



## FCC TEST REPORT

**Application No.:** AR/2020/A0003  
**Applicant:** Xiaomi Communications Co., Ltd.  
**Address of Applicant:** #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085  
**Manufacturer:** Xiaomi Communications Co., Ltd.  
**Address of Manufacturer:** #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085  
**EUT Description:** Mobile Phone  
**Model No.:** M2007J22R  
**Trade Mark:** Redmi  
**FCC ID:** 2AFZZJ22G  
**Standards:** 47 CFR FCC Part 2, Subpart J  
47 CFR FCC Part 15, Subpart C  
47 CFR FCC Part 15, Subpart E  
KDB 789033 D02 General UNII Test Procedures New Rules v02  
FCC KDB 558074 D01 DTS Meas Guidance v0502  
KDB 662911 D01 Multiple Transmitter Output v02r01  
**Test Method:** KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02  
KDB 905462 D03 Client Without DFS New Rules v01r02  
ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices  
**Date of Receipt:** 2020/9/11(for original report AR/2020/8000505)  
**Date of Test:** 2020/9/11 to 2020/9/24(for original report AR/2020/8000505)  
2020/10/28to 2020/11/6 (for new report AR/2020/A000305)  
**Date of Issue:** 2020/9/30(for original report AR/2020/8000505)  
2020/11/6 (for new report AR/2020/A000305)

|                     |               |
|---------------------|---------------|
| <b>Test Result:</b> | <b>PASS *</b> |
|---------------------|---------------|

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

Authorized Signature:

Derek Yang  
Wireless Laboratory Manager



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## 1 Version

| Revision Record |         |           |          |          |
|-----------------|---------|-----------|----------|----------|
| Version         | Chapter | Date      | Modifier | Remark   |
| 01              |         | 2020/11/6 |          | Original |
|                 |         |           |          |          |
|                 |         |           |          |          |

|                          |  |                                                                                     |  |  |
|--------------------------|--|-------------------------------------------------------------------------------------|--|--|
| Authorized for issue by: |  |                                                                                     |  |  |
| Tested By                |  |    |  |  |
|                          |  | (Mike Hu) /Project Engineer                                                         |  |  |
| Checked By               |  |  |  |  |
|                          |  | (David Chen) /Reviewer                                                              |  |  |



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## 2 Test Summary

| Test Item                                                              | Band      | FCC Rule                                               | Requirements                                                                                                                                                                   | Test Result              | Verdict |
|------------------------------------------------------------------------|-----------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Emission Bandwidth                                                     | 5150-5250 | 15.403(i)<br>15.407(a)(1)                              | No limit.                                                                                                                                                                      | Clause 4.4<br>Clause 4.5 | Pass    |
|                                                                        | 5250-5350 | 15.403(i)<br>15.407(a)(2)                              |                                                                                                                                                                                |                          |         |
|                                                                        | 5470-5725 | 15.403(i)<br>15.407(a)(2)                              |                                                                                                                                                                                |                          |         |
|                                                                        | 5725-5850 | 15.403(i)<br>15.407(e)                                 | ≥ 500 kHz.                                                                                                                                                                     |                          |         |
| Occupied Bandwidth                                                     | 5150-5250 | KDB 789033<br>D02§ D                                   | No limit.                                                                                                                                                                      |                          | Pass    |
|                                                                        | 5250-5350 |                                                        |                                                                                                                                                                                |                          |         |
|                                                                        | 5470-5725 |                                                        |                                                                                                                                                                                |                          |         |
|                                                                        | 5725-5850 |                                                        |                                                                                                                                                                                |                          |         |
| Duty Cycle                                                             | 5150-5850 | --                                                     | No limit.                                                                                                                                                                      |                          |         |
| Maximum Conducted Output Power                                         | 5150-5250 | 15.407(a)(1)<br>15.407(a)(4)                           | FCC < 250mW<br>(avg during transmission)                                                                                                                                       | Clause 4.3               | Pass    |
|                                                                        | 5250-5350 | 15.407(a)(2)<br>15.407(a)(4)                           | <MIN{250mW, 11dBm+10*Ig(EBW)}<br>(avg during transmission)                                                                                                                     |                          |         |
|                                                                        | 5470-5725 | 15.407(a)(2)<br>15.407(a)(4)                           | <MIN{250mW, 11dBm+10*Ig(EBW)}<br>(avg during transmission)                                                                                                                     |                          |         |
|                                                                        | 5725-5850 | 15.407(a)(3)                                           | < 1W<br>(avg during transmission)                                                                                                                                              |                          |         |
| maximum Power Spectral Density                                         | 5150-5250 | 15.407(a)(1)<br>15.407(a)(4)                           | <11dBm/MHz<br>(avg during transmission)                                                                                                                                        | Clause 4.6               |         |
|                                                                        | 5250-5350 | 15.407(a)(2)<br>15.407(a)(4)                           | <11dBm/MHz<br>(avg during transmission)                                                                                                                                        |                          |         |
|                                                                        | 5470-5725 | 15.407(a)(2)<br>15.407(a)(4)                           | <11dBm/MHz<br>(avg during transmission)                                                                                                                                        |                          |         |
|                                                                        | 5725-5850 | 15.407(a)(3)<br>15.407(a)(4)                           | <30dBm/500KHz<br>(avg during transmission)                                                                                                                                     |                          |         |
| Unwanted Emissions that fall Outside of the Restricted Bands(Radiated) | 5150-5250 | 15.407(b)(1)<br>15.407(b)(6)<br>15.407(b)(7)<br>15.209 | F<1GHz:<br>§15.209/§7.2.5 limit (QP).<br>F≥1GHz & out-restricted:<br><-27dBm/MHz PK e.i.r.p. (exl. 5.15-5.35 GHz).<br>F≥1GHz & in-restricted:<br>§15.209/§7.2.5 limit (AV&PK). | Clause 4.7               | Pass    |
|                                                                        | 5250-5350 | 15.407(b)(2)<br>15.407(b)(6)<br>15.407(b)(7)<br>15.209 | F<1GHz:<br>§15.209/§7.2.5 limit (QP).<br>F≥1GHz & out-restricted:<br><-27dBm/MHz PK e.i.r.p. (exl. 5.25-5.35 GHz).<br>F≥1GHz & in-restricted:<br>§15.209/§7.2.5 limit (AV&PK). |                          |         |



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| Test Item                                             | Band                                                          | FCC Rule                                               | Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Test Result | Verdict |
|-------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------|
|                                                       | 5470-5750                                                     | 15.407(b)(3)<br>15.407(b)(6)<br>15.407(b)(7)<br>15.209 | F<1GHz:<br>§15.209/§7.2.5 limit (QP).<br>F≥1GHz & out-restricted:<br><-27dBm/MHz PK e.i.r.p. (exl.<br>5.47-5.725 GHz).<br>F≥1GHz & in-restricted:<br>§15.209/§7.2.5 limit (AV&PK).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |         |
|                                                       | 5725-5850                                                     | 15.407(b)(4)<br>15.407(b)(6)<br>15.407(b)(7)<br>15.209 | F<1GHz:<br>§15.209/§7.2.5 limit (QP)<br>F≥1GHz & out-restricted:(QP)<br>a) 27 dBm/MHz at frequencies from<br>the band edges decreasing linearly<br>to 15.6 dBm/MHz at 5 MHz above<br>or below the band edges;<br>b) 15.6 dBm/MHz at 5 MHz above<br>or below the band edges<br>decreasing linearly to 10 dBm/MHz<br>at 25 MHz above or below the<br>band edges;<br>c) 10 dBm/MHz at 25 MHz above<br>or below the band edges<br>decreasing linearly to -27<br>dBm/MHz at 75 MHz above or<br>below the band edges; and<br>d) -27 dBm/MHz at frequencies<br>more than 75 MHz above or below<br>the band edges.<br>F≥1GHz & in-restricted:<br>§15.209/§7.2.5 limit (AV&PK). |             |         |
| Unwanted Emissions in the Restricted Bands (Radiated) | 5150-5250<br>5250-5350<br>5470-5725<br>5725-5850              | 15.209                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Clause 4.8  | Pass    |
| AC Power Line Conducted Emissions                     | 5150-5250<br>5250-5350<br>5470-5725<br>5725-5850              | 15.207                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Clause 4.2  | Pass    |
| Frequency Stability                                   | 5150-5250<br>5250-5350<br>5470-5600<br>5650-5725<br>5725-5850 | 15.209                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Clause 4.9  | Pass    |
| Dynamic Frequency Selection                           | 5250-5350<br>5470-5725                                        | 47 CFR Part 15, Subpart E 15.407                       | Channel Move Time:10 Seconds<br>Transmission Time: milliseconds + an aggregate of 60 milliseconds over remaining 10 second period.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Clause 4.10 | Pass    |



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| Test Item | Band | FCC Rule | Requirements                             | Test Result | Verdict |
|-----------|------|----------|------------------------------------------|-------------|---------|
|           |      |          | Non-occupancy period: Minimum 30 minutes |             |         |



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**Remark:**

This test report (Report No.: AR/2020/A000305) is based on the original test report (Report No.: AR/2020/8000505) issued on 2020-09-30.

Review this report and original report, this report just changing the parts according to the declaration letter from client.

Considering the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report only radiated spurious emissions were performed based on the worst case of the original report with report number AR/2020/8000505 and other test data in this report are based on the previous report with report number AR/2020/8000505.



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### 3 General Information

#### 3.1 Client Information

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| Manufacturer:            | Xiaomi Communications Co., Ltd.                                                               |
| Address of Manufacturer: | #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085 |

#### 3.2 Test Location

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| Post code: | 518057                                                                                      |
| Telephone: | +86 (0) 755 2601 2053                                                                       |
| Fax:       | +86 (0) 755 2671 0594                                                                       |
| E-mail:    | ee.shenzhen@sgs.com                                                                         |

#### 3.3 Test Facility

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

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.



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### 3.4 General Description of EUT

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EUT Description:                 | Mobile Phone                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Model No.:                       | M2007J22R                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Trade Mark:                      | Redmi                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Hardware Version:                | P2                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Software Version:                | MIUI12                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| IEEE 802.11 WLAN Mode Supported: | <input checked="" type="checkbox"/> 802.11a (20 MHz channel bandwidth) ;<br><input checked="" type="checkbox"/> 802.11n (20 MHz channel bandwidth);<br><input checked="" type="checkbox"/> 802.11n (40 MHz channel bandwidth);<br><input checked="" type="checkbox"/> 802.11ac (20 MHz channel bandwidth);<br><input checked="" type="checkbox"/> 802.11ac (40 MHz channel bandwidth);<br><input checked="" type="checkbox"/> 802.11ac (80 MHz channel bandwidth); |
| Operation Frequency:             | IEEE 802.11n(HT20/40)/ ac(HT20/40/80/): 5150MHz to 5250MHz<br>IEEE 802.11n(HT20/40)/ ac(HT20/40/80): 5250MHz to 5350MHz<br>IEEE 802.11n(HT20/40)/ ac(HT20/40/80): 5470MHz to 5725MHz<br>IEEE 802.11n(HT20/40)/ ac(HT20/40/80): 5725MHz to 5850MHz                                                                                                                                                                                                                  |
| Type of Modulation:              | OFDM                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| DFS mode:                        | <input type="checkbox"/> Master <input type="checkbox"/> Slave with radar detection <input checked="" type="checkbox"/> Slave without radar detection                                                                                                                                                                                                                                                                                                              |
| Sample Type:                     | <input checked="" type="checkbox"/> Portable Device, <input type="checkbox"/> Module                                                                                                                                                                                                                                                                                                                                                                               |
| Antenna Type:                    | PIFA Antenna                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Antenna Ports                    | <input checked="" type="checkbox"/> Ant 1, <input type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3                                                                                                                                                                                                                                                                                                                                                          |
| Smart System                     | <input checked="" type="checkbox"/> SISO (for 802.11a/n/ac),<br><input type="checkbox"/> MIMO (for 802.11n/ac),<br><input type="checkbox"/> Diversity (for 802.11a) :           Tx &           Rx                                                                                                                                                                                                                                                                  |
| Antenna Gain:                    | 0.9dBi,                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Power Supply                     | <input checked="" type="checkbox"/> AC/DC Adapter; <input type="checkbox"/> PoE; <input type="checkbox"/> Other:                                                                                                                                                                                                                                                                                                                                                   |

Remark:

In FCC 15.31, for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table, and the selected channel to perform the test as below:

| Frequency Range of Operation<br>Operating Frequency Range (in each Band) | Number of Measurement<br>Frequencies Required | Location of Measurement<br>Frequency in Band of Operation |
|--------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------|
| 1 MHz or less                                                            | 1                                             | centre                                                    |
| 1 MHz to 10 MHz                                                          | 2                                             | 1 near high end, 1 near low end                           |
| Greater than 10 MHz                                                      | 3                                             | 1 near high end, 1 near centre                            |

For UNII Band I:

| Mode                    | Channel            | Frequency(MHz) |
|-------------------------|--------------------|----------------|
| IEEE 802.11a/n/ac 20MHz | The Lowest channel | 5180           |
|                         | The Middle channel | 5200           |



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|                       |                     |      |
|-----------------------|---------------------|------|
|                       | The Highest channel | 5240 |
| IEEE 802.11n/ac 40MHz | The Lowest channel  | 5190 |
|                       | The Highest channel | 5230 |
| IEEE 802.11ac 80MHz   | The Middle channel  | 5210 |

For UNII Band II-A:

| Mode                    | Channel             | Frequency(MHz) |
|-------------------------|---------------------|----------------|
| IEEE 802.11a/n/ac 20MHz | The Lowest channel  | 5260           |
|                         | The Middle channel  | 5280           |
|                         | The Highest channel | 5320           |
| IEEE 802.11n/ac 40MHz   | The Lowest channel  | 5270           |
|                         | The Highest channel | 5310           |
| IEEE 802.11ac 80MHz     | The Middle channel  | 5290           |

For UNII Band II-C:

| Mode                    | Channel             | Frequency(MHz) |
|-------------------------|---------------------|----------------|
| IEEE 802.11a/n/ac 20MHz | The Lowest channel  | 5500           |
|                         | The Middle channel  | 5580           |
|                         | The Highest channel | 5700           |
| IEEE 802.11n/ac 40MHz   | The Lowest channel  | 5510           |
|                         | The Middle channel  | 5500           |
|                         | The Highest channel | 5670           |
| IEEE 802.11ac 80MHz     | The Lowest channel  | 5500           |
|                         | The Highest channel | 5580           |

For UNII Band III:

| Mode                    | Channel             | Frequency(MHz) |
|-------------------------|---------------------|----------------|
| IEEE 802.11a/n/ac 20MHz | The Lowest channel  | 5745           |
|                         | The Middle channel  | 5785           |
|                         | The Highest channel | 5825           |
| IEEE 802.11n/ac 40MHz   | The Lowest channel  | 5755           |
|                         | The Highest channel | 5795           |
| IEEE 802.11ac 80MHz     | The Middle channel  | 5775           |



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### 3.5 Test Environment and Mode

| Operating Environment: |                                                                                          |
|------------------------|------------------------------------------------------------------------------------------|
| Temperature:           | 25.0 °C                                                                                  |
| Humidity:              | 55 % RH                                                                                  |
| Atmospheric Pressure:  | 101.32 KPa                                                                               |
| Test mode:             |                                                                                          |
| Transmitting mode:     | Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate. |



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## 4 Test results and Measurement Data

### 4.1 Antenna Requirement

|                                                                                                                     |                               |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>Test Requirement:</b>                                                                                            | 47 CFR Part 15 Section 15.203 |
| The antenna is integrated antenna and no consideration of replacement. The best case gain of the antenna is 0.9dBi. |                               |

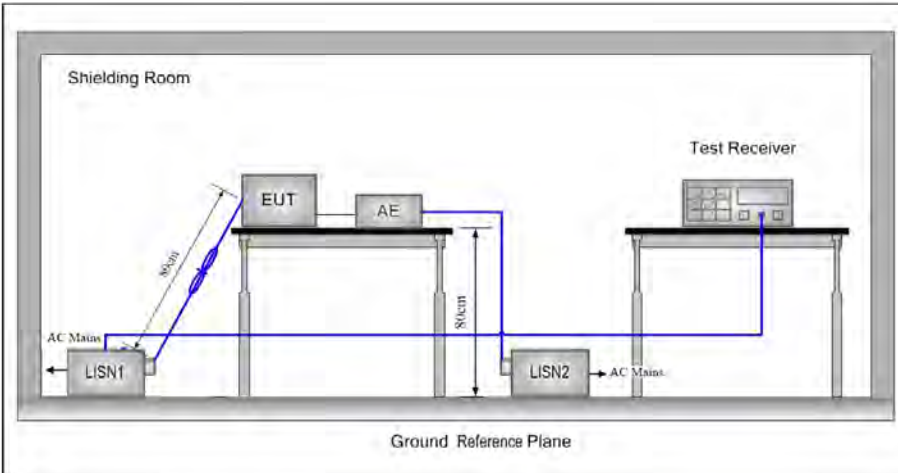
### 4.2 Conducted Emissions

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |           |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|
| <b>Test Requirement:</b>                         | 47 CFR Part 15 Section 15.407(b)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |           |
| <b>Test Method:</b>                              | ANSI C63.10: 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |           |
| <b>Test Frequency Range:</b>                     | 150kHz to 30MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |           |
| <b>Limit:</b>                                    | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Limit (dBuV) |           |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Quasi-peak   | Average   |
|                                                  | 0.15-0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 66 to 56*    | 56 to 46* |
|                                                  | 0.5-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 56           | 46        |
|                                                  | 5-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 60           | 50        |
| * Decreases with the logarithm of the frequency. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |           |
| <b>Test Procedure:</b>                           | <ol style="list-style-type: none"> <li>1) The mains terminal disturbance voltage test was conducted in a shielded room.</li> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</li> <li>3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,</li> <li>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> <li>5) 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.</li> </ol> |              |           |



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|                        |                                                                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Test Setup:            |                                                          |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates at lowest, middle and highest channel.                                               |
| Final Test Mode:       | Through Pre-scan, find the 6Mbps of rate of 802.11a at lowest channel is the worst case.<br>Only the worst case is recorded in the report. |
| Instruments Used:      | Refer to section 5.10 for details                                                                                                          |
| Test Results:          | Pass                                                                                                                                       |

### Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



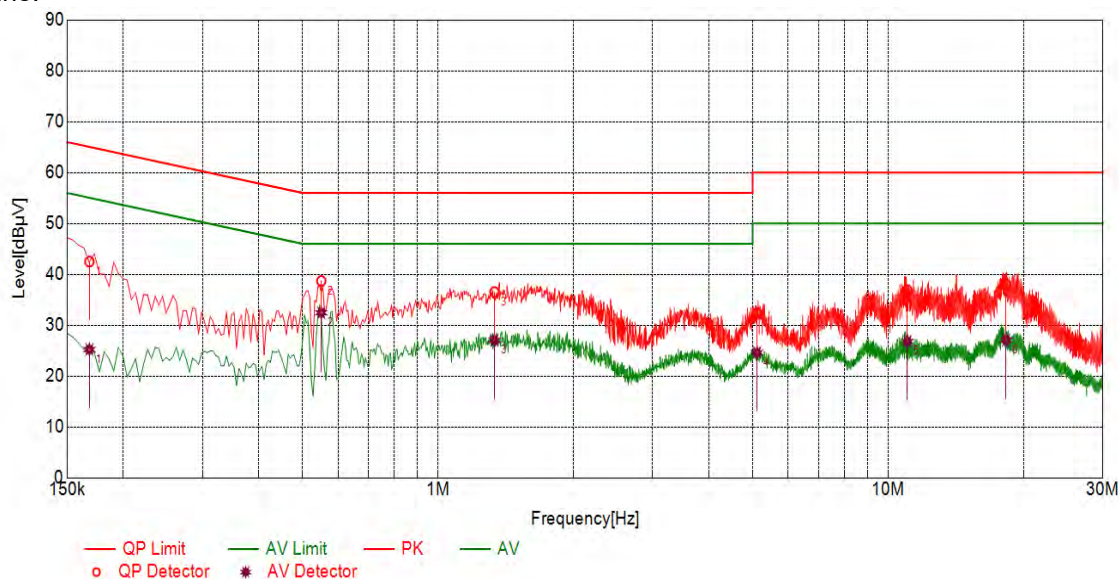
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Live Line:



Test Graph

| Final Data List |             |             |          |          |           |          |          |           |      |
|-----------------|-------------|-------------|----------|----------|-----------|----------|----------|-----------|------|
| NO.             | Freq. [MHz] | Factor [dB] | QP Value | QP Limit | QP Margin | AV Value | AV Limit | AV Margin | Type |
| 1               | 0.1682      | 10.10       | 42.50    | 65.05    | 22.55     | 25.21    | 55.05    | 29.84     | L    |
| 2               | 0.5506      | 10.10       | 38.70    | 56.00    | 17.30     | 32.44    | 46.00    | 13.56     | L    |
| 3               | 1.3353      | 10.10       | 36.52    | 56.00    | 19.48     | 27.01    | 46.00    | 18.99     | L    |
| 4               | 5.1182      | 10.10       | 32.36    | 60.00    | 27.64     | 24.63    | 50.00    | 25.37     | L    |
| 5               | 11.0449     | 10.10       | 36.85    | 60.00    | 23.15     | 26.82    | 50.00    | 23.18     | L    |
| 6               | 18.2896     | 10.11       | 37.95    | 60.00    | 22.05     | 27.08    | 50.00    | 22.92     | L    |

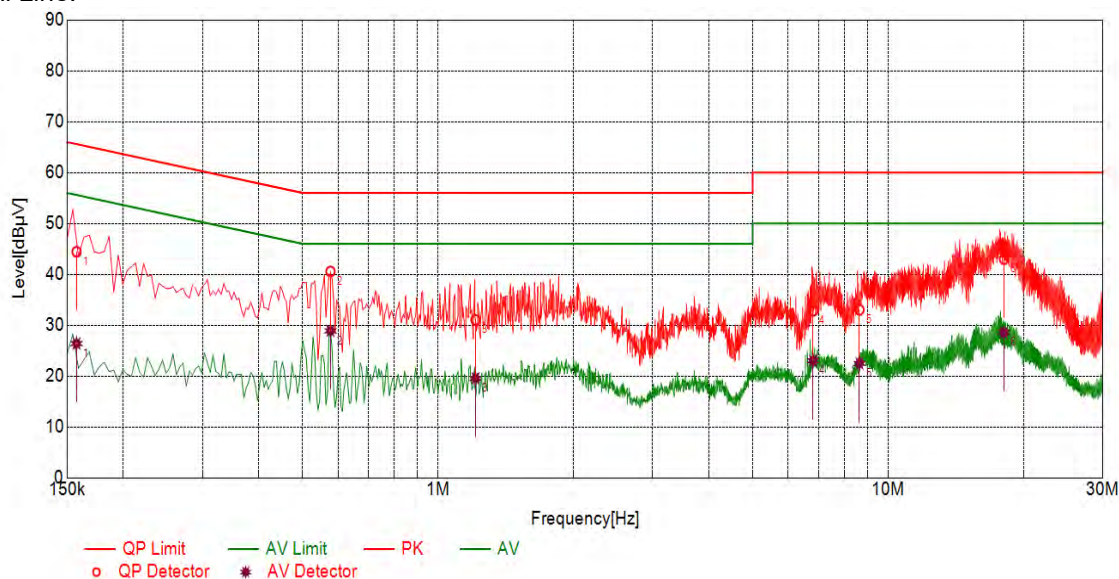


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Shenzhen Branch Laboratory

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Neutral Line:



**Test Graph**

| Final Data List |             |             |          |          |           |          |          |           |      |
|-----------------|-------------|-------------|----------|----------|-----------|----------|----------|-----------|------|
| NO.             | Freq. [MHz] | Factor [dB] | QP Value | QP Limit | QP Margin | AV Value | AV Limit | AV Margin | Type |
| 1               | 0.1575      | 10.10       | 44.43    | 65.59    | 21.16     | 26.39    | 55.59    | 29.20     | N    |
| 2               | 0.5771      | 10.10       | 40.56    | 56.00    | 15.44     | 28.89    | 46.00    | 17.11     | N    |
| 3               | 1.2120      | 10.10       | 31.04    | 56.00    | 24.96     | 19.54    | 46.00    | 26.46     | N    |
| 4               | 6.8123      | 10.10       | 32.82    | 60.00    | 27.18     | 23.01    | 50.00    | 26.99     | N    |
| 5               | 8.6398      | 10.10       | 33.03    | 60.00    | 26.97     | 22.49    | 50.00    | 27.51     | N    |
| 6               | 18.0858     | 10.11       | 42.98    | 60.00    | 17.02     | 28.53    | 50.00    | 21.47     | N    |

Remarks:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.



## 4.3 Duty Cycle

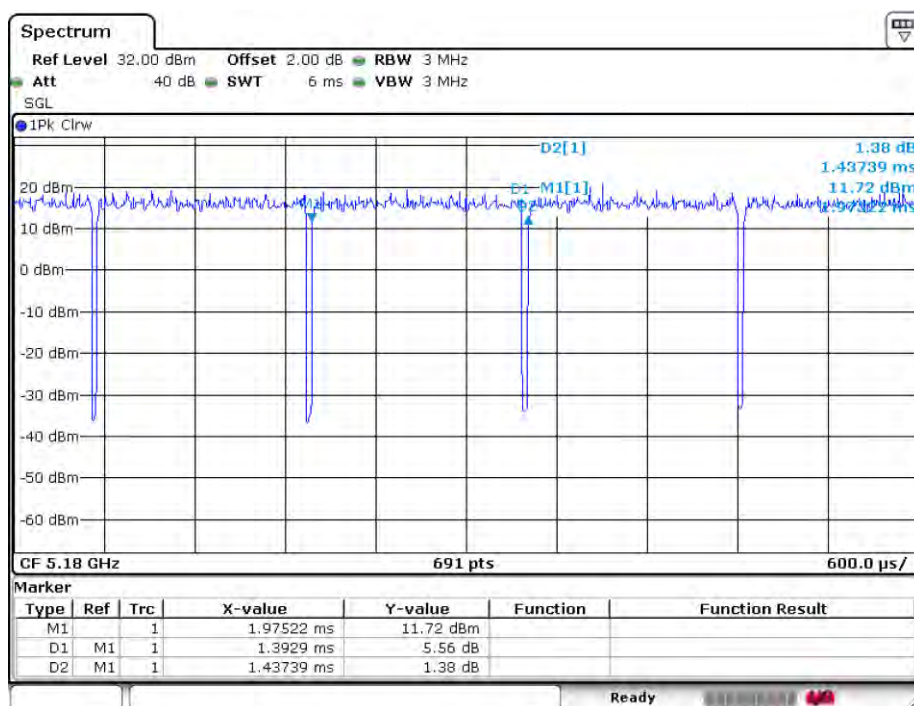
### 4.3.1 Test Results

| Test Mode | TX Freq. [MHz]             | Duty cycle [%] | Duty Cycle Correction Factor[dB] |
|-----------|----------------------------|----------------|----------------------------------|
| 11A       | Ant 1: CH149, CH157, CH165 | 96.90          | 0.09                             |
| 11N20     | Ant 1: CH149, CH157, CH165 | 97.28          | 0.10                             |
| 11N40     | Ant 1: CH151, CH159        | 93.85          | 0.18                             |
| 11AC20    | Ant 1: CH149, CH157, CH165 | 97.31          | 0.10                             |
| 11AC40    | Ant 1: CH151, CH159        | 94.71          | 0.16                             |
| 11AC80    | Ant 1: CH155               | 90.03          | 0.33                             |

### 4.3.1 Test Plots

#### 4.3.1.1 ANT1

##### 4.3.1.1.1 11A



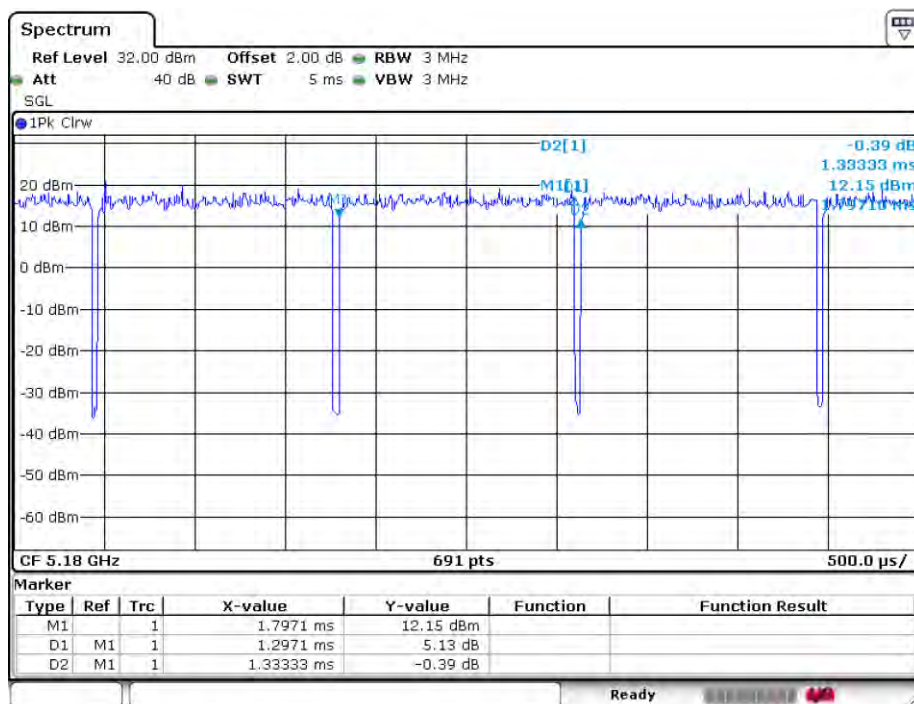
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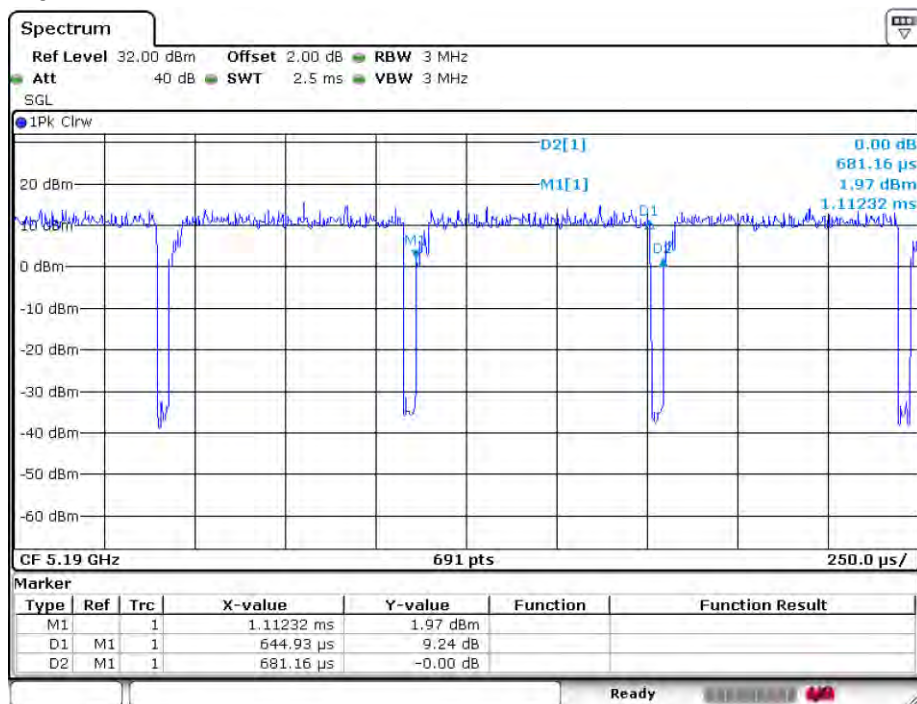
## 4.3.1.1.2 11N20



Date: 18 SEP 2020 10:19:50



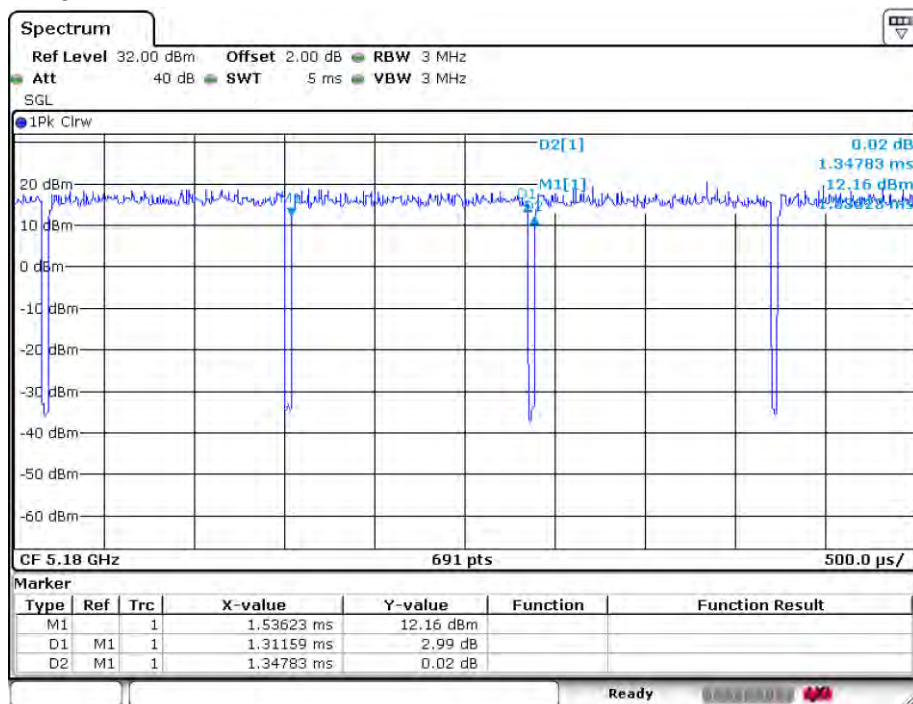
## 4.3.1.1.3 11N40



Date: 18.SEP.2020 10:22:18

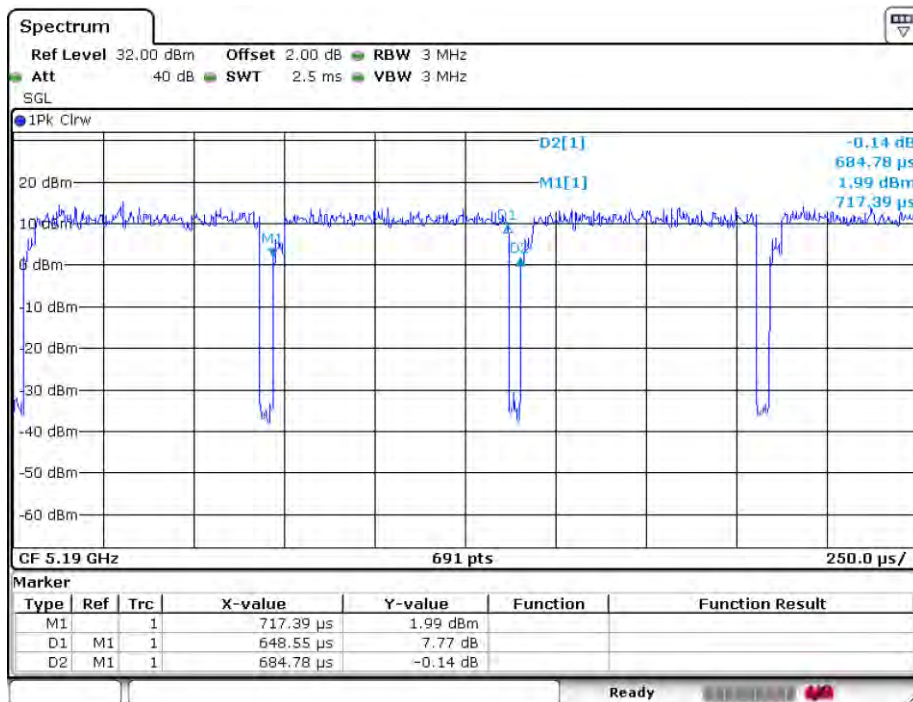


## 4.3.1.1.4 11AC20



Date: 18.SEP.2020 10:20:31

## 4.3.1.1.5 11AC40



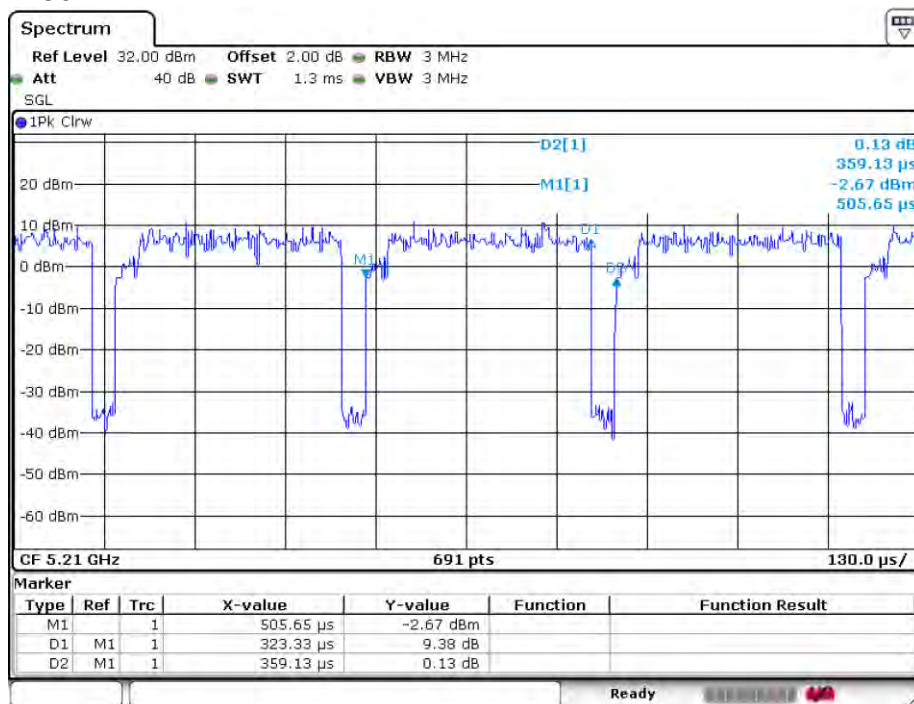
Date: 18.SEP.2020 10:21:23

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## 4.3.1.1.6 11AC80

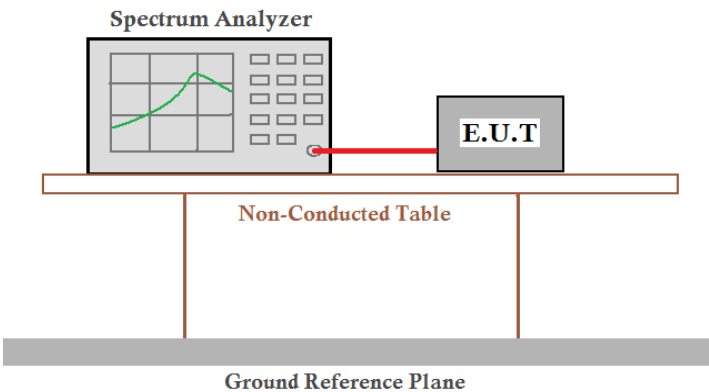


Date: 18.SEP.2020 10:23:33





#### 4.4 Conducted Output Power

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                               |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Test Requirement:      | 47 CFR Part 15 Section 15.407(a)                                                                                                                                                                                                                                                                                                                                                                                                      |                                               |
| Test Method:           | ANSI C63.10: 2013<br>KDB 789033 D02 v02r01, Section E.3.b (Method PM-G).                                                                                                                                                                                                                                                                                                                                                              |                                               |
| Test Setup:            |                                                                                                                                                                                                                                                                                                                                                     |                                               |
| Test Instruments:      | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                                                     |                                               |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates                                                                                                                                                                                                                                                                                                                                                                                 |                                               |
| Final Test Mode:       | <p>Through Pre-scan, find that</p> <p>6Mbps of rate is the worst case of 802.11a;</p> <p>MCS0 of rate is the worst case of 802.11n(HT20);</p> <p>MCS0 of rate is the worst case of 802.11n(HT40);</p> <p>MCS0 of rate is the worst case of 802.11ac(HT20);</p> <p>MCS0 of rate is the worst case of 802.11ac(HT40);</p> <p>MCS0 of rate is the worst case of 802.11ac(HT80)</p> <p>Only the worst case is recorded in the report.</p> |                                               |
| Limit:                 | Frequency Band                                                                                                                                                                                                                                                                                                                                                                                                                        | Limit                                         |
|                        | 5150-5250MHz                                                                                                                                                                                                                                                                                                                                                                                                                          | Not exceed 250mW(24dBm)                       |
|                        | 5250-5350MHz                                                                                                                                                                                                                                                                                                                                                                                                                          | The lesser of 250mW(24dBm) or $11 + 10\log B$ |
|                        | 5470-5725MHz                                                                                                                                                                                                                                                                                                                                                                                                                          | The lesser of 250mW(24dBm) or $11 + 10\log B$ |
|                        | 5725-5850MHz                                                                                                                                                                                                                                                                                                                                                                                                                          | Not exceed 1W(30dBm)                          |
|                        | *Where B is the 26dB emission bandwidth in MHz                                                                                                                                                                                                                                                                                                                                                                                        |                                               |
| Test Results:          | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                               |





#### 4.4.1 Test Results for Conducted Output Power

| Test Mode | Test Channel  | Frequency [MHz] | Antenna Port | Meas. Level (Cond.) [dBm] | Meas. Level (EIRP.) [dBm] | Verdict |
|-----------|---------------|-----------------|--------------|---------------------------|---------------------------|---------|
| 11A20     | 36            | 5180            | ANT 1        | 17.76                     | 18.66                     | PASS    |
|           | 44            | 5220            | ANT 1        | 17.55                     | 18.45                     | PASS    |
|           | 48            | 5240            | ANT 1        | 17.53                     | 18.43                     | PASS    |
|           | 52            | 5260            | ANT 1        | 17.52                     | 18.42                     | PASS    |
|           | 60            | 5300            | ANT 1        | 17.57                     | 18.47                     | PASS    |
|           | 64            | 5320            | ANT 1        | 17.53                     | 18.43                     | PASS    |
|           | 100           | 5500            | ANT 1        | 14.06                     | 14.96                     | PASS    |
|           | 116           | 5580            | ANT 1        | 14.08                     | 14.98                     | PASS    |
|           | 140           | 5700            | ANT 1        | 14.19                     | 15.09                     | PASS    |
|           | 144(BandII-C) | 5720            | ANT 1        | 14.33                     | 15.23                     | PASS    |
|           | 144(BandIII)  | 5720            | ANT 1        | 6.71                      | 7.61                      | PASS    |
|           | 149           | 5745            | ANT 1        | 17.71                     | 18.61                     | PASS    |
|           | 157           | 5785            | ANT 1        | 17.69                     | 18.59                     | PASS    |
|           | 165           | 5825            | ANT 1        | 17.74                     | 18.64                     | PASS    |
| 11N20     | 36            | 5180            | ANT 1        | 16.64                     | 17.54                     | PASS    |
|           | 44            | 5220            | ANT 1        | 16.38                     | 17.28                     | PASS    |
|           | 48            | 5240            | ANT 1        | 16.37                     | 17.27                     | PASS    |
|           | 52            | 5260            | ANT 1        | 16.39                     | 17.29                     | PASS    |
|           | 60            | 5300            | ANT 1        | 16.39                     | 17.29                     | PASS    |
|           | 64            | 5320            | ANT 1        | 16.4                      | 17.3                      | PASS    |
|           | 100           | 5500            | ANT 1        | 12.89                     | 13.79                     | PASS    |
|           | 116           | 5580            | ANT 1        | 12.92                     | 13.82                     | PASS    |
|           | 140           | 5700            | ANT 1        | 12.96                     | 13.86                     | PASS    |
|           | 144(BandII-C) | 5720            | ANT 1        | 12.68                     | 13.58                     | PASS    |
|           | 144(BandIII)  | 5720            | ANT 1        | 5.54                      | 6.44                      | PASS    |
|           | 149           | 5745            | ANT 1        | 16.62                     | 17.52                     | PASS    |
|           | 157           | 5785            | ANT 1        | 16.72                     | 17.62                     | PASS    |





|        |               |      |       |       |       |      |
|--------|---------------|------|-------|-------|-------|------|
|        | 165           | 5825 | ANT 1 | 16.66 | 17.56 | PASS |
| 11N40  | 38            | 5190 | ANT 1 | 15.79 | 16.69 | PASS |
|        | 46            | 5230 | ANT 1 | 15.35 | 16.25 | PASS |
|        | 54            | 5270 | ANT 1 | 15.33 | 16.23 | PASS |
|        | 62            | 5310 | ANT 1 | 15.38 | 16.28 | PASS |
|        | 102           | 5510 | ANT 1 | 14.04 | 14.94 | PASS |
|        | 110           | 5550 | ANT 1 | 14.02 | 14.92 | PASS |
|        | 134           | 5670 | ANT 1 | 14.01 | 14.91 | PASS |
|        | 142(BandII-C) | 5710 | ANT 1 | 14.76 | 15.66 | PASS |
|        | 142(BandIII)  | 5710 | ANT 1 | 2.41  | 3.31  | PASS |
|        | 151           | 5755 | ANT 1 | 15.63 | 16.53 | PASS |
|        | 159           | 5795 | ANT 1 | 15.71 | 16.61 | PASS |
| 11AC20 | 36            | 5180 | ANT 1 | 16.24 | 17.14 | PASS |
|        | 44            | 5220 | ANT 1 | 16.45 | 17.35 | PASS |
|        | 48            | 5240 | ANT 1 | 16.53 | 17.43 | PASS |
|        | 52            | 5260 | ANT 1 | 16.38 | 17.28 | PASS |
|        | 60            | 5300 | ANT 1 | 16.49 | 17.39 | PASS |
|        | 64            | 5320 | ANT 1 | 16.5  | 17.4  | PASS |
|        | 100           | 5500 | ANT 1 | 12.97 | 13.87 | PASS |
|        | 116           | 5580 | ANT 1 | 13    | 13.9  | PASS |
|        | 140           | 5700 | ANT 1 | 13.52 | 14.42 | PASS |
|        | 144(BandII-C) | 5720 | ANT 1 | 12.67 | 13.57 | PASS |
|        | 144(BandIII)  | 5720 | ANT 1 | 5.52  | 6.42  | PASS |
|        | 149           | 5745 | ANT 1 | 16.81 | 17.71 | PASS |
|        | 157           | 5785 | ANT 1 | 16.73 | 17.63 | PASS |
|        | 165           | 5825 | ANT 1 | 16.81 | 17.71 | PASS |
| 11AC40 | 38            | 5190 | ANT 1 | 15.9  | 16.8  | PASS |
|        | 46            | 5230 | ANT 1 | 15.49 | 16.39 | PASS |
|        | 54            | 5270 | ANT 1 | 15.45 | 16.35 | PASS |
|        | 62            | 5310 | ANT 1 | 15.5  | 16.4  | PASS |
|        | 102           | 5510 | ANT 1 | 14.13 | 15.03 | PASS |
|        | 110           | 5550 | ANT 1 | 14.16 | 15.06 | PASS |



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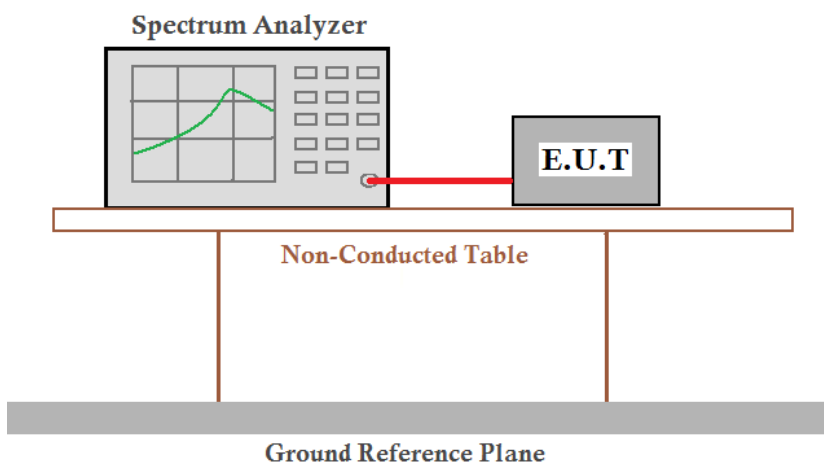
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|        |               |      |       |       |       |      |
|--------|---------------|------|-------|-------|-------|------|
|        | 134           | 5670 | ANT 1 | 14.64 | 15.54 | PASS |
|        | 142(BandII-C) | 5710 | ANT 1 | 14.77 | 15.67 | PASS |
|        | 142(BandIII)  | 5710 | ANT 1 | 2.40  | 3.30  | PASS |
|        | 151           | 5755 | ANT 1 | 15.77 | 16.67 | PASS |
|        | 159           | 5795 | ANT 1 | 14.75 | 15.65 | PASS |
| 11AC80 | 42            | 5210 | ANT 1 | 14.87 | 15.77 | PASS |
|        | 58            | 5290 | ANT 1 | 15.36 | 16.26 | PASS |
|        | 106           | 5530 | ANT 1 | 14    | 14.9  | PASS |
|        | 122           | 5610 | ANT 1 | 14.5  | 15.4  | PASS |
|        | 138(BandII-C) | 5690 | ANT 1 | 13.77 | 14.67 | PASS |
|        | 138(BandIII)  | 5690 | ANT 1 | -1.69 | -0.79 | PASS |
|        | 155           | 5775 | ANT 1 | 15.12 | 16.02 | PASS |



## 4.5 26dB Emission Bandwidth

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement:      | 47 CFR Part 15 Section 15.407(a)                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test Method:           | ANSI C63.10: 2013                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Test Setup:            |                                                                                                                                                                                                                                                                                                                                                     |
| Instruments Used:      | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                                                     |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates                                                                                                                                                                                                                                                                                                                                                                                 |
| Final Test Mode:       | <p>Through Pre-scan, find the</p> <p>6Mbps of rate is the worst case of 802.11a;</p> <p>MCS0 of rate is the worst case of 802.11n(HT20);</p> <p>MCS0 of rate is the worst case of 802.11n(HT40);</p> <p>MCS0 of rate is the worst case of 802.11ac(HT20);</p> <p>MCS0 of rate is the worst case of 802.11ac(HT40);</p> <p>MCS0 of rate is the worst case of 802.11ac(HT80).</p> <p>Only the worst case is recorded in the report.</p> |
| Limit:                 | No restriction limits                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Test Results:          | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                  |





