# FCC PART 15.407
# LP0002-2018
# TEST REPORT

For

## Cisco Systems, Inc.

125 W Tasman Drive

San Jose, CA 95134, USA

**FCC ID: LDKHDGWI1903**

| **Report Type:** | **Product type:** |
|---|---|
| Permissive II Change Report | Cisco Catalyst C9117AX Series |

| | |
|---|---|
| **Prepared By:** | Sehni Hu<br>Test Engineer |
| **Report Number:** | R1811136-UNII160B |
| **Report Date:** | 2019-02-15 |
| **Reviewed By:** | Simon Ma<br>RF Supervisor |

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# DOCUMENT REVISION HISTORY

| Revision Number | Report Number | Description of Revision | Date of Revision |
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| 0 | R1811136-UNII160B | Permissive II Change Report | 2019-02-15 |

# 1 General Description

## 1.1 Product Description for Equipment under Test (EUT)

This test and measurement report was prepared on behalf of *Cisco Systems, Inc.* and their product model: *C9117AXI-B and C9117AXI-T,* FCC ID: LDKHDGWI1903, or the "EUT" as referred to in this report. The product is an 802.11ax Access Point.

## 1.2 Objective

This report is prepared on behalf of *Cisco Systems, Inc.* in accordance with FCC CFR47 §15.407 and LP0002-2018.

The objective is to determine compliance with FCC Part 15.407 and LP0002-2018 rules for Output Power, Antenna Requirements, AC Line Conducted Emissions, Emission Bandwidth, Power spectral density, Conducted and Radiated Spurious Emissions.

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

N/A

## 1.4 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.10-2013, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz, and FCC KDB 789033 D02 General UNII Test Procedure New Rules v02r01.

## 1.5 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatabil

| Parameter | Measurement uncertainty |
|---|---|
| Occupied Channel Bandwidth | 34kHz |
| RF output power, conducted | 4.84 dB |
| Power Spectral Density, conducted | 1.69 dB |
| Unwanted Emissions, conducted | 4.84dB |
| All emissions, radiated | 5.18 dB |
| AC power line Conducted Emission | 4.22 dB |
| Temperature | ±2 º C |
| Humidity | ±5 % |
| DC and low frequency voltages | ±1.0 % |
| Time | ±2 % |
| Duty Cycle | ±3 % |

## 1.6 Test Facility Registrations

The Test site used by Bay Area Compliance Laboratories Corp. (Taiwan) to collect test data is located on
☒ 70, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.
☐ 68-3, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.

Bay Area Compliance Laboratories Corp. (Taiwan) Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3180) and the FCC designation No.TW3180 under the Mutual Recognition Agreement (MRA) in FCC Test. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.10.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 974454. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

# 2 EUT Test Configuration

## 2.1 Justification

The EUT was configured for testing according to ANSI C63.10-2013 and FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

The EUT was tested in a testing mode to represent worst-case results during the final qualification test.

The worst-case data rates are determined by measuring the average power, peak power and PPSD across all data rates bandwidths, and modulations.

## 2.2 EUT Exercise Software

The test software used was Tera Term. The software is compliant with the standard requirements being tested against.

## 2.3 Duty Cycle Correction Factor

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 section B:

All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.

| Radio Mode | On Time (ms) | Period (ms) | Duty Cycle (%) | DCCF* (dB) | DCCF* (dB) |
|---|---|---|---|---|---|
| Non HT20 | 2.099 | 2.207 | 95.11 | 0.22 | 0.44 |
| HT/VHT/HE20 | 5.438 | 5.720 | 95.07 | 0.22 | 0.44 |
| HT/VHT/HE40 | 5.426 | 5.651 | 96.02 | 0.18 | 0.36 |
| VHT/HE80 | 5.438 | 5.709 | 95.25 | 0.21 | 0.42 |
| VHT/HE160 | 5.435 | 5.667 | 95.91 | 0.18 | 0.36 |

Note*: DCCF = Duty Cycle Correction Factor = 10*log(1/duty cycle), when power averaging was applied in average measurement; DCCF = 20*log(1/duty cycle), when voltage averaging was applied in average measurement.

## 2.4 Equipment Modifications

N/A

## 2.5 Local Support Equipment

| Manufacturer | Description | Model |
|---|---|---|
| Dell | NB | E6410 |

## 2.6 Support Equipment

N/A

## 2.7 Interface Ports and Cabling

| Cable Description | Length (m) | To | From |
|---|---|---|---|
| Cat5e | ~1 | EUT | POE Injector |
| Cat5e | ~1 | POE Injector | NB |

# 3 Summary of Test Results

| FCC and LP0002-2018 Rules | Description of Test | Result |
|---|---|---|
| FCC §2.1091, §15.407(f), LP0002-2018 §5.20.2 | RF Exposure | Compliant |
| FCC §15.203 LP0002-2018 §2.2 | Antenna Requirement | Compliant |
| FCC §15.207 LP0002-2018 §2.3 | AC Power Line Conducted Emissions | Note[1] |
| FCC §2.1053, §15.205, §15.209, 15.407(b) LP0002-2018 §2.7, §2.8, §4.7 | Spurious Radiated Emissions | Note[1] |
| FCC §15.407(e) LP0002-2018 §4.7 | Emission Bandwidth | Compliant |
| FCC §407(a) LP0002-2018 §4.7 | Output Power | Compliant |
| FCC §2.1051, §15.407(b) LP0002-2018 §4.7 | Band Edges | Compliant |
| FCC §15.407(a) LP0002-2018 §4.7 | Power Spectral Density | Compliant |
| FCC §2.1051, §15.407(b) LP0002-2018 §4.7 | Spurious Emissions at Antenna Terminals | Compliant |
| FCC §15.407(h) LP0002-2018 §4.7 | Dynamic Frequency Selection (DFS) | Note[2] |

*Note[1]: compliance test data was recorded in a seprate report, please refer to Test Report: R1811136-407-2*
*Note[2]: DFS compliance test data was recorded in a separate report, please refer to Test Report: R1811136-DFS*

# 4 FCC §2.1091, §15.407(f), LP0002-2018 §5.20.2 - RF Exposure

## 4.1 Applicable Standards

According to FCC §15.247(i), §15.407(f) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

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) |
|---|---|---|---|---|
| Limits for General Population/Uncontrolled Exposure | | | | |
| 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

## 4.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

## 4.3 MPE Results for FCC

**BLE:**

| | |
|---|---|
| Maximum average output power at antenna input terminal (dBm): | 4.21 |
| Maximum average output power at antenna input terminal (mW): | 2.64 |
| Prediction distance (cm): | 30 |
| Prediction frequency (MHz): | 2402 |
| Maximum Antenna Gain, typical (dBi): | 2 |
| Maximum Antenna Gain (numeric): | 1.58 |
| Power density of prediction frequency at 30.0 cm ($mW/cm^2$): | 0.0004 |
| FCC MPE limit for uncontrolled exposure at prediction frequency ($mW/cm^2$): | 1.0 |

**2.4 GHz Wi-Fi:**

| | |
|---|---|
| Maximum average output power at antenna input terminal (dBm): | 24.3 |
| Maximum average output power at antenna input terminal (mW): | 269.15 |
| Prediction distance (cm): | 30 |
| Prediction frequency (MHz): | 2437 |
| Maximum Antenna Gain, typical (dBi): | 10 |
| Maximum Antenna Gain (numeric): | 10 |
| Power density of prediction frequency at 30.0 cm ($mW/cm^2$): | 0.238 |
| FCC MPE limit for uncontrolled exposure at prediction frequency ($mW/cm^2$): | 1.0 |

**5.2 GHz band:**

| | |
|---|---|
| Maximum average output power at antenna input terminal (dBm): | 21.04 |
| Maximum average output power at antenna input terminal (mW): | 127.06 |
| Prediction distance (cm): | 30 |
| Prediction frequency (MHz): | 5200 |
| Maximum Antenna Gain, typical (dBi): | 14.45 |
| Maximum Antenna Gain (numeric): | 27.86 |
| Power density of prediction frequency at 30.0 cm ($mW/cm^2$): | 0.313 |
| FCC MPE limit for uncontrolled exposure at prediction frequency ($mW/cm^2$): | 1.0 |

**5.3 GHz band:**

| | |
|---|---|
| Maximum average output power at antenna input terminal (dBm): | 13.68 |
| Maximum average output power at antenna input terminal (mW): | 23.335 |
| Prediction distance (cm): | 30 |
| Prediction frequency (MHz): | 5270 |
| Maximum Antenna Gain, typical (dBi): | 13.78 |
| Maximum Antenna Gain (numeric): | 23.878 |
| Power density of prediction frequency at 30.0 cm ($mW/cm^2$): | 0.049 |
| FCC MPE limit for uncontrolled exposure at prediction frequency ($mW/cm^2$): | 1.0 |

**5.6 GHz band:**

| | |
|---|---|
| Maximum average output power at antenna input terminal (dBm): | 20.75 |
| Maximum average output power at antenna input terminal (mW): | 118.85 |
| Prediction distance (cm): | 30 |
| Prediction frequency (MHz): | 5700 |
| Maximum Antenna Gain, typical (dBi): | 6.88 |
| Maximum Antenna Gain (numeric): | 4.88 |
| Power density of prediction frequency at 30.0 cm ($mW/cm^2$): | 0.051 |
| FCC MPE limit for uncontrolled exposure at prediction frequency ($mW/cm^2$): | 1.0 |

**5.8 GHz band:**

| | |
|---|---|
| Maximum average output power at antenna input terminal (dBm): | 23.87 |
| Maximum average output power at antenna input terminal (mW): | 243.78 |
| Prediction distance (cm): | 30 |
| Prediction frequency (MHz): | 5755 |
| Maximum Antenna Gain, typical (dBi): | 12.02 |
| Maximum Antenna Gain (numeric): | 15.92 |
| Power density of prediction frequency at 30.0 cm ($mW/cm^2$): | 0.343 |
| FCC MPE limit for uncontrolled exposure at prediction frequency ($mW/cm^2$): | 1.0 |

**Radio Co-location**

BLE + 2.4 GHz Wi-Fi + 5 GHz Wi-Fi:

$0.0004/1 + 0.238/1 + 0.343/1 = 0.581 < 1$

**Conclusion**

The device is compliant with the requirement MPE limit for uncontrolled exposure. All transceiver modules must be installed with a separation distance of no less than **30** cm from all persons.

# 5 FCC §15.203 & LP0002-2018 §2.2 - Antenna Requirements

## 5.1 Applicable Standards

According to FCC §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 use of a standard antenna jack or electrical connector is prohibited.

And according to FCC §15.247 (b) (4), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

## 5.2 Antenna List

The antennas used by the EUT are internal antennas.

| Frequency Range (MHz) | External/Internal/Integral | Maximum Antenna Gain (dBi) | Antenna Tpye/Pattern |
|---|---|---|---|
| 2400 - 5900 | Internal | 2/4 | Dual-band Omni |
| 2400 - 5900 | Internal | 2/4 | Dual-band Dipole |
| 2400 - 5900 | Internal | 4/6 | Dual-band Directional |

# 6 FCC §15.407(e) & LP0002-2018 §4.7 - 6 dB, 26 dB, and 99% Occupied Bandwidth

## 6.1 Applicable Standards

As per FCC §15.407(e): for equipment operating in the band 5725 – 5850 MHz, the minimum 6 dB bandwidth of U-NII devices shall be 500 kHz.

## 6.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 or 26 dB from the reference level. Record the frequency difference as the minimum emission or emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

## 6.3 Test Equipment List and Details

| Manufacturer | Description | Model No. | Serial No. | Calibration Date | Calibration Due |
|---|---|---|---|---|---|
| Rohde & Schwarz | Spectrum Analyzer | FSV40 | 101140 | 2018/11/14 | 2019/11/13 |
| MINI-CIRCUITS | Attenuator | BW-S6W5+ | N/A | 2018/03/08 | 2019/03/07 |
| WOKEN | Cable | SFL402 | S02-160323-07 | 2018/02/12 | 2019/02/11 |

***Statement of Traceability: BACL Corp.*** *attests that all of the calibrations on the equipment items listed above were traceable to the SI System of Units via the R.O.C. Center for Measurement Standards of the Electronics Testing Center, Taiwan (ETC) or to another internationally recognized National Metrology Insitute (NMI), and were compliant with the current Taiwan Accreditation Foundation (TAF) requirements.*

## 6.4 Test Environmental Conditions

| | |
|---|---|
| **Temperature:** | 25 ºC |
| **Relative Humidity:** | 58 % |
| **ATM Pressure:** | 1010 hPa |

*The testing was performed by Boris Kao on 2018-11-28~2019-02-14.*

## 6.5 Test Results

Please refer to Annex for test results and plots

# 7 FCC §407(a) & LP0002-2018 §4.7 - Output Power

## 7.1 Applicable Standards

According to FCC §15.407(a):

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(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.

(iii) For fixed point-to-point access points 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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. 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.

(iv) 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.

(2) 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.

(3) 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.

Note to paragraph (a)(3): The Commission strongly recommends that parties employing U-NII devices to provide critical communications services should determine if there are any nearby Government radar systems that could affect their operation.

(4) The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

(5) 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.

## 7.2 Measurement 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 a spectrum analyzer.

## 7.3 Test Equipment List and Details

| Manufacturer | Description | Model No. | Serial No. | Calibration Date | Calibration Due |
|---|---|---|---|---|---|
| KEYSIGHT | Power Sensor | U2021XA | MY54080018 | 2018/03/07 | 2019/03/06 |
| MINI-CIRCUITS | Attenuator | BW-S6W5+ | N/A | 2018/03/08 | 2019/03/07 |
| WOKEN | Cable | SFL402 | S02-160323-07 | 2018/02/12 | 2019/02/11 |

***Statement of Traceability: BACL Corp.*** *attests that all of the calibrations on the equipment items listed above were traceable to the SI System of Units via the R.O.C. Center for Measurement Standards of the Electronics Testing Center, Taiwan (ETC) or to another internationally recognized National Metrology Insitute (NMI), and were compliant with the current Taiwan Accreditation Foundation (TAF) requirements.*

## 7.4 Test Environmental Conditions

| | |
|---|---|
| **Temperature:** | 25 ºC |
| **Relative Humidity:** | 58 % |
| **ATM Pressure:** | 1010 hPa |

*The testing was performed by Boris Kao on 2018-11-28~2019-02-14.*

## 7.5 Test Results

Please refer to Annex for test results and plots

# 8 FCC §15.407(a) & LP0002-2018 §4.7 - Power Spectral Density

## 8.1 Applicable Standards

According to FCC §15.407(a):

For the band 5.15-5.25 GHz.

(i) For an outdoor 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(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.

(iii) For fixed point-to-point access points 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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. 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.

(iv) 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.

## 8.2 Measurement Procedure

(i) Set span to encompass the entire emission bandwidth (EBW) of the signal.
(ii) Set RBW = 1 MHz.
(iii) Set VBW ≥ 3 MHz.
(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
(v) Sweep time = auto.
(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
(vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".
(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
(ix) Use the peak search function on the instrument to find the peak of the spectrum and record its value.

## 8.3 Test Equipment List and Details

| Manufacturer | Description | Model No. | Serial No. | Calibration Date | Calibration Due |
|---|---|---|---|---|---|
| Rohde & Schwarz | Spectrum Analyzer | FSV40 | 101140 | 2018/11/14 | 2019/11/13 |
| MINI-CIRCUITS | Attenuator | BW-S6W5+ | N/A | 2018/03/08 | 2019/03/07 |
| WOKEN | Cable | SFL402 | S02-160323-07 | 2018/02/12 | 2019/02/11 |

***Statement of Traceability: BACL Corp.*** *attests that all of the calibrations on the equipment items listed above were traceable to the SI System of Units via the R.O.C. Center for Measurement Standards of the Electronics Testing Center, Taiwan (ETC) or to another internationally recognized National Metrology Insitute (NMI), and were compliant with the current Taiwan Accreditation Foundation (TAF) requirements.*

## 8.4 Test Environmental Conditions

| | |
|---|---|
| **Temperature:** | 25 ºC |
| **Relative Humidity:** | 58 % |
| **ATM Pressure:** | 1010 hPa |

*The testing was performed by Boris Kao on 2018-11-28~2019-02-14.*

## 8.5 Test Results

Please refer to Annex for test results and plots

# 9 FCC §15.407(b) & LP0002-2018 §4.7 - Out of Band Emissions

## 9.1 Applicable Standards

According to FCC §15.407(b):

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

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 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

The provisions of §15.205 apply to intentional radiators operating under this section.

## 9.2 Measurement Procedure

Add a correction factor (antenna gain+ Attenuator loss+cable loss) to the offset of the spectrum analyzer.
Integration Method

1. For peak emissions measurements, follow the procedures described in section H)5), “Procedures for Peak Unwanted Emissions Measurements above 1000 MHz”, except for the following changes:

- Set RBW = 100 kHz
- Set VBW = 3RBW
- Perform a band-power integration across the 1 MHz bandwidth in which the band-edge emission level is to be measured. CAUTION: You must ensure that the spectrum analyzer or EMI receiver is set for peak-detection and max-hold for this measurement.

2. For average emissions measurements, follow the procedures described in section H)6), “Procedures for Average Unwanted Emissions Measurements above 1000 MHz”, except for the following changes:

- Set RBW = 100 kHz
- Set VBW = 3RBW
- Perform a band-power integration across the 1 MHz bandwidth in which the band-edge emission level is to be measured.

## 9.3 Test Equipment List and Details

| Manufacturer | Description | Model No. | Serial No. | Calibration Date | Calibration Due |
|---|---|---|---|---|---|
| Rohde & Schwarz | Spectrum Analyzer | FSV40 | 101140 | 2018/11/14 | 2019/11/13 |
| MINI-CIRCUITS | Attenuator | BW-S6W5+ | N/A | 2018/03/08 | 2019/03/07 |
| WOKEN | Cable | SFL402 | S02-160323-07 | 2018/02/12 | 2019/02/11 |

***Statement of Traceability: BACL Corp.*** *attests that all of the calibrations on the equipment items listed above were traceable to the SI System of Units via the R.O.C. Center for Measurement Standards of the Electronics Testing Center, Taiwan (ETC) or to another internationally recognized National Metrology Insitute (NMI), and were compliant with the current Taiwan Accreditation Foundation (TAF) requirements.*

## 9.4 Test Environmental Conditions

| | |
|---|---|
| **Temperature:** | 25 ºC |
| **Relative Humidity:** | 58 % |
| **ATM Pressure:** | 1010 hPa |

*The testing was performed by Boris Kao on 2018-11-28~2019-02-14.*

## 9.5 Test Results

Please refer to Annex for test results and plots

# 10 Appendix (Normative) - EUT Photographs

Please see attachments:

Appendix A – EUT Test Setup Photographs
Appendix B – EUT External Photographs
Appendix C – EUT Internal Photographs

# 11 Annex – Test Results and Measurement Plots

Test Data for Occupied Bandwidth

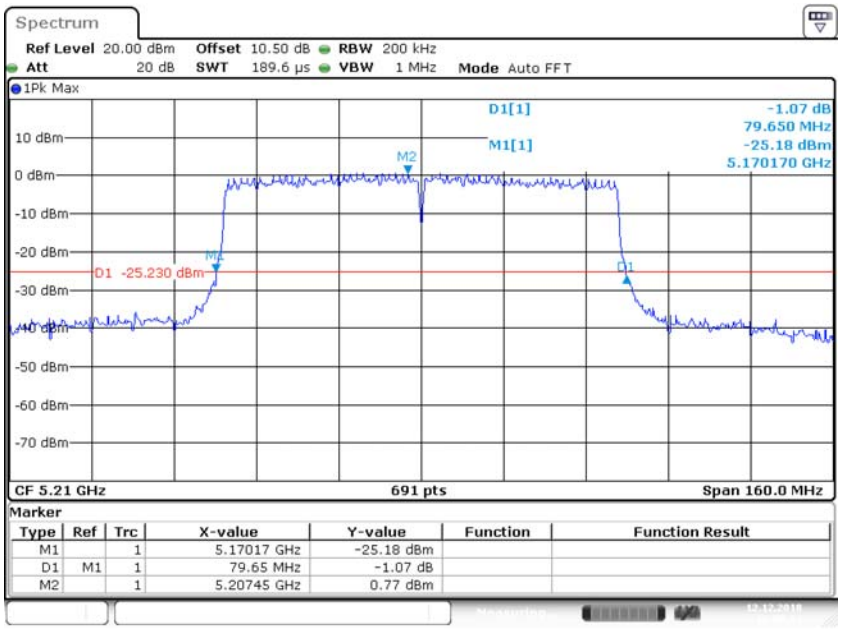
| Freqency (MHz) | Secondary Frequency (MHz) | Mode | Data Rate (Mbps) | 26dB BW (MHz) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TX1 | TX2 | TX3 | TX4 | TX5 | TX6 | TX7 | TX8 |
| 5250 | 5210 | VHT/HE160, M0.1 to M9.1, M0.1 to M11.1 | m0 | 79.65 | | | | | | | |
| | 5290 | VHT/HE160, M0.1 to M9.1, M0.1 to M11.1 | m0 | | | | | 79.65 | | | |
| 5570 | 5530 | VHT/HE160, M0.1 to M9.1, M0.1 to M11.1 | m0 | 79.48 | | | | | | | |
| | 5610 | VHT/HE160, M0.1 to M9.1, M0.1 to M11.1 | m0 | | | | | 81.39 | | | |

| Freqency (MHz) | Secondary Frequency (MHz) | Mode | Data Rate (Mbps) | 99% OBW (MHz) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TX1 | TX2 | TX3 | TX4 | TX5 | TX6 | TX7 | TX8 |
| 5250 | 5210 | VHT/HE160, M0.1 to M9.1, M0.1 to M11.1 | m0 | 75.48 | | | | | | | |
| | 5290 | VHT/HE160, M0.1 to M9.1, M0.1 to M11.1 | m0 | | | | | 75.48 | | | |
| 5570 | 5530 | VHT/HE160, M0.1 to M9.1, M0.1 to M11.1 | m0 | 75.71 | | | | | | | |
| | 5610 | VHT/HE160, M0.1 to M9.1, M0.1 to M11.1 | m0 | | | | | 75.48 | | | |

