# FCC REPORT
## (UNII)

| | |
|---|---|
| **Applicant:** | Shenzhen Youmi Intelligent Technology Co., Ltd. |
| **Address of Applicant:** | 406-407 Jinqi Zhigu Building, 4/F, 1 Tangling Road, Nanshan District, Shenzhen City, China. |

**Equipment Under Test (EUT)**

| | |
|---|---|
| Product Name: | Smart phone |
| Model No.: | A9 Pro, A9, A9S, A11 Pro, A11 Pro Max |
| Trade mark: | UMIDIGI |
| **FCC ID:** | 2ATZ4A9P11PM |
| **Applicable standards:** | FCC CFR Title 47 Part 15 Subpart E Section 15.407 |
| **Date of sample receipt:** | 30 Oct., 2020 |
| **Date of Test:** | 31 Oct., to 26 Nov., 2020 |
| **Date of report issued:** | 01 Dec., 2020 |
| **Test Result:** | PASS* |

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

## 2 Version

| Version No. | Date | Description |
|---|---|---|
| *00* | *01 Dec., 2020* | *Original* |
| | | |
| | | |
| | | |
| | | |

***Tested by:*** Mike.ou ***Date:*** *01 Dec., 2020*

***Test Engineer***

***Reviewed by:*** Winner Zhang ***Date:*** *01 Dec., 2020*

***Project Engineer***

# 3 Contents

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# 4 Test Summary

| Test Item | Section in CFR 47 | Test Result |
|---|---|---|
| Antenna requirement | 15.203 & 15.407 (a) | Pass |
| AC Power Line Conducted Emission | 15.207 | Pass |
| Conducted Peak Output Power | 15.407 (a) (1) (iv) | Pass |
| 26dB Occupied Bandwidth | 15.407 (a) (12) | Pass |
| Power Spectral Density | 15.407 (a) (1) (iv) | Pass |
| Band Edge | 15.407(b) | Pass |
| Spurious Emission | 15.407 (b) & 15.205 & 15.209 | Pass |
| Frequency Stability | 15.407(g) | Pass |

***Remark:***

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *N/A: Not Applicable.*
3. *The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).*

| | |
|---|---|
| ***Test Method:*** | *ANSI C63.10-2013*<br>*KDB 789033 D02 General UNII Test Procedures New Rules v02r01* |

# 5 General Information

## 5.1 Client Information

| | |
|---|---|
| Applicant: | Shenzhen Youmi Intelligent Technology Co., Ltd. |
| Address: | 406-407 Jinqi Zhigu Building, 4/F, 1 Tangling Road, Nanshan District, Shenzhen City, China. |
| Manufacturer: | Shenzhen Youmi Intelligent Technology Co., Ltd |
| Address: | 406-407 Jinqi Zhigu Building, 4/F, 1 Tangling Road, Nanshan District, Shenzhen City, China. |
| Factory: | Shenzhen Ying Keda Technology Co. Ltd. |
| Address: | 3rd and 4th floors, No. 88 Silian Xingwang Road Henggang street, Longgang District, Shenzhen China |

## 5.2 General Description of E.U.T.

| | | |
|---|---|---|
| Product Name: | Smart phone | |
| Model No.: | A9 Pro, A9, A9S, A11 Pro, A11 Pro Max | |
| Operation Frequency: | Band 1: 5150MHz-5250MHz | |
| Channel numbers: | Band 1: | 802.11a/802.11n20: 4 802.11n40: 2 802.11ac: 1 |
| Channel separation: | 20MHz: | 802.11a/802.11n-HT20/802.11ac-HT20 |
| | 40MHz: | 802.11n-HT40/802.11ac-HT40 |
| | 80MHz: | 802.11ac-HT80 |
| Modulation technology (IEEE 802.11a): | BPSK, QPSK, 16-QAM, 64-QAM | |
| Modulation technology (IEEE 802.11n): | BPSK, QPSK, 16-QAM, 64-QAM | |
| Modulation technology (IEEE 802.11ac): | BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM | |
| Data speed (IEEE 802.11a): | 6Mbps, 9Mbps,12Mbps,18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps | |
| Data speed (IEEE 802.11n20): | MCS0: 6.5Mbps, MCS1:13Mbps,MCS2:19.5Mbps, MCS3:26Mbps, MCS4:39Mbps, MCS5:52Mbps, MCS6:58.5Mbps, MCS7:65Mbps | |
| Data speed (IEEE 802.11n40): | MCS0:15Mbps, MCS1:30Mbps, MCS2:45Mbps, MCS3:60Mbps, MCS4:90Mbps, MCS5:120Mbps, MCS6:135Mbps, MCS7:150Mbps | |
| Data speed (IEEE 802.11ac): | Up to 433.3Mbps | |
| Antenna Type: | Internal Antenna | |
| Antenna gain: | 1.1 dBi | |
| Power supply: | Rechargeable Li-polymer Battery DC3.85V-4150mAh | |
| AC adapter: | Model: HJ-0502000W2-US<br>Input: AC100-240V, 50/60Hz, 0.3A<br>Output: DC 5.0V, 2.0A | |
| Remark: | Model No.: A9 Pro, A9, A9S, A11 Pro, A11 Pro Max were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name. | |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. | |

| Operation Frequency each of channel | | | | | |
|---|---|---|---|---|---|
| Band 1 | | | | | |
| 802.11a/802.11n/ac-HT20 | | 802.11n/ac-HT40 | | 802.11ac-HT80 | |
| Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 36 | 5180MHz | 38 | 5190MHz | 42 | 5210MHz |
| 40 | 5200MHz | 46 | 5230MHz | | |
| 44 | 5220MHz | | | | |
| 48 | 5240MHz | | | | |
| 161 | 5805MHz | | | | |
| 165 | 5825MHz | | | | |

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Band 1 | | | | | |
|---|---|---|---|---|---|
| 802.11a/802.11n/ac-HT20 | | 802.11n/ac-HT40 | | 802.11ac-HT80 | |
| Channel | Frequency | Channel | Frequency | Channel | Frequency |
| Lowest | 5180MHz | Lowest | 5190MHz | Middle | 5210MHz |
| Middle | 5200MHz | Highest | 5230MHz | | |
| Highest | 5240MHz | | | | |

## 5.3 Test environment and test mode

| **Operating Environment:** | |
|---|---|
| Temperature: | Normal: 20℃, Extreme: Lowest -30℃ ~ Highest+50℃ |
| Humidity: | 54 % RH |
| Atmospheric Pressure: | 1010 mbar |
| Voltage: | Nominal: 3.85Vdc, Extreme: Low 3.5 Vdc, High 4.40 Vdc |
| **Test mode:** | |
| Continuously transmitting mode | Keep the EUT in 100% duty cycle transmitting with modulation. |
| We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows: | |
| **Per-scan all kind of data rate, and found the follow list were the worst case.** | |
| Mode | Data rate |
| 802.11a | 6 Mbps |
| 802.11n/ac20 | 6.5 Mbps |
| 802.11n/ac40 | 13.5 Mbps |
| 802.11ac80 | 29.3 Mbps |

## 5.4 Description of Support Units

| Manufacturer | Description | Model | Serial Number | FCC ID/DoC |
|---|---|---|---|---|
| The EUT has been tested as an independent unit. | | | | |

## 5.5 Measurement Uncertainty

| Parameters | Expanded Uncertainty |
|---|---|
| Conducted Emission (9kHz ~ 30MHz) | ±1.60 dB (k=2) |
| Radiated Emission (9kHz ~ 30MHz) | ±3.12 dB (k=2) |
| Radiated Emission (30MHz ~ 1000MHz) | ±4.32 dB (k=2) |
| Radiated Emission (1GHz ~ 18GHz) | ±5.16 dB (k=2) |
| Radiated Emission (18GHz ~ 40GHz) | ±3.20 dB (k=2) |

## 5.6 Additions to, deviations, or exclusions from the method

No

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

This is an original grant, no related submittals and grants.

## 5.8 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

## 5.9 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.110~116, Building B, Jinyuan Business Building, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

## 5.10 Test Instruments list

| Test Equipment | Manufacturer | Model No. | Serial No. | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
|---|---|---|---|---|---|
| 3m SAC | SAEMC | 9m*6m*6m | 966 | 07-22-2020 | 07-21-2021 |
| BiConiLog Antenna | SCHWARZBECK | VULB9163 | 497 | 03-07-2020 | 03-06-2021 |
| Biconical Antenna | SCHWARZBECK | VUBA9117 | 359 | 06-22-2020 | 06-21-2021 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 916 | 03-07-2020 | 03-06-2021 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 1805 | 06-22-2020 | 06-21-2021 |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | BBHA9170582 | 11-18-2019 | 11-17-2020 |
| | | | | 11-18-2020 | 11-17-2021 |
| EMI Test Software | AUDIX | E3 | Version: 6.110919b | | |
| Pre-amplifier | HP | 8447D | 2944A09358 | 03-07-2020 | 03-06-2021 |
| Pre-amplifier | CD | PAP-1G18 | 11804 | 03-07-2020 | 03-06-2021 |
| Spectrum analyzer | Rohde & Schwarz | FSP30 | 101454 | 03-05-2020 | 03-04-2021 |
| Spectrum analyzer | Rohde & Schwarz | FSP40 | 100363 | 11-18-2019 | 11-17-2020 |
| | | | | 11-18-2020 | 11-17-2021 |
| EMI Test Receiver | Rohde & Schwarz | ESRP7 | 101070 | 03-05-2020 | 03-04-2021 |
| Spectrum Analyzer | Agilent | N9020A | MY50510123 | 11-18-2019 | 11-17-2020 |
| | | | | 11-18-2020 | 11-17-2021 |
| Signal Generator | Rohde & Schwarz | SMX | 835454/016 | 03-05-2020 | 03-04-2021 |
| Signal Generator | R&S | SMR20 | 1008100050 | 03-05-2020 | 03-04-2021 |
| RF Switch Unit | MWRFTEST | MW200 | N/A | N/A | N/A |
| Test Software | MWRFTEST | MTS8200 | Version: 2.0.0.0 | | |
| Cable | ZDECL | Z108-NJ-NJ-81 | 1608458 | 03-07-2020 | 03-06-2021 |
| Cable | MICRO-COAX | MFR64639 | K10742-5 | 03-07-2020 | 03-06-2021 |
| Cable | SUHNER | SUCOFLEX100 | 58193/4PE | 03-07-2020 | 03-06-2021 |
| DC Power Supply | XinNuoEr | WYK-10020K | 1409050110020 | 09-25-2019 | 09-24-2020 |
| | | | | 09-25-2020 | 09-24-2021 |
| Temperature Humidity Chamber | HengPu | HPGDS-500 | 20140828008 | 11-01-2019 | 10-31-2020 |
| | | | | 11-01-2020 | 10-31-2021 |
| Simulated Station | Rohde & Schwarz | CMW500 | 140493 | 07-22-2020 | 07-21-2021 |

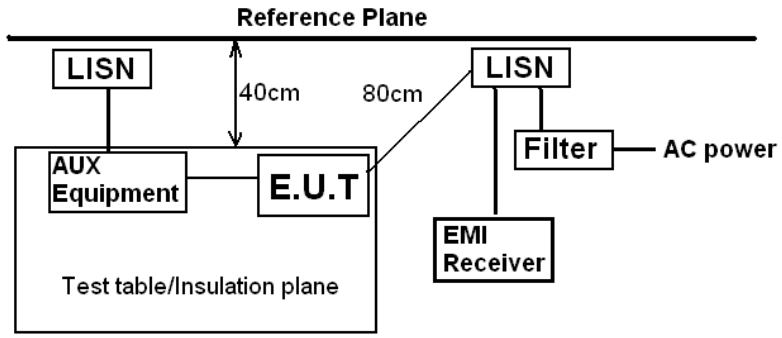
| **Conducted Emission:** | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Date (mm-dd-yy)** | **Cal. Due date (mm-dd-yy)** |
| EMI Test Receiver | Rohde & Schwarz | ESCI | 101189 | 03-05-2020 | 03-04-2021 |
| Pulse Limiter | SCHWARZBECK | OSRAM 2306 | 9731 | 03-05-2020 | 03-04-2021 |
| LISN | CHASE | MN2050D | 1447 | 03-05-2020 | 03-04-2021 |
| LISN | Rohde & Schwarz | ESH3-Z5 | 8438621/010 | 07-21-2020 | 07-20-2021 |
| Cable | HP | 10503A | N/A | 03-05-2020 | 03-04-2021 |
| EMI Test Software | AUDIX | E3 | Version: 6.110919b | | |

# 6 Test results and Measurement Data

## 6.1 Antenna requirement

| Standard requirement: | FCC Part15 E Section 15.203 /407(a) |
|---|---|
| 15.203 requirement:<br>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, 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.<br>This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded. | |
| **E.U.T Antenna:** | |
| The Wi-Fi antenna is an Internal antenna which cannot replace by end-user, the best case gain of the antenna is 1.1 dBi. | |

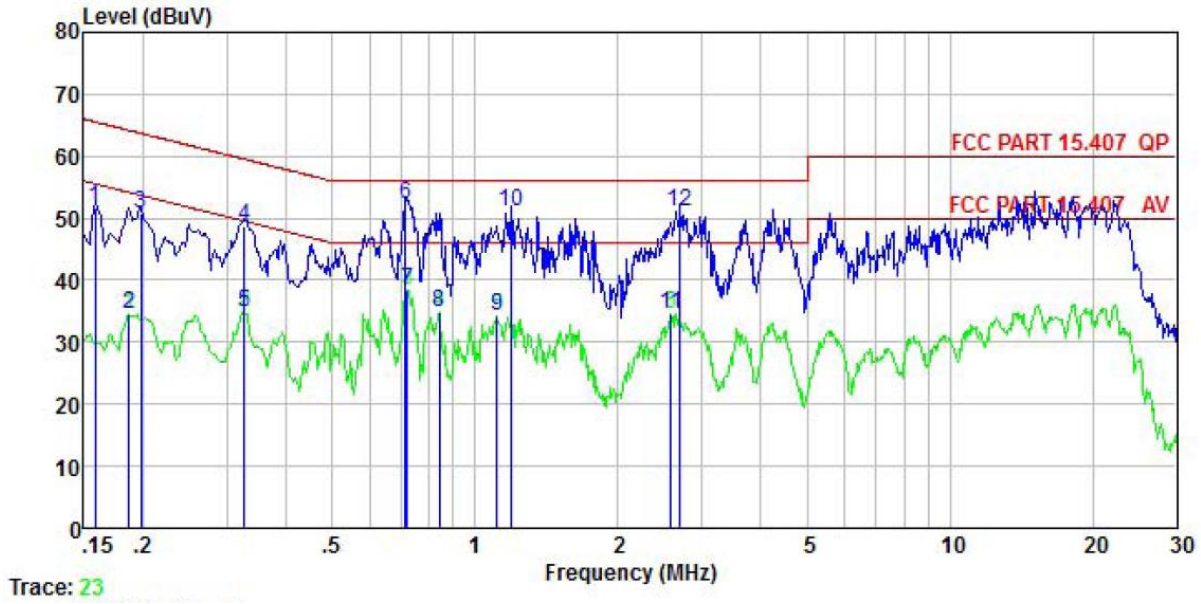
## 6.2 Conducted Emission

<table>
<tr><td>Test Requirement:</td><td colspan="3">FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="3">150kHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td colspan="3">Class B</td></tr>
<tr><td>Receiver setup:</td><td colspan="3">RBW=9kHz, VBW=30kHz</td></tr>
<tr><td rowspan="6">Limit:</td><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td></td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>0.15-0.5</td></tr>
<tr><td>0.5-5</td><td>56</td><td>0.5-5</td></tr>
<tr><td>5-30</td><td>60</td><td>5-30</td></tr>
<tr><td colspan="3">* Decreases with the logarithm of the frequency.</td></tr>
<tr><td>Test procedure</td><td colspan="3">1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). It provides a 50ohm/50uH coupling impedance for the measuring equipment.<br>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).<br>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10(latest version) on conducted measurement.</td></tr>
<tr><td>Test setup:</td><td colspan="3"> 

Remark:<br>E.U.T: Equipment Under Test<br>LISN: Line Impedence Stabilization Network<br>Test table height=0.8m</td></tr>
<tr><td>Test Instruments:</td><td colspan="3">Refer to section 5.10 for details</td></tr>
<tr><td>Test mode:</td><td colspan="3">Refer to section 5.3 for details.</td></tr>
<tr><td>Test results:</td><td colspan="3">Passed</td></tr>
</table>

**Measurement Data:**

| | | | |
|---|---|---|---|
| **Product name:** | Smart phone | **Product model:** | A9 Pro |
| **Test by:** | Mike | **Test mode:** | 5G Wi-Fi Tx mode |
| **Test frequency:** | 150 kHz ~ 30 MHz | **Phase:** | Line |
| **Test voltage:** | AC 120 V/60 Hz | **Environment:** | Temp: 22.5℃ Huni: 55% |

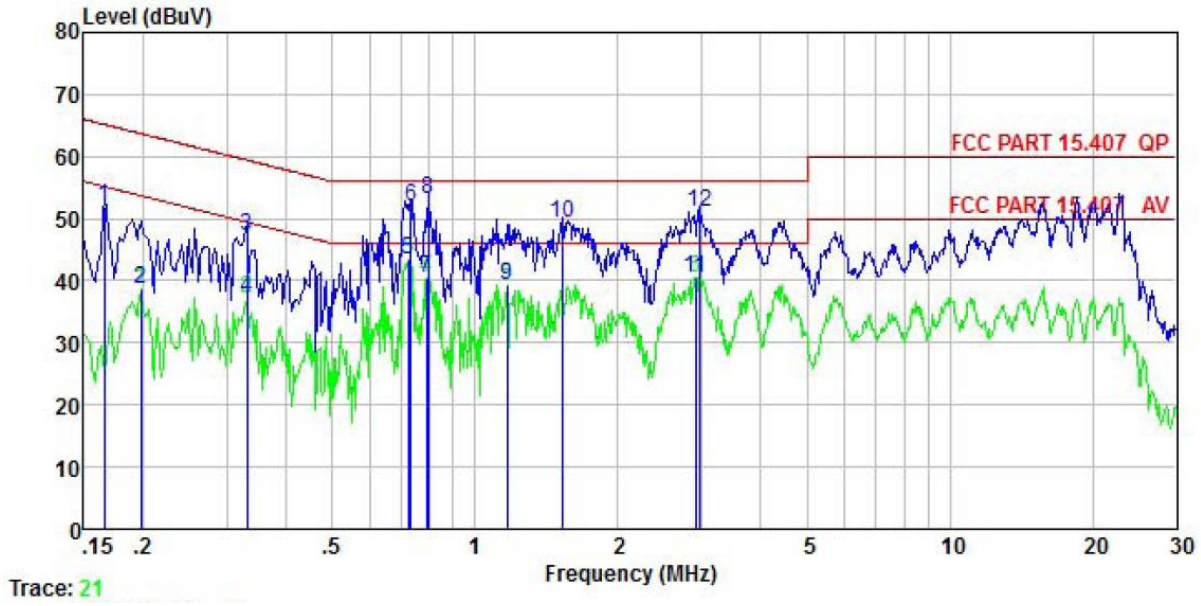



| | Freq | Read Level | LISN Factor | Aux Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.158 | 41.68 | -0.57 | -0.07 | 10.77 | 51.81 | 65.56 | -13.75 | QP |
| 2 | 0.186 | 24.39 | -0.59 | -0.13 | 10.76 | 34.43 | 54.20 | -19.77 | Average |
| 3 | 0.198 | 40.88 | -0.59 | -0.16 | 10.76 | 50.89 | 63.71 | -12.82 | QP |
| 4 | 0.327 | 38.60 | -0.53 | -0.05 | 10.73 | 48.75 | 59.53 | -10.78 | QP |
| 5 | 0.327 | 24.62 | -0.53 | -0.05 | 10.73 | 34.77 | 49.53 | -14.76 | Average |
| 6 | 0.712 | 42.23 | -0.53 | -0.36 | 10.78 | 52.12 | 56.00 | -3.88 | QP |
| 7 | 0.720 | 28.60 | -0.54 | -0.34 | 10.78 | 38.50 | 46.00 | -7.50 | Average |
| 8 | 0.839 | 24.62 | -0.57 | 0.03 | 10.82 | 34.90 | 46.00 | -11.10 | Average |
| 9 | 1.111 | 23.59 | -0.60 | 0.34 | 10.88 | 34.21 | 46.00 | -11.79 | Average |
| 10 | 1.191 | 40.43 | -0.59 | 0.27 | 10.89 | 51.00 | 56.00 | -5.00 | QP |
| 11 | 2.581 | 24.23 | -0.46 | -0.25 | 10.93 | 34.45 | 46.00 | -11.55 | Average |
| 12 | 2.707 | 40.97 | -0.45 | -0.24 | 10.93 | 51.21 | 56.00 | -4.79 | QP |

*Notes:*

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*

| Product name: | Smart phone | Product model: | A9 Pro |
|---|---|---|---|
| Test by: | Mike | Test mode: | 5G Wi-Fi Tx mode |
| Test frequency: | 150 kHz ~ 30 MHz | Phase: | Neutral |
| Test voltage: | AC 120 V/60 Hz | Environment: | Temp: 22.5℃ Huni: 55% |

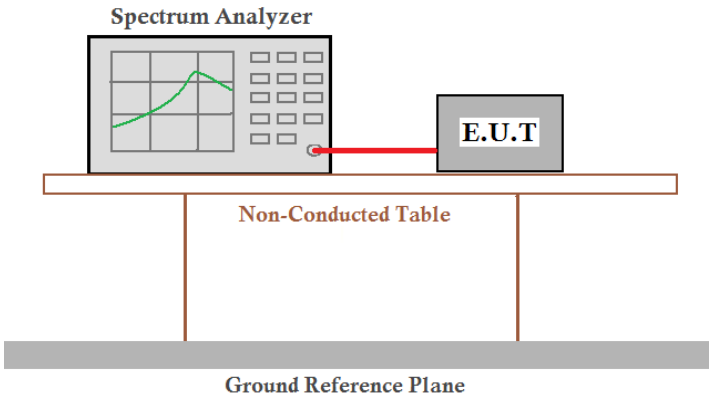



| | Freq | Read Level | LISN Factor | Aux Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.166 | 41.99 | -0.68 | 0.01 | 10.77 | 52.09 | 65.16 | -13.07 | QP |
| 2 | 0.198 | 28.65 | -0.67 | 0.00 | 10.76 | 38.74 | 53.71 | -14.97 | Average |
| 3 | 0.330 | 37.13 | -0.66 | -0.01 | 10.73 | 47.19 | 59.44 | -12.25 | QP |
| 4 | 0.330 | 27.18 | -0.66 | -0.01 | 10.73 | 37.24 | 49.44 | -12.20 | Average |
| 5 | 0.724 | 33.29 | -0.64 | 0.04 | 10.78 | 43.47 | 46.00 | -2.53 | Average |
| 6 | 0.731 | 41.84 | -0.64 | 0.04 | 10.78 | 52.02 | 56.00 | -3.98 | QP |
| 7 | 0.792 | 30.36 | -0.65 | 0.05 | 10.81 | 40.57 | 46.00 | -5.43 | Average |
| 8 | 0.796 | 42.85 | -0.65 | 0.05 | 10.81 | 53.06 | 56.00 | -2.94 | QP |
| 9 | 1.166 | 29.09 | -0.69 | 0.10 | 10.89 | 39.39 | 46.00 | -6.61 | Average |
| 10 | 1.527 | 38.82 | -0.70 | 0.14 | 10.93 | 49.19 | 56.00 | -6.81 | QP |
| 11 | 2.915 | 29.99 | -0.65 | 0.30 | 10.92 | 40.56 | 46.00 | -5.44 | Average |
| 12 | 2.978 | 40.38 | -0.65 | 0.31 | 10.92 | 50.96 | 56.00 | -5.04 | QP |

*Notes:*

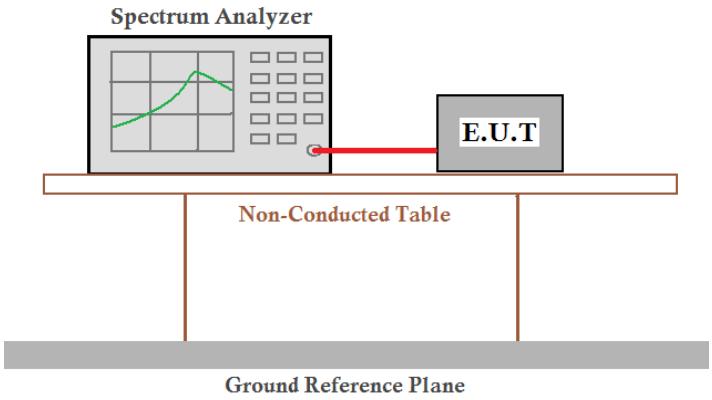
1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*

## 6.3 Conducted Output Power

| | |
|---|---|
| Test Requirement: | FCC Part15 E Section 15.407 (a) (1) (iv) |
| Limit: | Band 1: 24dBm |
| Test setup: |  |
| Test Instruments: | Refer to section 5.10 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

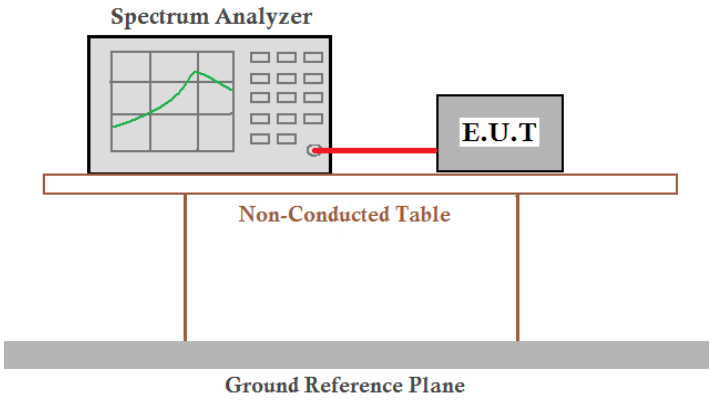
**Measurement Data:** Refer to Appendix A - 5.2G-WiFi

