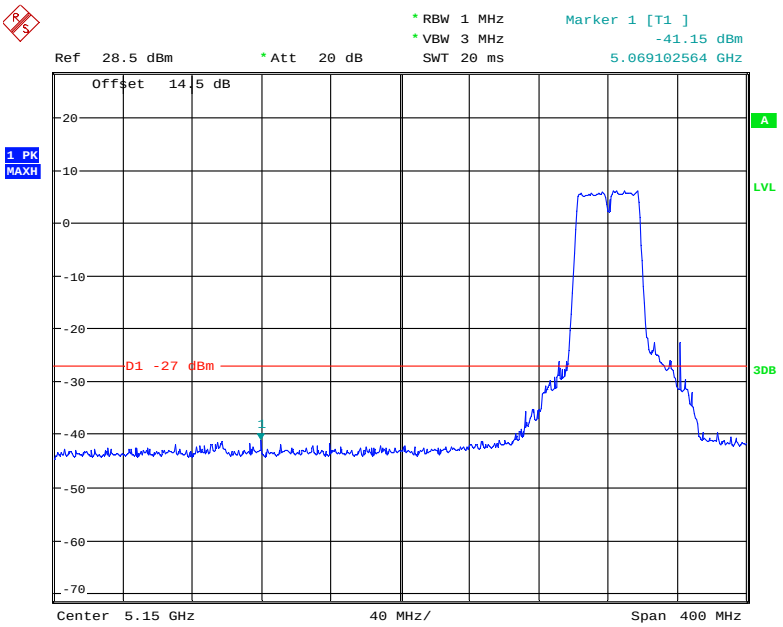

Date: 15.NOV.2018 22:36:58

## 802.11n20 mode, Band Edge, Right Side



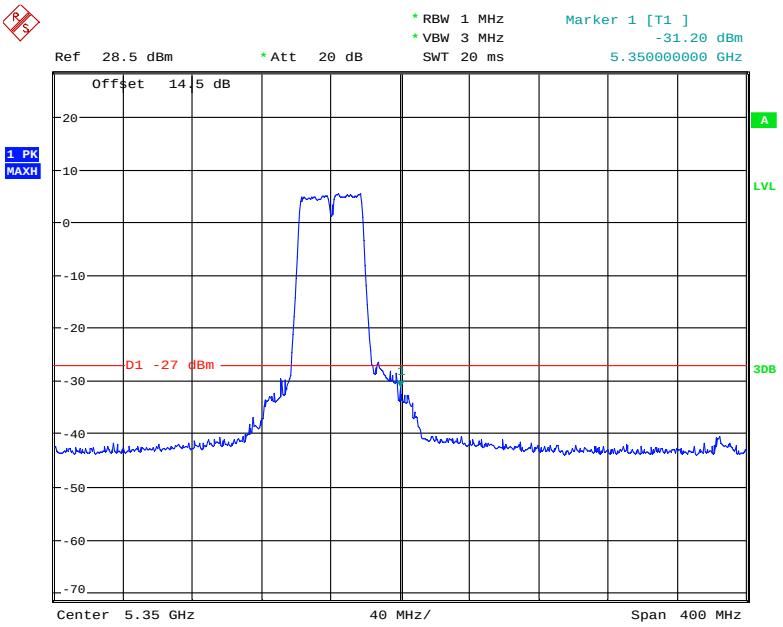

Date: 15.NOV.2018 22:38:47

## 802.11n40 mode, Band Edge, Left Side



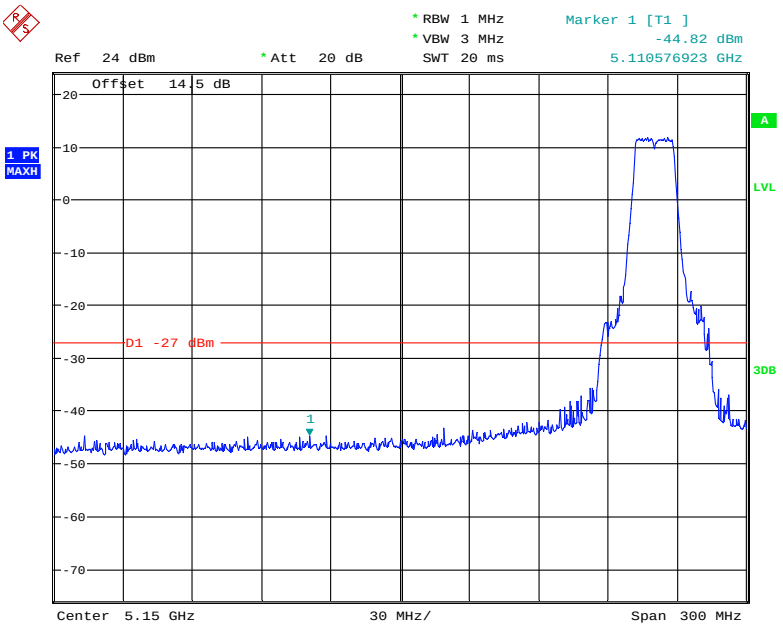

Date: 16.NOV.2018 20:33:10

## 802.11n40 mode, Band Edge, Right Side



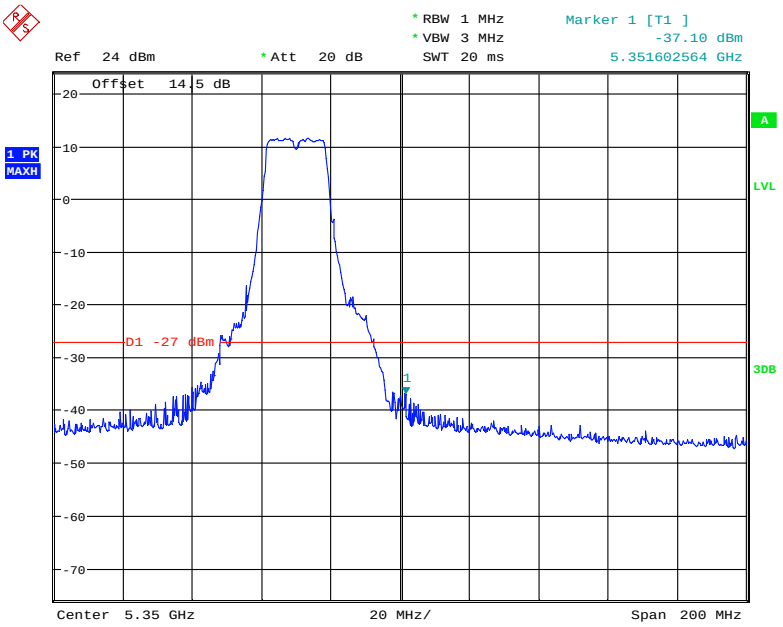

Date: 16.NOV.2018 20:35:11

## 802.11ac20 mode, Band Edge, Left Side



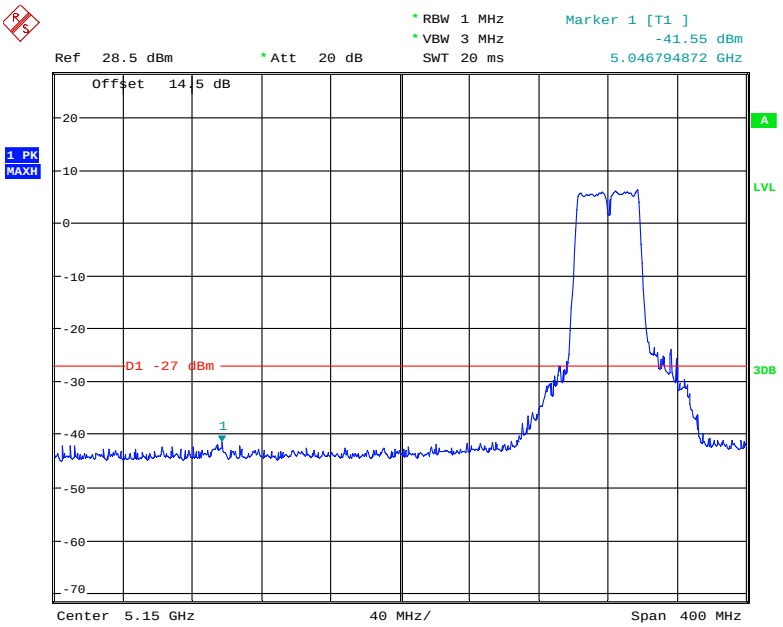

Date: 15.NOV.2018 22:39:30

## 802.11ac20 mode, Band Edge, Right Side



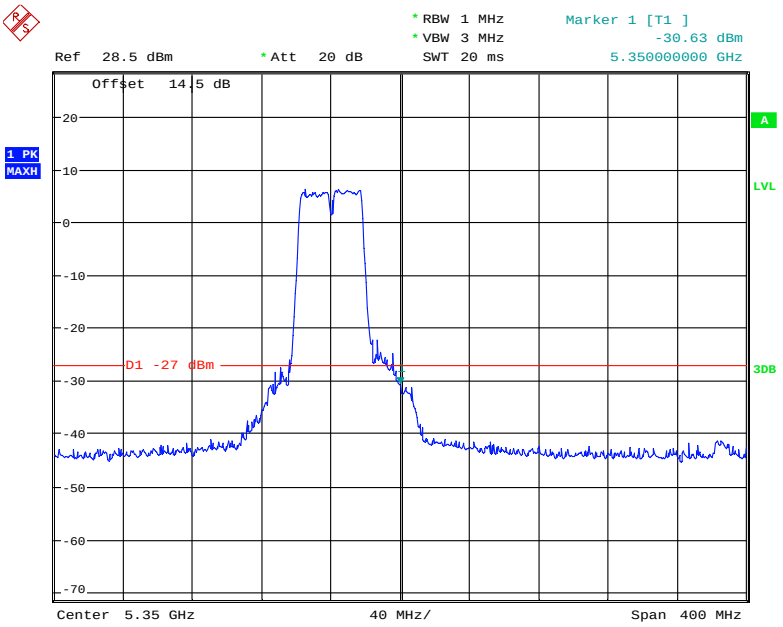

Date: 15.NOV.2018 22:40:25

## 802.11ac40 mode, Band Edge, Left Side



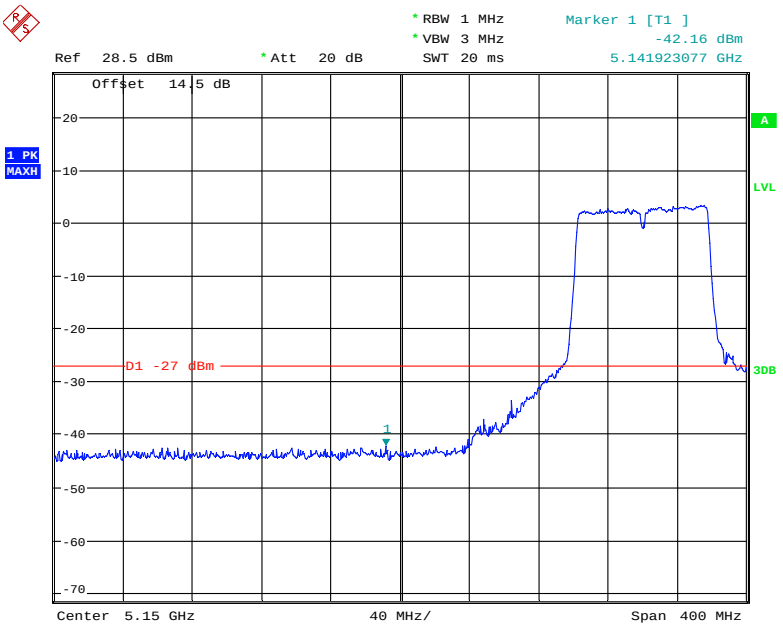

Date: 16.NOV.2018 20:37:13

## 802.11ac40 mode, Band Edge, Right Side



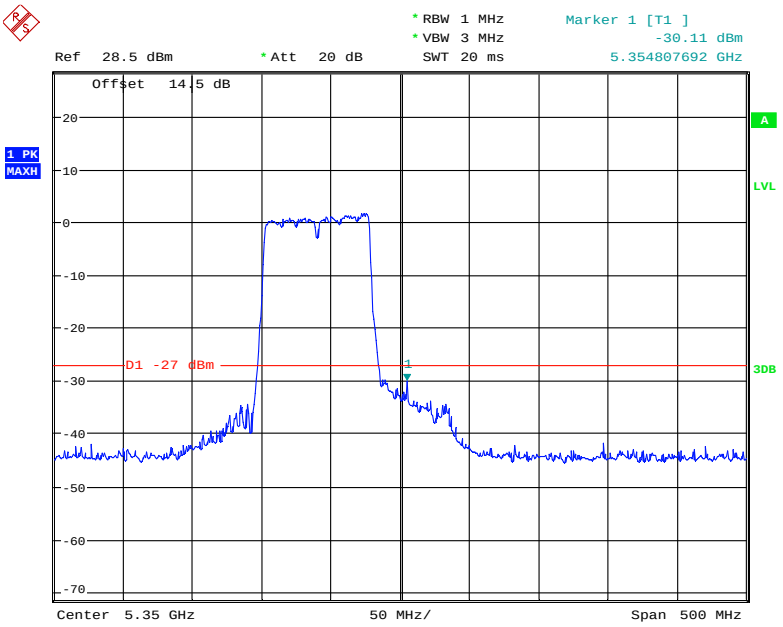

Date: 16.NOV.2018 20:38:03

## 802.11ac80 mode, Band Edge, Left Side




Date: 16.NOV.2018 20:21:02

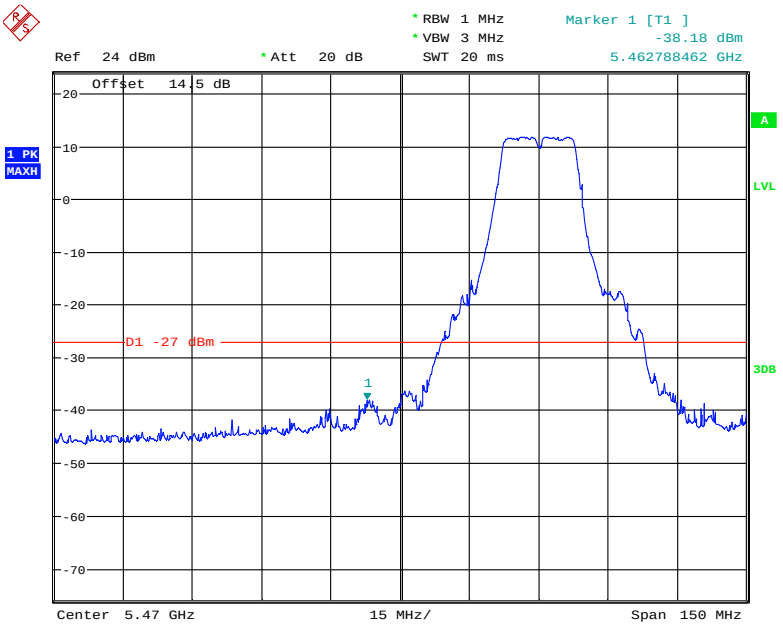
## 802.11ac80 mode, Band Edge, Right Side




Date: 16.NOV.2018 20:28:03

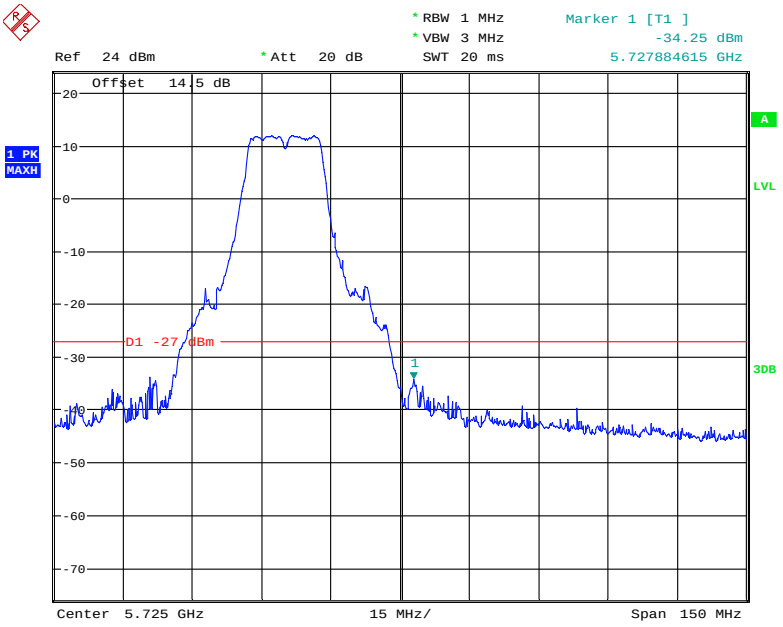
**5470 – 5725 MHz, Chain 0:**

**802.11a mode, Band Edge, Left Side**



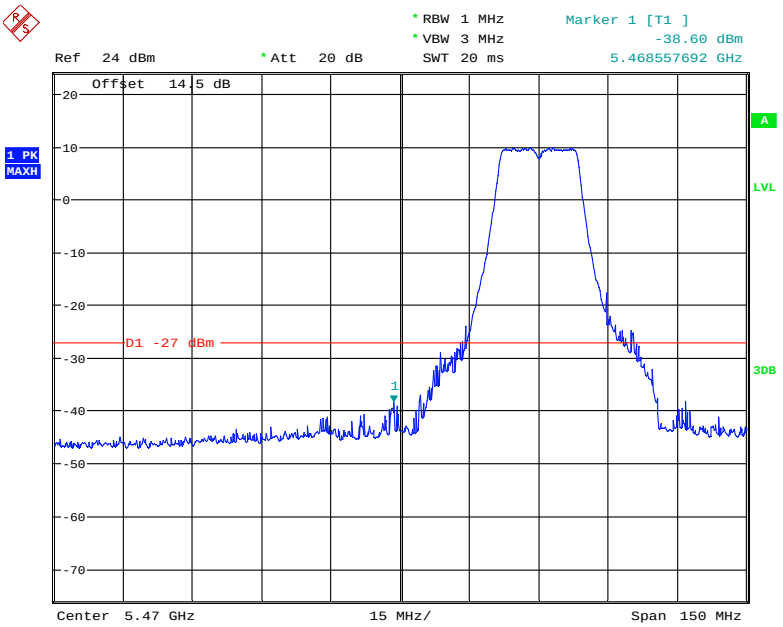

Date: 18.NOV.2018 15:16:19

**802.11a mode, Band Edge, Right Side**



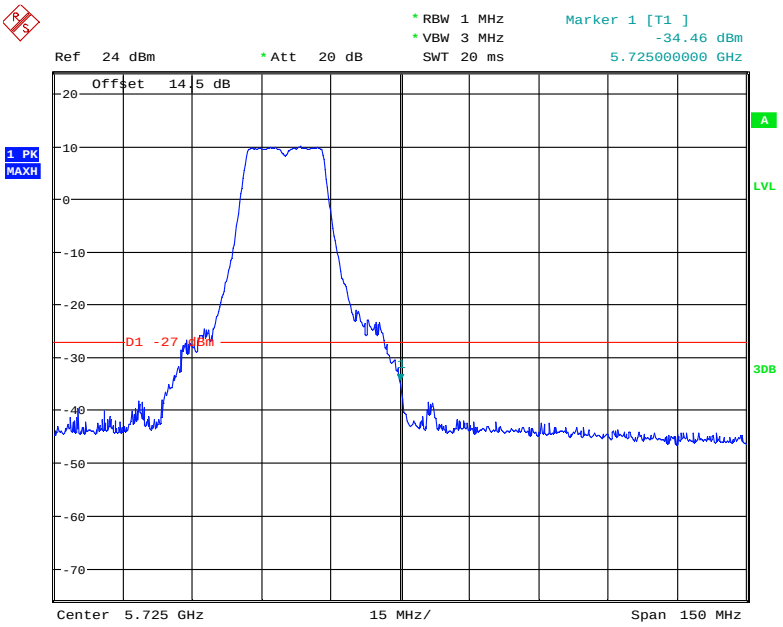

Date: 18.NOV.2018 15:17:25

## 802.11n20 mode, Band Edge, Left Side



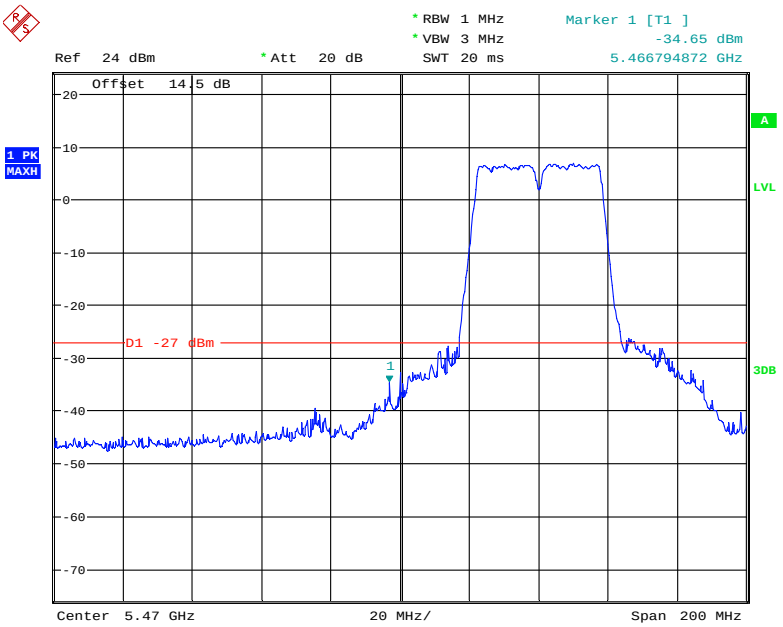

Date: 18.NOV.2018 15:19:47

## 802.11n20 mode, Band Edge, Right Side



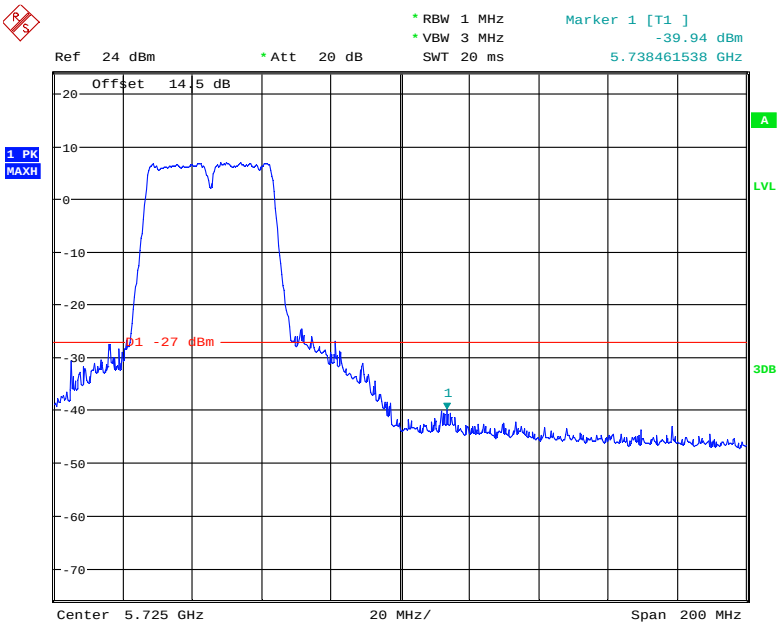

Date: 18.NOV.2018 15:19:11

## 802.11n40 mode, Band Edge, Left Side



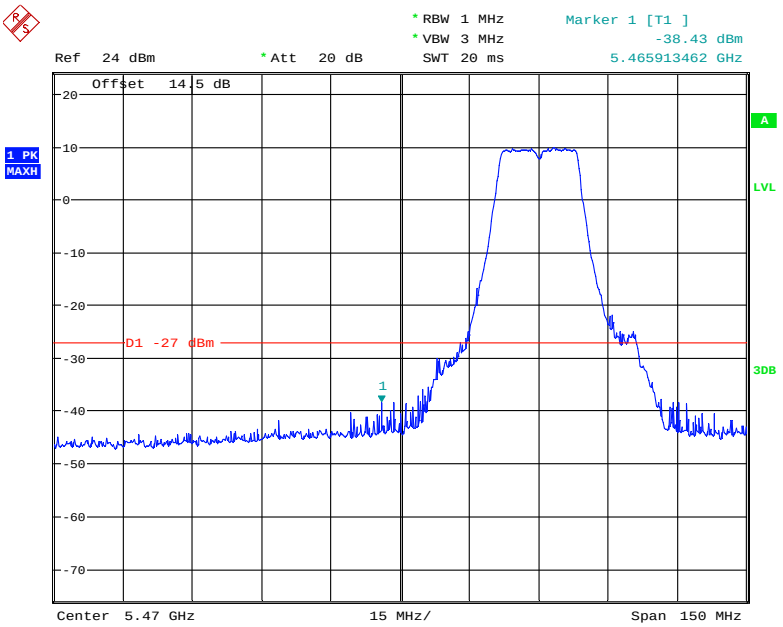

Date: 18.NOV.2018 15:22:14

## 802.11n40 mode, Band Edge, Right Side



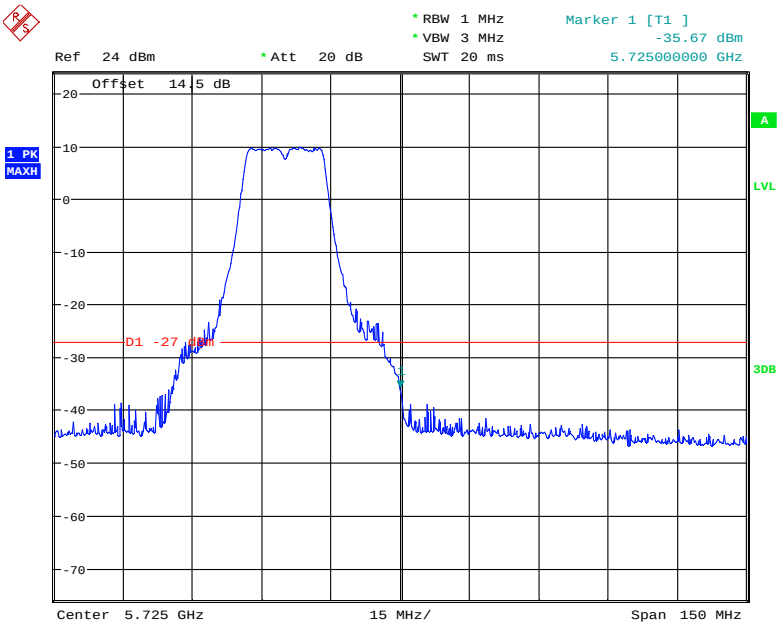

Date: 18.NOV.2018 15:22:54

## 802.11ac20 mode, Band Edge, Left Side



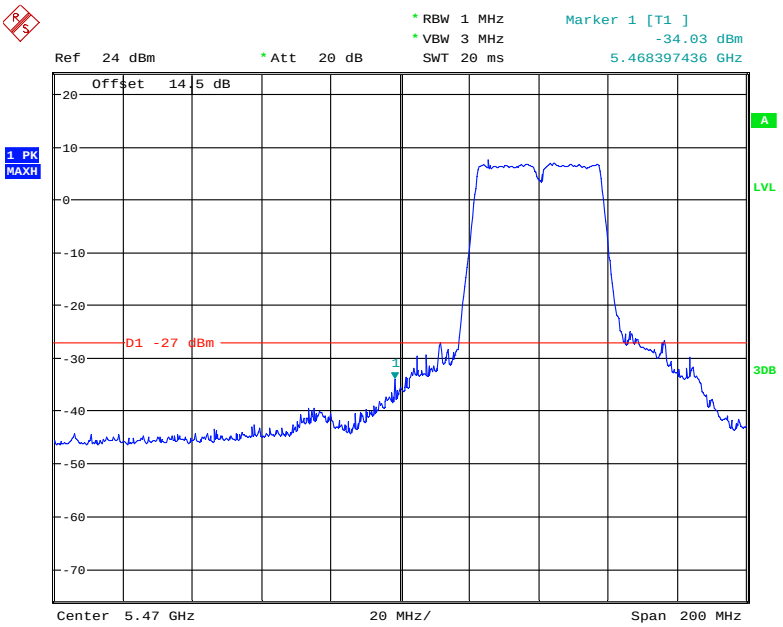

Date: 18.NOV.2018 15:20:25

## 802.11ac20 mode, Band Edge, Right Side



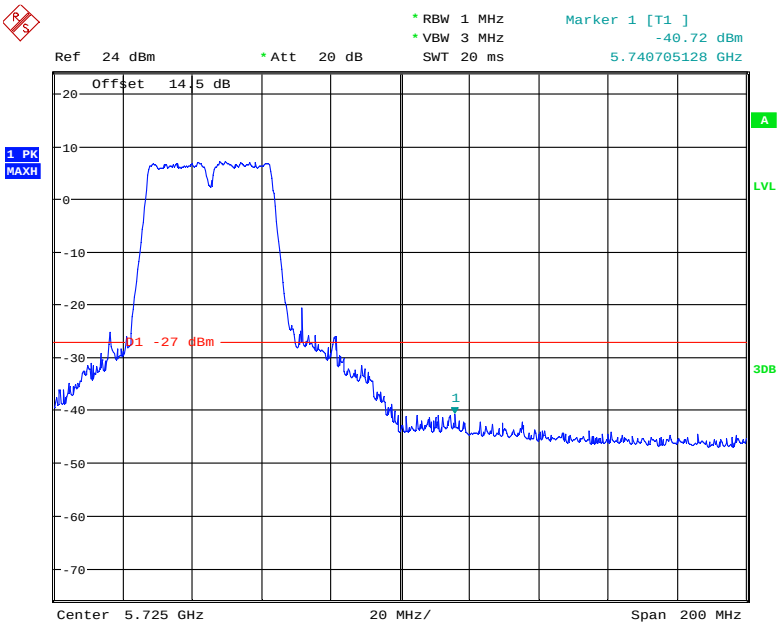

Date: 18.NOV.2018 15:21:05

## 802.11ac40 mode, Band Edge, Left Side



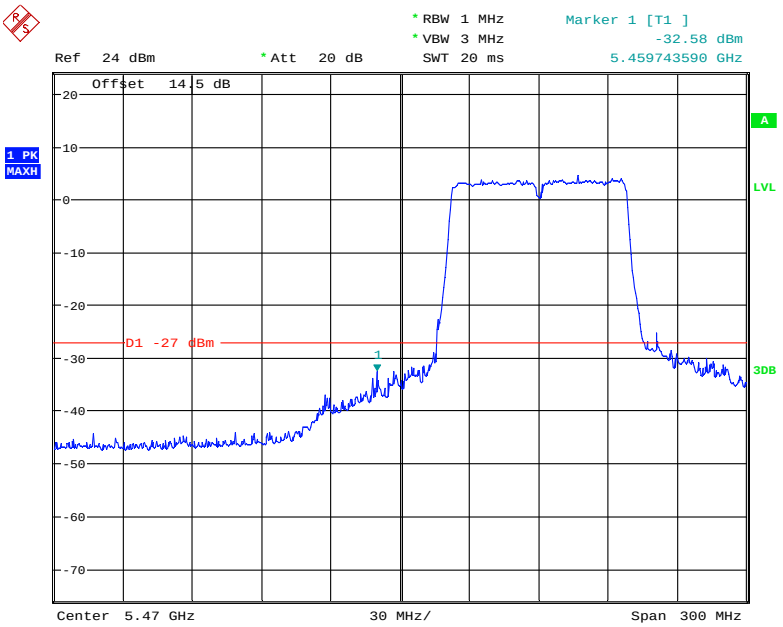

Date: 18.NOV.2018 15:24:53

## 802.11ac40 mode, Band Edge, Right Side



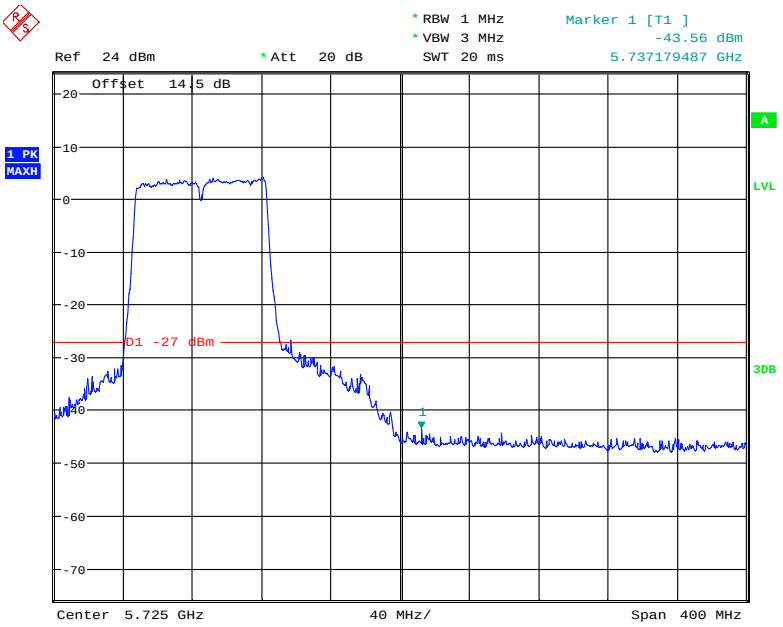

Date: 18.NOV.2018 15:23:51

## 802.11ac80 mode, Band Edge, Left Side




Date: 18.NOV.2018 15:26:19

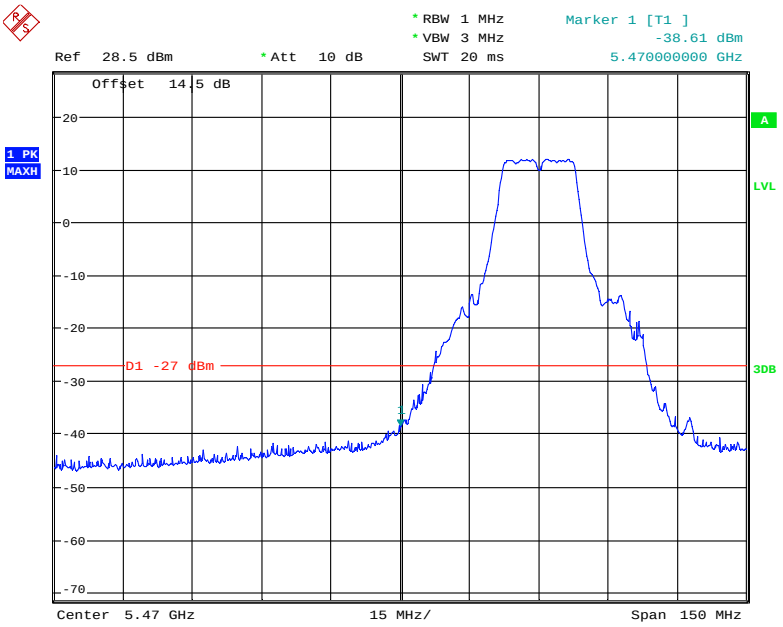
## 802.11ac80 mode, Band Edge, Right Side




Date: 18.NOV.2018 15:27:31

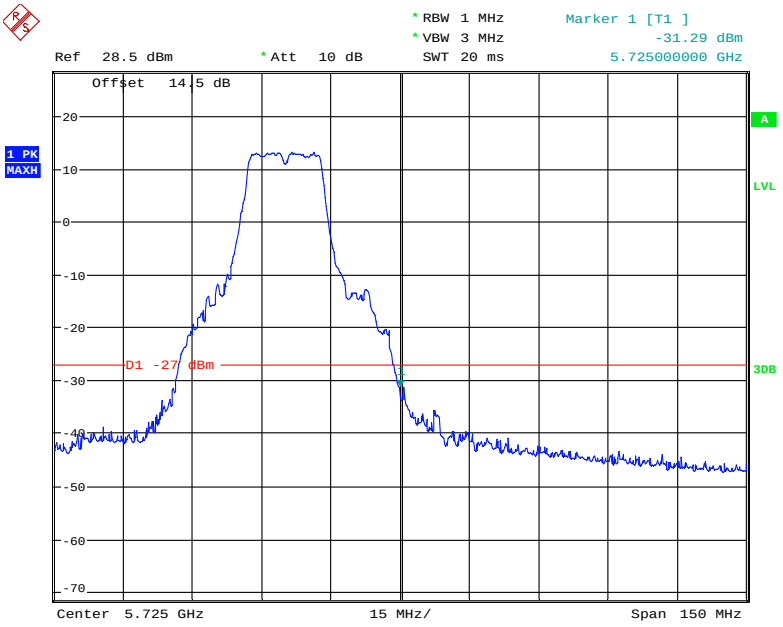
**5470 – 5725 MHz, Chain 1:**

**802.11a mode, Band Edge, Left Side**



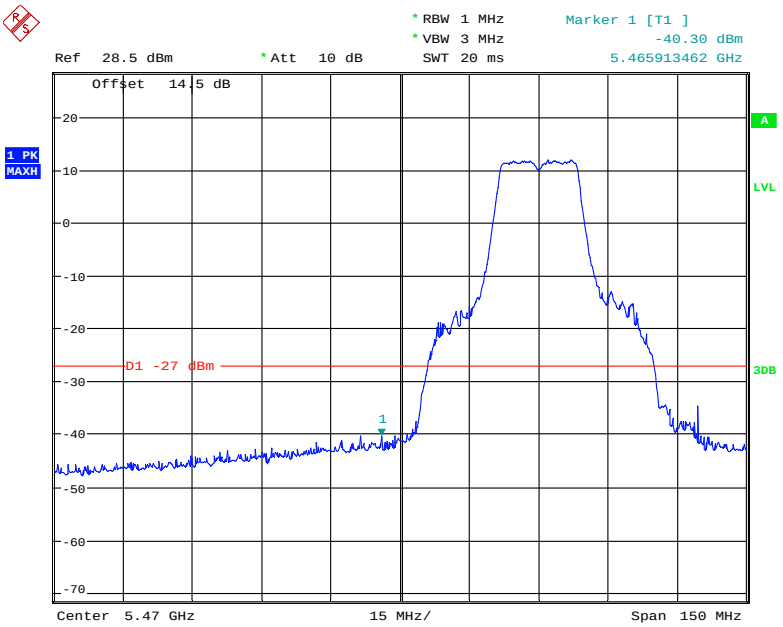

Date: 16.NOV.2018 19:25:23

**802.11a mode, Band Edge, Right Side**



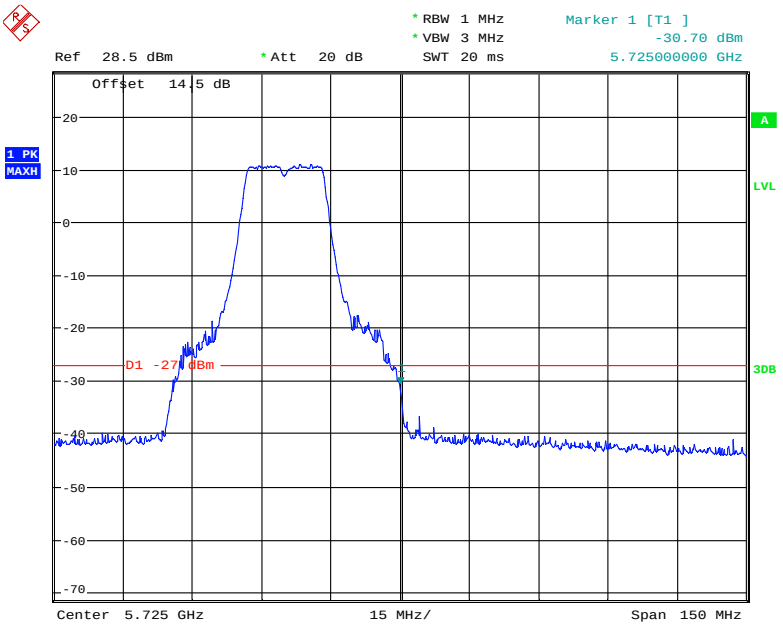

Date: 16.NOV.2018 19:26:28

## 802.11n20 mode, Band Edge, Left Side



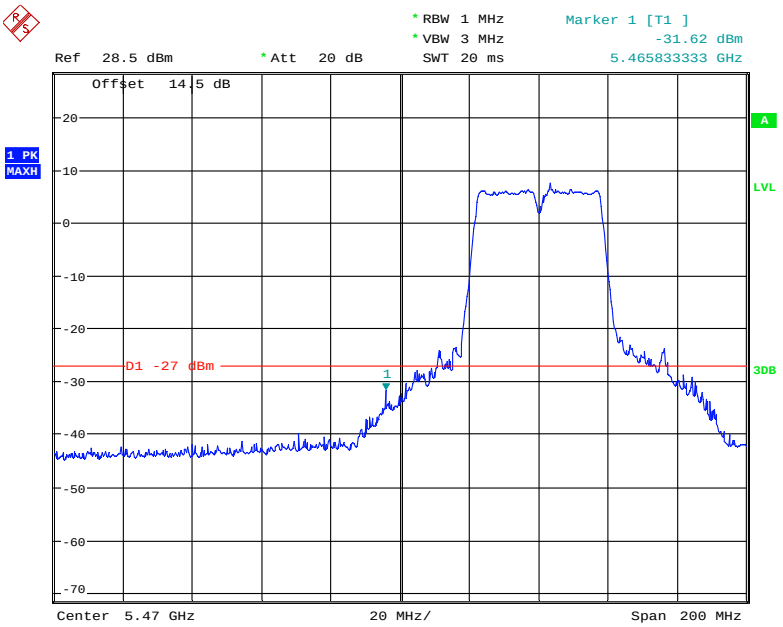

Date: 16.NOV.2018 19:32:38

## 802.11n20 mode, Band Edge, Right Side



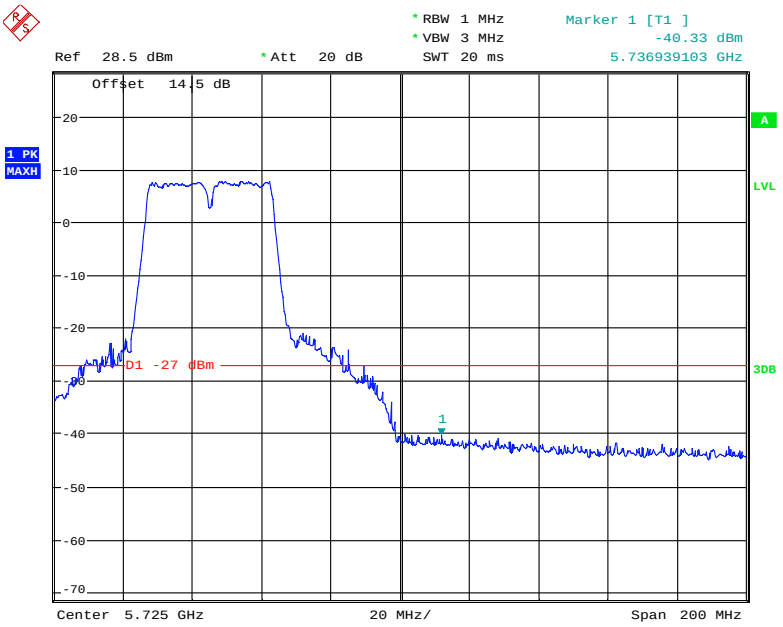

Date: 16.NOV.2018 20:44:24

## 802.11n40 mode, Band Edge, Left Side



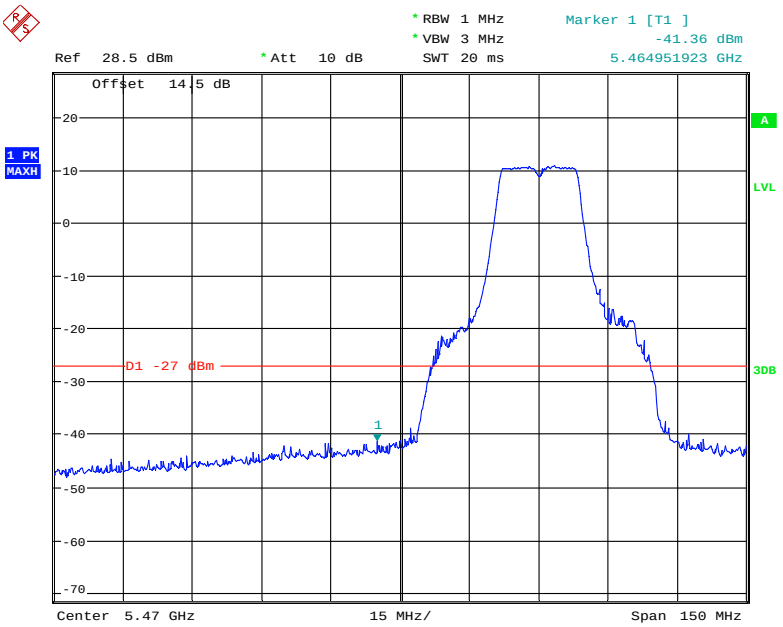

Date: 16.NOV.2018 20:52:20

## 802.11n40 mode, Band Edge, Right Side



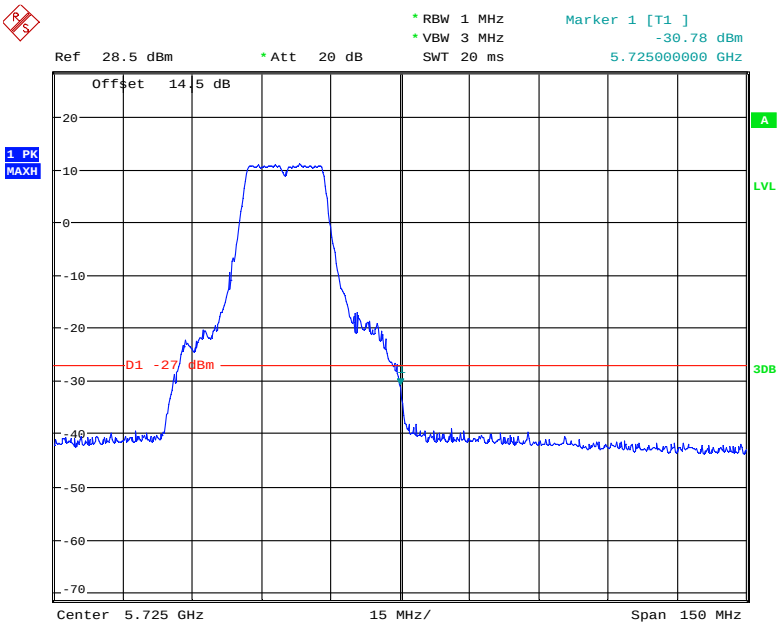

Date: 16.NOV.2018 20:48:35

## 802.11ac20 mode, Band Edge, Left Side



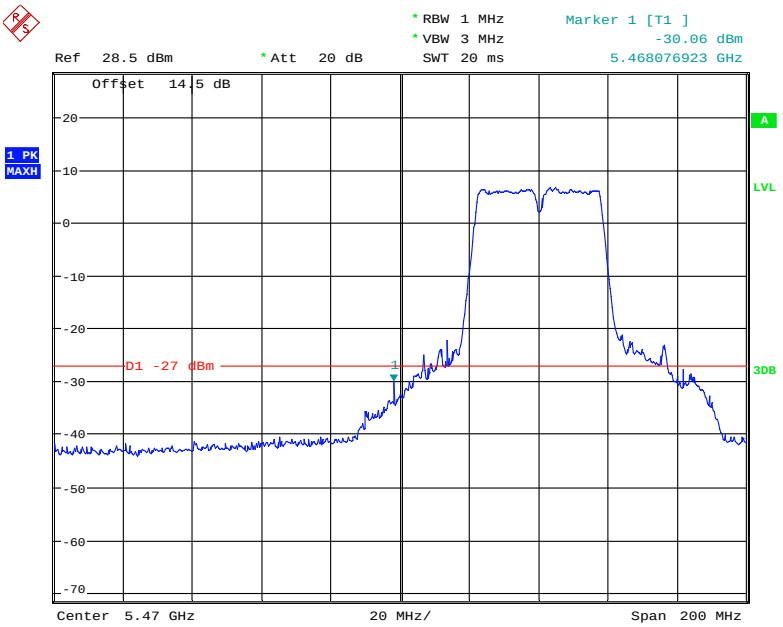

Date: 16.NOV.2018 19:37:33

## 802.11ac20 mode, Band Edge, Right Side



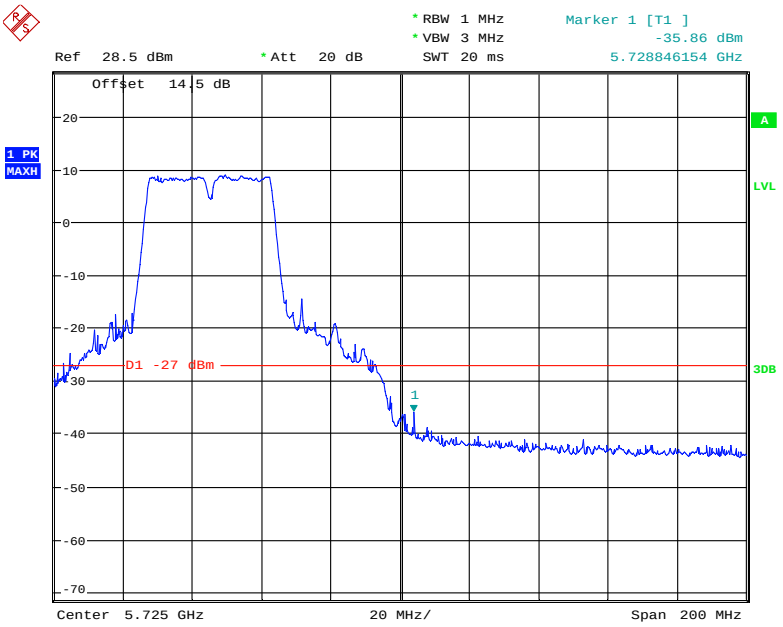

Date: 16.NOV.2018 20:42:28

## 802.11ac40 mode, Band Edge, Left Side



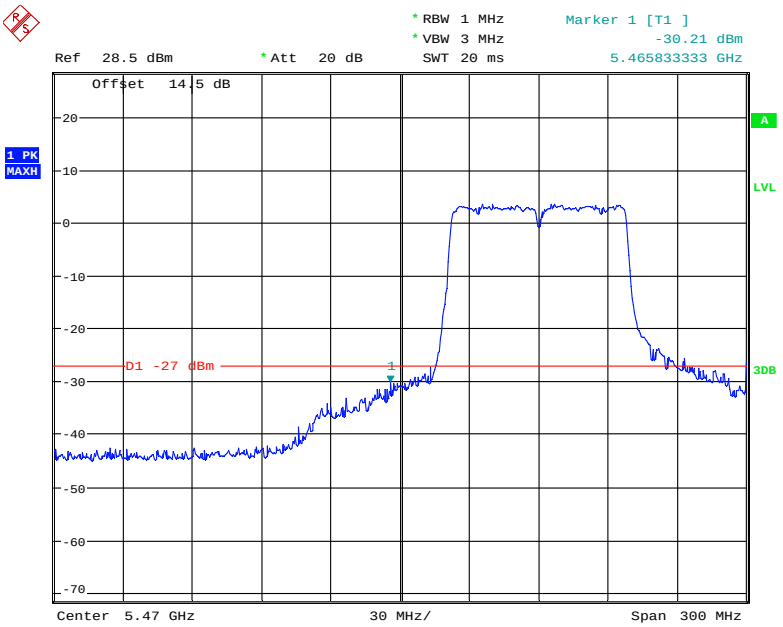

Date: 16.NOV.2018 20:50:42

## 802.11ac40 mode, Band Edge, Right Side



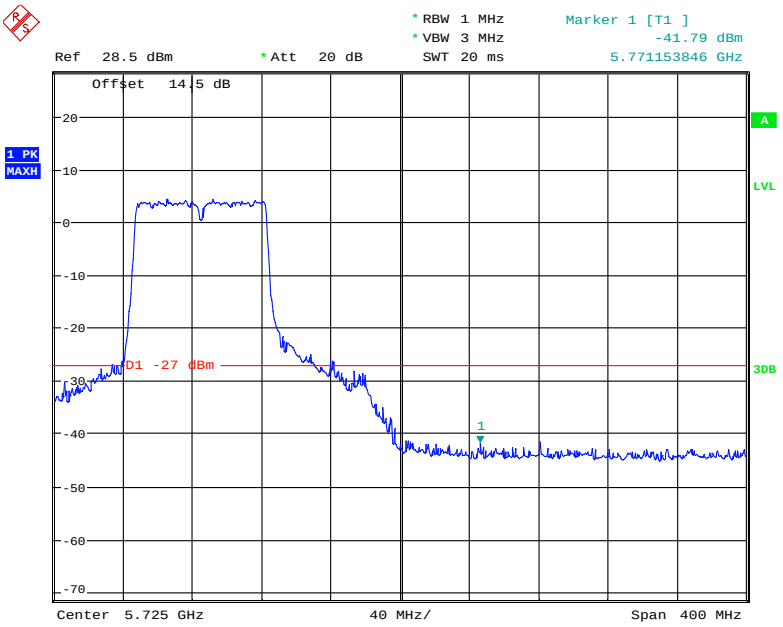

Date: 16.NOV.2018 19:43:33

## 802.11ac80 mode, Band Edge, Left Side




Date: 16.NOV.2018 20:54:09

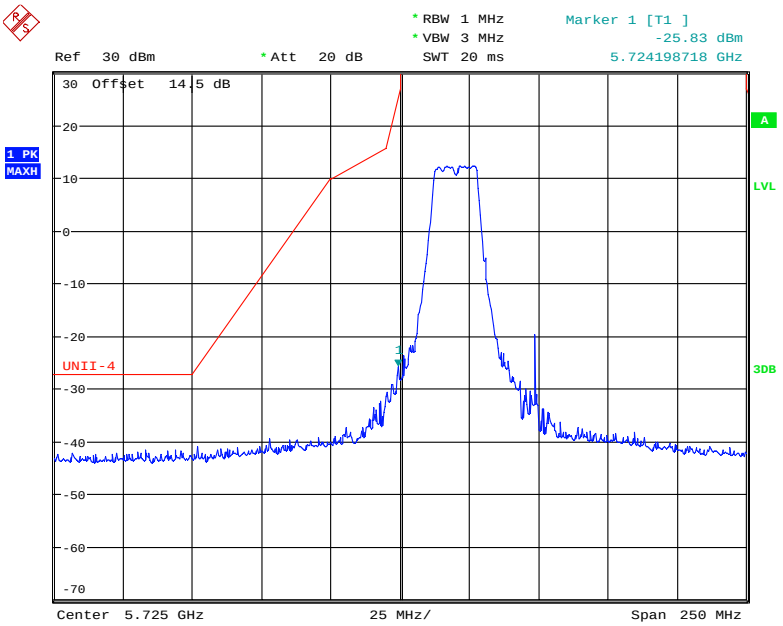
## 802.11ac80 mode, Band Edge, Right Side




Date: 16.NOV.2018 20:54:59

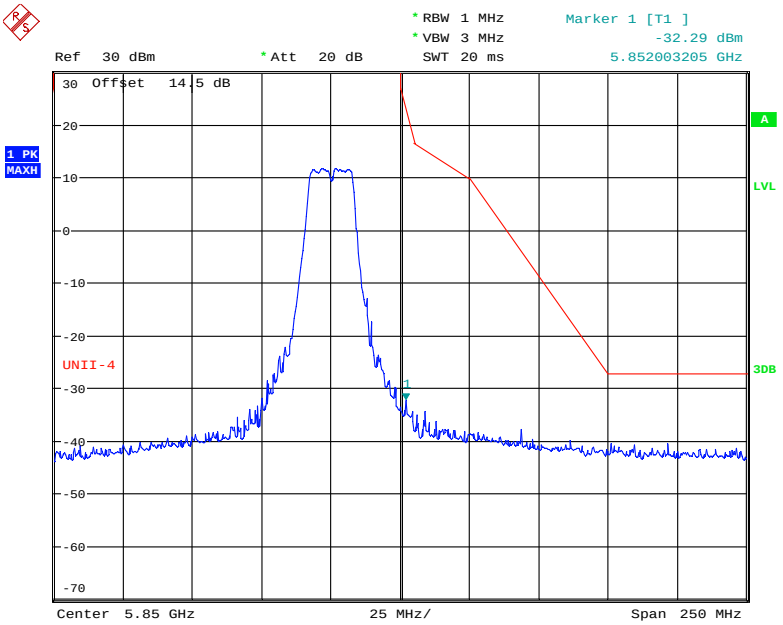
**5725 – 5850 MHz, Chain 0:**

**802.11a mode, Band Edge, Left Side**



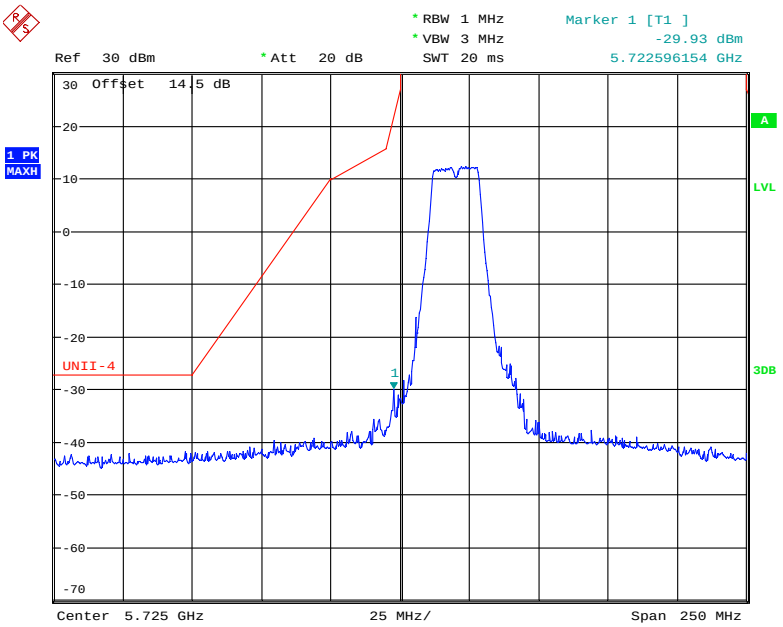

Date: 30.NOV.2018 18:39:51

**802.11a mode, Band Edge, Right Side**



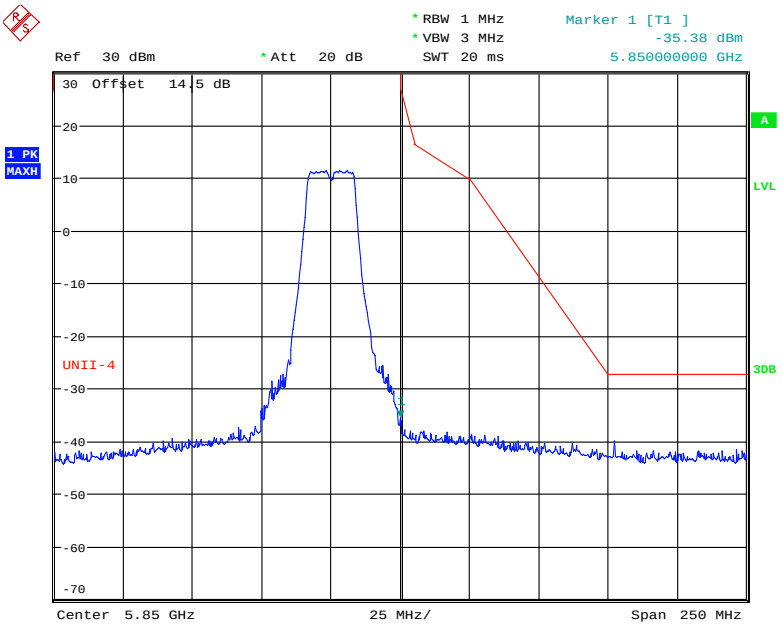

Date: 30.NOV.2018 18:38:55

## 802.11n20 mode, Band Edge, Left Side



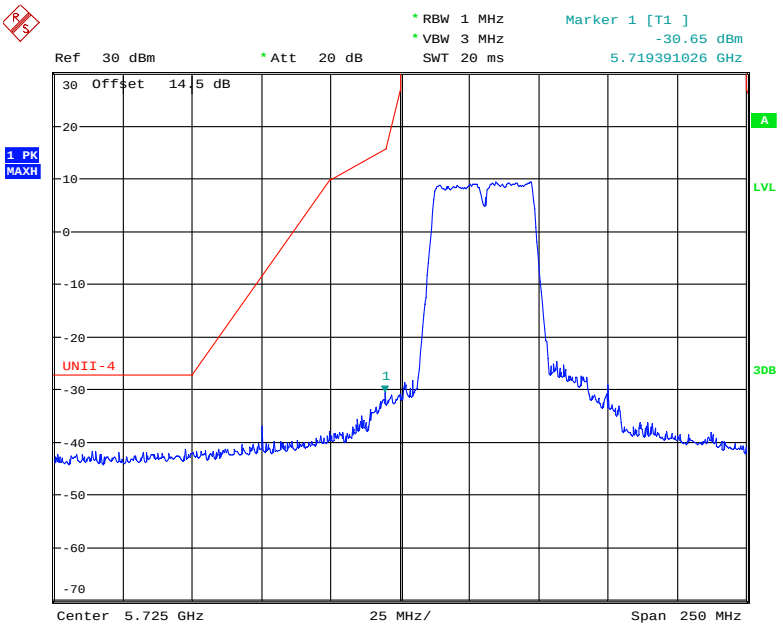

Date: 30.NOV.2018 18:40:33

## 802.11n20 mode, Band Edge, Right Side



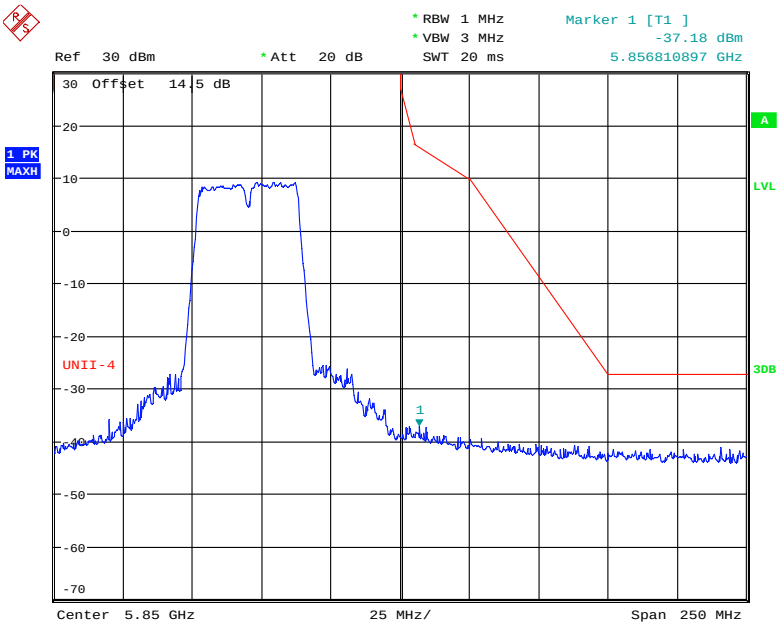

Date: 30.NOV.2018 18:41:16

## 802.11n40 mode, Band Edge, Left Side



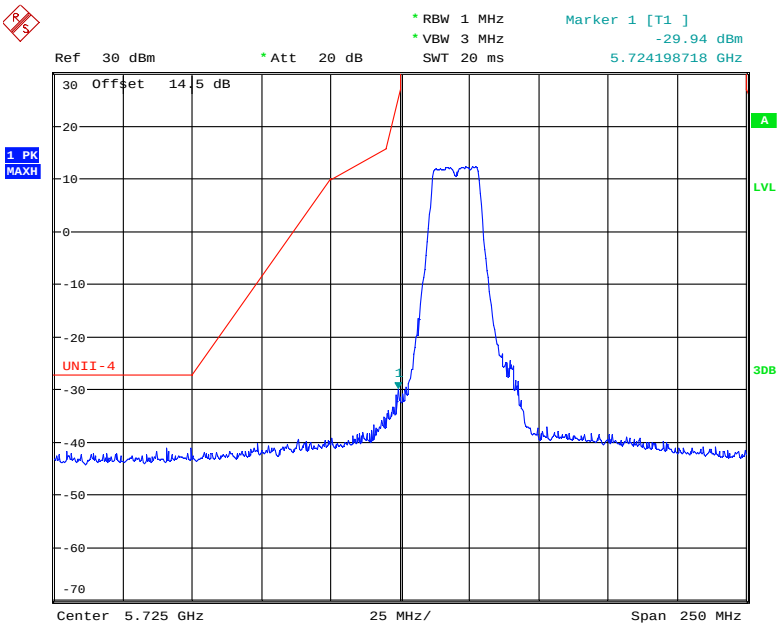

Date: 30.NOV.2018 18:36:53

## 802.11n40 mode, Band Edge, Right Side



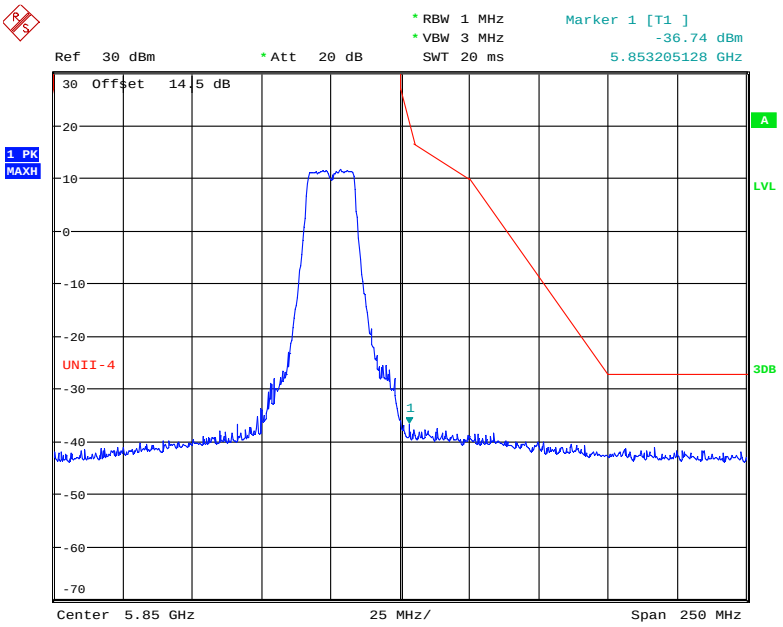

Date: 30.NOV.2018 18:37:48

## 802.11ac20 mode, Band Edge, Left Side



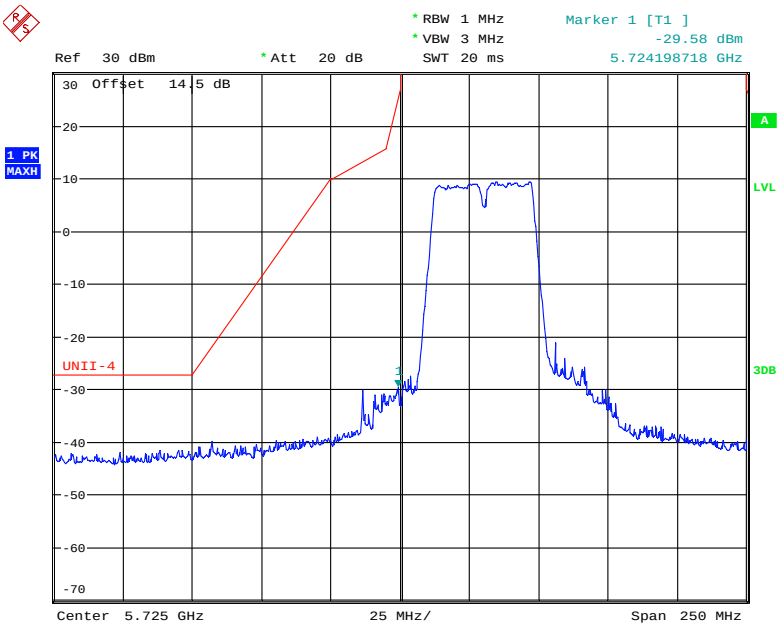

Date: 30.NOV.2018 18:42:49

## 802.11ac20 mode, Band Edge, Right Side



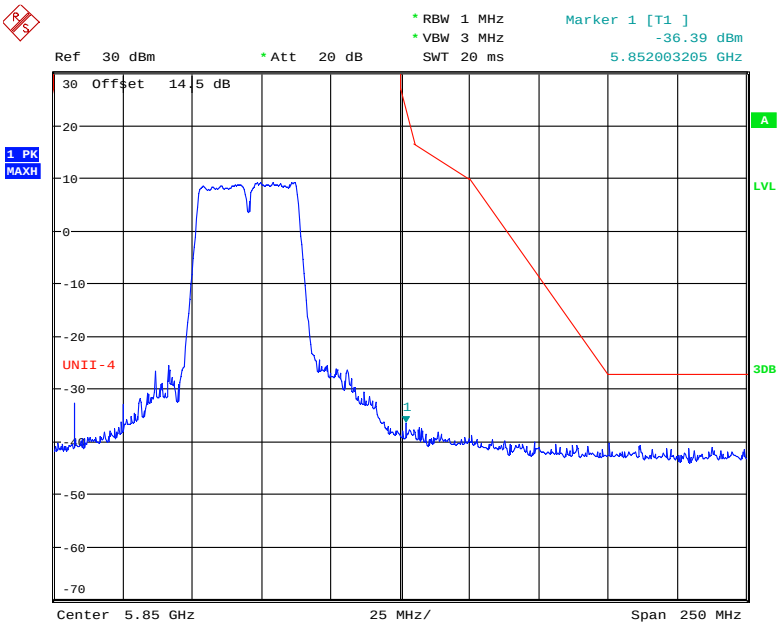

Date: 30.NOV.2018 18:42:11

## 802.11ac40 mode, Band Edge, Left Side



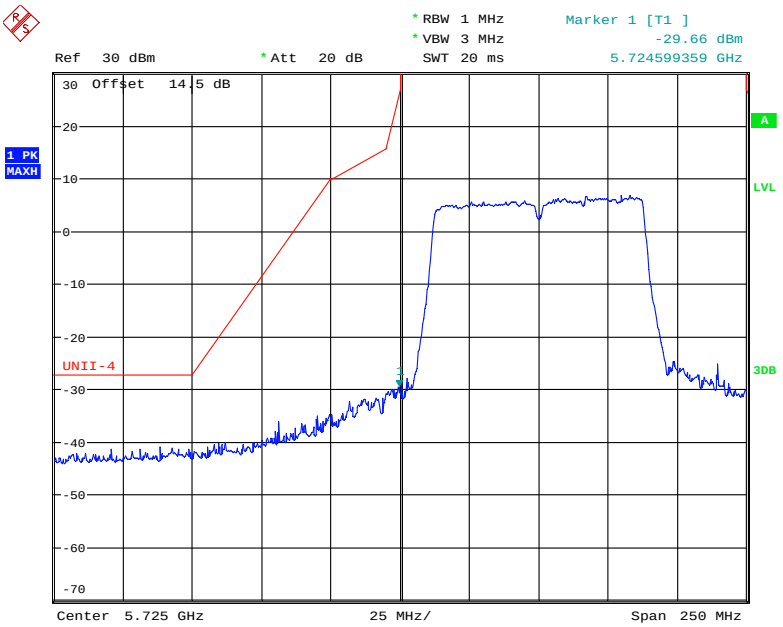

Date: 30.NOV.2018 18:36:04

## 802.11ac40 mode, Band Edge, Right Side



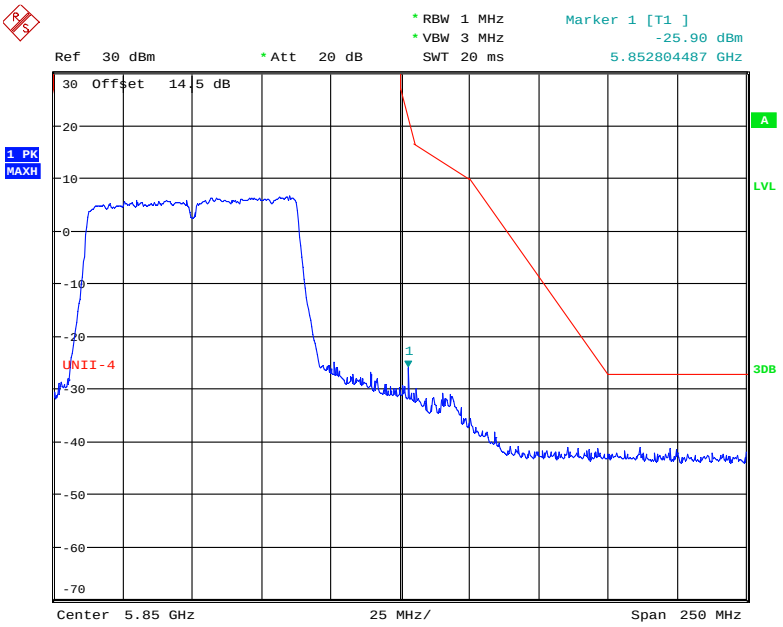

Date: 30.NOV.2018 18:35:16

## 802.11ac80 mode, Band Edge, Left Side




Date: 30.NOV.2018 18:33:45

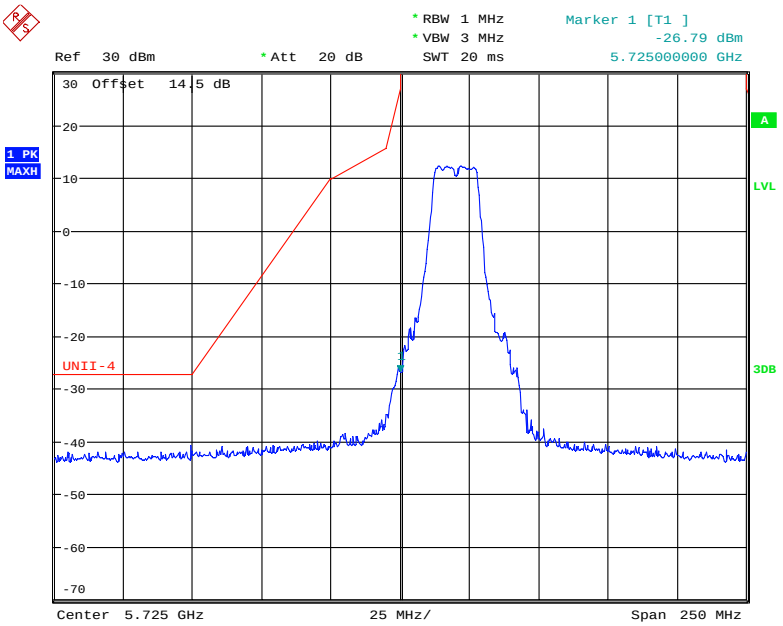
## 802.11ac80 mode, Band Edge, Right Side