Please refer to the following plots

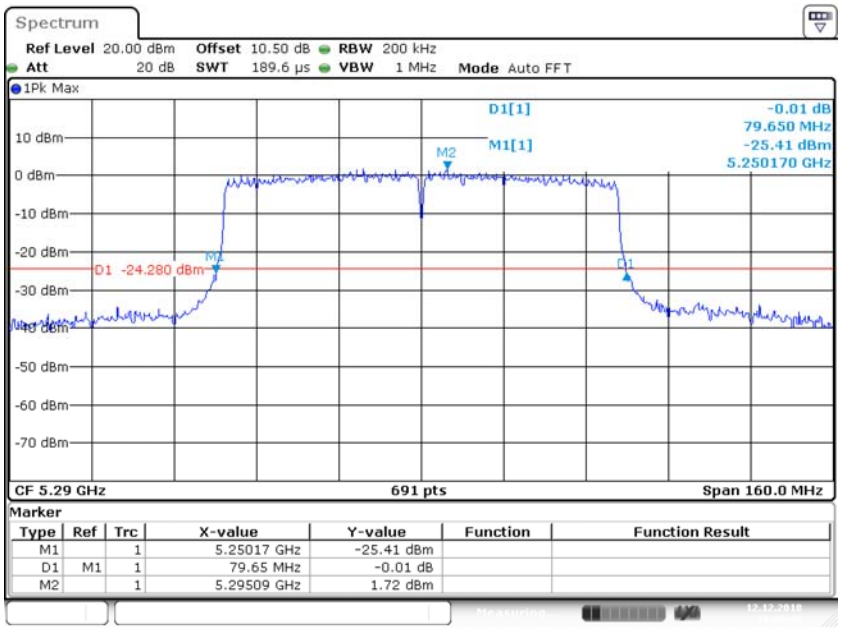
26 dB Bandwidth

5210 MHz



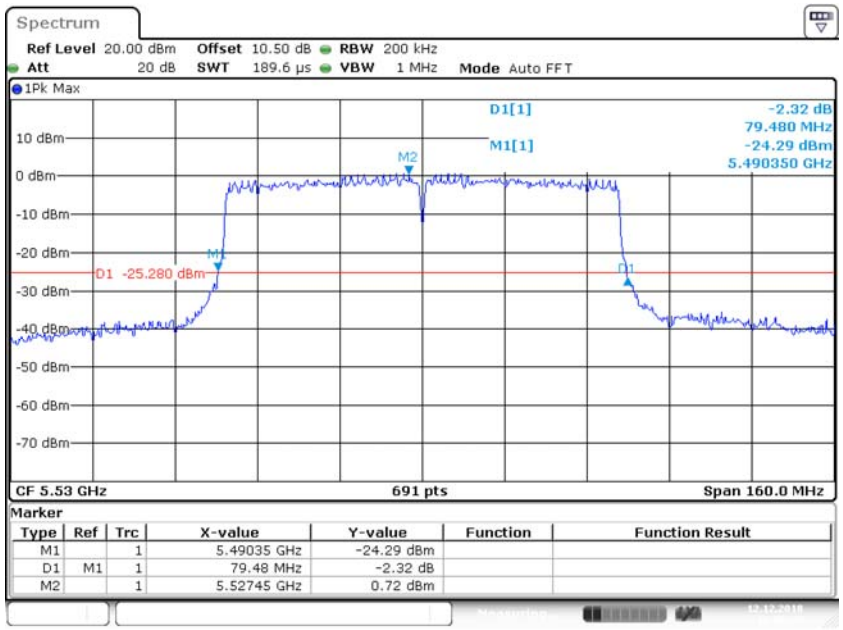

Date: 12.DEC.2018 18:58:53

5290 MHz



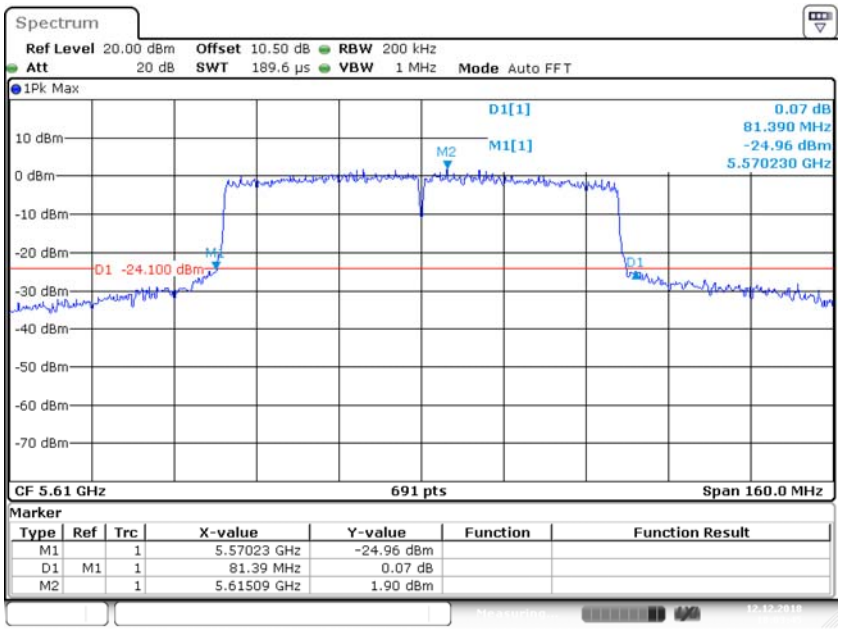

Date: 12.DEC.2018 19:00:48

5530 MHz




Date: 12.DEC.2018 18:05:55

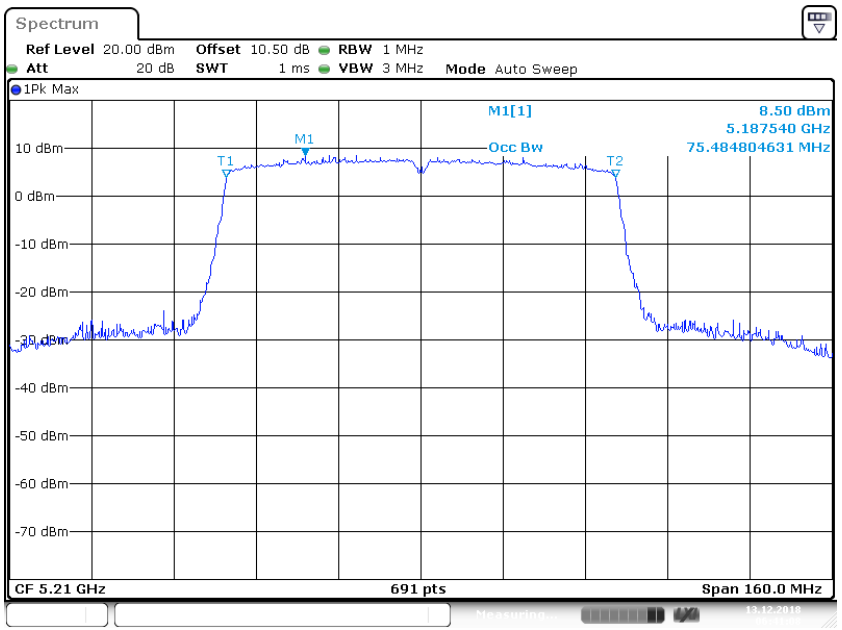
5610 MHz




Date: 12.DEC.2018 18:03:45

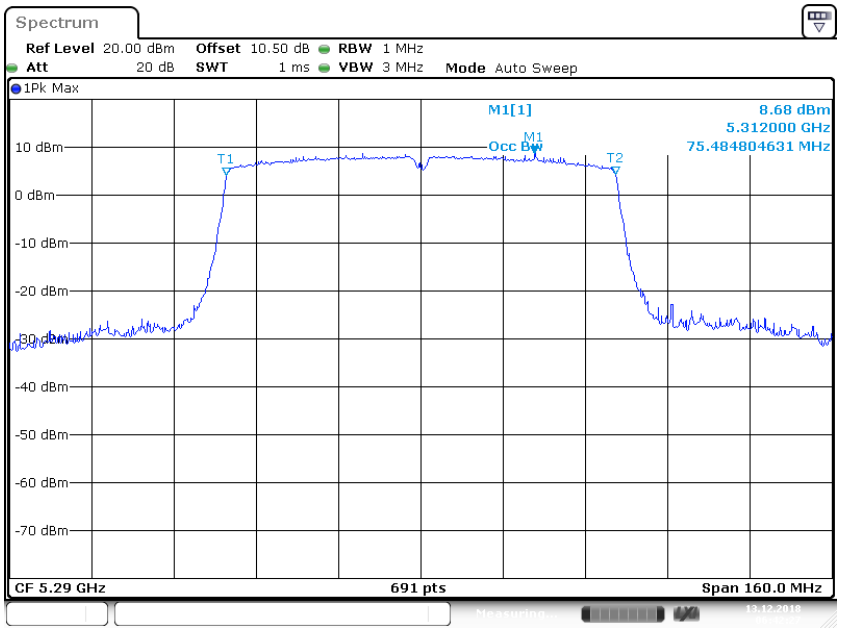
99% Occupied Bandwidth

5210 MHz



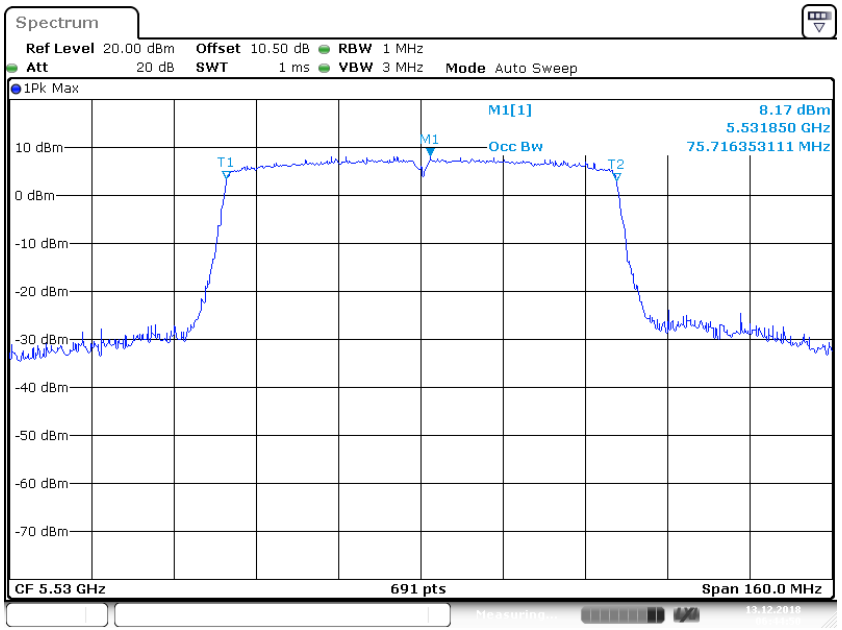

Date: 13.DEC.2018 06:41:08

5290 MHz



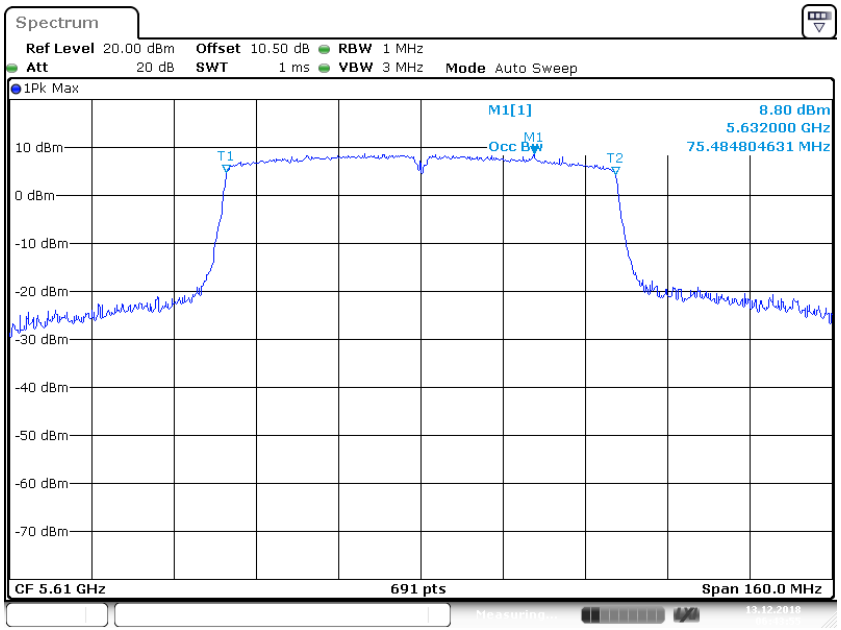

Date: 13.DEC.2018 06:42:27

5530 MHz




Date: 13.DEC.2018 06:44:51

5610 MHz




Date: 13.DEC.2018 06:43:56

Test results for Output power

5250 MHz:

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 Max Power (dBm) | Tx 2 Max Power (dBm) | Tx 3 Max Power (dBm) | Tx 4 Max Power (dBm) | Tx 5 Max Power (dBm) | Tx 6 Max Power (dBm) | Tx 7 Max Power (dBm) | Tx 8 Max Power (dBm) | DCCF (dB) | Total Conducted Power (dBm) | FCC Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | 12.20 | | | | | | | | 0.18 | 12.38 | 30.00 | 17.62 |
| | | 6.00 | | | | | 12.35 | | | | 0.18 | 12.53 | 24.00 | 11.47 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 6.00 | 10.98 | 10.14 | | | | | | | 0.18 | 13.77 | 30.00 | 16.23 |
| | | 6.00 | | | | | 11.00 | 10.13 | | | 0.18 | 13.78 | 24.00 | 10.22 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | 8.48 | 7.72 | | | | | | | 0.18 | 11.30 | 30.00 | 18.70 |
| | | 6.00 | | | | | 8.84 | 7.81 | | | 0.18 | 11.55 | 24.00 | 12.45 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 6.00 | 8.54 | 8.43 | 8.21 | | | | | | 0.18 | 13.34 | 30.00 | 16.66 |
| | | 6.00 | | | | | 9.30 | 8.12 | 8.30 | | 0.18 | 13.56 | 24.00 | 10.44 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 6.00 | 9.95 | 9.73 | 9.64 | | | | | | 0.18 | 14.73 | 30.00 | 15.27 |
| | | 6.00 | | | | | 10.57 | 9.40 | 9.44 | | 0.18 | 14.79 | 24.00 | 9.21 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | 10.04 | 9.78 | 9.69 | | | | | | 0.18 | 14.79 | 30.00 | 15.21 |
| | | 6.00 | | | | | 10.31 | 9.18 | 9.25 | | 0.18 | 14.57 | 24.00 | 9.43 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 4 | 6.00 | 10.01 | 9.19 | 9.54 | 9.39 | | | | | 0.18 | 15.74 | 30.00 | 14.26 |
| | | 6.00 | | | | | 10.50 | 9.44 | 9.84 | 10.25 | 0.18 | 16.23 | 24.00 | 7.77 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 6.00 | 6.72 | 6.59 | 6.57 | 6.61 | | | | | 0.18 | 12.82 | 30.00 | 17.18 |
| | | 6.00 | | | | | 6.83 | 7.32 | 6.75 | 6.59 | 0.18 | 13.08 | 24.00 | 10.92 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 6.00 | 7.81 | 7.40 | 7.71 | 7.59 | | | | | 0.18 | 13.83 | 30.00 | 16.17 |
| | | 6.00 | | | | | 8.26 | 7.25 | 7.91 | 8.10 | 0.18 | 14.10 | 24.00 | 9.90 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | 7.73 | 7.23 | 7.45 | 7.40 | | | | | 0.18 | 13.66 | 30.00 | 16.34 |
| | | 6.00 | | | | | 8.20 | 7.04 | 7.71 | 8.10 | 0.18 | 13.98 | 24.00 | 10.02 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | 8.50 | 8.50 | | | | | | | 0.18 | 11.69 | 23.98 | 12.29 |
| | | 9.01 | | | | | 8.91 | 8.15 | | | 0.18 | 11.73 | 17.98 | 6.25 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | 11.04 | 10.94 | | | | | | | 0.18 | 14.18 | 30.00 | 15.82 |
| | | 6.00 | | | | | 11.07 | 10.47 | | | 0.18 | 13.97 | 24.00 | 10.03 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | 7.33 | 7.29 | 7.30 | | | | | | 0.18 | 12.26 | 20.46 | 8.20 |
| | | 10.77 | | | | | 8.63 | 7.32 | 8.19 | | 0.18 | 13.03 | 14.46 | 1.43 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | 8.61 | 8.64 | 8.40 | | | | | | 0.18 | 13.50 | 26.48 | 12.98 |
| | | 7.76 | | | | | 9.19 | 8.58 | 9.27 | | 0.18 | 13.98 | 20.48 | 6.50 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | 10.03 | 9.83 | 9.76 | | | | | | 0.18 | 14.83 | 30.00 | 15.17 |
| | | 6.00 | | | | | 10.09 | 9.57 | 10.16 | | 0.18 | 14.90 | 24.00 | 9.10 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 4 | 12.02 | 5.12 | 4.27 | 5.76 | 4.73 | | | | | 0.18 | 11.21 | 17.96 | 6.75 |
| | | 12.02 | | | | | 5.03 | 5.32 | 5.80 | 5.86 | 0.18 | 11.72 | 11.96 | 0.24 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | 7.68 | 7.09 | 7.96 | 7.25 | | | | | 0.18 | 13.71 | 23.98 | 10.27 |
| | | 9.01 | | | | | 8.32 | 7.65 | 8.32 | 8.35 | 0.18 | 14.37 | 17.98 | 3.61 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | 7.77 | 7.38 | 8.23 | 7.55 | | | | | 0.18 | 13.94 | 27.50 | 13.56 |
| | | 7.25 | | | | | 8.19 | 7.65 | 8.25 | 8.33 | 0.18 | 14.31 | 21.50 | 7.19 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | 7.70 | 7.23 | 8.02 | 7.35 | | | | | 0.18 | 13.79 | 30.00 | 16.21 |
| | | 6.00 | | | | | 8.07 | 7.44 | 8.05 | 8.09 | 0.18 | 14.12 | 24.00 | 9.88 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | 11.09 | 10.24 | | | | | | | 0.18 | 13.88 | 30.00 | 16.12 |
| | | 6.00 | | | | | 11.08 | 10.48 | | | 0.18 | 13.98 | 24.00 | 10.02 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | 11.04 | 10.59 | 11.14 | | | | | | 0.18 | 15.88 | 30.00 | 14.12 |
| | | 6.00 | | | | | 11.27 | 10.93 | 11.25 | | 0.18 | 16.10 | 24.00 | 7.90 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | 8.72 | 8.13 | 8.44 | 8.22 | | | | | 0.18 | 14.58 | 30.00 | 15.42 |
| | | 6.00 | | | | | 9.29 | 8.20 | 8.51 | 9.25 | 0.18 | 15.04 | 24.00 | 8.96 |

5570 MHz

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 Max Power (dBm) | Tx 2 Max Power (dBm) | Tx 3 Max Power (dBm) | Tx 4 Max Power (dBm) | Tx 5 Max Power (dBm) | Tx 6 Max Power (dBm) | Tx 7 Max Power (dBm) | Tx 8 Max Power (dBm) | DCCF (dB) | Total Conducted Power (dBm) | FCC Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | 13.08 | | | | | | | | 0.18 | 13.26 | 24.00 | 10.74 |
| | | 6.00 | | | | | 14.02 | | | | 0.18 | 14.20 | 24.00 | 9.80 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 6.00 | 12.33 | 13.28 | | | | | | | 0.18 | 16.02 | 24.00 | 7.98 |
| | | 6.00 | | | | | 12.60 | 12.01 | | | 0.18 | 15.50 | 24.00 | 8.50 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | 12.33 | 13.25 | | | | | | | 0.18 | 16.01 | 24.00 | 7.99 |
| | | 6.00 | | | | | 12.61 | 12.01 | | | 0.18 | 15.51 | 24.00 | 8.49 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 6.00 | 11.23 | 11.31 | 11.22 | | | | | | 0.18 | 16.20 | 24.00 | 7.80 |
| | | 6.00 | | | | | 11.96 | 12.27 | 11.79 | | 0.18 | 16.96 | 24.00 | 7.04 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 6.00 | 10.20 | 10.42 | 10.42 | | | | | | 0.18 | 15.30 | 24.00 | 8.70 |
| | | 6.00 | | | | | 11.08 | 11.37 | 10.80 | | 0.18 | 16.04 | 24.00 | 7.96 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | 10.25 | 10.52 | 10.48 | | | | | | 0.18 | 15.37 | 24.00 | 8.63 |
| | | 6.00 | | | | | 10.81 | 11.17 | 10.60 | | 0.18 | 15.82 | 24.00 | 8.18 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 4 | 6.00 | 10.10 | 10.00 | 10.37 | 10.57 | | | | | 0.18 | 16.46 | 24.00 | 7.54 |
| | | 6.00 | | | | | 11.04 | 10.94 | 10.65 | 11.00 | 0.18 | 17.11 | 24.00 | 6.89 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 6.00 | 10.29 | 10.17 | 10.53 | 10.75 | | | | | 0.18 | 16.64 | 24.00 | 7.36 |
| | | 6.00 | | | | | 11.22 | 11.12 | 10.78 | 11.16 | 0.18 | 17.27 | 24.00 | 6.73 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 6.00 | 9.33 | 9.33 | 9.73 | 10.00 | | | | | 0.18 | 15.81 | 24.00 | 8.19 |
| | | 6.00 | | | | | 9.98 | 10.05 | 9.77 | 9.95 | 0.18 | 16.14 | 24.00 | 7.86 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | 9.28 | 9.14 | 9.55 | 9.72 | | | | | 0.18 | 15.63 | 24.00 | 8.37 |
| | | 6.00 | | | | | 9.89 | 9.92 | 9.55 | 9.95 | 0.18 | 16.03 | 24.00 | 7.97 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | 10.06 | 11.07 | | | | | | | 0.18 | 13.79 | 17.98 | 4.19 |
| | | 9.01 | | | | | 10.64 | 9.82 | | | 0.18 | 13.44 | 17.98 | 4.54 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | 12.31 | 13.27 | | | | | | | 0.18 | 16.01 | 24.00 | 7.99 |
| | | 6.00 | | | | | 12.62 | 12.05 | | | 0.18 | 15.53 | 24.00 | 8.47 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | 9.16 | 9.59 | 9.24 | | | | | | 0.18 | 14.28 | 14.46 | 0.18 |
| | | 10.77 | | | | | 9.43 | 9.36 | 9.38 | | 0.18 | 14.34 | 14.46 | 0.12 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | 10.22 | 10.83 | 10.42 | | | | | | 0.18 | 15.45 | 20.48 | 5.03 |
| | | 7.76 | | | | | 11.09 | 10.94 | 10.88 | | 0.18 | 15.92 | 20.48 | 4.56 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | 10.25 | 10.92 | 10.47 | | | | | | 0.18 | 15.51 | 24.00 | 8.49 |
| | | 6.00 | | | | | 10.88 | 10.74 | 10.66 | | 0.18 | 15.71 | 24.00 | 8.29 |
| **VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF** | **4** | **12.02** | **5.63** | **5.44** | **5.87** | **5.79** | | | | | **0.18** | **11.88** | **11.96** | **0.08** |
| | | **12.02** | | | | | **5.57** | **5.88** | **5.49** | **5.65** | **0.18** | **11.85** | **11.96** | **0.11** |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | 9.18 | 9.24 | 9.70 | 9.68 | | | | | 0.18 | 15.66 | 17.98 | 2.32 |
| | | 9.01 | | | | | 10.15 | 10.09 | 9.91 | 10.19 | 0.18 | 16.29 | 17.98 | 1.69 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | 9.27 | 9.61 | 9.97 | 10.02 | | | | | 0.18 | 15.93 | 21.50 | 5.57 |
| | | 7.25 | | | | | 10.02 | 10.06 | 9.90 | 10.21 | 0.18 | 16.25 | 21.50 | 5.25 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | 9.18 | 9.35 | 9.74 | 9.73 | | | | | 0.18 | 15.71 | 24.00 | 8.29 |
| | | 6.00 | | | | | 9.90 | 9.90 | 9.68 | 9.92 | 0.18 | 16.05 | 24.00 | 7.95 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | 12.33 | 13.28 | | | | | | | 0.18 | 16.02 | 24.00 | 7.98 |
| | | 6.00 | | | | | 12.69 | 12.05 | | | 0.18 | 15.57 | 24.00 | 8.43 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | 10.09 | 10.65 | 10.25 | | | | | | 0.18 | 15.29 | 24.00 | 8.71 |
| | | 6.00 | | | | | 11.01 | 10.74 | 10.73 | | 0.18 | 15.78 | 24.00 | 8.22 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | 10.06 | 10.26 | 10.63 | 10.63 | | | | | 0.18 | 16.60 | 24.00 | 7.40 |
| | | 6.00 | | | | | 10.94 | 11.08 | 10.98 | 11.04 | 0.18 | 17.21 | 24.00 | 6.79 |

Test results for Power Spectrum Density

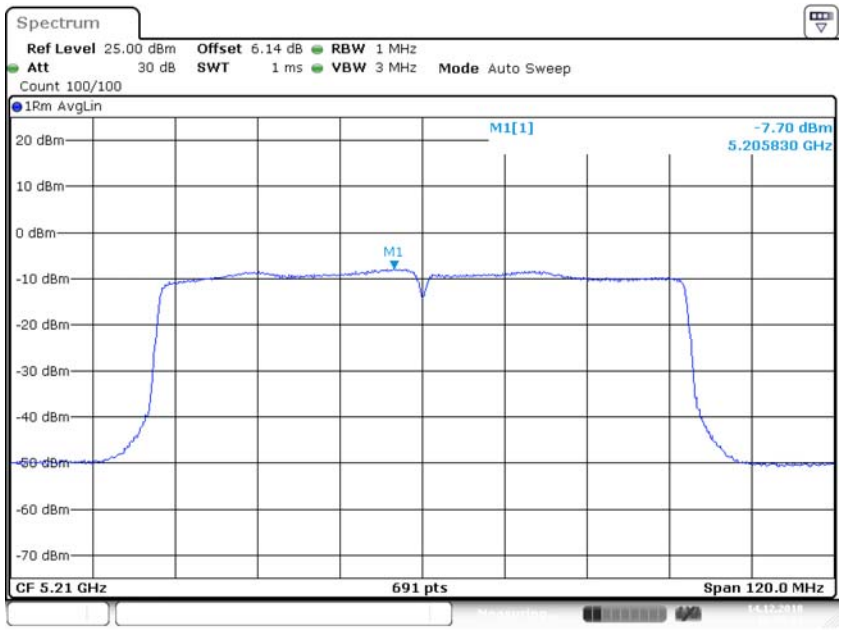
5250 MHz:

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 PSD (dBm/MHz) | Tx 2 PSD (dBm/MHZ) | Tx 3 PSD (dBm/MHz) | Tx 4 PSD (dBm/MHz) | Tx 5 PSD (dBm/MHz) | Tx 6 PSD (dBm/MHz) | Tx 7 PSD (dBm/MHz) | Tx 8 PSD (dBm/MHz) | DCCF (dB) | Total PSD (dBm/MHz) | FCC Limit (dBm/MHz) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | -6.15 | | | | | | | | 0.36 | -5.79 | 17.00 | 22.79 |
| | | 6.00 | | | | | -5.87 | | | | 0.36 | -5.51 | 11.00 | 16.51 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 9.01 | -7.19 | -8.21 | | | | | | | 0.36 | -4.30 | 10.98 | 15.28 |
| | | 9.01 | | | | | -7.40 | -8.27 | | | 0.36 | -4.44 | 4.98 | 9.42 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | -10.02 | -10.91 | | | | | | | 0.36 | -7.07 | 17.00 | 24.07 |
| | | 6.00 | | | | | -9.52 | -10.39 | | | 0.36 | -6.56 | 11.00 | 17.56 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 10.77 | -9.50 | -9.46 | -10.08 | | | | | | 0.36 | -4.54 | 7.46 | 12.00 |
| | | 10.77 | | | | | -8.81 | -9.39 | -9.74 | | 0.36 | -4.17 | 1.46 | 5.63 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 7.76 | -8.29 | -7.48 | -8.08 | | | | | | 0.36 | -2.81 | 13.48 | 16.29 |
| | | 7.76 | | | | | -7.21 | -8.70 | -8.12 | | 0.36 | -2.84 | 7.48 | 10.32 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | -8.74 | -9.03 | -9.18 | | | | | | 0.36 | -3.85 | 17.00 | 20.85 |
| | | 6.00 | | | | | -8.48 | -9.73 | -9.45 | | 0.36 | -4.06 | 11.00 | 15.06 |
| **VHT/HE80, M0.1 to M9.1, M0.1 to M11.1** | **4** | **12.02** | **-7.70** | **-8.28** | **-7.98** | **-8.72** | | | | | 0.36 | -1.77 | 4.96 | 6.73 |
| | | **12.02** | | | | | **-7.38** | **-8.20** | **-8.20** | **-7.97** | 0.36 | -1.82 | -1.04 | 0.50 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 9.01 | -7.55 | -8.24 | -7.89 | -8.07 | | | | | 0.36 | -1.55 | 10.98 | 12.53 |
| | | 9.01 | | | | | -7.15 | -8.25 | -7.97 | -7.48 | 0.36 | -1.31 | 4.98 | 6.29 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 7.25 | -11.00 | -10.01 | -11.00 | -10.43 | | | | | 0.36 | -4.21 | 14.50 | 18.71 |
| | | 7.25 | | | | | -10.40 | -11.23 | -10.51 | -10.98 | 0.36 | -4.39 | 8.50 | 12.89 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | -10.94 | -11.60 | -11.17 | -11.45 | | | | | 0.36 | -4.90 | 17.00 | 21.90 |
| | | 6.00 | | | | | -10.59 | -11.79 | -10.98 | -10.98 | 0.36 | -4.68 | 11.00 | 15.68 |

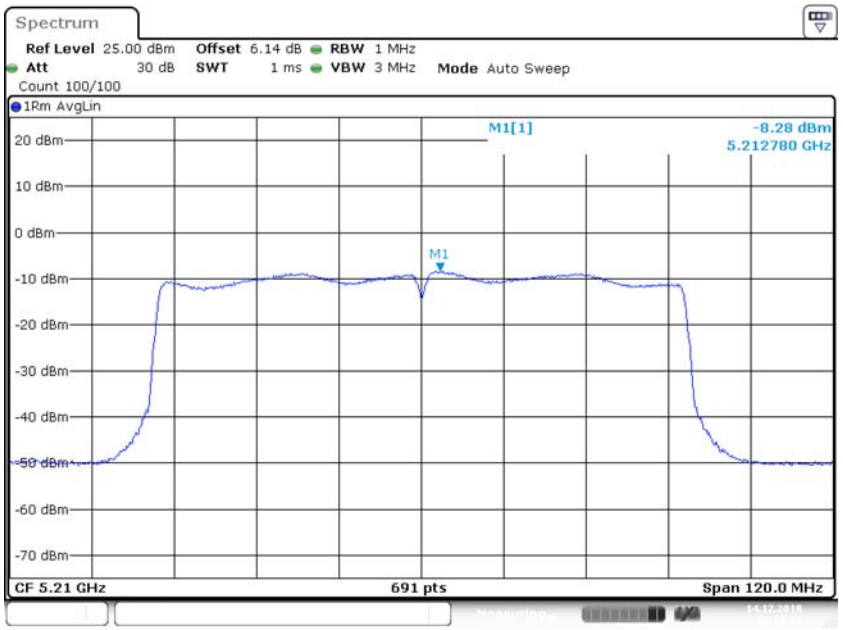
| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | -9.84 | -9.92 | | | | | | | 0.36 | -6.51 | 10.98 | 17.49 |
| | | 9.01 | | | | | -9.32 | -10.04 | | | 0.36 | -6.29 | 4.98 | 11.27 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | -7.42 | -7.37 | | | | | | | 0.36 | -4.02 | 17.00 | 21.02 |
| | | 6.00 | | | | | -7.20 | -7.74 | | | 0.36 | -4.09 | 11.00 | 15.09 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | -10.75 | -10.67 | -11.01 | | | | | | 0.36 | -5.68 | 7.46 | 13.14 |
| | | 10.77 | | | | | -9.73 | -9.93 | -9.76 | | 0.36 | -4.67 | 1.46 | 6.13 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | -9.60 | -8.64 | -9.32 | | | | | | 0.36 | -4.04 | 13.48 | 17.52 |
| | | 7.76 | | | | | -8.82 | -8.88 | -8.49 | | 0.36 | -3.60 | 7.48 | 11.08 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | -8.60 | -9.00 | -8.96 | | | | | | 0.36 | -3.72 | 17.00 | 20.72 |
| | | 6.00 | | | | | -8.61 | -9.33 | -8.66 | | 0.36 | -3.72 | 11.00 | 14.72 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 4 | 12.02 | -12.78 | -13.15 | -11.98 | -13.42 | | | | | 0.36 | -6.42 | 4.96 | 11.38 |
| | | 12.02 | | | | | -11.81 | -11.69 | -11.27 | -12.16 | 0.36 | -5.34 | -1.04 | 4.30 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | -10.09 | -10.38 | -9.23 | -10.89 | | | | | 0.36 | -3.72 | 10.98 | 14.70 |
| | | 9.01 | | | | | -9.16 | -9.60 | -9.00 | -9.87 | 0.36 | -3.01 | 4.98 | 7.99 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | -10.78 | -10.54 | -10.12 | -10.41 | | | | | 0.36 | -4.08 | 14.50 | 18.58 |
| | | 7.25 | | | | | -10.76 | -9.75 | -10.47 | -9.62 | 0.36 | -3.74 | 8.50 | 12.24 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | -10.91 | -11.55 | -10.60 | -11.53 | | | | | 0.36 | -4.75 | 17.00 | 21.75 |
| | | 6.00 | | | | | -10.65 | -11.32 | -10.82 | -10.70 | 0.36 | -4.48 | 11.00 | 15.48 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | -6.97 | -8.18 | | | | | | | 0.36 | -4.16 | 17.00 | 21.16 |
| | | 6.00 | | | | | -6.99 | -7.61 | | | 0.36 | -3.92 | 11.00 | 14.92 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | -6.58 | -7.00 | -6.98 | | | | | | 0.36 | -1.72 | 17.00 | 18.72 |
| | | 6.00 | | | | | -6.52 | -6.62 | -7.08 | | 0.36 | -1.60 | 11.00 | 12.60 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | -9.20 | -9.42 | -9.39 | -9.74 | | | | | 0.36 | -3.05 | 17.00 | 20.05 |
| | | 6.00 | | | | | -8.47 | -9.19 | -9.40 | -8.96 | 0.36 | -2.61 | 11.00 | 13.61 |

Please refer to the following plots for the worst case configuration

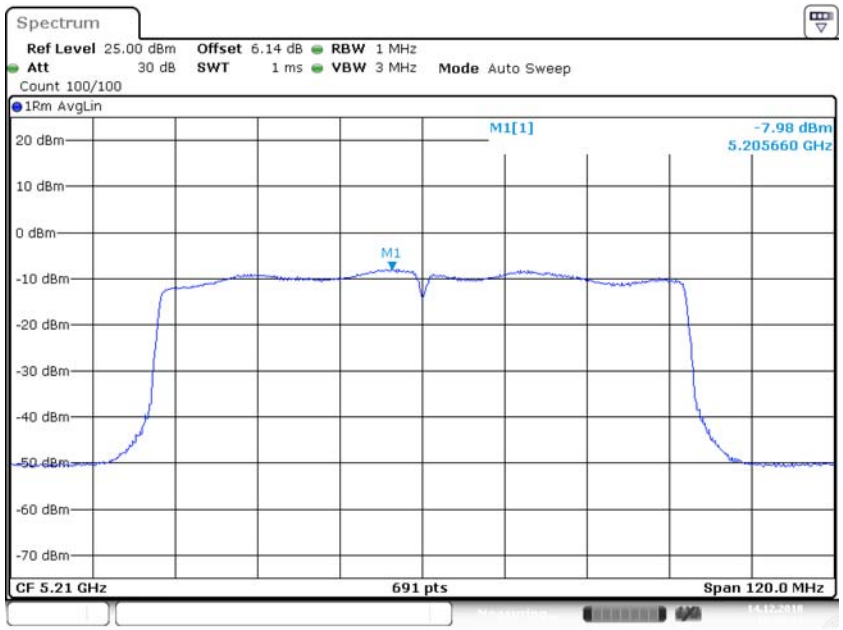
Ant-a


Spectrum
Ref Level 25.00 dBm Offset 6.14 dB RBW 1 MHz
Att 30 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Rm AvgLin
M1[1] -7.70 dBm
5.205830 GHz
M1
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.21 GHz
691 pts
Span 120.0 MHz
Date: 14.DEC.2018 18:03:13

Ant-b

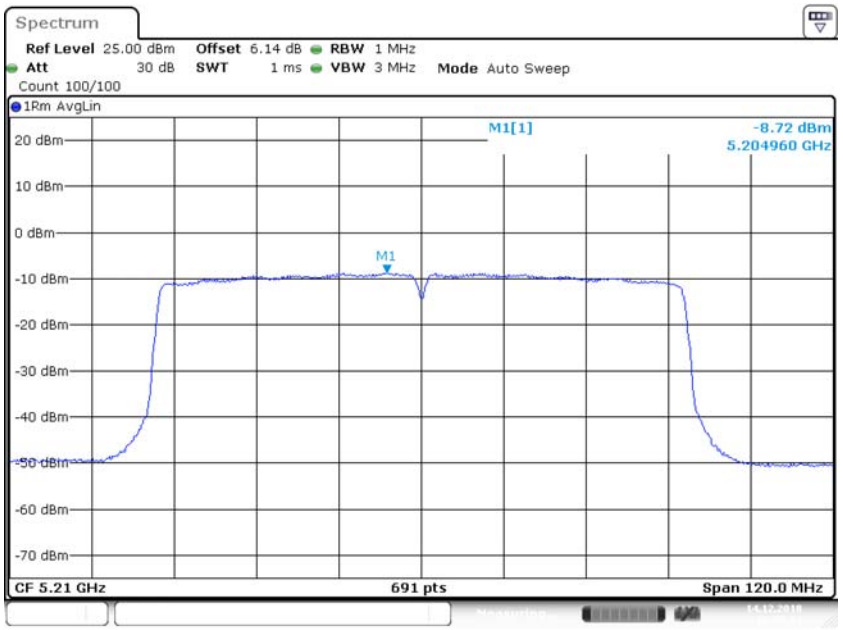

Spectrum
Ref Level 25.00 dBm Offset 6.14 dB RBW 1 MHz
Att 30 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Rm AvgLin
M1[1] -8.28 dBm
5.212780 GHz
M1
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.21 GHz
691 pts
Span 120.0 MHz
Date: 14.DEC.2018 18:18:21