## 6.4 Occupy Bandwidth

| | |
|---|---|
| Test Requirement: | FCC Part15 E Section 15.407 (a) (12) |
| Limit: | Band 1: N/A (26dB Emission Bandwidth and 99% Occupy Bandwidth) |
| Test setup: |  |
| Test Instruments: | Refer to section 5.10 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

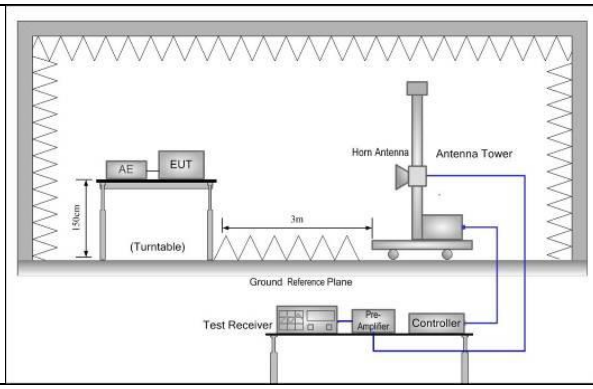
**Measurement Data:** Refer to Appendix A - 5.2G-WiFi

## 6.5 Power Spectral Density

| | |
|---|---|
| Test Requirement: | FCC Part15 E Section 15.407 (a) (1) (iv) |
| Limit: | Band 1: 11 dBm/MHz |
| Test setup: |  |
| Test Instruments: | Refer to section 5.10 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data:** Refer to Appendix A - 5.2G-WiFi

## 6.6 Band Edge

<table>
<tr><td>Test Requirement:</td><td colspan="4">FCC Part 15 E Section 15.407 (b)</td></tr>
<tr><td rowspan="4">Receiver setup:</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td rowspan="4">Limit:</td><td>Band</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td rowspan="2">Band 1/2/3</td><td colspan="2">68.20</td><td>Peak Value</td></tr>
<tr><td colspan="2">54.00</td><td>Average Value</td></tr>
<tr><td colspan="4">Band 4 limit:<br>For transmitters operating in the 5.725-5.85 GHz band:<br>All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasinglinearly 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.<br><br>Remark:<br>1. Band 1/2/3 limit:<br>E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm.<br>2. Band 4 limit:<br>E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm.<br>E[dBμV/m] = EIRP[dBm] + 95.2=105.2 dBuV/m, for EIPR[dBm]=10dBm.<br>E[dBμV/m] = EIRP[dBm] + 95.2=110.8 dBuV/m, for EIPR[dBm]=15.6dBm.<br>E[dBμV/m] = EIRP[dBm] + 95.2=122.2 dBuV/m, for EIPR[dBm]=27dBm.</td></tr>
<tr><td>Test Procedure:</td><td colspan="4">1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.<br>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.<br>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.<br>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</td></tr>
<tr><td>Test setup:</td><td colspan="4"> 
</td></tr>
<tr><td>Test Instruments:</td><td colspan="4">Refer to section 5.10 for details</td></tr>
<tr><td>Test mode:</td><td colspan="4">Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td colspan="4">Passed</td></tr>
</table>

**Measurement Data (worst case):**

**Band 1:**

| Band 1 – 802.11a | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Lowest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 46.59 | 31.77 | 7.05 | 2.54 | 41.93 | 46.02 | 68.20 | -22.18 | Horizontal |
| 5150.00 | 46.41 | 31.77 | 7.05 | 2.54 | 41.93 | 45.84 | 68.20 | -22.36 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 38.30 | 31.77 | 7.05 | 2.54 | 41.93 | 37.73 | 54.00 | -16.27 | Horizontal |
| 5150.00 | 38.53 | 31.77 | 7.05 | 2.54 | 41.93 | 37.96 | 54.00 | -16.04 | Vertical |
| | | | | | | | | | |
| Test channel: Highest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 46.17 | 32.24 | 7.11 | 2.61 | 41.89 | 46.24 | 68.20 | -21.96 | Horizontal |
| 5350.00 | 46.46 | 32.24 | 7.11 | 2.61 | 41.89 | 46.53 | 68.20 | -21.67 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 38.06 | 32.24 | 7.11 | 2.61 | 41.89 | 38.13 | 54.00 | -15.87 | Horizontal |
| 5350.00 | 38.20 | 32.24 | 7.11 | 2.61 | 41.89 | 38.27 | 54.00 | -15.73 | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Band 1 – 802.11n(HT20) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Lowest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 45.83 | 31.77 | 7.05 | 2.54 | 41.93 | 45.26 | 68.20 | -22.94 | Horizontal |
| 5150.00 | 45.97 | 31.77 | 7.05 | 2.54 | 41.93 | 45.40 | 68.20 | -22.80 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 37.05 | 31.77 | 7.05 | 2.54 | 41.93 | 36.48 | 54.00 | -17.52 | Horizontal |
| 5150.00 | 37.67 | 31.77 | 7.05 | 2.54 | 41.93 | 37.10 | 54.00 | -16.90 | Vertical |
| | | | | | | | | | |
| Test channel: Highest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 45.12 | 32.24 | 7.11 | 2.61 | 41.89 | 45.19 | 68.20 | -23.01 | Horizontal |
| 5350.00 | 47.62 | 32.24 | 7.11 | 2.61 | 41.89 | 47.69 | 68.20 | -20.51 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 37.81 | 32.24 | 7.11 | 2.61 | 41.89 | 37.88 | 54.00 | -16.12 | Horizontal |
| 5350.00 | 39.81 | 32.24 | 7.11 | 2.61 | 41.89 | 39.88 | 54.00 | -14.12 | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Band 1 – 802.11n(HT40) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Lowest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 46.52 | 31.77 | 7.05 | 2.54 | 41.93 | 45.95 | 68.20 | -22.25 | Horizontal |
| 5150.00 | 46.93 | 31.77 | 7.05 | 2.54 | 41.93 | 46.36 | 68.20 | -21.84 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 38.83 | 31.77 | 7.05 | 2.54 | 41.93 | 38.26 | 54.00 | -15.74 | Horizontal |
| 5150.00 | 38.27 | 31.77 | 7.05 | 2.54 | 41.93 | 37.70 | 54.00 | -16.30 | Vertical |
| | | | | | | | | | |
| Test channel: Highest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 46.04 | 32.02 | 7.09 | 2.54 | 41.93 | 45.76 | 68.20 | -22.44 | Horizontal |
| 5350.00 | 46.95 | 32.02 | 7.09 | 2.54 | 41.93 | 46.67 | 68.20 | -21.53 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 38.93 | 32.02 | 7.09 | 2.54 | 41.93 | 38.65 | 54.00 | -15.35 | Horizontal |
| 5350.00 | 38.52 | 32.02 | 7.09 | 2.54 | 41.93 | 38.24 | 54.00 | -15.76 | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Band 1 – 802.11ac(HT20) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Lowest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 46.42 | 31.77 | 7.05 | 2.54 | 41.93 | 45.85 | 68.20 | -22.35 | Horizontal |
| 5150.00 | 46.35 | 31.77 | 7.05 | 2.54 | 41.93 | 45.78 | 68.20 | -22.42 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 38.15 | 31.77 | 7.05 | 2.54 | 41.93 | 37.58 | 54.00 | -16.42 | Horizontal |
| 5150.00 | 38.44 | 31.77 | 7.05 | 2.54 | 41.93 | 37.87 | 54.00 | -16.13 | Vertical |
| | | | | | | | | | |
| Test channel: Highest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 46.05 | 32.24 | 7.11 | 2.61 | 41.89 | 46.12 | 68.20 | -22.08 | Horizontal |
| 5350.00 | 46.39 | 32.24 | 7.11 | 2.61 | 41.89 | 46.46 | 68.20 | -21.74 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 38.12 | 32.24 | 7.11 | 2.61 | 41.89 | 38.19 | 54.00 | -15.81 | Horizontal |
| 5350.00 | 38.26 | 32.24 | 7.11 | 2.61 | 41.89 | 38.33 | 54.00 | -15.67 | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Band 1 – 802.11ac(HT40) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Lowest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 46.59 | 31.77 | 7.05 | 2.54 | 41.93 | 46.02 | 68.20 | -22.18 | Horizontal |
| 5150.00 | 49.86 | 31.77 | 7.05 | 2.54 | 41.93 | 49.29 | 68.20 | -18.91 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 38.77 | 31.77 | 7.05 | 2.54 | 41.93 | 38.20 | 54.00 | -15.80 | Horizontal |
| 5150.00 | 38.36 | 31.77 | 7.05 | 2.54 | 41.93 | 37.79 | 54.00 | -16.21 | Vertical |
| | | | | | | | | | |
| Test channel: Highest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 46.12 | 32.24 | 7.11 | 2.61 | 41.89 | 46.19 | 68.20 | -22.01 | Horizontal |
| 5350.00 | 46.47 | 32.24 | 7.11 | 2.61 | 41.89 | 46.54 | 68.20 | -21.66 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 38.93 | 32.24 | 7.11 | 2.61 | 41.89 | 39.00 | 54.00 | -15.00 | Horizontal |
| 5350.00 | 38.48 | 32.24 | 7.11 | 2.61 | 41.89 | 38.55 | 54.00 | -15.45 | Vertical |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

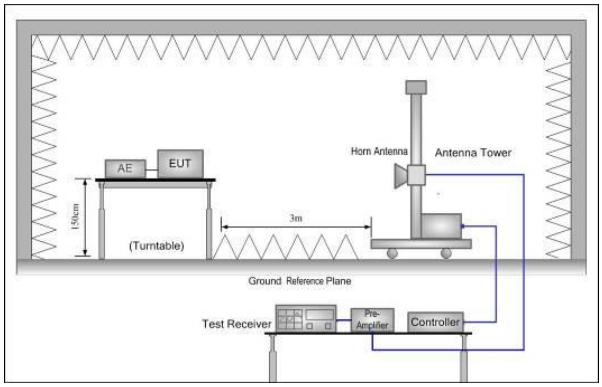
| Band 1 – 802.11ac(HT80) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Middle channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 46.68 | 31.77 | 7.05 | 2.54 | 41.93 | 46.11 | 68.20 | -22.09 | Horizontal |
| 5150.00 | 48.09 | 31.77 | 7.05 | 2.54 | 41.93 | 47.52 | 68.20 | -20.68 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5150.00 | 38.43 | 31.77 | 7.05 | 2.54 | 41.93 | 37.86 | 54.00 | -16.14 | Horizontal |
| 5150.00 | 40.41 | 31.77 | 7.05 | 2.54 | 41.93 | 39.84 | 54.00 | -14.16 | Vertical |
| | | | | | | | | | |
| Test channel: Middle channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 47.82 | 32.24 | 7.11 | 2.61 | 41.89 | 47.89 | 68.20 | -20.31 | Horizontal |
| 5350.00 | 46.61 | 32.24 | 7.11 | 2.61 | 41.89 | 46.68 | 68.20 | -21.52 | Vertical |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV/m) | Antenna Factor (dB) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5350.00 | 39.22 | 32.24 | 7.11 | 2.61 | 41.89 | 39.29 | 54.00 | -14.71 | Horizontal |
| 5350.00 | 38.77 | 32.24 | 7.11 | 2.61 | 41.89 | 38.84 | 54.00 | -15.16 | Vertical |

*Remark:*

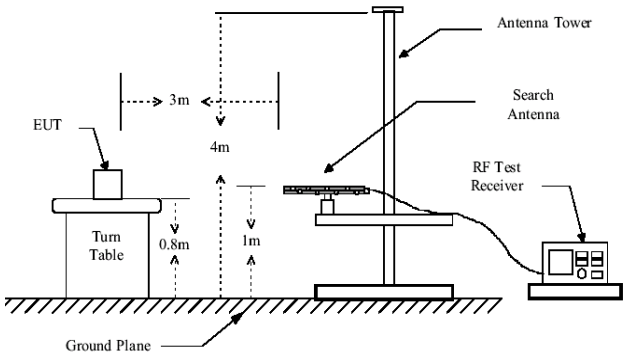
1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

# 6.7 Spurious Emission

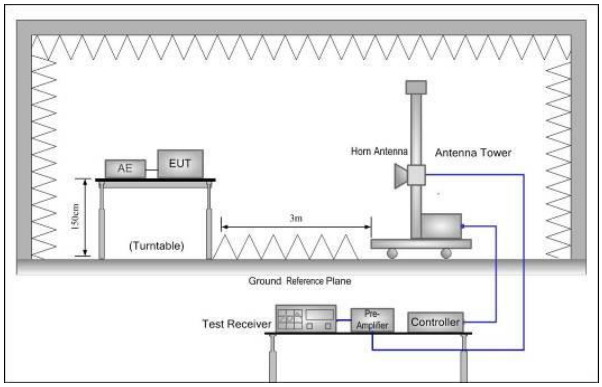
## 6.7.1 Restricted Band

<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part15 E Section 15.407(b)</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">4.5 GHz to 5.15 GHz and 5.35GHz to 5.46GHz</td></tr>
<tr><td>Test site:</td><td colspan="5">Measurement Distance: 3m</td></tr>
<tr><td rowspan="3">Receiver setup:</td><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
<tr><td rowspan="3">Limit:</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td colspan="2" rowspan="2">Above 1GHz</td><td colspan="2">74.00</td><td>Peak Value</td></tr>
<tr><td colspan="2">54.00</td><td>Average Value</td></tr>
<tr><td>Test Procedure:</td><td colspan="5">1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.<br>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.<br>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</td></tr>
<tr><td>Test setup:</td><td colspan="5"> 
</td></tr>
<tr><td>Test Instruments:</td><td colspan="5">Refer to section 5.10 for details</td></tr>
<tr><td>Test mode:</td><td colspan="5">Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td colspan="5">Passed(Refer to section 6.6)</td></tr>
</table>

## 6.7.2 Unwanted Emissions out of the Restricted Bands

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Frequency Range:</td><td>30MHz to 40GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>68.20</td><td>Peak Value</td></tr>
<tr><td>54.00</td><td>Average Value</td></tr>
</table>
Remark:<br>Above 1GHz limit:<br>E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm.
</td></tr>
<tr><td>Test Procedure:</td><td>1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.<br>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.<br>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</td></tr>
<tr><td>Test setup:</td><td>Below 1GHz<br> 

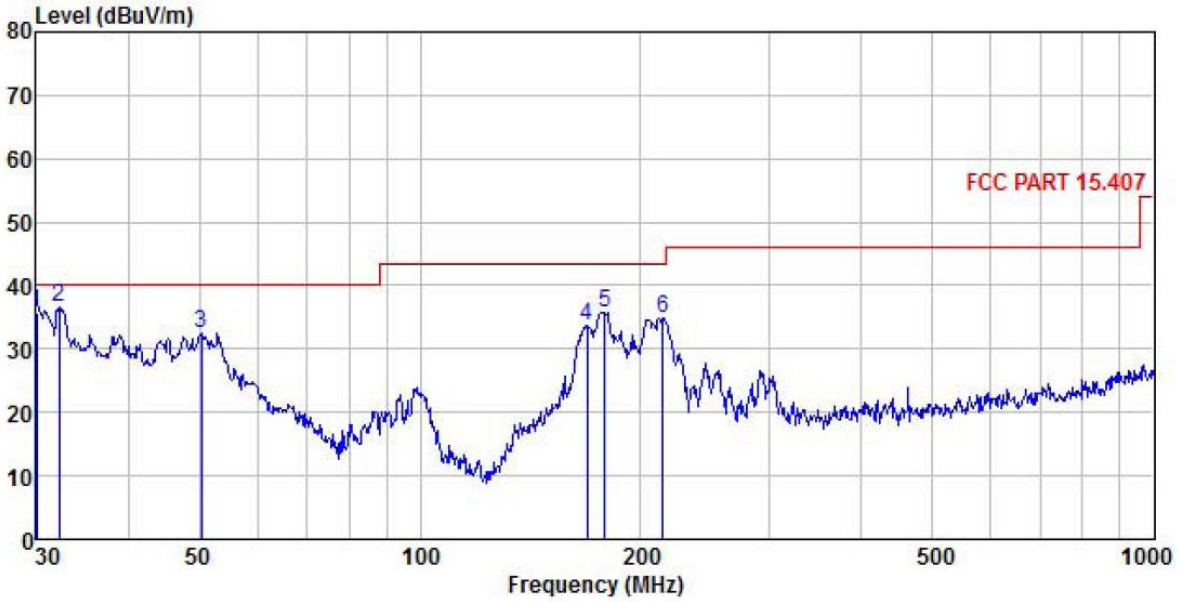
<br>Above 1GHz</td></tr>
</table>

| | |
|---|---|
| |  |
| Test Instruments: | Refer to section 5.10 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data (worst case):**

**Below 1GHz**

| Product Name: | Smart phone | Product Model: | A9 Pro |
|---|---|---|---|
| Test By: | Mike | Test mode: | 5G Wi-Fi Tx mode |
| Test Frequency: | 30 MHz ~ 1 GHz | Polarization: | Vertical |
| Test Voltage: | AC 120/60Hz | Environment: | Temp: 24℃ Huni: 57% |

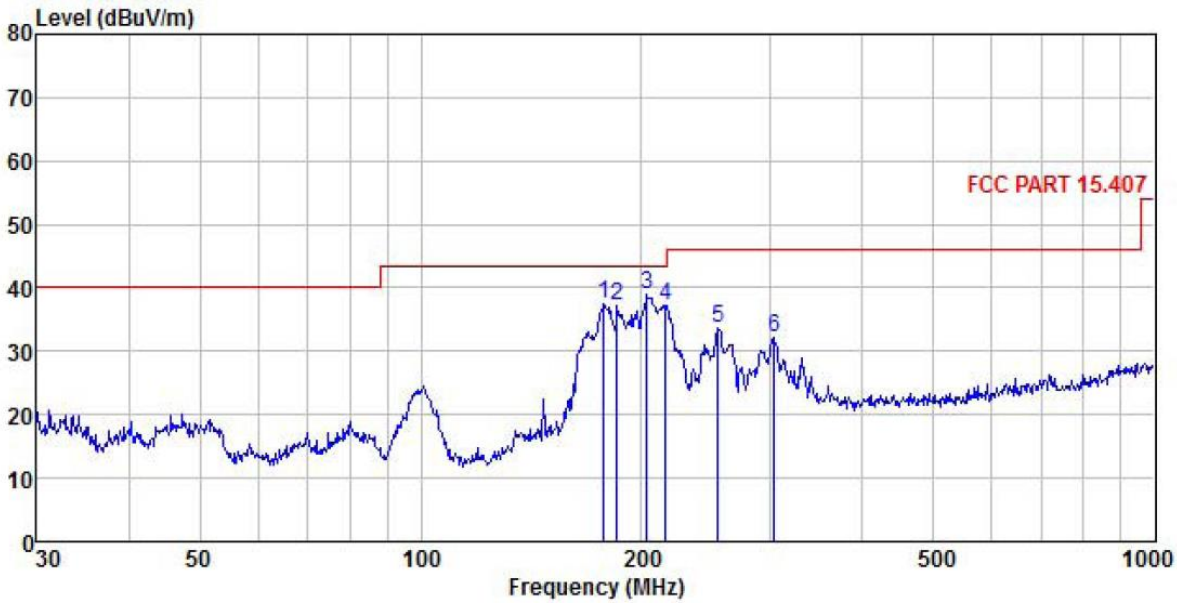



| | Freq | Read Level | Antenna Factor | Cable Loss | Aux Factor | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 30.000 | 53.47 | 11.80 | 0.40 | 0.00 | 29.98 | 35.69 | 40.00 | -4.31 | |
| 2 | 32.179 | 54.16 | 12.16 | 0.37 | 0.00 | 29.97 | 36.72 | 40.00 | -3.28 | |
| 3 | 50.409 | 48.91 | 13.06 | 0.38 | 0.00 | 29.82 | 32.53 | 40.00 | -7.47 | |
| 4 | 169.005 | 45.79 | 16.30 | 0.65 | 0.00 | 29.06 | 33.68 | 43.50 | -9.82 | |
| 5 | 178.758 | 47.27 | 16.88 | 0.68 | 0.00 | 28.98 | 35.85 | 43.50 | -7.65 | |
| 6 | 214.514 | 44.49 | 18.36 | 0.73 | 0.00 | 28.74 | 34.84 | 43.50 | -8.66 | |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

| Product Name: | Smart phone | Product Model: | A9 Pro |
|---|---|---|---|
| Test By: | Mike | Test mode: | 5G Wi-Fi Tx mode |
| Test Frequency: | 30 MHz ~ 1 GHz | Polarization: | Horizontal |
| Test Voltage: | AC 120/60Hz | Environment: | Temp: 24℃ Huni: 57% |




| | Freq | Read Level | Antenna Factor | Cable Loss | Aux Factor | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 177.509 | 48.82 | 16.85 | 0.67 | 0.00 | 28.99 | 37.35 | 43.50 | -6.15 | QP |
| 2 | 185.138 | 48.18 | 17.20 | 0.69 | 0.00 | 28.93 | 37.14 | 43.50 | -6.36 | QP |
| 3 | 203.523 | 48.64 | 18.32 | 0.72 | 0.00 | 28.81 | 38.87 | 43.50 | -4.63 | QP |
| 4 | 215.268 | 46.84 | 18.37 | 0.74 | 0.00 | 28.73 | 37.22 | 43.50 | -6.28 | QP |
| 5 | 253.837 | 42.74 | 18.52 | 0.79 | 0.00 | 28.53 | 33.52 | 46.00 | -12.48 | QP |
| 6 | 303.544 | 41.05 | 18.71 | 0.86 | 0.00 | 28.46 | 32.16 | 46.00 | -13.84 | QP |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

**Above 1GHz:**
**Band 1:**

| Band 1 – 802.11a | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Lowest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10360.00 | 37.35 | 38.83 | 9.82 | 3.95 | 41.97 | 47.98 | 68.20 | -20.22 | Vertical |
| 10360.00 | 38.20 | 38.83 | 9.82 | 3.95 | 41.97 | 48.83 | 68.20 | -19.37 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10360.00 | 30.87 | 38.83 | 9.82 | 3.95 | 41.97 | 41.50 | 54.00 | -12.50 | Vertical |
| 10360.00 | 31.70 | 38.83 | 9.82 | 3.95 | 41.97 | 42.33 | 54.00 | -11.67 | Horizontal |
| | | | | | | | | | |
| Test channel: Middle channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10400.00 | 37.32 | 38.87 | 9.85 | 3.98 | 41.95 | 48.07 | 68.20 | -20.13 | Vertical |
| 10400.00 | 38.15 | 38.87 | 9.85 | 3.98 | 41.95 | 48.90 | 68.20 | -19.30 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10400.00 | 30.75 | 38.87 | 9.85 | 3.98 | 41.95 | 41.50 | 54.00 | -12.50 | Vertical |
| 10400.00 | 31.63 | 38.87 | 9.85 | 3.98 | 41.95 | 42.38 | 54.00 | -11.62 | Horizontal |
| | | | | | | | | | |
| Test channel: Highest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10480.00 | 37.42 | 38.94 | 9.96 | 4.02 | 41.88 | 48.46 | 68.20 | -19.74 | Vertical |
| 10480.00 | 38.26 | 38.94 | 9.96 | 4.02 | 41.88 | 49.30 | 68.20 | -18.90 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10480.00 | 30.69 | 38.94 | 9.96 | 4.02 | 41.88 | 41.73 | 54.00 | -12.27 | Vertical |
| 10480.00 | 31.73 | 38.94 | 9.96 | 4.02 | 41.88 | 42.77 | 54.00 | -11.23 | Horizontal |

*Remark:*
1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Band 1 – 802.11n(HT20) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Lowest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10360.00 | 37.33 | 38.83 | 9.82 | 3.95 | 41.97 | 47.96 | 68.20 | -20.24 | Vertical |
| 10360.00 | 38.12 | 38.83 | 9.82 | 3.95 | 41.97 | 48.75 | 68.20 | -19.45 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10360.00 | 30.82 | 38.83 | 9.82 | 3.95 | 41.97 | 41.45 | 54.00 | -12.55 | Vertical |
| 10360.00 | 31.64 | 38.83 | 9.82 | 3.95 | 41.97 | 42.27 | 54.00 | -11.73 | Horizontal |
| | | | | | | | | | |
| Test channel: Middle channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10400.00 | 37.63 | 38.87 | 9.85 | 3.98 | 41.95 | 48.38 | 68.20 | -19.82 | Vertical |
| 10400.00 | 38.20 | 38.87 | 9.85 | 3.98 | 41.95 | 48.95 | 68.20 | -19.25 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10400.00 | 30.66 | 38.87 | 9.85 | 3.98 | 41.95 | 41.41 | 54.00 | -12.59 | Vertical |
| 10400.00 | 31.67 | 38.87 | 9.85 | 3.98 | 41.95 | 42.42 | 54.00 | -11.58 | Horizontal |
| | | | | | | | | | |
| Test channel: Highest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10480.00 | 37.59 | 38.94 | 9.96 | 4.02 | 41.88 | 48.63 | 68.20 | -19.57 | Vertical |
| 10480.00 | 38.35 | 38.94 | 9.96 | 4.02 | 41.88 | 49.39 | 68.20 | -18.81 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10480.00 | 30.59 | 38.94 | 9.96 | 4.02 | 41.88 | 41.63 | 54.00 | -12.37 | Vertical |
| 10480.00 | 31.52 | 38.94 | 9.96 | 4.02 | 41.88 | 42.56 | 54.00 | -11.44 | Horizontal |

*Remark:*
1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Band 1 – 802.11n(HT40) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Lowest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10380.00 | 37.12 | 38.25 | 9.85 | 3.95 | 41.95 | 47.22 | 68.20 | -20.98 | Vertical |
| 10380.00 | 37.61 | 38.25 | 9.85 | 3.95 | 41.95 | 47.71 | 68.20 | -20.49 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10380.00 | 30.61 | 38.25 | 9.85 | 3.95 | 41.95 | 40.71 | 54.00 | -13.29 | Vertical |
| 10380.00 | 31.29 | 38.25 | 9.85 | 3.95 | 41.95 | 41.39 | 54.00 | -12.61 | Horizontal |
| | | | | | | | | | |
| Test channel: Highest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10460.00 | 37.12 | 38.92 | 9.92 | 3.98 | 41.90 | 48.04 | 68.20 | -20.16 | Vertical |
| 10460.00 | 37.74 | 38.92 | 9.92 | 3.98 | 41.90 | 48.66 | 68.20 | -19.54 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10460.00 | 30.41 | 38.92 | 9.92 | 3.98 | 41.90 | 41.33 | 54.00 | -12.67 | Vertical |
| 10460.00 | 31.26 | 38.92 | 9.92 | 3.98 | 41.90 | 42.18 | 54.00 | -11.82 | Horizontal |