Date: 30.NOV.2018 18:34:23

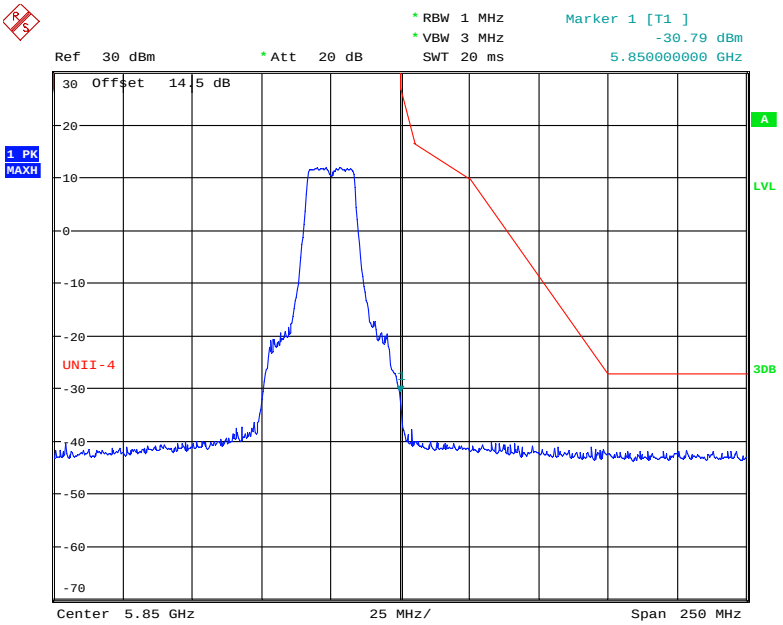
**5725 – 5850 MHz, Chain 1:**

**802.11a mode, Band Edge, Left Side**



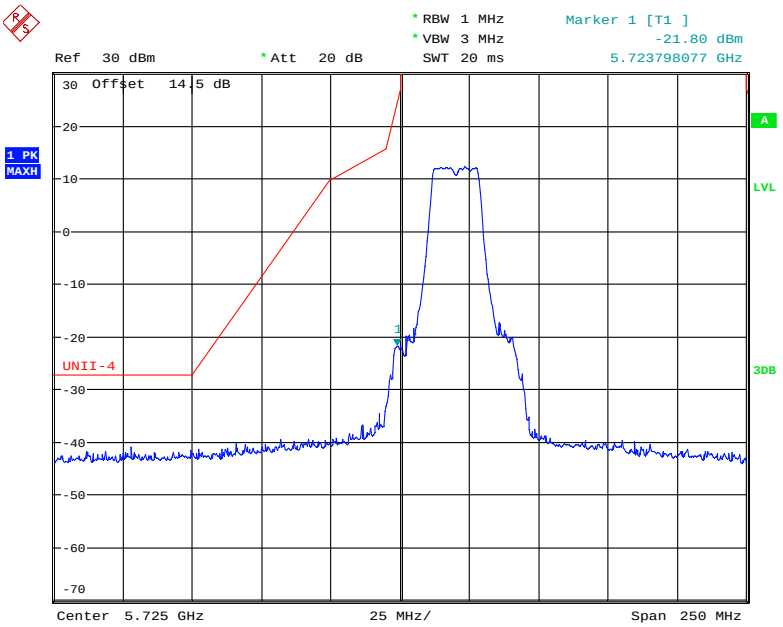

Date: 30.NOV.2018 18:17:32

**802.11a mode, Band Edge, Right Side**



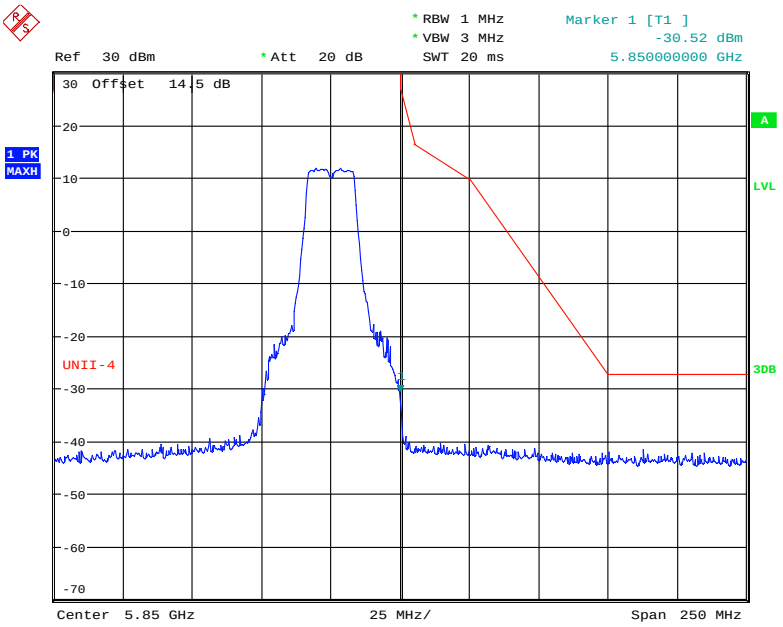

Date: 30.NOV.2018 18:19:44

## 802.11n20 mode, Band Edge, Left Side



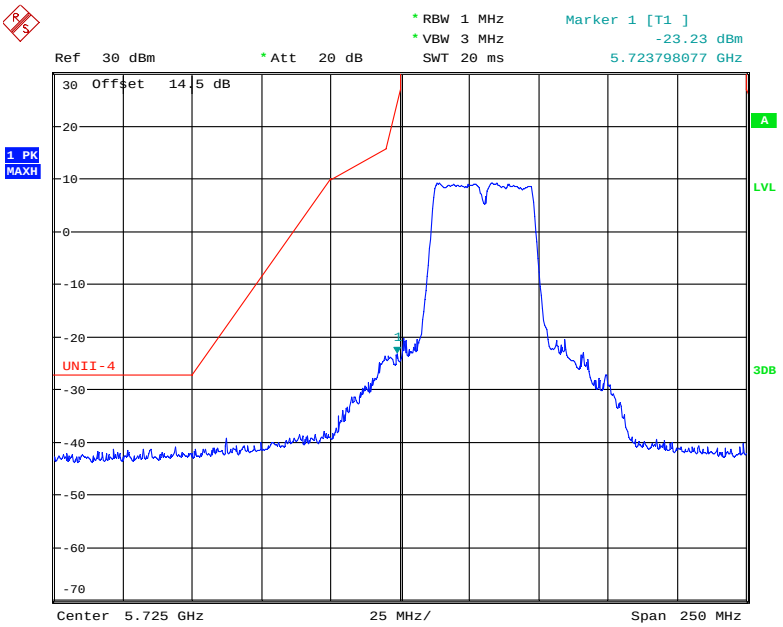

Date: 30.NOV.2018 18:21:01

## 802.11n20 mode, Band Edge, Right Side



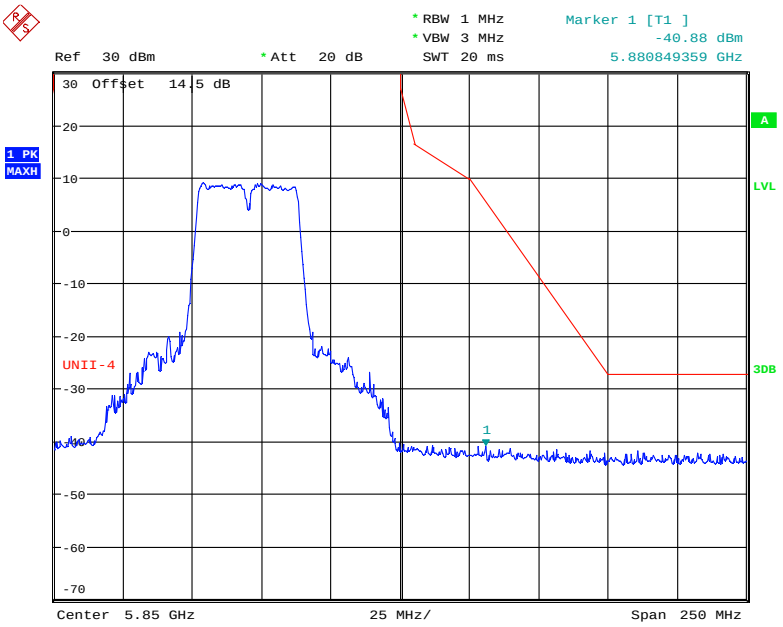

Date: 30.NOV.2018 18:20:04

## 802.11n40 mode, Band Edge, Left Side



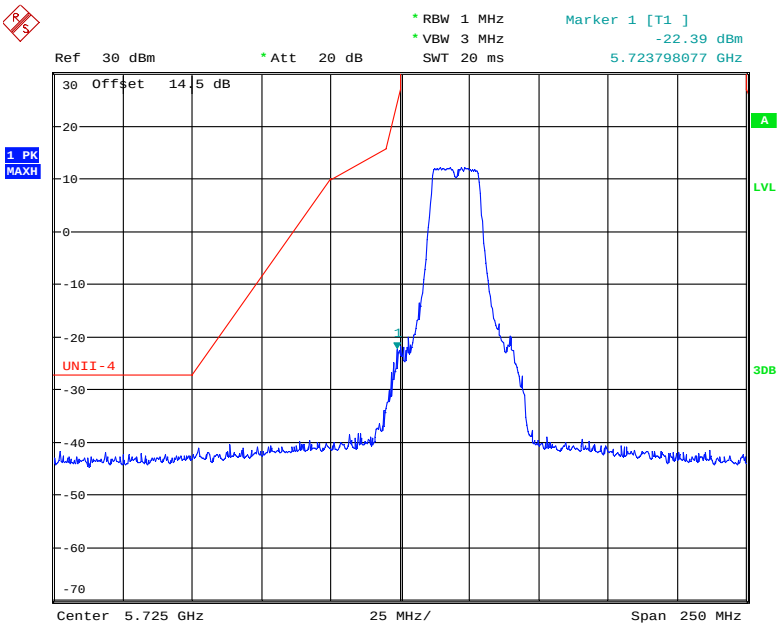

Date: 30.NOV.2018 18:24:53

## 802.11n40 mode, Band Edge, Right Side



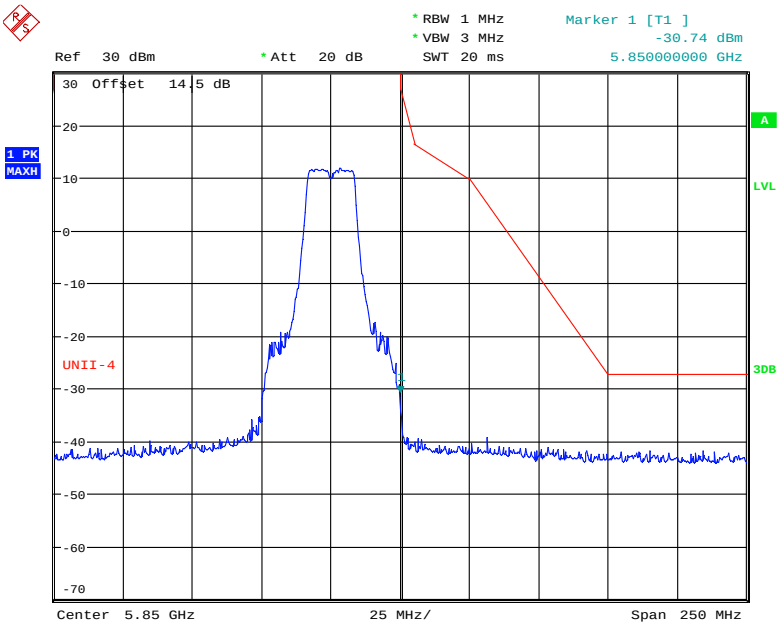

Date: 30.NOV.2018 18:23:44

## 802.11ac20 mode, Band Edge, Left Side



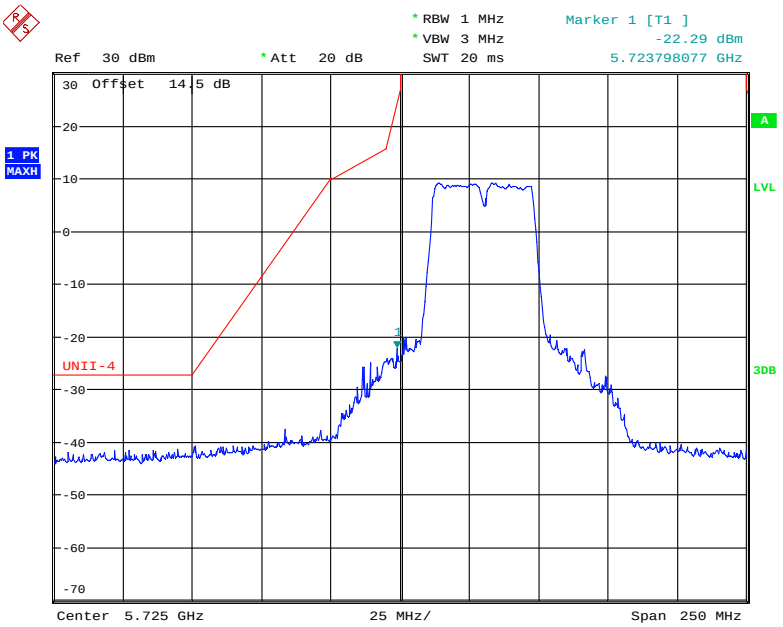

Date: 30.NOV.2018 18:21:48

## 802.11ac20 mode, Band Edge, Right Side



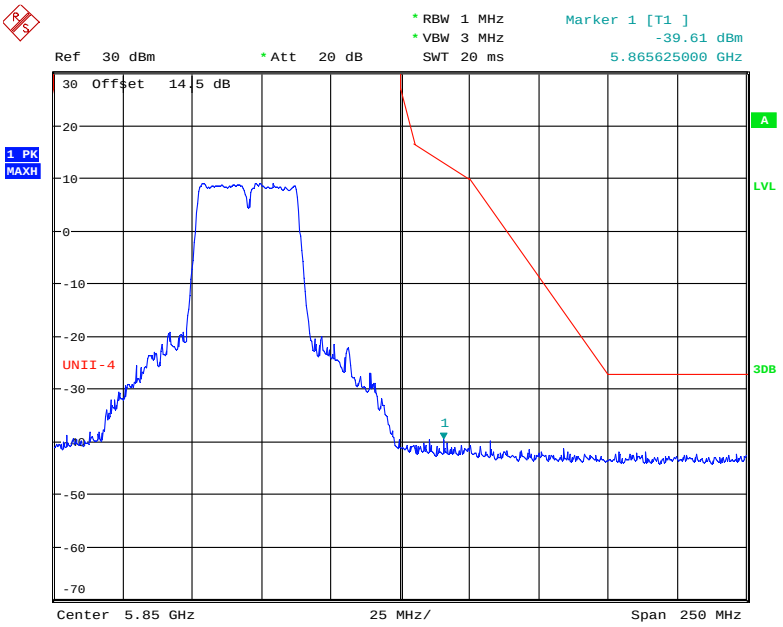

Date: 30.NOV.2018 18:22:54

## 802.11ac40 mode, Band Edge, Left Side



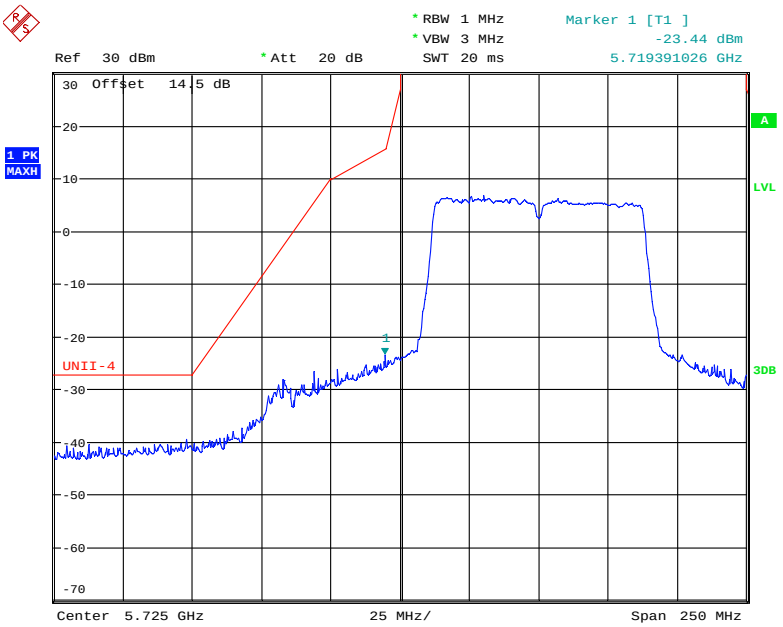

Date: 30.NOV.2018 18:25:49

## 802.11ac40 mode, Band Edge, Right Side



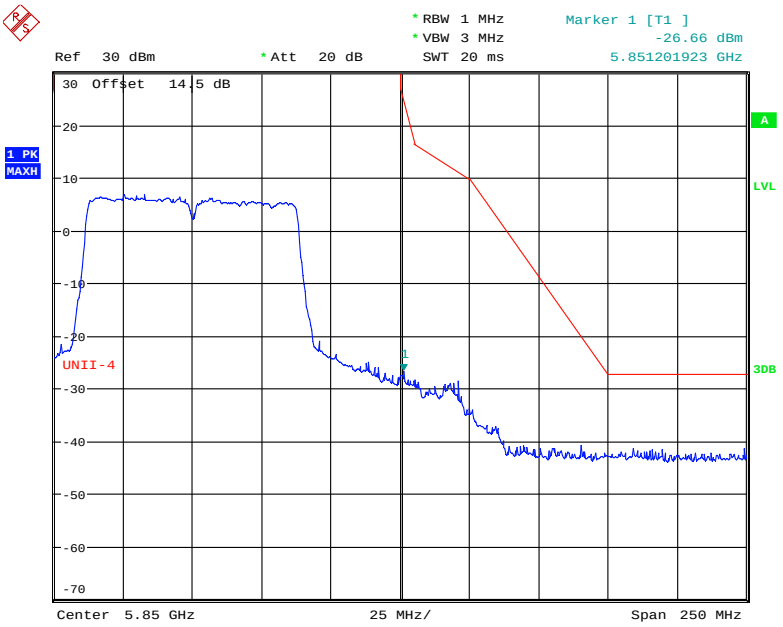

Date: 30.NOV.2018 18:26:24

## 802.11ac80 mode, Band Edge, Left Side




Date: 30.NOV.2018 18:28:10

## 802.11ac80 mode, Band Edge, Right Side




Date: 30.NOV.2018 18:27:36

# FCC §15.407(a) (1) – 26 dB & 6dB EMISSION BANDWIDTH

## Applicable Standard

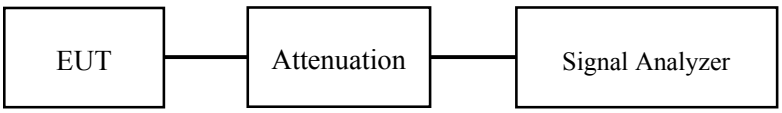
The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

## Test Procedure

**1. Emission Bandwidth (EBW)**
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

2. **Minimum Emission Bandwidth for the band 5.725-5.85 GHz**
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) 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.




## Test Data

### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 23.5~25 ℃ |
| **Relative Humidity:** | 49~56 % |
| **ATM Pressure:** | 109.0~101.0 kPa |

*The testing was performed by Kiki Kong from 2018-11-15 to 2018-12-14.*

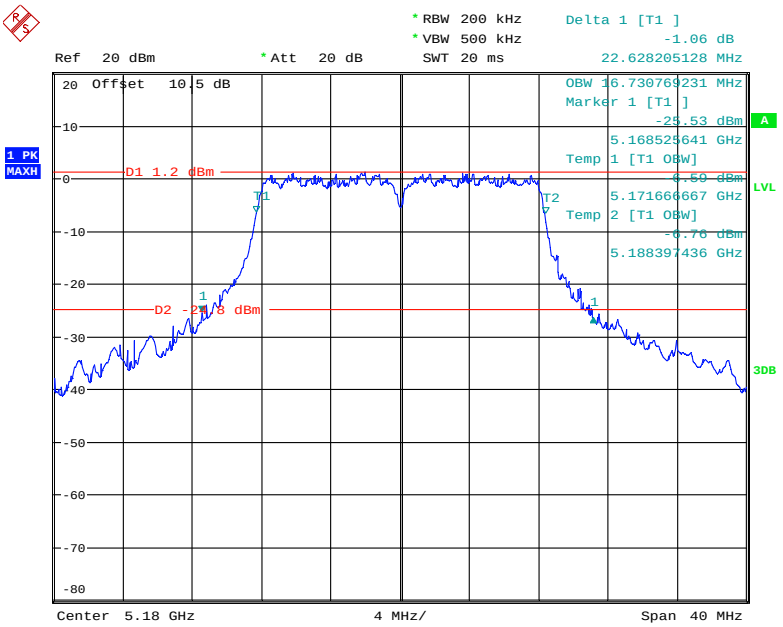
*EUT operation mode: Transmitting*

**Test Result:** Pass; please refer to the following tables and plots.

**5120 MHz - 5250 MHz, Chain 0:**

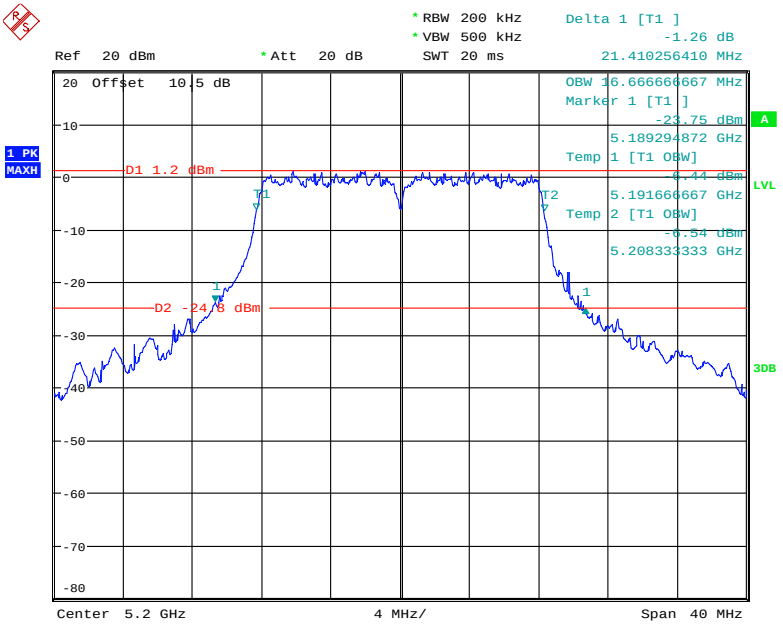
| Frequency (MHz) | 26dB bandwidth (MHz) | 99% Bandwidth (MHz) | Remark |
|---|---|---|---|
| **802.11a** | | | No transmitted signal in the 99% bandwidth extends into the U-NII-2A band |
| 5180 | 22.628 | 16.731 | |
| 5200 | 21.410 | 16.667 | |
| 5240 | 21.923 | 16.667 | |
| **802.11n20** | | | |
| 5180 | 22.500 | 17.885 | |
| 5200 | 22.372 | 17.885 | |
| 5240 | 22.628 | 17.885 | |
| **802.11n40** | | | |
| 5190 | 42.821 | 36.795 | |
| 5230 | 42.821 | 36.795 | |
| **802.11ac20** | | | |
| 5180 | 23.782 | 17.885 | |
| 5200 | 22.821 | 17.885 | |
| 5240 | 23.141 | 17.885 | |
| **802.11ac40** | | | |
| 5190 | 42.821 | 36.795 | |
| 5230 | 42.821 | 36.795 | |
| **802.11ac80** | | | |
| 5210 | 86.410 | 76.667 | |

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz



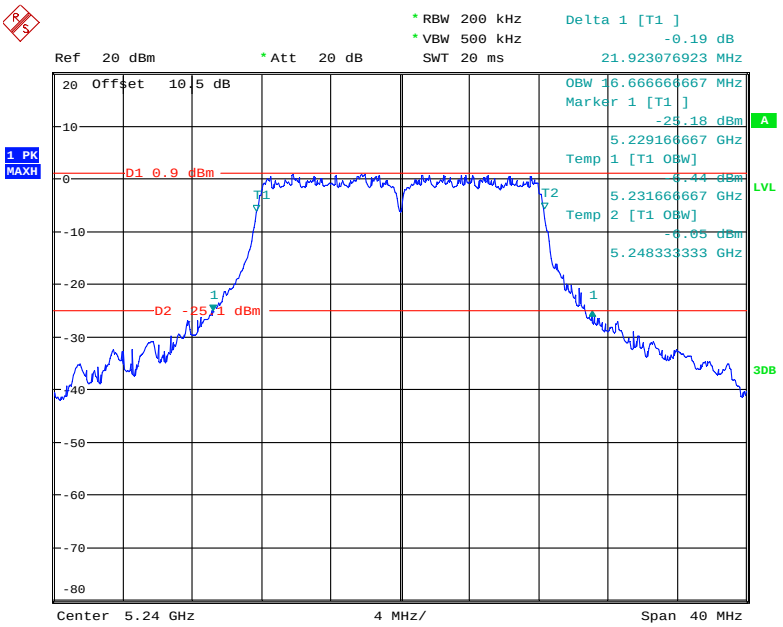

Date: 18.NOV.2018 13:59:54

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5200 MHz



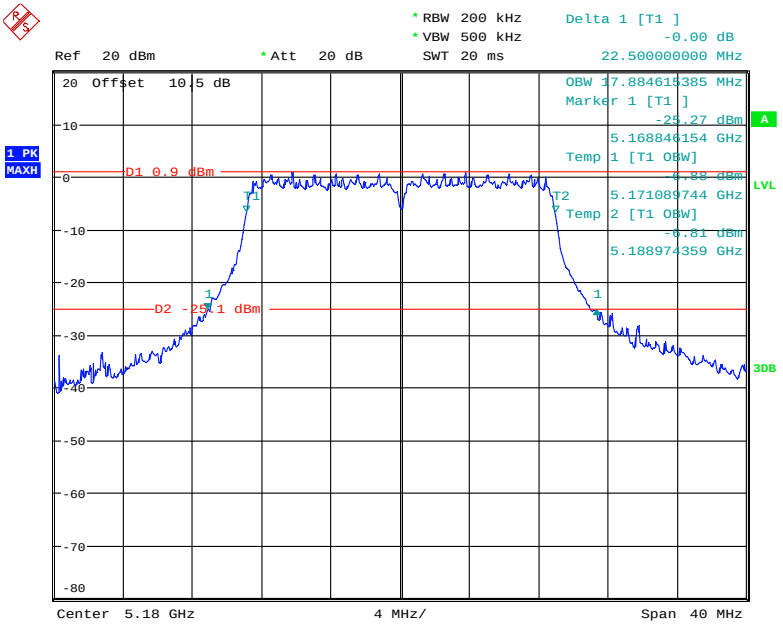

Date: 18.NOV.2018 14:00:46

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz



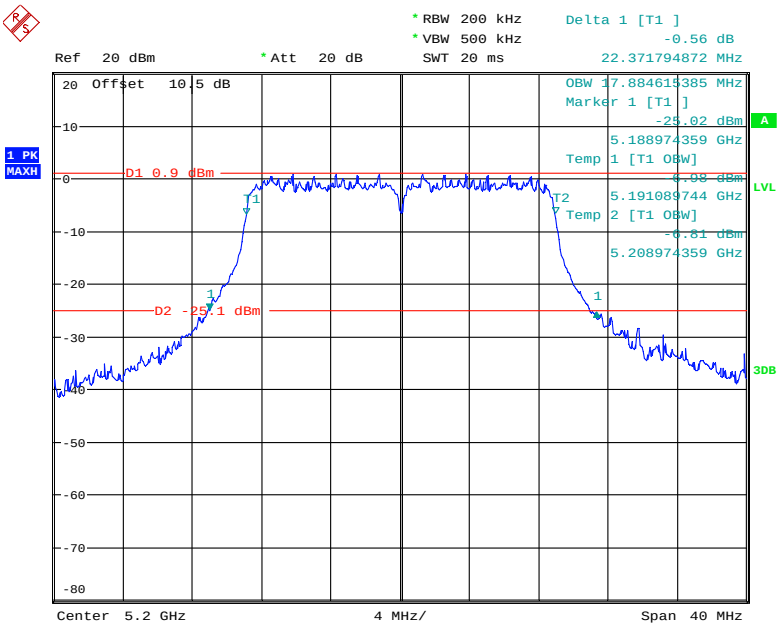

Date: 18.NOV.2018 14:02:12

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz



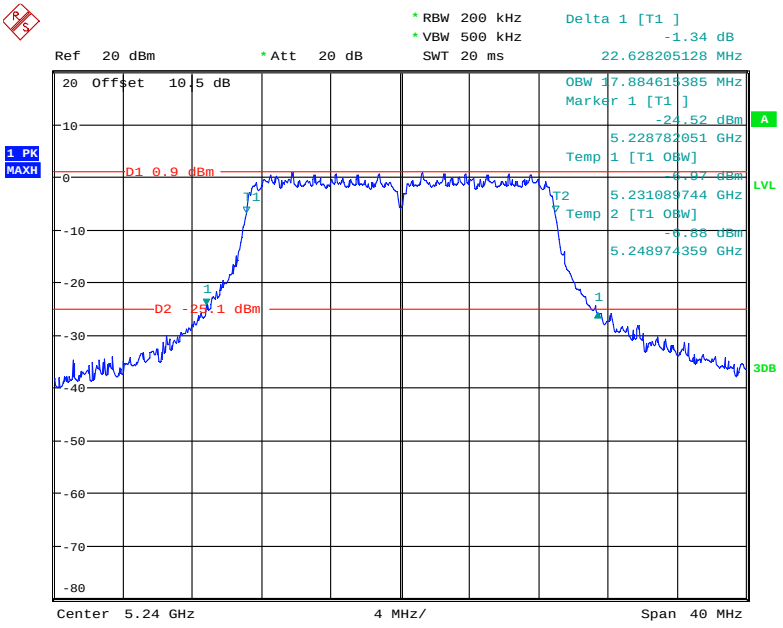

Date: 18.NOV.2018 13:53:10

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5200 MHz



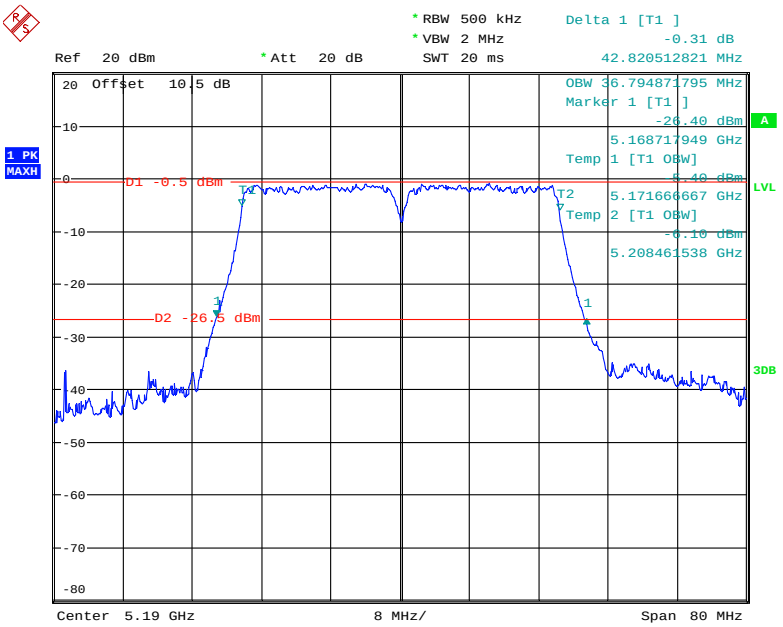

Date: 18.NOV.2018 13:53:51

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz



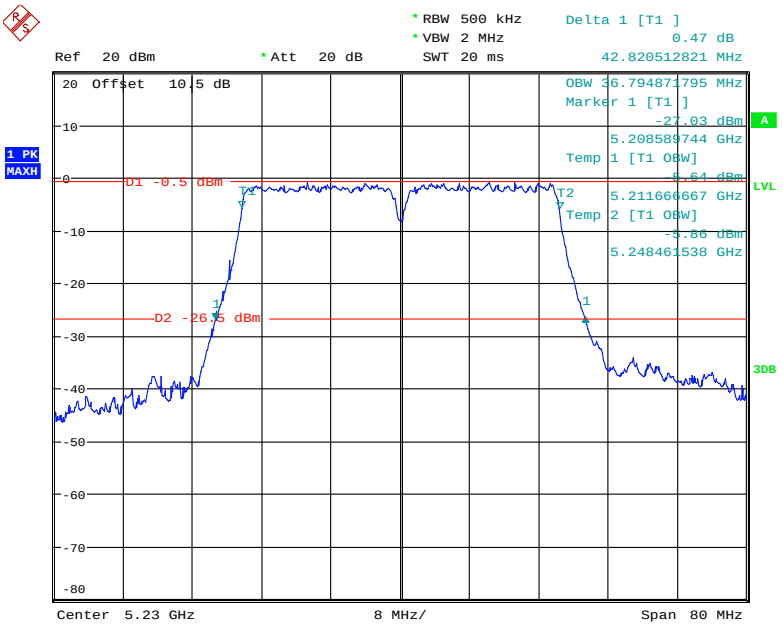

Date: 18.NOV.2018 13:55:43

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5190 MHz



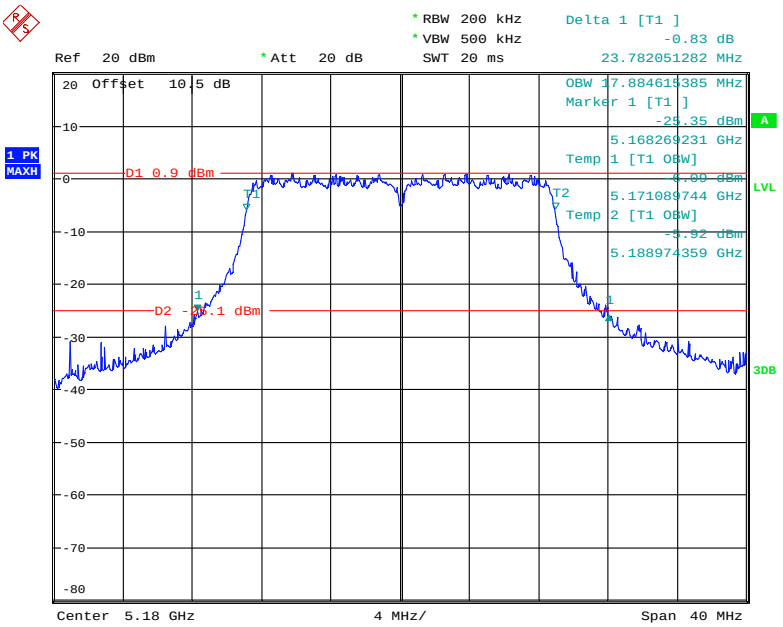

Date: 18.NOV.2018 14:03:53

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5230 MHz



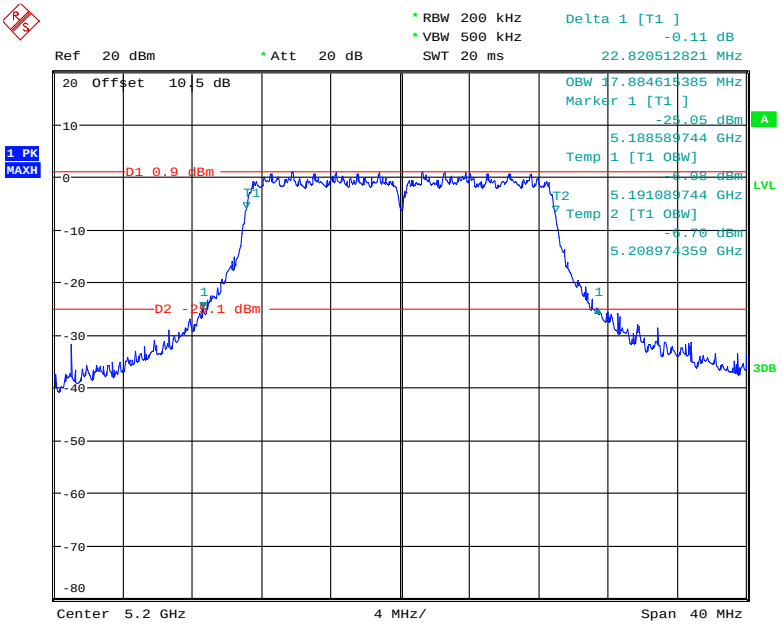

Date: 18.NOV.2018 14:04:46

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz



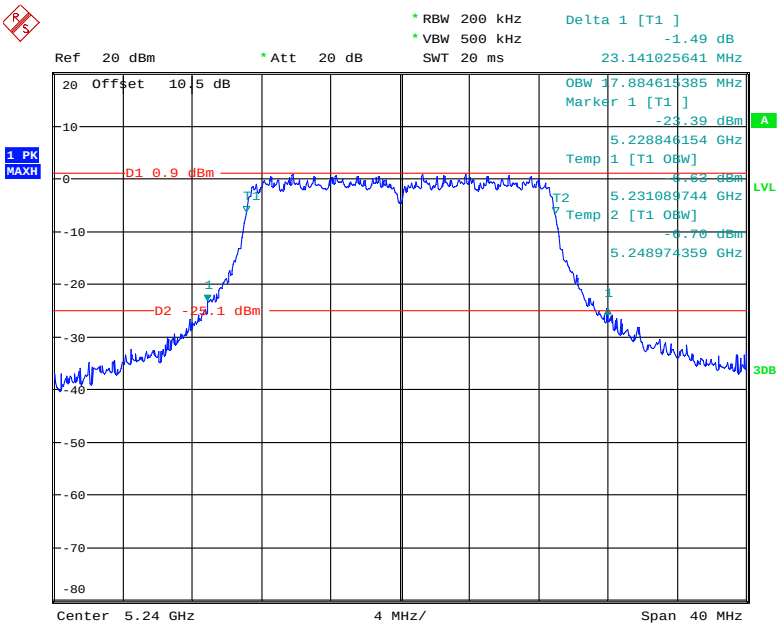

Date: 18.NOV.2018 13:50:47

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5200 MHz



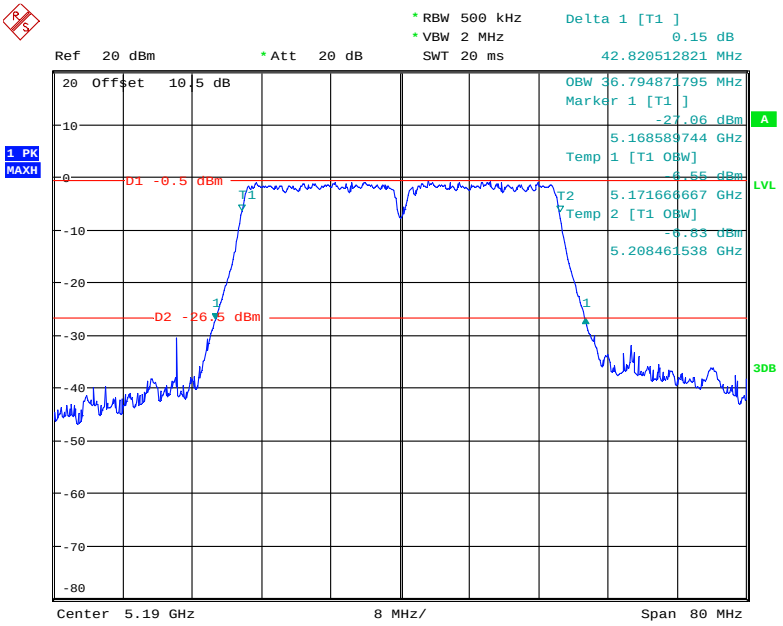

Date: 18.NOV.2018 13:47:00

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz



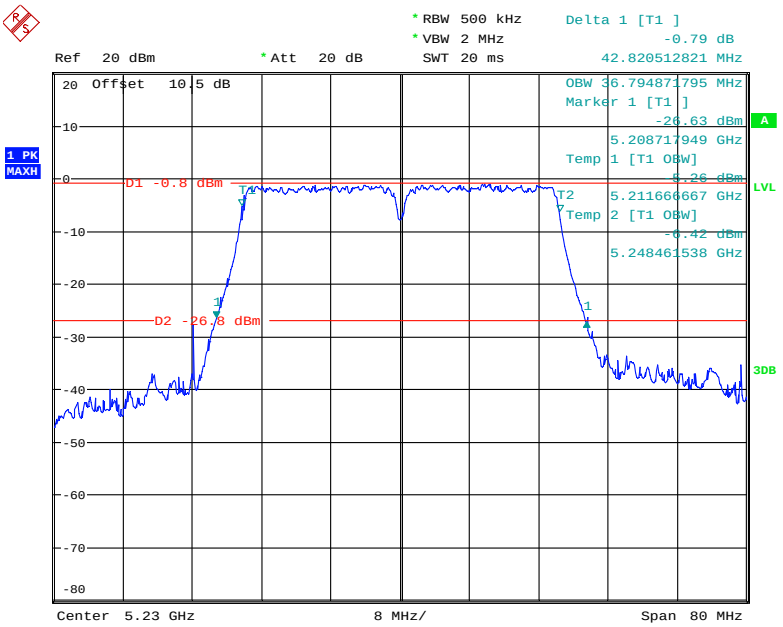

Date: 18.NOV.2018 13:45:12

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5190 MHz



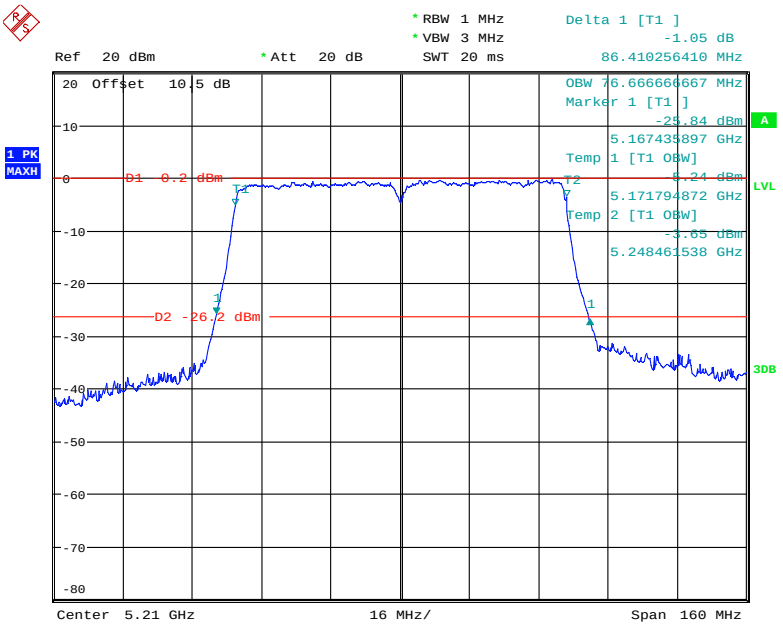

Date: 18.NOV.2018 14:05:44

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5230 MHz




Date: 18.NOV.2018 14:09:23

## 802.11ac80 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5210 MHz

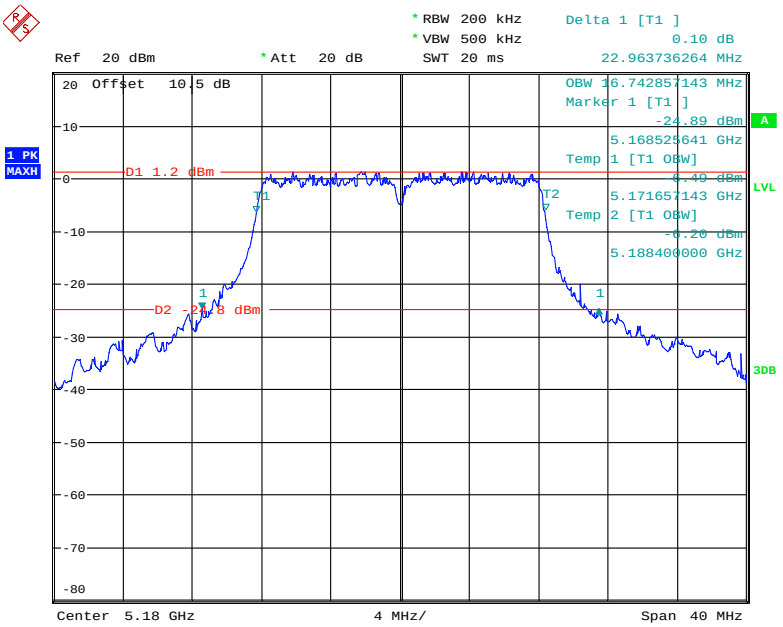



Date: 18.NOV.2018 14:11:22

**5120 MHz - 5250 MHz, Chain 1:**

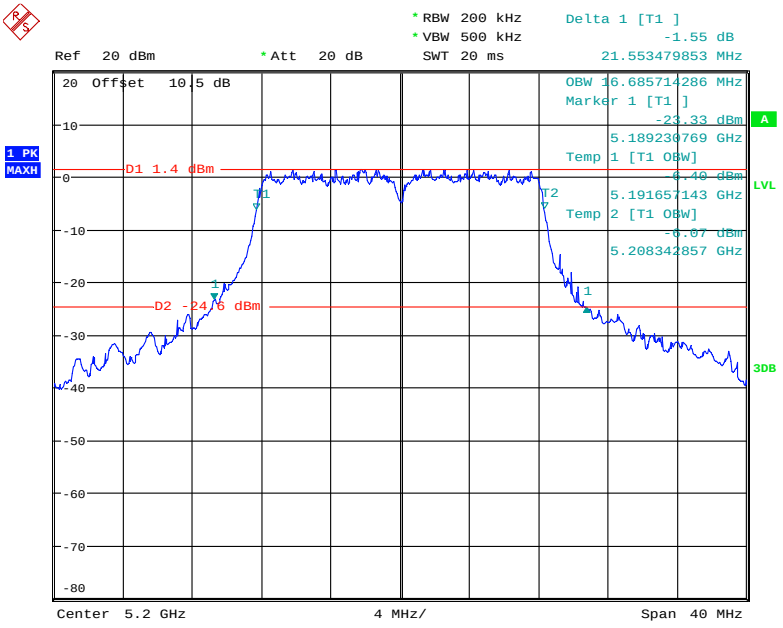
| Frequency (MHz) | 26dB bandwidth (MHz) | 99% Bandwidth (MHz) | Remark |
|---|---|---|---|
| **802.11a** | | | No transmitted signal in the 99% bandwidth extends into the U-NII-2A band |
| 5180 | 22.964 | 16.743 | |
| 5200 | 21.553 | 16.686 | |
| 5240 | 21.945 | 16.686 | |
| **802.11n20** | | | |
| 5180 | 23.590 | 17.886 | |
| 5200 | 23.654 | 17.886 | |
| 5240 | 22.500 | 17.829 | |
| **802.11n40** | | | |
| 5190 | 44.108 | 36.914 | |
| 5230 | 44.437 | 36.914 | |
| **802.11ac20** | | | |
| 5180 | 23.081 | 17.886 | |
| 5200 | 23.814 | 17.886 | |
| 5240 | 23.415 | 17.886 | |
| **802.11ac40** | | | |
| 5190 | 47.692 | 36.914 | |
| 5230 | 42.983 | 36.800 | |
| | **802.11ac80** | | |
| 5210 | 90.541 | 76.571 | |

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz



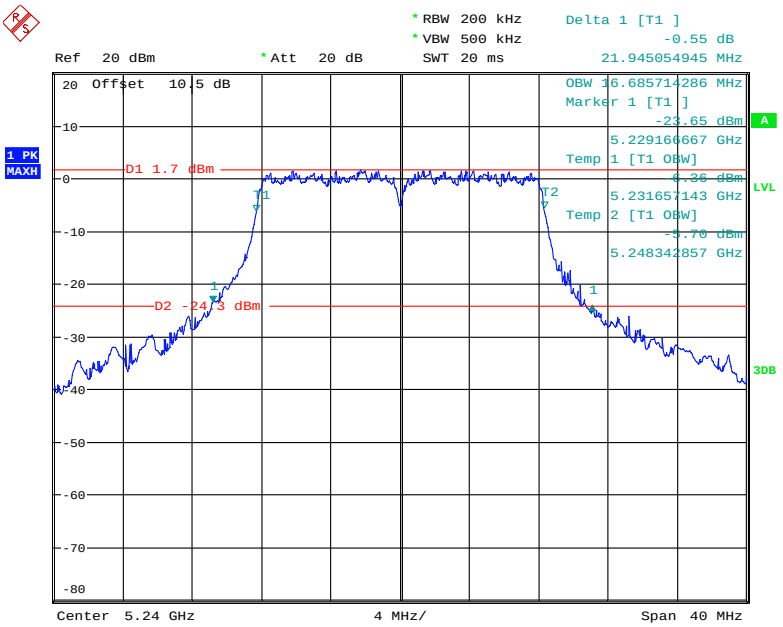

Date: 15.NOV.2018 21:36:20

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5200 MHz



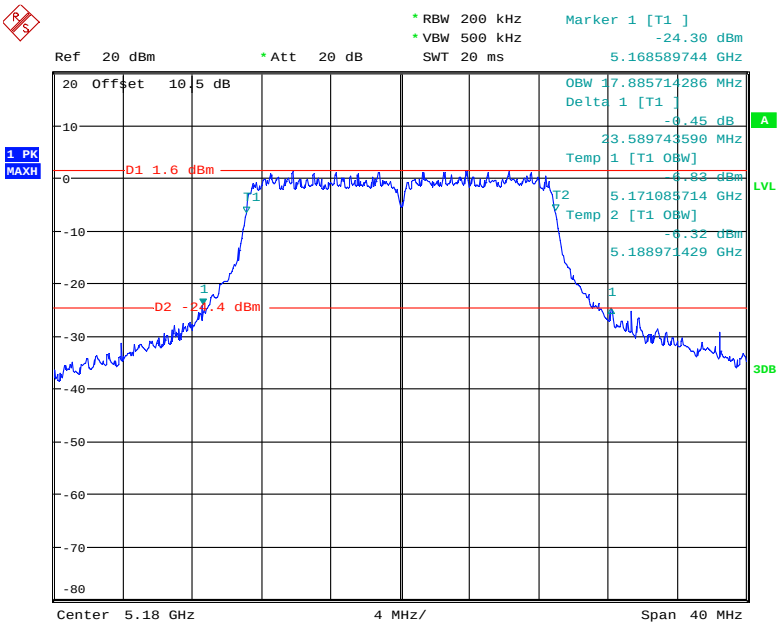

Date: 15.NOV.2018 21:37:30

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz



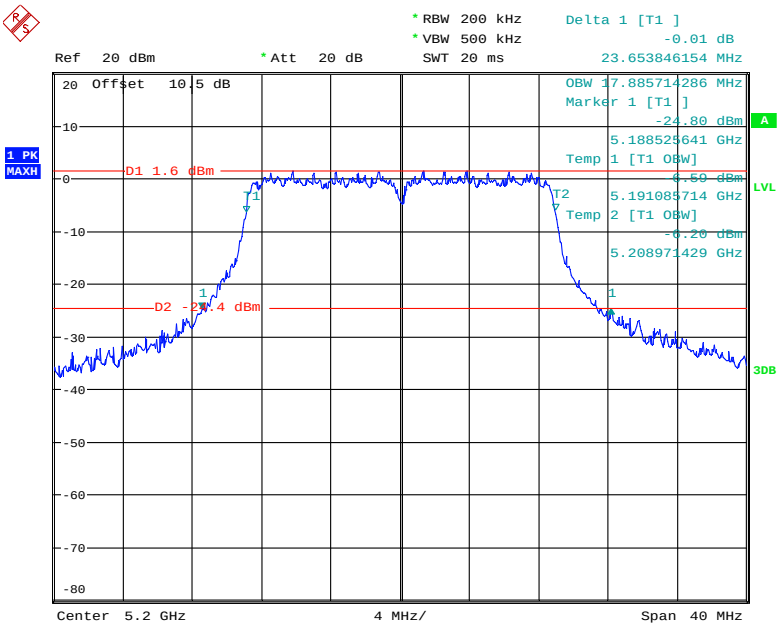

Date: 15.NOV.2018 21:40:28

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz



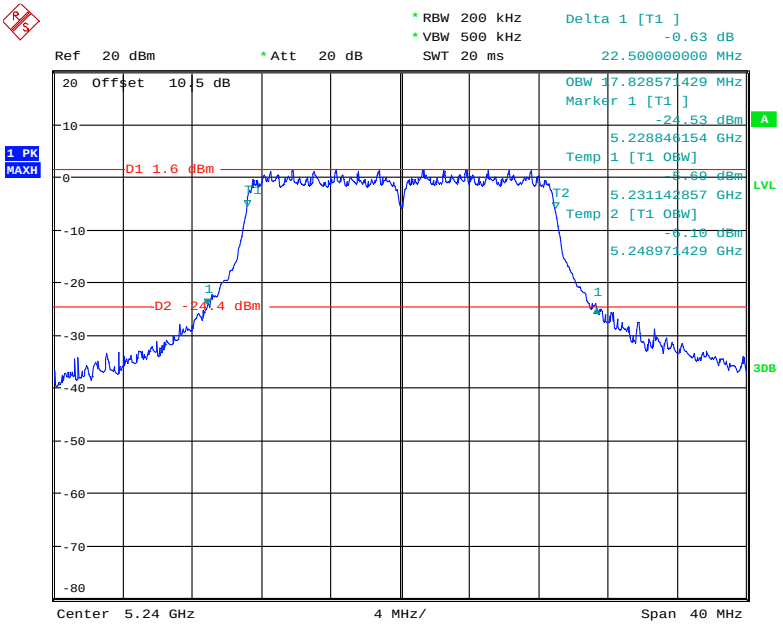

Date: 15.NOV.2018 21:42:17

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5200 MHz



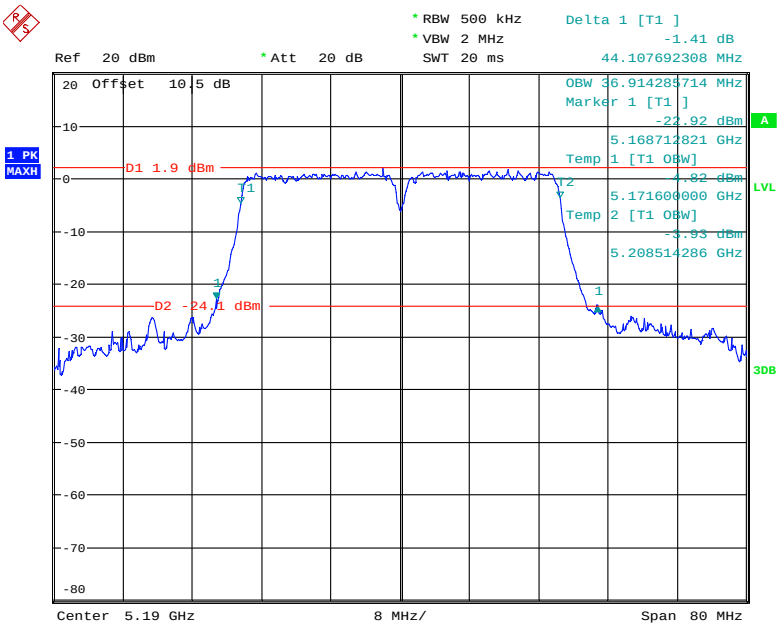

Date: 15.NOV.2018 21:46:59

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz



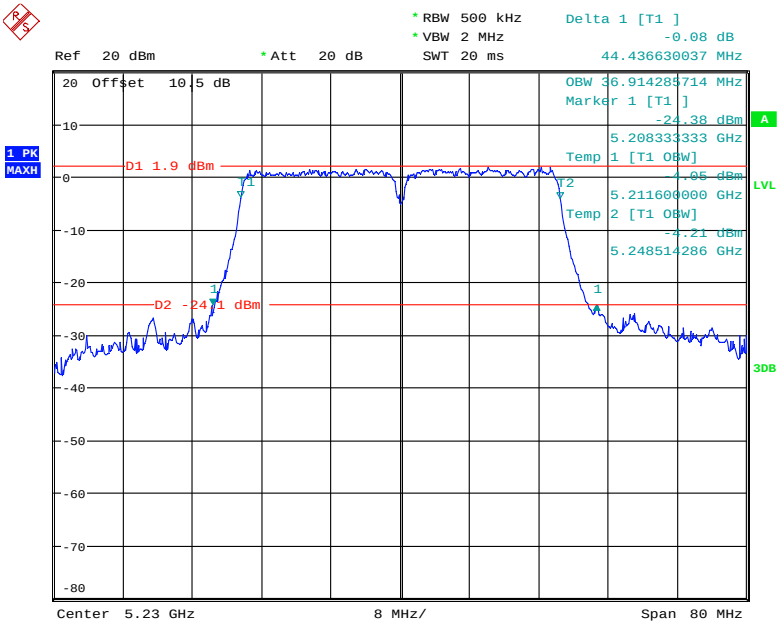

Date: 15.NOV.2018 21:48:08

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5190 MHz



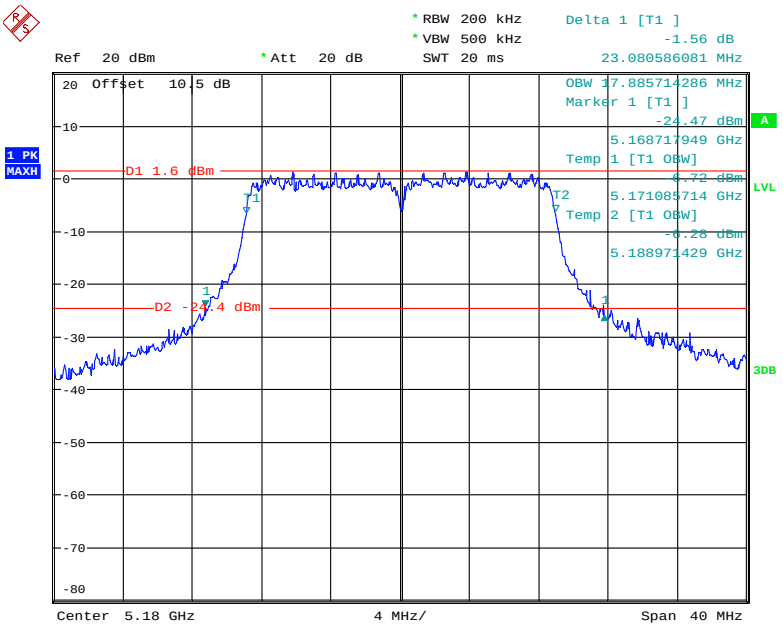

Date: 15.NOV.2018 21:32:03

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5230 MHz



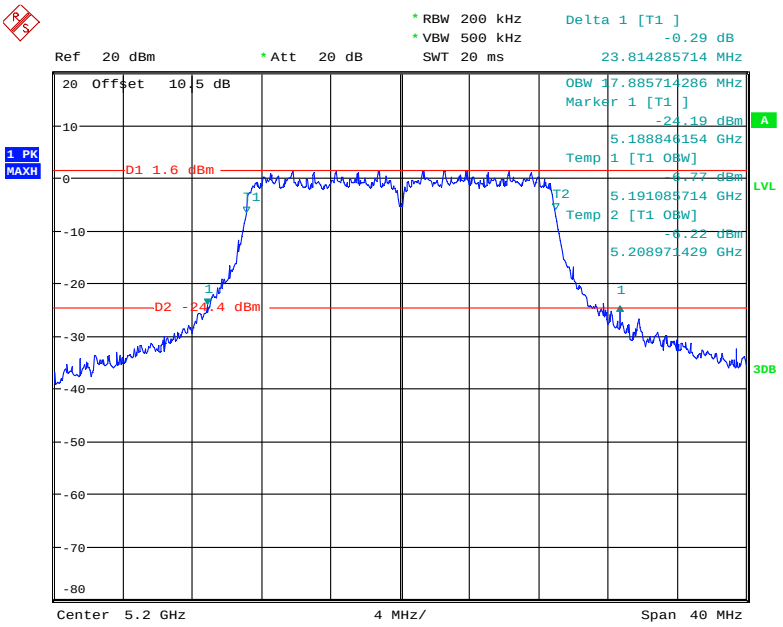

Date: 15.NOV.2018 21:34:23

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5180 MHz



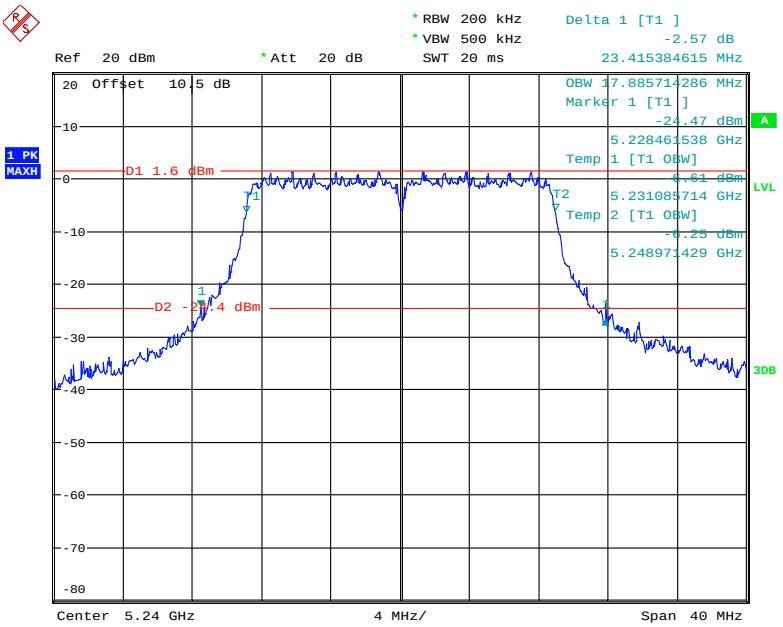

Date: 15.NOV.2018 21:52:40

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5200 MHz



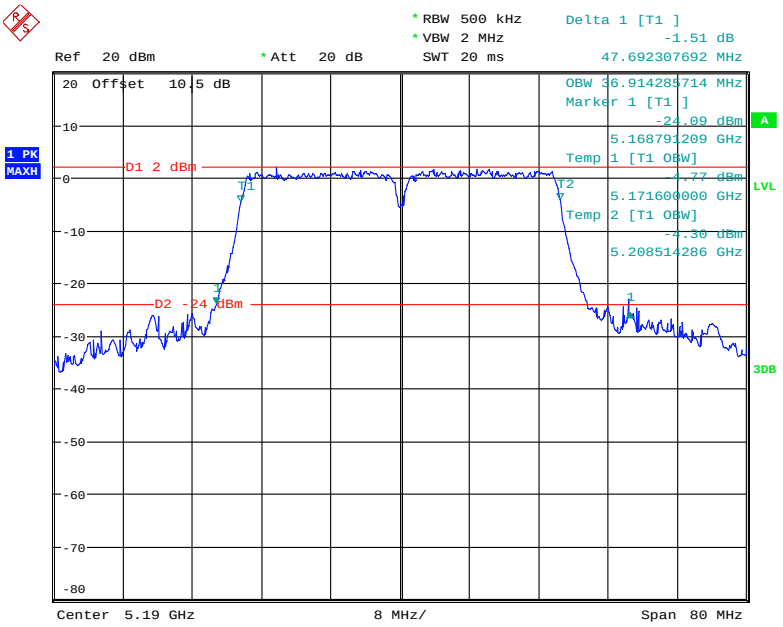

Date: 15.NOV.2018 21:53:59

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5240 MHz



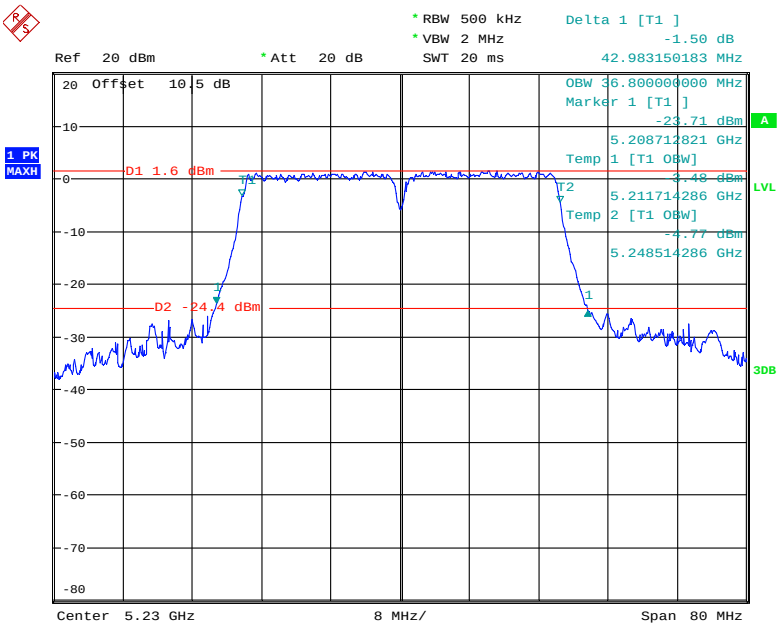

Date: 15.NOV.2018 21:55:20

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5190 MHz



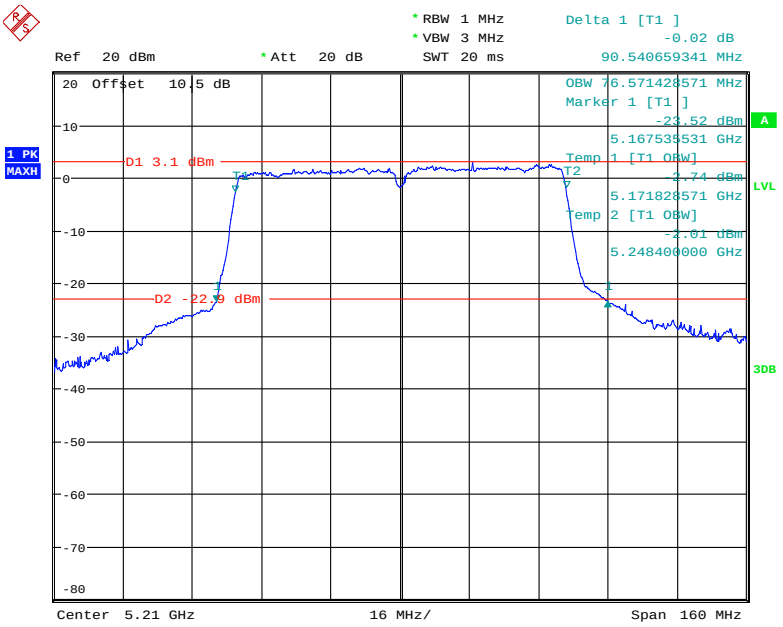

Date: 15.NOV.2018 21:27:36

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5230 MHz




Date: 15.NOV.2018 21:30:40

## 802.11ac80 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5210 MHz

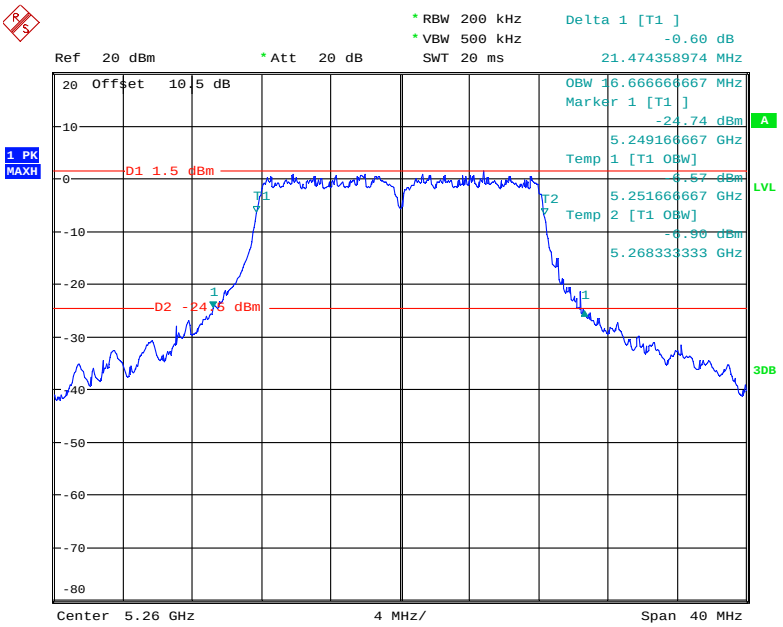



Date: 15.NOV.2018 21:23:42

**5250 MHz - 5350 MHz, Chain 0:**

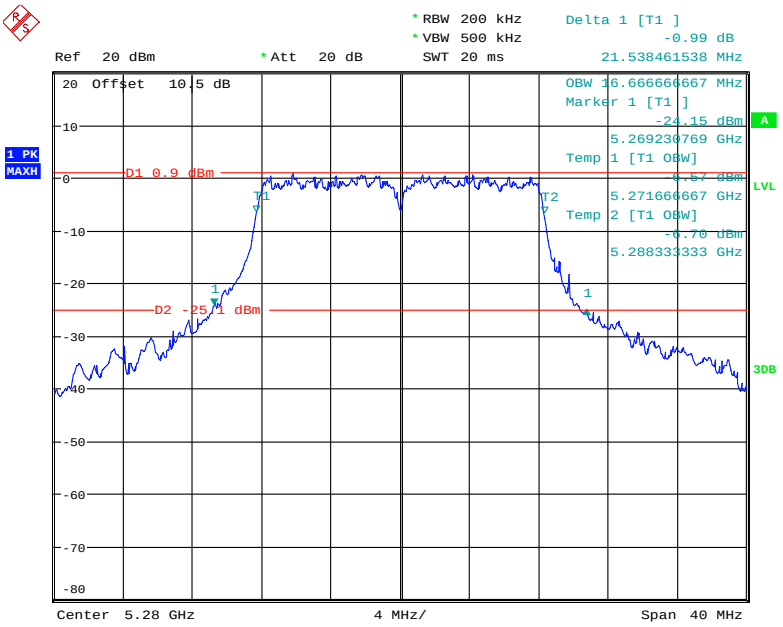
| Frequency (MHz) | 26dB bandwidth (MHz) | 99% Bandwidth (MHz) |
|---|---|---|
| **802.11a** | | |
| 5260 | 21.474 | 16.667 |
| 5280 | 21.538 | 16.667 |
| 5320 | 21.795 | 16.731 |
| **802.11n20** | | |
| 5260 | 22.628 | 17.885 |
| 5280 | 22.500 | 17.885 |
| 5320 | 23.782 | 17.885 |
| **802.11n40** | | |
| 5270 | 42.692 | 36.795 |
| 5310 | 42.692 | 36.795 |
| **802.11ac20** | | |
| 5260 | 22.628 | 17.885 |
| 5280 | 22.244 | 17.885 |
| 5320 | 22.885 | 17.885 |
| **802.11ac40** | | |
| 5270 | 42.821 | 36.795 |
| 5310 | 42.949 | 36.795 |
| **802.11ac80** | | |
| 5290 | 86.210 | 76.571 |