Ant-c



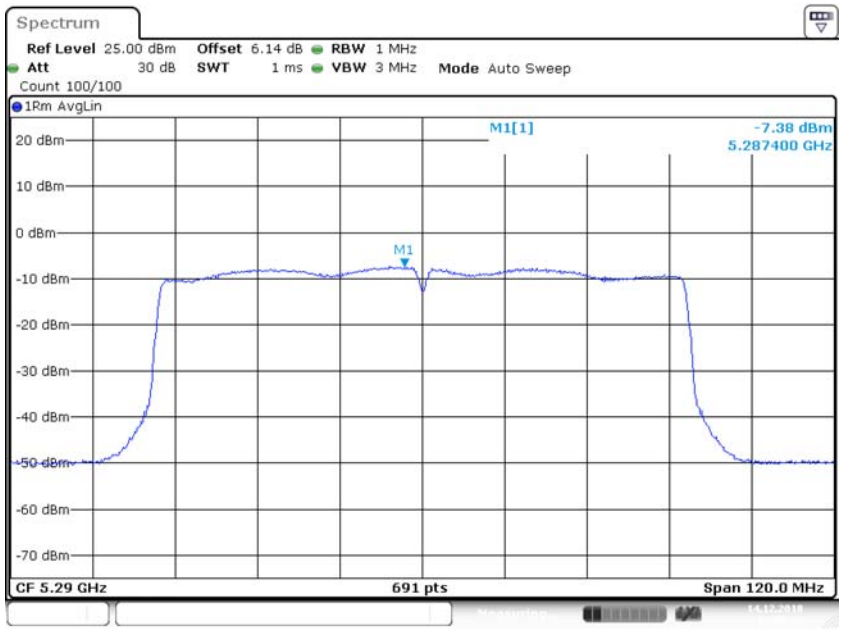

Date: 14.DEC.2018 18:32:11

Ant-d

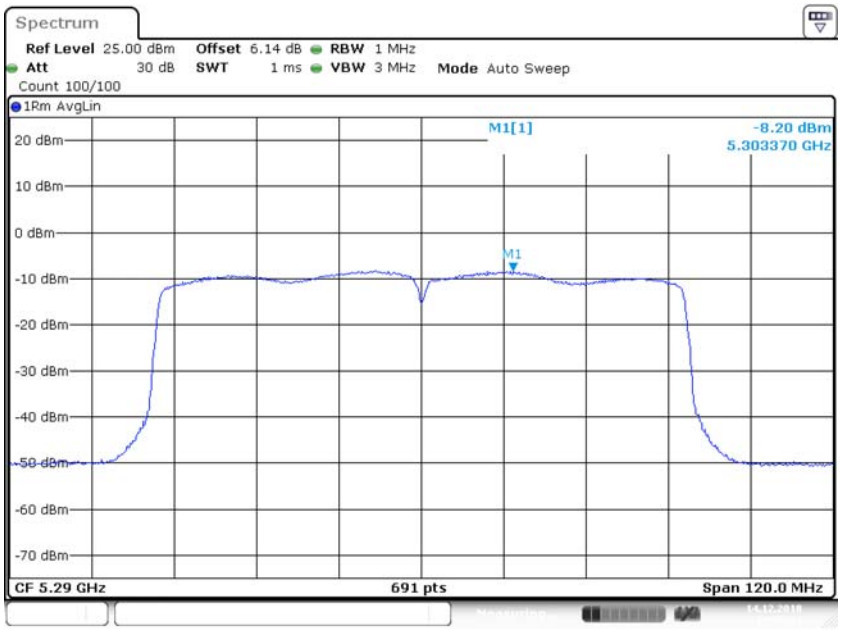



Date: 14.DEC.2018 18:38:52

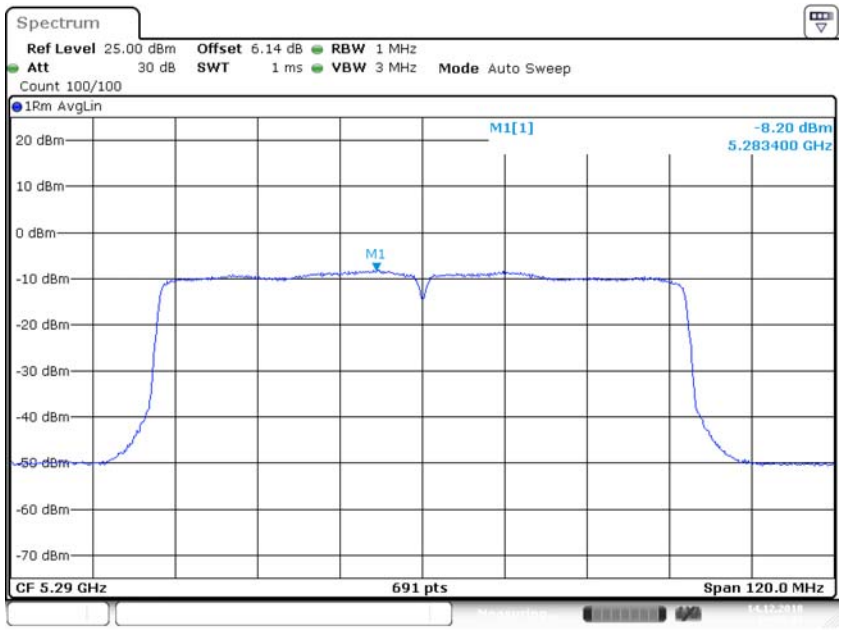
Ant-e


Spectrum
Ref Level 25.00 dBm Offset 6.14 dB RBW 1 MHz
Att 30 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Rm AvgLin
M1[1] -7.38 dBm
5.287400 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.29 GHz
691 pts
Span 120.0 MHz
Date: 14.DEC.2018 19:00:22

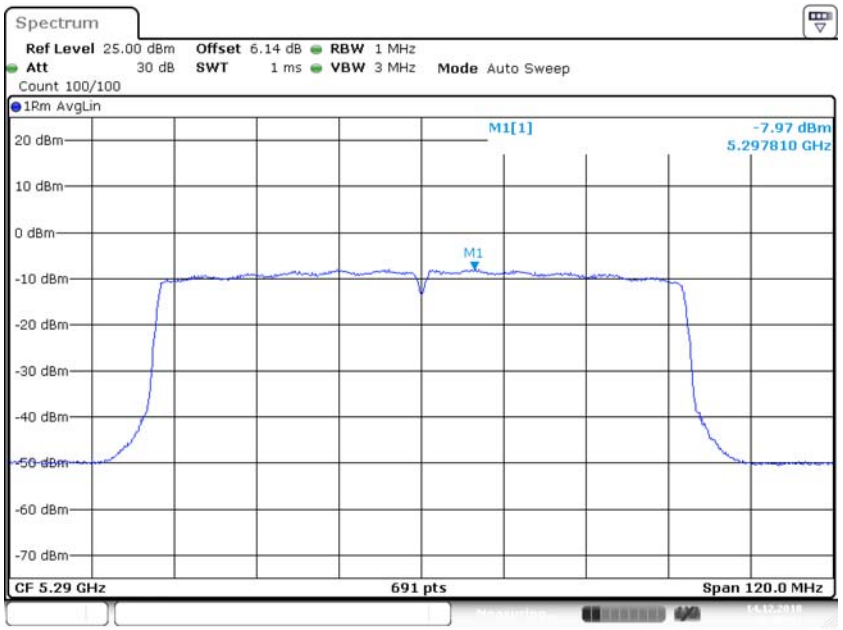
Ant-f


Spectrum
Ref Level 25.00 dBm Offset 6.14 dB RBW 1 MHz
Att 30 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Rm AvgLin
M1[1] -8.20 dBm
5.303370 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.29 GHz
691 pts
Span 120.0 MHz
Date: 14.DEC.2018 19:26:32

Ant-g


Spectrum
Ref Level 25.00 dBm Offset 6.14 dB RBW 1 MHz
Att 30 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Rm AvgLin
M1[1] -8.20 dBm
5.283400 GHz
M1
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.29 GHz
691 pts
Span 120.0 MHz
Date: 14.DEC.2018 19:39:38

Ant-h


Spectrum
Ref Level 25.00 dBm Offset 6.14 dB RBW 1 MHz
Att 30 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Rm AvgLin
M1[1] -7.97 dBm
5.297810 GHz
M1
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.29 GHz
691 pts
Span 120.0 MHz
Date: 14.DEC.2018 20:00:42

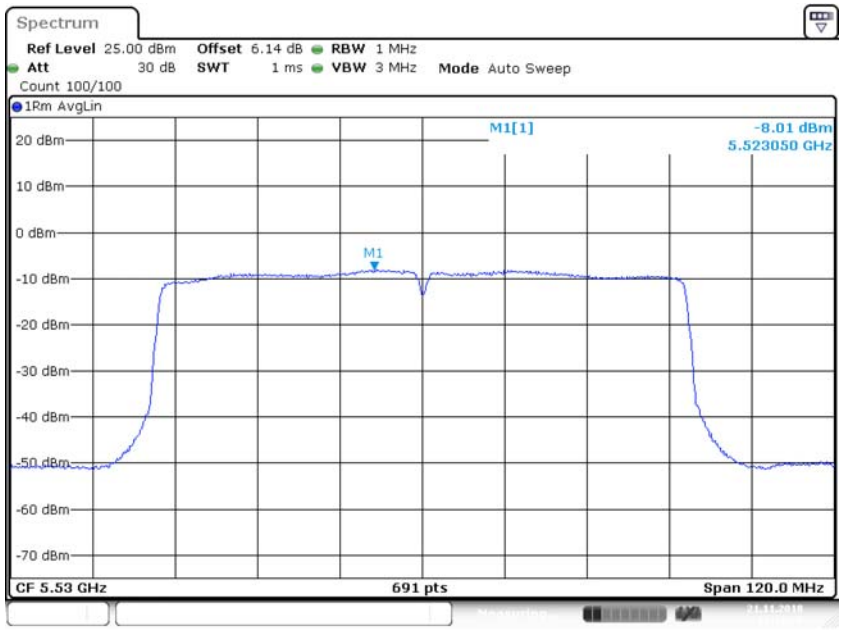
5570 MHz :

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 PSD (dBm/MHz) | Tx 2 PSD (dBm/MHZ) | Tx 3 PSD (dBm/MHz) | Tx 4 PSD (dBm/MHz) | Tx 5 PSD (dBm/MHz) | Tx 6 PSD (dBm/MHz) | Tx 7 PSD (dBm/MHz) | Tx 8 PSD (dBm/MHz) | DCCF (dB) | Total PSD (dBm/MHz) | FCC Limit (dBm/MHz) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | -5.11 | | | | | | | | 0.36 | -4.75 | 11.00 | 15.75 |
| | | 6.00 | | | | | -4.3 | | | | 0.36 | -3.94 | 11.00 | 14.94 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 9.01 | -6.11 | -5.07 | | | | | | | 0.36 | -2.19 | 7.99 | 10.18 |
| | | 9.01 | | | | | -5.65 | -6.25 | | | 0.36 | -2.57 | 7.99 | 10.56 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | -6.06 | -4.88 | | | | | | | 0.36 | -2.06 | 11.00 | 13.06 |
| | | 6.00 | | | | | -5.76 | -6.36 | | | 0.36 | -2.68 | 11.00 | 13.68 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 10.77 | -6.97 | -6.37 | -7.09 | | | | | | 0.36 | -1.67 | 6.23 | 7.90 |
| | | 10.77 | | | | | -5.71 | -5.63 | -6.33 | | 0.36 | -0.75 | 6.23 | 6.98 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 7.76 | -7.97 | -7.15 | -7.5 | | | | | | 0.36 | -2.40 | 9.24 | 11.64 |
| | | 7.76 | | | | | -6.61 | -6.19 | -6.95 | | 0.36 | -1.44 | 9.24 | 10.68 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | -8.28 | -8.21 | -8.23 | | | | | | 0.36 | -3.11 | 11.00 | 14.11 |
| | | 6.00 | | | | | -7.93 | -7.66 | -8.14 | | 0.36 | -2.77 | 11.00 | 13.77 |
| **VHT/HE80, M0.1 to M9.1, M0.1 to M11.1** | **4** | **12.02** | **-8.01** | **-7.67** | **-7.54** | **-7.65** | | | | | **0.36** | **-1.33** | **4.98** | **6.31** |
| | | **12.02** | | | | | **-6.8** | **-6.97** | **-7.16** | **-7.22** | **0.36** | **-0.65** | **4.98** | **5.63** |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 9.01 | -7.66 | -7.66 | -6.92 | -7.23 | | | | | 0.36 | -0.98 | 7.99 | 8.97 |
| | | 9.01 | | | | | -6.46 | -7.18 | -7.15 | -6.82 | 0.36 | -0.51 | 7.99 | 8.50 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 7.25 | -9.45 | -8.54 | -8.87 | -7.8 | | | | | 0.36 | -2.24 | 9.75 | 11.99 |
| | | 7.25 | | | | | -8.72 | -8.04 | -8.51 | -8.8 | 0.36 | -2.13 | 9.75 | 11.88 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | -9.43 | -9.44 | -9 | -9.17 | | | | | 0.36 | -2.88 | 11.00 | 13.88 |
| | | 6.00 | | | | | -8.75 | -8.92 | -9.16 | -8.8 | 0.36 | -2.52 | 11.00 | 13.52 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | -8.34 | -7.24 | | | | | | | 0.36 | -4.38 | 7.99 | 12.37 |
| | | 9.01 | | | | | -7.72 | -8.68 | | | 0.36 | -4.80 | 7.99 | 12.79 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | -5.86 | -5.09 | | | | | | | 0.36 | -2.09 | 11.00 | 13.09 |
| | | 6.00 | | | | | -5.6 | -6.28 | | | 0.36 | -2.56 | 11.00 | 13.56 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | -9.17 | -8.24 | -9.29 | | | | | | 0.36 | -3.74 | 6.23 | 9.97 |
| | | 10.77 | | | | | -7.85 | -8.19 | -8.33 | | 0.36 | -2.99 | 6.23 | 9.22 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | -7.48 | -6.76 | -7.5 | | | | | | 0.36 | -2.10 | 9.24 | 11.34 |
| | | 7.76 | | | | | -7.26 | -6.25 | -6.64 | | 0.36 | -1.57 | 9.24 | 10.81 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | -8.47 | -7.77 | -8.23 | | | | | | 0.36 | -3.02 | 11.00 | 14.02 |
| | | 6.00 | | | | | -7.74 | -7.74 | -8.21 | | 0.36 | -2.76 | 11.00 | 13.76 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 4 | 12.02 | -12.39 | -11.88 | -11.74 | -12.37 | | | | | 0.36 | -5.70 | 4.98 | 10.68 |
| | | 12.02 | | | | | -11.03 | -11.07 | -11.23 | -11.26 | 0.36 | -4.77 | 4.98 | 9.75 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | -8.7 | -8.13 | -7.78 | -8.24 | | | | | 0.36 | -1.82 | 7.99 | 9.81 |
| | | 9.01 | | | | | -7.57 | -8.18 | -7.82 | -7.75 | 0.36 | -1.44 | 7.99 | 9.43 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | -9.39 | -8 | -8.61 | -8 | | | | | 0.36 | -2.08 | 9.75 | 11.83 |
| | | 7.25 | | | | | -8.82 | -8.09 | -8.53 | -7.75 | 0.36 | -1.90 | 9.75 | 11.65 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | -9.41 | -9.4 | -8.98 | -8.96 | | | | | 0.36 | -2.80 | 11.00 | 13.80 |
| | | 6.00 | | | | | -8.89 | -8.82 | -8.96 | -8.72 | 0.36 | -2.47 | 11.00 | 13.47 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | -5.66 | -5.05 | | | | | | | 0.36 | -1.97 | 11.00 | 12.97 |
| | | 6.00 | | | | | -5.74 | -6.1 | | | 0.36 | -2.55 | 11.00 | 13.55 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | -7.91 | -7.09 | -7.94 | | | | | | 0.36 | -2.50 | 11.00 | 13.50 |
| | | 6.00 | | | | | -6.71 | -7.2 | -7.53 | | 0.36 | -2.00 | 11.00 | 13.00 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | -7.91 | -7.34 | -7.39 | -7.75 | | | | | 0.36 | -1.21 | 11.00 | 12.21 |
| | | 6.00 | | | | | -6.74 | -6.61 | -6.88 | -7.25 | 0.36 | -0.48 | 11.00 | 11.48 |

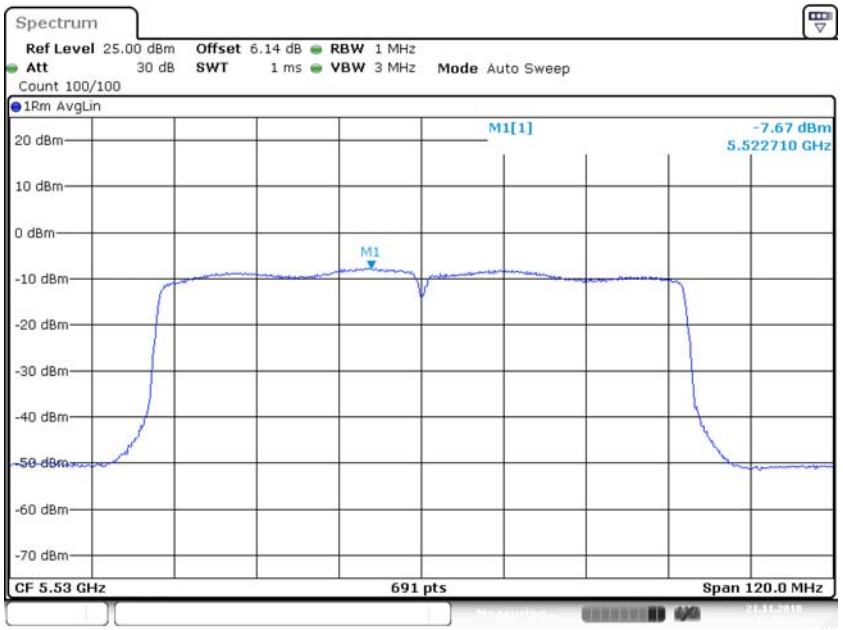
Please refer to the following plots for the worst case configuration

Ant-a



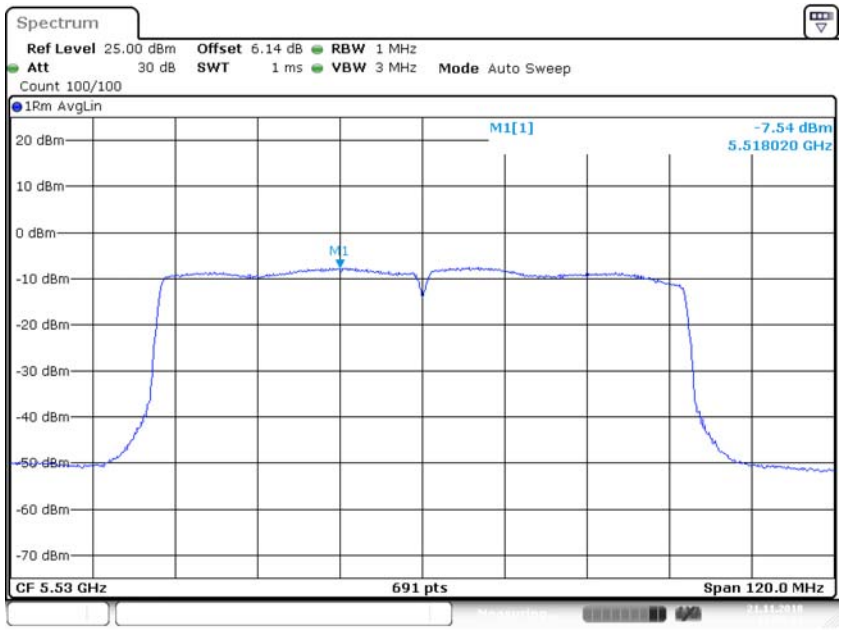

Date: 21.NOV.2018 11:16:26

Ant-b



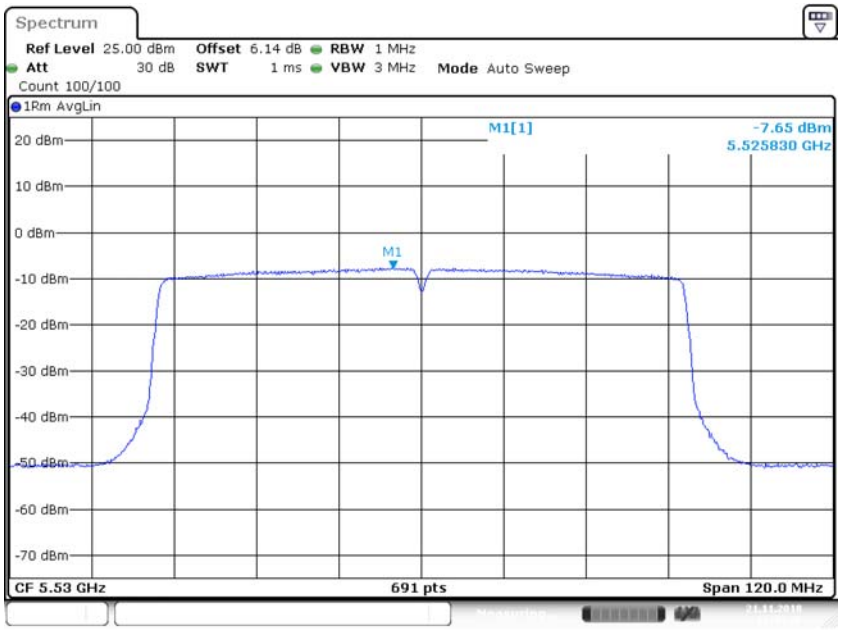

Date: 21.NOV.2018 11:26:29

Ant-c



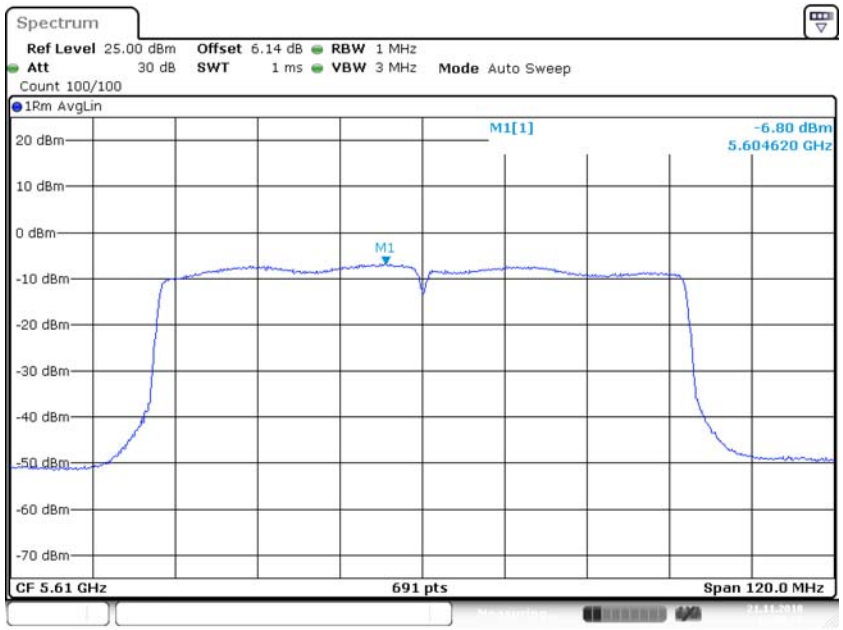

Date: 21.NOV.2018 11:36:13

Ant-d



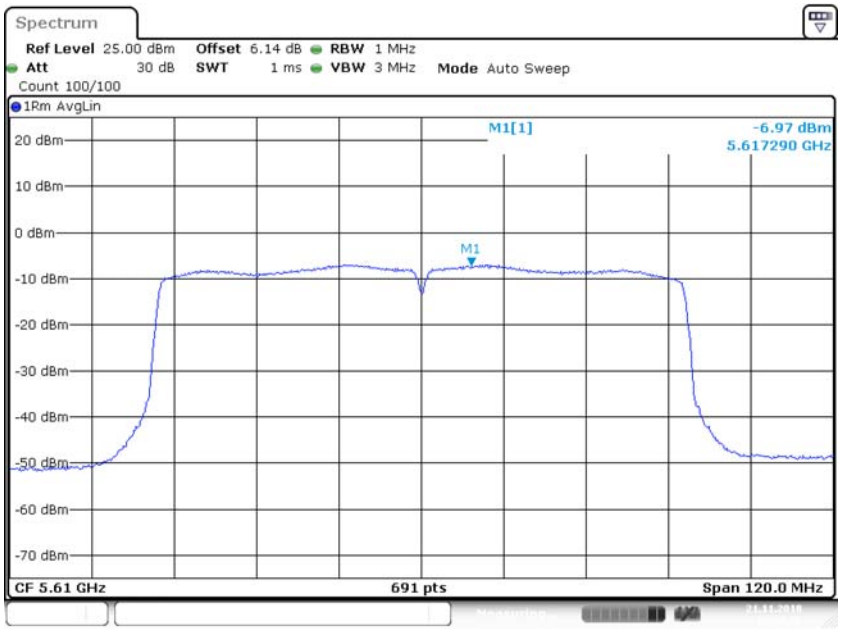

Date: 21.NOV.2018 11:45:06

Ant-e



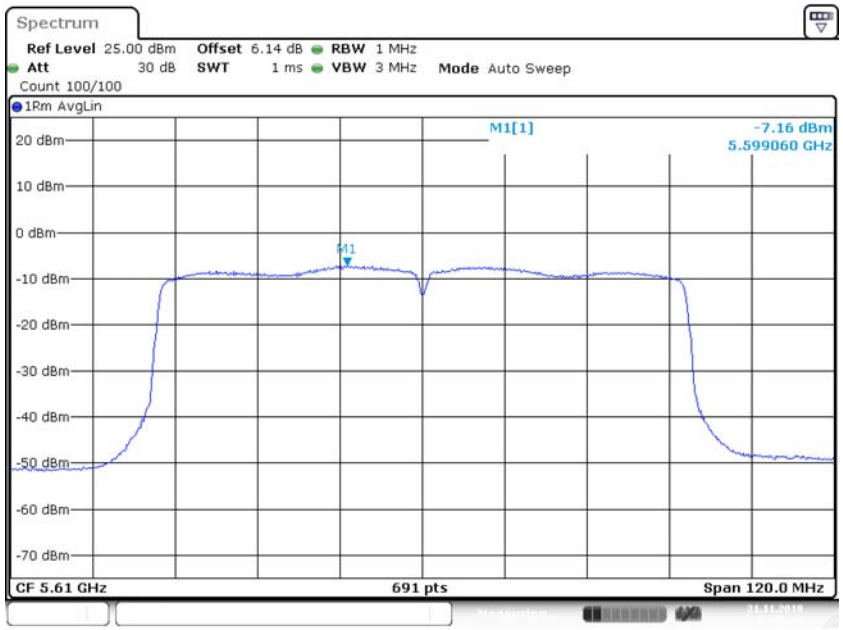

Date: 21.NOV.2018 12:08:50

Ant-f



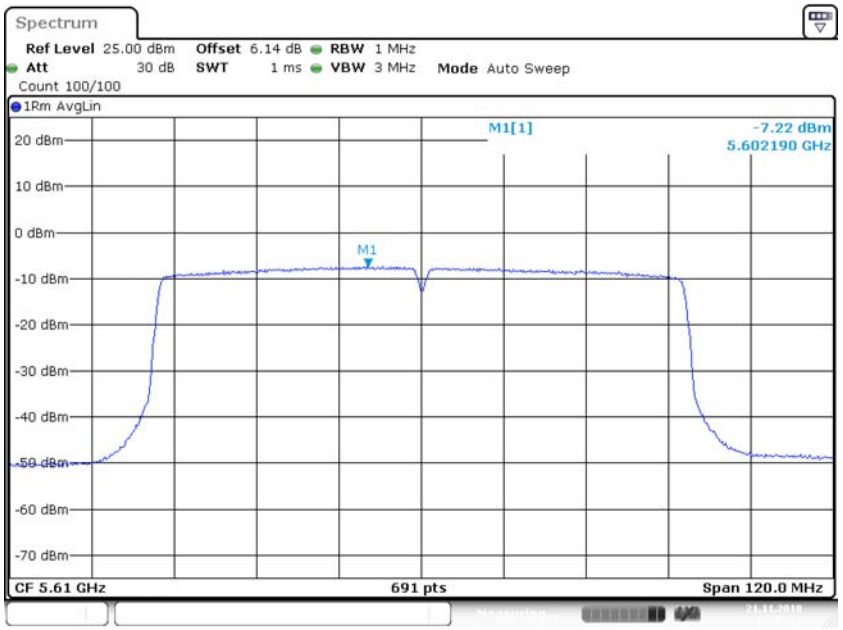

Date: 21.NOV.2018 12:20:57

Ant-g




Date: 21.NOV.2018 12:30:53

Ant-h




Date: 21.NOV.2018 12:45:52

Test results for Out of Band Emissions

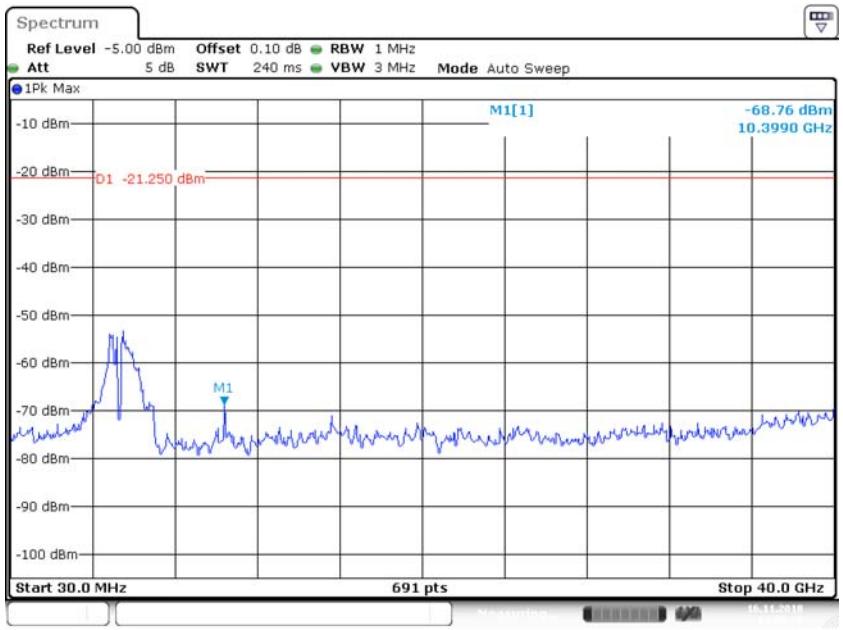
5250 MHz (Peak):