#### 4.5.1 Test Results for 26dB Emission Bandwidth

| Test Mode | Test Channel | Frequency [MHz] | Antenna Port | 26dB Emission Bandwidth [MHz] | Verdict |
|-----------|--------------|-----------------|--------------|-------------------------------|---------|
| 11A20     | 36           | 5180            | ANT 1        | 28.02                         | PASS    |
|           | 44           | 5220            | ANT 1        | 26.25                         | PASS    |
|           | 48           | 5240            | ANT 1        | 26.82                         | PASS    |
|           | 60           | 5300            | ANT 1        | 26.97                         | PASS    |
|           | 52           | 5260            | ANT 1        | 26.34                         | PASS    |
|           | 64           | 5320            | ANT 1        | 17.31                         | PASS    |
|           | 100          | 5500            | ANT 1        | 20.4                          | PASS    |
|           | 116          | 5580            | ANT 1        | 20.46                         | PASS    |
|           | 140          | 5700            | ANT 1        | 20.43                         | PASS    |
|           | 144          | 5720            | ANT 1        | 20.26                         | PASS    |
| 11N20     | 36           | 5180            | ANT 1        | 25.62                         | PASS    |
|           | 44           | 5220            | ANT 1        | 24.84                         | PASS    |
|           | 48           | 5240            | ANT 1        | 27.06                         | PASS    |
|           | 52           | 5260            | ANT 1        | 26.28                         | PASS    |
|           | 60           | 5300            | ANT 1        | 26.1                          | PASS    |
|           | 64           | 5320            | ANT 1        | 25.83                         | PASS    |
|           | 100          | 5500            | ANT 1        | 20.67                         | PASS    |
|           | 116          | 5580            | ANT 1        | 20.67                         | PASS    |
|           | 140          | 5700            | ANT 1        | 20.73                         | PASS    |
| 11N40     | 38           | 5190            | ANT 1        | 41.22                         | PASS    |
|           | 46           | 5230            | ANT 1        | 41.22                         | PASS    |
|           | 54           | 5270            | ANT 1        | 46.02                         | PASS    |
|           | 62           | 5310            | ANT 1        | 41.1                          | PASS    |
|           | 102          | 5510            | ANT 1        | 41.16                         | PASS    |
|           | 110          | 5550            | ANT 1        | 41.04                         | PASS    |
|           | 134          | 5670            | ANT 1        | 40.98                         | PASS    |
|           | 142          | 5710            | ANT 1        | 41.08                         | PASS    |
| 11AC20    | 36           | 5180            | ANT 1        | 25.74                         | PASS    |
|           | 44           | 5220            | ANT 1        | 27.03                         | PASS    |
|           | 48           | 5240            | ANT 1        | 25.65                         | PASS    |
|           | 52           | 5260            | ANT 1        | 27.66                         | PASS    |
|           | 60           | 5300            | ANT 1        | 23.97                         | PASS    |
|           | 64           | 5320            | ANT 1        | 26.58                         | PASS    |
|           | 100          | 5500            | ANT 1        | 20.64                         | PASS    |



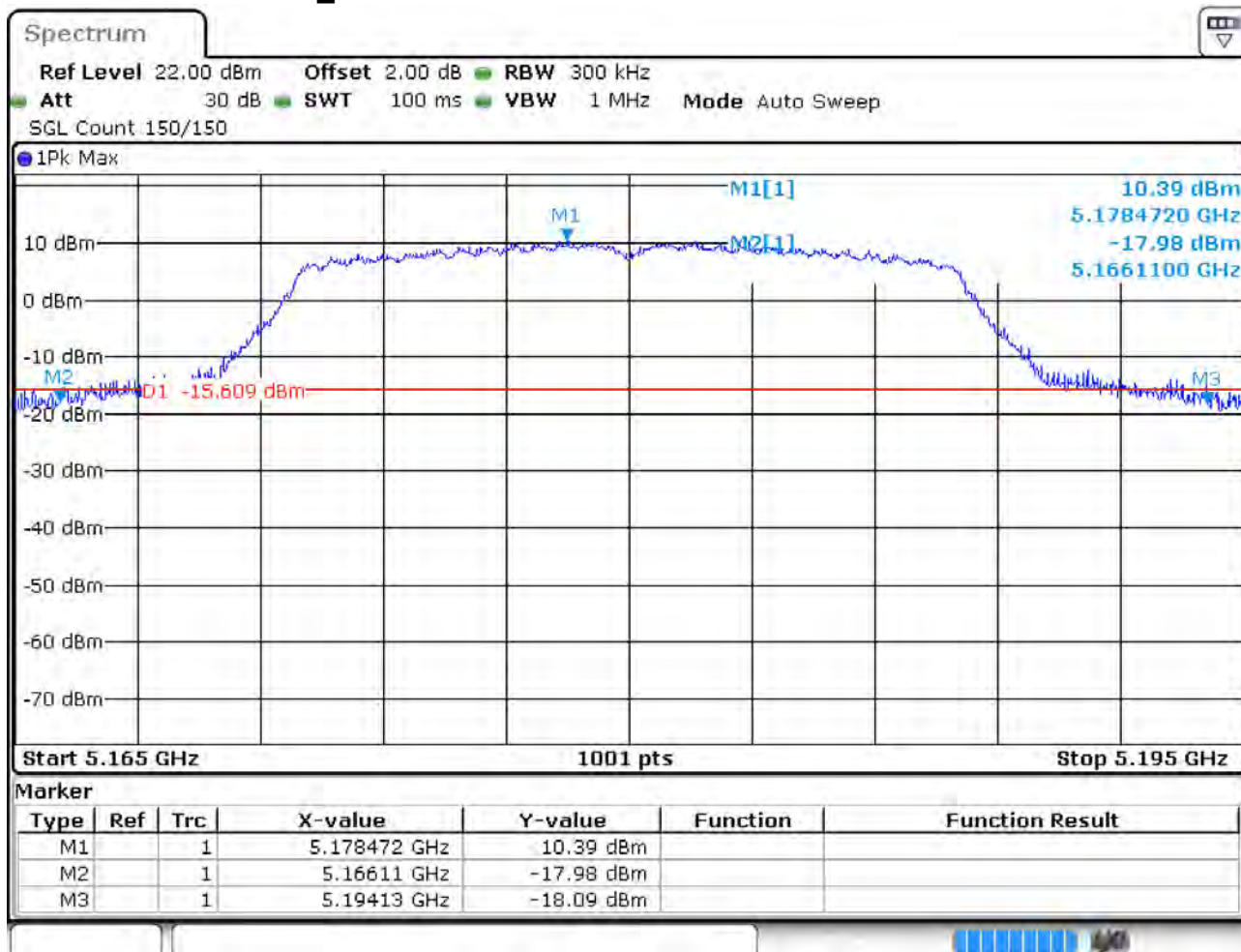


|        |     |      |       |       |      |
|--------|-----|------|-------|-------|------|
|        | 116 | 5580 | ANT 1 | 20.76 | PASS |
|        | 140 | 5700 | ANT 1 | 20.67 | PASS |
|        | 144 | 5720 | ANT 1 | 20.58 | PASS |
| 11AC40 | 38  | 5190 | ANT 1 | 41.1  | PASS |
|        | 46  | 5230 | ANT 1 | 42.54 | PASS |
|        | 54  | 5270 | ANT 1 | 41.16 | PASS |
|        | 62  | 5310 | ANT 1 | 41.16 | PASS |
|        | 102 | 5510 | ANT 1 | 41.28 | PASS |
|        | 110 | 5550 | ANT 1 | 41.22 | PASS |
|        | 134 | 5670 | ANT 1 | 41.1  | PASS |
|        | 142 | 5710 | ANT 1 | 41.0  | PASS |
| 11AC80 | 42  | 5210 | ANT 1 | 84    | PASS |
|        | 58  | 5290 | ANT 1 | 81.6  | PASS |
|        | 106 | 5530 | ANT 1 | 81.76 | PASS |
|        | 122 | 5610 | ANT 1 | 81.6  | PASS |
|        | 138 | 5690 | ANT 1 | 81.04 | PASS |



## 4.5.2 Plots for 26dB Emission Bandwidth

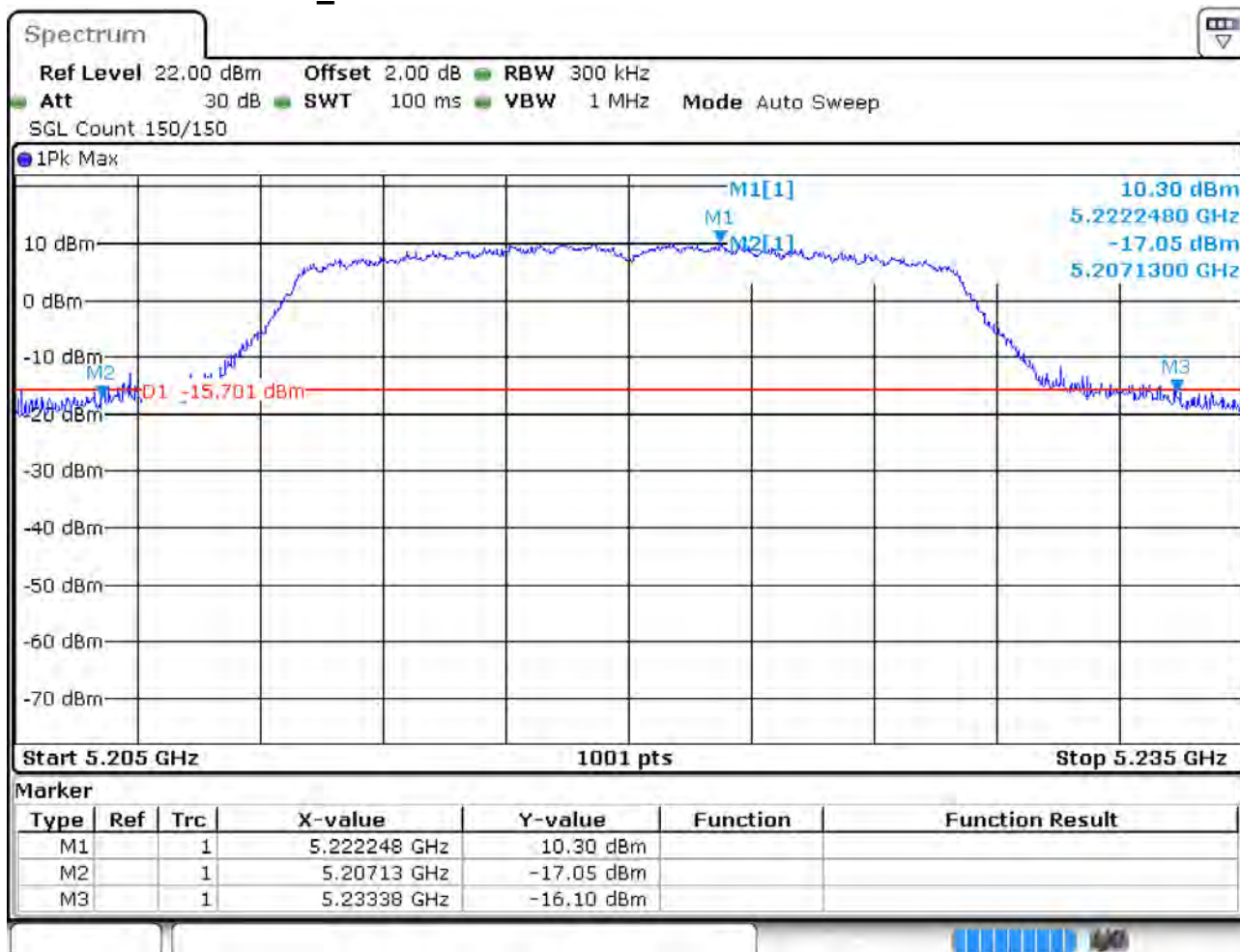
### 4.5.2.1 11A20\_36 ANT 1



Date: 18, SEP, 2020 10:39:11



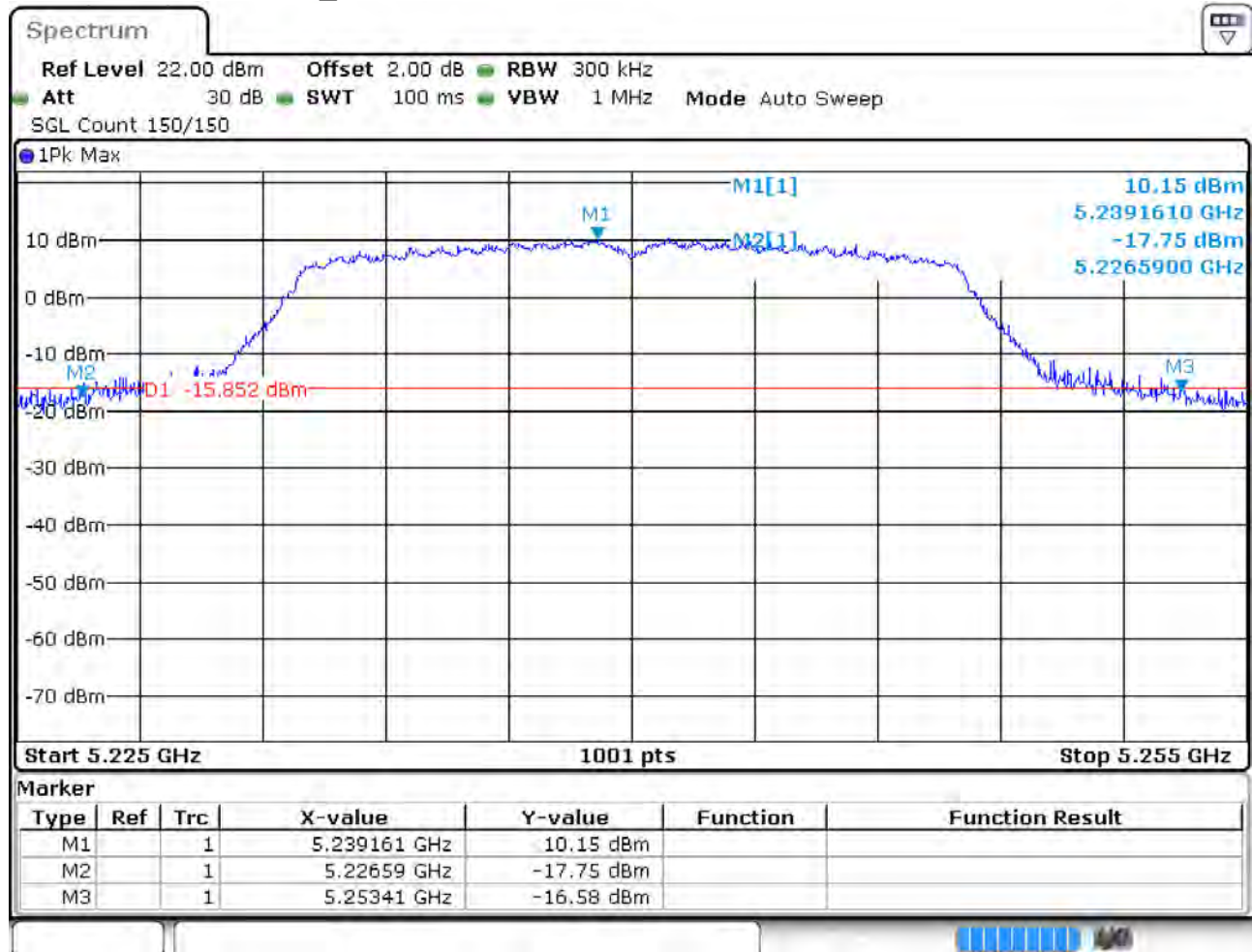
#### 4.5.2.2 11A20\_44 ANT 1



Date: 18 SEP 2020 10:40:49



### 4.5.2.3 11A20\_48 ANT 1



Date: 18 SEP, 2020 10:42:24



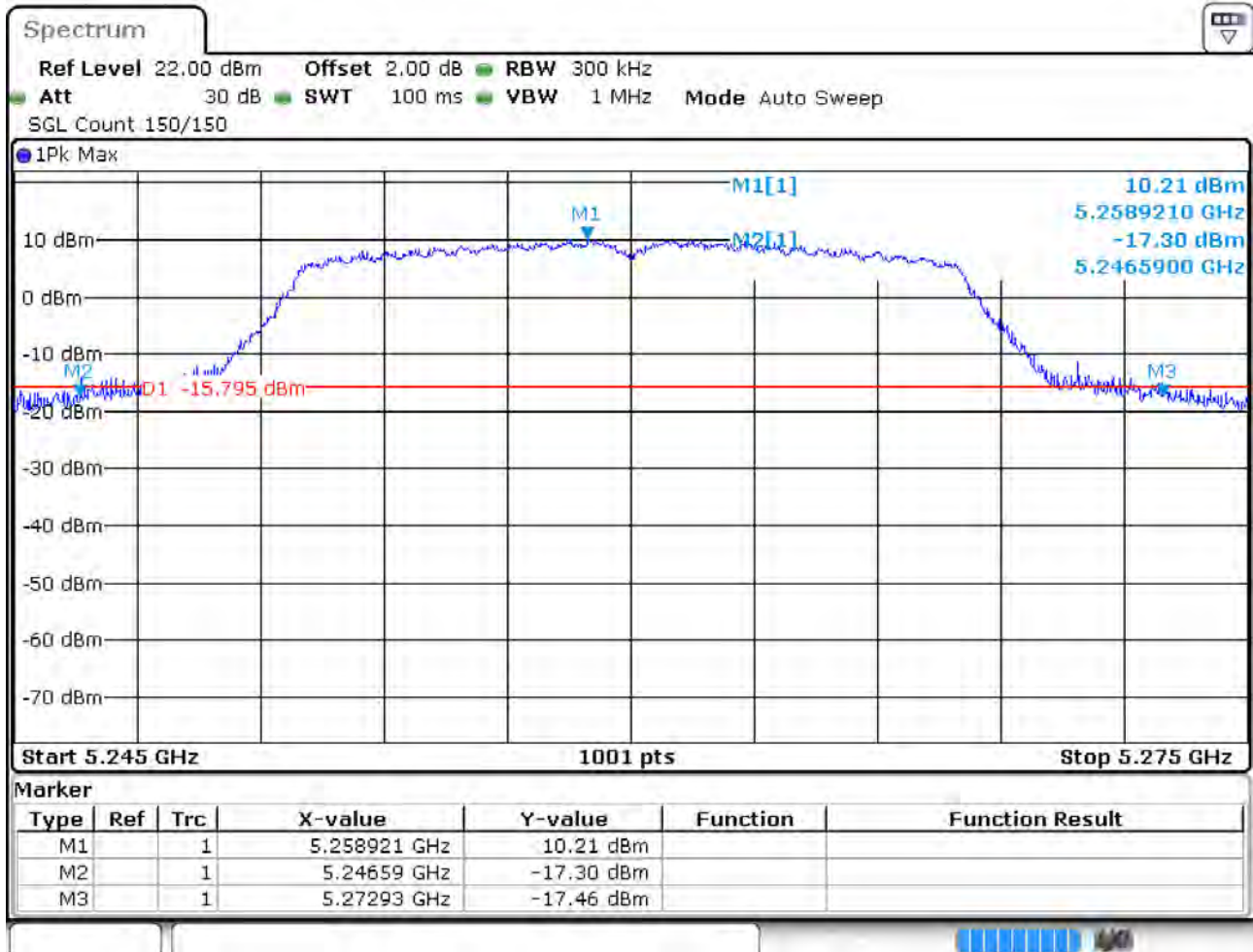
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#### 4.5.2.4

#### 11A20\_52 ANT 1



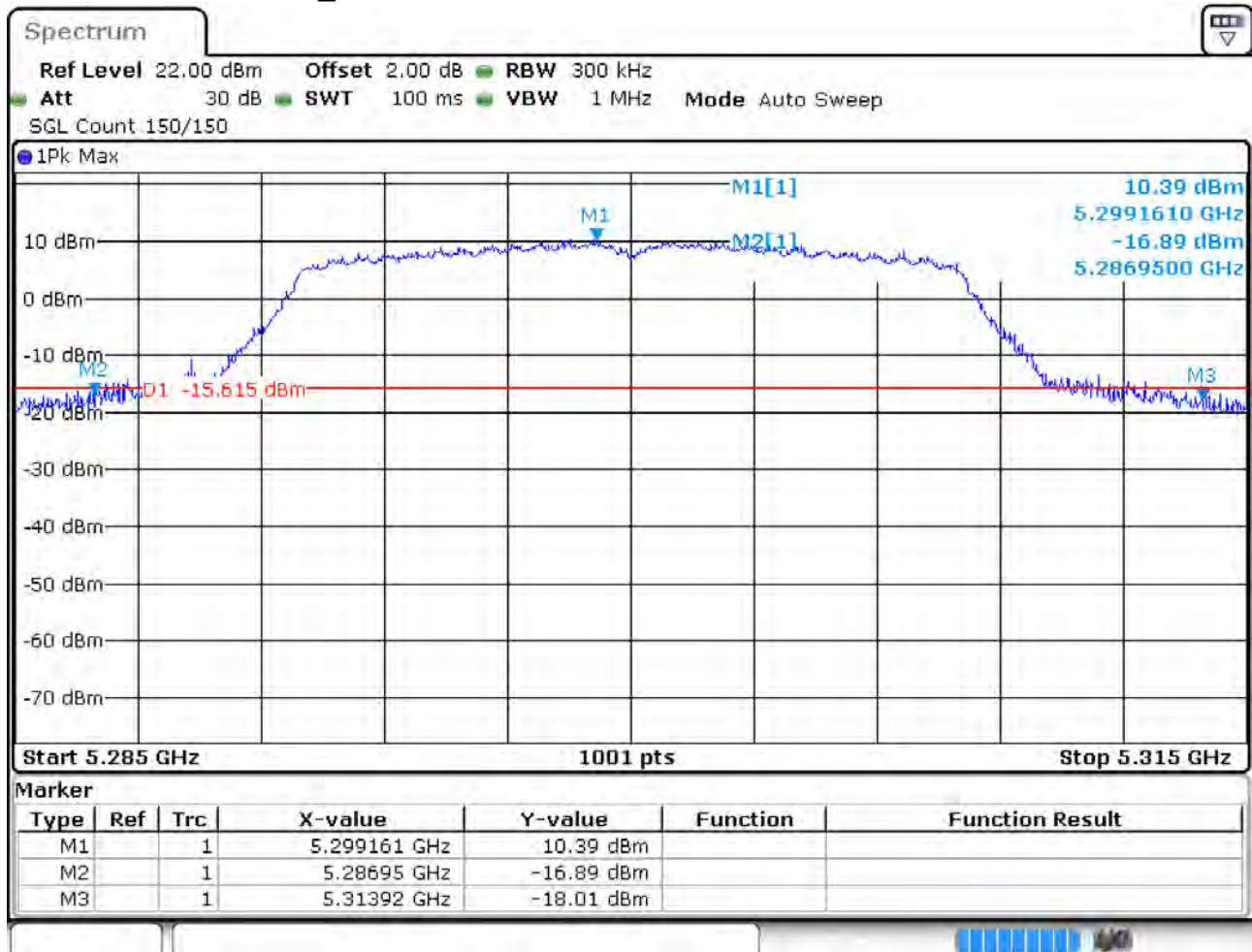
Date: 18 SEP 2020 10:45:55



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#### 4.5.2.5 11A20\_60 ANT 1



Date: 18 SEP 2020 10:47:33



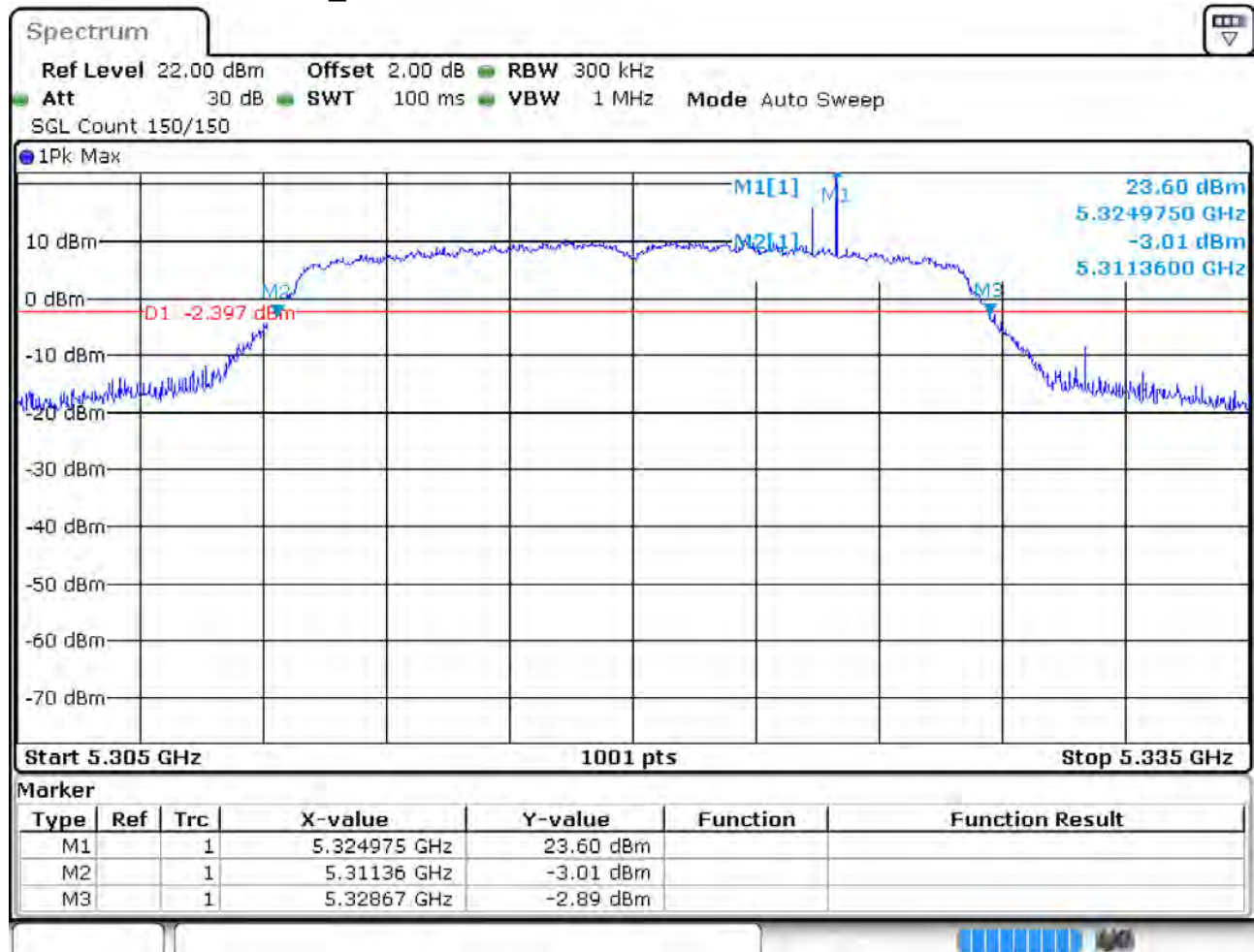
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#### 4.5.2.6

#### 11A20\_64 ANT 1



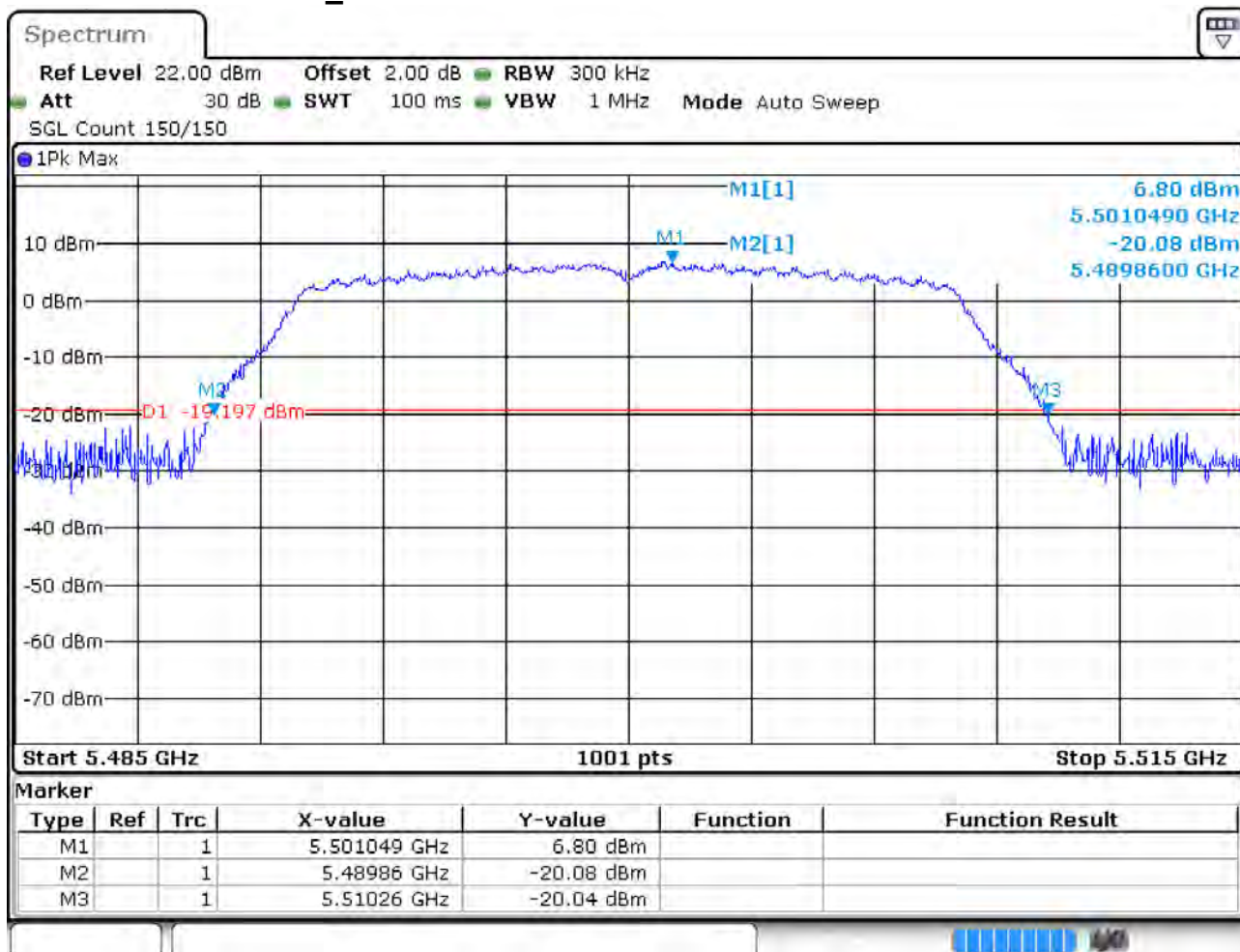
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Date: 18 SEP 2020 10:50:40

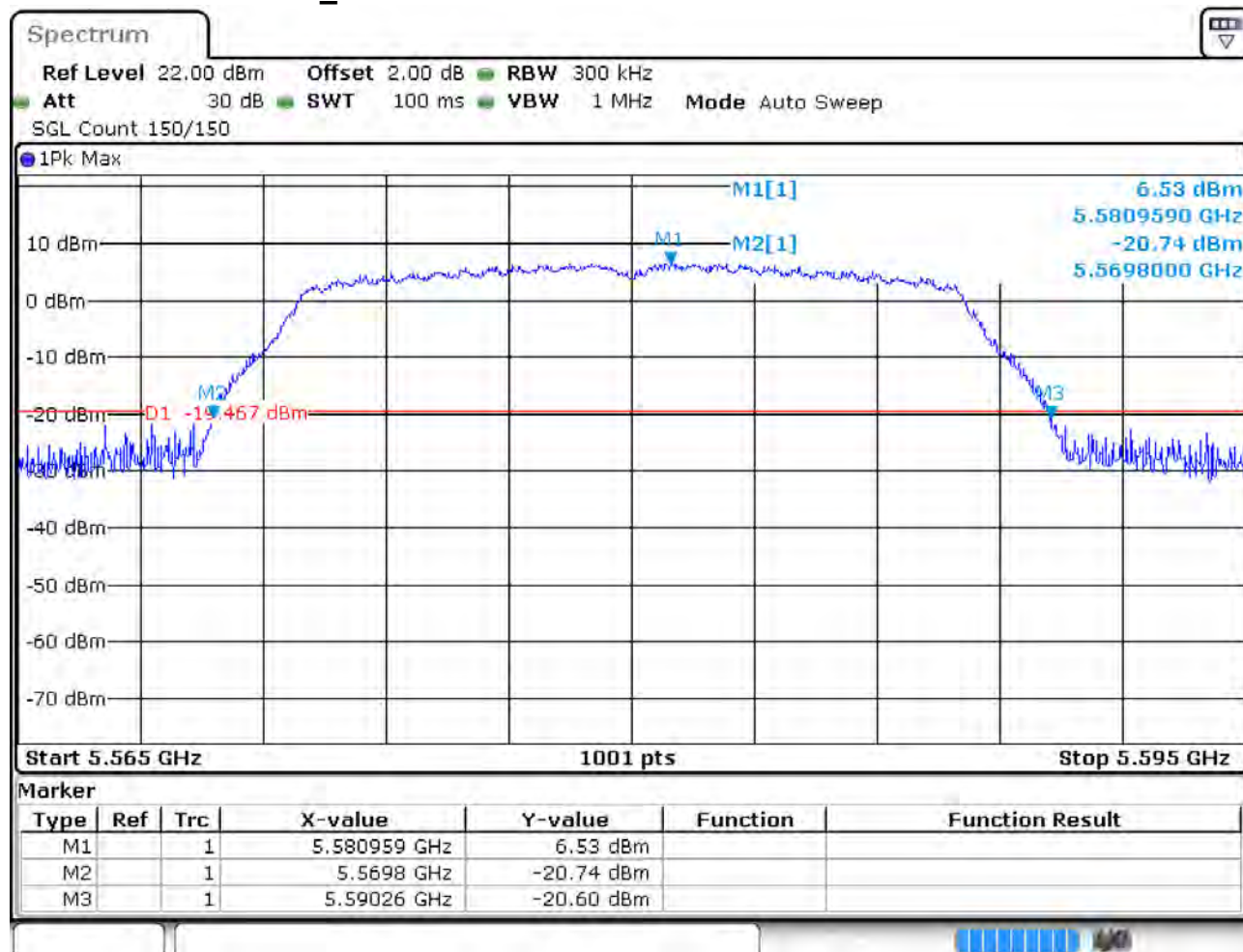


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#### 4.5.2.8 11A20\_116 ANT 1



Date: 18 SEP 2020 10:52:07

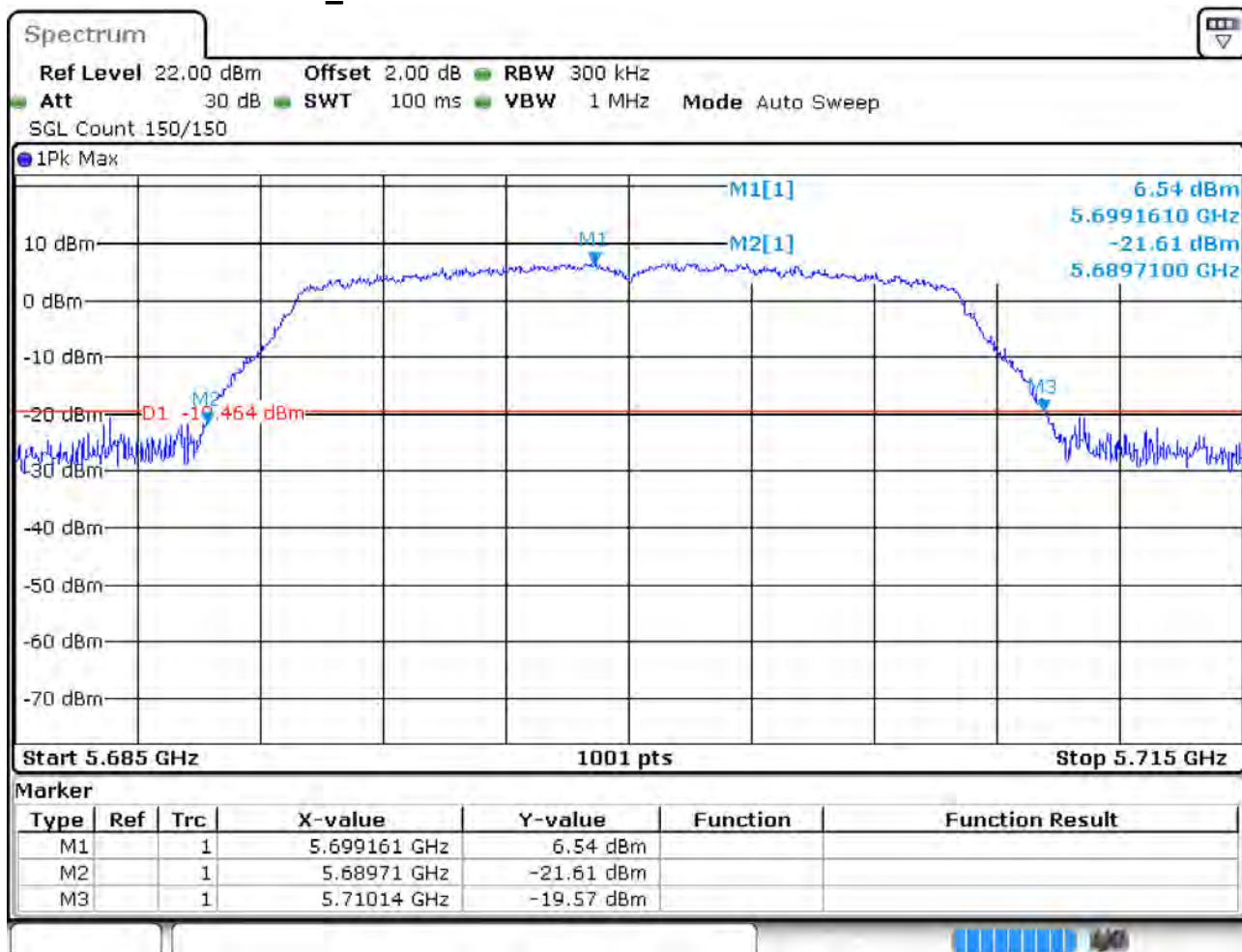


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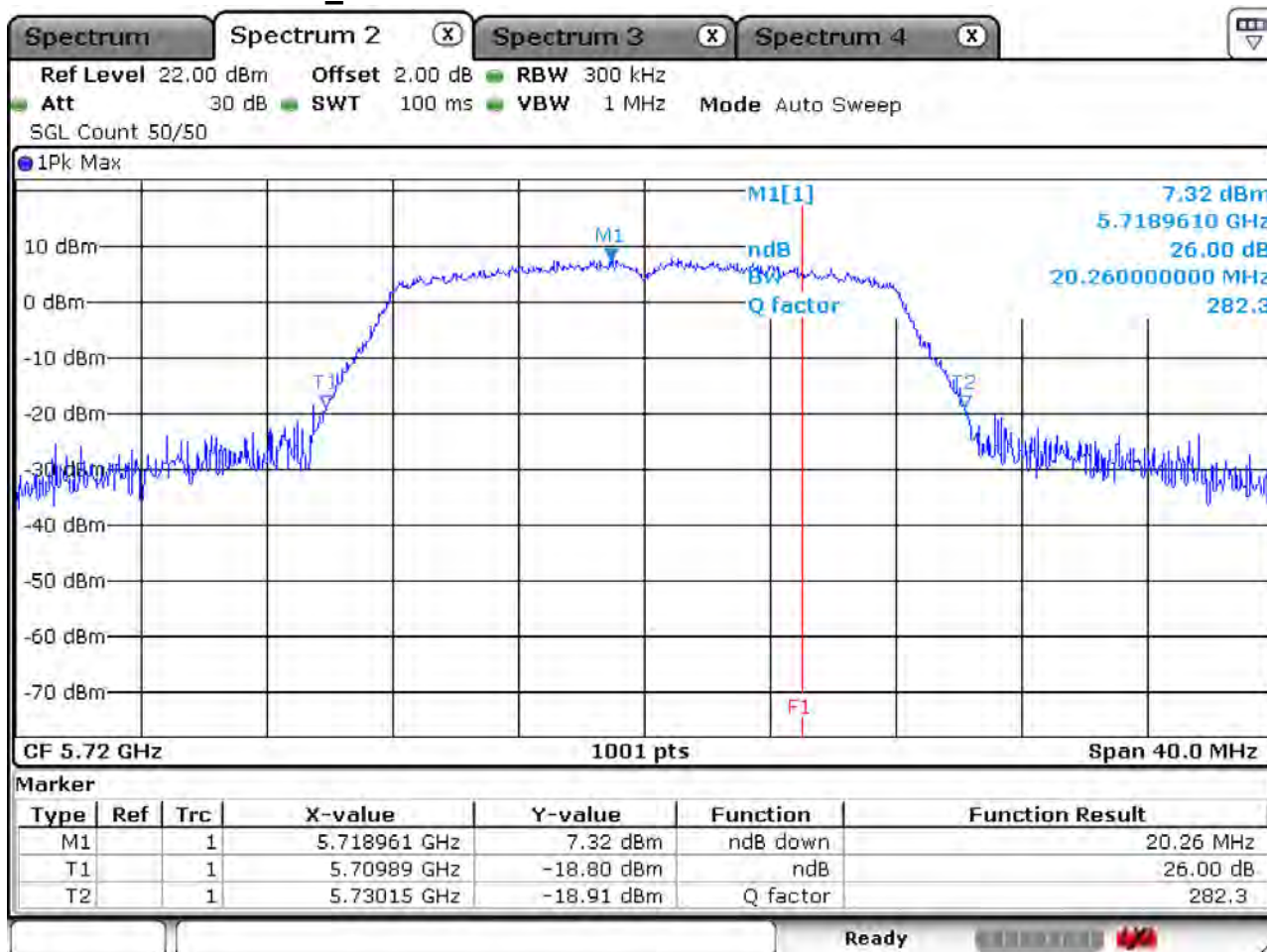
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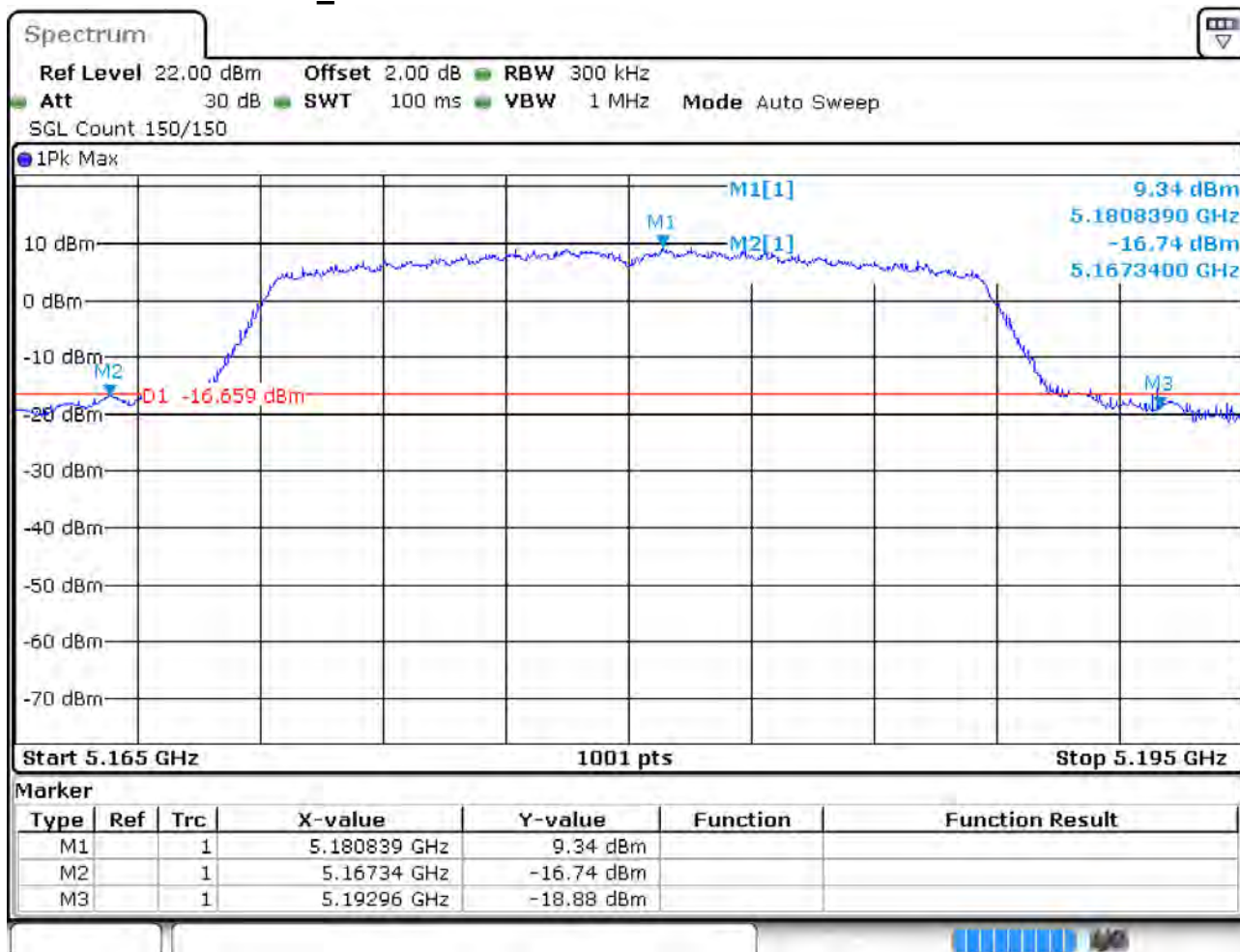
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Date: 21.OCT.2020 10:20:18



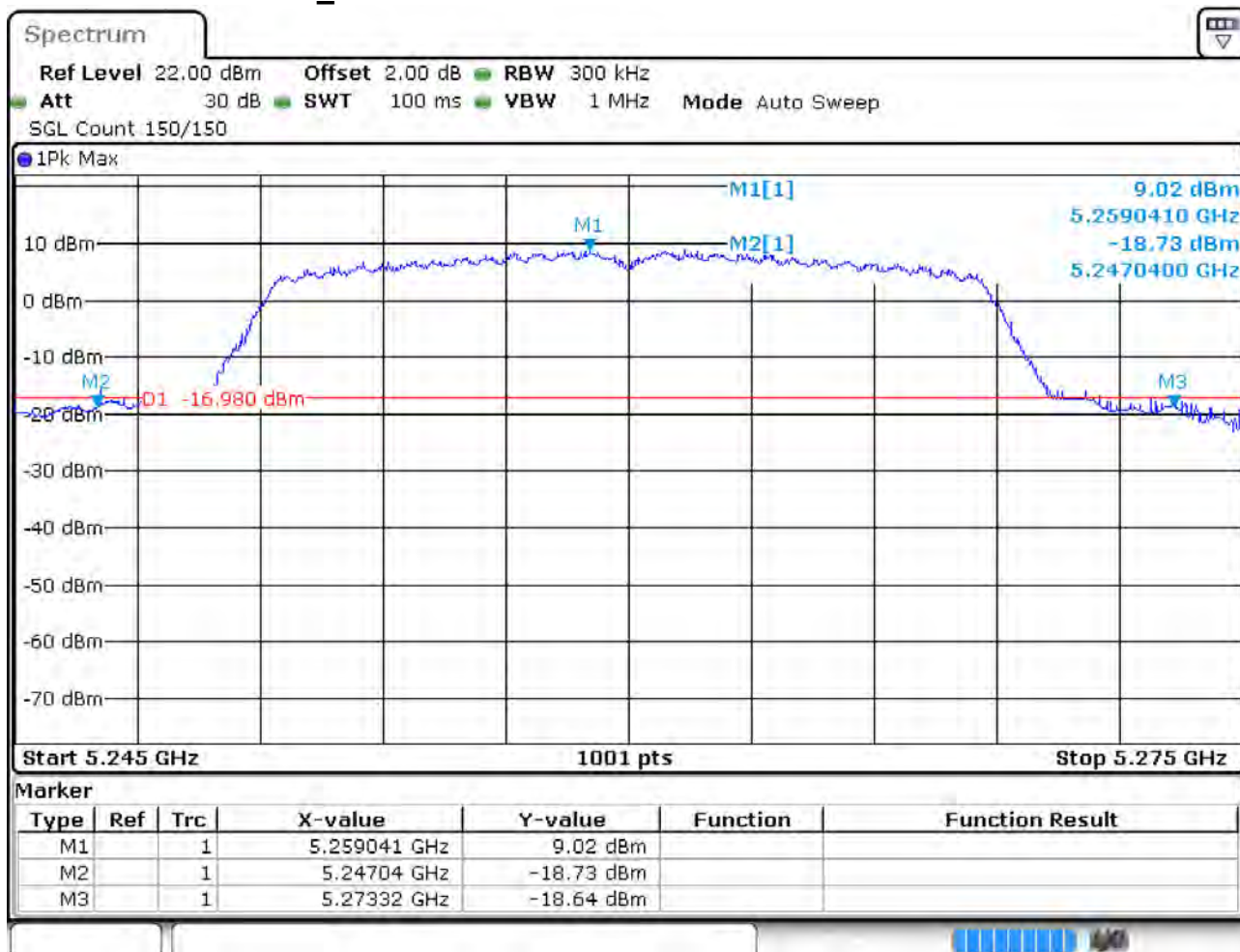
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Date: 18 SEP 2020 11:01:09