*Remark:*
1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Band 1 – 802.11ac(HT20) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Lowest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10360.00 | 37.33 | 38.83 | 9.82 | 3.95 | 41.97 | 47.96 | 68.20 | -20.24 | Vertical |
| 10360.00 | 38.23 | 38.83 | 9.82 | 3.95 | 41.97 | 48.86 | 68.20 | -19.34 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10360.00 | 30.72 | 38.83 | 9.82 | 3.95 | 41.97 | 41.35 | 54.00 | -12.65 | Vertical |
| 10360.00 | 31.66 | 38.83 | 9.82 | 3.95 | 41.97 | 42.29 | 54.00 | -11.71 | Horizontal |
| | | | | | | | | | |
| Test channel: Middle channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10400.00 | 37.21 | 38.87 | 9.85 | 3.98 | 41.95 | 47.96 | 68.20 | -20.24 | Vertical |
| 10400.00 | 38.06 | 38.87 | 9.85 | 3.98 | 41.95 | 48.81 | 68.20 | -19.39 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10400.00 | 30.52 | 38.87 | 9.85 | 3.98 | 41.95 | 41.27 | 54.00 | -12.73 | Vertical |
| 10400.00 | 31.48 | 38.87 | 9.85 | 3.98 | 41.95 | 42.23 | 54.00 | -11.77 | Horizontal |
| | | | | | | | | | |
| Test channel: Highest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10480.00 | 37.31 | 38.94 | 9.96 | 4.02 | 41.88 | 48.35 | 68.20 | -19.85 | Vertical |
| 10480.00 | 38.15 | 38.94 | 9.96 | 4.02 | 41.88 | 49.19 | 68.20 | -19.01 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10480.00 | 30.42 | 38.94 | 9.96 | 4.02 | 41.88 | 41.46 | 54.00 | -12.54 | Vertical |
| 10480.00 | 31.52 | 38.94 | 9.96 | 4.02 | 41.88 | 42.56 | 54.00 | -11.44 | Horizontal |

*Remark:*

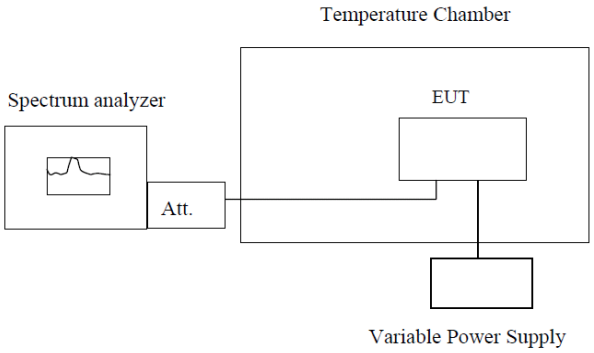
1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Band 1 – 802.11ac(HT40) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Lowest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10380.00 | 37.30 | 38.25 | 9.85 | 3.95 | 41.95 | 47.40 | 68.20 | -20.80 | Vertical |
| 10380.00 | 38.01 | 38.25 | 9.85 | 3.95 | 41.95 | 48.11 | 68.20 | -20.09 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10380.00 | 30.72 | 38.25 | 9.85 | 3.95 | 41.95 | 40.82 | 54.00 | -13.18 | Vertical |
| 10380.00 | 31.49 | 38.25 | 9.85 | 3.95 | 41.95 | 41.59 | 54.00 | -12.41 | Horizontal |
| | | | | | | | | | |
| Test channel: Highest channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10460.00 | 37.25 | 38.92 | 9.92 | 3.98 | 41.90 | 48.17 | 68.20 | -20.03 | Vertical |
| 10460.00 | 37.85 | 38.92 | 9.92 | 3.98 | 41.90 | 48.77 | 68.20 | -19.43 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10460.00 | 30.55 | 38.92 | 9.92 | 3.98 | 41.90 | 41.47 | 54.00 | -12.53 | Vertical |
| 10460.00 | 31.42 | 38.92 | 9.92 | 3.98 | 41.90 | 42.34 | 54.00 | -11.66 | Horizontal |

*Remark:*
1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Band 1 – 802.11ac(HT80) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test channel: Middle channel | | | | | | | | | |
| Detector: Peak Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10420.00 | 37.03 | 38.89 | 9.89 | 3.98 | 41.93 | 47.86 | 68.20 | -20.34 | Vertical |
| 10420.00 | 31.21 | 38.89 | 9.89 | 3.98 | 41.93 | 42.04 | 68.20 | -26.16 | Horizontal |
| Detector: Average Value | | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Aux Factor (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 10420.00 | 30.19 | 38.89 | 9.89 | 3.98 | 41.93 | 41.02 | 54.00 | -12.98 | Vertical |
| 10420.00 | 31.21 | 38.89 | 9.89 | 3.98 | 41.93 | 42.04 | 54.00 | -11.96 | Horizontal |
| *Remark:*<br>*1. Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*<br>*2. The emission levels of other frequencies are very lower than the limit and not show in test report.* | | | | | | | | | |

## 6.8 Frequency stability

| | |
|---|---|
| Test Requirement: | FCC Part15 E Section 15.407 (g) |
| Limit: | Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual. |
| Test setup: |  <br>**Note :** Measurement setup for testing on Antenna connector |
| Test procedure: | 1. The EUT is installed in an environment test chamber with external power source.<br>2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT.<br>3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.<br>4. When temperature is stabled, measure the frequency stability.<br>5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions. |
| Test Instruments: | Refer to section 5.10 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data:** Refer to Appendix A - 5.2G-WiFi

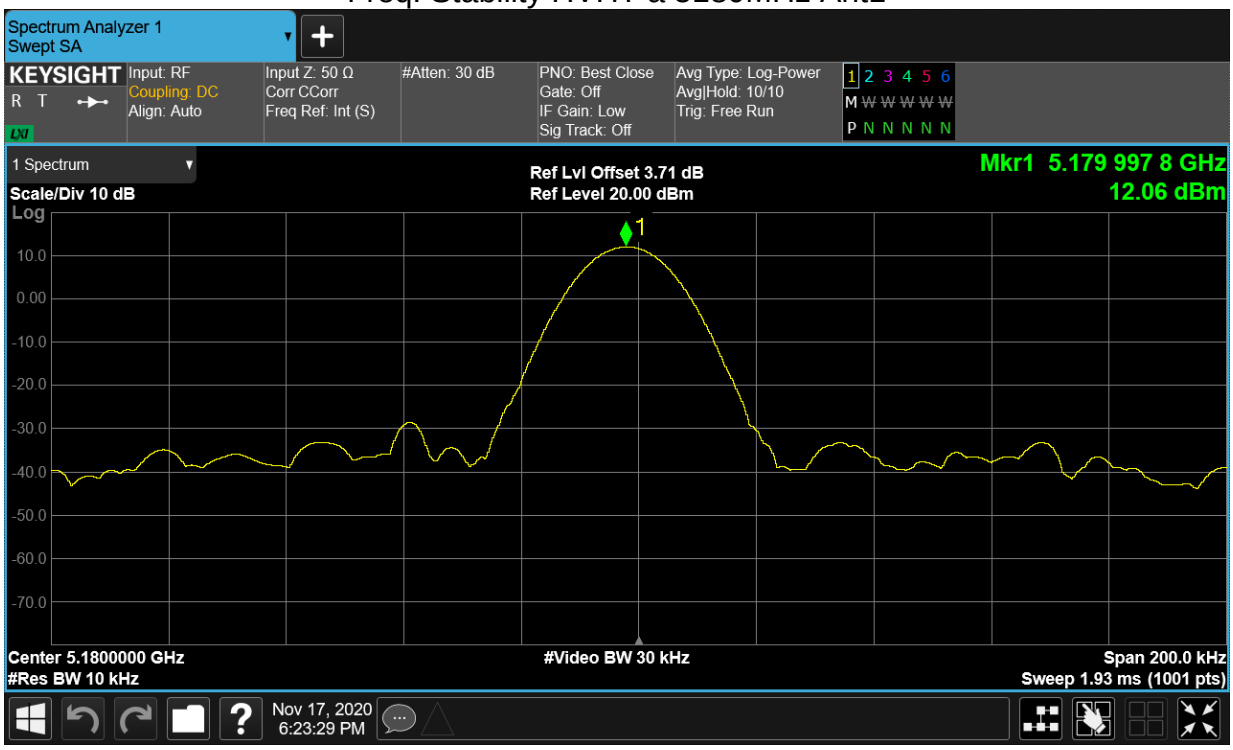
# Appendix A - 5.2G-WiFi
# Test Data

**Frequency Stability (wosrt case mode)**

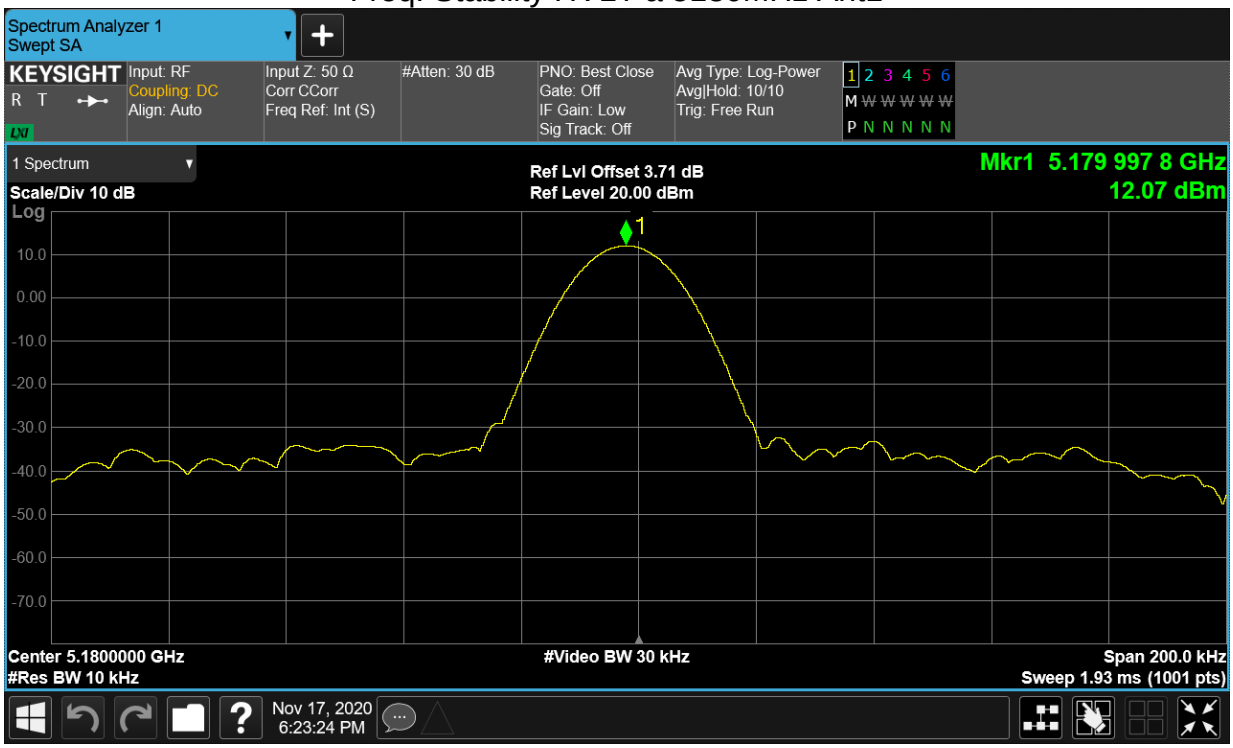
| Condition | Mode | Frequency (MHz) | Antenna | Measured Frequency (MHz) | Deviation (ppm) | Limit (ppm) | Verdict |
|---|---|---|---|---|---|---|---|
| HVHT | a | 5180 | Ant1 | 5179.9978 | -0.42 | 25 | Pass |
| HVLT | a | 5180 | Ant1 | 5179.9978 | -0.42 | 25 | Pass |
| LVHT | a | 5180 | Ant1 | 5179.9978 | -0.42 | 25 | Pass |
| LVLT | a | 5180 | Ant1 | 5179.9976 | -0.46 | 25 | Pass |
| NVNT | a | 5180 | Ant1 | 5179.9974 | -0.5 | 25 | Pass |
| HVHT | ac80 | 5210 | Ant1 | 5209.9982 | -0.35 | 25 | Pass |
| HVLT | ac80 | 5210 | Ant1 | 5209.9982 | -0.35 | 25 | Pass |
| LVHT | ac80 | 5210 | Ant1 | 5209.9982 | -0.35 | 25 | Pass |
| LVLT | ac80 | 5210 | Ant1 | 5209.998 | -0.38 | 25 | Pass |
| NVNT | ac80 | 5210 | Ant1 | 5209.9982 | -0.35 | 25 | Pass |
| HVHT | n40 | 5190 | Ant1 | 5189.998 | -0.39 | 25 | Pass |
| HVLT | n40 | 5190 | Ant1 | 5189.998 | -0.39 | 25 | Pass |
| LVHT | n40 | 5190 | Ant1 | 5189.998 | -0.39 | 25 | Pass |
| LVLT | n40 | 5190 | Ant1 | 5189.9978 | -0.42 | 25 | Pass |
| NVNT | n40 | 5190 | Ant1 | 5189.9976 | -0.46 | 25 | Pass |

*Remark: "NTNV" means Normal Temperature Normal Voltage, "LTLV" means Low Temperature Low Voltage, "LTHV" means Low Temperature High Voltage, "HTLV" means High Temperature Low Voltage, "HTHV" means High Temperature High Voltage.*