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 Spurious (dBm) | Tx 2 Spurious (dBm) | Tx 3 Spurious (dBm) | Tx 4 Spurious (dBm) | Tx 5 Spurious (dBm) | Tx 6 Spurious (dBm) | Tx 7 Spurious (dBm) | Tx 8 Spurious (dBm) | Total (dBm) | FCC Peak Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | -69.04 | | | | | | | | -63.04 | -21.25 | 41.79 |
| | | 6.00 | | | | | -69.62 | | | | -63.62 | -21.25 | 42.37 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 6.00 | -67.67 | -68.35 | | | | | | | -58.99 | -21.25 | 37.74 |
| | | 6.00 | | | | | -69.46 | -69.61 | | | -60.52 | -21.25 | 39.27 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | -67.54 | -69.96 | | | | | | | -59.57 | -21.25 | 38.32 |
| | | 6.00 | | | | | -68.58 | -69.32 | | | -59.92 | -21.25 | 38.67 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 6.00 | -69.11 | -69.80 | -69.43 | | | | | | -58.67 | -21.25 | 37.42 |
| | | 6.00 | | | | | -68.15 | -66.00 | -67.26 | | -56.28 | -21.25 | 35.03 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 6.00 | -69.19 | -70.38 | -69.30 | | | | | | -58.82 | -21.25 | 37.57 |
| | | 6.00 | | | | | -68.29 | -69.07 | -67.60 | | -57.51 | -21.25 | 36.26 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | -67.80 | -69.26 | -69.43 | | | | | | -58.00 | -21.25 | 36.75 |
| | | 6.00 | | | | | -68.77 | -69.23 | -61.65 | | -54.29 | -21.25 | 33.04 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 4 | 6.00 | -67.82 | -69.15 | -69.79 | -69.00 | | | | | -56.86 | -21.25 | 35.61 |
| | | 6.00 | | | | | -69.56 | -68.08 | -66.66 | -68.87 | -56.13 | -21.25 | 34.88 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 6.00 | -68.86 | -68.89 | -70.09 | -69.21 | | | | | -57.21 | -21.25 | 35.96 |
| | | 6.00 | | | | | -68.42 | -69.33 | -68.20 | -69.56 | -56.82 | -21.25 | 35.57 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 6.00 | -69.01 | -68.80 | -65.13 | -69.29 | | | | | -55.66 | -21.25 | 34.41 |
| | | 6.00 | | | | | -69.27 | -69.09 | -66.30 | -65.10 | -55.05 | -21.25 | 33.80 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | -68.03 | -68.62 | -69.59 | -69.35 | | | | | -56.83 | -21.25 | 35.58 |
| | | 6.00 | | | | | -68.69 | -65.99 | -69.46 | -65.10 | -54.92 | -21.25 | 33.67 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | -69.52 | -70.01 | | | | | | | -57.74 | -21.25 | 36.49 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9.01 | | | | | -68.40 | -68.54 | | | -56.45 | -21.25 | 35.20 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | -69.62 | -68.75 | | | | | | | -60.15 | -21.25 | 38.90 |
| | | 6.00 | | | | | -69.41 | -68.10 | | | -59.70 | -21.25 | 38.45 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | -68.26 | -69.95 | -69.08 | | | | | | -53.50 | -21.25 | 32.25 |
| | | 10.77 | | | | | -68.59 | -69.42 | -67.61 | | -52.94 | -21.25 | 31.69 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | -69.49 | -69.35 | -68.99 | | | | | | -56.74 | -21.25 | 35.49 |
| | | 7.76 | | | | | -67.15 | -68.18 | -68.44 | | -55.36 | -21.25 | 34.11 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | -69.05 | -69.41 | -68.59 | | | | | | -58.23 | -21.25 | 36.98 |
| | | 6.00 | | | | | -65.16 | -69.36 | -69.65 | | -56.76 | -21.25 | 35.51 |
| **VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF** | **4** | **12.02** | **-68.76** | **-69.30** | **-70.00** | **-69.42** | | | | | **-51.31** | **-21.25** | **30.06** |
| | | **12.02** | | | | | **-68.61** | **-67.05** | **-69.40** | **-68.39** | **-50.24** | **-21.25** | **28.99** |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | -69.53 | -69.53 | -69.60 | -70.35 | | | | | -54.71 | -21.25 | 33.46 |
| | | 9.01 | | | | | -68.53 | -69.24 | -67.73 | -68.33 | -53.39 | -21.25 | 32.14 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | -69.74 | -69.50 | -69.14 | -67.97 | | | | | -55.76 | -21.25 | 34.51 |
| | | 7.25 | | | | | -65.73 | -69.18 | -67.93 | -68.69 | -54.40 | -21.25 | 33.15 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | -66.23 | -68.56 | -68.30 | -67.33 | | | | | -55.49 | -21.25 | 34.24 |
| | | 6.00 | | | | | -64.05 | -65.20 | -65.87 | -68.64 | -53.62 | -21.25 | 32.37 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | -70.01 | -68.03 | | | | | | | -59.90 | -21.25 | 38.65 |
| | | 6.00 | | | | | -68.33 | -69.43 | | | -59.83 | -21.25 | 38.58 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | -69.72 | -69.32 | -70.00 | | | | | | -58.90 | -21.25 | 37.65 |
| | | 6.00 | | | | | -66.88 | -66.66 | -69.28 | | -56.68 | -21.25 | 35.43 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | -68.07 | -68.05 | -68.74 | -69.07 | | | | | -56.44 | -21.25 | 35.19 |
| | | 6.00 | | | | | -69.04 | -67.71 | -68.87 | -67.00 | -56.05 | -21.25 | 34.80 |

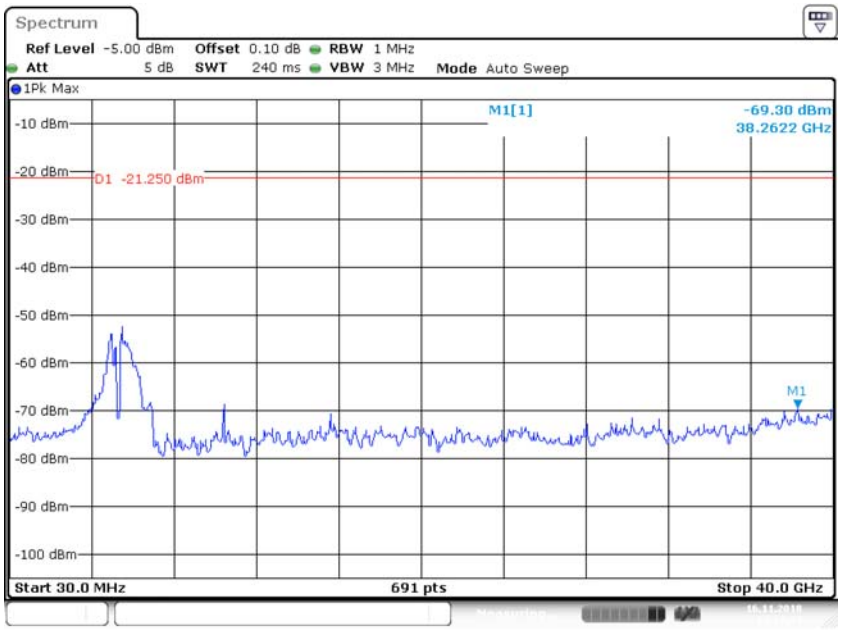
Please refer to the following plots for the worst case configuration

Ant-a



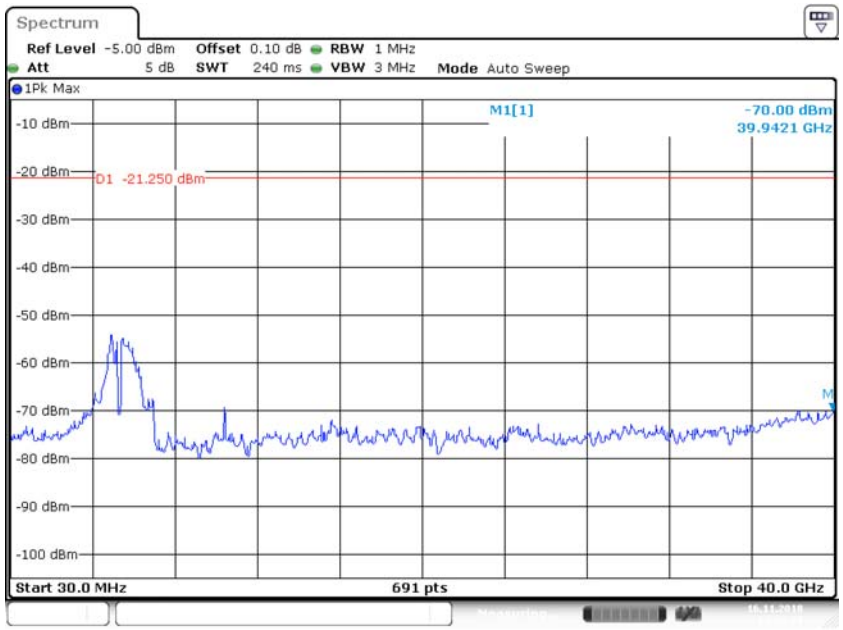

Date: 16.NOV.2018 14:09:26

Ant-b



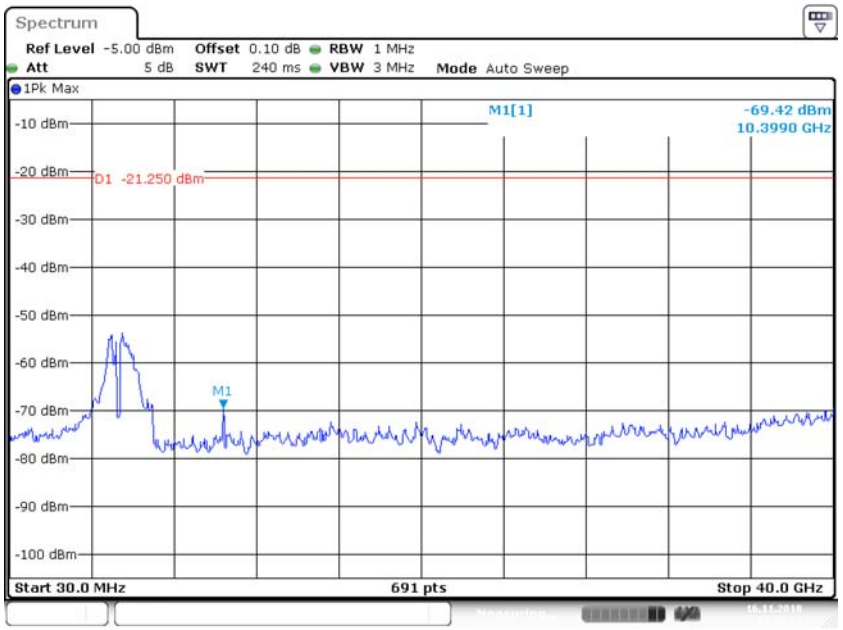

Date: 16.NOV.2018 14:17:40

Ant-c



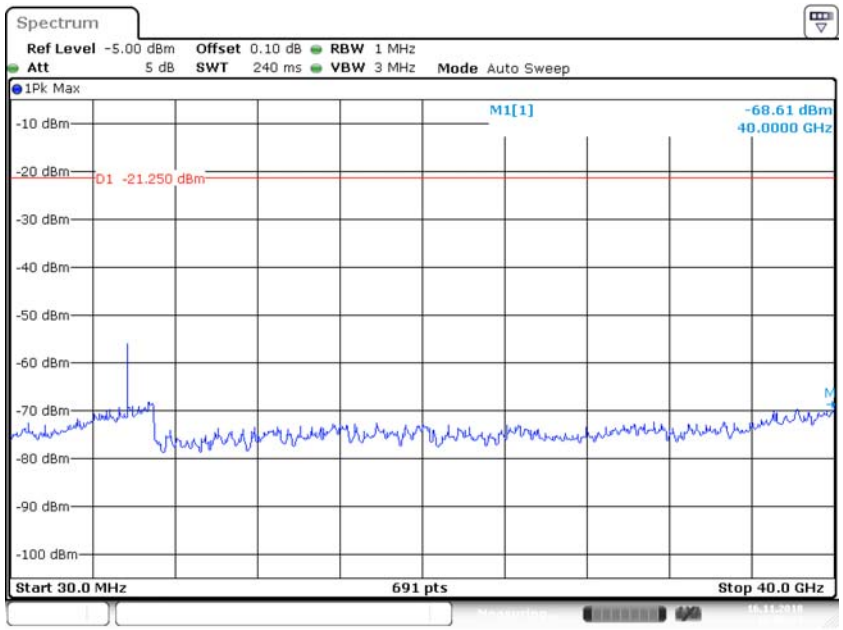

Date: 16.NOV.2018 14:24:18

Ant-d



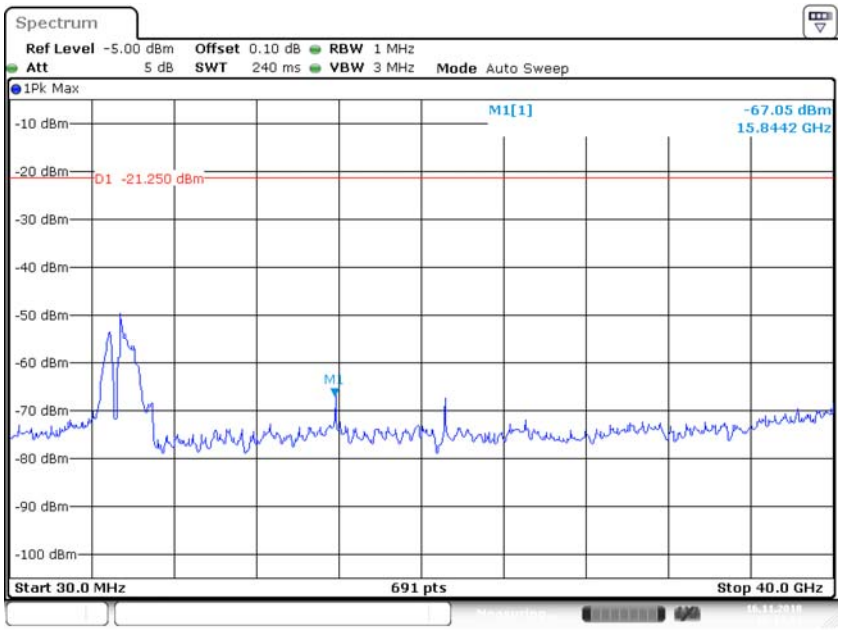

Date: 16.NOV.2018 14:28:13

Ant-e



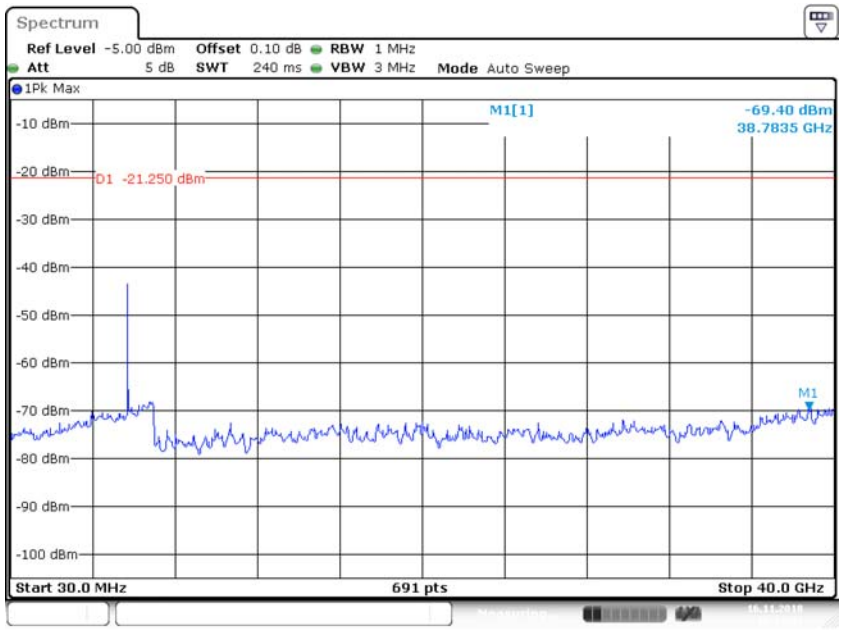

Date: 16.NOV.2018 18:06:39

Ant-f



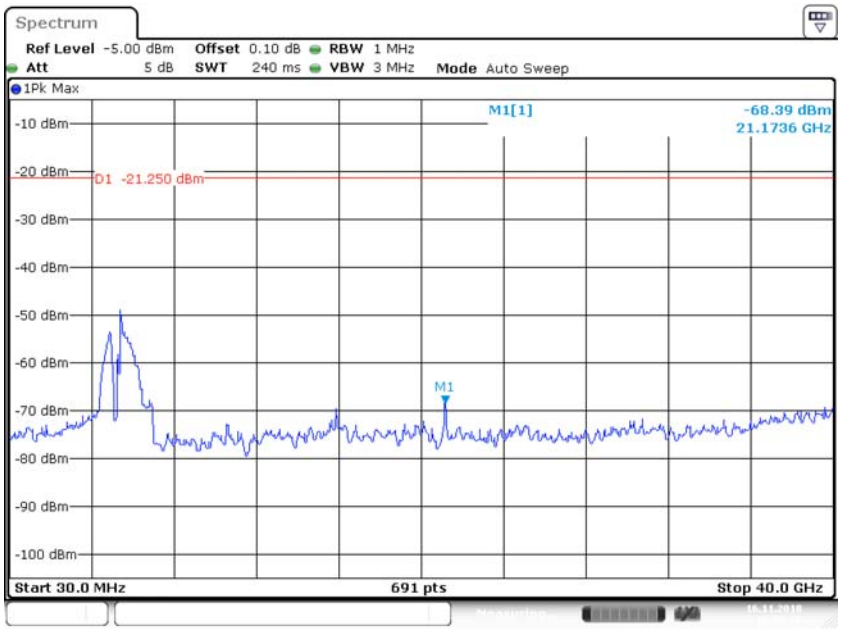

Date: 16.NOV.2018 18:14:53

Ant-g




Date: 16.NOV.2018 18:21:32

Ant-h




Date: 16.NOV.2018 18:25:26

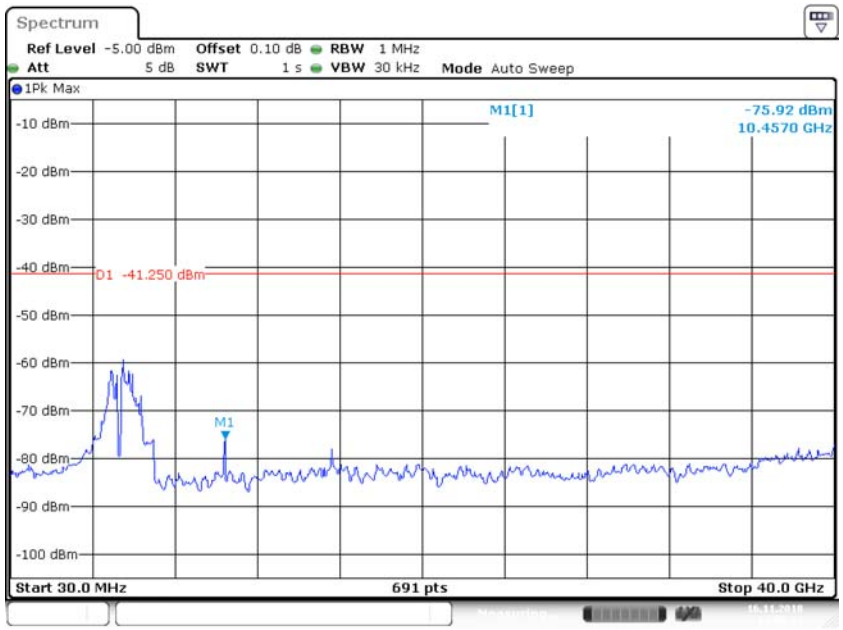
5250 MHz (Average):

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 Spurious (dBm) | Tx 2 Spurious (dBm) | Tx 3 Spurious (dBm) | Tx 4 Spurious (dBm) | Tx 5 Spurious (dBm) | Tx 6 Spurious (dBm) | Tx 7 Spurious (dBm) | Tx 8 Spurious (dBm) | Total (dBm) | FCC Average Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | -76.34 | | | | | | | | -70.34 | -41.25 | 29.09 |
| | | 6.00 | | | | | -76.78 | | | | -70.78 | -41.25 | 29.53 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 6.00 | -76.00 | -77.20 | | | | | | | -67.55 | -41.25 | 26.30 |
| | | 6.00 | | | | | -76.96 | -77.05 | | | -67.99 | -41.25 | 26.74 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | -76.72 | -77.00 | | | | | | | -67.85 | -41.25 | 26.60 |
| | | 6.00 | | | | | -77.24 | -77.25 | | | -68.23 | -41.25 | 26.98 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 6.00 | -76.82 | -75.17 | -75.88 | | | | | | -65.13 | -41.25 | 23.88 |
| | | 6.00 | | | | | -76.81 | -76.92 | -76.32 | | -65.90 | -41.25 | 24.65 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 6.00 | -77.06 | -76.88 | -77.39 | | | | | | -66.33 | -41.25 | 25.08 |
| | | 6.00 | | | | | -76.42 | -77.27 | -77.41 | | -66.24 | -41.25 | 24.99 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | -75.94 | -75.82 | -74.84 | | | | | | -64.73 | -41.25 | 23.48 |
| | | 6.00 | | | | | -76.84 | -77.26 | -74.70 | | -65.34 | -41.25 | 24.09 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 4 | 6.00 | -76.24 | -75.87 | -77.32 | -76.58 | | | | | -64.45 | -41.25 | 23.20 |
| | | 6.00 | | | | | -77.54 | -77.41 | -77.13 | -76.68 | -65.16 | -41.25 | 23.91 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 6.00 | -76.45 | -76.86 | -77.19 | -77.11 | | | | | -64.87 | -41.25 | 23.62 |
| | | 6.00 | | | | | -77.38 | -77.54 | -77.02 | -76.74 | -65.14 | -41.25 | 23.89 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 6.00 | -77.15 | -76.75 | -77.17 | -76.81 | | | | | -64.95 | -41.25 | 23.70 |
| | | 6.00 | | | | | -77.23 | -77.68 | -75.63 | -75.41 | -64.36 | -41.25 | 23.11 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | -74.36 | -76.01 | -76.54 | -74.08 | | | | | -63.10 | -41.25 | 21.85 |
| | | 6.00 | | | | | -77.41 | -73.83 | -77.55 | -75.41 | -63.75 | -41.25 | 22.50 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | -76.11 | -77.43 | | | | | | | -64.70 | -41.25 | 23.45 |
| | | 9.01 | | | | | -77.31 | -76.73 | | | -64.99 | -41.25 | 23.74 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | -76.73 | -76.35 | | | | | | | -67.53 | -41.25 | 26.28 |
| | | 6.00 | | | | | -77.24 | -77.38 | | | -68.30 | -41.25 | 27.05 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | -75.48 | -76.22 | -77.23 | | | | | | -60.71 | -41.25 | 19.46 |
| | | 10.77 | | | | | -76.98 | -76.76 | -77.11 | | -61.41 | -41.25 | 20.16 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | -77.01 | -76.30 | -77.52 | | | | | | -64.38 | -41.25 | 23.13 |
| | | 7.76 | | | | | -77.06 | -76.39 | -77.21 | | -64.34 | -41.25 | 23.09 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | -75.90 | -75.77 | -75.45 | | | | | | -64.93 | -41.25 | 23.68 |
| | | 6.00 | | | | | -76.92 | -77.27 | -77.66 | | -66.50 | -41.25 | 25.25 |
| **VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF** | **4** | **12.02** | **-75.92** | **-76.28** | **-76.99** | **-76.34** | | | | | **-58.33** | **-41.25** | **17.08** |
| | | **12.02** | | | | | **-76.91** | **-77.29** | **-77.44** | **-76.44** | **-58.96** | **-41.25** | **17.71** |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | -76.56 | -77.34 | -76.96 | -76.41 | | | | | -61.77 | -41.25 | 20.52 |
| | | 9.01 | | | | | -77.32 | -76.29 | -77.29 | -77.08 | -61.94 | -41.25 | 20.69 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | -76.63 | -77.17 | -77.34 | -77.13 | | | | | -63.79 | -41.25 | 22.54 |
| | | 7.25 | | | | | -76.42 | -77.18 | -77.57 | -76.16 | -63.53 | -41.25 | 22.28 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | -76.11 | -76.61 | -77.21 | -76.59 | | | | | -64.59 | -41.25 | 23.34 |
| | | 6.00 | | | | | -76.10 | -76.69 | -73.66 | -77.41 | -63.70 | -41.25 | 22.45 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | -76.56 | -76.26 | | | | | | | -67.40 | -41.25 | 26.15 |
| | | 6.00 | | | | | -76.85 | -77.26 | | | -68.04 | -41.25 | 26.79 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | -76.46 | -76.36 | -76.92 | | | | | | -65.80 | -41.25 | 24.55 |
| | | 6.00 | | | | | -76.57 | -76.70 | -77.11 | | -66.02 | -41.25 | 24.77 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | -76.21 | -76.26 | -76.84 | -76.67 | | | | | -64.47 | -41.25 | 23.22 |
| | | 6.00 | | | | | -77.30 | -76.82 | -77.16 | -76.45 | -64.90 | -41.25 | 23.65 |

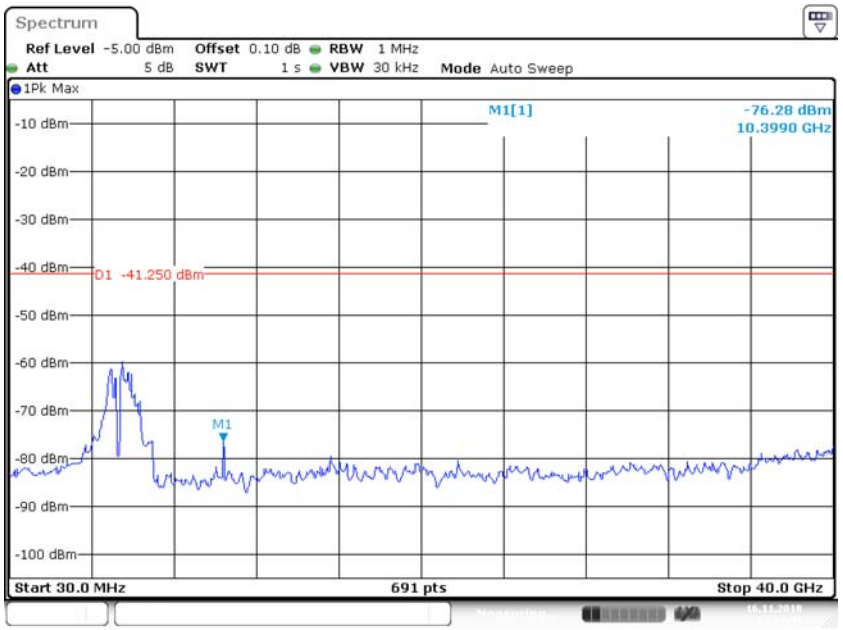
Please refer to the following plots for the worst case configuration

