# FCC TEST REPORT

# FCC ID: SY4-A02039

On Behalf of

Shanghai Huace Navigation Technology Ltd.

Geodetic GNSS Receiver

Model No.: i93

| | | |
|---|---|---|
| Prepared for | : | Shanghai Huace Navigation Technology Ltd. |
| Address | : | 577 Songying Road, Qingpu District, 201706 Shanghai, China |

| | | |
|---|---|---|
| Prepared By | : | Shenzhen Alpha Product Testing Co., Ltd. |
| Address | : | Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China |

| | | |
|---|---|---|
| Report Number | : | A2303056-C01-R04 |
| Date of Receipt | : | March 14, 2023 |
| Date of Test | : | March 14, 2023-April 8, 2023 |
| Date of Report | : | April 18, 2023 |
| Version Number | : | V0 |

# TABLE OF CONTENTS

# TEST REPORT DECLARATION

| | | |
|---|---|---|
| Applicant | : | Shanghai Huace Navigation Technology Ltd. |
| Address | : | 577 Songying Road, Qingpu District, 201706 Shanghai, China |
| Manufacturer | : | Shanghai Huace Navigation Technology Ltd. |
| Address | : | 577 Songying Road, Qingpu District, 201706 Shanghai, China |
| EUT Description | : | Geodetic GNSS Receiver |
| | (A) Model No. | : i93 |
| | (B) Trademark | : CHCNAV |

Measurement Standard Used:

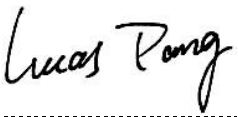
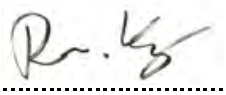
**FCC Rules and Regulations Part 15 Subpart E**

**ANSI C63.4:2014, ANSI C63.10:2013**

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart E limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

| | | |
|---|---|---|
| Tested by (name + signature).....: | Lucas Pang<br>Project Engineer |  |
| Approved by (name + signature).....: | Reak Yang<br>Project Manager |  |
| Date of issue.....: | April 18, 2023 | |

**Revision History**

| Revision | Issue Date | Revisions | Revised By |
|---|---|---|---|
| V0 | April 18, 2023 | Initial released Issue | Lucas Pang |

# 1 Test Summary

| Test Item | Section in CFR 47 | Result |
|---|---|---|
| Antenna requirement | Section 15.203 Section 7.1.4<br>RSS-Gen Issue 5 | PASS |
| AC Power Line Conducted Emission | Section 15.207 Section 7.2.4<br>RSS-GEN(8.8), ANSI C63.10 | PASS |
| Peak Transmit Power | Section 15.407(a), RSS-247 5.4(2) | PASS |
| Power Spectral Density | Section 15.407(a), RSS-247 5.2(2) | PASS |
| Undesirable Emission | Section 15.407(b), RSS-247 5.5 | PASS |
| Radiated Emission | Section 15.407(b)&15.209 Section 5.5<br>RSS-Gen(8.9), RSS-247(5.5), ANSI C63.10 | PASS |
| Band Edge | 15.205, RSS-247 Issue 2, ANSI C63.10 | PASS |
| Frequency Stability | 15.407(f), RSS-GEN(6.11) | PASS |

Remark:

1. Pass: The EUT complies with the essential requirements in the standard.

2. Frequency Stability: The manufacturer stated in the user's manual.

3. The conclusion of this test report is judged by actual test data without considering measurement uncertainty.

## 1.1 Measurement Uncertainty

| Item | Uncertainty |
|---|---|
| Uncertainty for Power point Conducted Emissions Test | 1.63dB |
| Uncertainty for Radiation Emission test in 3m chamber (below 30MHz) | 3.5dB |
| Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz) | 3.74dB(Polarize: V) |
| | 3.76dB(Polarize: H) |
| Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz) | 3.77dB(Polarize: V) |
| | 3.80dB(Polarize: H) |
| Uncertainty for radio frequency | $5.06\times10^{-8}$GHz |
| Uncertainty for conducted RF Power | 0.40dB |
| Uncertainty for temperature | 0.2℃ |
| Uncertainty for humidity | 1% |
| Uncertainty for DC and low frequency voltages | 0.06% |

# 2 General Information

## 2.1 General Description of EUT

| | | |
|---|---|---|
| EUT Name | : | Geodetic GNSS Receiver |
| Model No. | : | i93 |
| DIFF. | : | N/A |
| Power supply | : | DC 5V From USB with DC 7.2V From Battery |

| | | |
|---|---|---|
| Radio Technology | : | 5G WIFI |
| Operation Frequency | : | 802.11a/n(HT20)/ac(HT20): 5180~5240MHz; 5745~5825MHz<br>802.11n(HT40)/ac(HT40): 5190~5230MHz; 5755~5795MHz<br>802.11ac(HT80): 5210MHz, 5775MHz |
| Channel separation | : | 20MHz for 802.11a/ 802.11ac20/ 802.11n(HT20)<br>40MHz for 802.11ac40/ 802.11n(HT40)<br>80MHz for 802.11ac80 |
| Modulation technology: | : | IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK)<br>IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK)<br>IEEE 802.11ac: OFDM (64QAM, 16QAM, QPSK, BPSK) |
| Antenna Type | : | Internal Antenna, max gain 2.0dBi<br>Antenna information is provided by applicant. |

| | | |
|---|---|---|
| Software version | : | 1.0.7 |
| Hardware version | : | V1.0.1 |
| Intend use environment | : | Residential, commercial and light industrial environment |

## 2.2 Test mode

Transmitting mode Keep the EUT in transmitting with modulation.
EUT was test with 99% duty cycle at its maximum power control level.

Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

## 2.3 Test Facility

Shenzhen Alpha Product Testing Co., Ltd
Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

June 21, 2018 File on Federal Communication Commission
Registration Number: 293961

July 25, 2017 Certificated by IC
Registration Number: CN0085

## 2.4 Description of Support Units

Accessories : /
Manufacturer : /
Model : /
Ratings : /

## 2.5 Deviation from Standards

None.

## 2.6 Abnormalities from Standard Conditions

None.

## 2.7 Other Information Requested by the Customer

None.

## 2.8 Additional instructions

Software (Used for test) from client

| Channel | Power level |
|---|---|
| Lowest | Default |
| Middle | Default |
| Highest | Default |

# 3 Test Instruments list

| Equipment | Manufacture | Model No. | Firmware version | Serial No. | Last cal. | Cal Interval |
|---|---|---|---|---|---|---|
| 9*6*6 anechoic chamber | CHENYU | 9*6*6 | / | N/A | 2022.05.17 | 3Year |
| Spectrum analyzer | ROHDE&SCHWARZ | FSV40-N | 2.3 | 102137 | 2022.08.22 | 1Year |
| Spectrum analyzer | Agilent | N9020A | A.14.16 | MY499100060 | 2022.08.22 | 1Year |
| Receiver | ROHDE&SCHWARZ | ESR | 2.28 SP1 | 1316.3003K03-102082-Wa | 2022.08.22 | 1Year |
| Receiver | R&S | ESCI | 4.42 SP1 | 101165 | 2022.08.22 | 1Year |
| Bilog Antenna | Schwarzbeck | VULB 9168 | / | VULB 9168#627 | 2021.08.30 | 2Year |
| Horn Antenna | SCHWARZBECK | BBHA 9120 D | / | 2106 | 2021.08.30 | 2Year |
| Active Loop Antenna | SCHWARZBECK | FMZB 1519B | / | 00059 | 2021.08.30 | 2Year |
| RF Cable | Resenberger | Cable 1 | / | RE1 | 2022.08.22 | 1Year |
| RF Cable | Resenberger | Cable 2 | / | RE2 | 2022.08.22 | 1Year |
| RF Cable | Resenberger | Cable 3 | / | CE1 | 2022.08.22 | 1Year |
| Pre-amplifier | HP | HP8347A | / | 2834A00455 | 2022.08.22 | 1Year |
| Pre-amplifier | Agilent | 8449B | / | 3008A02664 | 2022.08.22 | 1Year |
| L.I.S.N.#1 | Schwarzbeck | NSLK8126 | / | 8126-466 | 2022.08.22 | 1Year |
| L.I.S.N.#2 | ROHDE&SCHWARZ | ENV216 | / | 101043 | 2022.08.23 | 1 Year |
| Horn Antenna | SCHWARZBECK | BBHA9170 | / | 00946 | 2021.08.30 | 2 Year |
| Preamplifier | SKET | LNPA_1840-50 | / | SK2018101801 | 2022.08.22 | 1 Year |
| Power Meter | Agilent | E9300A | / | MY41496628 | 2022.08.22 | 1 Year |
| Power Sensor | DARE | RPR3006W | / | 15100041SNO91 | 2022.08.22 | 1 Year |
| Temp. & Humid. Chamber | Weihuang | WHTH-1000-40-880 | / | 100631 | 2022.08.22 | 1 Year |
| Switching Mode Power Supply | JUNKE | JK12010S | / | 20140927-6 | 2022.08.22 | 1 Year |
| Adjustable attenuator | MWRFtest | N/A | / | N/A | N/A | N/A |
| 10dB Attenuator | Mini-Circuits | DC-6G | / | N/A | N/A | N/A |

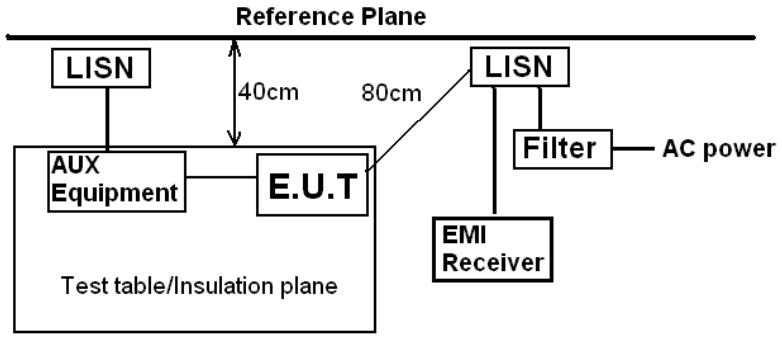
| **Software Information** | | | |
|---|---|---|---|
| Test Item | Software Name | Manufacturer | Version |
| RE | EZ-EMC | EZ | Alpha-3A1 |
| CE | EZ-EMC | EZ | Alpha-3A1 |
| RF-CE | MTS 8310 | MW | V2.0.0.0 |

# 4 Test results and Measurement Data

## 4.1 Antenna requirement:

| **Standard requirement:** | FCC Part15 C Section 15.203 |
|---|---|
| 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. | |
| **E.U.T Antenna:** | |
| The antenna is internal antenna. The best case gain of the antenna is 2.0dBi for 5.15~5.25GHz, 5.725~5.85GHz | |

## 4.2 Conducted Emissions

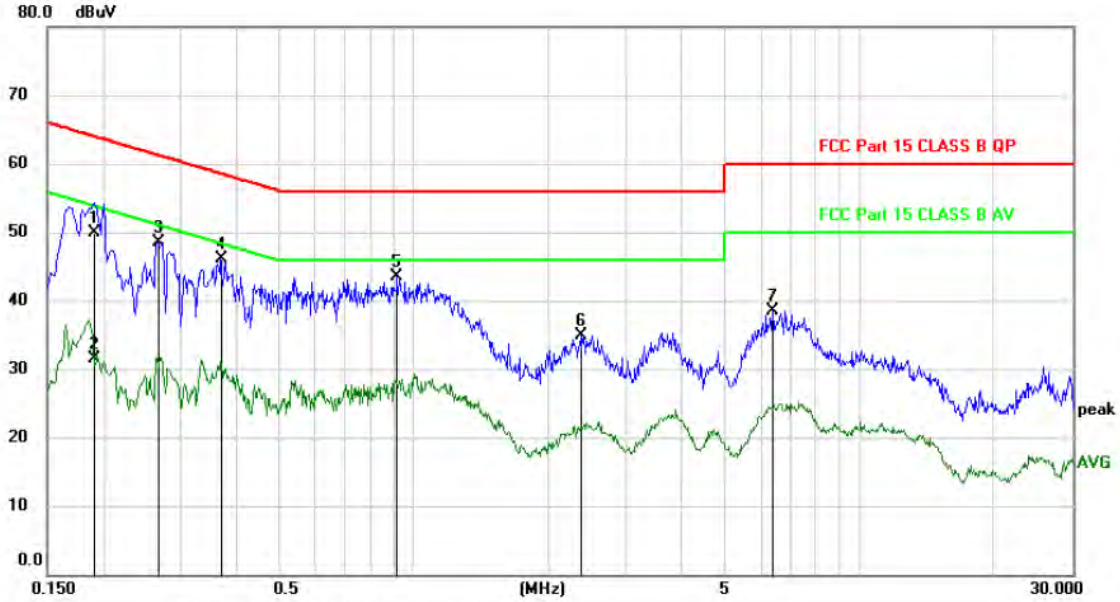
<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>150KHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td>Class B</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9KHz, VBW=30KHz</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test procedure</td><td>The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 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 C63.10:2013 on conducted measurement.</td></tr>
<tr><td>Test setup:</td><td> 

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>Refer to section 5.10 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

**Measurement Data**

An initial pre-scan was performed on the line and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

## Line:

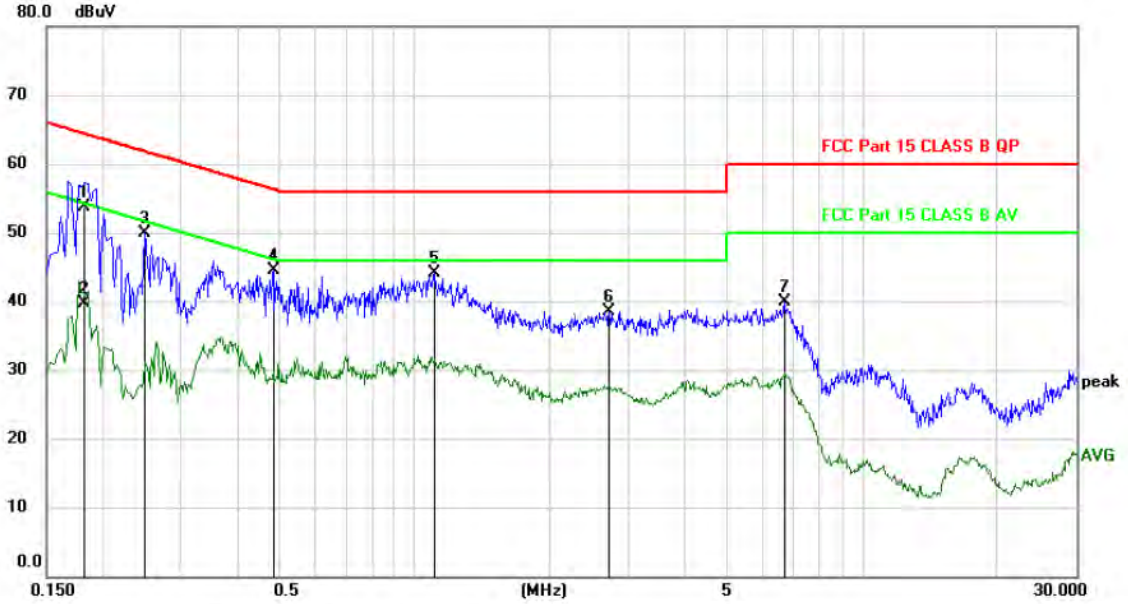



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1920 | 40.01 | 9.92 | 49.93 | 63.95 | -14.02 | QP | |
| 2 | | 0.1920 | 21.52 | 9.92 | 31.44 | 53.95 | -22.51 | AVG | |
| 3 | | 0.2670 | 38.62 | 9.95 | 48.57 | 61.21 | -12.64 | peak | |
| 4 | * | 0.3690 | 36.17 | 9.95 | 46.12 | 58.52 | -12.40 | peak | |
| 5 | | 0.9180 | 33.53 | 9.96 | 43.49 | 56.00 | -12.51 | peak | |
| 6 | | 2.3699 | 25.02 | 9.90 | 34.92 | 56.00 | -21.08 | peak | |
| 7 | | 6.3780 | 28.50 | 10.10 | 38.60 | 60.00 | -21.40 | peak | |

*:Maximum data x:Over limit !:over margin 〈Reference Only

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

## Neutral:



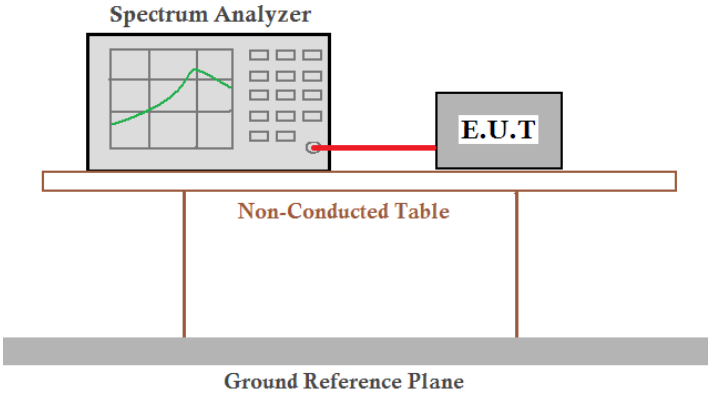

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | * | 0.1830 | 43.79 | 9.93 | 53.72 | 64.35 | -10.63 | QP | |
| 2 | | 0.1830 | 29.81 | 9.93 | 39.74 | 54.35 | -14.61 | AVG | |
| 3 | | 0.2490 | 39.88 | 9.97 | 49.85 | 61.79 | -11.94 | peak | |
| 4 | | 0.4830 | 34.46 | 9.96 | 44.42 | 56.29 | -11.87 | peak | |
| 5 | | 1.1010 | 34.15 | 9.90 | 44.05 | 56.00 | -11.95 | peak | |
| 6 | | 2.7150 | 28.66 | 9.92 | 38.58 | 56.00 | -17.42 | peak | |
| 7 | | 6.6720 | 29.75 | 10.11 | 39.86 | 60.00 | -20.14 | peak | |

*:Maximum data x:Over limit !:over margin 〈Reference Only

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

Note: All modes and channels have been tested and only the A 5180MHz mode with the worst data is listed.

## 4.3 Emission Bandwidth and 99% Occupied Bandwidth

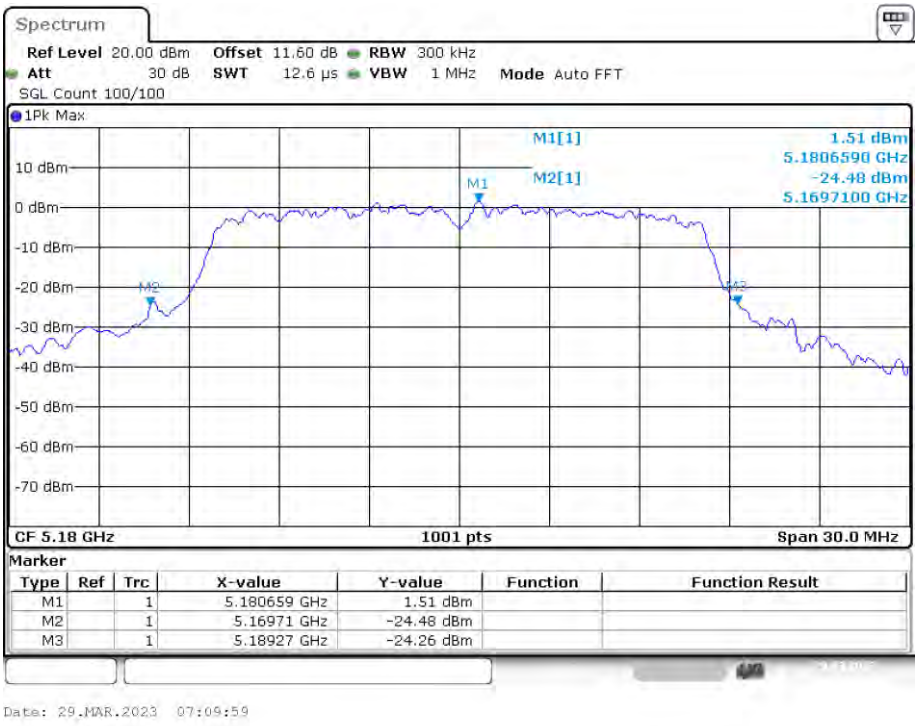
| | |
|---|---|
| Test Requirement: | FCC Part15 E Section 15.407 |
| Test Method: | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 |
| Limit: | N/A |
| Test setup: |  |
| Test procedure: | According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01. |
| Test Instruments: | Refer to section 5.10 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Pass |

**Measurement Data:**

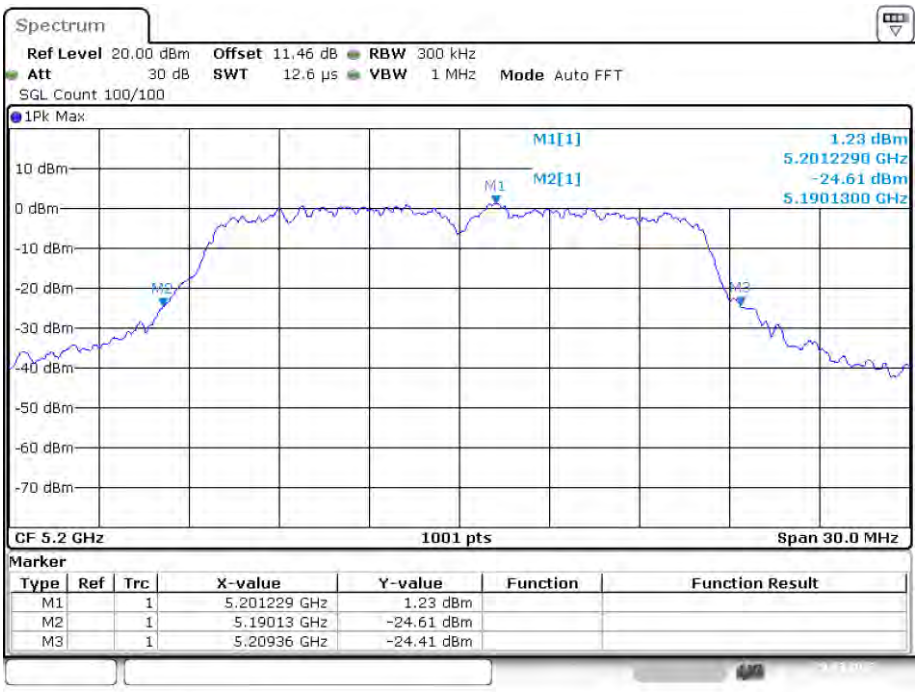
**Band 1 (5150-5250 MHz):**
**-26dB Bandwidth**

| Condition | Mode | Frequency (MHz) | Antenna | -26 dB Bandwidth (MHz) | Limit -26 dB Bandwidth (MHz) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | a | 5180 | Ant1 | 19.56 | 0.5 | Pass |
| NVNT | a | 5200 | Ant1 | 19.23 | 0.5 | Pass |
| NVNT | a | 5240 | Ant1 | 19.53 | 0.5 | Pass |
| NVNT | ac20 | 5180 | Ant1 | 19.38 | 0.5 | Pass |
| NVNT | ac20 | 5200 | Ant1 | 19.83 | 0.5 | Pass |
| NVNT | ac20 | 5240 | Ant1 | 20.25 | 0.5 | Pass |
| NVNT | ac40 | 5190 | Ant1 | 39.42 | 0.5 | Pass |
| NVNT | ac40 | 5230 | Ant1 | 39.42 | 0.5 | Pass |
| NVNT | ac80 | 5210 | Ant1 | 78.84 | 0.5 | Pass |
| NVNT | n20 | 5180 | Ant1 | 19.62 | 0.5 | Pass |
| NVNT | n20 | 5200 | Ant1 | 19.8 | 0.5 | Pass |
| NVNT | n20 | 5240 | Ant1 | 20.07 | 0.5 | Pass |
| NVNT | n40 | 5190 | Ant1 | 39.72 | 0.5 | Pass |
| NVNT | n40 | 5230 | Ant1 | 39.66 | 0.5 | Pass |