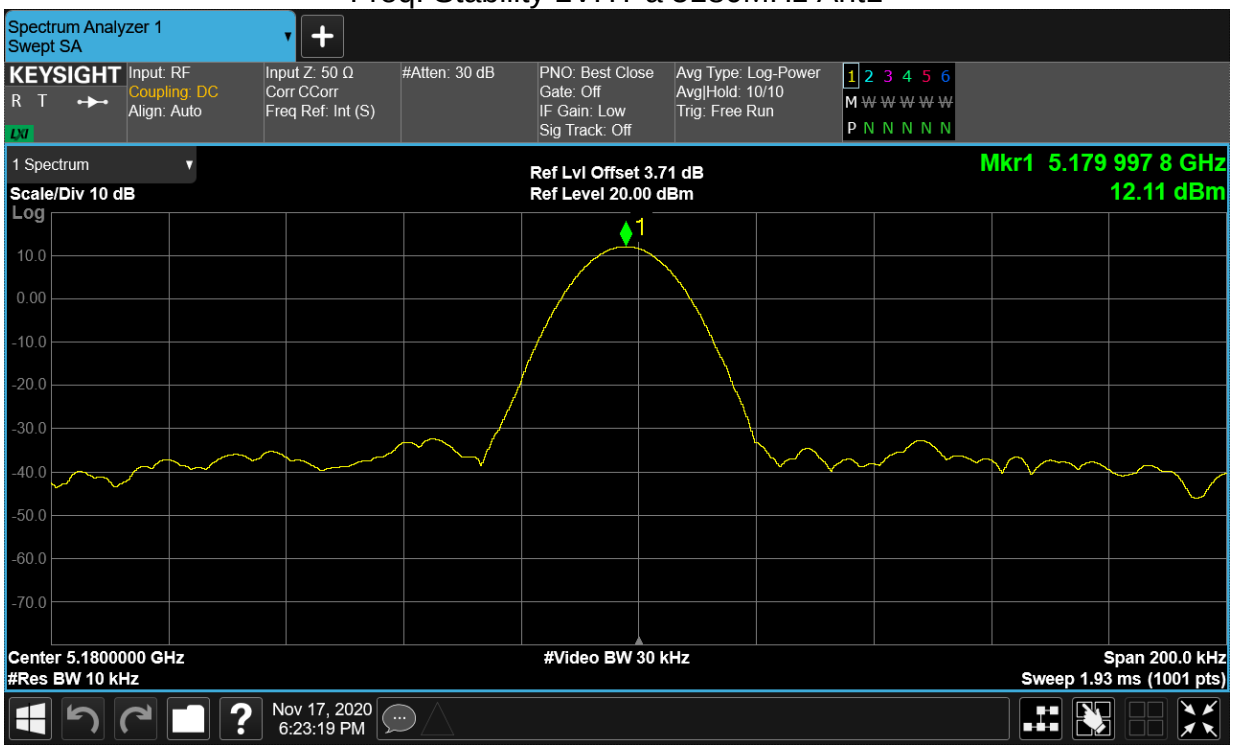
Freq. Stability HVHT a 5180MHz Ant1



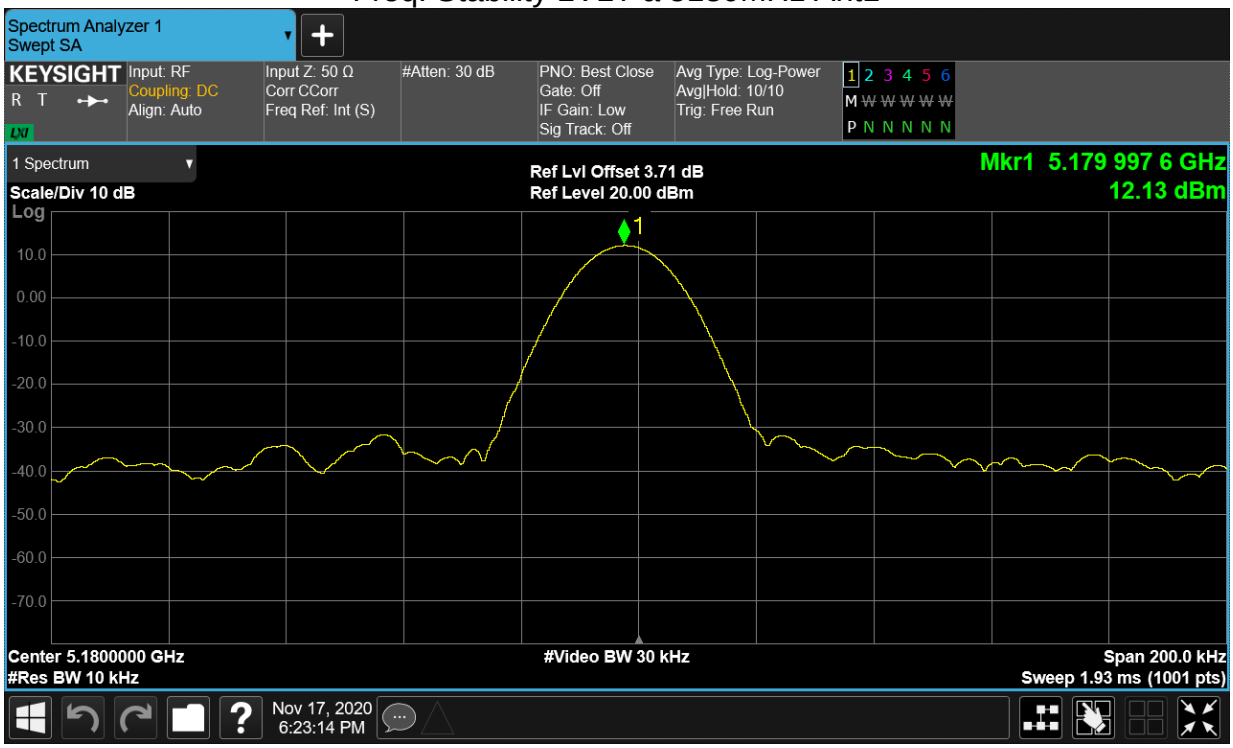
Freq. Stability HVLT a 5180MHz Ant1



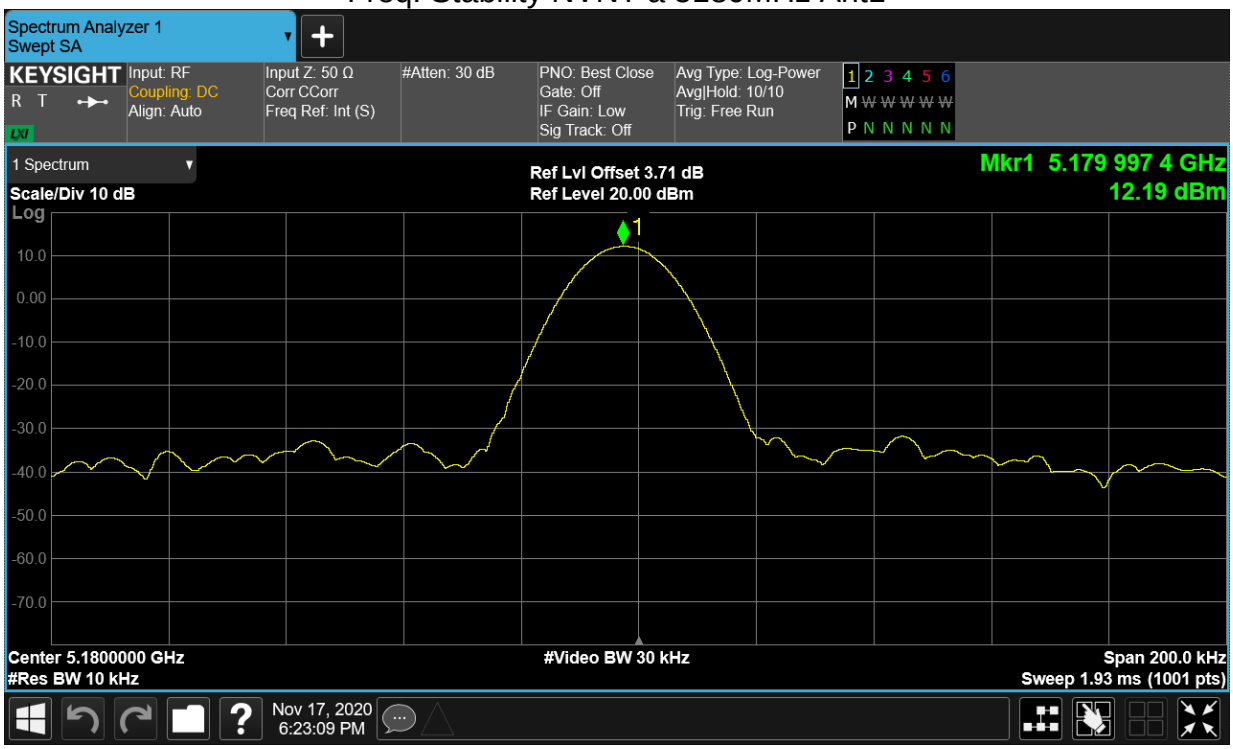

Freq. Stability LVHT a 5180MHz Ant1



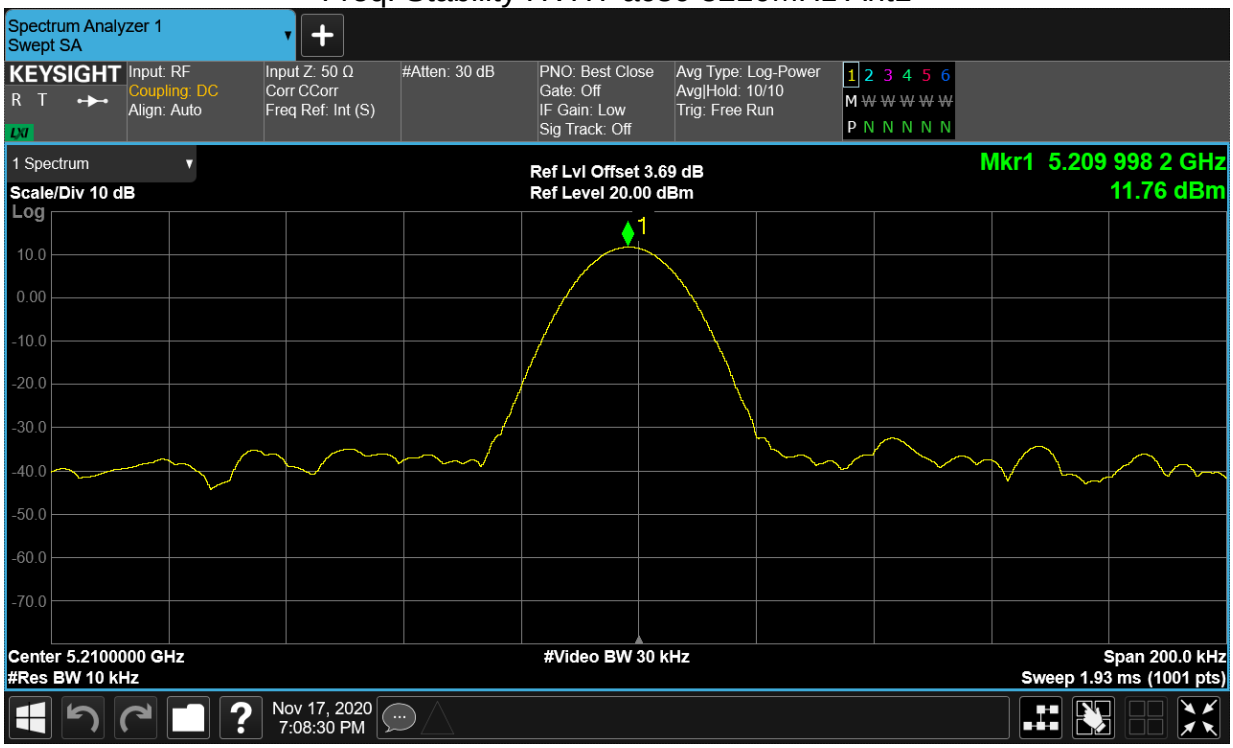
Freq. Stability LVLT a 5180MHz Ant1



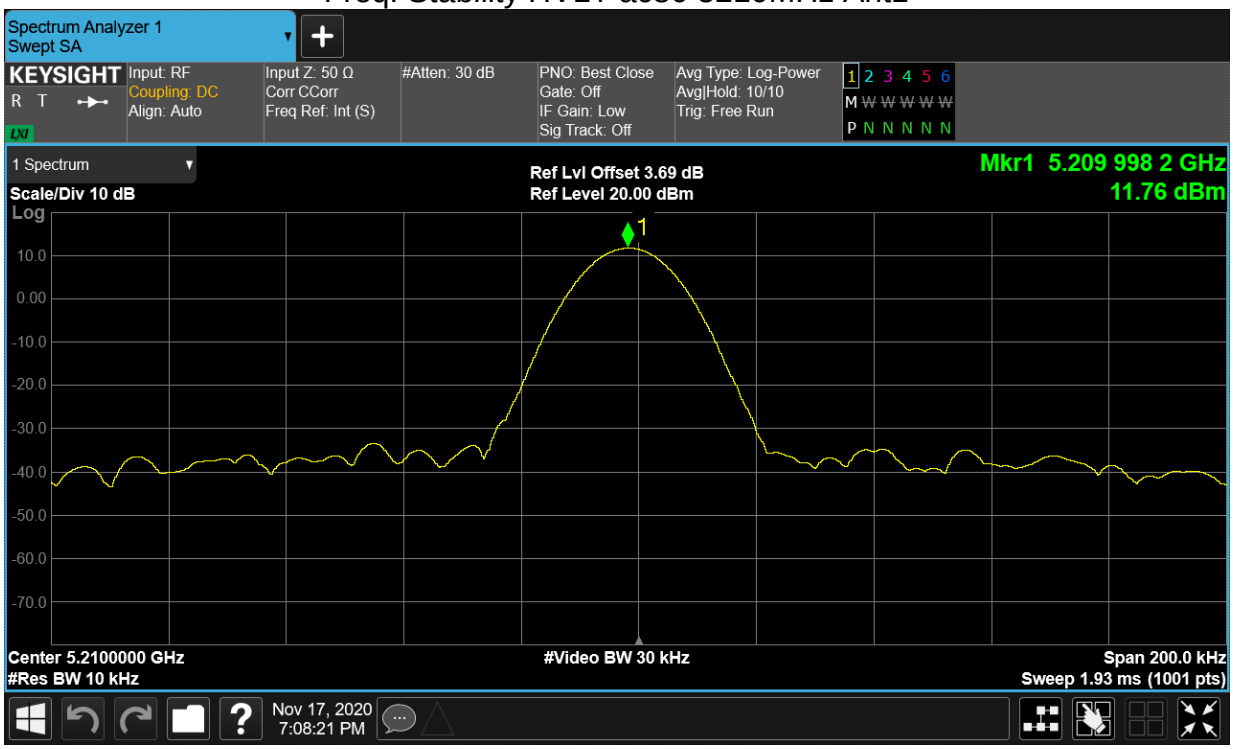

Freq. Stability NVNT a 5180MHz Ant1



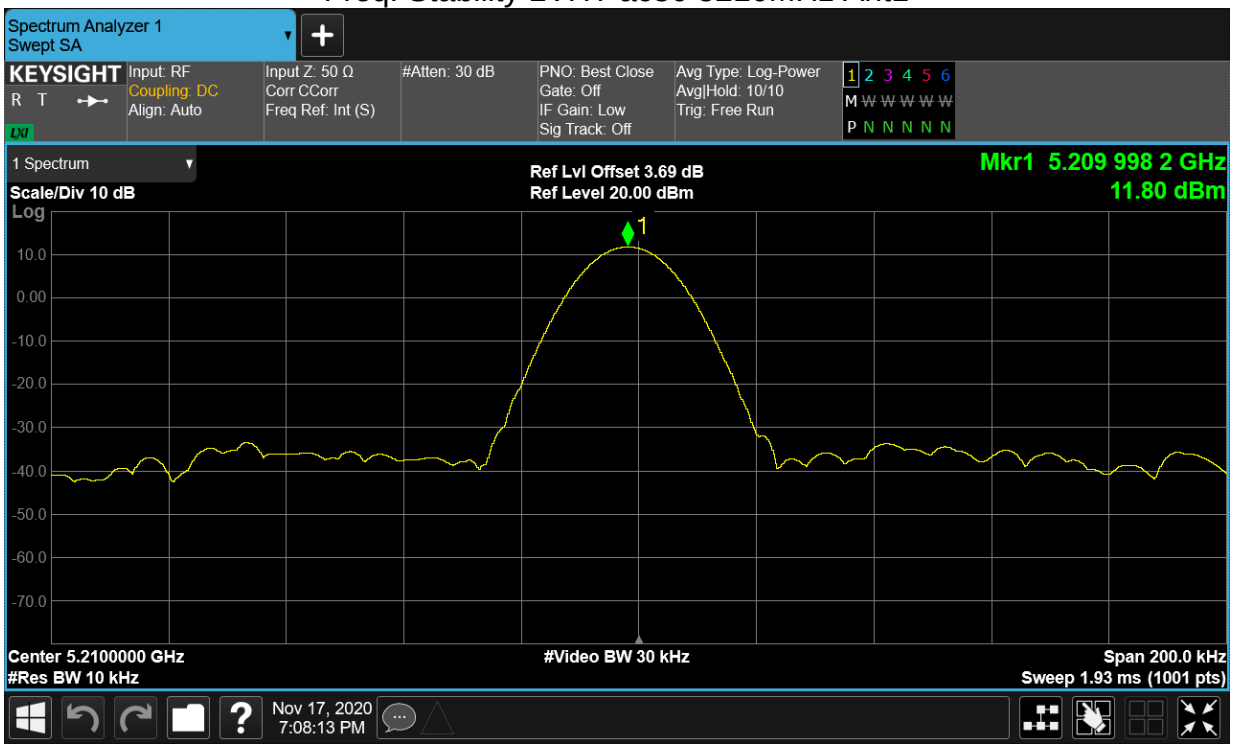
Freq. Stability HVHT ac80 5210MHz Ant1



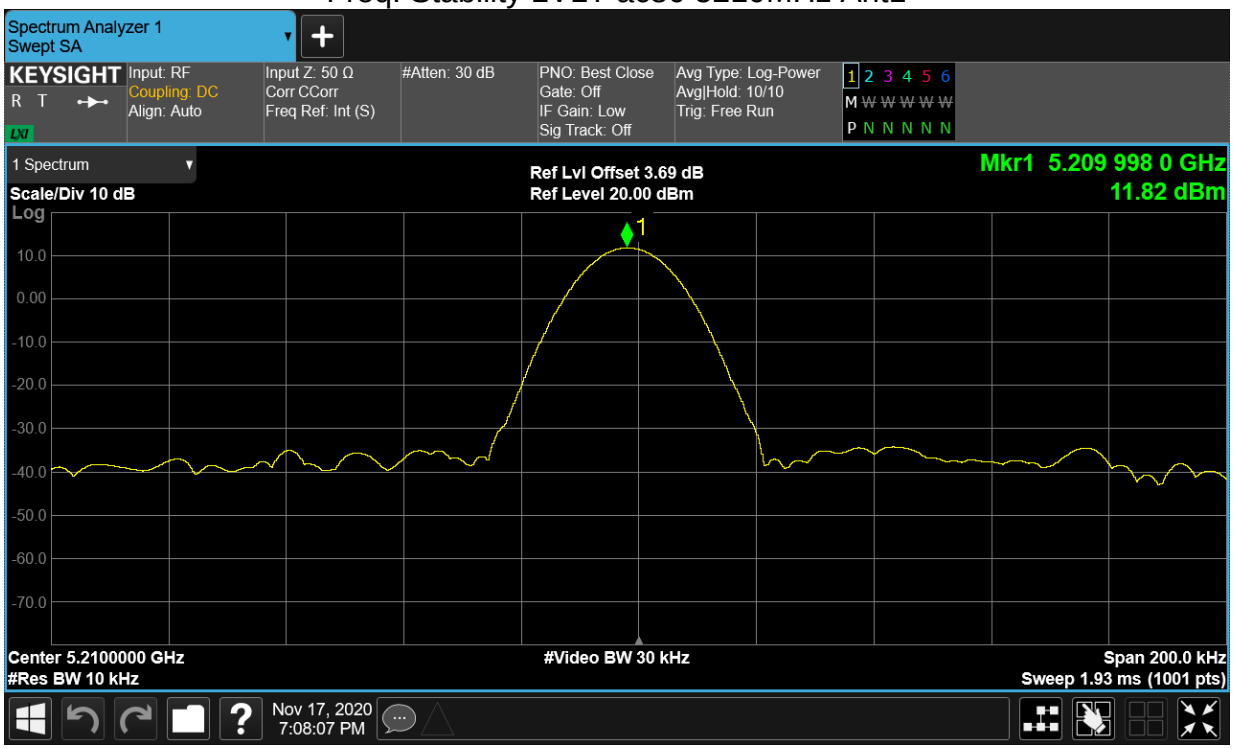

Freq. Stability HVLT ac80 5210MHz Ant1



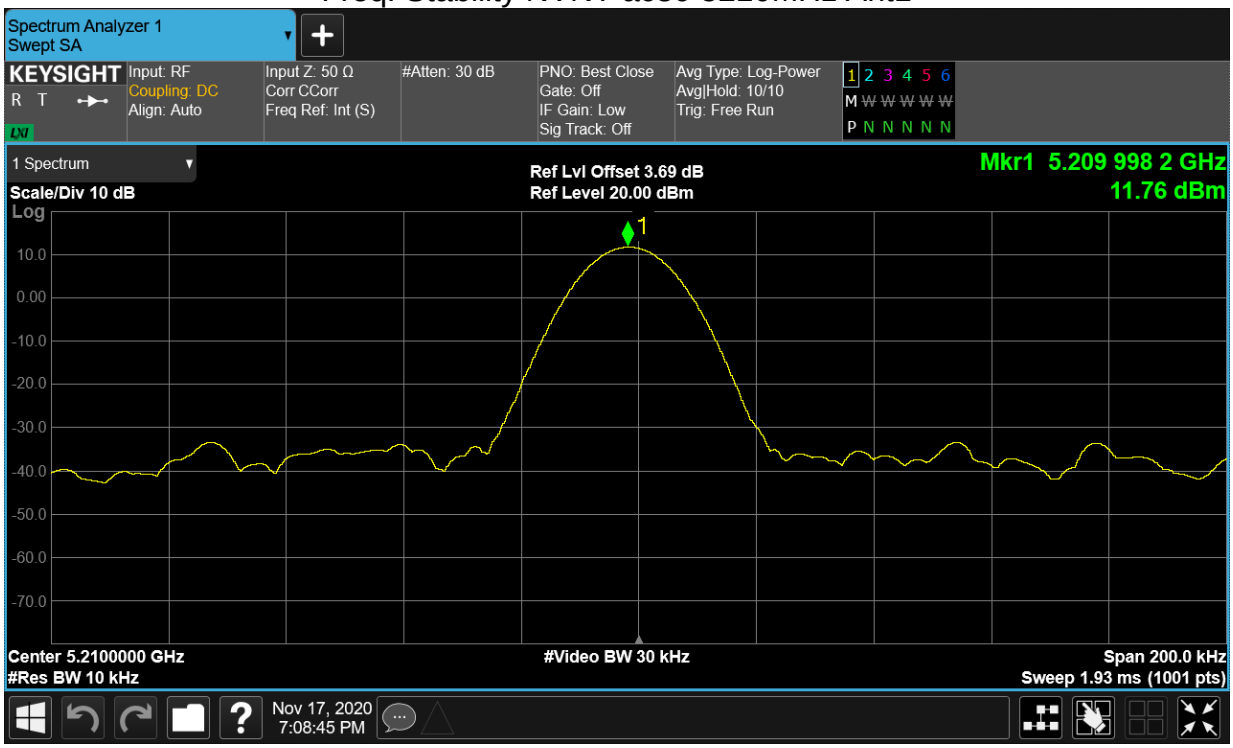
Freq. Stability LVHT ac80 5210MHz Ant1



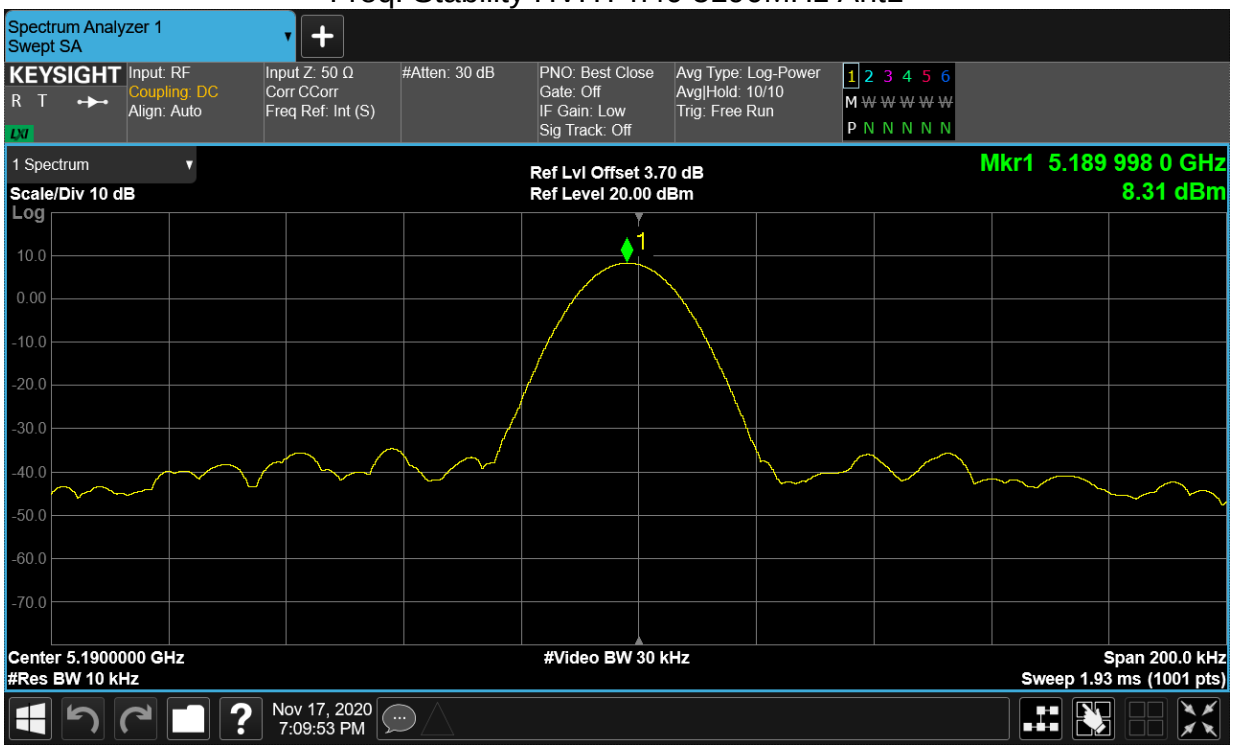

Freq. Stability LVLT ac80 5210MHz Ant1



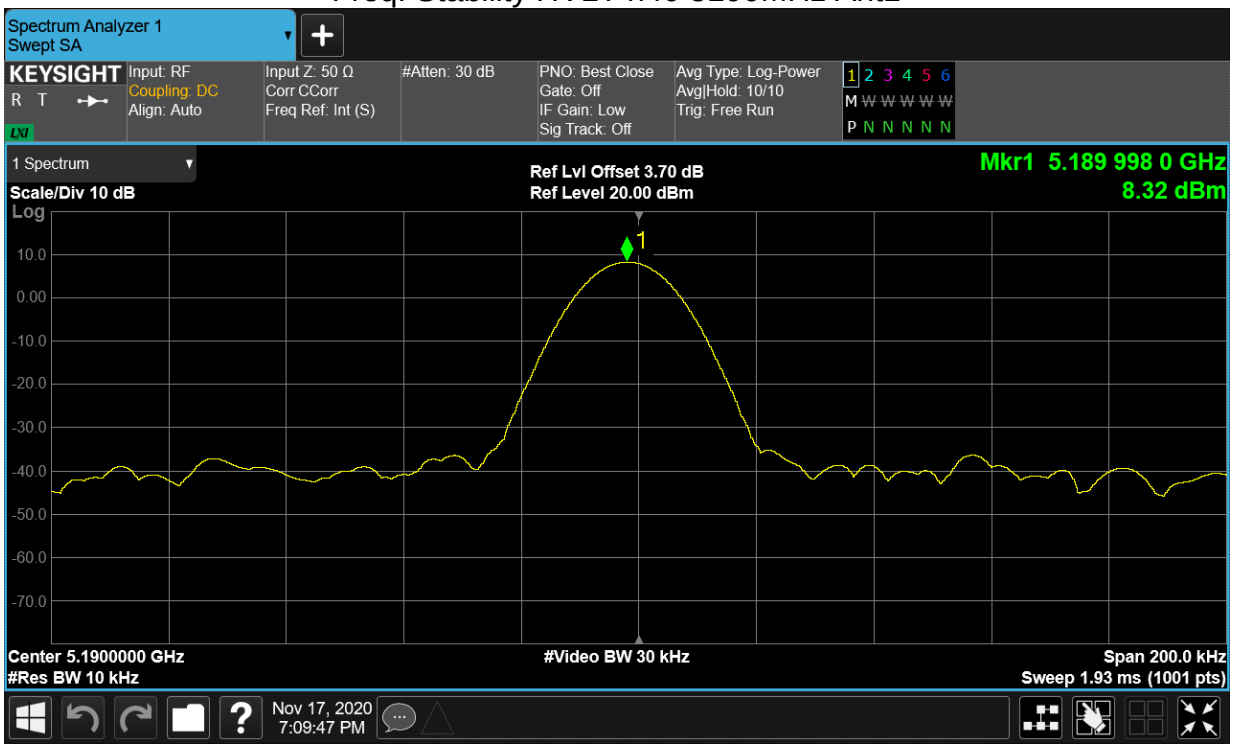
Freq. Stability NVNT ac80 5210MHz Ant1



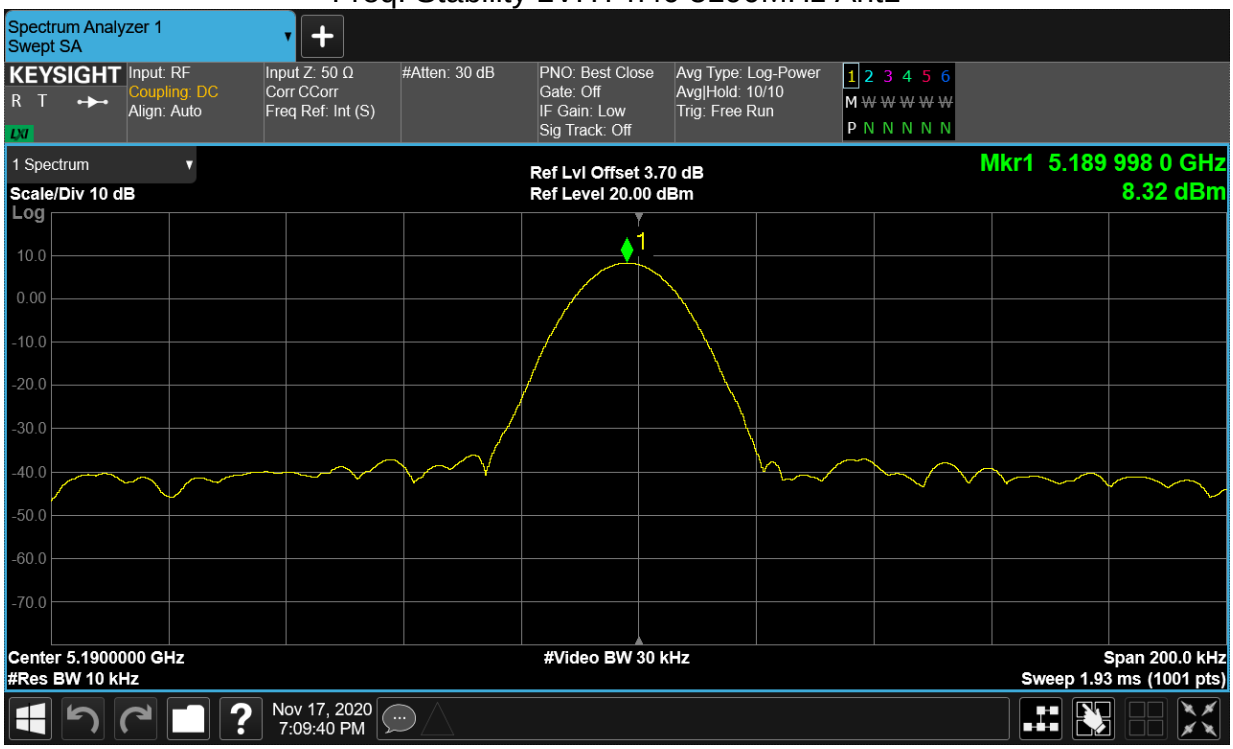

Freq. Stability HVHT n40 5190MHz Ant1



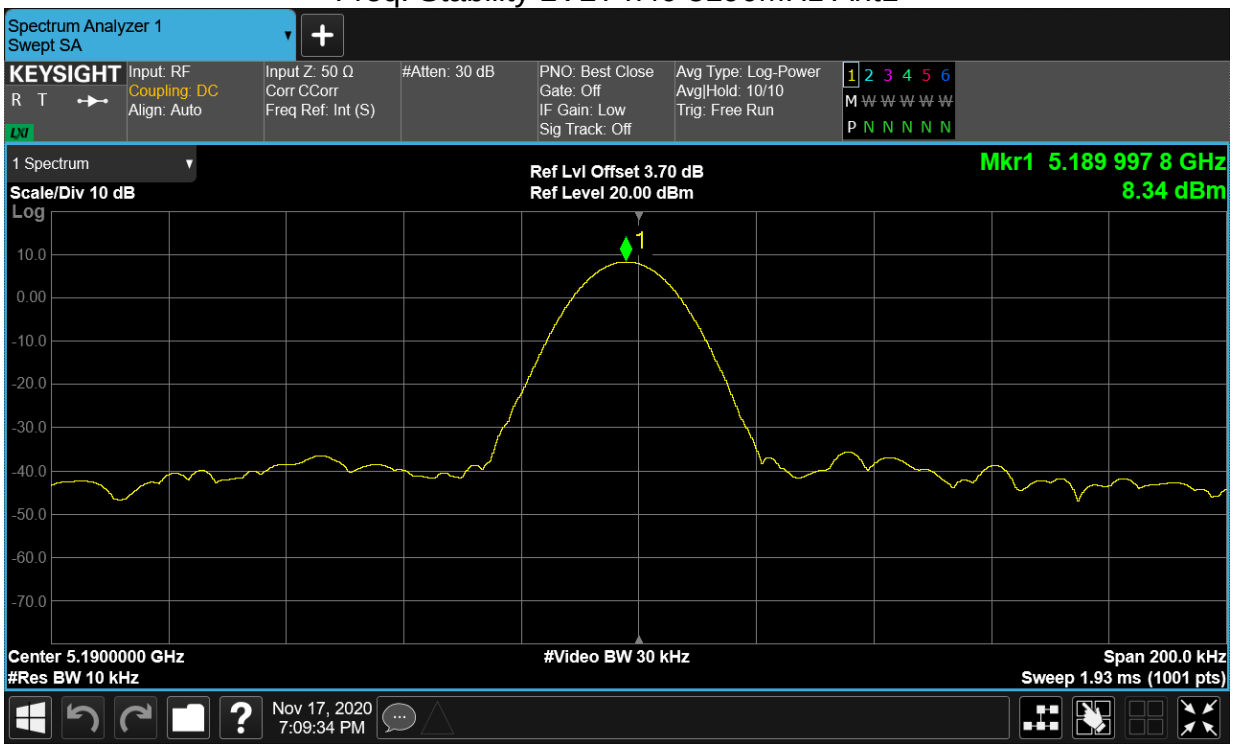
Freq. Stability HVLT n40 5190MHz Ant1



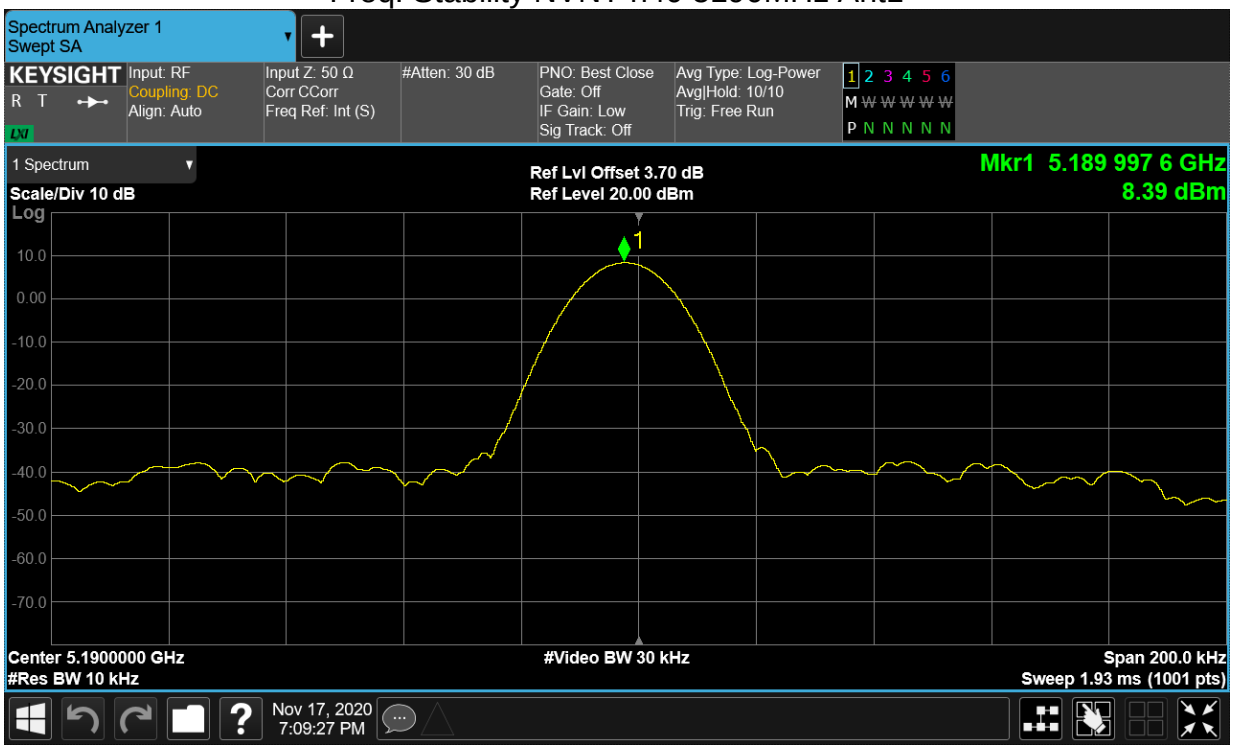

Freq. Stability LVHT n40 5190MHz Ant1



Freq. Stability LVLT n40 5190MHz Ant1




Freq. Stability NVNT n40 5190MHz Ant1




**Maximum Conducted Output Power**

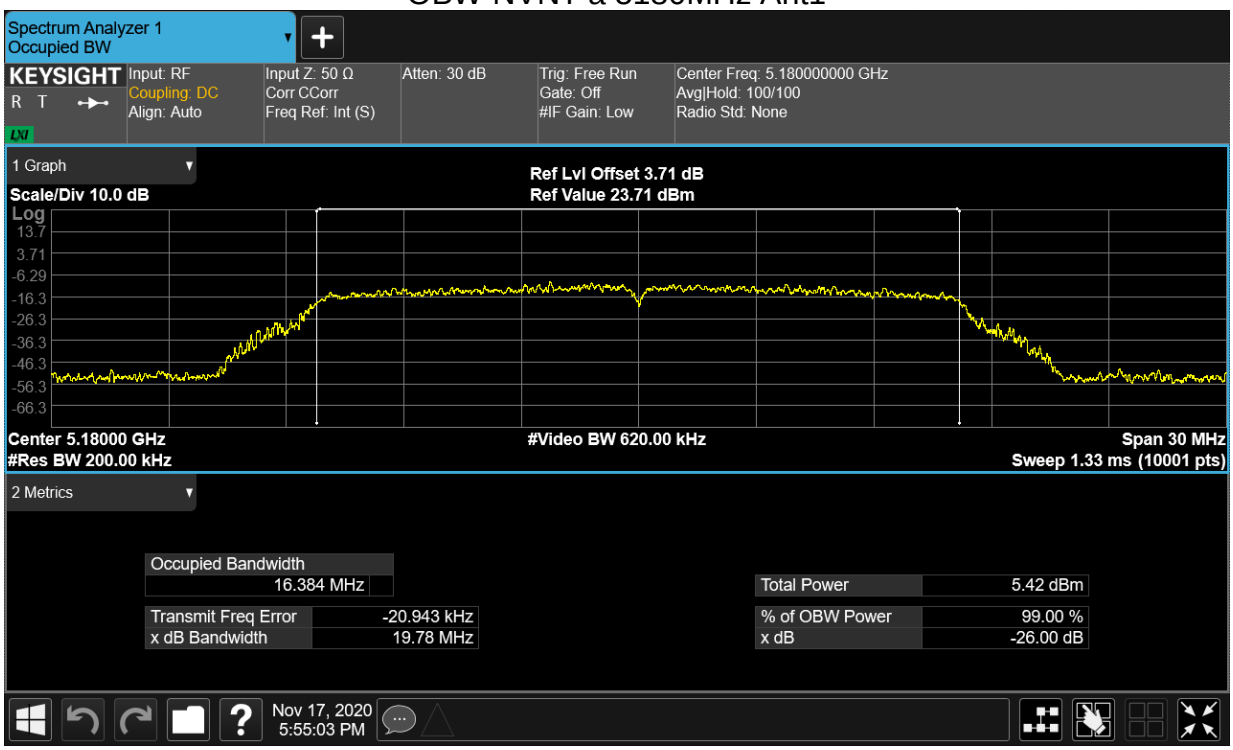
| Condition | Mode | Frequency (MHz) | Antenna | Conducted Power (dBm) | Duty Factor (dB) | Total Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|---|---|
| NVNT | a | 5180 | Ant1 | 0.64 | 0 | 0.64 | 24 | Pass |
| NVNT | a | 5200 | Ant1 | 0.42 | 0 | 0.42 | 24 | Pass |
