

## FCC - TEST REPORT

Report Number : **68.950.19.2758.01** Date of Issue: Sept 9, 2019

Model : **HVN: ED100, HVN: MD44014**

Product Type : Mobile POS System

Applicant : NumberFour AG

Address : Schoenhauser Allee 8, 10119 Berlin, Germany

Manufacturer : NumberFour AG

Address : Schoenhauser Allee 8, 10119 Berlin, Germany

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including Appendices : **109**

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## 2 Details about the Test Laboratory

### Details about the Test Laboratory

#### Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch  
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FCC Registration Number: 514049

Telephone: 86 755 8828 6998  
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### 3 Description of the Equipment Under Test

|                            |                                                                                                                                                                        |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product:                   | Mobile POS System                                                                                                                                                      |
| Model no.:                 | HVN: ED100, HVN: MD44014                                                                                                                                               |
| FCC ID:                    | 2ANTM-MD44014                                                                                                                                                          |
| Options and accessories:   | Charger and power Cable                                                                                                                                                |
| Rating:                    | 3.85VDC, 2810mAh, (Supplied by Rechargeable Li-ion Battery)<br>or 5VDC (Supplied by external adapter for Charging rechargeable battery)                                |
| Adapter information:       | Model: DSA-18QFB FUS A<br>Input:100-240VAC 50/60Hz, 0.8A,<br>Output:5VDC,3A or 9V 2A or 12V 1.5A<br>Manufacturer: Dee Van Enterprise Co., Ltd                          |
| RF Transmission Frequency: | 13.56MHz for NFC<br>2402MHz-2480MHz for Bluetooth<br>2412MHz-2462MHz for 802.11b/g/n20/n40 (WIFI)<br>5150-5350, 5470-5825MHz for 802.11a/n20/n40/ac20/ac40/ac80 (WIFI) |
| No. of Operated Channel:   | 1 for NFC<br>79 for Bluetooth<br>11 for 802.11b/g/n20/n40 (WIFI)<br>43 for for 802.11a/n20/n40/ac20/ac40/ac80 (WIFI)                                                   |
| Modulation:                | ASK for NFC<br>GFSK, $\pi/4$ -DQPSK, 8DPSK for Bluetooth<br>DSSS, OFDM for WIFI                                                                                        |
| Antenna Type:              | FPC antenna                                                                                                                                                            |
| Antenna Gain:              | 1.2dBi max for 2.4GHz<br>2.0dBi max for 5GHz                                                                                                                           |
| Description of the EUT:    | The Equipment Under Test (EUT) is a Mobile POS System which support WIFI at 2.4GHz and 5GHz, Bluetooth function operated at 2.4GHz                                     |

#### 4 Summary of Test Standards

| Test Standards                              |                                                                                                         |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------|
| FCC Part 15 Subpart E,<br>10-1-2018 Edition | PART 15 - RADIO FREQUENCY DEVICES<br>Subpart E - Unlicensed National Information Infrastructure Devices |
| FCC Part 15 Subpart C<br>10-1-2018 Edition  | PART 15 - RADIO FREQUENCY DEVICES<br>Subpart C - Intentional Radiators                                  |

Test Method:

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices

## 5 Summary of Test Results

| Technical Requirements                                                                                         |                                     |                          |                          |
|----------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------|--------------------------|
| FCC Part 15 Subpart E, FCC Part 15 Subpart C                                                                   |                                     |                          |                          |
| Test Condition                                                                                                 | Test Result                         |                          |                          |
|                                                                                                                | Pass                                | Fail                     | N/A                      |
| 15.207 Conducted Emission AC Power Port                                                                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15.407(e) Emission bandwidth                                                                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15.407(a)(i)<br>Maximum Conducted Output Power                                                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15.407(a)(i)<br>Maximum Power Spectral Density                                                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15.407(b)(1), 15.407(b)(2), 15.407(b)(3), 15.407(b)(4),<br>15.407(b)(6) 15.407(b)(7) 15.209 Unwanted Emissions | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15.407(b)(i), 15.407(b)(5), 15.407(b)(7), 15.209 Band edge<br>compliance                                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Duty Cycle                                                                                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15.407(g) Frequencies Stability                                                                                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15.407(h) Dynamic Frequency Selection (DFS). <sup>a</sup>                                                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15.203<br>Antenna Requirement                                                                                  | See<br>note 1                       | <input type="checkbox"/> | <input type="checkbox"/> |

Remark: <sup>a</sup> The EUT is Clients Device without Radar Detection.

Note 1: The EUT uses an FPC antenna, which gain is 2.0dBi. In accordance to 15.203, it is considered sufficiently to comply with the provisions of this section.

## 6 General Remarks

### Remarks

This submittal(s) (test report) is intended for FCC ID: 2ANTM-MD44014, complies with Section 15.207, 15.209, 15.205, 15.247 of the FCC Part 15, Subpart C.

HVN: ED100 is a Mobile POS System with Bluetooth Low Energy/Bluetooth BDR+EDR/WIFI/NFC/GPS/UMTS/LTE function. HVN: ED100 with camera models HZPV4197(Manufacturer: SHENZHEN HEZHONG IMAGE TECHNOLOGY CO. Ltd) and YGA0711(Manufacturer: Shenzhen Yigao Photoelectric Technology Limited), with internal storage models KMQE60013M-B318 (Manufacturer: Sumsung) and H9TQ17ABJTCCUR-KUM (Manufacturer: hynix).

HVN: MD44014 is identical with model: HVN: ED100 except model name and trademark (HVN: MD44014 for MEDION, HVN: ED100 for enforeDonner), unless otherwise Specification the model: HVN: ED100 was choose as representative model to perform all test items, and model: HVN: MD44014 was deemed to fulfil relevant EMC requirements without further testing.

This report is for the 5GHz WIFI band 1/2/3/4.

### SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

Sample Received Date: August 15, 2019

Testing Start Date: August 15, 2019

Testing End Date: September 6, 2019

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch –

Reviewed by:



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Prepared by:



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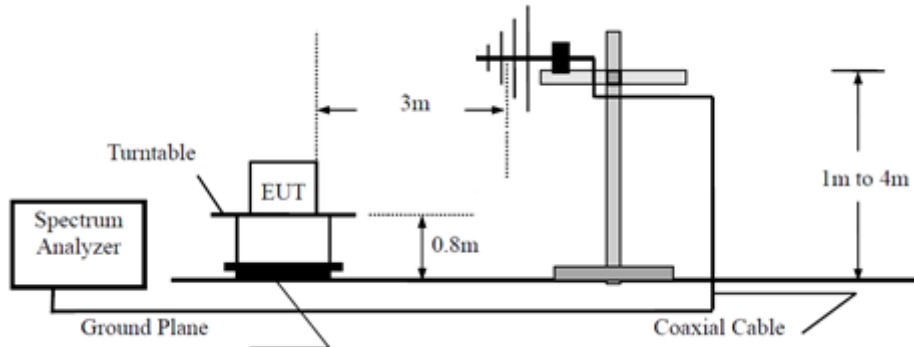


Tree Zhan  
EMC Test Engineer

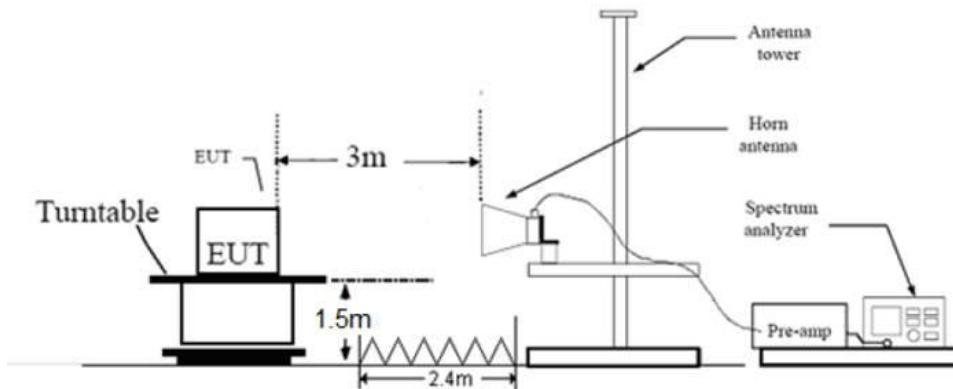
## 7 Test setups

### 7.1 Radiated test setups

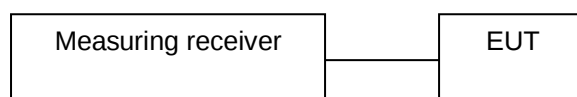
Below 1GHz



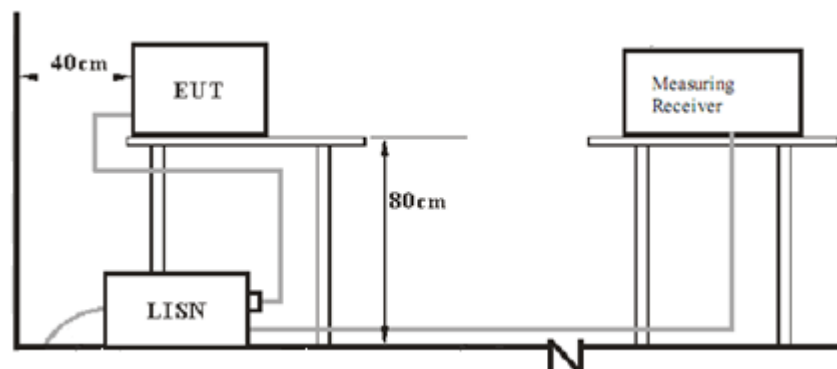
Above 1GHz



### 7.2 Conducted RF test setups



### 7.3 AC Power Line Conducted Emission test setups



## 8. Systems test configuration

### Auxiliary Equipment Used during Test:

| DESCRIPTION | MANUFACTURER | MODEL NO. | S/N |
|-------------|--------------|-----------|-----|
| Laptop      | Lenovo       | T460S     | --- |

### Test software information:

| Test Software Version | HVN: ED100-1.x.x-1.x |                            |
|-----------------------|----------------------|----------------------------|
| Modulation            | Setting TX Power     | Packet Type                |
| 802.11a               | 14.5                 | 11g 6 Mbps                 |
| 802.11n HT20          | 13.5                 | MCS0 6.5 Mbps              |
| 802.11n HT40          | 13                   | MCS0 13.5 Mbps (40MHz)     |
| 802.11ac VHT20        | 13                   | 11ac NGI 6.5 Mbps (20MHz)  |
| 802.11ac VHT40        | 12.5                 | 11ac NGI 13.5 Mbps (40MHz) |
| 802.11ac VHT80        | 12                   | 11ac NGI 29.3 Mbps (80MHz) |

The system was configured to channel:

| Test Mode                                  | Channel (MHz)    |                 |                 |
|--------------------------------------------|------------------|-----------------|-----------------|
| 802.11a,<br>802.11n HT20<br>802.11ac VHT20 | 5G WIFI-Band 1   |                 |                 |
|                                            | CH36 (5180MHz)   | CH40 (5200MHz)  | CH46 (5240MHz)  |
|                                            | 5G WIFI-Band 2   |                 |                 |
|                                            | CH52 (5260MHz)   | CH56 (5280MHz)  | CH64 (5320MHz)  |
|                                            | 5G WIFI-Band 3   |                 |                 |
|                                            | CH100 (5500MHz)  | CH116 (5580MHz) | CH140 (5700MHz) |
|                                            | CH 142 (5710MHz) |                 |                 |
|                                            | 5G WIFI-Band 4   |                 |                 |
| CH149 (5745MHz),                           | CH157(5785MHz)   | CH165 (5825MHz) |                 |

| Test Mode                      | Channel (MHz)    |                |                |
|--------------------------------|------------------|----------------|----------------|
| 802.11n HT40<br>802.11ac VHT40 | 5G WIFI-Band 1   |                |                |
|                                | CH38(5190MHz)    | CH46 (5230MHz) |                |
|                                | 5G WIFI-Band 2   |                |                |
|                                | CH54(5270MHz)    | CH62(5310MHz)  |                |
|                                | 5G WIFI-Band 3   |                |                |
|                                | CH102(5510MHz)   | CH110(5550MHz) | CH134(5670MHz) |
|                                | CH 144 (5720MHz) |                |                |
|                                | 5G WIFI-Band 4   |                |                |
|                                | CH151(5755MHz)   | CH159(5795MHz) |                |

| Test Mode      | Channel (MHz)  |                |
|----------------|----------------|----------------|
| 802.11ac VHT80 | 5G WIFI-Band 1 |                |
|                | CH42(5210MHz)  |                |
|                | 5G WIFI-Band 2 |                |
|                | CH58(5290MHz)  |                |
|                | 5G WIFI-Band 3 |                |
|                | CH106(5530MHz) | CH138(5690MHz) |
|                | 5G WIFI-Band 4 |                |
|                | CH155(5775MHz) |                |

## 9 Technical Requirement

### 9.1 Conducted Emission

#### Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

#### Limit

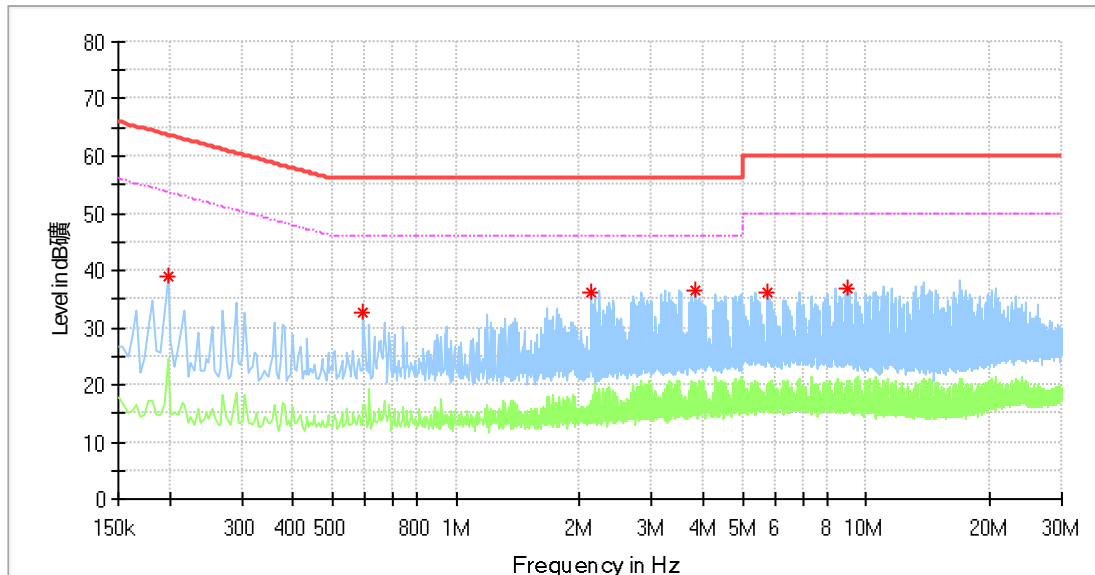
According to §15.207, conducted emissions limit as below:

| Frequency<br>MHz | QP Limit<br>dBμV | AV Limit<br>dBμV |
|------------------|------------------|------------------|
| 0.150-0.500      | 66-56*           | 56-46*           |
| 0.500-5          | 56               | 46               |
| 5-30             | 60               | 50               |

Remark: “\*” Decreasing linearly with logarithm of the frequency

## Conducted Emission

Product Type : Mobile POS System  
 M/N : HVN: ED100  
 Operating Condition : Charging + TX  
 Test Specification : Power Line, Live  
 Comment : AC 120V/60Hz (External adapter)



| Frequency (MHz) | MaxPeak* (dBμV) | Average* (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr.** (dB) |
|-----------------|-----------------|-----------------|--------------|-------------|------|--------------|
| 0.198000        | 38.91           | ---             | 63.69        | 24.78       | L1   | 10.2         |
| 0.594000        | 32.53           | ---             | 56.00        | 23.47       | L1   | 10.3         |
| 2.134000        | 36.11           | ---             | 56.00        | 19.89       | L1   | 10.3         |
| 3.814000        | 36.55           | ---             | 56.00        | 19.45       | L1   | 10.4         |
| 5.754000        | 36.13           | ---             | 60.00        | 23.87       | L1   | 10.5         |
| 8.970000        | 36.97           | ---             | 60.00        | 23.03       | L1   | 10.6         |

Remark :