Ant-a



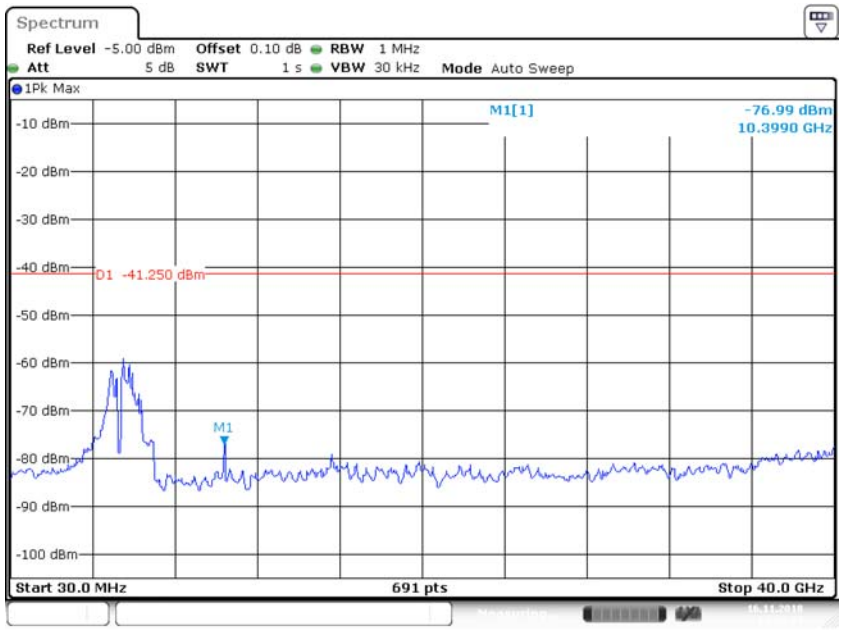

Date: 16.NOV.2018 14:09:32

Ant-b



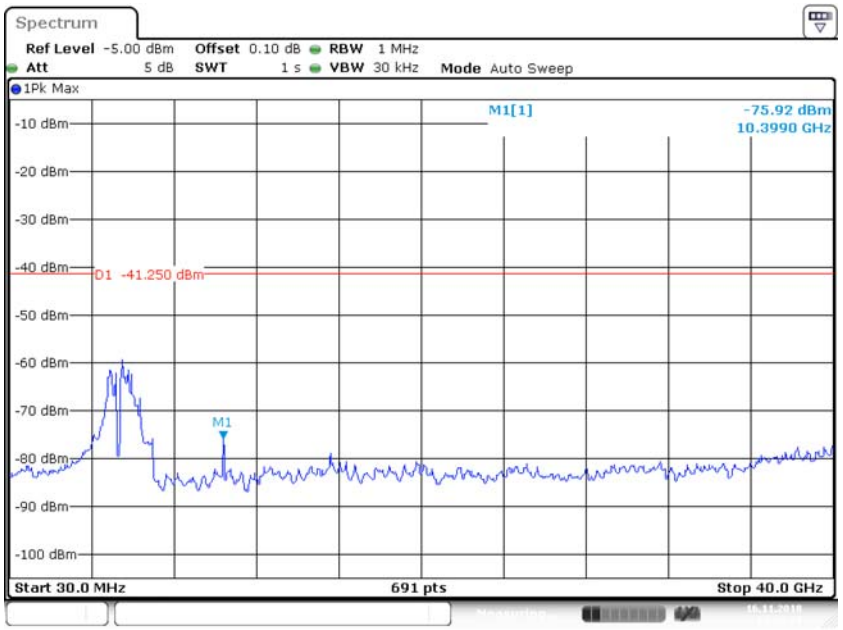

Date: 16.NOV.2018 14:17:45

Ant-c



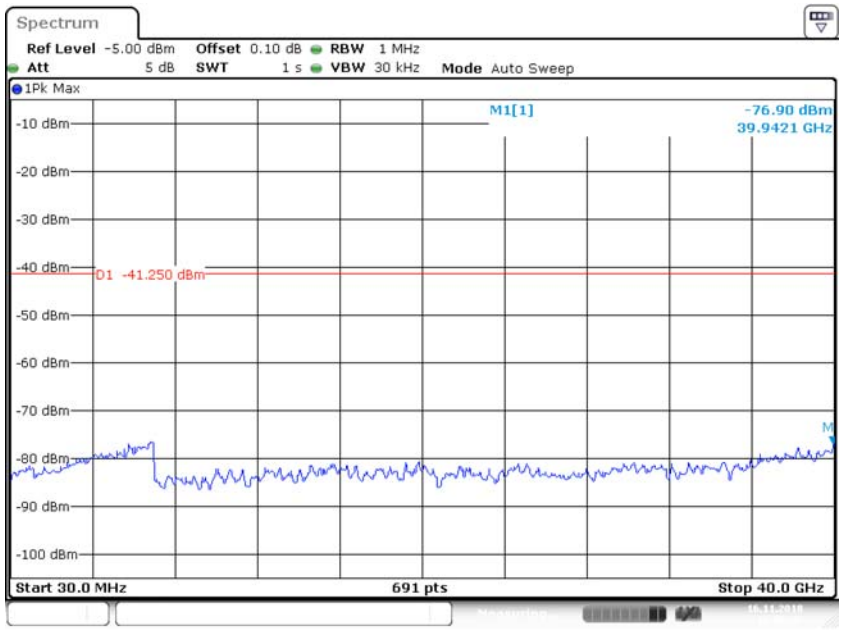

Date: 16.NOV.2018 14:24:24

Ant-d



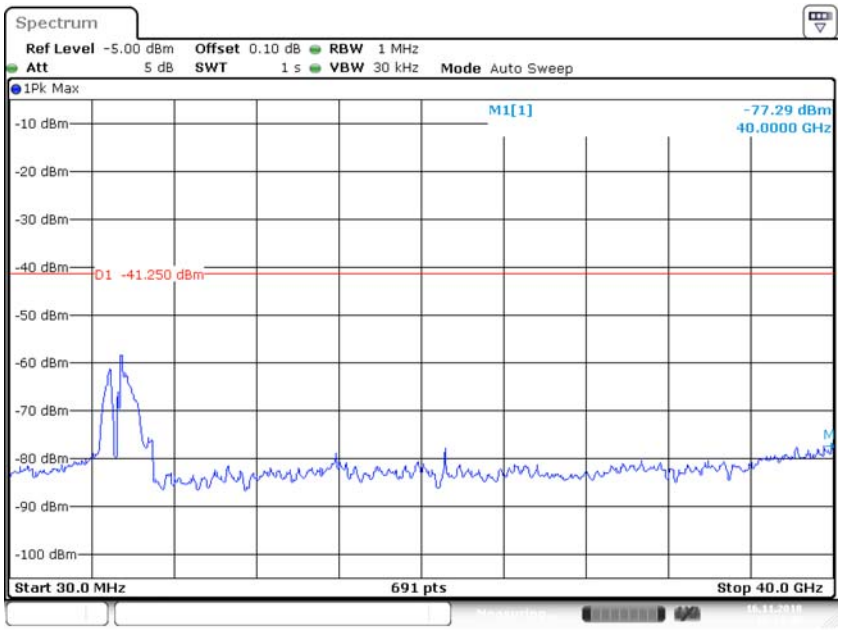

Date: 16.NOV.2018 14:28:19

Ant-e



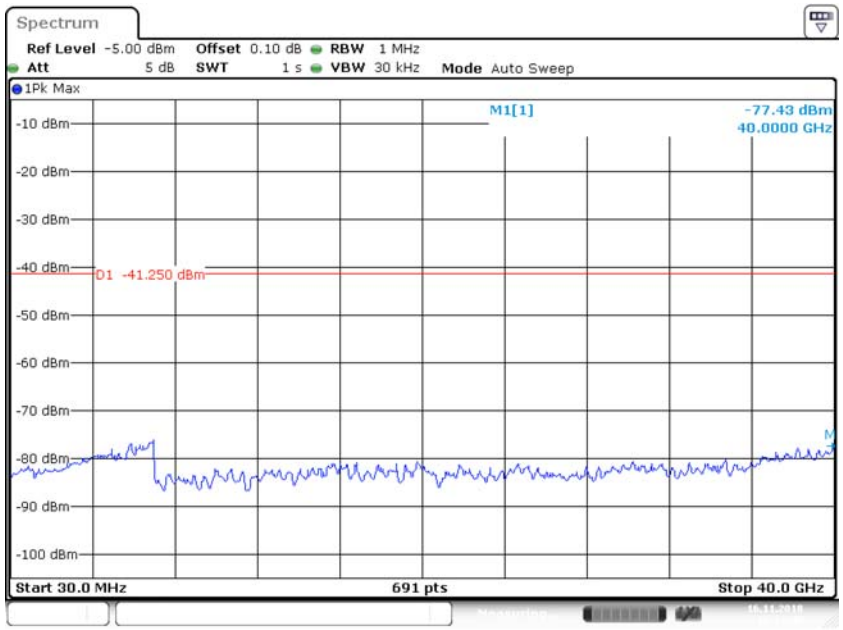

Date: 16.NOV.2018 18:06:47

Ant-f



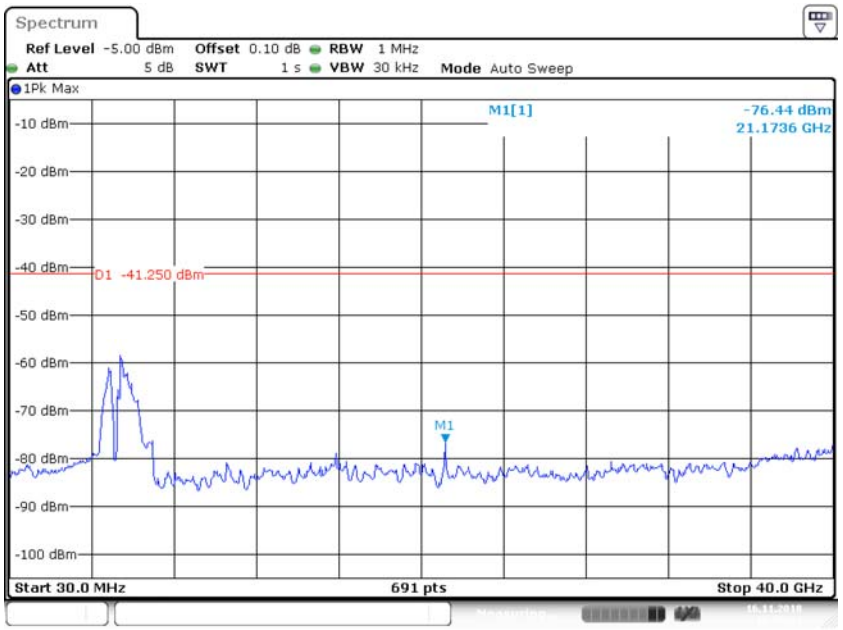

Date: 16.NOV.2018 18:15:00

Ant-g




Date: 16.NOV.2018 18:21:40

Ant-h




Date: 16.NOV.2018 18:25:35

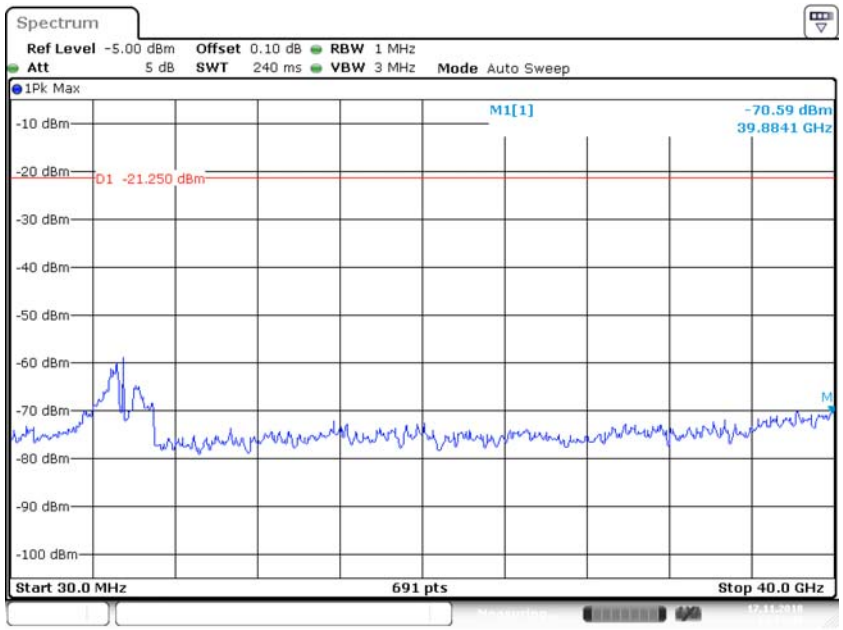
5570 MHz (Peak):

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 Spurious (dBm) | Tx 2 Spurious (dBm) | Tx 3 Spurious (dBm) | Tx 4 Spurious (dBm) | Tx 5 Spurious (dBm) | Tx 6 Spurious (dBm) | Tx 7 Spurious (dBm) | Tx 8 Spurious (dBm) | Total (dBm) | FCC Peak Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | -69.9 | | | | | | | | -63.90 | -21.25 | 42.65 |
| | | 6.00 | | | | | -64.58 | | | | -58.58 | -21.25 | 37.33 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 6.00 | -69.61 | -69.17 | | | | | | | -60.37 | -21.25 | 39.12 |
| | | 6.00 | | | | | -65.86 | -65.48 | | | -56.66 | -21.25 | 35.41 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | -68.64 | -68.84 | | | | | | | -59.73 | -21.25 | 38.48 |
| | | 6.00 | | | | | -66.5 | -63.8 | | | -55.93 | -21.25 | 34.68 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 6.00 | -69.86 | -70.72 | -68.48 | | | | | | -58.82 | -21.25 | 37.57 |
| | | 6.00 | | | | | -64.97 | -67.15 | -65.58 | | -55.04 | -21.25 | 33.79 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 6.00 | -69.16 | -69.55 | -69.34 | | | | | | -58.58 | -21.25 | 37.33 |
| | | 6.00 | | | | | -66.02 | -66.69 | -66.9 | | -55.75 | -21.25 | 34.50 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | -69.41 | -69.79 | -69.32 | | | | | | -58.73 | -21.25 | 37.48 |
| | | 6.00 | | | | | -66 | -67.63 | -66.79 | | -55.98 | -21.25 | 34.73 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 4 | 6.00 | -69.72 | -70.12 | -69.2 | -69.21 | | | | | -57.53 | -21.25 | 36.28 |
| | | 6.00 | | | | | -68.01 | -67.47 | -67.14 | -68.22 | -55.67 | -21.25 | 34.42 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 6.00 | -68.43 | -70.33 | -70.21 | -69.32 | | | | | -57.48 | -21.25 | 36.23 |
| | | 6.00 | | | | | -65.98 | -67.99 | -67.21 | -67.17 | -55.01 | -21.25 | 33.76 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 6.00 | -69.96 | -70.33 | -69.64 | -70.09 | | | | | -57.98 | -21.25 | 36.73 |
| | | 6.00 | | | | | -68.82 | -67.03 | -67.94 | -67.72 | -55.81 | -21.25 | 34.56 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | -70.17 | -69.91 | -69.43 | -68.7 | | | | | -57.50 | -21.25 | 36.25 |
| | | 6.00 | | | | | -67.39 | -68.45 | -67.75 | -67.72 | -55.79 | -21.25 | 34.54 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | -68.87 | -69.74 | | | | | | | -57.26 | -21.25 | 36.01 |
| | | 9.01 | | | | | -69.46 | -69.24 | | | -57.33 | -21.25 | 36.08 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | -69.59 | -69.63 | | | | | | | -60.60 | -21.25 | 39.35 |
| | | 6.00 | | | | | -64.91 | -64.78 | | | -55.83 | -21.25 | 34.58 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | -69.91 | -69.77 | -69.49 | | | | | | -54.18 | -21.25 | 32.93 |
| | | 10.77 | | | | | -68.66 | -69.44 | -69.22 | | -53.55 | -21.25 | 32.30 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | -69.47 | -69.93 | -68.54 | | | | | | -56.74 | -21.25 | 35.49 |
| | | 7.76 | | | | | -69.79 | -69.83 | -68.9 | | -56.95 | -21.25 | 35.70 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | -68.69 | -69.52 | -69.41 | | | | | | -58.42 | -21.25 | 37.17 |
| | | 6.00 | | | | | -66.96 | -65.8 | -65.07 | | -55.10 | -21.25 | 33.85 |
| **VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF** | **4** | **12.02** | **-70.59** | **-69.13** | **-69.68** | **-69.04** | | | | | **-51.53** | **-21.25** | **30.28** |
| | | **12.02** | | | | | **-69.88** | **-69.98** | **-68.91** | **-70.07** | **-51.64** | **-21.25** | **30.39** |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | -68.57 | -69.42 | -69.09 | -69.9 | | | | | -54.19 | -21.25 | 32.94 |
| | | 9.01 | | | | | -69.54 | -69.59 | -69.48 | -69.24 | -54.43 | -21.25 | 33.18 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | -69.68 | -70.16 | -69.15 | -69.72 | | | | | -56.39 | -21.25 | 35.14 |
| | | 7.25 | | | | | -69.66 | -69.64 | -69.24 | -69.51 | -56.24 | -21.25 | 34.99 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | -69.81 | -69.85 | -70.39 | -68.78 | | | | | -57.65 | -21.25 | 36.40 |
| | | 6.00 | | | | | -68.24 | -67.67 | -66.77 | -67.72 | -55.55 | -21.25 | 34.30 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | -69.75 | -70.33 | | | | | | | -61.02 | -21.25 | 39.77 |
| | | 6.00 | | | | | -66.23 | -65.4 | | | -56.78 | -21.25 | 35.53 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | -69.92 | -69.41 | -69.86 | | | | | | -58.95 | -21.25 | 37.70 |
| | | 6.00 | | | | | -65.44 | -65.99 | -66.33 | | -55.13 | -21.25 | 33.88 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | -70.02 | -70.27 | -68.89 | -69.7 | | | | | -57.67 | -21.25 | 36.42 |
| | | 6.00 | | | | | -67.42 | -66.95 | -67.43 | -67.37 | -55.27 | -21.25 | 34.02 |

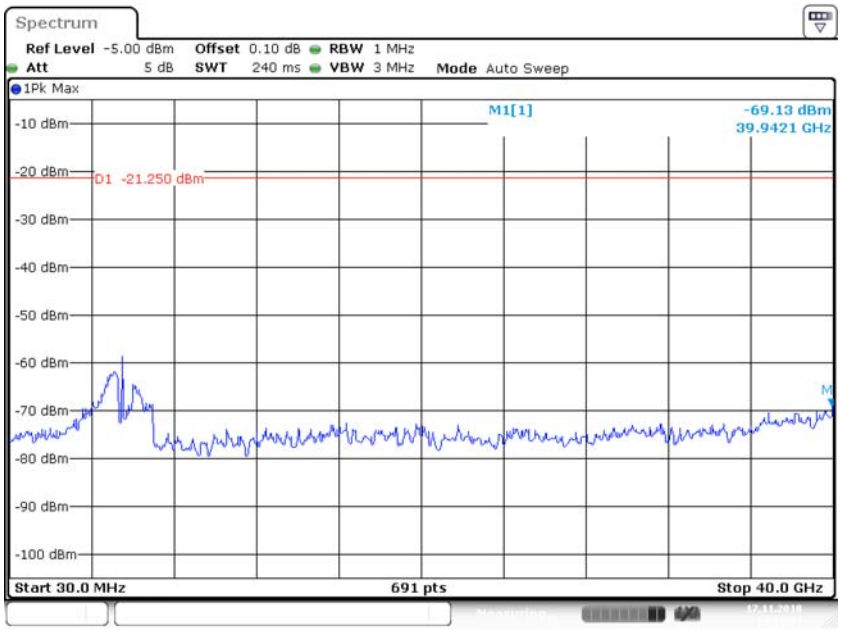
Please refer to the following plots for the worst case configuration

Ant-a



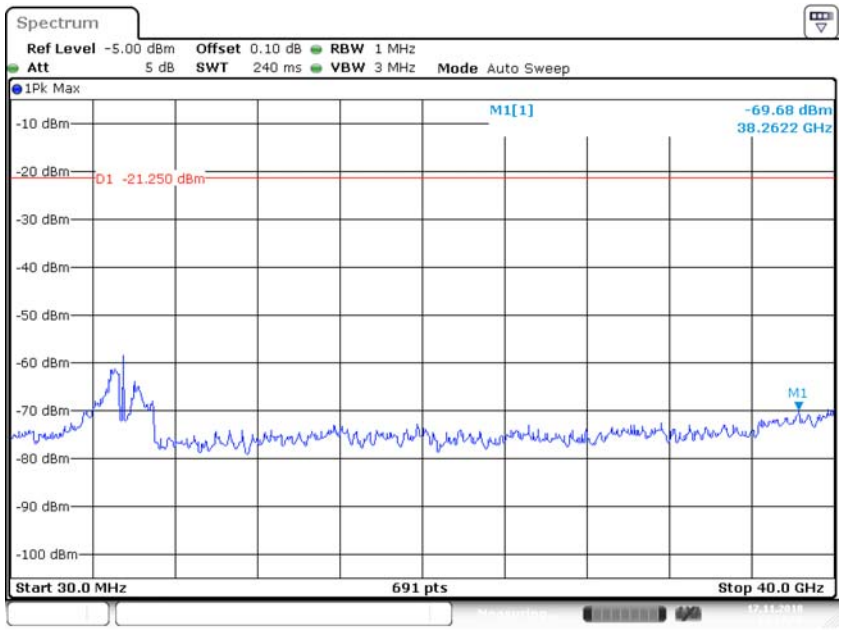

Date: 17.NOV.2018 14:01:50

Ant-b



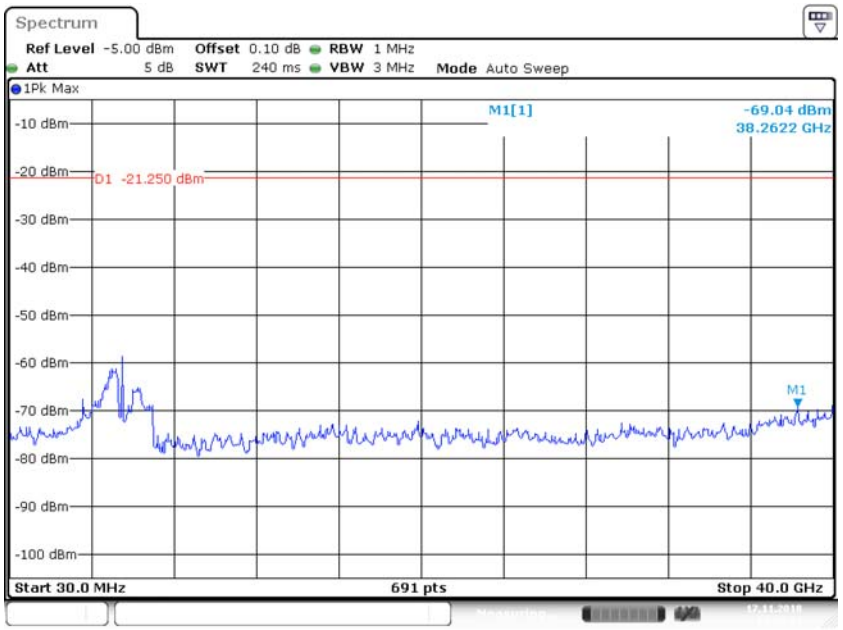

Date: 17.NOV.2018 14:10:45

Ant-c



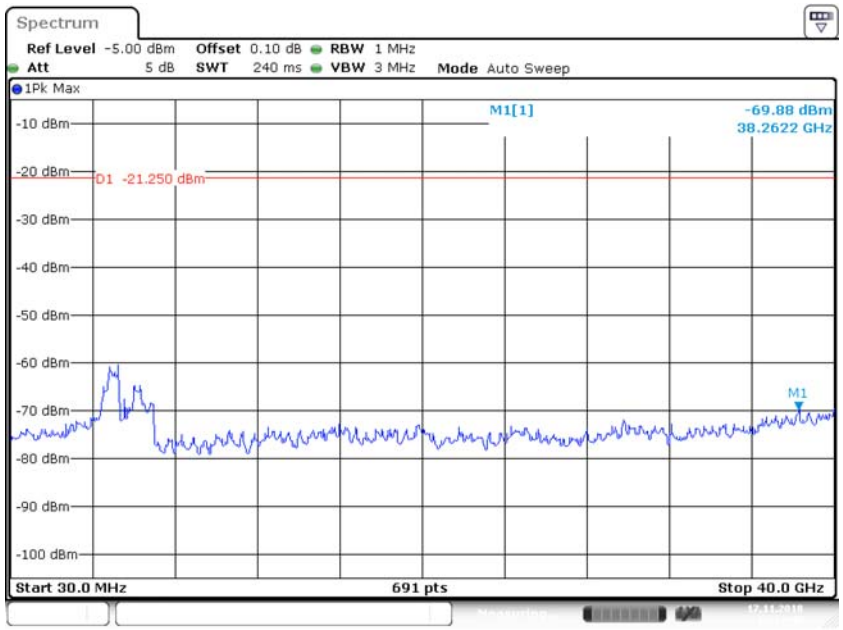

Date: 17.NOV.2018 14:17:58

Ant-d



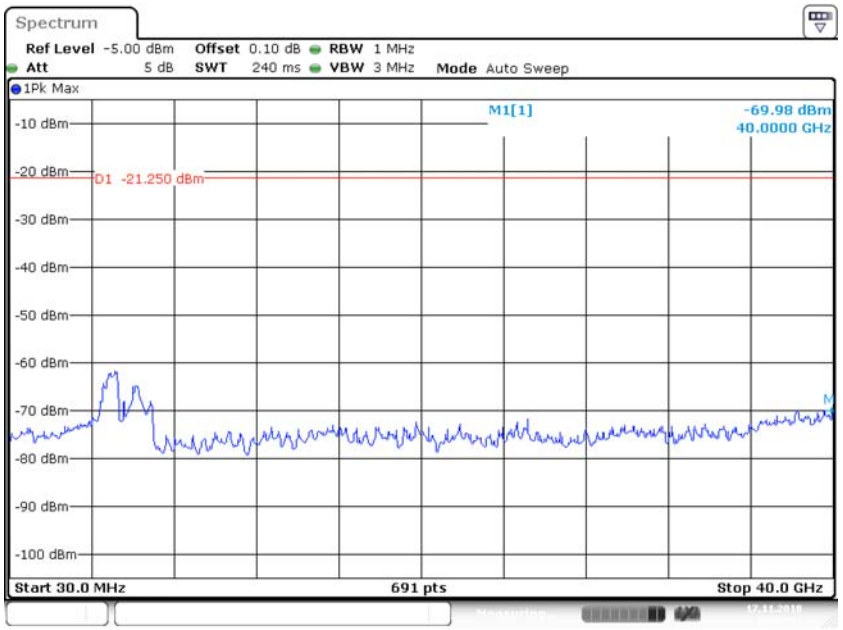

Date: 17.NOV.2018 14:22:13

Ant-e



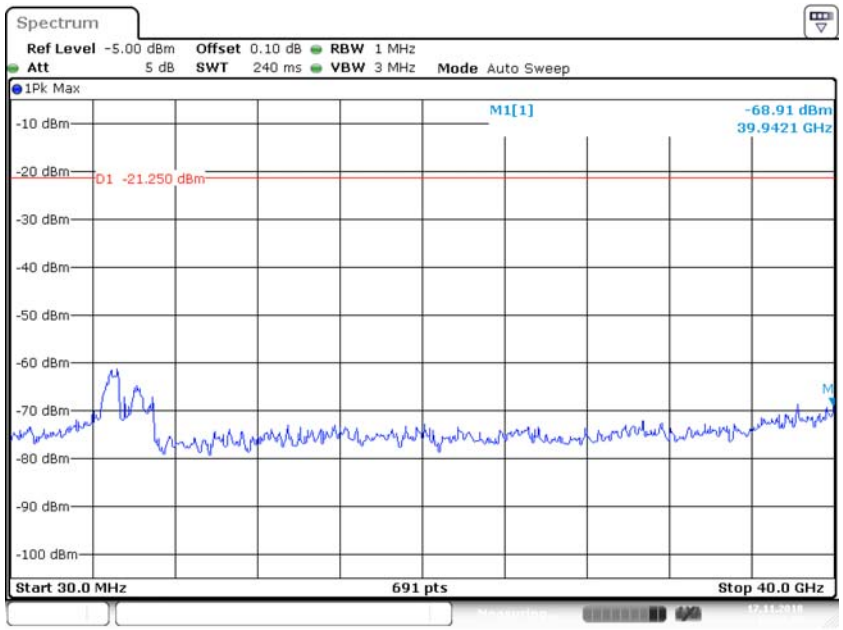

Date: 17.NOV.2018 15:13:47

Ant-f



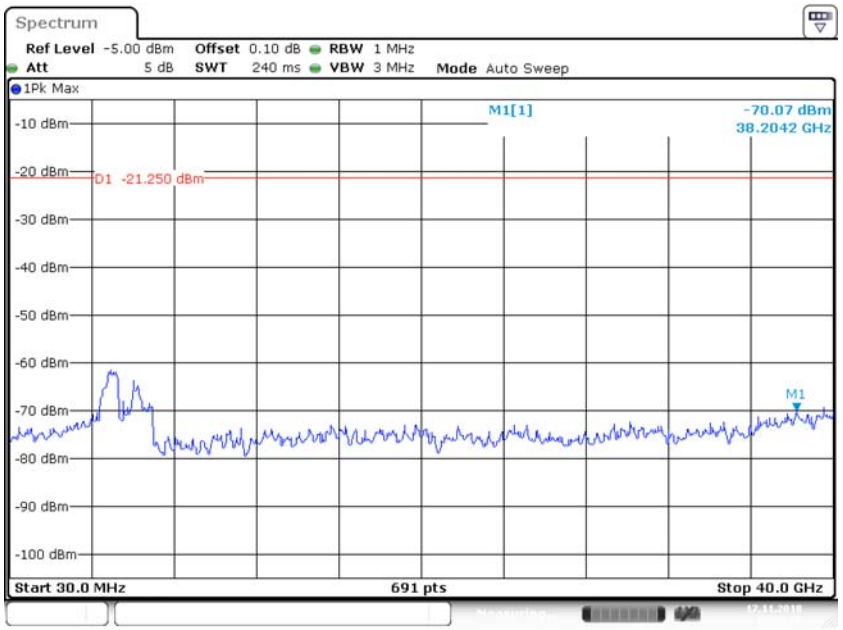

Date: 17.NOV.2018 15:22:42

Ant-g




Date: 17.NOV.2018 15:29:55

Ant-h




Date: 17.NOV.2018 15:34:10

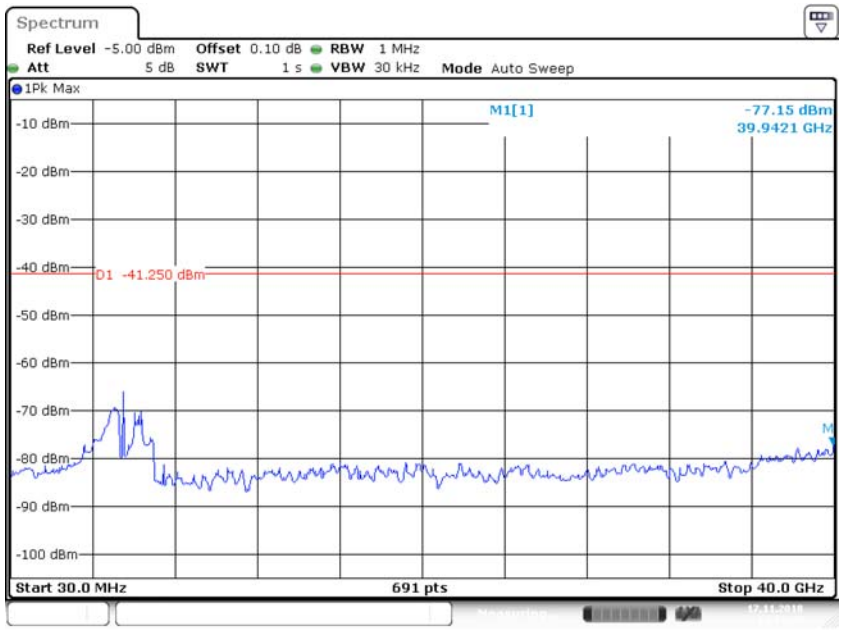
5570 MHz (Average):