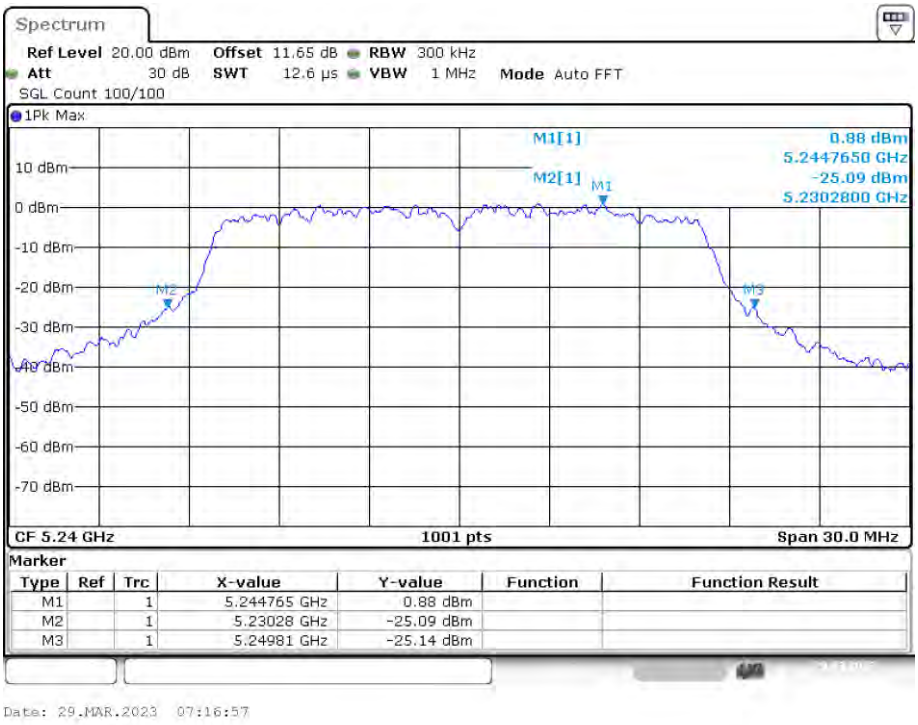
-26dB Bandwidth NVNT a 5180MHz Ant1



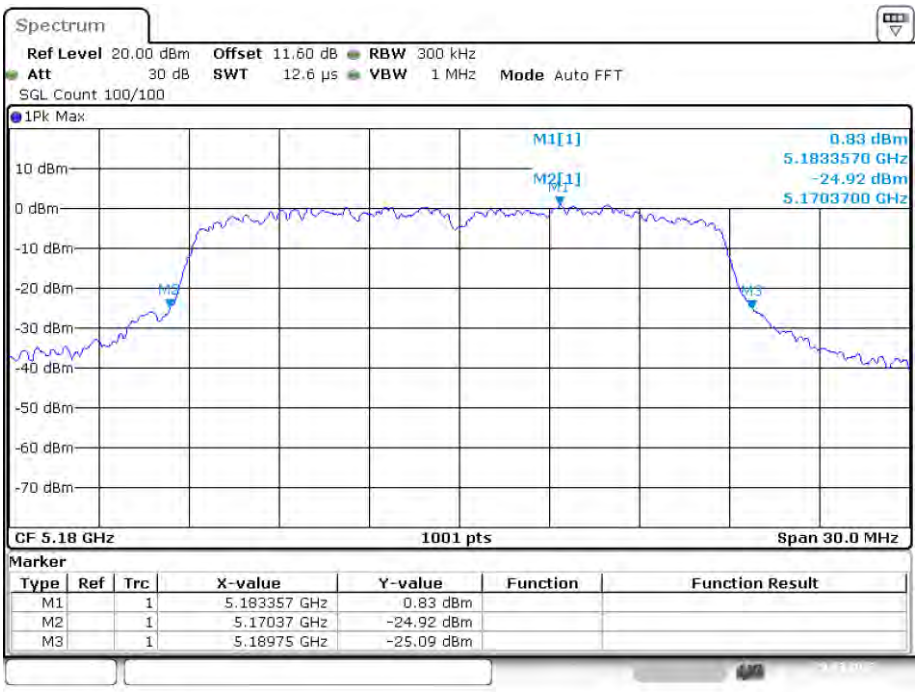
-26dB Bandwidth NVNT a 5200MHz Ant1



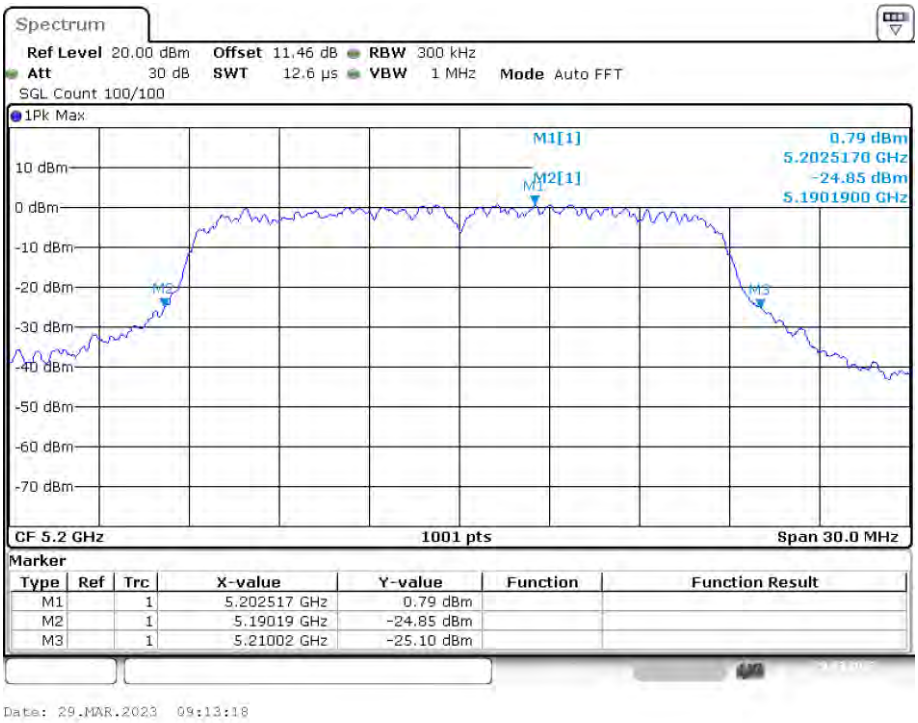

-26dB Bandwidth NVNT a 5240MHz Ant1



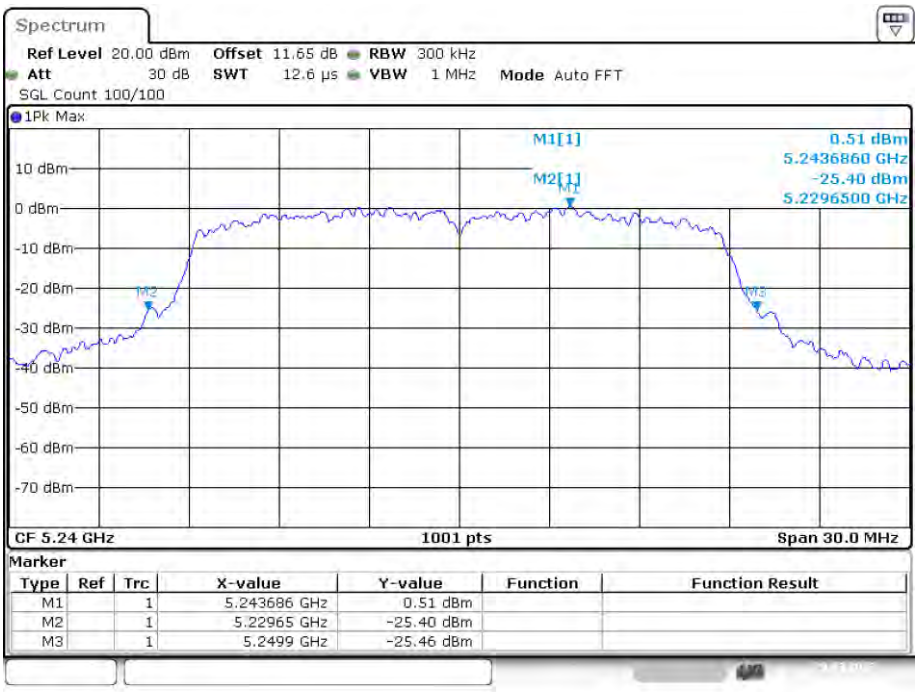
-26dB Bandwidth NVNT ac20 5180MHz Ant1



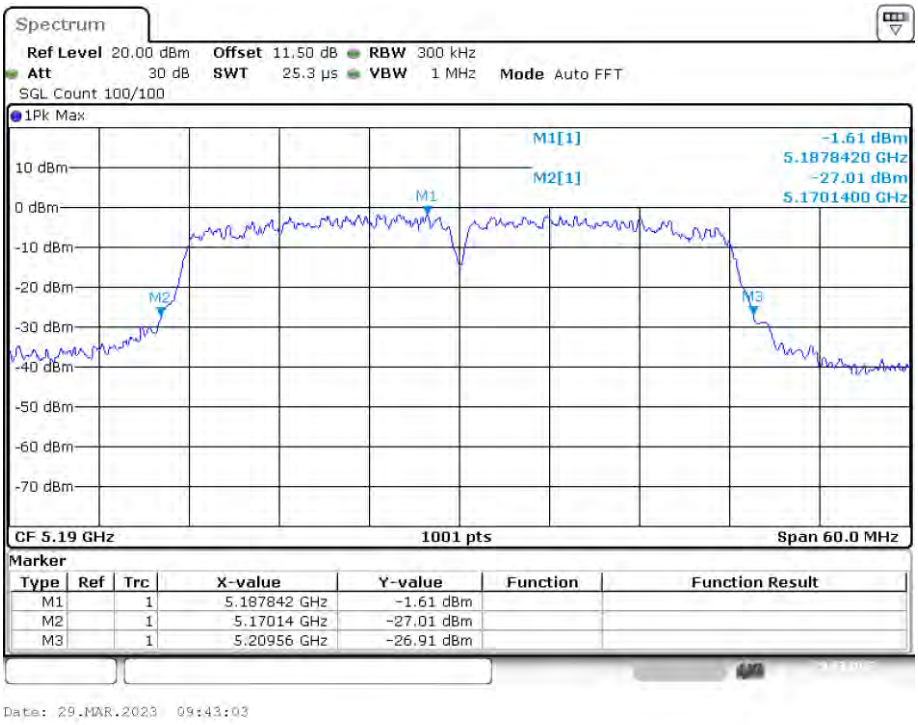

-26dB Bandwidth NVNT ac20 5200MHz Ant1



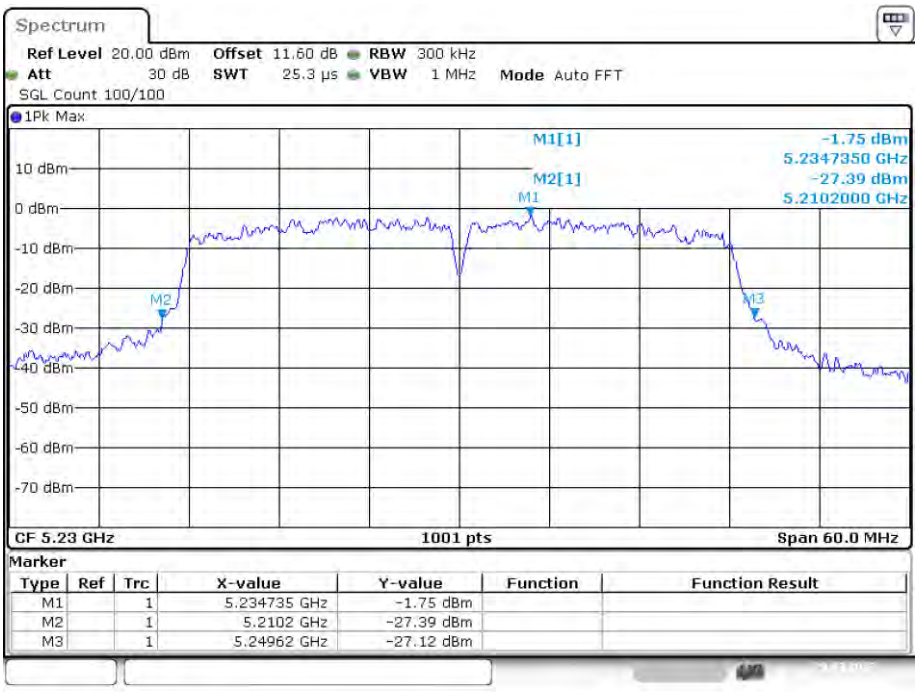
-26dB Bandwidth NVNT ac20 5240MHz Ant1



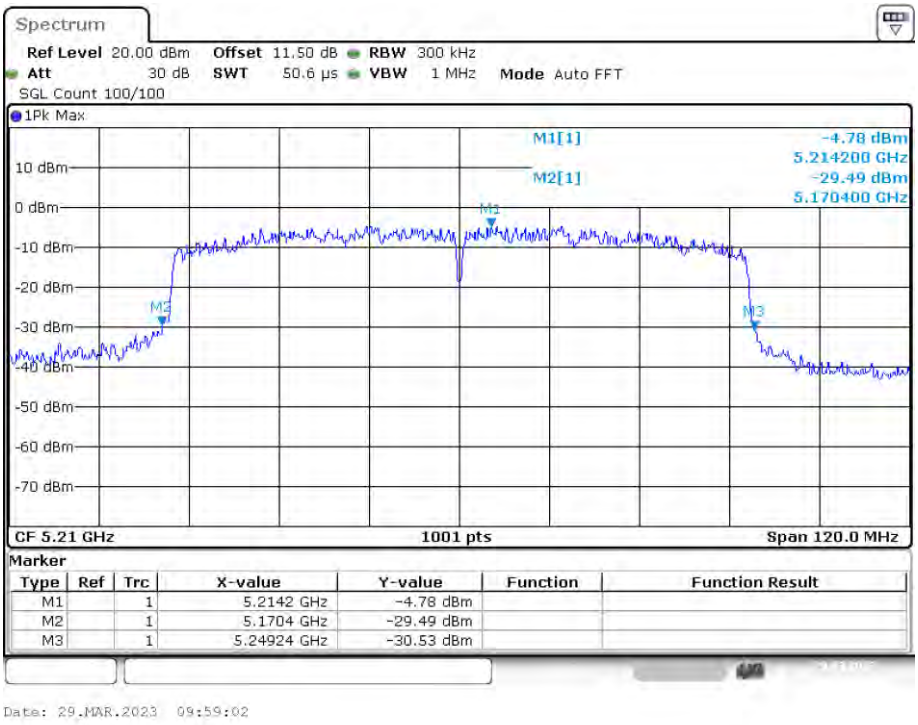

-26dB Bandwidth NVNT ac40 5190MHz Ant1



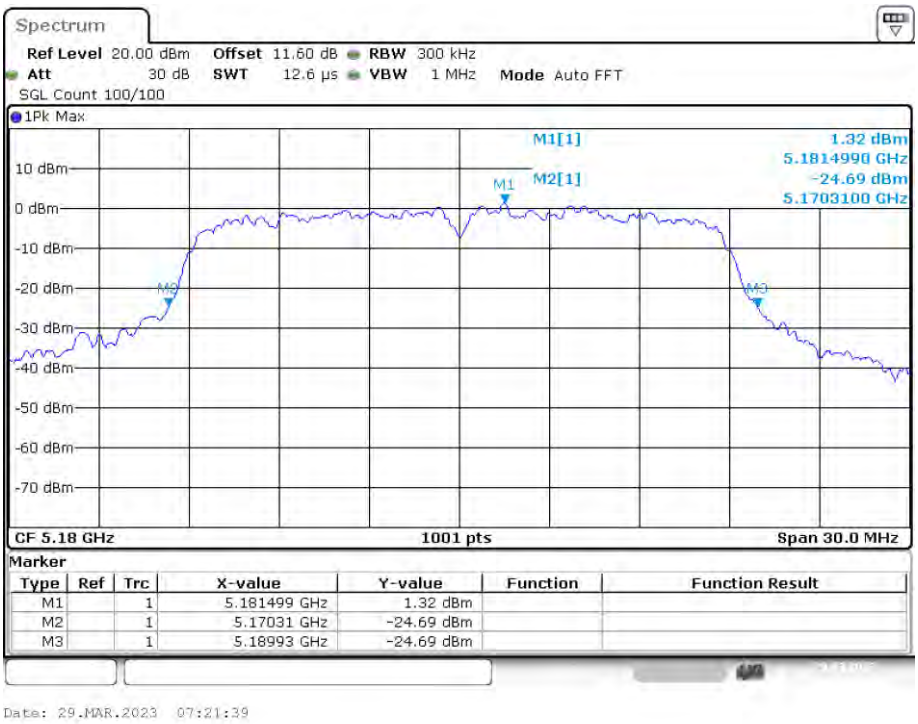
-26dB Bandwidth NVNT ac40 5230MHz Ant1



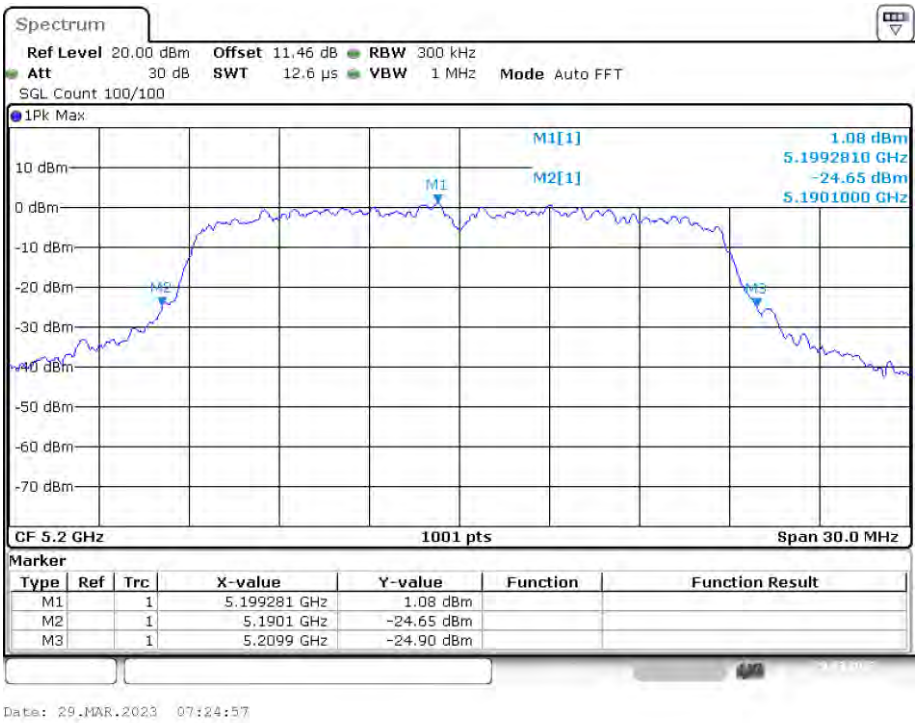

-26dB Bandwidth NVNT ac80 5210MHz Ant1



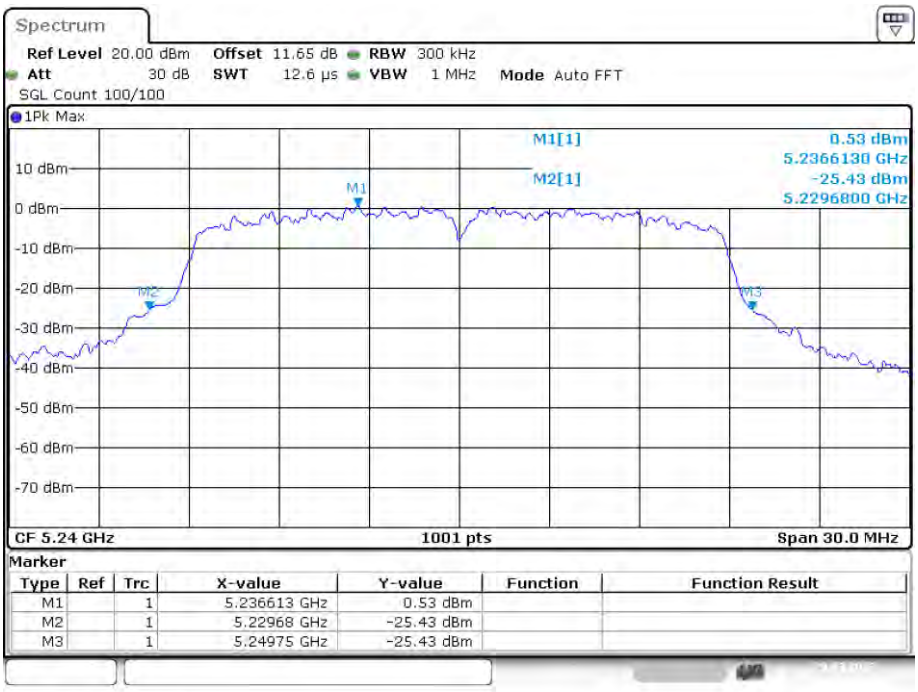
-26dB Bandwidth NVNT n20 5180MHz Ant1



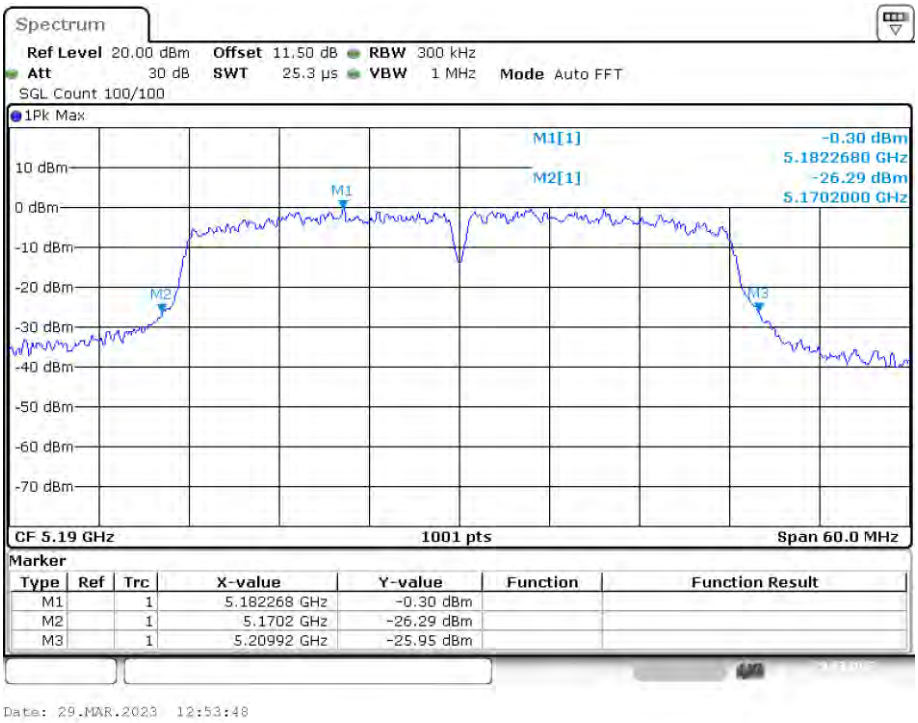

-26dB Bandwidth NVNT n20 5200MHz Ant1



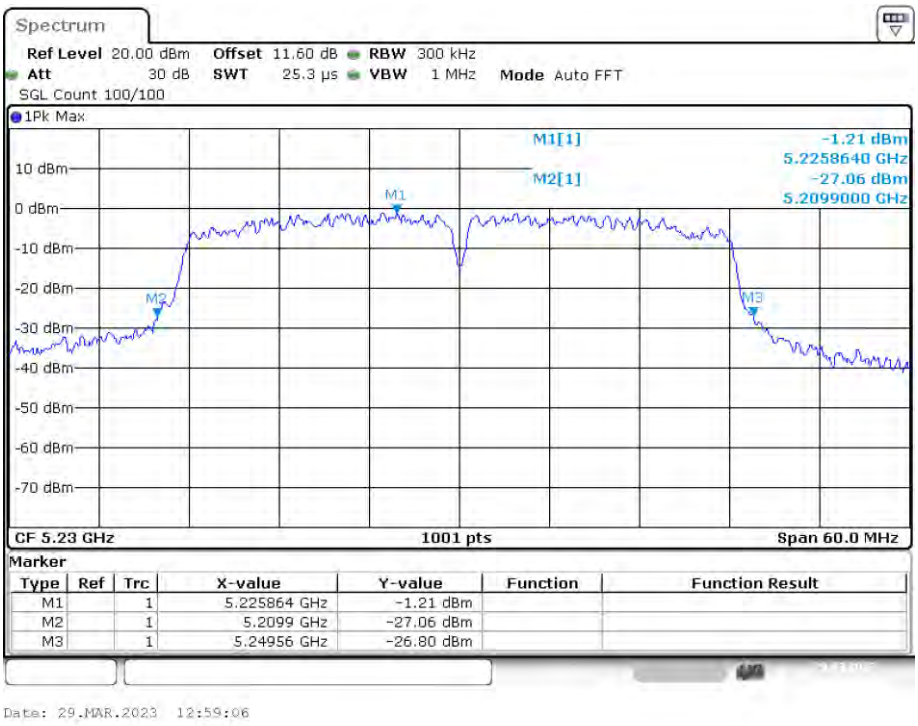
-26dB Bandwidth NVNT n20 5240MHz Ant1




-26dB Bandwidth NVNT n40 5190MHz Ant1



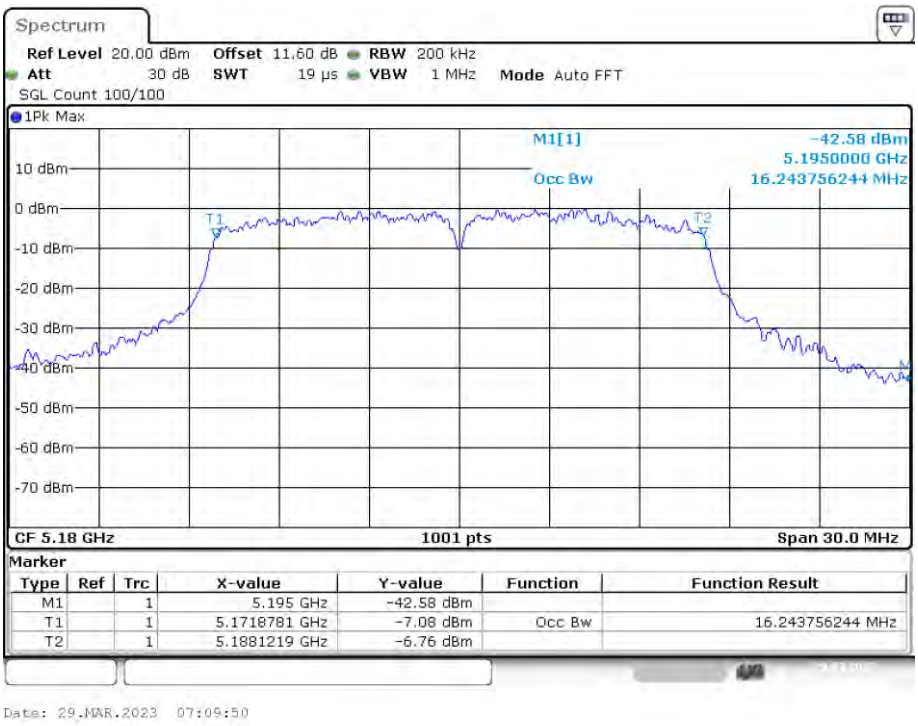
-26dB Bandwidth NVNT n40 5230MHz Ant1



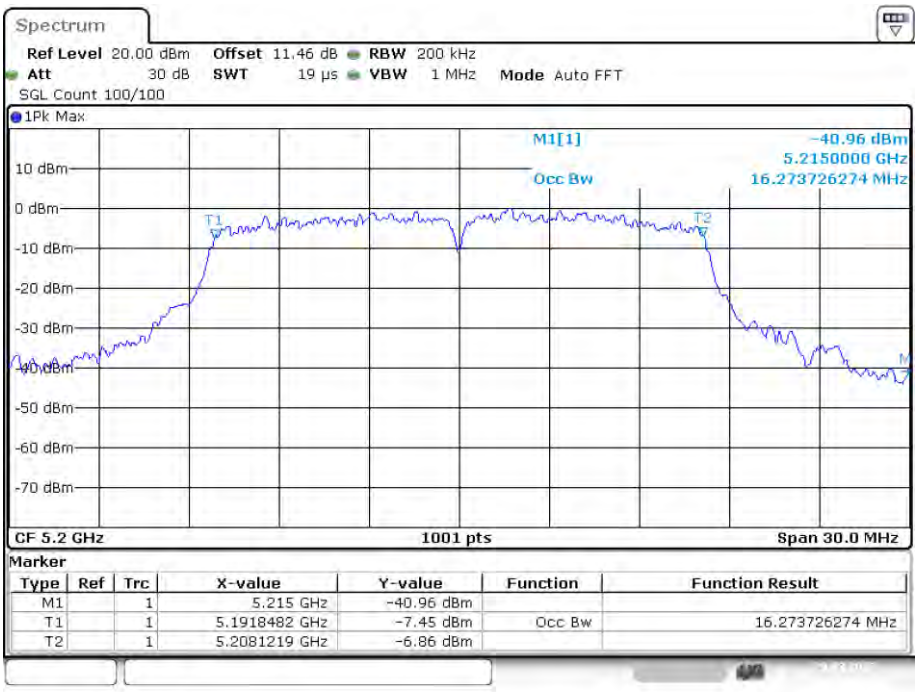
**Occupied Channel Bandwidth**

| Condition | Mode | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|---|---|---|---|---|
| NVNT | a | 5180 | Ant1 | 16.244 |
| NVNT | a | 5200 | Ant1 | 16.274 |
| NVNT | a | 5240 | Ant1 | 16.214 |
| NVNT | ac20 | 5180 | Ant1 | 17.383 |
| NVNT | ac20 | 5200 | Ant1 | 17.413 |
| NVNT | ac20 | 5240 | Ant1 | 17.383 |
| NVNT | ac40 | 5190 | Ant1 | 35.724 |
| NVNT | ac40 | 5230 | Ant1 | 35.844 |
| NVNT | ac80 | 5210 | Ant1 | 74.685 |
| NVNT | n20 | 5180 | Ant1 | 17.383 |
| NVNT | n20 | 5200 | Ant1 | 17.413 |
| NVNT | n20 | 5240 | Ant1 | 17.443 |
| NVNT | n40 | 5190 | Ant1 | 35.844 |
| NVNT | n40 | 5230 | Ant1 | 35.784 |