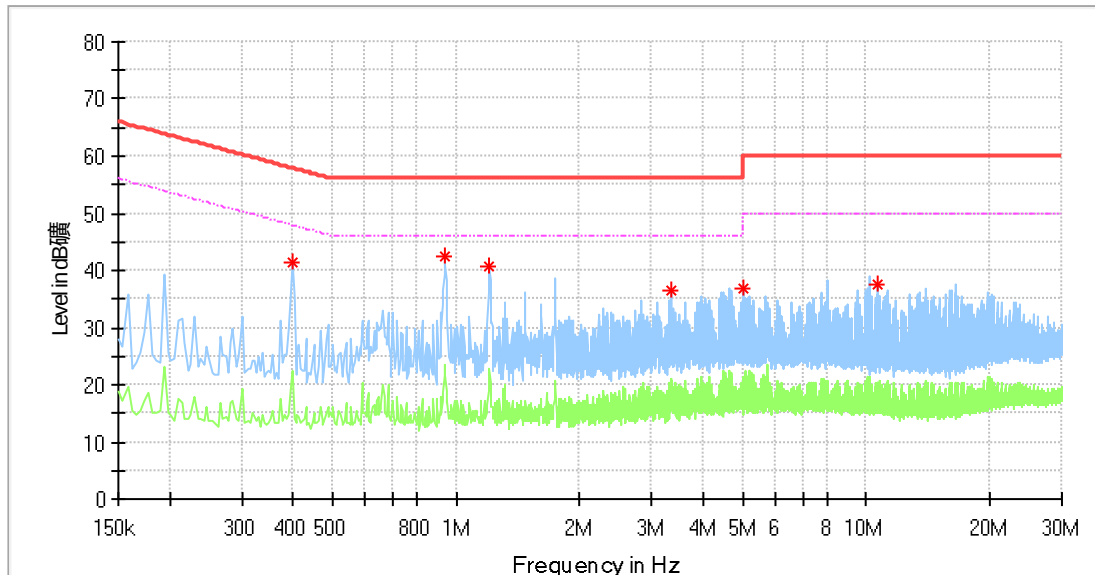
\*Level=Reading Level + Correction Factor

\*\*Correction Factor=Cable Loss + LISN Factor

(The Reading Level is recorded by software which is not shown in the sheet)

## Conducted Emission

Product Type : Mobile POS System  
 M/N : HVN: ED100  
 Operating Condition : Charging + TX  
 Test Specification : Power Line, Neutral  
 Comment : AC 120V/60Hz (External adapter)



| Frequency (MHz) | MaxPeak* (dBμV) | Average* (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr.** (dB) |
|-----------------|-----------------|-----------------|--------------|-------------|------|--------------|
| 0.398000        | 41.39           | ---             | 57.90        | 16.50       | N    | 10.3         |
| 0.938000        | 42.34           | ---             | 56.00        | 13.66       | N    | 10.3         |
| 1.206000        | 40.73           | ---             | 56.00        | 15.27       | N    | 10.3         |
| 3.350000        | 36.41           | ---             | 56.00        | 19.59       | N    | 10.4         |
| 5.034000        | 36.74           | ---             | 60.00        | 23.26       | N    | 10.5         |
| 10.630000       | 37.67           | ---             | 60.00        | 22.33       | N    | 10.7         |

Remark :

\*Level=Reading Level + Correction Factor

\*\*Correction Factor=Cable Loss + LISN Factor

(The Reading Level is recorded by software which is not shown in the sheet)

## 9.2 Emission bandwidth

### 1、 Test Method of 26dB Bandwidth

According to KDB789033 D02

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

**Limit:** No limit

### 2、 Test Method of 6dB Bandwidth

According to KDB789033 D02

- a) Set RBW = 100KHz
- b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

**Limit:**  $\geq 500\text{KHz}$

### 3、 Test Method of 99% Bandwidth

According to KDB789033 D02

- a) Set center frequency to the nominal EUT channel center frequency
- b) Set span = 1.5 times to 5.0 times the OBW.
- c) Set RBW = 1 % to 5 % of the OBW
- d) Set VBW  $\geq 3 \cdot$  RBW
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99 % power bandwidth function of the instrument (if available).
- g) If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

**Limit:** No limit

**26dB Bandwidth Test result:**

| TestMode   | Antenna | Channel      | 26db EBW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|------------|---------|--------------|----------------|----------|----------|------------|---------|
| 11A        | Ant1    | 5180         | 21.560         | 5169.160 | 5190.720 | ---        | PASS    |
|            |         | 5200         | 21.760         | 5189.040 | 5210.800 | ---        | PASS    |
|            |         | 5240         | 21.520         | 5229.200 | 5250.720 | ---        | PASS    |
|            |         | 5260         | 21.360         | 5249.240 | 5270.600 | ---        | PASS    |
|            |         | 5280         | 21.720         | 5269.080 | 5290.800 | ---        | PASS    |
|            |         | 5320         | 21.520         | 5308.840 | 5330.360 | ---        | PASS    |
|            |         | 5500         | 21.600         | 5489.080 | 5510.680 | ---        | PASS    |
|            |         | 5580         | 21.440         | 5569.240 | 5590.680 | ---        | PASS    |
|            |         | 5700         | 21.560         | 5689.200 | 5710.760 | ---        | PASS    |
|            |         | 5720         | 21.360         | 5709.280 | 5730.640 | ---        | PASS    |
|            |         | 5720_UNII-2C | 15.72          | 5709.280 | 5725     | ---        | PASS    |
|            |         | 5720_UNII-3  | 5.64           | 5725     | 5730.640 | ---        | PASS    |
|            |         | 5745         | 21.520         | 5734.200 | 5755.720 | ---        | PASS    |
|            |         | 5785         | 21.520         | 5774.320 | 5795.840 | ---        | PASS    |
| 11N20SISO  | Ant1    | 5825         | 21.840         | 5813.920 | 5835.760 | ---        | PASS    |
|            |         | 5180         | 22.000         | 5169.080 | 5191.080 | ---        | PASS    |
|            |         | 5200         | 21.800         | 5189.040 | 5210.840 | ---        | PASS    |
|            |         | 5240         | 21.840         | 5228.960 | 5250.800 | ---        | PASS    |
|            |         | 5260         | 22.080         | 5248.920 | 5271.000 | ---        | PASS    |
|            |         | 5280         | 21.960         | 5269.040 | 5291.000 | ---        | PASS    |
|            |         | 5320         | 21.920         | 5309.040 | 5330.960 | ---        | PASS    |
|            |         | 5500         | 21.960         | 5488.960 | 5510.920 | ---        | PASS    |
|            |         | 5580         | 22.040         | 5568.880 | 5590.920 | ---        | PASS    |
|            |         | 5700         | 21.840         | 5689.080 | 5710.920 | ---        | PASS    |
|            |         | 5720         | 21.880         | 5708.880 | 5730.760 | ---        | PASS    |
|            |         | 5720_UNII-2C | 16.12          | 5708.880 | 5725     | ---        | PASS    |
|            |         | 5720_UNII-3  | 5.76           | 5725     | 5730.760 | ---        | PASS    |
|            |         | 5745         | 22.000         | 5734.000 | 5756.000 | ---        | PASS    |
| 11N40SISO  | Ant1    | 5785         | 21.720         | 5774.160 | 5795.880 | ---        | PASS    |
|            |         | 5825         | 21.600         | 5814.160 | 5835.760 | ---        | PASS    |
|            |         | 5190         | 44.400         | 5167.520 | 5211.920 | ---        | PASS    |
|            |         | 5230         | 45.040         | 5207.280 | 5252.320 | ---        | PASS    |
|            |         | 5270         | 43.600         | 5248.400 | 5292.000 | ---        | PASS    |
|            |         | 5310         | 43.920         | 5288.320 | 5332.240 | ---        | PASS    |
|            |         | 5510         | 44.160         | 5487.920 | 5532.080 | ---        | PASS    |
|            |         | 5550         | 43.520         | 5528.000 | 5571.520 | ---        | PASS    |
|            |         | 5670         | 44.320         | 5647.760 | 5692.080 | ---        | PASS    |
|            |         | 5710         | 45.280         | 5687.600 | 5732.880 | ---        | PASS    |
|            |         | 5710_UNII-2C | 37.4           | 5687.600 | 5725     | ---        | PASS    |
|            |         | 5710_UNII-3  | 7.88           | 5725     | 5732.880 | ---        | PASS    |
|            |         | 5755         | 44.080         | 5732.840 | 5776.920 | ---        | PASS    |
|            |         | 5795         | 43.920         | 5772.920 | 5816.840 | ---        | PASS    |
| 11AC20SISO | Ant1    | 5180         | 21.720         | 5169.080 | 5190.800 | ---        | PASS    |
|            |         | 5200         | 21.760         | 5189.080 | 5210.840 | ---        | PASS    |
|            |         | 5240         | 21.760         | 5229.120 | 5250.880 | ---        | PASS    |
|            |         | 5260         | 21.600         | 5249.200 | 5270.800 | ---        | PASS    |
|            |         | 5280         | 21.800         | 5269.040 | 5290.840 | ---        | PASS    |
|            |         | 5320         | 21.560         | 5309.200 | 5330.760 | ---        | PASS    |
|            |         | 5500         | 21.680         | 5489.160 | 5510.840 | ---        | PASS    |
|            |         | 5580         | 21.720         | 5569.080 | 5590.800 | ---        | PASS    |
|            |         | 5700         | 21.720         | 5689.080 | 5710.800 | ---        | PASS    |
|            |         | 5720         | 21.880         | 5708.960 | 5730.840 | ---        | PASS    |

|            |      |              |        |          |          |     |      |
|------------|------|--------------|--------|----------|----------|-----|------|
|            |      | 5720_UNII-2C | 16.04  | 5708.960 | 5725     | --- | PASS |
|            |      | 5720_UNII-3  | 5.84   | 5725     | 5730.840 | --- | PASS |
|            |      | 5745         | 21.720 | 5734.040 | 5755.760 | --- | PASS |
|            |      | 5785         | 21.840 | 5774.080 | 5795.920 | --- | PASS |
|            |      | 5825         | 21.640 | 5814.120 | 5835.760 | --- | PASS |
| 11AC40SISO | Ant1 | 5190         | 42.960 | 5168.160 | 5211.120 | --- | PASS |
|            |      | 5230         | 43.040 | 5208.000 | 5251.040 | --- | PASS |
|            |      | 5270         | 43.040 | 5248.080 | 5291.120 | --- | PASS |
|            |      | 5310         | 43.040 | 5288.080 | 5331.120 | --- | PASS |
|            |      | 5510         | 43.040 | 5488.080 | 5531.120 | --- | PASS |
|            |      | 5550         | 42.960 | 5528.080 | 5571.040 | --- | PASS |
|            |      | 5670         | 42.960 | 5648.080 | 5691.040 | --- | PASS |
|            |      | 5710         | 43.200 | 5687.920 | 5731.120 | --- | PASS |
|            |      | 5710_UNII-2C | 37.08  | 5687.920 | 5725     | --- | PASS |
|            |      | 5710_UNII-3  | 6.12   | 5725     | 5731.120 | --- | PASS |
|            |      | 5755         | 43.120 | 5732.920 | 5776.040 | --- | PASS |
|            |      | 5795         | 43.280 | 5772.840 | 5816.120 | --- | PASS |
| 11AC80SISO | Ant1 | 5210         | 84.800 | 5168.080 | 5252.880 | --- | PASS |
|            |      | 5290         | 85.120 | 5248.080 | 5333.200 | --- | PASS |
|            |      | 5530         | 84.960 | 5487.920 | 5572.880 | --- | PASS |
|            |      | 5690         | 85.120 | 5648.080 | 5733.200 | --- | PASS |
|            |      | 5690_UNII-2C | 76.92  | 5648.080 | 5725     | --- | PASS |
|            |      | 5690_UNII-3  | 8.2    | 5725     | 5733.200 | --- | PASS |
|            |      | 5775         | 84.960 | 5732.920 | 5817.880 | --- | PASS |

**99% Bandwidth Test Result**

| TestMode   | Antenna | Channel      | OCB [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|------------|---------|--------------|-----------|----------|----------|------------|---------|
| 11A        | Ant1    | 5180         | 17.782    | 5171.129 | 5188.911 | ---        | PASS    |
|            |         | 5200         | 17.862    | 5191.049 | 5208.911 | ---        | PASS    |
|            |         | 5240         | 17.982    | 5231.009 | 5248.991 | ---        | PASS    |
|            |         | 5260         | 17.902    | 5251.009 | 5268.911 | ---        | PASS    |
|            |         | 5280         | 17.862    | 5271.089 | 5288.951 | ---        | PASS    |
|            |         | 5320         | 17.902    | 5311.049 | 5328.951 | ---        | PASS    |
|            |         | 5500         | 17.942    | 5491.009 | 5508.951 | ---        | PASS    |
|            |         | 5580         | 17.862    | 5571.049 | 5588.911 | ---        | PASS    |
|            |         | 5700         | 17.942    | 5691.009 | 5708.951 | ---        | PASS    |
|            |         | 5720         | 17.982    | 5711.009 | 5728.991 | ---        | PASS    |
|            |         | 5720_UNII-2C | 13.991    | 5711.009 | 5725     | ---        | PASS    |
|            |         | 5720_UNII-3  | 3.991     | 5725     | 5728.991 | ---        | PASS    |
|            |         | 5745         | 17.982    | 5736.009 | 5753.991 | ---        | PASS    |
|            |         | 5785         | 17.902    | 5776.049 | 5793.951 | ---        | PASS    |
|            |         | 5825         | 17.862    | 5816.049 | 5833.911 | ---        | PASS    |
| 11N20SISO  | Ant1    | 5180         | 18.661    | 5170.689 | 5189.351 | ---        | PASS    |
|            |         | 5200         | 18.661    | 5190.689 | 5209.351 | ---        | PASS    |
|            |         | 5240         | 18.741    | 5230.649 | 5249.391 | ---        | PASS    |
|            |         | 5260         | 18.661    | 5250.689 | 5269.351 | ---        | PASS    |
|            |         | 5280         | 18.661    | 5270.689 | 5289.351 | ---        | PASS    |
|            |         | 5320         | 18.701    | 5310.689 | 5329.391 | ---        | PASS    |
|            |         | 5500         | 18.661    | 5490.689 | 5509.351 | ---        | PASS    |
|            |         | 5580         | 18.741    | 5570.609 | 5589.351 | ---        | PASS    |
|            |         | 5700         | 18.701    | 5690.689 | 5709.391 | ---        | PASS    |
|            |         | 5720         | 18.661    | 5710.689 | 5729.351 | ---        | PASS    |
|            |         | 5720_UNII-2C | 14.311    | 5710.689 | 5725     | ---        | PASS    |
|            |         | 5720_UNII-3  | 4.351     | 5725     | 5729.351 | ---        | PASS    |
|            |         | 5745         | 18.661    | 5735.649 | 5754.311 | ---        | PASS    |
|            |         | 5785         | 18.701    | 5775.649 | 5794.351 | ---        | PASS    |
|            |         | 5825         | 18.661    | 5815.649 | 5834.311 | ---        | PASS    |
| 11N40SISO  | Ant1    | 5190         | 36.763    | 5171.698 | 5208.462 | ---        | PASS    |
|            |         | 5230         | 36.843    | 5211.618 | 5248.462 | ---        | PASS    |
|            |         | 5270         | 36.843    | 5251.618 | 5288.462 | ---        | PASS    |
|            |         | 5310         | 36.843    | 5291.618 | 5328.462 | ---        | PASS    |
|            |         | 5510         | 36.923    | 5491.538 | 5528.462 | ---        | PASS    |
|            |         | 5550         | 36.923    | 5531.538 | 5568.462 | ---        | PASS    |
|            |         | 5670         | 36.923    | 5651.538 | 5688.462 | ---        | PASS    |
|            |         | 5710         | 36.923    | 5691.618 | 5728.541 | ---        | PASS    |
|            |         | 5710_UNII-2C | 33.382    | 5691.618 | 5725     | ---        | PASS    |
|            |         | 5710_UNII-3  | 3.541     | 5725     | 5728.541 | ---        | PASS    |
|            |         | 5755         | 36.923    | 5736.538 | 5773.462 | ---        | PASS    |
|            |         | 5795         | 37.003    | 5776.538 | 5813.541 | ---        | PASS    |
| 11AC20SISO | Ant1    | 5180         | 18.541    | 5170.729 | 5189.271 | ---        | PASS    |
|            |         | 5200         | 18.581    | 5190.689 | 5209.271 | ---        | PASS    |
|            |         | 5240         | 18.541    | 5230.689 | 5249.231 | ---        | PASS    |
|            |         | 5260         | 18.581    | 5250.689 | 5269.271 | ---        | PASS    |
|            |         | 5280         | 18.581    | 5270.689 | 5289.271 | ---        | PASS    |
|            |         | 5320         | 18.581    | 5310.689 | 5329.271 | ---        | PASS    |
|            |         | 5500         | 18.581    | 5490.689 | 5509.271 | ---        | PASS    |
|            |         | 5580         | 18.581    | 5570.689 | 5589.271 | ---        | PASS    |
|            |         | 5700         | 18.581    | 5690.689 | 5709.271 | ---        | PASS    |
|            |         | 5720         | 18.661    | 5710.689 | 5729.351 | ---        | PASS    |
|            |         | 5720_UNII-2C | 14.311    | 5710.689 | 5725     | ---        | PASS    |
|            |         |              |           |          |          |            |         |

|            |      |              |        |          |          |     |      |
|------------|------|--------------|--------|----------|----------|-----|------|
|            |      | 5720_UNII-3  | 4.351  | 5725     | 5729.351 | --- | PASS |
|            |      | 5745         | 18.541 | 5735.689 | 5754.231 | --- | PASS |
|            |      | 5785         | 18.581 | 5775.689 | 5794.271 | --- | PASS |
|            |      | 5825         | 18.581 | 5815.689 | 5834.271 | --- | PASS |
| 11AC40SISO | Ant1 | 5190         | 36.843 | 5171.538 | 5208.382 | --- | PASS |
|            |      | 5230         | 36.763 | 5211.538 | 5248.302 | --- | PASS |
|            |      | 5270         | 36.843 | 5251.538 | 5288.382 | --- | PASS |
|            |      | 5310         | 36.763 | 5291.538 | 5328.302 | --- | PASS |
|            |      | 5510         | 36.763 | 5491.538 | 5528.302 | --- | PASS |
|            |      | 5550         | 36.763 | 5531.538 | 5568.302 | --- | PASS |
|            |      | 5670         | 36.763 | 5651.538 | 5688.302 | --- | PASS |
|            |      | 5710         | 36.843 | 5691.538 | 5728.382 | --- | PASS |
|            |      | 5710_UNII-2C | 33.462 | 5691.538 | 5725     | --- | PASS |
|            |      | 5710_UNII-3  | 3.382  | 5725     | 5728.382 | --- | PASS |
|            |      | 5755         | 36.843 | 5736.459 | 5773.302 | --- | PASS |
|            |      | 5795         | 36.843 | 5776.538 | 5813.382 | --- | PASS |
| 11AC80SISO | Ant1 | 5210         | 74.965 | 5172.757 | 5247.722 | --- | PASS |
|            |      | 5290         | 74.965 | 5252.757 | 5327.722 | --- | PASS |
|            |      | 5530         | 75.125 | 5492.597 | 5567.722 | --- | PASS |
|            |      | 5690         | 74.965 | 5652.757 | 5727.722 | --- | PASS |
|            |      | 5690_UNII-2C | 72.243 | 5652.757 | 5725     | --- | PASS |
|            |      | 5690_UNII-3  | 2.722  | 5725     | 5727.722 | --- | PASS |
|            |      | 5775         | 75.125 | 5737.597 | 5812.722 | --- | PASS |