| NVNT | a | 5240 | Ant1 | 0.41 | 0 | 0.41 | 24 | Pass |
| NVNT | ac20 | 5180 | Ant1 | 0.65 | 0 | 0.65 | 24 | Pass |
| NVNT | ac20 | 5200 | Ant1 | 0.66 | 0 | 0.66 | 24 | Pass |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NVNT | ac20 | 5240 | Ant1 | 0.35 | 0 | 0.35 | 24 | Pass |
| NVNT | ac40 | 5190 | Ant1 | 0.32 | 0 | 0.32 | 24 | Pass |
| NVNT | ac40 | 5230 | Ant1 | 0.62 | 0 | 0.62 | 24 | Pass |
| NVNT | ac80 | 5210 | Ant1 | 0.73 | 0 | 0.73 | 24 | Pass |
| NVNT | n20 | 5180 | Ant1 | 0.77 | 0 | 0.77 | 24 | Pass |
| NVNT | n20 | 5200 | Ant1 | 0.45 | 0 | 0.45 | 24 | Pass |
| NVNT | n20 | 5240 | Ant1 | 0.41 | 0 | 0.41 | 24 | Pass |
| NVNT | n40 | 5190 | Ant1 | 0.21 | 0 | 0.21 | 24 | Pass |
| NVNT | n40 | 5230 | Ant1 | 0.31 | 0 | 0.31 | 24 | Pass |

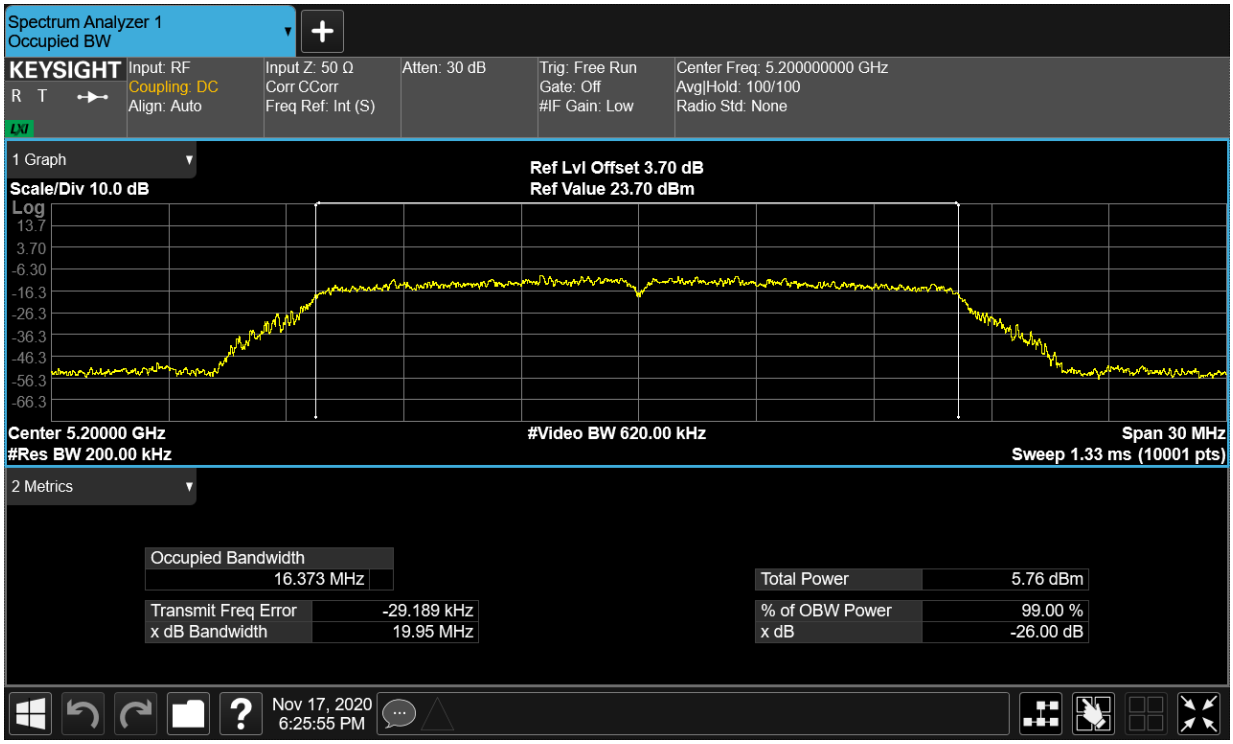
**Occupied Channel Bandwidth**

| Condition | Mode | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|---|---|---|---|---|
| NVNT | a | 5180 | Ant1 | 16.38383775 |
| NVNT | a | 5200 | Ant1 | 16.37327143 |
| NVNT | a | 5240 | Ant1 | 16.39047399 |
| NVNT | ac20 | 5180 | Ant1 | 17.51595491 |
| NVNT | ac20 | 5200 | Ant1 | 17.5010002 |
| NVNT | ac20 | 5240 | Ant1 | 17.4960612 |
| NVNT | ac40 | 5190 | Ant1 | 35.87320273 |
| NVNT | ac40 | 5230 | Ant1 | 35.84106834 |
| NVNT | ac80 | 5210 | Ant1 | 75.6307903 |
| NVNT | n20 | 5180 | Ant1 | 17.50893698 |
| NVNT | n20 | 5200 | Ant1 | 17.49833671 |
| NVNT | n20 | 5240 | Ant1 | 17.51885958 |
| NVNT | n40 | 5190 | Ant1 | 35.86259628 |
| NVNT | n40 | 5230 | Ant1 | 35.83453508 |