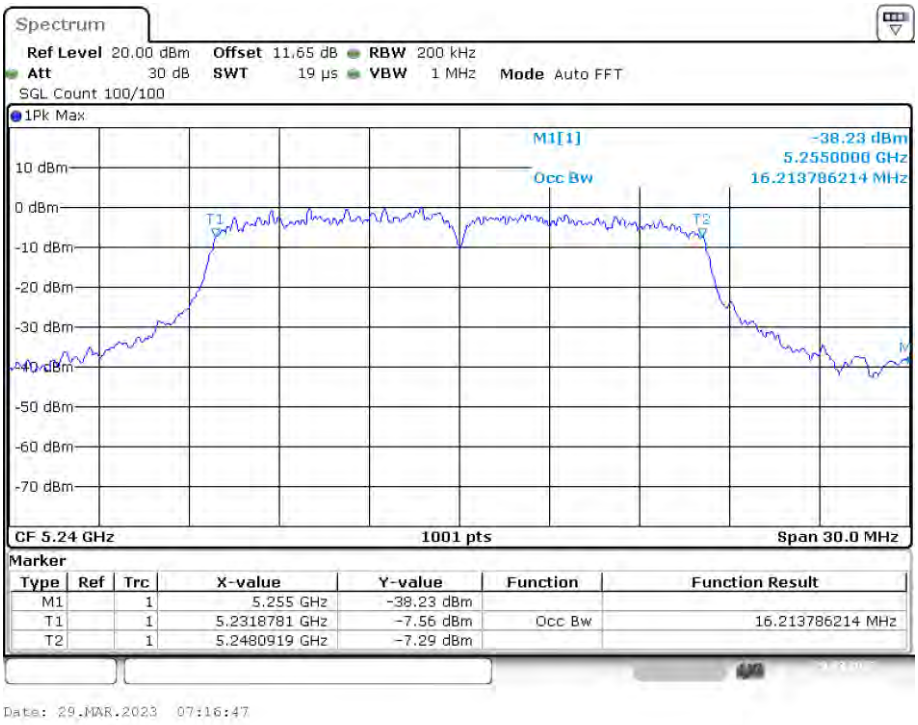
OBW NVNT a 5180MHz Ant1



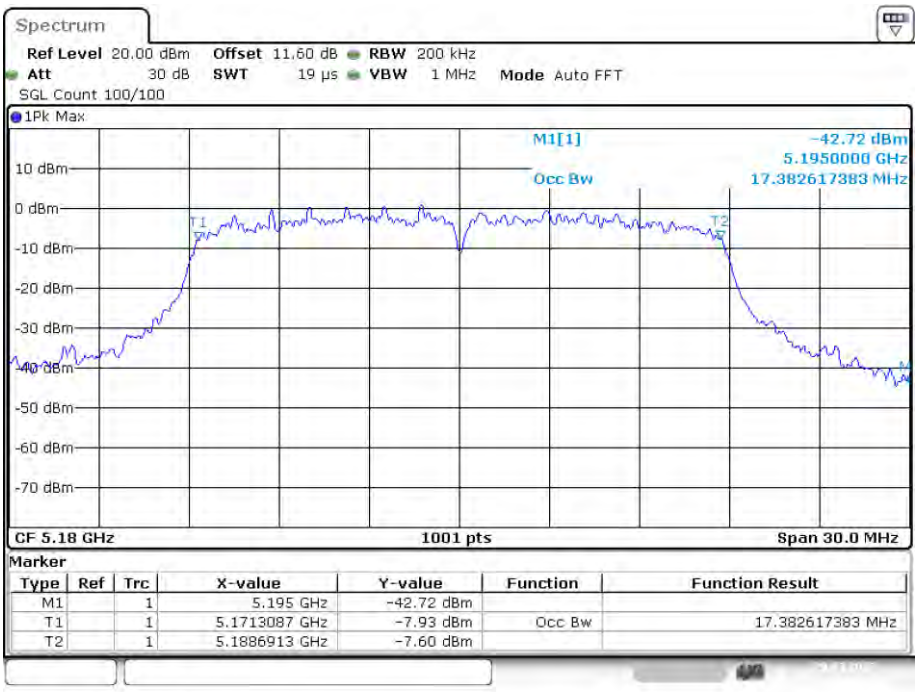
OBW NVNT a 5200MHz Ant1



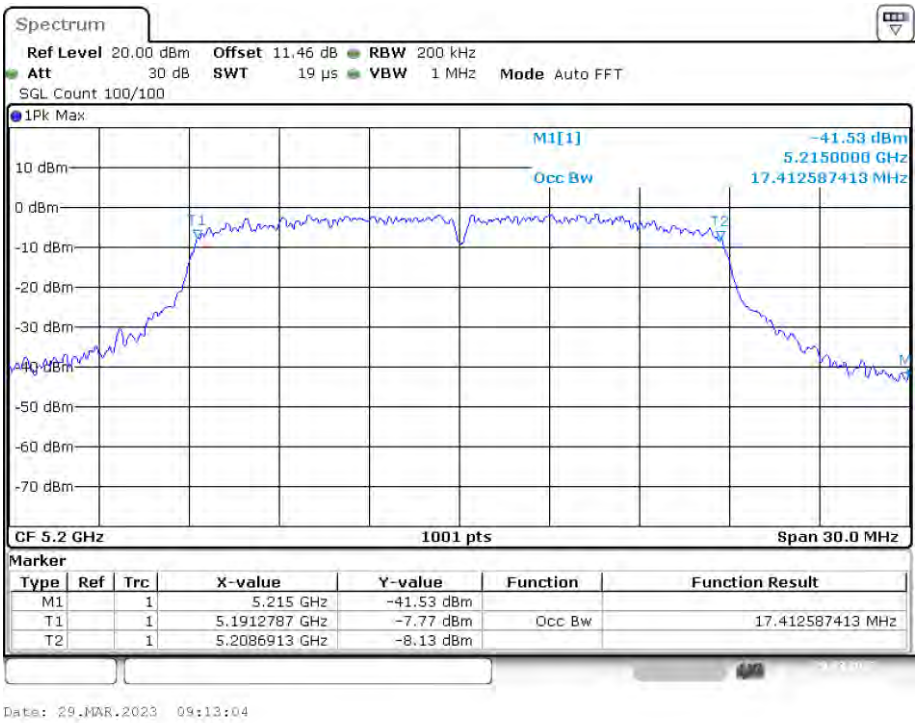

OBW NVNT a 5240MHz Ant1



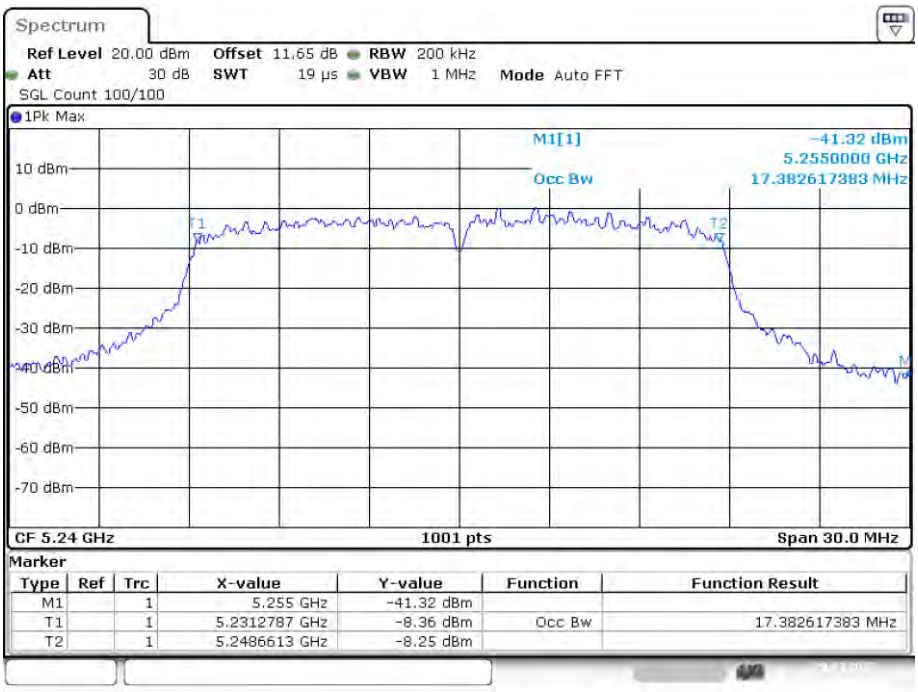
OBW NVNT ac20 5180MHz Ant1



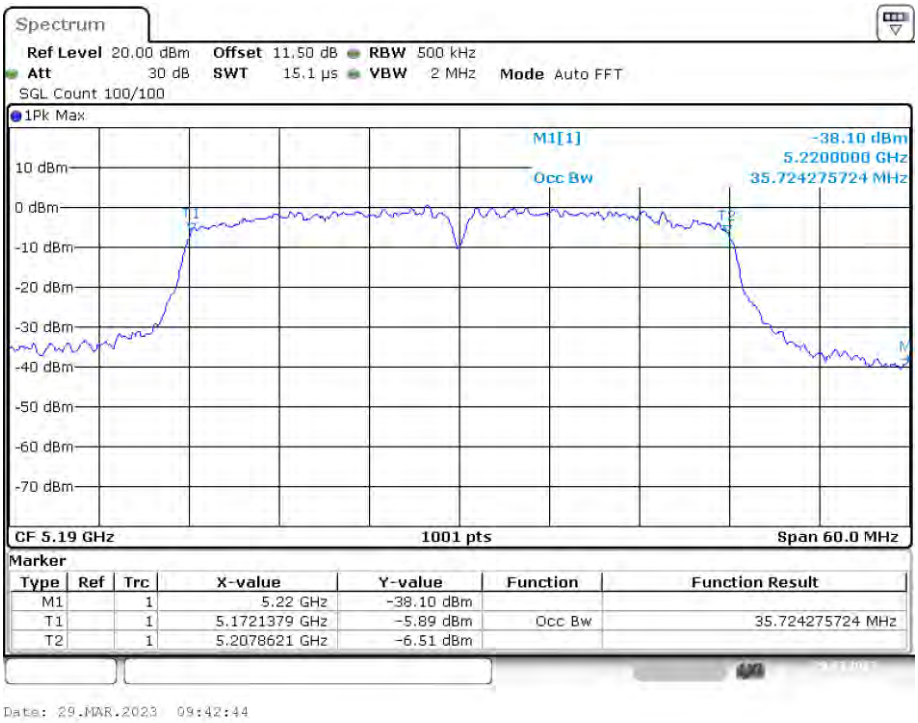

OBW NVNT ac20 5200MHz Ant1



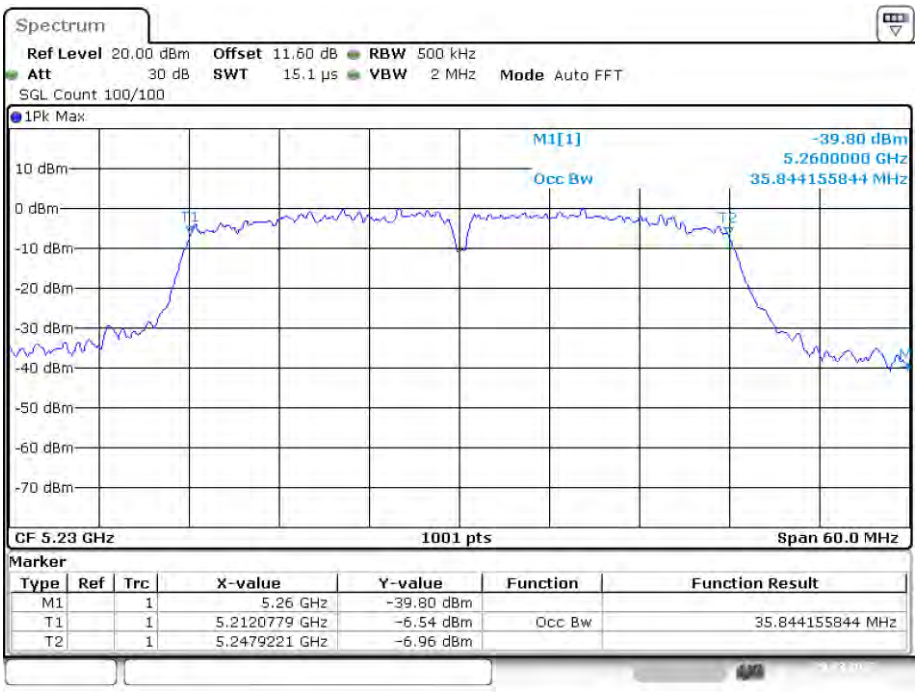
OBW NVNT ac20 5240MHz Ant1



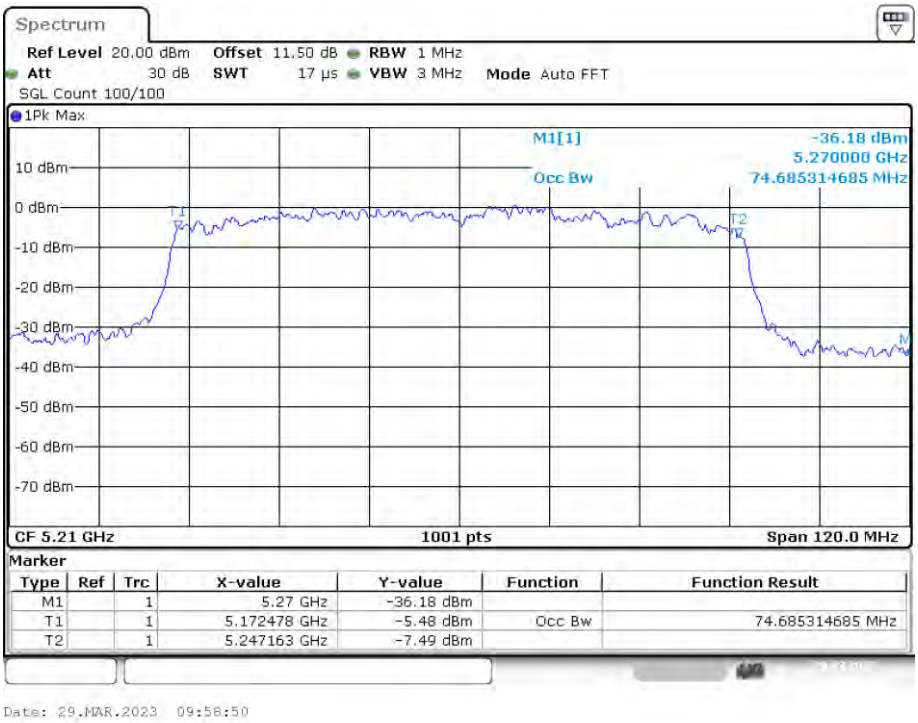

OBW NVNT ac40 5190MHz Ant1



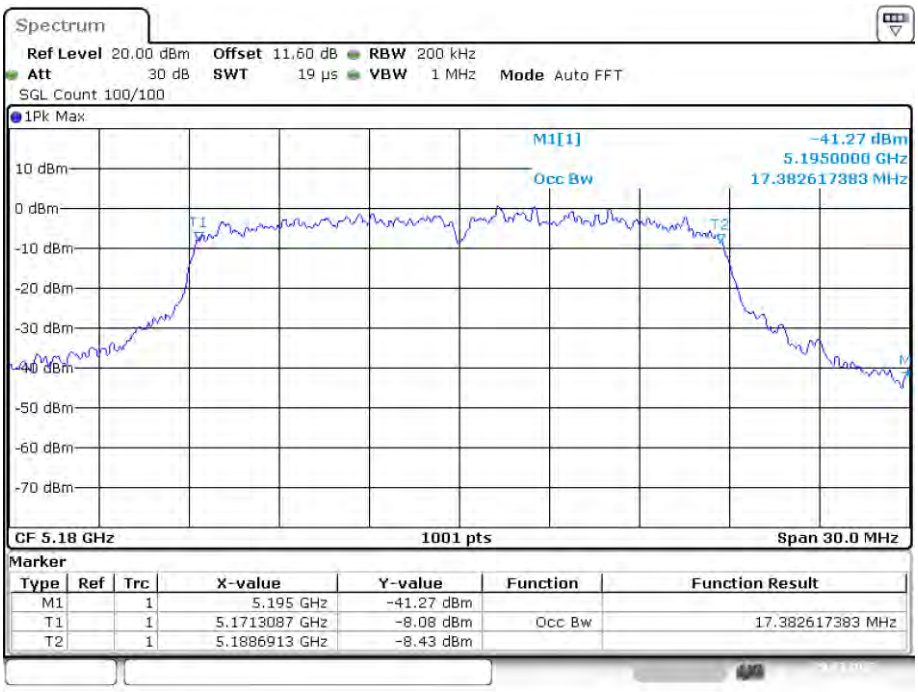
OBW NVNT ac40 5230MHz Ant1




OBW NVNT ac80 5210MHz Ant1

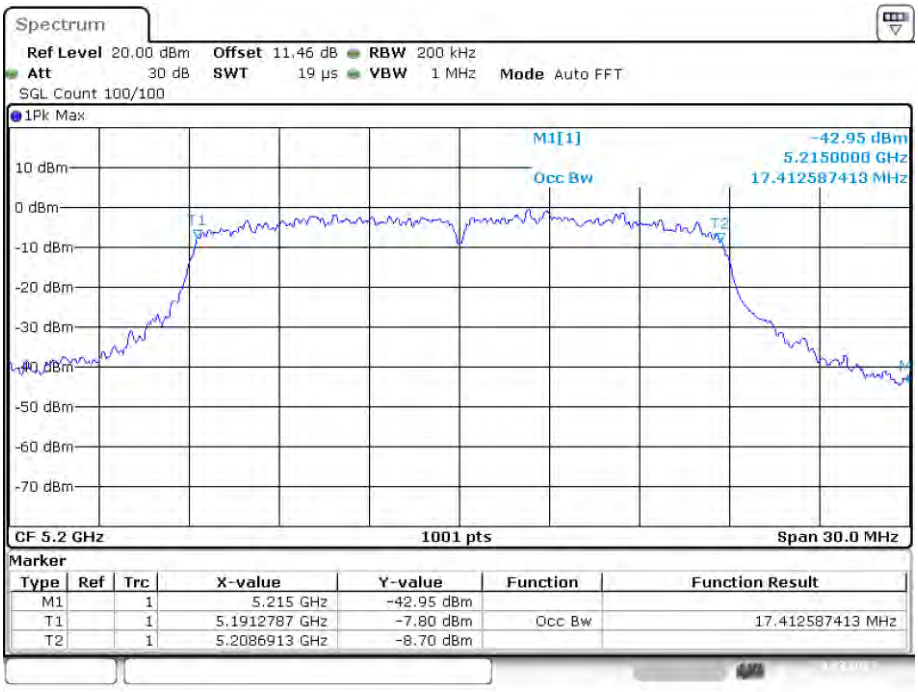


OBW NVNT n20 5180MHz Ant1



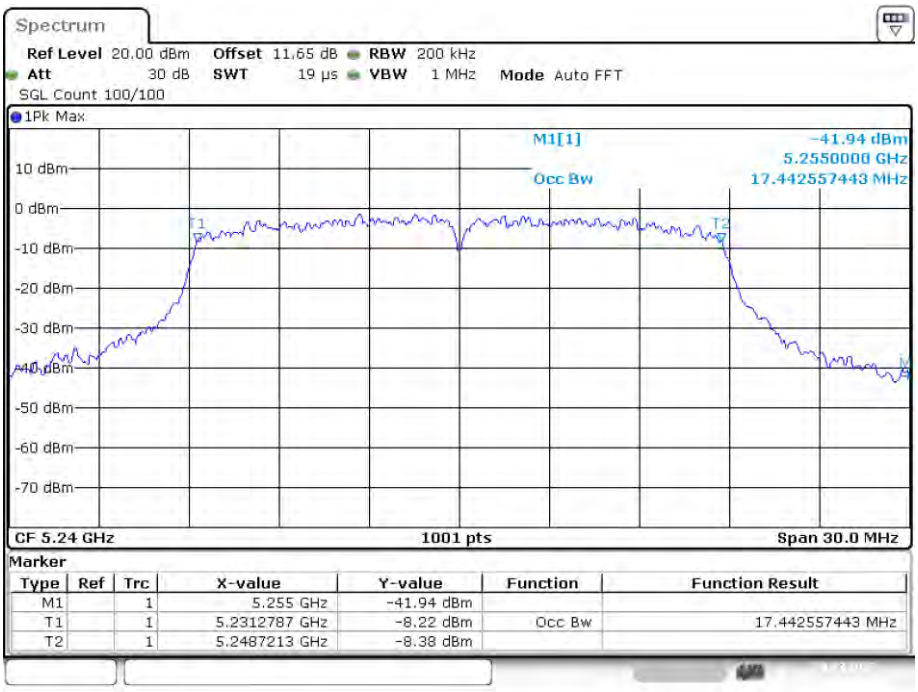

Date: 29.MAR.2023 07:21:28

OBW NVNT n20 5200MHz Ant1

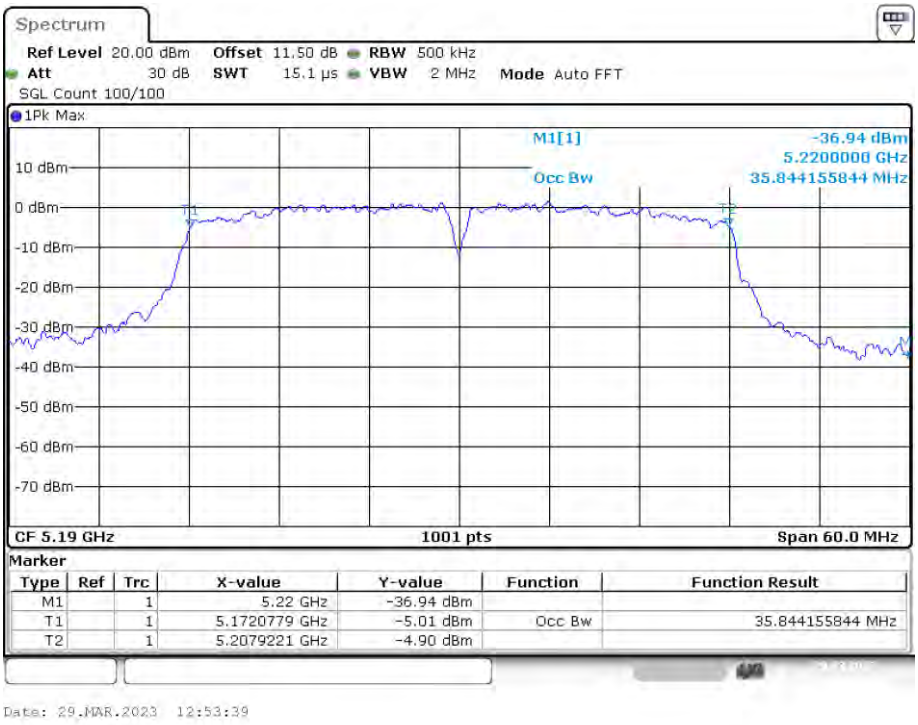



Date: 29.MAR.2023 07:24:45

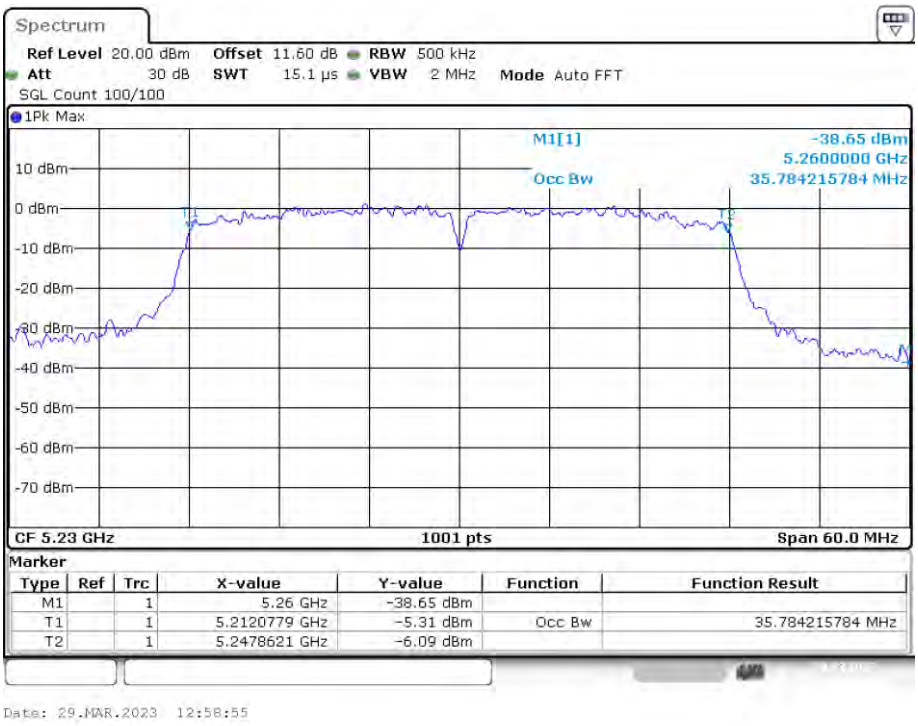
OBW NVNT n20 5240MHz Ant1




OBW NVNT n40 5190MHz Ant1