**6dB Bandwidth Test Result**

| TestMode   | Antenna | Channel | 6db EBW [MHz] | FL [MHz] | FH [MHz] | Limit[MHz] | Verdict |
|------------|---------|---------|---------------|----------|----------|------------|---------|
| 11A        | Ant1    | 5745    | 16.440        | 5736.760 | 5753.200 | 0.5        | PASS    |
|            |         | 5785    | 16.440        | 5776.760 | 5793.200 | 0.5        | PASS    |
|            |         | 5825    | 16.440        | 5816.760 | 5833.200 | 0.5        | PASS    |
| 11N20SISO  | Ant1    | 5745    | 17.640        | 5736.160 | 5753.800 | 0.5        | PASS    |
|            |         | 5785    | 17.680        | 5776.160 | 5793.840 | 0.5        | PASS    |
|            |         | 5825    | 17.680        | 5816.160 | 5833.840 | 0.5        | PASS    |
| 11N40SISO  | Ant1    | 5755    | 35.520        | 5737.160 | 5772.680 | 0.5        | PASS    |
|            |         | 5795    | 35.520        | 5777.160 | 5812.680 | 0.5        | PASS    |
| 11AC20SISO | Ant1    | 5745    | 17.640        | 5736.160 | 5753.800 | 0.5        | PASS    |
|            |         | 5785    | 17.680        | 5776.160 | 5793.840 | 0.5        | PASS    |
|            |         | 5825    | 17.640        | 5816.160 | 5833.800 | 0.5        | PASS    |
| 11AC40SISO | Ant1    | 5755    | 35.520        | 5737.160 | 5772.680 | 0.5        | PASS    |
|            |         | 5795    | 35.280        | 5777.400 | 5812.680 | 0.5        | PASS    |
| 11AC80SISO | Ant1    | 5775    | 75.520        | 5737.240 | 5812.760 | 0.5        | PASS    |

### 9.3 Maximum conducted output power

#### Test Method

According to KDB789033 D02(E) Method 3

**Limits:** For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

#### Note:

1. Maximum Conducted Output Power=Conducted Output Power + Correction Factor
2. EIRP= Maximum Conducted Output Power + ANT Gain

#### Test result as below table

IEEE 802.11a modulation Test Result

| Band      | Channel | Frequency (MHz) | Average Power (dBm) | Power Limit (dBm) |
|-----------|---------|-----------------|---------------------|-------------------|
| 5.2G Band | Low     | 5180            | 12.82               | 24.00             |
|           | Middle  | 5200            | 13.53               | 24.00             |
|           | High    | 5240            | 13.97               | 24.00             |
| 5.2G Band | Low     | 5260            | 14.22               | 24.00             |
|           | Middle  | 5280            | 14.02               | 24.00             |
|           | High    | 5320            | 13.45               | 24.00             |
| 5.5G Band | Low     | 5500            | 14.76               | 24.00             |
|           | Middle  | 5580            | 15.25               | 24.00             |
|           | High    | 5700            | 13.15               | 24.00             |
|           | High    | 5720            | 12.44               | 24.00             |
| 5.8G Band | Low     | 5745            | 12.46               | 30.00             |
|           | Middle  | 5785            | 13.59               | 30.00             |
|           | High    | 5825            | 12.88               | 30.00             |

## IEEE 802.11n HT20 modulation Test Result

| Band      | Channel | Frequency (MHz) | Average Power (dBm) | Power Limit (dBm) |
|-----------|---------|-----------------|---------------------|-------------------|
| 5.2G Band | Low     | 5180            | 12.81               | 24.00             |
|           | Middle  | 5200            | 12.72               | 24.00             |
|           | High    | 5240            | 13.21               | 24.00             |
| 5.2G Band | Low     | 5260            | 13.47               | 24.00             |
|           | Middle  | 5280            | 13.33               | 24.00             |
|           | High    | 5320            | 13.74               | 24.00             |
| 5.5G Band | Low     | 5500            | 13.65               | 24.00             |
|           | Middle  | 5580            | 14.23               | 24.00             |
|           | High    | 5700            | 12.54               | 24.00             |
|           | High    | 5720            | 11.88               | 24.00             |
| 5.8G Band | Low     | 5745            | 11.73               | 30.00             |
|           | Middle  | 5785            | 12.84               | 30.00             |
|           | High    | 5825            | 12.39               | 30.00             |

## IEEE 802.11ac VHT20 modulation Test Result

| Band      | Channel | Frequency (MHz) | Average Power (dBm) | Power Limit (dBm) |
|-----------|---------|-----------------|---------------------|-------------------|
| 5.2G Band | Low     | 5180            | 12.67               | 24.00             |
|           | Middle  | 5200            | 12.32               | 24.00             |
|           | High    | 5240            | 12.78               | 24.00             |
| 5.2G Band | Low     | 5260            | 13.01               | 24.00             |
|           | Middle  | 5280            | 12.81               | 24.00             |
|           | High    | 5320            | 12.24               | 24.00             |
| 5.5G Band | Low     | 5500            | 13.21               | 24.00             |
|           | Middle  | 5580            | 13.77               | 24.00             |
|           | High    | 5700            | 12.07               | 24.00             |
|           | High    | 5720            | 11.36               | 24.00             |
| 5.8G Band | Low     | 5745            | 11.38               | 30.00             |
|           | Middle  | 5785            | 12.44               | 30.00             |
|           | High    | 5825            | 11.84               | 30.00             |

## IEEE 802.11n HT40 modulation Test Result

| Band      | Channel | Frequency (MHz) | Average Power (dBm) | Power Limit (dBm) |
|-----------|---------|-----------------|---------------------|-------------------|
| 5.2G Band | Low     | 5190            | 11.62               | 24.00             |
|           | High    | 5230            | 11.72               | 24.00             |
| 5.2G Band | Low     | 5270            | 12.14               | 24.00             |
|           | High    | 5310            | 11.52               | 24.00             |
| 5.5G Band | Low     | 5510            | 11.53               | 24.00             |
|           | Middle  | 5550            | 11.42               | 24.00             |
|           | High    | 5670            | 12.01               | 24.00             |
|           | High    | 5710            | 11.44               | 24.00             |
| 5.8G Band | Low     | 5755            | 11.02               | 30.00             |
|           | High    | 5795            | 11.65               | 30.00             |

## IEEE 802.11ac VHT40 modulation Test Result

| Band      | Channel | Frequency (MHz) | Average Power (dBm) | Power Limit (dBm) |
|-----------|---------|-----------------|---------------------|-------------------|
| 5.2G Band | Low     | 5190            | 11.32               | 24.00             |
|           | High    | 5230            | 11.45               | 24.00             |
| 5.2G Band | Low     | 5270            | 11.82               | 24.00             |
|           | High    | 5310            | 11.19               | 24.00             |
| 5.5G Band | Low     | 5510            | 11.18               | 24.00             |
|           | Middle  | 5550            | 11.15               | 24.00             |
|           | High    | 5670            | 11.72               | 24.00             |
|           | High    | 5710            | 10.75               | 24.00             |
| 5.8G Band | Low     | 5755            | 10.71               | 30.00             |
|           | High    | 5795            | 11.44               | 30.00             |

## IEEE 802.11ac VHT80 modulation Test Result

| Band      | Channel | Frequency (MHz) | Average Power (dBm) | Power Limit (dBm) |
|-----------|---------|-----------------|---------------------|-------------------|
| 5.2G Band | Low     | 5210            | 9.85                | 24.00             |
| 5.2G Band | High    | 5290            | 9.92                | 24.00             |
| 5.5G Band | Low     | 5530            | 9.24                | 24.00             |
|           | High    | 5690            | 9.86                | 24.00             |
| 5.8G Band | High    | 5775            | 9.38                | 30.00             |

## 9.4 Maximum power spectral density

### Test Method

According to KDB789033 D02

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the

above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth

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

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

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHz is available on nearly all spectrum analyzers.

**Limit:** The maximum power spectral density shall not exceed 11dBm for the 5.15-5.25GHz, 5.25-5.35GHz, 5.47-5.725 GHz Band and 30dBm for the 5.8GHz Band in any 1 megahertz band.

## Test Result

| TestMode   | Antenna | Channel [MHz] | Result [dBm] | Limit [dBm] | Verdict |
|------------|---------|---------------|--------------|-------------|---------|
| 11A        | Ant1    | 5180          | 7.01         | <=11        | PASS    |
|            |         | 5200          | 7.48         | <=11        | PASS    |
|            |         | 5240          | 7.57         | <=11        | PASS    |
|            |         | 5260          | 7.44         | <=11        | PASS    |
|            |         | 5280          | 7.35         | <=11        | PASS    |
|            |         | 5320          | 7.93         | <=11        | PASS    |
|            |         | 5500          | 8.75         | <=11        | PASS    |
|            |         | 5580          | 8.87         | <=11        | PASS    |
|            |         | 5700          | 6.37         | <=11        | PASS    |
|            |         | 5720 UNII-2C  | 6.76         | <=11        | PASS    |
|            |         | 5720 UNII-3   | 5.25         | <=11        | PASS    |
|            |         | 5745          | 5.87         | <=30        | PASS    |
|            |         | 5785          | 5.19         | <=30        | PASS    |
|            |         | 5825          | 5.42         | <=30        | PASS    |
| 11N20SISO  | Ant1    | 5180          | 6.34         | <=11        | PASS    |
|            |         | 5200          | 6.73         | <=11        | PASS    |
|            |         | 5240          | 6.67         | <=11        | PASS    |
|            |         | 5260          | 6.62         | <=11        | PASS    |
|            |         | 5280          | 6.36         | <=11        | PASS    |
|            |         | 5320          | 6.49         | <=11        | PASS    |
|            |         | 5500          | 7.25         | <=11        | PASS    |
|            |         | 5580          | 7.53         | <=11        | PASS    |
|            |         | 5700          | 5.68         | <=11        | PASS    |
|            |         | 5720 UNII-2C  | 5.83         | <=11        | PASS    |
|            |         | 5720 UNII-3   | 4.29         | <=11        | PASS    |
|            |         | 5745          | 5.02         | <=30        | PASS    |
|            |         | 5785          | 4.62         | <=30        | PASS    |
|            |         | 5825          | 4.50         | <=30        | PASS    |
| 11N40SISO  | Ant1    | 5190          | 4.78         | <=11        | PASS    |
|            |         | 5230          | 5.13         | <=11        | PASS    |
|            |         | 5270          | 5.69         | <=11        | PASS    |
|            |         | 5310          | 5.33         | <=11        | PASS    |
|            |         | 5510          | 5.43         | <=11        | PASS    |
|            |         | 5550          | 4.87         | <=11        | PASS    |
|            |         | 5670          | 4.42         | <=11        | PASS    |
|            |         | 5710 UNII-2C  | 3.98         | <=11        | PASS    |
|            |         | 5710 UNII-3   | 1.30         | <=11        | PASS    |
|            |         | 5755          | 2.97         | <=30        | PASS    |
|            |         | 5795          | 4.78         | <=30        | PASS    |
| 11AC20SISO | Ant1    | 5180          | 6.56         | <=11        | PASS    |
|            |         | 5200          | 6.39         | <=11        | PASS    |
|            |         | 5240          | 6.74         | <=11        | PASS    |
|            |         | 5260          | 6.53         | <=11        | PASS    |
|            |         | 5280          | 6.69         | <=11        | PASS    |
|            |         | 5320          | 6.75         | <=11        | PASS    |
|            |         | 5500          | 7.44         | <=11        | PASS    |
|            |         | 5580          | 7.51         | <=11        | PASS    |
|            |         | 5700          | 5.92         | <=11        | PASS    |
|            |         | 5720 UNII-2C  | 5.53         | <=11        | PASS    |
|            |         | 5720 UNII-3   | 4.90         | <=11        | PASS    |
|            |         | 5745          | 4.38         | <=30        | PASS    |
|            |         | 5785          | 4.43         | <=30        | PASS    |
|            |         | 5825          | 5.13         | <=30        | PASS    |
| 11AC40SISO | Ant1    | 5190          | 6.33         | <=11        | PASS    |
|            |         | 5230          | 6.00         | <=11        | PASS    |
|            |         | 5270          | 5.87         | <=11        | PASS    |
|            |         | 5310          | 5.99         | <=11        | PASS    |
|            |         | 5510          | 6.26         | <=11        | PASS    |

|            |      |              |       |      |      |
|------------|------|--------------|-------|------|------|
|            |      | 5550         | 5.91  | <=11 | PASS |
|            |      | 5670         | 5.89  | <=11 | PASS |
|            |      | 5710 UNII-2C | 5.40  | <=11 | PASS |
|            |      | 5710 UNII-3  | 1.48  | <=11 | PASS |
|            |      | 5755         | 4.36  | <=30 | PASS |
|            |      | 5795         | 4.31  | <=30 | PASS |
| 11AC80SISO | Ant1 | 5210         | 0.34  | <=11 | PASS |
|            |      | 5290         | -0.06 | <=11 | PASS |
|            |      | 5530         | 0.23  | <=11 | PASS |
|            |      | 5690 UNII-2C | 0.35  | <=11 | PASS |
|            |      | 5690 UNII-3  | -6.34 | <=11 | PASS |
|            |      | 5775         | -2.07 | <=30 | PASS |