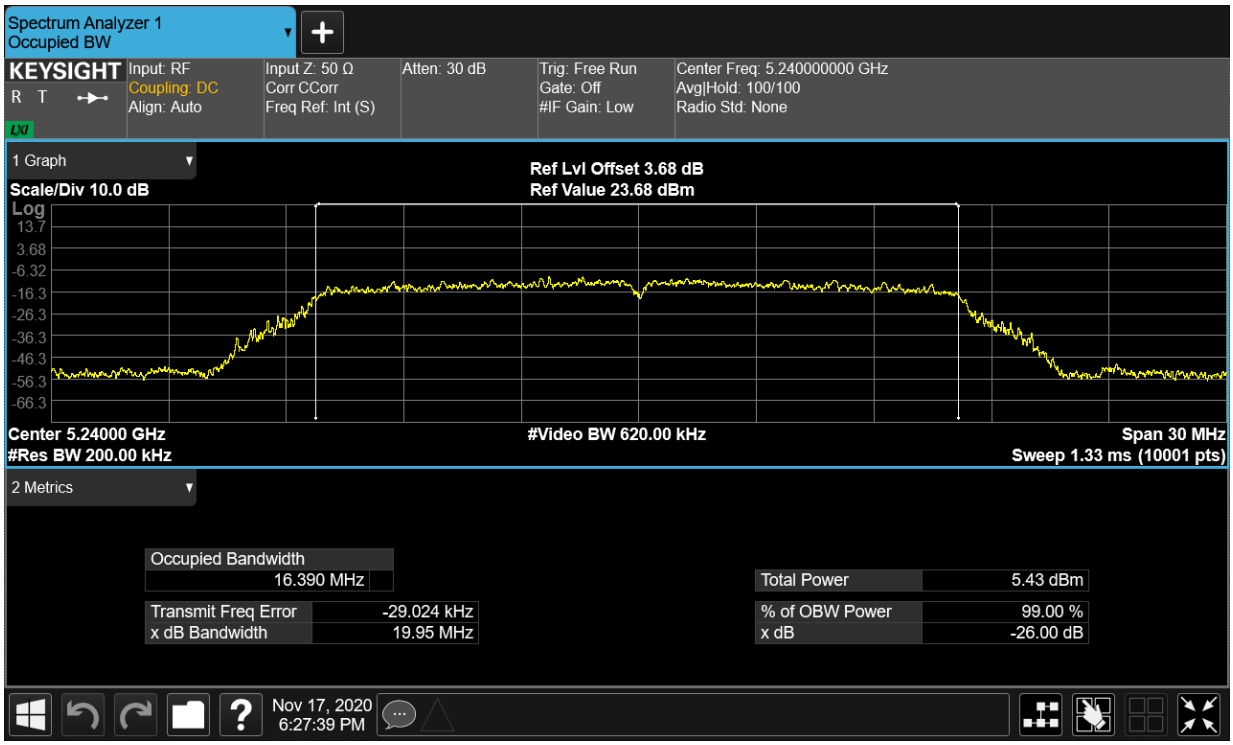
OBW NVNT a 5180MHz Ant1



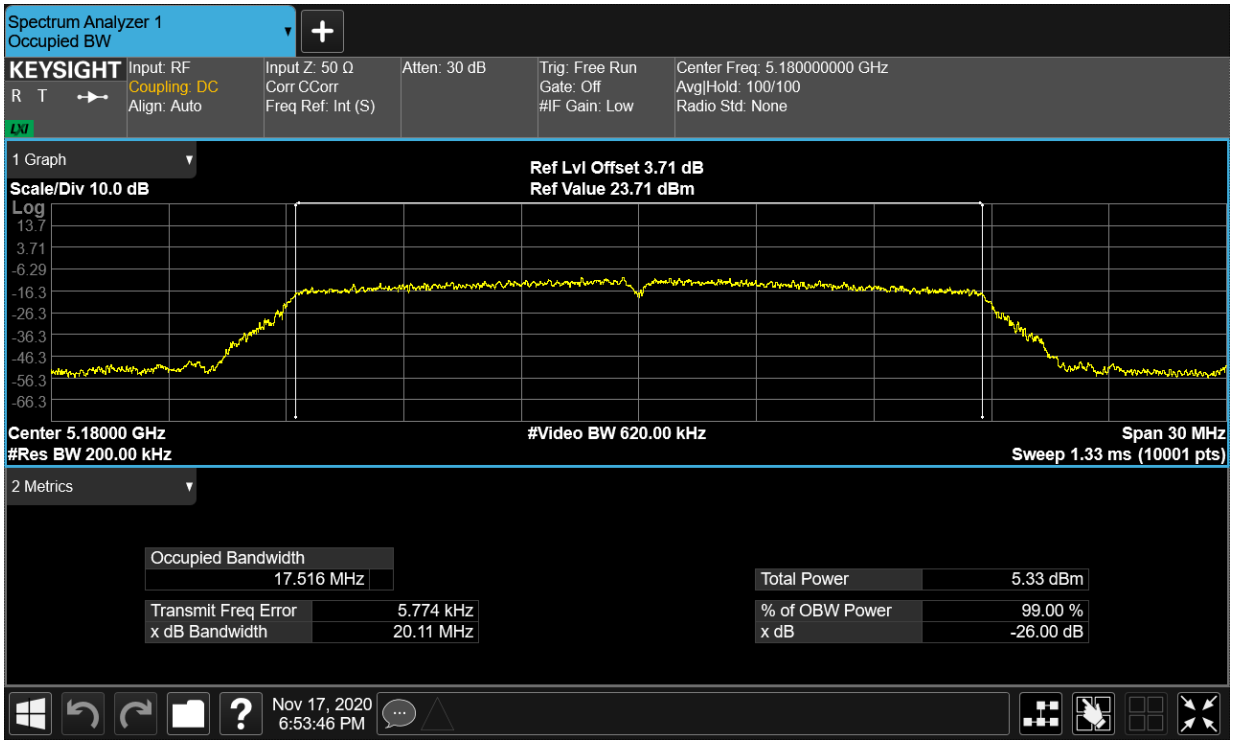
OBW NVNT a 5200MHz Ant1



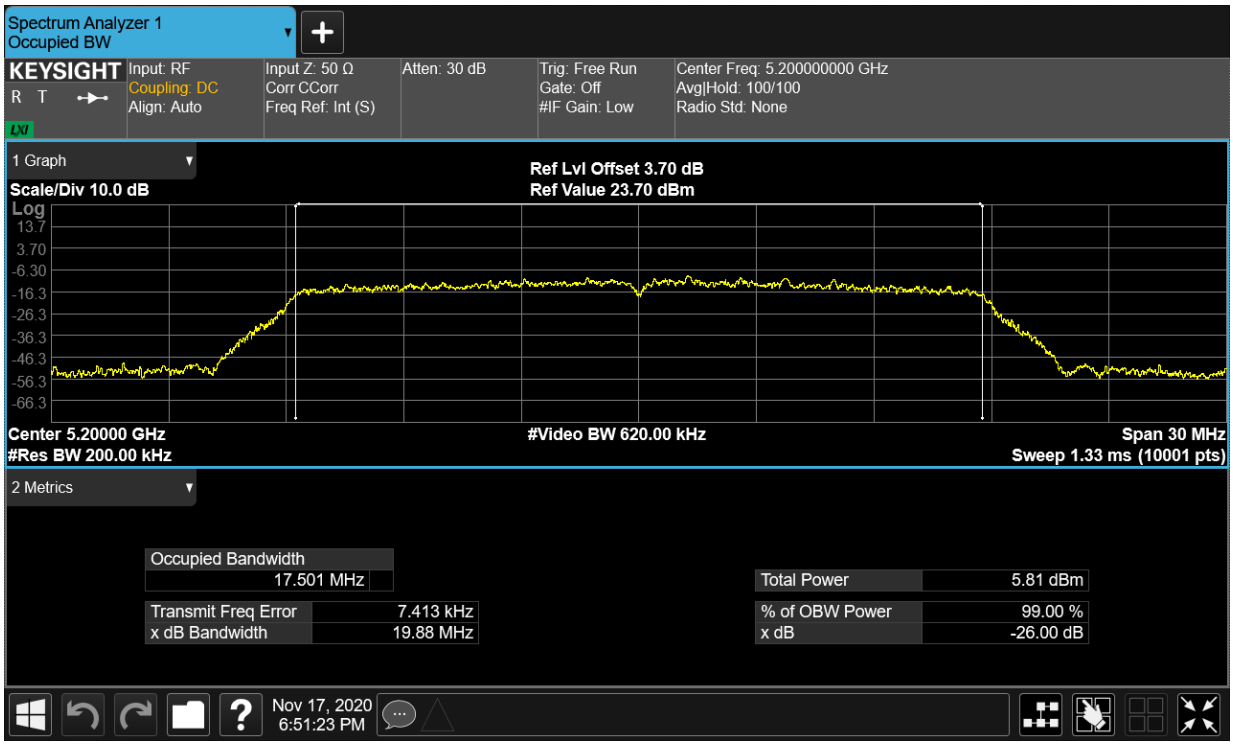

OBW NVNT a 5240MHz Ant1



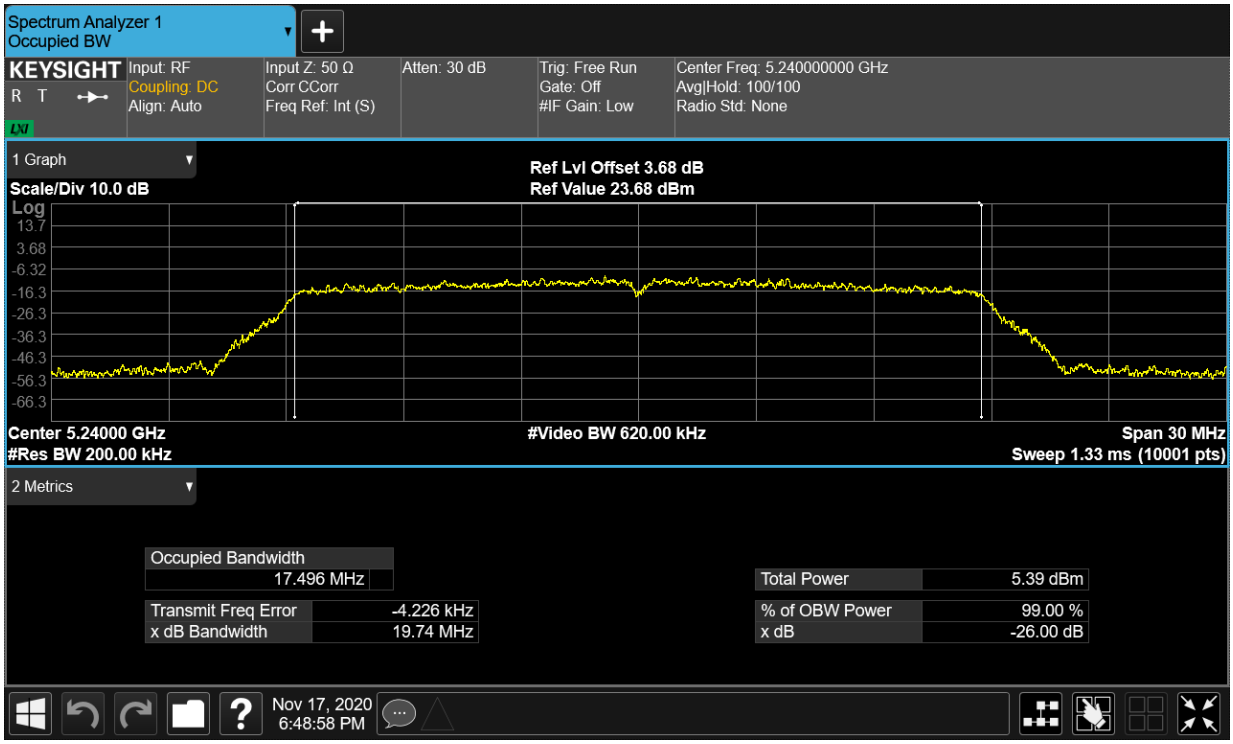
OBW NVNT ac20 5180MHz Ant1



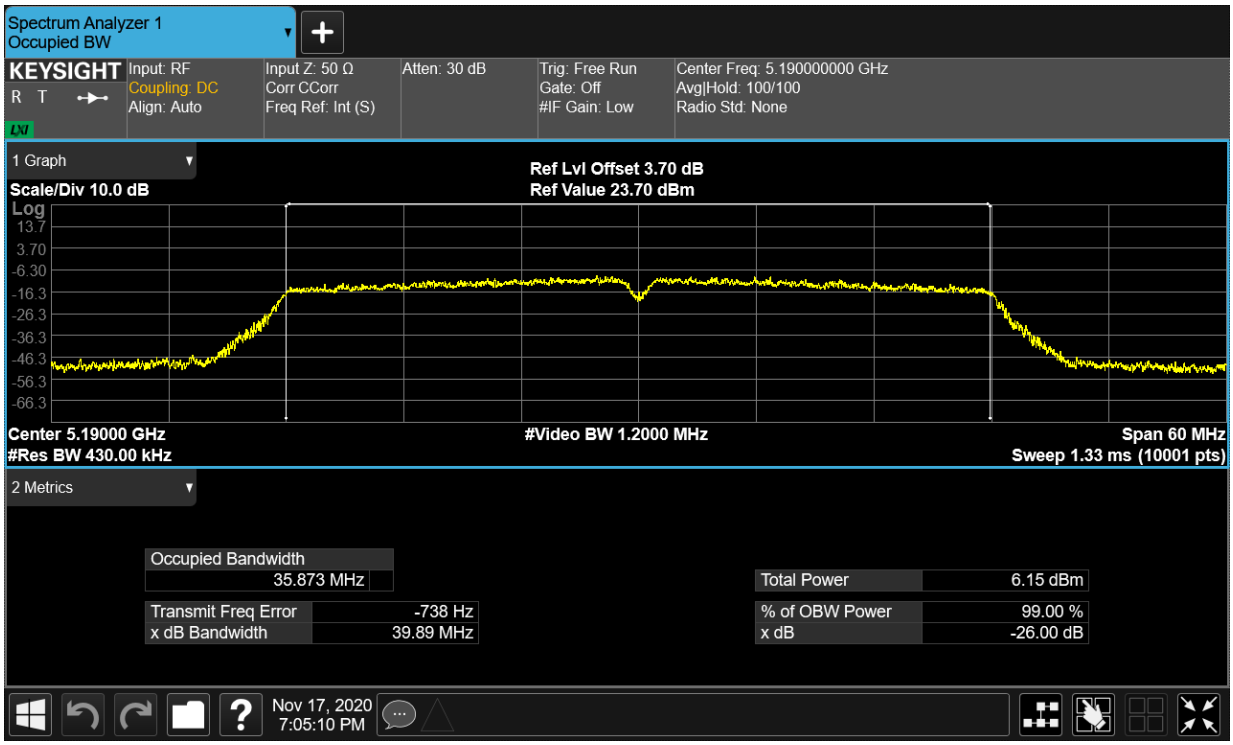

OBW NVNT ac20 5200MHz Ant1



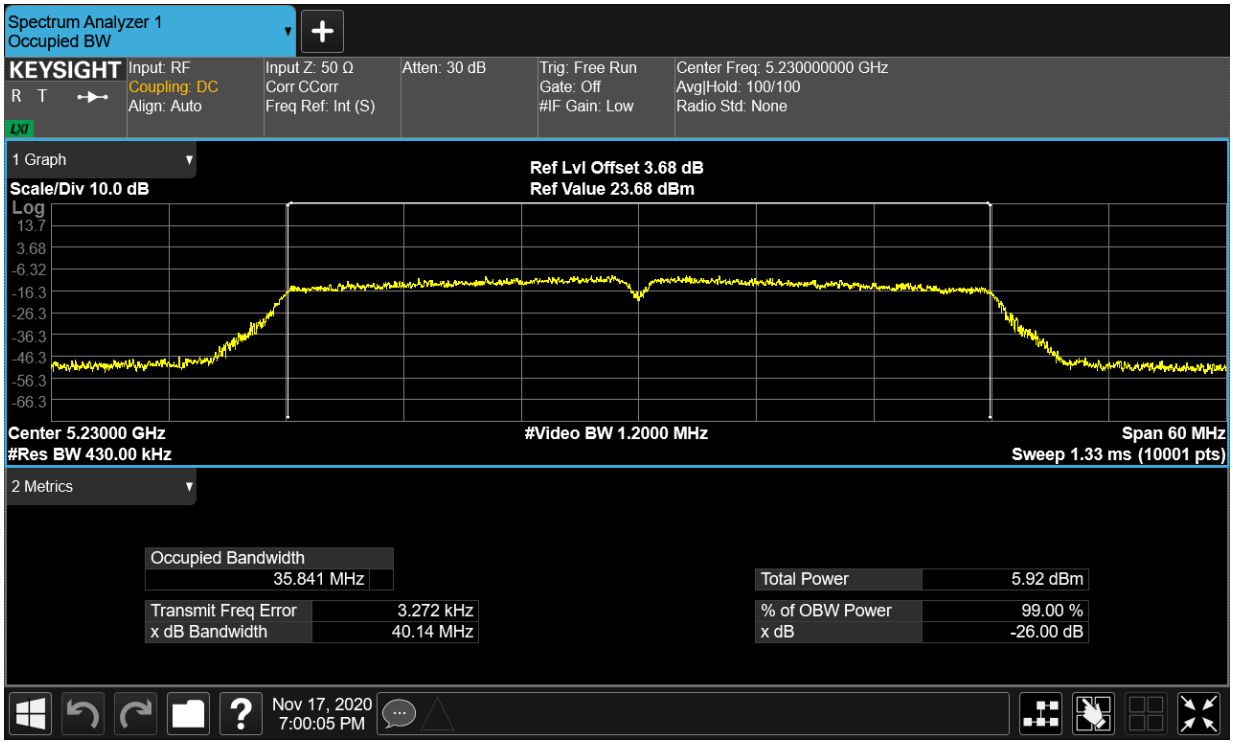
OBW NVNT ac20 5240MHz Ant1



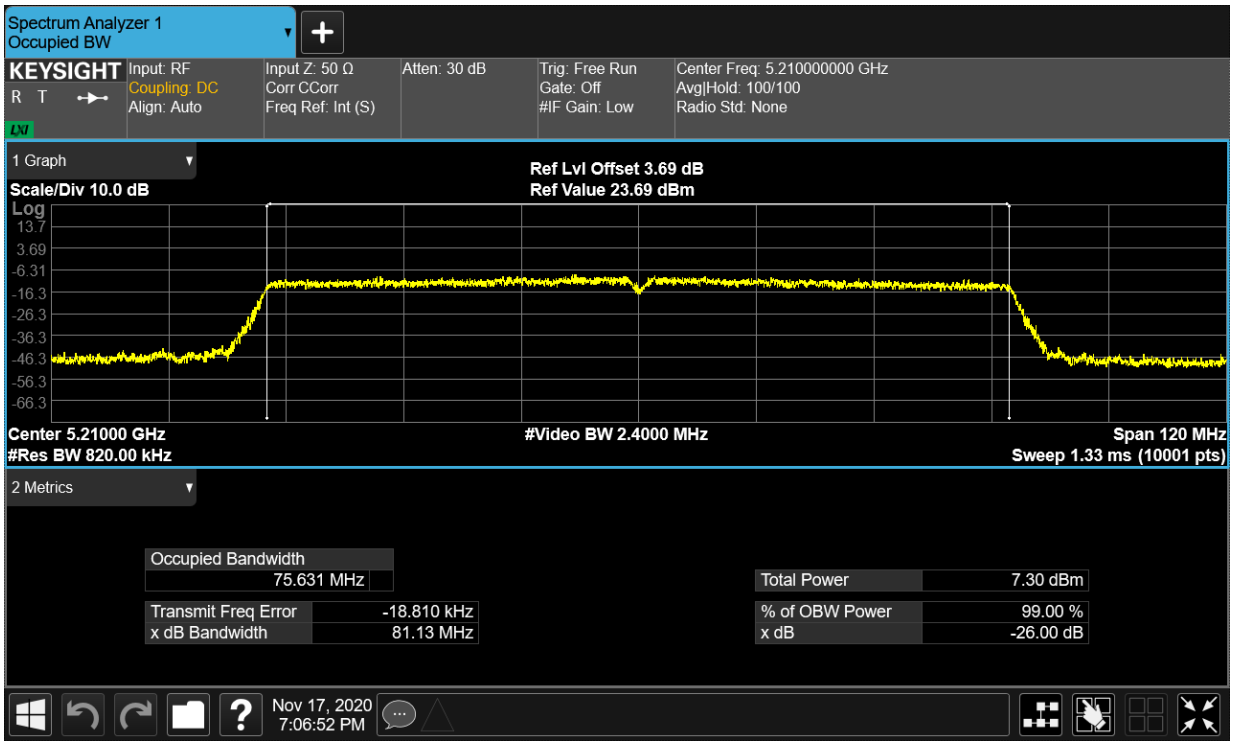

OBW NVNT ac40 5190MHz Ant1



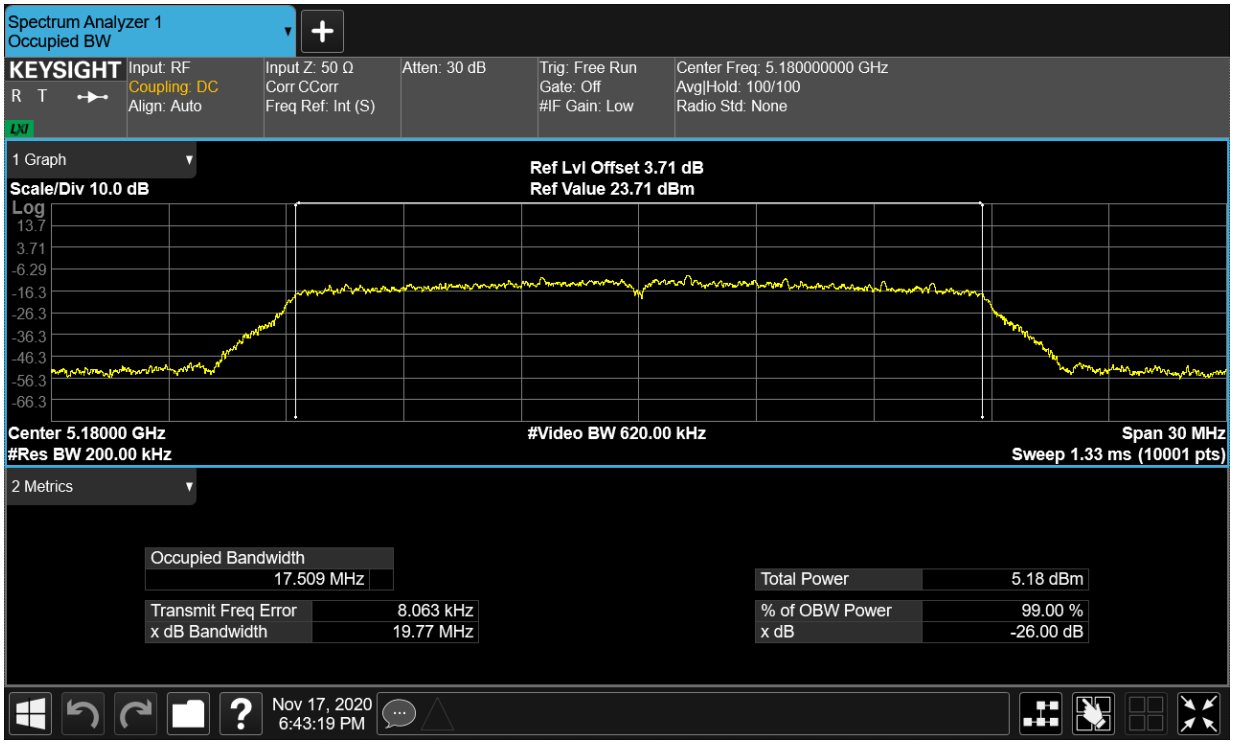
OBW NVNT ac40 5230MHz Ant1



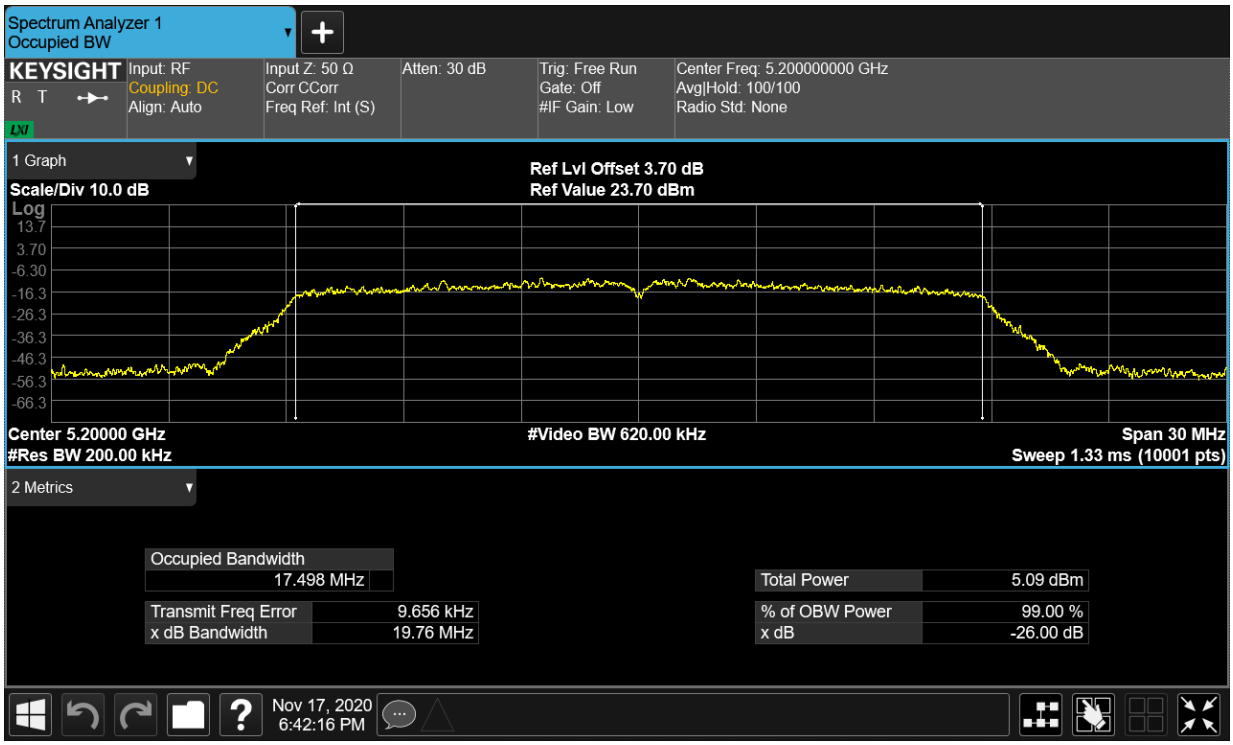

OBW NVNT ac80 5210MHz Ant1



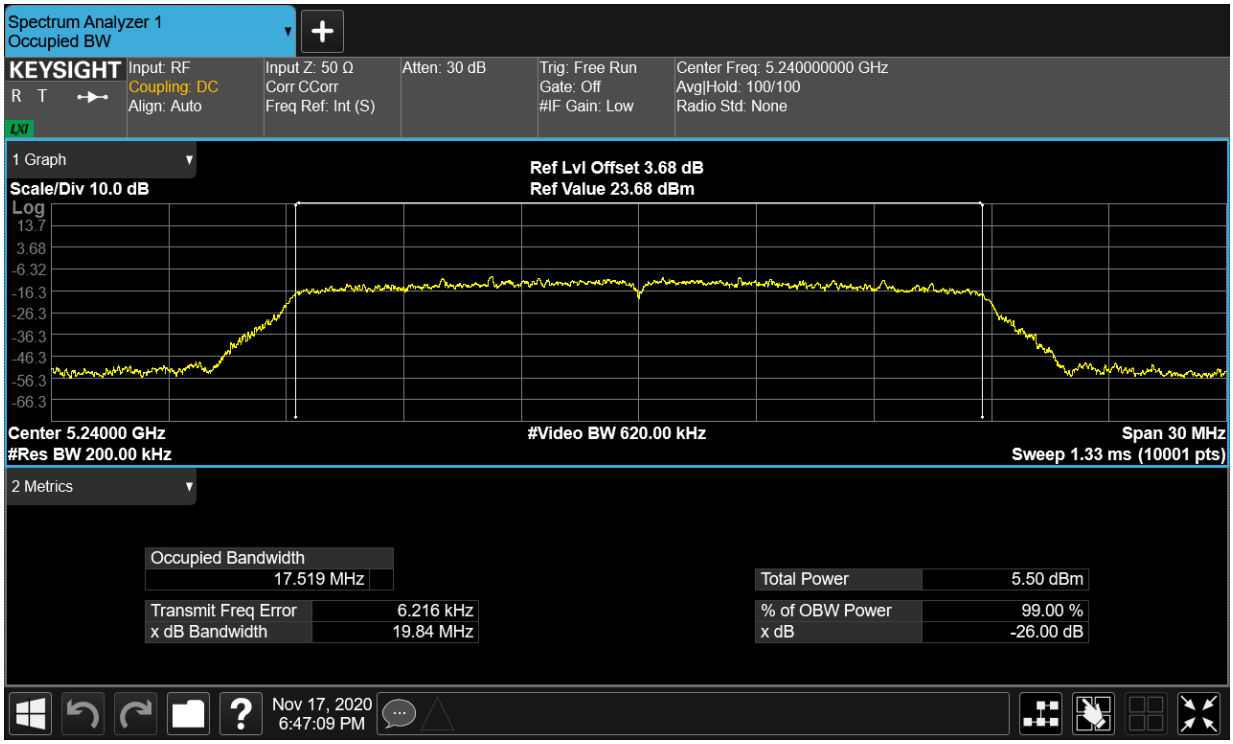
OBW NVNT n20 5180MHz Ant1



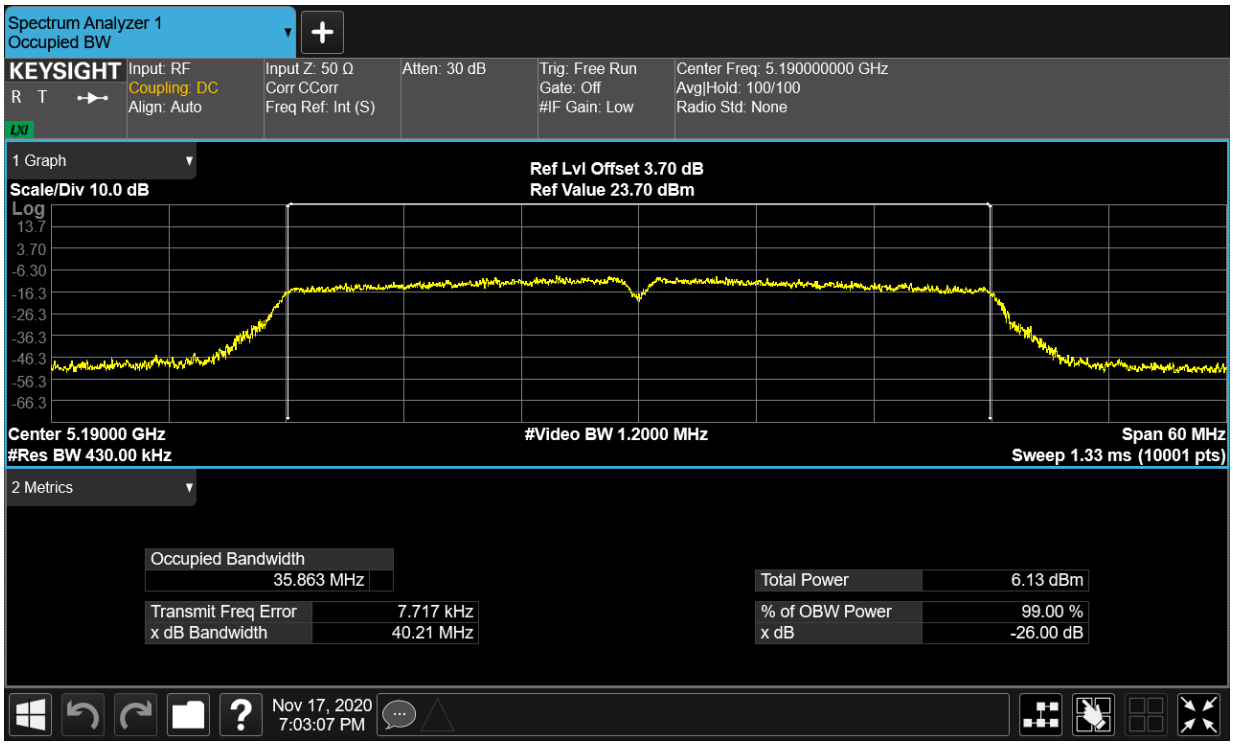

OBW NVNT n20 5200MHz Ant1



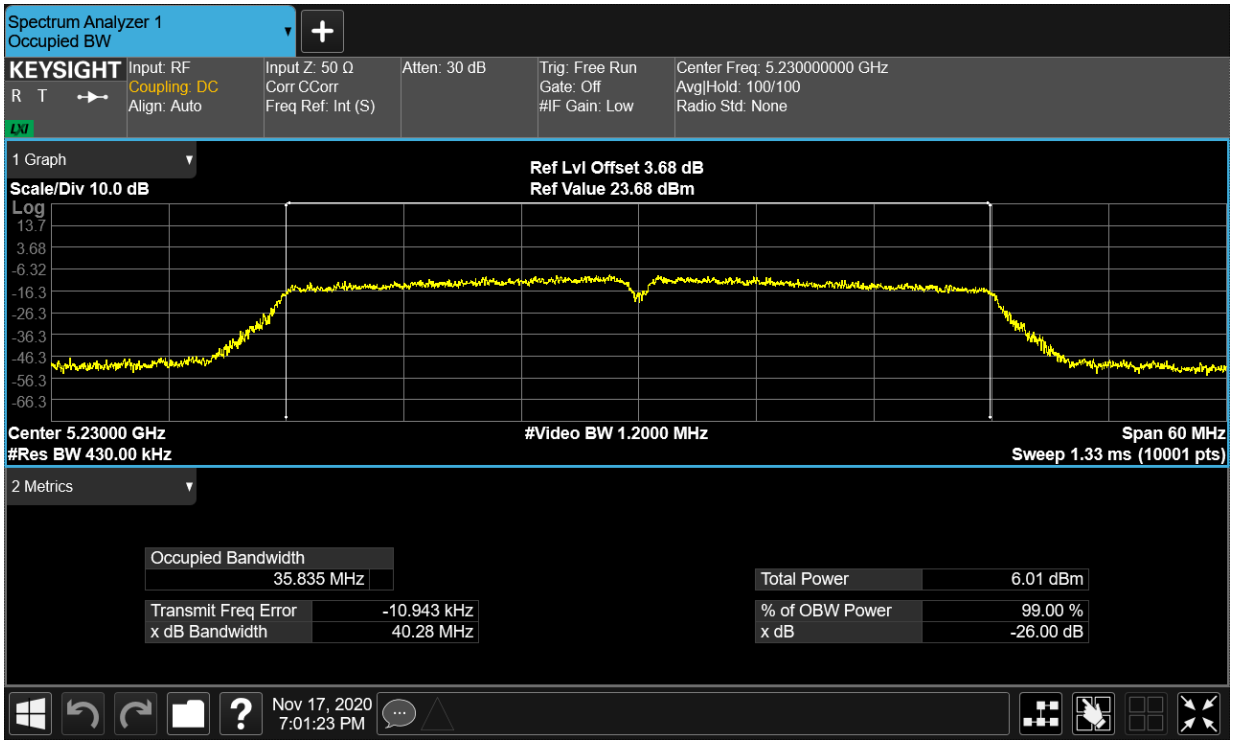
OBW NVNT n20 5240MHz Ant1




OBW NVNT n40 5190MHz Ant1



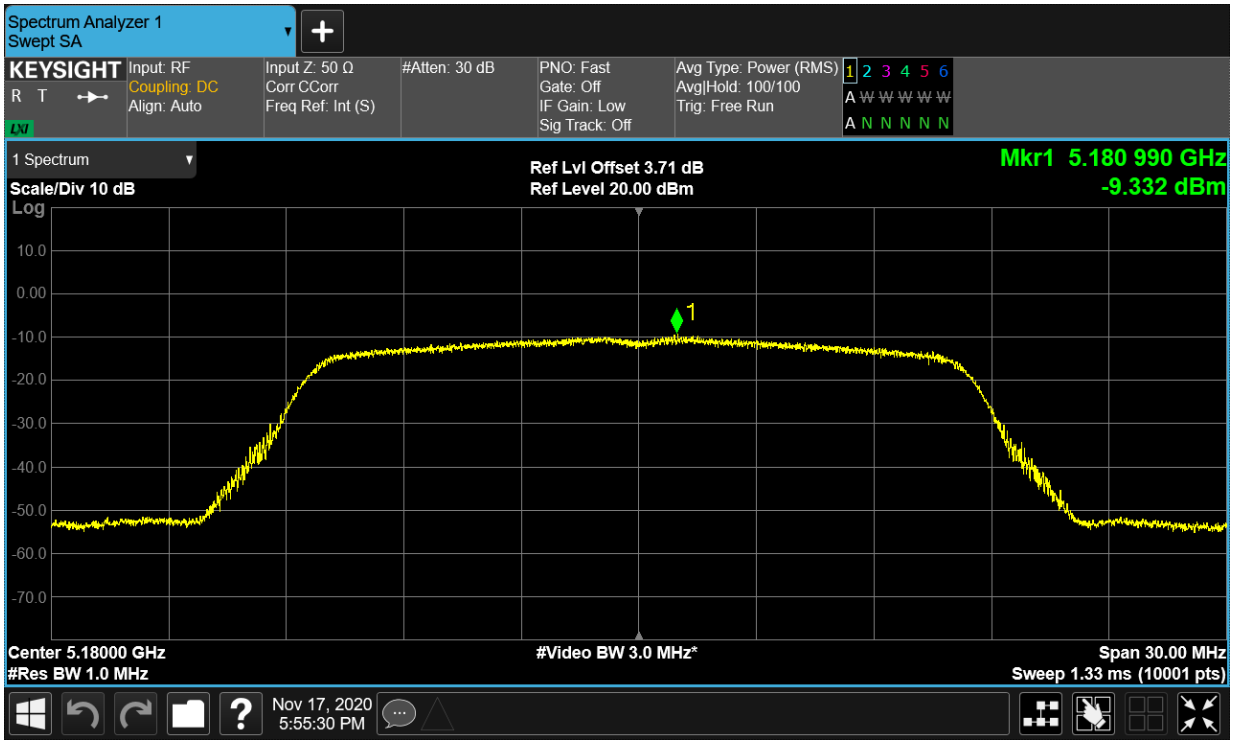
OBW NVNT n40 5230MHz Ant1




**Maximum Power Spectral Density Level**

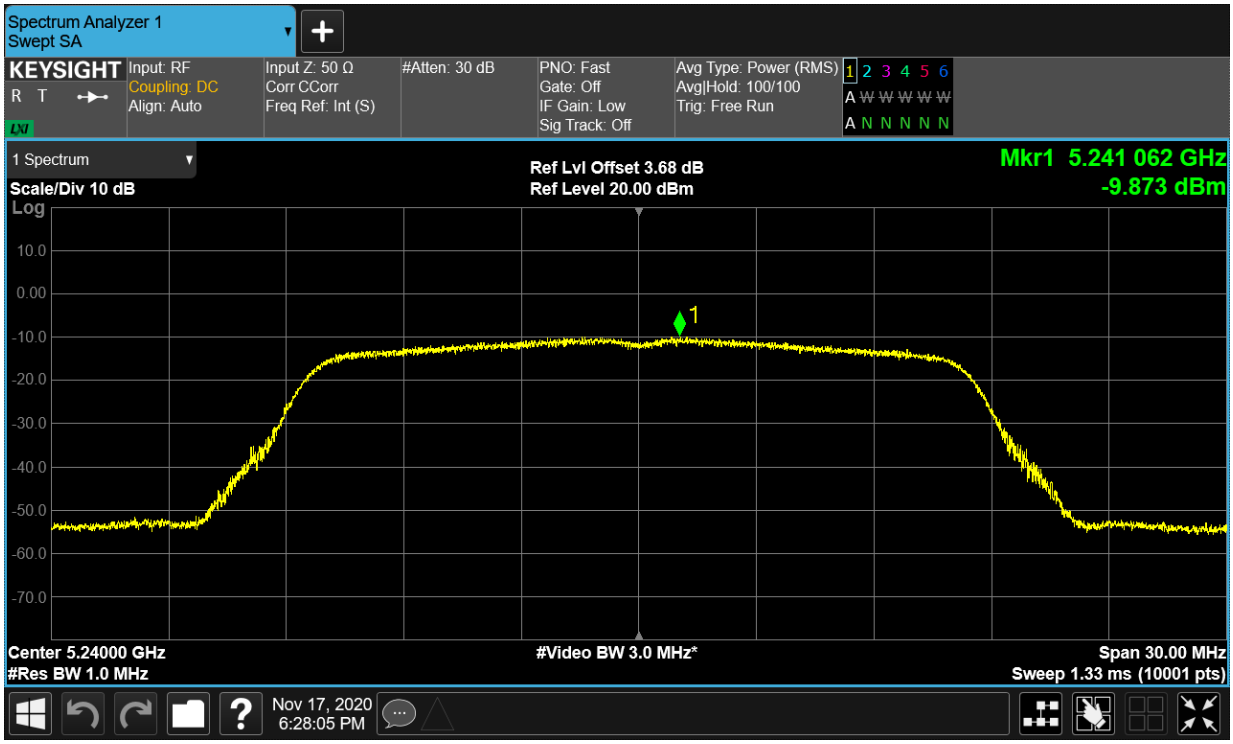
| Condition | Mode | Frequency (MHz) | Antenna | Max PSD (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | a | 5180 | Ant1 | -9.332 | 11 | Pass |
| NVNT | a | 5200 | Ant1 | -9.629 | 11 | Pass |
| NVNT | a | 5240 | Ant1 | -9.873 | 11 | Pass |
| NVNT | ac20 | 5180 | Ant1 | -9.754 | 11 | Pass |
| NVNT | ac20 | 5200 | Ant1 | -9.35 | 11 | Pass |
| NVNT | ac20 | 5240 | Ant1 | -9.931 | 11 | Pass |
| NVNT | ac40 | 5190 | Ant1 | -12.225 | 11 | Pass |
| NVNT | ac40 | 5230 | Ant1 | -12.568 | 11 | Pass |
| NVNT | ac80 | 5210 | Ant1 | -15.649 | 11 | Pass |
| NVNT | n20 | 5180 | Ant1 | -9.991 | 11 | Pass |
| NVNT | n20 | 5200 | Ant1 | -9.921 | 11 | Pass |
| NVNT | n20 | 5240 | Ant1 | -9.812 | 11 | Pass |
| NVNT | n40 | 5190 | Ant1 | -12.073 | 11 | Pass |
| NVNT | n40 | 5230 | Ant1 | -12.497 | 11 | Pass |