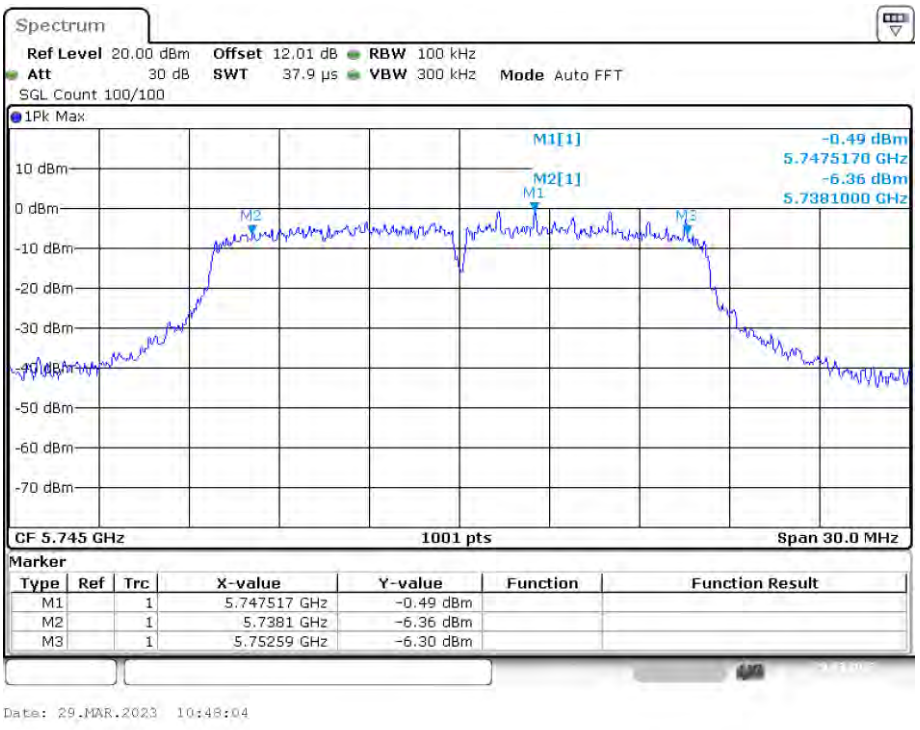
OBW NVNT n40 5230MHz Ant1



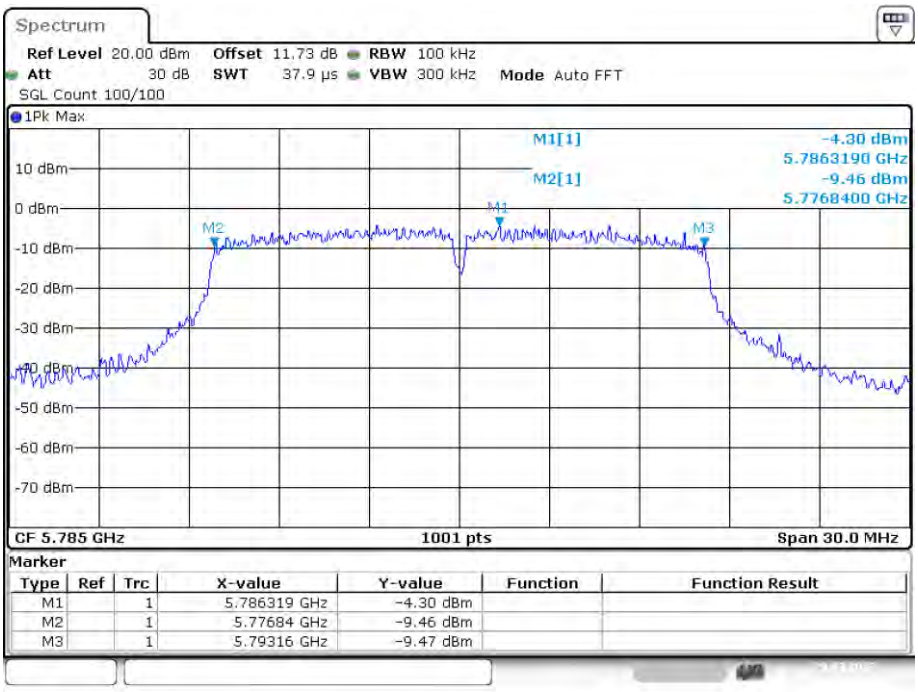
**Band 4 (5725-5850 MHz):**
**-6dB Bandwidth**

| Condition | Mode | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | 14.49 | 0.5 | Pass |
| NVNT | a | 5785 | Ant1 | 16.32 | 0.5 | Pass |
| NVNT | a | 5825 | Ant1 | 14.43 | 0.5 | Pass |
| NVNT | ac20 | 5745 | Ant1 | 17.19 | 0.5 | Pass |
| NVNT | ac20 | 5785 | Ant1 | 15.48 | 0.5 | Pass |
| NVNT | ac20 | 5825 | Ant1 | 17.16 | 0.5 | Pass |
| NVNT | ac40 | 5755 | Ant1 | 35.76 | 0.5 | Pass |
| NVNT | ac40 | 5795 | Ant1 | 35.04 | 0.5 | Pass |
| NVNT | ac80 | 5775 | Ant1 | 62.64 | 0.5 | Pass |
| NVNT | n20 | 5745 | Ant1 | 16.83 | 0.5 | Pass |
| NVNT | n20 | 5785 | Ant1 | 15.09 | 0.5 | Pass |
| NVNT | n20 | 5825 | Ant1 | 16.92 | 0.5 | Pass |
| NVNT | n40 | 5755 | Ant1 | 35.28 | 0.5 | Pass |
| NVNT | n40 | 5795 | Ant1 | 31.98 | 0.5 | Pass |