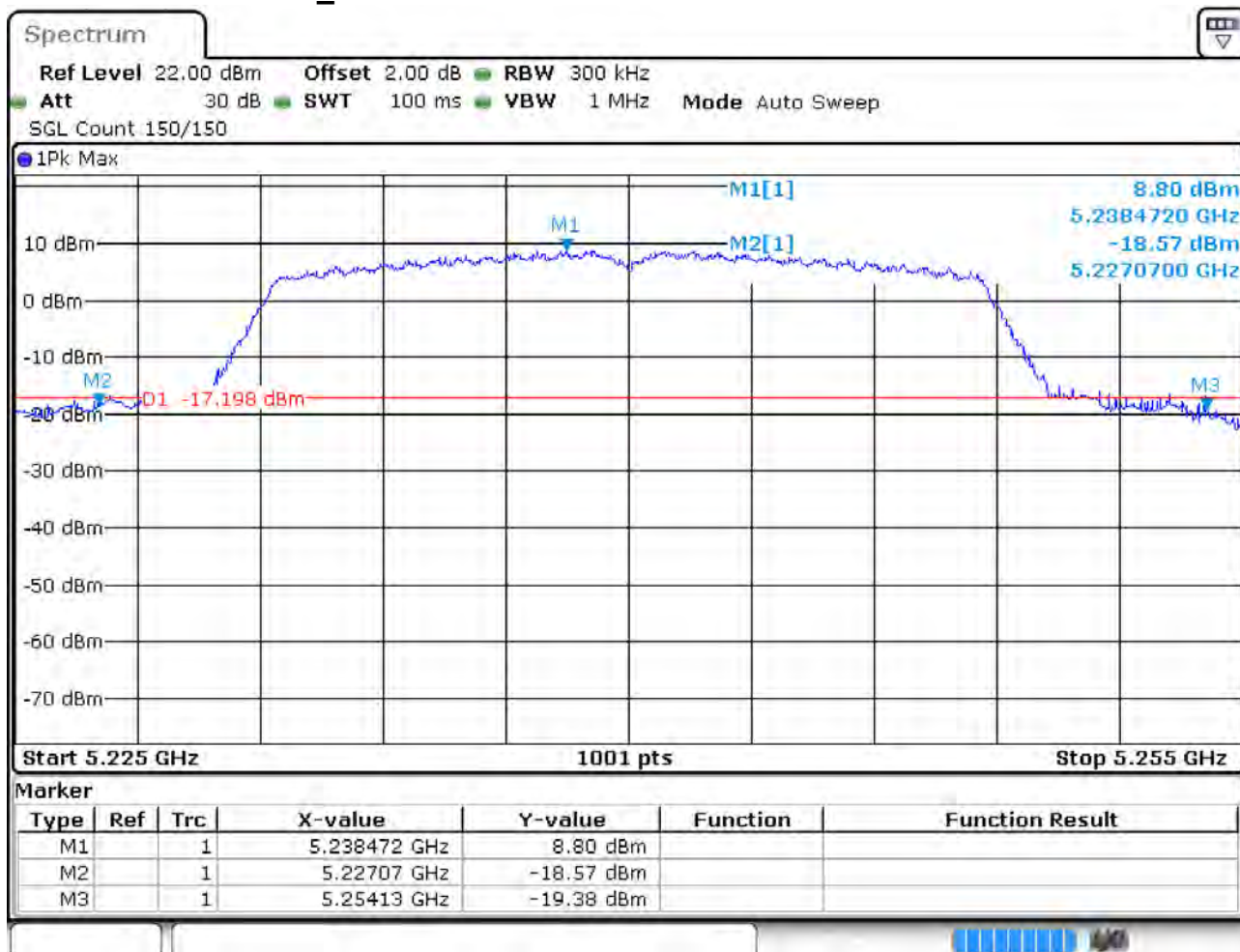
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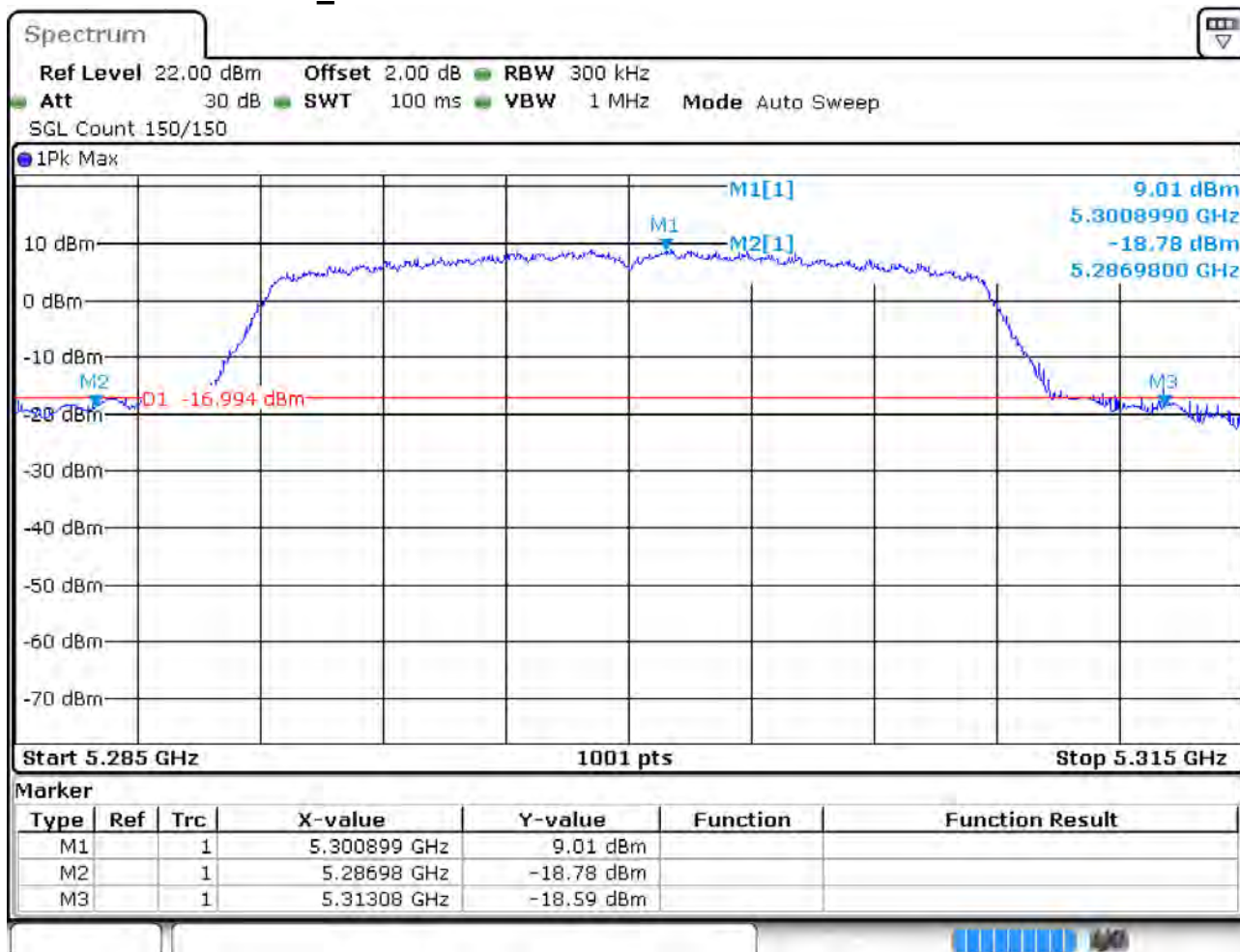
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Date: 18.SEP.2020 11:04:03



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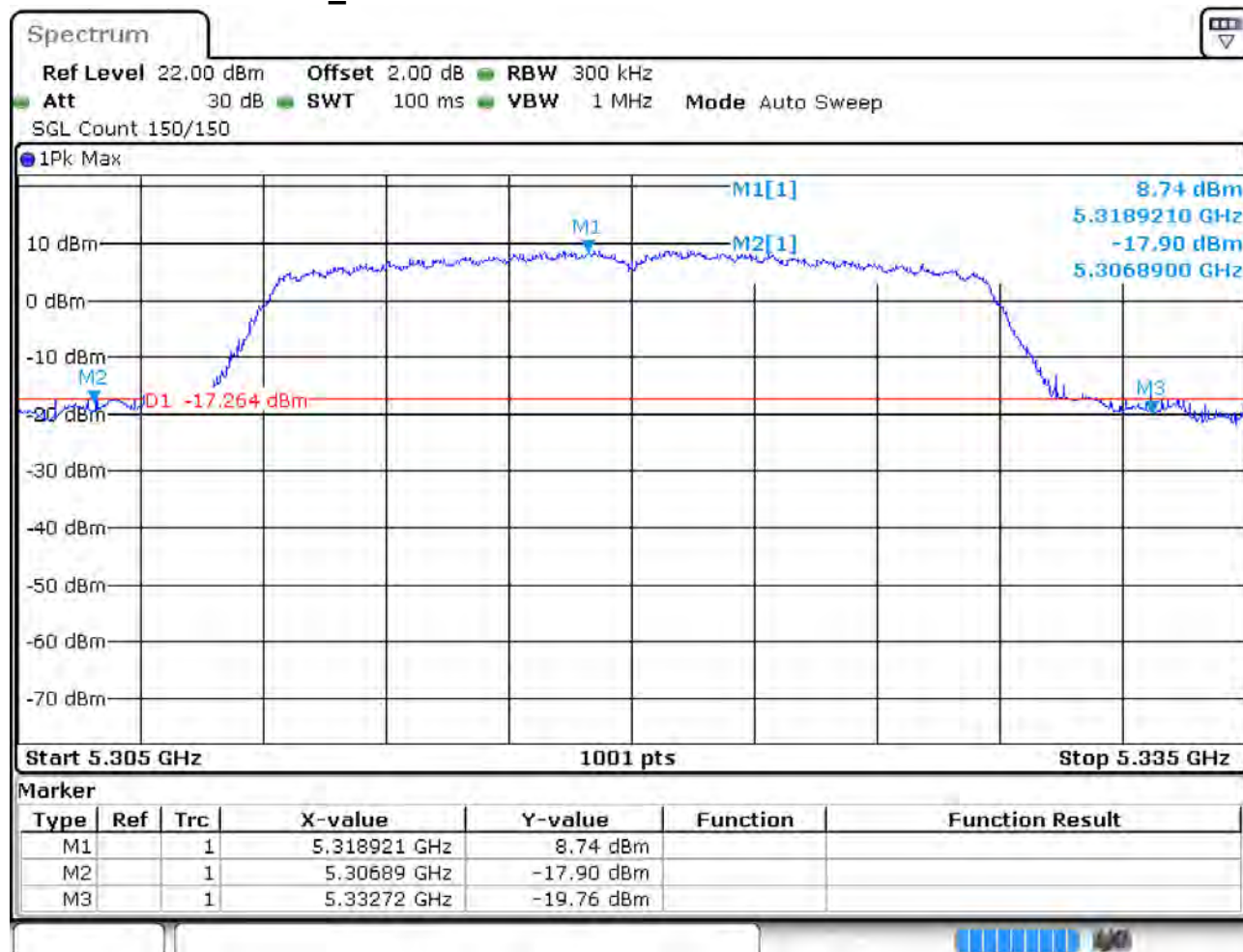


Date: 18.SEP.2020 11:17:56



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#### 11N20\_64 ANT 1



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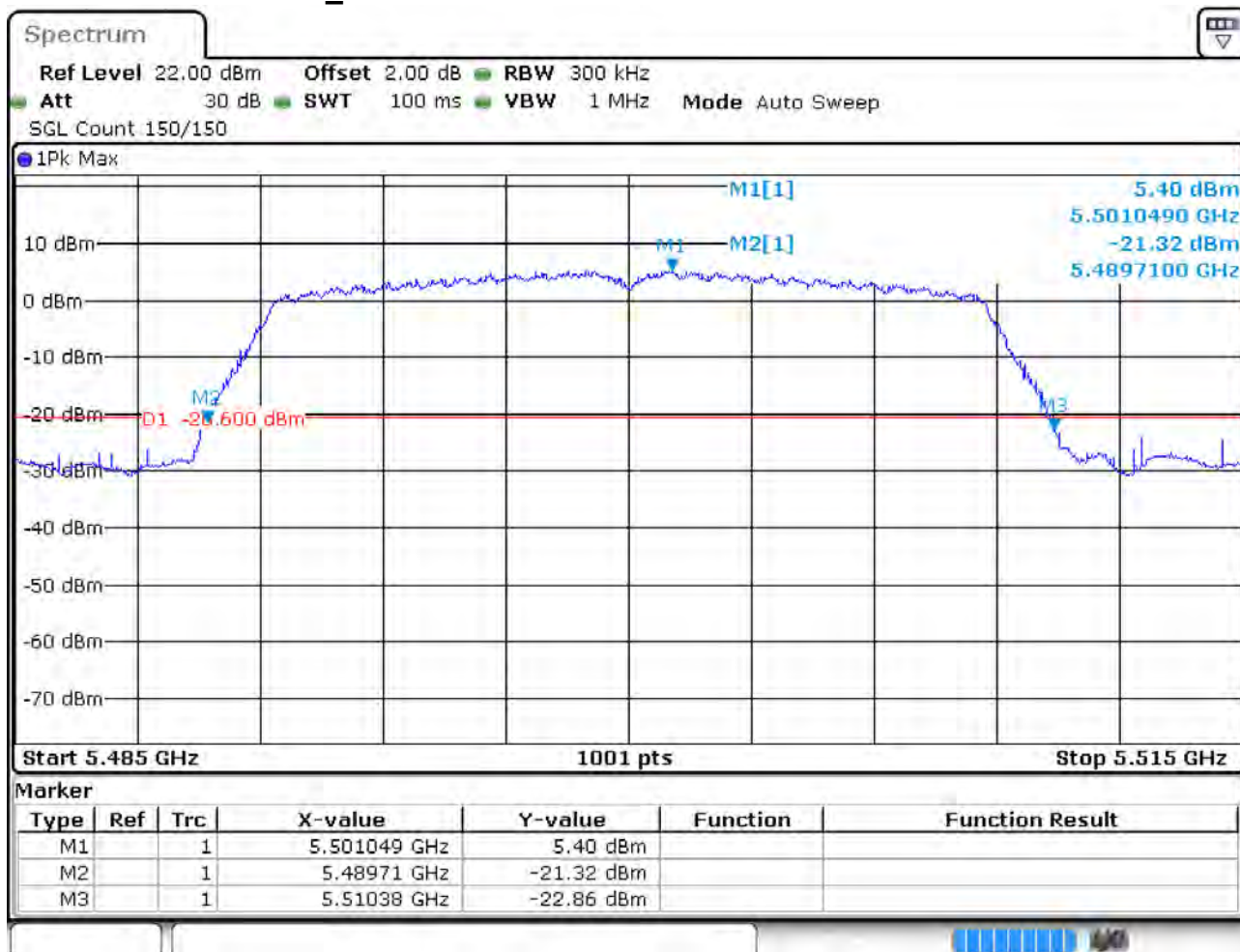


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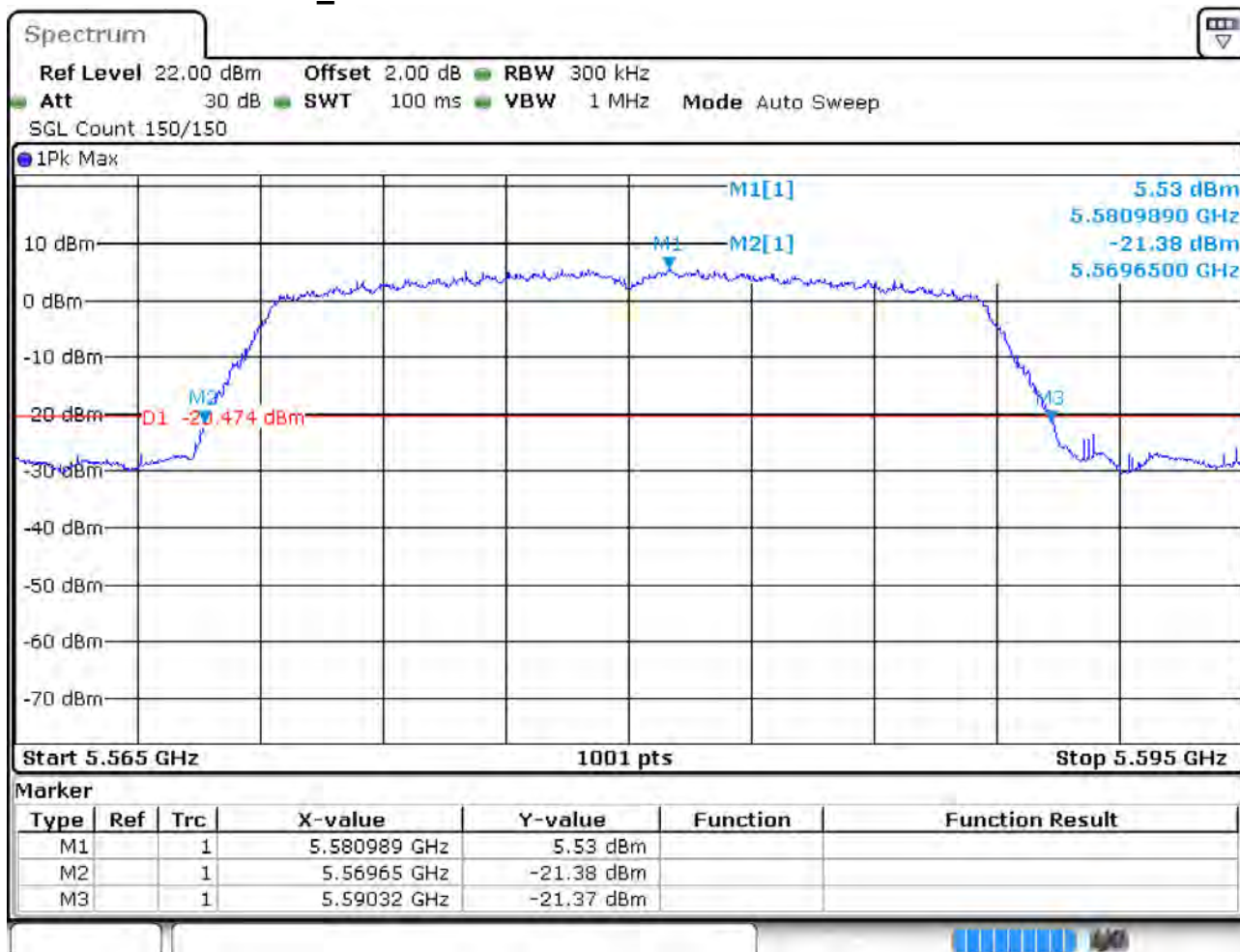
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Date: 18 SEP 2020 11:20:50



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Date: 18 SEP 2020 11:22:10

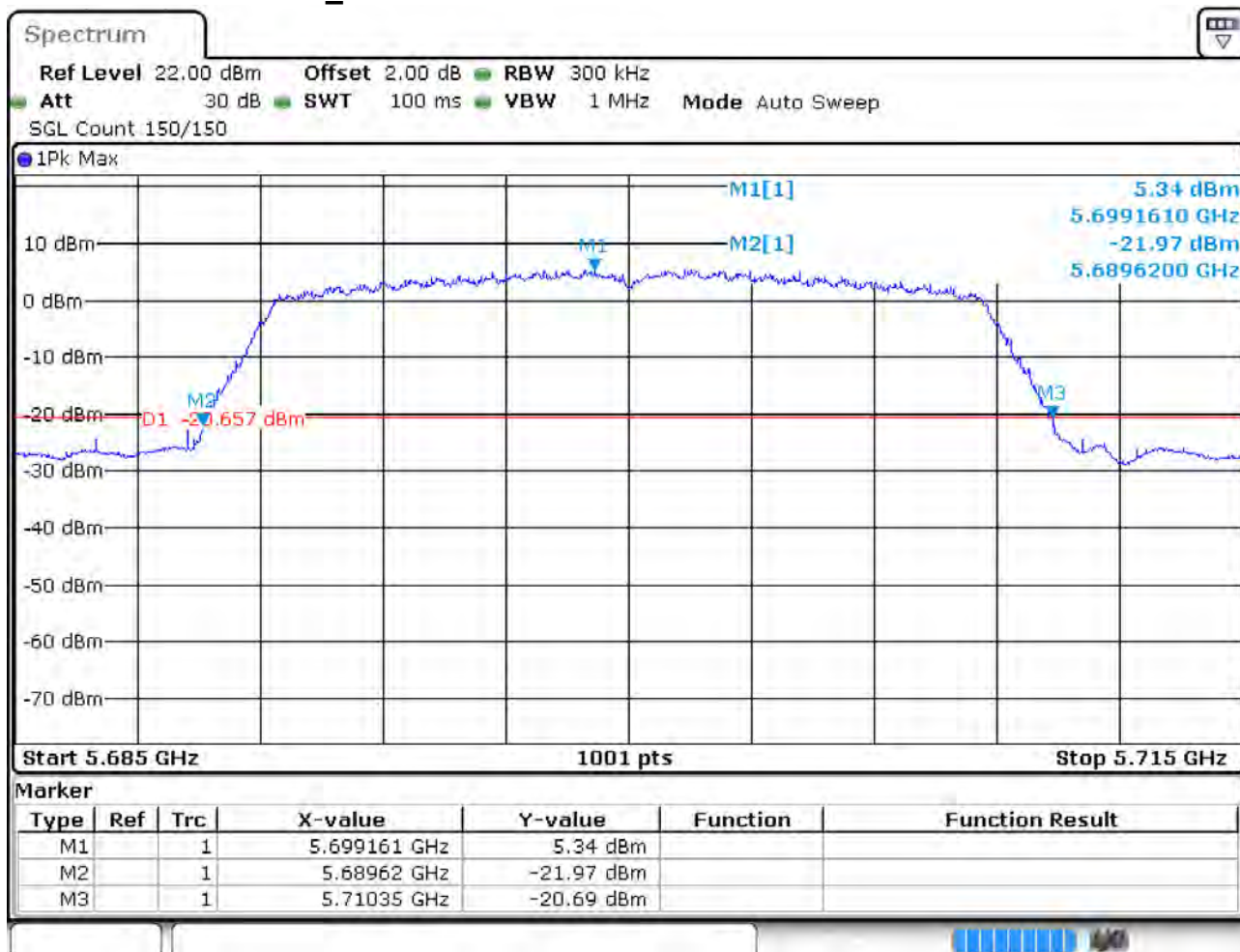


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Date: 18.SEP.2020 11:23:37

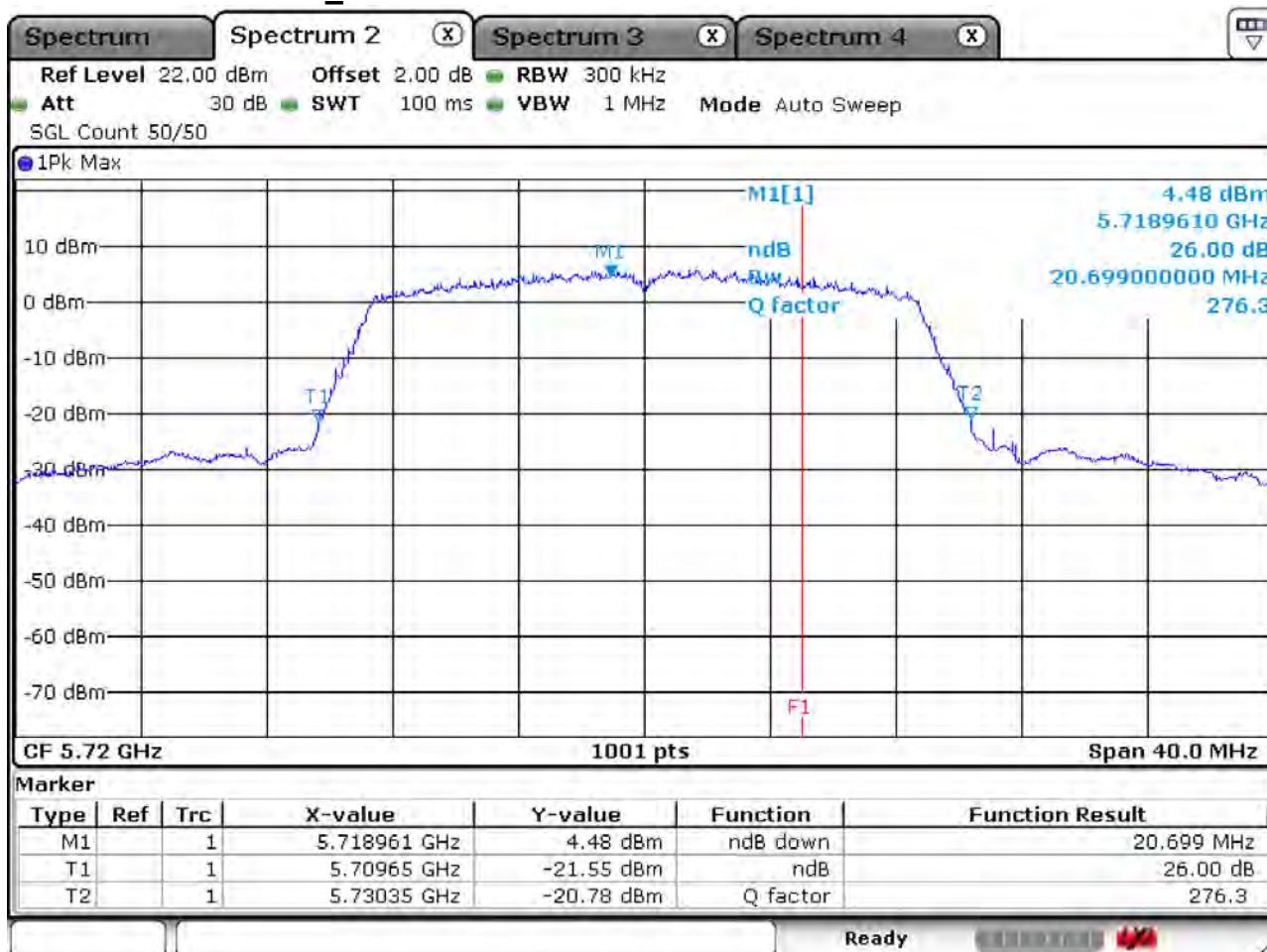


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Date: 21.OCT.2020 10:22:33

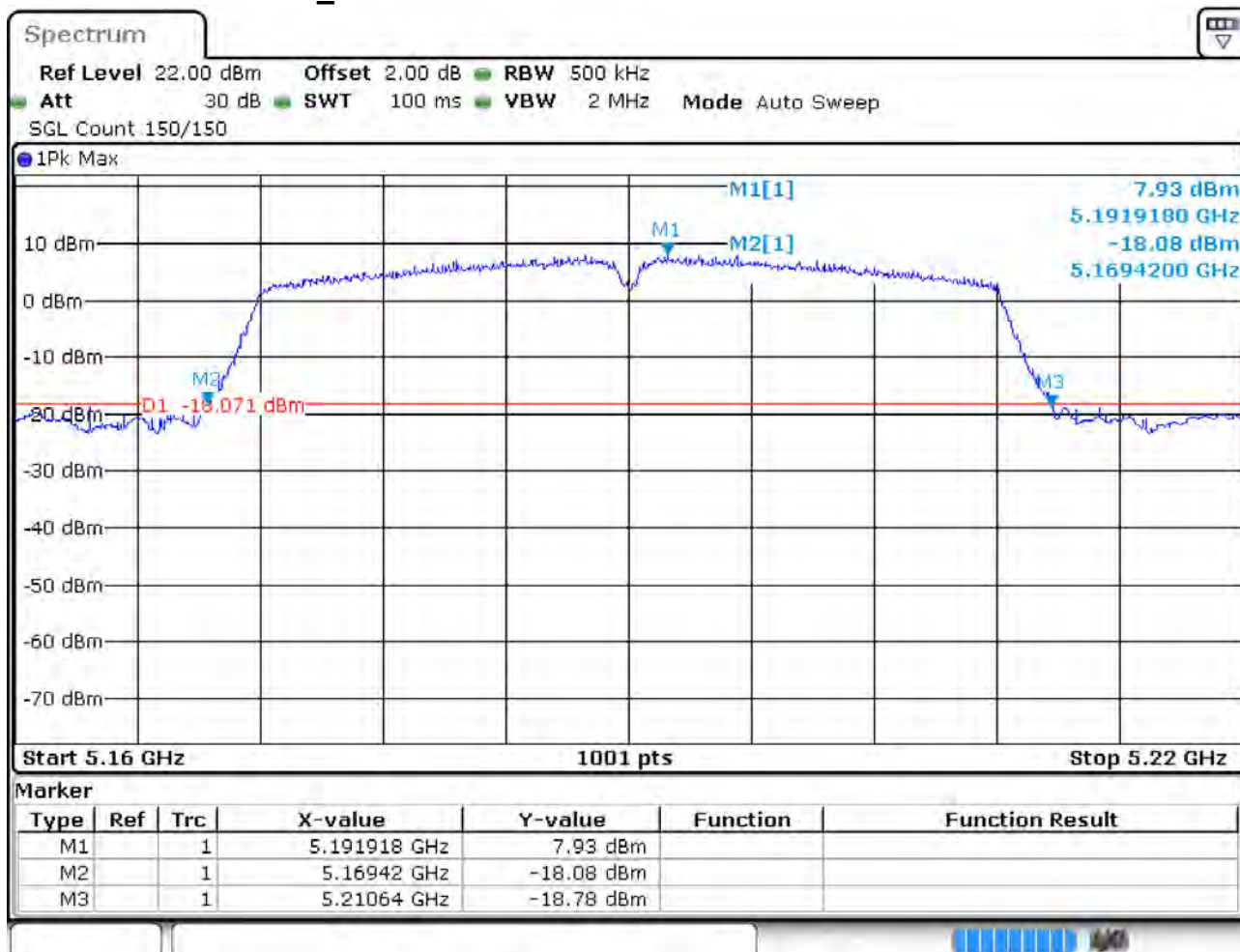


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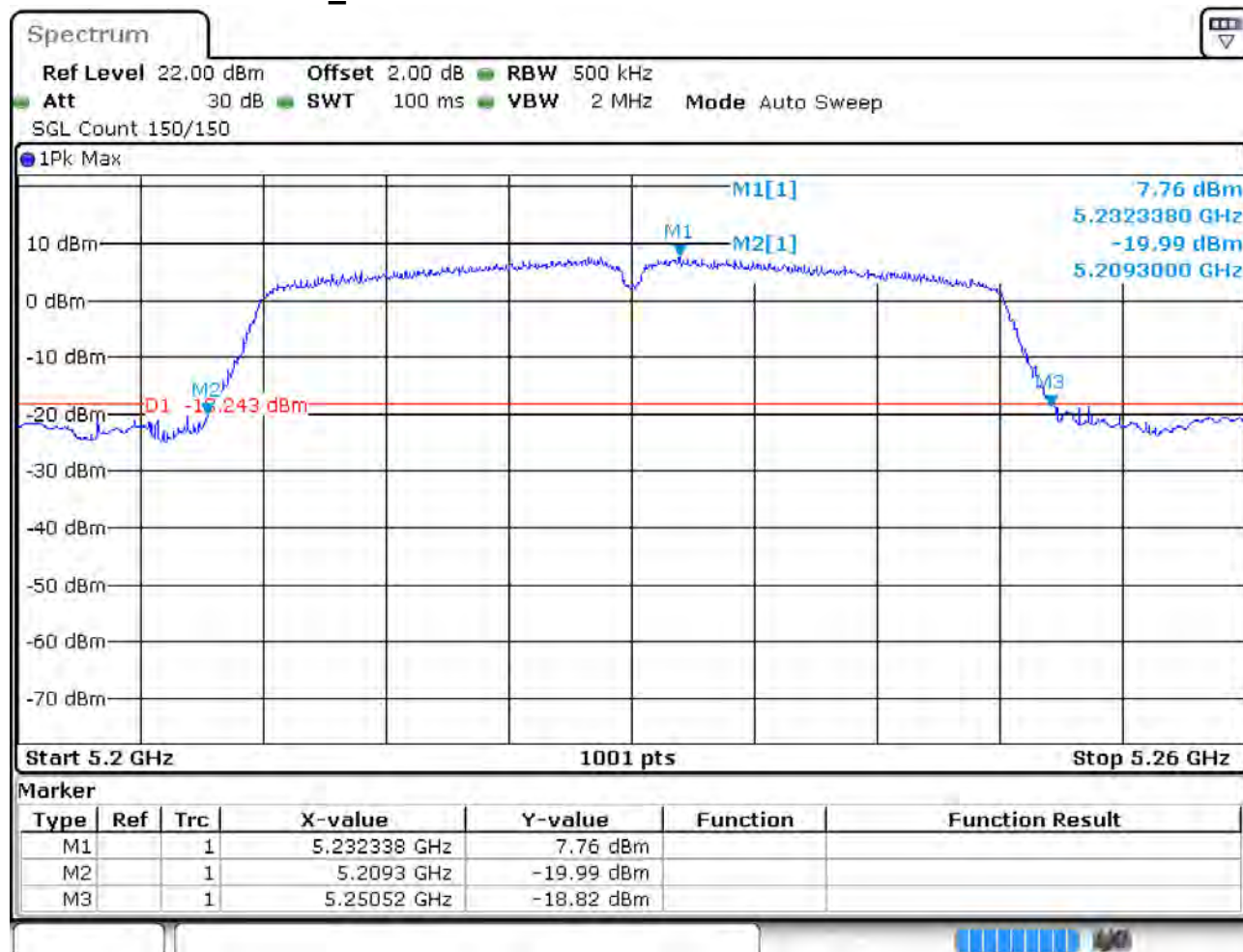


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Date: 18 SEP 2020 11:32:43



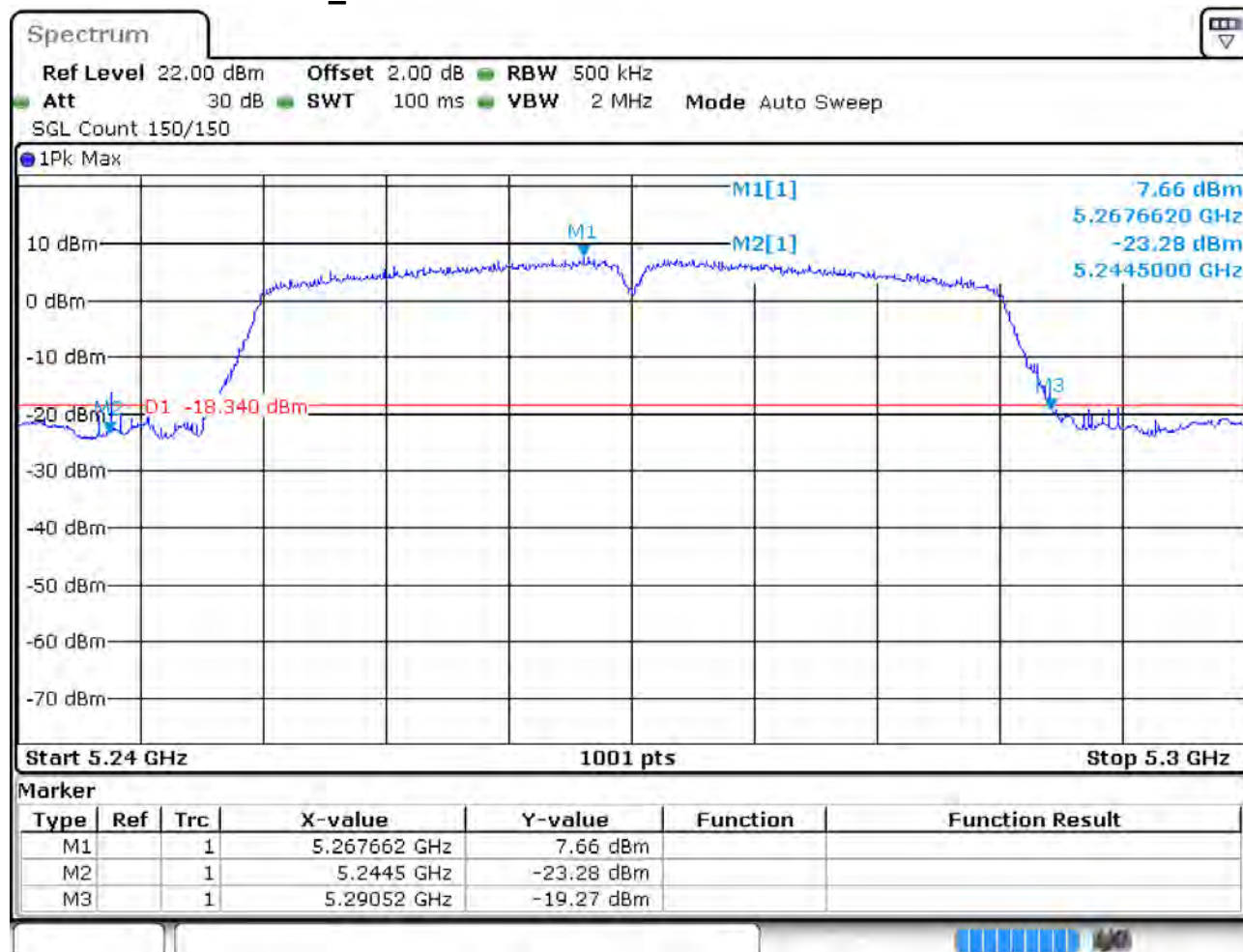
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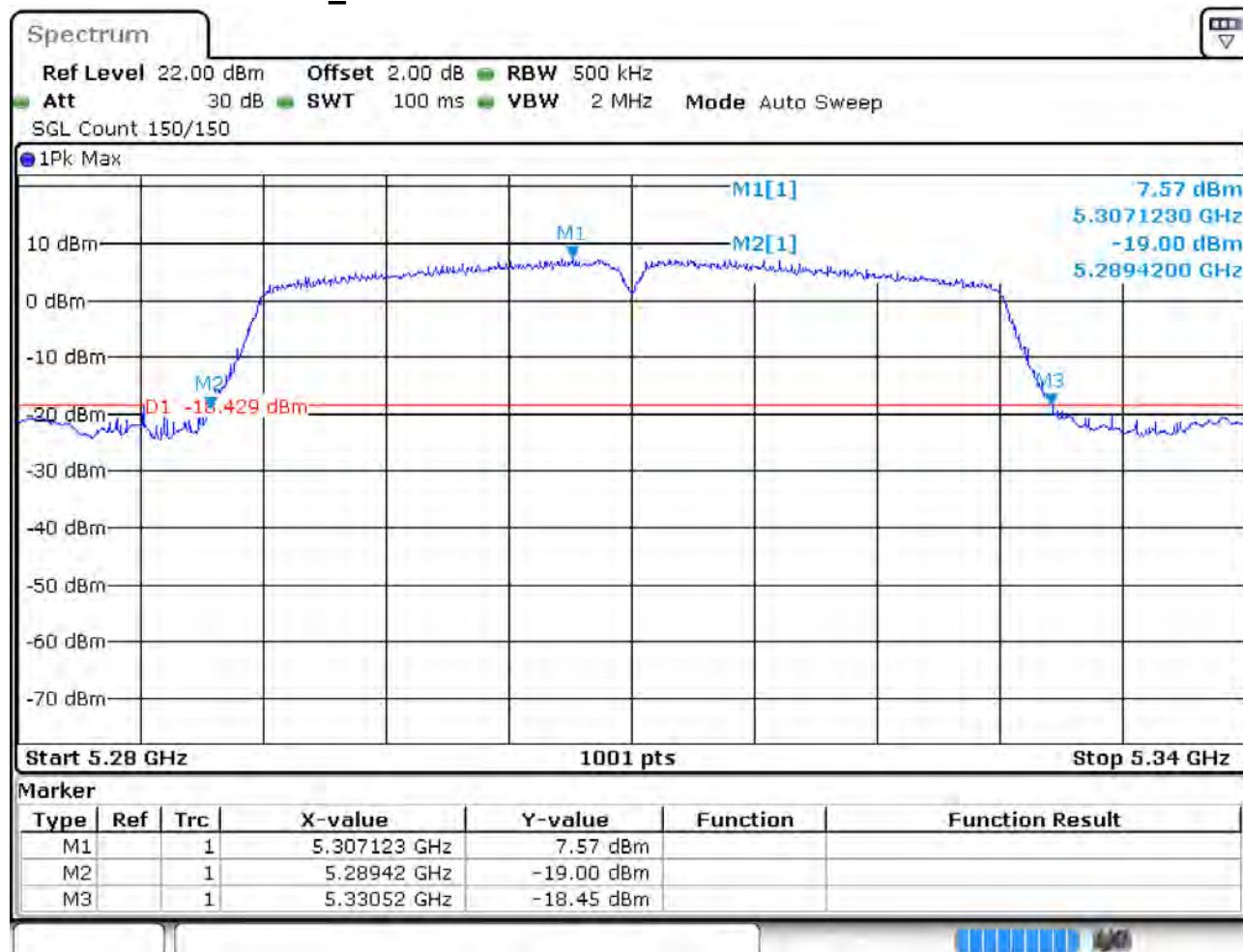


Date: 18.SEP.2020 11:34:13



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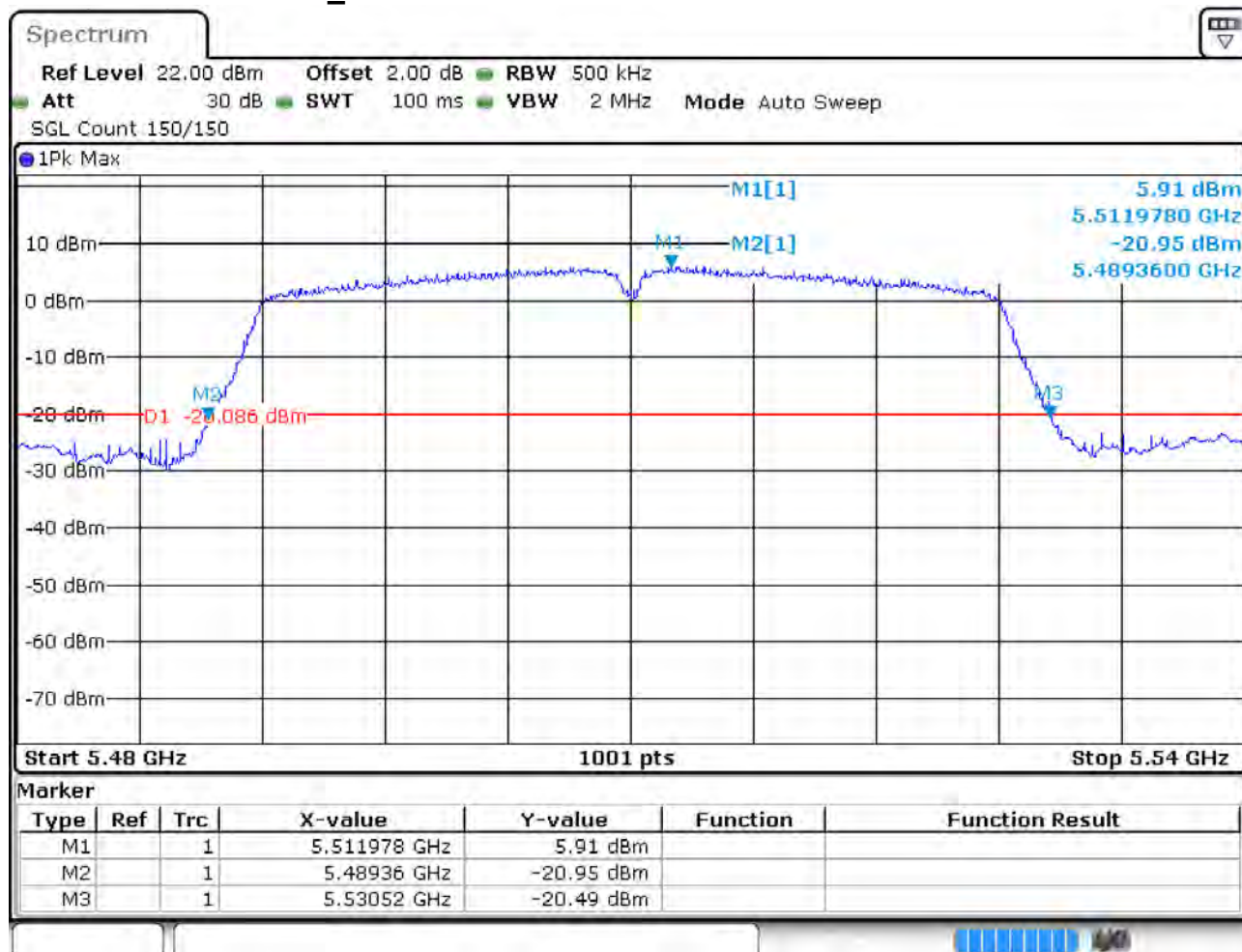
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Date: 18 SEP 2020 11:35:42



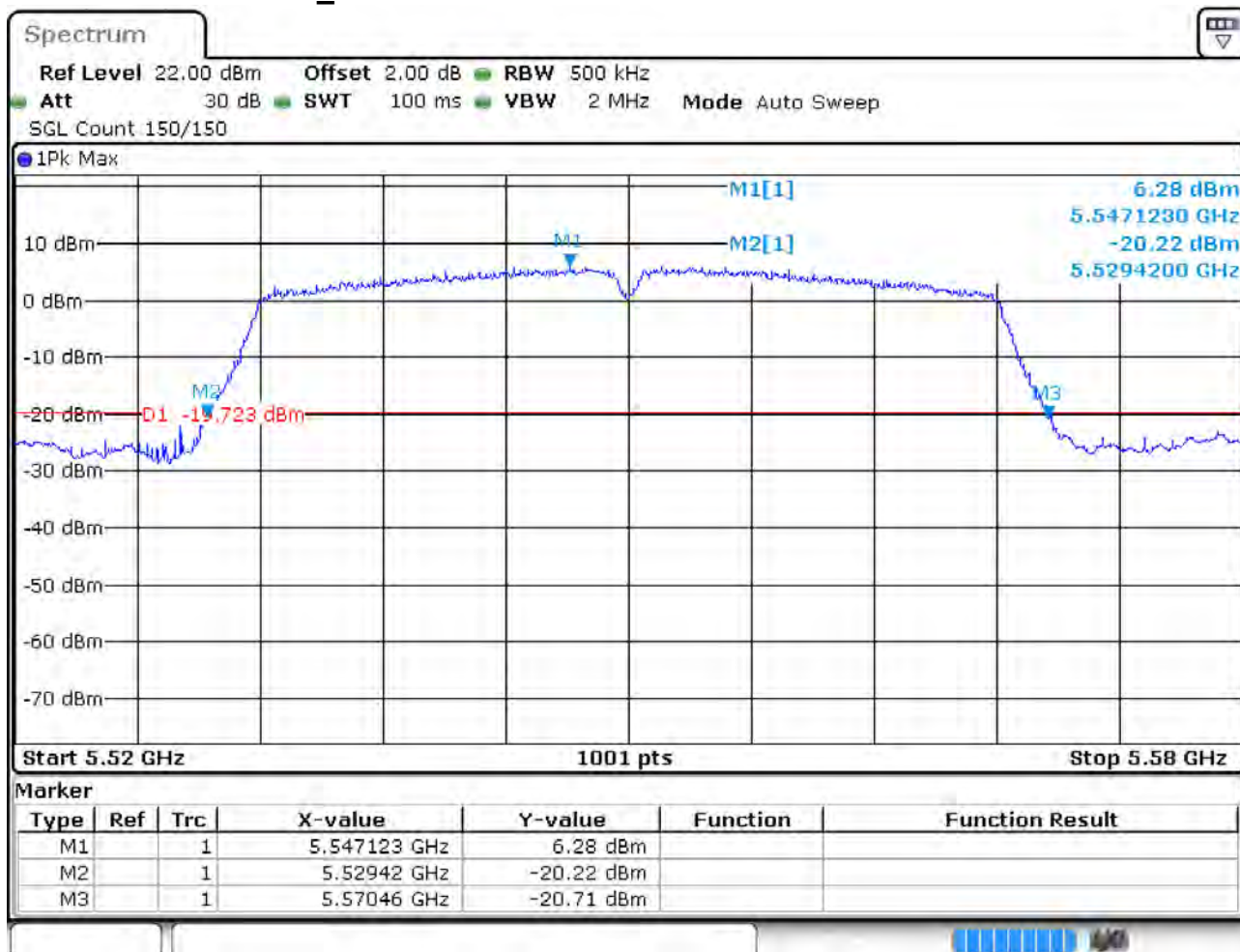
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Date: 18 SEP 2020 11:37:24



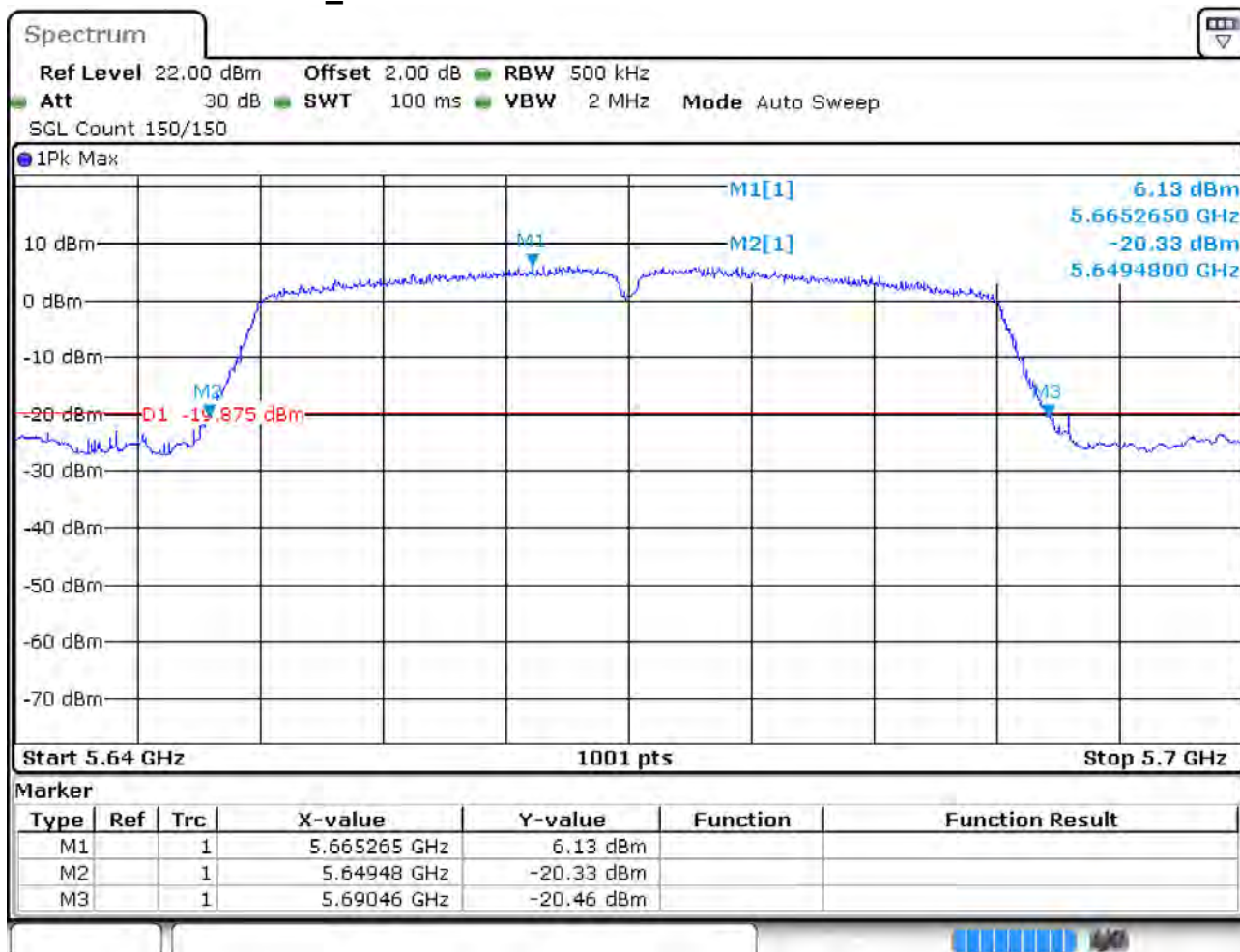
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Date: 18 SEP 2020 11:39:00