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5260 MHz



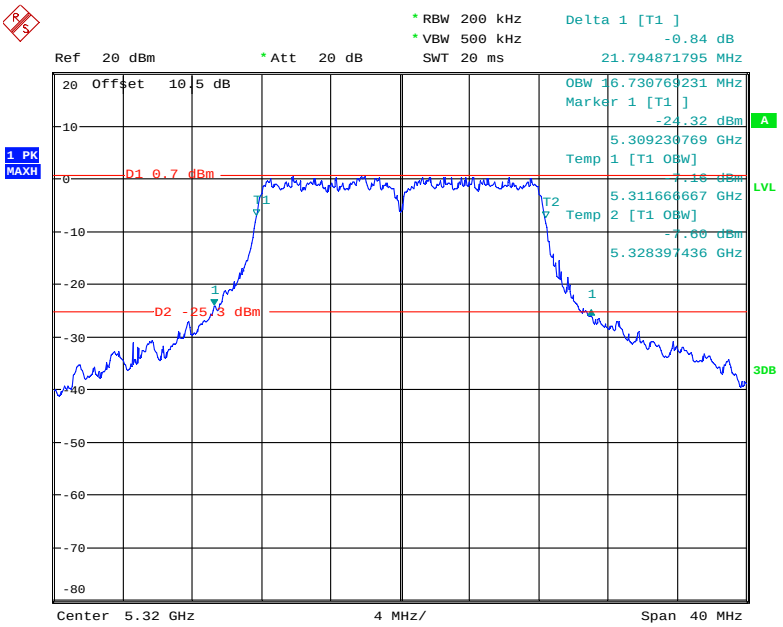

Date: 18.NOV.2018 14:58:21

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5280 MHz



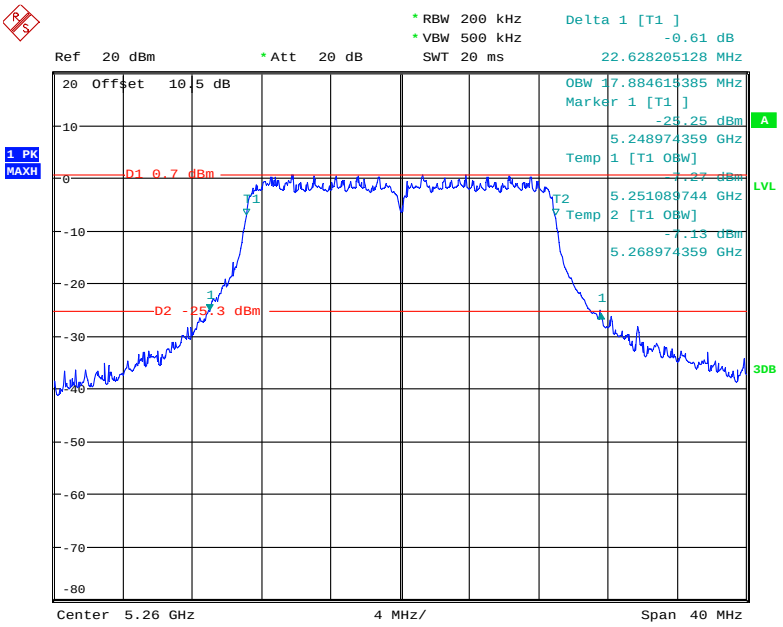

Date: 18.NOV.2018 14:59:28

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5320 MHz



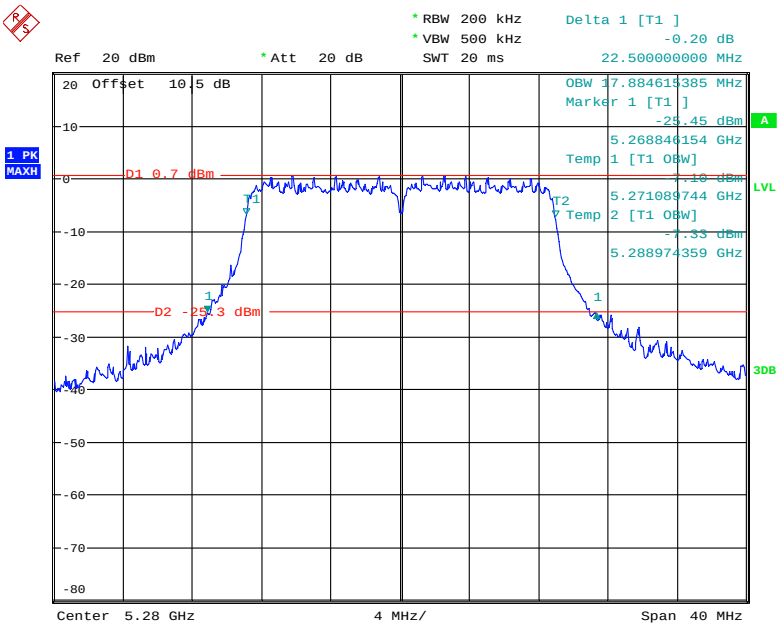

Date: 18.NOV.2018 15:01:11

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5260 MHz



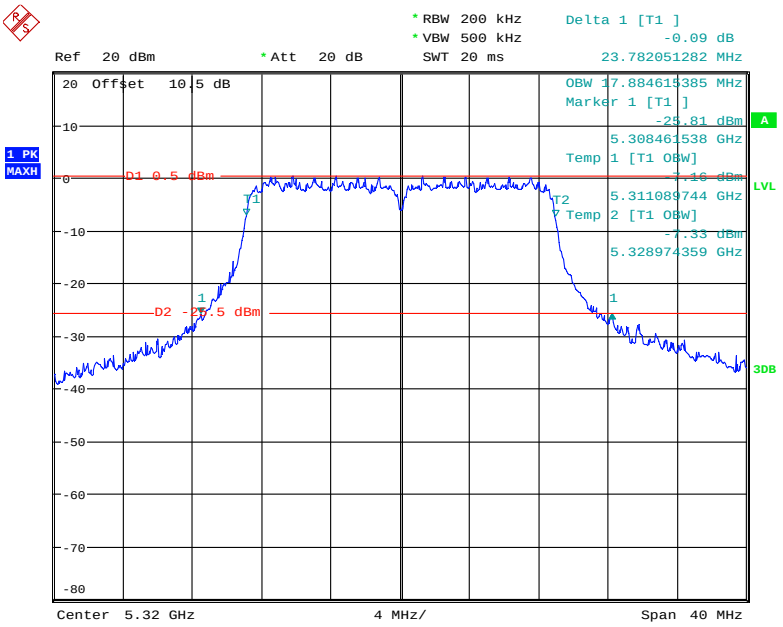

Date: 18.NOV.2018 15:02:08

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5280 MHz



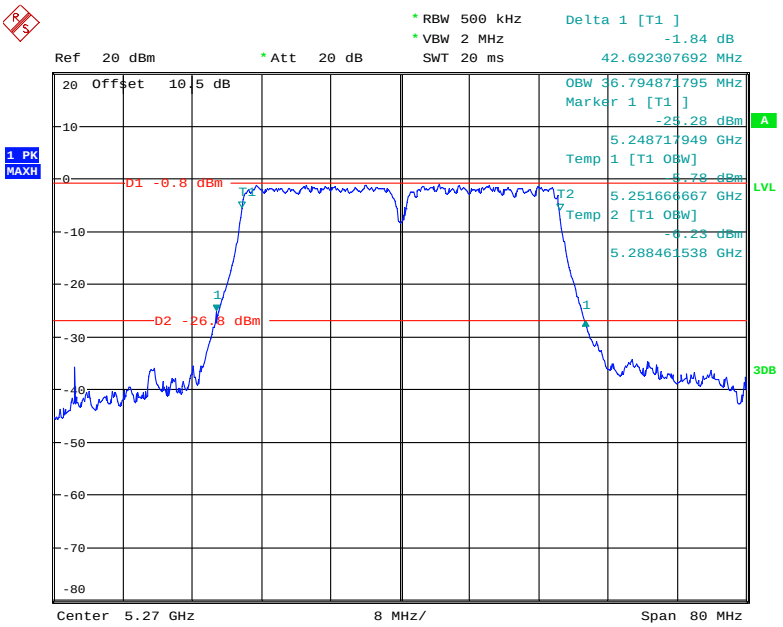

Date: 18.NOV.2018 15:02:46

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5320 MHz



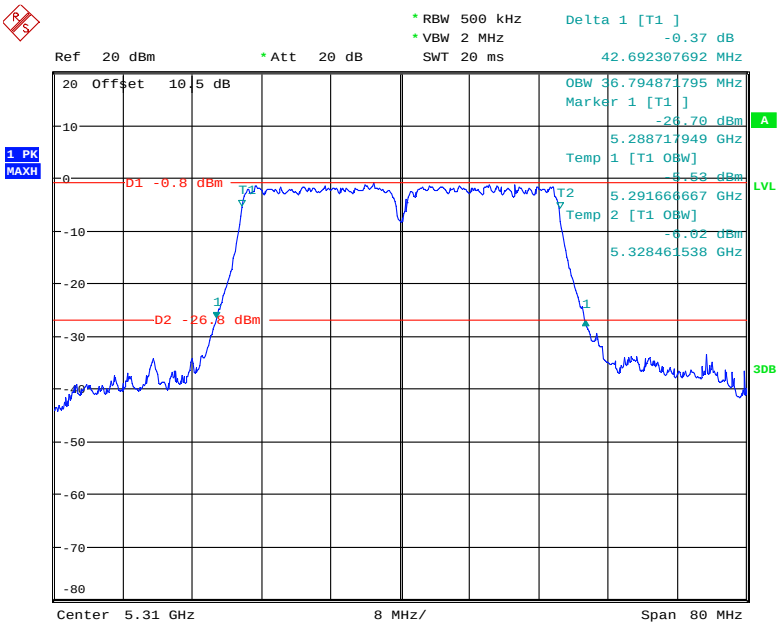

Date: 18.NOV.2018 15:04:33

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5270 MHz



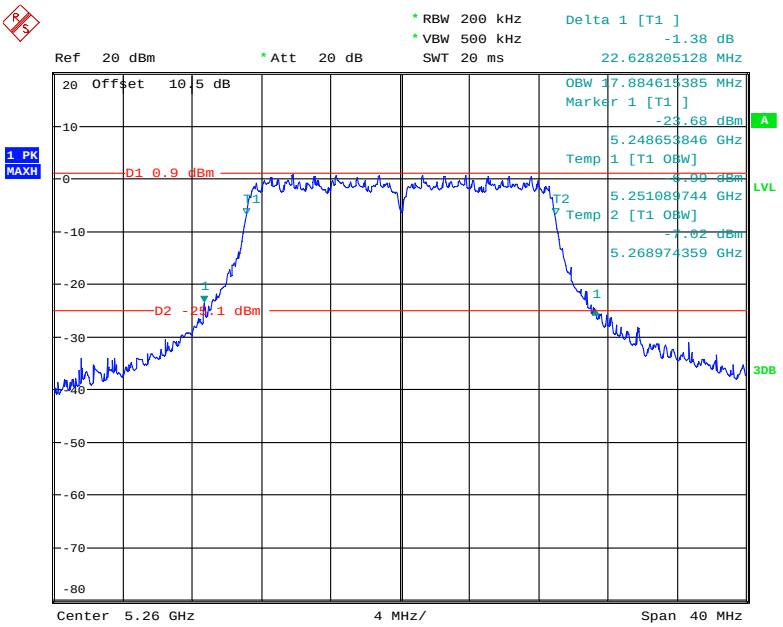

Date: 18.NOV.2018 14:56:07

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5310 MHz



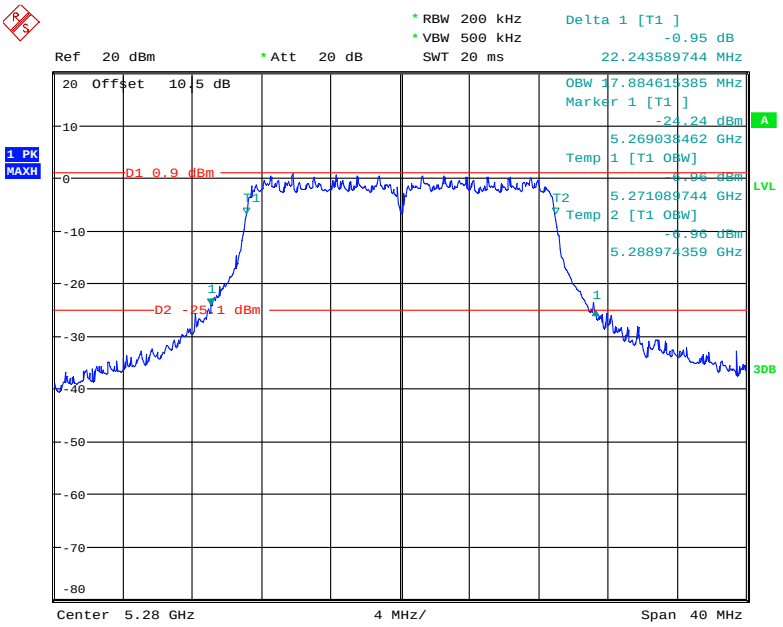

Date: 18.NOV.2018 14:56:51

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5260 MHz



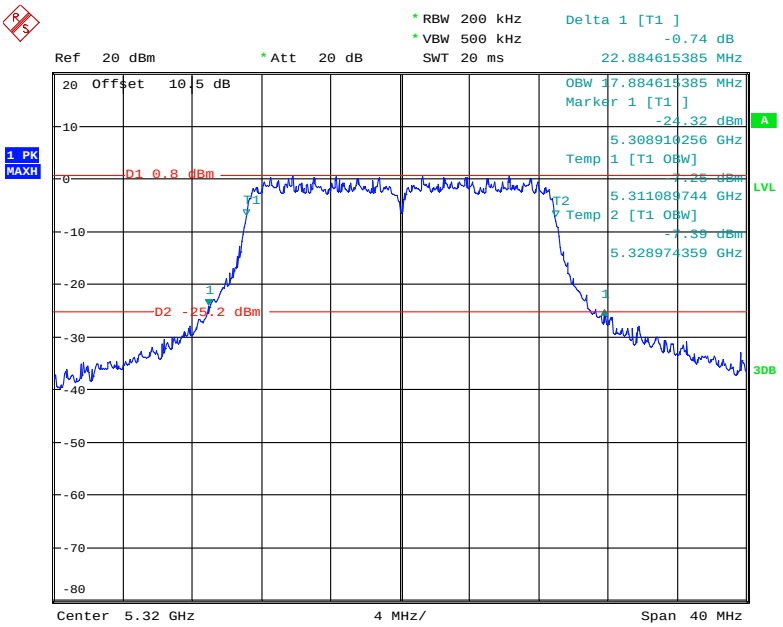

Date: 18.NOV.2018 15:05:44

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5280 MHz



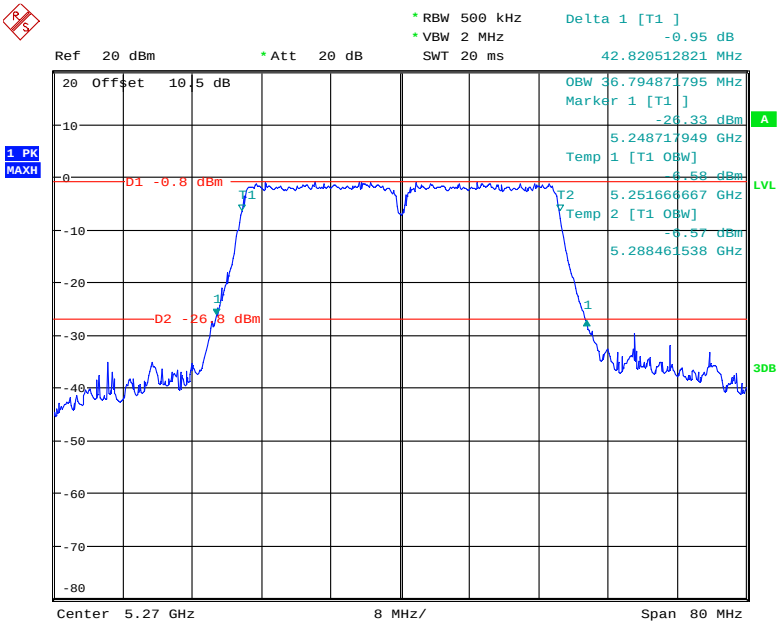

Date: 18.NOV.2018 15:06:24

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5320 MHz



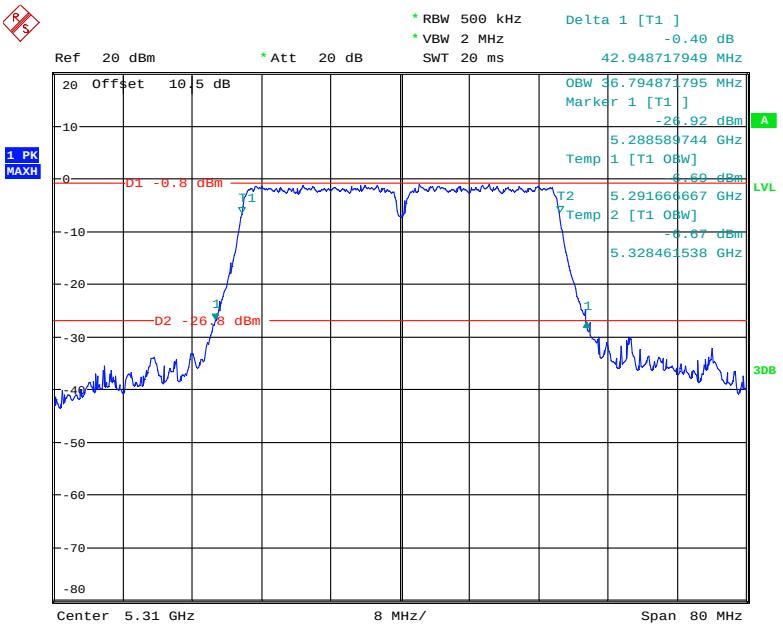

Date: 18.NOV.2018 15:07:53

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5270 MHz



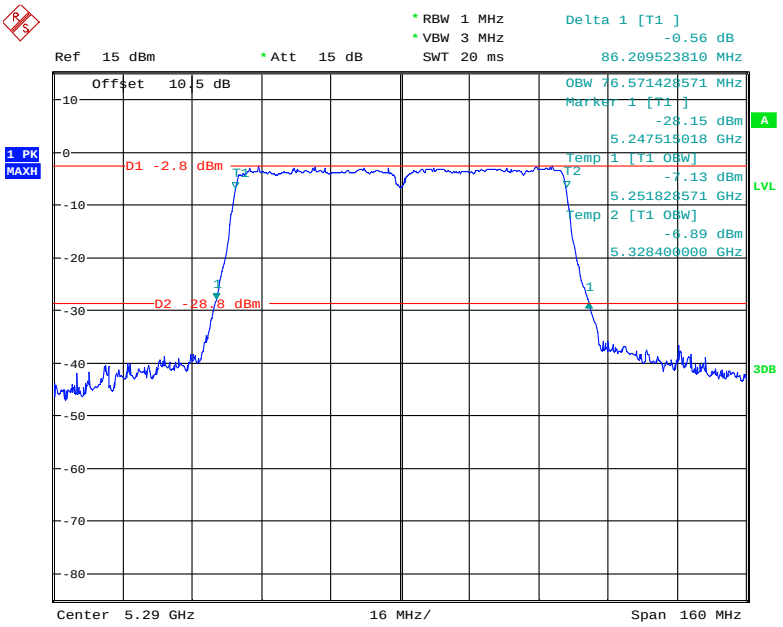

Date: 18.NOV.2018 14:53:10

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5310 MHz




Date: 18.NOV.2018 14:54:49

## 802.11ac80 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5290 MHz

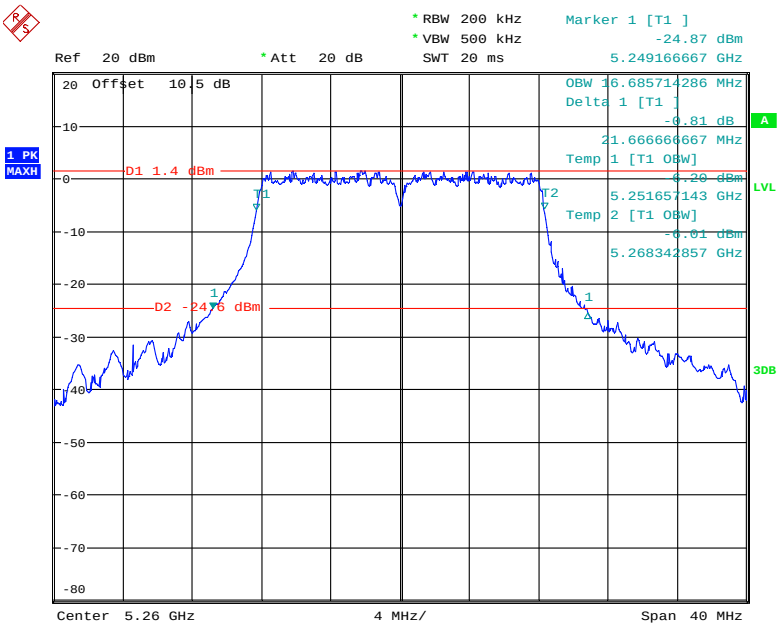



Date: 14.DEC.2018 16:28:31

**5250 MHz - 5350 MHz, Chain 1:**

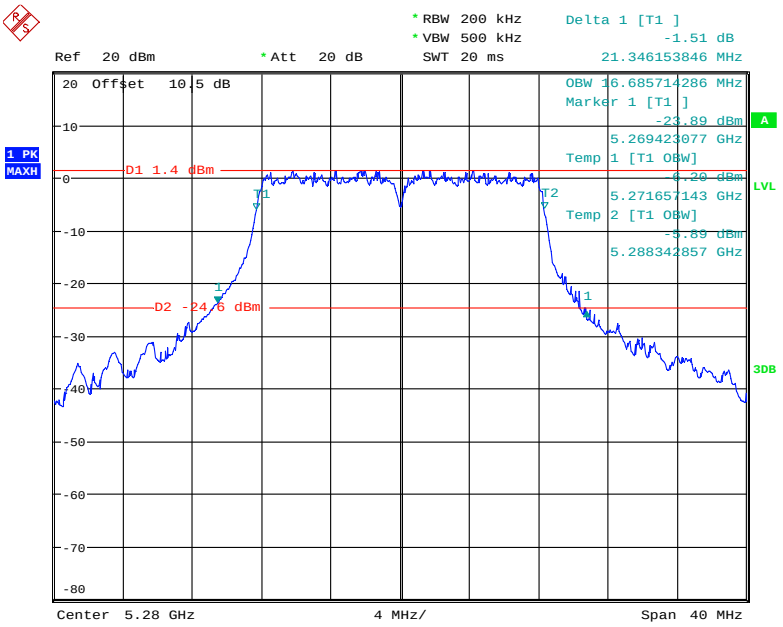
| Frequency (MHz) | 26dB bandwidth (MHz) | 99% Bandwidth (MHz) |
|---|---|---|
| **802.11a** | | |
| 5260 | 21.667 | 16.686 |
| 5280 | 21.346 | 16.686 |
| 5320 | 21.154 | 16.686 |
| **802.11n20** | | |
| 5260 | 22.308 | 17.886 |
| 5280 | 22.692 | 17.886 |
| 5320 | 22.454 | 17.886 |
| **802.11n40** | | |
| 5270 | 43.077 | 36.914 |
| 5310 | 42.949 | 36.800 |
| **802.11ac20** | | |
| 5260 | 22.628 | 17.886 |
| 5280 | 23.269 | 17.886 |
| 5320 | 22.500 | 17.886 |
| **802.11ac40** | | |
| 5270 | 42.949 | 36.800 |
| 5310 | 42.813 | 36.800 |
| **802.11ac80** | | |
| 5290 | 86.210 | 76.343 |

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5260 MHz



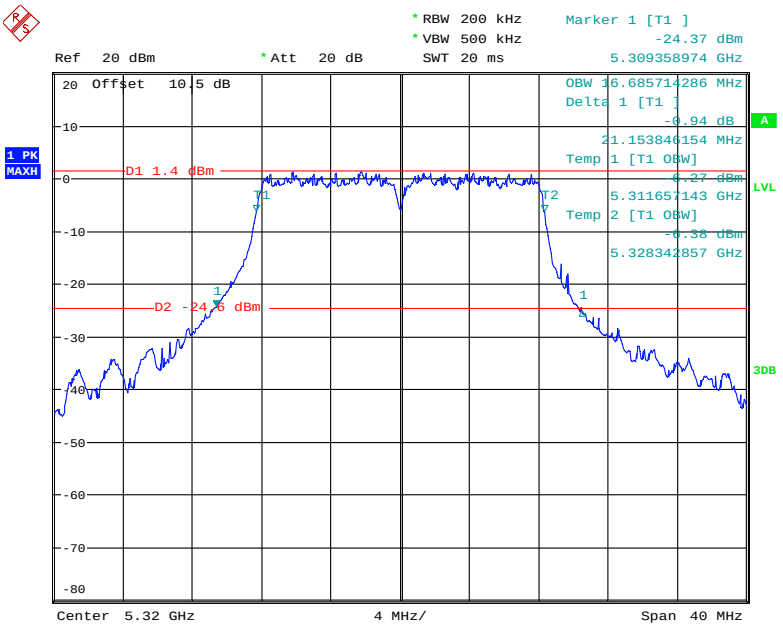

Date: 15.NOV.2018 23:39:08

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5280 MHz



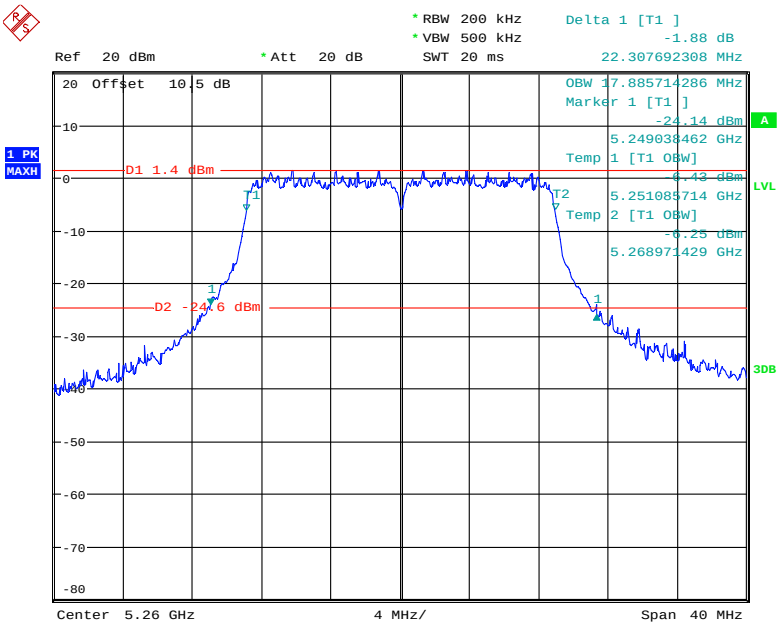

Date: 15.NOV.2018 23:40:21

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5320 MHz



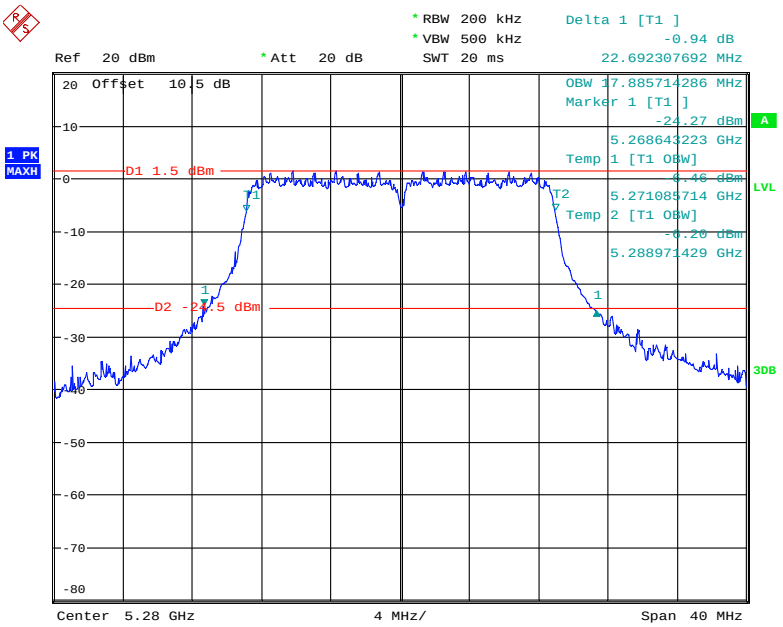

Date: 15.NOV.2018 23:41:12

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5260 MHz



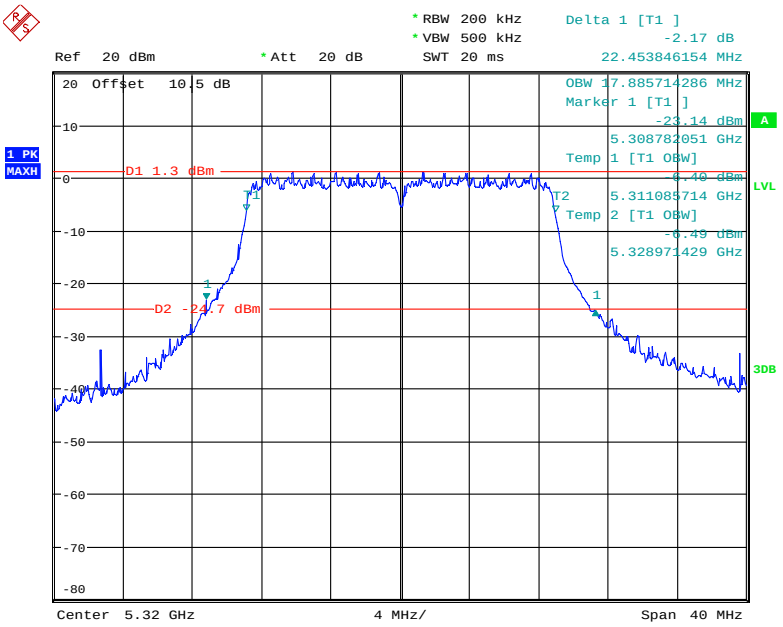

Date: 15.NOV.2018 23:30:19

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5280 MHz



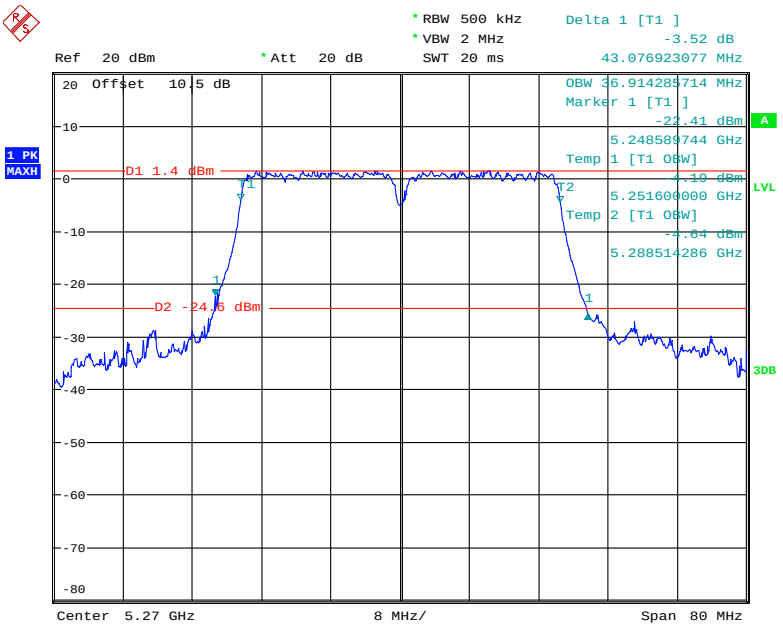

Date: 15.NOV.2018 23:32:40

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5320 MHz



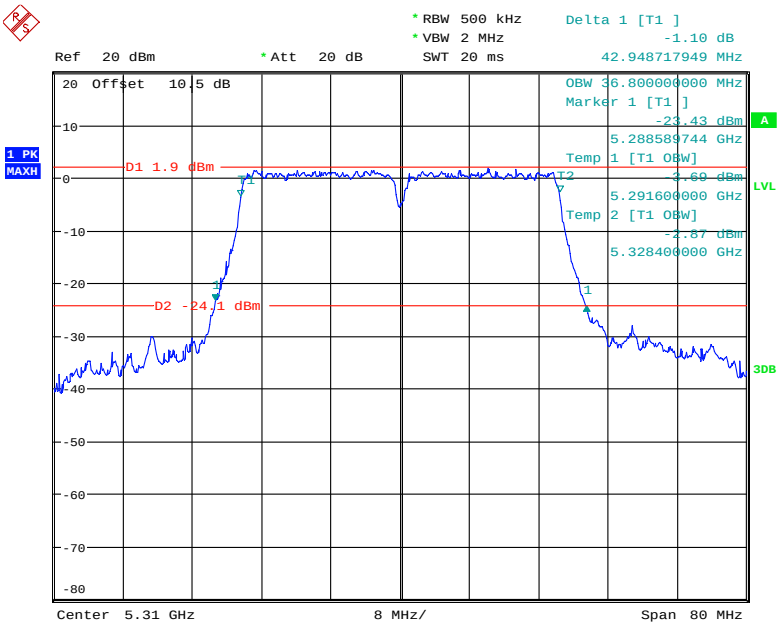

Date: 15.NOV.2018 23:34:19

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5270 MHz



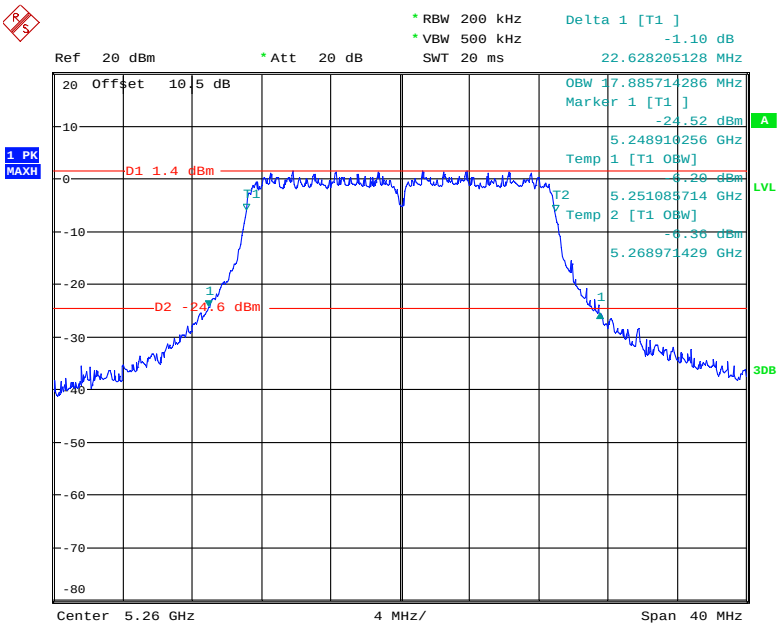

Date: 15.NOV.2018 23:44:52

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5310 MHz



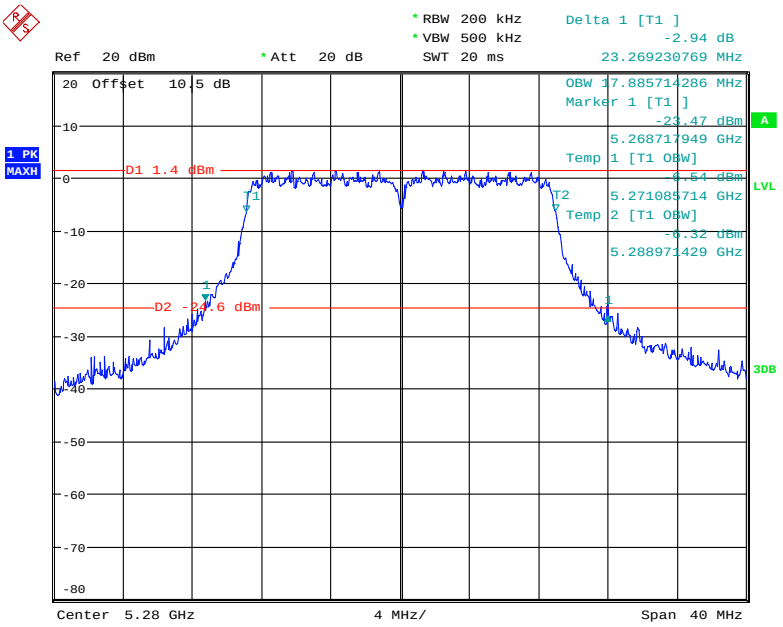

Date: 15.NOV.2018 23:46:28

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5260 MHz



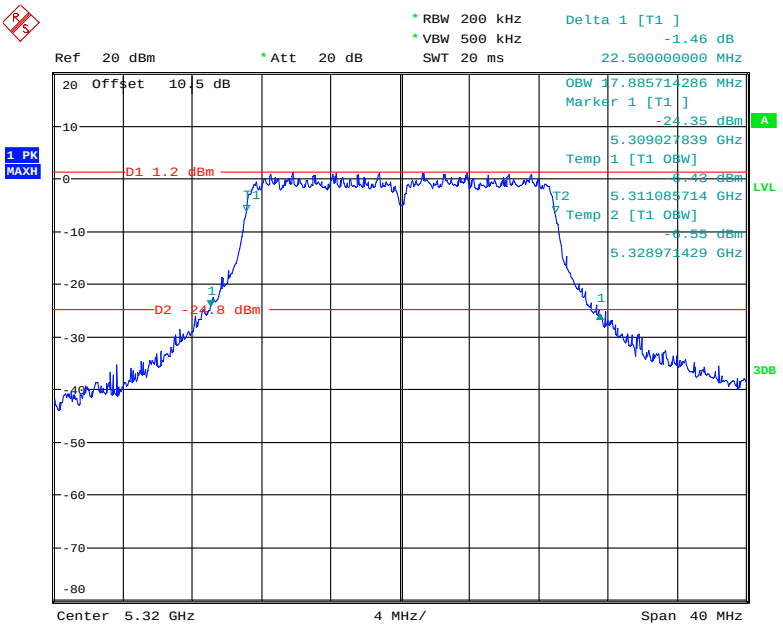

Date: 15.NOV.2018 23:29:19

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5280 MHz



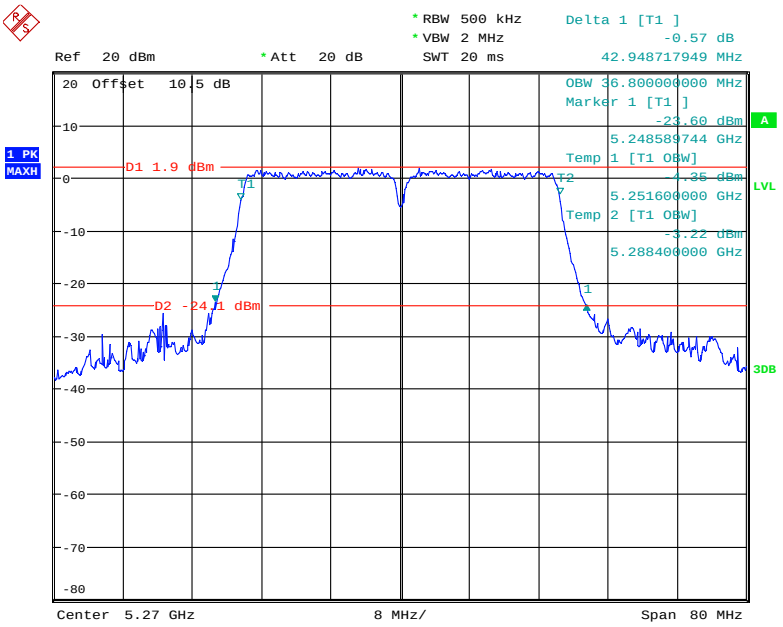

Date: 15.NOV.2018 23:28:24

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5320 MHz



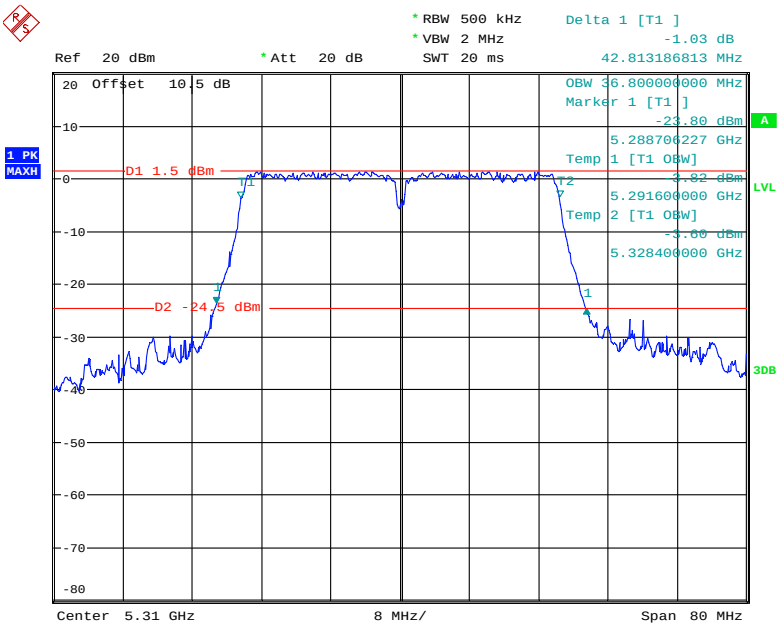

Date: 15.NOV.2018 23:25:47

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5270 MHz



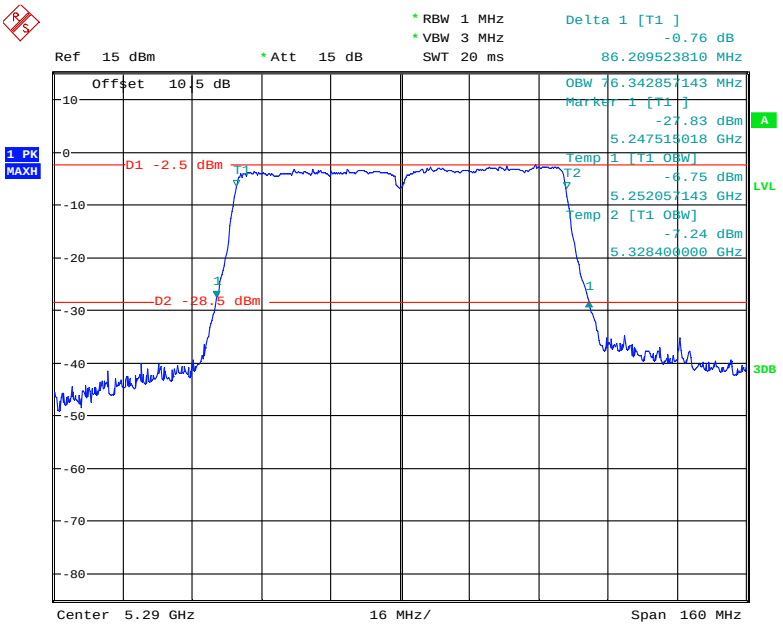

Date: 15.NOV.2018 23:47:45

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5310 MHz




Date: 15.NOV.2018 23:51:19

## 802.11ac80 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5290 MHz

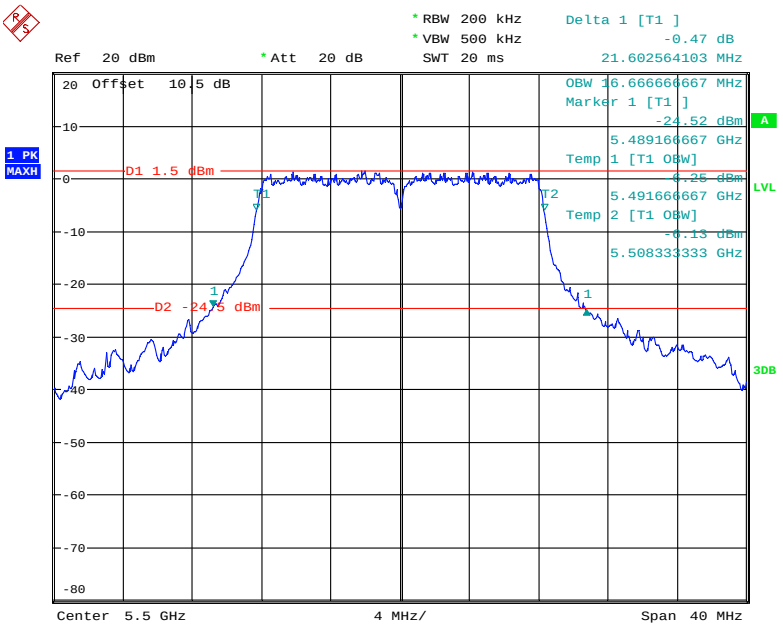



Date: 14.DEC.2018 16:30:41

**5470 MHz – 5725 MHz, Chain 0:**

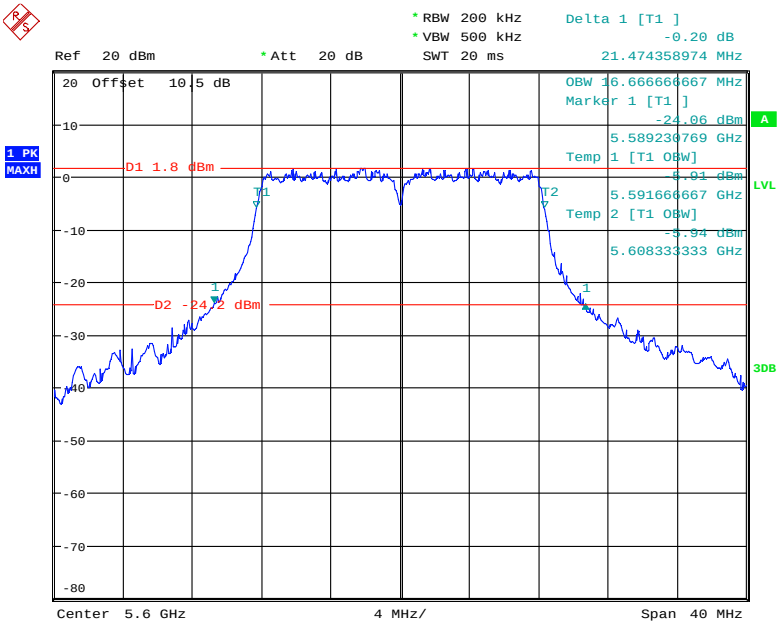
| Frequency (MHz) | 26dB bandwidth (MHz) | 99% Bandwidth (MHz) |
|---|---|---|
| **802.11a** | | |
| 5500 | 21.603 | 16.667 |
| 5600 | 21.474 | 16.667 |
| 5700 | 21.859 | 16.667 |
| **802.11n20** | | |
| 5500 | 22.244 | 17.885 |
| 5600 | 21.923 | 17.821 |
| 5700 | 22.179 | 17.885 |
| **802.11n40** | | |
| 5510 | 43.333 | 36.795 |
| 5590 | 42.821 | 36.795 |
| 5670 | 42.949 | 36.795 |
| **802.11ac20** | | |
| 5500 | 22.756 | 17.885 |
| 5600 | 22.821 | 17.885 |
| 5700 | 22.244 | 17.885 |
| **802.11ac40** | | |
| 5510 | 43.205 | 36.795 |
| 5590 | 42.949 | 36.795 |
| 5670 | 42.821 | 36.795 |
| **802.11ac80** | | |
| 5530 | 86.667 | 76.667 |
| 5610 | 86.410 | 76.410 |