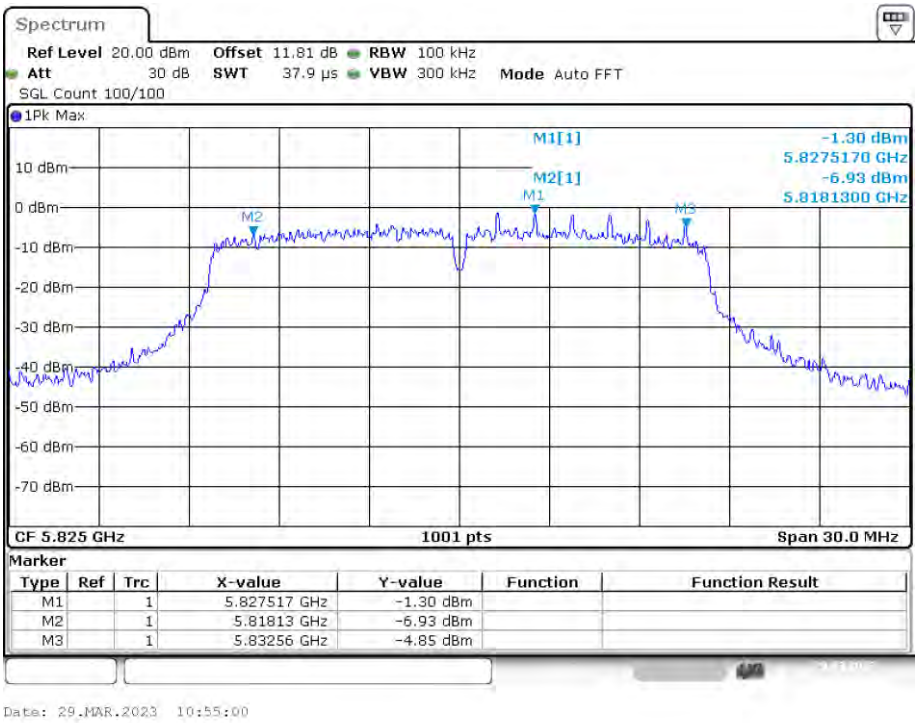
-6dB Bandwidth NVNT a 5745MHz Ant1



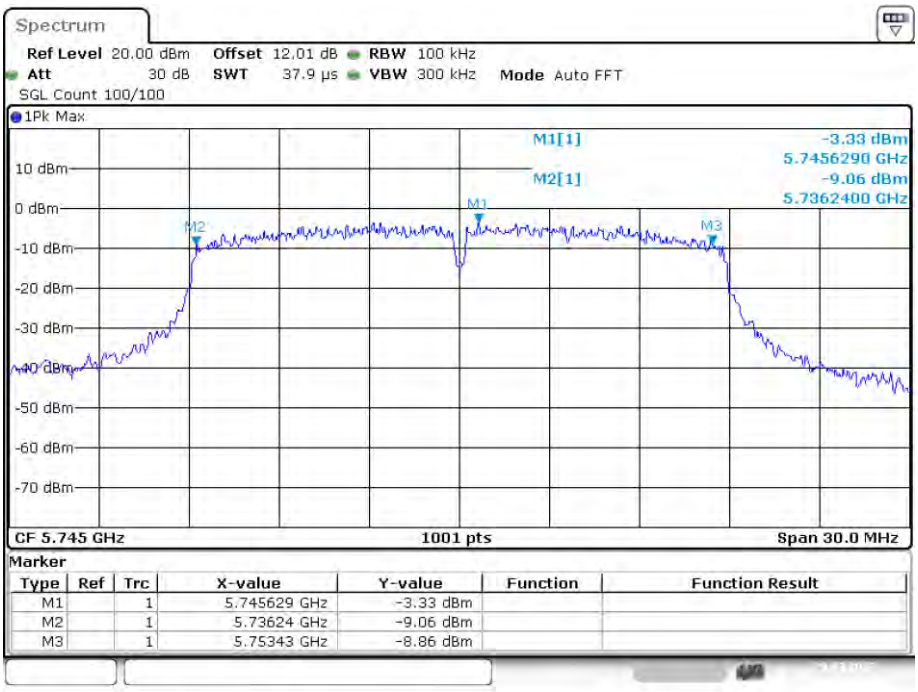
-6dB Bandwidth NVNT a 5785MHz Ant1



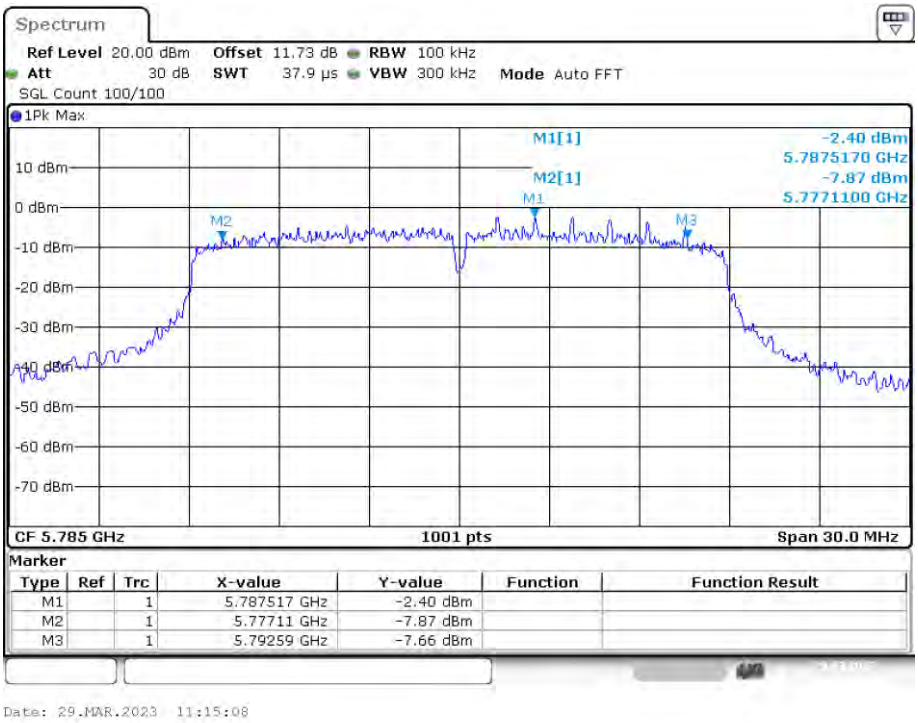

-6dB Bandwidth NVNT a 5825MHz Ant1



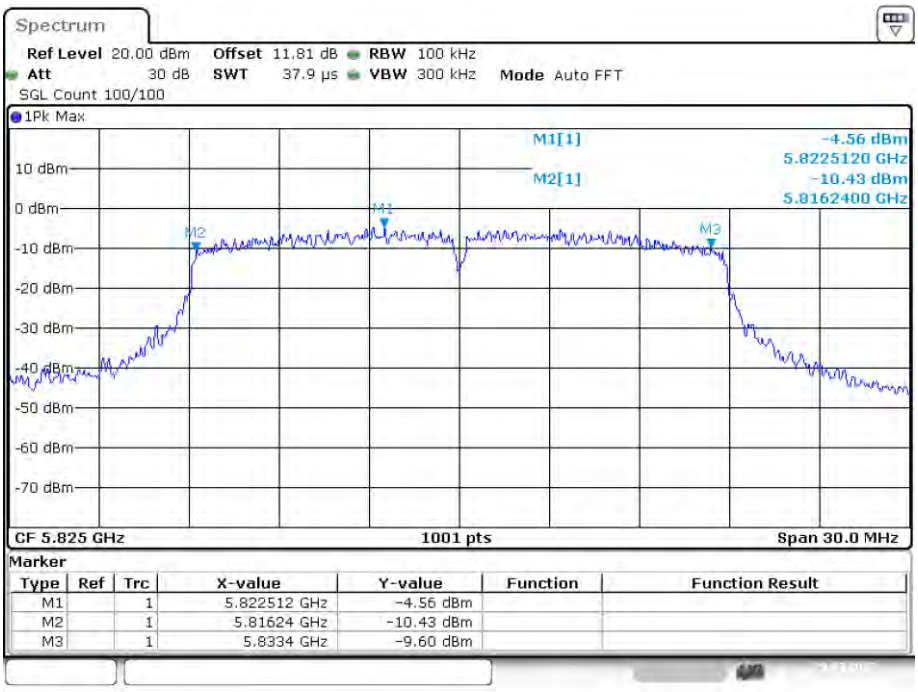
-6dB Bandwidth NVNT ac20 5745MHz Ant1



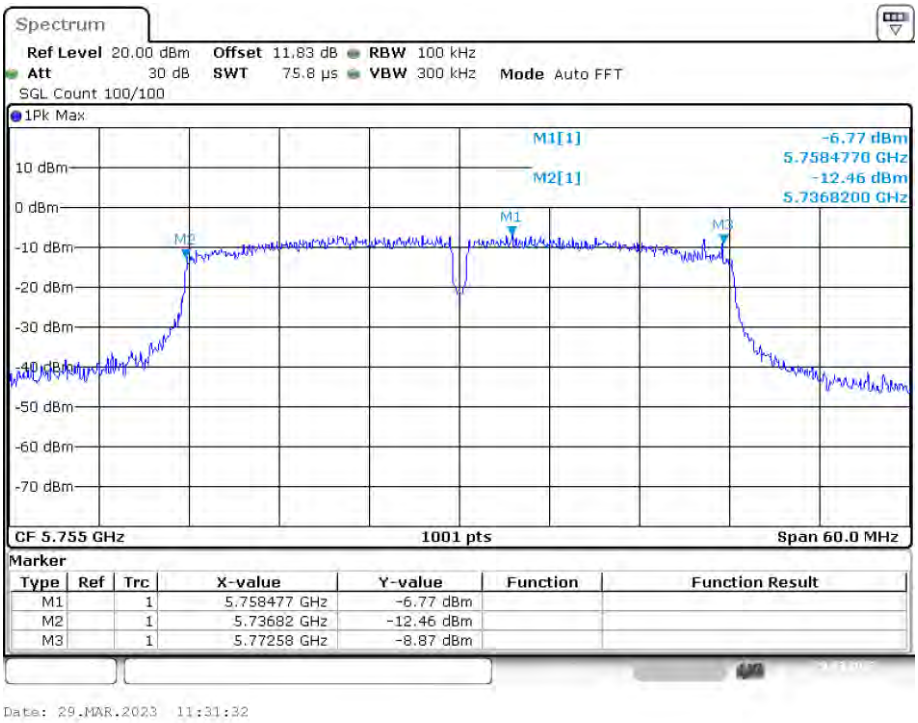

-6dB Bandwidth NVNT ac20 5785MHz Ant1



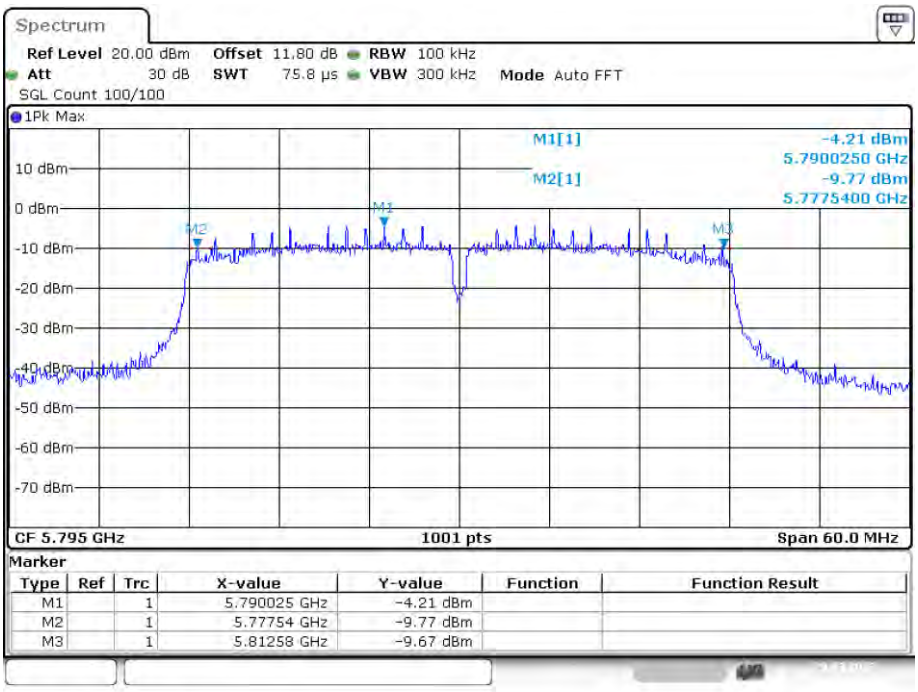
-6dB Bandwidth NVNT ac20 5825MHz Ant1



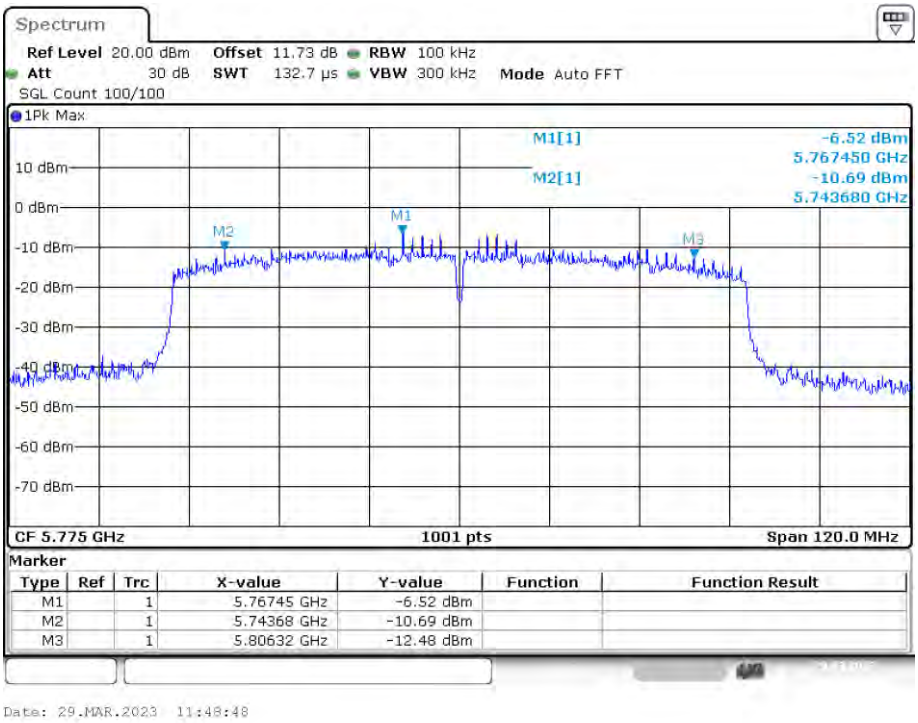

-6dB Bandwidth NVNT ac40 5755MHz Ant1



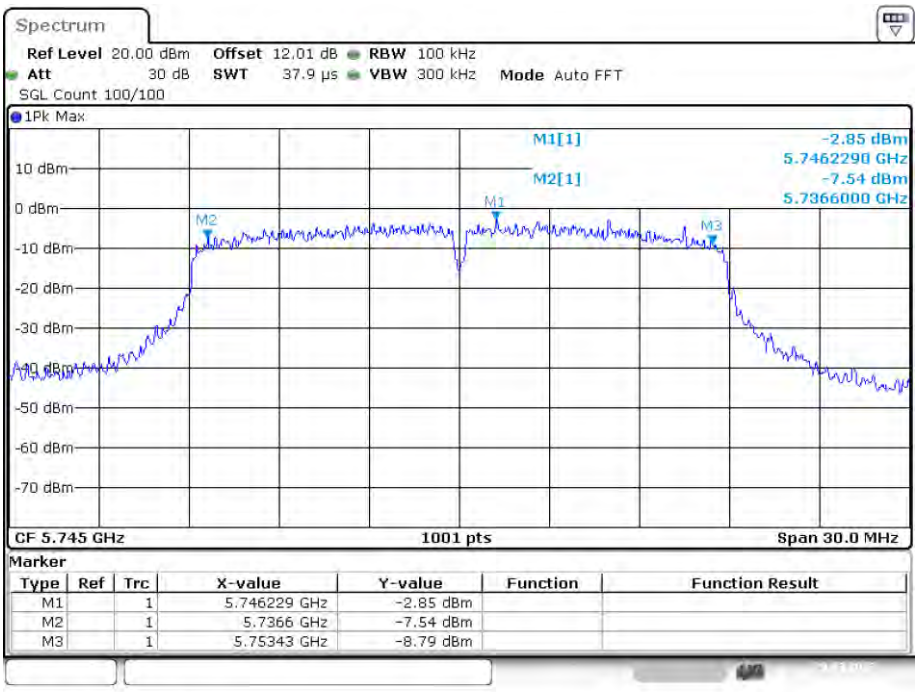
-6dB Bandwidth NVNT ac40 5795MHz Ant1



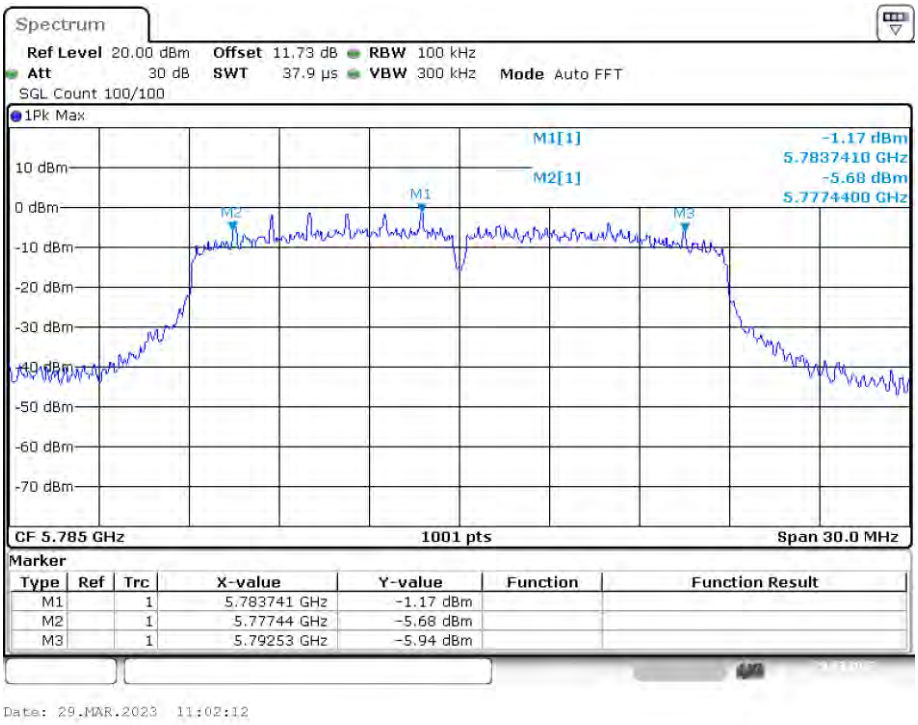

-6dB Bandwidth NVNT ac80 5775MHz Ant1



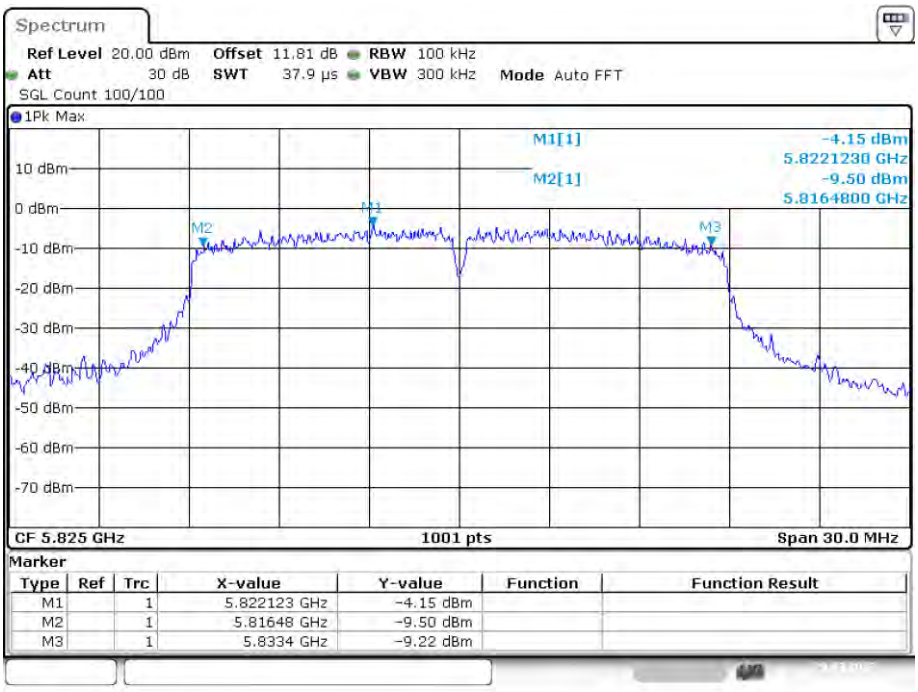
-6dB Bandwidth NVNT n20 5745MHz Ant1



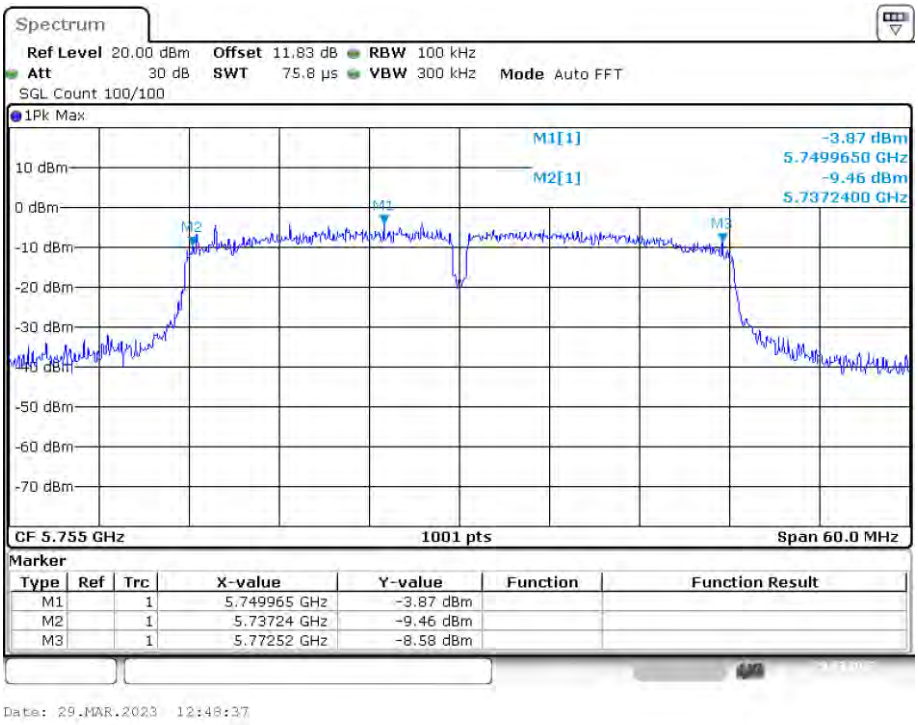

-6dB Bandwidth NVNT n20 5785MHz Ant1



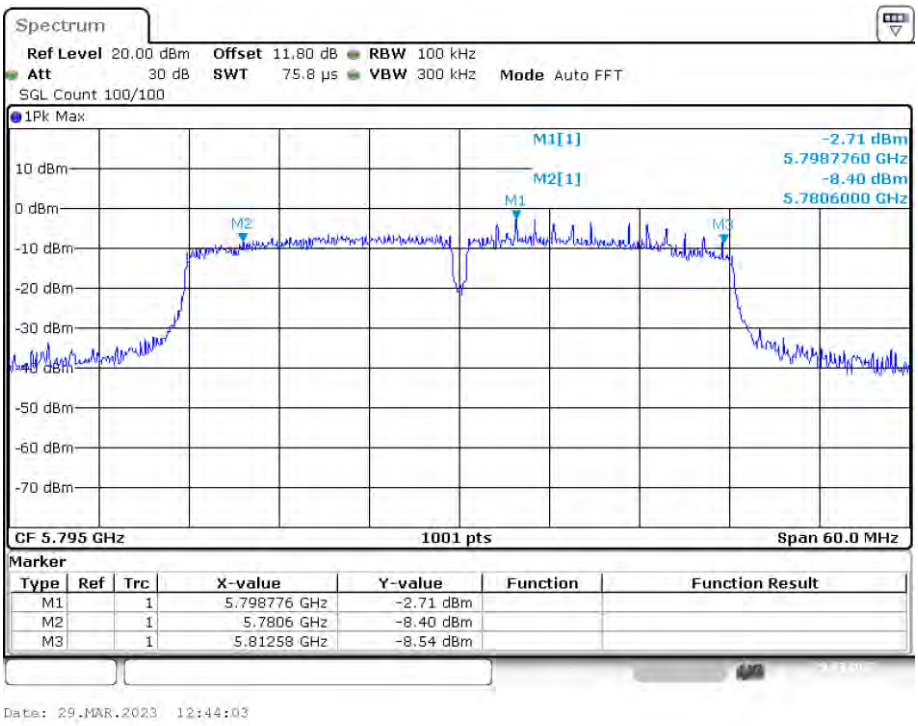
-6dB Bandwidth NVNT n20 5825MHz Ant1




-6dB Bandwidth NVNT n40 5755MHz Ant1



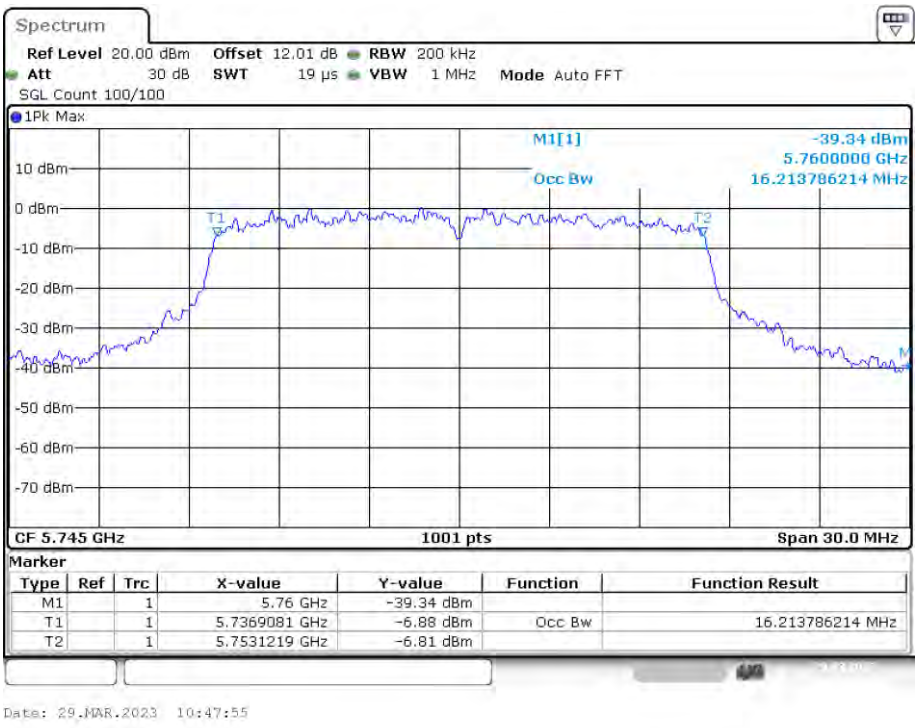
-6dB Bandwidth NVNT n40 5795MHz Ant1



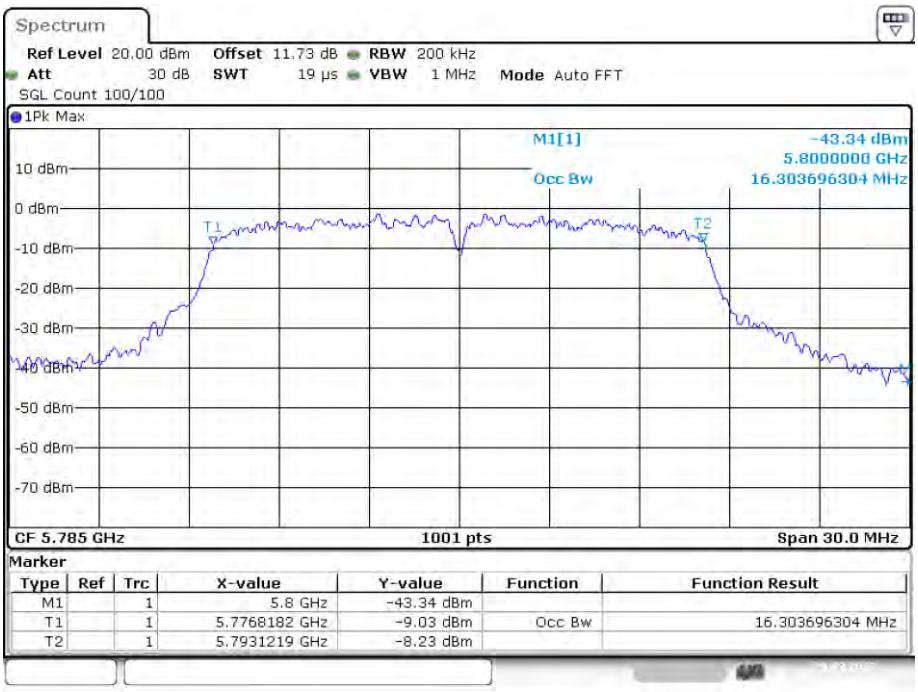
**Occupied Channel Bandwidth**

| Condition | Mode | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | 16.214 |
| NVNT | a | 5785 | Ant1 | 16.304 |
| NVNT | a | 5825 | Ant1 | 16.244 |
| NVNT | ac20 | 5745 | Ant1 | 17.353 |
| NVNT | ac20 | 5785 | Ant1 | 17.443 |
| NVNT | ac20 | 5825 | Ant1 | 17.383 |
| NVNT | ac40 | 5755 | Ant1 | 35.724 |
| NVNT | ac40 | 5795 | Ant1 | 35.724 |
| NVNT | ac80 | 5775 | Ant1 | 74.805 |
| NVNT | n20 | 5745 | Ant1 | 17.413 |
| NVNT | n20 | 5785 | Ant1 | 17.383 |
| NVNT | n20 | 5825 | Ant1 | 17.413 |
| NVNT | n40 | 5755 | Ant1 | 35.844 |
| NVNT | n40 | 5795 | Ant1 | 35.904 |