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 Spurious (dBm) | Tx 2 Spurious (dBm) | Tx 3 Spurious (dBm) | Tx 4 Spurious (dBm) | Tx 5 Spurious (dBm) | Tx 6 Spurious (dBm) | Tx 7 Spurious (dBm) | Tx 8 Spurious (dBm) | Total (dBm) | FCC Average Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | -77.47 | | | | | | | | -71.47 | -41.25 | 30.22 |
| | | 6.00 | | | | | -72.39 | | | | -66.39 | -41.25 | 25.14 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 6.00 | -77.37 | -76.83 | | | | | | | -68.08 | -41.25 | 26.83 |
| | | 6.00 | | | | | -73.57 | -72.71 | | | -64.11 | -41.25 | 22.86 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | -76.48 | -77.44 | | | | | | | -67.92 | -41.25 | 26.67 |
| | | 6.00 | | | | | -72.33 | -72.83 | | | -63.56 | -41.25 | 22.31 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 6.00 | -77.4 | -77.31 | -77.32 | | | | | | -66.57 | -41.25 | 25.32 |
| | | 6.00 | | | | | -73.8 | -73.75 | -73.09 | | -62.76 | -41.25 | 21.51 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 6.00 | -77 | -77.86 | -76.78 | | | | | | -66.42 | -41.25 | 25.17 |
| | | 6.00 | | | | | -73.74 | -74.84 | -74.62 | | -63.60 | -41.25 | 22.35 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | -77.67 | -77.34 | -77.35 | | | | | | -66.68 | -41.25 | 25.43 |
| | | 6.00 | | | | | -73.75 | -72.17 | -73.43 | | -62.29 | -41.25 | 21.04 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 4 | 6.00 | -77.28 | -77.42 | -77.42 | -76.77 | | | | | -65.19 | -41.25 | 23.94 |
| | | 6.00 | | | | | -75.01 | -75.22 | -74.66 | -74.82 | -62.90 | -41.25 | 21.65 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 6.00 | -77.69 | -77.25 | -77.3 | -77.17 | | | | | -65.33 | -41.25 | 24.08 |
| | | 6.00 | | | | | -75.52 | -74.79 | -75.71 | -75.4 | -63.32 | -41.25 | 22.07 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 6.00 | -77.36 | -76.95 | -77.09 | -77.55 | | | | | -65.21 | -41.25 | 23.96 |
| | | 6.00 | | | | | -75.65 | -74.68 | -73.86 | -75.27 | -62.79 | -41.25 | 21.54 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | -76.89 | -77.06 | -77.49 | -77.4 | | | | | -65.18 | -41.25 | 23.93 |
| | | 6.00 | | | | | -74.25 | -75.86 | -74.04 | -75.27 | -62.77 | -41.25 | 21.52 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | -76.93 | -76.87 | | | | | | | -64.88 | -41.25 | 23.63 |
| | | 9.01 | | | | | -76.98 | -76.62 | | | -64.78 | -41.25 | 23.53 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | -77.34 | -77.14 | | | | | | | -68.23 | -41.25 | 26.98 |
| | | 6.00 | | | | | -71.98 | -72.93 | | | -63.42 | -41.25 | 22.17 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | -76.88 | -77.19 | -77.58 | | | | | | -61.67 | -41.25 | 20.42 |
| | | 10.77 | | | | | -77.34 | -77.59 | -77.52 | | -61.94 | -41.25 | 20.69 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | -76.31 | -76.81 | -77.56 | | | | | | -64.33 | -41.25 | 23.08 |
| | | 7.76 | | | | | -76.73 | -76.8 | -77.66 | | -64.51 | -41.25 | 23.26 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | -77.08 | -76.91 | -77.28 | | | | | | -66.32 | -41.25 | 25.07 |
| | | 6.00 | | | | | -74.78 | -73.57 | -74.14 | | -63.36 | -41.25 | 22.11 |
| **VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF** | **4** | **12.02** | **-77.15** | **-77.09** | **-77.56** | **-76.89** | | | | | **-59.13** | **-41.25** | **17.88** |
| | | **12.02** | | | | | **-77.34** | **-77.5** | **-77.06** | **-77.25** | **-59.24** | **-41.25** | **17.99** |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | -77.5 | -77.42 | -77.44 | -77.15 | | | | | -62.34 | -41.25 | 21.09 |
| | | 9.01 | | | | | -77.71 | -77.72 | -77.55 | -76.71 | -62.37 | -41.25 | 21.12 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | -77.46 | -77.43 | -77.25 | -77.25 | | | | | -64.08 | -41.25 | 22.83 |
| | | 7.25 | | | | | -77.39 | -77.29 | -77.54 | -77.3 | -64.11 | -41.25 | 22.86 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | -77.26 | -77.29 | -77.4 | -77.6 | | | | | -65.36 | -41.25 | 24.11 |
| | | 6.00 | | | | | -74.65 | -75.14 | -75.09 | -72.21 | -62.07 | -41.25 | 20.82 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | -77.01 | -77.32 | | | | | | | -68.15 | -41.25 | 26.90 |
| | | 6.00 | | | | | -72.54 | -72.41 | | | -63.46 | -41.25 | 22.21 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | -77.35 | -77.52 | -77.5 | | | | | | -66.68 | -41.25 | 25.43 |
| | | 6.00 | | | | | -74.35 | -73.57 | -73.82 | | -63.13 | -41.25 | 21.88 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | -77.49 | -77.37 | -77.64 | -77.19 | | | | | -65.40 | -41.25 | 24.15 |
| | | 6.00 | | | | | -75.56 | -74.29 | -75.57 | -75.73 | -63.23 | -41.25 | 21.98 |

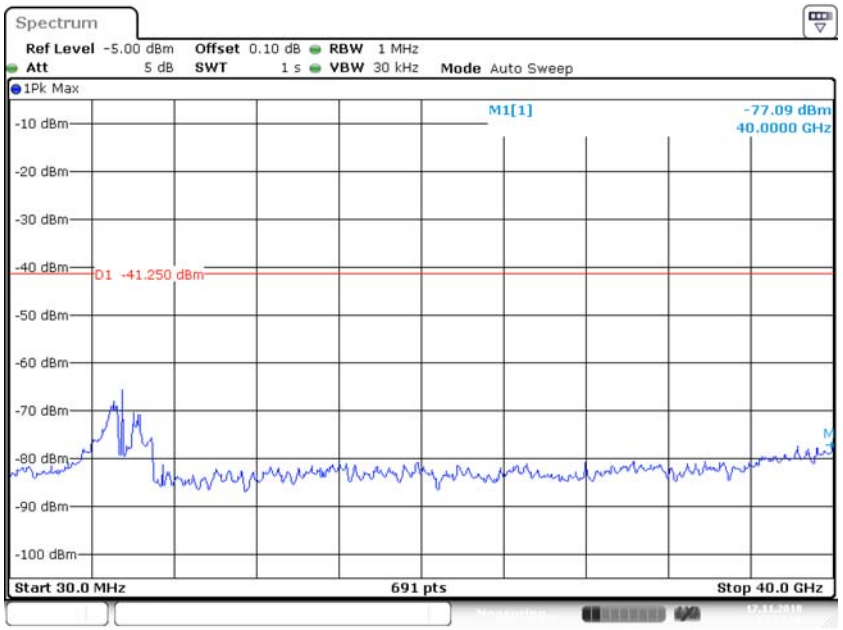
Please refer to the following plots for the worst case configuration

Ant-a



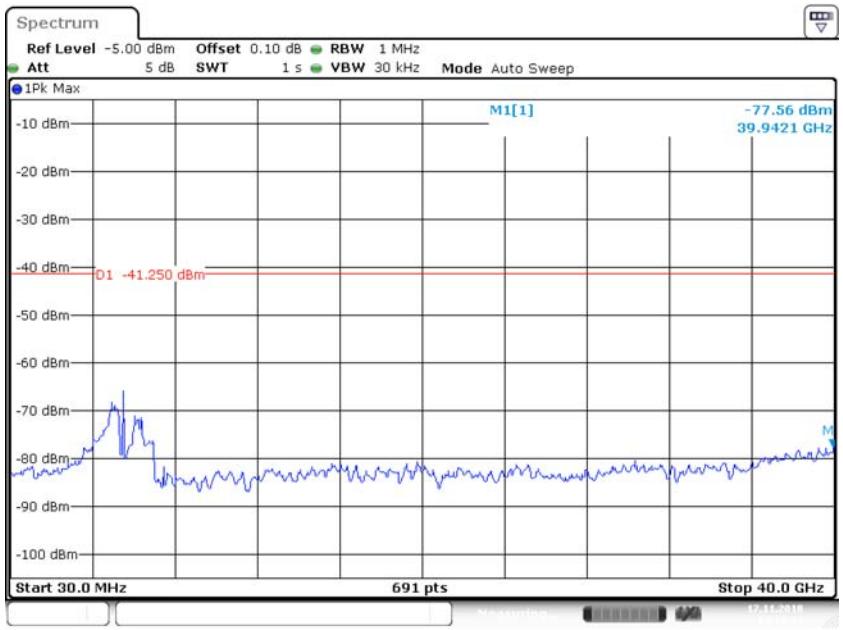

Date: 17.NOV.2018 14:01:55

Ant-b



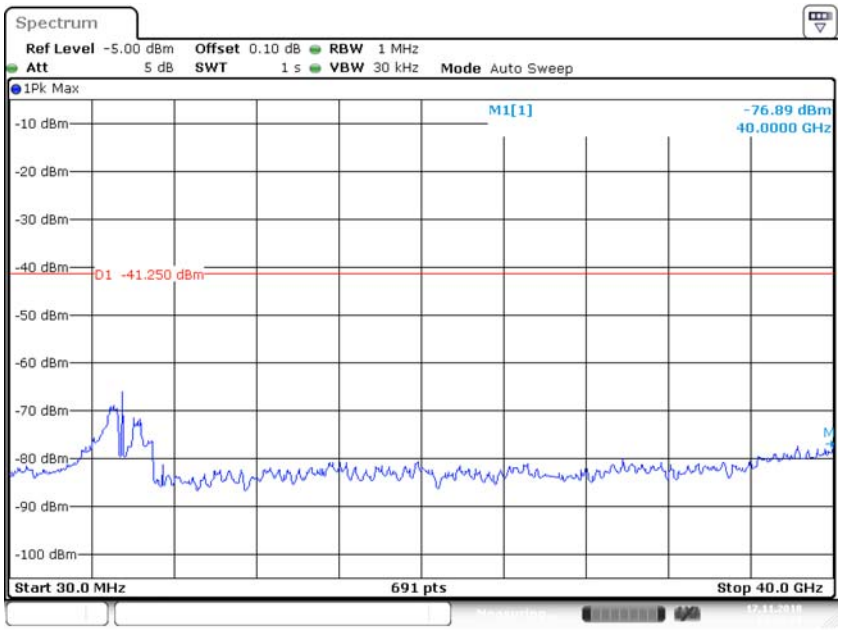

Date: 17.NOV.2018 14:10:50

Ant-c



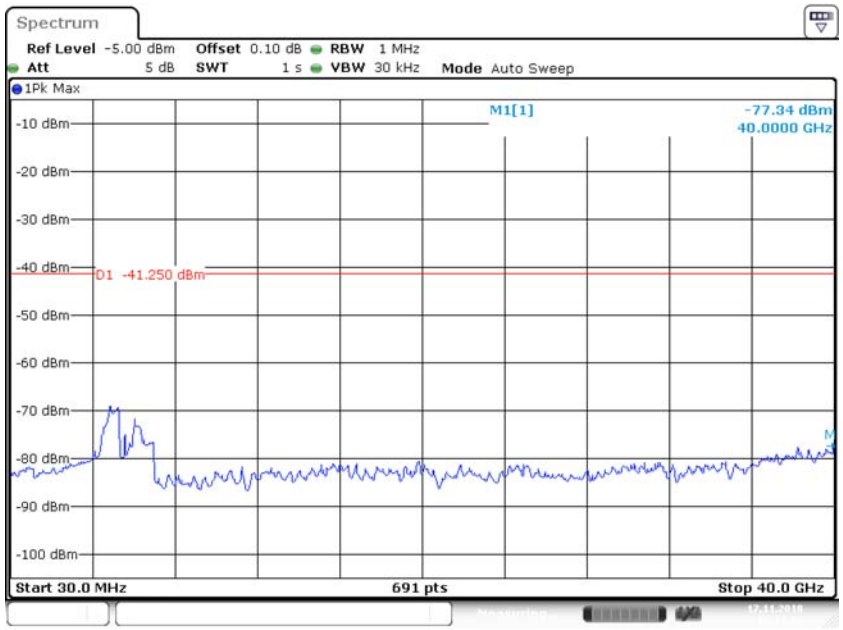

Date: 17.NOV.2018 14:18:04

Ant-d



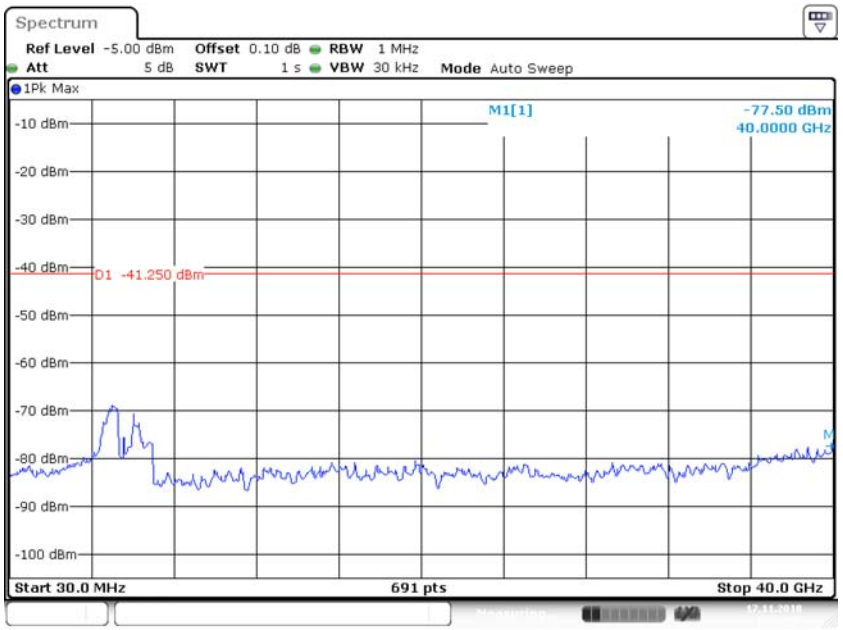

Date: 17.NOV.2018 14:22:19

Ant-e



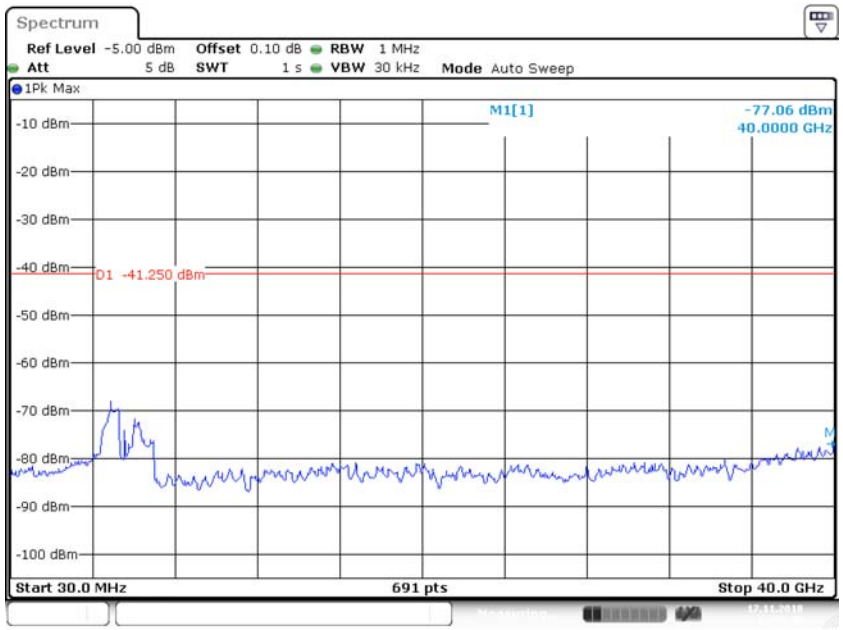

Date: 17.NOV.2018 15:13:52

Ant-f



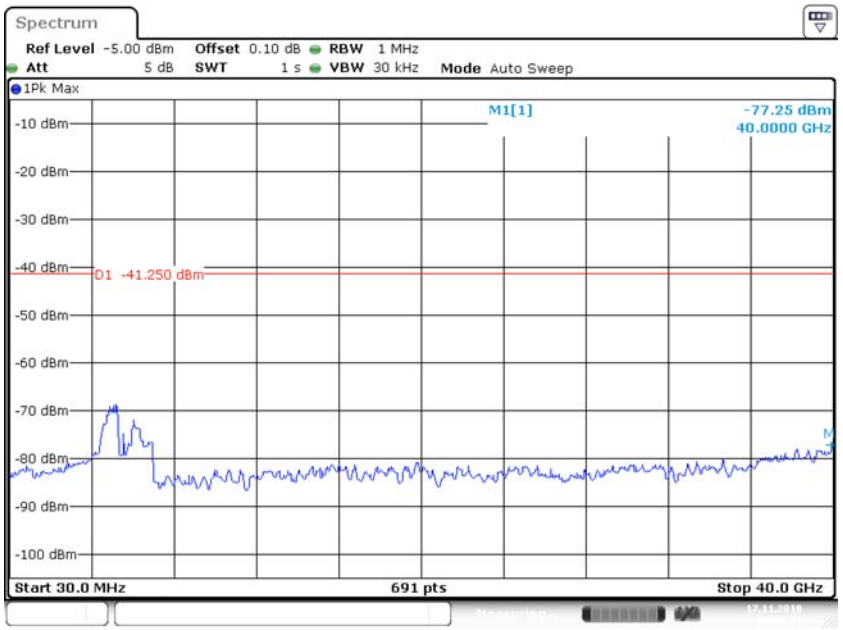

Date: 17.NOV.2018 15:22:48

Ant-g




Date: 17.NOV.2018 15:30:01

Ant-h




Date: 17.NOV.2018 15:34:16

Test results for Band-edge

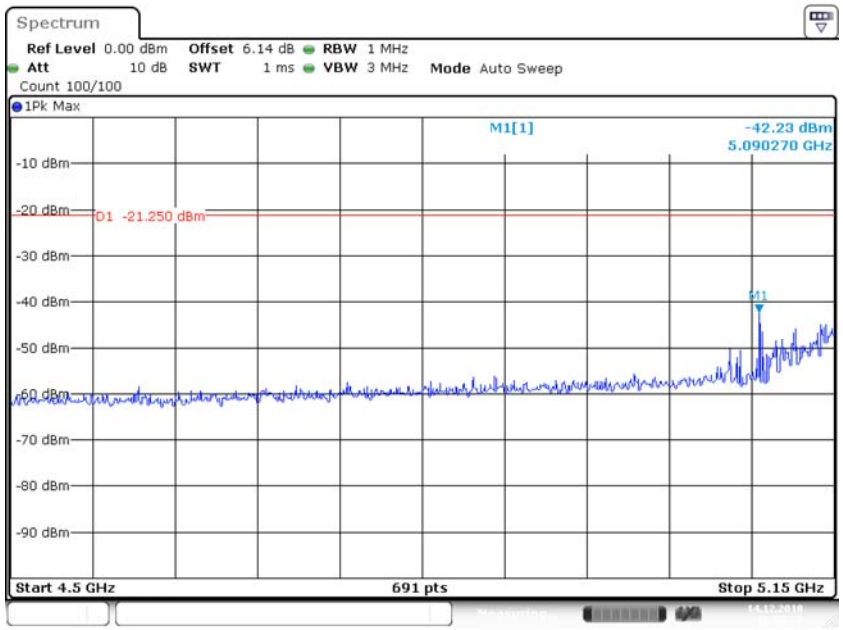
5250 MHz (Peak):

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 Band-edge (dBm) | Tx 2 Band-edge (dBm) | Tx 3 Band-edge (dBm) | Tx 4 Band-edge (dBm) | Tx 5 Band-edge (dBm) | Tx 6 Band-edge (dBm) | Tx 7 Band-edge (dBm) | Tx 8 Band-edge (dBm) | Total (dBm) | FCC Peak Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | -41.53 | | | | | | | | -35.53 | -21.25 | 14.28 |
| | | 6.00 | | | | | -39.80 | | | | -33.80 | -21.25 | 12.55 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 6.00 | -41.63 | -44.95 | | | | | | | -33.97 | -21.25 | 12.72 |
| | | 6.00 | | | | | -40.97 | -45.88 | | | -33.76 | -21.25 | 12.51 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | -47.43 | -50.31 | | | | | | | -39.62 | -21.25 | 18.37 |
| | | 6.00 | | | | | -43.50 | -49.11 | | | -36.45 | -21.25 | 15.20 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 6.00 | -41.27 | -47.37 | -50.23 | | | | | | -33.89 | -21.25 | 12.64 |
| | | 6.00 | | | | | -43.50 | -47.95 | -47.37 | | -35.02 | -21.25 | 13.77 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 6.00 | -45.79 | -46.29 | -49.66 | | | | | | -36.17 | -21.25 | 14.92 |
| | | 6.00 | | | | | -40.57 | -48.21 | -47.51 | | -33.19 | -21.25 | 11.94 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | -38.92 | -43.49 | -45.90 | | | | | | -31.02 | -21.25 | 9.77 |
| | | 6.00 | | | | | -33.99 | -36.29 | -37.41 | | -24.88 | -21.25 | 3.63 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 4 | 6.00 | -40.75 | -46.07 | -48.36 | -44.70 | | | | | -32.03 | -21.25 | 10.78 |
| | | 6.00 | | | | | -40.78 | -46.31 | -46.13 | -44.72 | -31.82 | -21.25 | 10.57 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 6.00 | -43.48 | -45.34 | -48.08 | -45.04 | | | | | -33.17 | -21.25 | 11.92 |
| | | 6.00 | | | | | -40.26 | -47.25 | -45.46 | -44.57 | -31.53 | -21.25 | 10.28 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 6.00 | -42.22 | -46.74 | -47.32 | -39.83 | | | | | -30.91 | -21.25 | 9.66 |
| | | 6.00 | | | | | -35.31 | -35.72 | -32.68 | -35.85 | -22.66 | -21.25 | 1.41 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | -47.63 | -45.59 | -46.63 | -44.58 | | | | | -33.94 | -21.25 | 12.69 |
| | | 6.00 | | | | | -37.93 | -37.96 | -36.01 | -35.85 | -24.80 | -21.25 | 3.55 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | -47.84 | -47.32 | | | | | | | -35.56 | -21.25 | 14.31 |
| | | 9.01 | | | | | -43.61 | -45.34 | | | -32.37 | -21.25 | 11.12 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | -41.53 | -44.23 | | | | | | | -33.66 | -21.25 | 12.41 |
| | | 6.00 | | | | | -41.05 | -45.07 | | | -33.60 | -21.25 | 12.35 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | -41.84 | -50.01 | -52.29 | | | | | | -30.13 | -21.25 | 8.88 |
| | | 10.77 | | | | | -44.24 | -49.62 | -46.28 | | -30.65 | -21.25 | 9.40 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | -42.58 | -48.00 | -50.82 | | | | | | -33.24 | -21.25 | 11.99 |
| | | 7.76 | | | | | -43.66 | -49.92 | -47.98 | | -33.84 | -21.25 | 12.59 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | -42.18 | -43.01 | -43.81 | | | | | | -32.18 | -21.25 | 10.93 |
| | | 6.00 | | | | | -36.02 | -33.70 | -32.01 | | -22.84 | -21.25 | 1.59 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 4 | 12.02 | -52.18 | -55.57 | -54.94 | -50.47 | | | | | -34.76 | -21.25 | 13.51 |
| | | 12.02 | | | | | -43.42 | -53.37 | -50.87 | -50.87 | -29.76 | -21.25 | 8.51 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | -51.11 | -51.76 | -50.12 | -48.50 | | | | | -35.16 | -21.25 | 13.91 |
| | | 9.01 | | | | | -43.56 | -50.01 | -47.99 | -48.15 | -31.68 | -21.25 | 10.43 |
| **VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF** | **4** | **7.25** | **-42.23** | **-46.58** | **-45.73** | **-40.22** | | | | | **-29.66** | **-21.25** | **8.41** |
| | | **7.25** | | | | | **-36.02** | **-34.14** | **-34.64** | **-35.20** | **-21.67** | **-21.25** | **0.42** |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | -46.08 | -48.51 | -43.45 | -40.32 | | | | | -31.53 | -21.25 | 10.28 |
| | | 6.00 | | | | | -37.77 | -36.55 | -35.24 | -34.71 | -23.89 | -21.25 | 2.64 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | -42.35 | -45.32 | | | | | | | -34.58 | -21.25 | 13.33 |
| | | 6.00 | | | | | -40.43 | -44.44 | | | -32.97 | -21.25 | 11.72 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | -43.31 | -44.68 | -45.76 | | | | | | -33.70 | -21.25 | 12.45 |
| | | 6.00 | | | | | -40.58 | -42.74 | -42.64 | | -31.10 | -21.25 | 9.85 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | -45.34 | -50.32 | -51.16 | -43.83 | | | | | -34.58 | -21.25 | 13.33 |
| | | 6.00 | | | | | -43.79 | -45.72 | -45.52 | -45.96 | -33.13 | -21.25 | 11.88 |

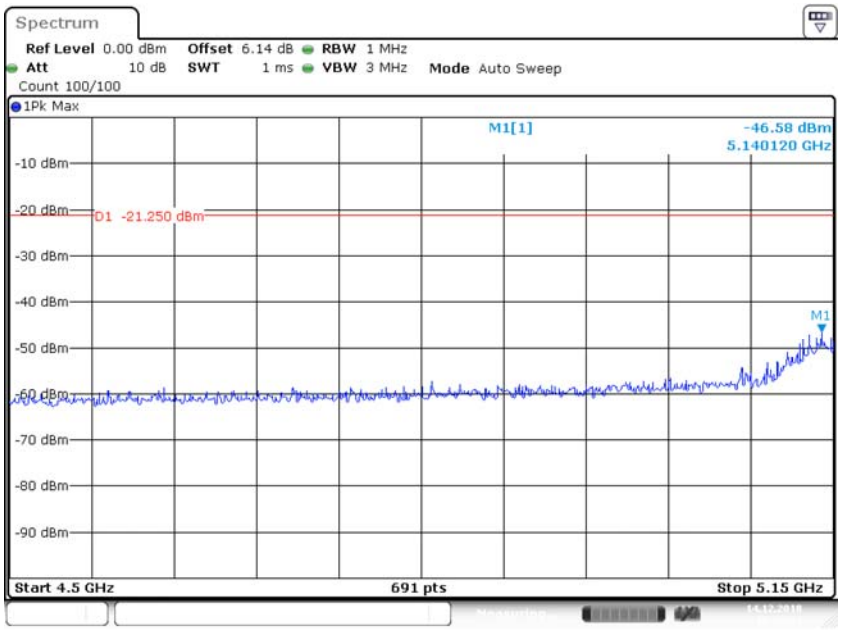
Please refer to the following plots for the worst case configuration

Ant-a



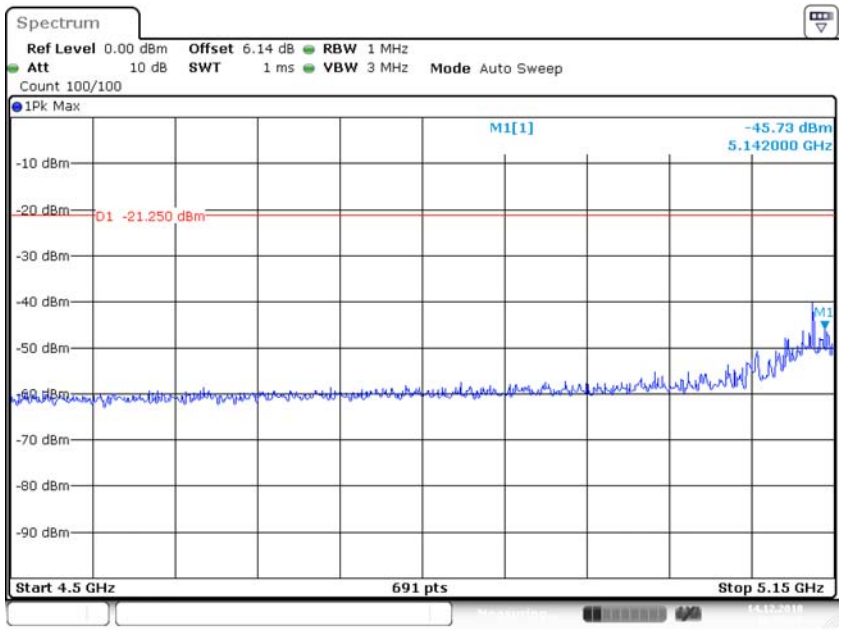

Date: 14.DEC.2018 18:08:26

Ant-b

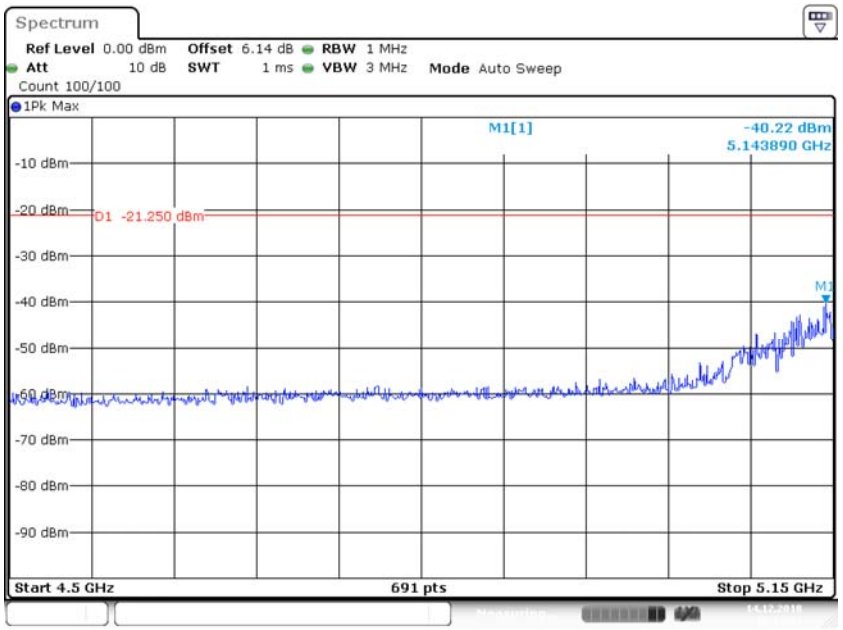



Date: 14.DEC.2018 18:23:34

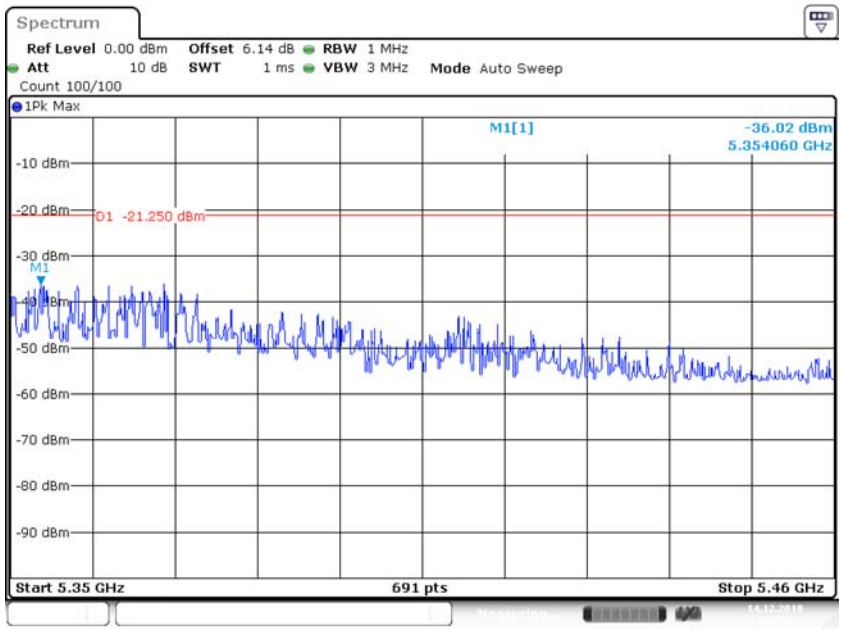
Ant-c


Spectrum
Ref Level 0.00 dBm Offset 6.14 dB RBW 1 MHz
Att 10 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Pk Max
M1[1] -45.73 dBm
5.142000 GHz
D1 -21.250 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
Start 4.5 GHz
691 pts
Stop 5.15 GHz
Date: 14.DEC.2018 18:36:27