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5500 MHz



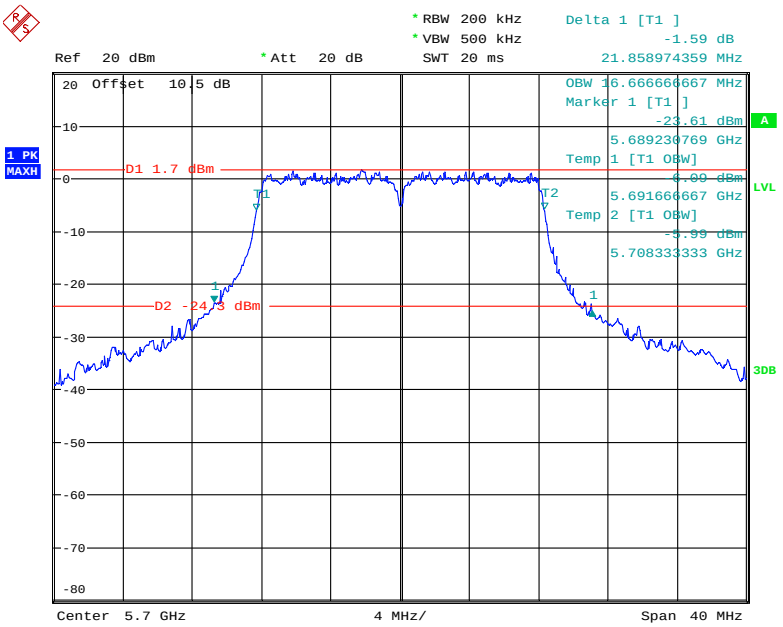

Date: 18.NOV.2018 15:57:32

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5600 MHz



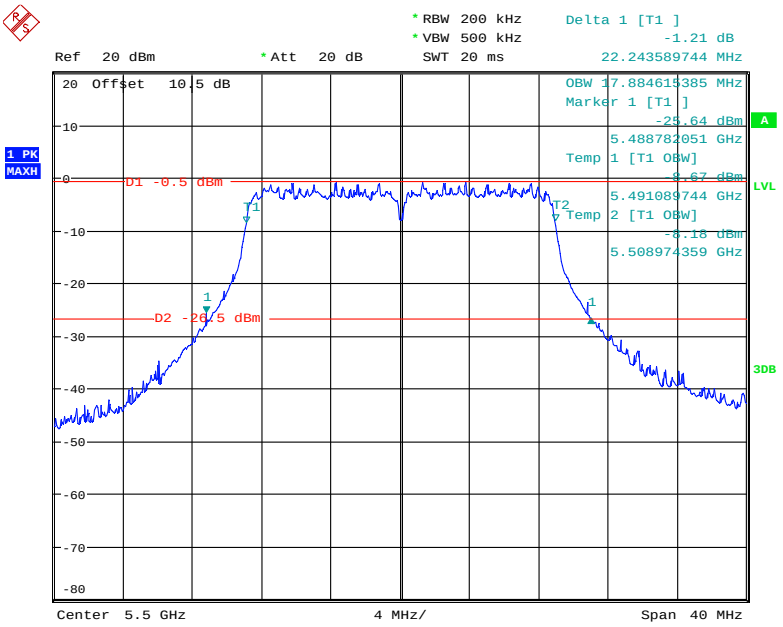

Date: 18.NOV.2018 15:58:43

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5700 MHz



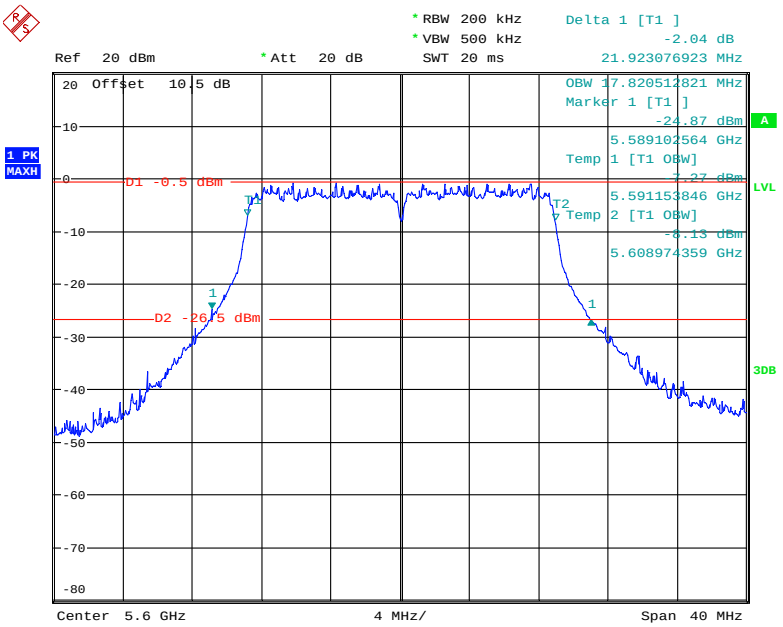

Date: 18.NOV.2018 15:59:47

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5500 MHz



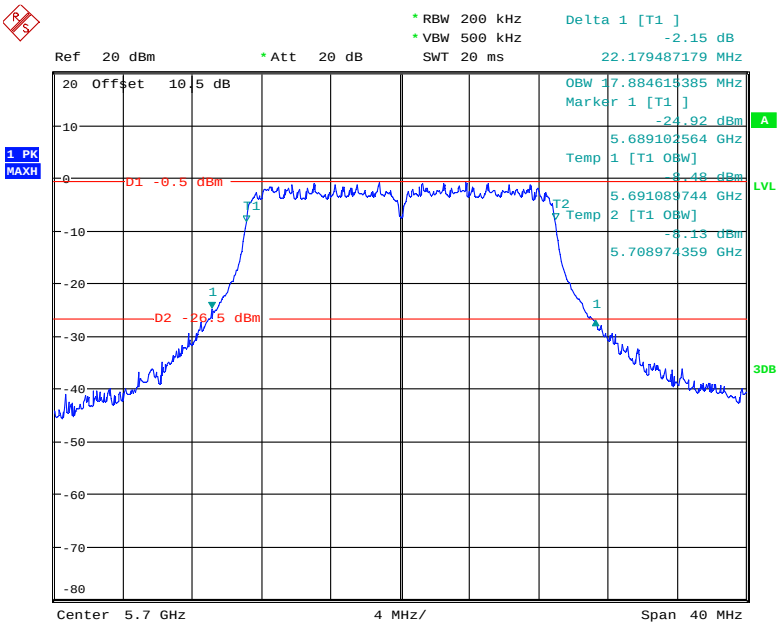

Date: 18.NOV.2018 15:54:37

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5600 MHz



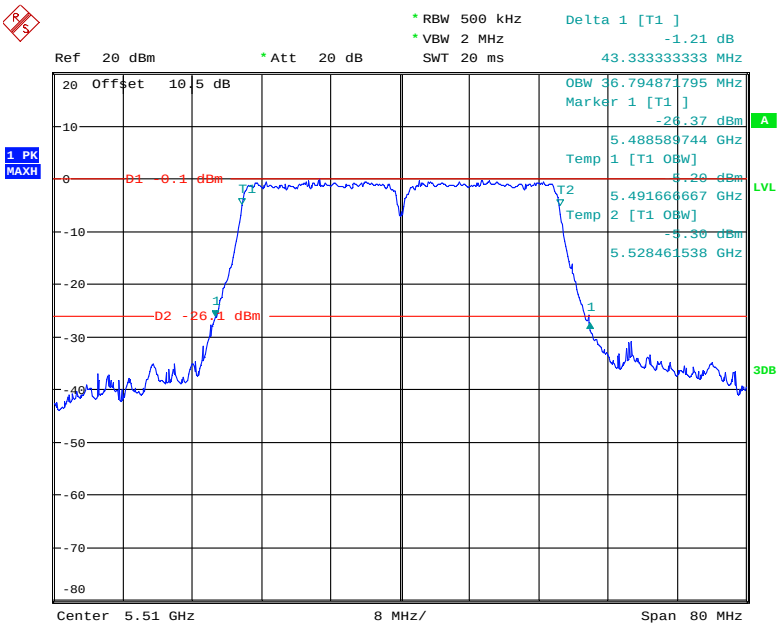

Date: 18.NOV.2018 15:55:22

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5700 MHz



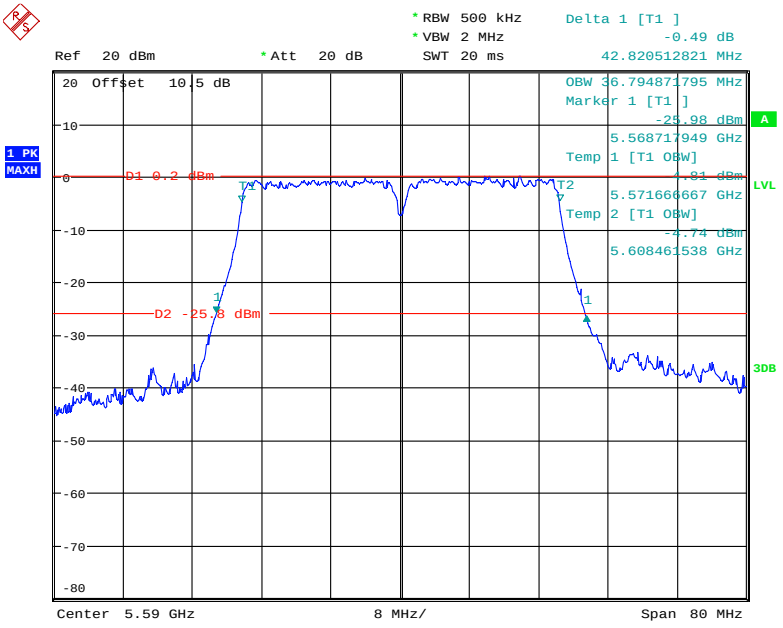

Date: 18.NOV.2018 15:56:01

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5510 MHz



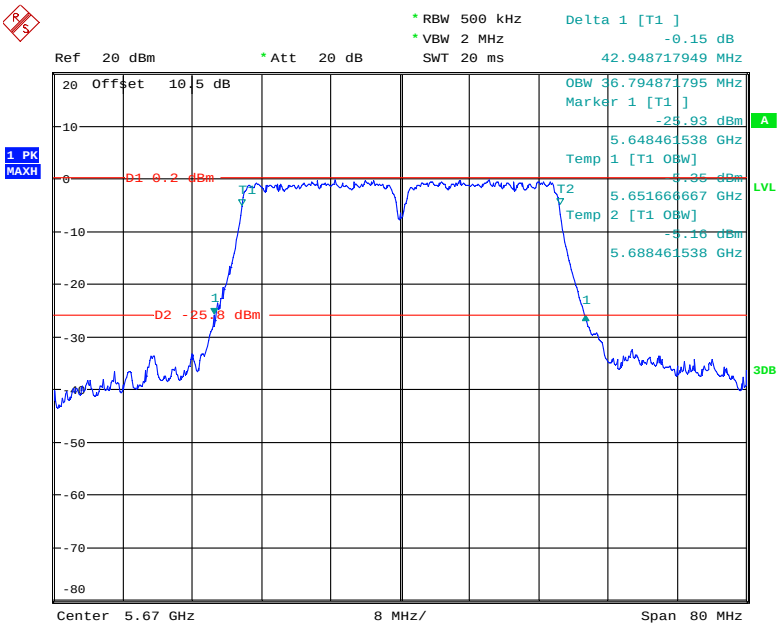

Date: 18.NOV.2018 15:45:51

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5590 MHz



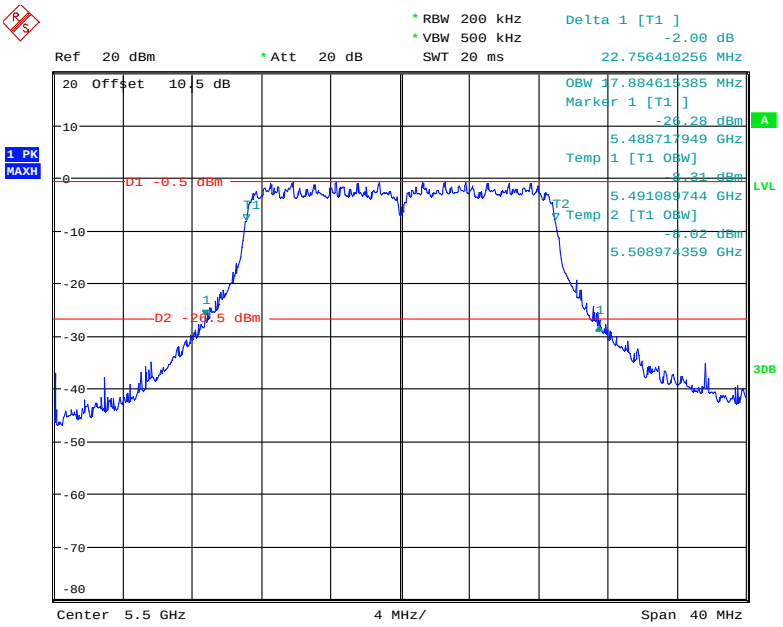

Date: 18.NOV.2018 15:46:33

## 802.11 n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5670 MHz



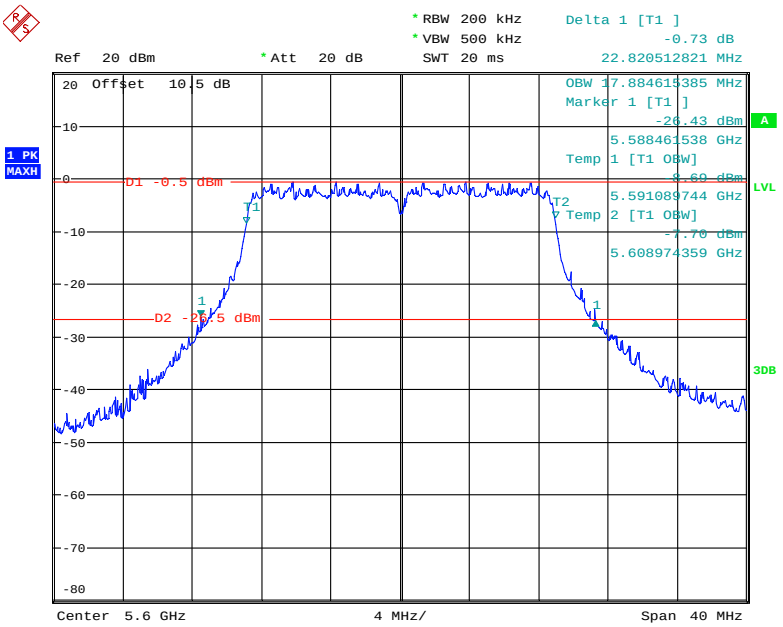

Date: 18.NOV.2018 15:47:35

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5500 MHz



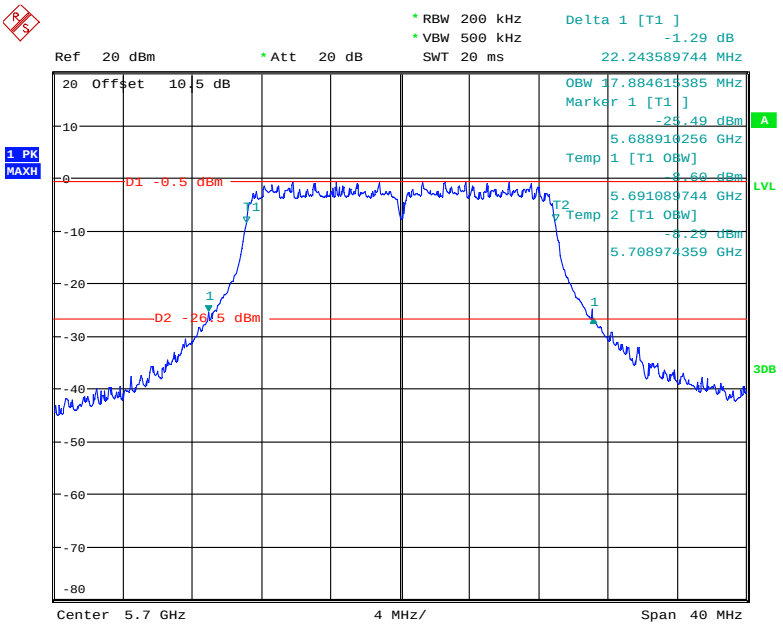

Date: 18.NOV.2018 15:51:46

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5600 MHz



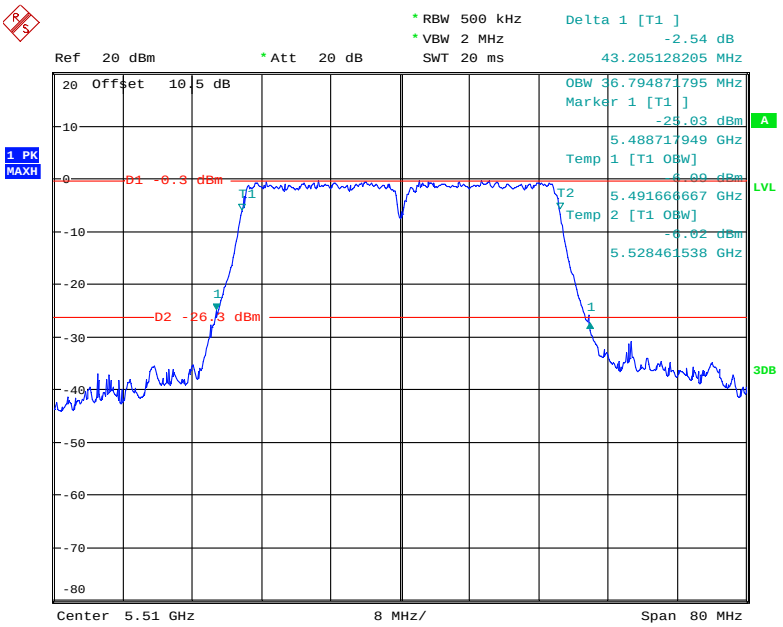

Date: 18.NOV.2018 15:53:01

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5700 MHz



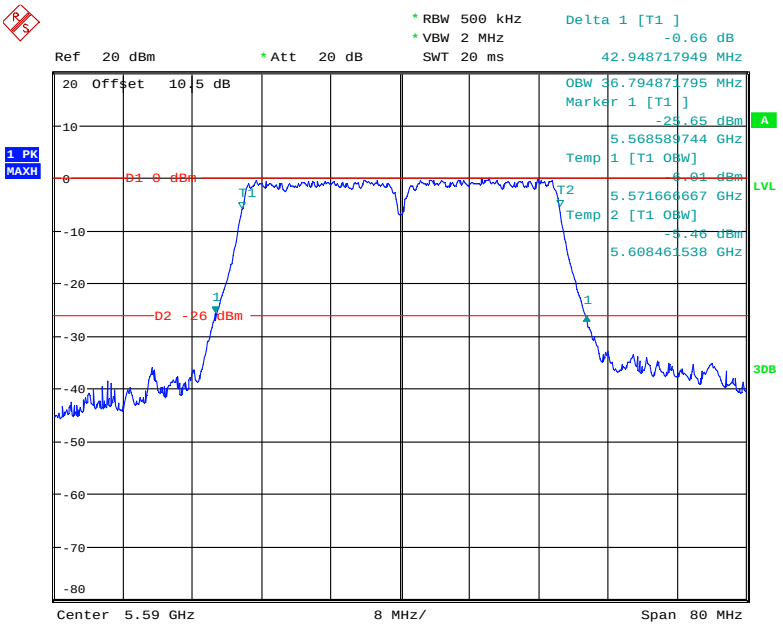

Date: 18.NOV.2018 15:53:41

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5510 MHz



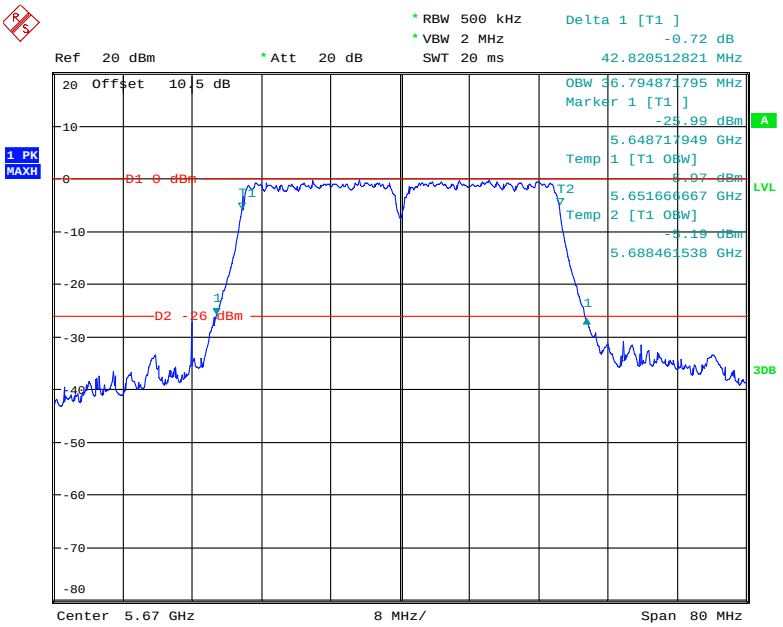

Date: 18.NOV.2018 15:44:35

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5590 MHz



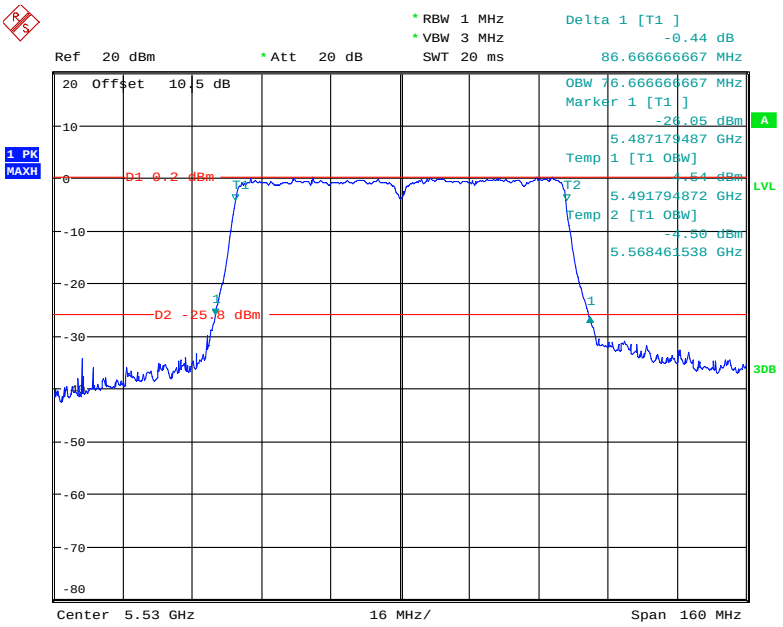

Date: 18.NOV.2018 15:43:27

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5670 MHz



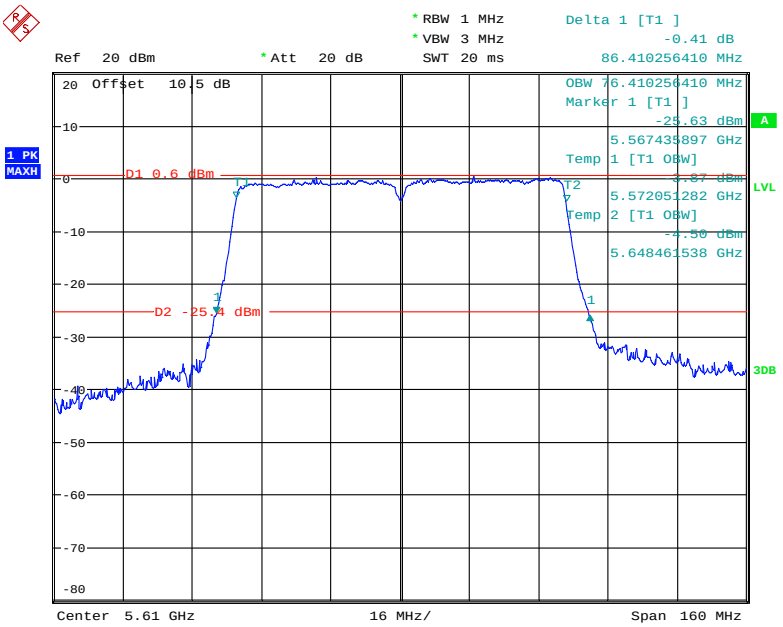

Date: 18.NOV.2018 15:42:43

## 802.11ac80 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5530 MHz




Date: 18.NOV.2018 15:49:09

## 802.11ac80 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5610 MHz

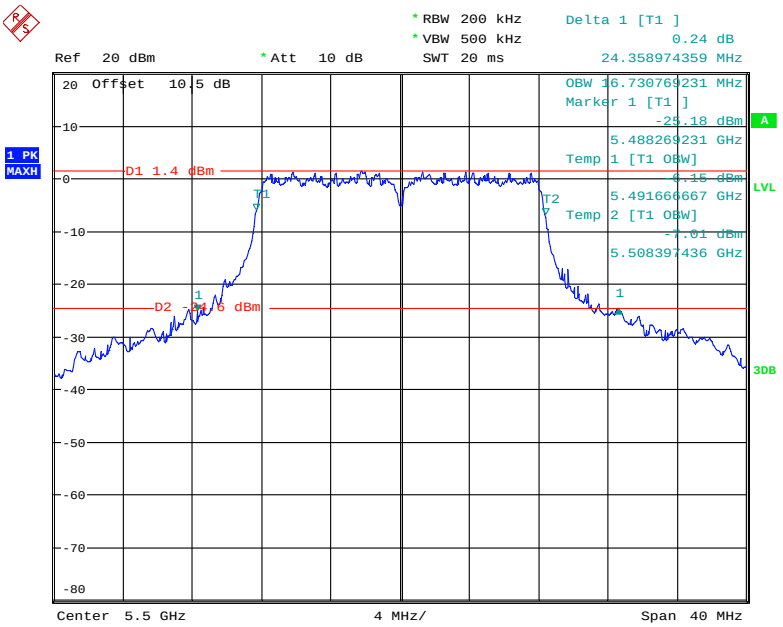



Date: 18.NOV.2018 15:50:06

**5470 MHz – 5725 MHz, Chain 1:**

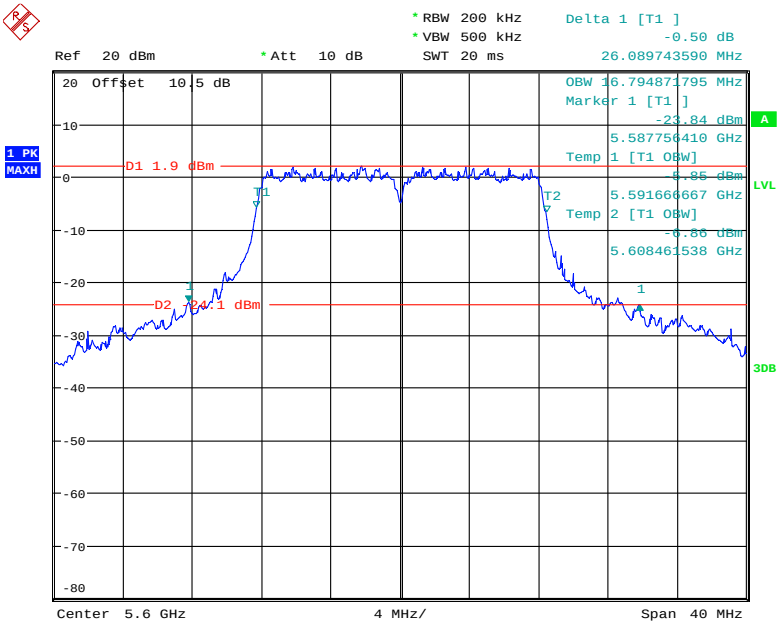
| Frequency (MHz) | 26dB bandwidth (MHz) | 99% Bandwidth (MHz) |
|---|---|---|
| **802.11a** | | |
| 5500 | 24.359 | 16.731 |
| 5600 | 26.090 | 16.795 |
| 5700 | 24.936 | 16.731 |
| **802.11n20** | | |
| 5500 | 22.500 | 17.885 |
| 5600 | 22.885 | 17.885 |
| 5700 | 22.885 | 17.885 |
| **802.11n40** | | |
| 5510 | 43.077 | 36.795 |
| 5590 | 44.359 | 36.923 |
| 5670 | 42.949 | 36.799 |
| **802.11ac20** | | |
| 5500 | 22.949 | 17.885 |
| 5600 | 22.692 | 17.885 |
| 5700 | 22.885 | 17.885 |
| **802.11ac40** | | |
| 5510 | 42.821 | 36.795 |
| 5590 | 44.487 | 36.795 |
| 5670 | 43.333 | 36.795 |
| **802.11ac80** | | |
| 5530 | 87.949 | 76.667 |
| 5610 | 90.513 | 76.667 |

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5500 MHz



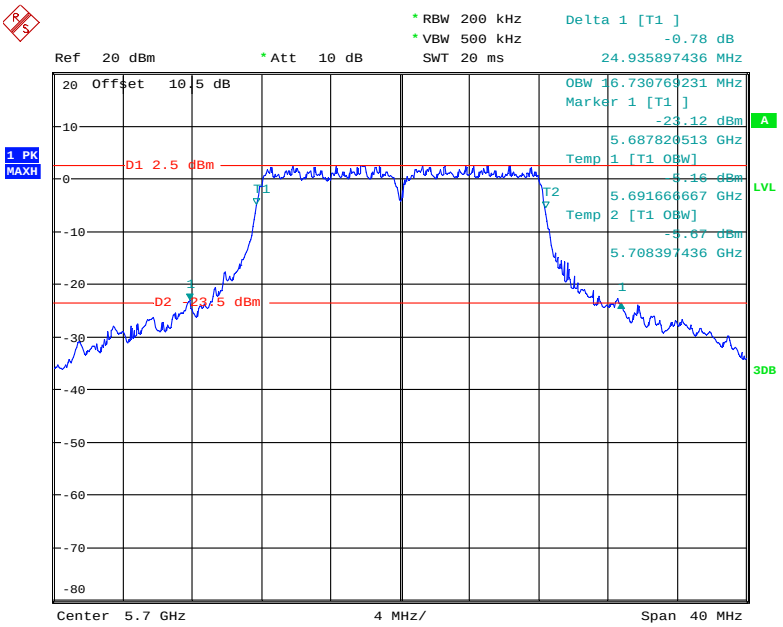

Date: 16.NOV.2018 21:46:56

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5600 MHz



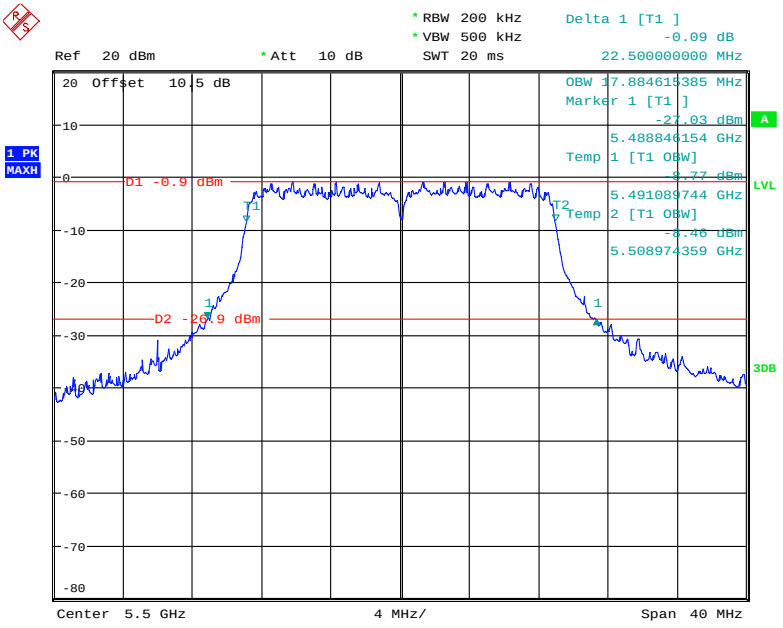

Date: 16.NOV.2018 21:48:13

## 802.11a mode, 26 dB Emissions & 99% Occupied Bandwidth, 5700 MHz



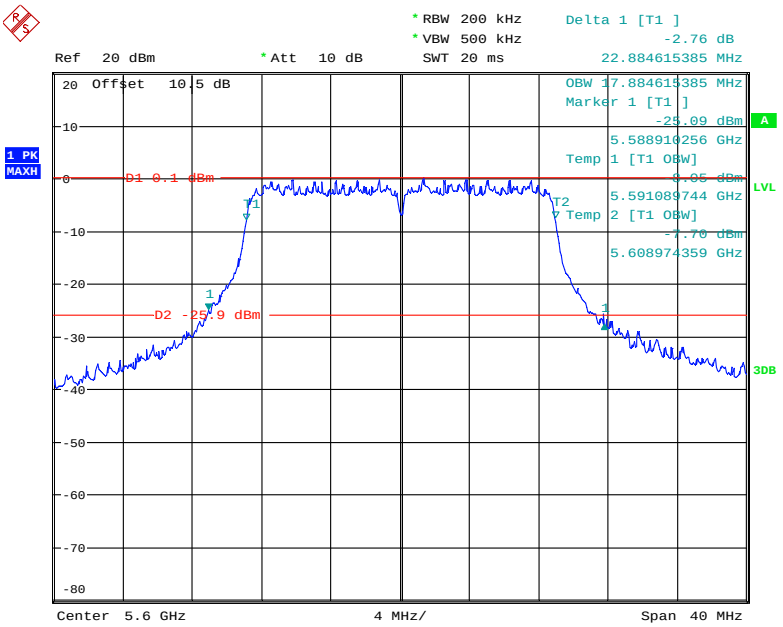

Date: 16.NOV.2018 21:49:16

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5500 MHz



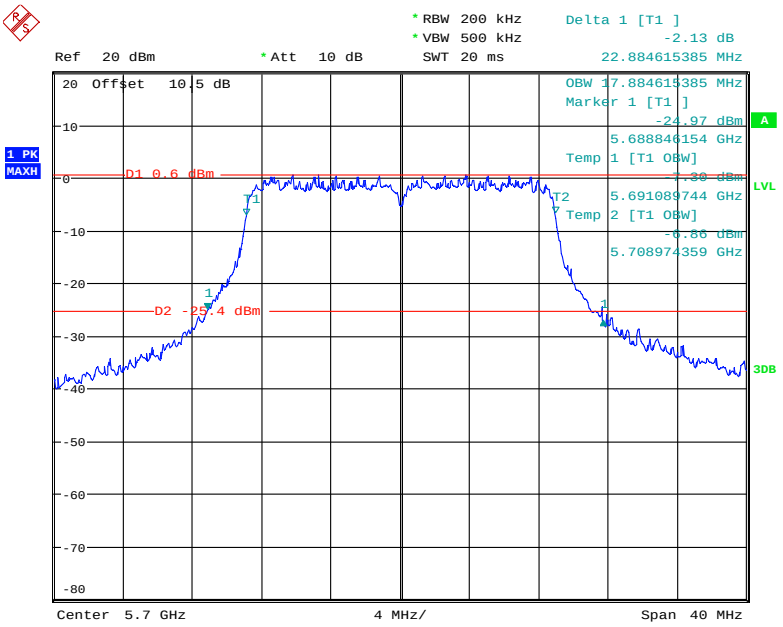

Date: 16.NOV.2018 21:40:23

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5600 MHz



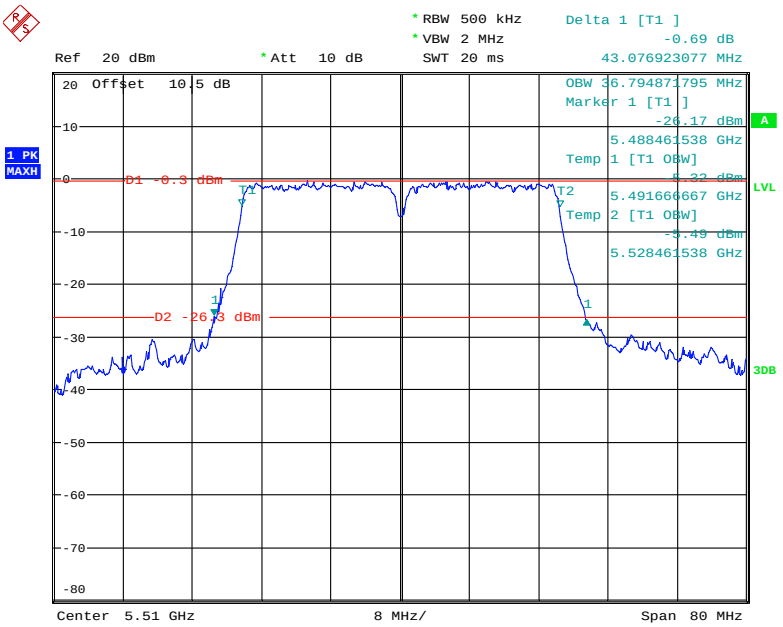

Date: 16.NOV.2018 21:41:42

## 802.11n20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5700 MHz



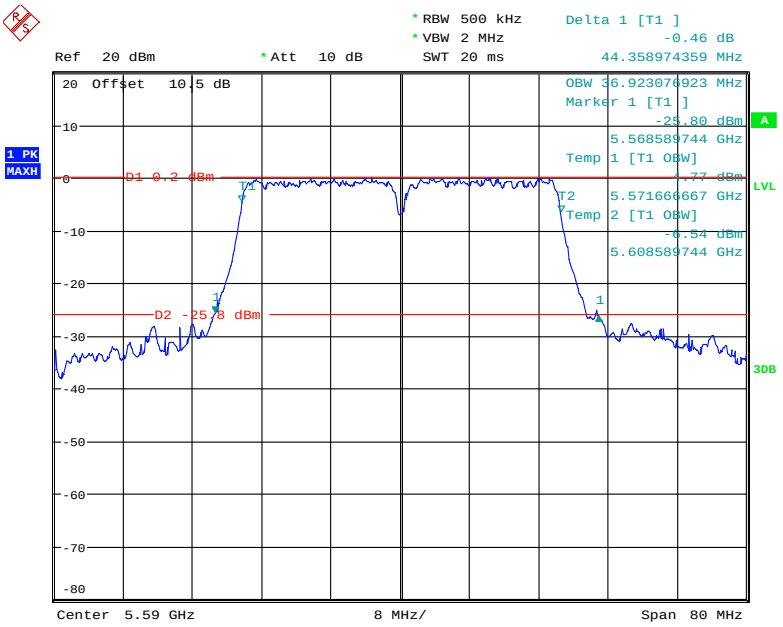

Date: 16.NOV.2018 21:42:48

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5510 MHz



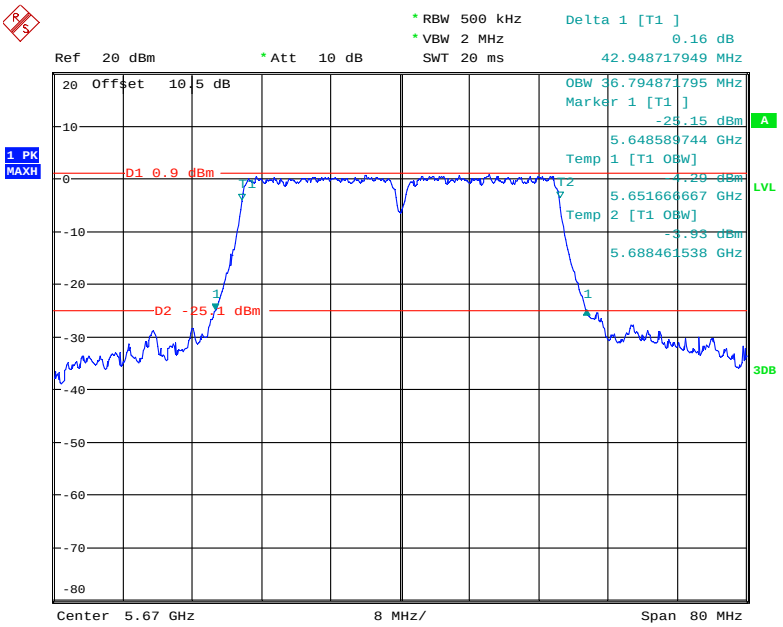

Date: 16.NOV.2018 21:55:30

## 802.11n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5590 MHz



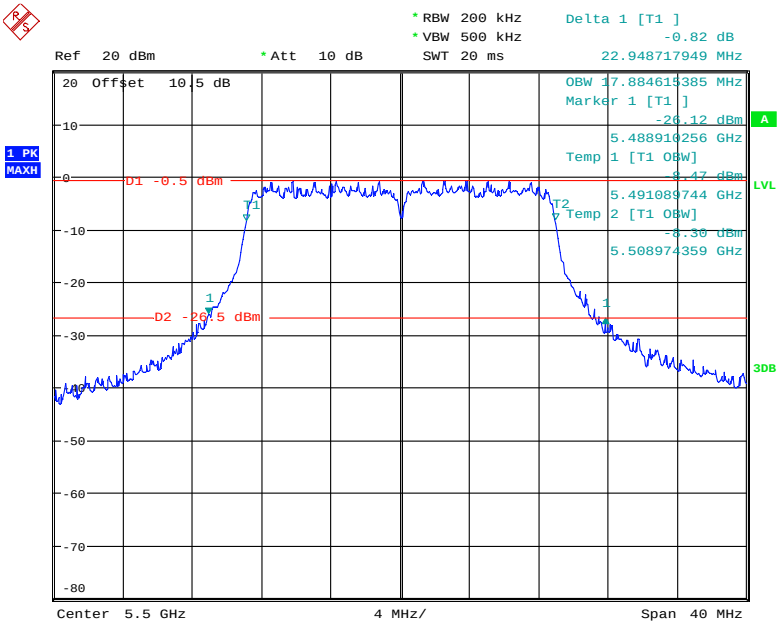

Date: 16.NOV.2018 21:56:32

## 802.11 n40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5670 MHz



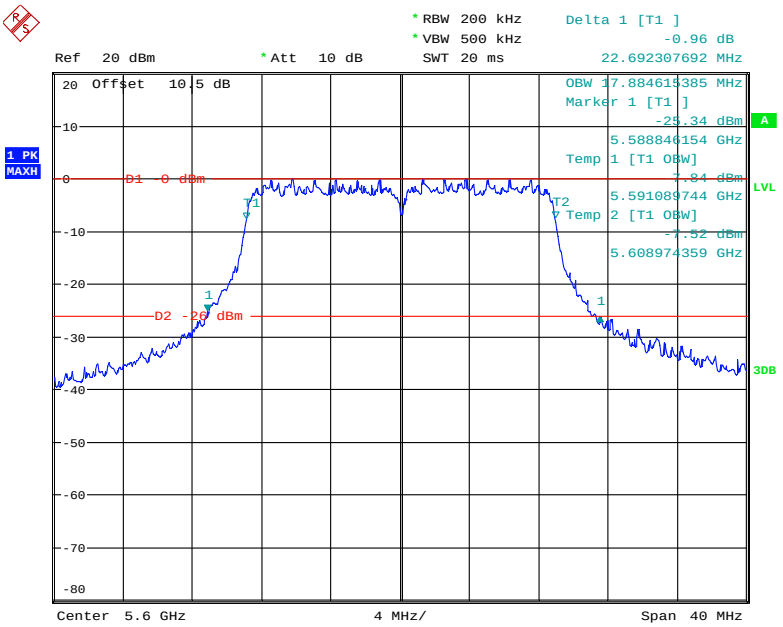

Date: 16.NOV.2018 21:57:23

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5500 MHz



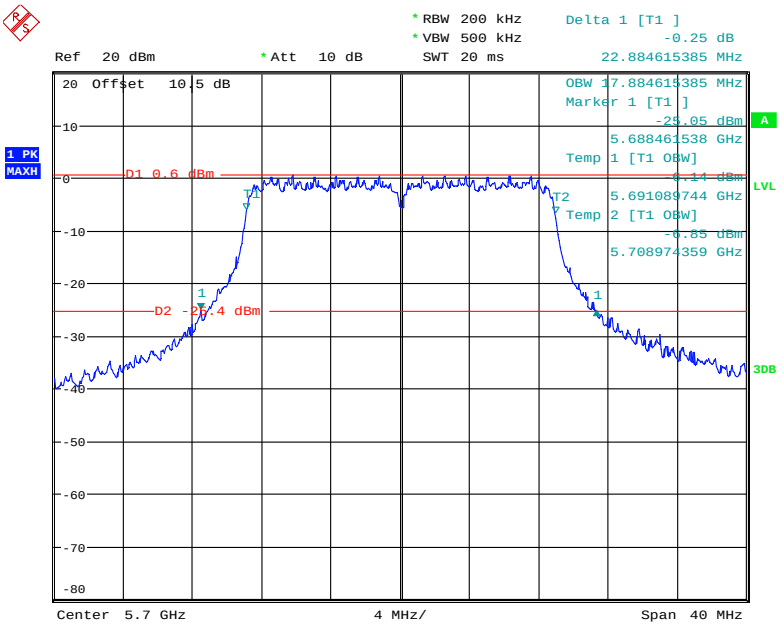

Date: 16.NOV.2018 21:51:18

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5600 MHz



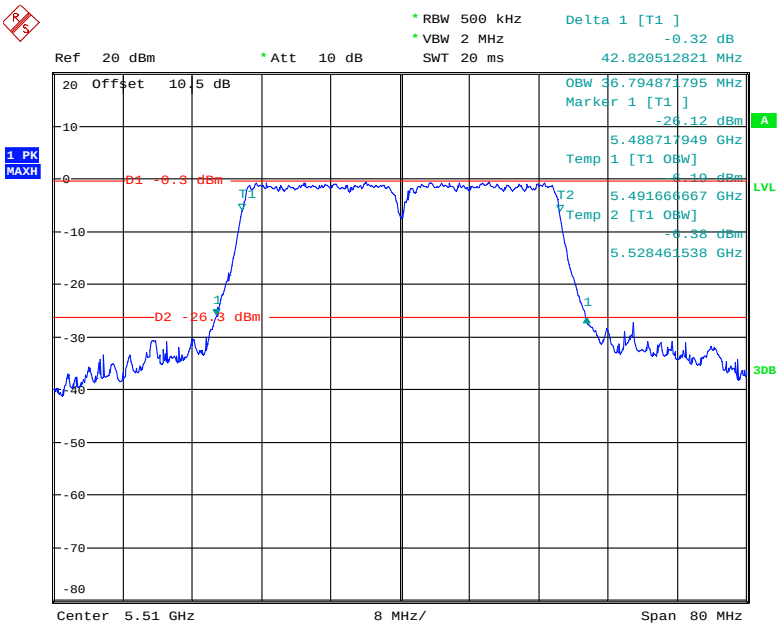

Date: 16.NOV.2018 21:52:11

## 802.11ac20 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5700 MHz



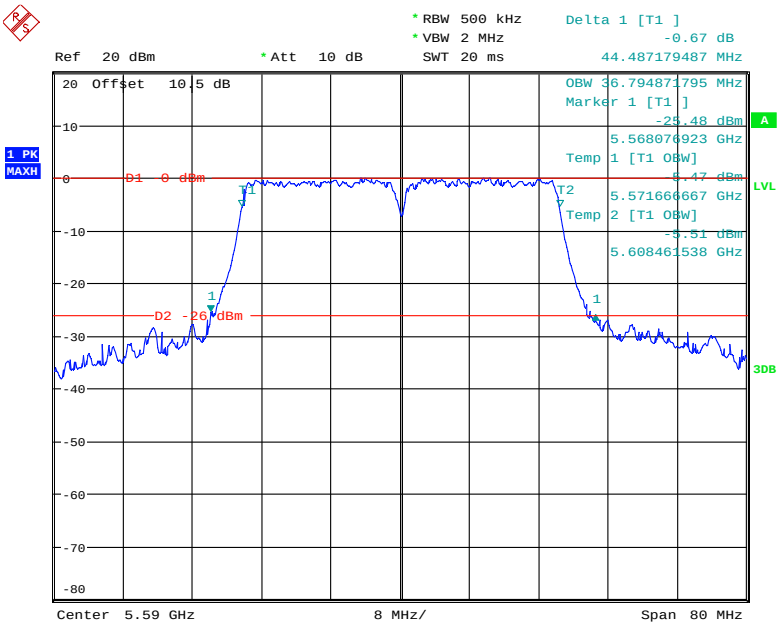

Date: 16.NOV.2018 21:53:25

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5510 MHz



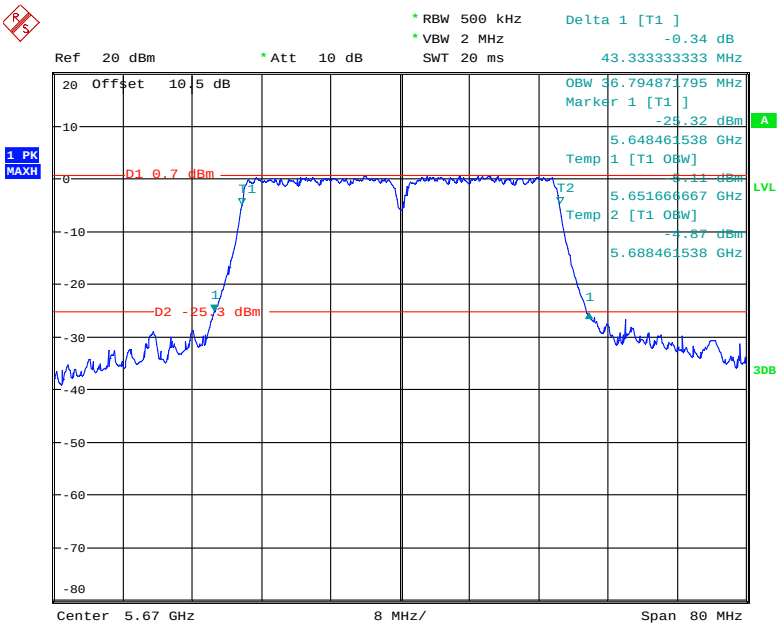

Date: 16.NOV.2018 21:59:11

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5590 MHz



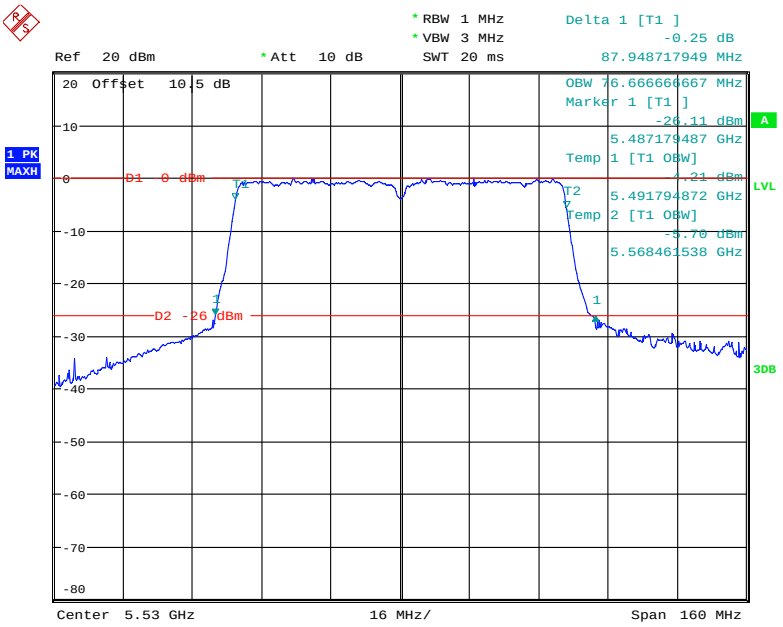

Date: 16.NOV.2018 22:00:23

## 802.11ac40 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5670 MHz



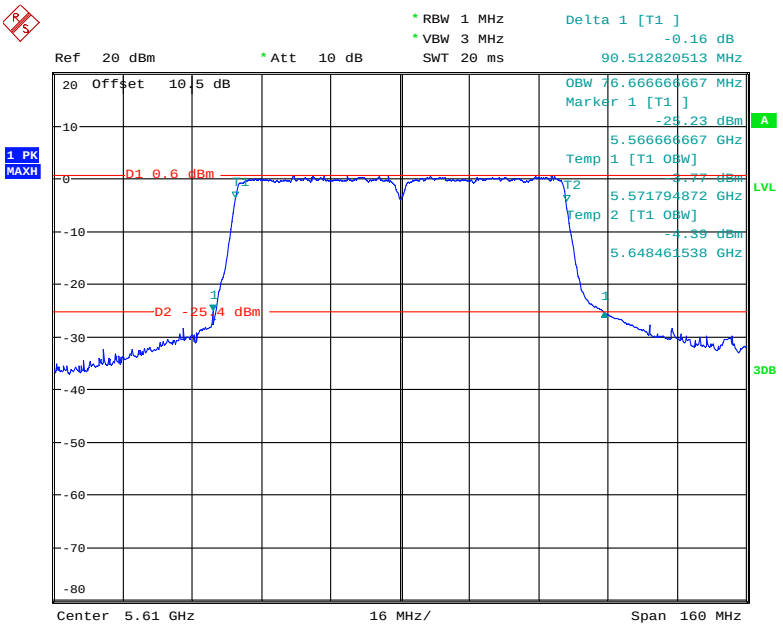

Date: 16.NOV.2018 22:01:47

## 802.11ac80 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5530 MHz




Date: 16.NOV.2018 22:03:21

## 802.11ac80 mode, 26 dB Emissions & 99% Occupied Bandwidth, 5610 MHz

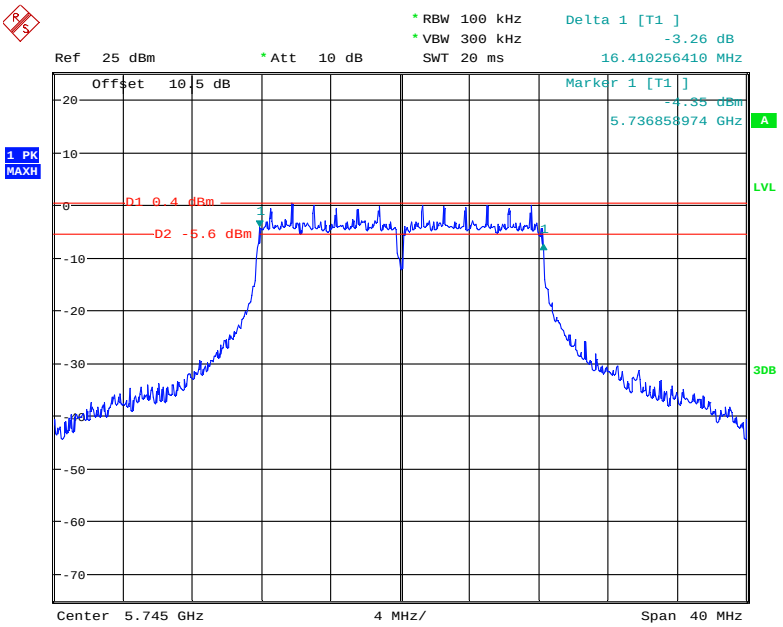



Date: 16.NOV.2018 22:04:28

**5725 MHz – 5850 MHz, Chain 0:**

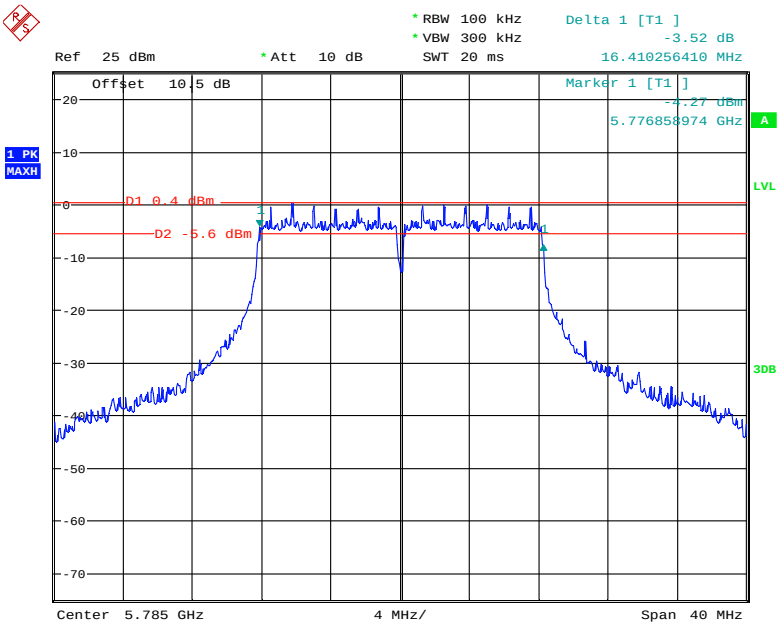
| Frequency (MHz) | 6dB bandwidth (MHz) | 99% Bandwidth (MHz) | Limit (MHz) | Remark |
|---|---|---|---|---|
| **802.11a** | | | | No transmitted signal in the 99% bandwidth extends into the U-NII-2C band |
| 5745 | 16.410 | 16.667 | 0.5 | |
| 5785 | 16.410 | 16.667 | 0.5 | |
| 5825 | 16.410 | 16.667 | 0.5 | |
| **802.11n20** | | | | |
| 5745 | 17.564 | 17.885 | 0.5 | |
| 5785 | 17.564 | 17.885 | 0.5 | |
| 5825 | 17.628 | 17.885 | 0.5 | |
| **802.11n40** | | | | |
| 5755 | 36.538 | 36.795 | 0.5 | |
| 5795 | 36.538 | 36.795 | 0.5 | |
| **802.11ac20** | | | | |
| 5745 | 17.628 | 17.885 | 0.5 | |
| 5785 | 17.628 | 17.885 | 0.5 | |
| 5825 | 17.628 | 17.885 | 0.5 | |
| **802.11ac40** | | | | |
| 5755 | 36.538 | 36.795 | 0.5 | |
| 5795 | 36.538 | 36.795 | 0.5 | |
| **802.11ac80** | | | | |
| 5775 | 76.410 | 76.410 | 0.5 | |