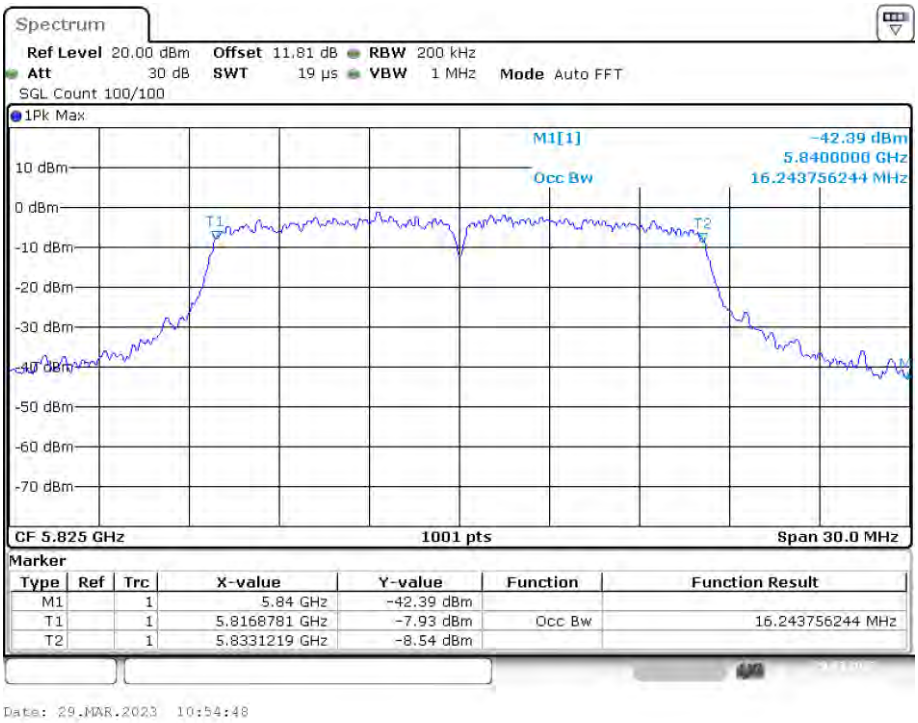
OBW NVNT a 5745MHz Ant1



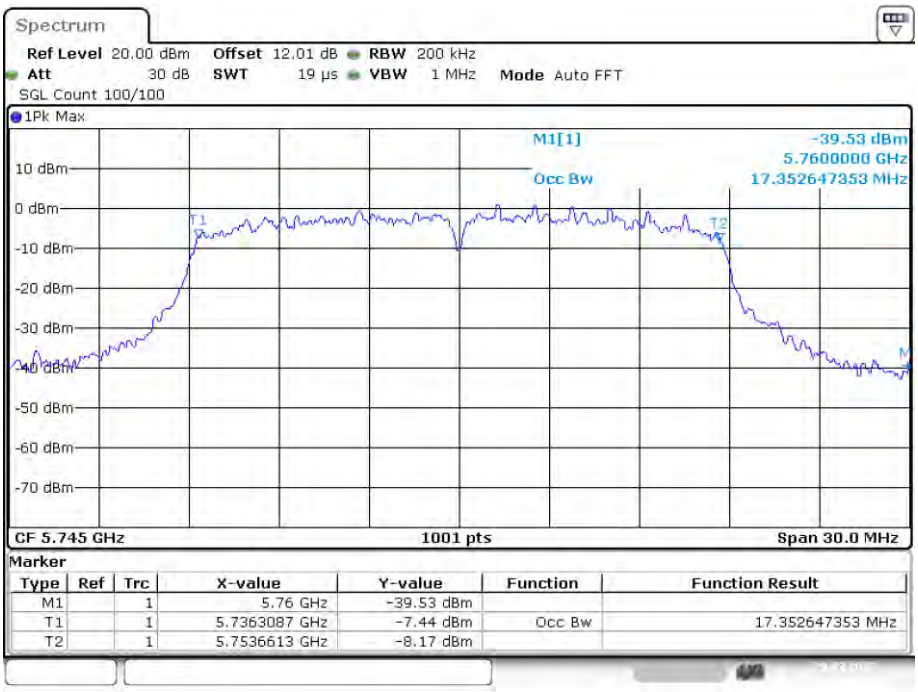
OBW NVNT a 5785MHz Ant1



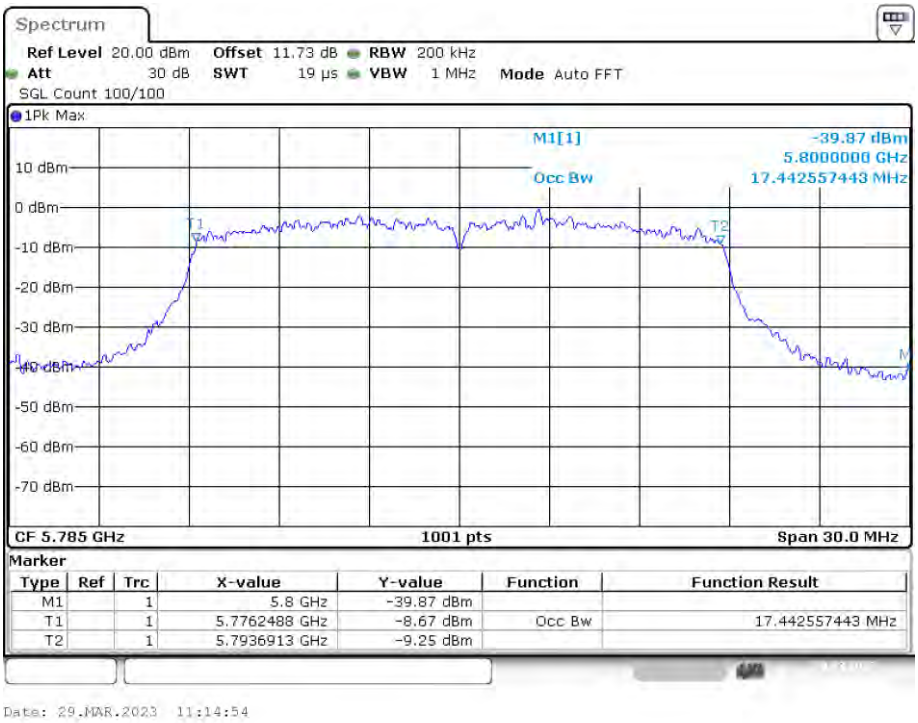

OBW NVNT a 5825MHz Ant1



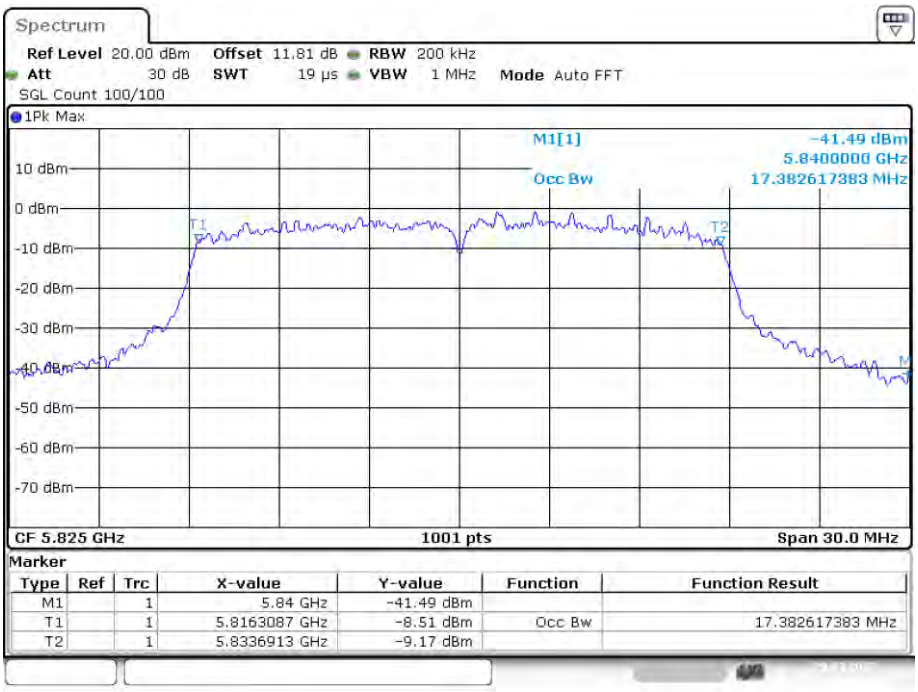
OBW NVNT ac20 5745MHz Ant1



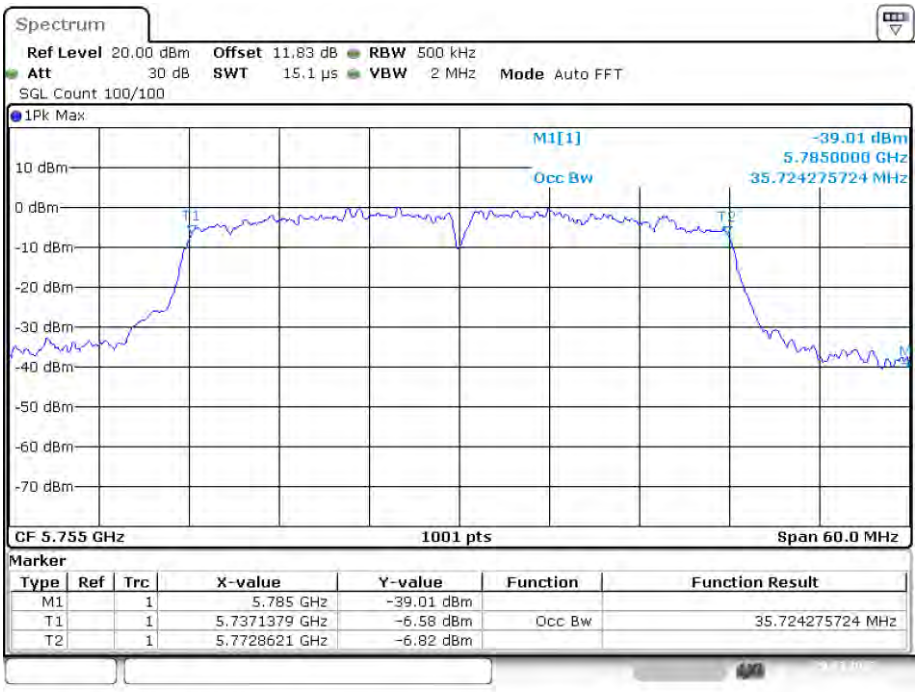

OBW NVNT ac20 5785MHz Ant1



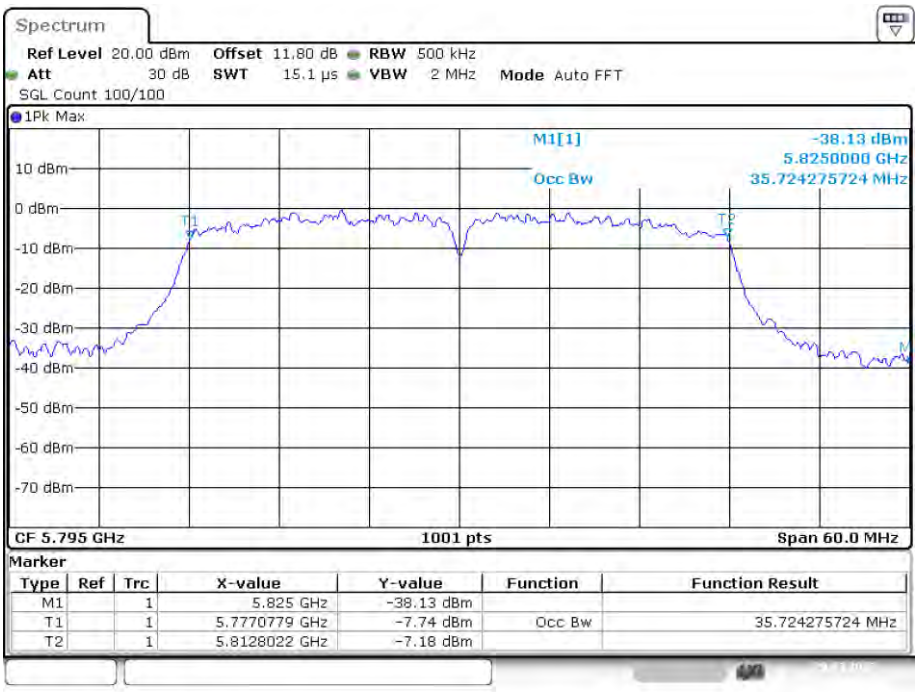
OBW NVNT ac20 5825MHz Ant1



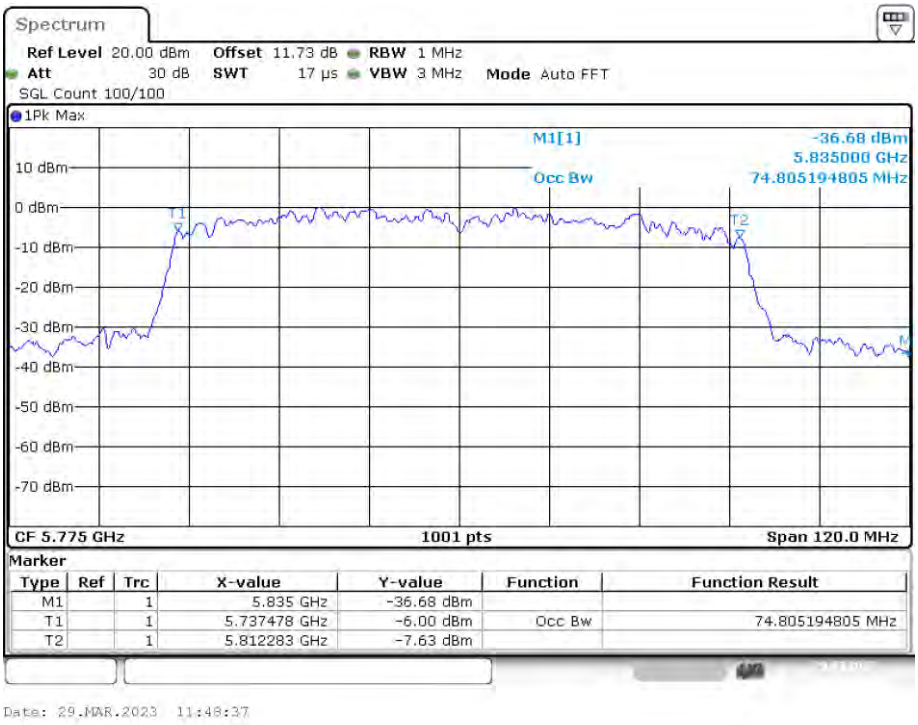

OBW NVNT ac40 5755MHz Ant1



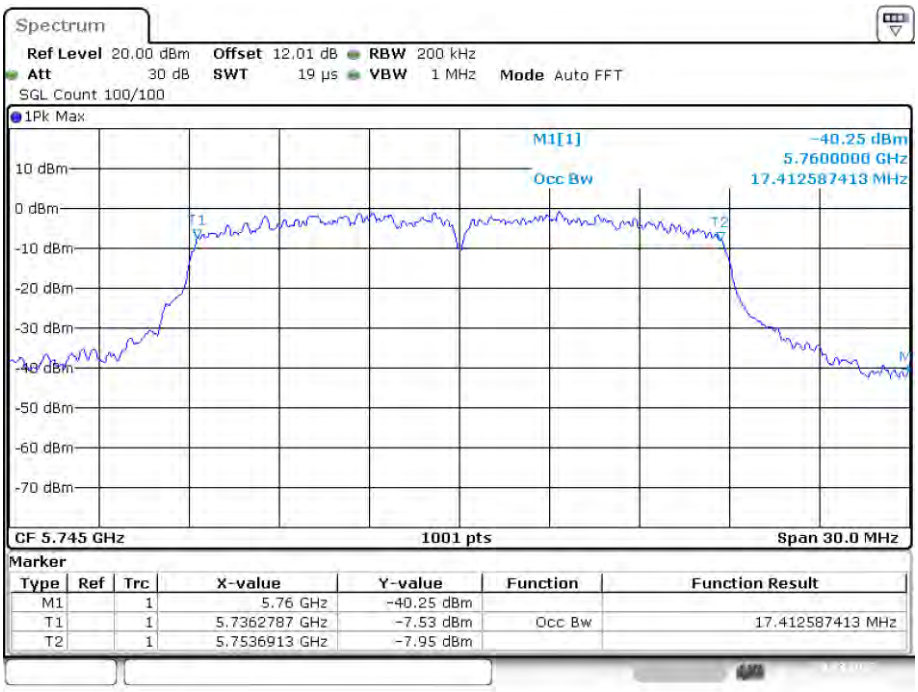
OBW NVNT ac40 5795MHz Ant1




OBW NVNT ac80 5775MHz Ant1

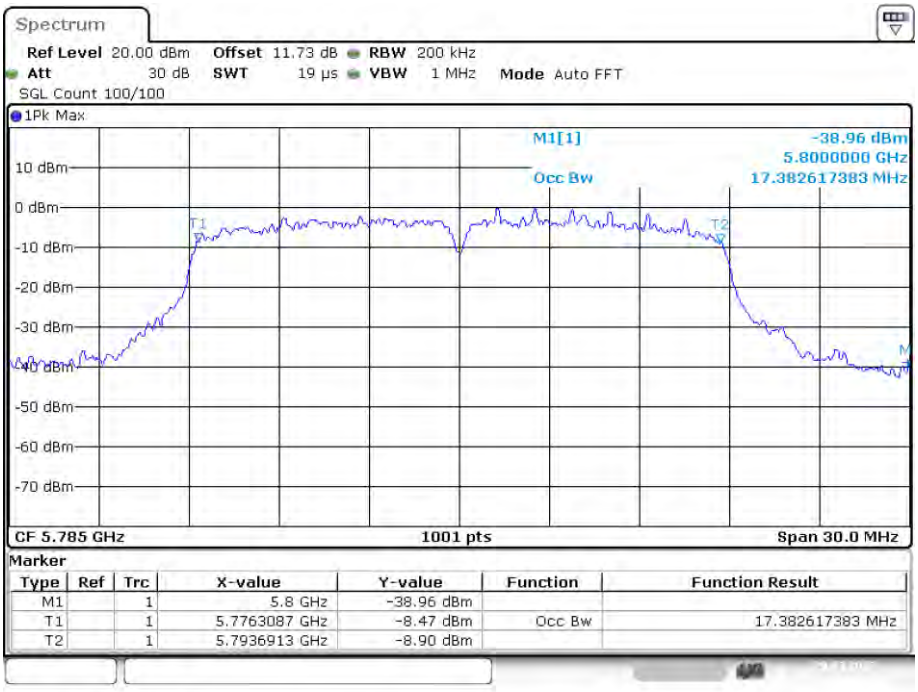


OBW NVNT n20 5745MHz Ant1



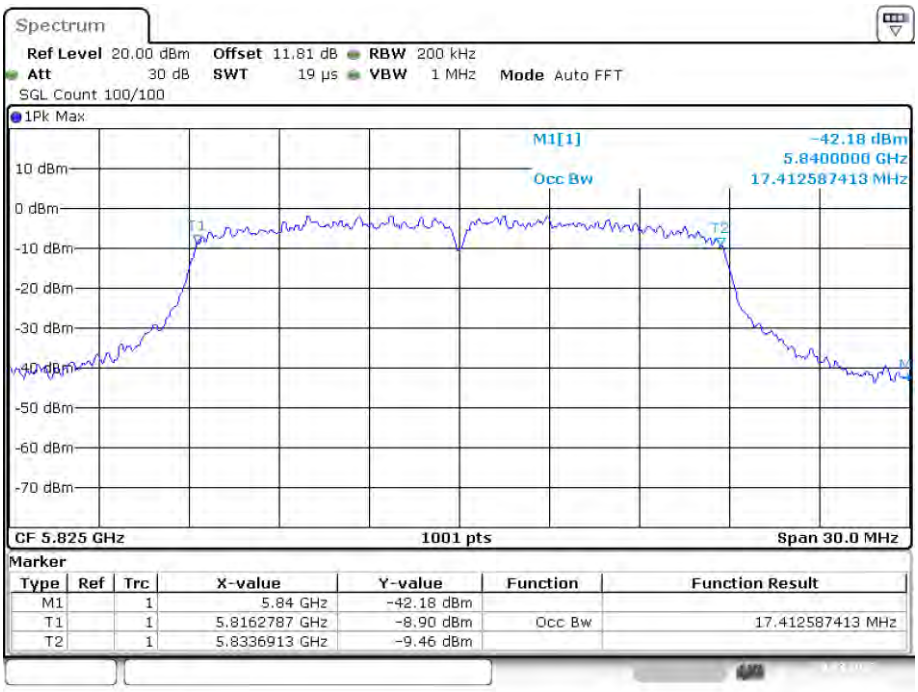

Date: 29.MAR.2023 10:58:07

OBW NVNT n20 5785MHz Ant1

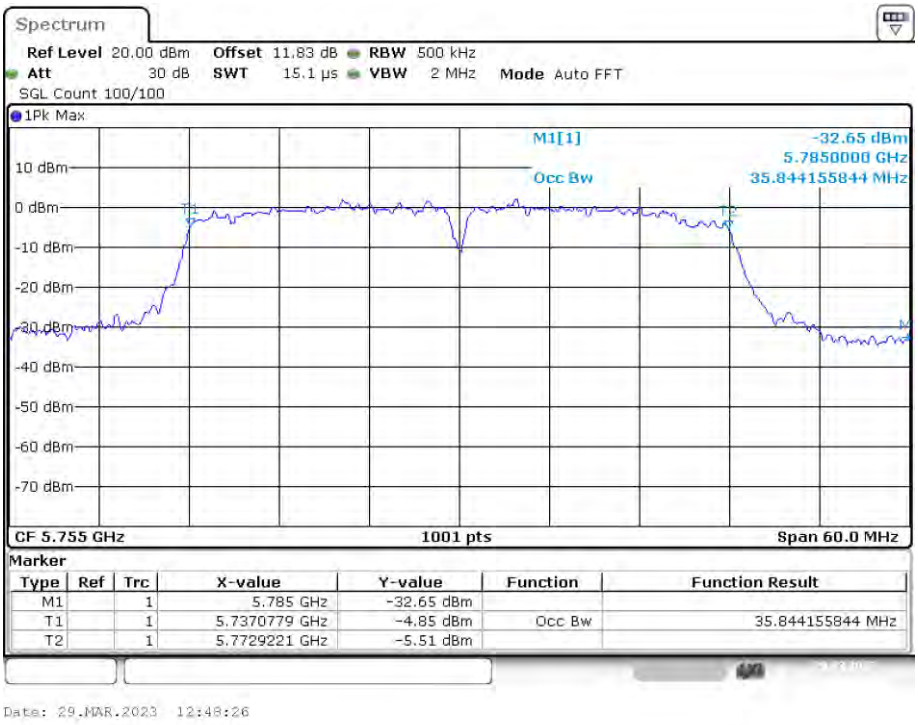



Date: 29.MAR.2023 11:01:58

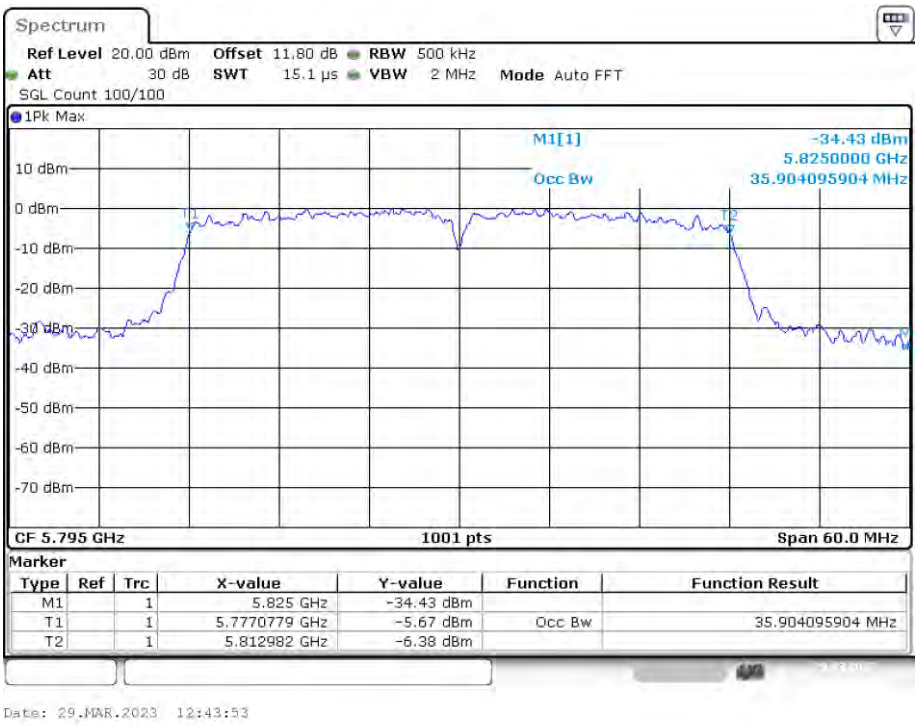
OBW NVNT n20 5825MHz Ant1



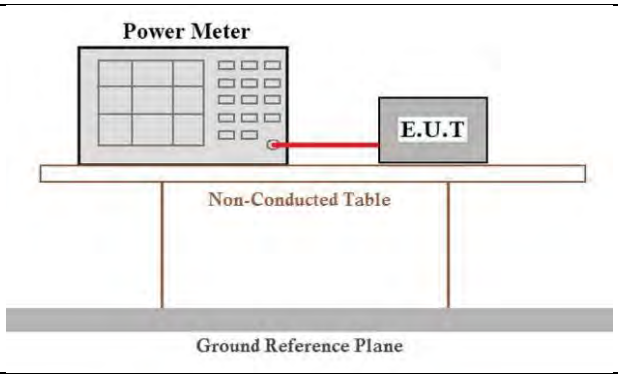

OBW NVNT n40 5755MHz Ant1



OBW NVNT n40 5795MHz Ant1



## 4.4 Peak Transmit Power

| | |
|---|---|
| Test Requirement: | FCC Part15 E Section 15.407 |
| Test Method: | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 |
| Limit: | For the band 5.15-5.25GHz, 5.25-5.35GHz, 5.47-5.725GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 250mW.<br>For the band 5.725-5.85GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 1W. |
| Test setup: |  |
| Test procedure: | **Measurement using an RF average power meter**<br>(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied<br>a) The EUT is configured to transmit continuously or to transmit with a constant duty cycle.<br>b) At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.<br>c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.<br>(ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B).<br>(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.<br>(iv) Adjust the measurement in dBm by adding 10 log(1/x) where x is the duty cycle (e.g., 10log(1/0.25) if the duty cycle is 25 percent). |
| Test Instruments: | Refer to section 5.10 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Pass |