## 9.5 Unwanted emissions

### Test Method

According to KBD789033 D02

### Limits:

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

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

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

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

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

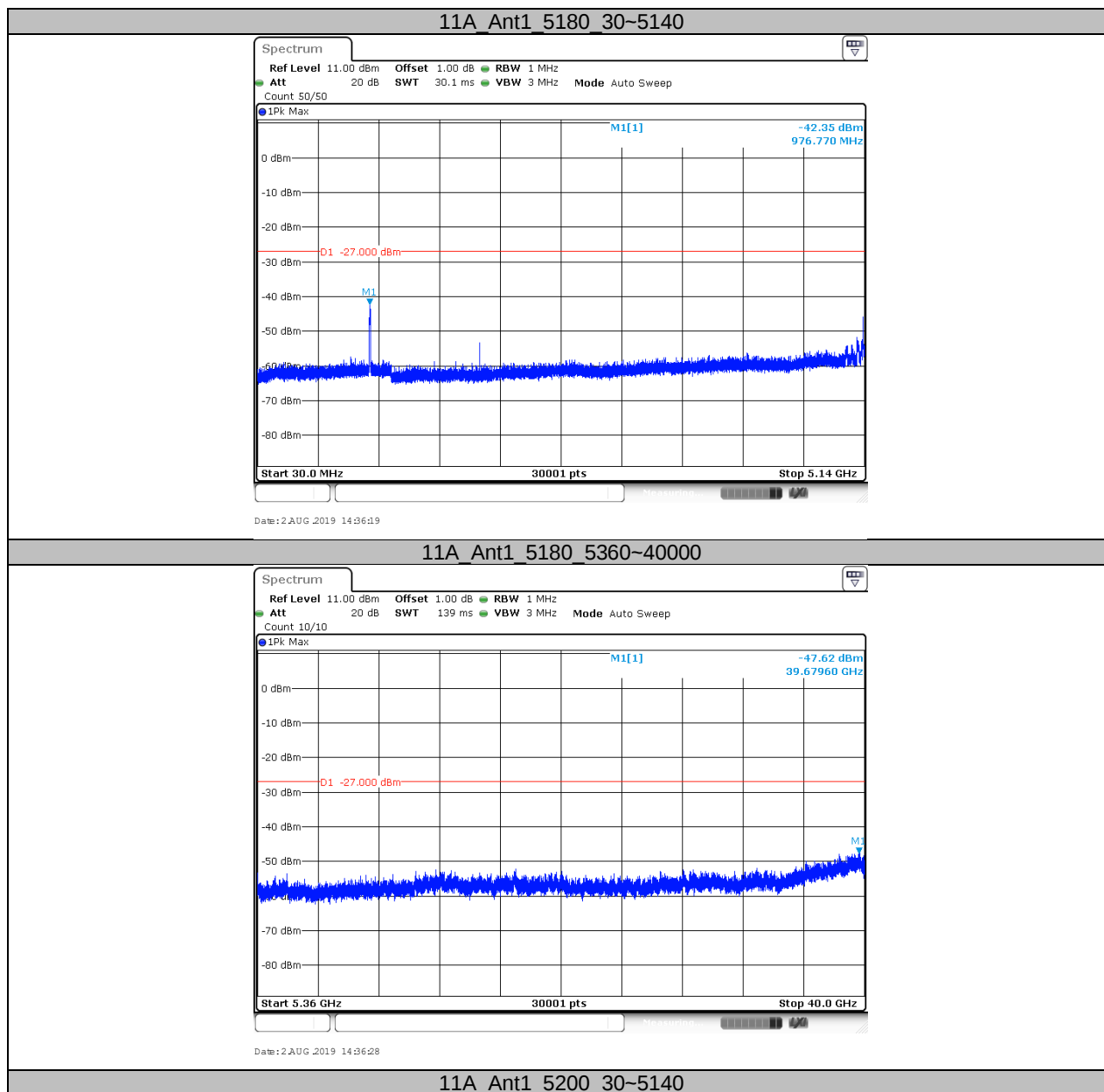
**Test result:**

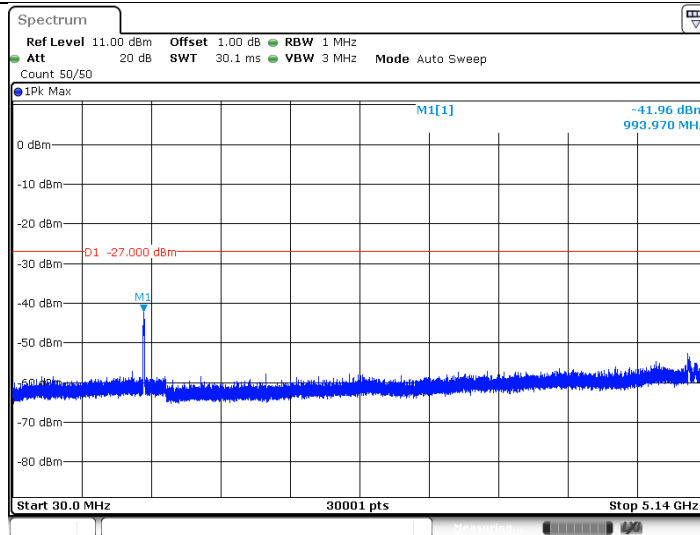
| TestMode  | Antenna | Channel[MHz] | FreqRange [MHz] | Max. Fre[MHz] | Max. Level[dBm] | Limit[dBm] | Verdict |
|-----------|---------|--------------|-----------------|---------------|-----------------|------------|---------|
| 11A       | Ant1    | 5180         | 30~5140         | 30~5140       | -42.35          | <=-27      | PASS    |
|           |         | 5180         | 5360~40000      | 5360~40000    | -47.62          | <=-27      | PASS    |
|           |         | 5200         | 30~5140         | 30~5140       | -41.96          | <=-27      | PASS    |
|           |         | 5200         | 5360~40000      | 5360~40000    | -47.57          | <=-27      | PASS    |
|           |         | 5240         | 30~5140         | 30~5140       | -42.78          | <=-27      | PASS    |
|           |         | 5240         | 5360~40000      | 5360~40000    | -46.94          | <=-27      | PASS    |
|           |         | 5260         | 30~5140         | 30~5140       | -43.23          | <=-27      | PASS    |
|           |         | 5260         | 5360~40000      | 5360~40000    | -47.49          | <=-27      | PASS    |
|           |         | 5280         | 30~5140         | 30~5140       | -44.99          | <=-27      | PASS    |
|           |         | 5280         | 5360~40000      | 5360~40000    | -47.43          | <=-27      | PASS    |
|           |         | 5320         | 30~5140         | 30~5140       | -45.79          | <=-27      | PASS    |
|           |         | 5320         | 5360~40000      | 5360~40000    | -47.6           | <=-27      | PASS    |
|           |         | 5500         | 30~5460         | 30~5460       | -44.51          | <=-27      | PASS    |
|           |         | 5500         | 5735~40000      | 5735~40000    | -46.87          | <=-27      | PASS    |
|           |         | 5580         | 30~5460         | 30~5460       | -50.2           | <=-27      | PASS    |
|           |         | 5580         | 5735~40000      | 5735~40000    | -47.38          | <=-27      | PASS    |
|           |         | 5700         | 30~5460         | 30~5460       | -54.63          | <=-27      | PASS    |
|           |         | 5700         | 5735~40000      | 5735~40000    | -46.94          | <=-27      | PASS    |
|           |         | 5720         | 30~5460         | 30~5460       | -54.53          | <=-27      | PASS    |
|           |         | 5720         | 5925~40000      | 5925~40000    | -47.79          | <=-27      | PASS    |
|           |         | 5745         | 30~5650         | 30~5650       | -51.03          | <=-27      | PASS    |
|           |         | 5745         | 5925~40000      | 5925~40000    | -47.03          | <=-27      | PASS    |
|           |         | 5785         | 30~5650         | 30~5650       | -53.53          | <=-27      | PASS    |
|           |         | 5785         | 5925~40000      | 5925~40000    | -46.63          | <=-27      | PASS    |
|           |         | 5825         | 30~5650         | 30~5650       | -52.84          | <=-27      | PASS    |
|           |         | 5825         | 5925~40000      | 5925~40000    | -47.54          | <=-27      | PASS    |
| 11N20SISO | Ant1    | 5180         | 30~5140         | 30~5140       | -44.17          | <=-27      | PASS    |
|           |         | 5180         | 5360~40000      | 5360~40000    | -47.09          | <=-27      | PASS    |
|           |         | 5200         | 30~5140         | 30~5140       | -44.38          | <=-27      | PASS    |
|           |         | 5200         | 5360~40000      | 5360~40000    | -47.61          | <=-27      | PASS    |
|           |         | 5240         | 30~5140         | 30~5140       | -44.89          | <=-27      | PASS    |
|           |         | 5240         | 5360~40000      | 5360~40000    | -45.76          | <=-27      | PASS    |
|           |         | 5260         | 30~5140         | 30~5140       | -45.78          | <=-27      | PASS    |
|           |         | 5260         | 5360~40000      | 5360~40000    | -47.47          | <=-27      | PASS    |
|           |         | 5280         | 30~5140         | 30~5140       | -44.5           | <=-27      | PASS    |
|           |         | 5280         | 5360~40000      | 5360~40000    | -47.81          | <=-27      | PASS    |
|           |         | 5320         | 30~5140         | 30~5140       | -47.67          | <=-27      | PASS    |
|           |         | 5320         | 5360~40000      | 5360~40000    | -46.73          | <=-27      | PASS    |
|           |         | 5500         | 30~5460         | 30~5460       | -45.31          | <=-27      | PASS    |
|           |         | 5500         | 5735~40000      | 5735~40000    | -47.16          | <=-27      | PASS    |
|           |         | 5580         | 30~5460         | 30~5460       | -51.97          | <=-27      | PASS    |
|           |         | 5580         | 5735~40000      | 5735~40000    | -47.25          | <=-27      | PASS    |
|           |         | 5700         | 30~5460         | 30~5460       | -54.78          | <=-27      | PASS    |
|           |         | 5700         | 5735~40000      | 5735~40000    | -47.19          | <=-27      | PASS    |
|           |         | 5720         | 30~5460         | 30~5460       | -54.75          | <=-27      | PASS    |
|           |         | 5720         | 5925~40000      | 5925~40000    | -47.71          | <=-27      | PASS    |
|           |         | 5745         | 30~5650         | 30~5650       | -52.77          | <=-27      | PASS    |
|           |         | 5745         | 5925~40000      | 5925~40000    | -47.62          | <=-27      | PASS    |
|           |         | 5785         | 30~5650         | 30~5650       | -52.83          | <=-27      | PASS    |
|           |         | 5785         | 5925~40000      | 5925~40000    | -46.81          | <=-27      | PASS    |
|           |         | 5825         | 30~5650         | 30~5650       | -52.58          | <=-27      | PASS    |
|           |         | 5825         | 5925~40000      | 5925~40000    | -47.65          | <=-27      | PASS    |
| 11N40SISO | Ant1    | 5190         | 30~5140         | 30~5140       | -47.63          | <=-27      | PASS    |
|           |         | 5190         | 5360~40000      | 5360~40000    | -47.05          | <=-27      | PASS    |
|           |         | 5230         | 30~5140         | 30~5140       | -46.81          | <=-27      | PASS    |
|           |         | 5230         | 5360~40000      | 5360~40000    | -46.56          | <=-27      | PASS    |
|           |         | 5270         | 30~5140         | 30~5140       | -49.11          | <=-27      | PASS    |
|           |         | 5270         | 5360~40000      | 5360~40000    | -47.16          | <=-27      | PASS    |
|           |         | 5310         | 30~5140         | 30~5140       | -48.87          | <=-27      | PASS    |

|            |      |      |            |            |        |       |      |
|------------|------|------|------------|------------|--------|-------|------|
|            |      | 5310 | 5360~40000 | 5360~40000 | -47.15 | <=-27 | PASS |
|            |      | 5510 | 30~5460    | 30~5460    | -48.87 | <=-27 | PASS |
|            |      | 5510 | 5735~40000 | 5735~40000 | -47.83 | <=-27 | PASS |
|            |      | 5550 | 30~5460    | 30~5460    | -49.86 | <=-27 | PASS |
|            |      | 5550 | 5735~40000 | 5735~40000 | -48.15 | <=-27 | PASS |
|            |      | 5670 | 30~5460    | 30~5460    | -54.99 | <=-27 | PASS |
|            |      | 5670 | 5735~40000 | 5735~40000 | -47.36 | <=-27 | PASS |
|            |      | 5710 | 30~5460    | 30~5460    | -53.94 | <=-27 | PASS |
|            |      | 5710 | 5925~40000 | 5925~40000 | -47.89 | <=-27 | PASS |
|            |      | 5755 | 30~5650    | 30~5650    | -50.45 | <=-27 | PASS |
|            |      | 5755 | 5925~40000 | 5925~40000 | -47.57 | <=-27 | PASS |
|            |      | 5795 | 30~5650    | 30~5650    | -54.69 | <=-27 | PASS |
|            |      | 5795 | 5925~40000 | 5925~40000 | -47.25 | <=-27 | PASS |
|            |      | 5180 | 30~5140    | 30~5140    | -42.25 | <=-27 | PASS |
| 11AC20SISO | Ant1 | 5180 | 5360~40000 | 5360~40000 | -47.72 | <=-27 | PASS |
|            |      | 5200 | 30~5140    | 30~5140    | -42.49 | <=-27 | PASS |
|            |      | 5200 | 5360~40000 | 5360~40000 | -47.62 | <=-27 | PASS |
|            |      | 5240 | 30~5140    | 30~5140    | -43.63 | <=-27 | PASS |
|            |      | 5240 | 5360~40000 | 5360~40000 | -47.6  | <=-27 | PASS |
|            |      | 5260 | 30~5140    | 30~5140    | -46    | <=-27 | PASS |
|            |      | 5260 | 5360~40000 | 5360~40000 | -47.74 | <=-27 | PASS |
|            |      | 5280 | 30~5140    | 30~5140    | -45.52 | <=-27 | PASS |
|            |      | 5280 | 5360~40000 | 5360~40000 | -47.06 | <=-27 | PASS |
|            |      | 5320 | 30~5140    | 30~5140    | -48.15 | <=-27 | PASS |
|            |      | 5320 | 5360~40000 | 5360~40000 | -46.54 | <=-27 | PASS |
|            |      | 5500 | 30~5460    | 30~5460    | -44.57 | <=-27 | PASS |
|            |      | 5500 | 5735~40000 | 5735~40000 | -47.34 | <=-27 | PASS |
|            |      | 5580 | 30~5460    | 30~5460    | -52.71 | <=-27 | PASS |
|            |      | 5580 | 5735~40000 | 5735~40000 | -47.63 | <=-27 | PASS |
|            |      | 5700 | 30~5460    | 30~5460    | -54.45 | <=-27 | PASS |
|            |      | 5700 | 5735~40000 | 5735~40000 | -48.04 | <=-27 | PASS |
|            |      | 5720 | 30~5460    | 30~5460    | -55.39 | <=-27 | PASS |
|            |      | 5720 | 5925~40000 | 5925~40000 | -46.86 | <=-27 | PASS |
|            |      | 5745 | 30~5650    | 30~5650    | -53.47 | <=-27 | PASS |
|            |      | 5745 | 5925~40000 | 5925~40000 | -47.99 | <=-27 | PASS |
|            |      | 5785 | 30~5650    | 30~5650    | -53.43 | <=-27 | PASS |
|            |      | 5785 | 5925~40000 | 5925~40000 | -47.06 | <=-27 | PASS |
|            |      | 5825 | 30~5650    | 30~5650    | -52.84 | <=-27 | PASS |
|            |      | 5825 | 5925~40000 | 5925~40000 | -47.23 | <=-27 | PASS |
| 11AC40SISO | Ant1 | 5190 | 30~5140    | 30~5140    | -48.54 | <=-27 | PASS |
|            |      | 5190 | 5360~40000 | 5360~40000 | -47.52 | <=-27 | PASS |
|            |      | 5230 | 30~5140    | 30~5140    | -47.84 | <=-27 | PASS |
|            |      | 5230 | 5360~40000 | 5360~40000 | -47.57 | <=-27 | PASS |
|            |      | 5270 | 30~5140    | 30~5140    | -49.81 | <=-27 | PASS |
|            |      | 5270 | 5360~40000 | 5360~40000 | -47.63 | <=-27 | PASS |
|            |      | 5310 | 30~5140    | 30~5140    | -52.91 | <=-27 | PASS |
|            |      | 5310 | 5360~40000 | 5360~40000 | -47.44 | <=-27 | PASS |
|            |      | 5510 | 30~5460    | 30~5460    | -48.49 | <=-27 | PASS |
|            |      | 5510 | 5735~40000 | 5735~40000 | -47.59 | <=-27 | PASS |
|            |      | 5550 | 30~5460    | 30~5460    | -49.69 | <=-27 | PASS |
|            |      | 5550 | 5735~40000 | 5735~40000 | -47.01 | <=-27 | PASS |
|            |      | 5670 | 30~5460    | 30~5460    | -54.36 | <=-27 | PASS |
|            |      | 5670 | 5735~40000 | 5735~40000 | -47.62 | <=-27 | PASS |
|            |      | 5710 | 30~5460    | 30~5460    | -54.22 | <=-27 | PASS |
|            |      | 5710 | 5925~40000 | 5925~40000 | -47.79 | <=-27 | PASS |
|            |      | 5755 | 30~5650    | 30~5650    | -51.47 | <=-27 | PASS |
|            |      | 5755 | 5925~40000 | 5925~40000 | -47.71 | <=-27 | PASS |
|            |      | 5795 | 30~5650    | 30~5650    | -53.17 | <=-27 | PASS |
|            |      | 5795 | 5925~40000 | 5925~40000 | -47.65 | <=-27 | PASS |
| 11AC80SISO | Ant1 | 5210 | 30~5140    | 30~5140    | -43.76 | <=-27 | PASS |
|            |      | 5210 | 5360~40000 | 5360~40000 | -47.02 | <=-27 | PASS |
|            |      | 5290 | 30~5140    | 30~5140    | -53.64 | <=-27 | PASS |
|            |      | 5290 | 5360~40000 | 5360~40000 | -46.78 | <=-27 | PASS |
|            |      | 5530 | 30~5460    | 30~5460    | -41.41 | <=-27 | PASS |

|  |  |      |            |            |        |       |      |
|--|--|------|------------|------------|--------|-------|------|
|  |  | 5530 | 5735~40000 | 5735~40000 | -46.65 | <=-27 | PASS |
|  |  | 5690 | 30~5460    | 30~5460    | -54.35 | <=-27 | PASS |
|  |  | 5690 | 5925~40000 | 5925~40000 | -46.42 | <=-27 | PASS |
|  |  | 5775 | 30~5650    | 30~5650    | -54.83 | <=-27 | PASS |
|  |  | 5775 | 5925~40000 | 5925~40000 | -47.33 | <=-27 | PASS |