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Date: 18 SEP 2020 11:41:01

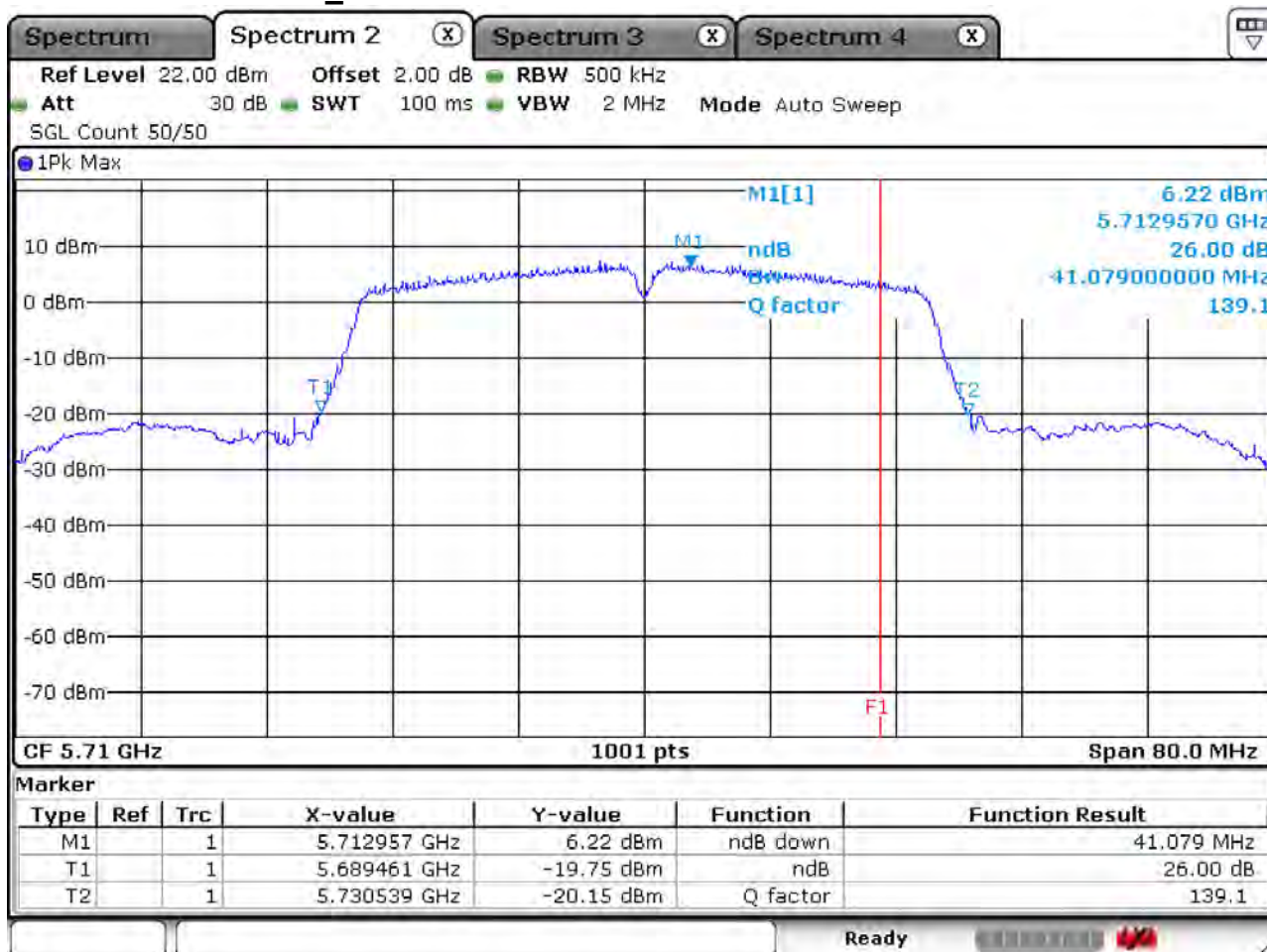


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**4.5.2.27            11N40 142 ANT 1**



Date: 21.OCT.2020 10:32:14



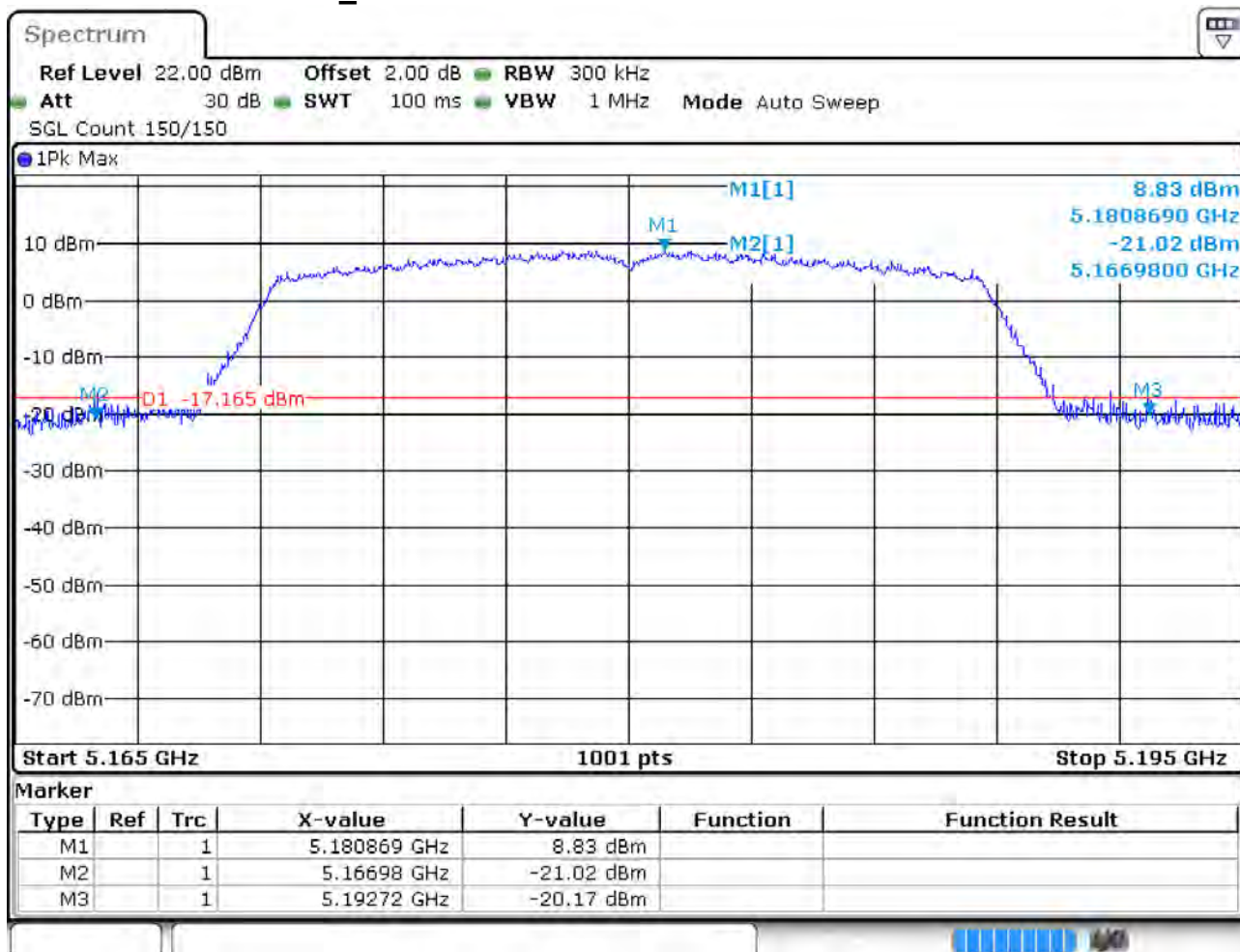
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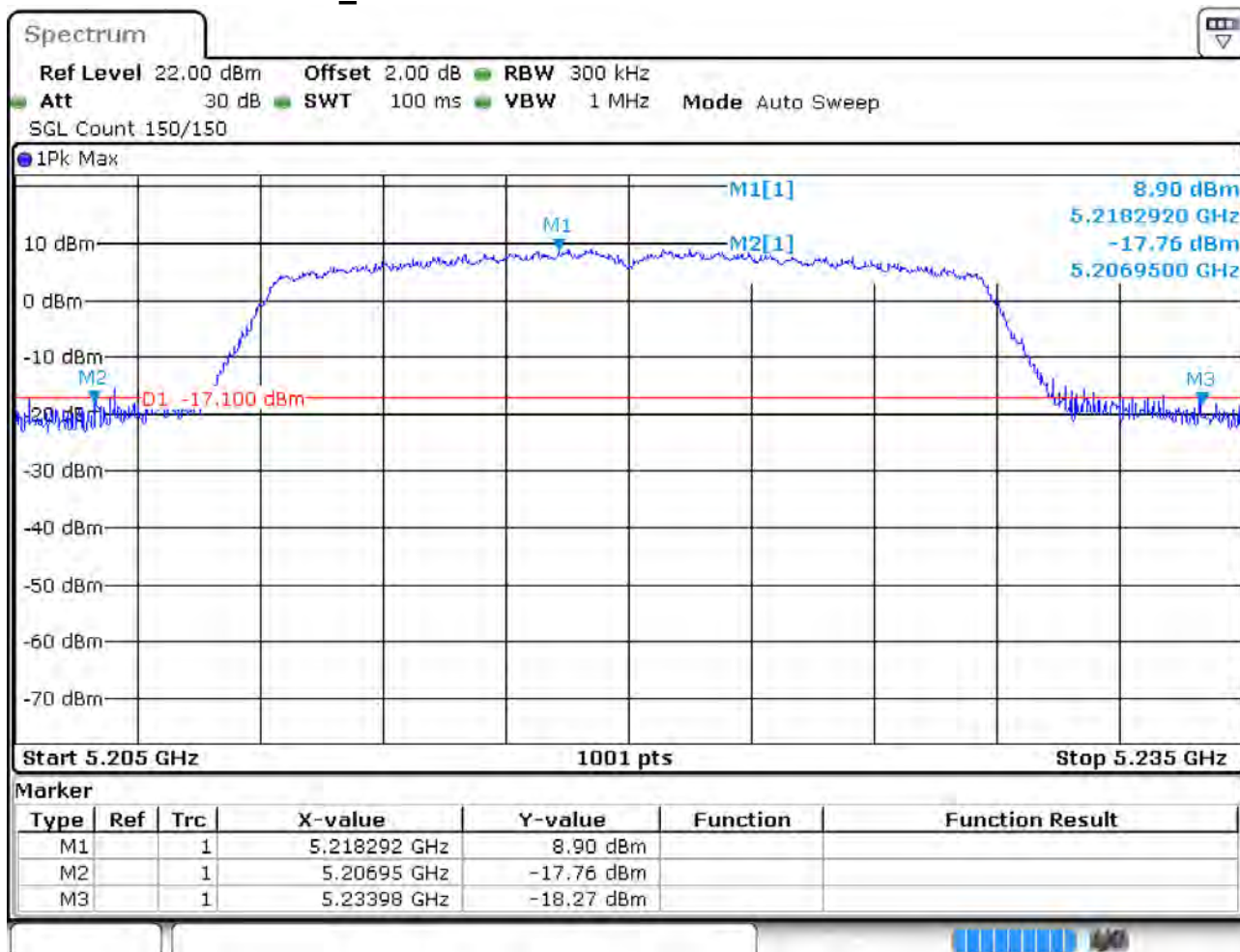
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Date: 18 SEP 2020 16:04:55



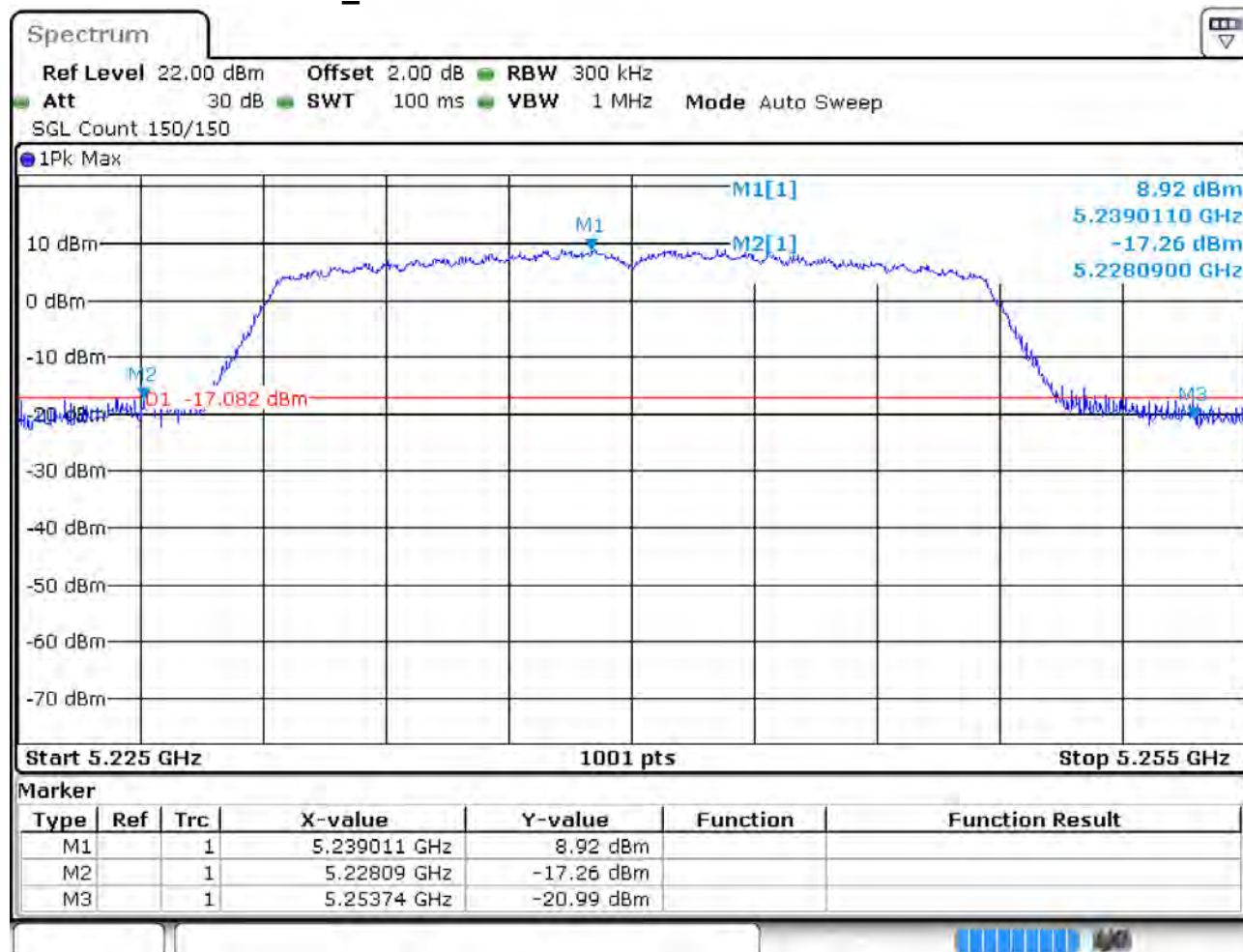
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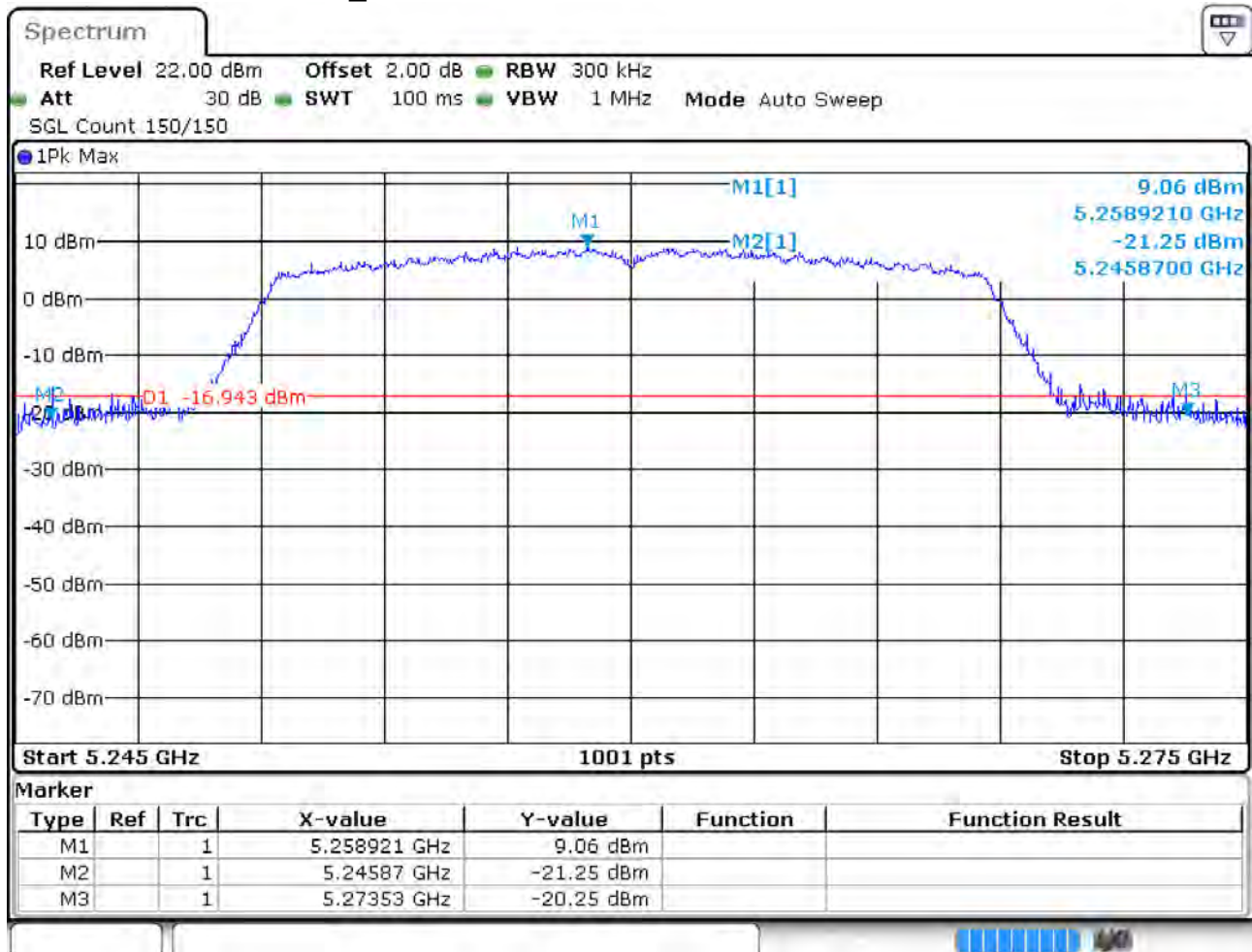


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#### 11AC20\_52 ANT 1



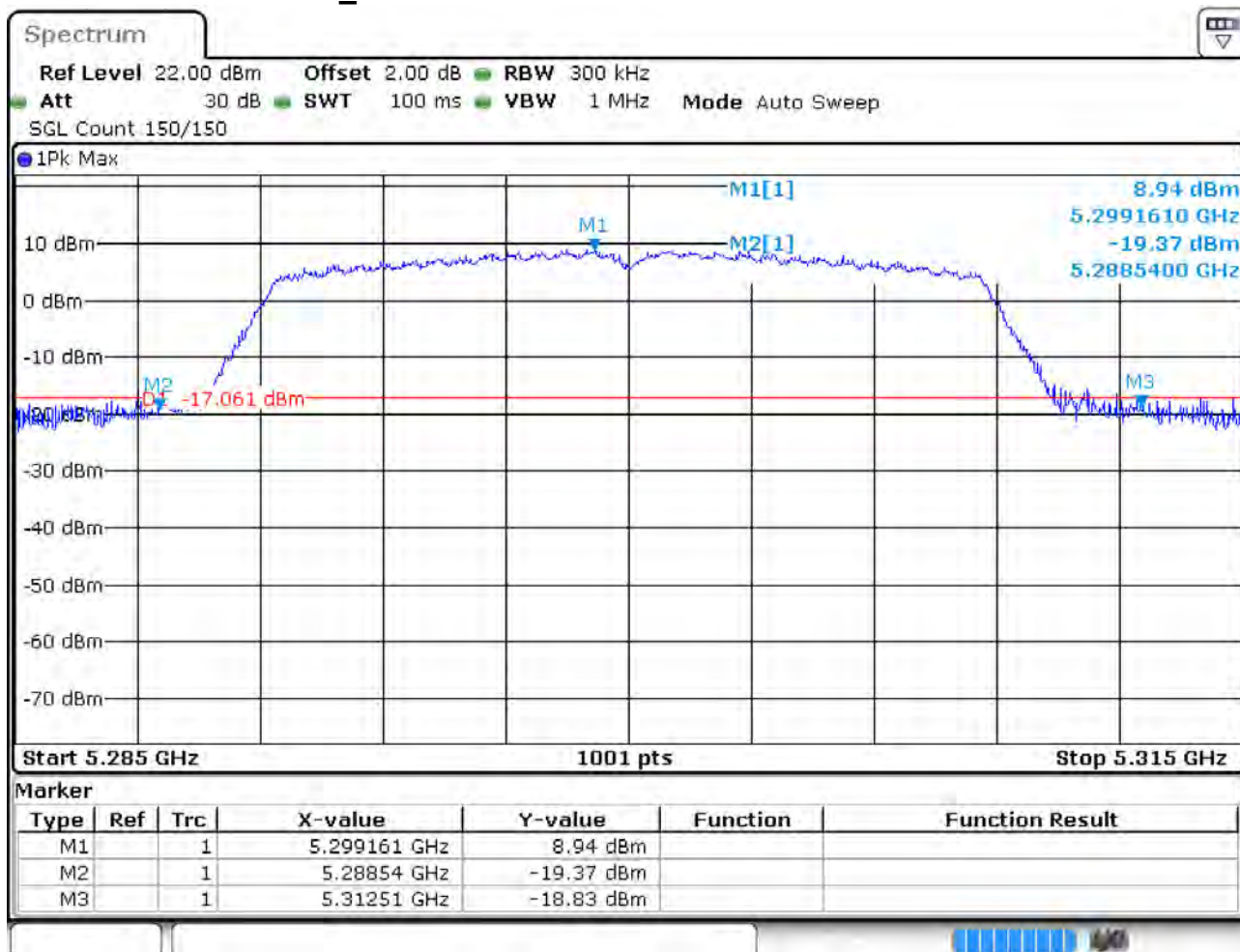
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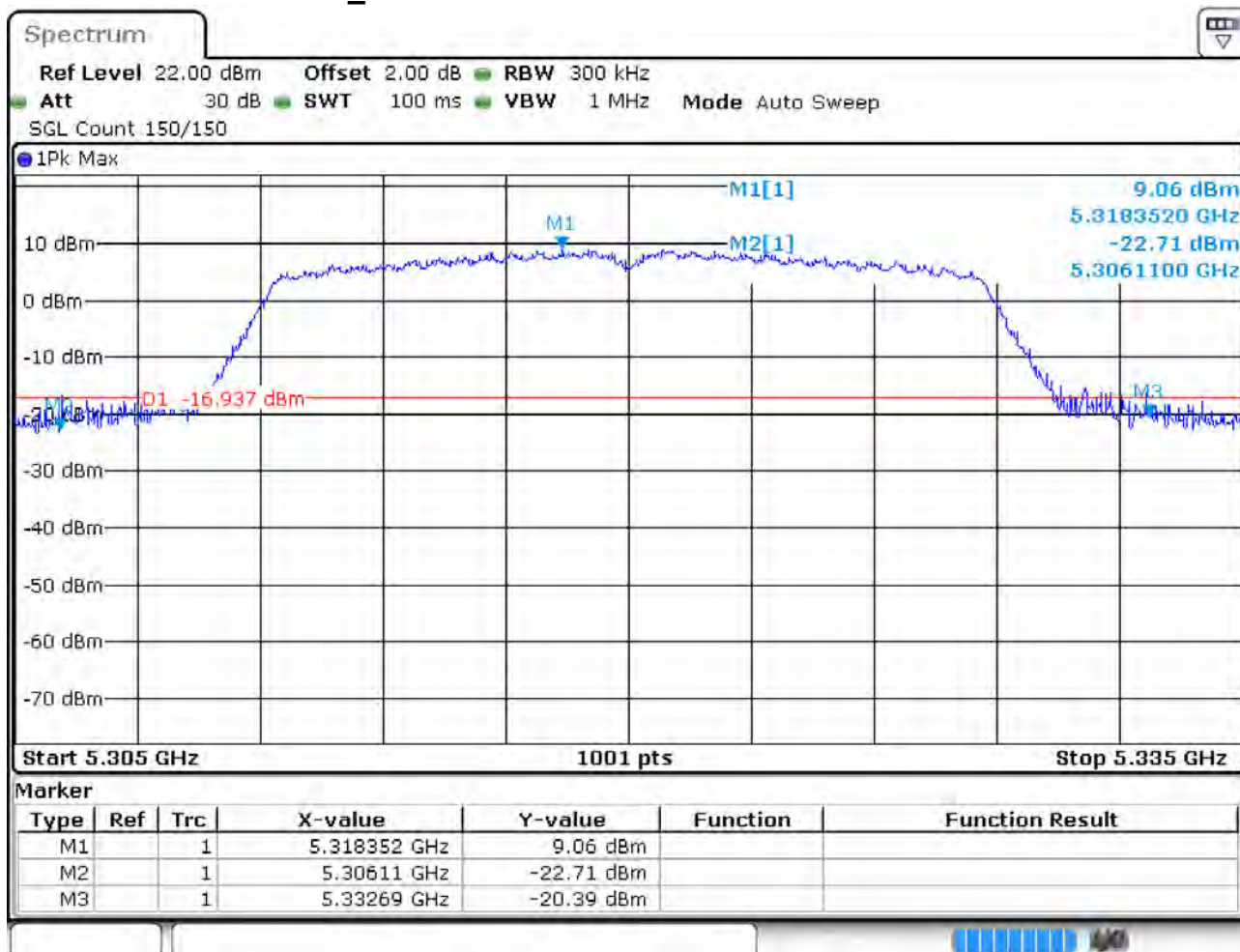
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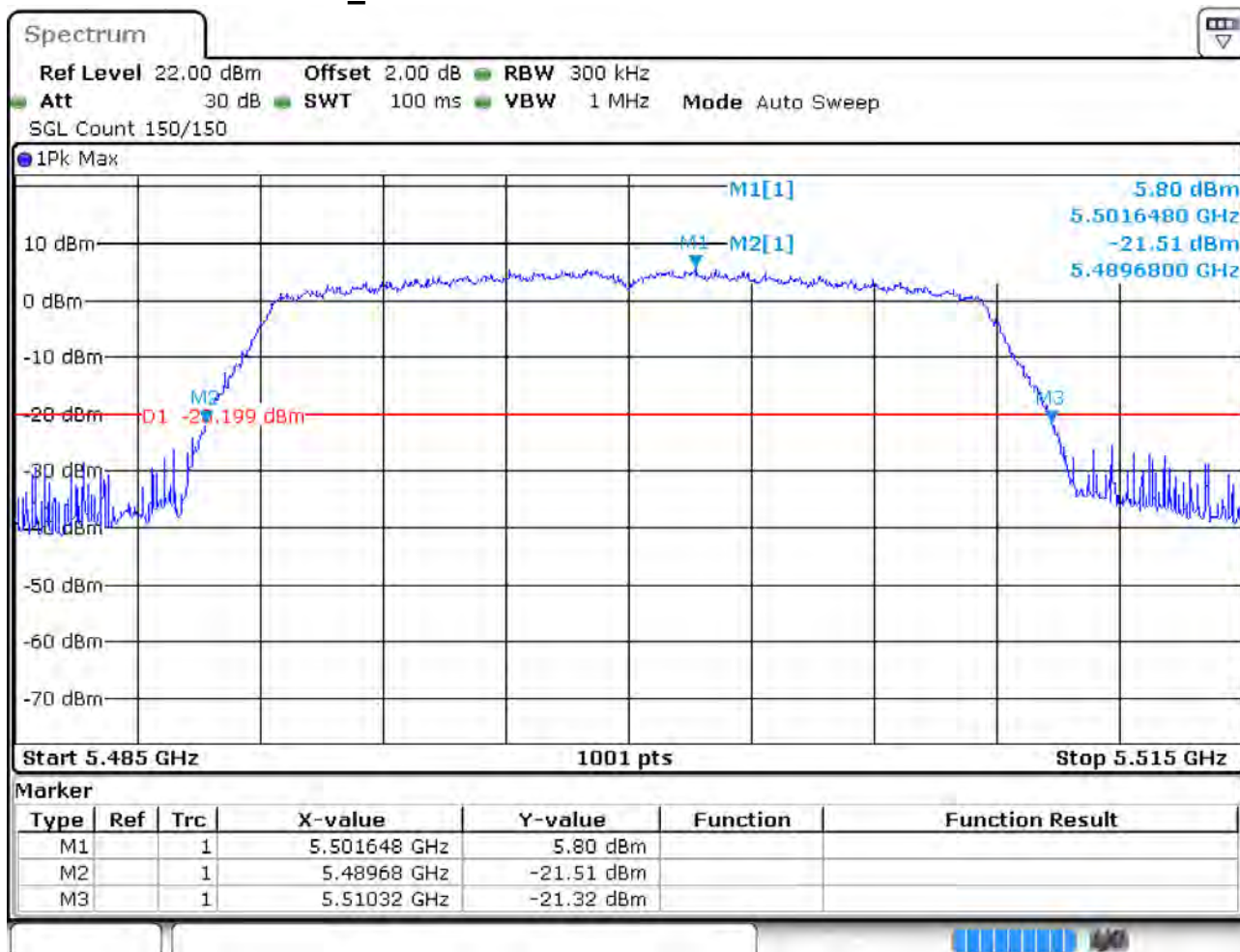
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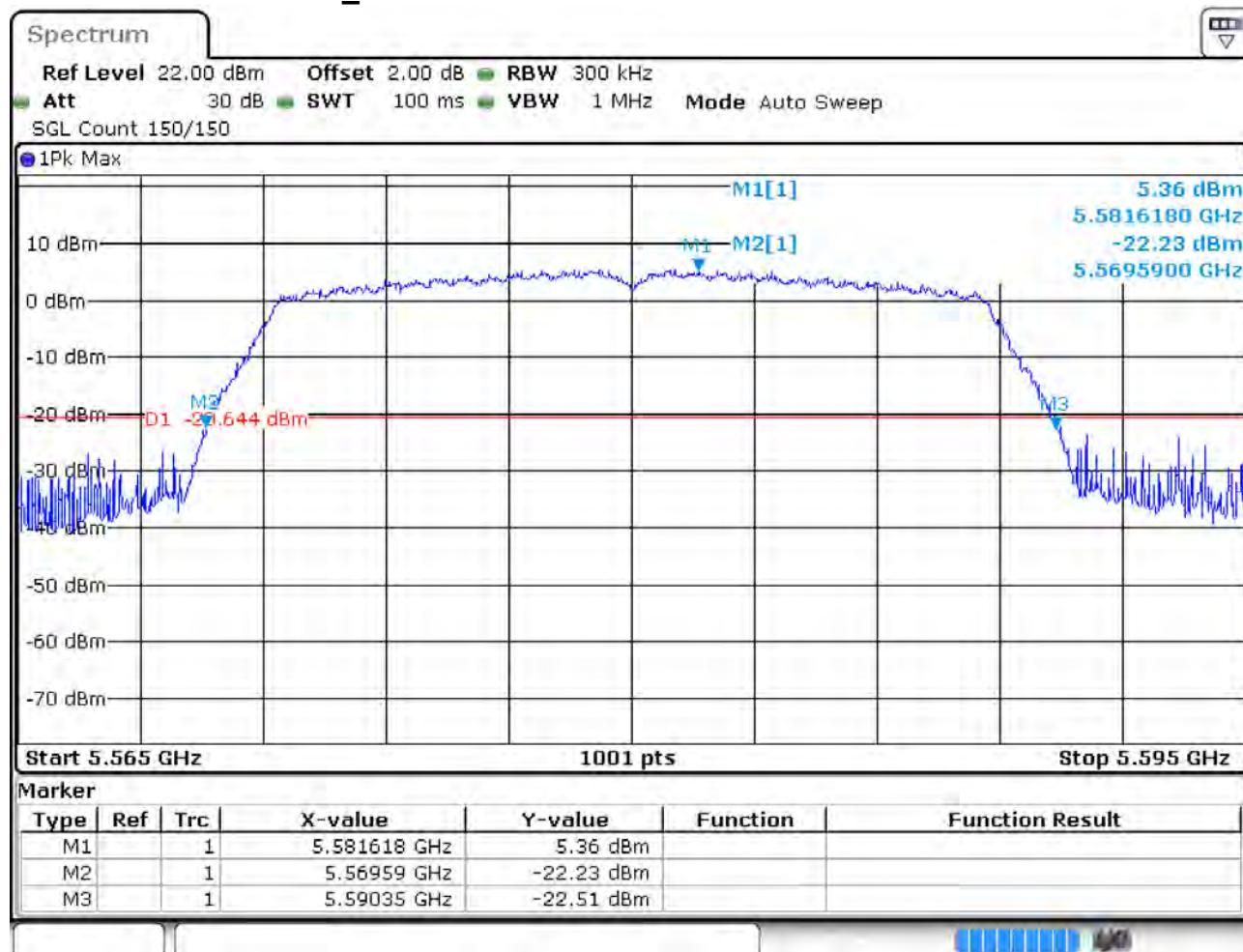
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Date: 18 SEP 2020 16:20:00



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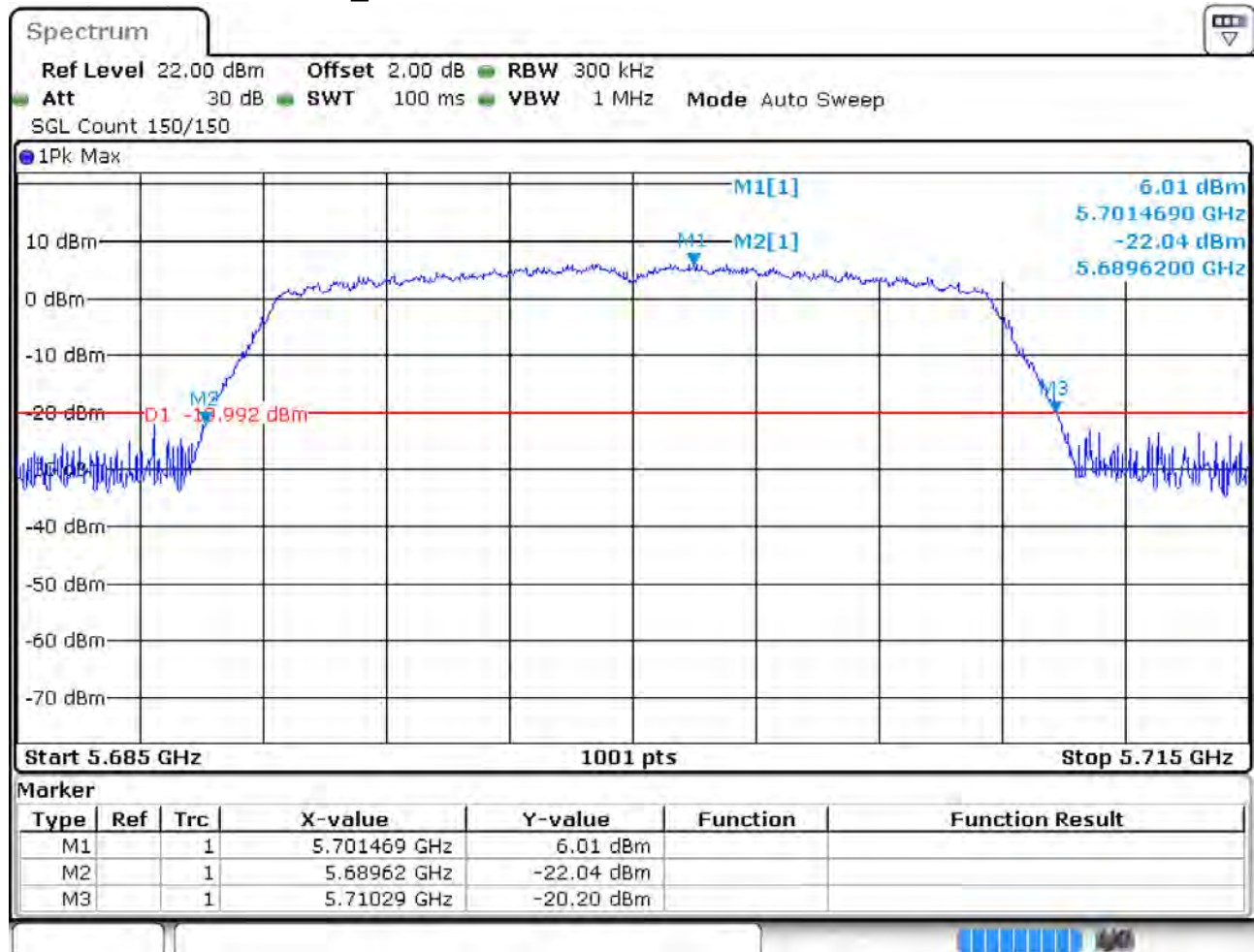


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Date: 18.SEP.2020 16:21:22

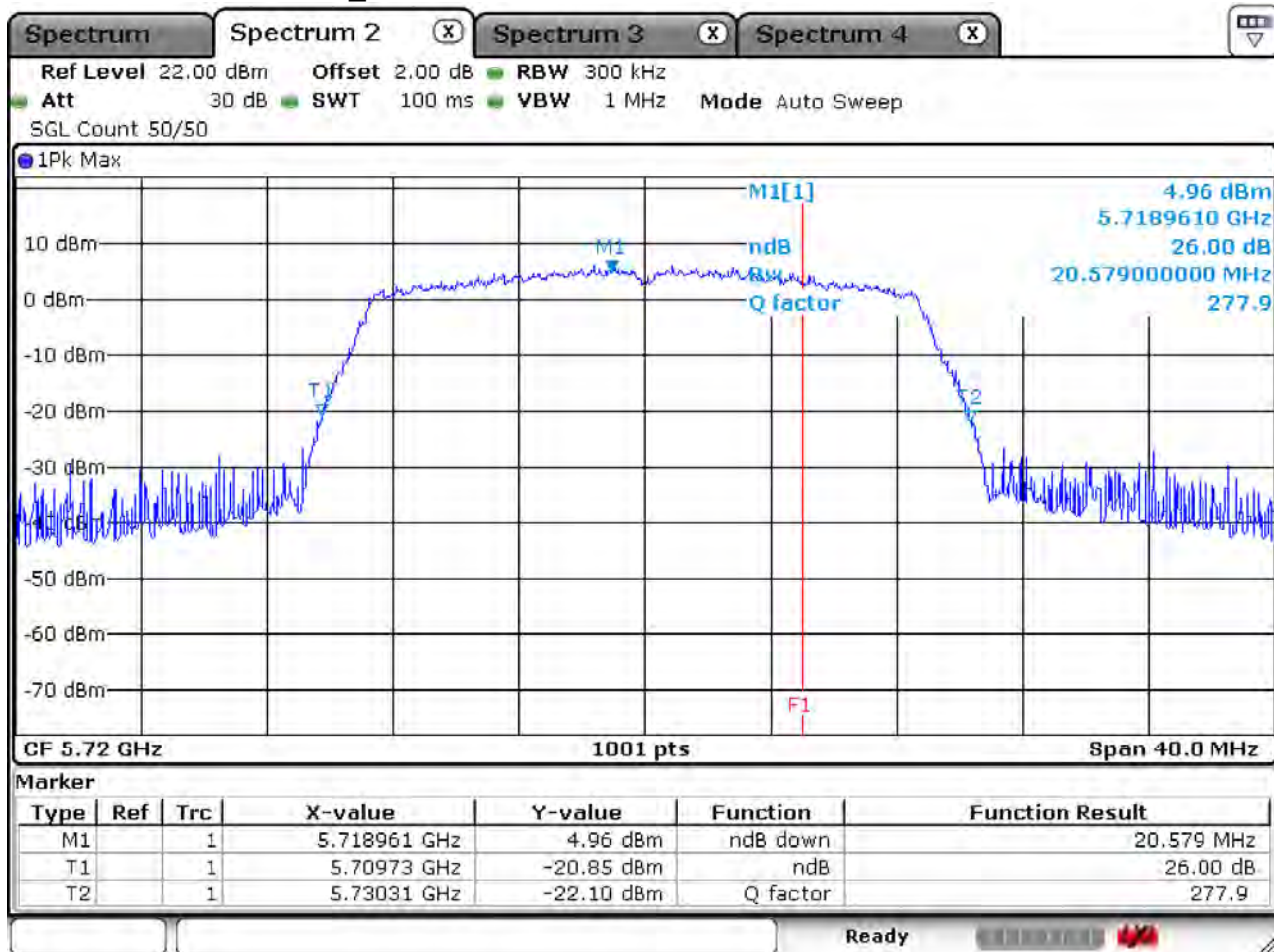


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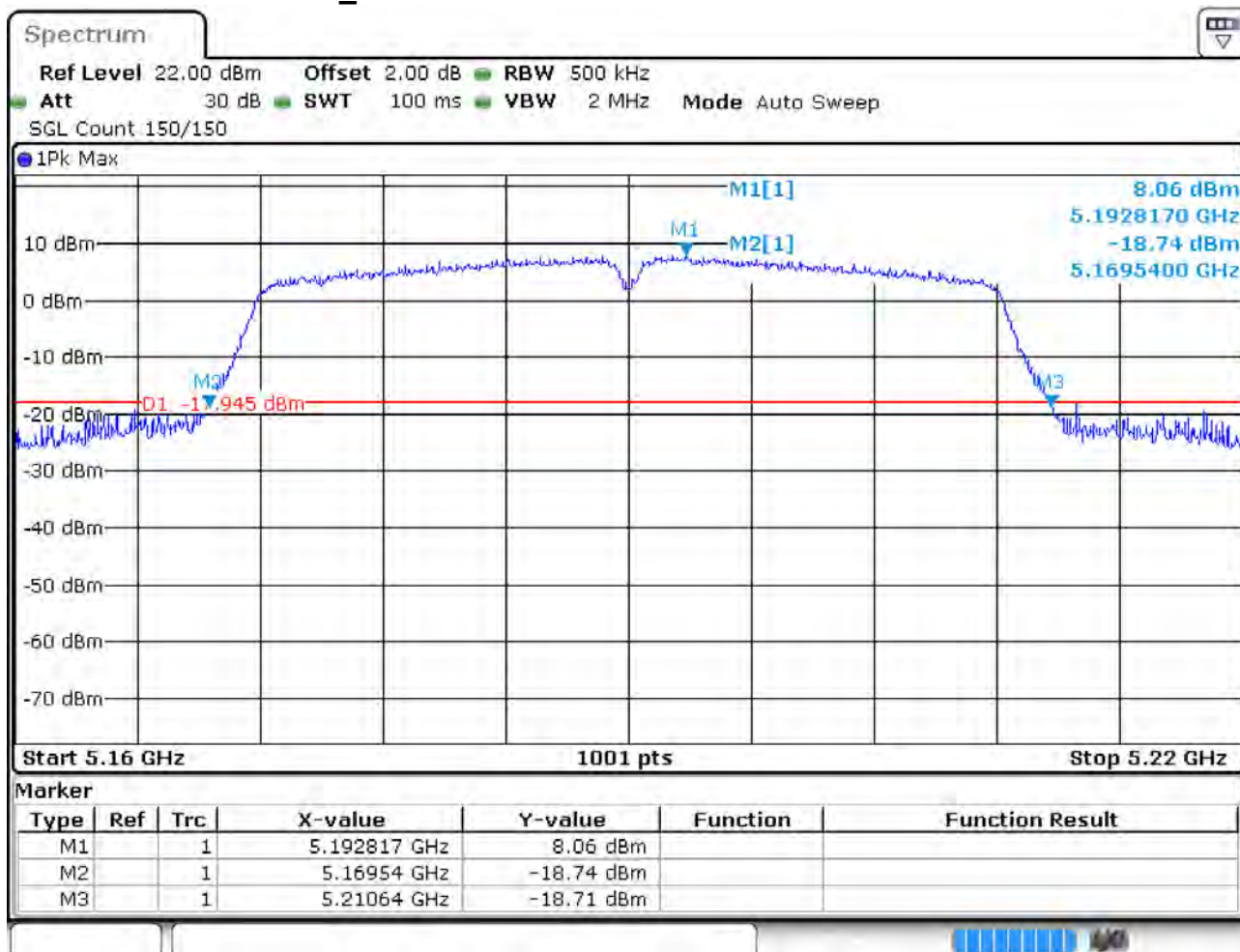
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Date: 21.OCT.2020 10:24:09