**Measurement Data**

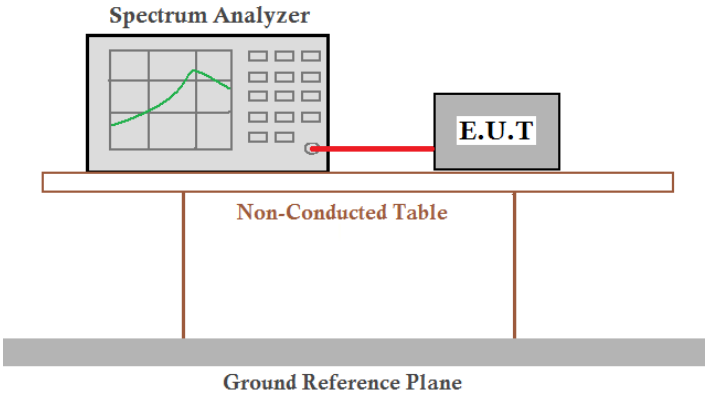
**Band 1 (5150-5250 MHz)**

| Condition | Mode | Frequency (MHz) | Antenna | Conducted Power (dBm) | Duty Factor (dB) | Total Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | 19.607 | 0 | 19.607 | 30 | Pass |
| NVNT | a | 5785 | Ant1 | 18.486 | 0 | 18.486 | 30 | Pass |
| NVNT | a | 5825 | Ant1 | 18.437 | 0 | 18.437 | 30 | Pass |
| NVNT | ac20 | 5745 | Ant1 | 19.64 | 0 | 19.64 | 30 | Pass |
| NVNT | ac20 | 5785 | Ant1 | 18.468 | 0 | 18.468 | 30 | Pass |
| NVNT | ac20 | 5825 | Ant1 | 18.291 | 0 | 18.291 | 30 | Pass |
| NVNT | ac40 | 5755 | Ant1 | 19.508 | 0 | 19.508 | 30 | Pass |
| NVNT | ac40 | 5795 | Ant1 | 18.746 | 0 | 18.746 | 30 | Pass |
| NVNT | ac80 | 5775 | Ant1 | 19.307 | 0 | 19.307 | 30 | Pass |
| NVNT | n20 | 5745 | Ant1 | 19.579 | 0 | 19.579 | 30 | Pass |
| NVNT | n20 | 5785 | Ant1 | 18.564 | 0 | 18.564 | 30 | Pass |
| NVNT | n20 | 5825 | Ant1 | 18.434 | 0 | 18.434 | 30 | Pass |
| NVNT | n40 | 5755 | Ant1 | 21.19 | 0 | **21.19** | 30 | Pass |
| NVNT | n40 | 5795 | Ant1 | 20.274 | 0 | 20.274 | 30 | Pass |

**Band 4 (5725 – 5850 MHz)**

| Condition | Mode | Frequency (MHz) | Antenna | Conducted Power (dBm) | Duty Factor (dB) | Total Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|---|---|
| NVNT | a | 5180 | Ant1 | 19.751 | 0 | 19.751 | 24 | Pass |
| NVNT | a | 5200 | Ant1 | 19.493 | 0 | 19.493 | 24 | Pass |
| NVNT | a | 5240 | Ant1 | 19.064 | 0 | 19.064 | 24 | Pass |
| NVNT | ac20 | 5180 | Ant1 | 19.741 | 0 | 19.741 | 24 | Pass |
| NVNT | ac20 | 5200 | Ant1 | 19.619 | 0 | 19.619 | 24 | Pass |
| NVNT | ac20 | 5240 | Ant1 | 19.143 | 0 | 19.143 | 24 | Pass |
| NVNT | ac40 | 5190 | Ant1 | 20.039 | 0 | 20.039 | 24 | Pass |
| NVNT | ac40 | 5230 | Ant1 | 19.559 | 0 | 19.559 | 24 | Pass |
| NVNT | ac80 | 5210 | Ant1 | 20.16 | 0 | 20.16 | 24 | Pass |
| NVNT | n20 | 5180 | Ant1 | 19.635 | 0 | 19.635 | 24 | Pass |
| NVNT | n20 | 5200 | Ant1 | 19.455 | 0 | 19.455 | 24 | Pass |
| NVNT | n20 | 5240 | Ant1 | 19.102 | 0 | 19.102 | 24 | Pass |
| NVNT | n40 | 5190 | Ant1 | 21.41 | 0 | **21.41** | 24 | Pass |
| NVNT | n40 | 5230 | Ant1 | 20.898 | 0 | 20.898 | 24 | Pass |

## 4.5 Power Spectral Density

| | |
|---|---|
| Test Requirement: | FCC Part15 E Section 15.407 |
| Test Method: | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 |
| Limit: | ≤11.00dBm/MHz for 5150MHz-5250MHz, 5250-5350MHz and 5470-5725 MHz<br>≤30.00dBm/500KHz for 5725MHz-5850MHz |
| Test setup: |  |
| Test procedure: | 1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power…”.<br>2) Use the peak search function on the instrument to find the peak of the spectrum.<br>3) Make the following adjustments to the peak value of the spectrum, if applicable:<br>a) If Method SA-2 or SA-2 Alternative was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum.<br>b) If Method SA-3 Alternative was used and the linear mode was used in step E)2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.<br>4) The result is the PSD. |
| Test Instruments: | Refer to section 5.10 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Pass |

**Measurement Data**

**Band 1 (5150 - 5250 MHz)**

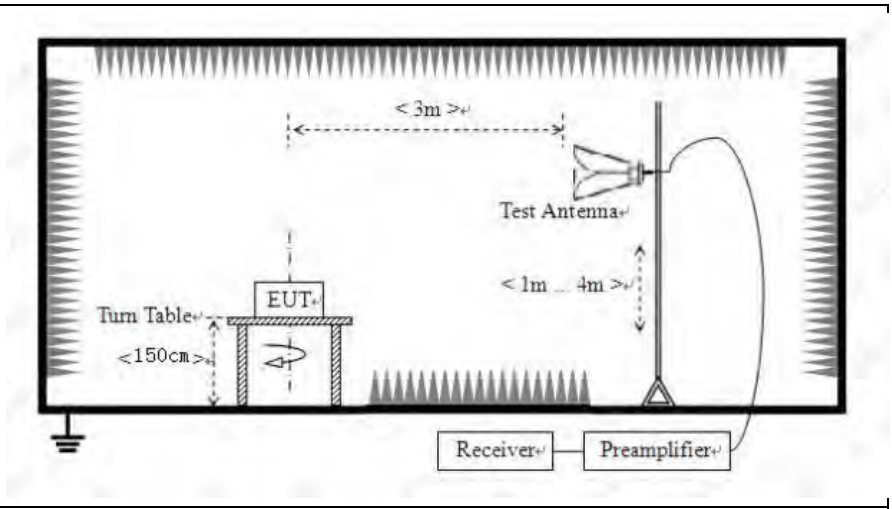
| Condition | Mode | Frequency (MHz) | Antenna | Max PSD (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | a | 5180 | Ant1 | 9.227 | 11 | Pass |
| NVNT | a | 5200 | Ant1 | 9.147 | 11 | Pass |
| NVNT | a | 5240 | Ant1 | 8.554 | 11 | Pass |
| NVNT | ac20 | 5180 | Ant1 | 9.953 | 11 | Pass |
| NVNT | ac20 | 5200 | Ant1 | 9.505 | 11 | Pass |
| NVNT | ac20 | 5240 | Ant1 | 8.578 | 11 | Pass |
| NVNT | ac40 | 5190 | Ant1 | 6.078 | 11 | Pass |
| NVNT | ac40 | 5230 | Ant1 | 6.214 | 11 | Pass |
| NVNT | ac80 | 5210 | Ant1 | 6.427 | 11 | Pass |
| NVNT | n20 | 5180 | Ant1 | 9.137 | 11 | Pass |
| NVNT | n20 | 5200 | Ant1 | 8.826 | 11 | Pass |
| NVNT | n20 | 5240 | Ant1 | 8.305 | 11 | Pass |
| NVNT | n40 | 5190 | Ant1 | 8.016 | 11 | Pass |
| NVNT | n40 | 5230 | Ant1 | 7.355 | 11 | Pass |

**Band 4 (5725 - 5850 MHz)**

| Condition | Mode | Frequency (MHz) | Antenna | Max PSD (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | 6.209 | 30 | Pass |
| NVNT | a | 5785 | Ant1 | 5.042 | 30 | Pass |
| NVNT | a | 5825 | Ant1 | 5.05 | 30 | Pass |
| NVNT | ac20 | 5745 | Ant1 | 5.829 | 30 | Pass |
| NVNT | ac20 | 5785 | Ant1 | 4.53 | 30 | Pass |
| NVNT | ac20 | 5825 | Ant1 | 4.725 | 30 | Pass |
| NVNT | ac40 | 5755 | Ant1 | 2.421 | 30 | Pass |
| NVNT | ac40 | 5795 | Ant1 | 1.403 | 30 | Pass |
| NVNT | ac80 | 5775 | Ant1 | 0.806 | 30 | Pass |
| NVNT | n20 | 5745 | Ant1 | 5.806 | 30 | Pass |
| NVNT | n20 | 5785 | Ant1 | 4.759 | 30 | Pass |
| NVNT | n20 | 5825 | Ant1 | 4.734 | 30 | Pass |
| NVNT | n40 | 5755 | Ant1 | 3.69 | 30 | Pass |
| NVNT | n40 | 5795 | Ant1 | 3.402 | 30 | Pass |

## 4.6 Band Edge

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 E Section 15.407 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></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>AV</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></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>54.0</td><td>Average Value</td></tr>
<tr><td>68.2</td><td>Peak Value</td></tr>
</table>
Undesirable emission limits:<br>
(1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.<br>
(2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.<br>
(3) For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.
</td></tr>
<tr><td>Test Procedure:</td><td>
a. The EUT was placed on the top of a rotating table 1.5 m above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>
b. 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>
c. 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>
d. 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 rotable table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>
f. 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>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: | Pass |

Remark:

According to KDB 789033 D02 v02r01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

E[dBuV/m] = EIRP[dBm] + 95.2,

For example, if EIRP = -27dBm

E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.

**Measurement Data:**

**Band1**

| Mode: | | 802.11a | | Frequency: | | 5180MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 34.08 | 17.18 | 51.26 | 68.20 | -16.94 | PK |
| V | 5150.00 | 35.49 | 17.18 | 52.67 | 68.20 | -15.53 | PK |

| Mode: | | 802.11a | | Frequency: | | 5180MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 26.10 | 17.18 | 43.28 | 54.00 | -10.72 | AV |
| V | 5150.00 | 25.13 | 17.18 | 42.31 | 54.00 | -11.69 | AV |

| Mode: | | 802.11a | | Frequency: | | 5240MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 35.59 | 17.18 | 52.77 | 68.20 | -15.43 | PK |
| V | 5350.00 | 35.35 | 17.18 | 52.53 | 68.20 | -15.67 | PK |

| Mode: | | 802.11a | | Frequency: | | 5240MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 24.34 | 17.18 | 41.52 | 54.00 | -12.48 | AV |
| V | 5350.00 | 24.00 | 17.18 | 41.18 | 54.00 | -12.82 | AV |

| Mode: | | 802.11n(HT20) | | Frequency: | | 5180MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 37.42 | 17.18 | 54.60 | 68.20 | -13.60 | PK |
| V | 5150.00 | 35.71 | 17.18 | 52.89 | 68.20 | -15.31 | PK |

| Mode: | | 802.11n(HT20) | | Frequency: | | 5180MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 25.50 | 17.18 | 42.68 | 54.00 | -11.32 | AV |
| V | 5150.00 | 25.62 | 17.18 | 42.80 | 54.00 | -11.20 | AV |

| Mode: | | 802.11n(HT20) | | Frequency: | | 5240MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 33.68 | 17.18 | 50.86 | 68.20 | -17.34 | PK |
| V | 5350.00 | 34.64 | 17.18 | 51.82 | 68.20 | -16.38 | PK |

| Mode: | | 802.11n(HT20) | | Frequency: | | 5240MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 28.02 | 17.18 | 45.20 | 54.00 | -8.80 | AV |
| V | 5350.00 | 23.48 | 17.18 | 40.66 | 54.00 | -13.34 | AV |

| Mode: | | 802.11ac(HT20) | | Frequency: | | 5180MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 35.99 | 17.18 | 53.17 | 68.20 | -15.03 | PK |
| V | 5150.00 | 33.59 | 17.18 | 50.77 | 68.20 | -17.43 | PK |
| | | | | | | | |
| Mode: | | 802.11ac(HT20) | | Frequency: | | 5180MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 24.86 | 17.18 | 42.04 | 54.00 | -11.96 | AV |
| V | 5150.00 | 26.77 | 17.18 | 43.95 | 54.00 | -10.05 | AV |
| | | | | | | | |
| Mode: | | 802.11ac(HT20) | | Frequency: | | 5240MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 34.31 | 17.18 | 51.49 | 68.20 | -16.71 | PK |
| V | 5350.00 | 36.38 | 17.18 | 53.56 | 68.20 | -14.64 | PK |
| | | | | | | | |
| Mode: | | 802.11ac(HT20) | | Frequency: | | 5240MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 26.65 | 17.18 | 43.83 | 54.00 | -10.17 | AV |
| V | 5350.00 | 25.15 | 17.18 | 42.33 | 54.00 | -11.67 | AV |

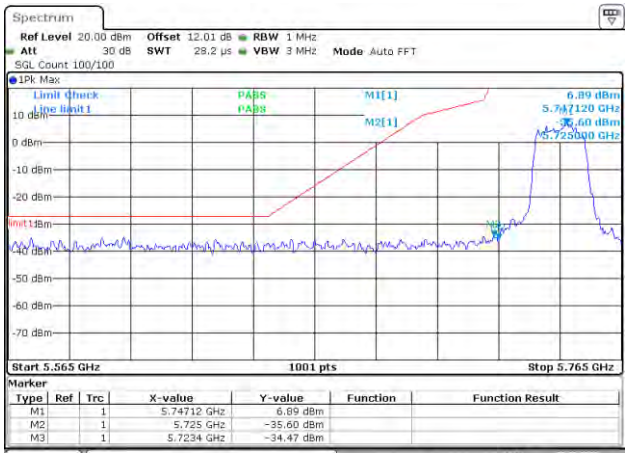
| Mode: | | 802.11n(HT40) | | Frequency: | | 5190MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 34.48 | 17.18 | 51.66 | 68.20 | -16.54 | PK |
| V | 5150.00 | 33.07 | 17.18 | 50.25 | 68.20 | -17.95 | PK |
| | | | | | | | |
| Mode: | | 802.11n(HT40) | | Frequency: | | 5190MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 26.33 | 17.18 | 43.51 | 54.00 | -10.49 | AV |
| V | 5150.00 | 23.93 | 17.18 | 41.11 | 54.00 | -12.89 | AV |
| | | | | | | | |
| Mode: | | 802.11n(HT40) | | Frequency: | | 5230MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 34.98 | 17.18 | 52.16 | 68.20 | -16.04 | PK |
| V | 5350.00 | 34.67 | 17.18 | 51.85 | 68.20 | -16.35 | PK |
| | | | | | | | |
| Mode: | | 802.11n(HT40) | | Frequency: | | 5230MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 25.91 | 17.18 | 43.09 | 54.00 | -10.91 | AV |
| V | 5350.00 | 26.16 | 17.18 | 43.34 | 54.00 | -10.66 | AV |

| Mode: | | 802.11ac(HT40) | | Frequency: | | 5190MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 34.85 | 17.18 | 52.03 | 68.20 | -16.17 | PK |
| V | 5150.00 | 33.41 | 17.18 | 50.59 | 68.20 | -17.61 | PK |
| | | | | | | | |
| Mode: | | 802.11ac(HT40) | | Frequency: | | 5190MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 26.35 | 17.18 | 43.53 | 54.00 | -10.47 | AV |
| V | 5150.00 | 26.89 | 17.18 | 44.07 | 54.00 | -9.93 | AV |
| | | | | | | | |
| Mode: | | 802.11ac(HT40) | | Frequency: | | 5230MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 33.78 | 17.18 | 50.96 | 68.20 | -17.24 | PK |
| V | 5350.00 | 36.37 | 17.18 | 53.55 | 68.20 | -14.65 | PK |
| | | | | | | | |
| Mode: | | 802.11ac(HT40) | | Frequency: | | 5230MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 25.18 | 17.18 | 42.36 | 54.00 | -11.64 | AV |
| V | 5350.00 | 24.88 | 17.18 | 42.06 | 54.00 | -11.94 | AV |

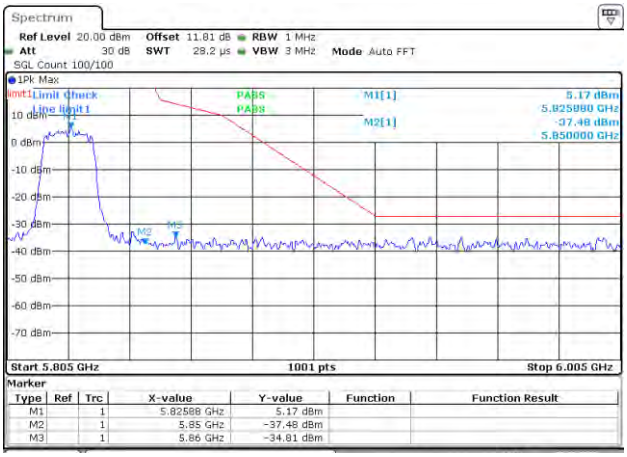
| Mode: | | 802.11ac(HT80) | | Frequency: | | 5210MHz | |
|---|---|---|---|---|---|---|---|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 34.12 | 17.18 | 51.30 | 68.20 | -16.90 | PK |
| V | 5150.00 | 33.86 | 17.18 | 51.04 | 68.20 | -17.16 | PK |
| | | | | | | | |
| Mode: | | 802.11ac(HT80) | | Frequency: | | 5210MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 26.88 | 17.18 | 44.06 | 54.00 | -9.94 | AV |
| V | 5150.00 | 27.13 | 17.18 | 44.31 | 54.00 | -9.69 | AV |
| | | | | | | | |
| Mode: | | 802.11ac(HT80) | | Frequency: | | 5210MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 36.60 | 17.18 | 53.78 | 68.20 | -14.42 | PK |
| V | 5350.00 | 36.63 | 17.18 | 53.81 | 68.20 | -14.39 | PK |
| | | | | | | | |
| Mode: | | 802.11ac(HT80) | | Frequency: | | 5210MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 28.07 | 17.18 | 45.25 | 54.00 | -8.75 | AV |
| V | 5350.00 | 25.14 | 17.18 | 42.32 | 54.00 | -11.68 | AV |

**Band4**

802.11a

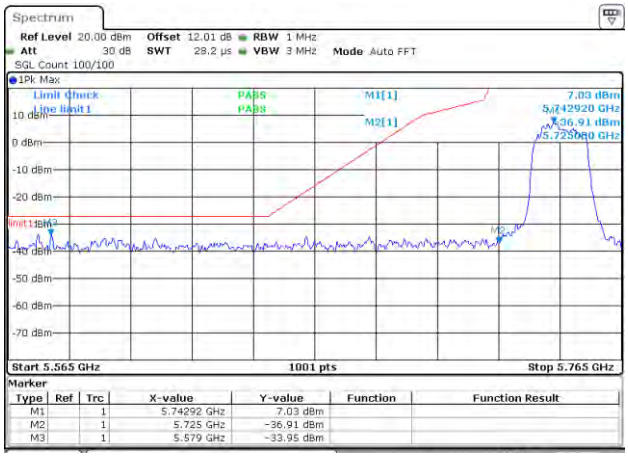



Low: 5745MHz

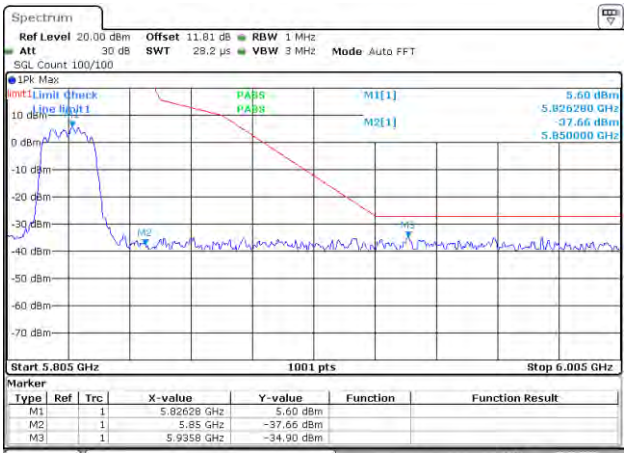



High: 5825MHz

802.11n(HT20)