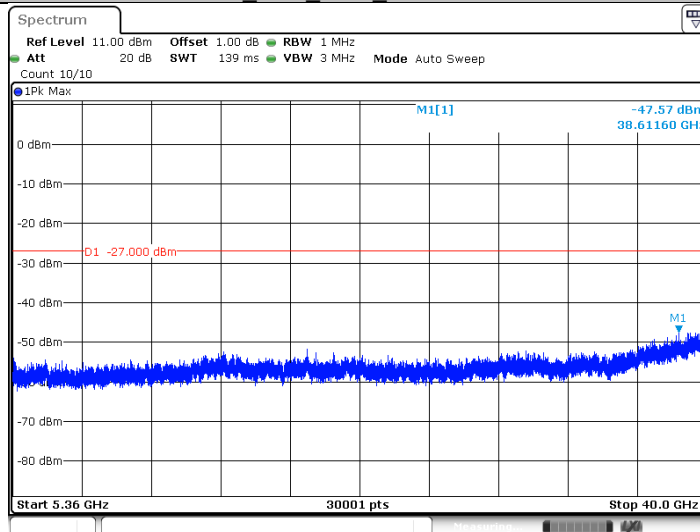
## Test Graphs





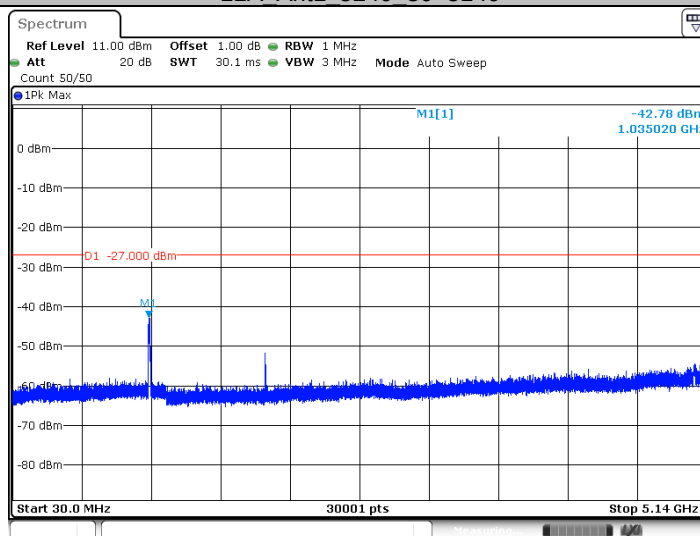
Date: 2 AUG. 2019 14:43:42

## 11A Ant1 5200\_5360-40000



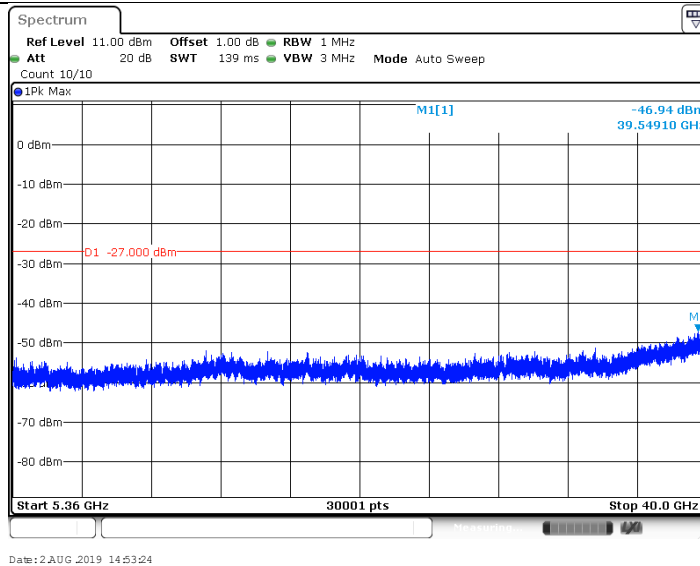
Date: 2 AUG. 2019 14:43:50

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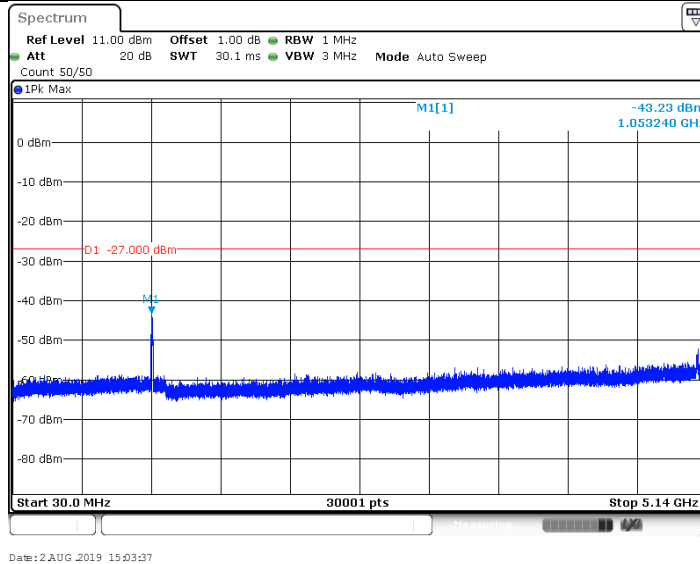


Date: 2 AUG. 2019 14:53:15

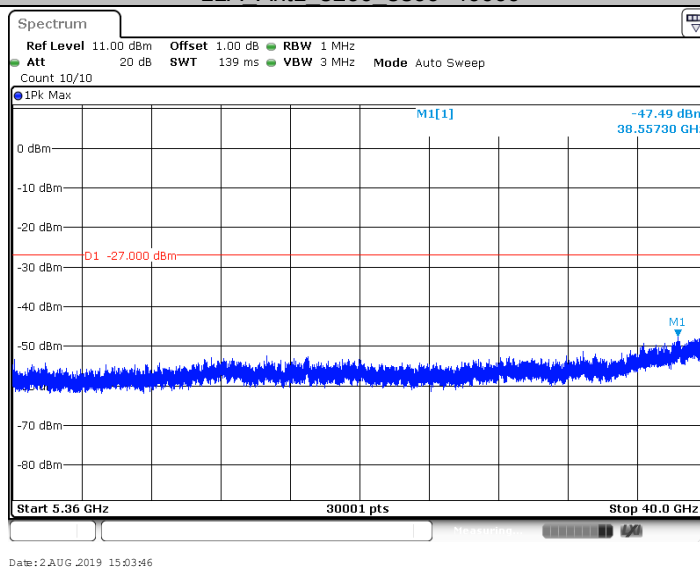
## 11A Ant1 5240\_5360-40000



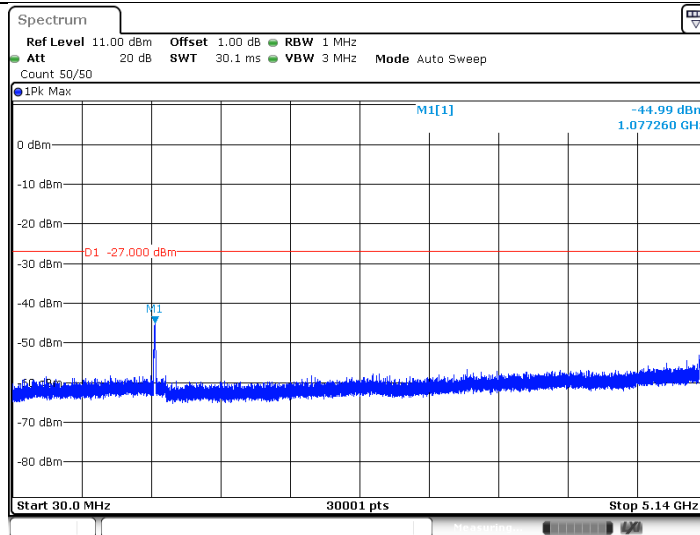
## 11A Ant1 5260 30-5140



## 11A Ant1 5260 5360-40000

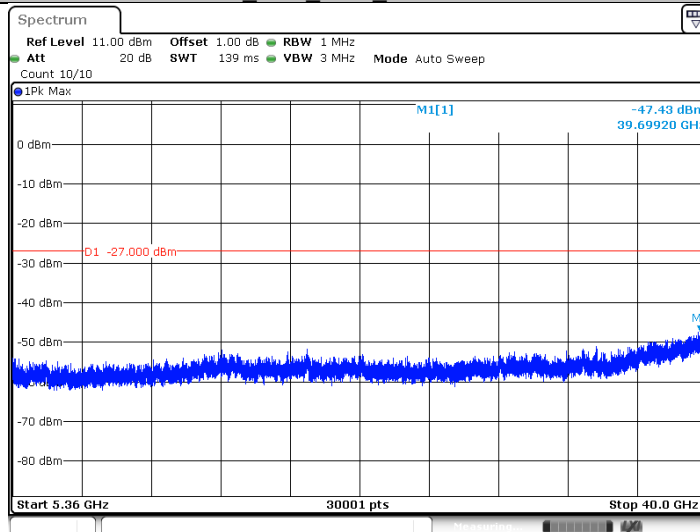


## 11A Ant1 5280 30-5140



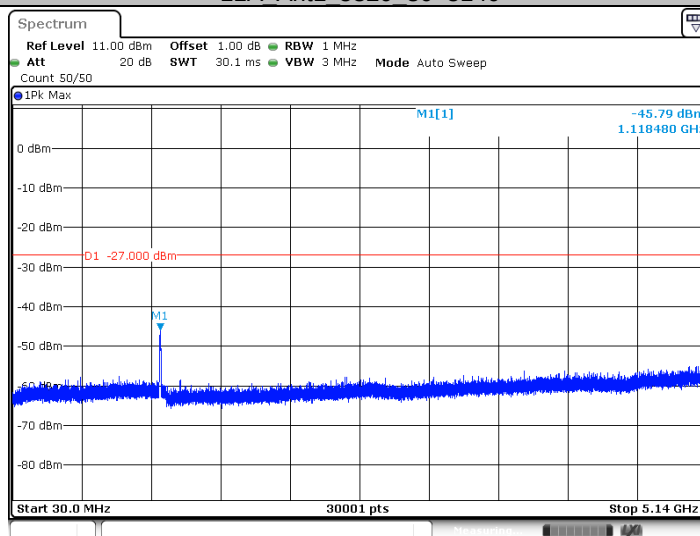
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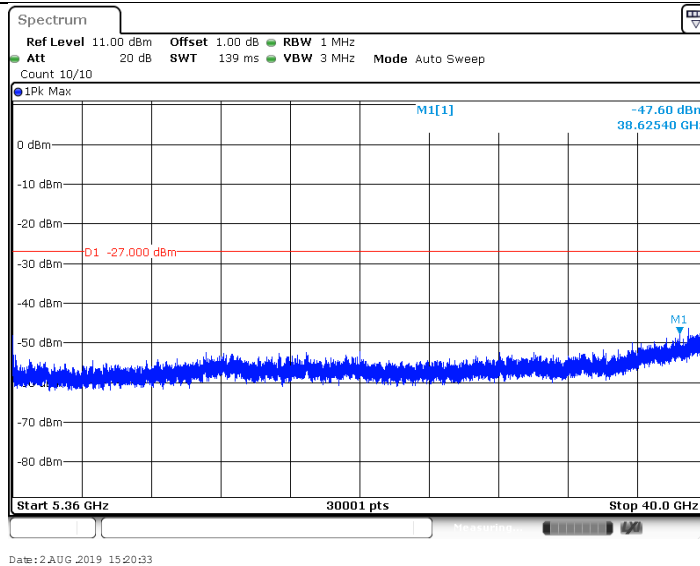
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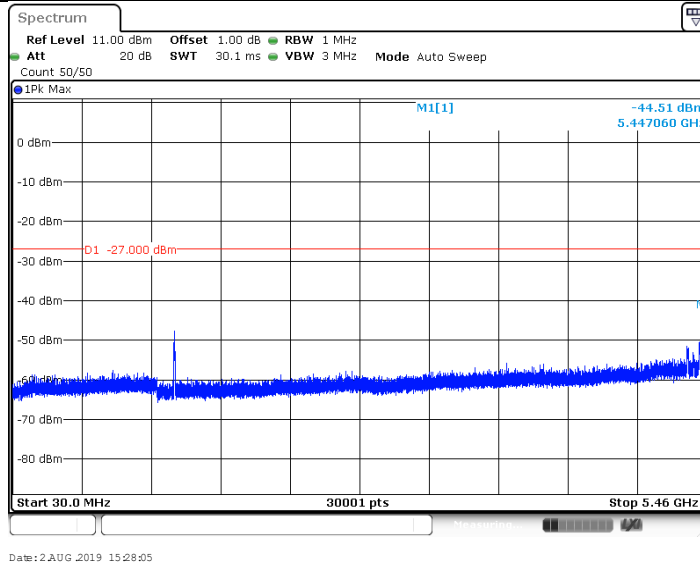


Date: 2 AUG. 2019 15:20:25

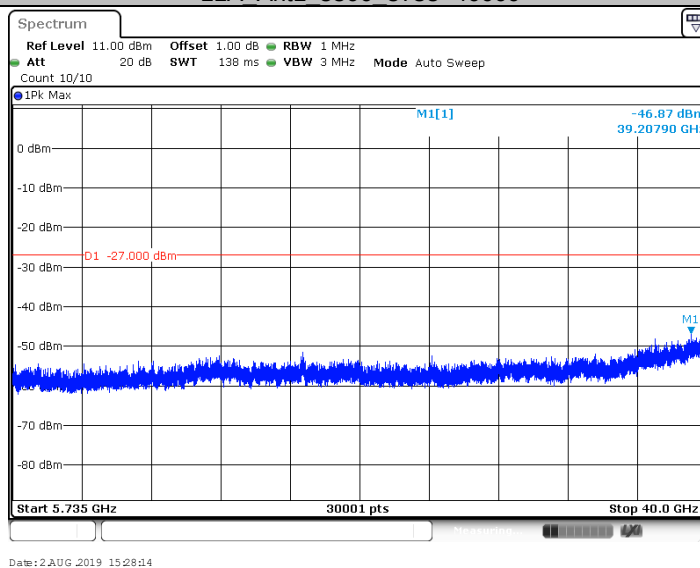
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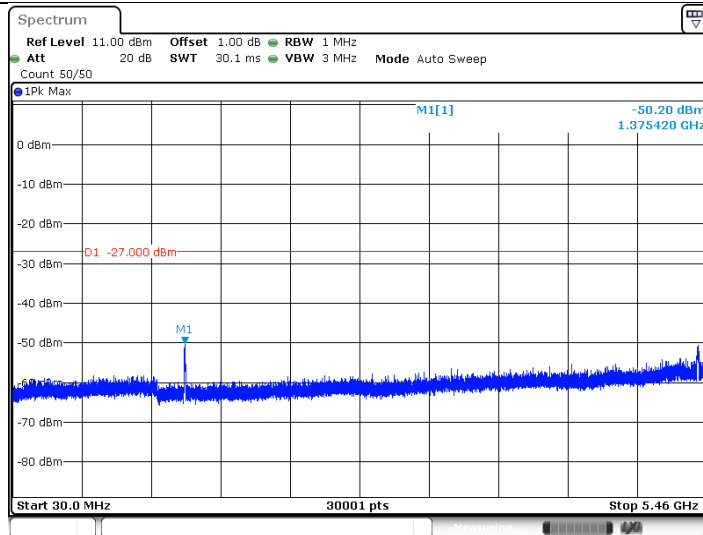
11A Ant1 5500 30-5460



11A Ant1 5500 5735-40000

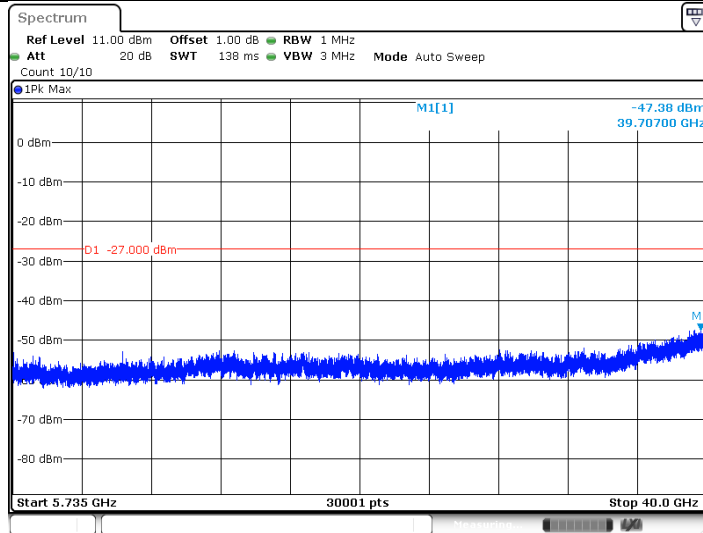


11A Ant1 5580 30-5460



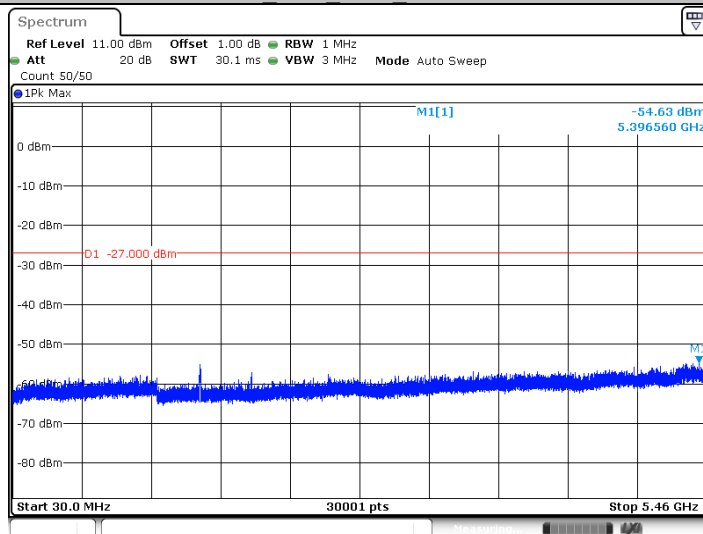
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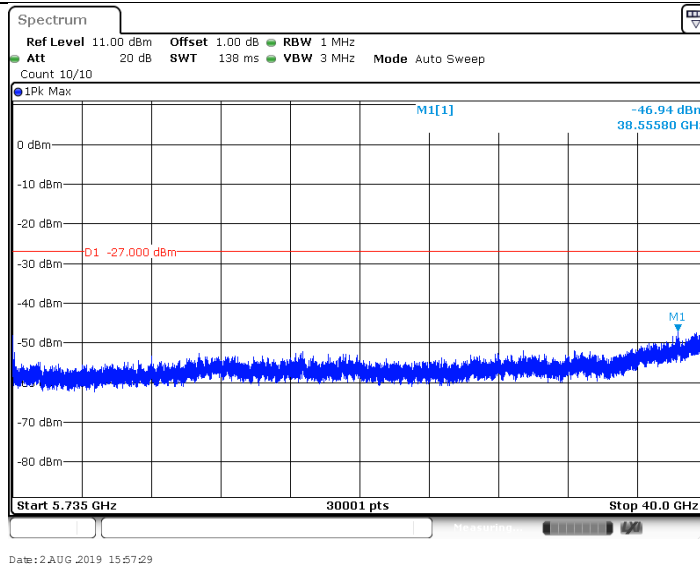
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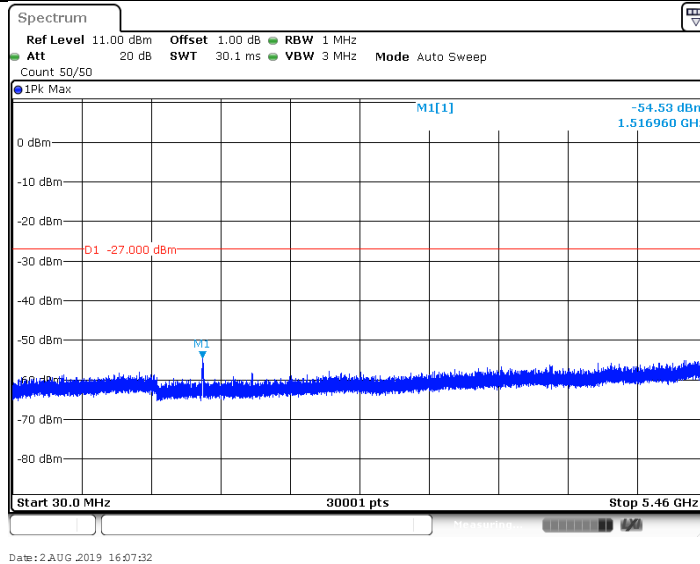