Ant-d

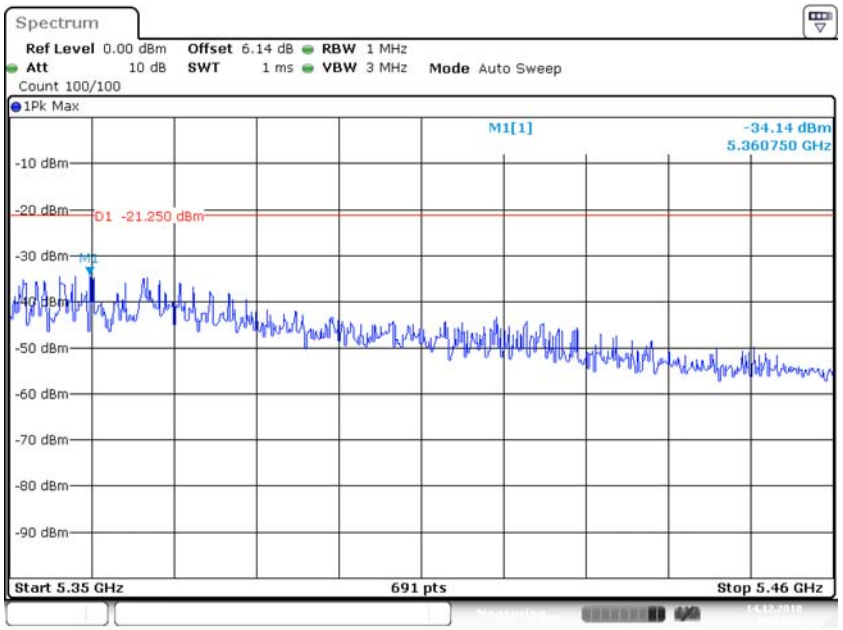

Spectrum
Ref Level 0.00 dBm Offset 6.14 dB RBW 1 MHz
Att 10 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Pk Max
M1[1] -40.22 dBm
5.143890 GHz
D1 -21.250 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
Start 4.5 GHz
691 pts
Stop 5.15 GHz
Date: 14.DEC.2018 18:41:42

Ant-e



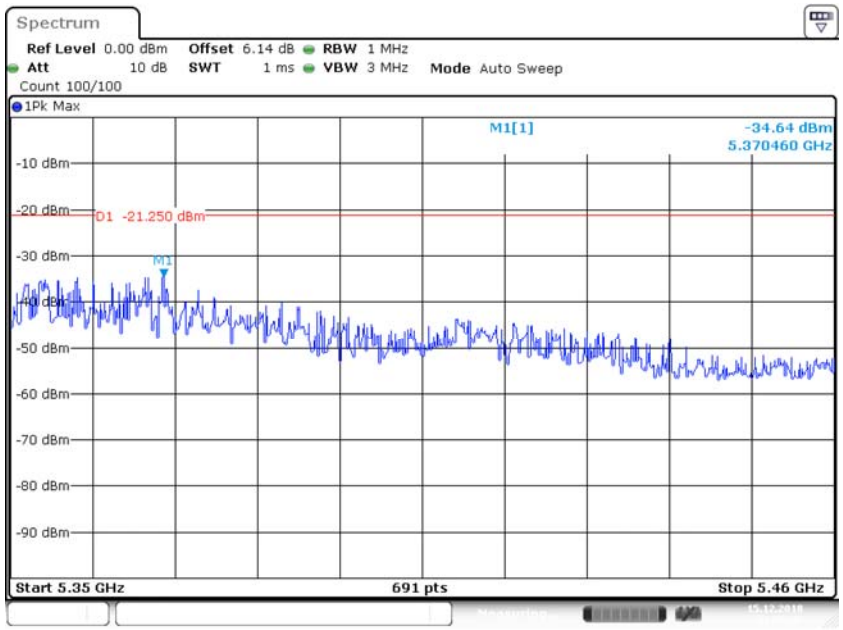

Date: 14.DEC.2018 19:05:34

Ant-f



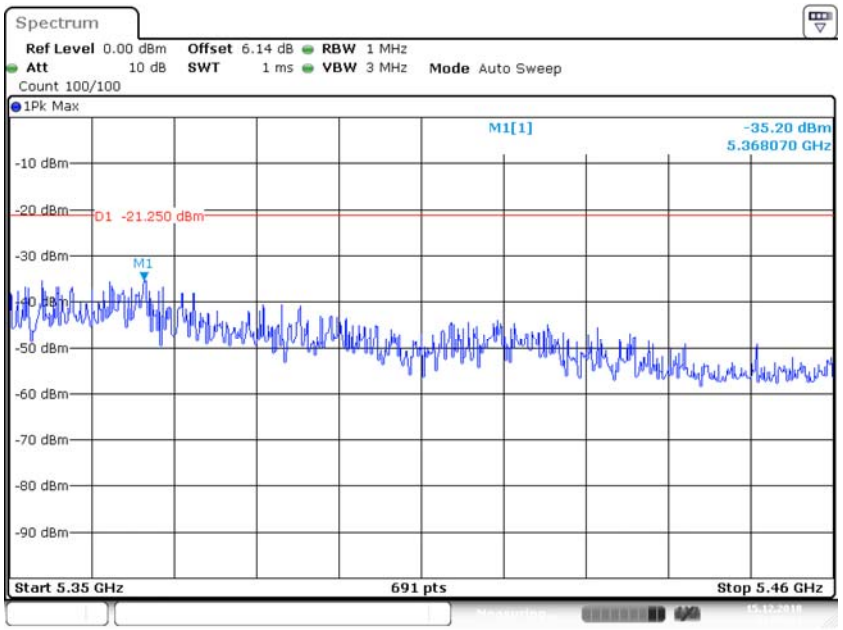

Date: 14.DEC.2018 19:31:43

Ant-g




Date: 15.DEC.2018 01:52:08

Ant-h




Date: 15.DEC.2018 01:52:31

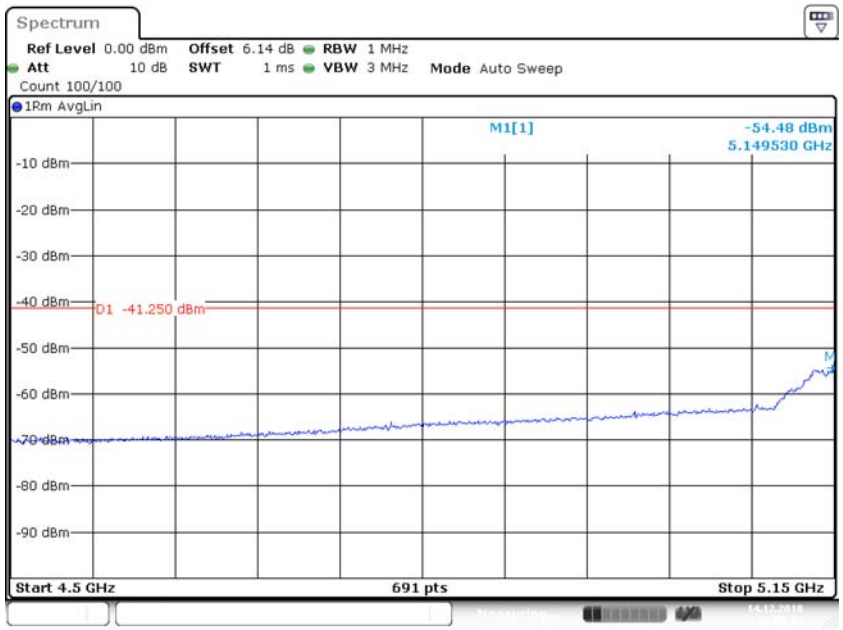
5250 MHz (Average):

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 Band-edge (dBm) | Tx 2 Band-edge (dBm) | Tx 3 Band-edge (dBm) | Tx 4 Band-edge (dBm) | Tx 5 Band-edge (dBm) | Tx 6 Band-edge (dBm) | Tx 7 Band-edge (dBm) | Tx 8 Band-edge (dBm) | DCCF (dB) | Total (dBm) | FCC Average Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | -52.18 | | | | | | | | 0.36 | -45.82 | -41.25 | 4.57 |
| | | 6.00 | | | | | -53.03 | | | | 0.36 | -46.67 | -41.25 | 5.42 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 6.00 | -54.46 | -55.94 | | | | | | | 0.36 | -45.77 | -41.25 | 4.52 |
| | | 6.00 | | | | | -55.86 | -58.07 | | | 0.36 | -47.46 | -41.25 | 6.21 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | -59.30 | -60.48 | | | | | | | 0.36 | -50.48 | -41.25 | 9.23 |
| | | 6.00 | | | | | -58.73 | -60.84 | | | 0.36 | -50.29 | -41.25 | 9.04 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 6.00 | -60.39 | -58.73 | -61.97 | | | | | | 0.36 | -49.03 | -41.25 | 7.78 |
| | | 6.00 | | | | | -58.29 | -60.79 | -59.93 | | 0.36 | -48.41 | -41.25 | 7.16 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 6.00 | -56.78 | -57.40 | -59.84 | | | | | | 0.36 | -46.69 | -41.25 | 5.44 |
| | | 6.00 | | | | | -57.25 | -60.13 | -59.68 | | 0.36 | -47.70 | -41.25 | 6.45 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | -55.11 | -55.75 | -58.15 | | | | | | 0.36 | -45.02 | -41.25 | 3.77 |
| | | 6.00 | | | | | -56.12 | -58.89 | -58.70 | | 0.36 | -46.58 | -41.25 | 5.33 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 4 | 6.00 | -56.24 | -57.05 | -58.93 | -55.45 | | | | | 0.36 | -44.36 | -41.25 | 3.11 |
| | | 6.00 | | | | | -56.76 | -60.02 | -58.73 | -57.55 | 0.36 | -45.71 | -41.25 | 4.46 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 6.00 | -56.53 | -56.72 | -59.90 | -55.44 | | | | | 0.36 | -44.48 | -41.25 | 3.23 |
| | | 6.00 | | | | | -56.71 | -59.96 | -58.41 | -57.12 | 0.36 | -45.49 | -41.25 | 4.24 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 6.00 | -59.43 | -60.22 | -62.00 | -57.36 | | | | | 0.36 | -47.05 | -41.25 | 5.80 |
| | | 6.00 | | | | | -58.99 | -60.71 | -59.37 | -58.79 | 0.36 | -47.02 | -41.25 | 5.77 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | -59.26 | -59.92 | -61.99 | -57.57 | | | | | 0.36 | -47.03 | -41.25 | 5.78 |
| | | 6.00 | | | | | -58.74 | -61.27 | -60.15 | -58.79 | 0.36 | -47.23 | -41.25 | 5.98 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | -59.34 | -58.87 | | | | | | | 0.36 | -46.72 | -41.25 | 5.47 |
| | | 9.01 | | | | | -58.38 | -59.94 | | | 0.36 | -46.71 | -41.25 | 5.46 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | -54.28 | -54.27 | | | | | | | 0.36 | -44.90 | -41.25 | 3.65 |
| | | 6.00 | | | | | -55.63 | -57.37 | | | 0.36 | -47.04 | -41.25 | 5.79 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | -61.59 | -61.29 | -63.33 | | | | | | 0.36 | -46.08 | -41.25 | 4.83 |
| | | 10.77 | | | | | -60.81 | -61.83 | -60.64 | | 0.36 | -45.16 | -41.25 | 3.91 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | -58.99 | -59.25 | -61.85 | | | | | | 0.36 | -46.96 | -41.25 | 5.71 |
| | | 7.76 | | | | | -58.37 | -61.34 | -60.04 | | 0.36 | -46.85 | -41.25 | 5.60 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | -54.79 | -56.25 | -58.21 | | | | | | 0.36 | -45.07 | -41.25 | 3.82 |
| | | 6.00 | | | | | -56.65 | -57.64 | -56.61 | | 0.36 | -45.81 | -41.25 | 4.56 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 4 | 12.02 | -63.10 | -65.02 | -65.36 | -63.25 | | | | | 0.36 | -45.66 | -41.25 | 4.41 |
| | | 12.02 | | | | | -63.55 | -64.73 | -63.53 | -63.68 | 0.36 | -45.44 | -41.25 | 4.19 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | -61.22 | -61.92 | -62.28 | -59.81 | | | | | 0.36 | -45.81 | -41.25 | 4.56 |
| | | 9.01 | | | | | -59.92 | -61.53 | -60.61 | -60.47 | 0.36 | -45.20 | -41.25 | 3.95 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | -59.17 | -60.45 | -59.98 | -56.81 | | | | | 0.36 | -45.23 | -41.25 | 3.98 |
| | | 7.25 | | | | | -59.07 | -59.76 | -58.29 | -58.28 | 0.36 | -45.18 | -41.25 | 3.93 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | -58.81 | -60.42 | -60.94 | -57.09 | | | | | 0.36 | -46.67 | -41.25 | 5.42 |
| | | 6.00 | | | | | -59.24 | -60.07 | -58.80 | -58.96 | 0.36 | -46.86 | -41.25 | 5.61 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | -53.95 | -56.20 | | | | | | | 0.36 | -45.56 | -41.25 | 4.31 |
| | | 6.00 | | | | | -55.41 | -57.41 | | | 0.36 | -46.93 | -41.25 | 5.68 |
| **VHT/HE80, M0 to M9, M0 to M11-STBC** | **3** | **6.00** | **-54.48** | **-55.15** | **-56.12** | | | | | | **0.36** | **-44.07** | **-41.25** | **2.82** |
| | | **6.00** | | | | | **-54.83** | **-56.21** | **-55.56** | | **0.36** | **-44.37** | **-41.25** | **3.12** |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | -58.45 | -59.65 | -60.85 | -57.05 | | | | | 0.36 | -46.39 | -41.25 | 5.14 |
| | | 6.00 | | | | | -57.77 | -69.79 | -59.20 | -59.33 | 0.36 | -47.46 | -41.25 | 6.21 |

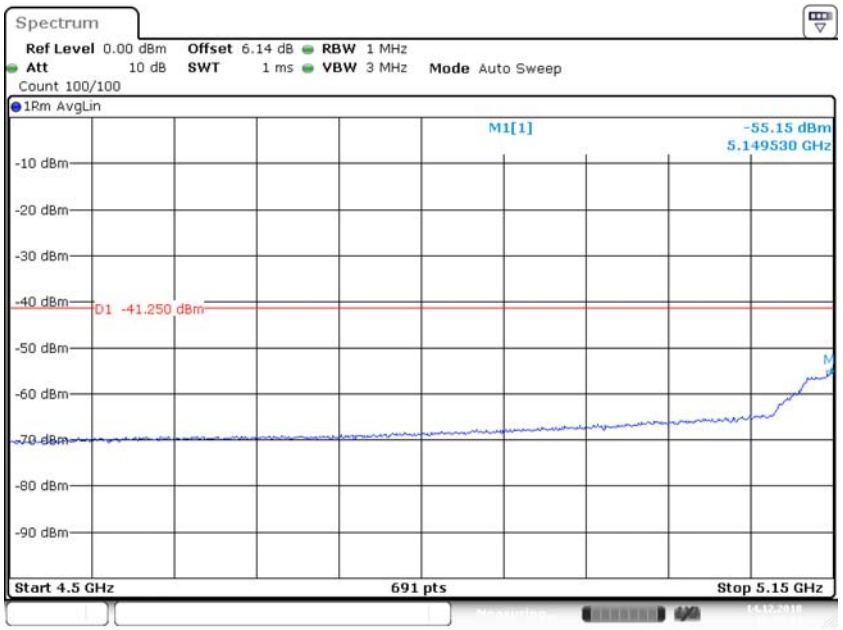
Please refer to the following plots for the worst case configuration

Ant-a



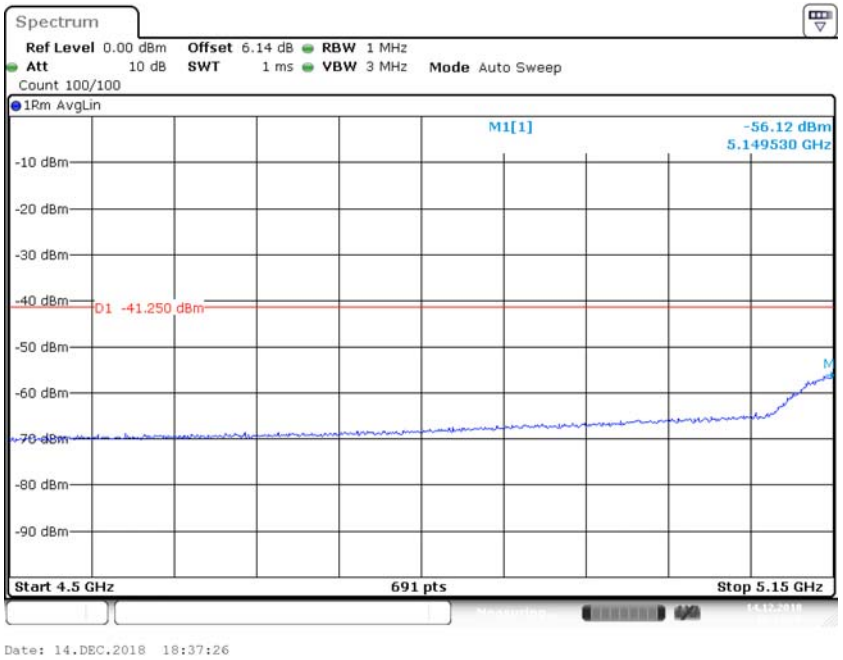

Date: 14.DEC.2018 18:09:52

Ant-b

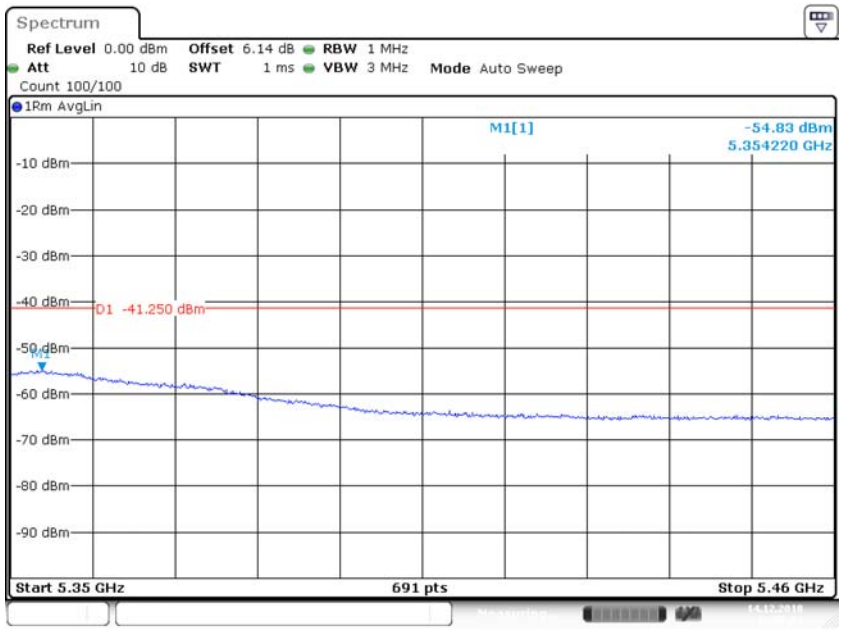



Date: 14.DEC.2018 18:25:02

Ant-c

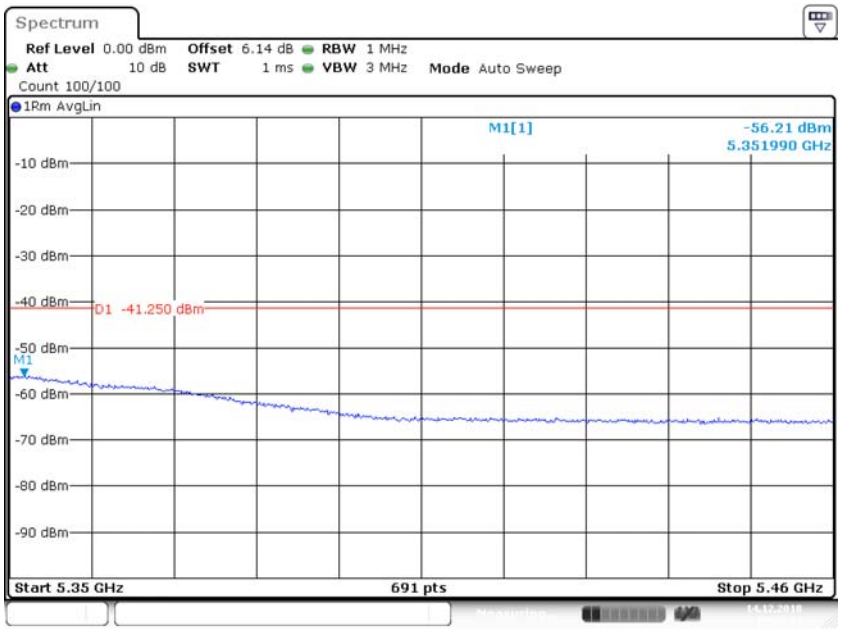

Spectrum
Ref Level 0.00 dBm Offset 6.14 dB RBW 1 MHz
Att 10 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Rm AvgLin
M1[1] -56.12 dBm
5.149530 GHz
-10 dBm
-20 dBm
-30 dBm
-40 dBm
D1 -41.250 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
Start 4.5 GHz
691 pts
Stop 5.15 GHz
Date: 14.DEC.2018 18:37:26

Ant-e



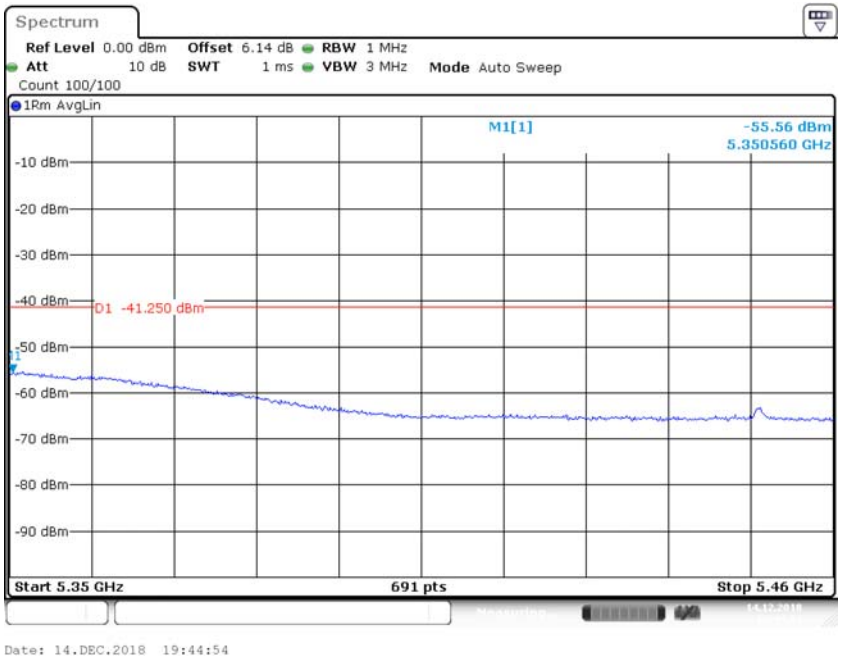

Date: 14.DEC.2018 19:07:01

Ant-f




Date: 14.DEC.2018 19:33:12

Ant-g


Spectrum
Ref Level 0.00 dBm Offset 6.14 dB RBW 1 MHz
Att 10 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Rm AvgLin
M1[1] -55.56 dBm
5.350560 GHz
-10 dBm
-20 dBm
-30 dBm
-40 dBm
D1 -41.250 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
Start 5.35 GHz
691 pts
Stop 5.46 GHz
Date: 14.DEC.2018 19:44:54

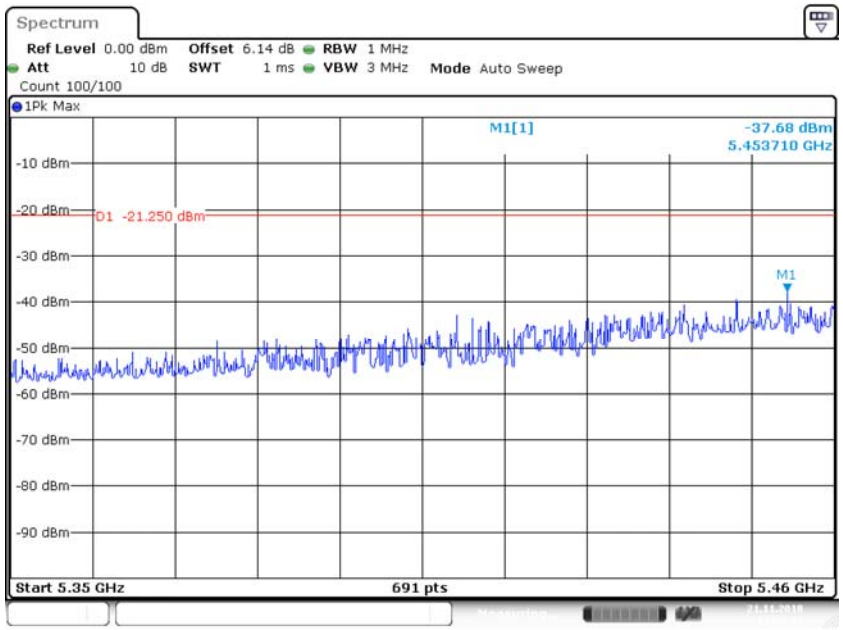
5570 MHz (Peak):

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 Band-edge (dBm) | Tx 2 Band-edge (dBm) | Tx 3 Band-edge (dBm) | Tx 4 Band-edge (dBm) | Tx 5 Band-edge (dBm) | Tx 6 Band-edge (dBm) | Tx 7 Band-edge (dBm) | Tx 8 Band-edge (dBm) | Total (dBm) | FCC Peak Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | -37.75 | | | | | | | | -31.75 | -21.25 | 10.50 |
| | | 6.00 | | | | | -37.46 | | | | -31.46 | -21.25 | 10.21 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 6.00 | -40.49 | -38.61 | | | | | | | -30.44 | -21.25 | 9.19 |
| | | 6.00 | | | | | -37.10 | -40.61 | | | -29.50 | -21.25 | 8.25 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | -39.84 | -38.41 | | | | | | | -30.06 | -21.25 | 8.81 |
| | | 6.00 | | | | | -38.24 | -39.85 | | | -29.96 | -21.25 | 8.71 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 6.00 | -41.48 | -40.25 | -40.96 | | | | | | -30.10 | -21.25 | 8.85 |
| | | 6.00 | | | | | -40.86 | -40.95 | -43.59 | | -30.85 | -21.25 | 9.60 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 6.00 | -41.76 | -43.90 | -43.52 | | | | | | -32.19 | -21.25 | 10.94 |
| | | 6.00 | | | | | -42.03 | -43.34 | -41.90 | | -31.60 | -21.25 | 10.35 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | -38.18 | -36.43 | -32.46 | | | | | | -24.24 | -21.25 | 2.99 |
| | | 6.00 | | | | | -41.96 | -40.03 | -40.03 | | -29.81 | -21.25 | 8.56 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 4 | 6.00 | -42.55 | -42.53 | -43.61 | -45.40 | | | | | -31.36 | -21.25 | 10.11 |
| | | 6.00 | | | | | -44.04 | -41.17 | -48.75 | -42.95 | -31.45 | -21.25 | 10.20 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 6.00 | -43.38 | -44.80 | -44.46 | -45.02 | | | | | -32.35 | -21.25 | 11.10 |
| | | 6.00 | | | | | -41.69 | -40.74 | -39.43 | -45.49 | -29.31 | -21.25 | 8.06 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 6.00 | -42.28 | -40.93 | -40.76 | -36.25 | | | | | -27.36 | -21.25 | 6.11 |
| | | 6.00 | | | | | -41.70 | -41.65 | -42.28 | -43.67 | -30.23 | -21.25 | 8.98 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | -41.66 | -42.20 | -40.86 | -39.63 | | | | | -28.96 | -21.25 | 7.71 |
| | | 6.00 | | | | | -42.26 | -41.42 | -42.06 | -43.67 | -30.26 | -21.25 | 9.01 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | -44.53 | -39.81 | | | | | | | -29.54 | -21.25 | 8.29 |
| | | 9.01 | | | | | -41.85 | -39.47 | | | -28.48 | -21.25 | 7.23 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 2 | 6.00 | -40.72 | -37.46 | | | | | | | -29.78 | -21.25 | 8.53 |
| | | 6.00 | | | | | -38.09 | -43.40 | | | -30.97 | -21.25 | 9.72 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | -42.00 | -45.18 | -46.67 | | | | | | -28.63 | -21.25 | 7.38 |
| | | 10.77 | | | | | -42.12 | -42.28 | -43.91 | | -27.16 | -21.25 | 5.91 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | -42.87 | -42.97 | -45.44 | | | | | | -31.08 | -21.25 | 9.83 |
| | | 7.76 | | | | | -42.90 | -43.64 | -42.66 | | -30.51 | -21.25 | 9.26 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | **3** | **6.00** | **-37.68** | **-32.14** | **-33.20** | | | | | | **-22.99** | **-21.25** | **1.74** |
| | | 6.00 | | | | | -41.90 | -41.04 | -39.30 | | -29.84 | -21.25 | 8.59 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 4 | 12.02 | -46.36 | -52.80 | -51.55 | -52.80 | | | | | -31.89 | -21.25 | 10.64 |
| | | **12.02** | | | | | **-45.27** | **-41.94** | **-43.69** | **-45.93** | **-25.89** | **-21.25** | **4.64** |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | -42.47 | -46.90 | -46.36 | -47.77 | | | | | -30.31 | -21.25 | 9.06 |
| | | 9.01 | | | | | -41.50 | -41.31 | -41.59 | -43.38 | -26.84 | -21.25 | 5.59 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | -44.44 | -38.70 | -40.63 | -35.87 | | | | | -25.62 | -21.25 | 4.37 |
| | | 7.25 | | | | | -41.53 | -43.16 | -43.19 | -43.73 | -29.55 | -21.25 | 8.30 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | -41.54 | -41.18 | -40.22 | -38.77 | | | | | -28.27 | -21.25 | 7.02 |
| | | 6.00 | | | | | -41.31 | -43.39 | -40.38 | -45.50 | -30.20 | -21.25 | 8.95 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | -37.57 | -38.30 | | | | | | | -28.91 | -21.25 | 7.66 |
| | | 6.00 | | | | | -37.23 | -41.98 | | | -29.97 | -21.25 | 8.72 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | -43.01 | -42.57 | -44.24 | | | | | | -32.45 | -21.25 | 11.20 |
| | | 6.00 | | | | | -41.83 | -42.24 | -41.49 | | -31.07 | -21.25 | 9.82 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | -42.76 | -42.37 | -43.85 | -44.22 | | | | | -31.21 | -21.25 | 9.96 |
| | | 6.00 | | | | | -41.46 | -41.65 | -42.26 | -42.97 | -30.02 | -21.25 | 8.77 |