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Date: 18.SEP.2020 16:23:13

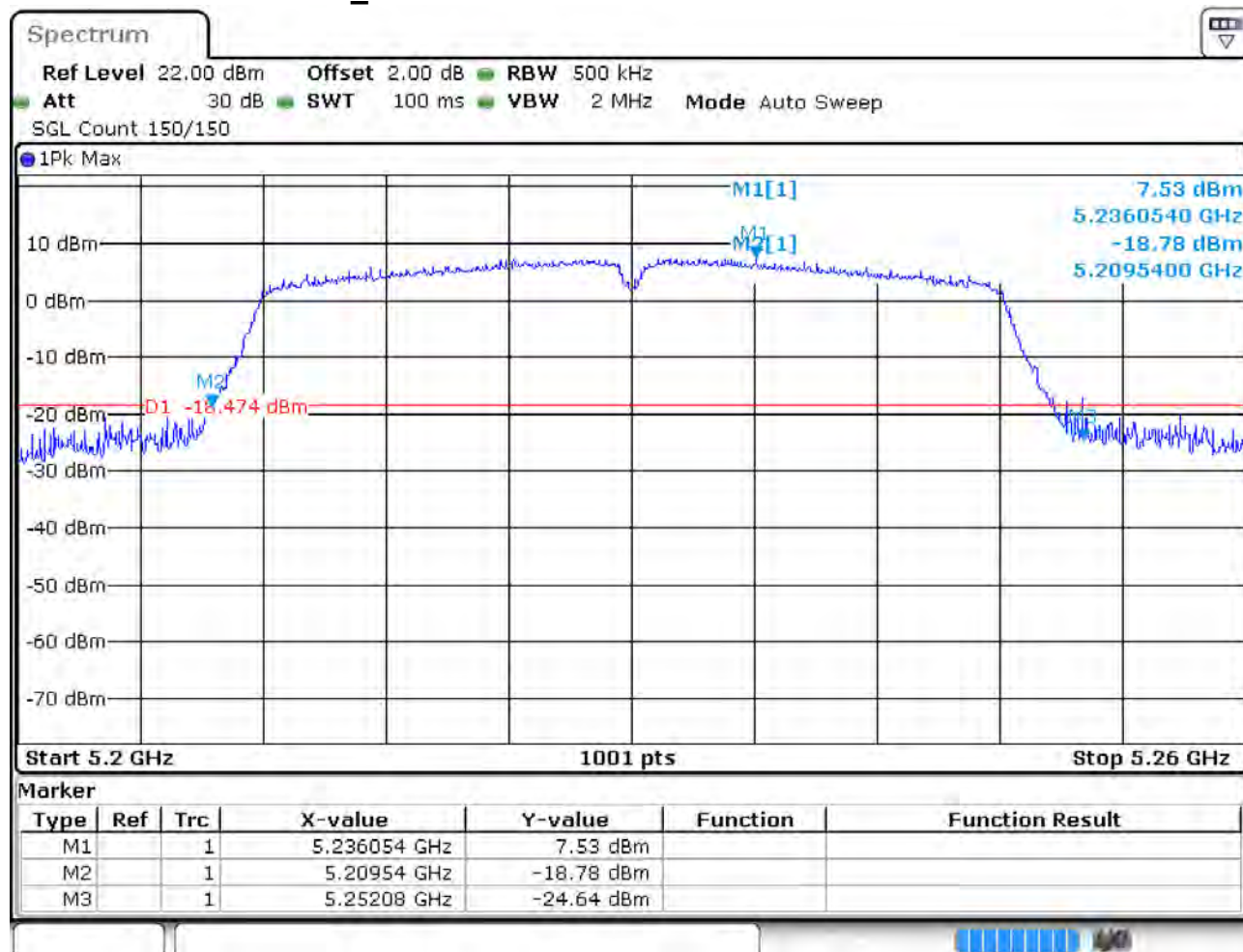


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Date: 18 SEP 2020 16:24:42

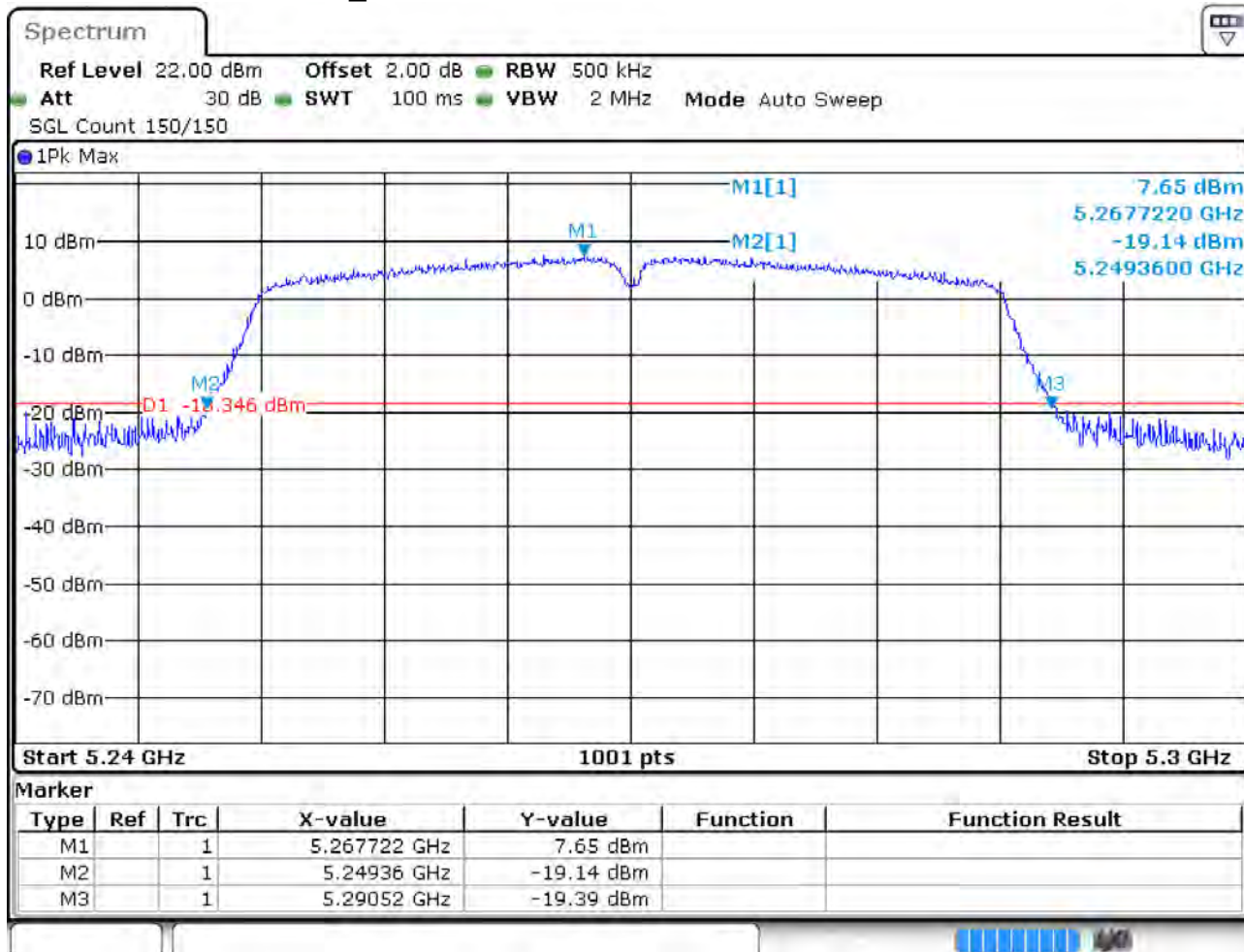


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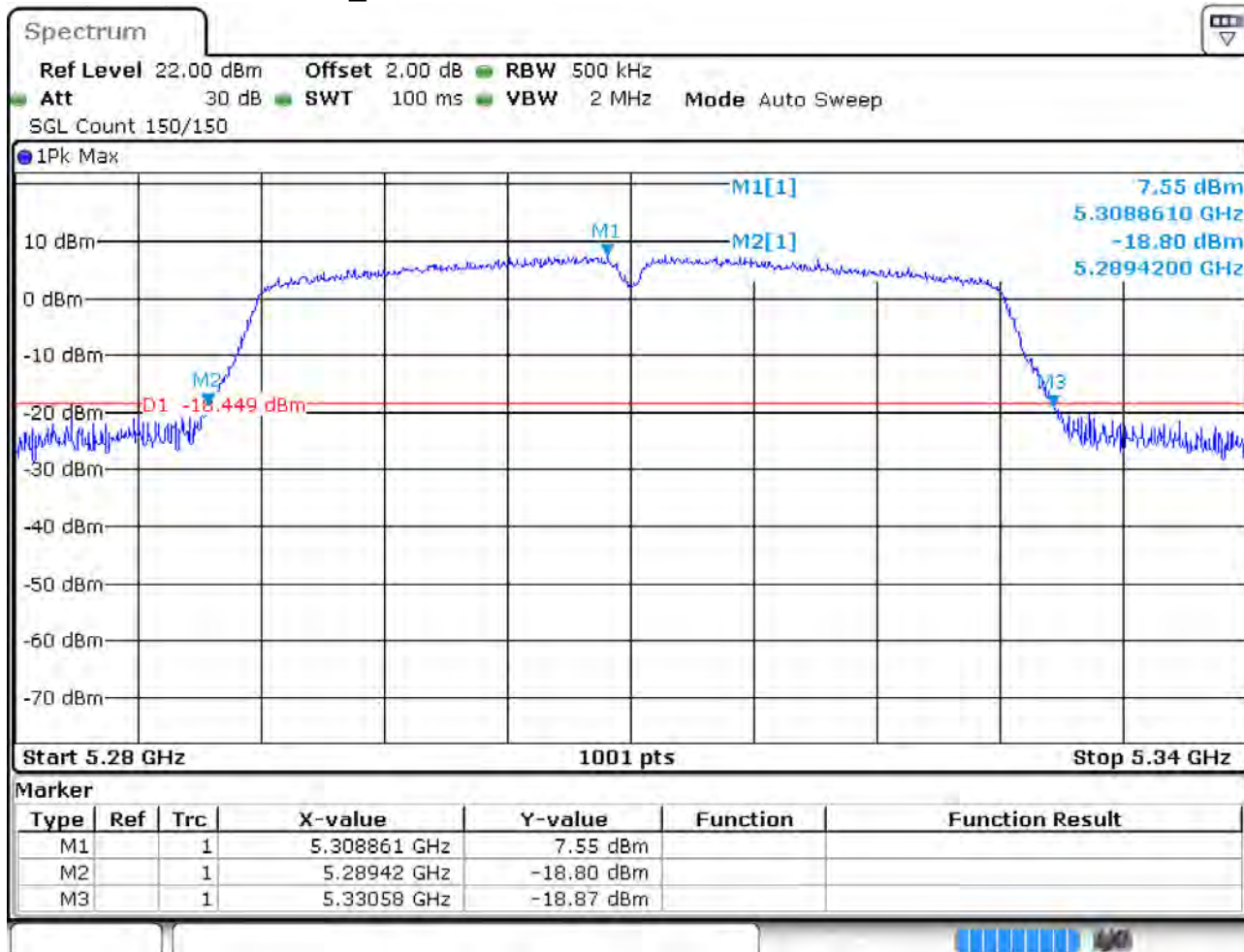
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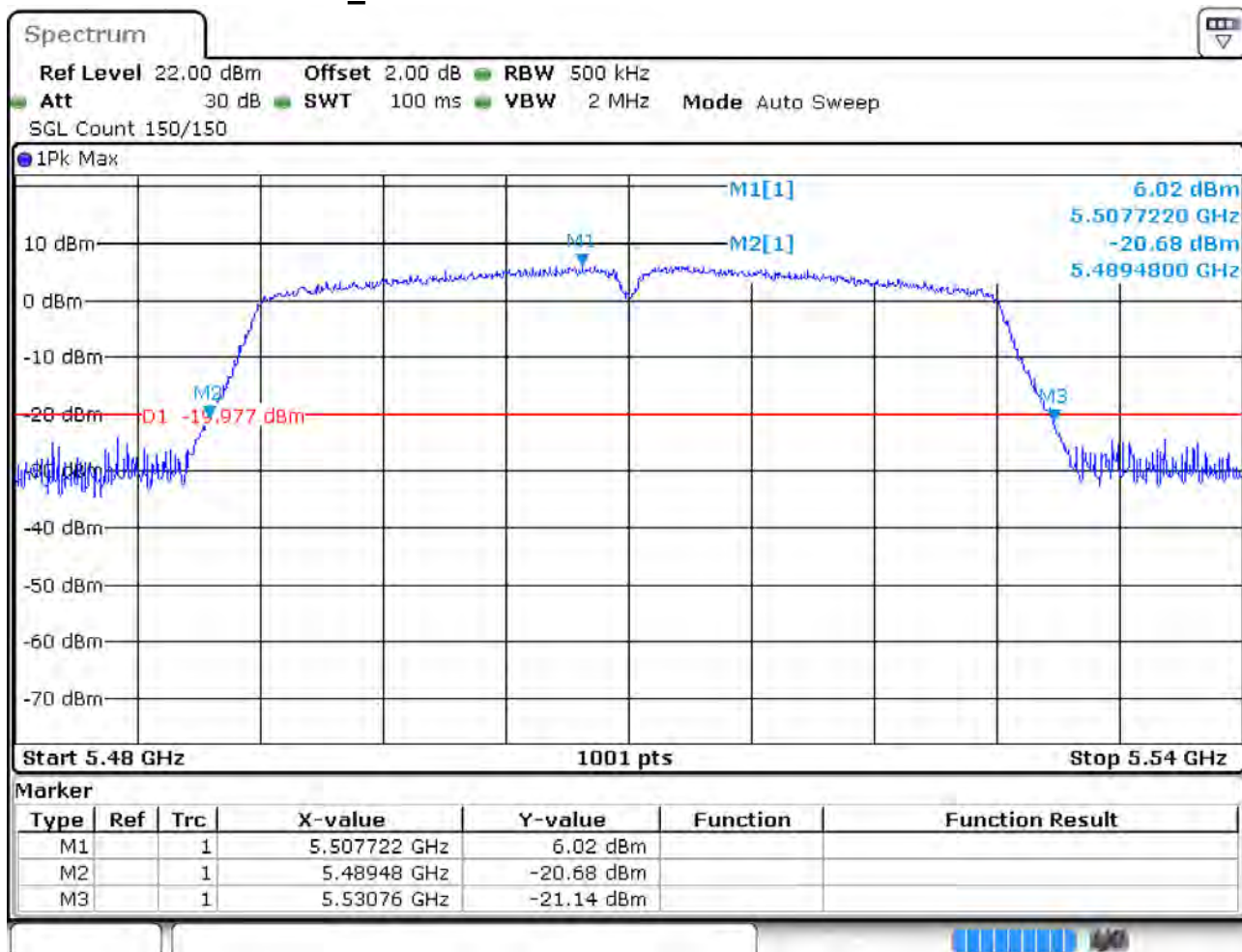
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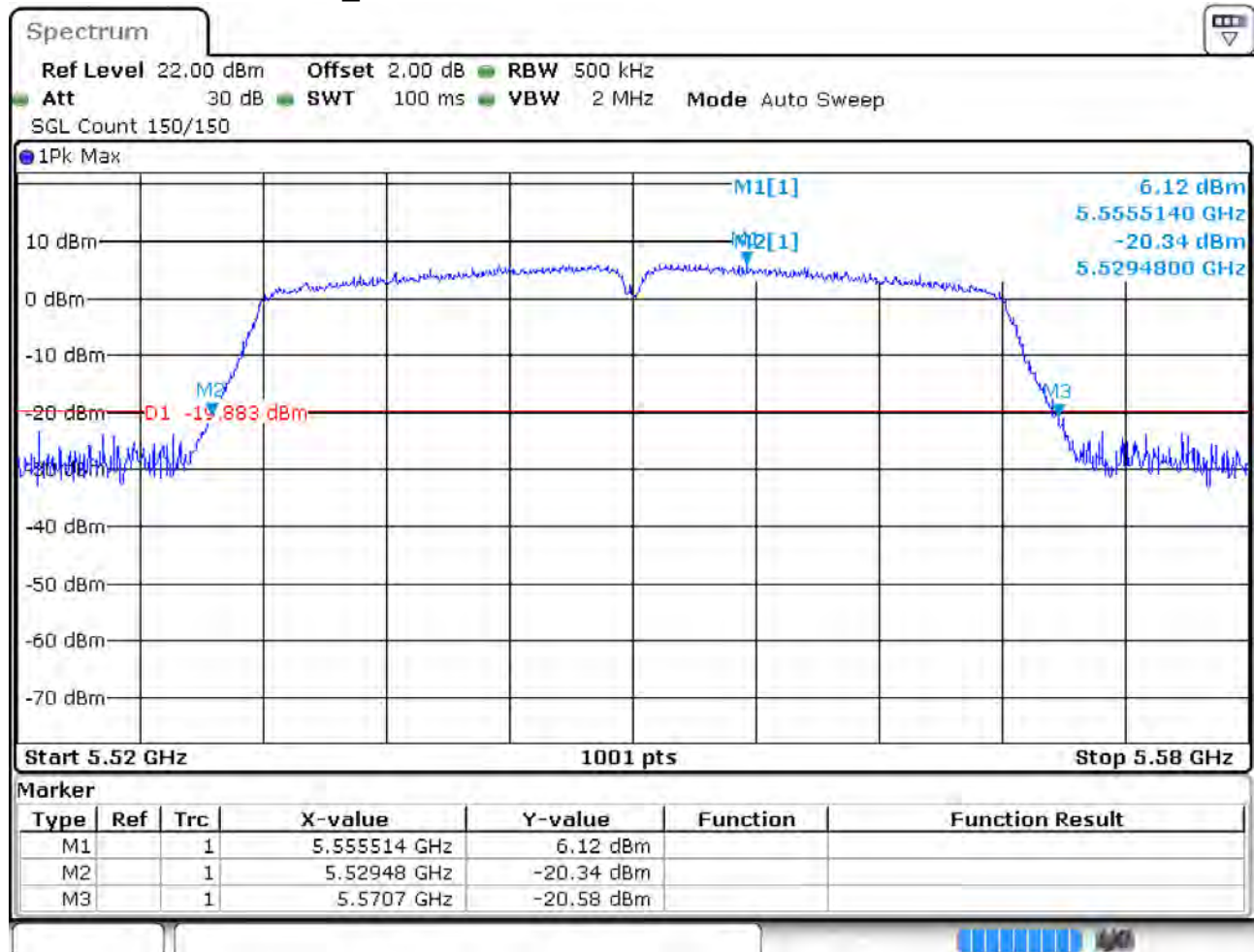


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Date: 18.SEP.2020 16:35:11

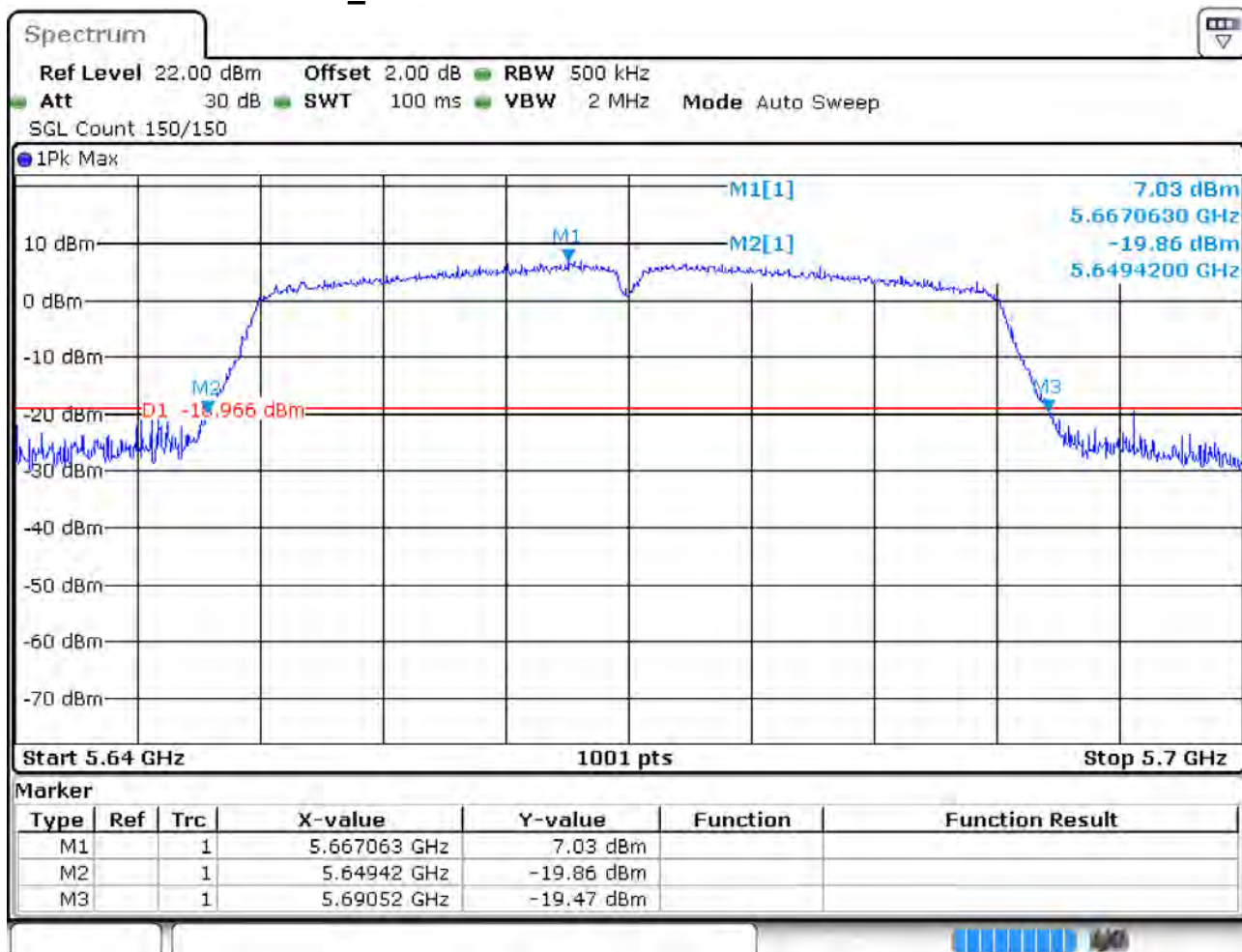


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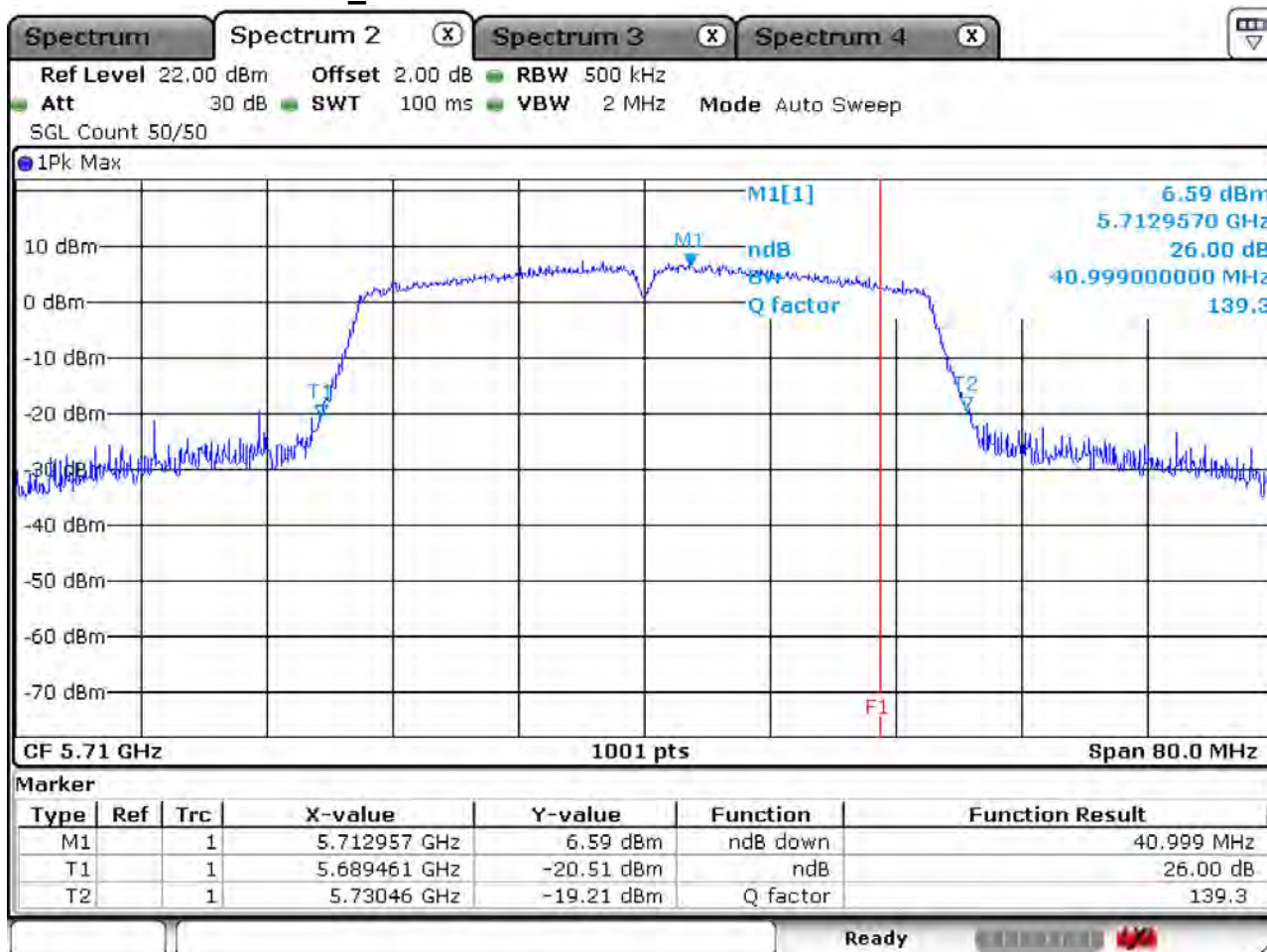
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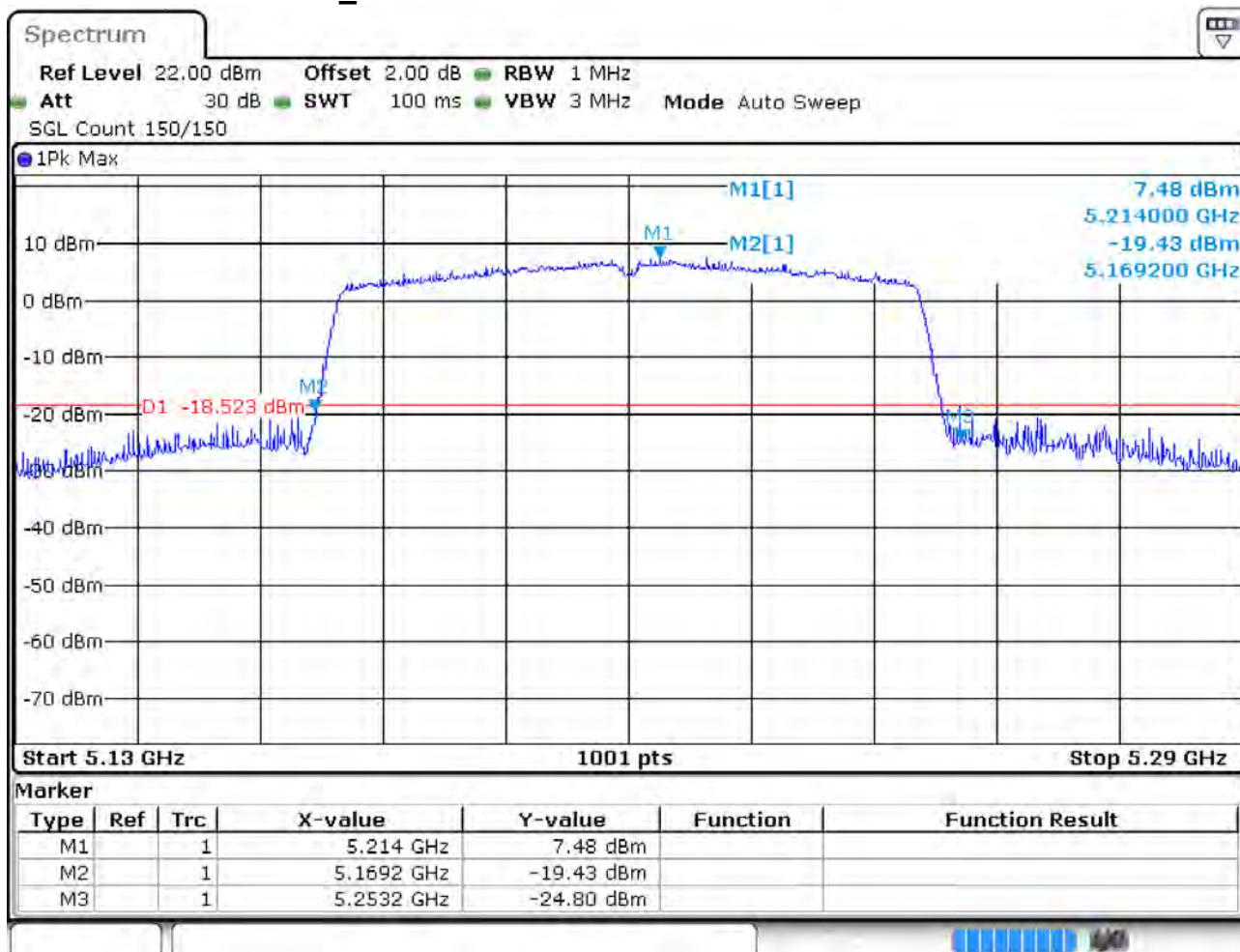
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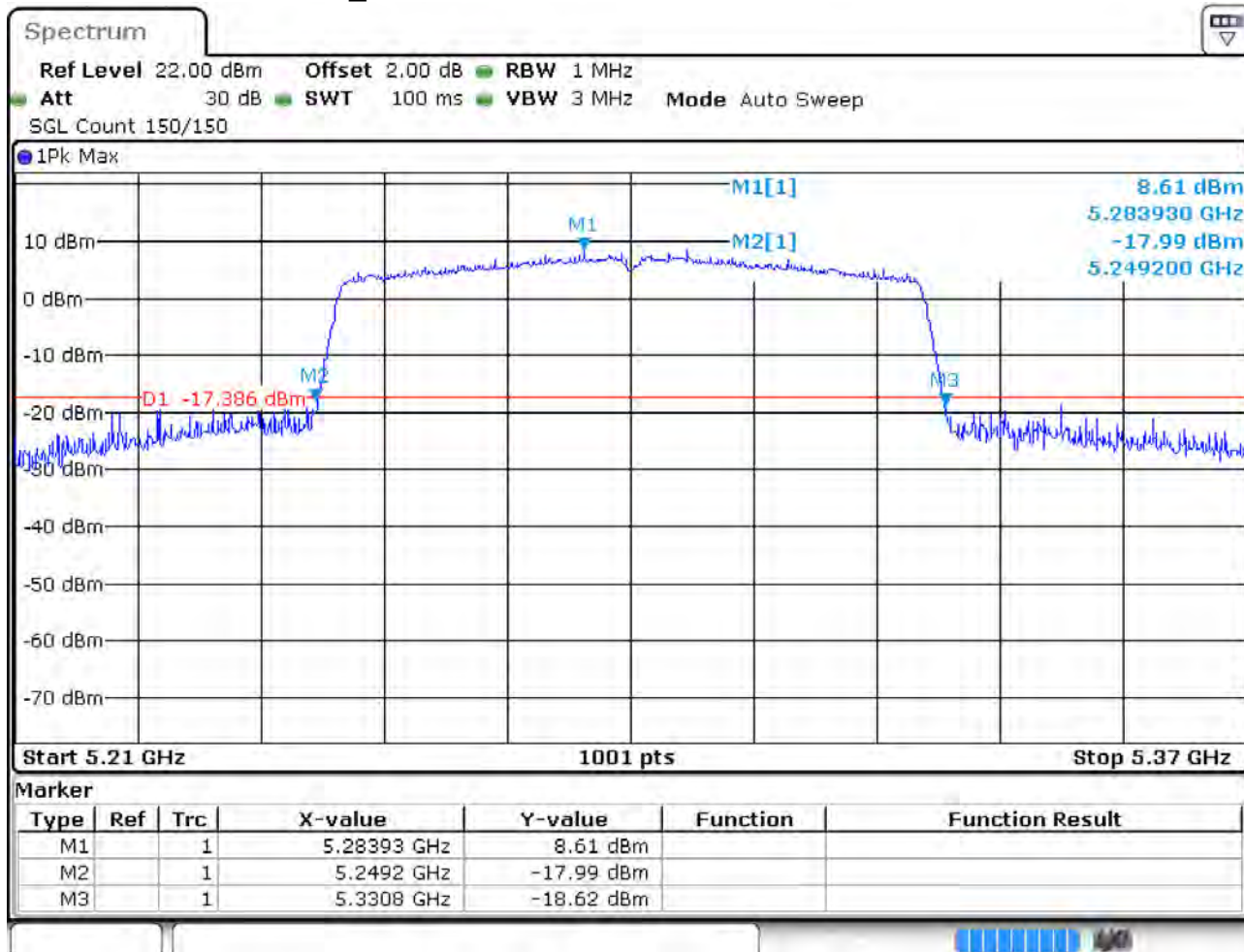
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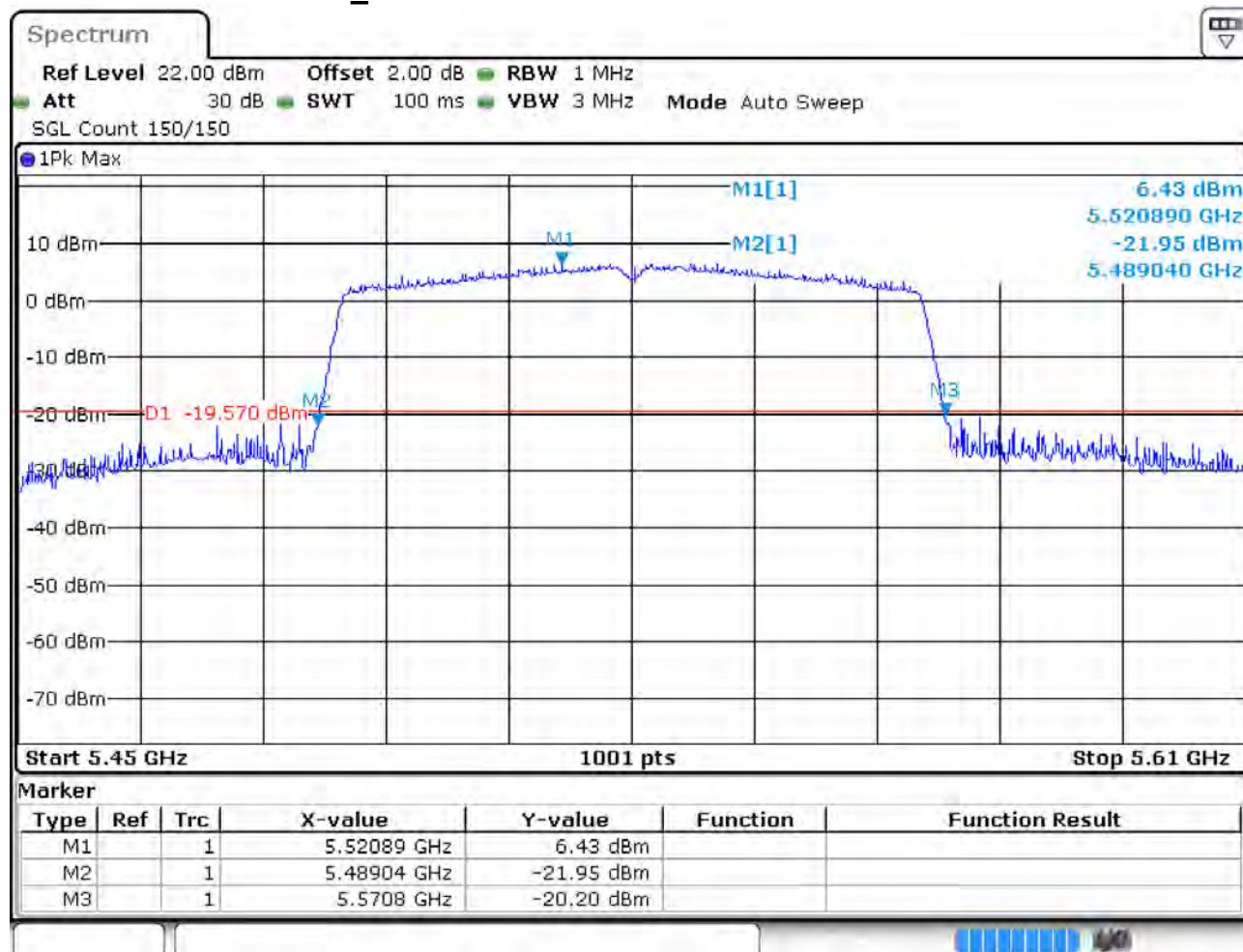
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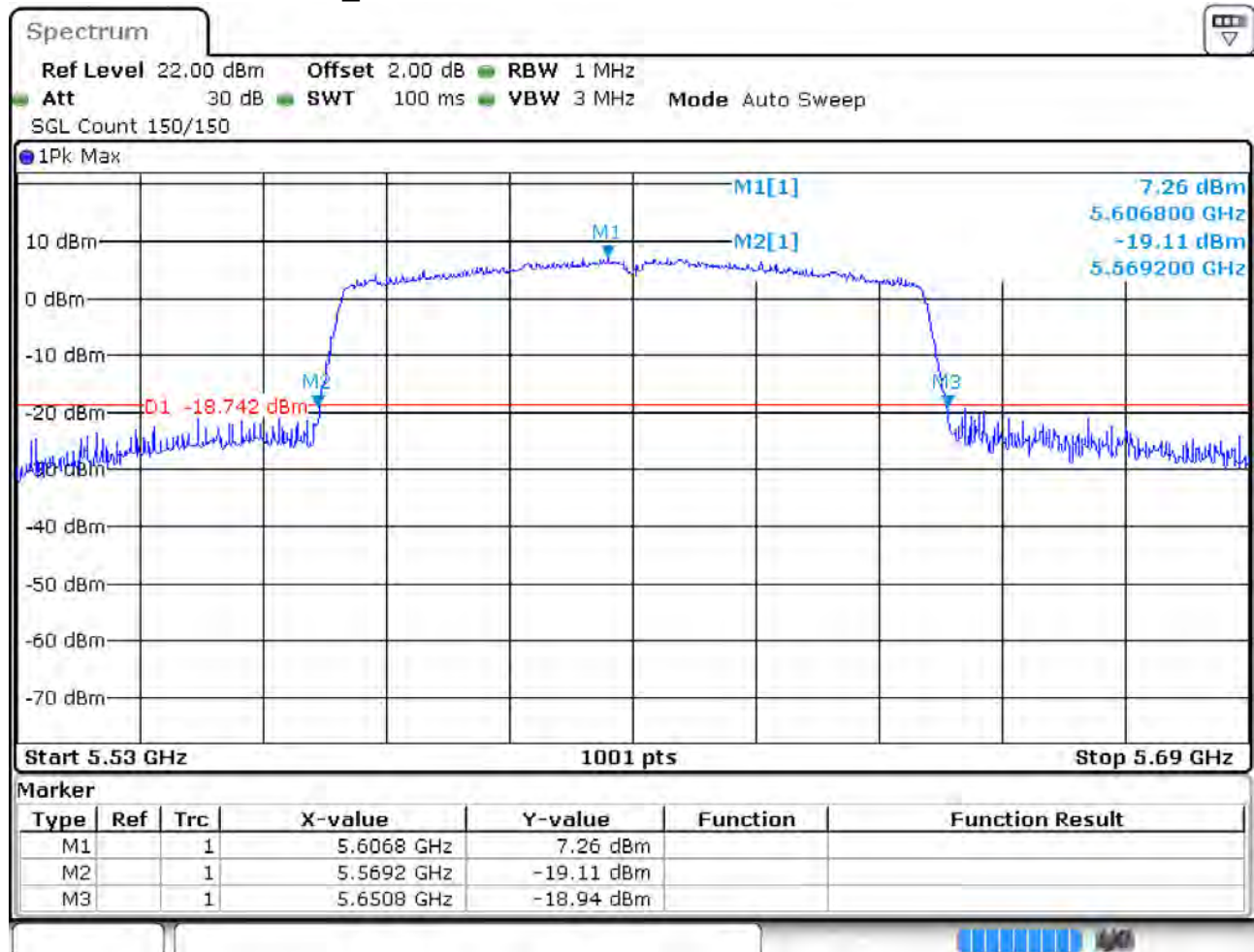
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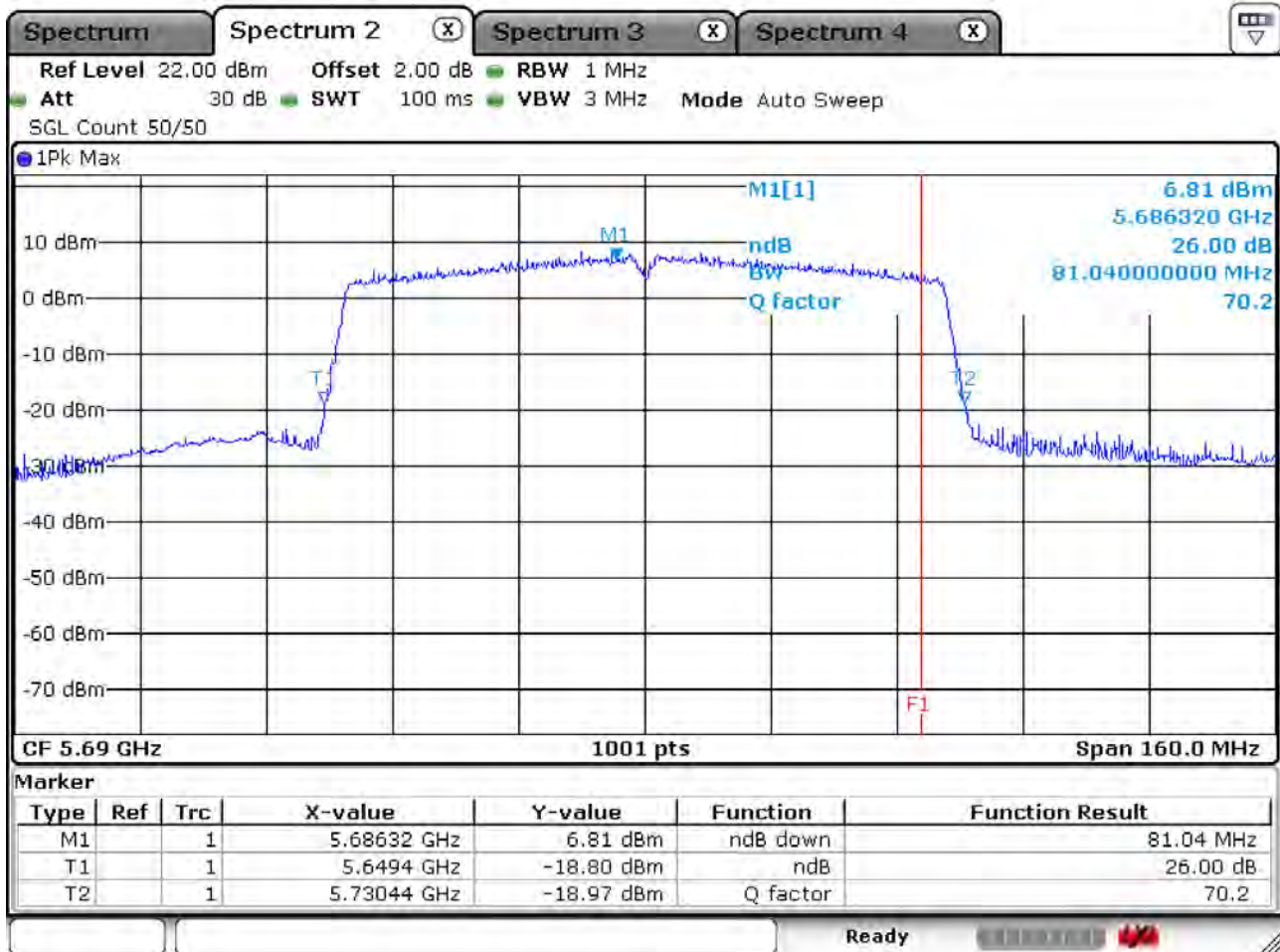
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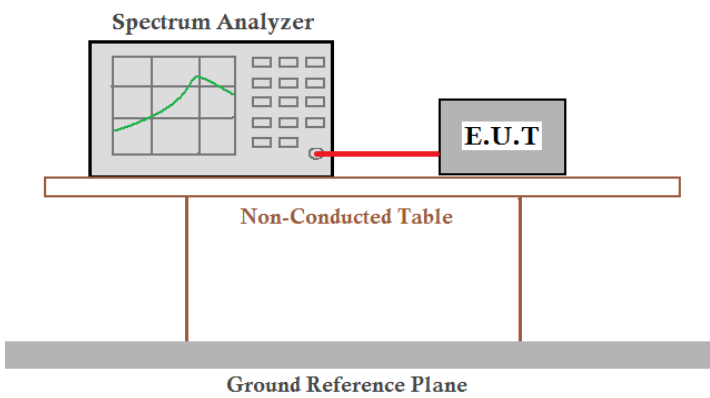


Date: 21.OCT.2020 10:36:54





## 4.6 6dB Emission Bandwidth

|                        |                                                                                                                                                                                                                                                                                                                                                                                                    |                 |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Test Requirement:      | 47 CFR Part 15 Section 15.407(e)                                                                                                                                                                                                                                                                                                                                                                   |                 |
| Test Method:           | ANSI C63.10: 2013                                                                                                                                                                                                                                                                                                                                                                                  |                 |
| Test Setup:            |                                                                                                                                                                                                                                                                                                                  |                 |
| Test Instruments:      | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                  |                 |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates                                                                                                                                                                                                                                                                                                                                              |                 |
| Final Test Mode:       | Through Pre-scan, find the<br>6Mbps of rate is the worst case of 802.11a;<br>MCS0 of rate is the worst case of 802.11n(HT20);<br>MCS0 of rate is the worst case of 802.11n(HT40);<br>MCS0 of rate is the worst case of 802.11ac(HT20);<br>MCS0 of rate is the worst case of 802.11ac(HT40);<br>MCS0 of rate is the worst case of 802.11ac(HT80).<br>Only the worst case is recorded in the report. |                 |
| Limit:                 | Frequency Band                                                                                                                                                                                                                                                                                                                                                                                     | Limit           |
|                        | 5725-5850MHz                                                                                                                                                                                                                                                                                                                                                                                       | At least 500kHz |
| Test Results:          | Pass                                                                                                                                                                                                                                                                                                                                                                                               |                 |



#### 4.6.1 Test Results for 6dB Emission Bandwidth

| Test Mode | Test Channel | Frequency [MHz] | ANT   | 6dB Emission Bandwidth [MHz] | Verdict |
|-----------|--------------|-----------------|-------|------------------------------|---------|
| 11A20     | 144          | 5720            | ANT 1 | 15.15                        | PASS    |
|           | 149          | 5745            | ANT 1 | 15.18                        | PASS    |
|           | 165          | 5825            | ANT 1 | 15.18                        | PASS    |
| 11N20     | 144          | 5720            | ANT 1 | 15.11                        | PASS    |
|           | 149          | 5745            | ANT 1 | 15.51                        | PASS    |
|           | 165          | 5825            | ANT 1 | 15.48                        | PASS    |
| 11N40     | 142          | 5710            | ANT 1 | 35.13                        | PASS    |
|           | 151          | 5755            | ANT 1 | 35.28                        | PASS    |
|           | 159          | 5795            | ANT 1 | 35.28                        | PASS    |
| 11AC20    | 144          | 5720            | ANT 1 | 15.15                        | PASS    |
|           | 149          | 5745            | ANT 1 | 15.36                        | PASS    |
|           | 165          | 5825            | ANT 1 | 15.18                        | PASS    |
| 11AC40    | 142          | 5710            | ANT 1 | 35.13                        | PASS    |
|           | 151          | 5755            | ANT 1 | 35.28                        | PASS    |
|           | 159          | 5795            | ANT 1 | 35.64                        | PASS    |
| 11AC80    | 138          | 5690            | ANT 1 | 75.28                        | PASS    |
|           | 155          | 5775            | ANT 1 | 75.52                        | PASS    |

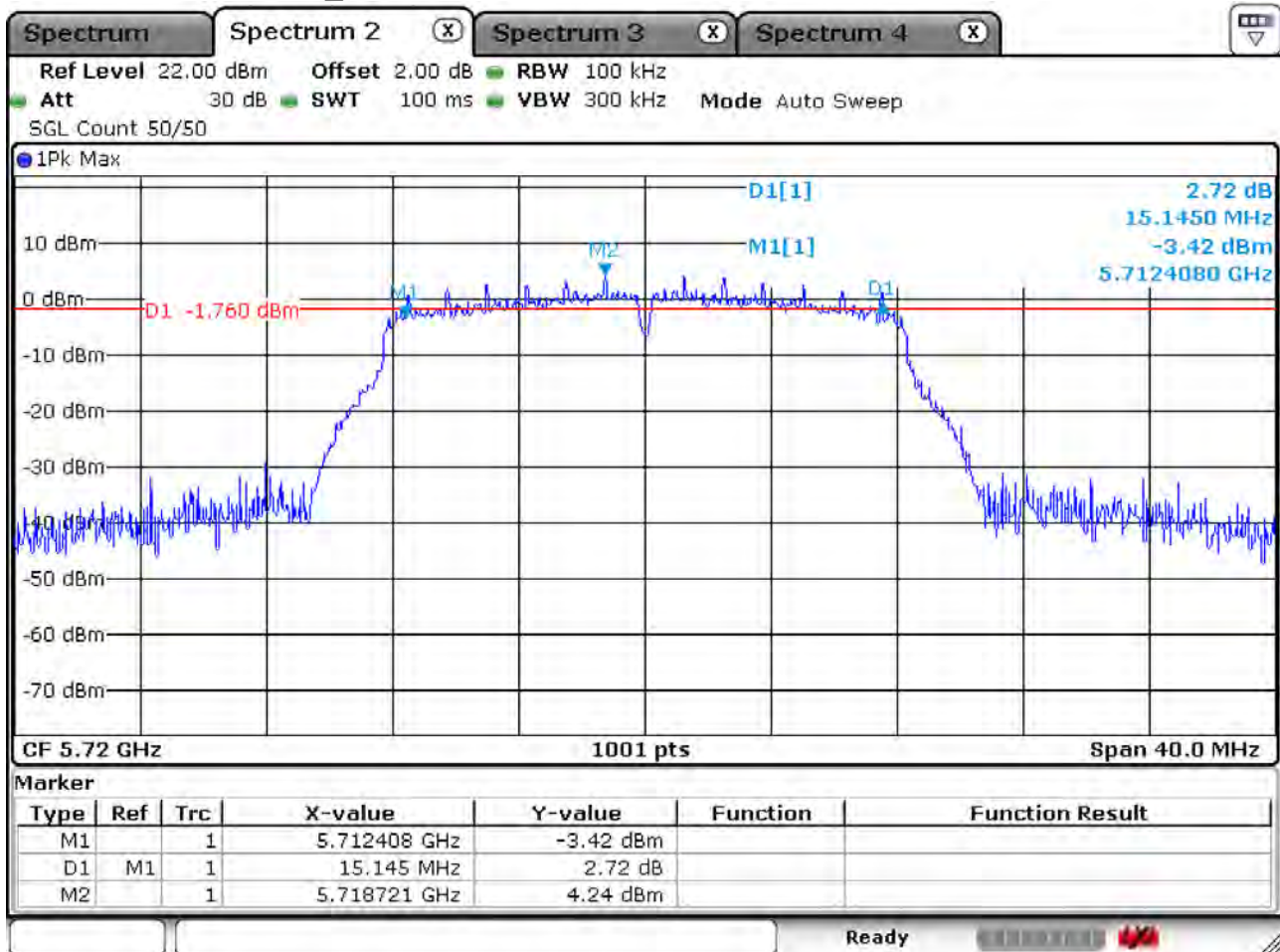


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## 4.6.2 Plots for 6dB Emission Bandwidth

### 4.6.2.1 11A20\_144 ANT 1



Date: 21.OCT.2020 10:30:44

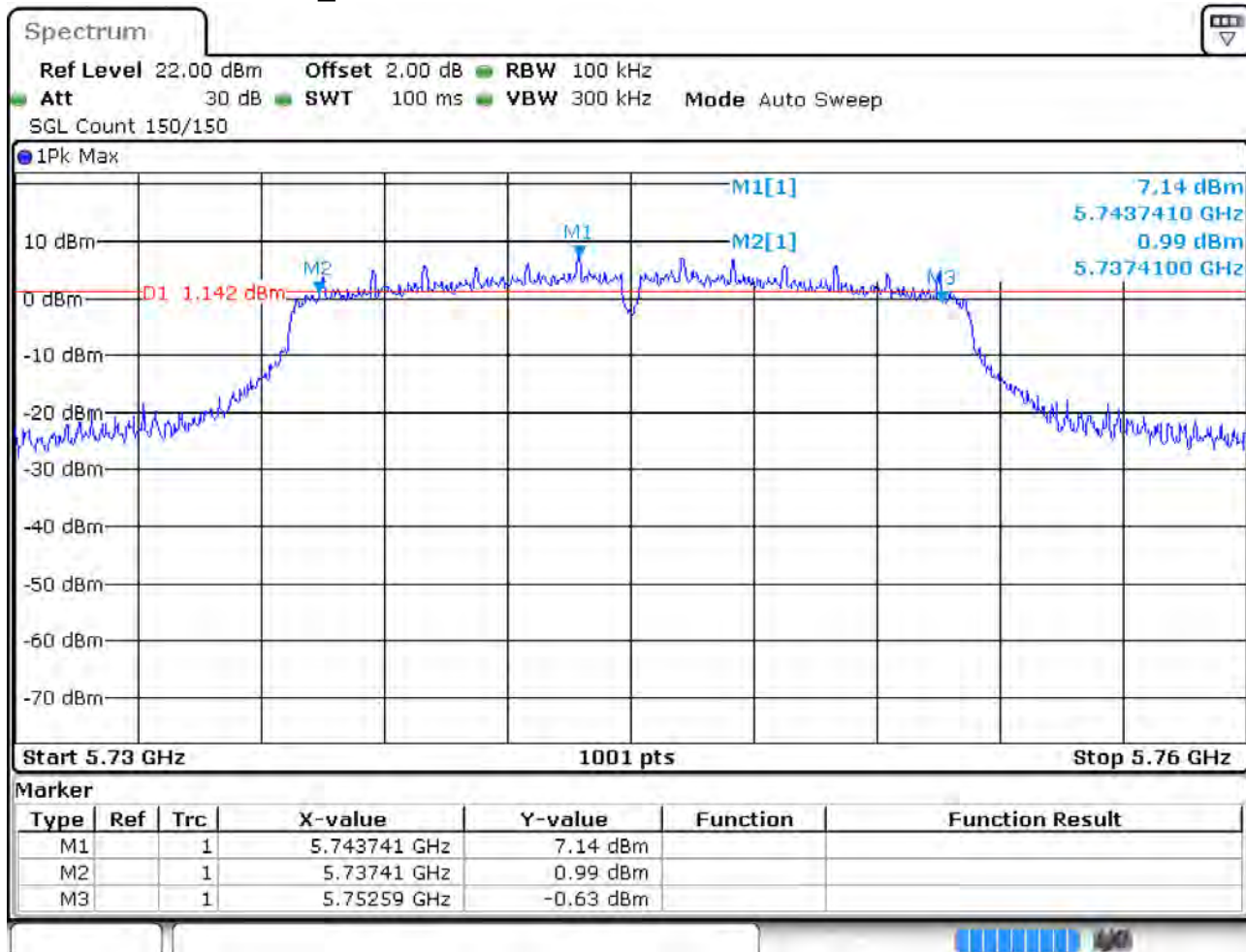


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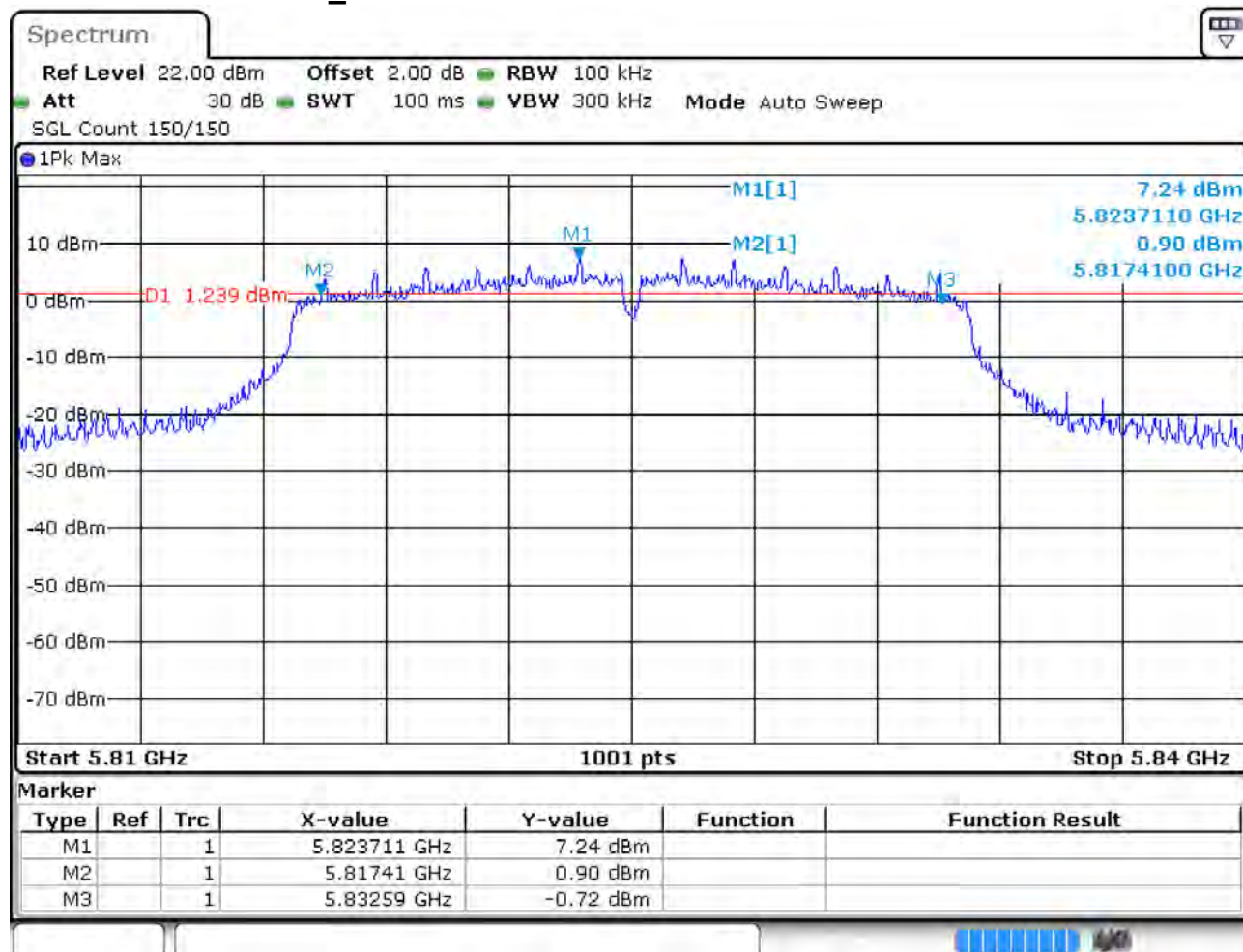
#### 4.6.2.2 11A20\_149 ANT 1