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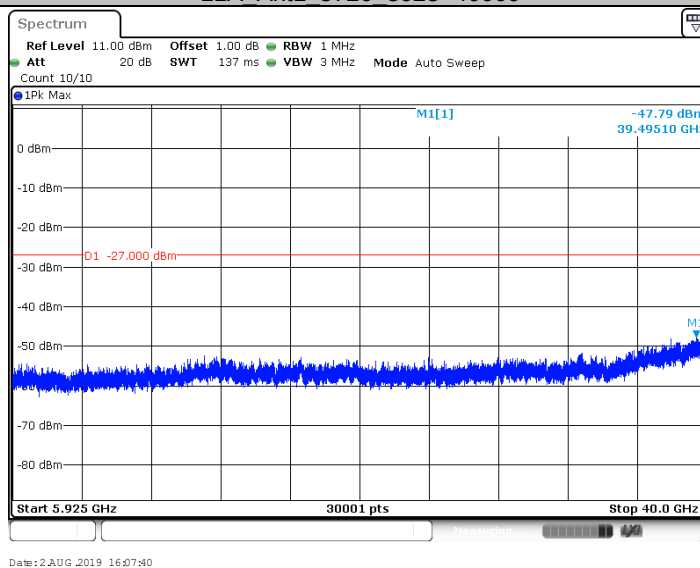
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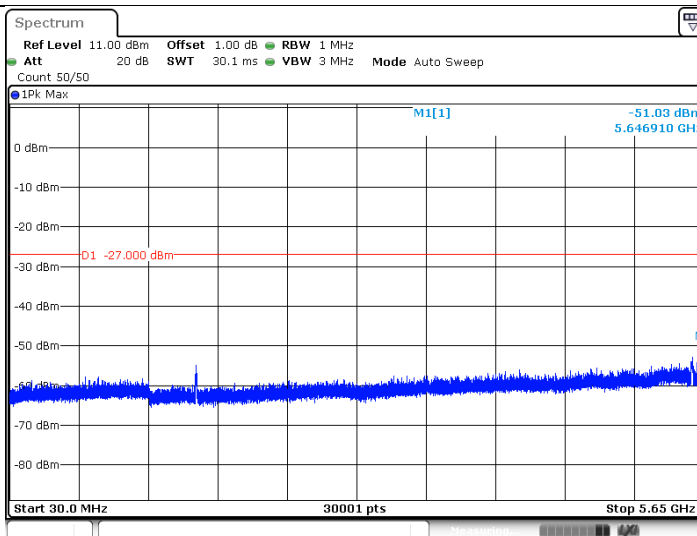
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## 11A Ant1 5720 5925-40000

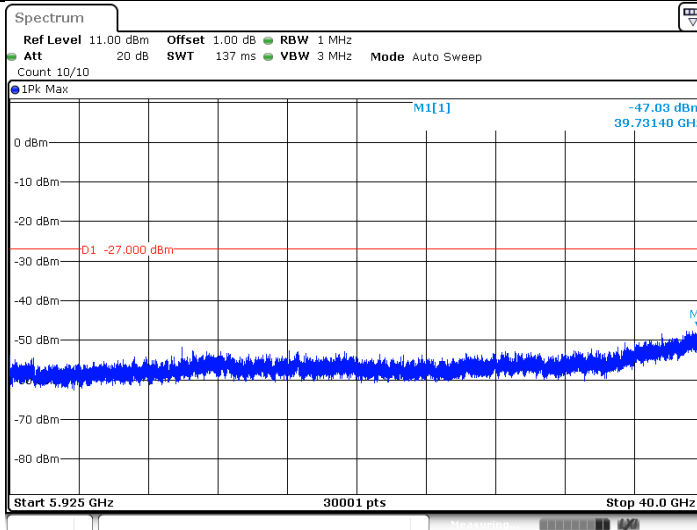


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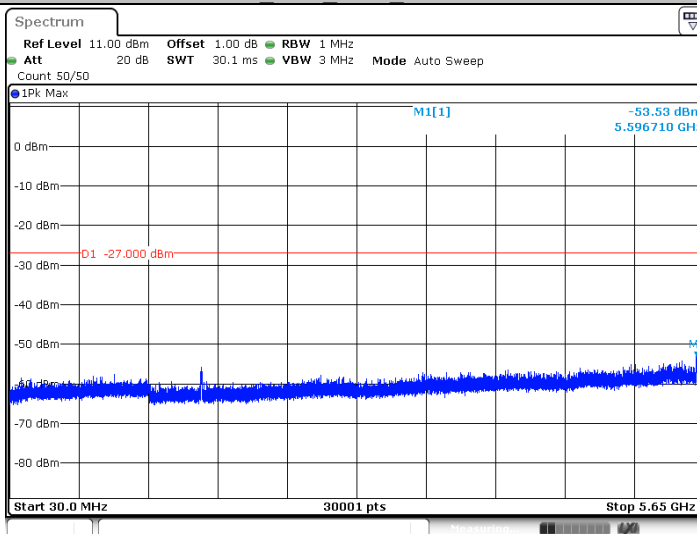
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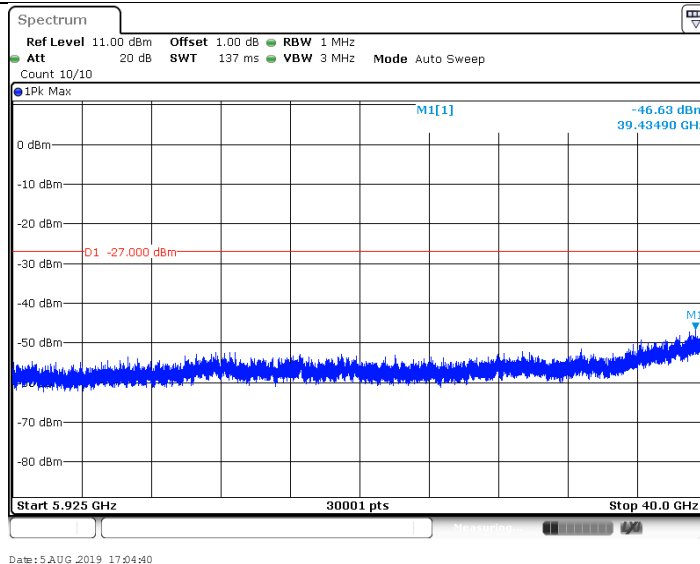
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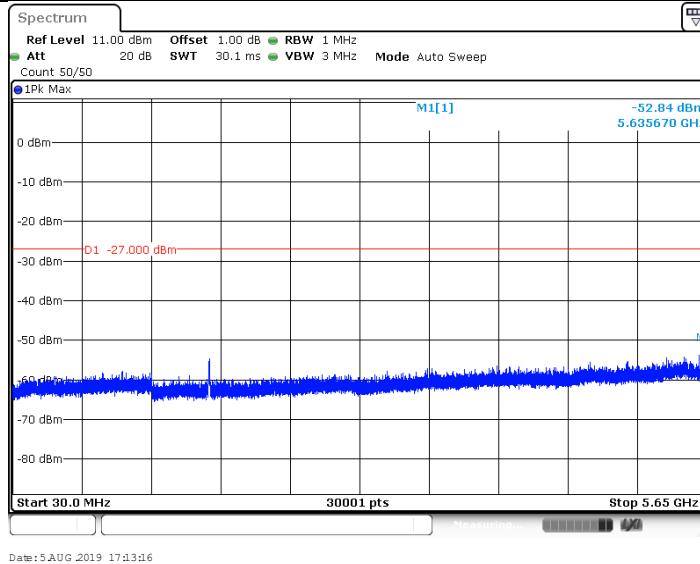


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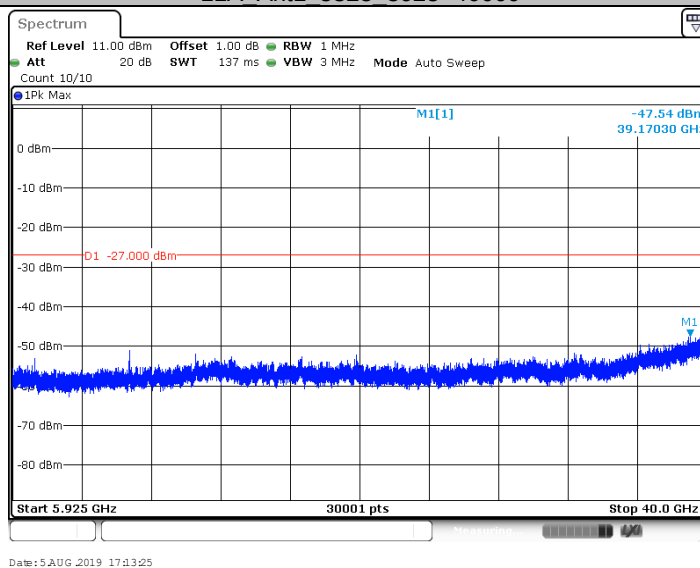
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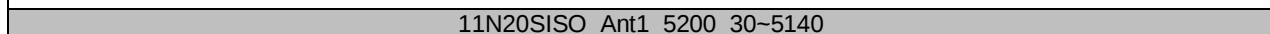
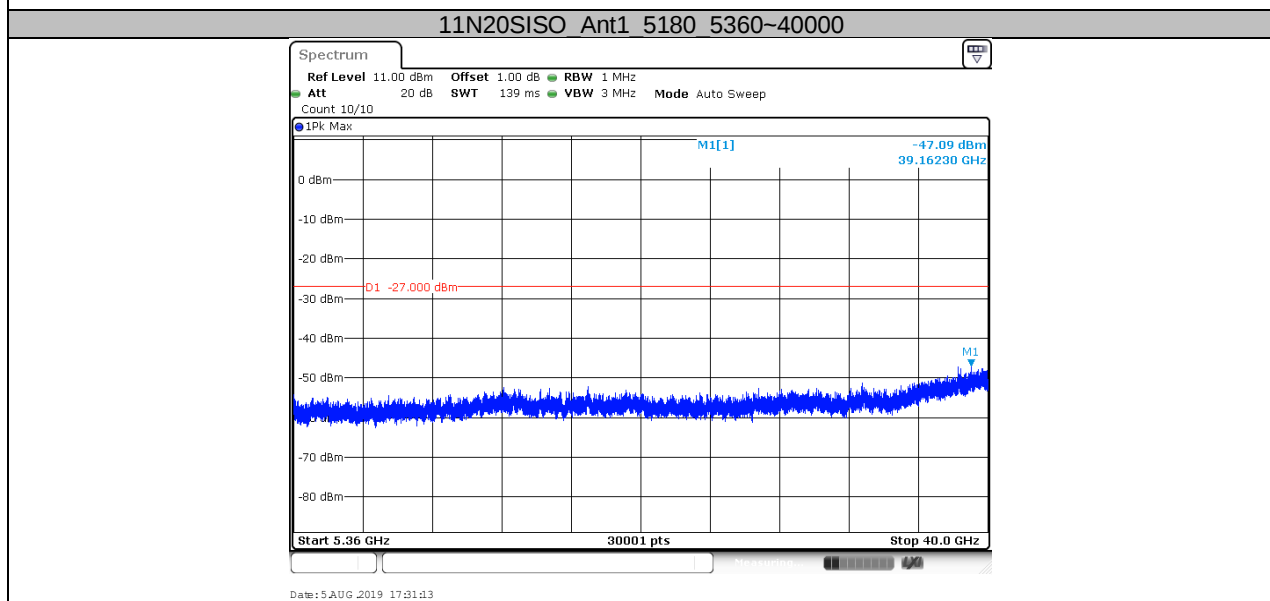
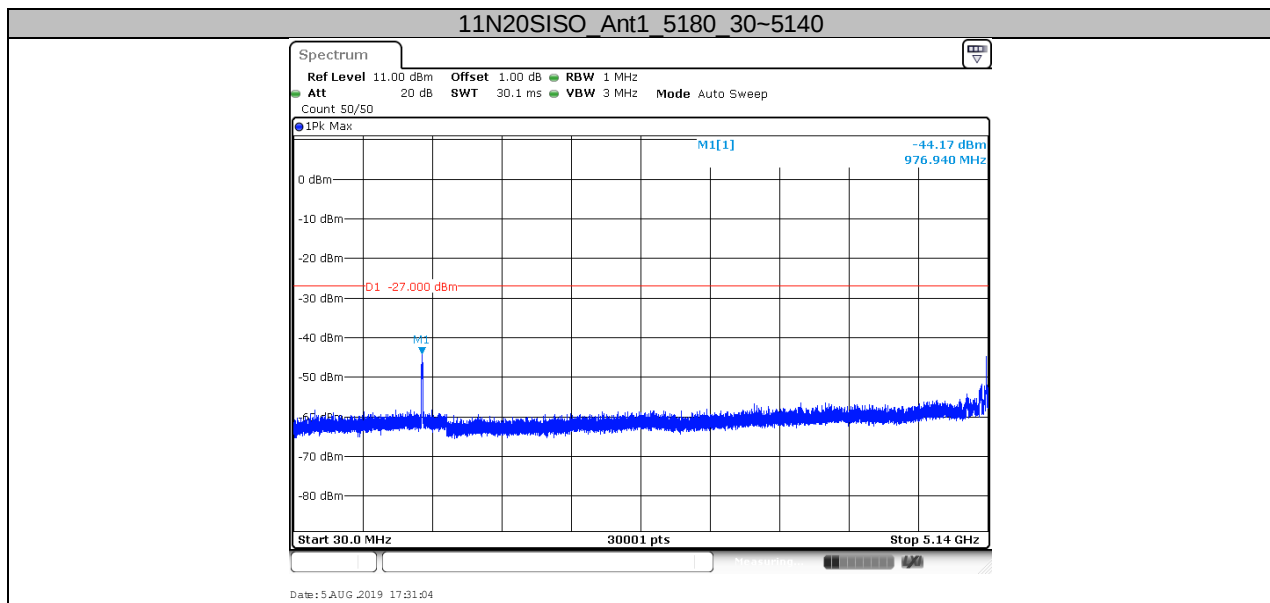
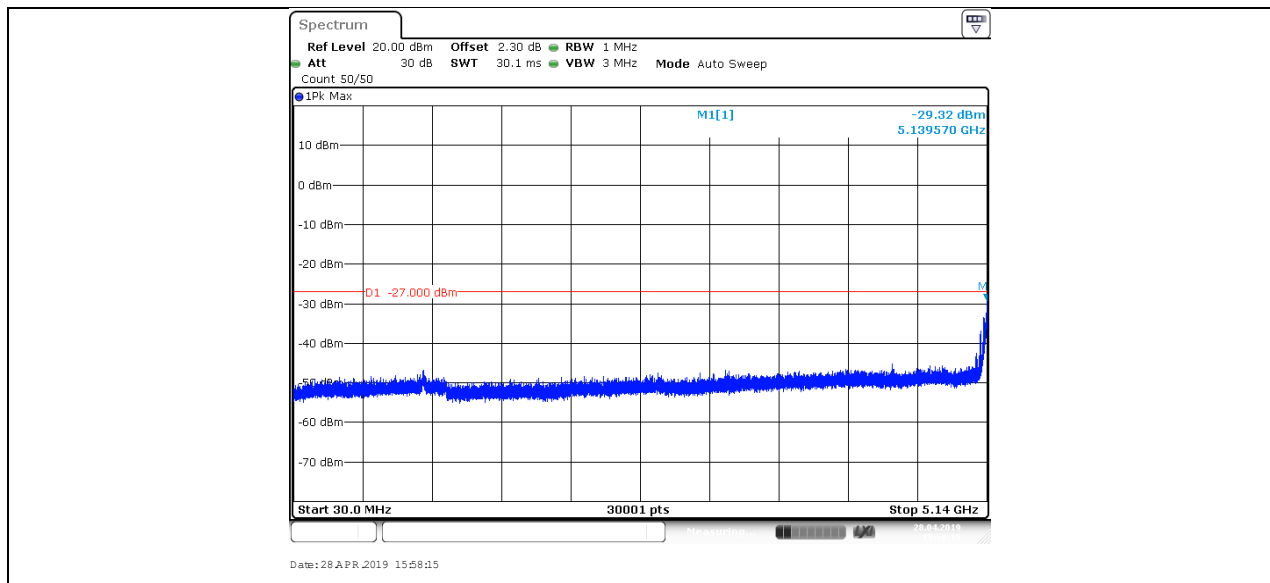