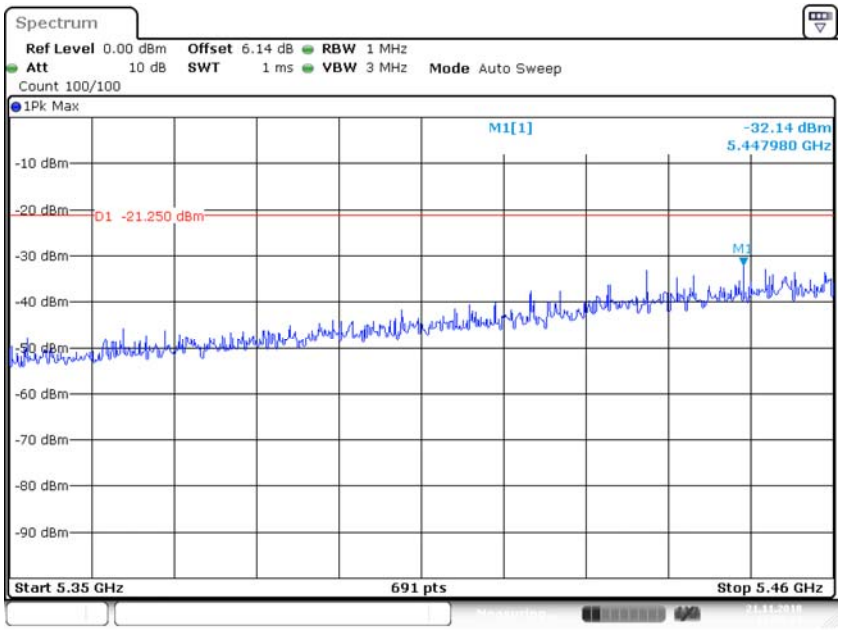
Please refer to the following plots for the worst case configuration

Ant-a



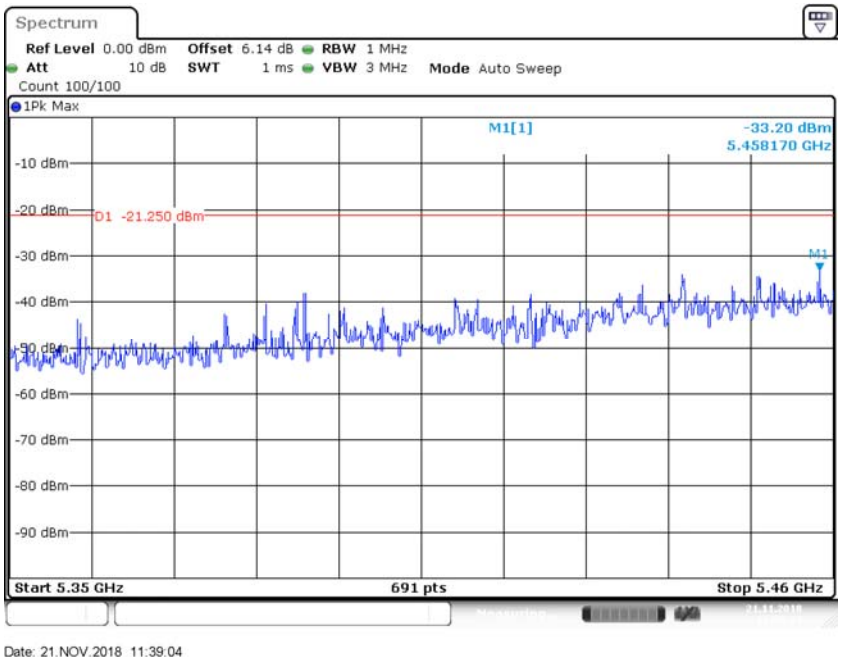

Date: 21.NOV.2018 11:20:13

Ant-b

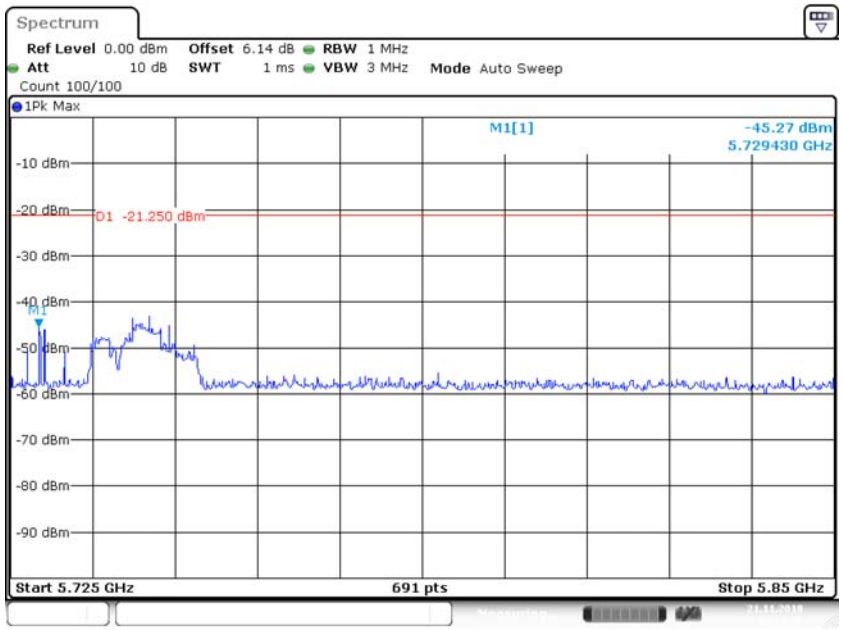



Date: 21.NOV.2018 11:30:16

Ant-c

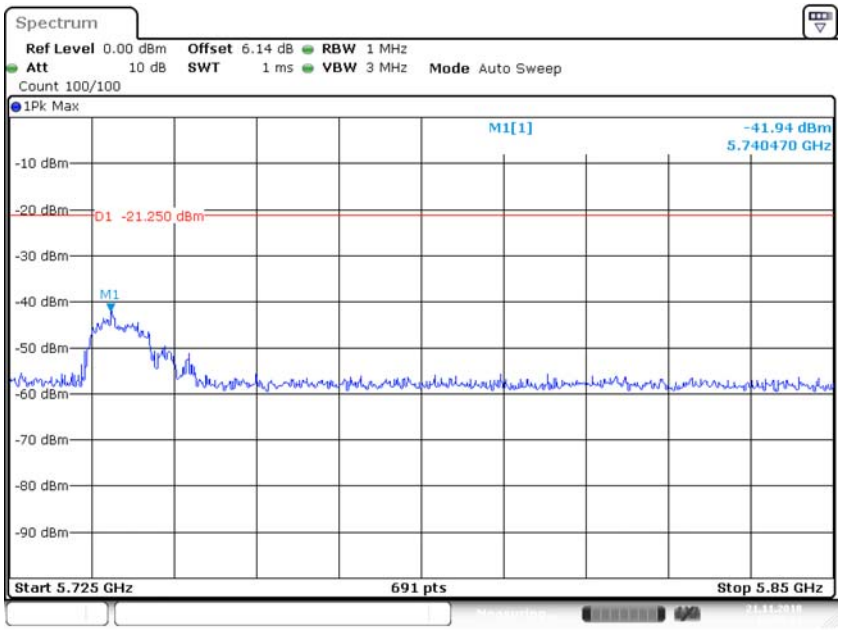

Spectrum
Ref Level 0.00 dBm Offset 6.14 dB RBW 1 MHz
Att 10 dB SWT 1 ms VBW 3 MHz Mode Auto Sweep
Count 100/100
1Pk Max
M1[1] -33.20 dBm
5.458170 GHz
D1 -21.250 dBm
M1
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
Start 5.35 GHz
691 pts
Stop 5.46 GHz
Date: 21.NOV.2018 11:39:04

Ant-e



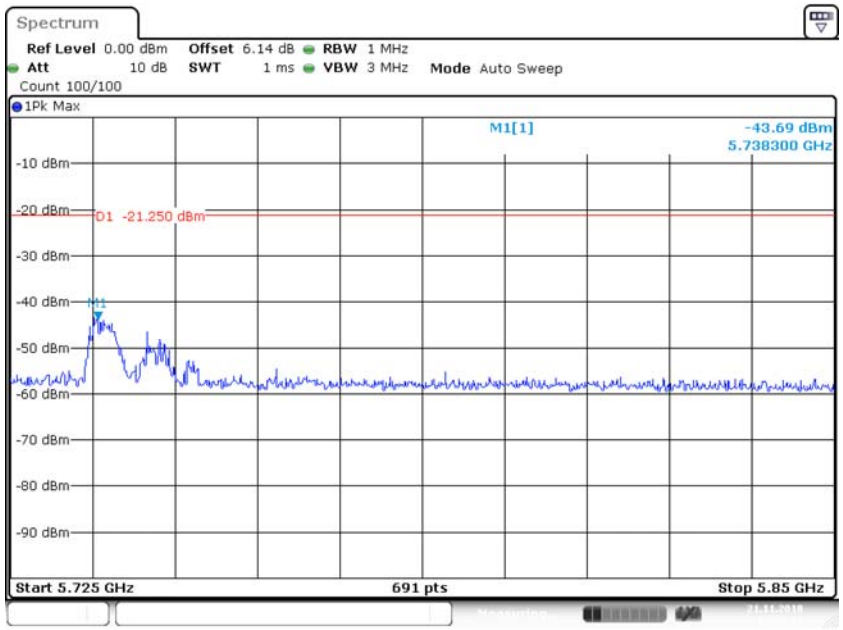

Date: 21.NOV.2018 12:13:06

Ant-f



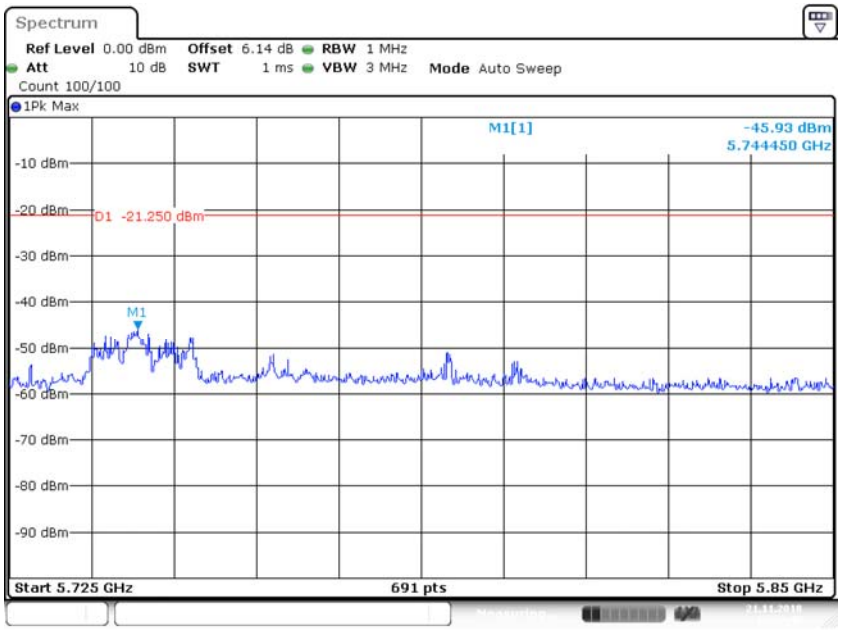

Date: 21.NOV.2018 12:25:12

Ant-g




Date: 21.NOV.2018 12:34:12

Ant-h




Date: 21.NOV.2018 12:47:47

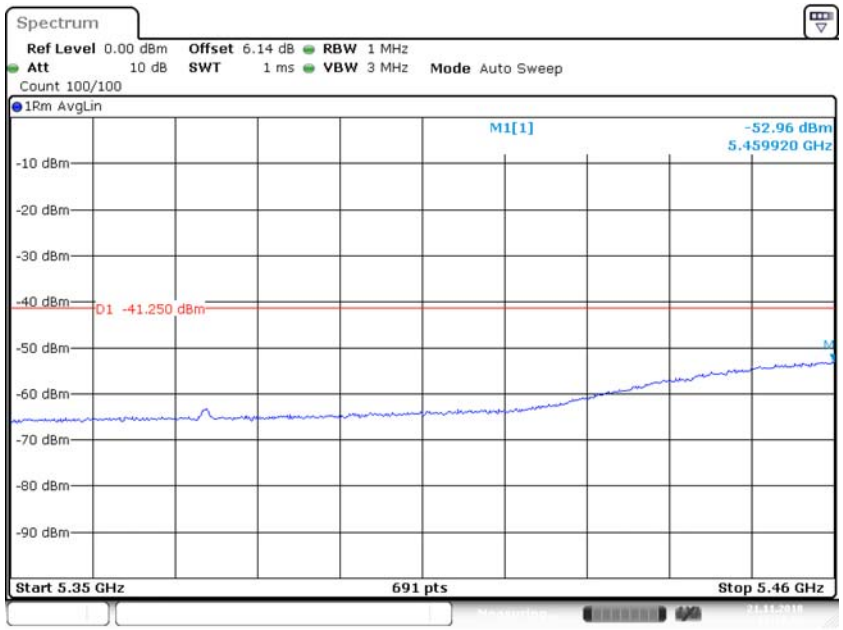
5570 MHz (Average):

| Mode | Tx paths | correlated antenna gain (dBi) | Tx 1 Band-edge (dBm) | Tx 2 Band-edge (dBm) | Tx 3 Band-edge (dBm) | Tx 4 Band-edge (dBm) | Tx 5 Band-edge (dBm) | Tx 6 Band-edge (dBm) | Tx 7 Band-edge (dBm) | Tx 8 Band-edge (dBm) | DCCF (dB) | Total (dBm) | FCC Average Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 1 | 6.00 | -51.93 | | | | | | | | 0.36 | -45.57 | -41.25 | 4.32 |
| | | 6.00 | | | | | -62.07 | | | | 0.36 | -55.71 | -41.25 | 14.46 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 2 | 6.00 | -53.33 | -50.31 | | | | | | | 0.36 | -42.19 | -41.25 | 0.94 |
| | | 6.00 | | | | | -62.38 | -62.43 | | | 0.36 | -53.03 | -41.25 | 11.78 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 2 | 6.00 | -53.04 | -50.20 | | | | | | | 0.36 | -42.02 | -41.25 | 0.77 |
| | | 6.00 | | | | | -62.39 | -62.53 | | | 0.36 | -53.09 | -41.25 | 11.84 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 3 | 6.00 | -55.87 | -53.18 | -54.19 | | | | | | 0.36 | -43.15 | -41.25 | 1.90 |
| | | 6.00 | | | | | -64.34 | -62.13 | -60.97 | | 0.36 | -51.14 | -41.25 | 9.89 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 3 | 6.00 | -58.36 | -55.40 | -56.16 | | | | | | 0.36 | -45.34 | -41.25 | 4.09 |
| | | 6.00 | | | | | -65.11 | -62.37 | -63.75 | | 0.36 | -52.47 | -41.25 | 11.22 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 3 | 6.00 | -56.54 | -52.92 | -54.06 | | | | | | 0.36 | -43.13 | -41.25 | 1.88 |
| | | 6.00 | | | | | -63.67 | -62.46 | -61.73 | | 0.36 | -51.42 | -41.25 | 10.17 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1 | 4 | 6.00 | -58.04 | -55.94 | -56.61 | -57.03 | | | | | 0.36 | -44.46 | -41.25 | 3.21 |
| | | 6.00 | | | | | -64.94 | -64.61 | -63.50 | -59.40 | 0.36 | -50.10 | -41.25 | 8.85 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2 | 4 | 6.00 | -58.33 | -56.13 | -56.38 | -56.96 | | | | | 0.36 | -44.49 | -41.25 | 3.24 |
| | | 6.00 | | | | | -65.03 | -64.40 | -63.34 | -59.64 | 0.36 | -50.16 | -41.25 | 8.91 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3 | 4 | 6.00 | -58.77 | -56.55 | -56.25 | -56.94 | | | | | 0.36 | -44.64 | -41.25 | 3.39 |
| | | 6.00 | | | | | -64.33 | -63.87 | -63.35 | -59.95 | 0.36 | -50.11 | -41.25 | 8.86 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4 | 4 | 6.00 | -58.75 | -56.99 | -56.32 | -57.54 | | | | | 0.36 | -44.93 | -41.25 | 3.68 |
| | | 6.00 | | | | | -64.67 | -64.07 | -63.35 | -59.95 | 0.36 | -50.20 | -41.25 | 8.95 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 2 | 9.01 | -58.44 | -53.60 | | | | | | | 0.36 | -43.00 | -41.25 | 1.75 |
| | | 9.01 | | | | | -65.21 | -65.23 | | | 0.36 | -52.84 | -41.25 | 11.59 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | **2** | **6.00** | **-52.96** | **-49.98** | | | | | | | **0.36** | **-41.85** | **-41.25** | **0.60** |
| | | 6.00 | | | | | -62.37 | -62.32 | | | 0.36 | -52.97 | -41.25 | 11.72 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 3 | 10.77 | -60.21 | -56.97 | -58.62 | | | | | | 0.36 | -42.50 | -41.25 | 1.25 |
| | | 10.77 | | | | | -65.32 | -64.99 | -64.23 | | 0.36 | -48.92 | -41.25 | 7.67 |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 3 | 7.76 | -58.03 | -54.72 | -56.22 | | | | | | 0.36 | -43.23 | -41.25 | 1.98 |
| | | 7.76 | | | | | -65.00 | -64.93 | -63.82 | | 0.36 | -51.66 | -41.25 | 10.41 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 3 | 6.00 | -56.51 | -51.85 | -53.65 | | | | | | 0.36 | -42.47 | -41.25 | 1.22 |
| | | 6.00 | | | | | -63.54 | -61.60 | -61.90 | | 0.36 | -51.14 | -41.25 | 9.89 |
| VHT/HE80, M0.1 to M9.1, M0.1 to M11.1-BF | 4 | 12.02 | -64.99 | -64.22 | -62.89 | -64.08 | | | | | 0.36 | -45.58 | -41.25 | 4.33 |
| | | **12.02** | | | | | **-67.14** | **-66.86** | **-65.26** | **-62.73** | **0.36** | **-46.72** | **-41.25** | **5.47** |
| VHT/HE80, M0.2 to M9.2, M0.2 to M11.2-BF | 4 | 9.01 | -60.32 | -57.94 | -57.96 | -59.13 | | | | | 0.36 | -43.34 | -41.25 | 2.09 |
| | | 9.01 | | | | | -65.05 | -64.78 | -63.56 | -59.66 | 0.36 | -47.27 | -41.25 | 6.02 |
| VHT/HE80, M0.3 to M9.3, M0.3 to M11.3-BF | 4 | 7.25 | -59.01 | -55.81 | -55.62 | -56.89 | | | | | 0.36 | -43.01 | -41.25 | 1.76 |
| | | 7.25 | | | | | -64.73 | -64.00 | -63.43 | -69.03 | 0.36 | -51.21 | -41.25 | 9.96 |
| VHT/HE80, M0.4 to M9.4, M0.4 to M11.4-BF | 4 | 6.00 | -58.99 | -56.11 | -55.87 | -57.00 | | | | | 0.36 | -44.45 | -41.25 | 3.20 |
| | | 6.00 | | | | | -64.93 | -64.07 | -63.31 | -67.40 | 0.36 | -52.30 | -41.25 | 11.05 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 2 | 6.00 | -53.72 | -49.98 | | | | | | | 0.36 | -42.09 | -41.25 | 0.84 |
| | | 6.00 | | | | | -62.76 | -62.42 | | | 0.36 | -53.22 | -41.25 | 11.97 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 3 | 6.00 | -58.18 | -54.47 | -56.02 | | | | | | 0.36 | -44.84 | -41.25 | 3.59 |
| | | 6.00 | | | | | -64.87 | -64.73 | -63.67 | | 0.36 | -53.26 | -41.25 | 12.01 |
| VHT/HE80, M0 to M9, M0 to M11-STBC | 4 | 6.00 | -58.71 | -55.15 | -56.05 | -56.77 | | | | | 0.36 | -44.10 | -41.25 | 2.85 |
| | | 6.00 | | | | | -64.93 | -62.22 | -60.75 | -59.64 | 0.36 | -49.09 | -41.25 | 7.84 |

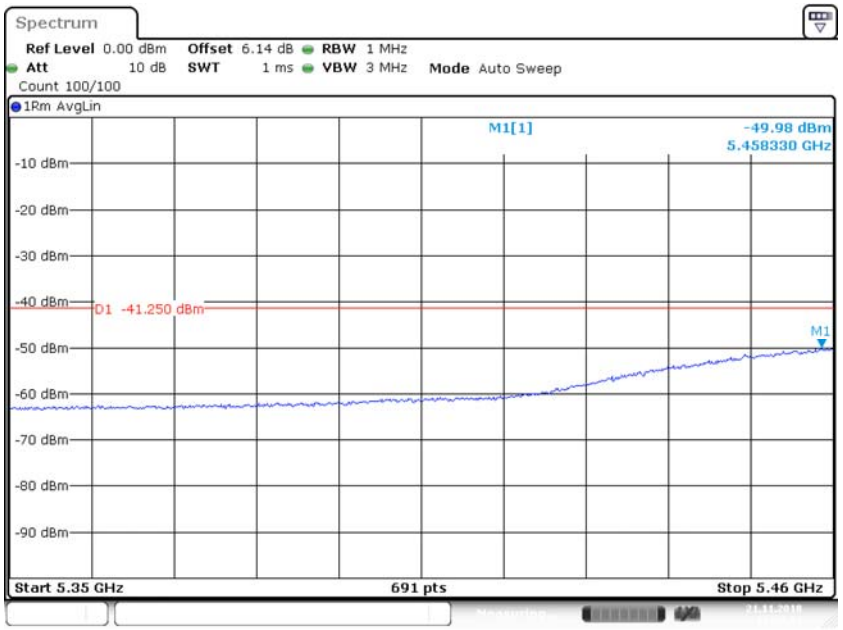
Please refer to the following plots for the worst case configuration

Ant-a



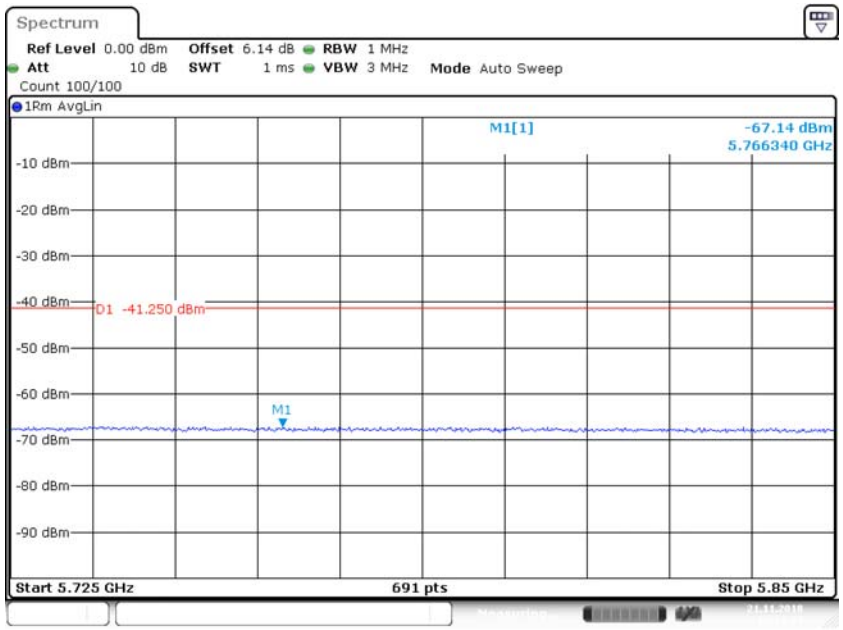

Date: 21.NOV.2018 11:18:52

Ant-b



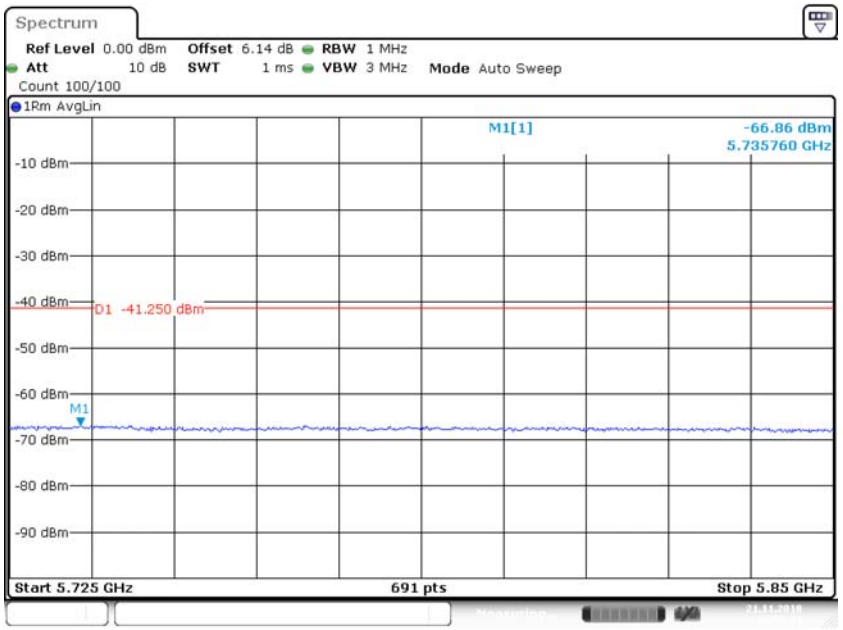

Date: 21.NOV.2018 11:28:55

Ant-e



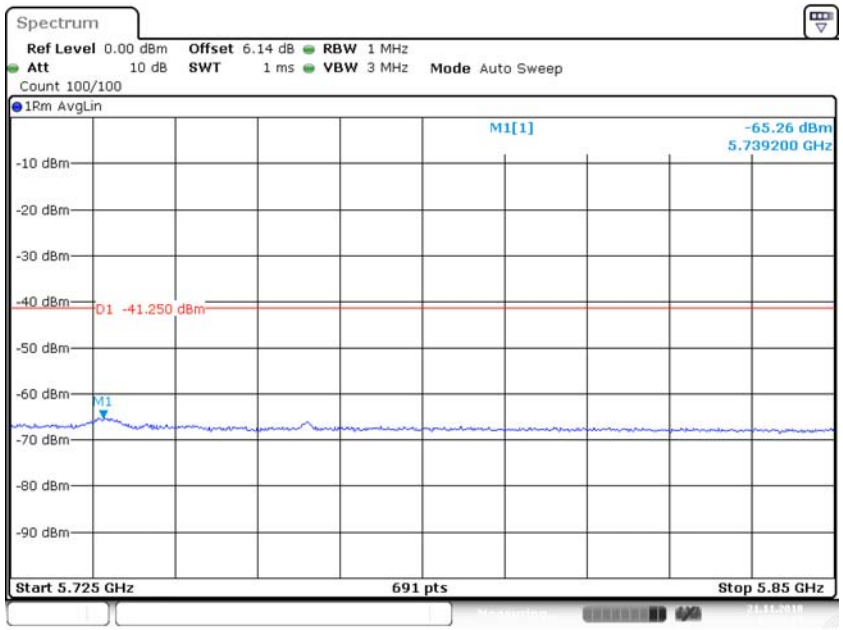

Date: 21.NOV.2018 12:13:09

Ant-f



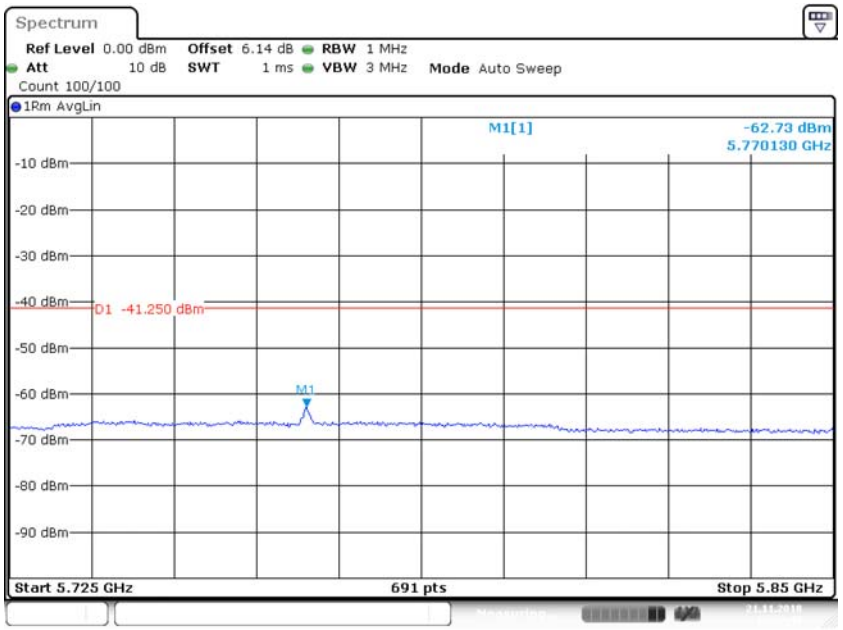

Date: 21.NOV.2018 12:25:16

Ant-g




Date: 21.NOV.2018 12:34:15

Ant-h

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