## 802.11a mode, 6dB Emission Bandwidth, 5745 MHz



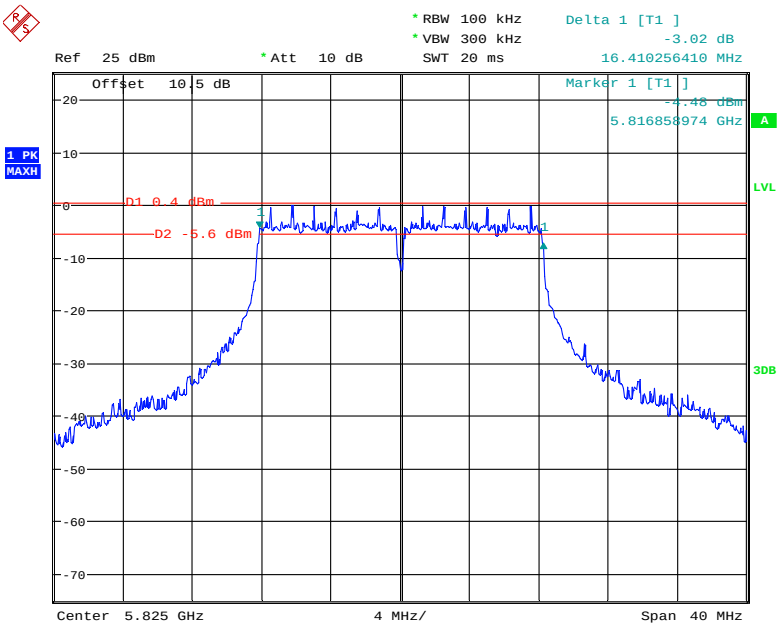

Date: 18.NOV.2018 17:57:03

## 802.11a mode, 6dB Emission Bandwidth, 5785 MHz



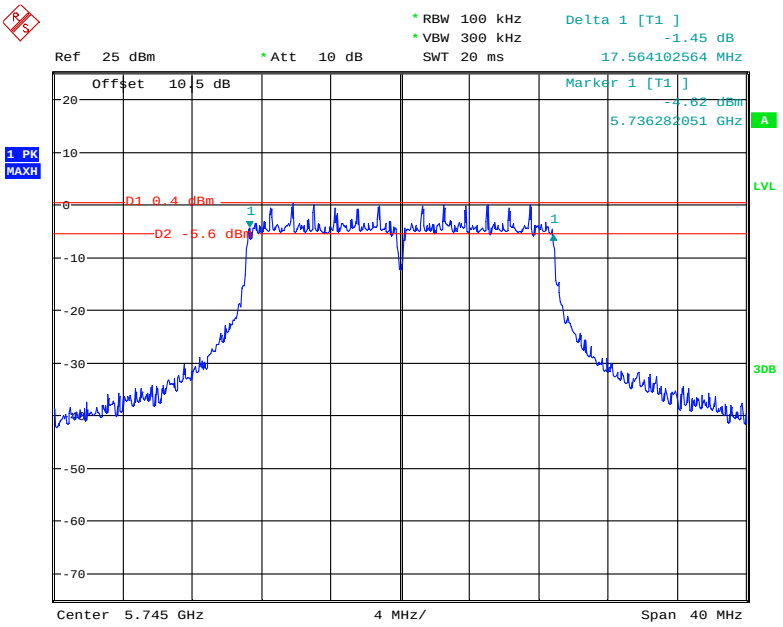

Date: 18.NOV.2018 17:56:31

## 802.11a mode, 6dB Emission Bandwidth, 5825 MHz



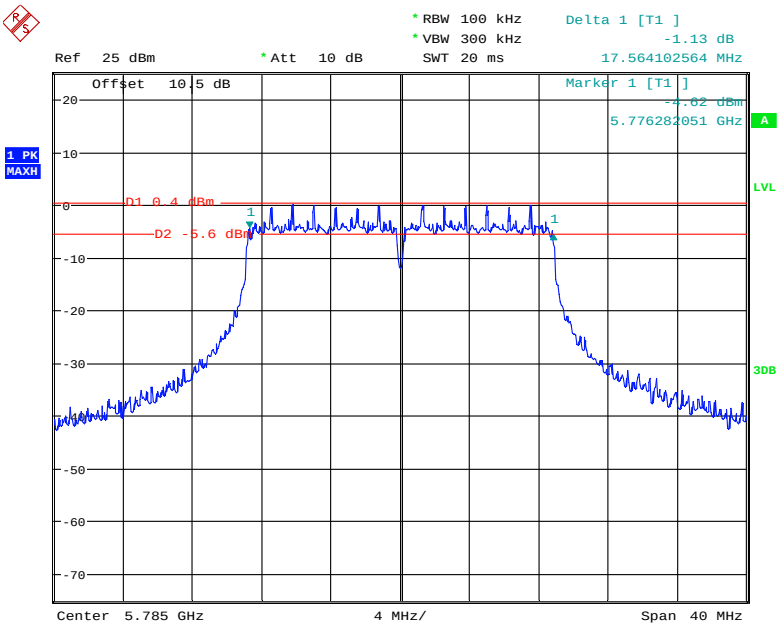

Date: 18.NOV.2018 17:55:47

## 802.11n20 mode, 6dB Emission Bandwidth, 5745 MHz



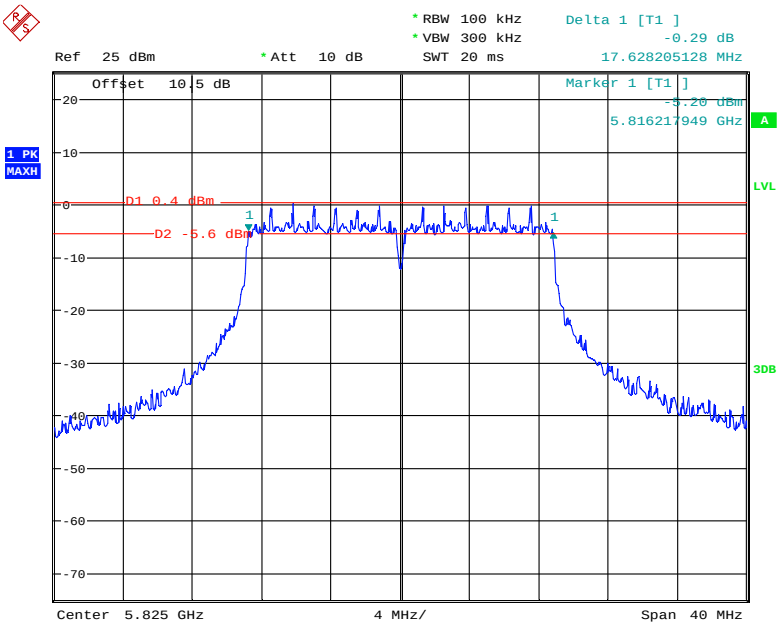

Date: 18.NOV.2018 17:55:06

## 802.11n20 mode, 6dB Emission Bandwidth, 5785 MHz



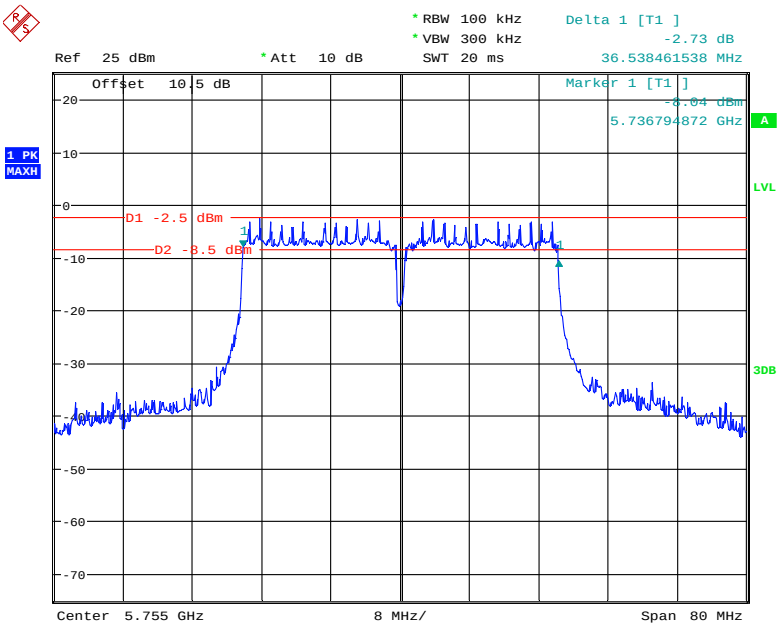

Date: 18.NOV.2018 17:54:29

## 802.11n20 mode, 6dB Emission Bandwidth, 5825 MHz



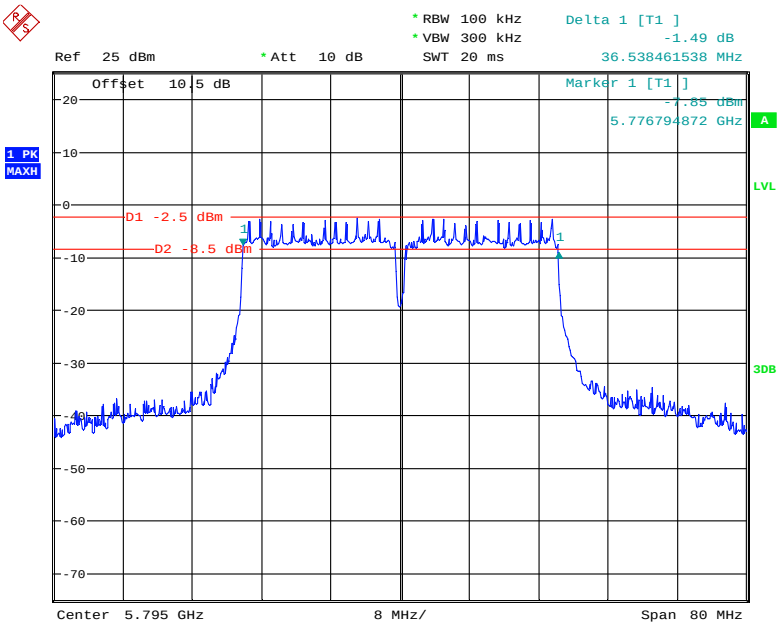

Date: 18.NOV.2018 17:53:50

## 802.11n40 mode, 6dB Emission Bandwidth, 5755 MHz



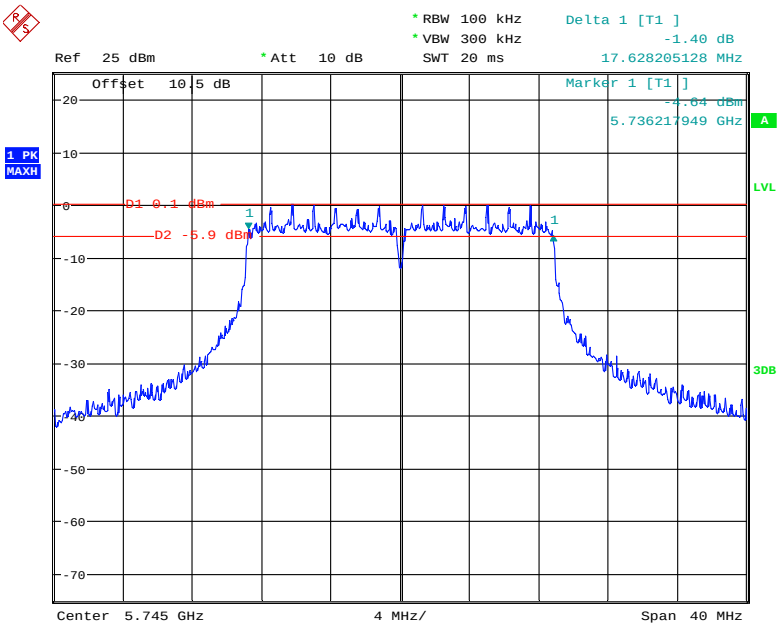

Date: 18.NOV.2018 17:58:57

## 802.11n40 mode, 6dB Emission Bandwidth, 5795 MHz



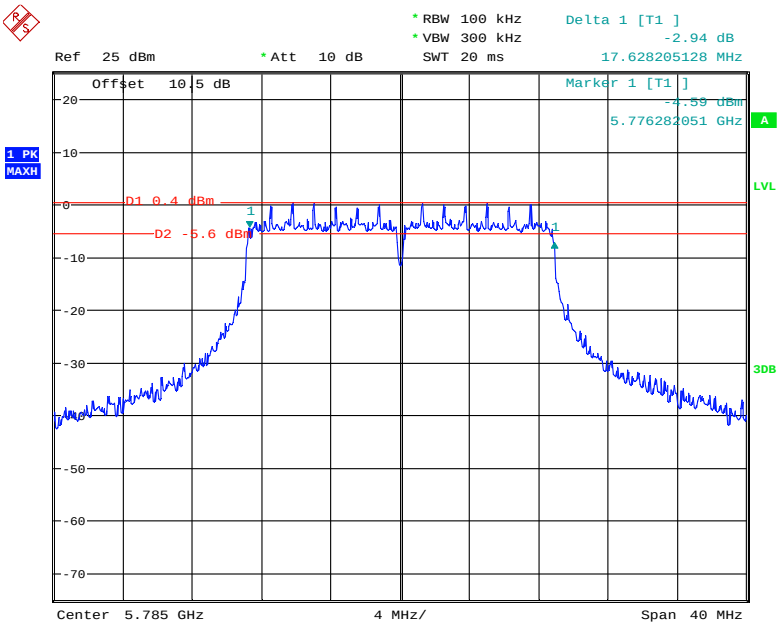

Date: 18.NOV.2018 17:58:17

## 802.11ac20 mode, 6dB Emission Bandwidth, 5745 MHz



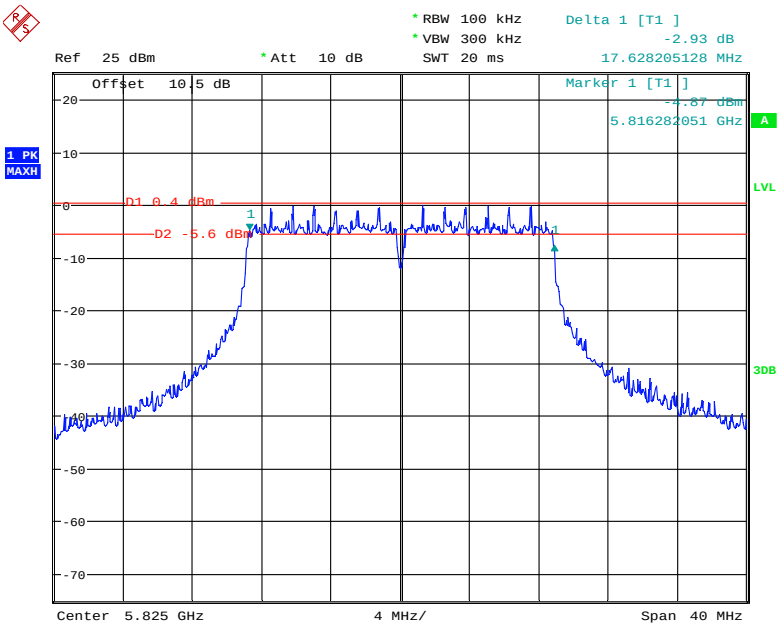

Date: 18.NOV.2018 17:51:06

## 802.11ac20 mode, 6dB Emission Bandwidth, 5785 MHz



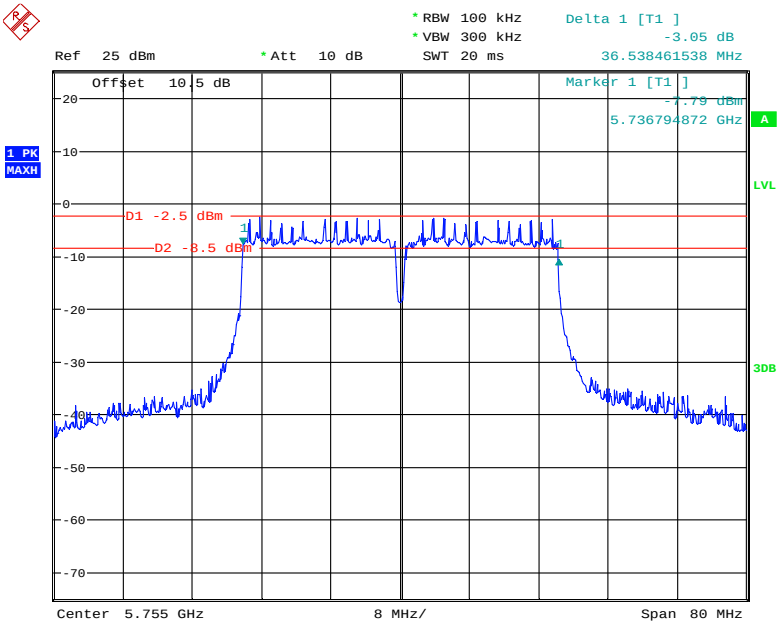

Date: 18.NOV.2018 17:52:14

## 802.11ac20 mode, 6dB Emission Bandwidth, 5825 MHz



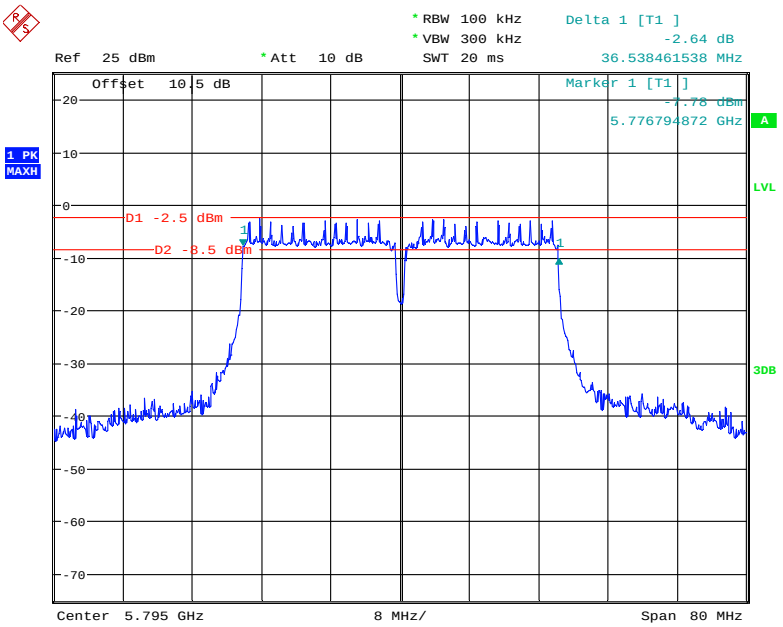

Date: 18.NOV.2018 17:52:53

## 802.11ac40 mode, 6dB Emission Bandwidth, 5755 MHz



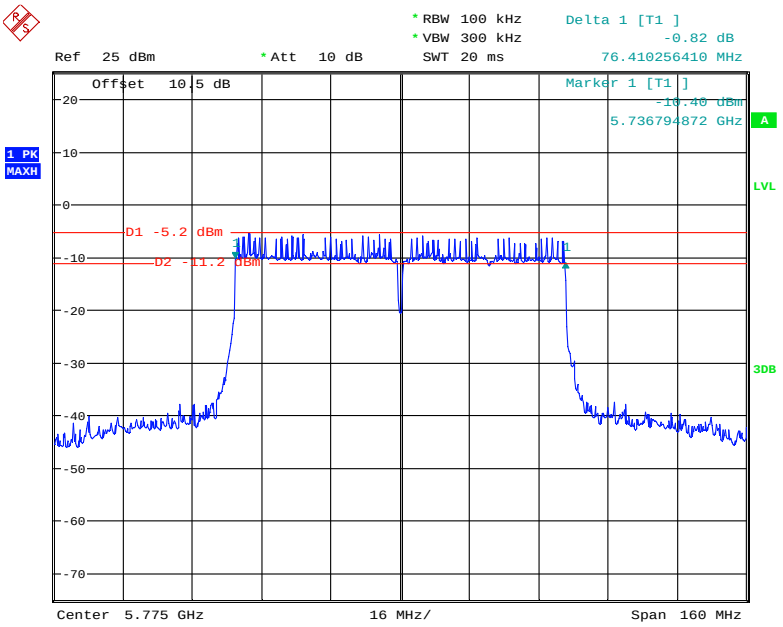

Date: 18.NOV.2018 18:00:26

## 802.11ac40 mode, 6dB Emission Bandwidth, 5795 MHz



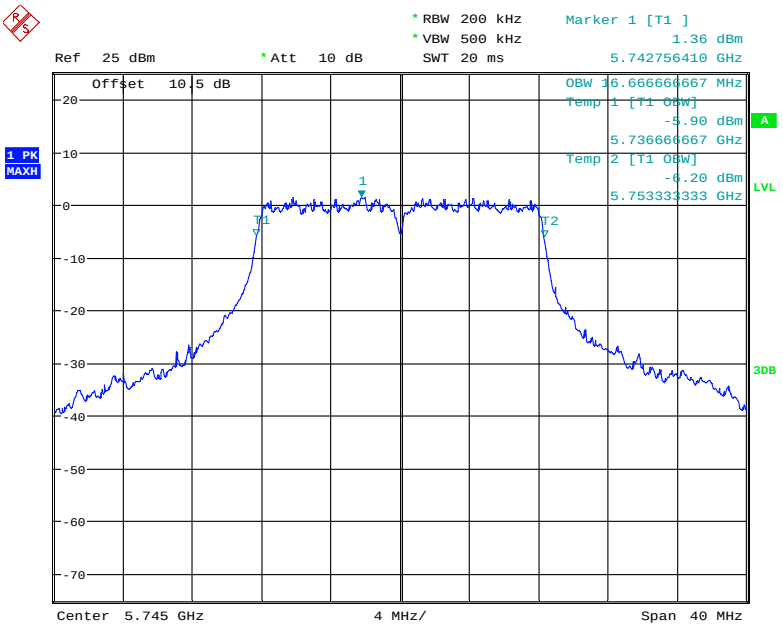

Date: 18.NOV.2018 17:59:45

## 802.11ac80 mode, 6dB Emission Bandwidth, 5775 MHz



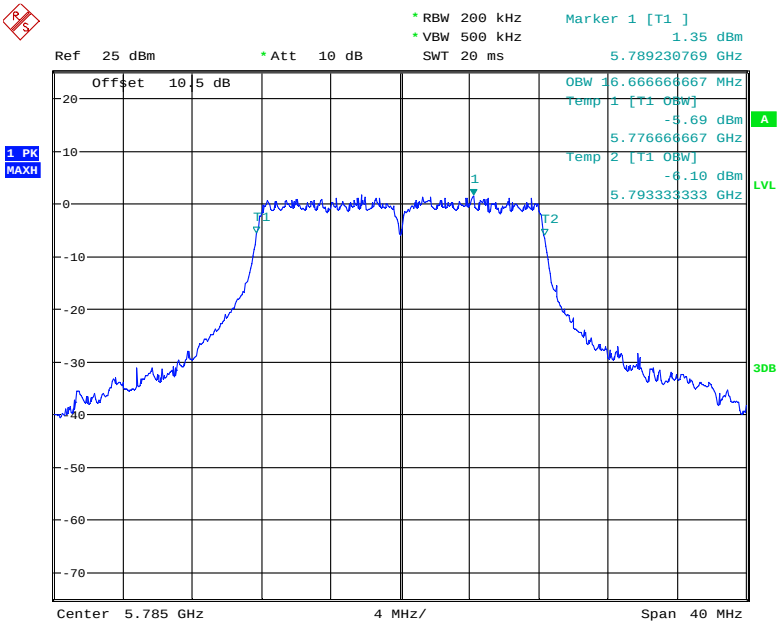

Date: 18.NOV.2018 18:01:21

## 802.11a mode, 99% Occupied Bandwidth, 5745 MHz



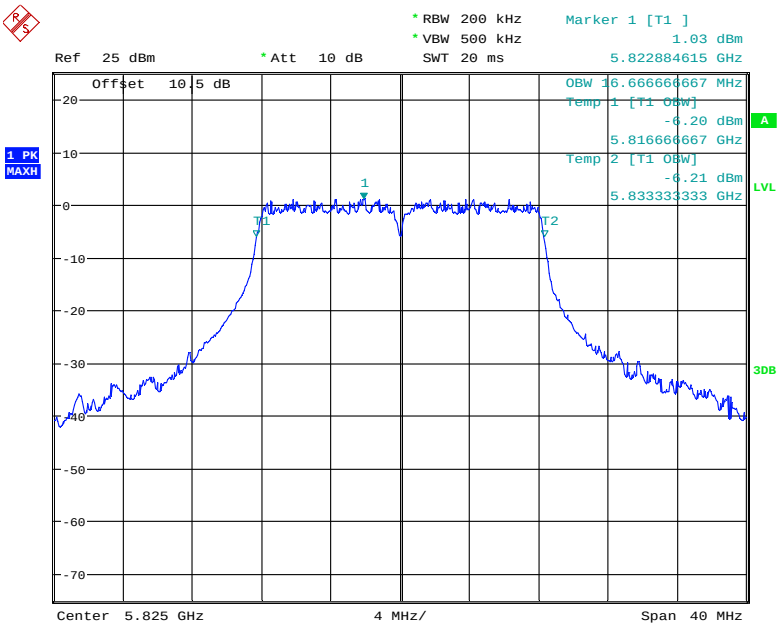

Date: 18.NOV.2018 17:45:54

## 802.11a mode, 99% Occupied Bandwidth, 5785 MHz



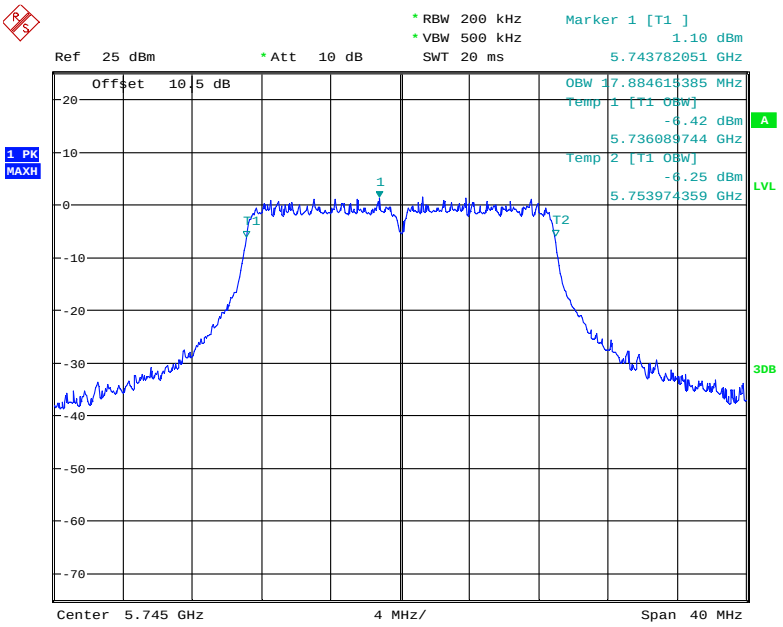

Date: 18.NOV.2018 17:46:30

## 802.11a mode, 99% Occupied Bandwidth, 5825 MHz



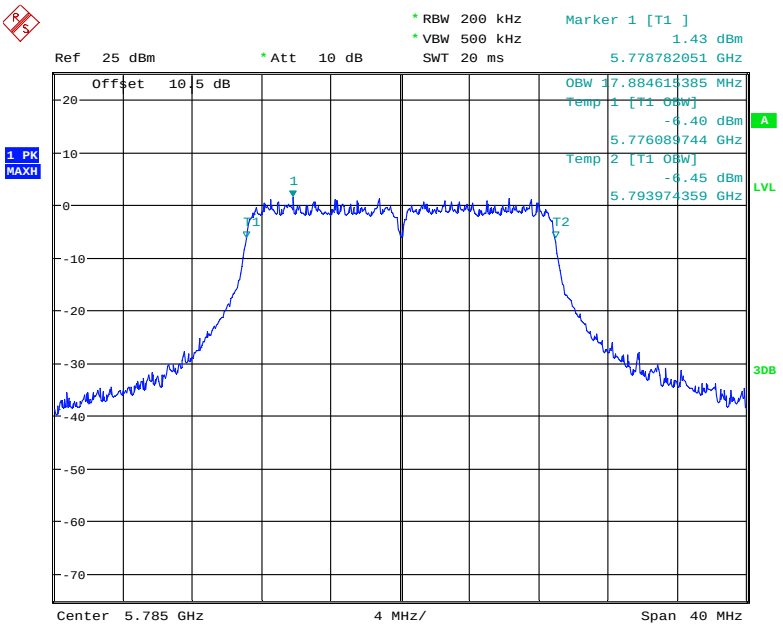

Date: 18.NOV.2018 17:46:52

## 802.11n20 mode, 99% Occupied Bandwidth, 5745 MHz



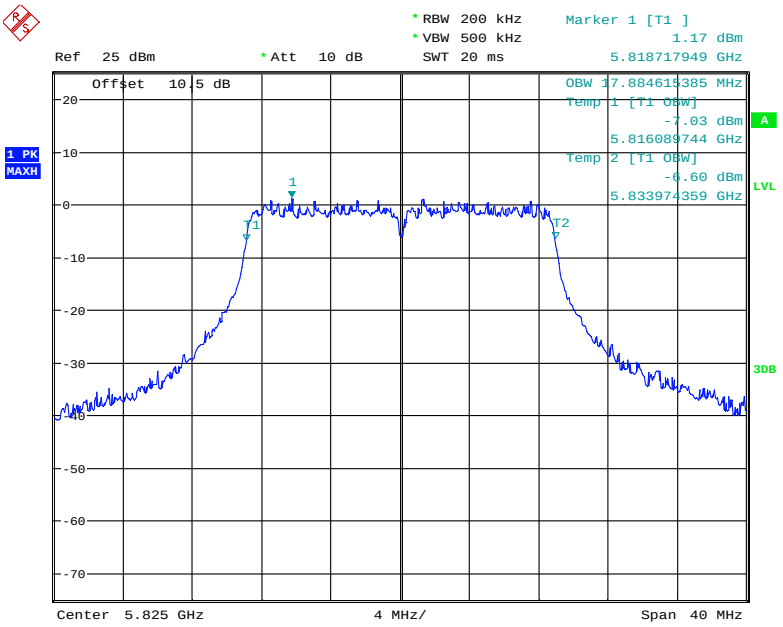

Date: 18.NOV.2018 17:48:07

## 802.11n20 mode, 99% Occupied Bandwidth, 5785 MHz



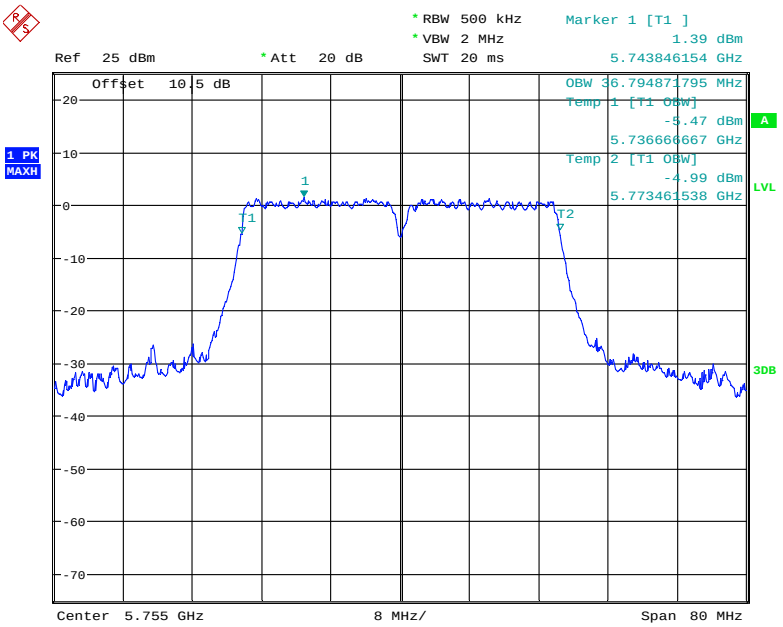

Date: 18.NOV.2018 17:47:44

## 802.11n20 mode, 99% Occupied Bandwidth, 5825 MHz



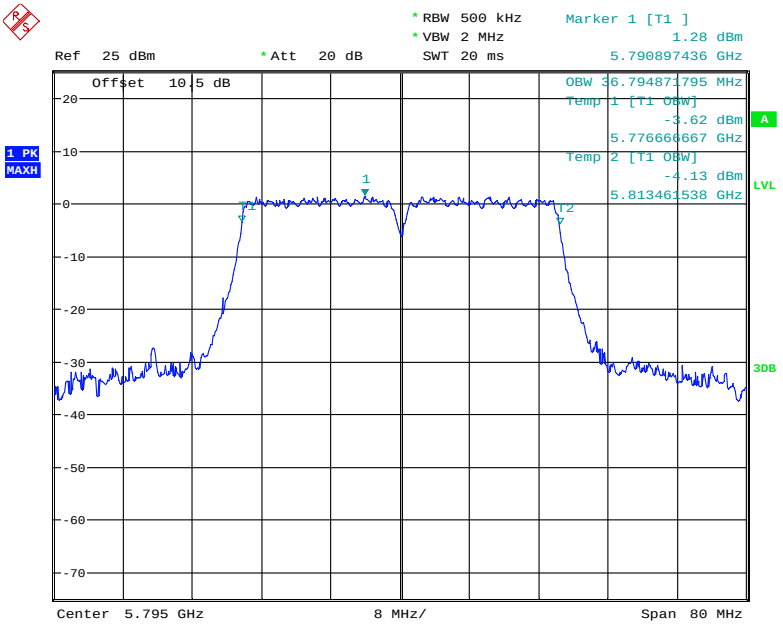

Date: 18.NOV.2018 17:47:22

## 802.11n40 mode, 99% Occupied Bandwidth, 5755 MHz



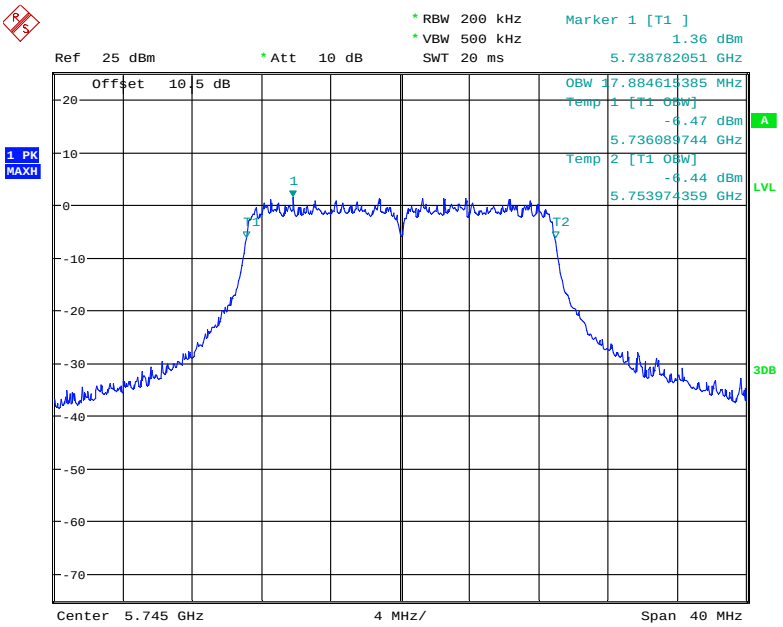

Date: 18.NOV.2018 17:42:15

## 802.11n40 mode, 99% Occupied Bandwidth, 5795 MHz



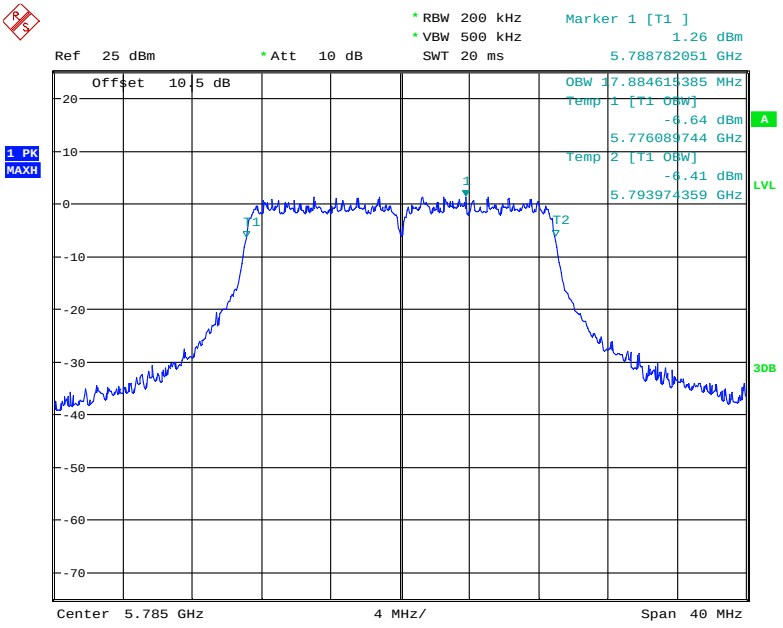

Date: 18.NOV.2018 17:41:48

## 802.11ac20 mode, 99% Occupied Bandwidth, 5745 MHz



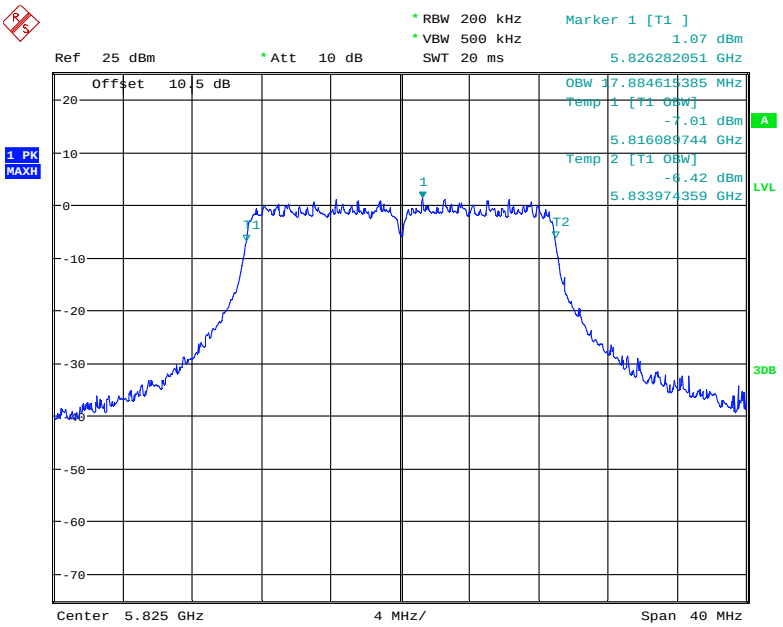

Date: 18.NOV.2018 17:49:38

## 802.11ac20 mode, 99% Occupied Bandwidth, 5785 MHz



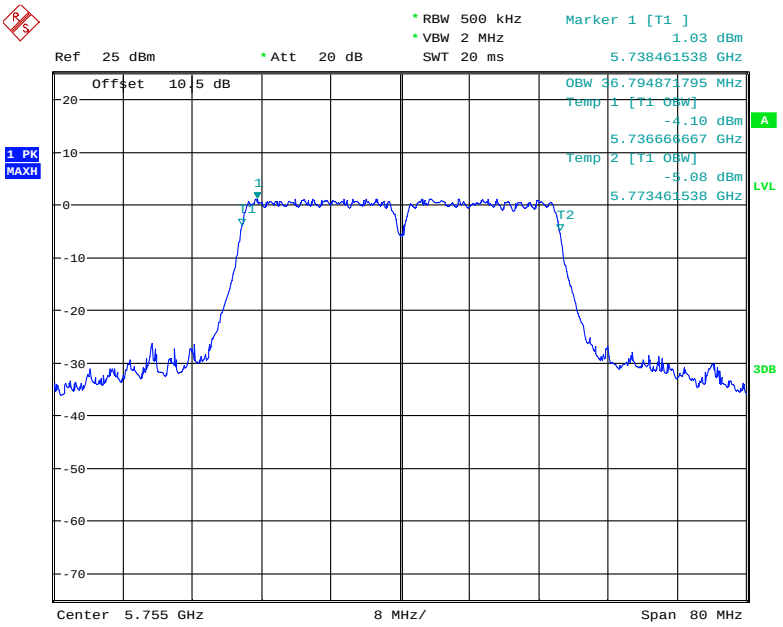

Date: 18.NOV.2018 17:49:18

## 802.11ac20 mode, 99% Occupied Bandwidth, 5825 MHz



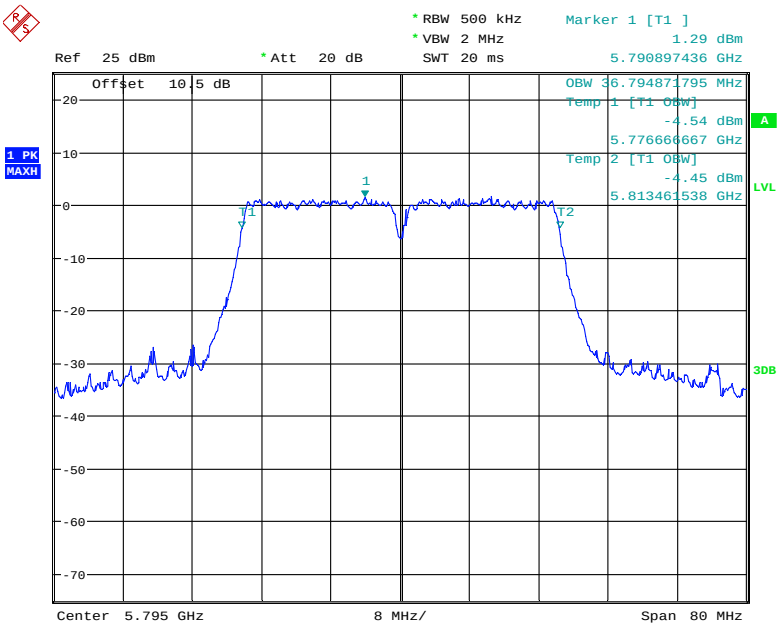

Date: 18.NOV.2018 17:48:52

## 802.11ac40 mode, 99% Occupied Bandwidth, 5755 MHz



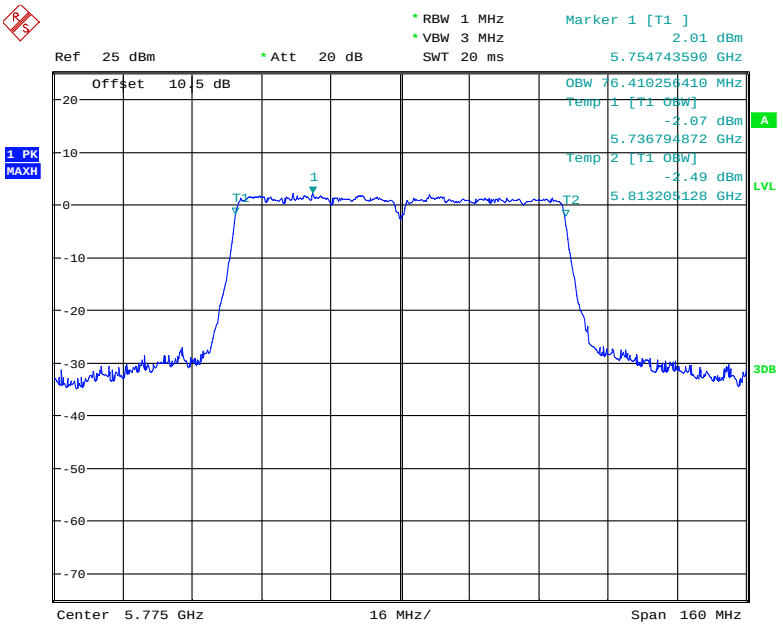

Date: 18.NOV.2018 17:41:18

## 802.11ac40 mode, 99% Occupied Bandwidth, 5795 MHz




Date: 18.NOV.2018 17:40:35

## 802.11ac80 mode, 99% Occupied Bandwidth, 5775 MHz

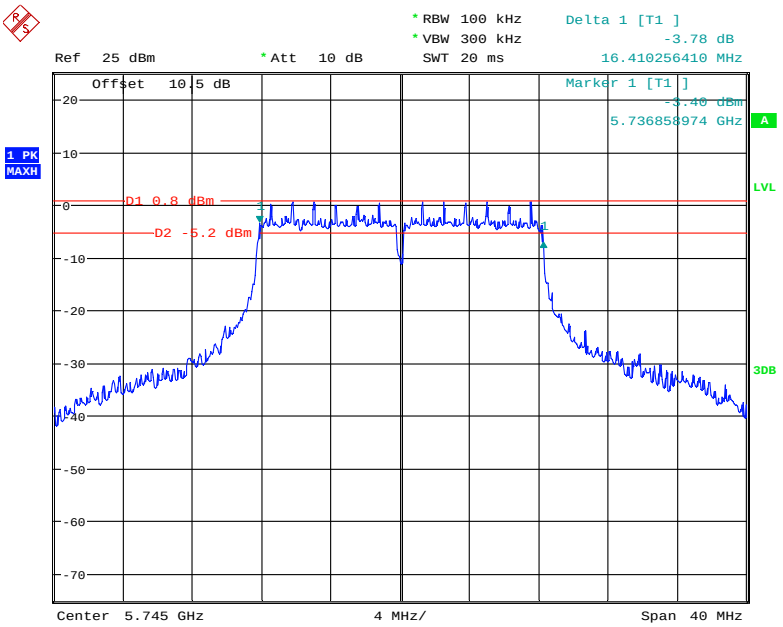



Date: 18.NOV.2018 17:39:55

**5725 MHz – 5850 MHz, Chain 1:**

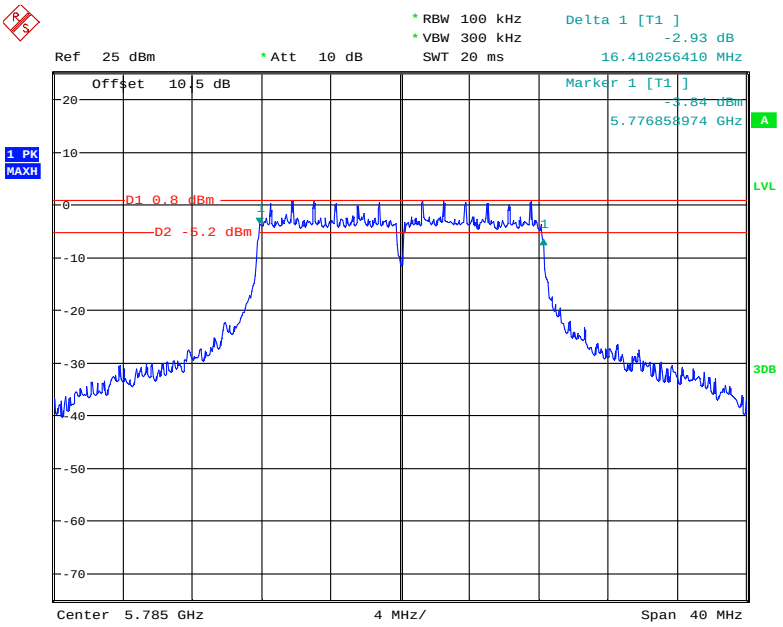
| Frequency (MHz) | 6dB bandwidth (MHz) | 99% Bandwidth (MHz) | Limit (MHz) | Remark |
|---|---|---|---|---|
| **802.11a** | | | | No transmitted signal in the 99% bandwidth extends into the U-NII-2C band |
| 5745 | 16.410 | 16.667 | 0.5 | |
| 5785 | 16.410 | 16.795 | 0.5 | |
| 5825 | 16.410 | 16.731 | 0.5 | |
| **802.11n20** | | | | |
| 5745 | 17.628 | 17.885 | 0.5 | |
| 5785 | 17.692 | 17.885 | 0.5 | |
| 5825 | 17.628 | 17.885 | 0.5 | |
| **802.11n40** | | | | |
| 5755 | 36.538 | 36.923 | 0.5 | |
| 5795 | 36.538 | 36.923 | 0.5 | |
| **802.11ac20** | | | | |
| 5745 | 17.692 | 17.885 | 0.5 | |
| 5785 | 17.692 | 17.949 | 0.5 | |
| 5825 | 17.692 | 17.885 | 0.5 | |
| **802.11ac40** | | | | |
| 5755 | 36.538 | 36.923 | 0.5 | |
| 5795 | 36.538 | 36.923 | 0.5 | |
| **802.11ac80** | | | | |
| 5775 | 76.154 | 76.667 | 0.5 | |

## 802.11a mode, 6dB Emission Bandwidth, 5745 MHz



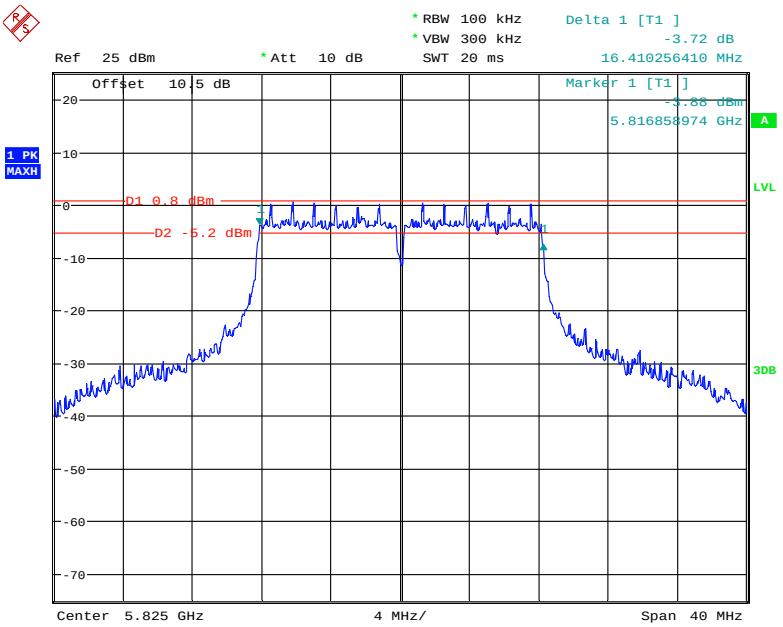

Date: 16.NOV.2018 23:24:34

## 802.11a mode, 6dB Emission Bandwidth, 5785 MHz



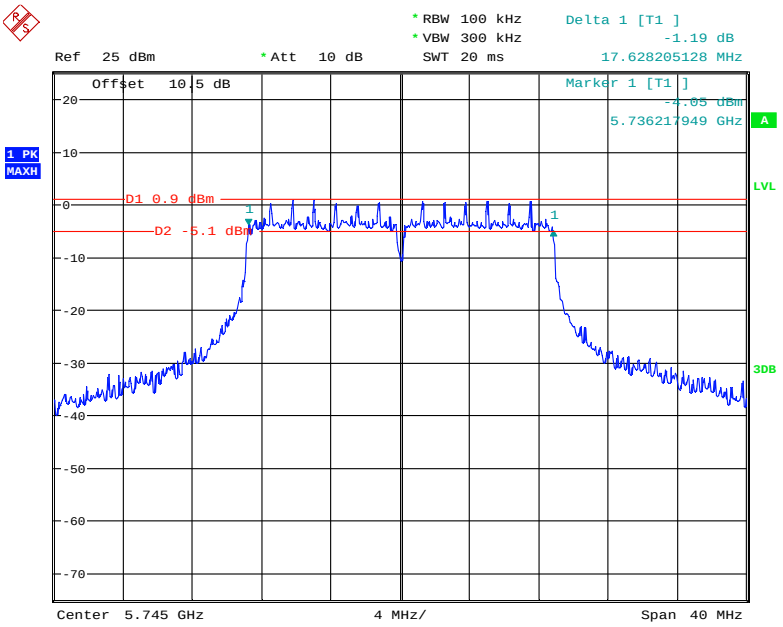

Date: 16.NOV.2018 23:23:52

## 802.11a mode, 6dB Emission Bandwidth, 5825 MHz



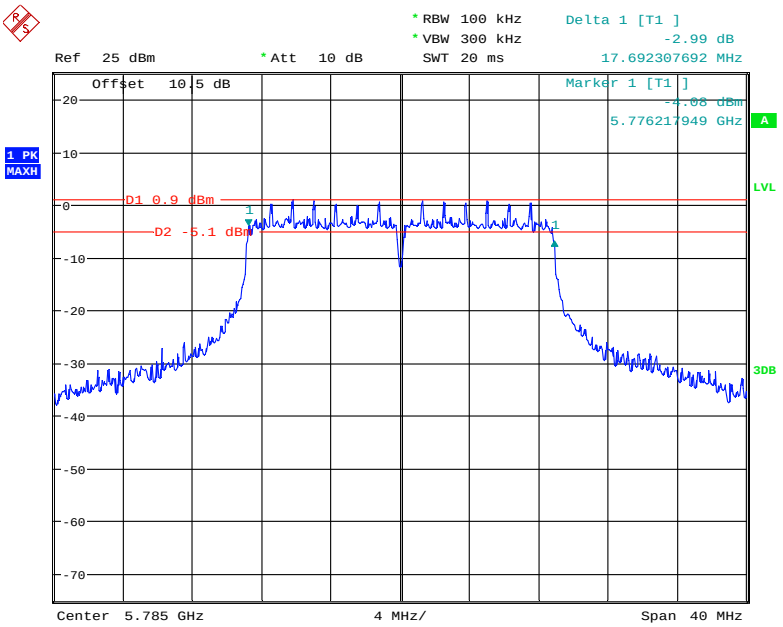

Date: 16.NOV.2018 23:22:44

## 802.11n20 mode, 6dB Emission Bandwidth, 5745 MHz



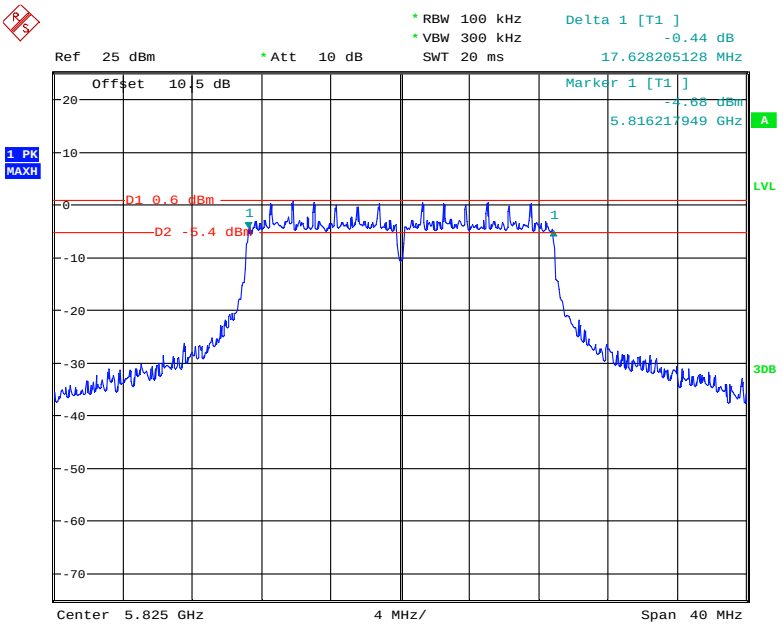

Date: 16.NOV.2018 23:21:22

## 802.11n20 mode, 6dB Emission Bandwidth, 5785 MHz



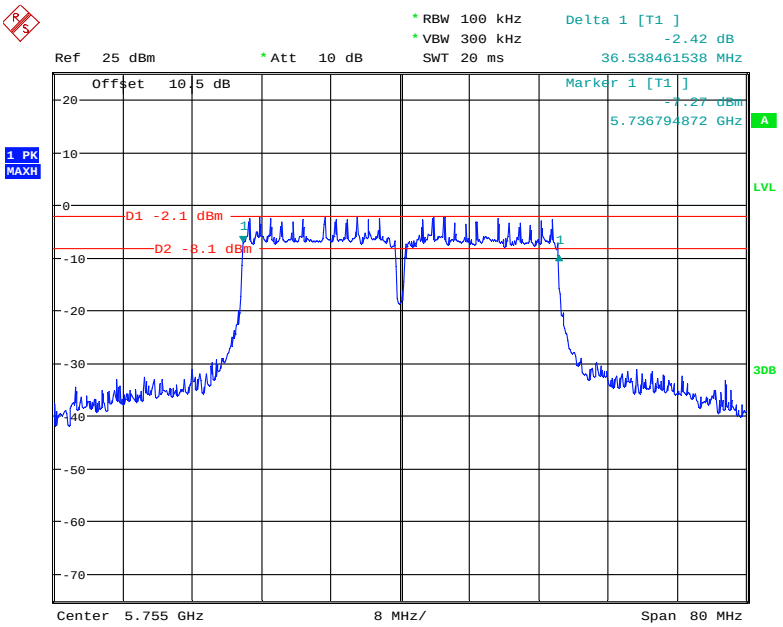

Date: 16.NOV.2018 23:20:24

## 802.11n20 mode, 6dB Emission Bandwidth, 5825 MHz



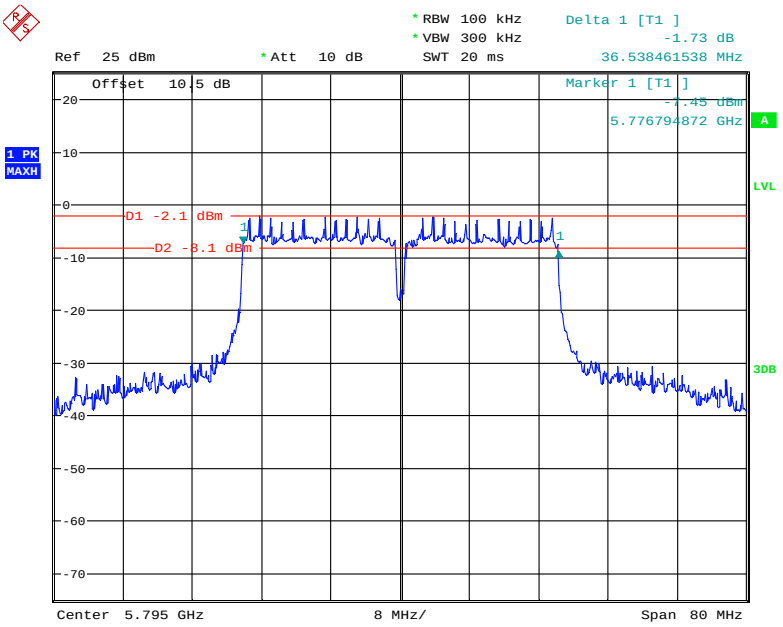

Date: 16.NOV.2018 23:18:51

## 802.11n40 mode, 6dB Emission Bandwidth, 5755 MHz



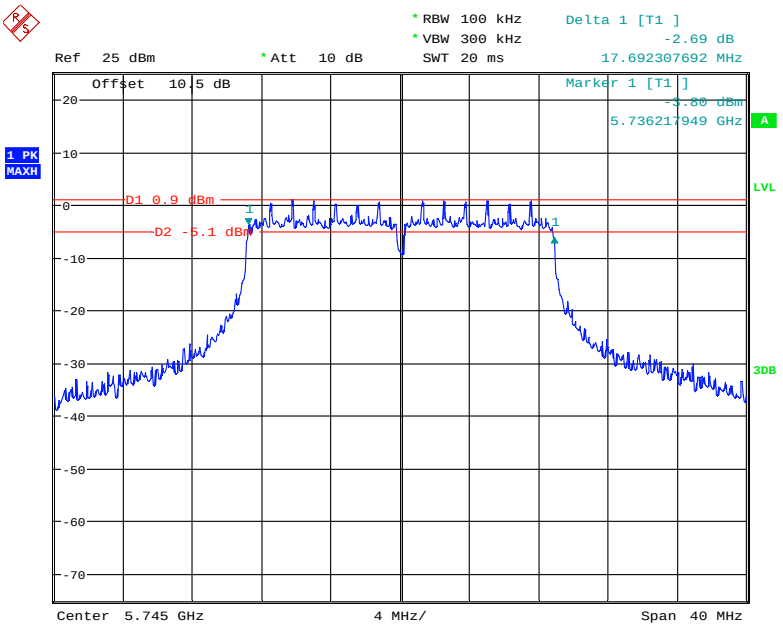

Date: 16.NOV.2018 23:27:16

## 802.11n40 mode, 6dB Emission Bandwidth, 5795 MHz



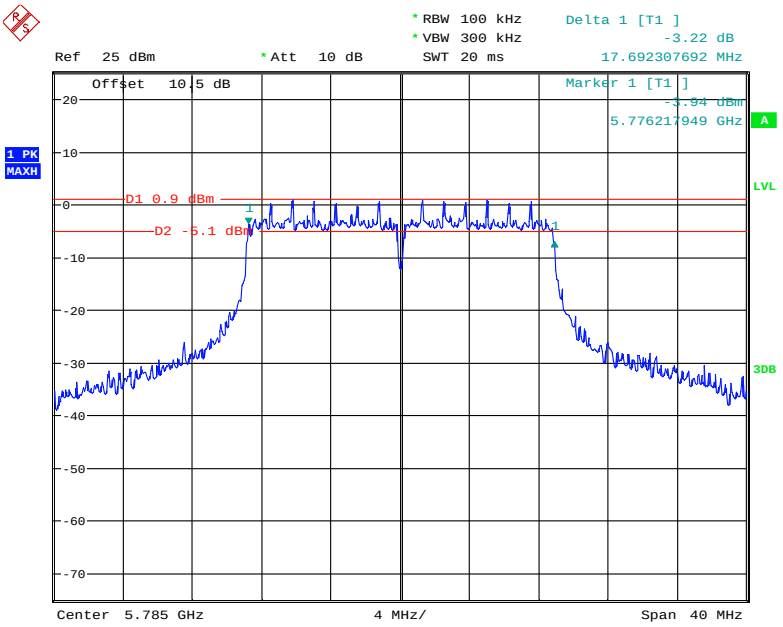

Date: 16.NOV.2018 23:26:29

## 802.11ac20 mode, 6dB Emission Bandwidth, 5745 MHz



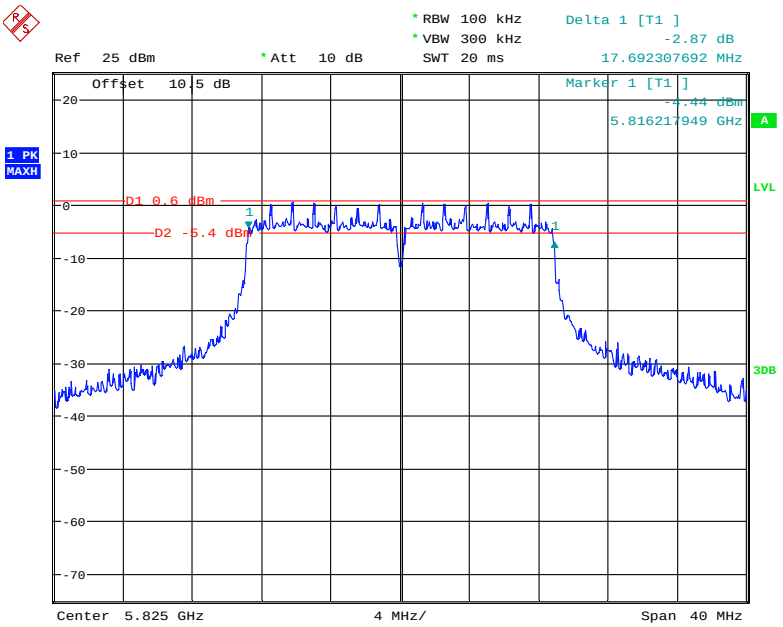

Date: 16.NOV.2018 23:15:10

## 802.11ac20 mode, 6dB Emission Bandwidth, 5785 MHz



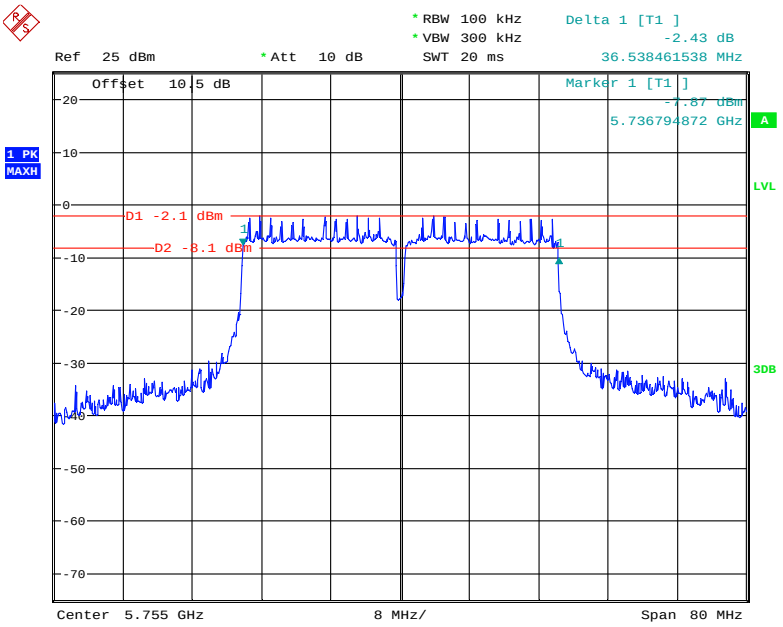

Date: 16.NOV.2018 23:15:53

## 802.11ac20 mode, 6dB Emission Bandwidth, 5825 MHz



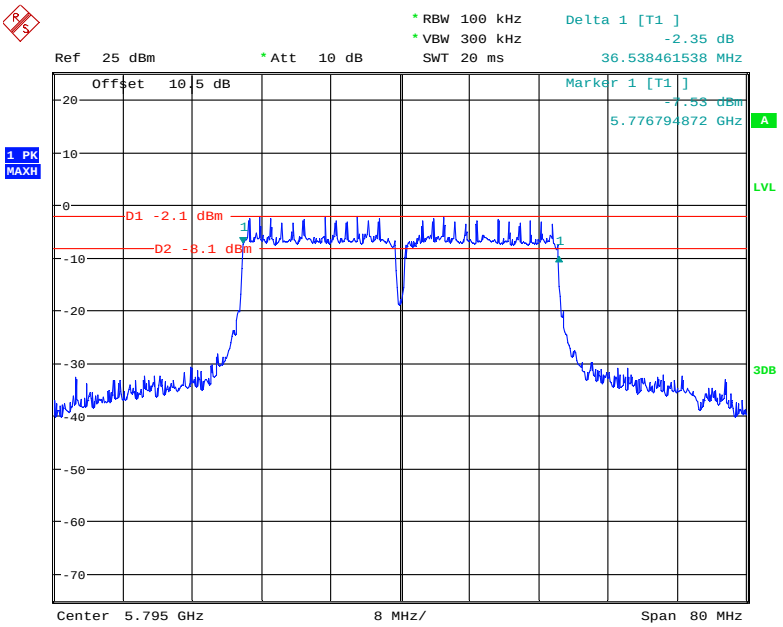

Date: 16.NOV.2018 23:17:00

## 802.11ac40 mode, 6dB Emission Bandwidth, 5755 MHz



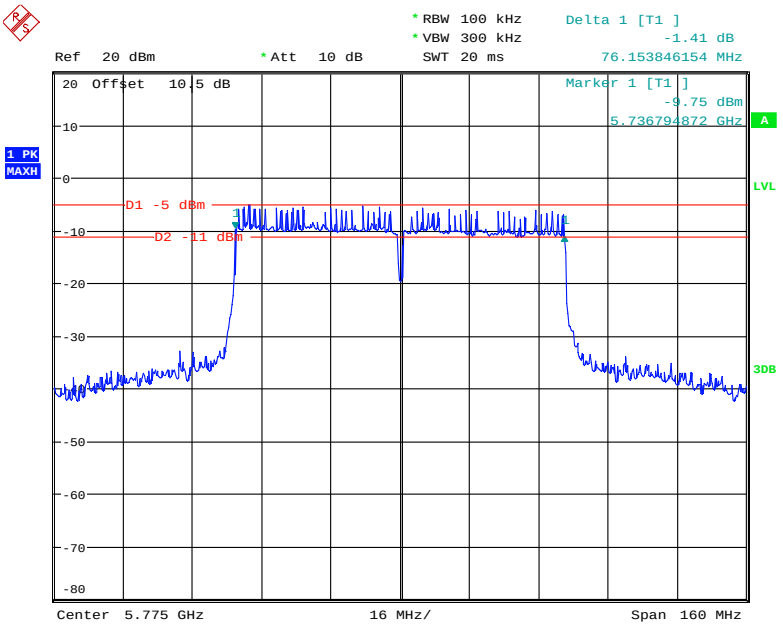

Date: 16.NOV.2018 23:28:56

## 802.11ac40 mode, 6dB Emission Bandwidth, 5795 MHz



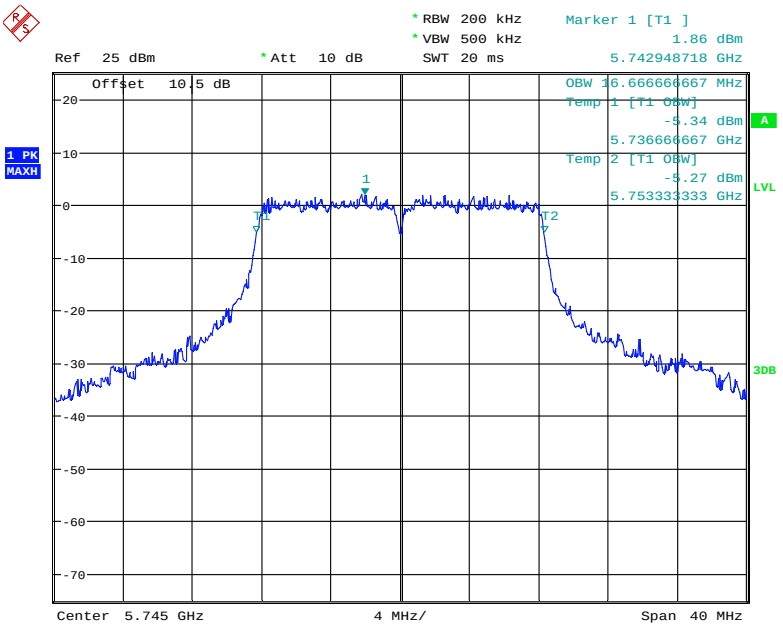

Date: 16.NOV.2018 23:28:01

## 802.11ac80 mode, 6dB Emission Bandwidth, 5775 MHz



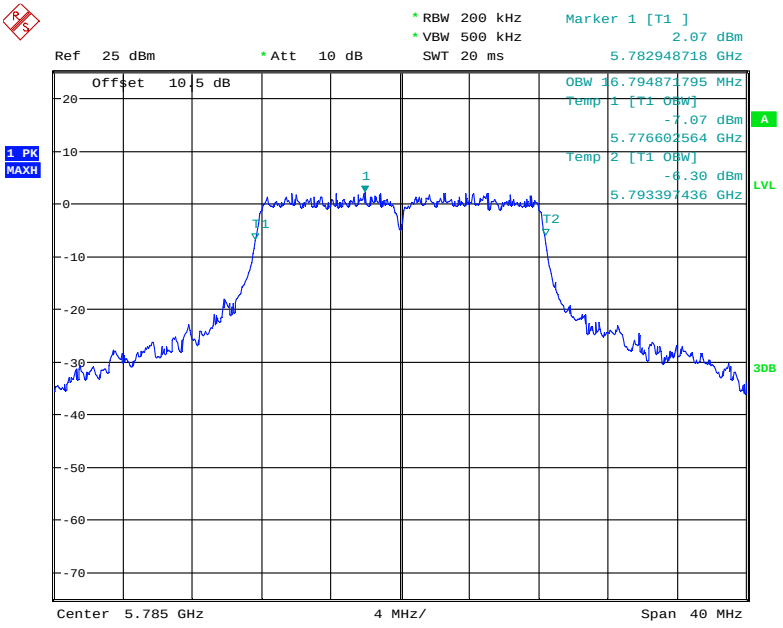

Date: 16.NOV.2018 22:22:31

## 802.11a mode, 99% Occupied Bandwidth, 5745 MHz



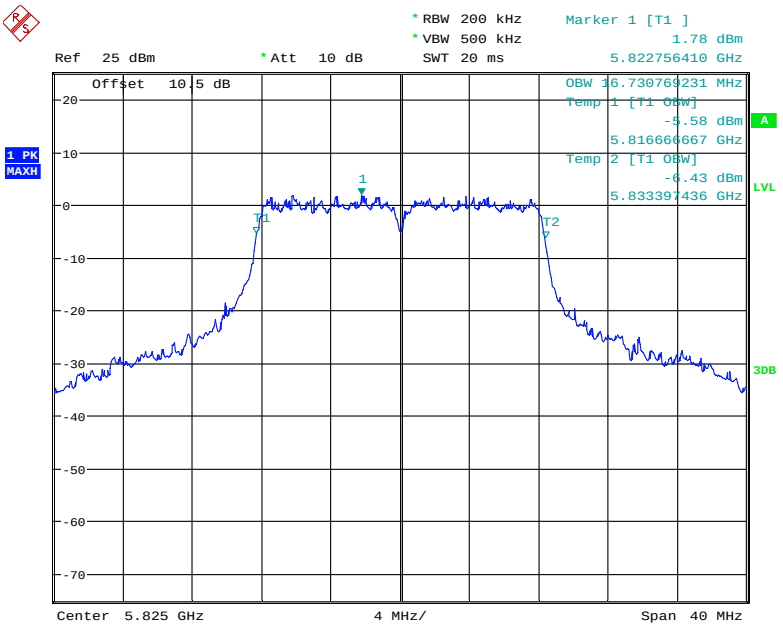

Date: 16.NOV.2018 23:08:51

## 802.11a mode, 99% Occupied Bandwidth, 5785 MHz



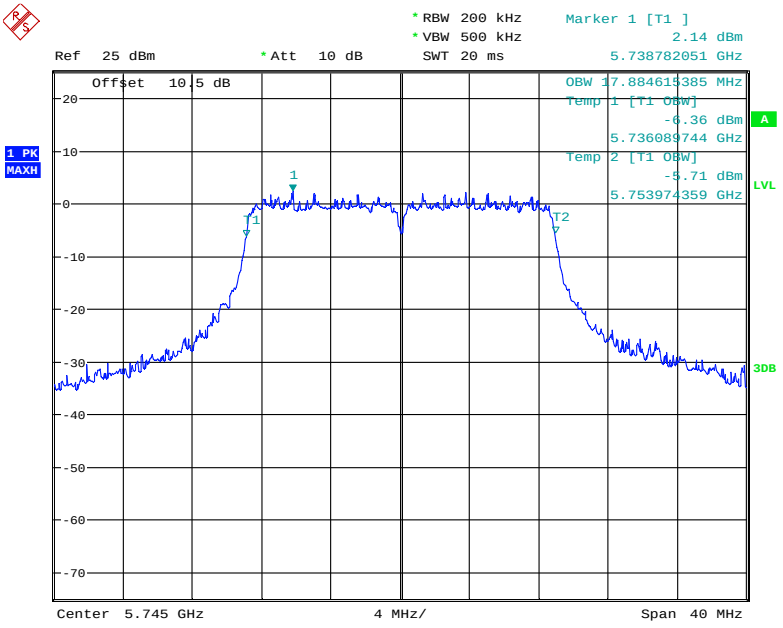

Date: 16.NOV.2018 23:08:24

## 802.11a mode, 99% Occupied Bandwidth, 5825 MHz



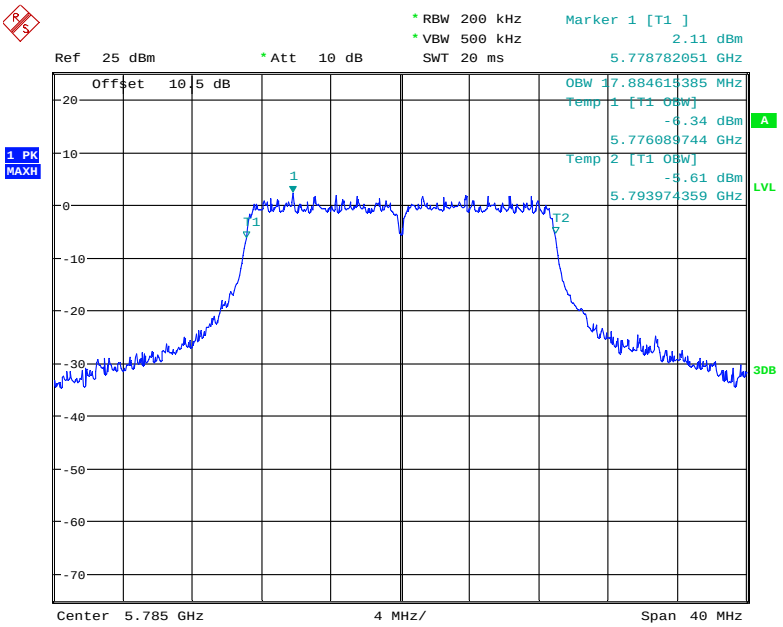

Date: 16.NOV.2018 23:07:59

## 802.11n20 mode, 99% Occupied Bandwidth, 5745 MHz



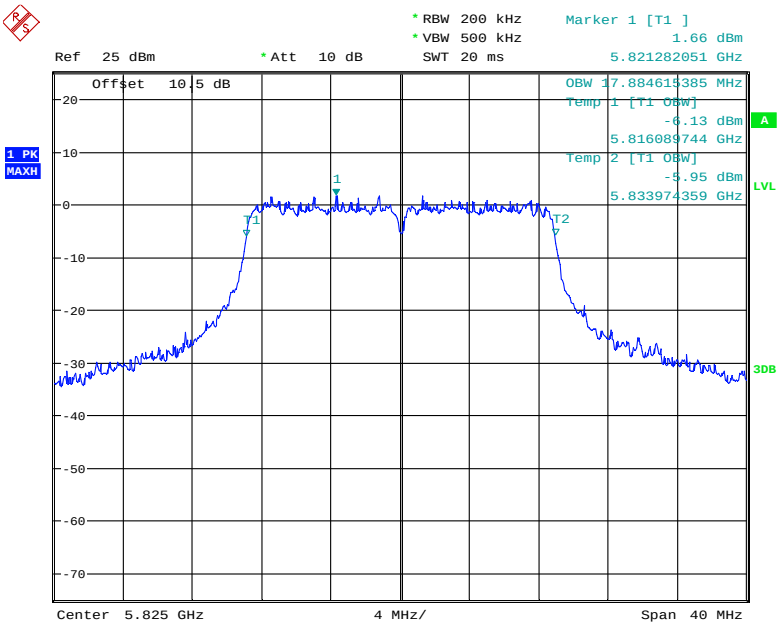

Date: 16.NOV.2018 23:10:11

## 802.11n20 mode, 99% Occupied Bandwidth, 5785 MHz



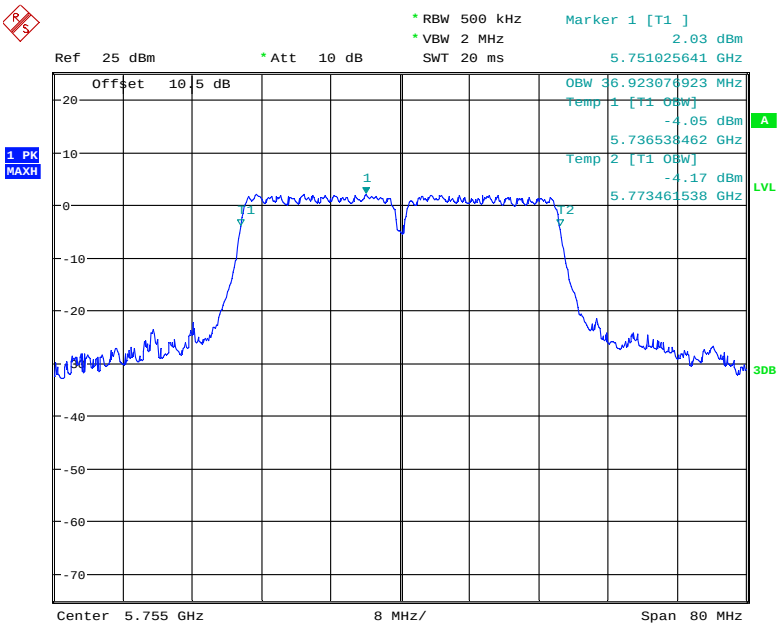

Date: 16.NOV.2018 23:09:47

## 802.11n20 mode, 99% Occupied Bandwidth, 5825 MHz



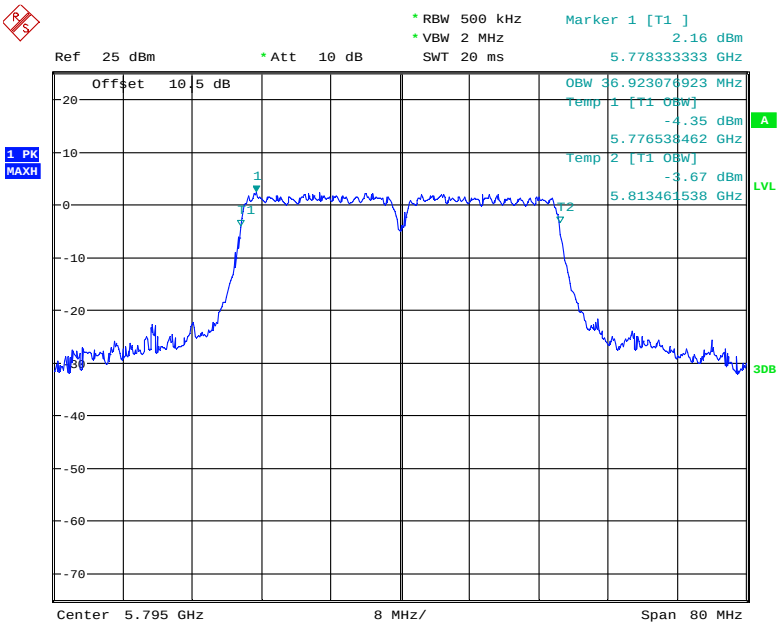

Date: 16.NOV.2018 23:09:21

## 802.11n40 mode, 99% Occupied Bandwidth, 5755 MHz



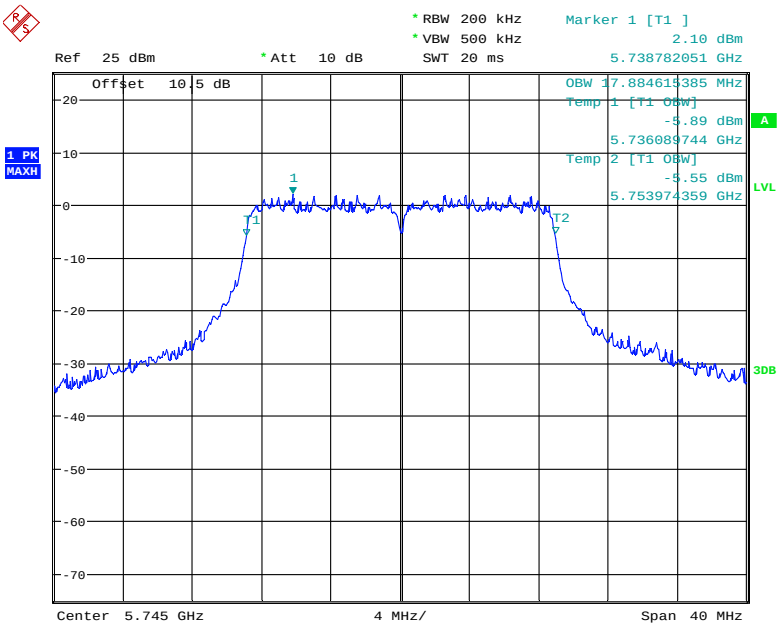

Date: 16.NOV.2018 23:07:04

## 802.11n40 mode, 99% Occupied Bandwidth, 5795 MHz



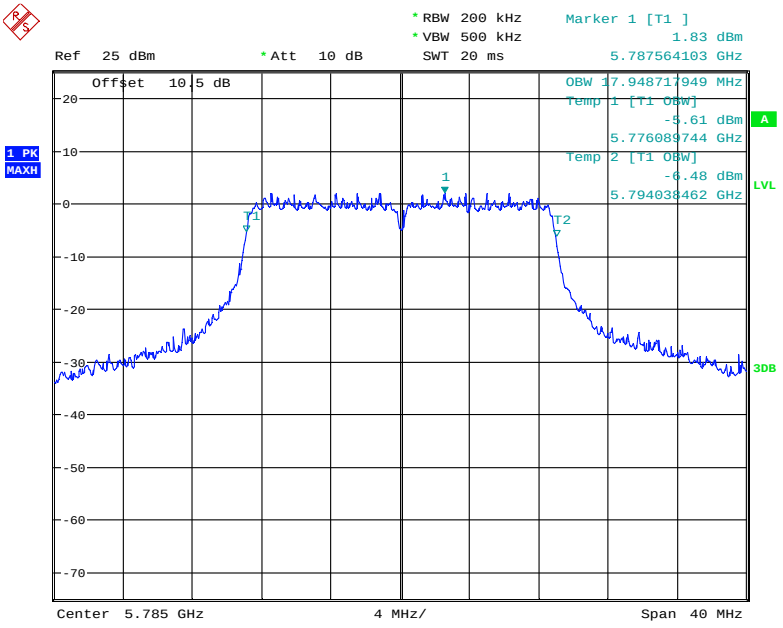

Date: 16.NOV.2018 23:06:39

## 802.11ac20 mode, 99% Occupied Bandwidth, 5745 MHz



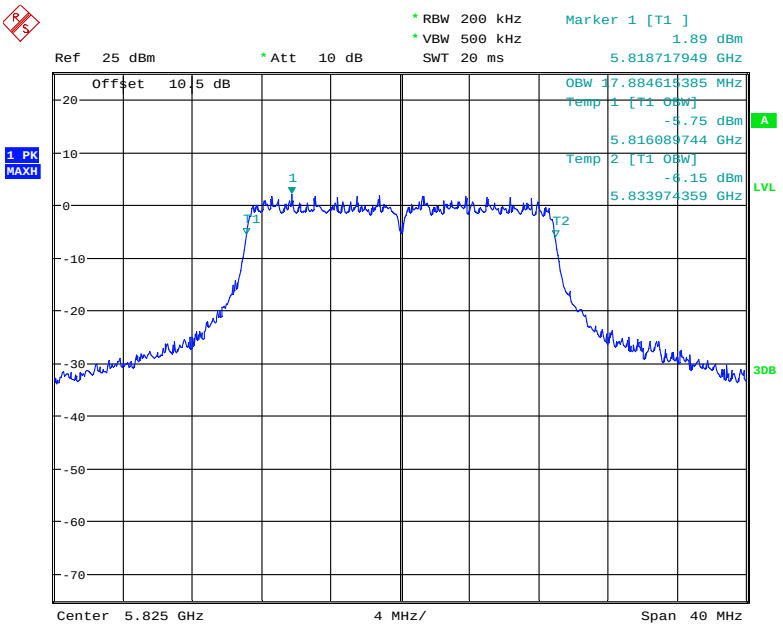

Date: 16.NOV.2018 23:11:42

## 802.11ac20 mode, 99% Occupied Bandwidth, 5785 MHz



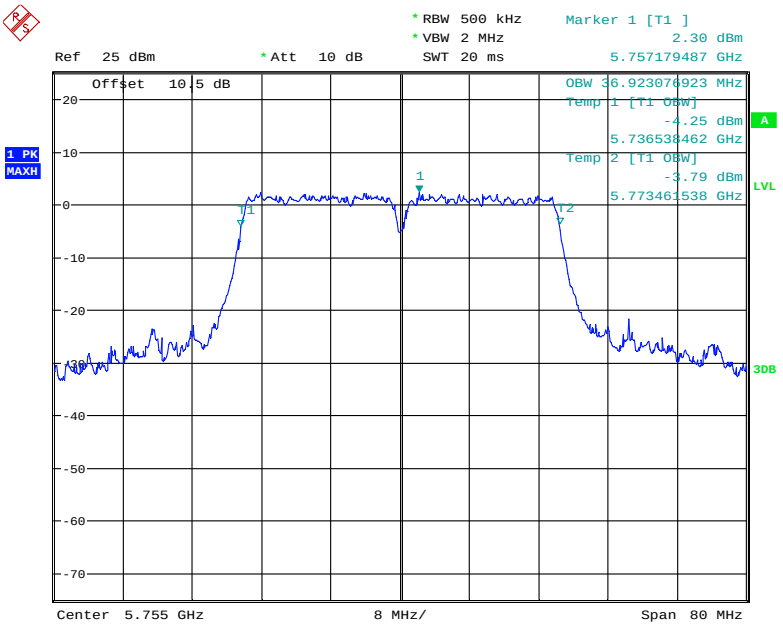

Date: 16.NOV.2018 23:11:18

## 802.11ac20 mode, 99% Occupied Bandwidth, 5825 MHz



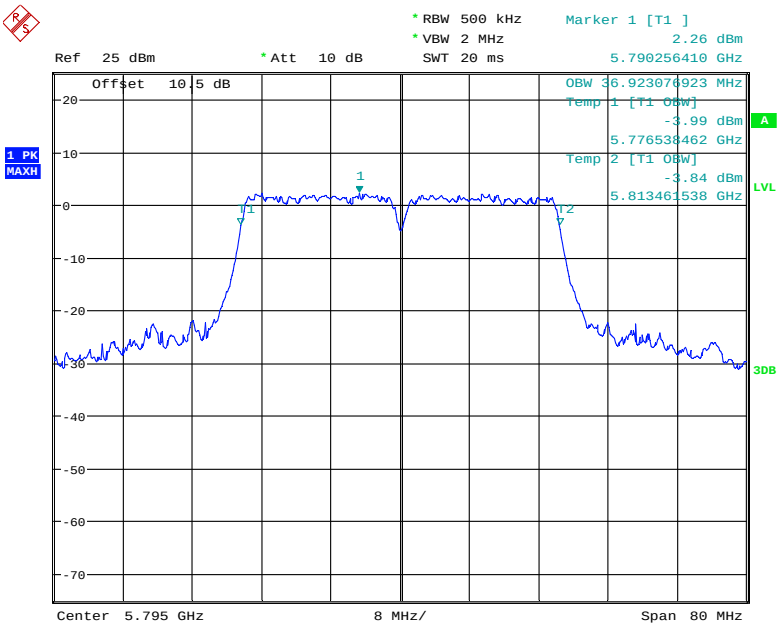

Date: 16.NOV.2018 23:10:50

## 802.11ac40 mode, 99% Occupied Bandwidth, 5755 MHz



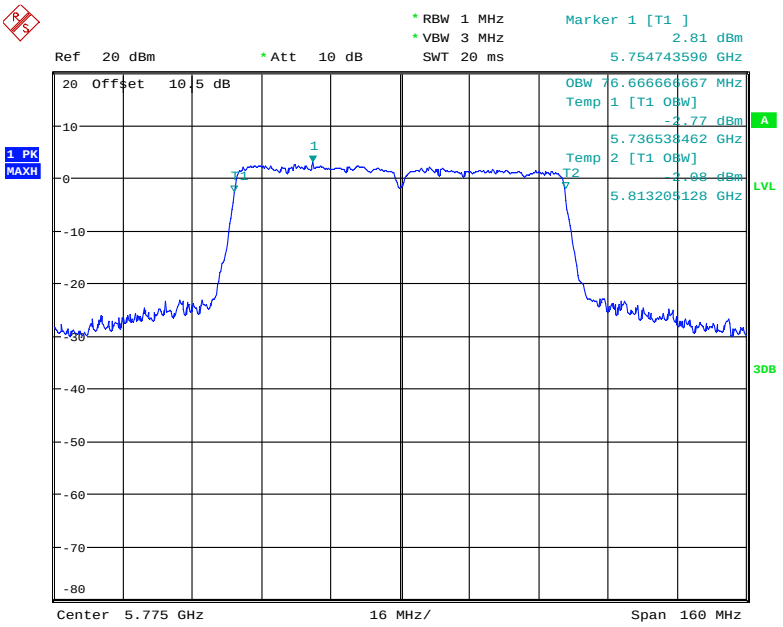

Date: 16.NOV.2018 23:06:09

## 802.11ac40 mode, 99% Occupied Bandwidth, 5795 MHz




Date: 16.NOV.2018 23:05:47

## 802.11ac80 mode, 99% Occupied Bandwidth, 5775 MHz




Date: 16.NOV.2018 22:23:36

# FCC §15.407(a) (1) (2)(3) – CONDUCTED TRANSMITTER OUTPUT POWER

## Applicable Standard

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

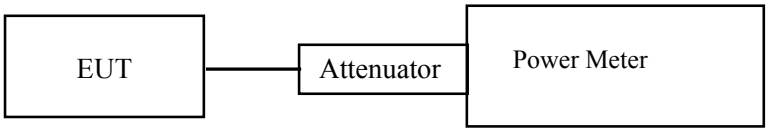
For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

## Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.



## Test Data

### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 23.5~25 ℃ |
| **Relative Humidity:** | 49~56 % |
| **ATM Pressure:** | 109.0~101.0 kPa |

*The testing was performed by Kiki Kong from 2018-11-15 to 2018-12-14.*

*EUT operation mode: Transmitting*

**Test Result:** Pass

Please refer to the following tables.

**Note: (1)** This Device Emploies Cyclic Delay Diversity.
When determining reductions in conducted power limits, array gain is calculated as follows:
As to this device, $N_{ANT} \leqslant 4$, Array Gain = 0 dB.
Total directional gain (dBi) = gain of individual transmit antennas (dBi) + 0 (dB) =4dBi.

(2) This device is client device.