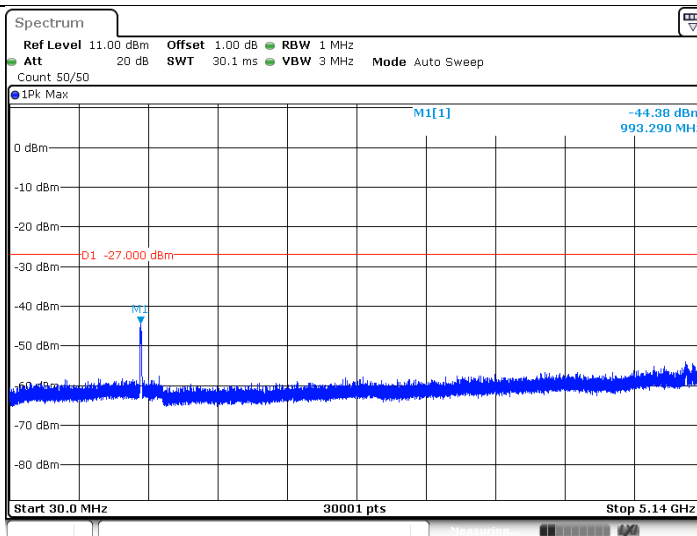
## 11A Ant1 5825 30-5650



## 11A Ant1 5825 5925-40000

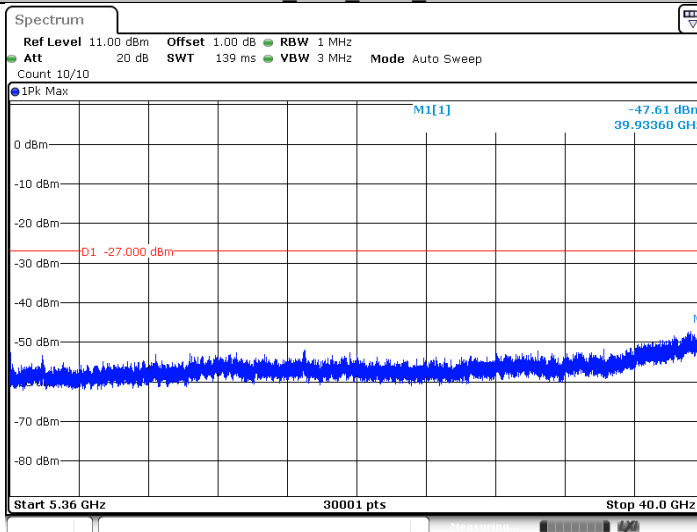






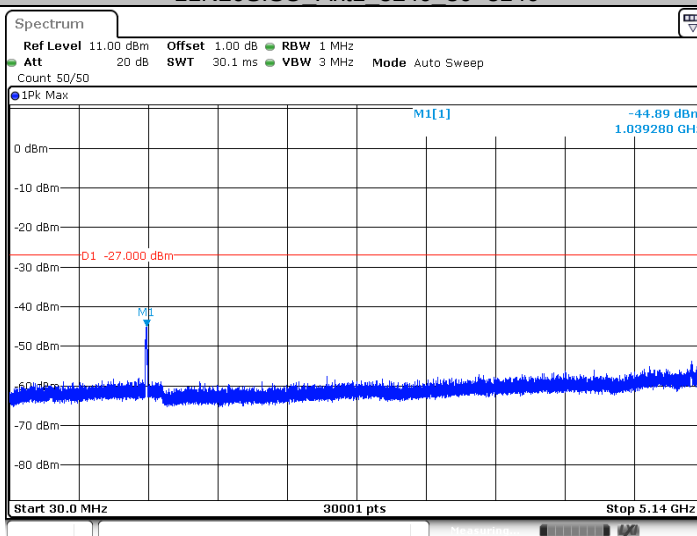
Date: 5 AUG. 2019 17:33:35

## 11N20SISO Ant1 5200 5360-40000



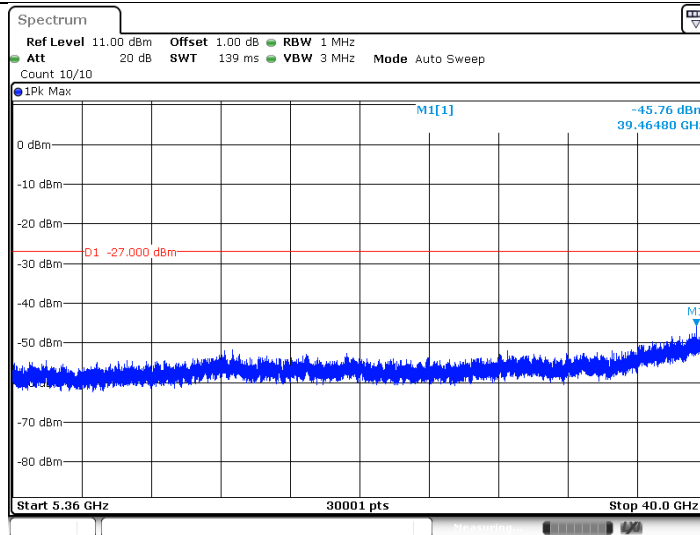
Date: 5 AUG. 2019 17:33:43

## 11N20SISO Ant1 5240 30-5140



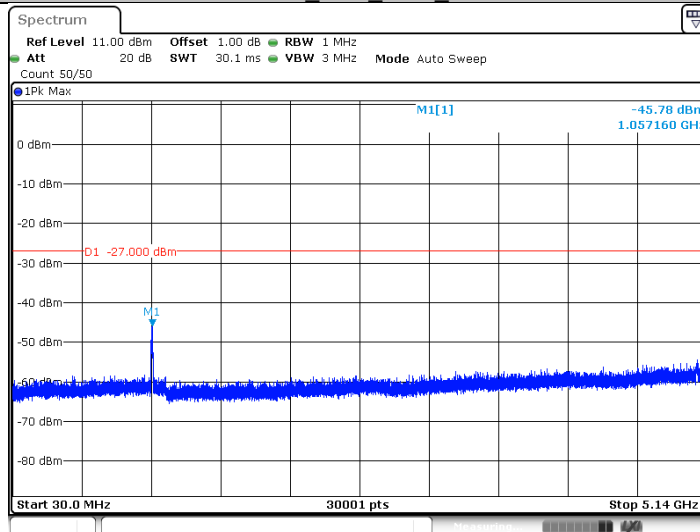
Date: 5 AUG. 2019 17:35:39

## 11N20SISO Ant1 5240 5360-40000



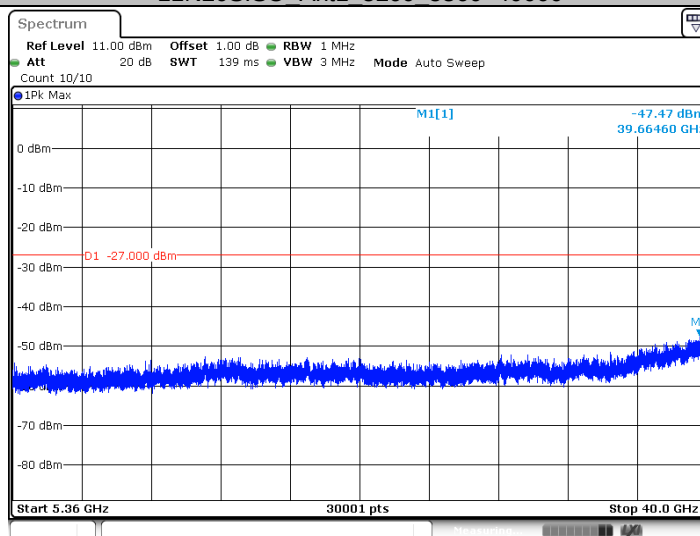
Date: 5 AUG. 2019 17:35:48

## 11N20SISO\_Ant1\_5260\_30~5140



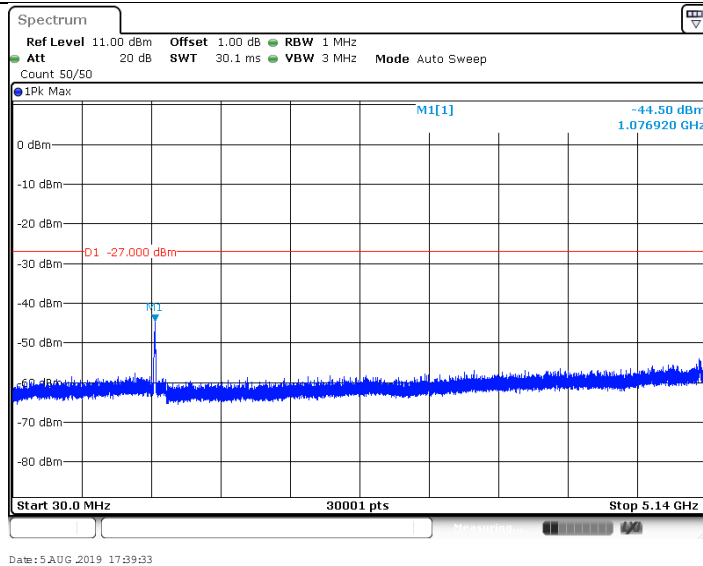
Date: 5 AUG. 2019 17:37:47

## 11N20SISO\_Ant1\_5260\_5360~40000

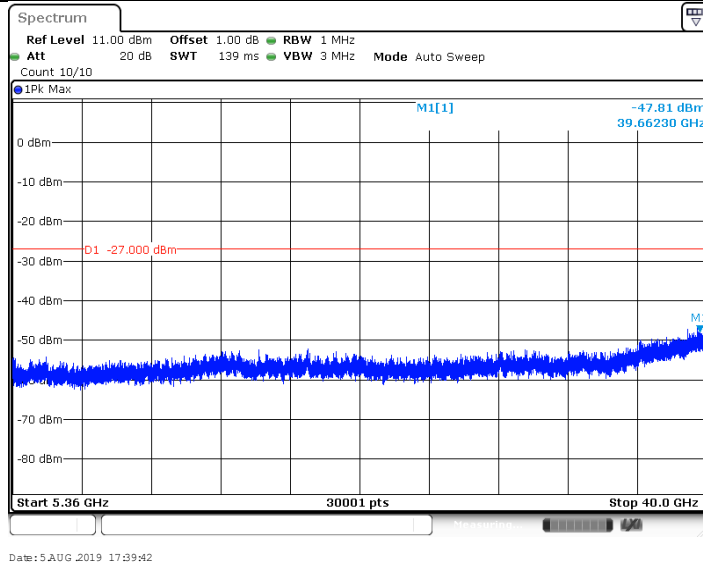


Date: 5 AUG. 2019 17:37:56

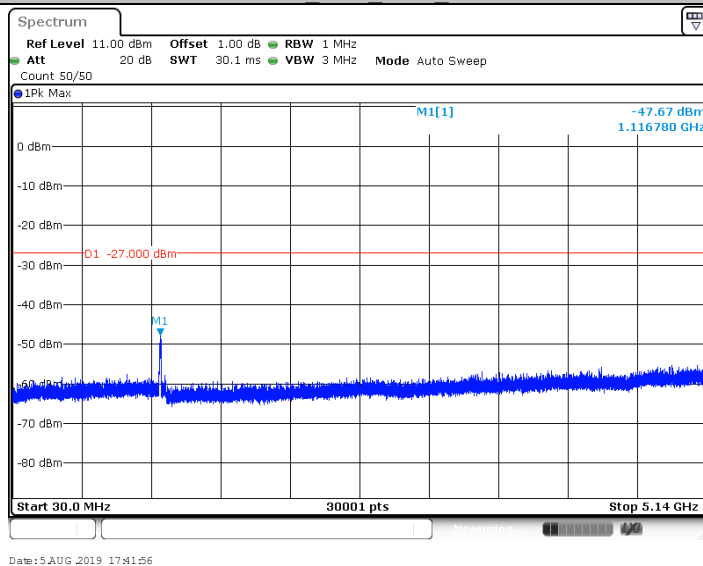
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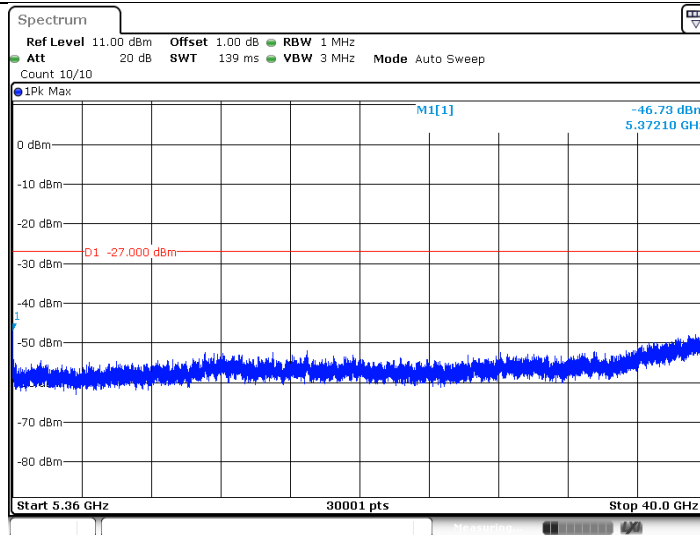
## 11N20SISO Ant1 5280 5360-40000