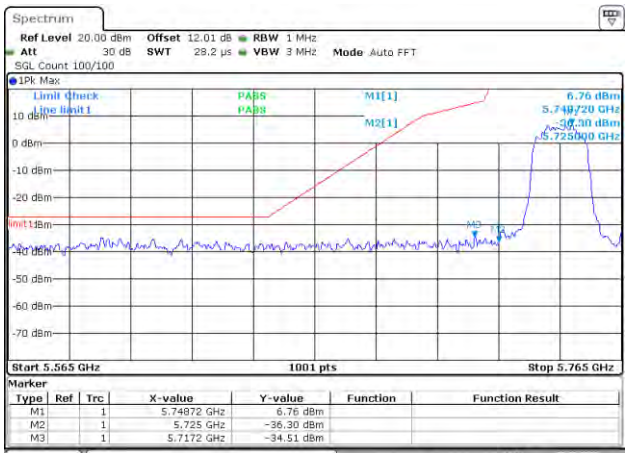



Low: 5745MHz

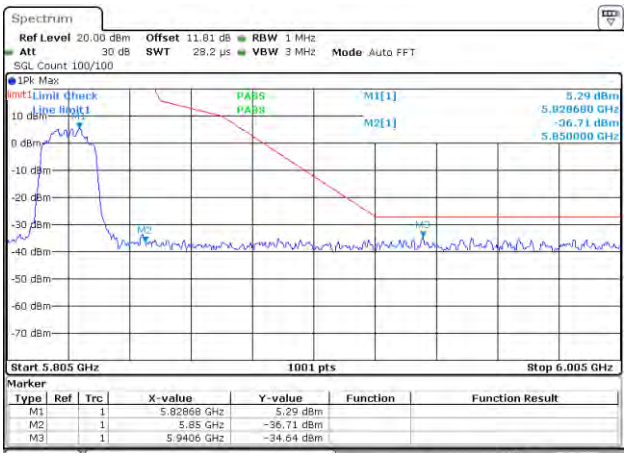



High: 5825MHz

802.11ac(HT20)

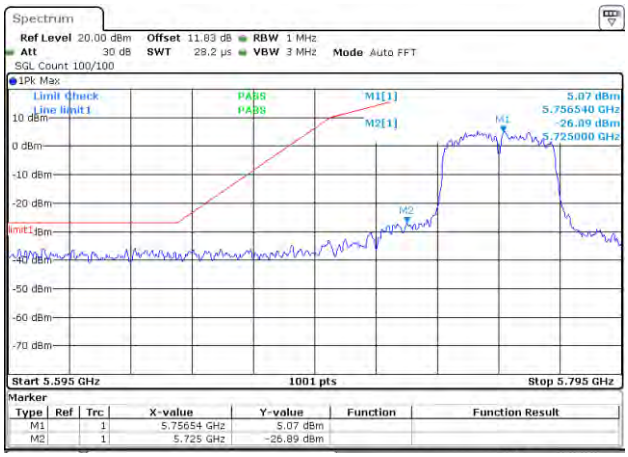



Low: 5745MHz

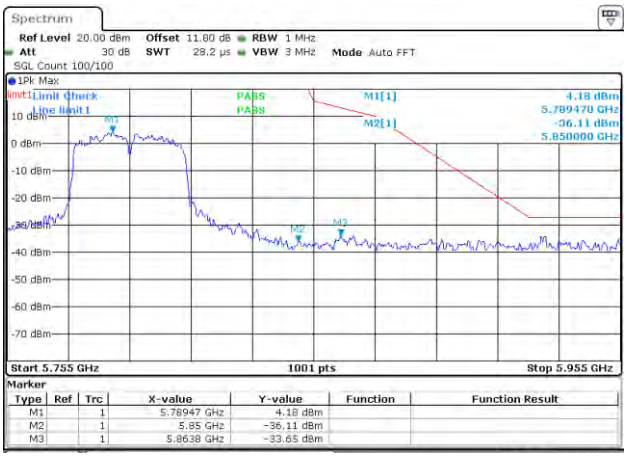



High: 5825MHz

802.11n(HT40)

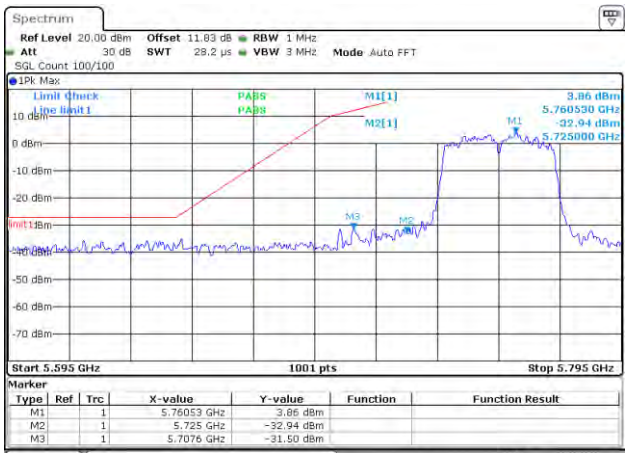



Low: 5755MHz

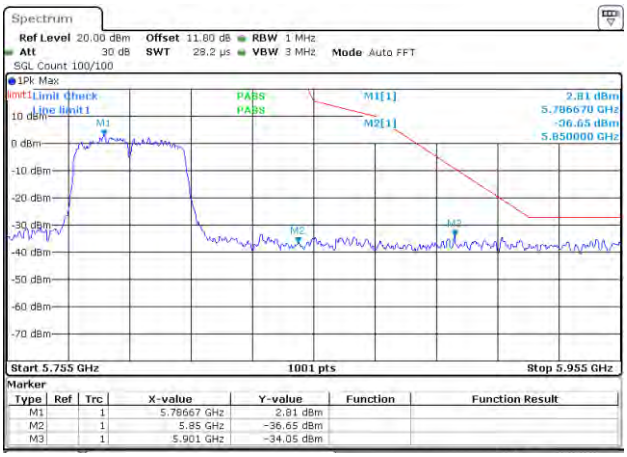



High: 5795MHz

802.11ac(HT40)

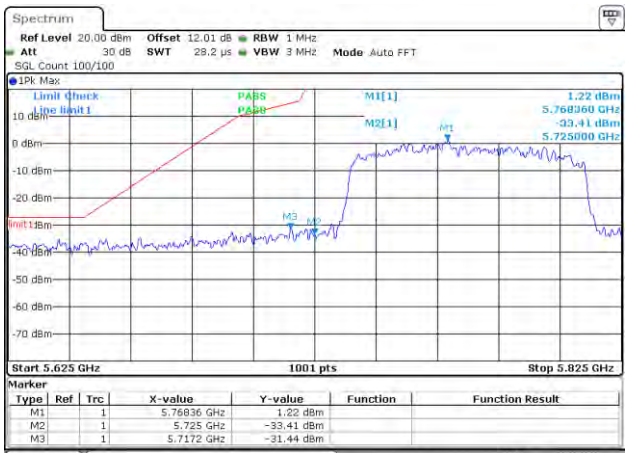



Low: 5755MHz



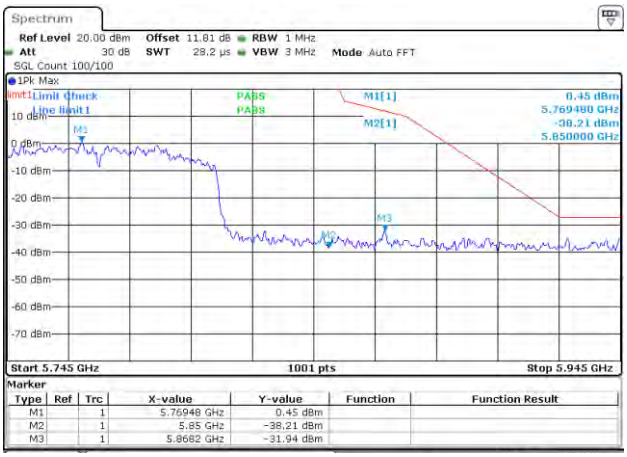

High: 5795MHz

802.11ac(HT80)




5775MHz

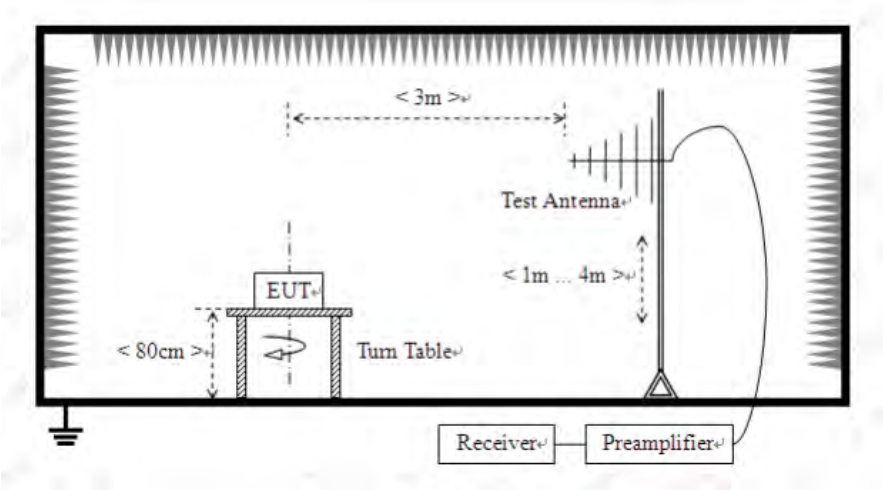
802.11ac(HT80)

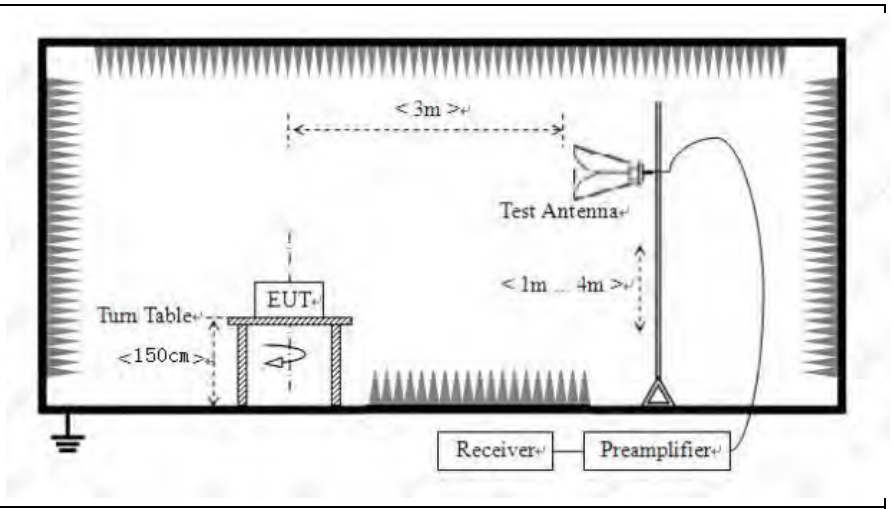



5775MHz

## 4.7 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>30MHz to 40GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Value</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>AV</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>74.0</td><td>Peak Value</td></tr>
<tr><td>54.0</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Test Procedure:</td><td>
Substitution method was performed to determine the actual ERP emission levels of the EUT.<br>
The following test procedure as below:<br><br>
1>.Below 1GHz test procedure:<br>
1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for 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 rotable 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.<br><br>
2>.Above 1GHz test procedure:<br>
1. On the test site as test setup graph above,the EUT shall be placed at the 1.5m support on the turntable and in the position closest to normal use as declared by the provider.<br>
2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter.The output of the test antenna shall be connected to the measuring receiver.<br>
3. The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the transmitter under test.<br>
4. The test antenna shall be raised and lowered from 1m to 4m until a
</td></tr>
</table>

| | |
|---|---|
| | maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.<br>5. Repeat step 4 for test frequency with the test antenna polarized horizontally.<br>6. Remove the transmitter and replace it with a substitution antenna<br>7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.<br>8. Repeat step 7 with both antennas horizontally polarized for each test frequency.<br>9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:<br>EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)<br>where:<br>Pg is the generator output power into the substitution antenna. |
| Test setup: | Below 1GHz<br>  <br><br>Above 1GHz |

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

**Measurement Data:**

**Below 1GHz**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 33.91 | 48.56 | 11.25 | 0.59 | 30.08 | 30.32 | 40 | -9.68 | Vertical |
| 55.24 | 40.70 | 11.93 | 0.81 | 29.96 | 23.48 | 40 | -16.52 | Vertical |
| 121.08 | 46.31 | 9.4 | 1.36 | 29.57 | 27.50 | 43.5 | -16.00 | Vertical |
| 172.88 | 42.78 | 8.5 | 1.7 | 29.31 | 23.67 | 43.5 | -19.83 | Vertical |
| 440.60 | 36.68 | 16.29 | 3.05 | 29.41 | 26.61 | 46 | -19.39 | Vertical |
| 860.34 | 33.65 | 21.83 | 4.69 | 29.14 | 31.03 | 46 | -14.97 | Vertical |
| 65.15 | 35.61 | 8.73 | 0.9 | 29.89 | 15.35 | 40 | -24.65 | Horizontal |
| 100.35 | 34.21 | 11.73 | 1.19 | 29.7 | 17.43 | 43.5 | -26.07 | Horizontal |
| 269.80 | 45.16 | 12.53 | 2.22 | 29.79 | 30.12 | 46 | -15.88 | Horizontal |
| 350.55 | 36.50 | 14.5 | 2.62 | 29.73 | 23.89 | 46 | -22.11 | Horizontal |
| 627.87 | 36.23 | 19.43 | 3.83 | 29.27 | 30.22 | 46 | -15.78 | Horizontal |
| 955.98 | 41.45 | 22.54 | 5.06 | 29.1 | 39.95 | 46 | -6.05 | Horizontal |

**Above 1GHz:**

**8**02.11a(HT20) 5180MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.86 | 28.24 | 11.25 | 14.62 | 32.65 | 21.46 | 74 | -52.54 | Vertical |
| 15540.33 | 30.59 | 11.93 | 17.66 | 34.46 | 25.72 | 74 | -48.28 | Vertical |
| 10360.79 | 32.70 | 9.4 | 14.62 | 32.65 | 24.07 | 74 | -49.93 | Horizontal |
| 15540.07 | 32.15 | 8.5 | 17.66 | 34.46 | 23.85 | 74 | -50.15 | Horizontal |

802.11a(HT20) 5200MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.33 | 28.57 | 11.25 | 14.62 | 32.65 | 21.79 | 74 | -52.21 | Vertical |
| 15540.27 | 30.30 | 11.93 | 17.66 | 34.46 | 25.43 | 74 | -48.57 | Vertical |
| 10360.31 | 32.34 | 9.4 | 14.62 | 32.65 | 23.71 | 74 | -50.29 | Horizontal |
| 15540.24 | 32.05 | 8.5 | 17.66 | 34.46 | 23.75 | 74 | -50.25 | Horizontal |

802.11a(HT20) 5240MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.76 | 28.83 | 11.25 | 14.62 | 32.65 | 22.05 | 74 | -51.95 | Vertical |
| 15540.97 | 31.19 | 11.93 | 17.66 | 34.46 | 26.32 | 74 | -47.68 | Vertical |
| 10360.81 | 32.38 | 9.4 | 14.62 | 32.65 | 23.75 | 74 | -50.25 | Horizontal |
| 15540.56 | 32.26 | 8.5 | 17.66 | 34.46 | 23.96 | 74 | -50.04 | Horizontal |

802.11n(HT20) 5180MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.52 | 28.73 | 11.25 | 14.62 | 32.65 | 21.95 | 74 | -52.05 | Vertical |
| 15540.05 | 30.68 | 11.93 | 17.66 | 34.46 | 25.81 | 74 | -48.19 | Vertical |
| 10360.88 | 32.86 | 9.4 | 14.62 | 32.65 | 24.23 | 74 | -49.77 | Horizontal |
| 15540.11 | 32.20 | 8.5 | 17.66 | 34.46 | 23.90 | 74 | -50.10 | Horizontal |

802.11n(HT20) 5200MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.92 | 28.78 | 11.25 | 14.62 | 32.65 | 22.00 | 74 | -52.00 | Vertical |
| 15540.80 | 30.30 | 11.93 | 17.66 | 34.46 | 25.43 | 74 | -48.57 | Vertical |
| 10360.60 | 32.31 | 9.4 | 14.62 | 32.65 | 23.68 | 74 | -50.32 | Horizontal |
| 15540.34 | 31.63 | 8.5 | 17.66 | 34.46 | 23.33 | 74 | -50.67 | Horizontal |

802.11n(HT20) 5240MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.20 | 28.77 | 11.25 | 14.62 | 32.65 | 21.99 | 74 | -52.01 | Vertical |
| 15540.87 | 30.47 | 11.93 | 17.66 | 34.46 | 25.60 | 74 | -48.40 | Vertical |
| 10360.38 | 32.58 | 9.4 | 14.62 | 32.65 | 23.95 | 74 | -50.05 | Horizontal |
| 15540.64 | 31.48 | 8.5 | 17.66 | 34.46 | 23.18 | 74 | -50.82 | Horizontal |

**8**02.11ac(HT20) 5180MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.98 | 28.87 | 11.25 | 14.62 | 32.65 | 22.09 | 74 | -51.91 | Vertical |
| 15540.61 | 31.02 | 11.93 | 17.66 | 34.46 | 26.15 | 74 | -47.85 | Vertical |
| 10360.42 | 32.85 | 9.4 | 14.62 | 32.65 | 24.22 | 74 | -49.78 | Horizontal |
| 15540.65 | 32.08 | 8.5 | 17.66 | 34.46 | 23.78 | 74 | -50.22 | Horizontal |

802.11ac(HT20) 5200MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.65 | 28.40 | 11.25 | 14.62 | 32.65 | 21.62 | 74 | -52.38 | Vertical |
| 15540.83 | 30.34 | 11.93 | 17.66 | 34.46 | 25.47 | 74 | -48.53 | Vertical |
| 10360.47 | 32.45 | 9.4 | 14.62 | 32.65 | 23.82 | 74 | -50.18 | Horizontal |
| 15540.28 | 32.26 | 8.5 | 17.66 | 34.46 | 23.96 | 74 | -50.04 | Horizontal |

802.11ac(HT20) 5240MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.07 | 28.56 | 11.25 | 14.62 | 32.65 | 21.78 | 74 | -52.22 | Vertical |
| 15540.35 | 30.90 | 11.93 | 17.66 | 34.46 | 26.03 | 74 | -47.97 | Vertical |
| 10360.28 | 32.20 | 9.4 | 14.62 | 32.65 | 23.57 | 74 | -50.43 | Horizontal |
| 15540.04 | 32.36 | 8.5 | 17.66 | 34.46 | 24.06 | 74 | -49.94 | Horizontal |

802.11n(HT40) 5190MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.85 | 28.82 | 11.25 | 14.62 | 32.65 | 22.04 | 74 | -51.96 | Vertical |
| 15540.65 | 30.87 | 11.93 | 17.66 | 34.46 | 26.00 | 74 | -48.00 | Vertical |
| 10360.02 | 32.98 | 9.4 | 14.62 | 32.65 | 24.35 | 74 | -49.65 | Horizontal |
| 15540.37 | 31.91 | 8.5 | 17.66 | 34.46 | 23.61 | 74 | -50.39 | Horizontal |

802.11n(HT40) 5230MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.97 | 28.81 | 11.25 | 14.62 | 32.65 | 22.03 | 74 | -51.97 | Vertical |
| 15540.70 | 30.68 | 11.93 | 17.66 | 34.46 | 25.81 | 74 | -48.19 | Vertical |
| 10360.61 | 32.69 | 9.4 | 14.62 | 32.65 | 24.06 | 74 | -49.94 | Horizontal |
| 15540.75 | 32.24 | 8.5 | 17.66 | 34.46 | 23.94 | 74 | -50.06 | Horizontal |

802.11ac(HT40) 5190MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.90 | 28.47 | 11.25 | 14.62 | 32.65 | 21.69 | 74 | -52.31 | Vertical |
| 15540.74 | 31.16 | 11.93 | 17.66 | 34.46 | 26.29 | 74 | -47.71 | Vertical |
| 10360.50 | 32.62 | 9.4 | 14.62 | 32.65 | 23.99 | 74 | -50.01 | Horizontal |
| 15540.72 | 31.48 | 8.5 | 17.66 | 34.46 | 23.18 | 74 | -50.82 | Horizontal |

802.11ac(HT40) 5230MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.54 | 29.07 | 11.25 | 14.62 | 32.65 | 22.29 | 74 | -51.71 | Vertical |
| 15540.77 | 31.14 | 11.93 | 17.66 | 34.46 | 26.27 | 74 | -47.73 | Vertical |
| 10360.38 | 32.73 | 9.4 | 14.62 | 32.65 | 24.10 | 74 | -49.90 | Horizontal |
| 15540.84 | 32.27 | 8.5 | 17.66 | 34.46 | 23.97 | 74 | -50.03 | Horizontal |

802.11ac(HT80) 5210MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 10360.86 | 28.19 | 11.25 | 14.62 | 32.65 | 21.41 | 74 | -52.59 | Vertical |
| 15540.48 | 30.38 | 11.93 | 17.66 | 34.46 | 25.51 | 74 | -48.49 | Vertical |
| 10360.63 | 32.49 | 9.4 | 14.62 | 32.65 | 23.86 | 74 | -50.14 | Horizontal |
| 15540.83 | 32.02 | 8.5 | 17.66 | 34.46 | 23.72 | 74 | -50.28 | Horizontal |

Note:

1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor.

2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn’t be performed.

4. This Report only show the test plots of the worst case (U-NII-1).

## 4.8 Frequency stability

| | |
|---|---|
| Test 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 results: | Pass |

**Measurement Data:**

| Mode | Voltage (V) | FHL (5180MHz) | Deviation (KHz) | FHH (5240MHz) | Deviation (KHz) |
|---|---|---|---|---|---|
| Band 1 (5150-5250 MHz ) | DC 6.29V | 5179.991 | 9 | 5239.989 | 11 |
| | DC 7.20V | 5179.992 | 8 | 5239.989 | 11 |
| | DC 8.51V | 5179.987 | 13 | 5239.992 | 8 |
| Mode | Voltage (V) | FHL (5745MHz) | Deviation (KHz) | FHH (5825MHz) | Deviation (KHz) |
| Band 4 (5725-5850 MHz) | DC 6.29V | 5744.990 | 10 | 5824.987 | 13 |
| | DC 7.20V | 5744.986 | 14 | 5824.992 | 8 |
| | DC 8.51V | 5744.991 | 9 | 5824.992 | 8 |

| Mode | Temperature (℃) | FHL (5180MHz) | Deviation (KHz) | FHH (5240MHz) | Deviation (KHz) |
|---|---|---|---|---|---|
| Band 1 (5150-5250 MHz ) | -20℃ | 5179.990 | 10 | 5239.986 | 14 |
| | -10℃ | 5179.991 | 9 | 5239.992 | 8 |
| | -5℃ | 5179.990 | 10 | 5239.990 | 10 |
| | 0℃ | 5179.990 | 10 | 5239.991 | 9 |
| | +10℃ | 5179.989 | 11 | 5239.991 | 9 |
| | +20℃ | 5179.987 | 13 | 5239.990 | 10 |
| | +30℃ | 5179.992 | 8 | 5239.989 | 11 |
| | +40℃ | 5179.991 | 9 | 5239.989 | 11 |
| | +50℃ | 5179.990 | 10 | 5239.987 | 13 |
| Mode | Temperature (℃) | FHL (5745MHz) | Deviation (KHz) | FHH (5825MHz) | Deviation (KHz) |
| Band 4 (5725-5850 MHz) | -20℃ | 5744.987 | 13 | 5824.986 | 14 |
| | -10℃ | 5744.988 | 12 | 5824.987 | 13 |
| | -5℃ | 5744.989 | 11 | 5824.991 | 9 |
| | 0℃ | 5744.992 | 8 | 5824.991 | 9 |
| | +10℃ | 5744.988 | 12 | 5824.990 | 10 |
| | +20℃ | 5744.990 | 10 | 5824.988 | 12 |
| | +30℃ | 5744.987 | 13 | 5824.991 | 9 |
| | +40℃ | 5744.988 | 12 | 5824.991 | 9 |
| | +50℃ | 5744.991 | 9 | 5824.988 | 12 |

**--------END OF REPORT-------**