**5150 MHz – 5250 MHz:**

| Frequency (MHz) | Antenna Port | Average Output Power (dBm) | Total Power (dBm) | Limit (dBm) |
|---|---|---|---|---|
| 802.11a | | | | |
| 5180 | 0 | 11.27 | / | 24 |
| | 1 | 11.52 | | |
| 5200 | 0 | 11.08 | / | |
| | 1 | 11.62 | | |
| 5240 | 0 | 10.90 | / | |
| | 1 | 11.73 | | |
| 802.11n20 | | | | |
| 5180 | 0 | 11.25 | 14.38 | 24 |
| | 1 | 11.48 | | |
| 5200 | 0 | 11.12 | 14.41 | |
| | 1 | 11.67 | | |
| 5240 | 0 | 10.93 | 14.51 | |
| | 1 | 12.01 | | |
| 802.11n40 | | | | |
| 5190 | 0 | 9.41 | 12.49 | 24 |
| | 1 | 9.54 | | |
| 5230 | 0 | 9.09 | 12.25 | |
| | 1 | 9.38 | | |
| 802.11ac20 | | | | |
| 5180 | 0 | 11.32 | 14.44 | 24 |
| | 1 | 11.54 | | |
| 5200 | 0 | 11.19 | 14.47 | |
| | 1 | 11.71 | | |
| 5240 | 0 | 11.03 | 14.46 | |
| | 1 | 11.84 | | |
| 802.11ac40 | | | | |
| 5190 | 0 | 9.25 | 12.30 | 24 |
| | 1 | 9.33 | | |
| 5230 | 0 | 9.10 | 12.29 | |
| | 1 | 9.45 | | |
| 802.11ac80 | | | | |
| 5210 | 0 | 9.51 | 12.61 | 24 |
| | 1 | 9.68 | | |

**5250 MHz – 5350 MHz:**

| Frequency (MHz) | Antenna Port | Average Output Power (dBm) | Total Power (dBm) | Limit (dBm) |
|---|---|---|---|---|
| 802.11a | | | | |
| 5260 | 0 | 10.67 | / | 24 |
| | 1 | 11.70 | | |
| 5280 | 0 | 10.71 | / | |
| | 1 | 11.52 | | |
| 5320 | 0 | 10.43 | / | |
| | 1 | 11.29 | | |
| 802.11n20 | | | | |
| 5260 | 0 | 10.71 | 14.18 | 24 |
| | 1 | 11.59 | | |
| 5280 | 0 | 10.64 | 14.13 | |
| | 1 | 11.55 | | |
| 5320 | 0 | 10.53 | 13.95 | |
| | 1 | 11.32 | | |
| 802.11n40 | | | | |
| 5270 | 0 | 9.05 | 12.39 | 24 |
| | 1 | 9.68 | | |
| 5310 | 0 | 8.89 | 12.18 | |
| | 1 | 9.44 | | |
| 802.11ac20 | | | | |
| 5260 | 0 | 10.81 | 14.38 | 24 |
| | 1 | 11.87 | | |
| 5280 | 0 | 10.68 | 14.14 | |
| | 1 | 11.54 | | |
| 5320 | 0 | 10.66 | 14.14 | |
| | 1 | 11.56 | | |
| 802.11ac40 | | | | |
| 5270 | 0 | 9.13 | 12.25 | 24 |
| | 1 | 9.35 | | |
| 5310 | 0 | 9.25 | 12.27 | |
| | 1 | 9.27 | | |
| 802.11ac80 | | | | |
| 5290 | 0 | 6.86 | 9.89 | 24 |
| | 1 | 6.91 | | |

**5470 MHz – 5725 MHz:**

| Frequency (MHz) | Antenna Port | Average Output Power (dBm) | Total Power (dBm) | Limit (dBm) |
|---|---|---|---|---|
| 802.11a | | | | |
| 5500 | 0 | 11.44 | / | 24 |
| | 1 | 11.22 | | |
| 5600 | 0 | 11.75 | / | |
| | 1 | 11.84 | | |
| 5700 | 0 | 11.54 | / | |
| | 1 | 12.49 | | |
| 802.11n20 | | | | |
| 5500 | 0 | 9.56 | 12.49 | 24 |
| | 1 | 9.39 | | |
| 5600 | 0 | 9.63 | 12.79 | |
| | 1 | 9.93 | | |
| 5700 | 0 | 9.62 | 13.31 | |
| | 1 | 10.88 | | |
| 802.11n40 | | | | |
| 5510 | 0 | 9.57 | 12.51 | 24 |
| | 1 | 9.42 | | |
| 5590 | 0 | 9.98 | 13.16 | |
| | 1 | 10.32 | | |
| 5670 | 0 | 9.70 | 13.41 | |
| | 1 | 11.01 | | |
| 802.11ac20 | | | | |
| 5500 | 0 | 9.55 | 12.44 | 24 |
| | 1 | 9.30 | | |
| 5600 | 0 | 9.60 | 12.82 | |
| | 1 | 10.01 | | |
| 5700 | 0 | 9.57 | 12.50 | |
| | 1 | 9.40 | | |
| 802.11ac40 | | | | |
| 5510 | 0 | 9.58 | 12.50 | 24 |
| | 1 | 9.40 | | |
| 5590 | 0 | 9.99 | 13.12 | |
| | 1 | 10.22 | | |
| 5670 | 0 | 9.73 | 13.21 | |
| | 1 | 10.62 | | |
| 802.11ac80 | | | | |
| 5530 | 0 | 9.79 | 12.70 | 24 |
| | 1 | 9.58 | | |
| 5610 | 0 | 9.67 | 13.03 | |
| | 1 | 10.34 | | |

**5725 MHz – 5850 MHz:**

| Frequency (MHz) | Antenna Port | Average Output Power (dBm) | Total Power (dBm) | Limit (dBm) |
|---|---|---|---|---|
| 802.11a | | | | |
| 5745 | 0 | 11.29 | / | 30 |
| | 1 | 12.29 | | |
| 5785 | 0 | 11.40 | / | |
| | 1 | 12.24 | | |
| 5825 | 0 | 11.15 | / | |
| | 1 | 12.02 | | |
| 802.11n20 | | | | |
| 5745 | 0 | 11.28 | 14.83 | 30 |
| | 1 | 12.30 | | |
| 5785 | 0 | 11.42 | 14.92 | |
| | 1 | 12.35 | | |
| 5825 | 0 | 11.14 | 14.64 | |
| | 1 | 12.08 | | |
| 802.11n40 | | | | |
| 5755 | 0 | 11.41 | 14.94 | 30 |
| | 1 | 12.39 | | |
| 5795 | 0 | 11.50 | 14.96 | |
| | 1 | 12.36 | | |
| 802.11ac20 | | | | |
| 5745 | 0 | 11.30 | 14.84 | 30 |
| | 1 | 12.30 | | |
| 5785 | 0 | 11.43 | 14.92 | |
| | 1 | 12.34 | | |
| 5825 | 0 | 11.14 | 14.64 | |
| | 1 | 12.07 | | |
| 802.11ac40 | | | | |
| 5755 | 0 | 11.58 | 14.98 | 30 |
| | 1 | 12.32 | | |
| 5795 | 0 | 11.57 | 14.99 | |
| | 1 | 12.35 | | |
| 802.11ac80 | | | | |
| 5775 | 0 | 11.44 | 14.88 | 30 |
| | 1 | 12.26 | | |

# FCC §15.407(a) (1) (2) (3) - POWER SPECTRAL DENSITY

## Applicable Standard

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

## Test Procedure

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ⩾ 1/T, where T is defined in section II.B.l.a).
b) Set VBW ⩾ 3 RBW.
c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500 kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log (1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

## Test Data

### Environmental Conditions

| | |
|---|---|
| **Temperature:** | 23.5~25 ℃ |
| **Relative Humidity:** | 49~56 % |
| **ATM Pressure:** | 109.0~101.0 kPa |

*The testing was performed by Kiki Kong from 2018-11-15 to 2018-12-14.*

.

*EUT operation mode: Transmitting*

**Test Result:** Pass

**Note: (1)** This Device Emploies Cyclic Delay Diversity.
When determining reductions in power spectral density limits, array gain is calculated as follows:
Array gain = 10 log ($N_{ANT}$/Nss), where $N_{ANT}$ is the number of transmit antennas is 2,
and $N_{SS}$ = the number of independent spatial streams of data=2.
Total directional gain (dBi) = gain of individual transmit antennas (dBi) +0 (dB) =4dBi.

(2) This device is client device.

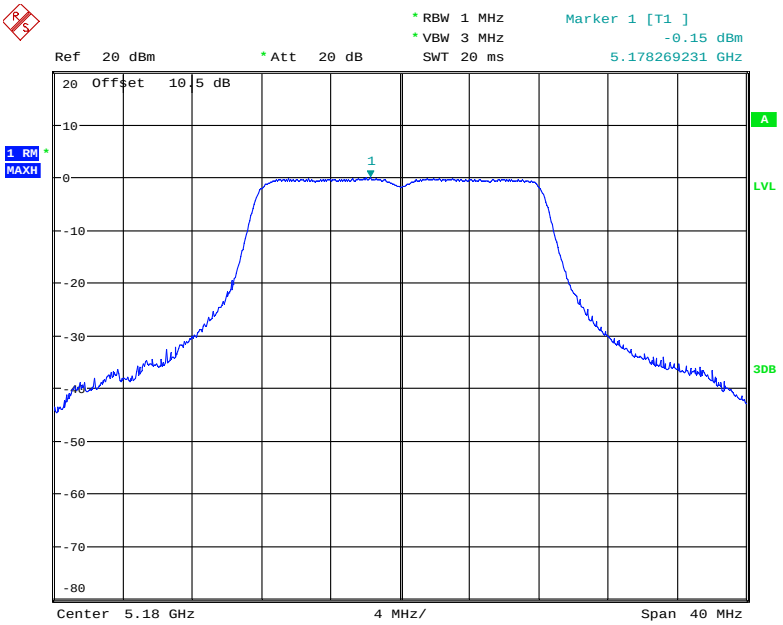
Please refer to the following tables and plots.

**5150 MHz – 5250 MHz,:**

| Frequency (MHz) | Antenna Port | Power Spectral Density (dBm/MHz) | Total Power Spectral Density (dBm/MHz) | Limit (dBm/MHz) |
|---|---|---|---|---|
| 802.11a | | | | |
| 5180 | 0 | -0.15 | / | 11 |
| | 1 | 0.45 | | |
| 5200 | 0 | 0.17 | / | |
| | 1 | 0.87 | | |
| 5240 | 0 | -0.43 | / | |
| | 1 | 0.82 | | |
| 802.11n20 | | | | |
| 5180 | 0 | 0.01 | 3.20 | 11 |
| | 1 | 0.39 | | |
| 5200 | 0 | -0.28 | 3.10 | |
| | 1 | 0.42 | | |
| 5240 | 0 | -0.30 | 3.16 | |
| | 1 | 0.57 | | |
| 802.11n40 | | | | |
| 5190 | 0 | -5.12 | -1.94 | 11 |
| | 1 | -4.85 | | |
| 5230 | 0 | -5.02 | -1.87 | |
| | 1 | -4.64 | | |
| 802.11ac20 | | | | |
| 5180 | 0 | -0.13 | 3.14 | 11 |
| | 1 | 0.38 | | |
| 5200 | 0 | 0.04 | 3.16 | |
| | 1 | 0.25 | | |
| 5240 | 0 | -0.06 | 3.22 | |
| | 1 | 0.45 | | |
| 802.11ac40 | | | | |
| 5190 | 0 | -5.10 | -1.94 | 11 |
| | 1 | -4.76 | | |
| 5230 | 0 | -5.51 | -2.08 | |
| | 1 | -4.71 | | |
| 802.11ac80 | | | | |
| 5210 | 0 | -7.98 | -4.56 | 11 |
| | 1 | -7.24 | | |

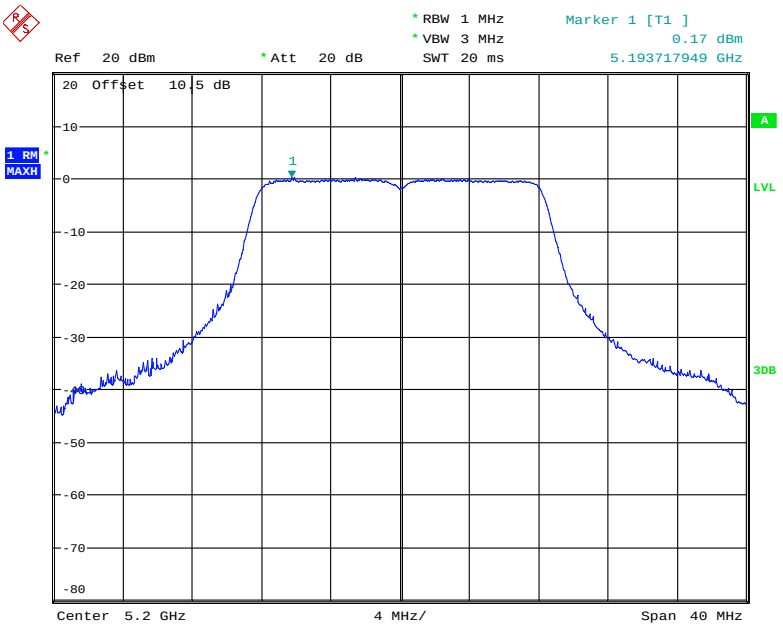
**Chain 0:**

**802.11a mode, Power Spectral Density, 5180 MHz**



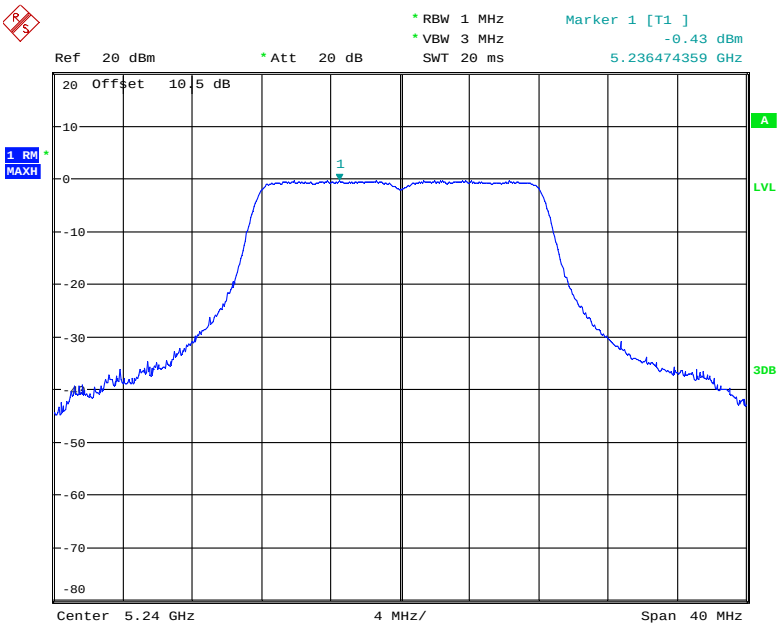

Date: 18.NOV.2018 13:30:34

**802.11a mode, Power Spectral Density, 5200 MHz**



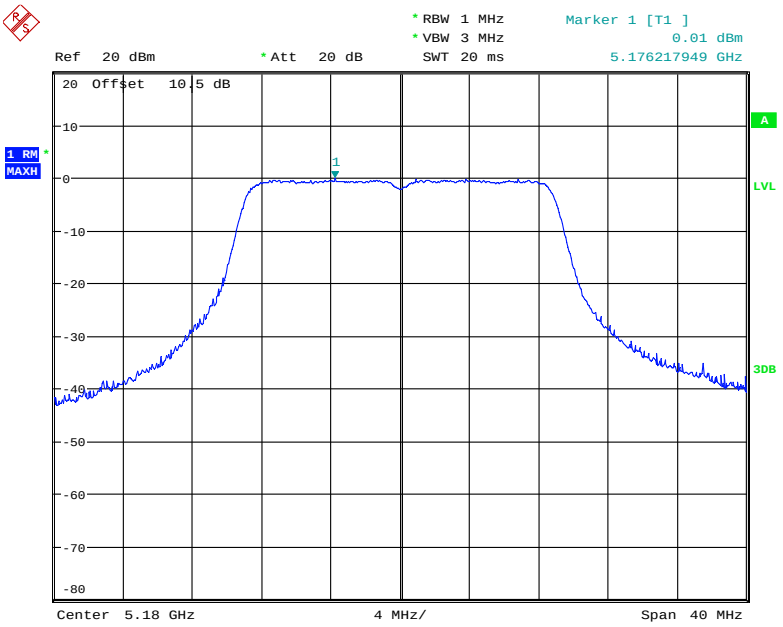

Date: 18.NOV.2018 13:31:05

## 802.11a mode, Power Spectral Density, 5240 MHz



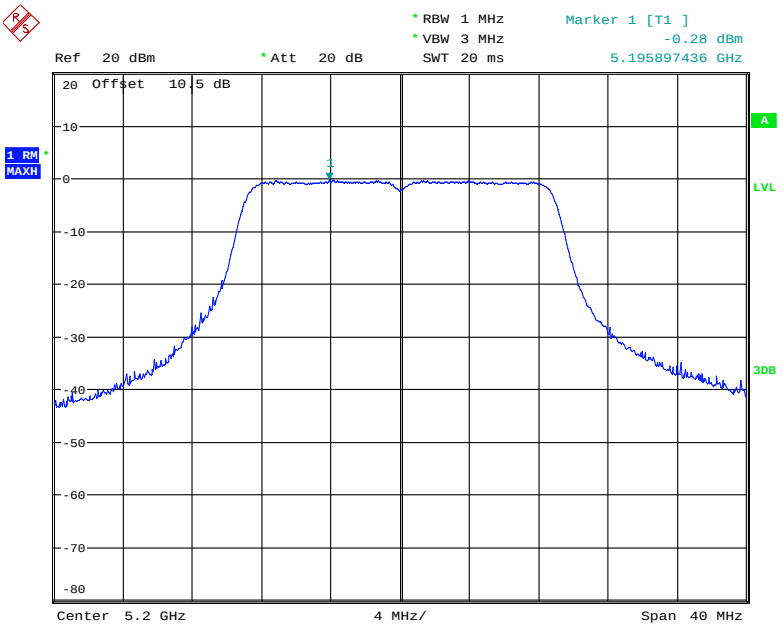

Date: 18.NOV.2018 13:33:05

## 802.11n20 mode, Power Spectral Density, 5180 MHz



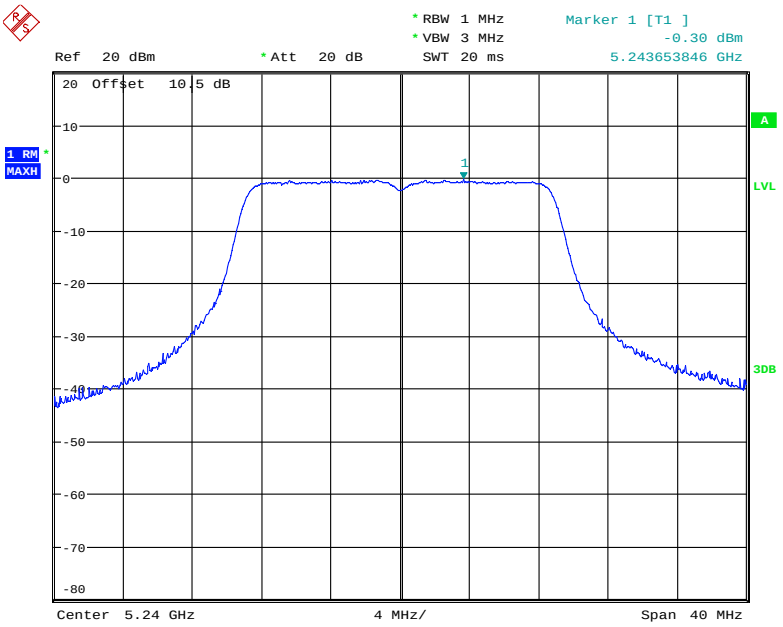

Date: 18.NOV.2018 13:33:45

## 802.11n20 mode, Power Spectral Density, 5200 MHz



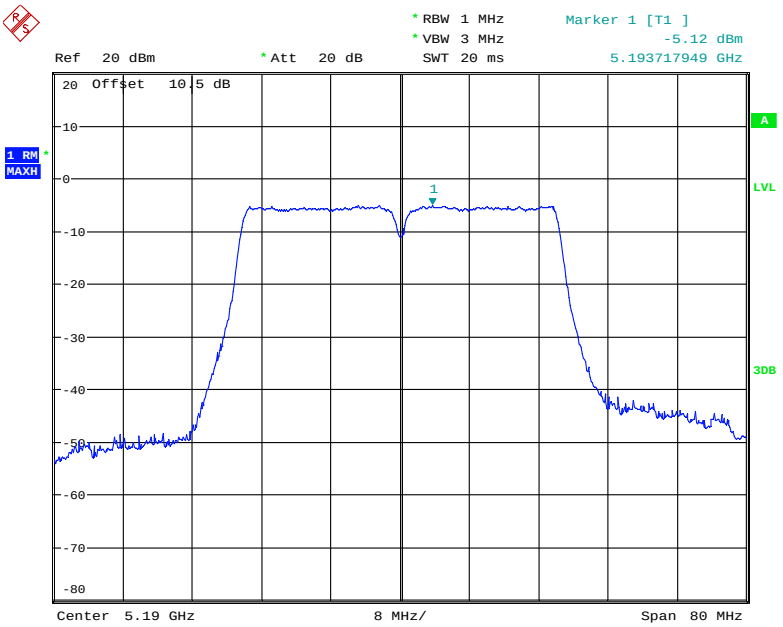

Date: 18.NOV.2018 13:35:06

## 802.11n20 mode, Power Spectral Density, 5240 MHz



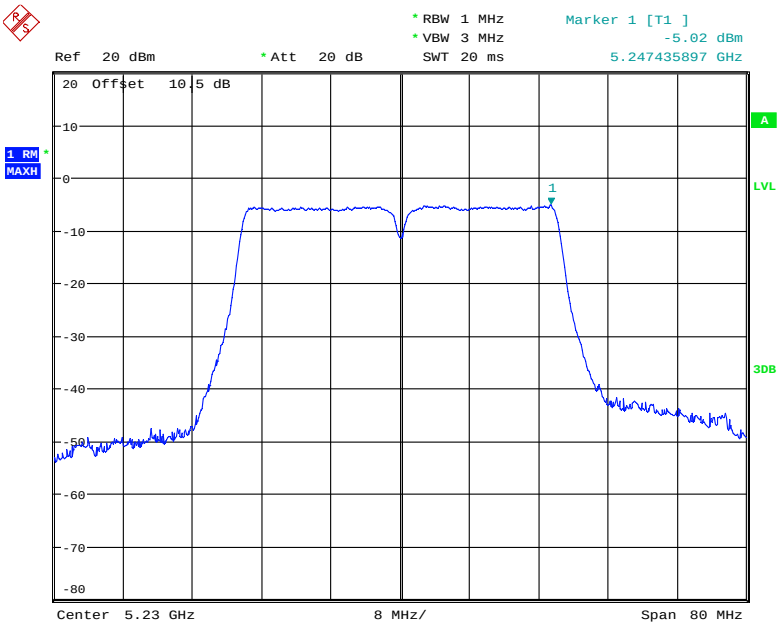

Date: 18.NOV.2018 13:35:50

## 802.11n40 mode, Power Spectral Density, 5190 MHz



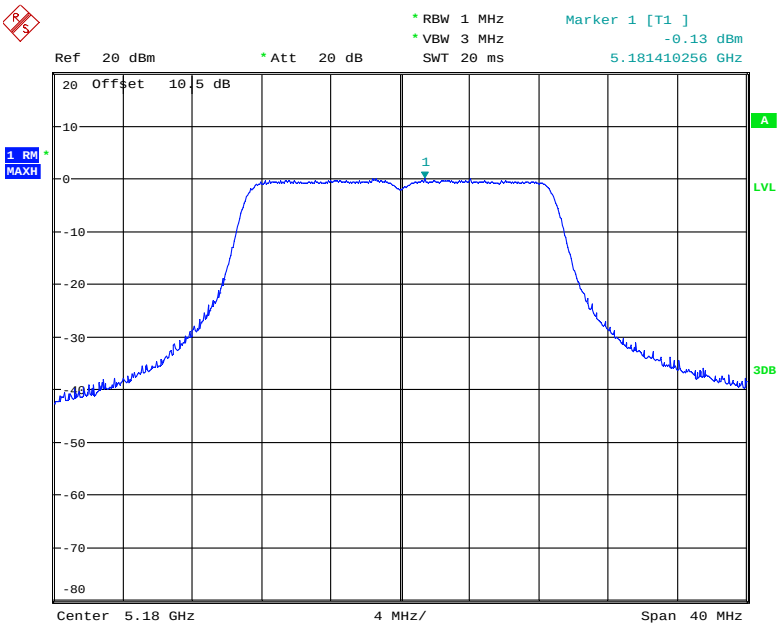

Date: 18.NOV.2018 13:27:30

## 802.11n40 mode, Power Spectral Density, 5230 MHz



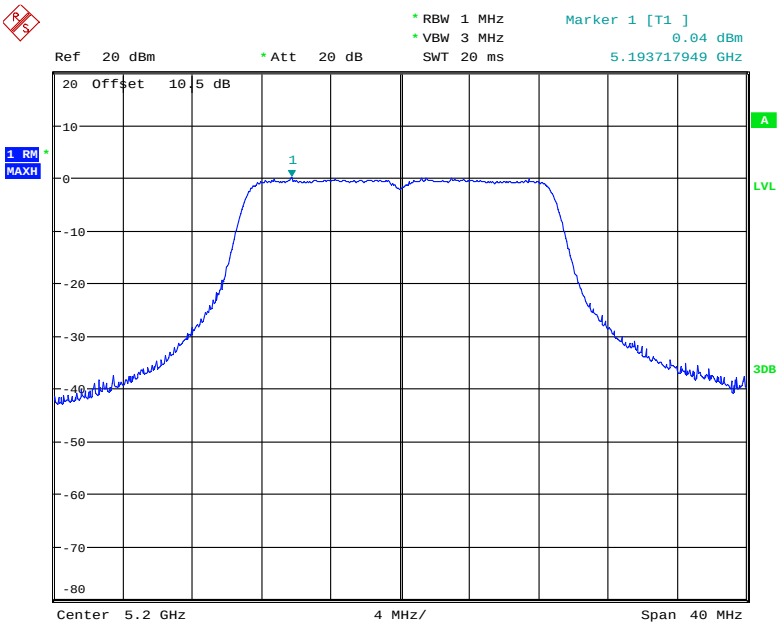

Date: 18.NOV.2018 14:13:41

## 802.11ac20 mode, Power Spectral Density, 5180 MHz



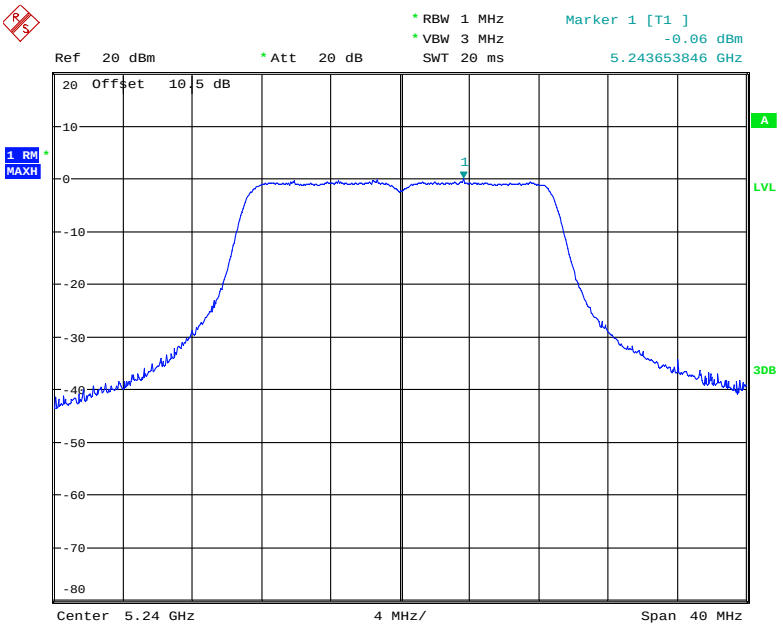

Date: 18.NOV.2018 13:37:27

## 802. 11ac20 mode, Power Spectral Density, 5200 MHz



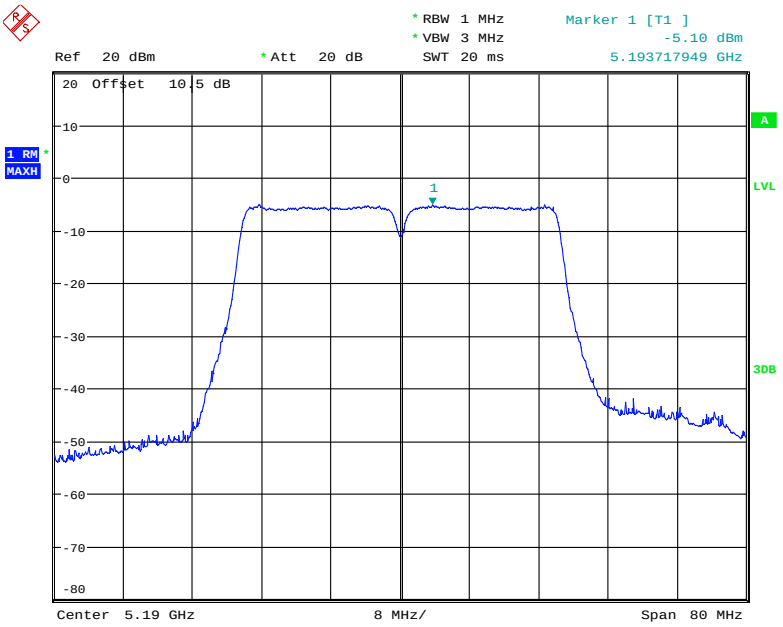

Date: 18.NOV.2018 13:38:17

## 802. 11ac20 mode, Power Spectral Density, 5240 MHz



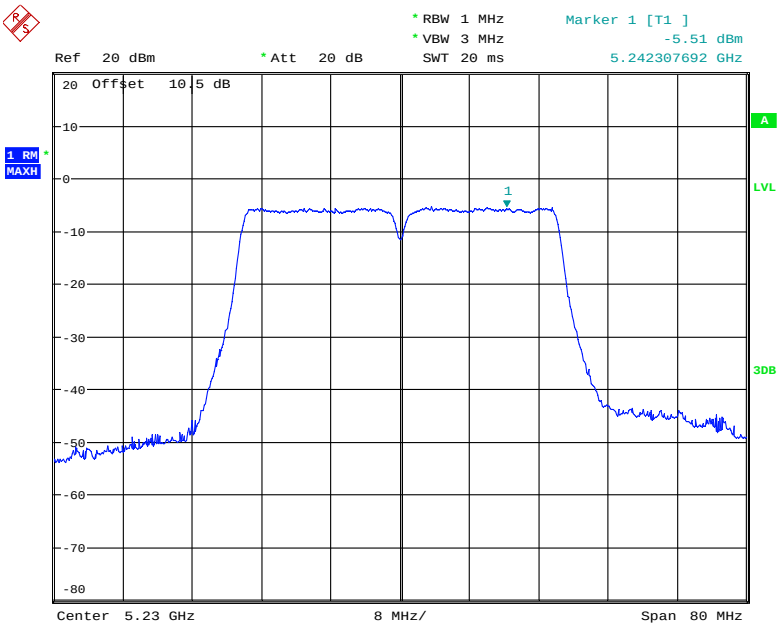

Date: 18.NOV.2018 13:39:20

## 802. 11ac40 mode, Power Spectral Density, 5190 MHz



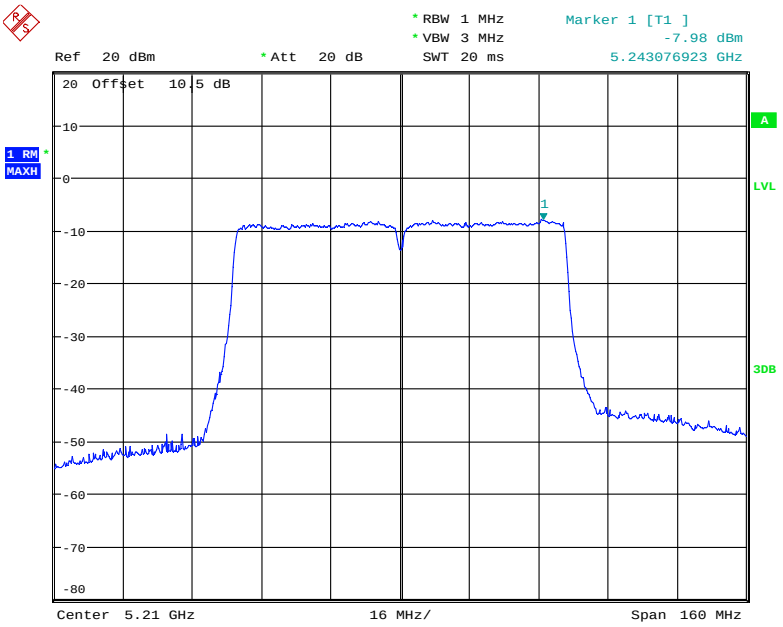

Date: 18.NOV.2018 13:21:46

## 802. 11ac40 mode, Power Spectral Density, 5230 MHz




Date: 18.NOV.2018 13:26:39

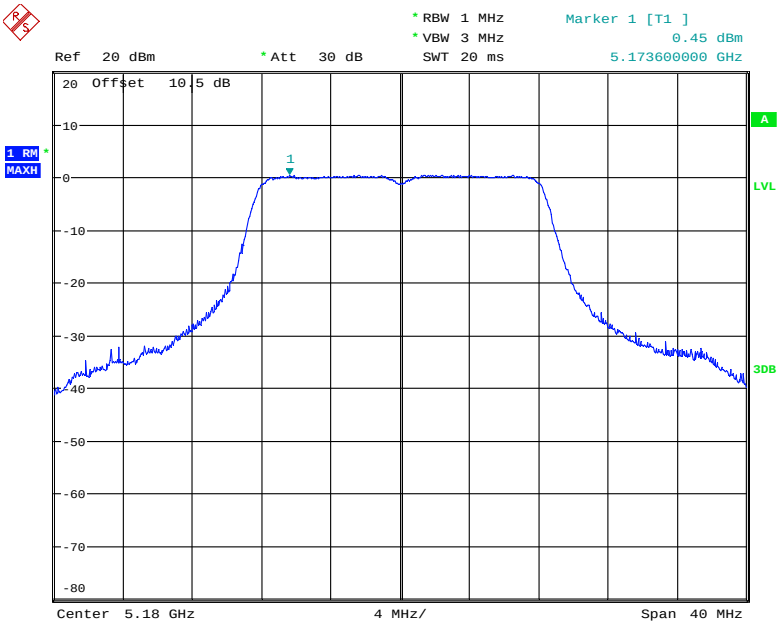
## 802. 11ac80 mode, Power Spectral Density, 5210 MHz




Date: 18.NOV.2018 13:20:55

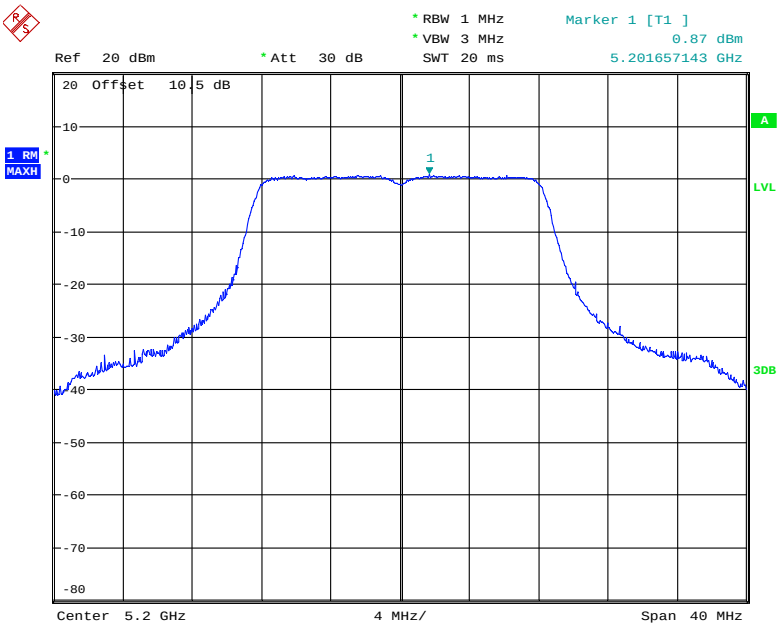
**Chain 1:**

**802.11a mode, Power Spectral Density, 5180 MHz**



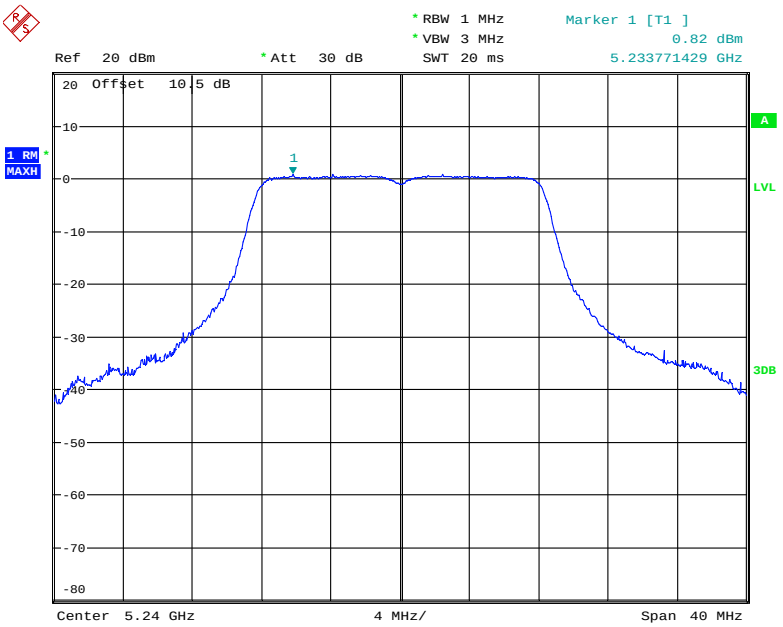

Date: 15.NOV.2018 20:21:50

**802.11a mode, Power Spectral Density, 5200 MHz**



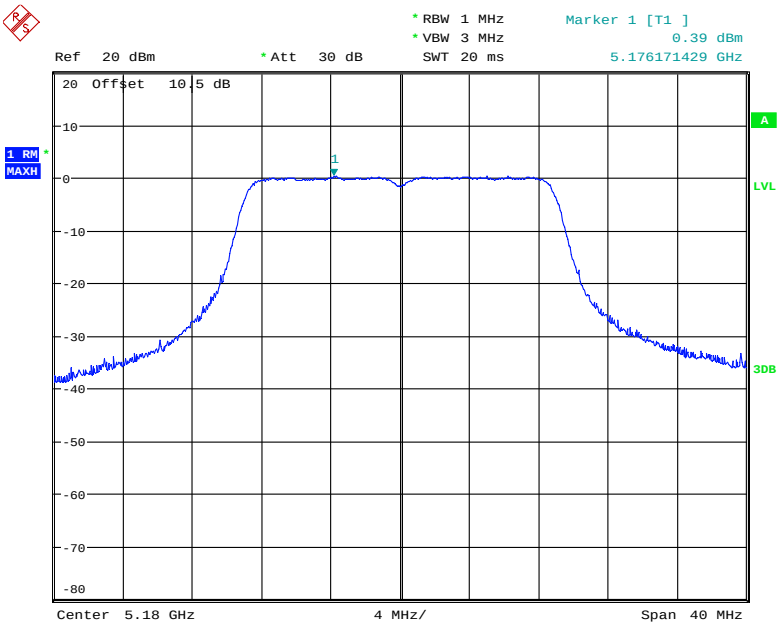

Date: 15.NOV.2018 20:24:51

## 802.11a mode, Power Spectral Density, 5240 MHz



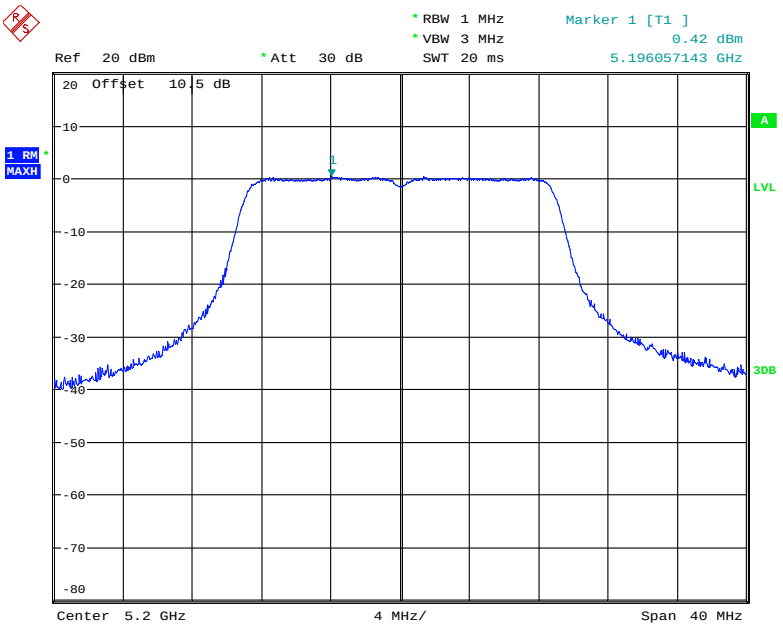

Date: 15.NOV.2018 20:25:41

## 802.11n20 mode, Power Spectral Density, 5180 MHz



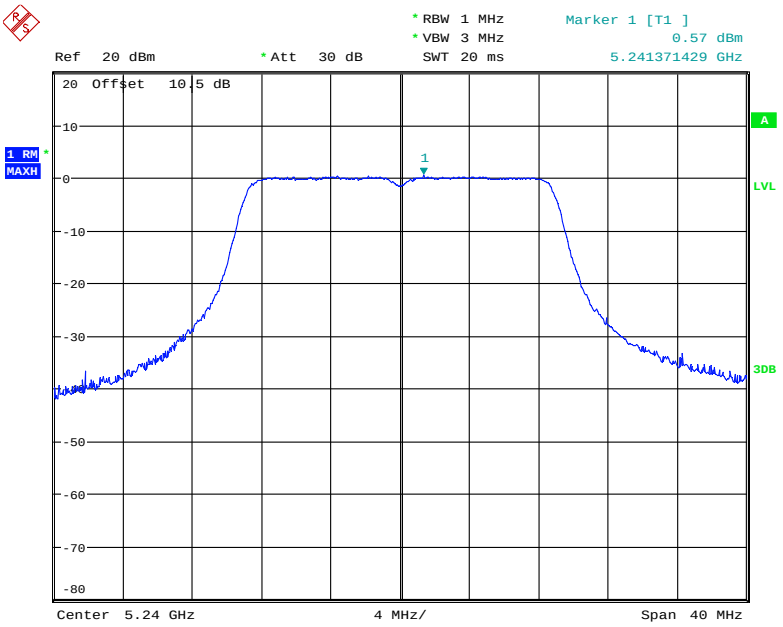

Date: 15.NOV.2018 20:28:56

## 802.11n20 mode, Power Spectral Density, 5200 MHz



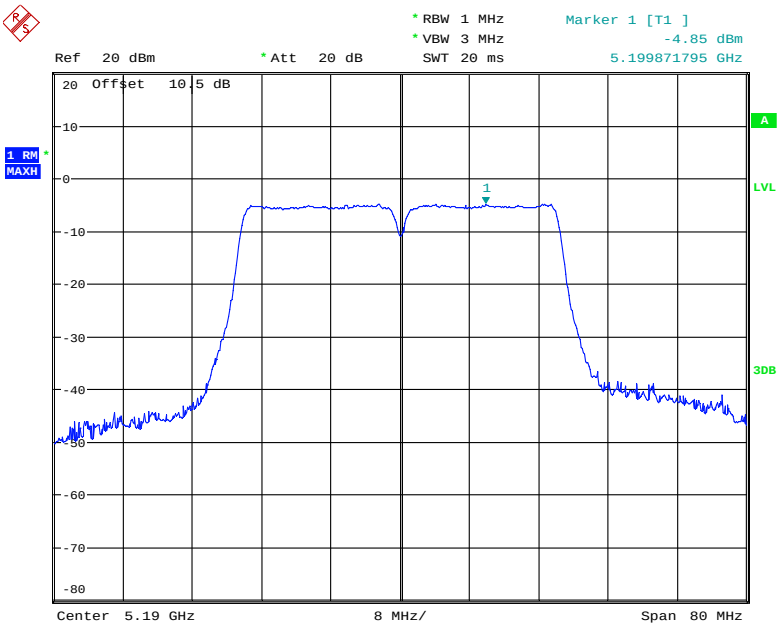

Date: 15.NOV.2018 20:31:35

## 802.11n20 mode, Power Spectral Density, 5240 MHz



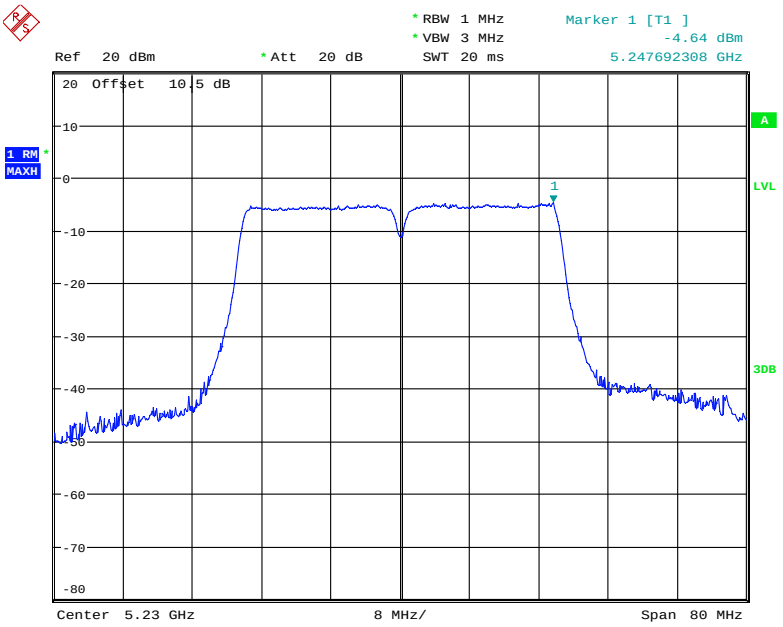

Date: 15.NOV.2018 20:36:06

## 802.11n40 mode, Power Spectral Density, 5190 MHz



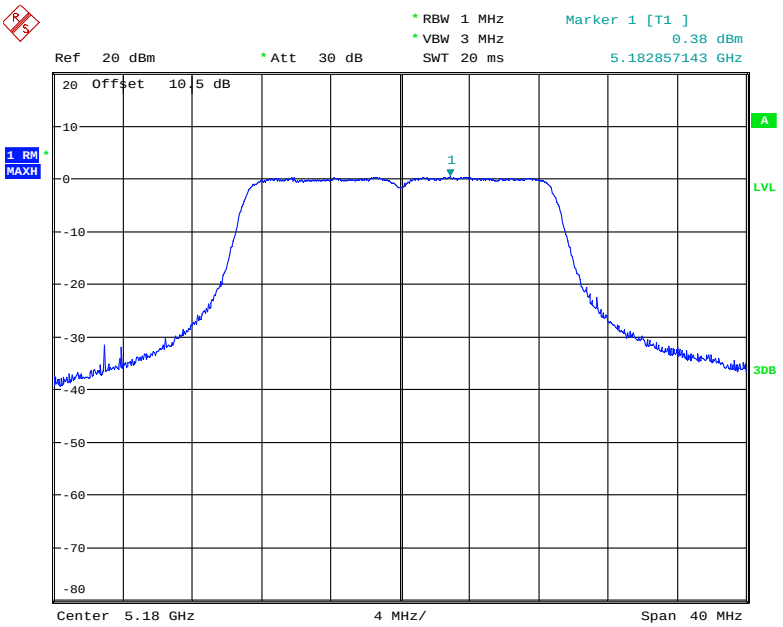

Date: 16.NOV.2018 21:30:49

## 802.11n40 mode, Power Spectral Density, 5230 MHz



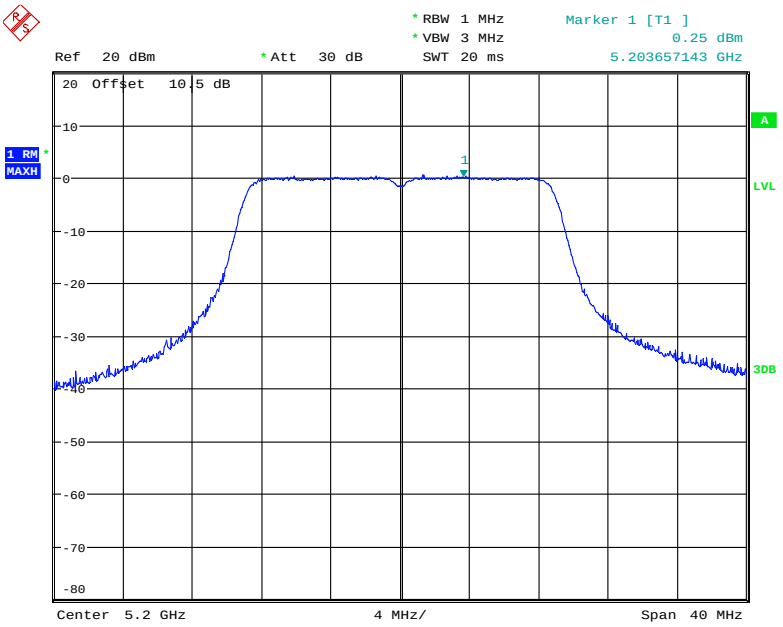

Date: 16.NOV.2018 21:31:12

## 802.11ac20 mode, Power Spectral Density, 5180 MHz



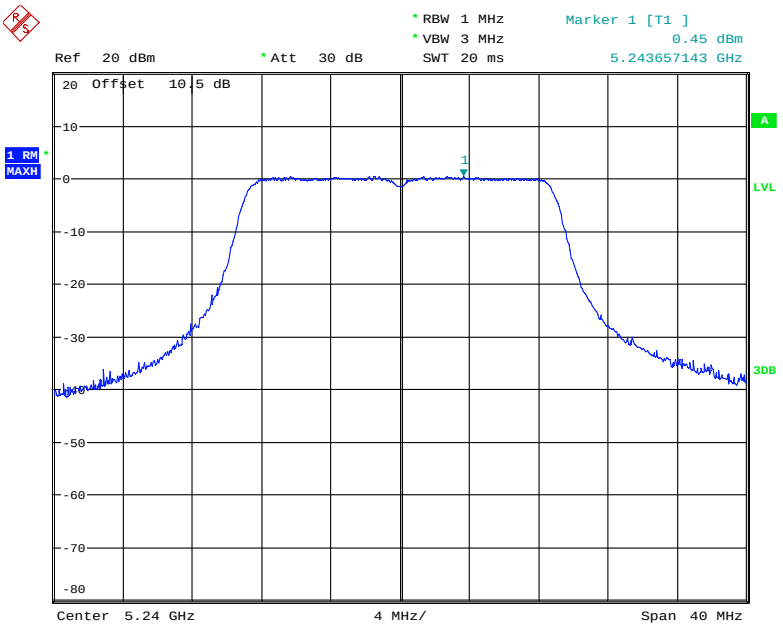

Date: 15.NOV.2018 20:43:23

## 802. 11ac20 mode, Power Spectral Density, 5200 MHz



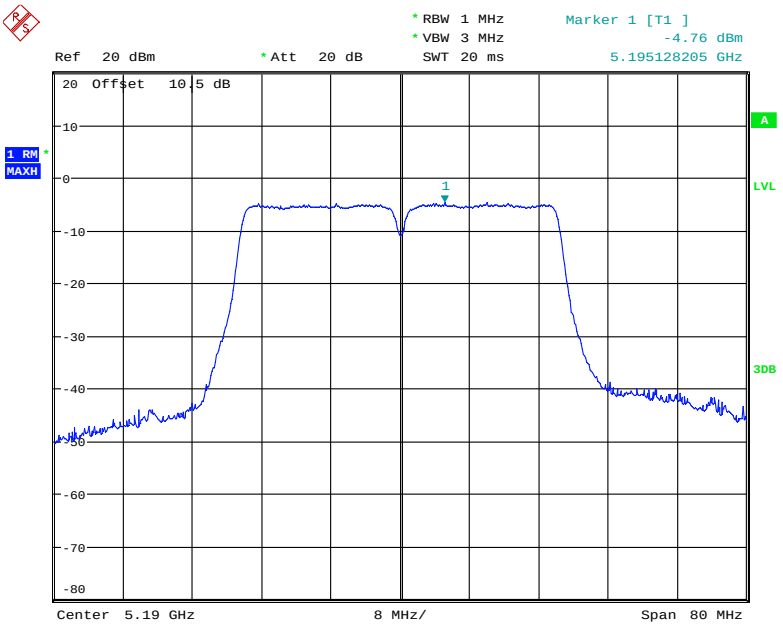

Date: 15.NOV.2018 20:44:05

## 802. 11ac20 mode, Power Spectral Density, 5240 MHz



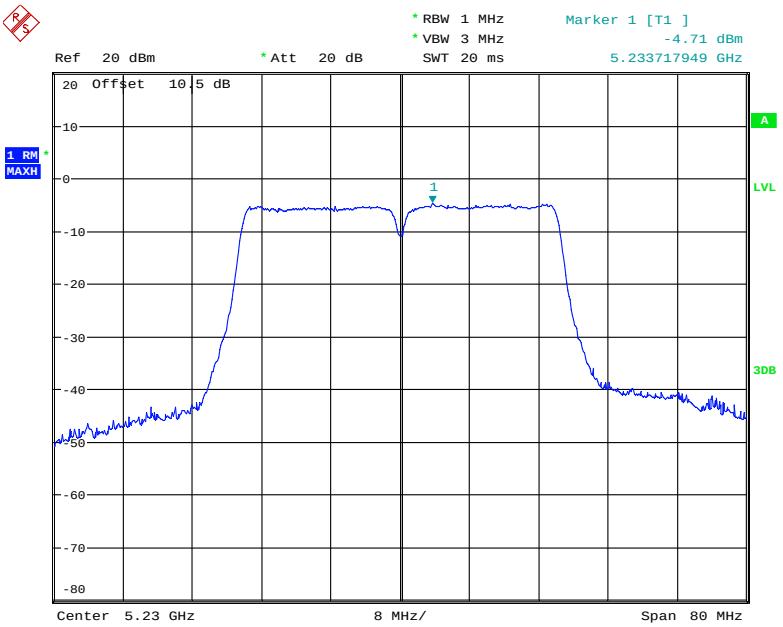

Date: 15.NOV.2018 20:46:29

## 802. 11ac40 mode, Power Spectral Density, 5190 MHz



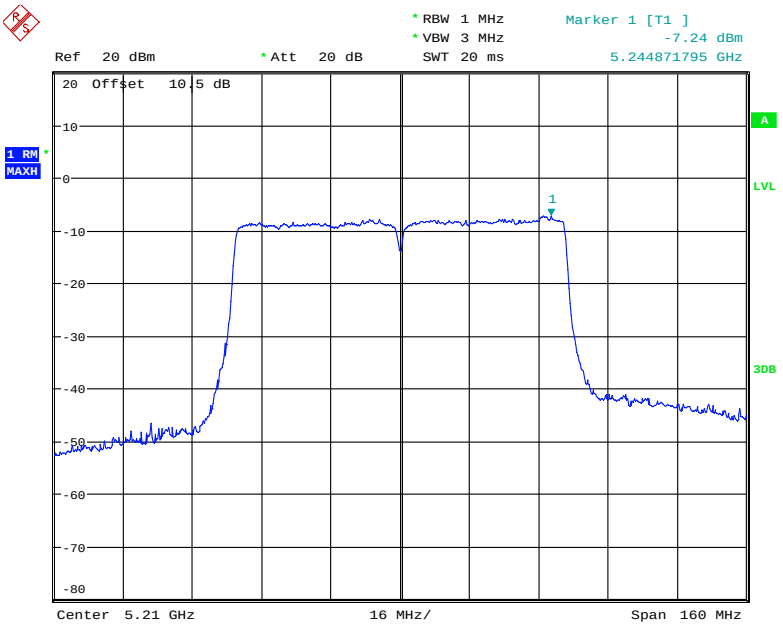

Date: 16.NOV.2018 21:30:00

## 802. 11ac40 mode, Power Spectral Density, 5230 MHz




Date: 16.NOV.2018 21:30:22

## 802. 11ac80 mode, Power Spectral Density, 5210 MHz



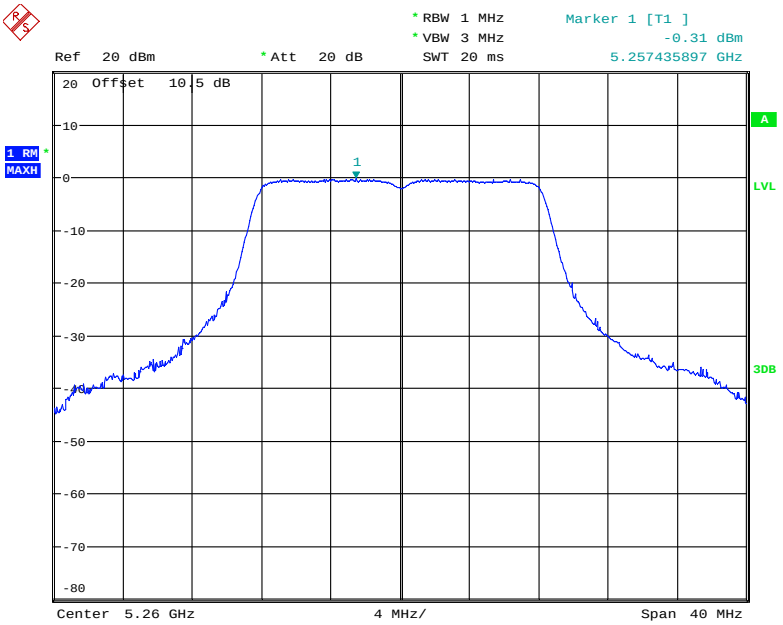

Date: 16.NOV.2018 21:29:07

**5250 MHz – 5350 MHz:**

| Frequency (MHz) | Antenna Port | Power Spectral Density (dBm/MHz) | Total Power Spectral Density (dBm/MHz) | Limit (dBm/MHz) |
|---|---|---|---|---|
| 802.11a | | | | |
| 5260 | 0 | -0.31 | / | 11 |
| | 1 | 0.51 | | |
| 5280 | 0 | -0.48 | / | |
| | 1 | 0.35 | | |
| 5320 | 0 | -0.64 | / | |
| | 1 | 0.27 | | |
| 802.11n20 | | | | |
| 5260 | 0 | -0.54 | 2.94 | 11 |
| | 1 | 0.38 | | |
| 5280 | 0 | -0.62 | 2.97 | |
| | 1 | 0.46 | | |
| 5320 | 0 | -0.70 | 2.81 | |
| | 1 | 0.27 | | |
| 802.11n40 | | | | |
| 5270 | 0 | -5.32 | -2.37 | 11 |
| | 1 | -5.44 | | |
| 5310 | 0 | -5.73 | -2.37 | |
| | 1 | -5.13 | | |
| 802.11ac20 | | | | |
| 5260 | 0 | -0.59 | 2.99 | 11 |
| | 1 | 0.50 | | |
| 5280 | 0 | -0.36 | 3.12 | |
| | 1 | 0.52 | | |
| 5320 | 0 | -0.61 | 2.70 | |
| | 1 | -0.04 | | |
| 802.11ac40 | | | | |
| 5270 | 0 | -5.42 | -2.44 | 11 |
| | 1 | -5.52 | | |
| 5310 | 0 | -5.40 | -2.08 | |
| | 1 | -4.86 | | |
| 802.11ac80 | | | | |
| 5290 | 0 | -10.34 | -7.21 | 11 |
| | 1 | -9.99 | | |

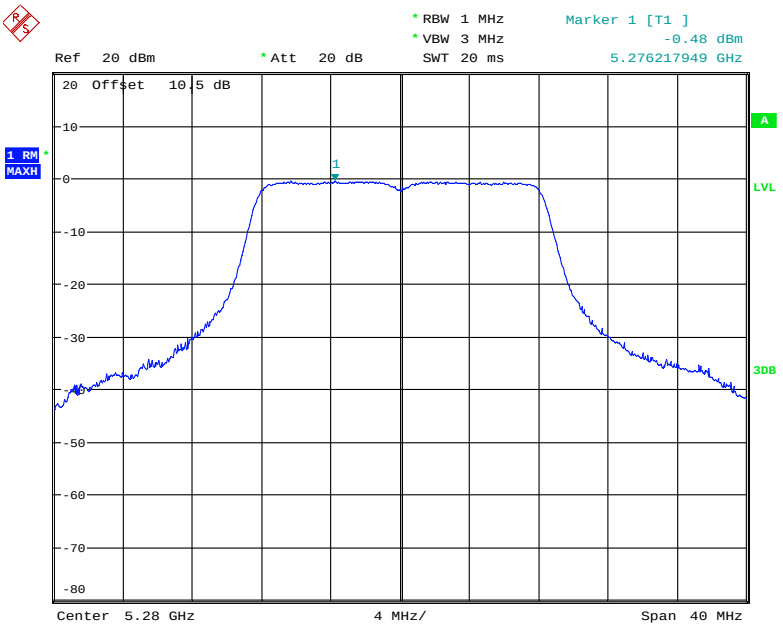
## Chain 0

### 802.11a mode, Power Spectral Density, 5260 MHz



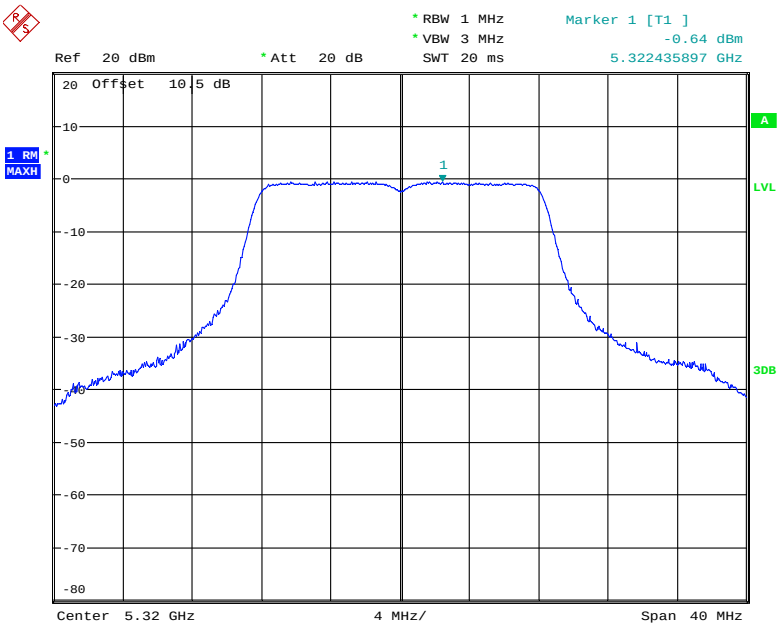

Date: 18.NOV.2018 14:41:35

### 802.11a mode, Power Spectral Density, 5280 MHz



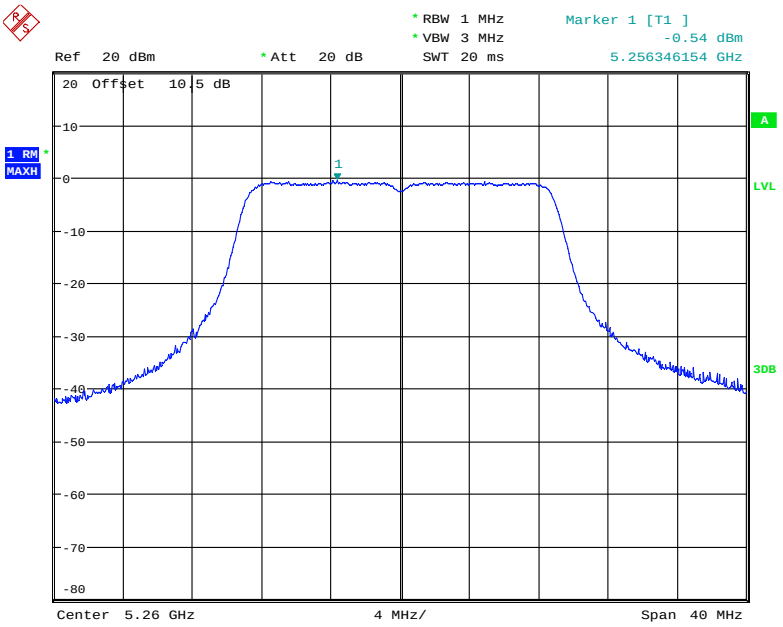

Date: 18.NOV.2018 14:42:27

## 802.11a mode, Power Spectral Density, 5320 MHz



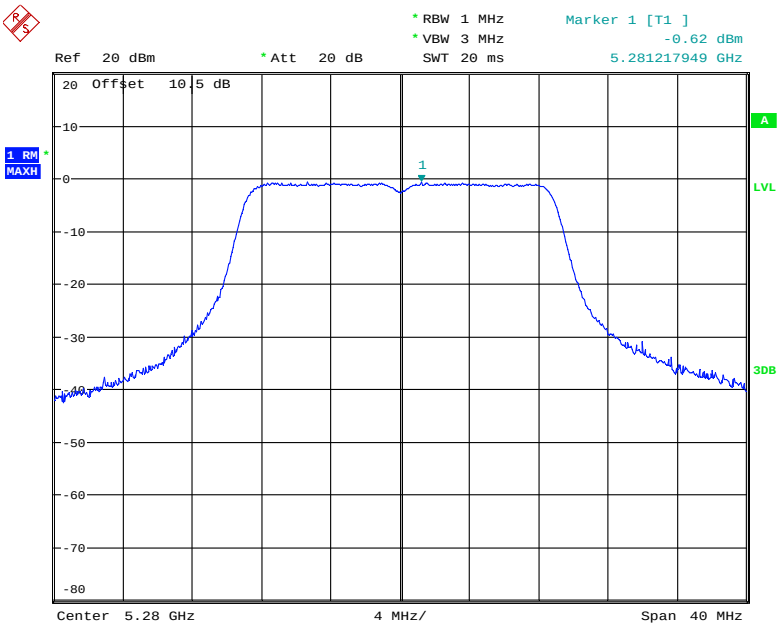

Date: 18.NOV.2018 14:43:04

## 802.11n20 mode, Power Spectral Density, 5260 MHz



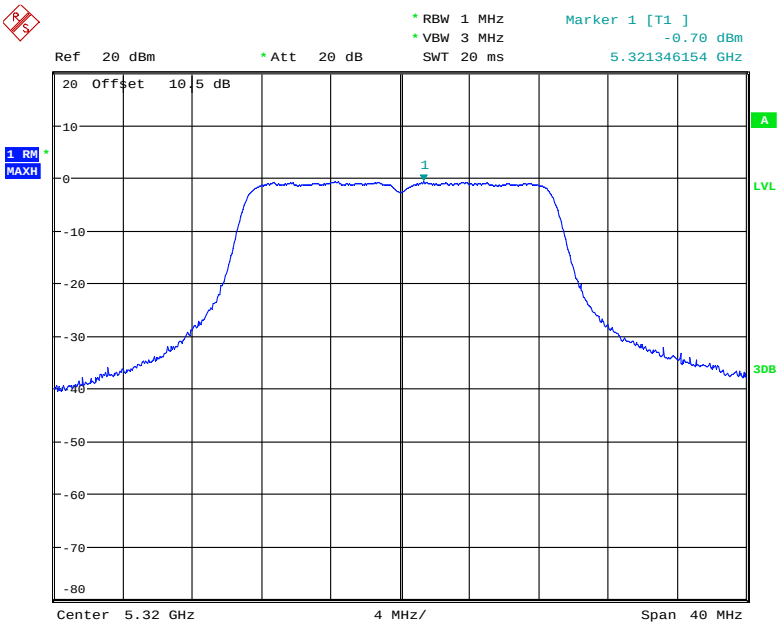

Date: 18.NOV.2018 14:38:48

## 802.11n20 mode, Power Spectral Density, 5280 MHz



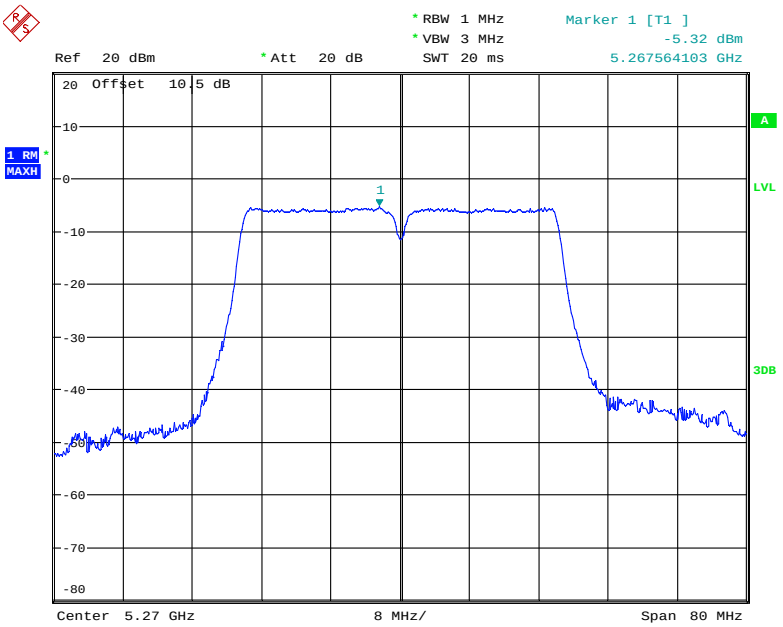

Date: 18.NOV.2018 14:39:13

## 802.11n20 mode, Power Spectral Density, 5320 MHz



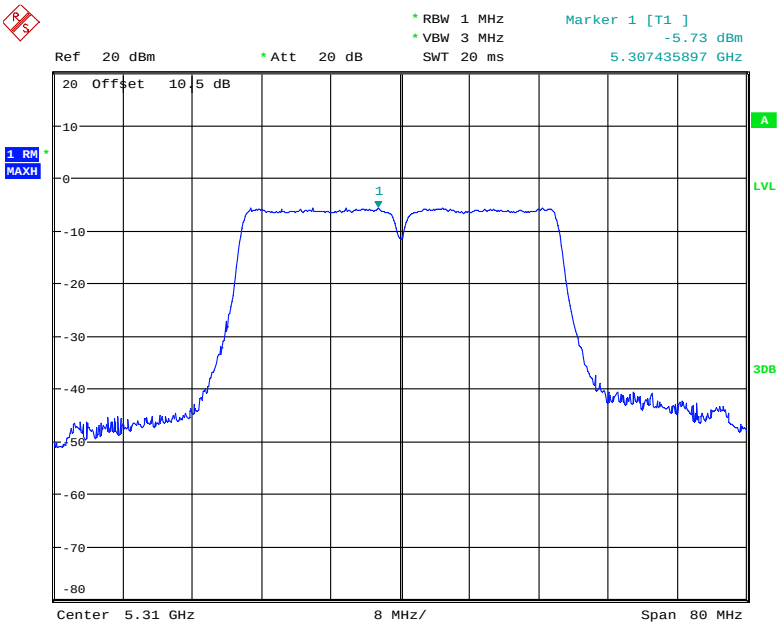

Date: 18.NOV.2018 14:40:48

## 802.11n40 mode, Power Spectral Density, 5270 MHz



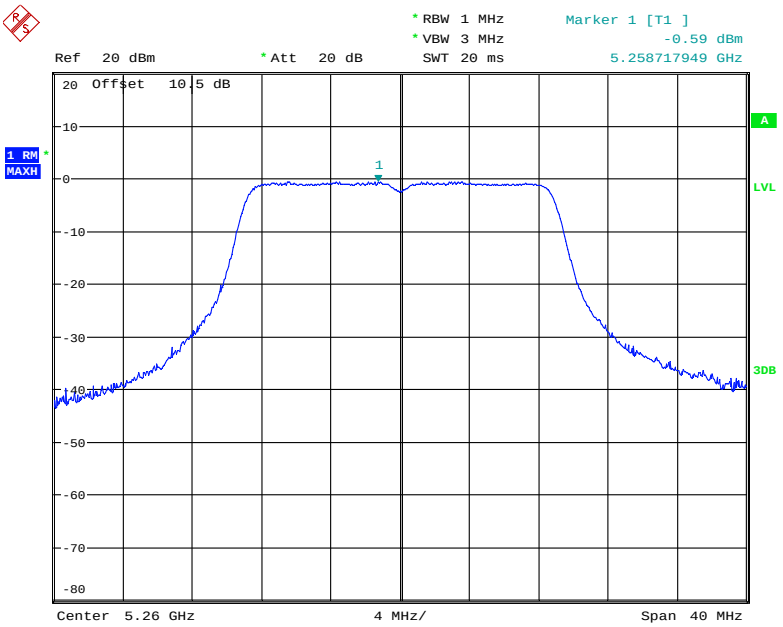

Date: 18.NOV.2018 14:44:44

## 802.11n40 mode, Power Spectral Density, 5310 MHz



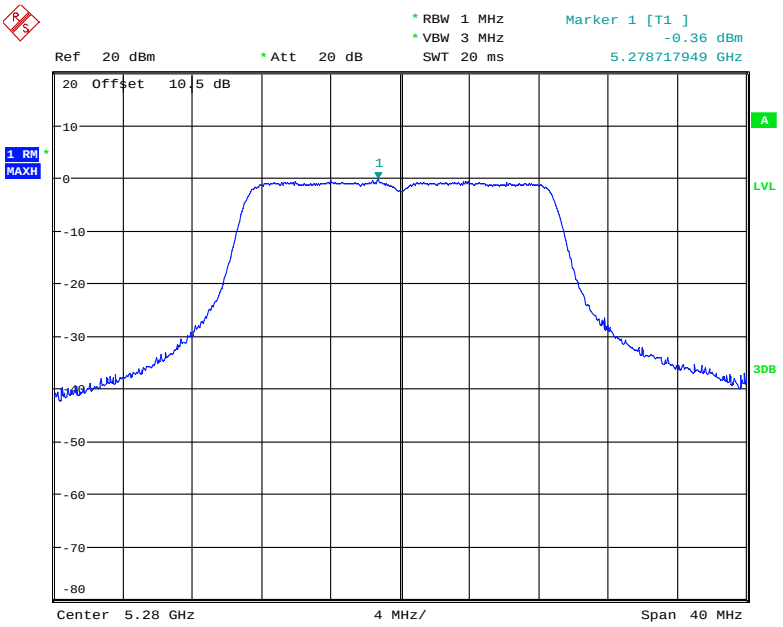

Date: 18.NOV.2018 14:45:07

## 802.11ac20 mode, Power Spectral Density, 5260 MHz



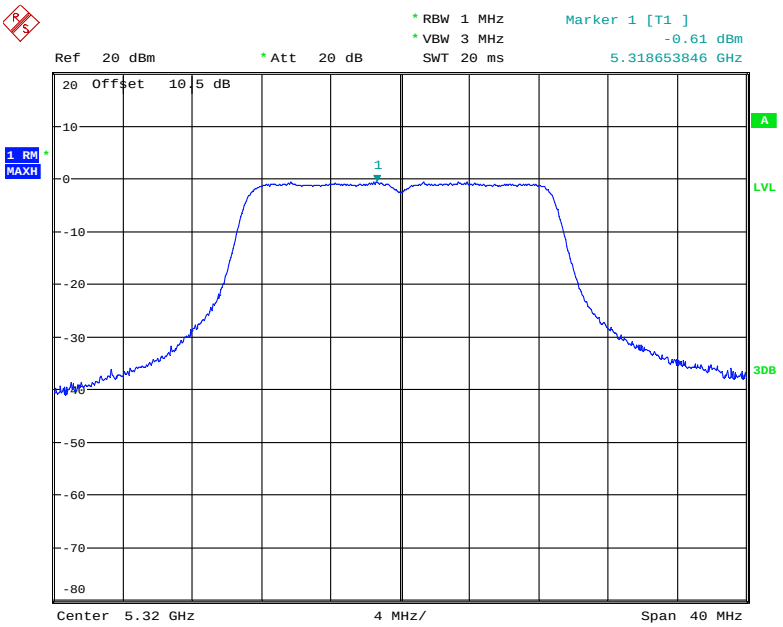

Date: 18.NOV.2018 14:37:02

## 802. 11ac20 mode, Power Spectral Density, 5280 MHz



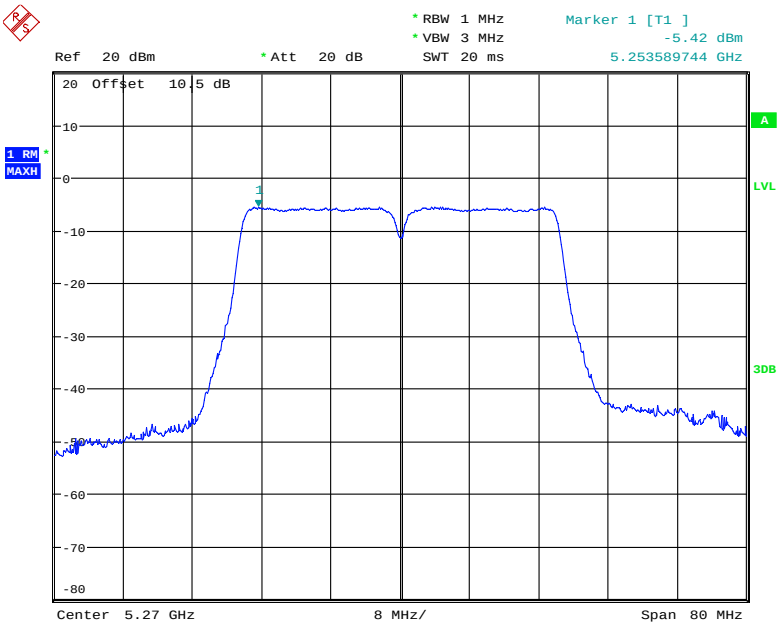

Date: 18.NOV.2018 14:36:35

## 802. 11ac20 mode, Power Spectral Density, 5320 MHz



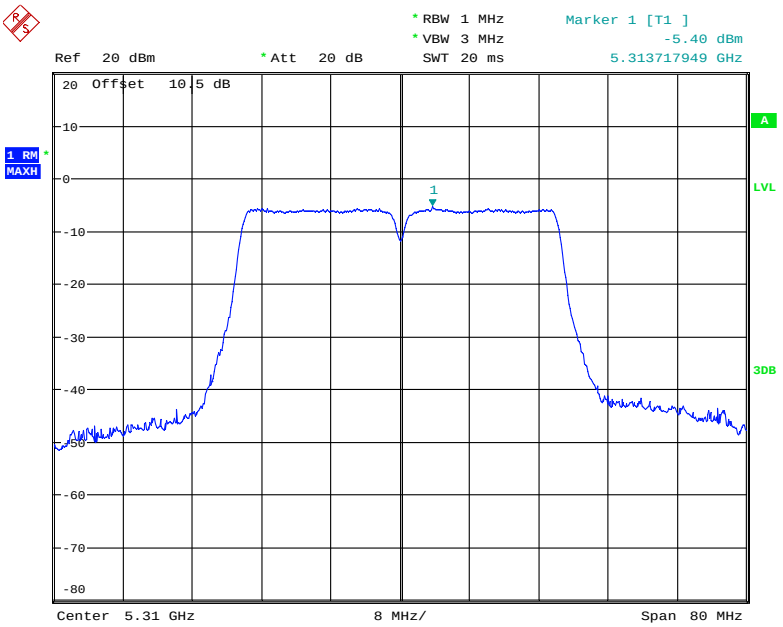

Date: 18.NOV.2018 14:35:33

## 802. 11ac40 mode, Power Spectral Density, 5270 MHz



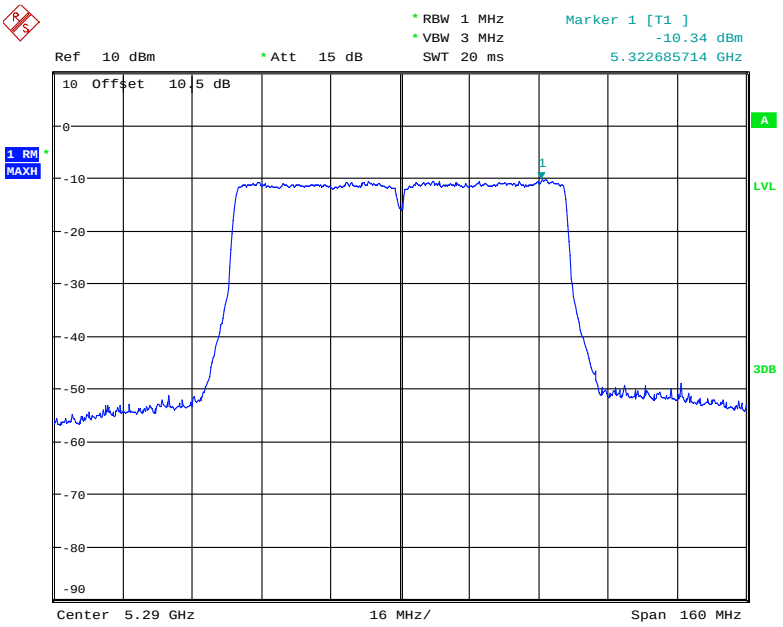

Date: 18.NOV.2018 14:46:12

## 802. 11ac40 mode, Power Spectral Density, 5310 MHz




Date: 18.NOV.2018 14:46:36

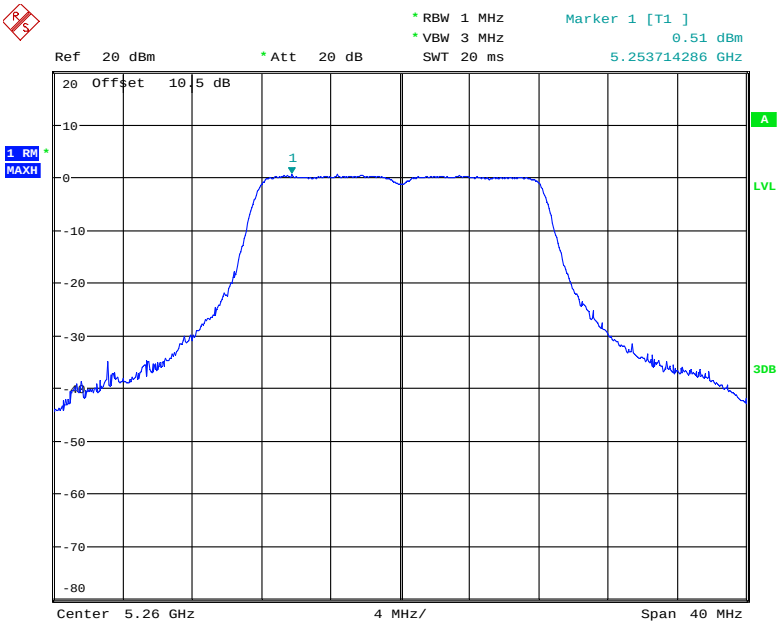
## 802. 11ac80 mode, Power Spectral Density, 5290 MHz