PSD NVNT a 5180MHz Ant1

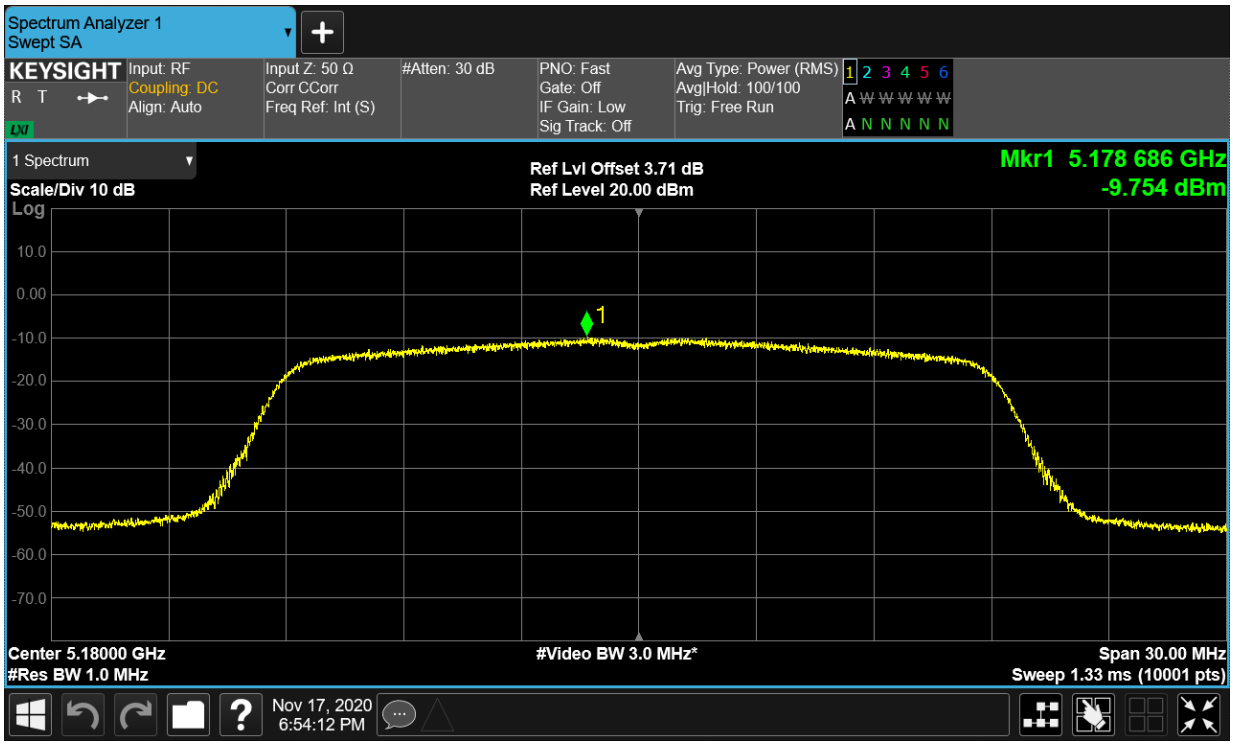



PSD NVNT a 5200MHz Ant1

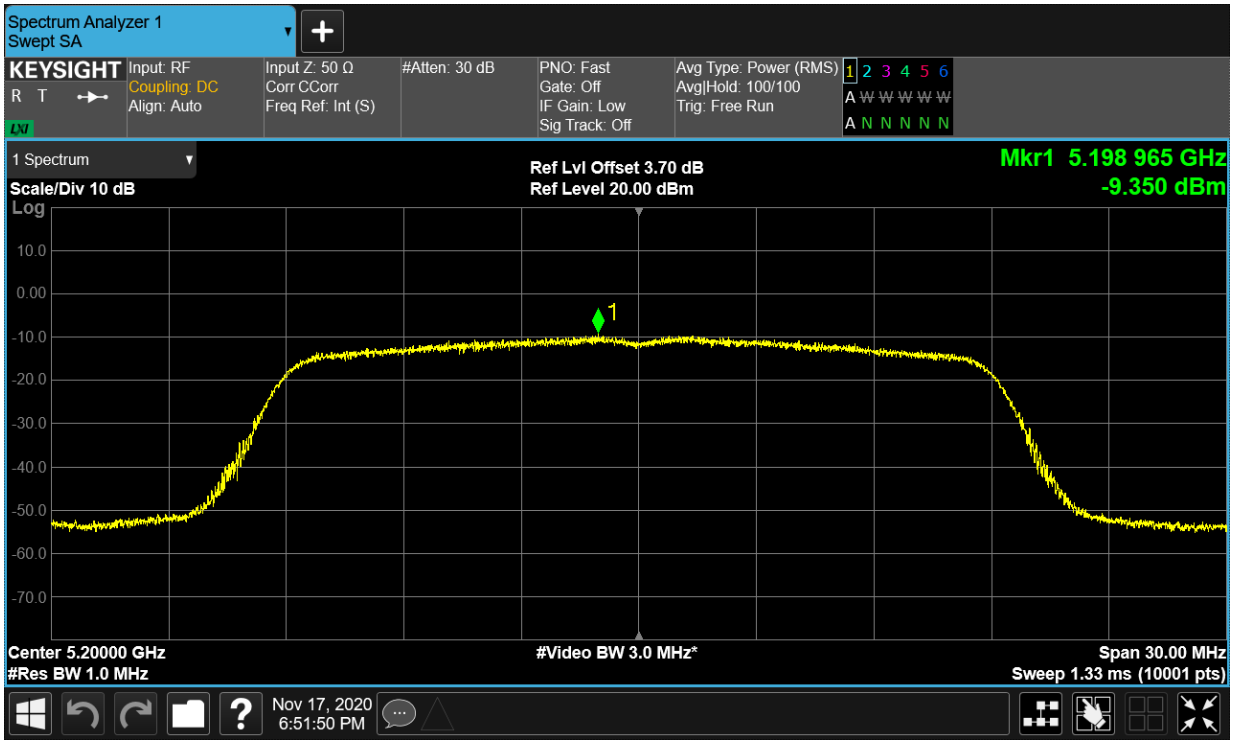
PSD NVNT a 5240MHz Ant1



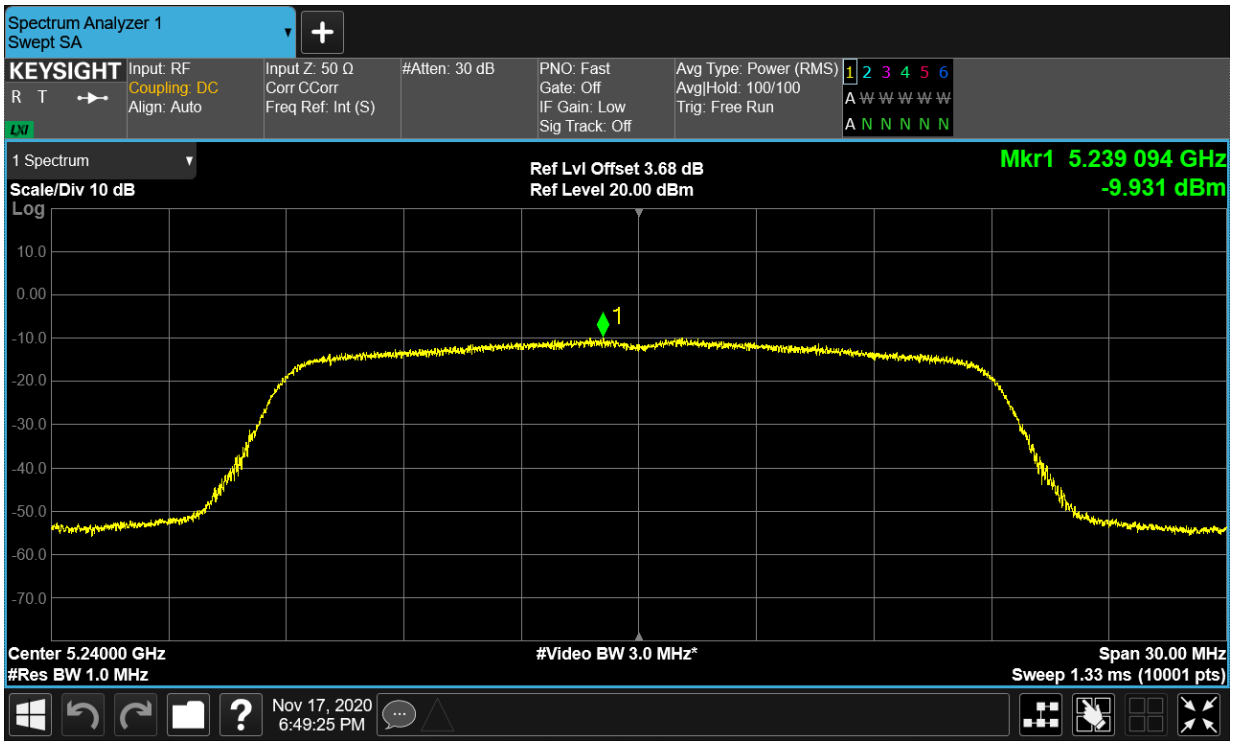

PSD NVNT ac20 5180MHz Ant1



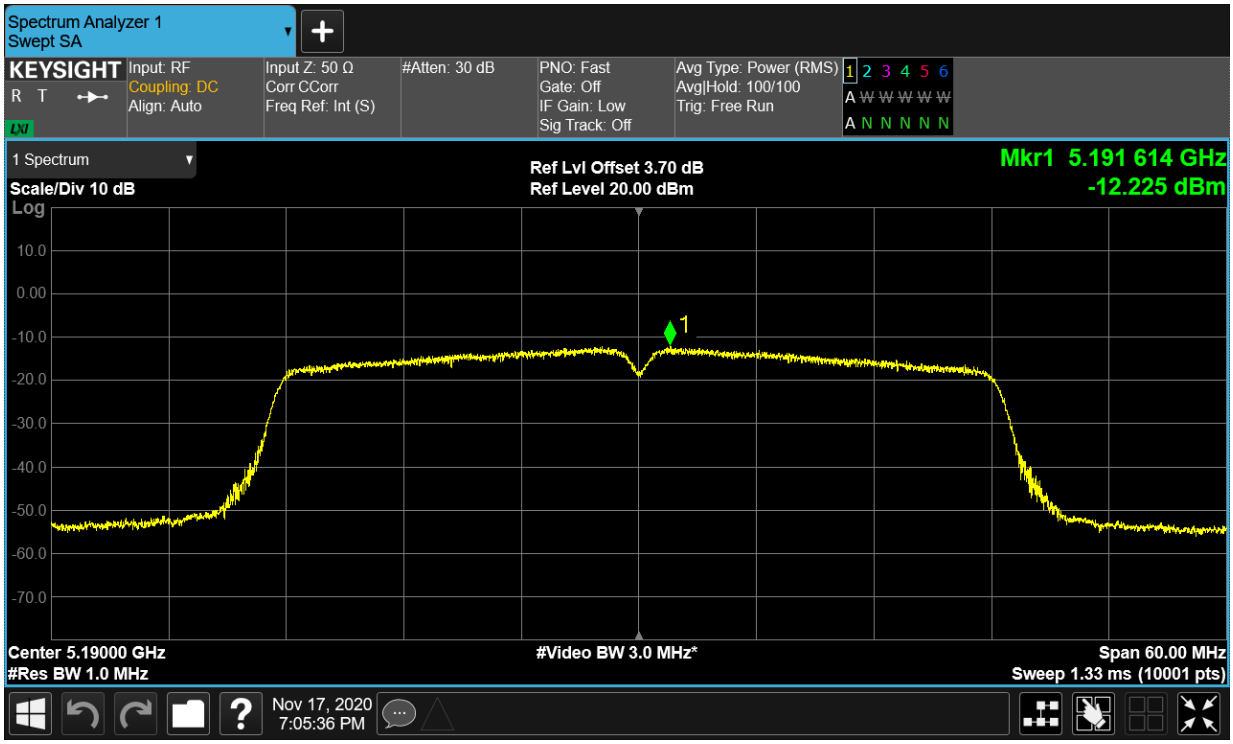
PSD NVNT ac20 5200MHz Ant1



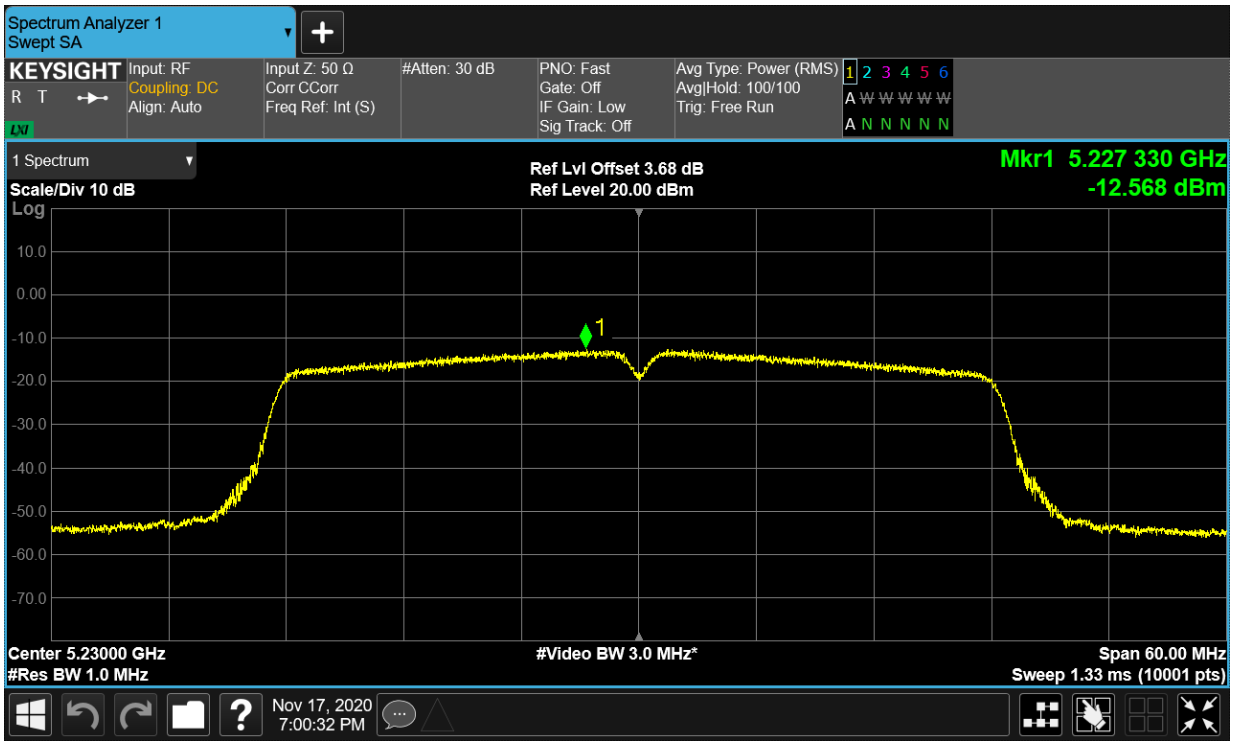

PSD NVNT ac20 5240MHz Ant1



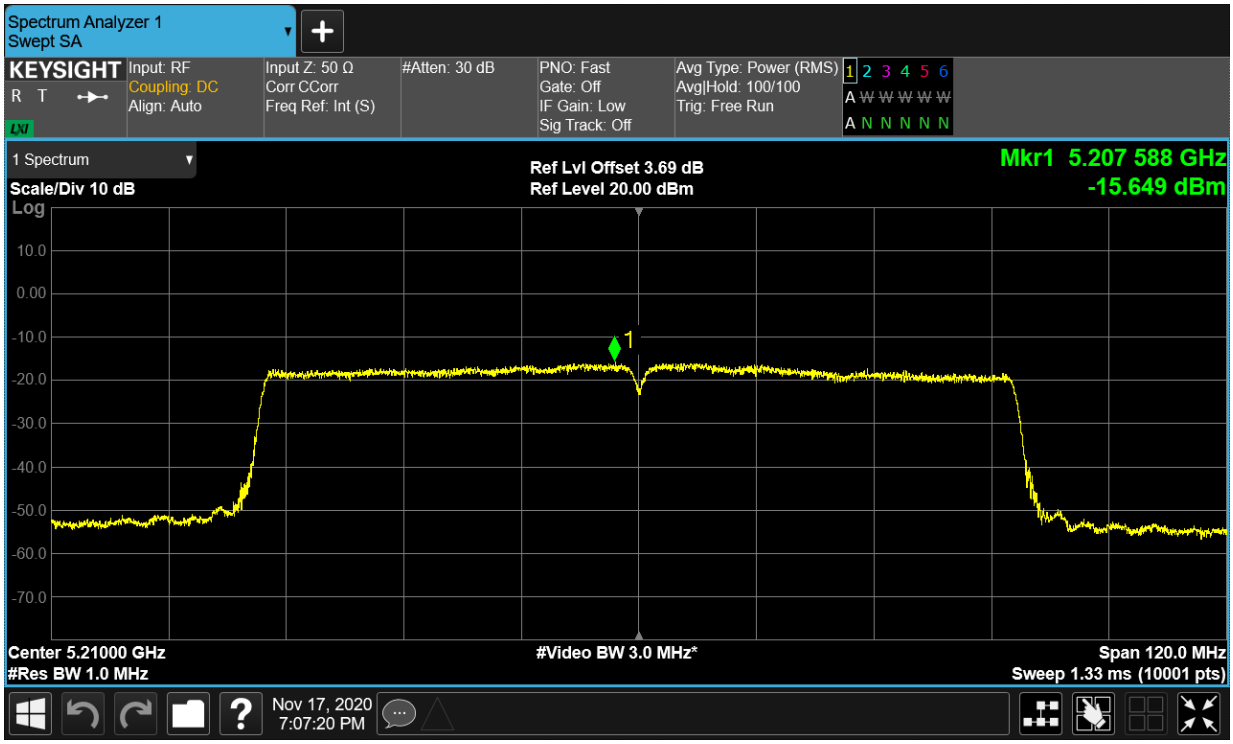
PSD NVNT ac40 5190MHz Ant1



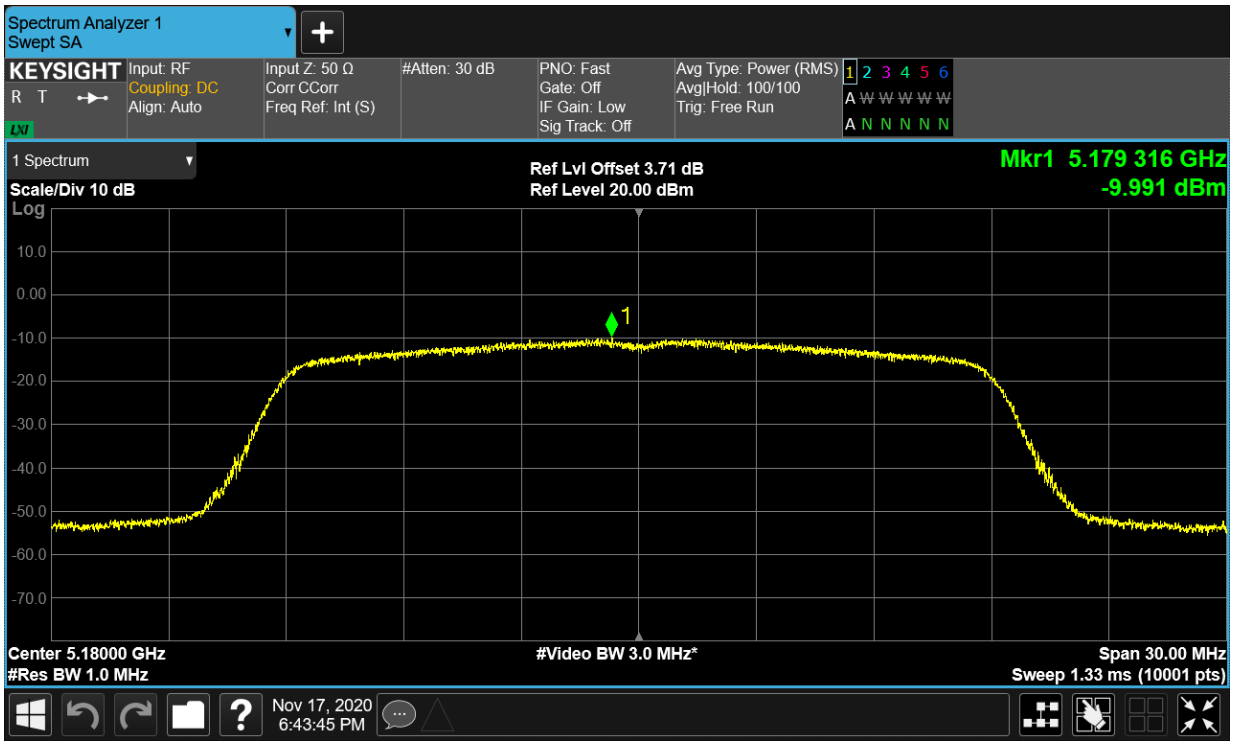

PSD NVNT ac40 5230MHz Ant1



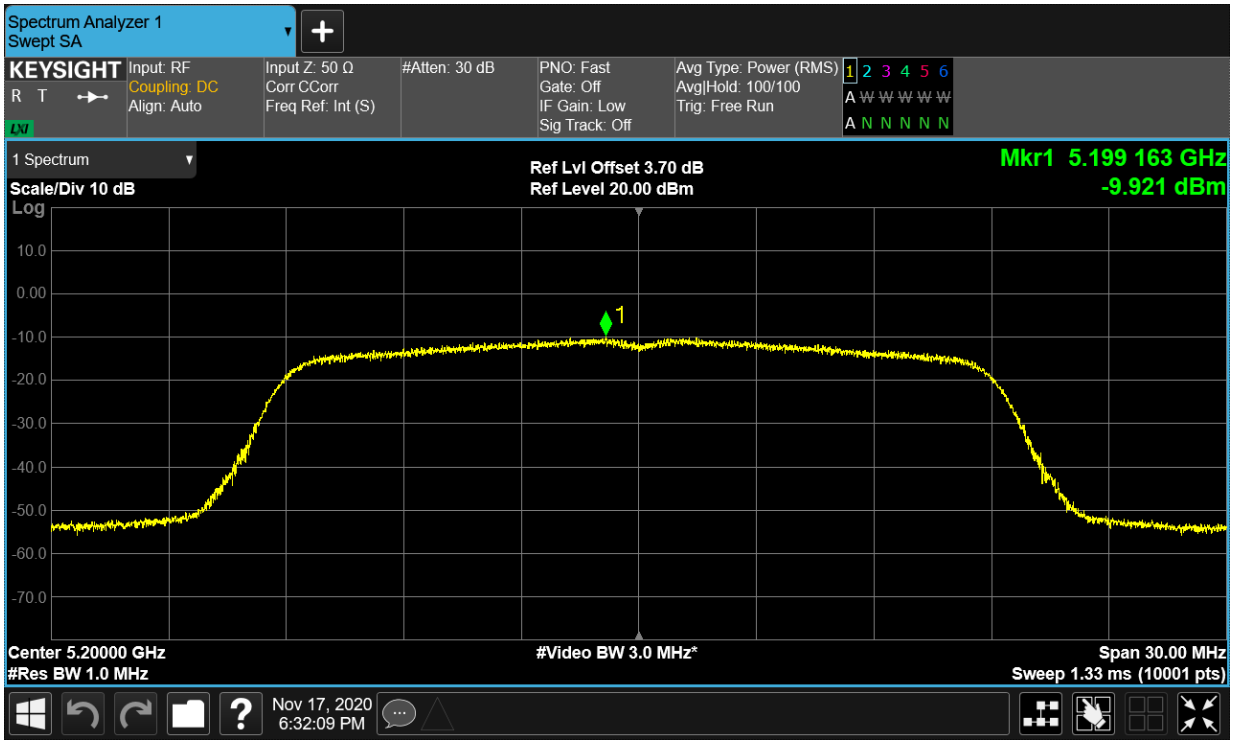
PSD NVNT ac80 5210MHz Ant1



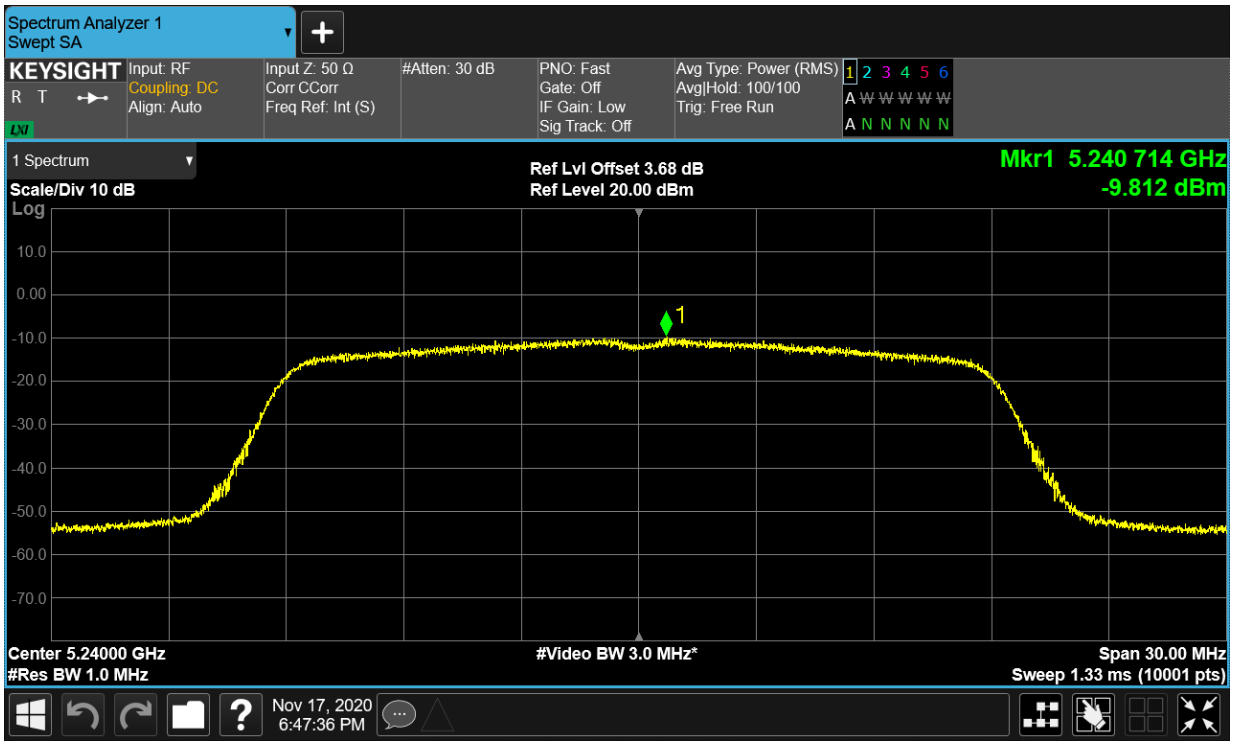

PSD NVNT n20 5180MHz Ant1



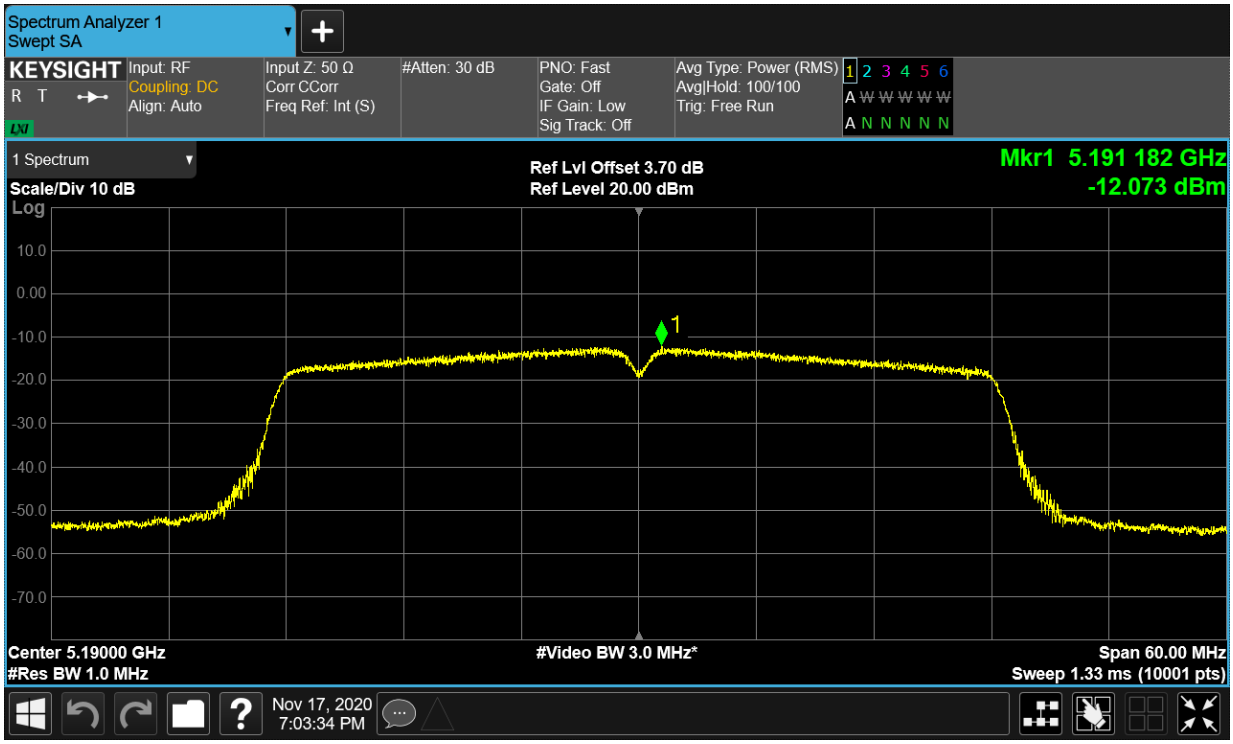
PSD NVNT n20 5200MHz Ant1



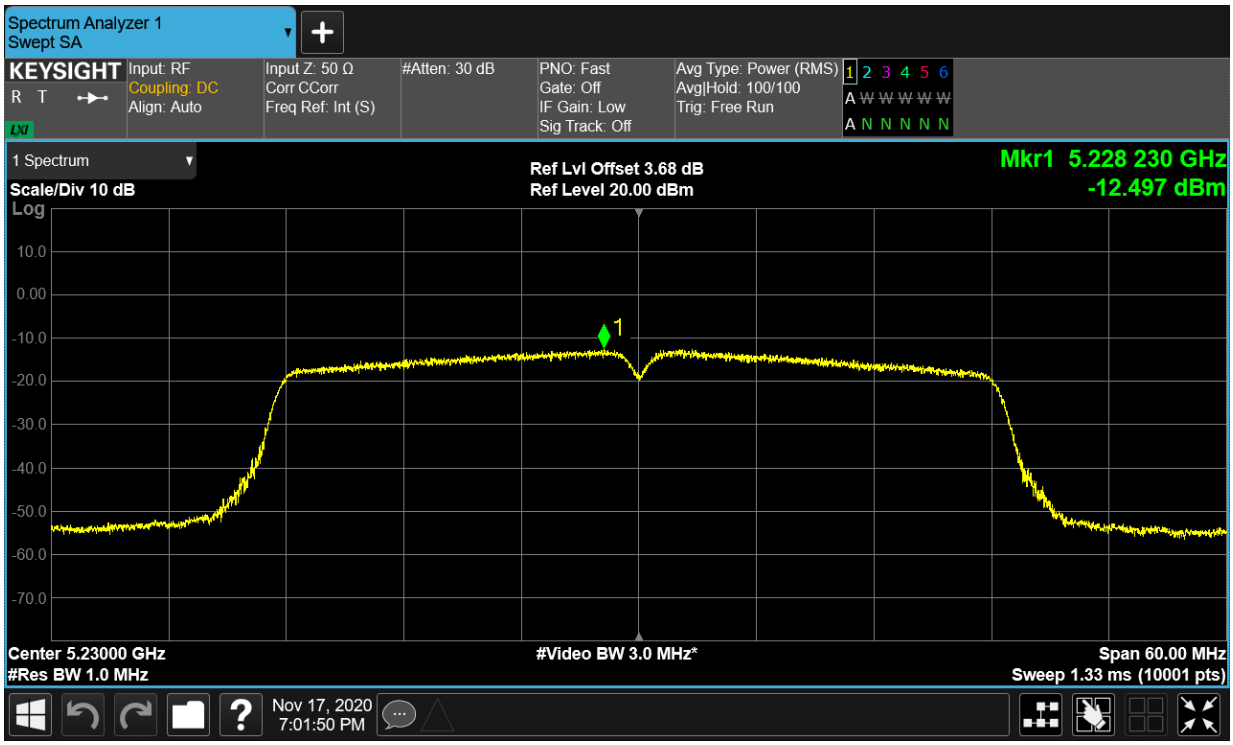

PSD NVNT n20 5240MHz Ant1



PSD NVNT n40 5190MHz Ant1



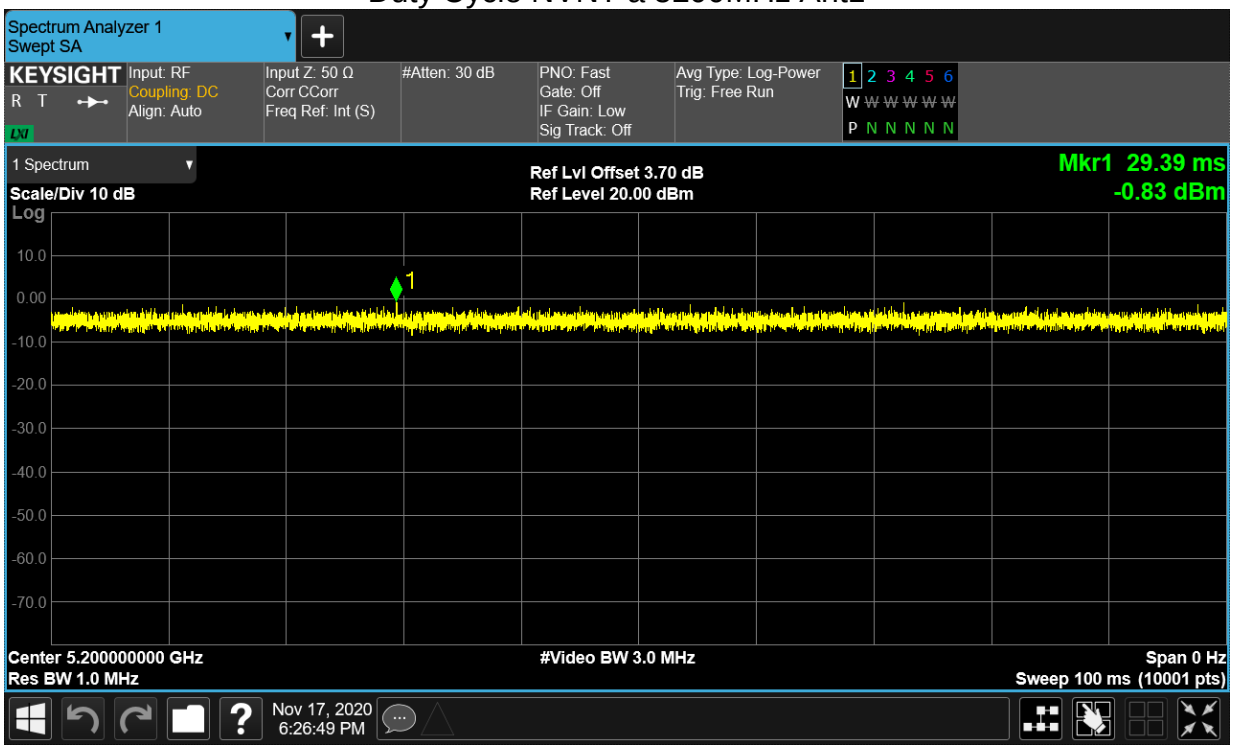