Date: 18.SEP.2020 10:55:38



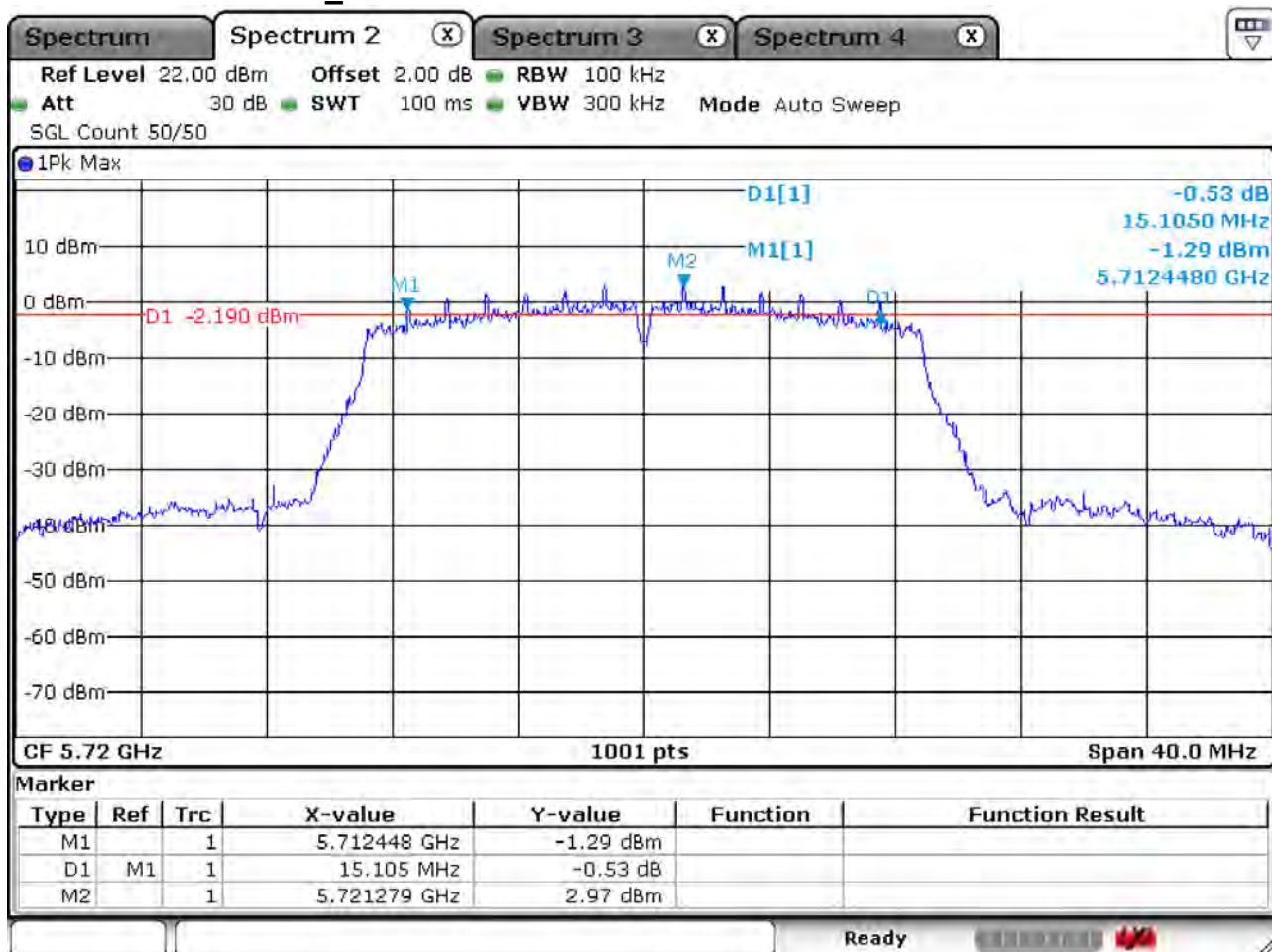
### 4.6.2.3 11A20\_165 ANT 1



Date: 18 SEP 2020 10:59:00



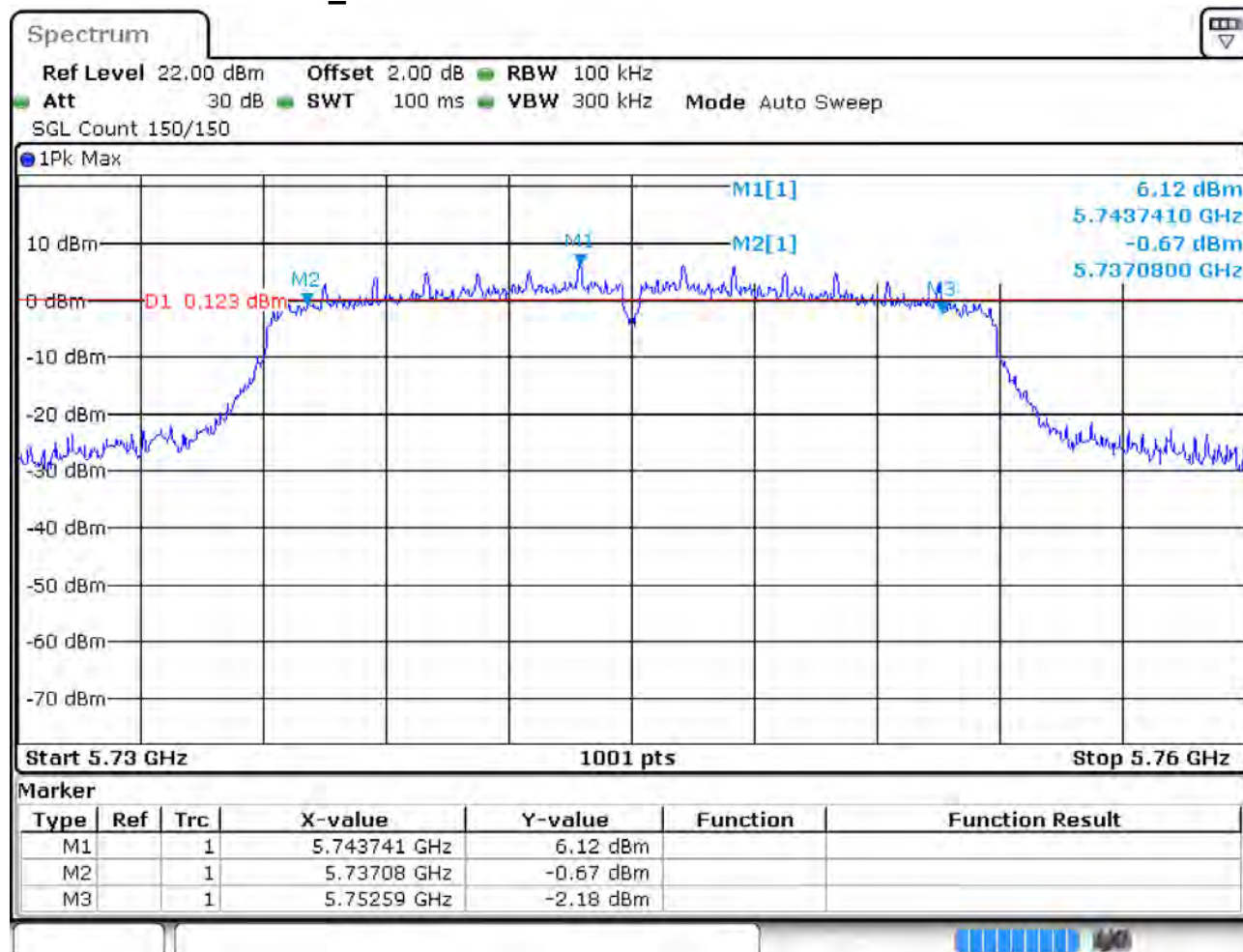
#### 4.6.2.4 11N20\_144 ANT 1



Date: 21.OCT.2020 10:29:27



#### 4.6.2.5 11N20\_149 ANT 1



Date: 18.SEP.2020 11:25:13

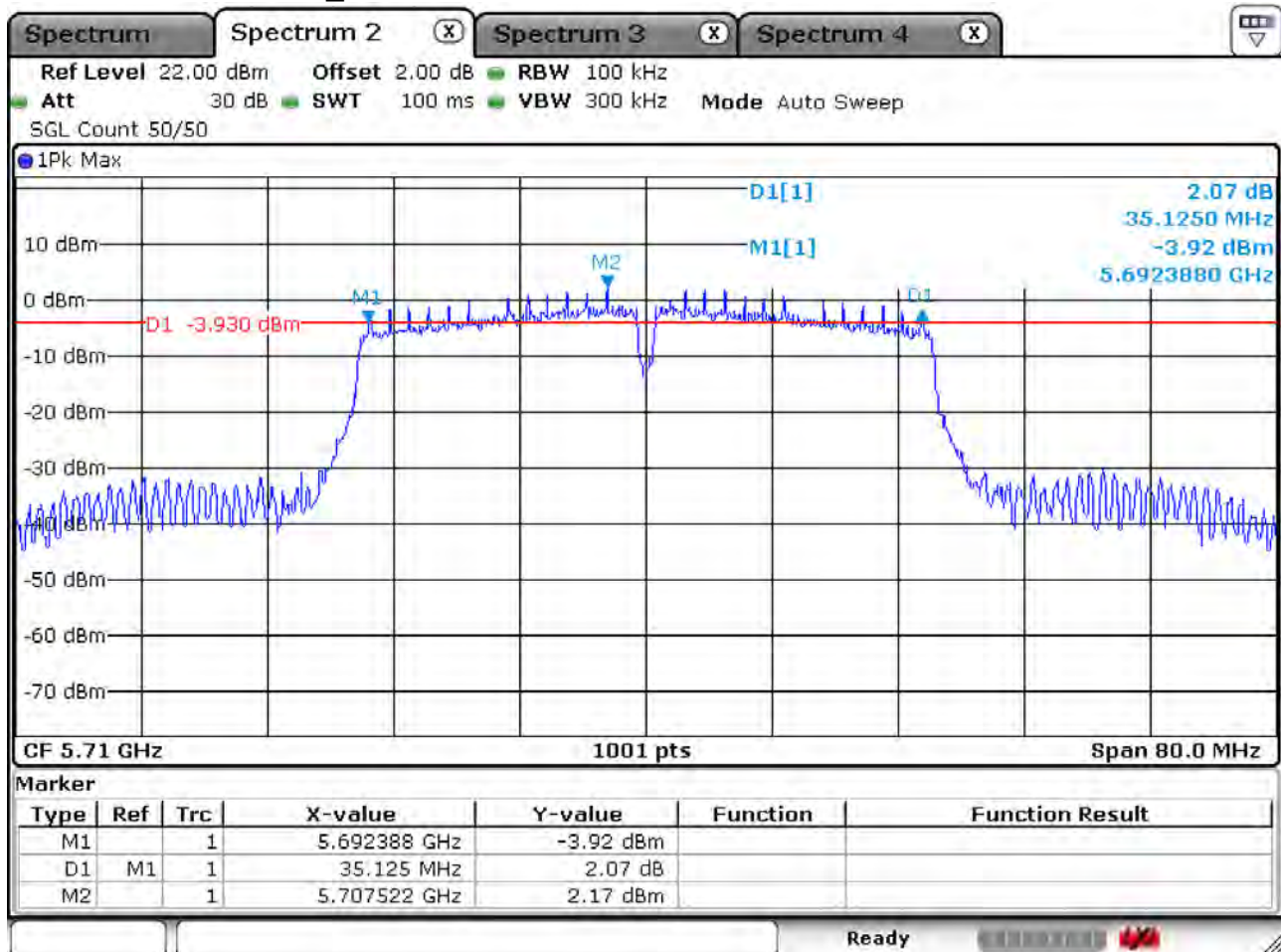


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#### 4.6.2.6 11N40\_142 ANT 1



Date: 21.OCT.2020 10:35:29

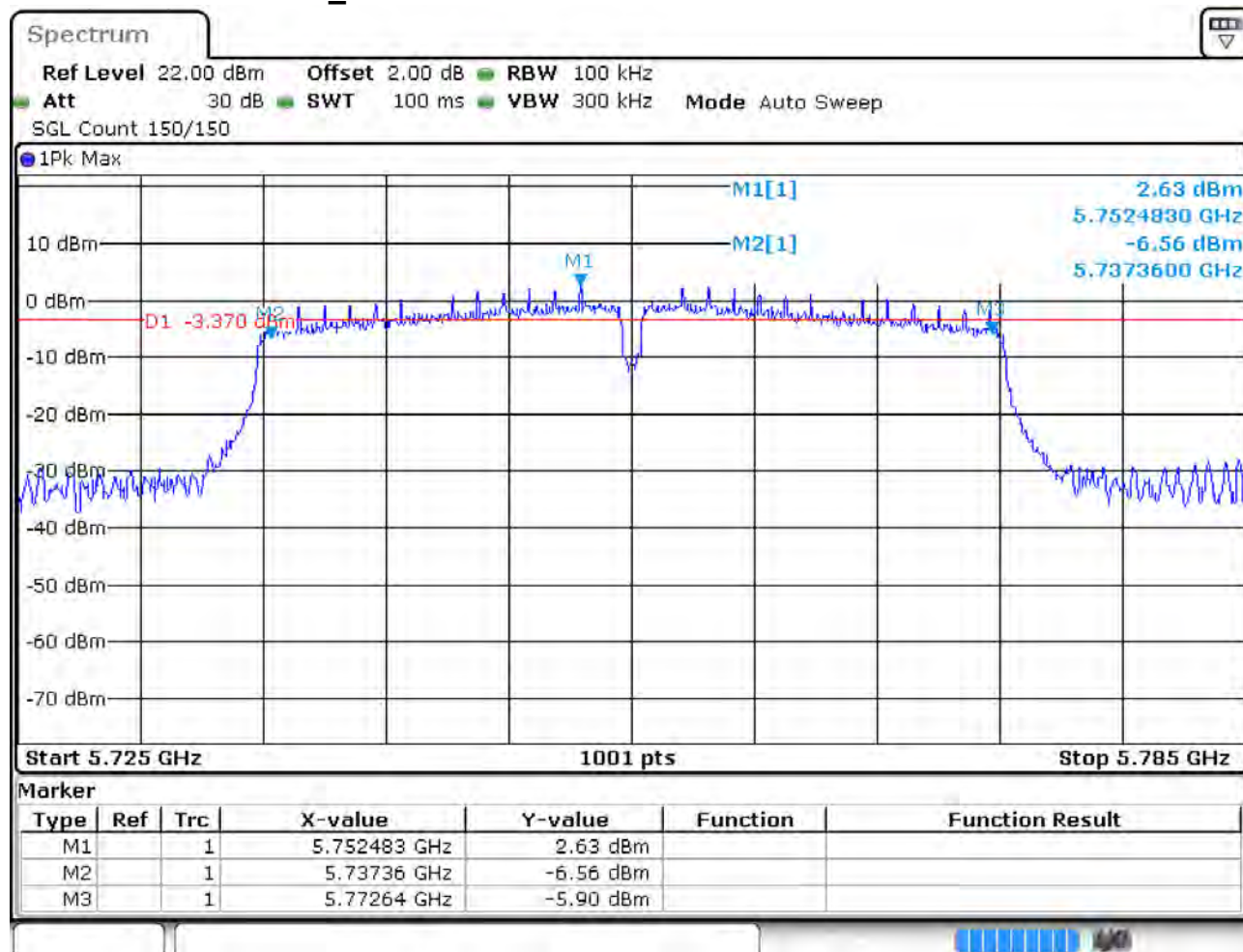


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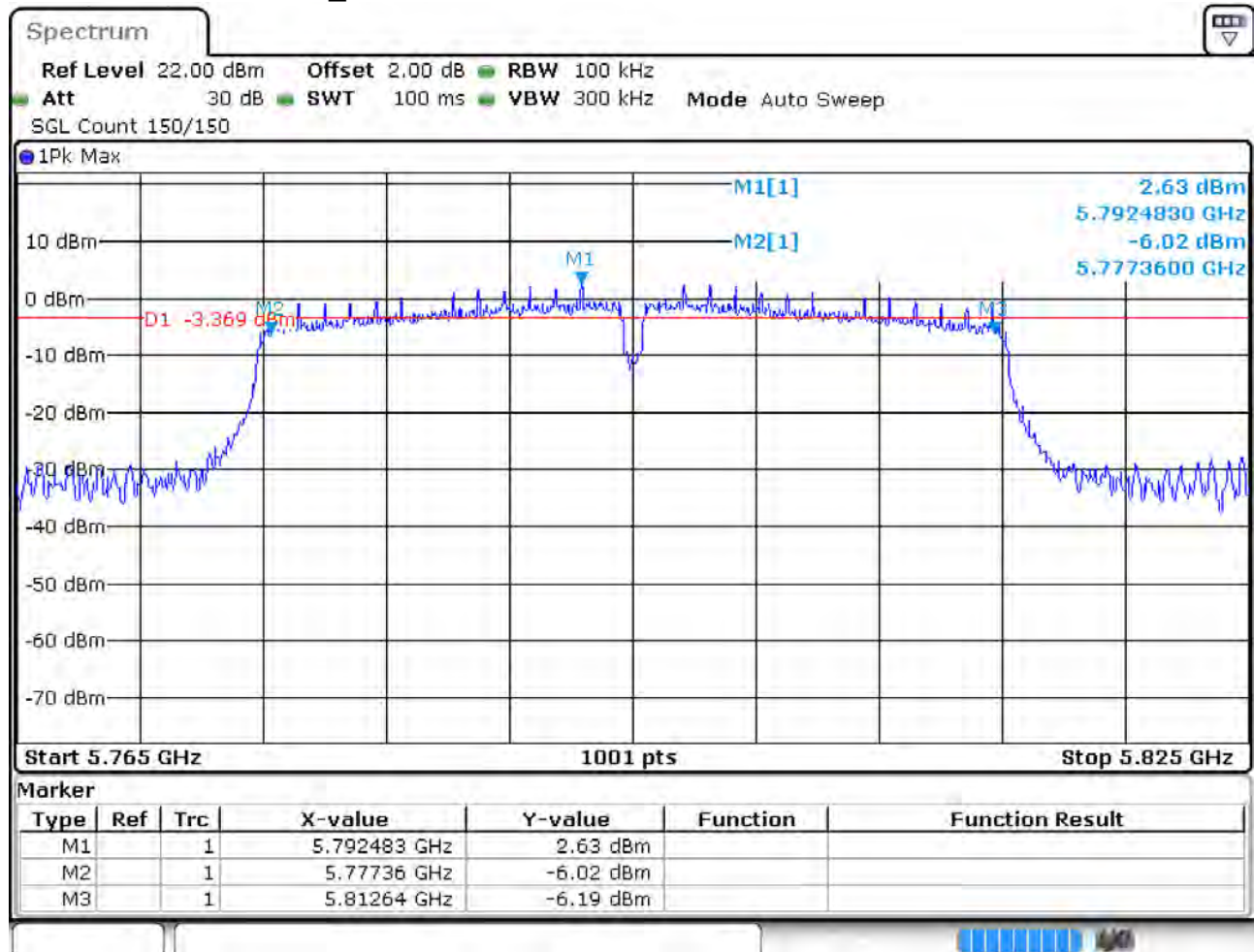
#### 4.6.2.7 11N40\_151 ANT 1



Date: 18 SEP 2020 11:43:06



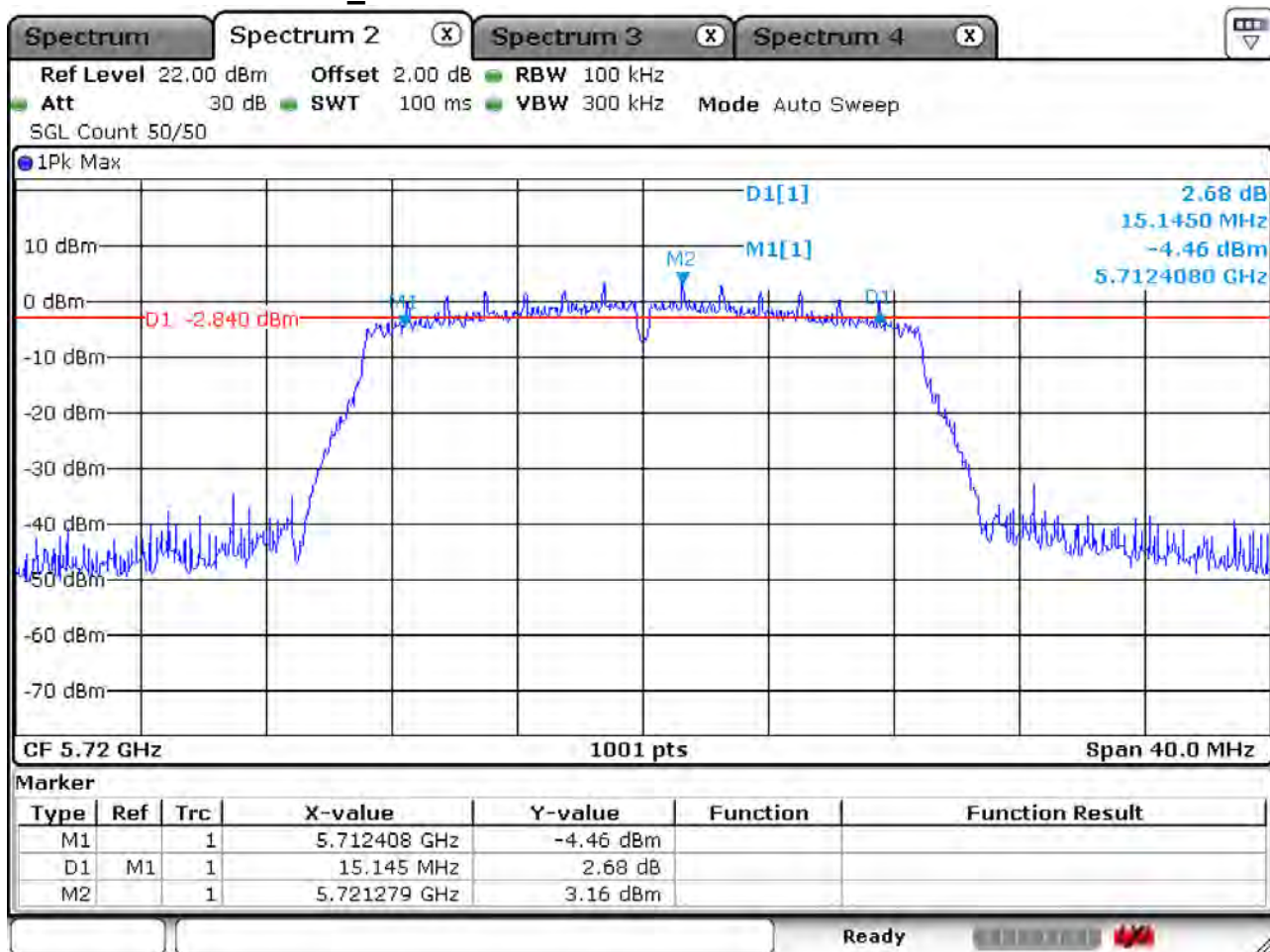
#### 4.6.2.8 11N40\_159 ANT 1



Date: 18 SEP 2020 11:44:56



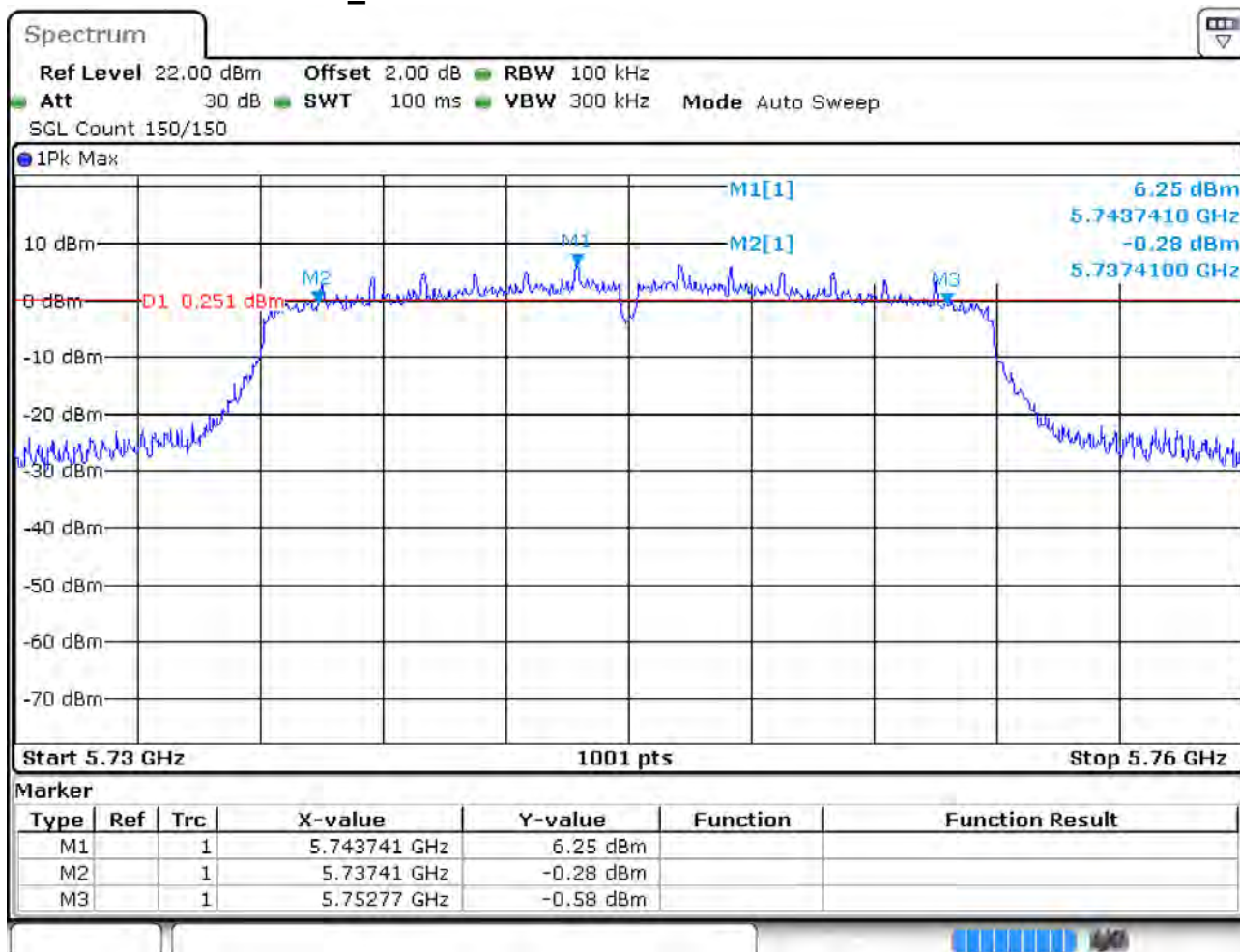
#### 4.6.2.9 11AC20\_144 ANT 1



Date: 21.OCT.2020 10:28:04



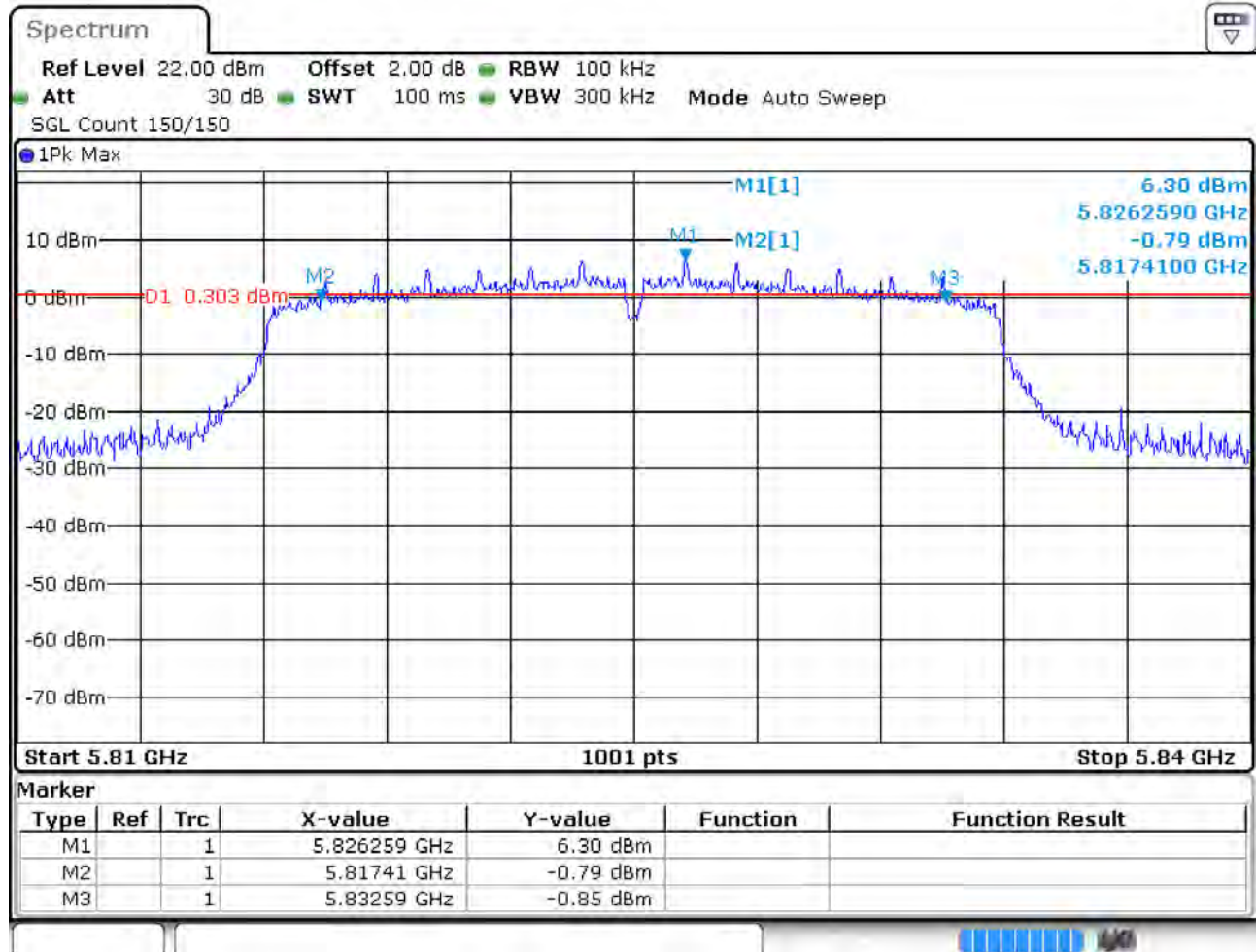
#### 4.6.2.10 11AC20\_149 ANT 1



Date: 18 SEP 2020 16:03:04



#### 4.6.2.11 11AC20\_165 ANT 1



Date: 18 SEP 2020 16:01:28

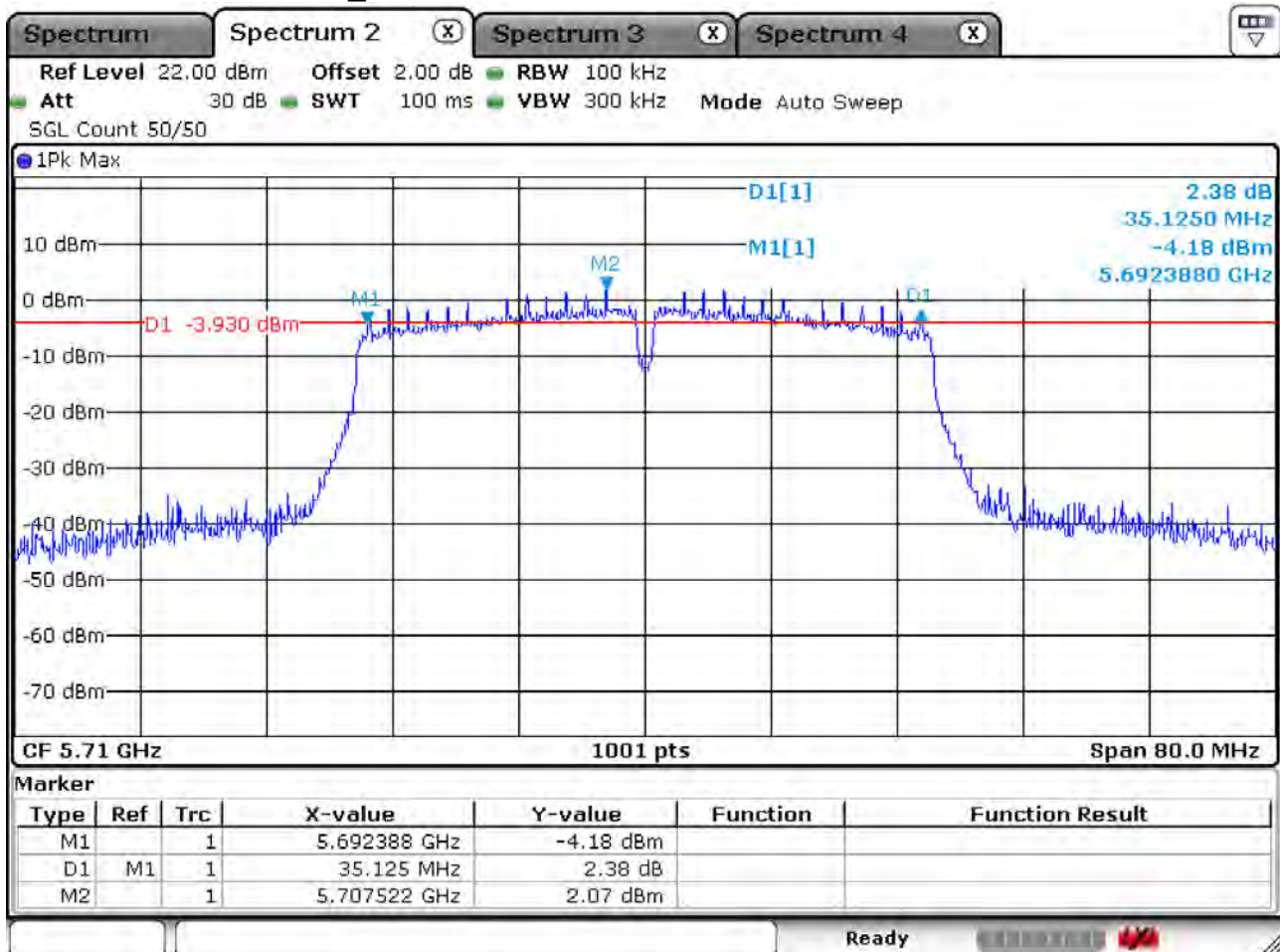


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#### 4.6.2.12 11AC40\_142 ANT 1



Date: 21.OCT.2020 10:34:54

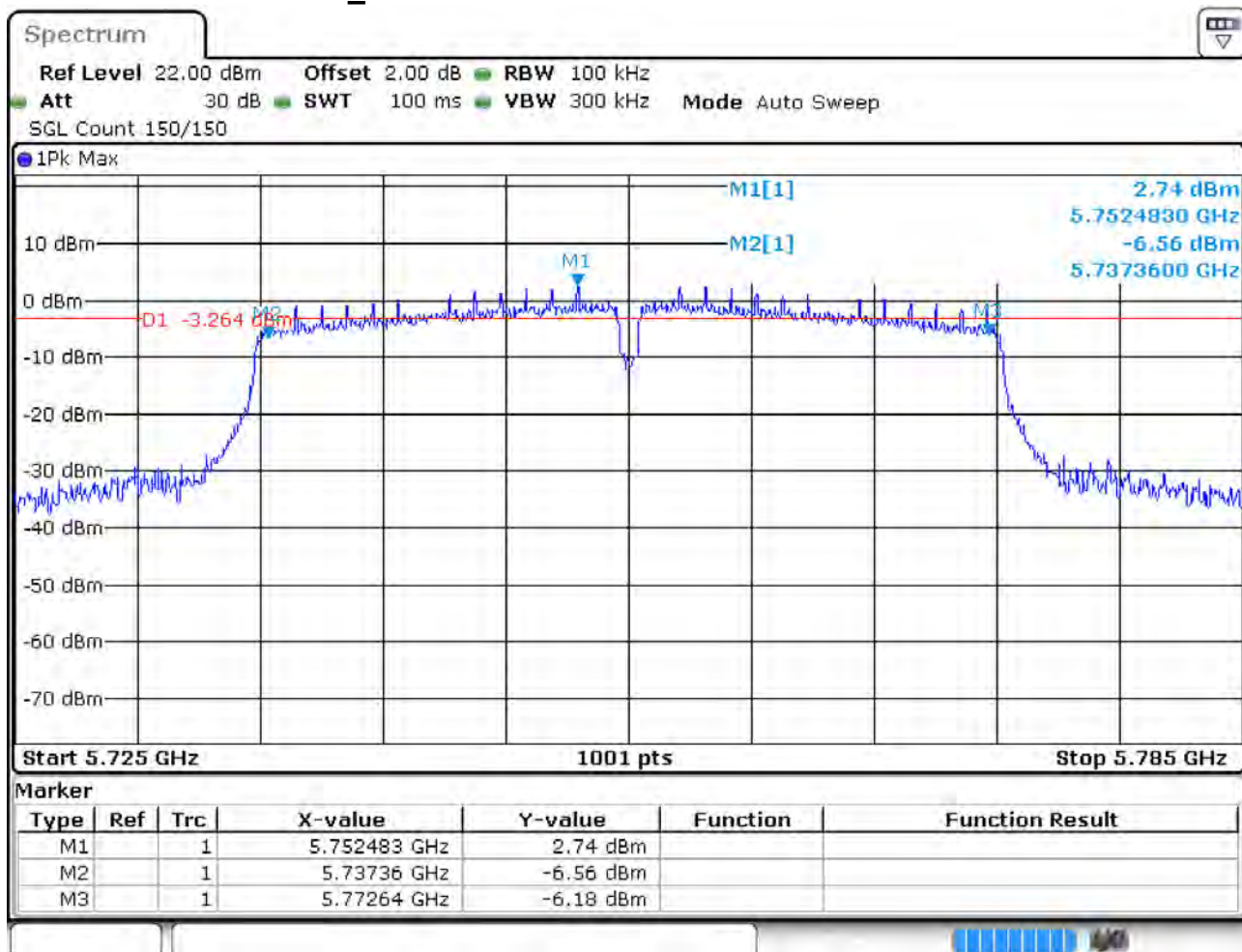


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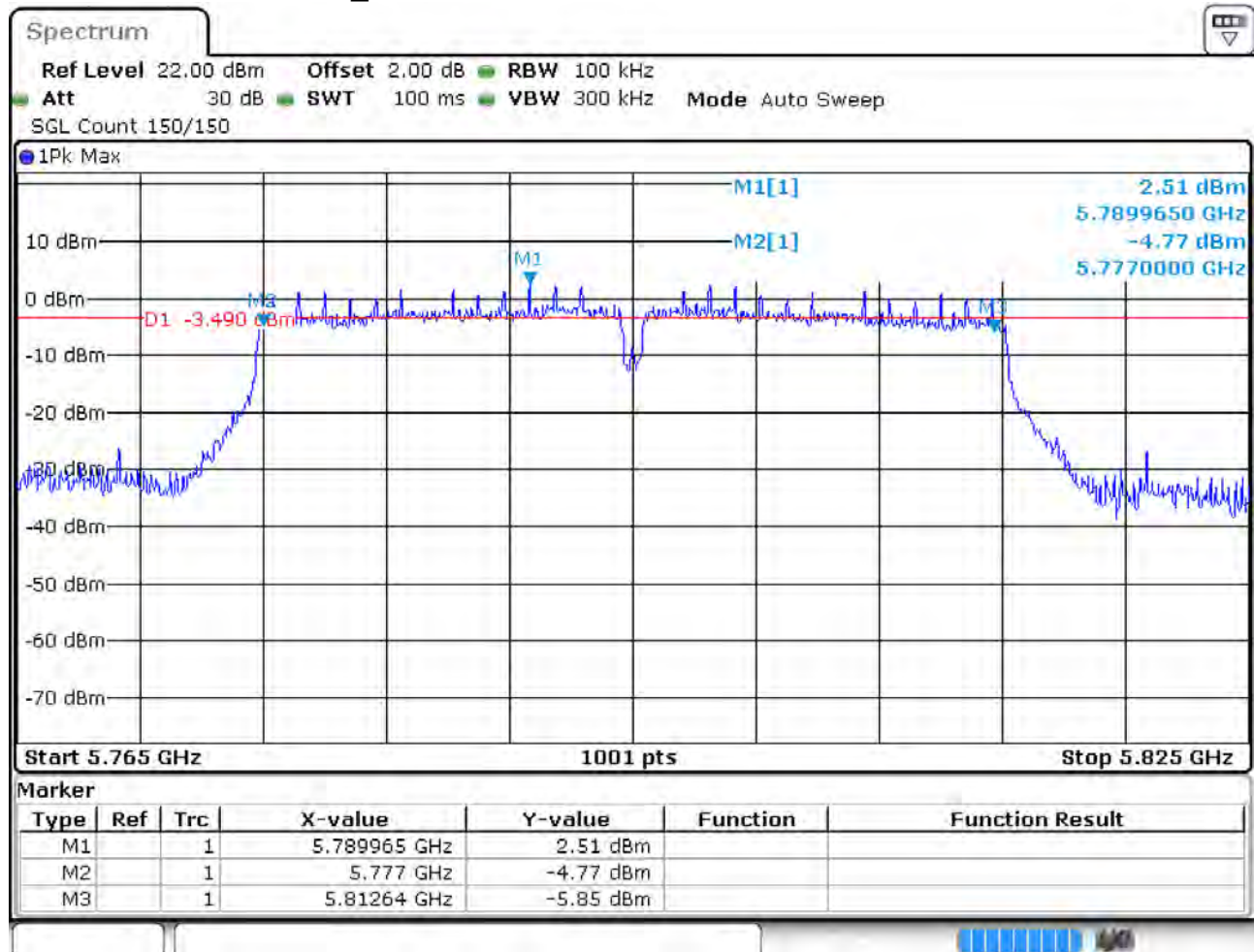
#### 4.6.2.13 11AC40\_151 ANT 1



Date: 18 SEP 2020 16:39:07



#### 4.6.2.14 11AC40\_159 ANT 1



Date: 29 SEP 2020 19:08:32

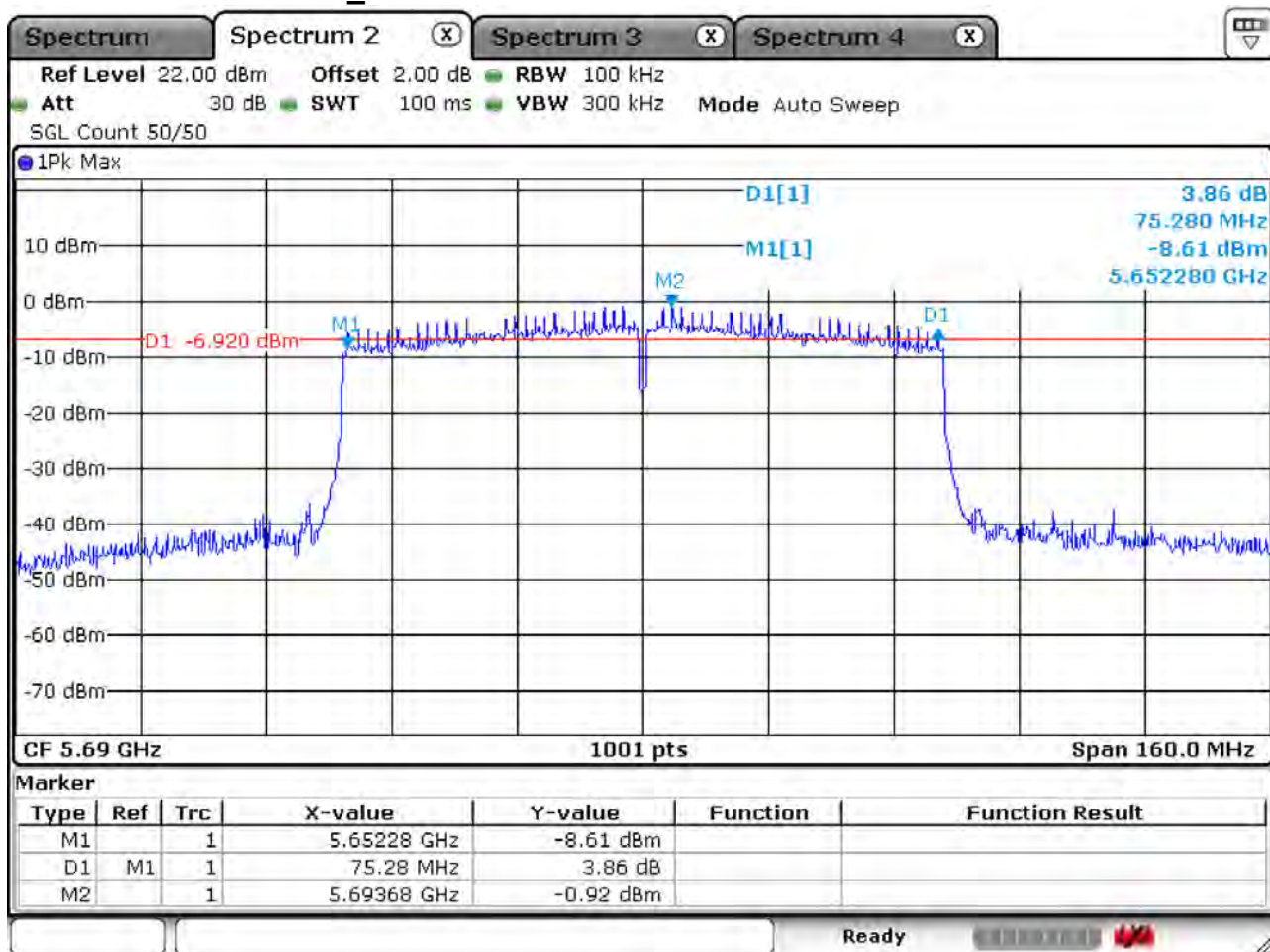


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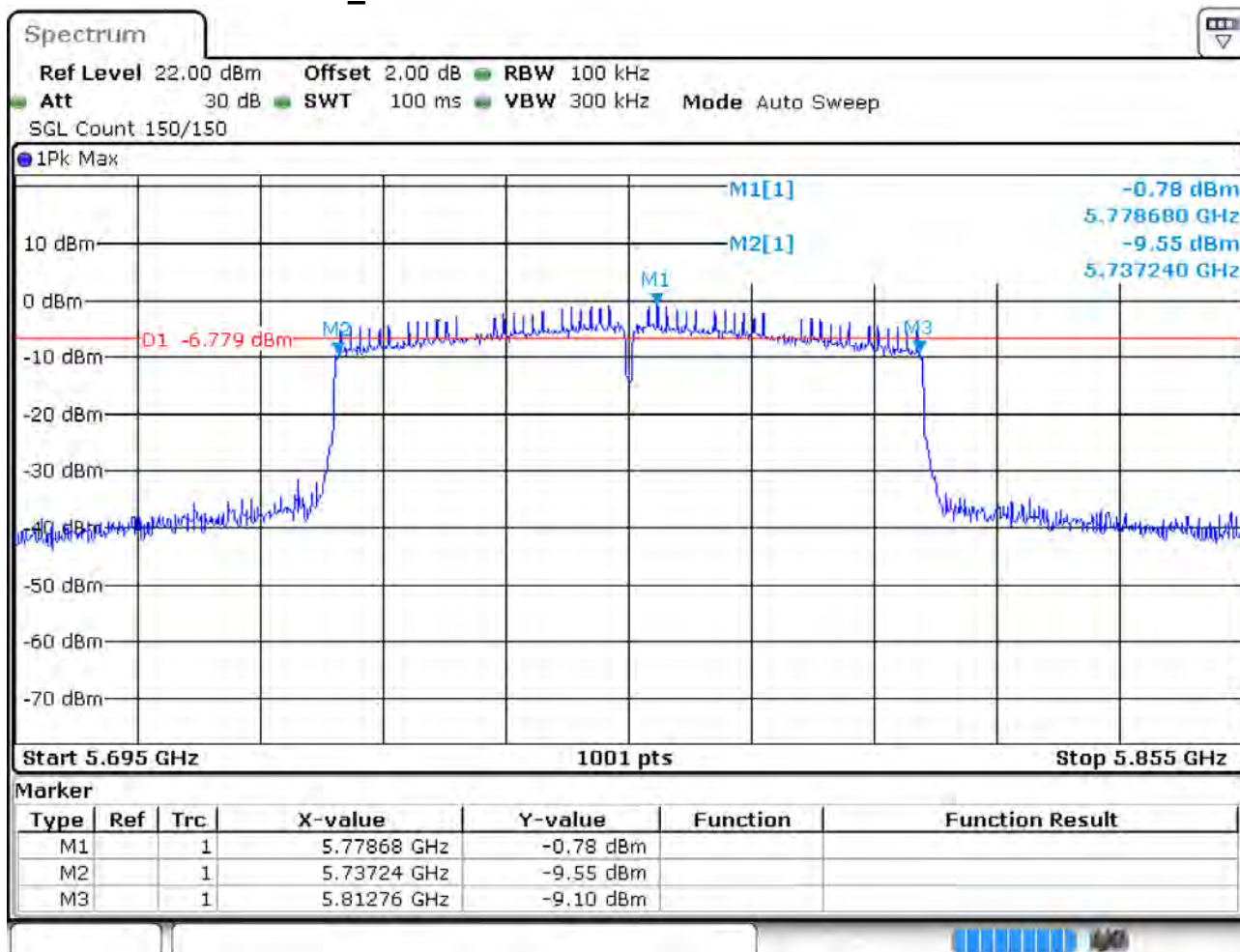
#### 4.6.2.15 11AC80\_138 ANT 1