Date: 14.DEC.2018 16:24:12

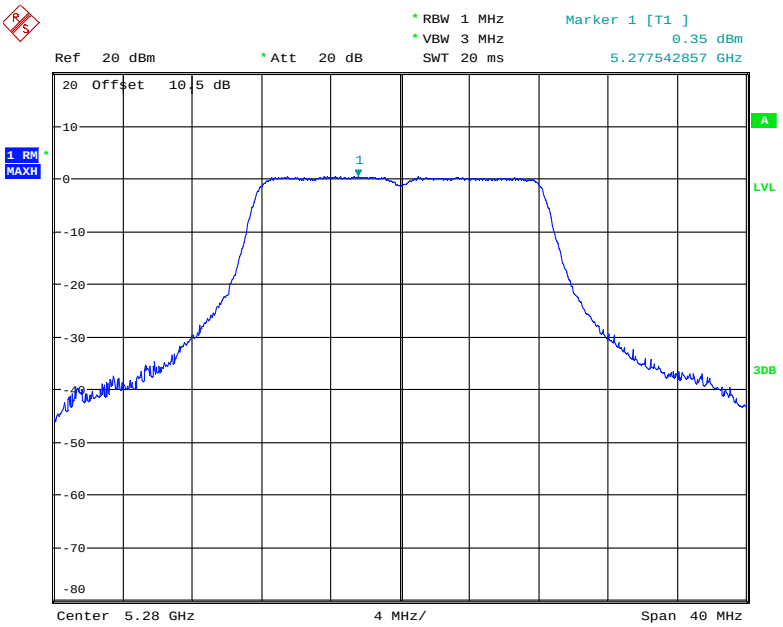
## Chain 1

### 802.11a mode, Power Spectral Density, 5260 MHz



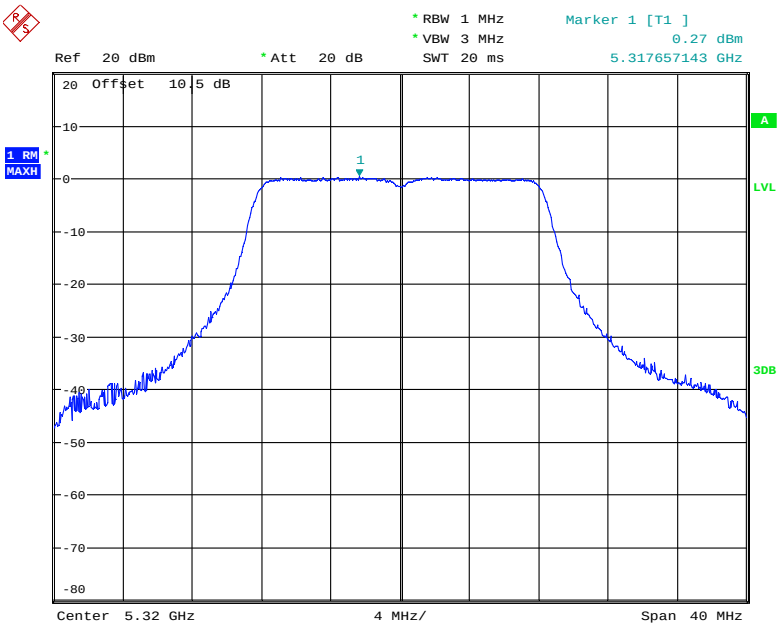

Date: 15.NOV.2018 23:08:10

### 802.11a mode, Power Spectral Density, 5280 MHz



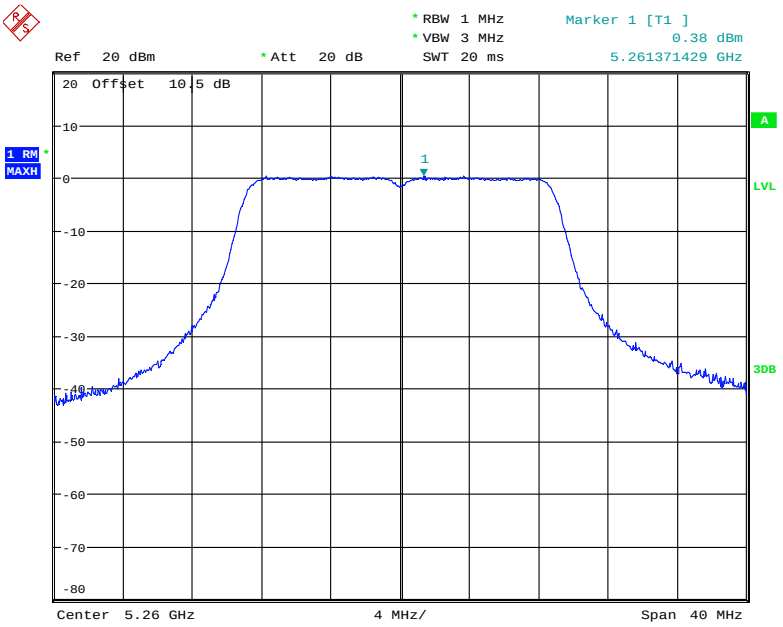

Date: 15.NOV.2018 23:09:01

## 802.11a mode, Power Spectral Density, 5320 MHz



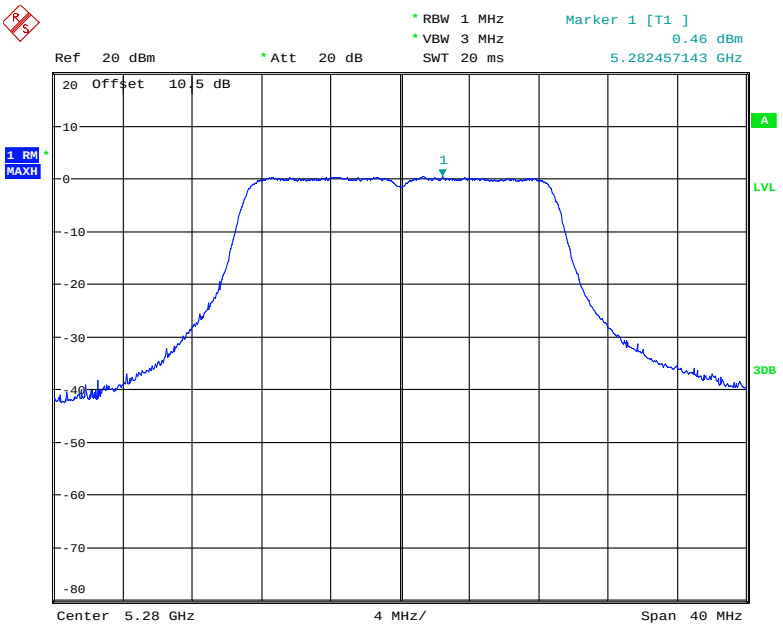

Date: 15.NOV.2018 23:10:03

## 802.11n20 mode, Power Spectral Density, 5260 MHz



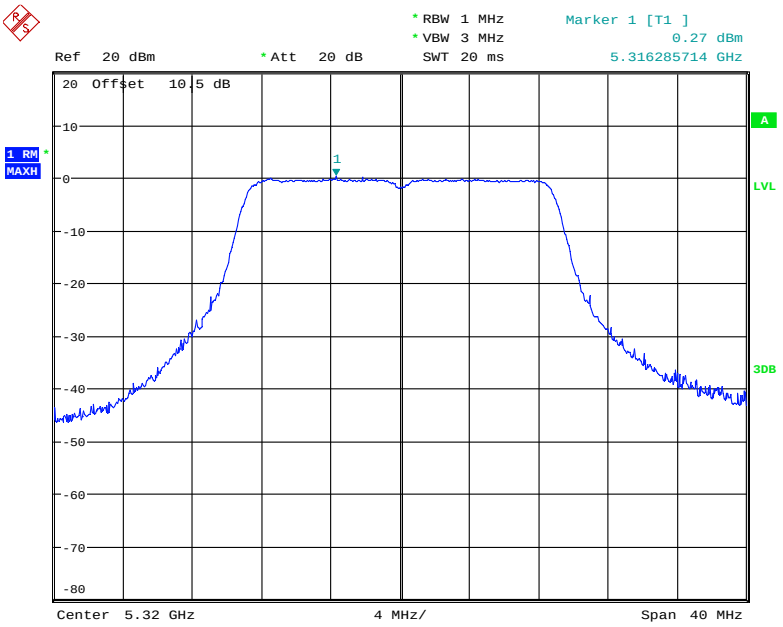

Date: 15.NOV.2018 23:11:14

## 802.11n20 mode, Power Spectral Density, 5280 MHz



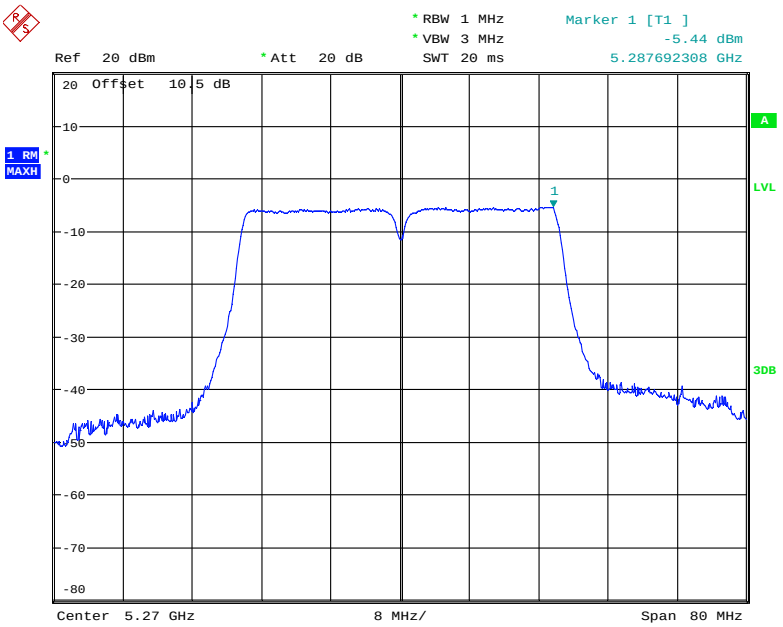

Date: 15.NOV.2018 23:12:21

## 802.11n20 mode, Power Spectral Density, 5320 MHz



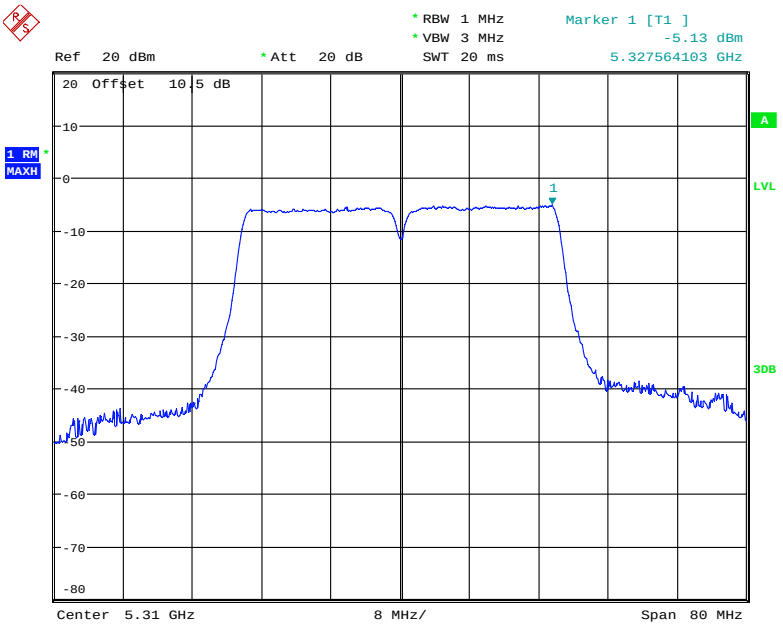

Date: 15.NOV.2018 23:12:48

## 802.11n40 mode, Power Spectral Density, 5270 MHz



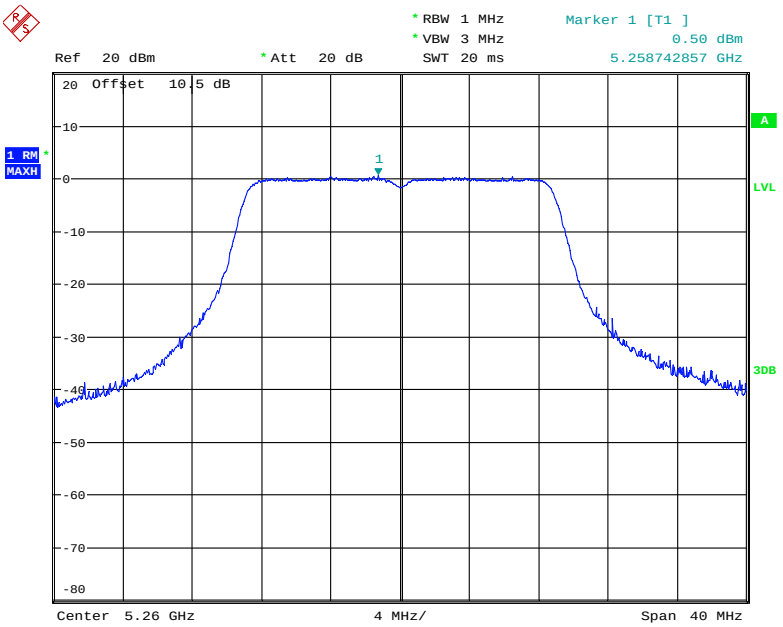

Date: 16.NOV.2018 21:21:38

## 802.11n40 mode, Power Spectral Density, 5310 MHz



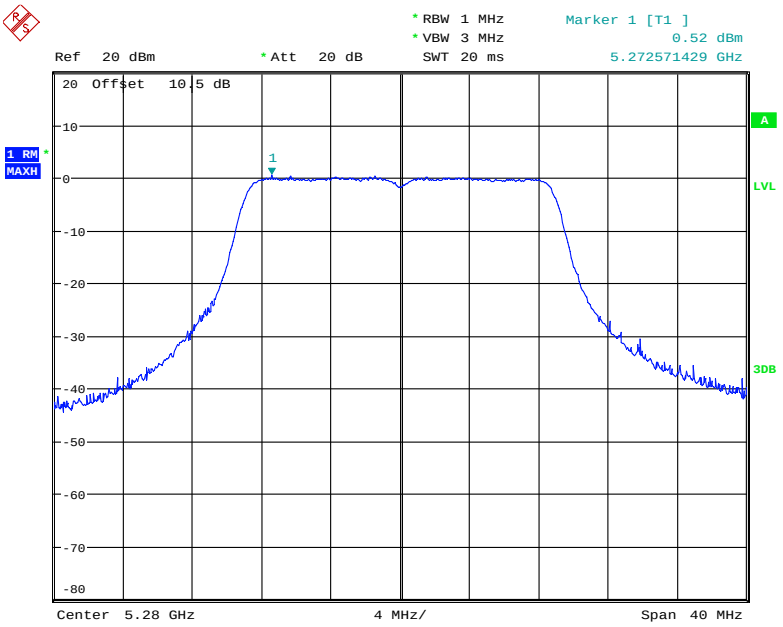

Date: 16.NOV.2018 21:22:16

## 802.11ac20 mode, Power Spectral Density, 5260 MHz



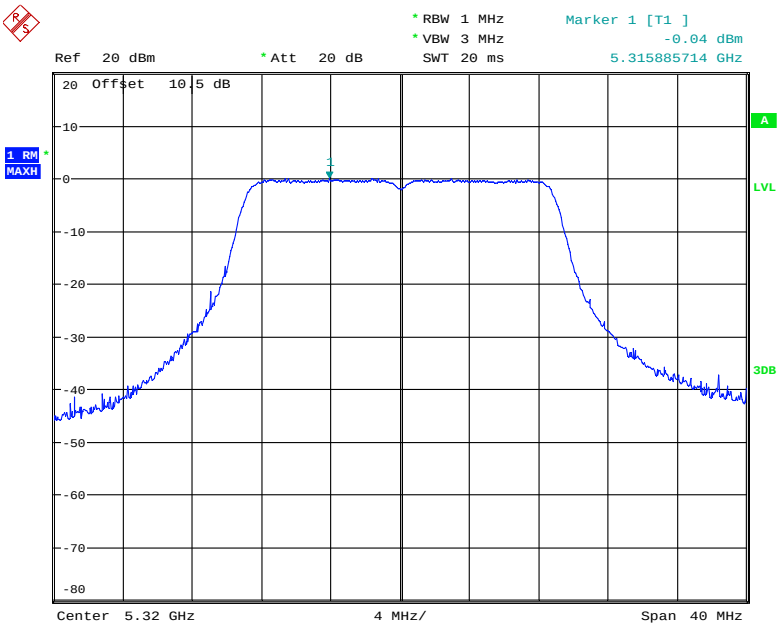

Date: 15.NOV.2018 23:14:22

## 802. 11ac20 mode, Power Spectral Density, 5280 MHz



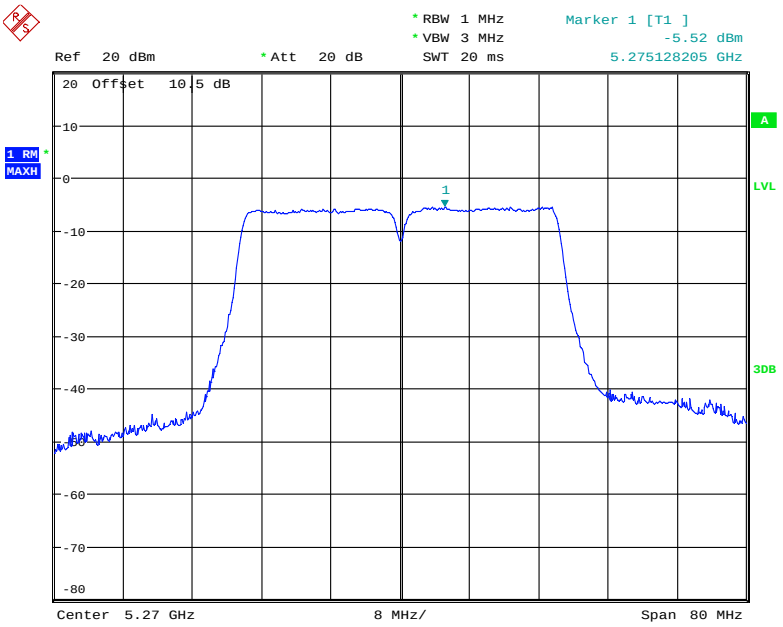

Date: 15.NOV.2018 23:15:02

## 802. 11ac20 mode, Power Spectral Density, 5320 MHz



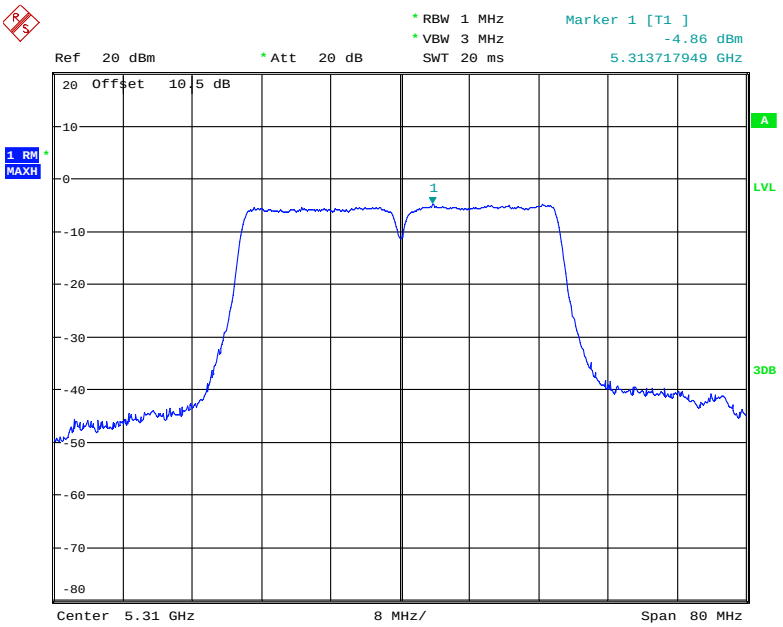

Date: 15.NOV.2018 23:16:26

## 802. 11ac40 mode, Power Spectral Density, 5270 MHz



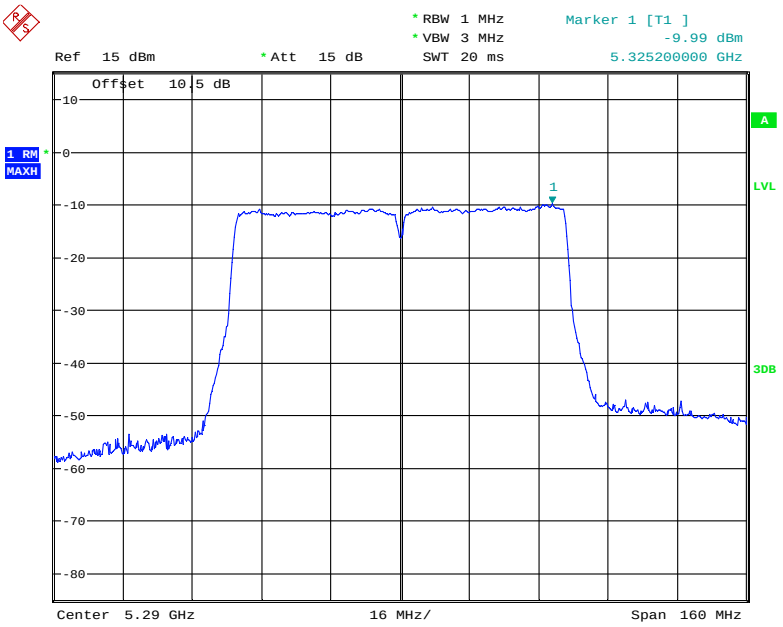

Date: 16.NOV.2018 21:22:51

## 802. 11ac40 mode, Power Spectral Density, 5310 MHz




Date: 16.NOV.2018 21:23:23

## 802. 11ac80 mode, Power Spectral Density, 5290 MHz



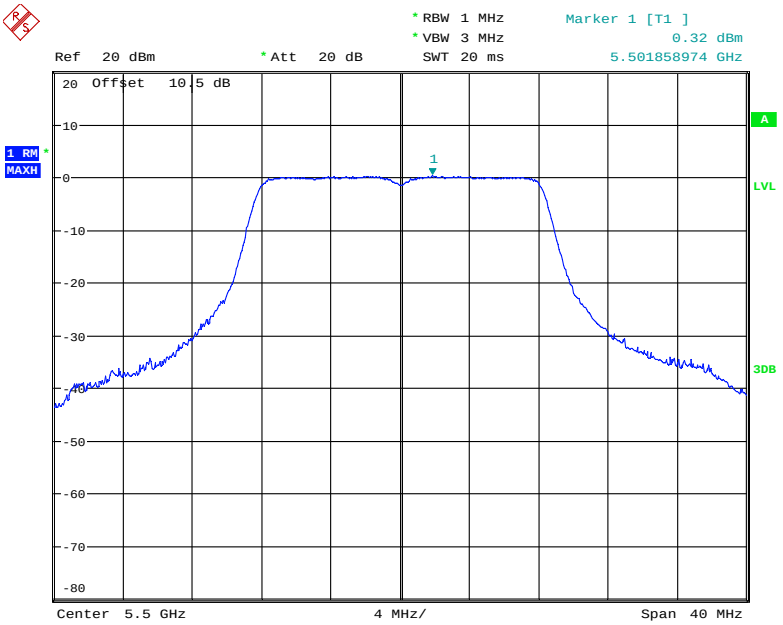

Date: 14.DEC.2018 16:35:21

**5470 MHz – 5725 MHz:**

| Frequency (MHz) | Antenna Port | Power Spectral Density (dBm/MHz) | Total Power Spectral Density (dBm/MHz) | Limit (dBm/MHz) |
|---|---|---|---|---|
| 802.11a | | | | |
| 5500 | 0 | 0.32 | / | 11 |
| | 1 | -0.07 | | |
| 5600 | 0 | 0.59 | / | |
| | 1 | 0.63 | | |
| 5700 | 0 | 0.41 | / | |
| | 1 | 1.48 | | |
| 802.11n20 | | | | |
| 5500 | 0 | -1.83 | 1.04 | 11 |
| | 1 | -2.14 | | |
| 5600 | 0 | -1.90 | 1.40 | |
| | 1 | -1.37 | | |
| 5700 | 0 | -1.86 | 1.82 | |
| | 1 | -0.59 | | |
| 802.11n40 | | | | |
| 5510 | 0 | -4.72 | -1.74 | 11 |
| | 1 | -4.84 | | |
| 5590 | 0 | -4.20 | -1.19 | |
| | 1 | -4.18 | | |
| 5670 | 0 | -4.52 | -1.02 | |
| | 1 | -3.53 | | |
| 802.11ac20 | | | | |
| 5500 | 0 | -1.71 | 1.11 | 11 |
| | 1 | -2.08 | | |
| 5600 | 0 | -1.81 | 1.46 | |
| | 1 | -1.31 | | |
| 5700 | 0 | -1.70 | 2.01 | |
| | 1 | -0.39 | | |
| 802.11ac40 | | | | |
| 5510 | 0 | -4.76 | -1.74 | 11 |
| | 1 | -4.68 | | |
| 5590 | 0 | -4.16 | -1.19 | |
| | 1 | -4.18 | | |
| 5670 | 0 | -4.64 | -1.08 | |
| | 1 | -3.58 | | |
| 802.11ac80 | | | | |
| 5530 | 0 | -7.61 | -4.81 | 11 |
| | 1 | -7.91 | | |
| 5610 | 0 | -7.43 | -4.20 | |
| | 1 | -6.93 | | |

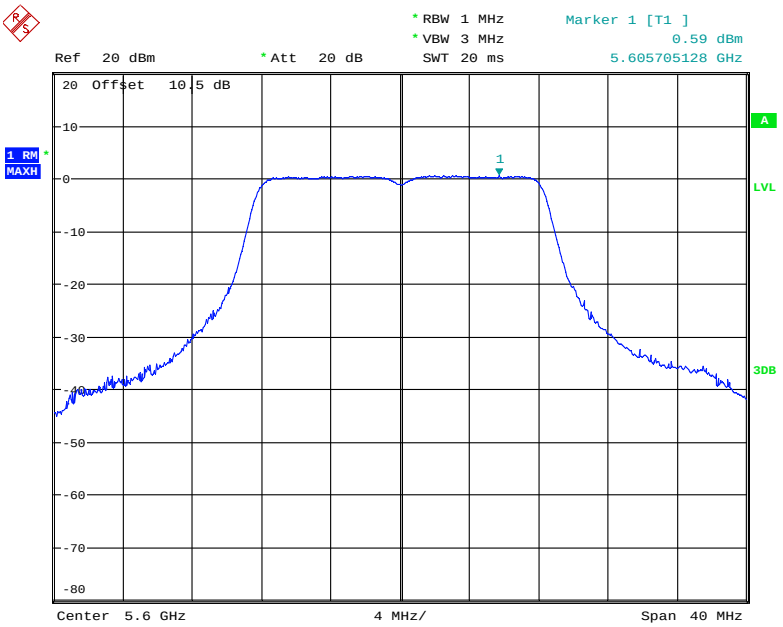
**Chain 0:**

**802.11a mode, Power Spectral Density, 5500 MHz**



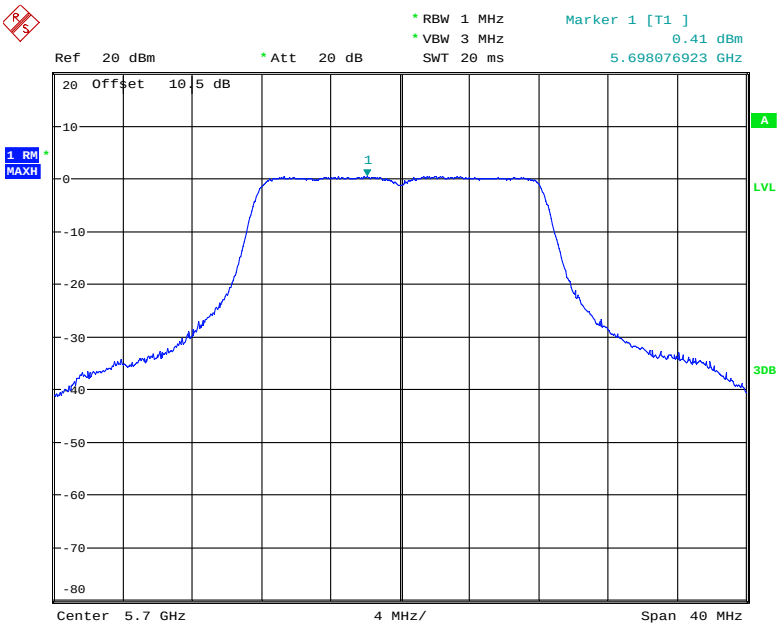

Date: 18.NOV.2018 15:31:10

**802.11a mode, Power Spectral Density, 5600 MHz**



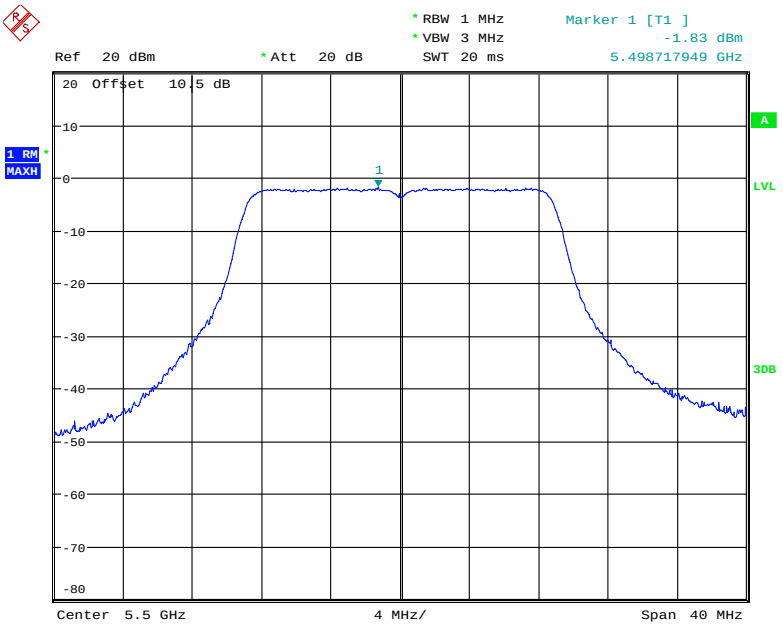

Date: 18.NOV.2018 15:31:59

## 802.11a mode, Power Spectral Density, 5700 MHz



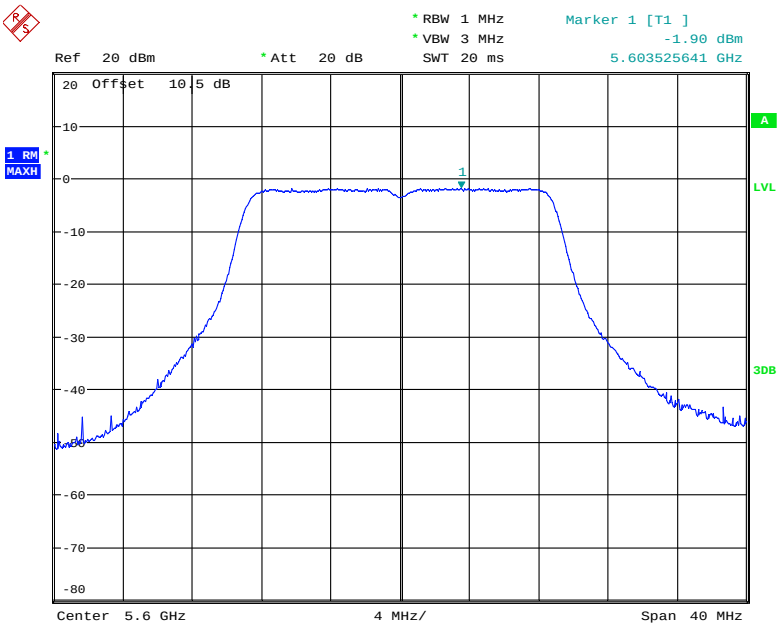

Date: 18.NOV.2018 15:32:22

## 802.11n20 mode, Power Spectral Density, 5500 MHz



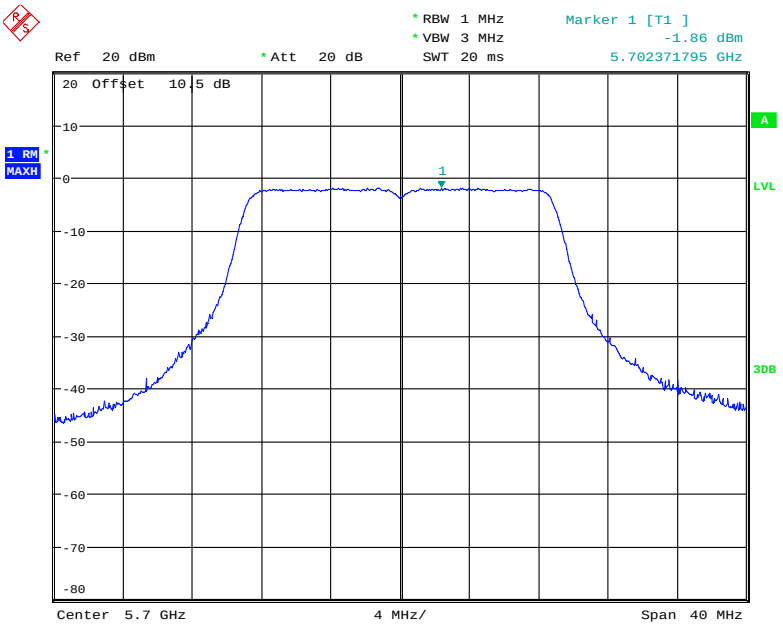

Date: 18.NOV.2018 15:33:33

## 802.11n20 mode, Power Spectral Density, 5600 MHz



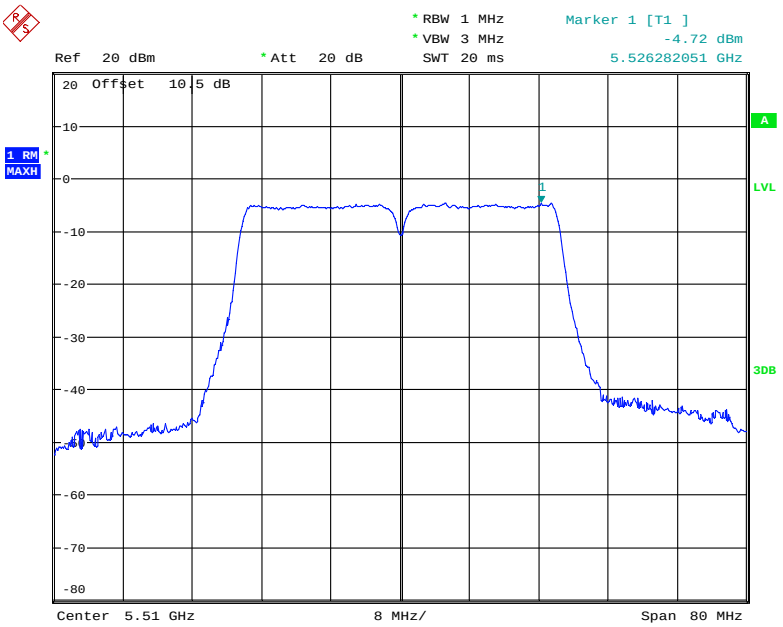

Date: 18.NOV.2018 15:33:57

## 802.11n20 mode, Power Spectral Density, 5700 MHz



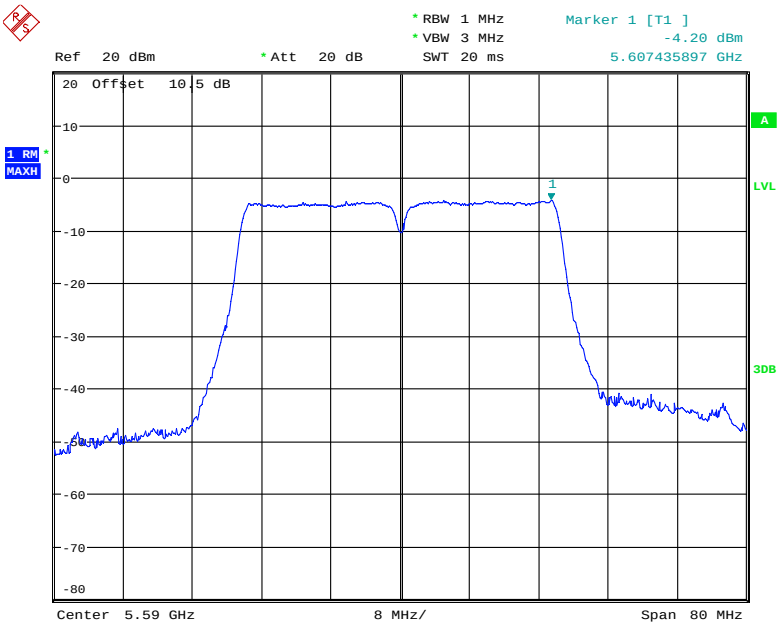

Date: 18.NOV.2018 15:34:47

## 802.11n40 mode, Power Spectral Density, 5510 MHz



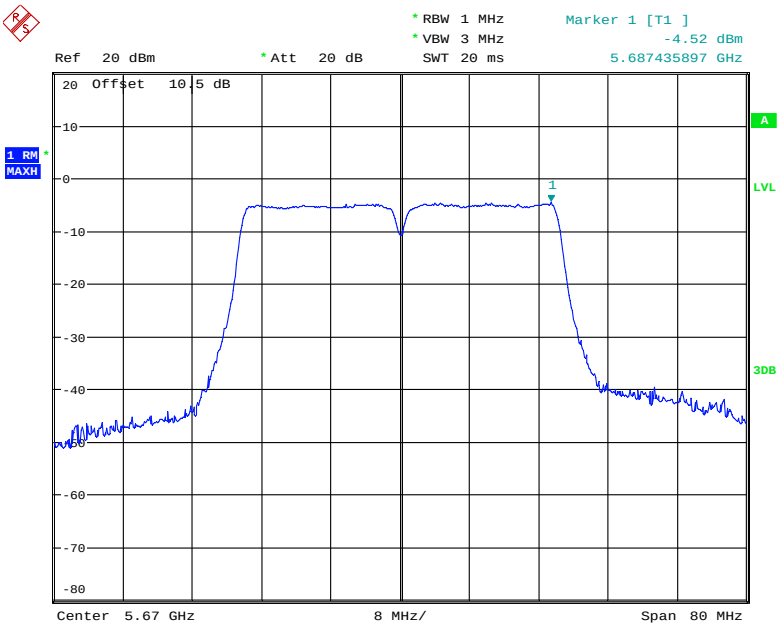

Date: 18.NOV.2018 15:37:39

## 802.11n40 mode, Power Spectral Density, 5590 MHz



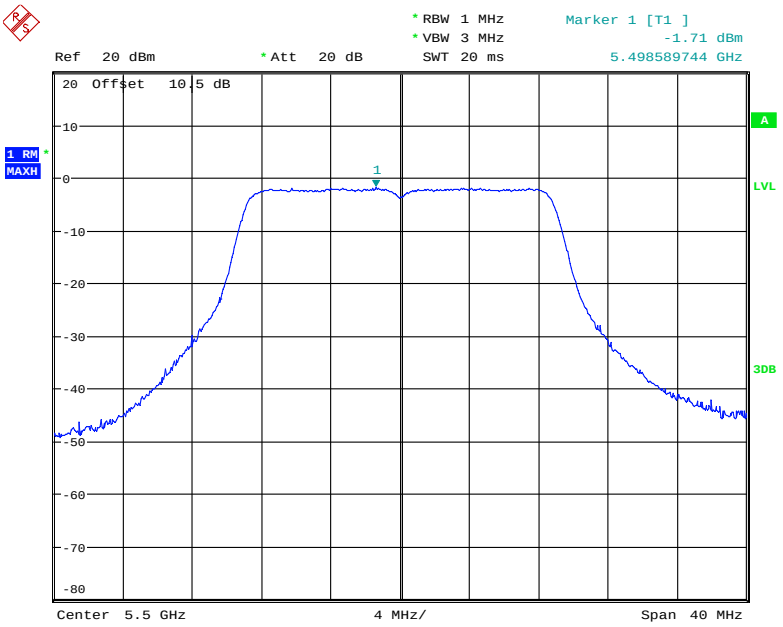

Date: 18.NOV.2018 15:38:06

## 802.11n40 mode, Power Spectral Density, 5670 MHz



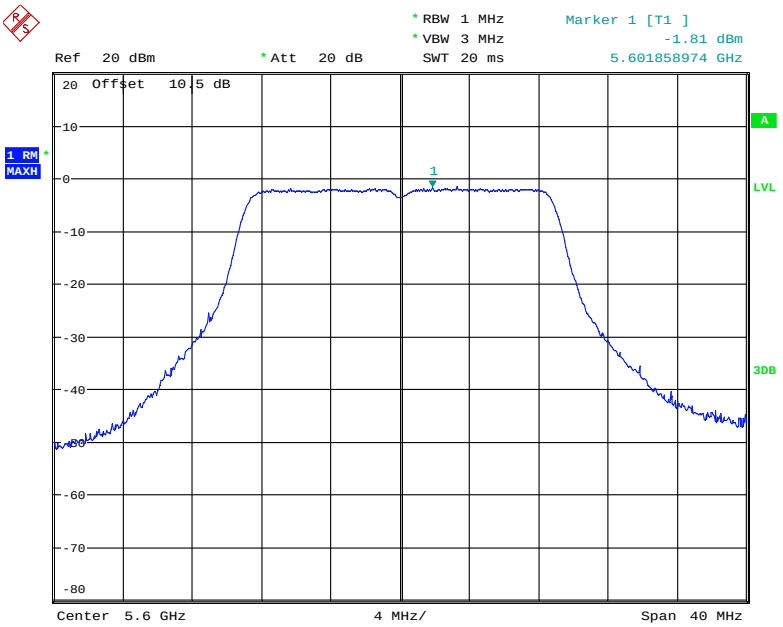

Date: 18.NOV.2018 15:38:49

## 802.11ac20 mode, Power Spectral Density, 5500 MHz



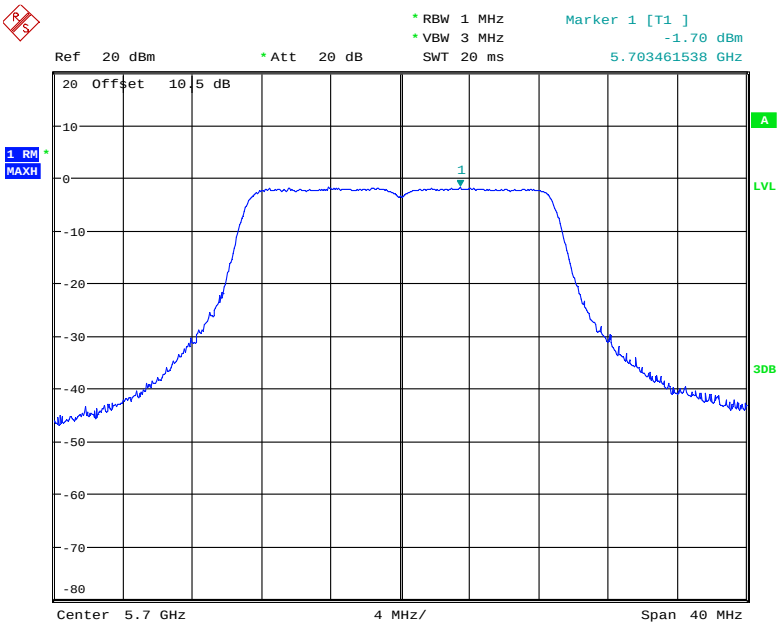

Date: 18.NOV.2018 15:35:15

## 802. 11ac20 mode, Power Spectral Density, 5600 MHz



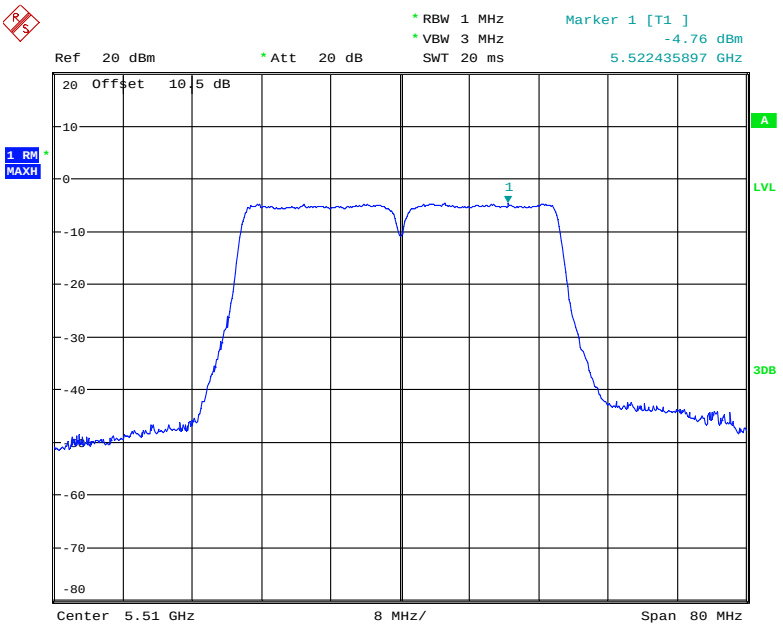

Date: 18.NOV.2018 15:36:09

## 802. 11ac20 mode, Power Spectral Density, 5700 MHz



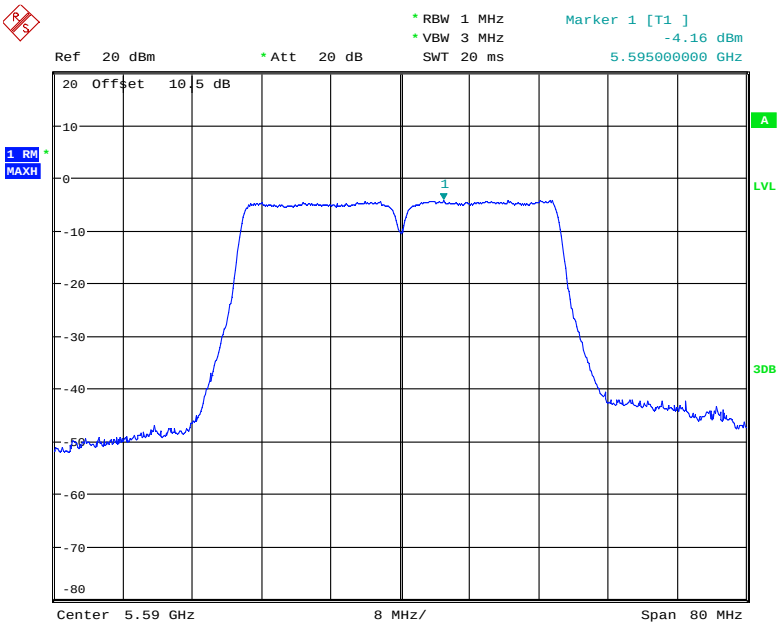

Date: 18.NOV.2018 15:36:31

## 802. 11ac40 mode, Power Spectral Density, 5510 MHz



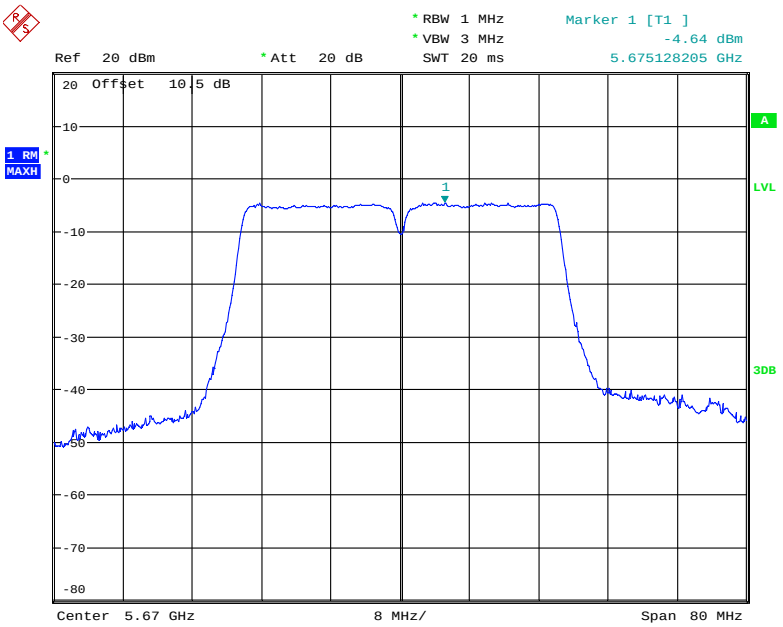

Date: 18.NOV.2018 15:39:18

## 802. 11ac40 mode, Power Spectral Density, 5590 MHz



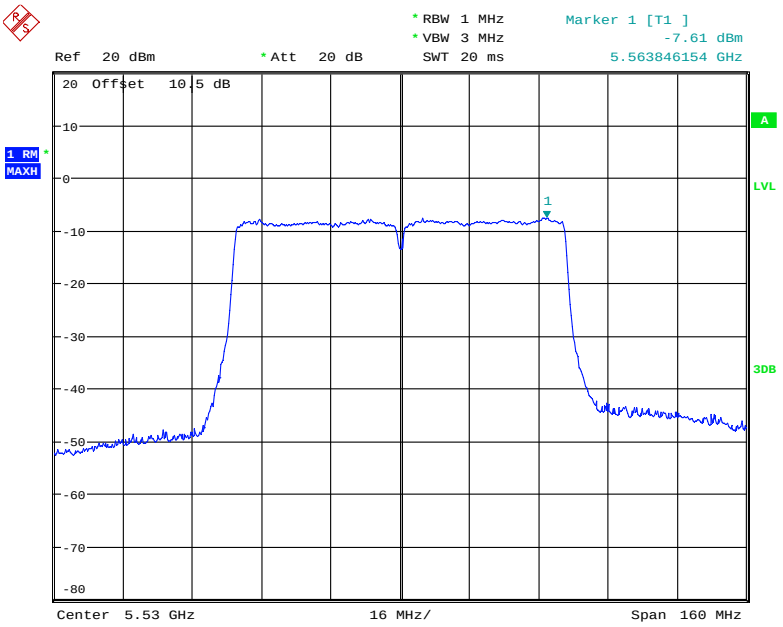

Date: 18.NOV.2018 15:40:11

## 802. 11ac40 mode, Power Spectral Density, 5670 MHz



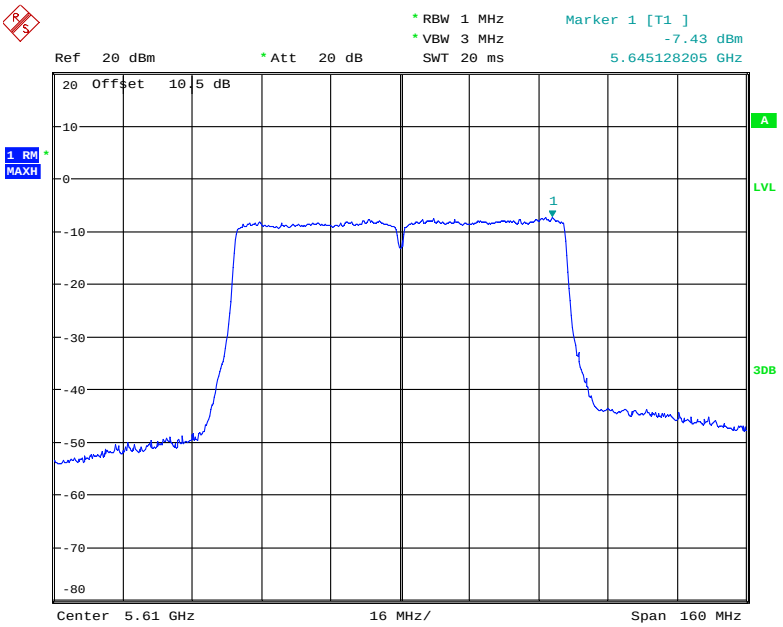

Date: 18.NOV.2018 15:40:36

## 802. 11ac80 mode, Power Spectral Density, 5530 MHz




Date: 18.NOV.2018 15:30:25

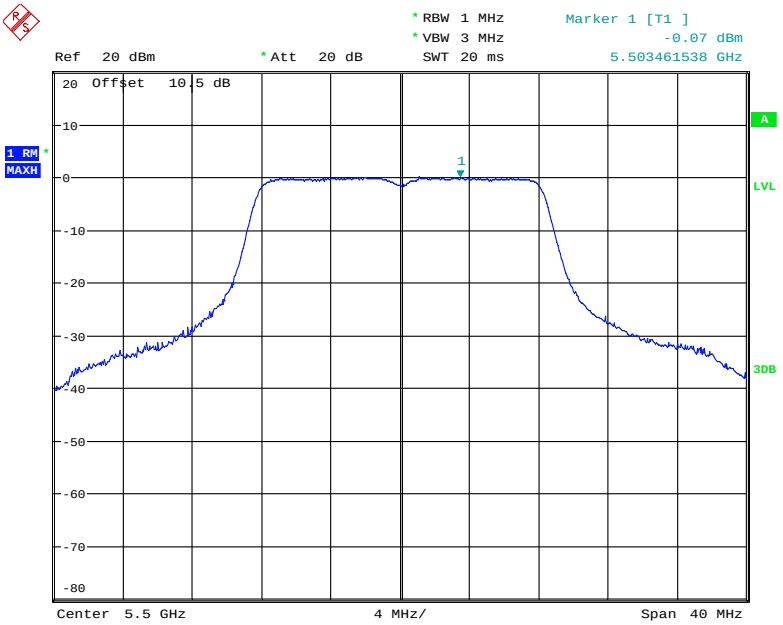
## 802. 11ac80 mode, Power Spectral Density, 5610 MHz