PSD NVNT n40 5230MHz Ant1



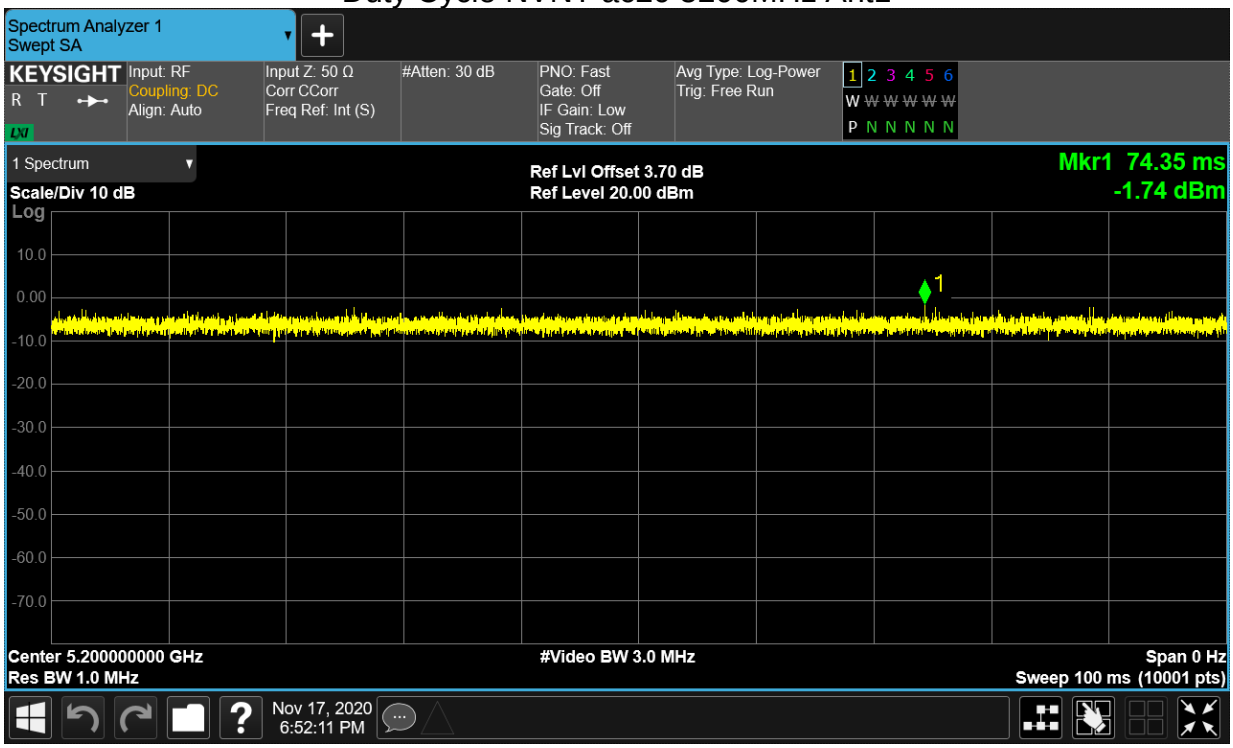

**Duty Cycle**

| Condition | Mode | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) |
|---|---|---|---|---|---|
| NVNT | a | 5200 | Ant1 | 100 | 0 |
| NVNT | ac20 | 5200 | Ant1 | 100 | 0 |
| NVNT | ac40 | 5190 | Ant1 | 100 | 0 |
| NVNT | ac80 | 5210 | Ant1 | 100 | 0 |
| NVNT | n20 | 5200 | Ant1 | 100 | 0 |
| NVNT | n40 | 5190 | Ant1 | 100 | 0 |

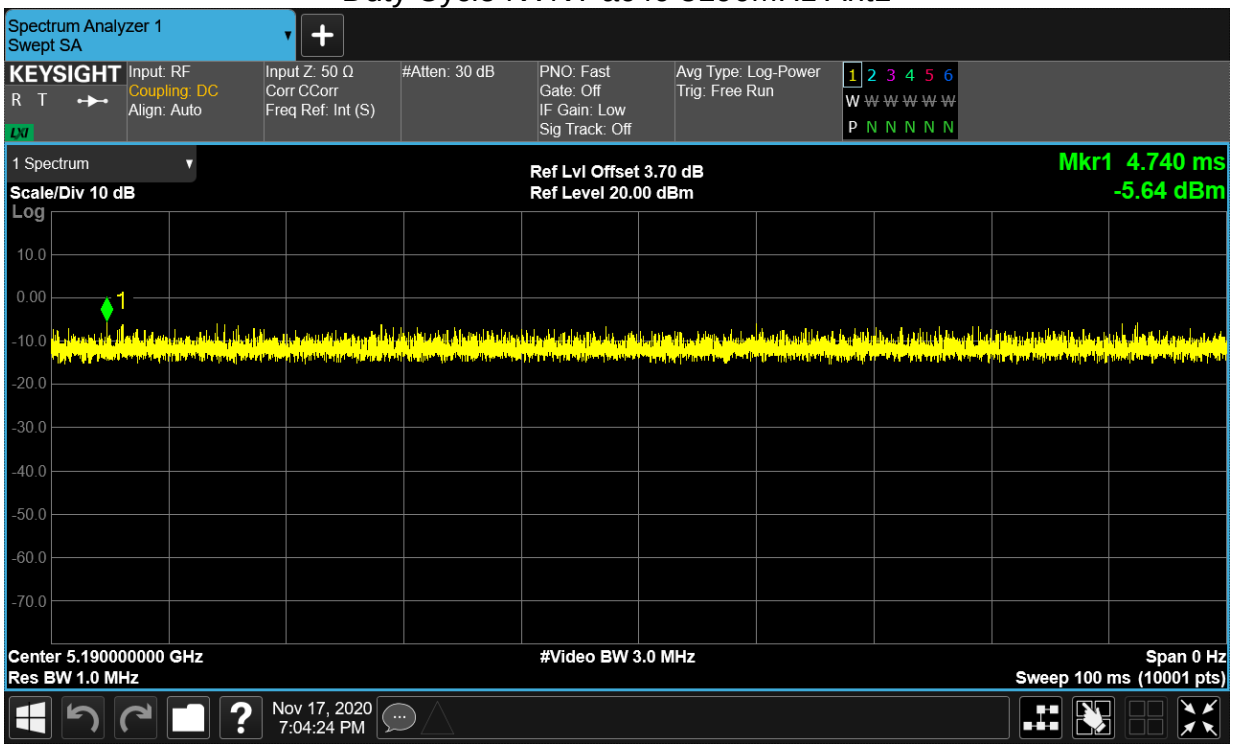
Duty Cycle NVNT a 5200MHz Ant1



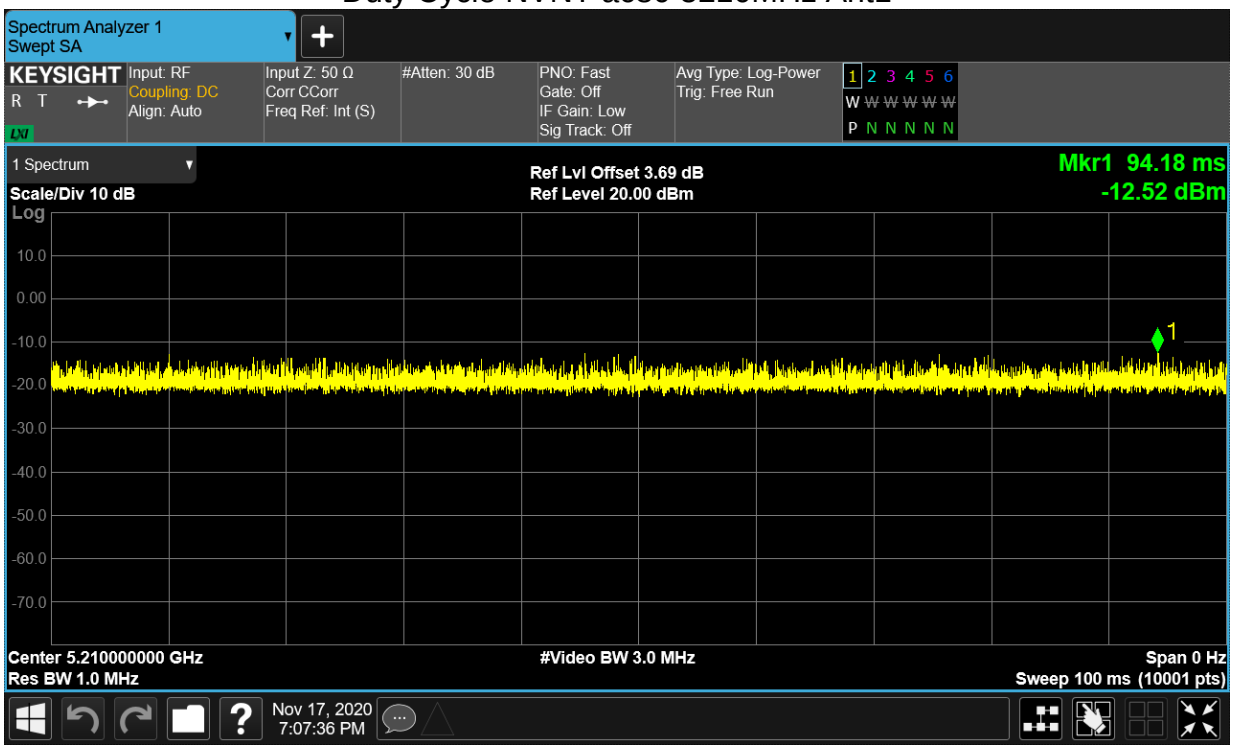

Duty Cycle NVNT ac20 5200MHz Ant1



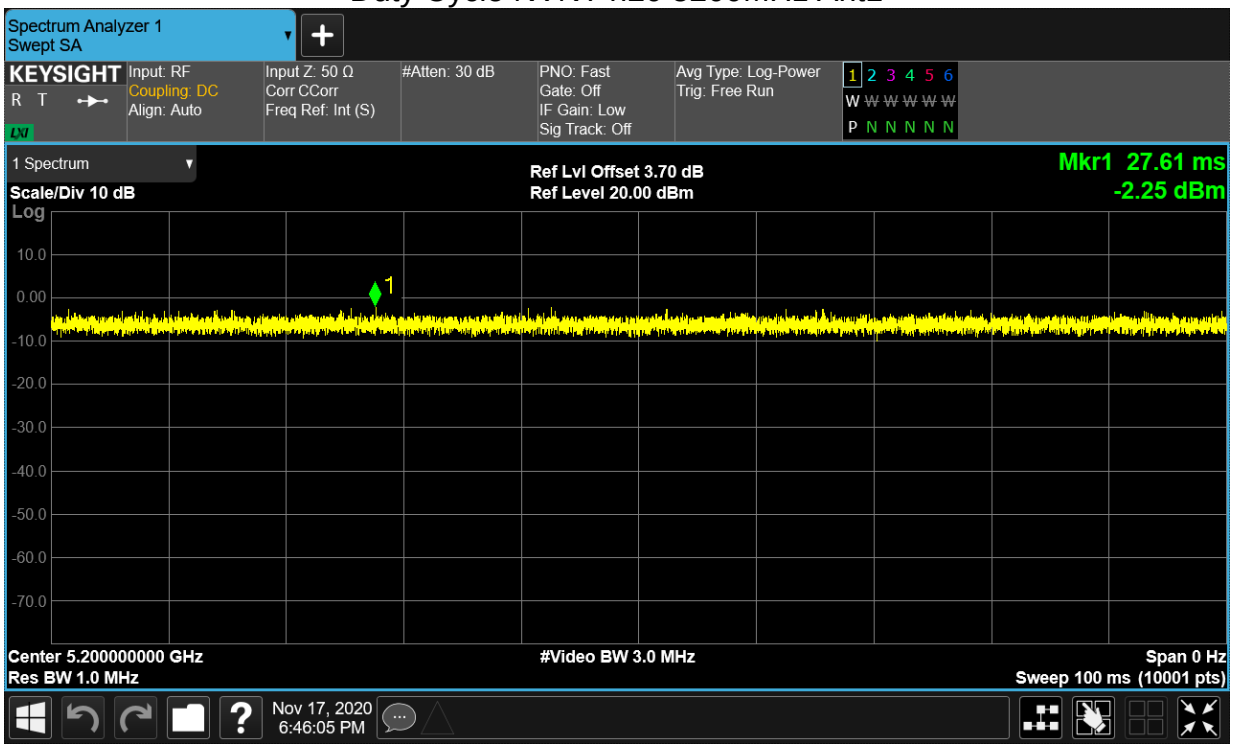
Duty Cycle NVNT ac40 5190MHz Ant1



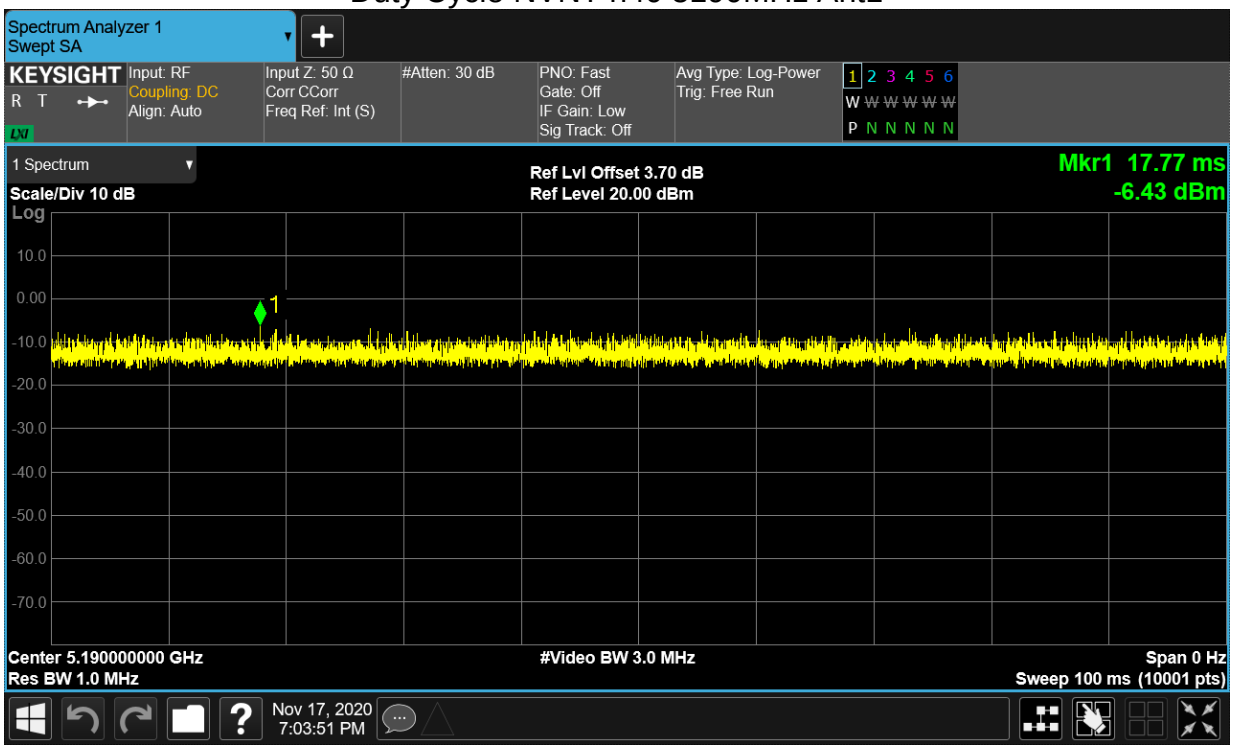

Duty Cycle NVNT ac80 5210MHz Ant1



Duty Cycle NVNT n20 5200MHz Ant1




Duty Cycle NVNT n40 5190MHz Ant1




------End of report------