Date: 21.OCT.2020 10:38:18



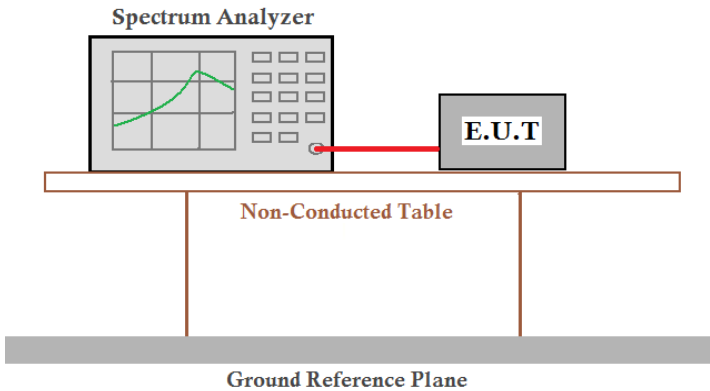
#### 4.6.2.16 11AC80\_155 ANT 1



Date: 18 SEP 2020 15:29:08



## 4.7 99% Occupied Bandwidth

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Test Requirement:      | 47 CFR Part 15 Section 15.407(e)                                                                                                                                                                                                                                                                                                                                                                                                      |                 |
| Test Method:           | ANSI C63.10: 2013                                                                                                                                                                                                                                                                                                                                                                                                                     |                 |
| Test Setup:            |                                                                                                                                                                                                                                                                                                                                                     |                 |
| Test Instruments:      | Refer to section 5.10 for details                                                                                                                                                                                                                                                                                                                                                                                                     |                 |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates                                                                                                                                                                                                                                                                                                                                                                                 |                 |
| Final Test Mode:       | <p>Through Pre-scan, find the</p> <p>6Mbps of rate is the worst case of 802.11a;</p> <p>MCS0 of rate is the worst case of 802.11n(HT20);</p> <p>MCS0 of rate is the worst case of 802.11n(HT40);</p> <p>MCS0 of rate is the worst case of 802.11ac(HT20);</p> <p>MCS0 of rate is the worst case of 802.11ac(HT40);</p> <p>MCS0 of rate is the worst case of 802.11ac(HT80).</p> <p>Only the worst case is recorded in the report.</p> |                 |
| Limit:                 | Frequency Band                                                                                                                                                                                                                                                                                                                                                                                                                        | Limit           |
|                        | 5725-5850MHz                                                                                                                                                                                                                                                                                                                                                                                                                          | At least 500kHz |
| Test Results:          | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |



#### 4.7.1 Test Results for 99% Occupied Bandwidth

| Test Mode | Test Channel | Frequency [MHz] | Antenna Port | Occupied Bandwidth [MHz] | Verdict |
|-----------|--------------|-----------------|--------------|--------------------------|---------|
| 11A20     | 36           | 5180            | ANT 1        | 16.963                   | PASS    |
|           | 44           | 5220            | ANT 1        | 16.963                   | PASS    |
|           | 48           | 5240            | ANT 1        | 16.9331                  | PASS    |
|           | 52           | 5260            | ANT 1        | 16.9331                  | PASS    |
|           | 60           | 5300            | ANT 1        | 16.9031                  | PASS    |
|           | 64           | 5320            | ANT 1        | 16.963                   | PASS    |
|           | 100          | 5500            | ANT 1        | 16.7832                  | PASS    |
|           | 116          | 5580            | ANT 1        | 16.7832                  | PASS    |
|           | 140          | 5700            | ANT 1        | 16.7832                  | PASS    |
|           | 144          | 5720            | ANT 1        | 16.6715                  | PASS    |
|           | 149          | 5745            | ANT 1        | 16.993                   | PASS    |
|           | 157          | 5785            | ANT 1        | 17.0529                  | PASS    |
|           | 165          | 5825            | ANT 1        | 17.0829                  | PASS    |
| 11N20     | 36           | 5180            | ANT 1        | 17.8921                  | PASS    |
|           | 44           | 5220            | ANT 1        | 17.8621                  | PASS    |
|           | 48           | 5240            | ANT 1        | 17.8621                  | PASS    |
|           | 52           | 5260            | ANT 1        | 17.8921                  | PASS    |
|           | 60           | 5300            | ANT 1        | 17.8621                  | PASS    |
|           | 64           | 5320            | ANT 1        | 17.8621                  | PASS    |
|           | 100          | 5500            | ANT 1        | 17.7722                  | PASS    |
|           | 116          | 5580            | ANT 1        | 17.7423                  | PASS    |
|           | 140          | 5700            | ANT 1        | 17.7722                  | PASS    |
|           | 144          | 5720            | ANT 1        | 17.7713                  | PASS    |
|           | 149          | 5745            | ANT 1        | 17.8921                  | PASS    |
|           | 157          | 5785            | ANT 1        | 17.952                   | PASS    |
|           | 165          | 5825            | ANT 1        | 17.952                   | PASS    |
| 11N40     | 38           | 5190            | ANT 1        | 36.2637                  | PASS    |
|           | 46           | 5230            | ANT 1        | 36.2038                  | PASS    |
|           | 54           | 5270            | ANT 1        | 36.2038                  | PASS    |
|           | 62           | 5310            | ANT 1        | 36.2637                  | PASS    |
|           | 102          | 5510            | ANT 1        | 36.2038                  | PASS    |
|           | 110          | 5550            | ANT 1        | 36.2038                  | PASS    |
|           | 134          | 5670            | ANT 1        | 36.2038                  | PASS    |
|           | 142          | 5710            | ANT 1        | 36.2373                  | PASS    |
|           | 151          | 5755            | ANT 1        | 36.2637                  | PASS    |



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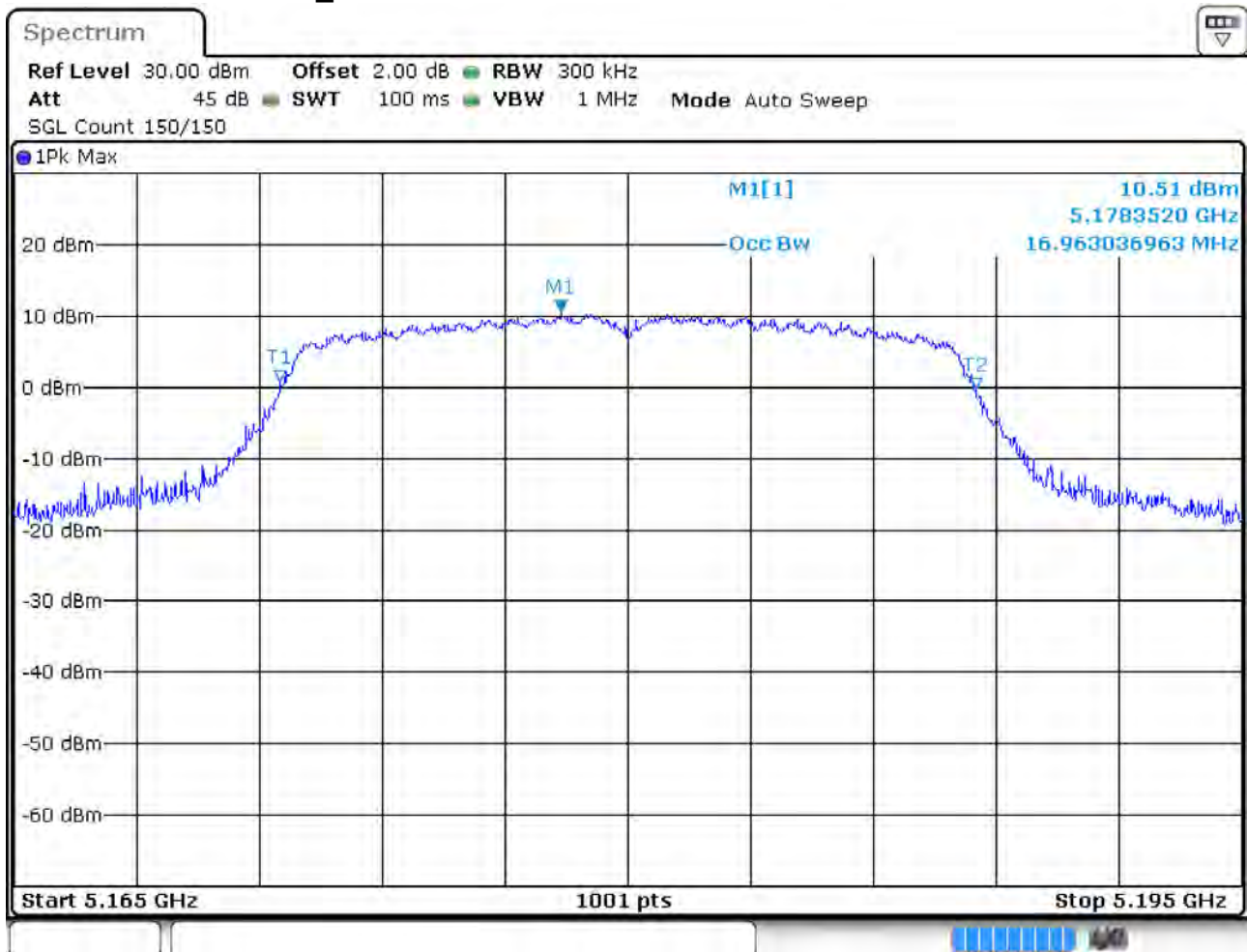


|        |     |      |       |         |      |
|--------|-----|------|-------|---------|------|
|        | 159 | 5795 | ANT 1 | 36.3237 | PASS |
| 11AC20 | 36  | 5180 | ANT 1 | 17.8022 | PASS |
|        | 44  | 5220 | ANT 1 | 17.8322 | PASS |
|        | 48  | 5240 | ANT 1 | 17.8621 | PASS |
|        | 52  | 5260 | ANT 1 | 17.8022 | PASS |
|        | 60  | 5300 | ANT 1 | 17.8022 | PASS |
|        | 64  | 5320 | ANT 1 | 17.8322 | PASS |
|        | 100 | 5500 | ANT 1 | 17.7423 | PASS |
|        | 116 | 5580 | ANT 1 | 17.7423 | PASS |
|        | 140 | 5700 | ANT 1 | 17.7722 | PASS |
|        | 144 | 5720 | ANT 1 | 17.6556 | PASS |
|        | 149 | 5745 | ANT 1 | 17.8621 | PASS |
|        | 157 | 5785 | ANT 1 | 17.8921 | PASS |
|        | 165 | 5825 | ANT 1 | 17.8921 | PASS |
| 11AC40 | 38  | 5190 | ANT 1 | 36.2038 | PASS |
|        | 46  | 5230 | ANT 1 | 36.2038 | PASS |
|        | 54  | 5270 | ANT 1 | 36.2038 | PASS |
|        | 62  | 5310 | ANT 1 | 36.2038 | PASS |
|        | 102 | 5510 | ANT 1 | 36.2038 | PASS |
|        | 110 | 5550 | ANT 1 | 36.2038 | PASS |
|        | 134 | 5670 | ANT 1 | 36.2038 | PASS |
|        | 142 | 5710 | ANT 1 | 36.1216 | PASS |
|        | 151 | 5755 | ANT 1 | 36.2038 | PASS |
|        | 159 | 5795 | ANT 1 | 36.3237 | PASS |
| 11AC80 | 42  | 5210 | ANT 1 | 75.1648 | PASS |
|        | 58  | 5290 | ANT 1 | 75.4046 | PASS |
|        | 106 | 5530 | ANT 1 | 75.2847 | PASS |
|        | 122 | 5610 | ANT 1 | 75.2847 | PASS |
|        | 138 | 5690 | ANT 1 | 75.2533 | PASS |
|        | 155 | 5775 | ANT 1 | 75.2847 | PASS |



## 4.7.2 Plots for 99% Occupied Bandwidth

### 4.7.2.1 11A20\_36 ANT 1



Date: 18.SEP.2020 10:39:40

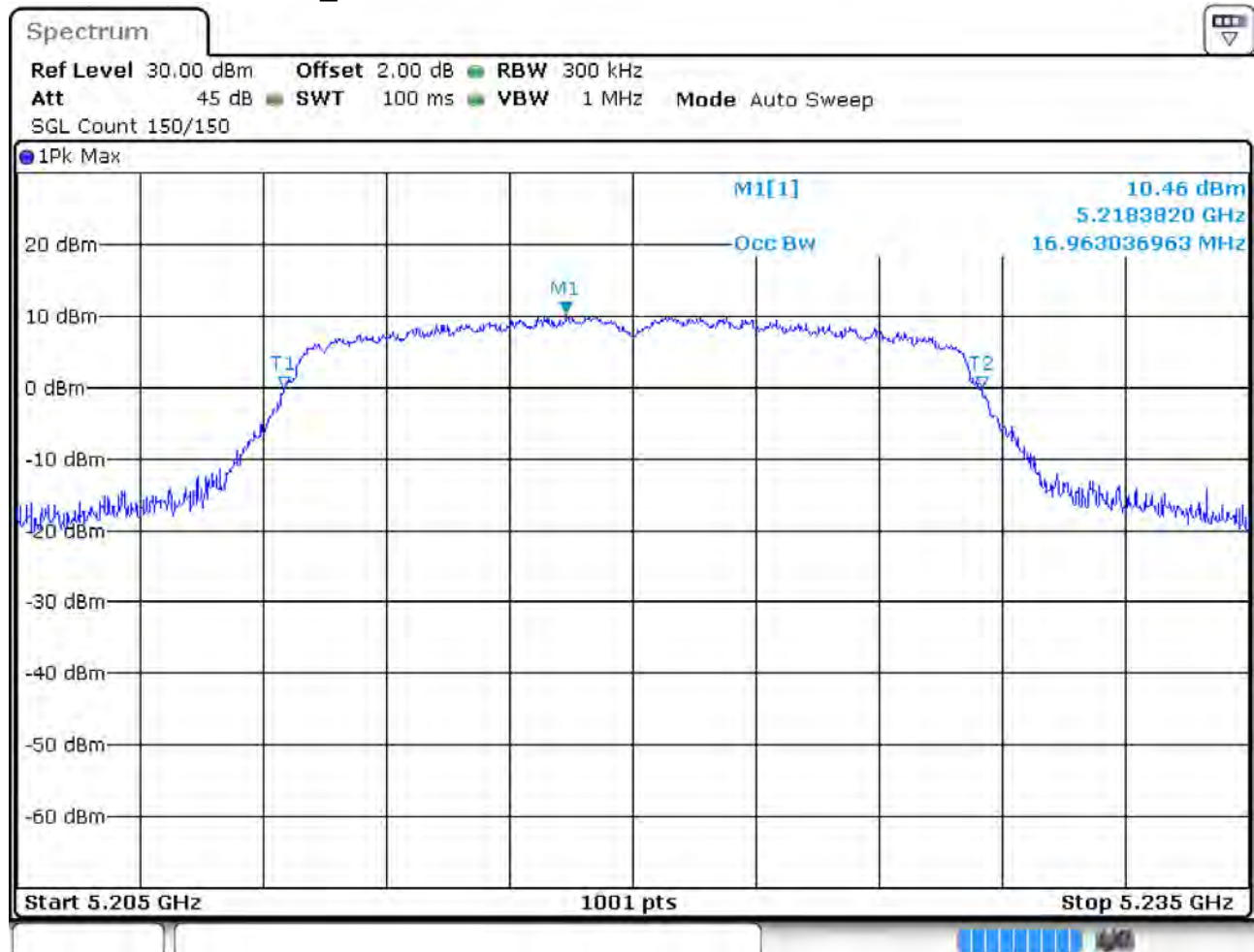


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#### 4.7.2.2 11A20\_44 ANT 1



Date: 18.SEP.2020 10:41:10

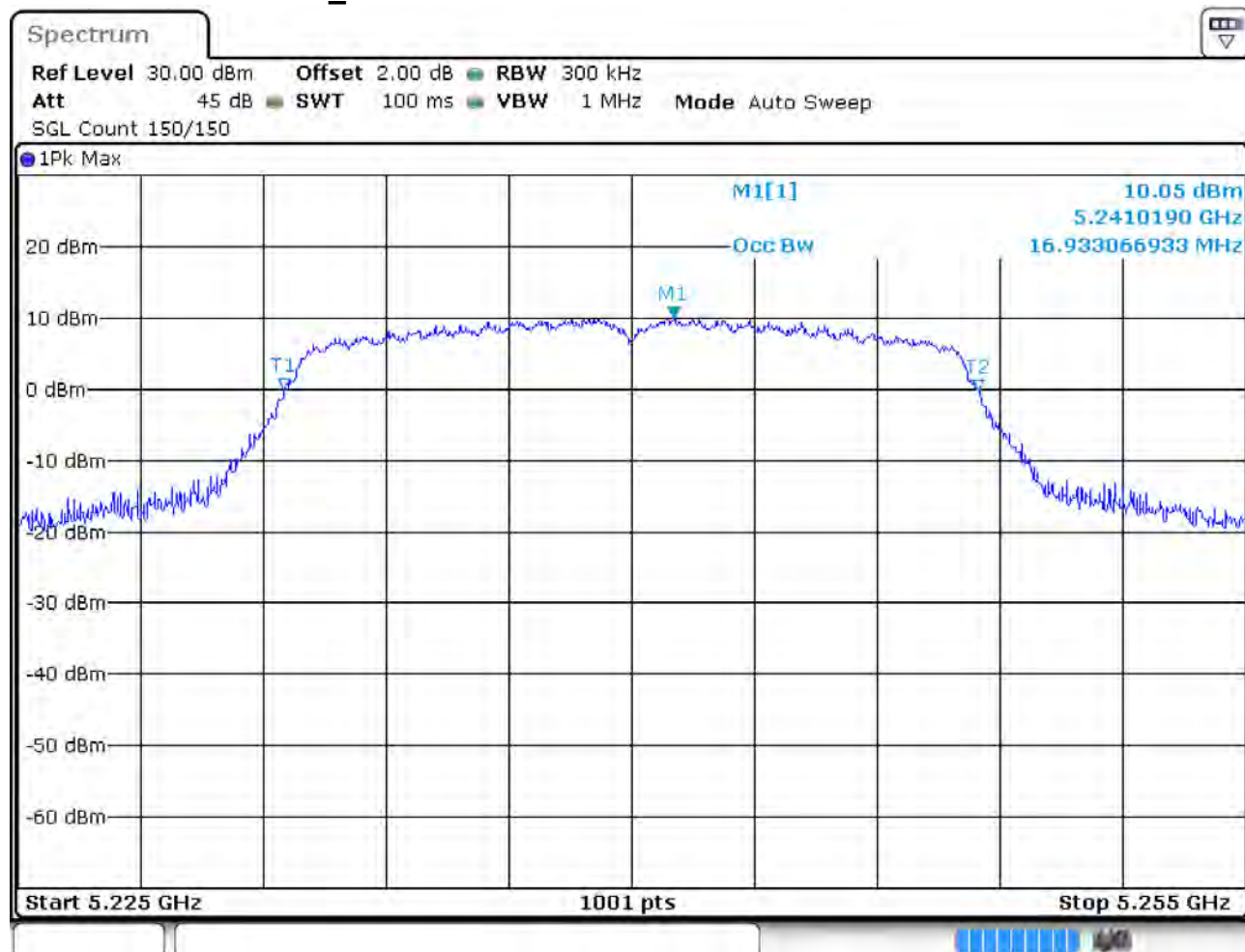


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#### 4.7.2.3

#### 11A20\_48 ANT 1



Date: 18 SEP 2020 10:42:45



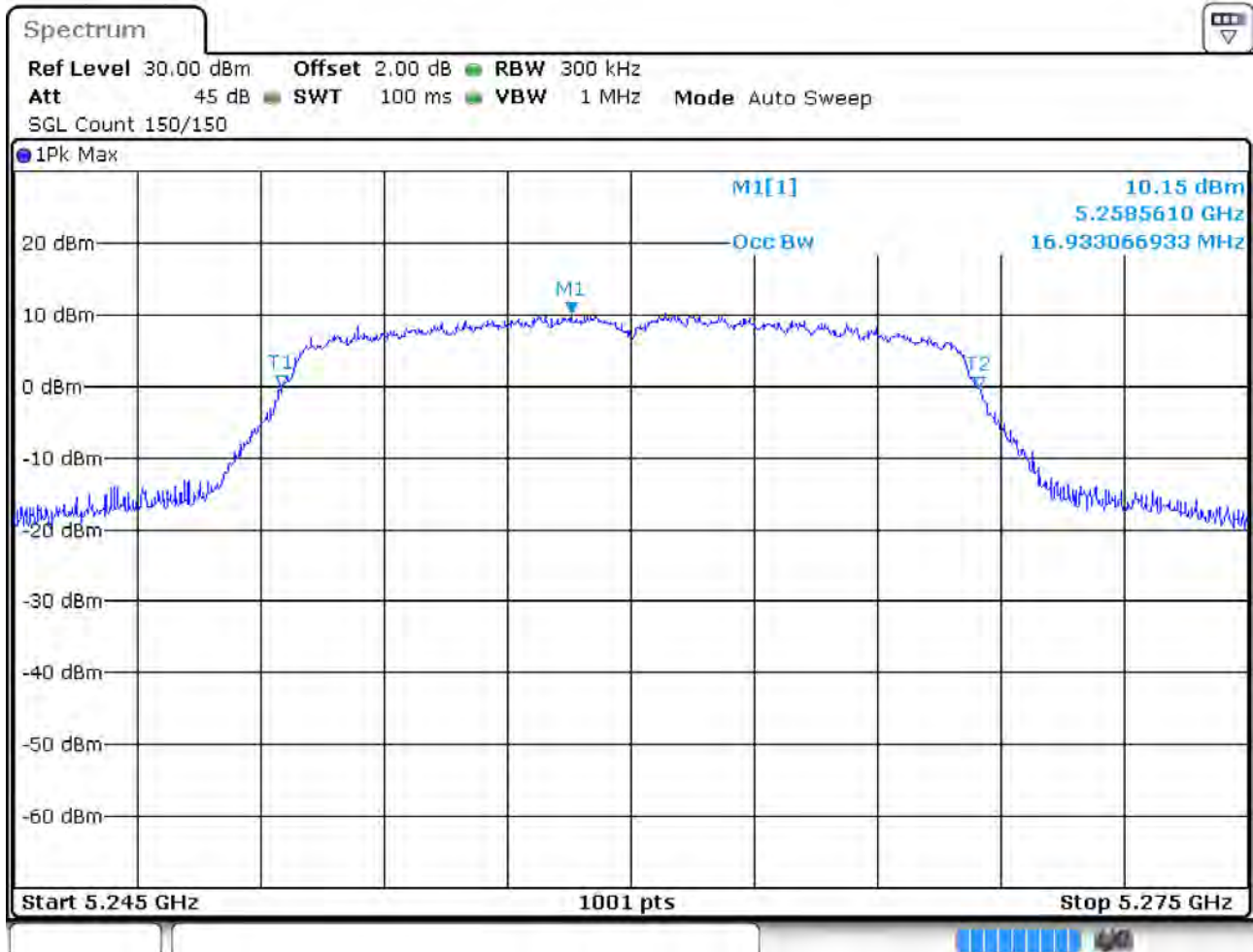
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#### 4.7.2.4

#### 11A20\_52 ANT 1



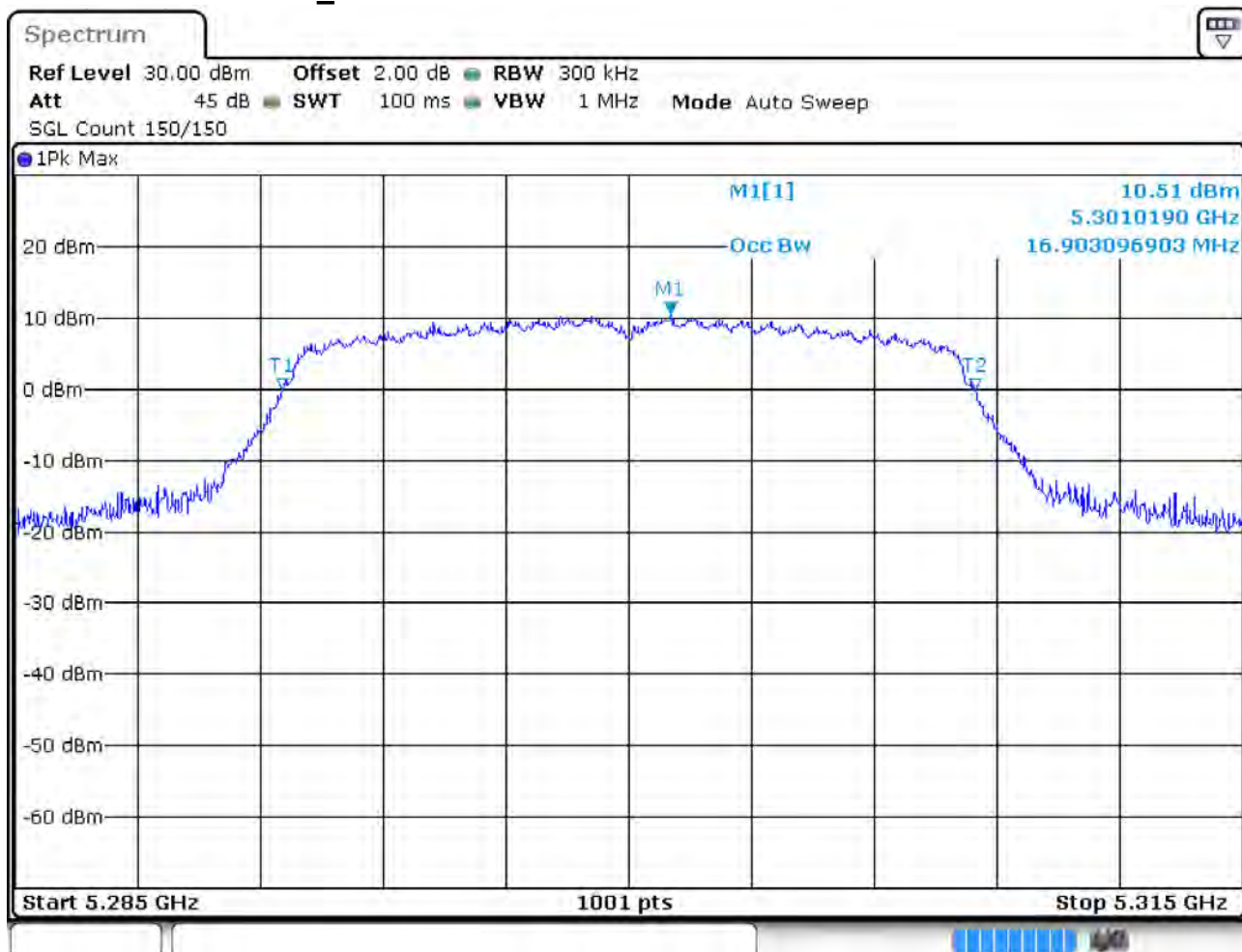
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#### 4.7.2.5 11A20\_60 ANT 1



Date: 18.SEP.2020 10:47:55



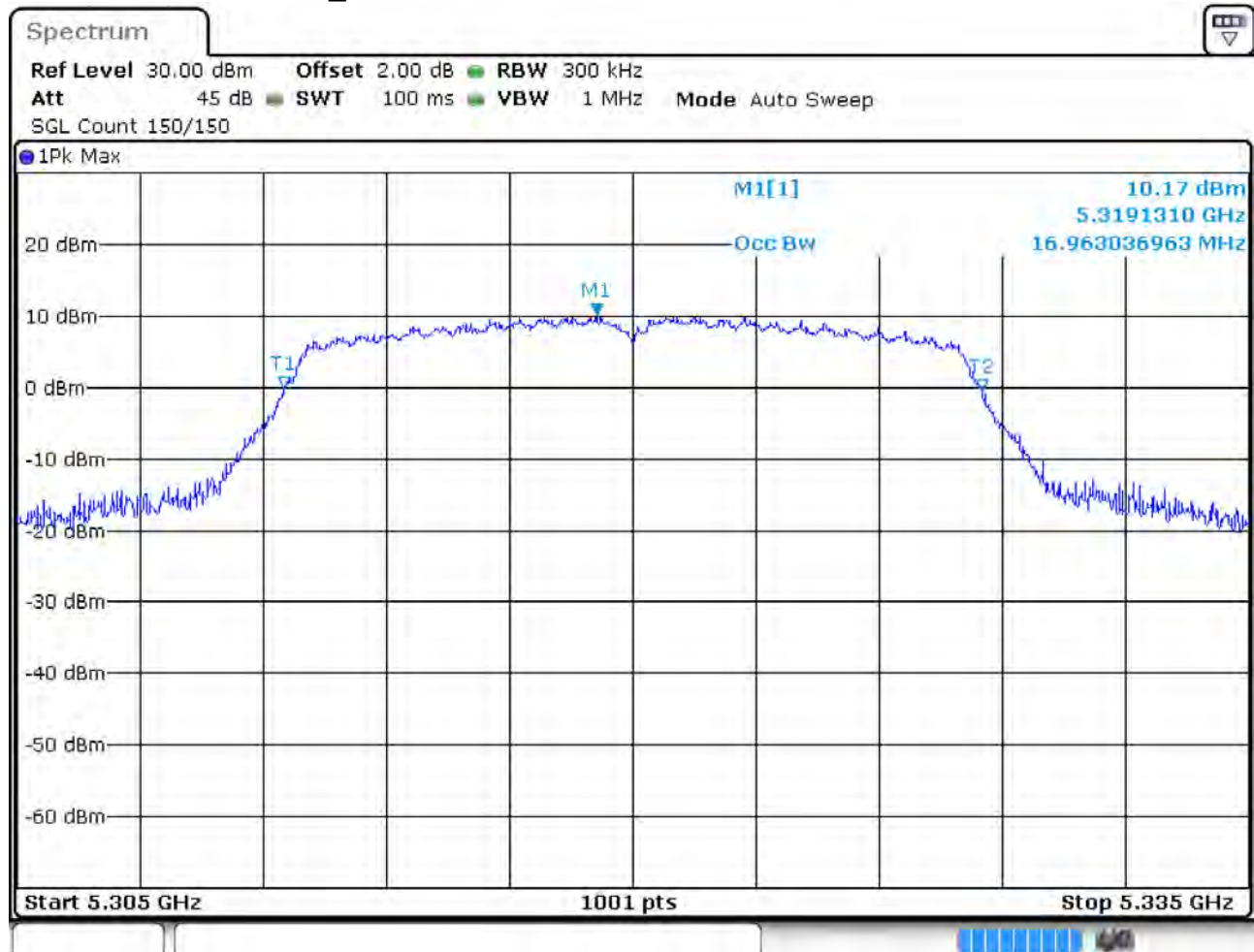
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#### 4.7.2.6

#### 11A20\_64 ANT 1



Date: 18.SEP.2020 10:49:21

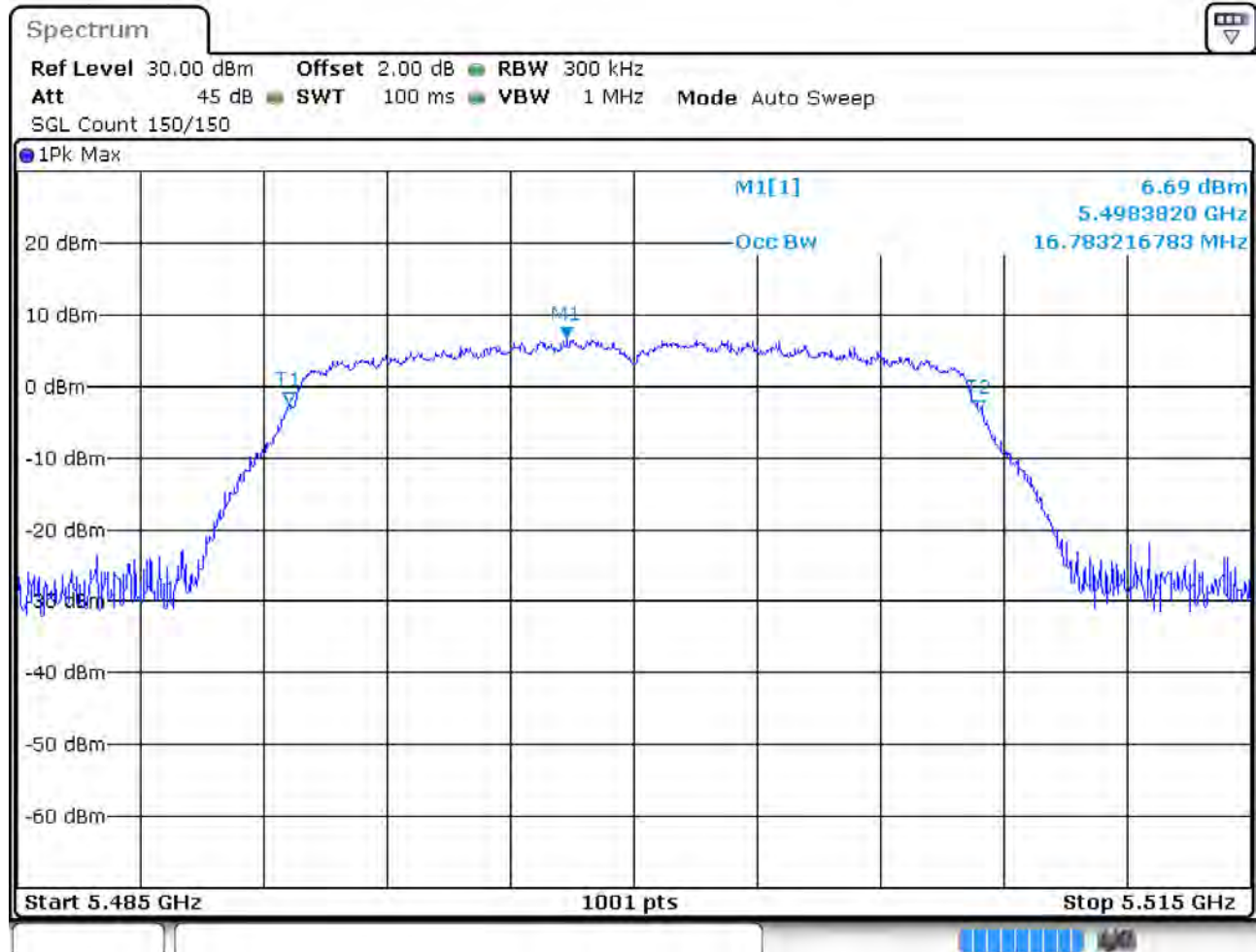


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#### 4.7.2.7 11A20\_100 ANT 1



Date: 18.SEP.2020 10:51:00

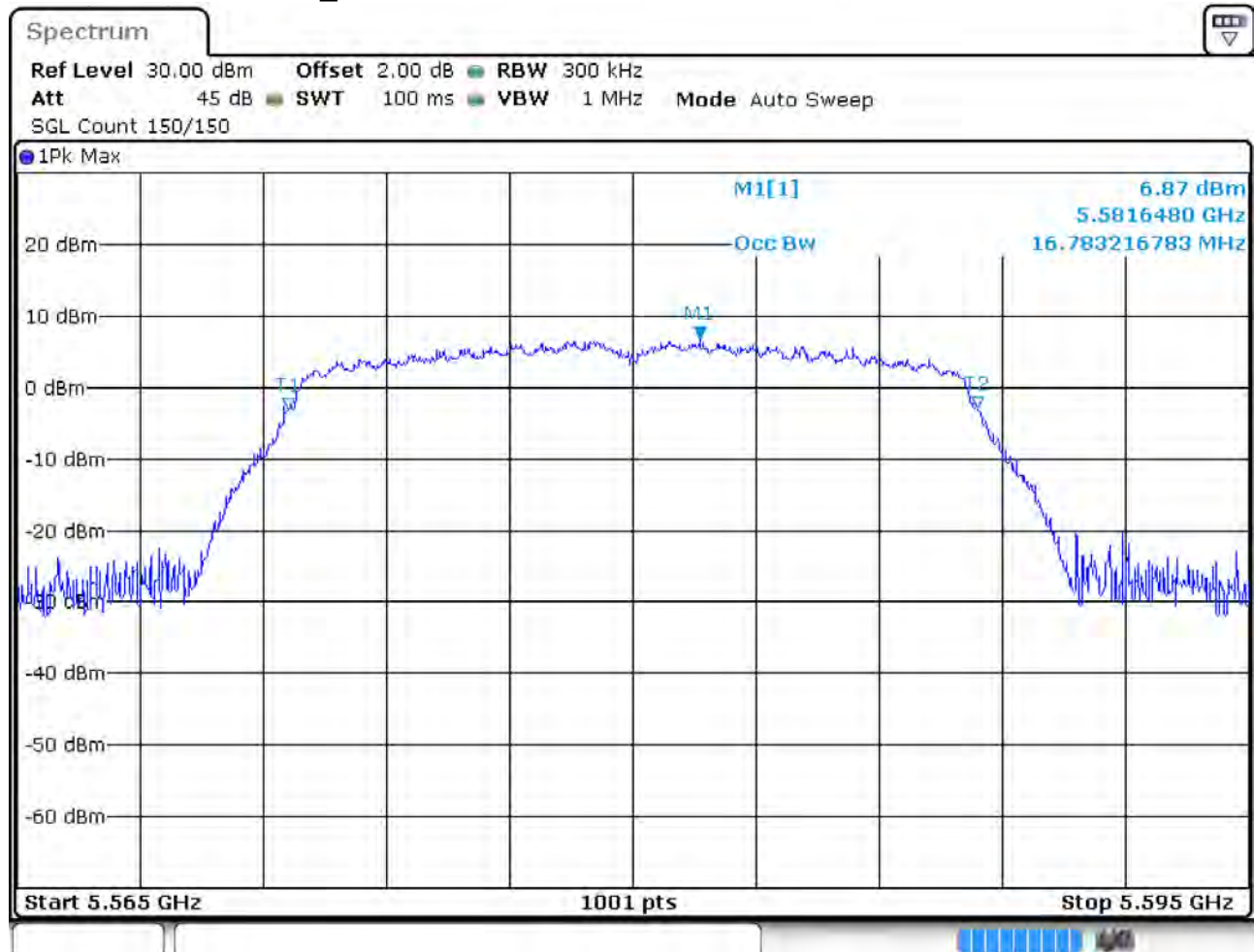


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#### 4.7.2.8 11A20\_116 ANT 1



Date: 18.SEP.2020 10:52:28

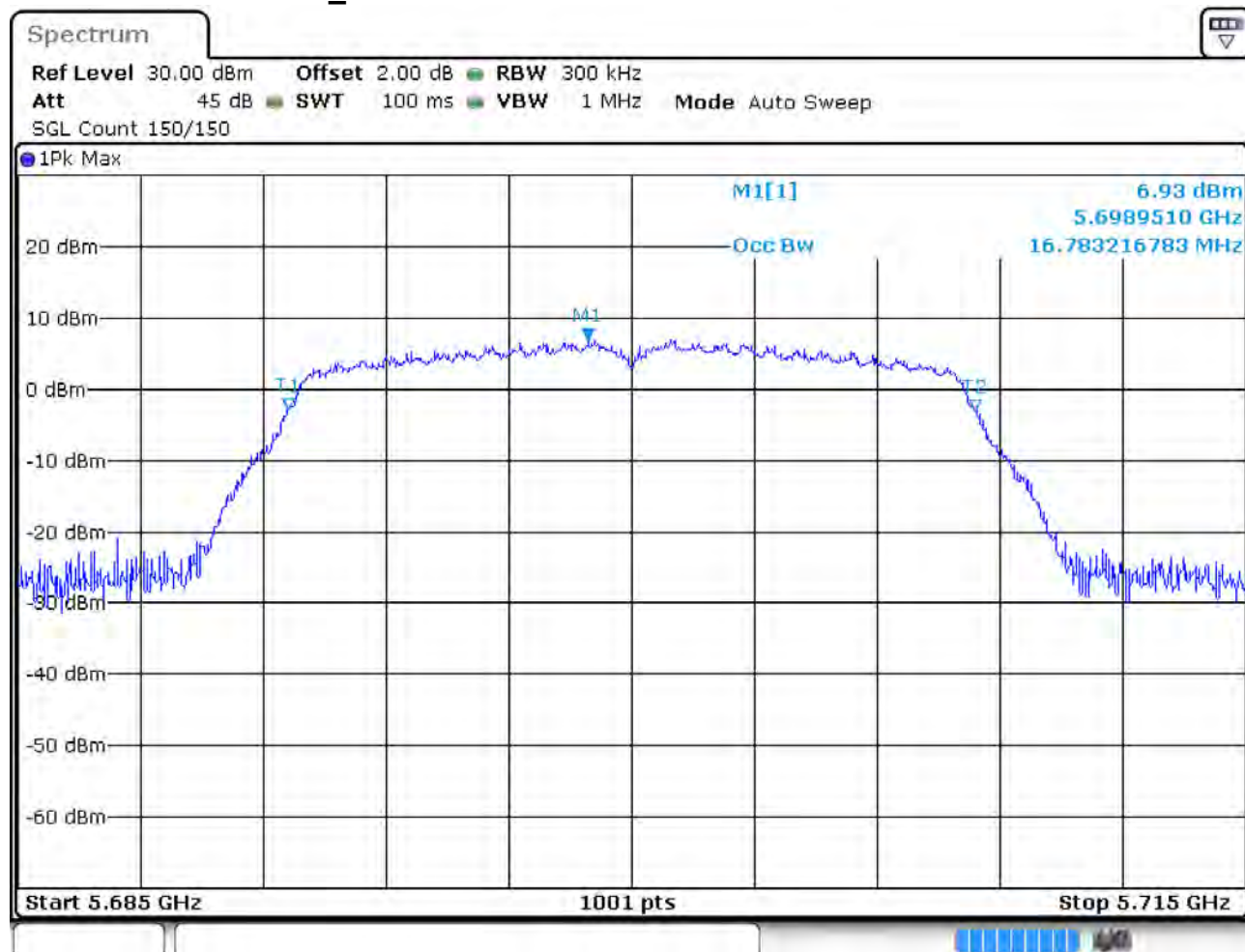


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#### 4.7.2.9 11A20\_140 ANT 1



Date: 18.SEP.2020 10:53:57

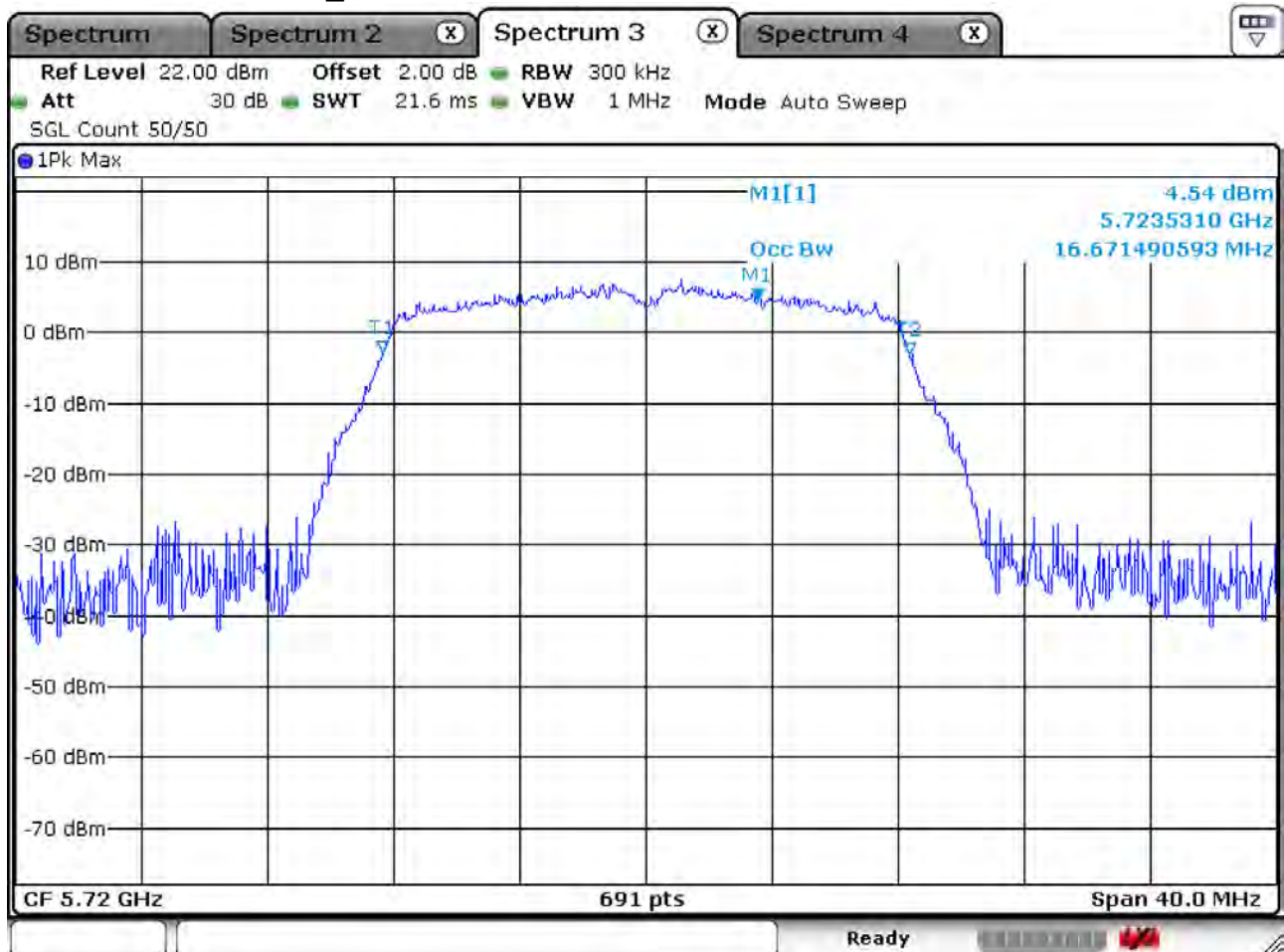


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#### 4.7.2.10 11A20\_144 ANT 1



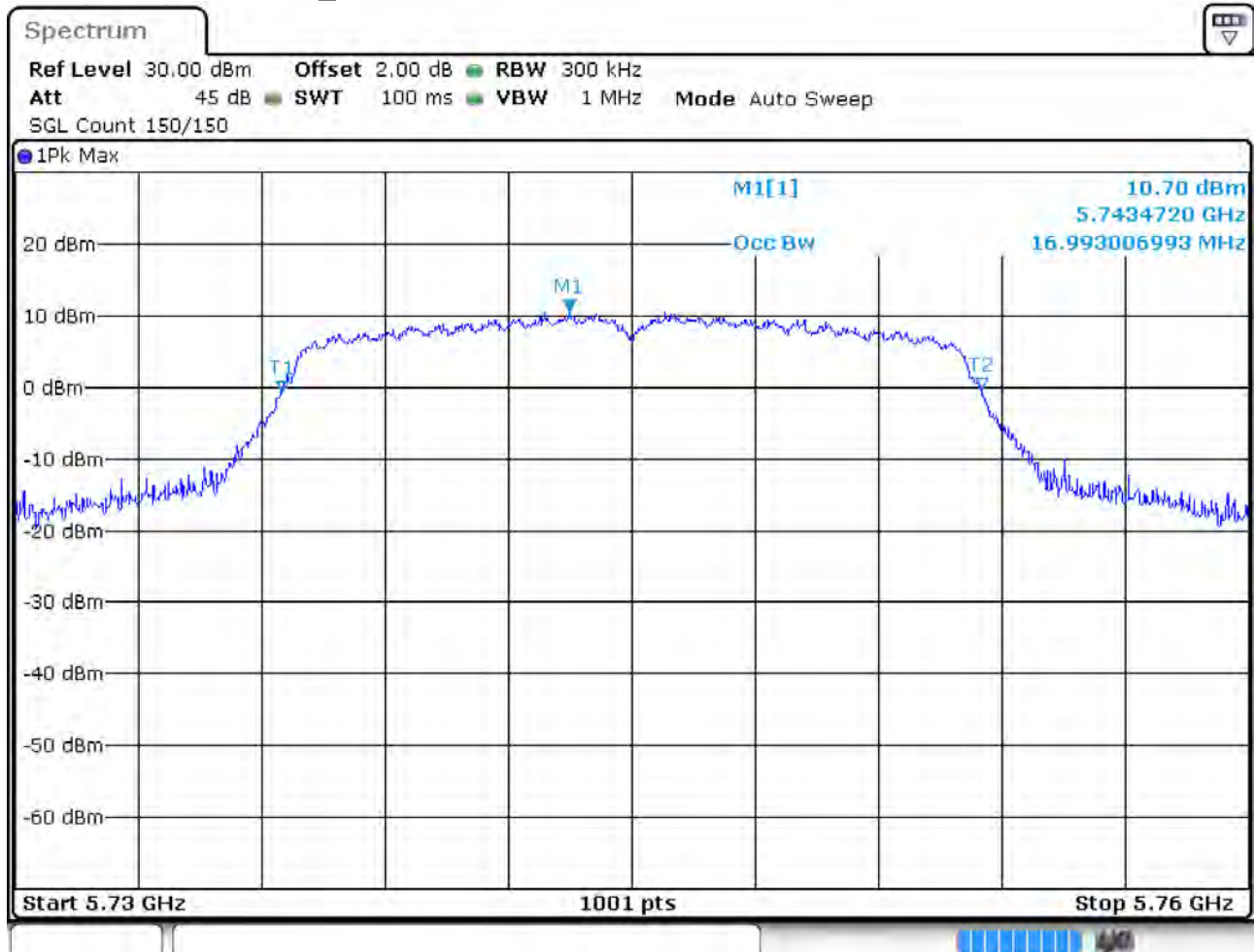
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#### 4.7.2.11 11A20\_149 ANT 1



Date: 18 SEP 2020 10:55:58

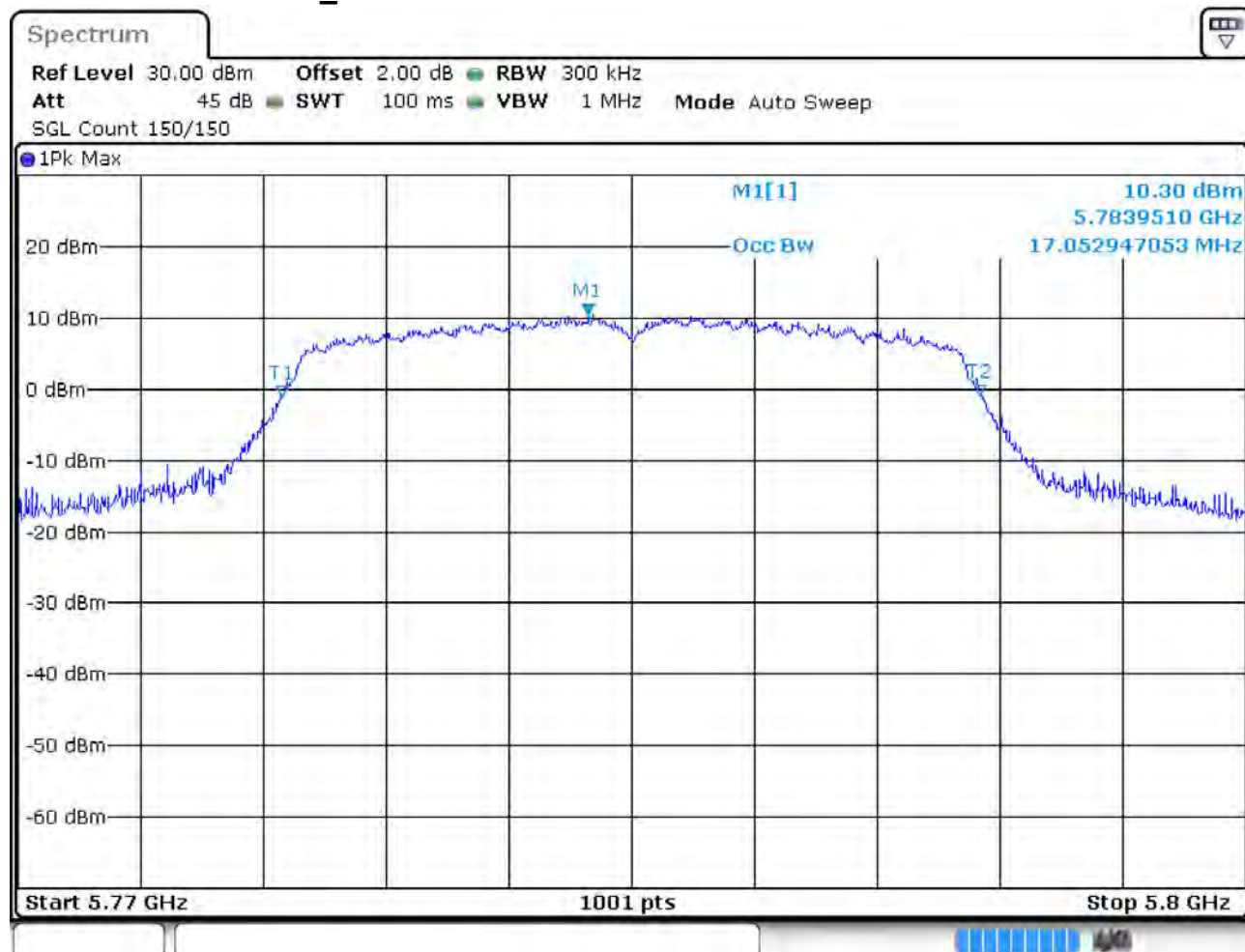


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#### 4.7.2.12 11A20\_157 ANT 1