Date: 18.NOV.2018 15:29:17

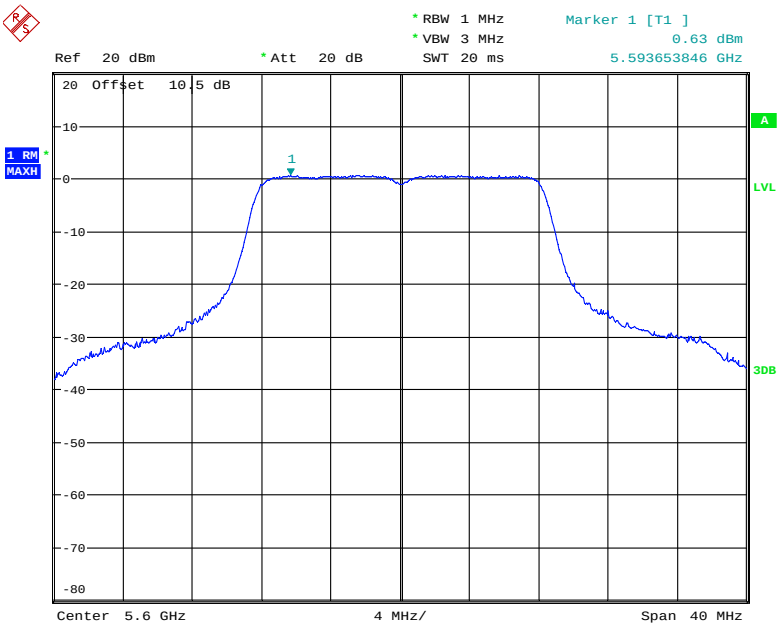
**Chain 1:**

**802.11a mode, Power Spectral Density, 5500 MHz**



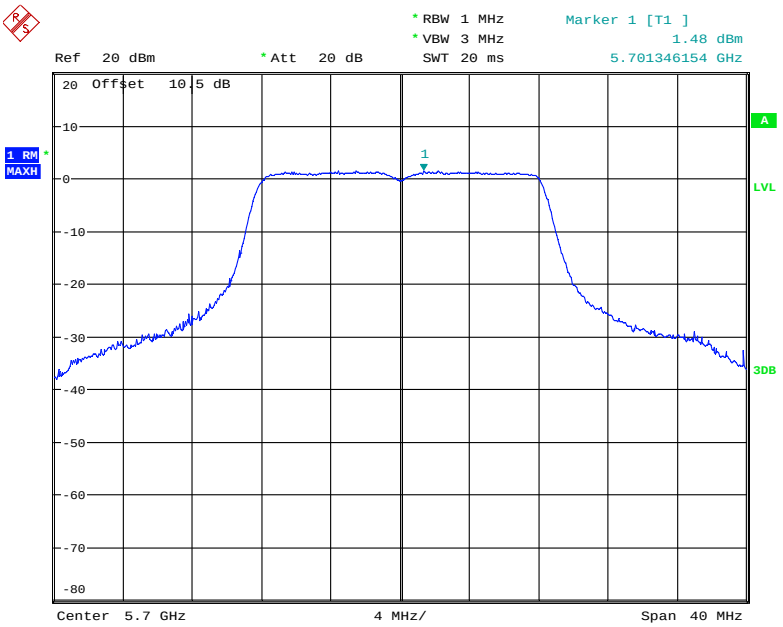

Date: 16.NOV.2018 21:18:43

**802.11a mode, Power Spectral Density, 5600 MHz**



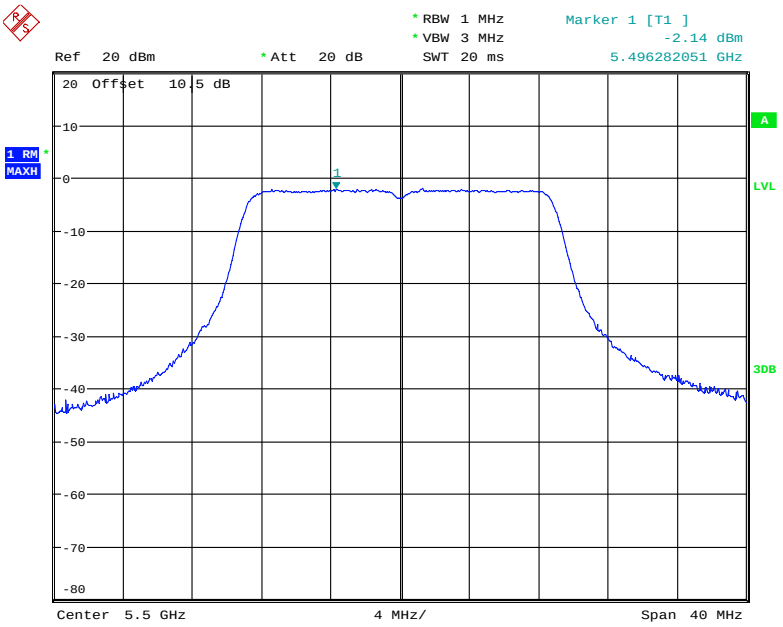

Date: 16.NOV.2018 21:19:05

## 802.11a mode, Power Spectral Density, 5700 MHz



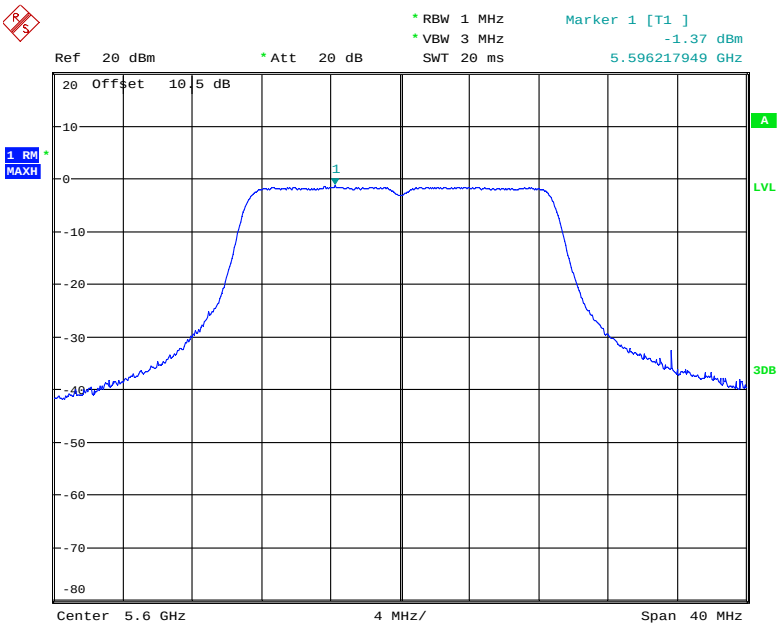

Date: 16.NOV.2018 21:20:01

## 802.11n20 mode, Power Spectral Density, 5500 MHz



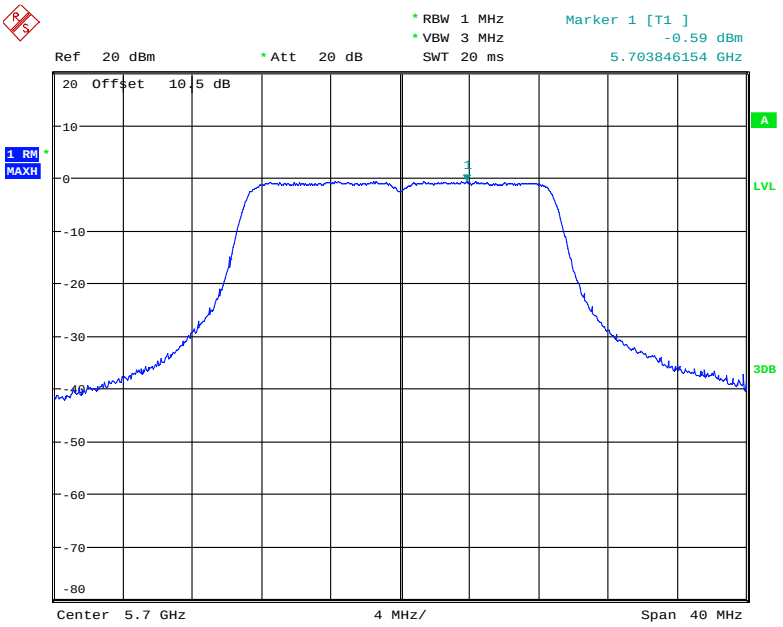

Date: 16.NOV.2018 21:12:07

## 802.11n20 mode, Power Spectral Density, 5600 MHz



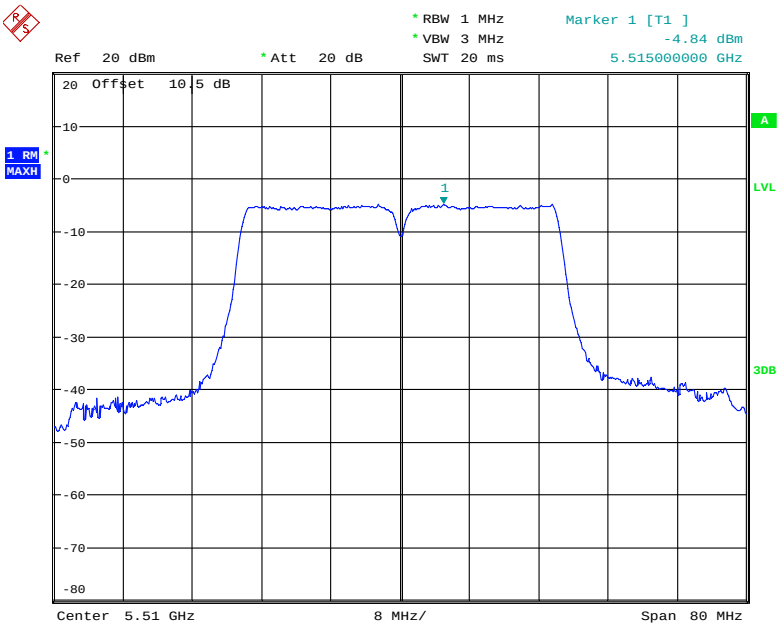

Date: 16.NOV.2018 21:12:42

## 802.11n20 mode, Power Spectral Density, 5700 MHz



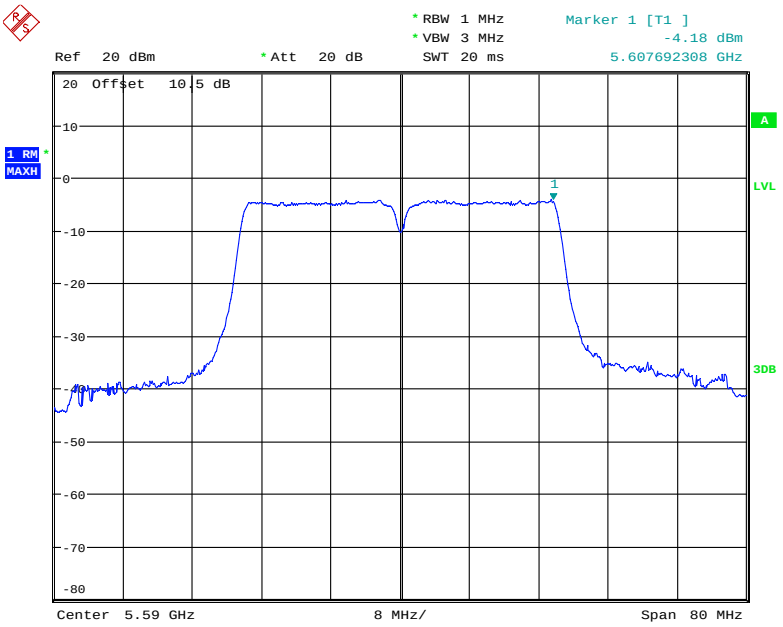

Date: 16.NOV.2018 21:14:07

## 802.11n40 mode, Power Spectral Density, 5510 MHz



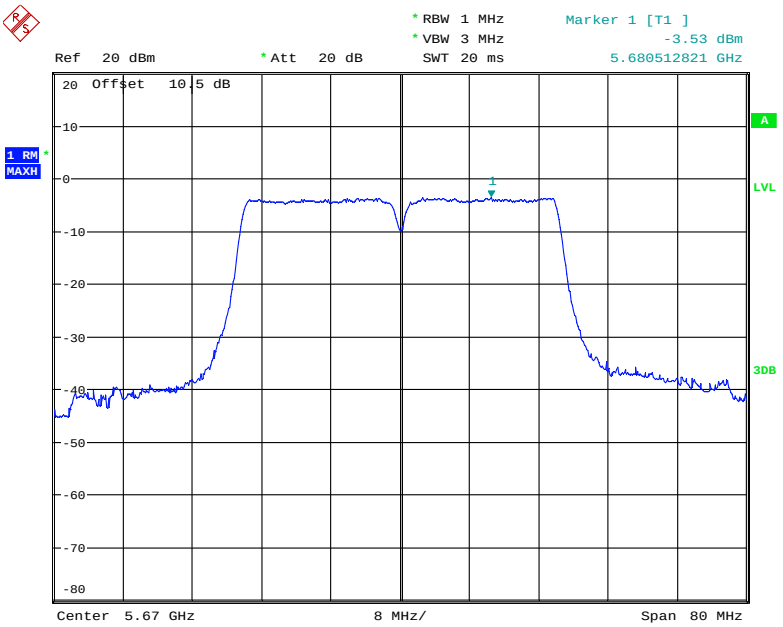

Date: 16.NOV.2018 21:05:17

## 802.11n40 mode, Power Spectral Density, 5590 MHz



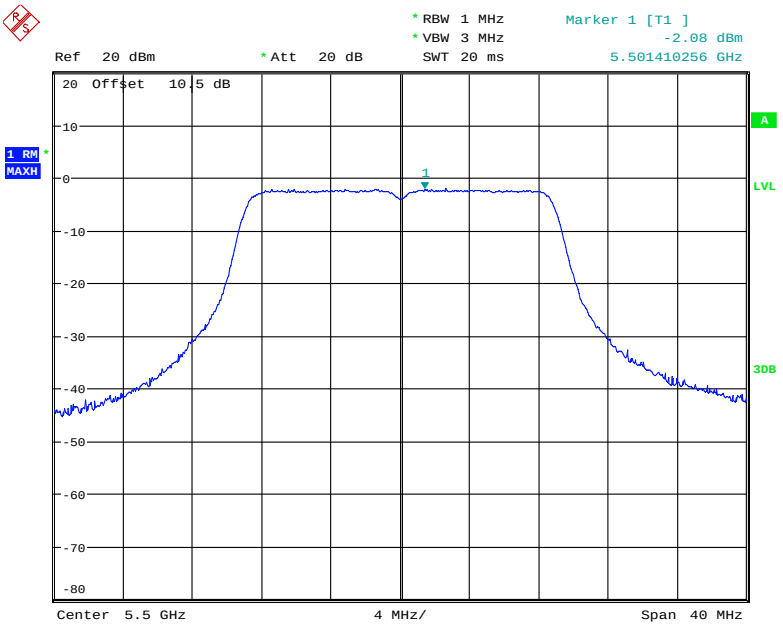

Date: 16.NOV.2018 21:06:15

## 802.11n40 mode, Power Spectral Density, 5670 MHz



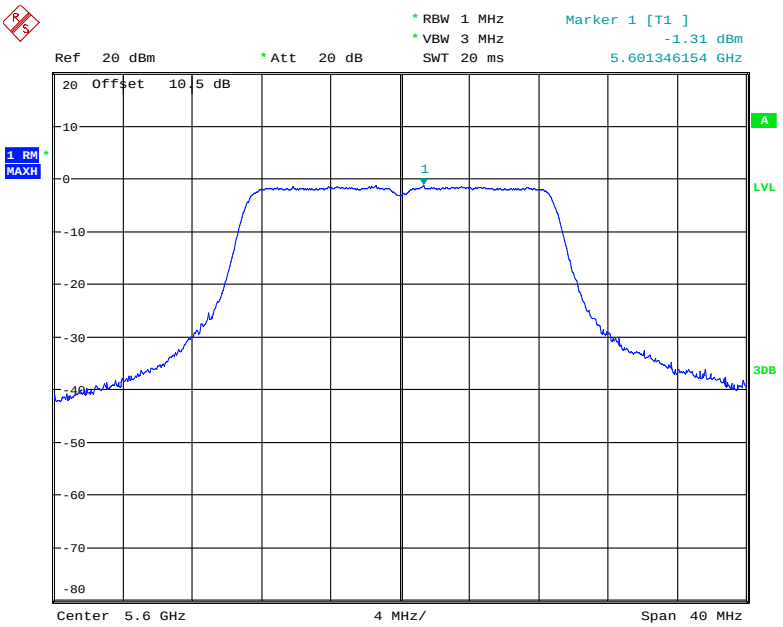

Date: 16.NOV.2018 21:07:21

## 802.11ac20 mode, Power Spectral Density, 5500 MHz



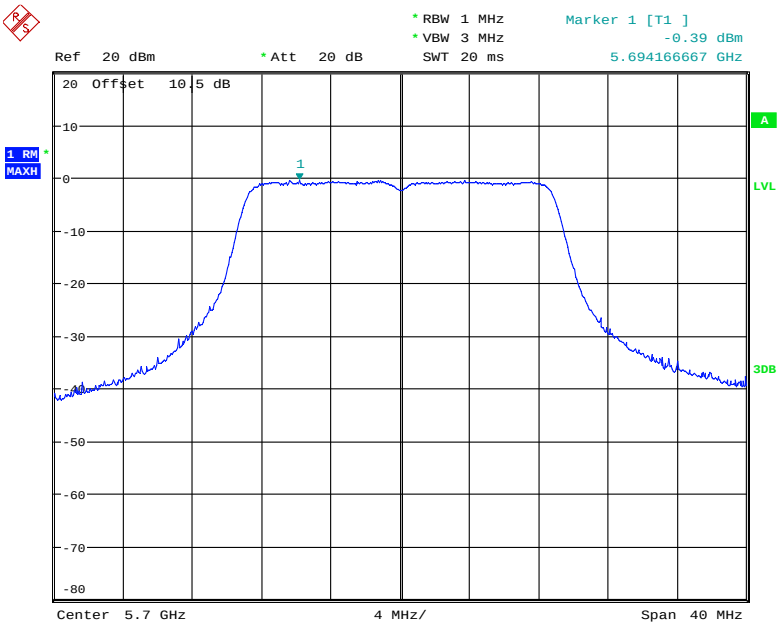

Date: 16.NOV.2018 21:14:47

## 802. 11ac20 mode, Power Spectral Density, 5600 MHz



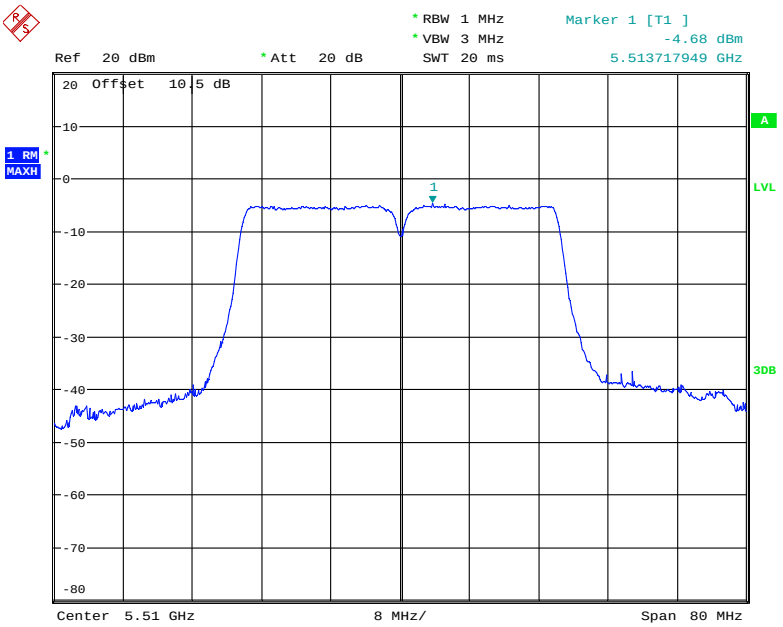

Date: 16.NOV.2018 21:15:44

## 802. 11ac20 mode, Power Spectral Density, 5700 MHz



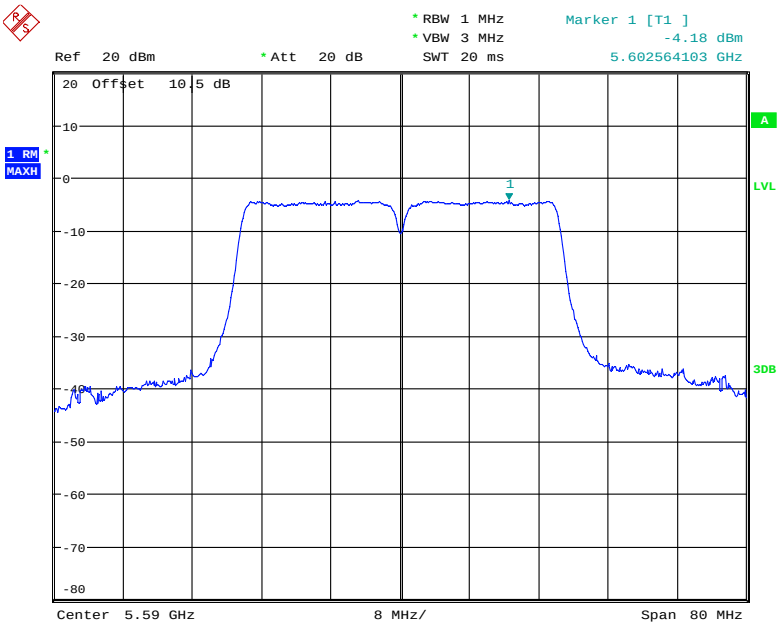

Date: 16.NOV.2018 21:16:10

## 802. 11ac40 mode, Power Spectral Density, 5510 MHz



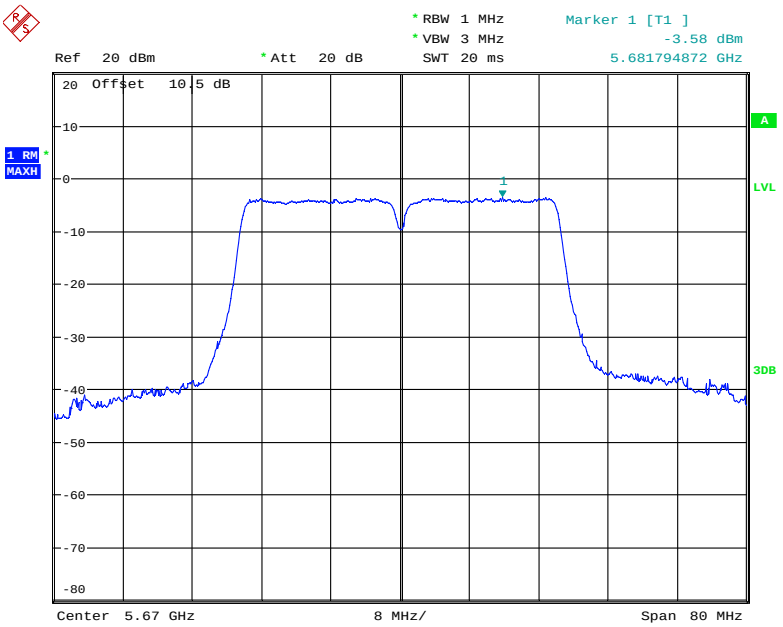

Date: 16.NOV.2018 21:08:08

## 802. 11ac40 mode, Power Spectral Density, 5590 MHz



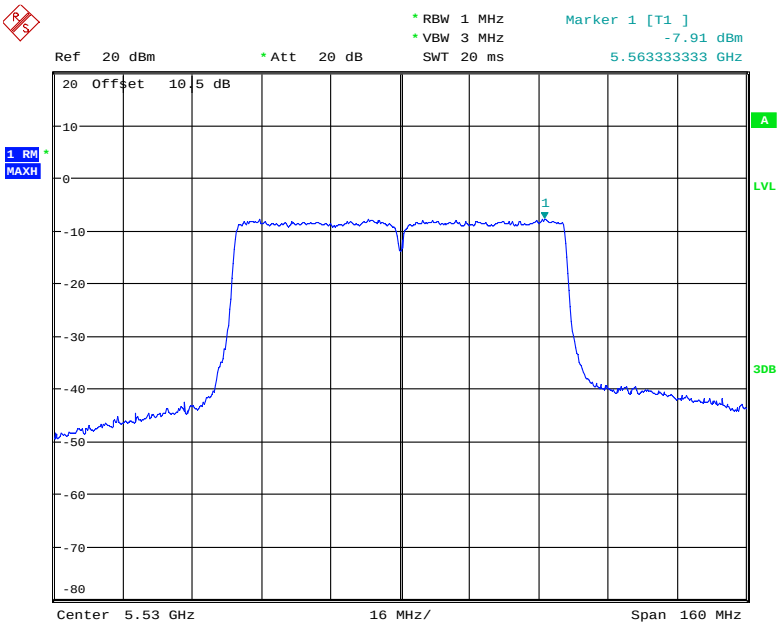

Date: 16.NOV.2018 21:09:40

## 802. 11ac40 mode, Power Spectral Density, 5670 MHz



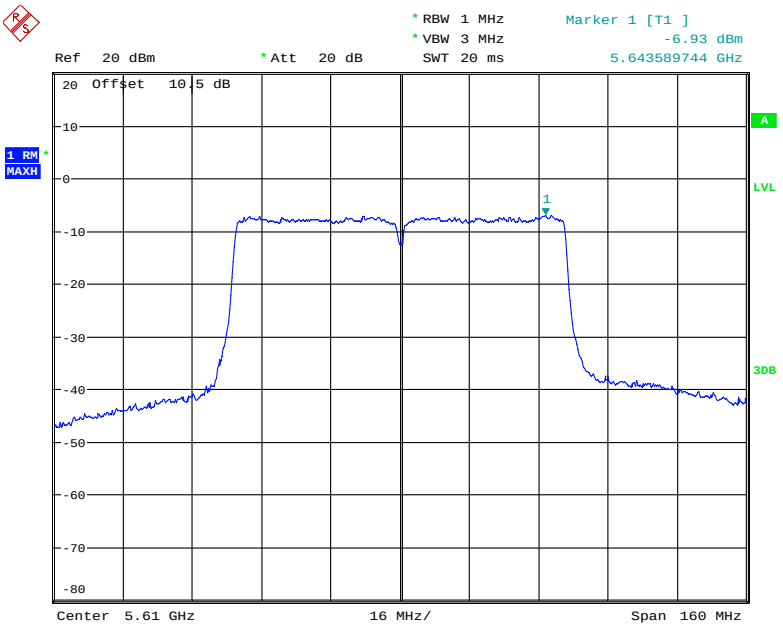

Date: 16.NOV.2018 21:10:05

## 802. 11ac80 mode, Power Spectral Density, 5530 MHz




Date: 16.NOV.2018 21:01:17

## 802. 11ac80 mode, Power Spectral Density, 5610 MHz



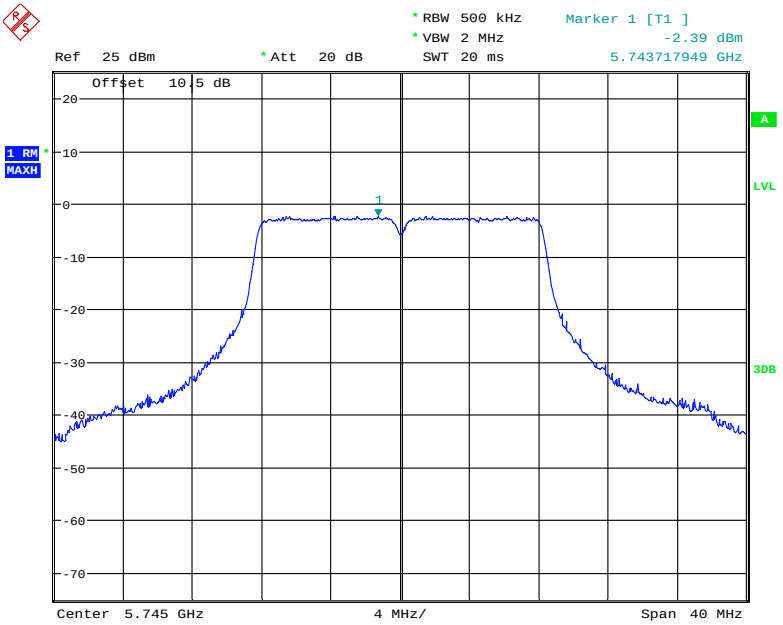

Date: 16.NOV.2018 21:00:41

**5725 MHz – 5850 MHz:**

| Frequency (MHz) | Antenna Port | Power Spectral Density (dBm/500kHz) | Total Power Spectral Density (dBm/500kHz) | Limit (dBm/500kHz) |
|---|---|---|---|---|
| 802.11a | | | | |
| 5745 | 0 | -2.39 | / | 30 |
| | 1 | -0.96 | | |
| 5785 | 0 | -2.20 | / | |
| | 1 | -1.05 | | |
| 5825 | 0 | -1.82 | / | |
| | 1 | -1.16 | | |
| 802.11n20 | | | | |
| 5745 | 0 | -1.75 | 1.99 | 30 |
| | 1 | -0.65 | | |
| 5785 | 0 | -1.73 | 1.93 | |
| | 1 | -0.94 | | |
| 5825 | 0 | -2.04 | 2.22 | |
| | 1 | -1.03 | | |
| 802.11n40 | | | | |
| 5755 | 0 | -4.87 | -1.37 | 30 |
| | 1 | -4.00 | | |
| 5795 | 0 | -4.69 | -1.37 | |
| | 1 | -4.07 | | |
| 802.11ac20 | | | | |
| 5745 | 0 | -1.84 | 1.82 | 30 |
| | 1 | -0.62 | | |
| 5785 | 0 | -2.28 | 1.55 | |
| | 1 | -0.76 | | |
| 5825 | 0 | -1.88 | 1.52 | |
| | 1 | -1.14 | | |
| 802.11ac40 | | | | |
| 5755 | 0 | -5.01 | -1.19 | 30 |
| | 1 | -3.60 | | |
| 5795 | 0 | -4.77 | -1.31 | |
| | 1 | -3.92 | | |
| 802.11ac80 | | | | |
| 5775 | 0 | -7.76 | -4.20 | 30 |
| | 1 | -6.77 | | |

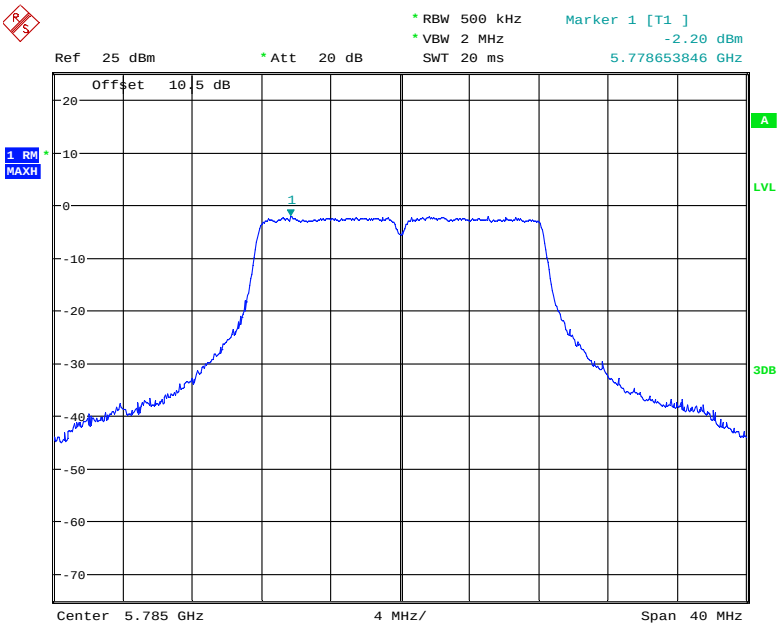
**Chain 0:**

**802.11a mode, Power Spectral Density, 5745 MHz**



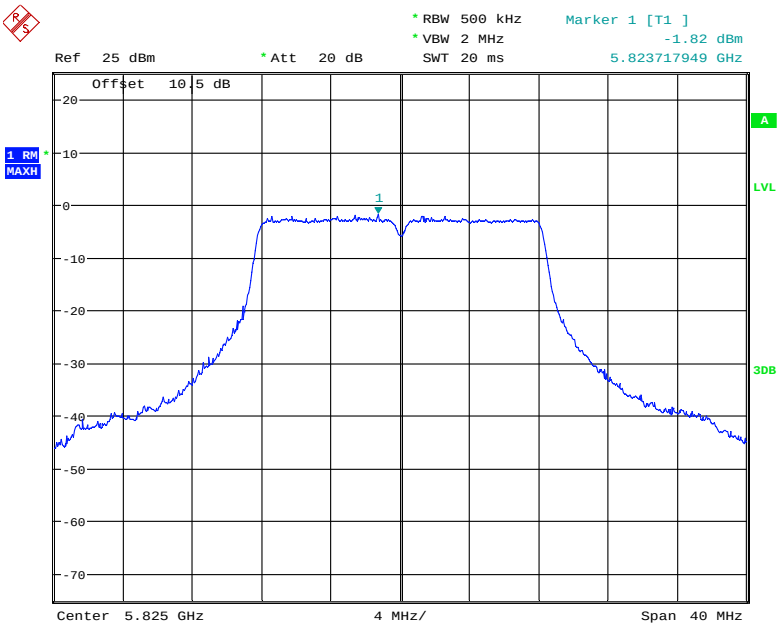

Date: 18.NOV.2018 17:35:39

**802.11a mode, Power Spectral Density, 5785 MHz**



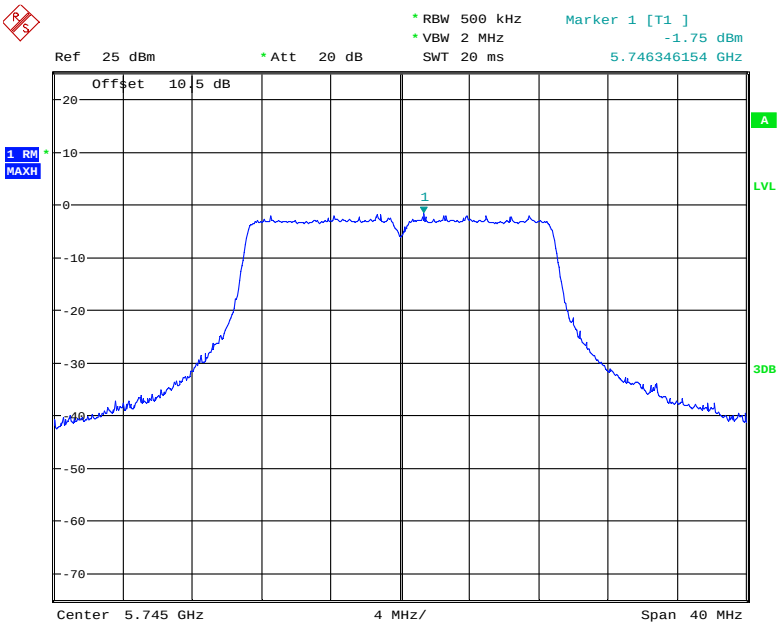

Date: 18.NOV.2018 17:35:10

## 802.11a mode, Power Spectral Density, 5825 MHz



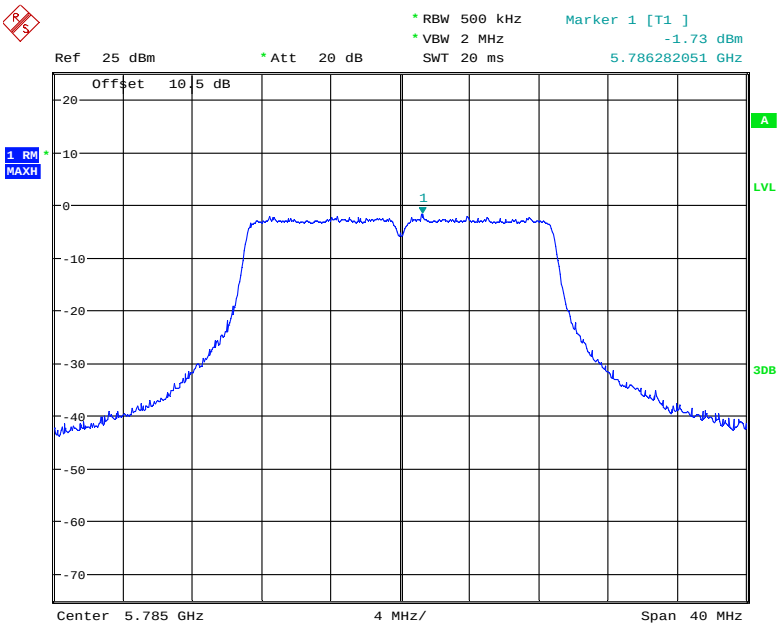

Date: 18.NOV.2018 17:34:47

## 802.11n20 mode, Power Spectral Density, 5745 MHz



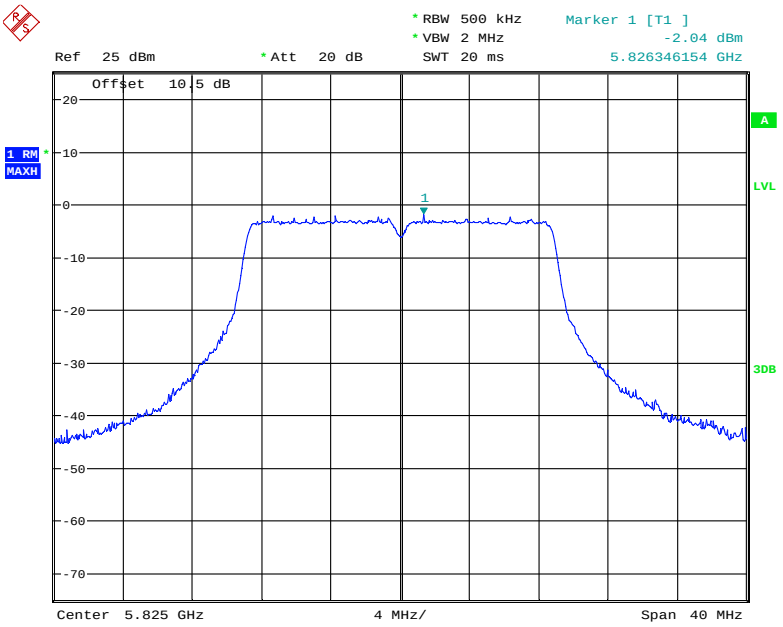

Date: 18.NOV.2018 17:33:42

## 802.11n20 mode, Power Spectral Density, 5785 MHz



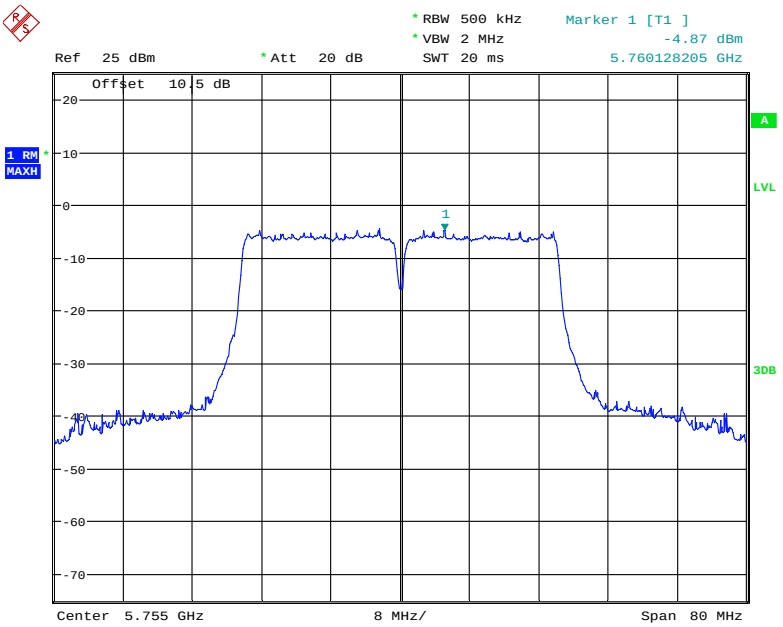

Date: 18.NOV.2018 17:28:52

## 802.11n20 mode, Power Spectral Density, 5825 MHz



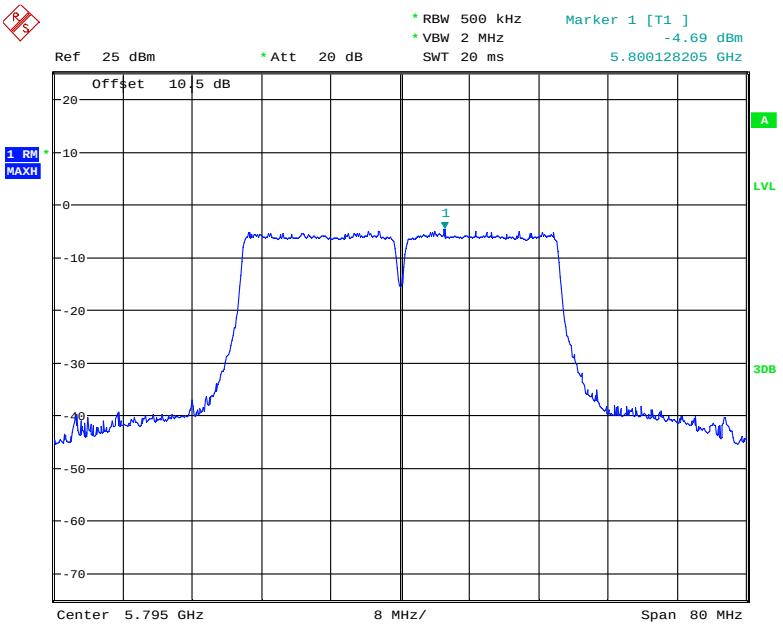

Date: 18.NOV.2018 17:28:21

## 802.11n40 mode, Power Spectral Density, 5755 MHz



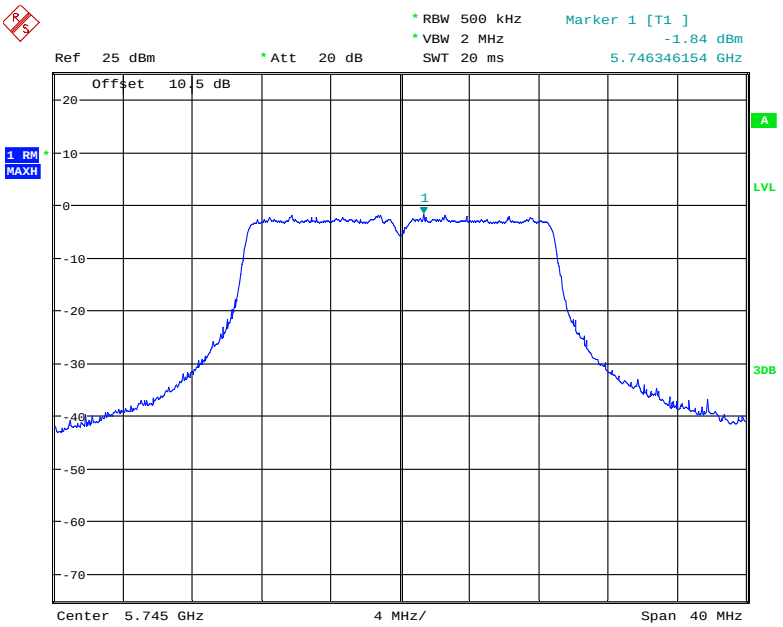

Date: 18.NOV.2018 17:36:41

## 802.11n40 mode, Power Spectral Density, 5795 MHz



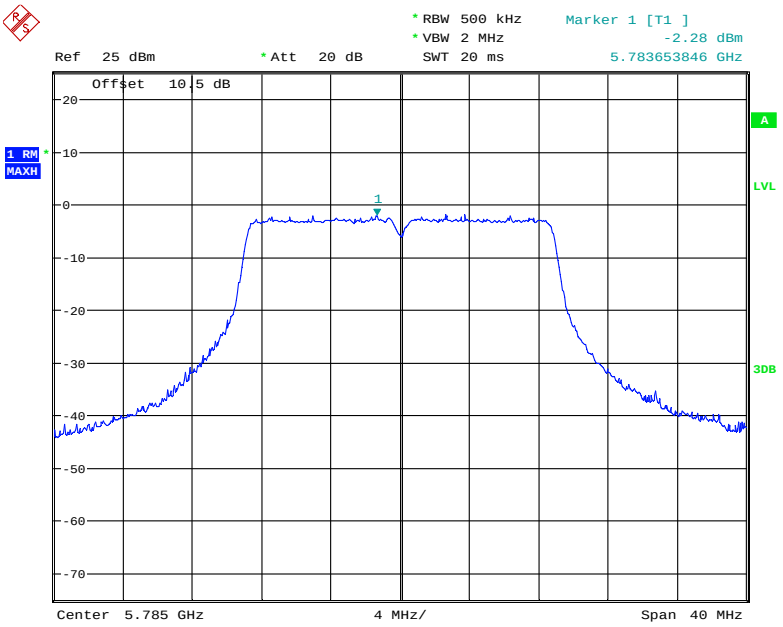

Date: 18.NOV.2018 17:36:11

## 802.11ac20 mode, Power Spectral Density, 5745 MHz



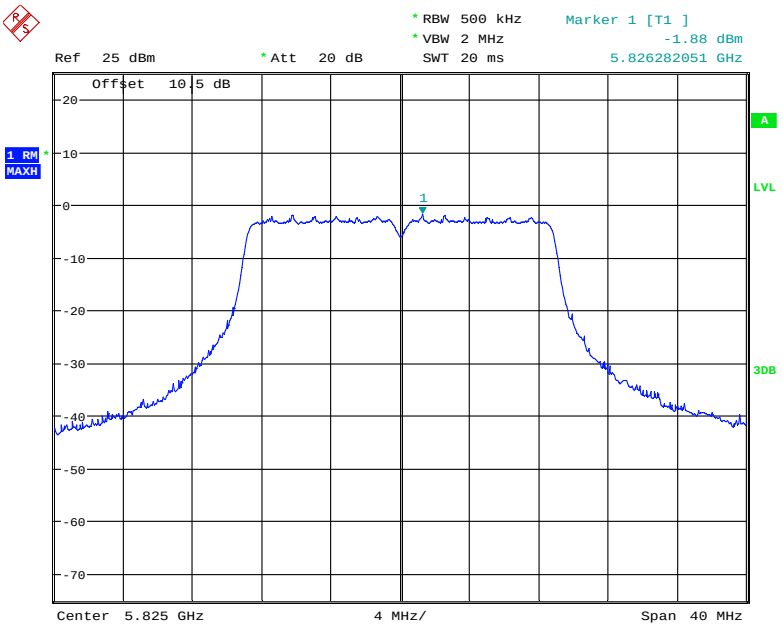

Date: 18.NOV.2018 17:27:47

## 802. 11ac20 mode, Power Spectral Density, 5785 MHz



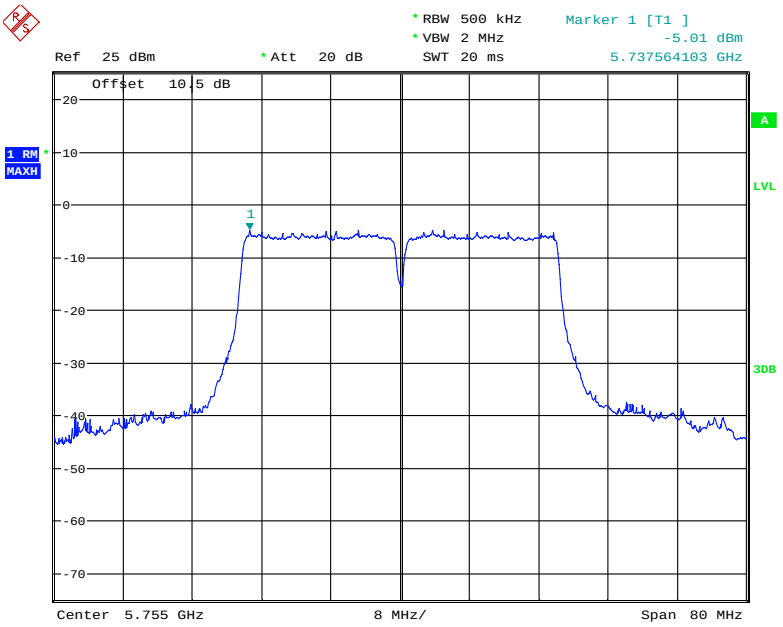

Date: 18.NOV.2018 17:27:18

## 802. 11ac20 mode, Power Spectral Density, 5825 MHz



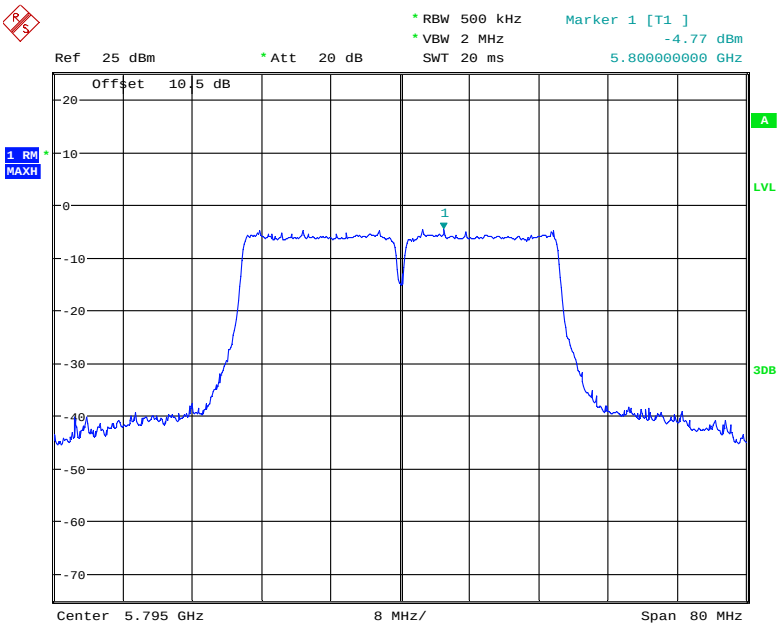

Date: 18.NOV.2018 16:42:02

## 802. 11ac40 mode, Power Spectral Density, 5755 MHz



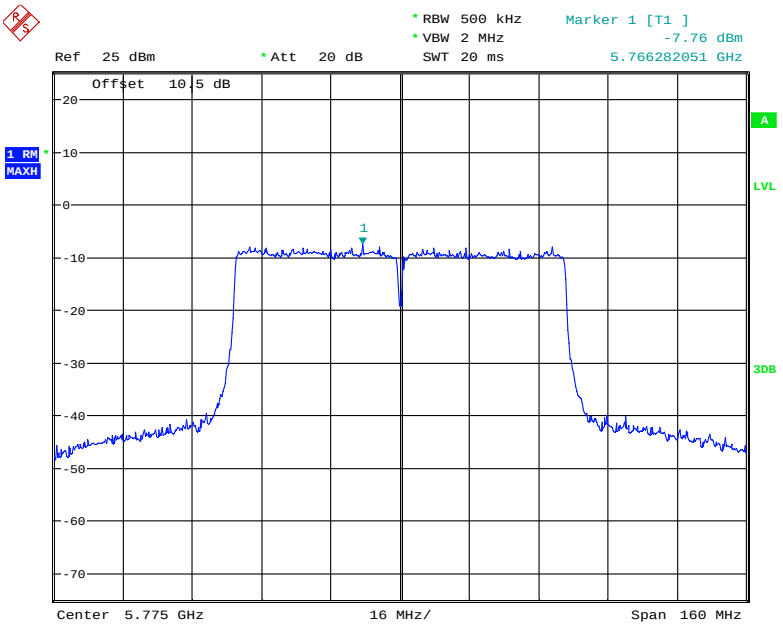

Date: 18.NOV.2018 17:37:21

## 802. 11ac40 mode, Power Spectral Density, 5795 MHz




Date: 18.NOV.2018 17:37:47

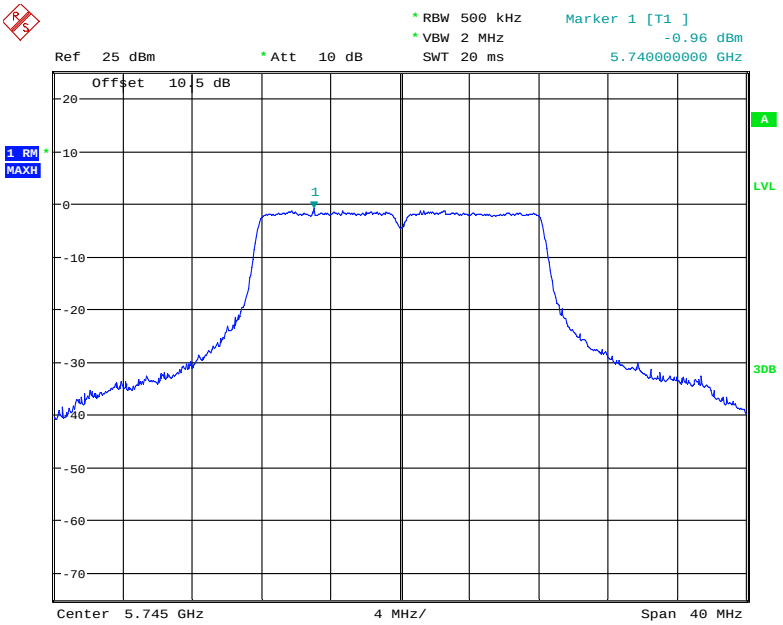
## 802. 11ac80 mode, Power Spectral Density, 5775 MHz




Date: 18.NOV.2018 17:38:20

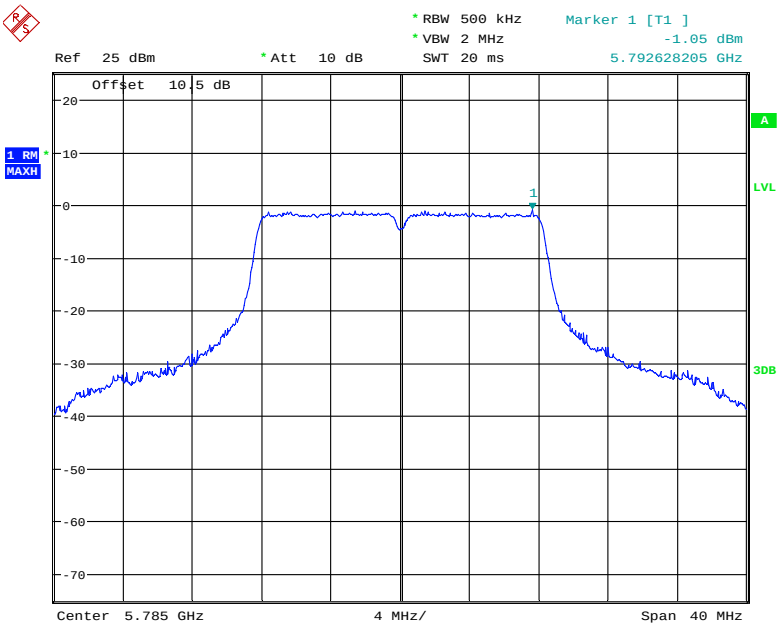
**Chain 1:**

**802.11a mode, Power Spectral Density, 5745 MHz**



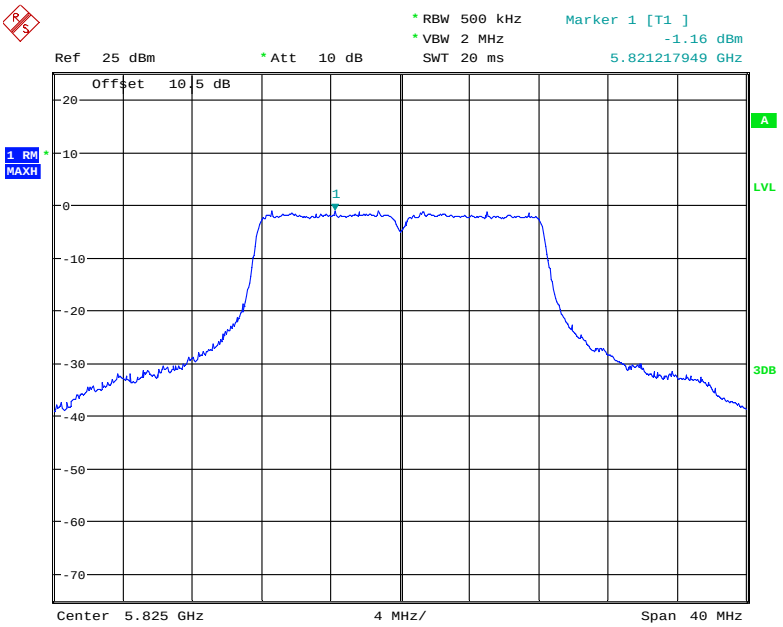

Date: 16.NOV.2018 23:00:03

**802.11a mode, Power Spectral Density, 5785 MHz**



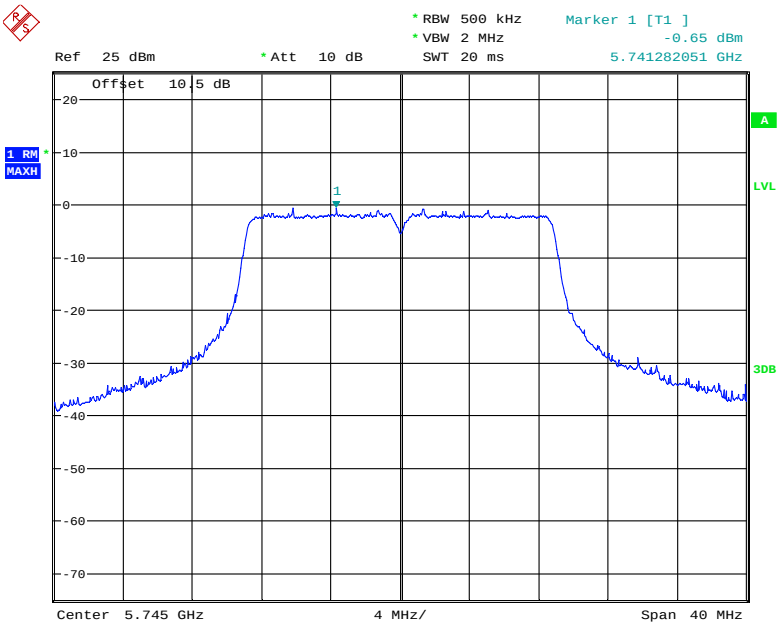

Date: 16.NOV.2018 22:59:42

## 802.11a mode, Power Spectral Density, 5825 MHz



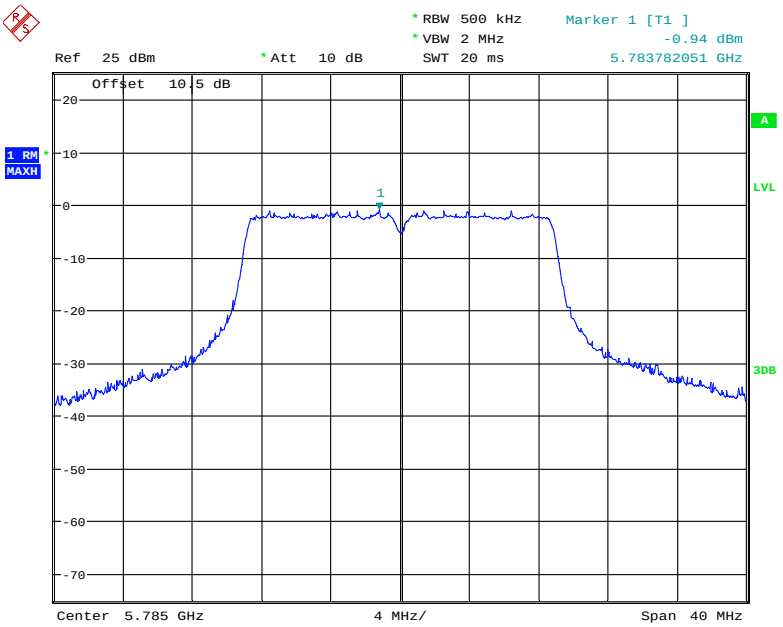

Date: 16.NOV.2018 22:59:24

## 802.11n20 mode, Power Spectral Density, 5745 MHz



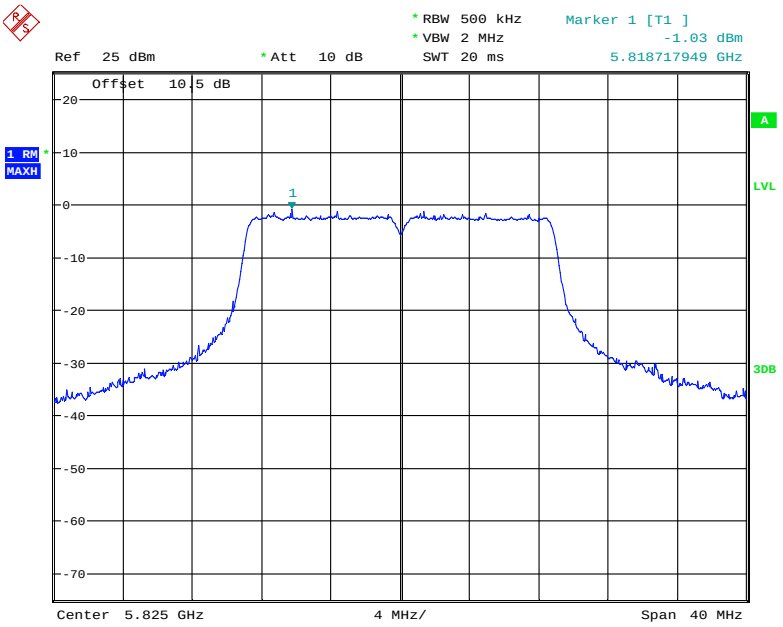

Date: 16.NOV.2018 22:58:29

## 802.11n20 mode, Power Spectral Density, 5785 MHz



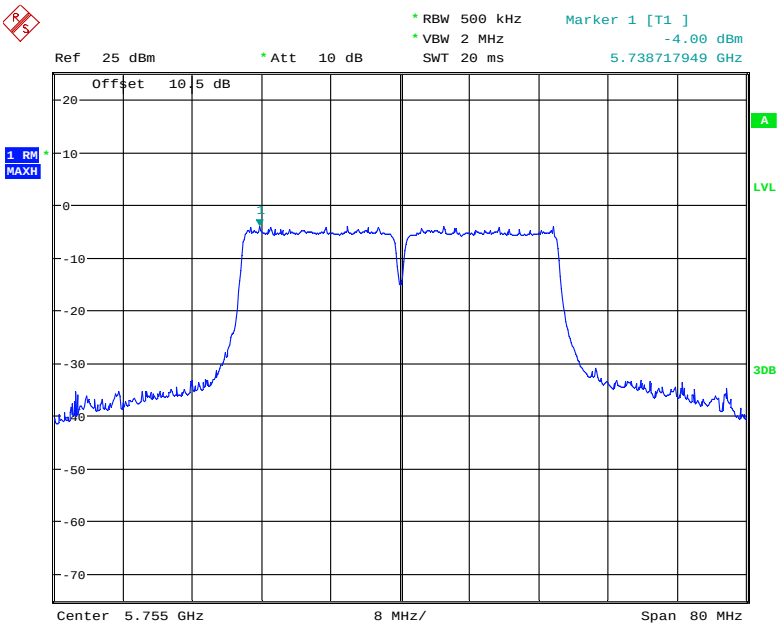

Date: 16.NOV.2018 22:58:04

## 802.11n20 mode, Power Spectral Density, 5825 MHz



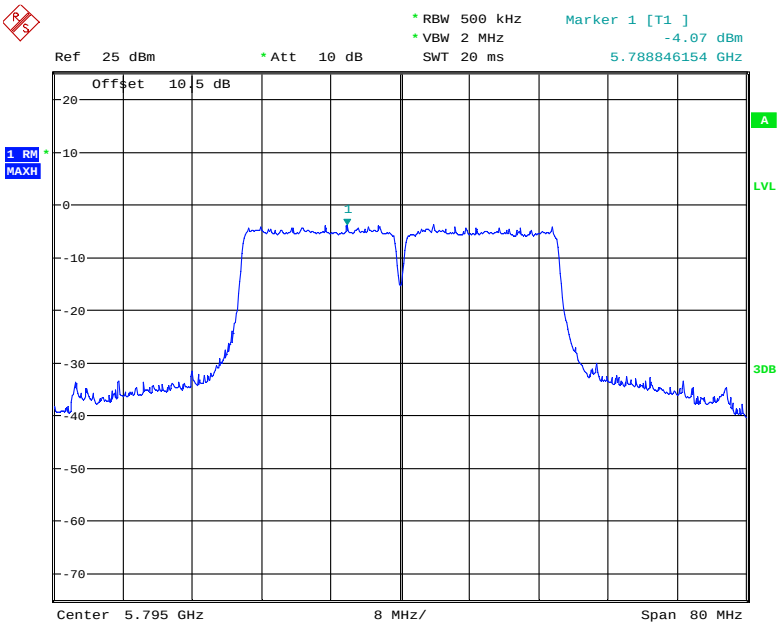

Date: 16.NOV.2018 22:57:44

## 802.11n40 mode, Power Spectral Density, 5755 MHz



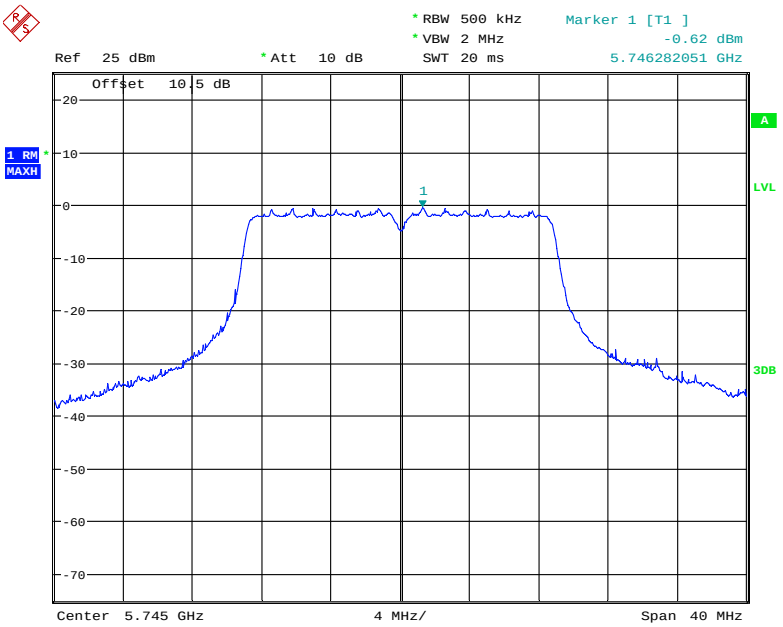

Date: 16.NOV.2018 23:01:24

## 802.11n40 mode, Power Spectral Density, 5795 MHz



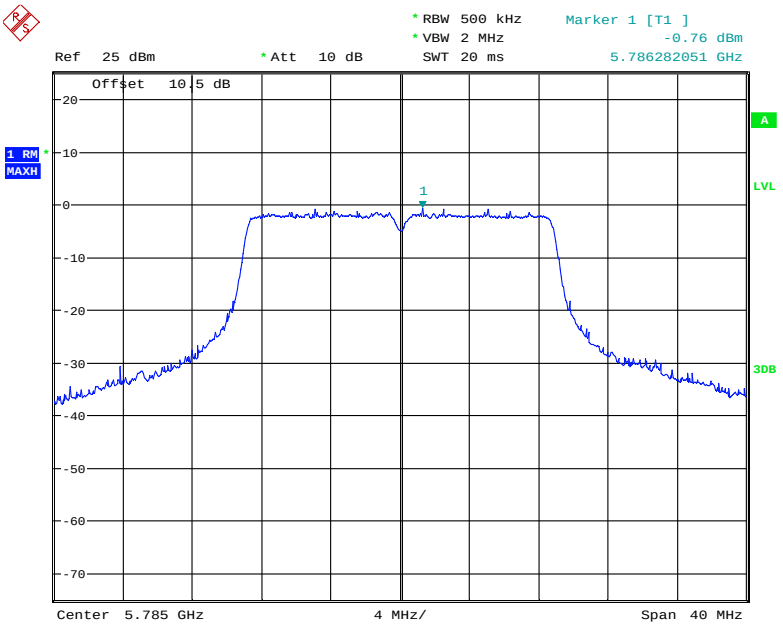

Date: 16.NOV.2018 23:00:47

## 802.11ac20 mode, Power Spectral Density, 5745 MHz



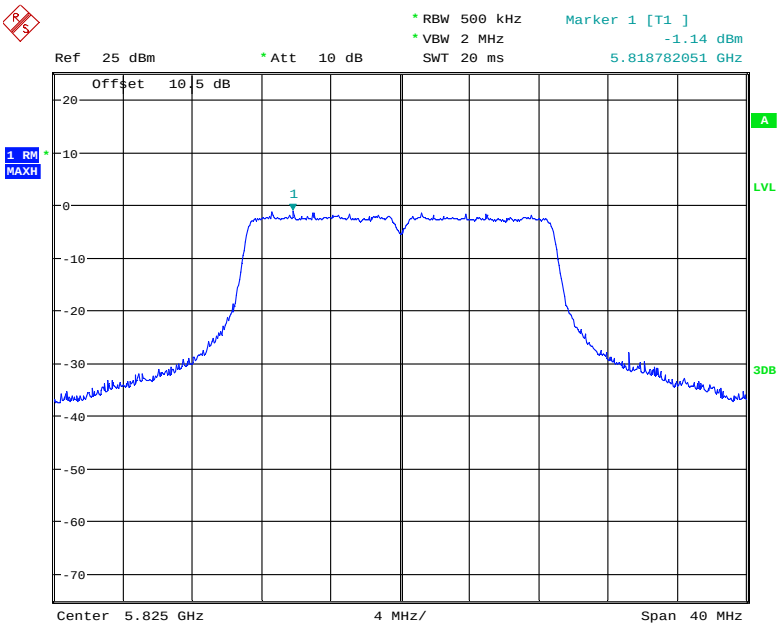

Date: 16.NOV.2018 22:54:32

## 802. 11ac20 mode, Power Spectral Density, 5785 MHz



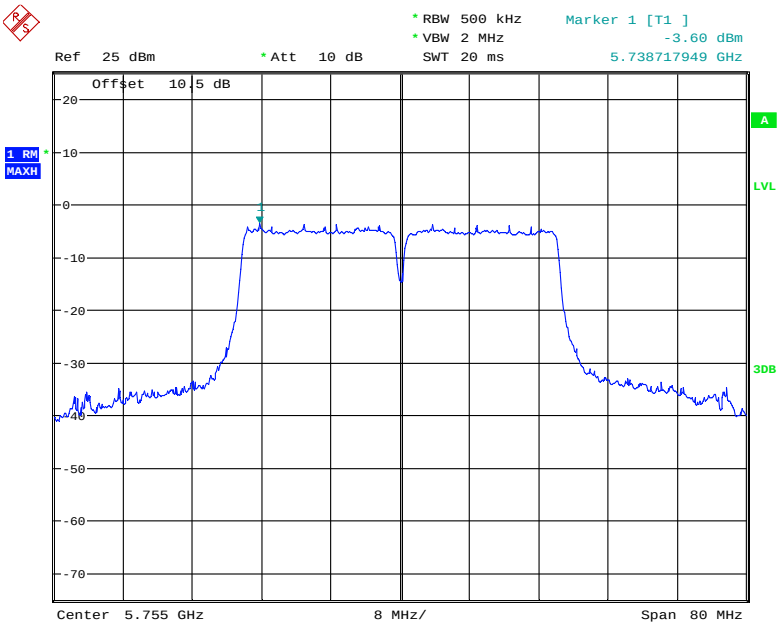

Date: 16.NOV.2018 22:55:30

## 802. 11ac20 mode, Power Spectral Density, 5825 MHz



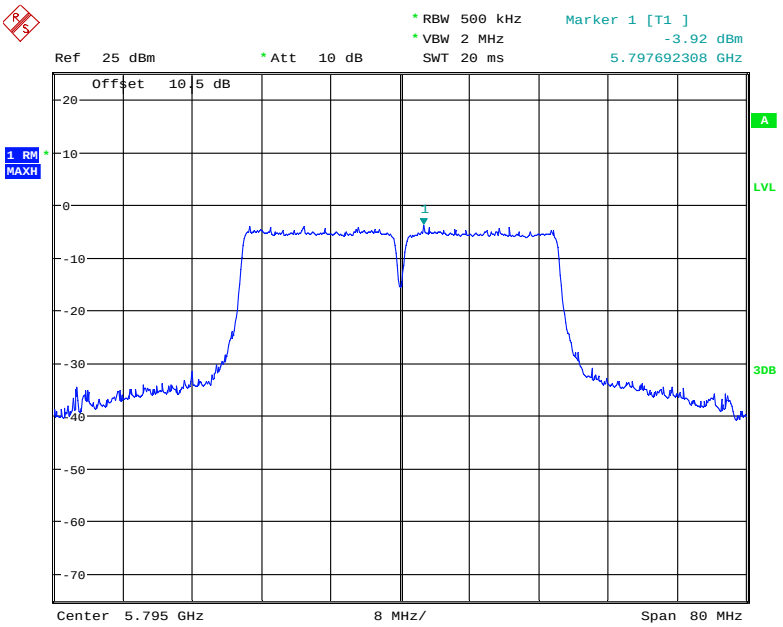

Date: 16.NOV.2018 22:55:50

## 802. 11ac40 mode, Power Spectral Density, 5755 MHz



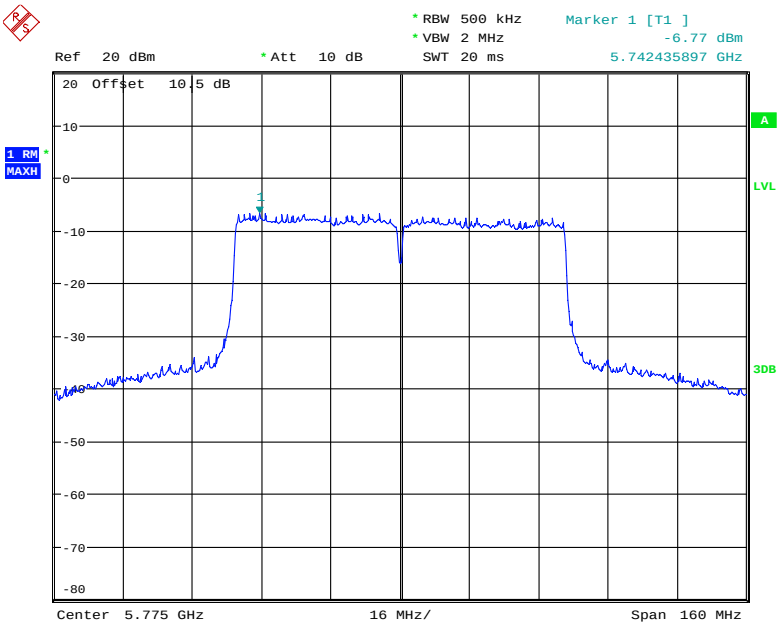

Date: 16.NOV.2018 23:02:30

## 802. 11ac40 mode, Power Spectral Density, 5795 MHz




Date: 16.NOV.2018 23:01:52

## 802. 11ac80 mode, Power Spectral Density, 5775 MHz




Date: 16.NOV.2018 22:20:16

******* END OF REPORT *******