Date: 18.SEP.2020 10:57:40

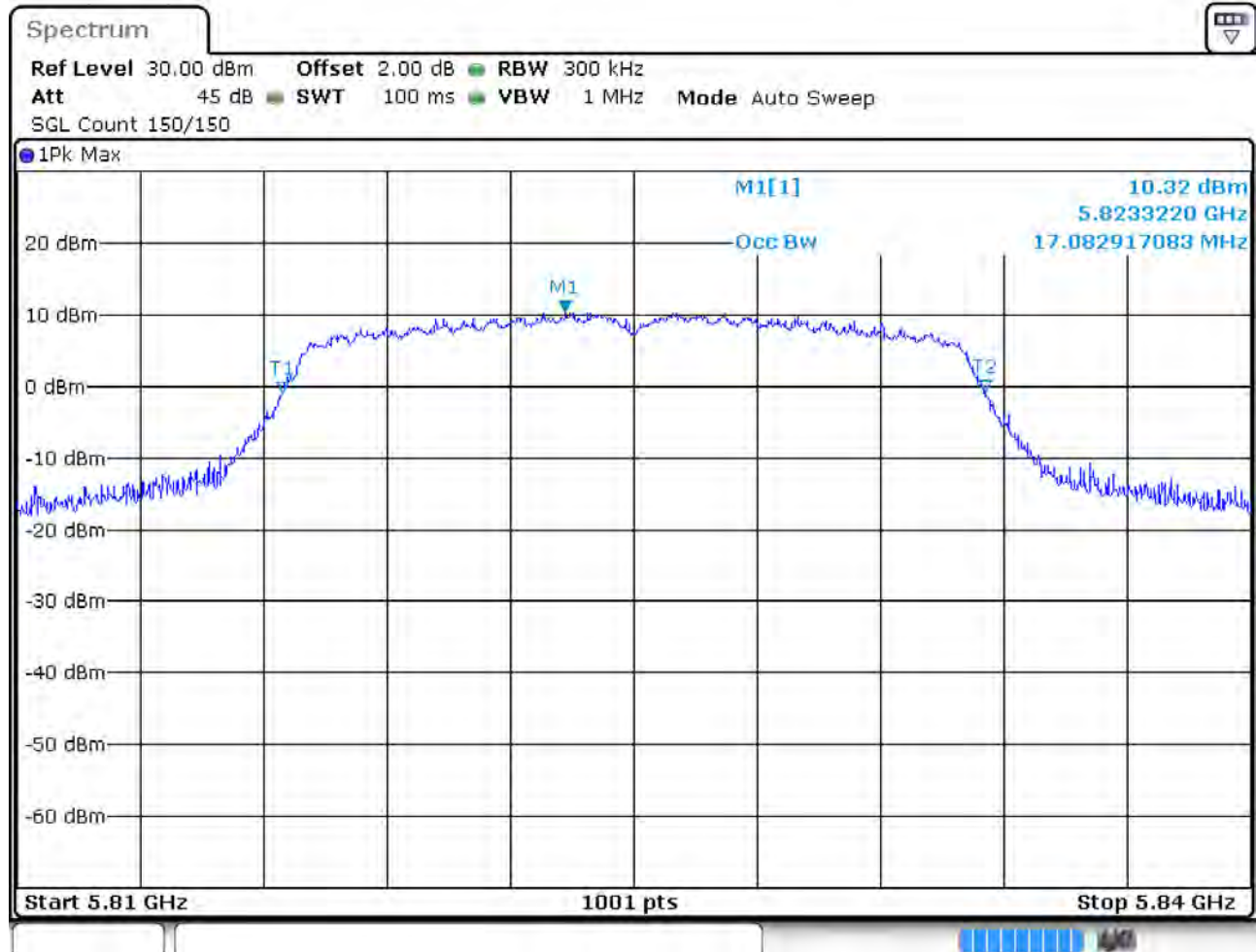


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#### 4.7.2.13 11A20\_165 ANT 1



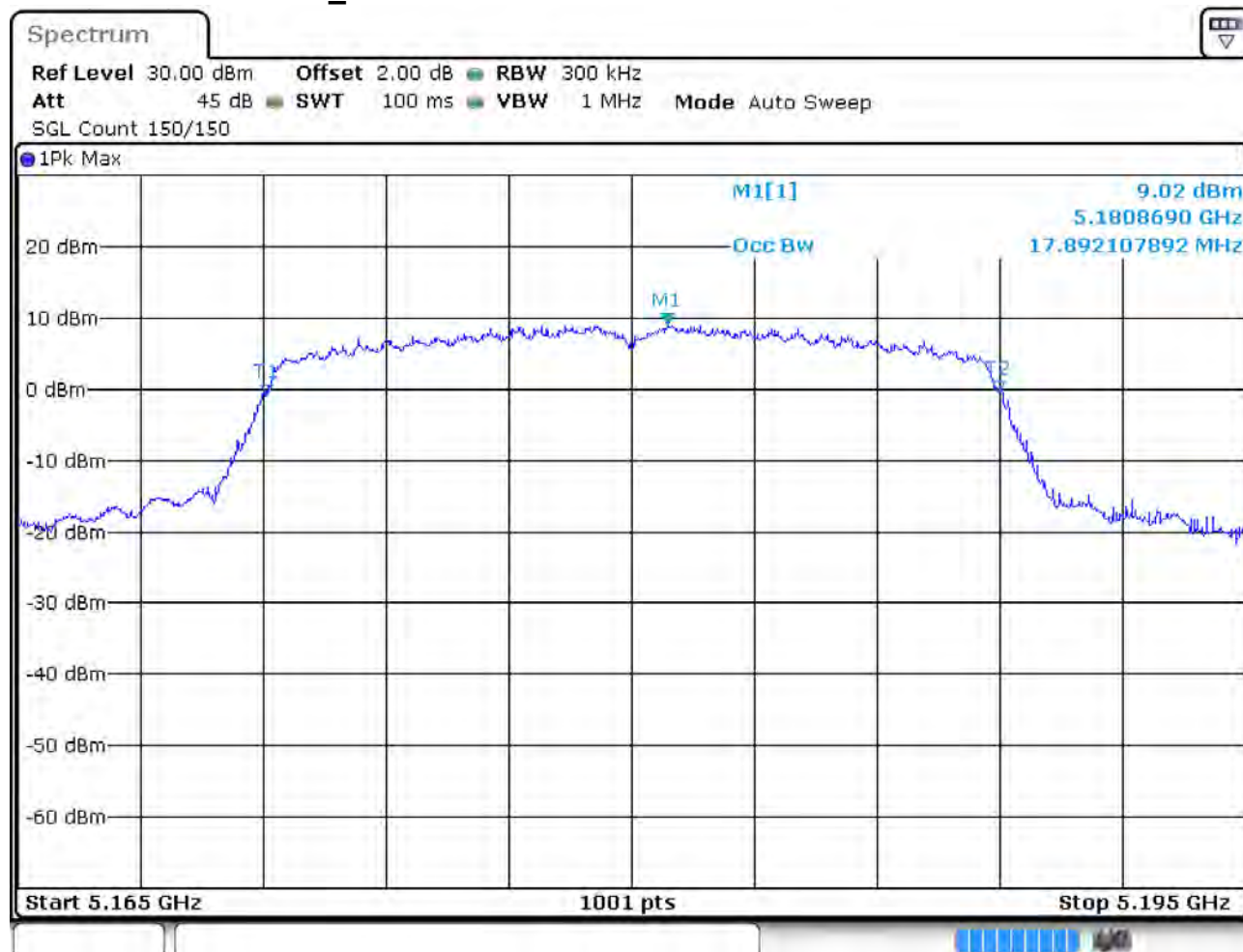
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#### 4.7.2.14 11N20\_36 ANT 1



Date: 18.SEP.2020 11:01:31

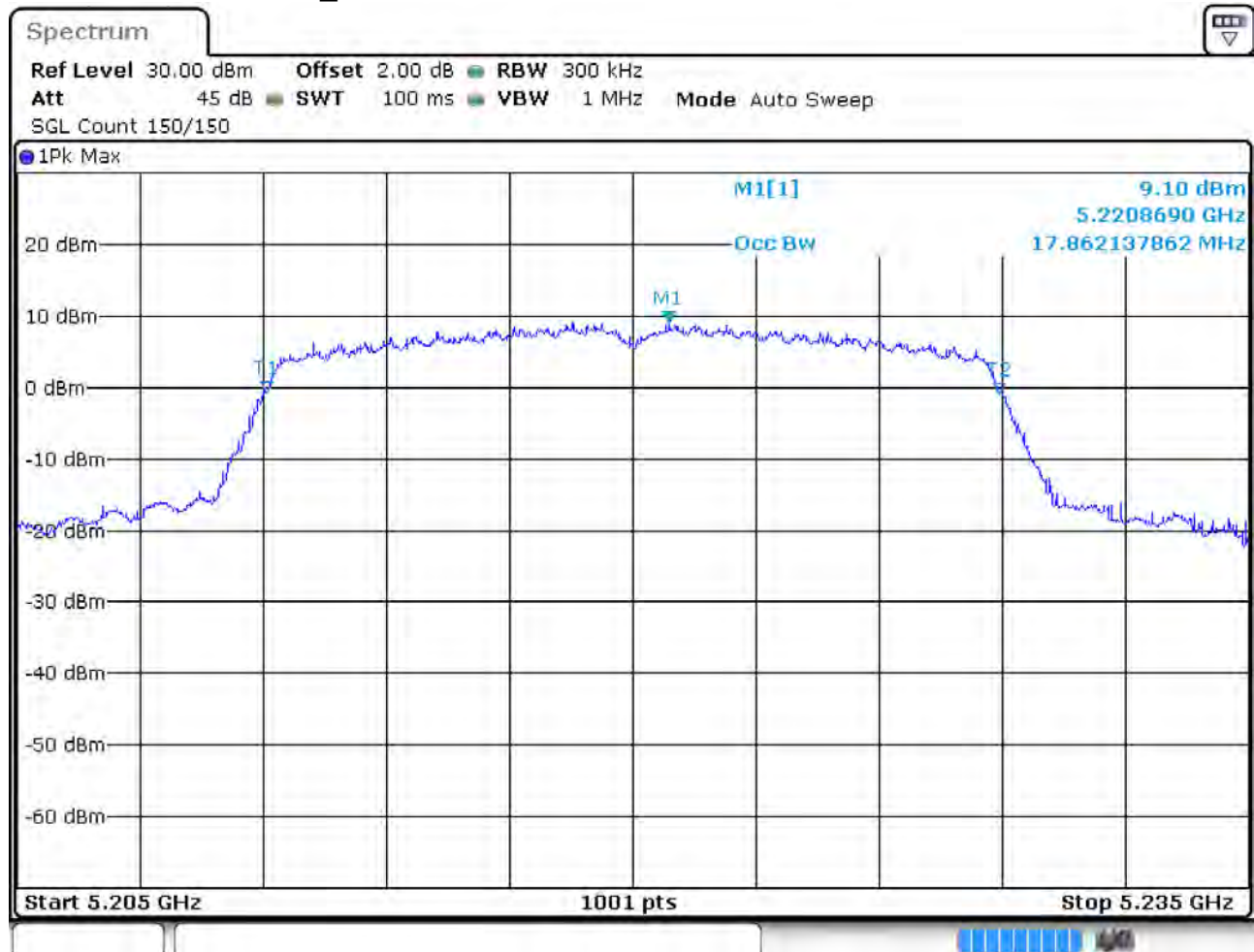


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#### 4.7.2.15 11N20\_44 ANT 1



Date: 18.SEP.2020 11:03:04

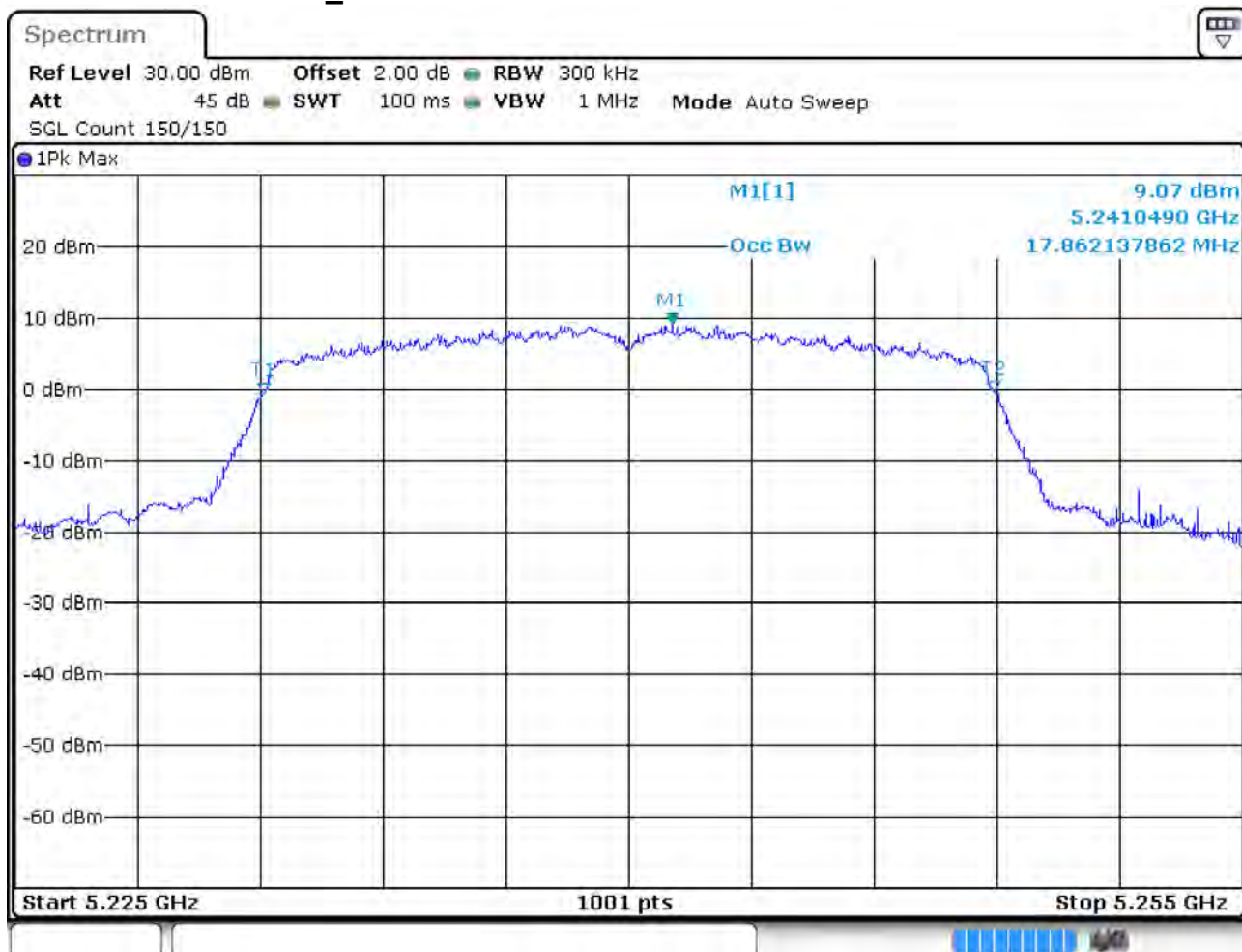


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#### 4.7.2.16 11N20\_48 ANT 1



Date: 18.SEP.2020 11:04:24

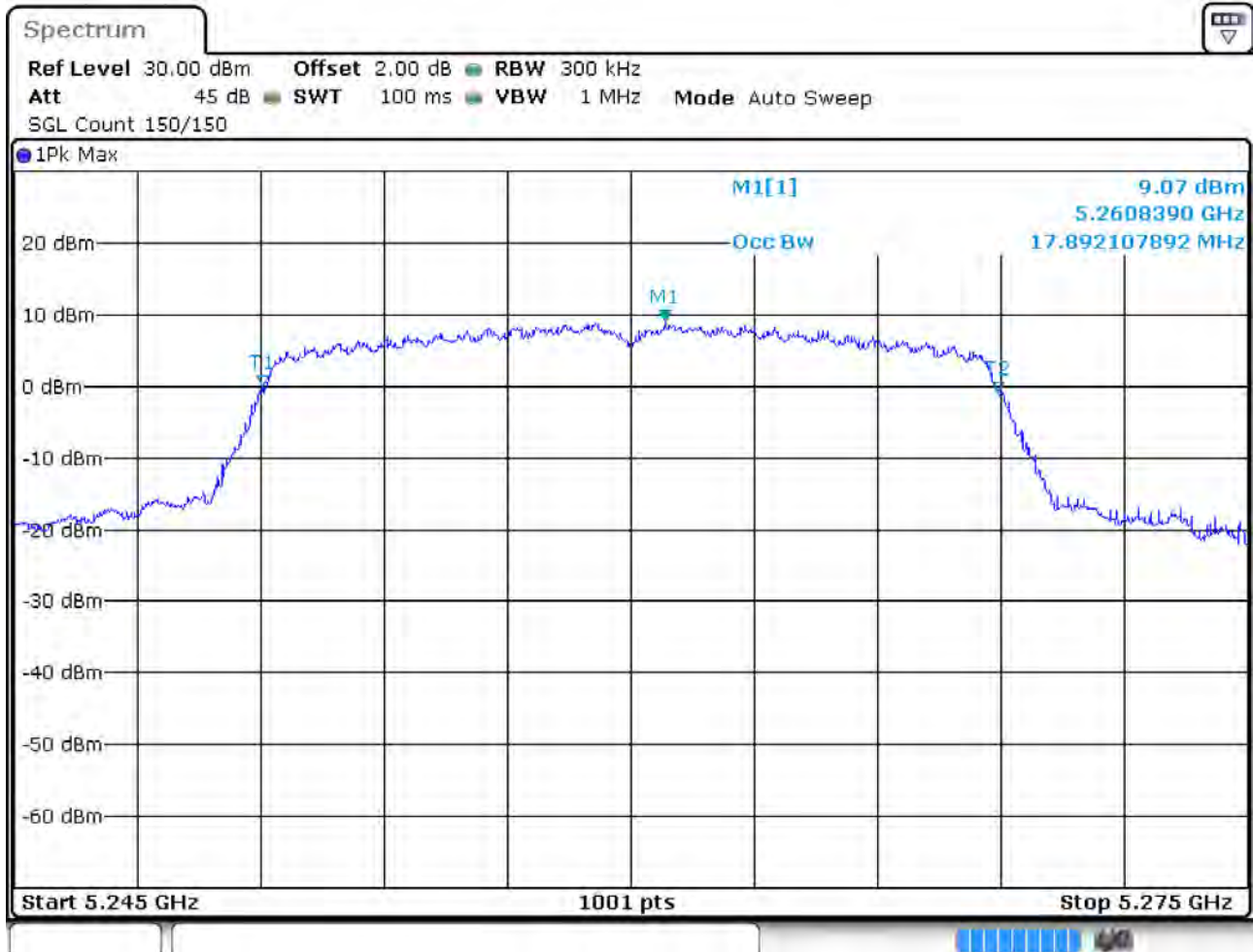


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#### 4.7.2.17 11N20\_52 ANT 1



Date: 18.SEP.2020 11:16:48

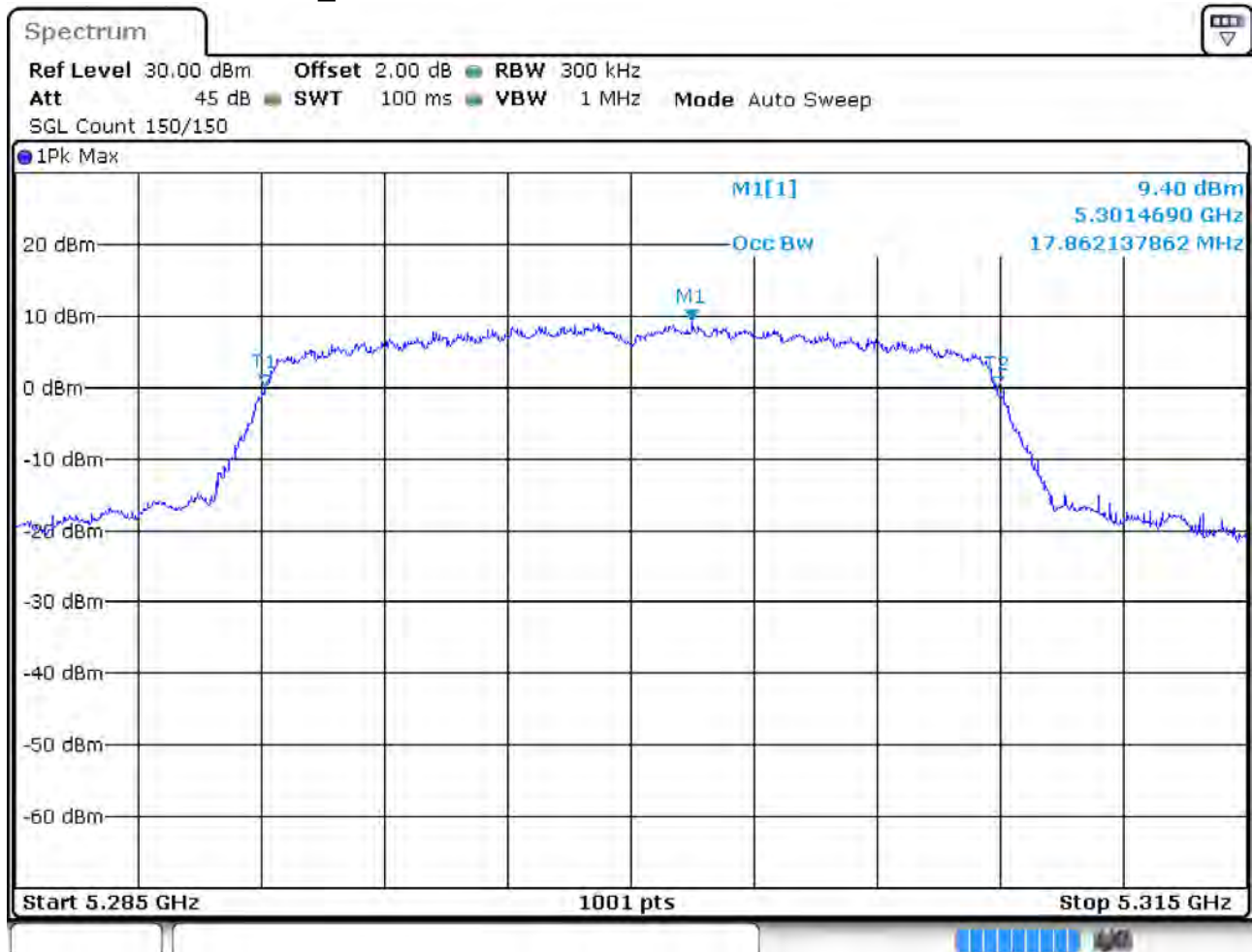


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#### 4.7.2.18 11N20\_60 ANT 1



Date: 18.SEP.2020 11:18:17



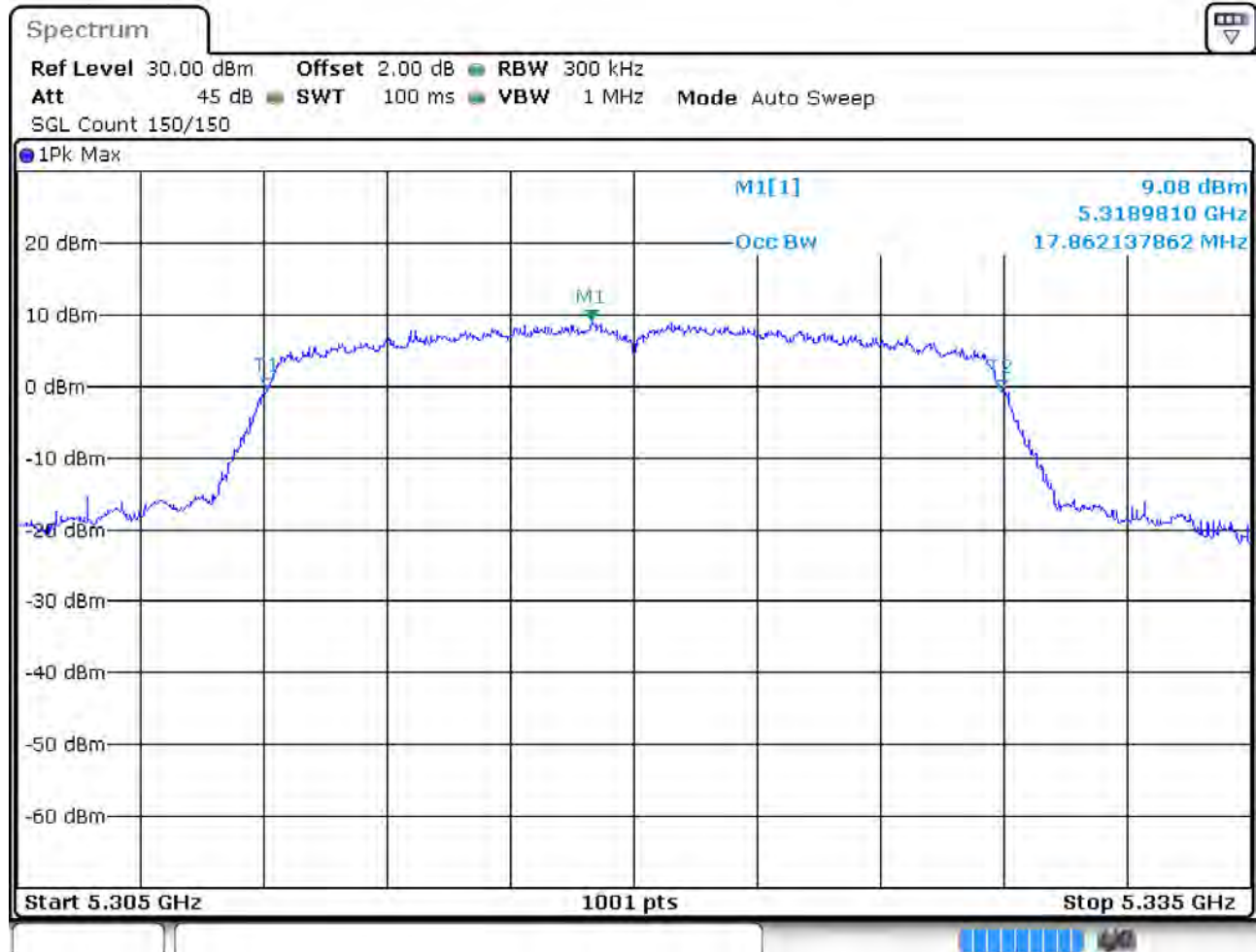
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#### 4.7.2.19

#### 11N20\_64 ANT 1



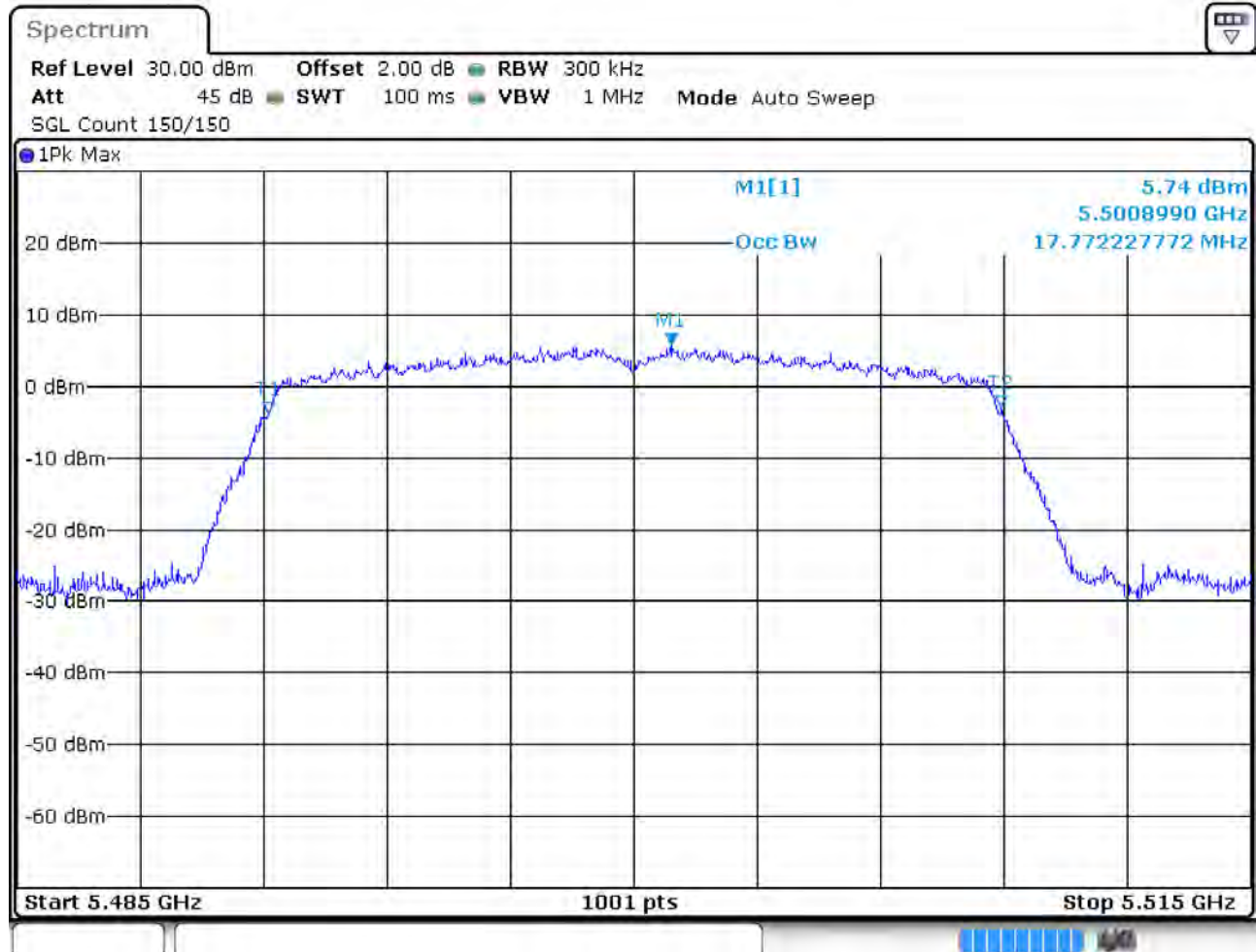
Date: 18.SEP.2020 11:19:34



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#### 4.7.2.20 11N20\_100 ANT 1



Date: 18.SEP.2020 11:21:10

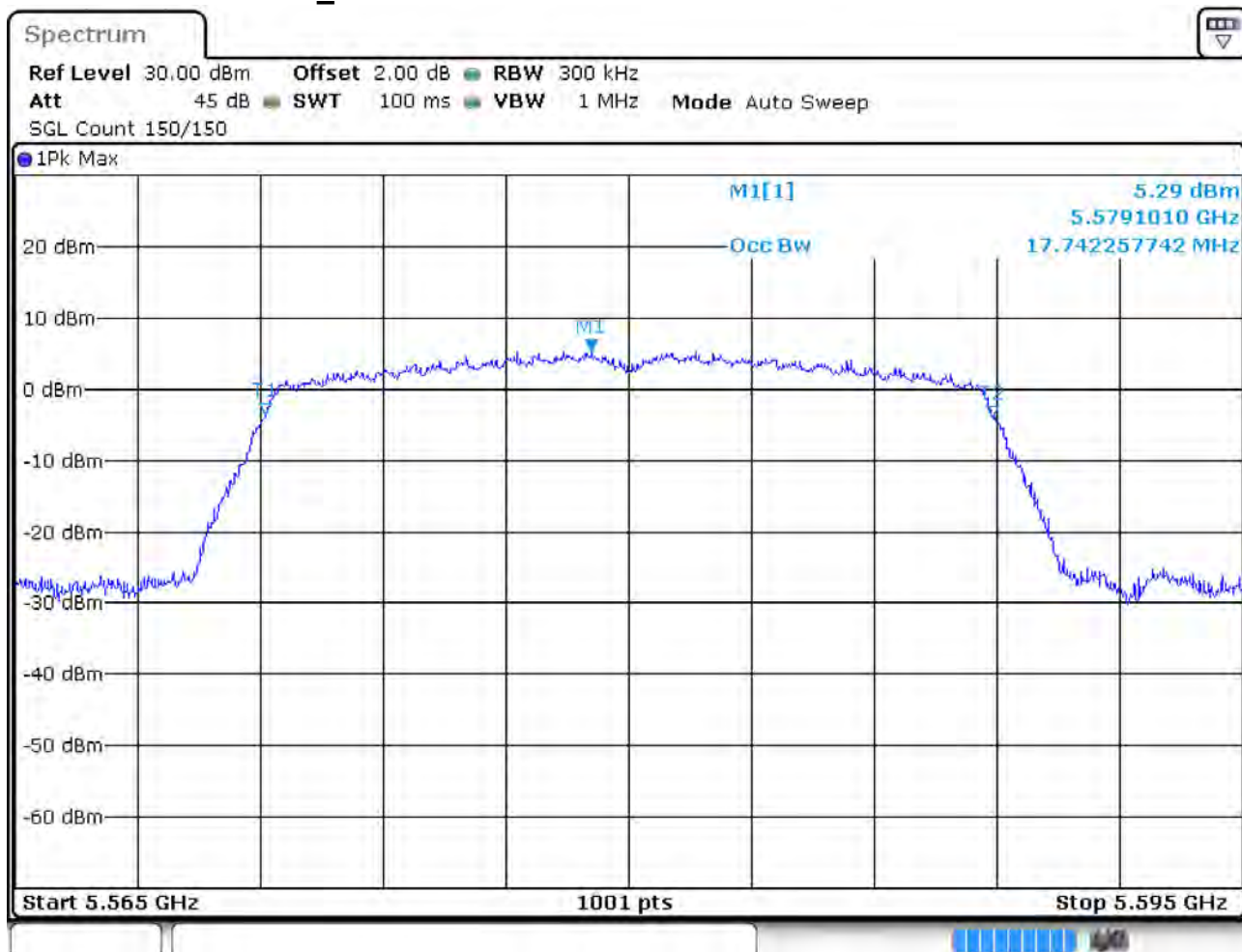


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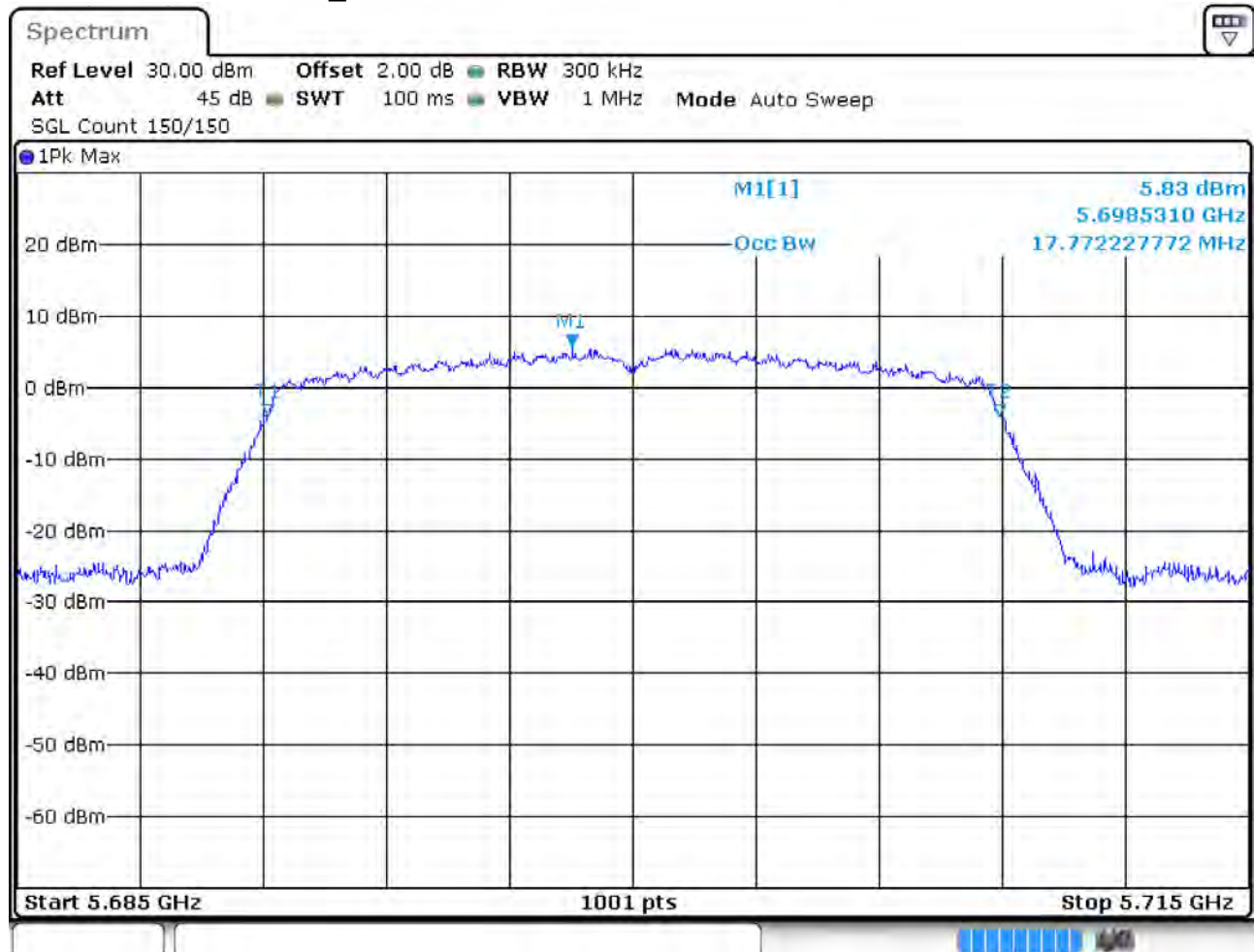
#### 4.7.2.21 11N20\_116 ANT 1



Date: 18.SEP.2020 11:22:30



#### 4.7.2.22 11N20\_140 ANT 1



Date: 18.SEP.2020 11:23:57

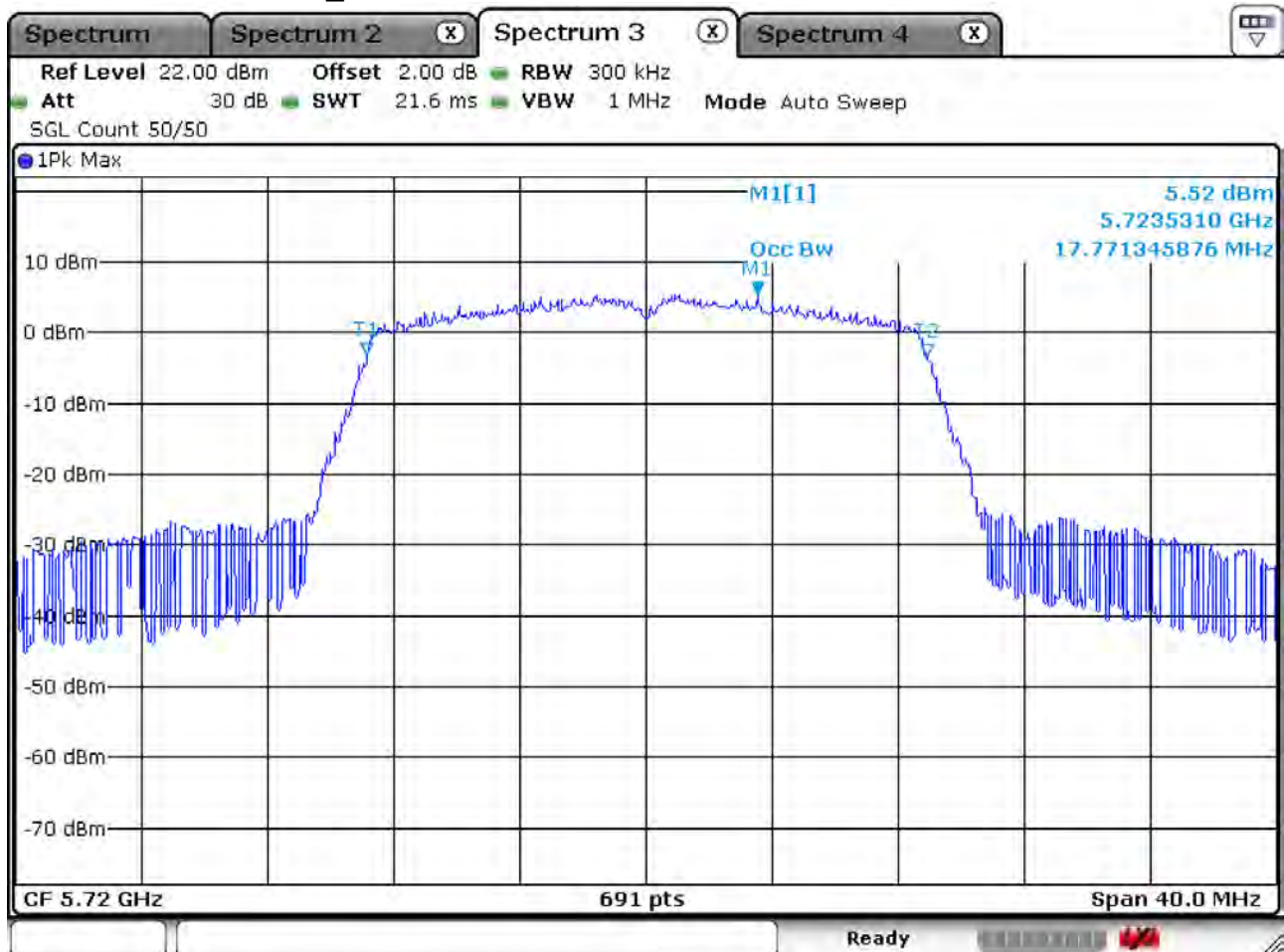


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#### 4.7.2.23 11N20\_144 ANT 1



Date: 21.OCT.2020 10:29:43

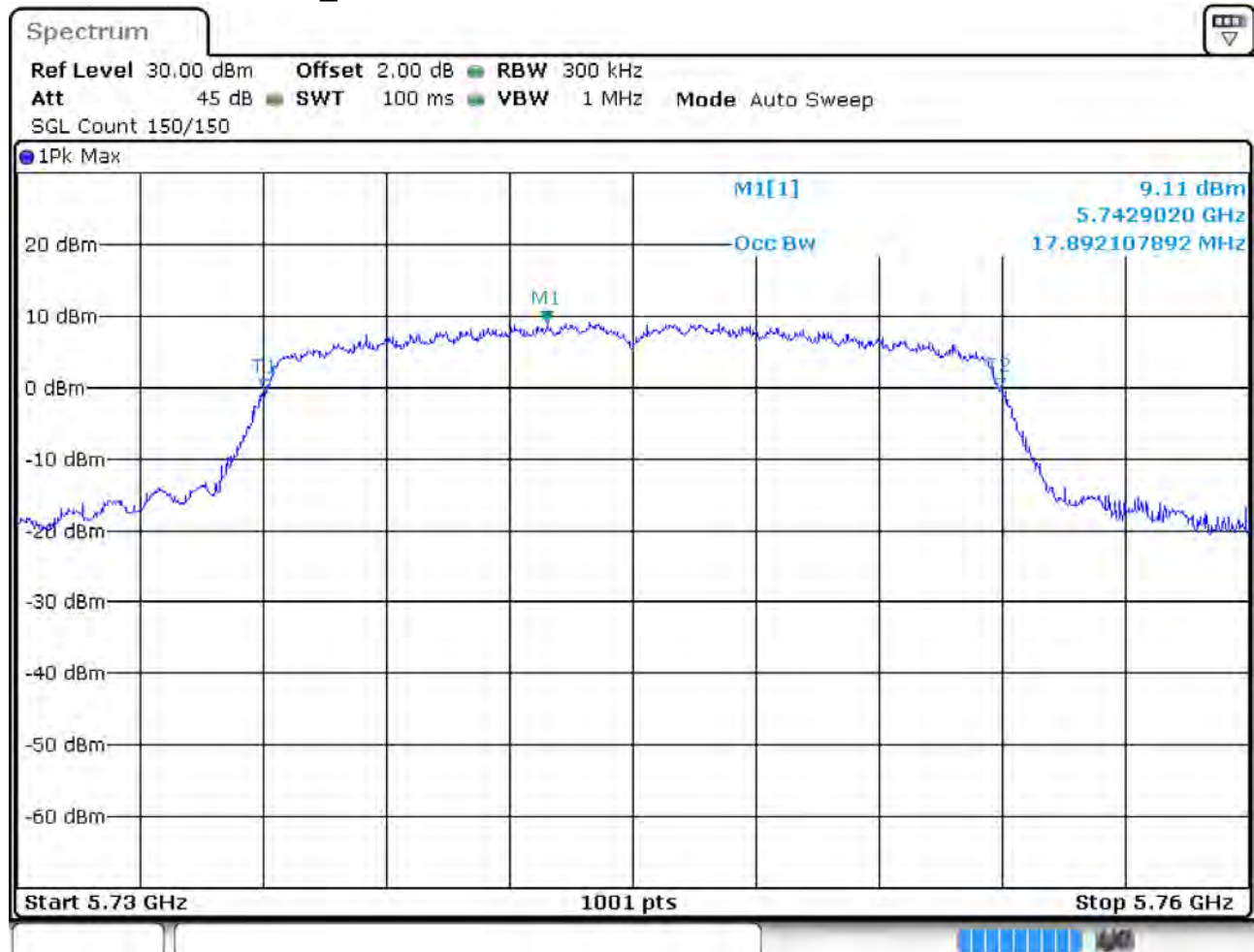


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#### 4.7.2.24 11N20\_149 ANT 1



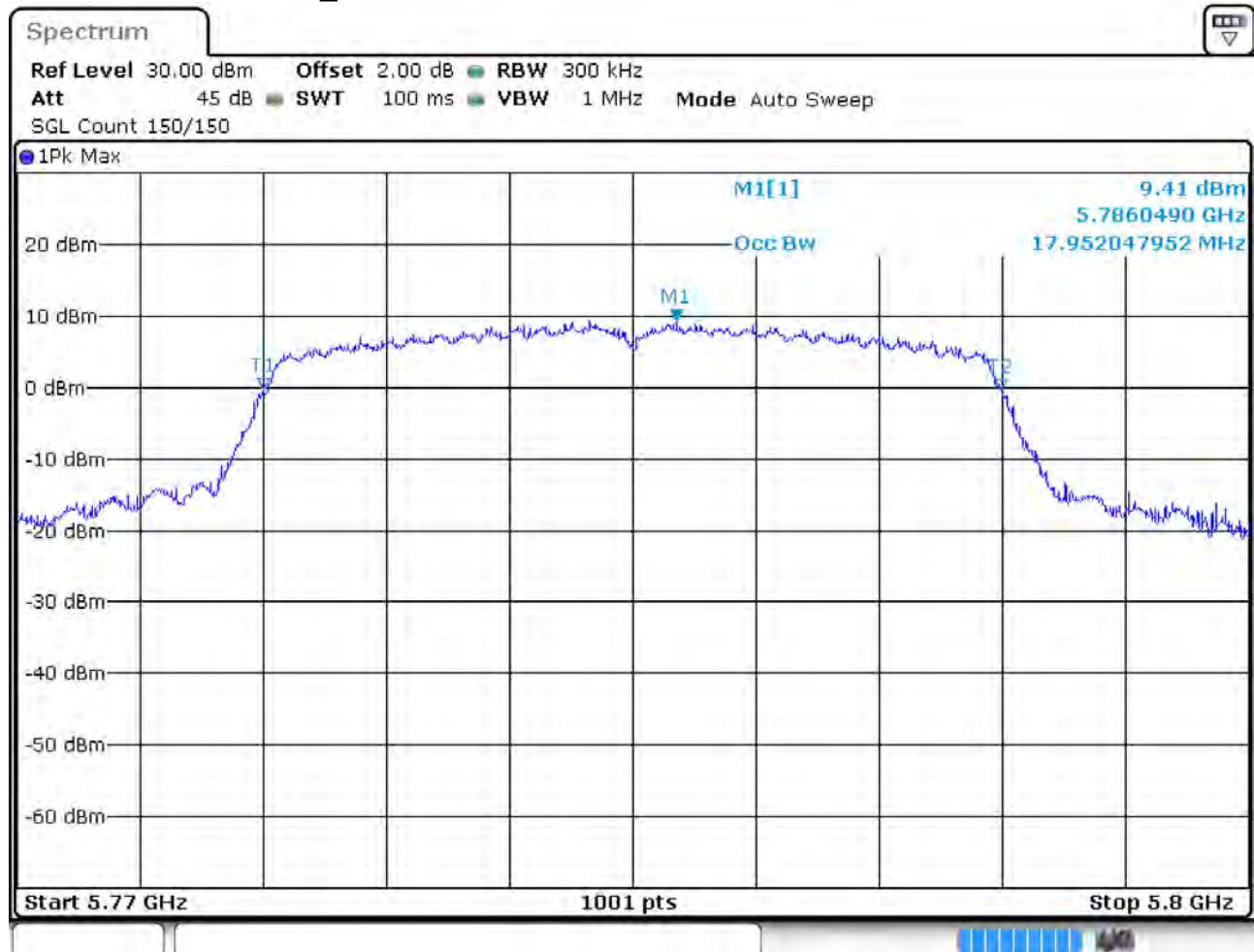
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#### 4.7.2.25 11N20\_157 ANT 1



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