## 11N20SISO Ant1 5320 30-5140

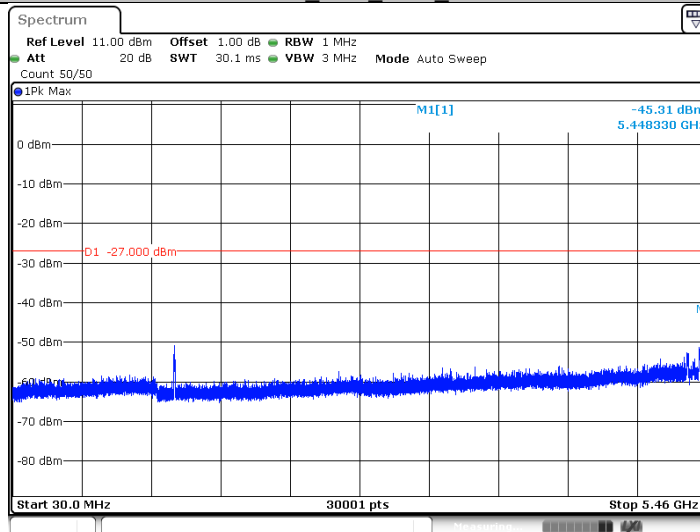


## 11N20SISO Ant1 5320 5360-40000



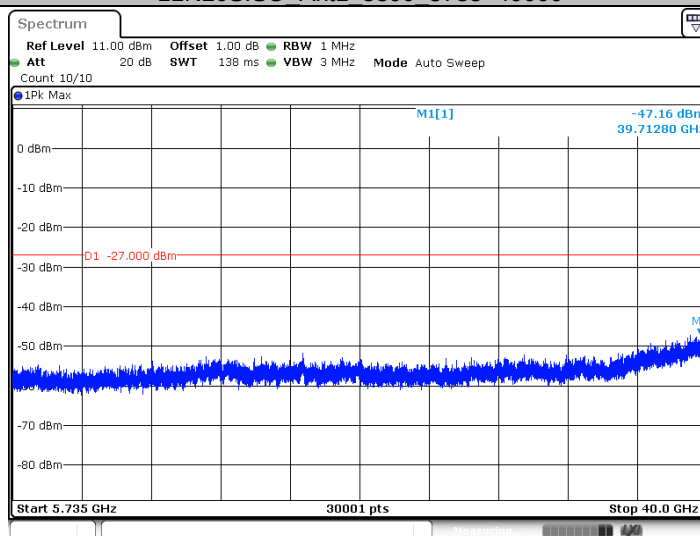
Date: 5 AUG 2019 17:42:05

## 11N20SISO\_Ant1\_5500\_30-5460



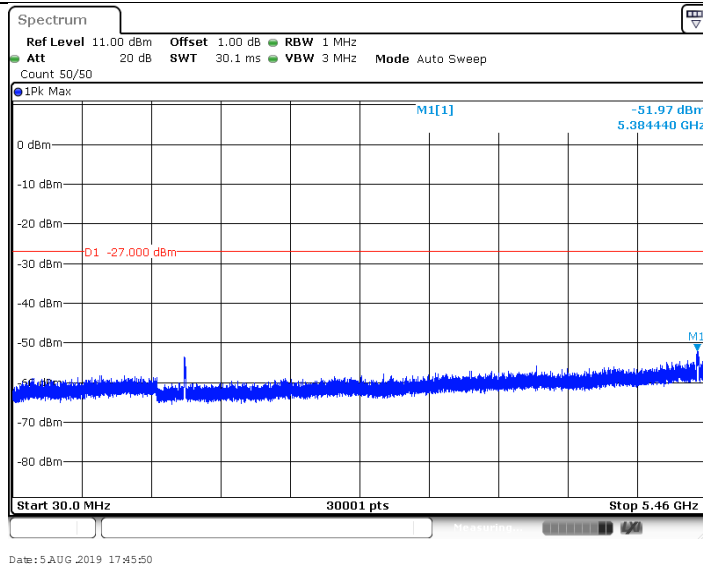
Date: 5 AUG 2019 17:44:07

## 11N20SISO\_Ant1\_5500\_5735-40000

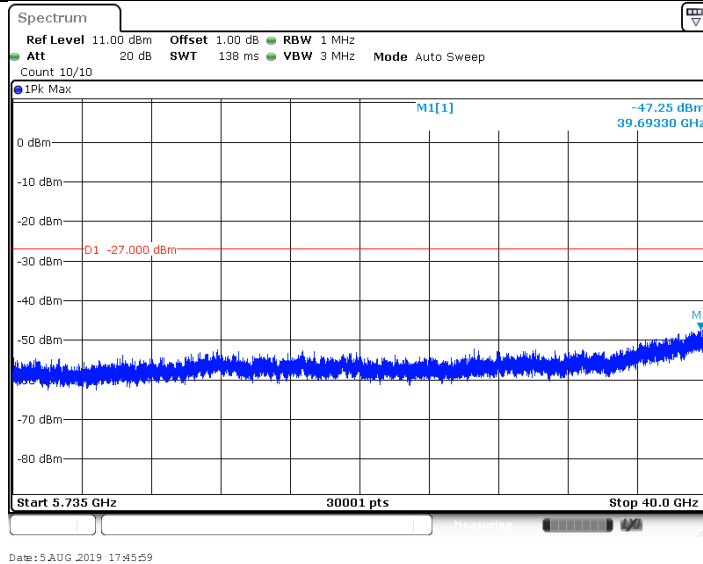


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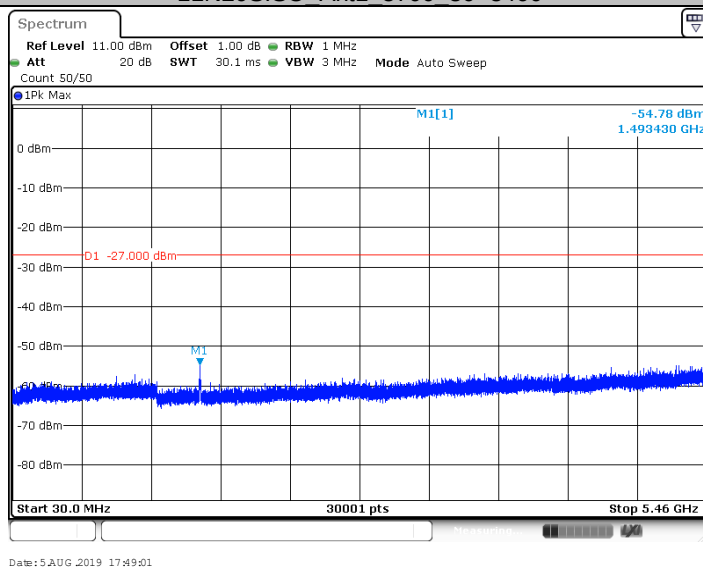
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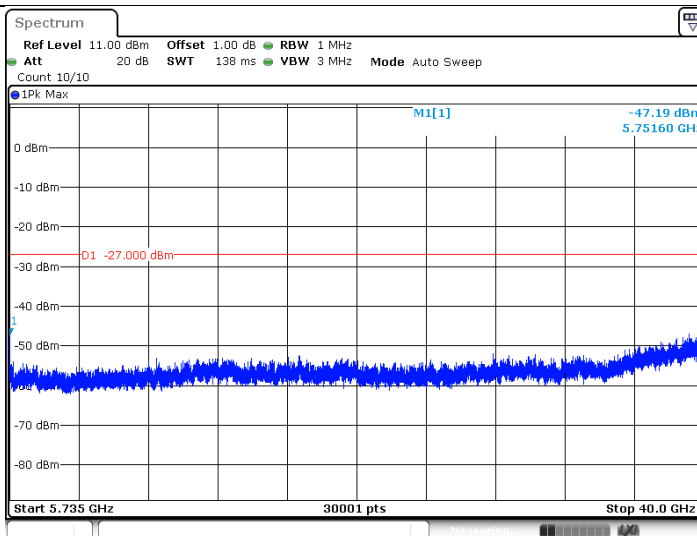
11N20SISO Ant1 5580 5735-40000



11N20SISO Ant1 5700 30-5460

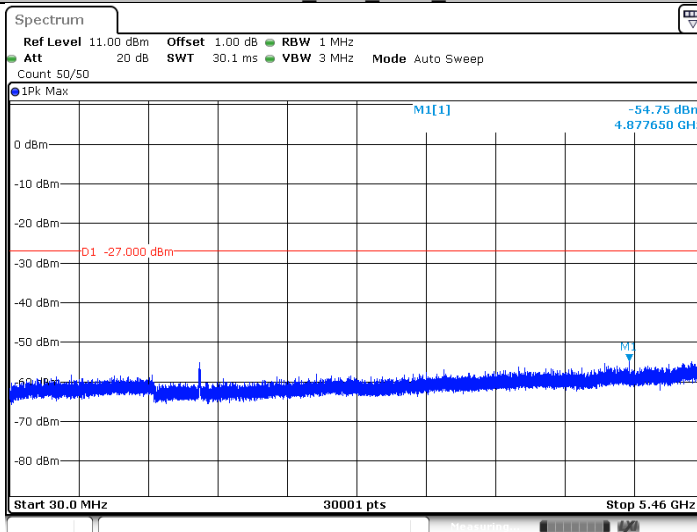


11N20SISO Ant1 5700 5735-40000



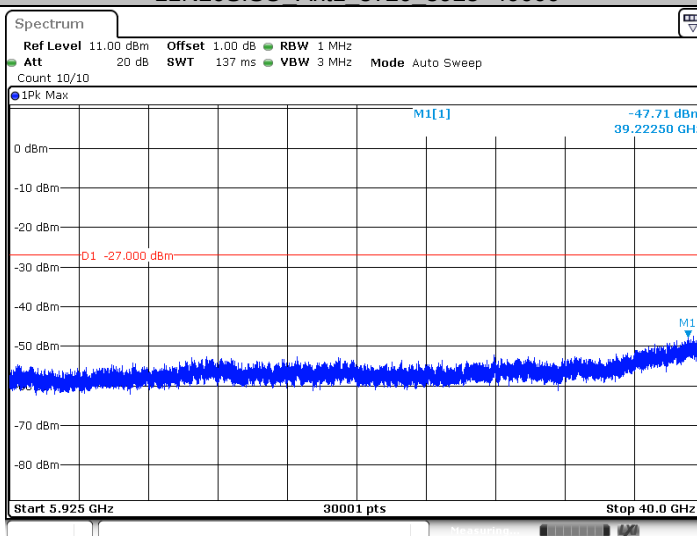
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## 11N20SISO\_Ant1\_5720\_30-5460



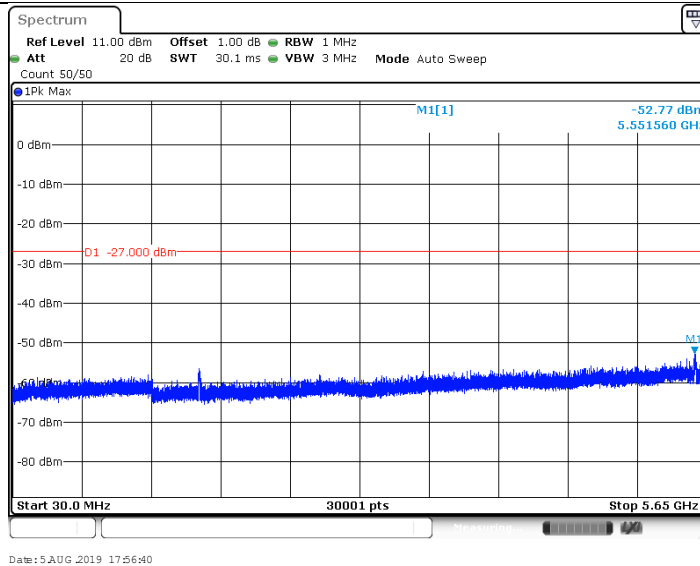
Date: 5 AUG 2019 17:51:45

## 11N20SISO\_Ant1\_5720\_5925-40000

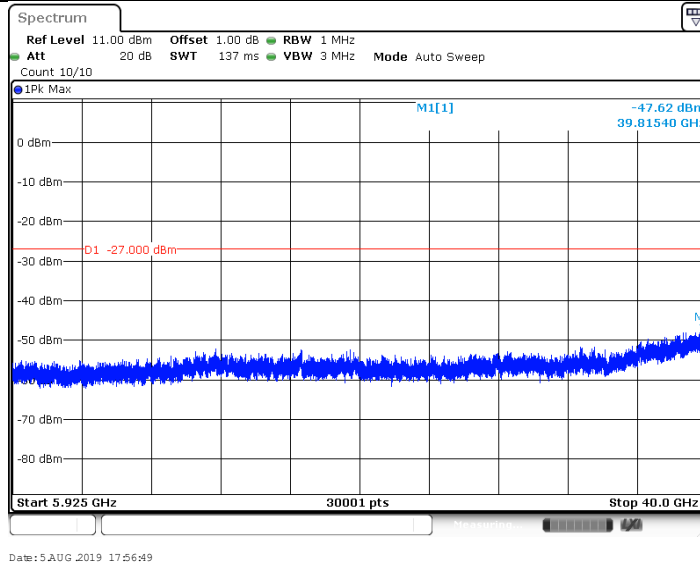


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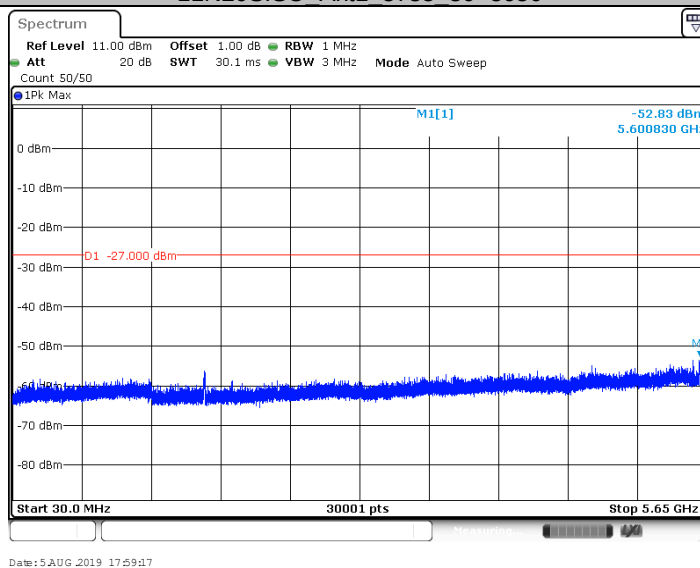
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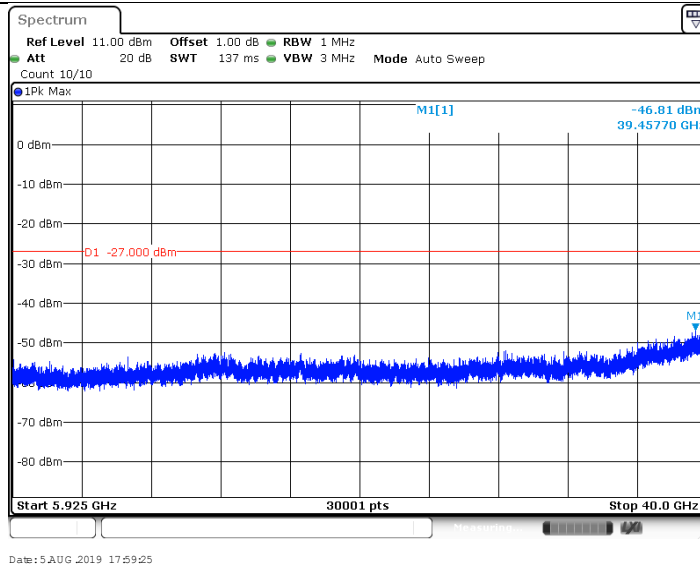
11N20SISO Ant1 5745 5925-40000



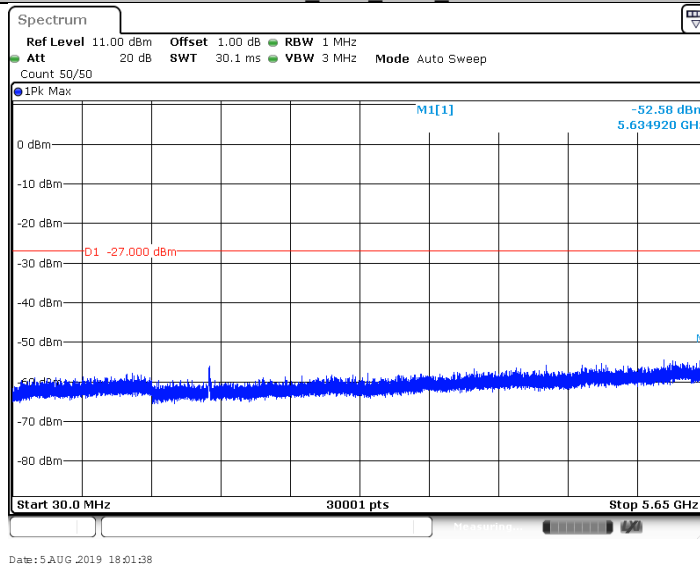
11N20SISO Ant1 5785 30-5650



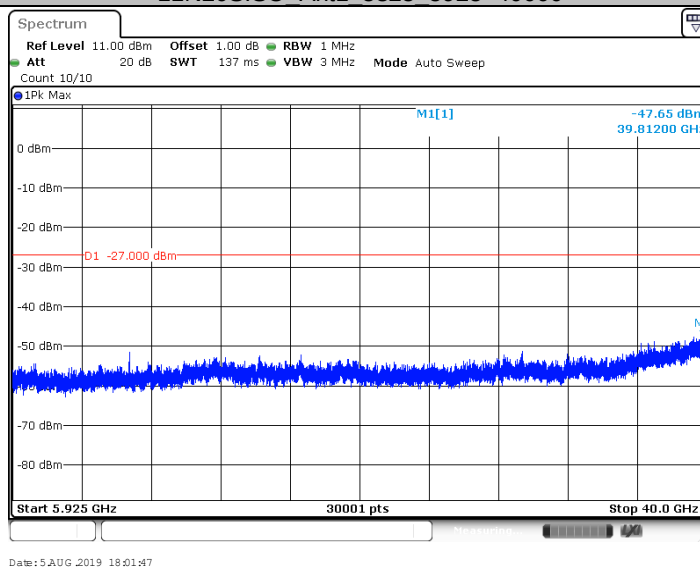
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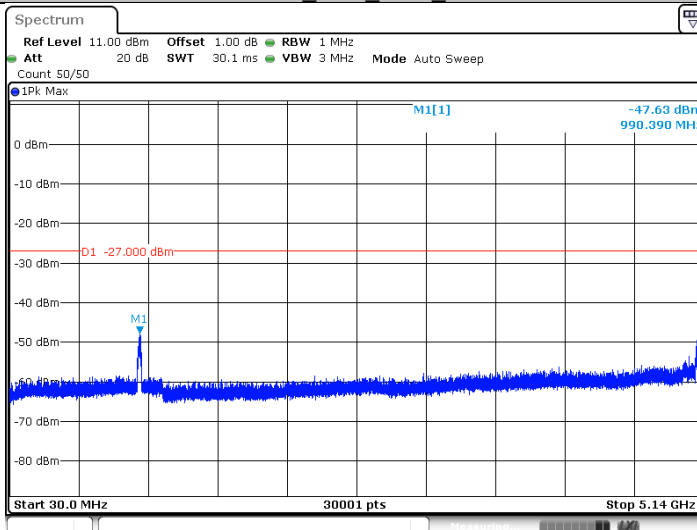
## 11N20SISO Ant1 5825 30~5650



## 11N20SISO Ant1 5825 5925~40000

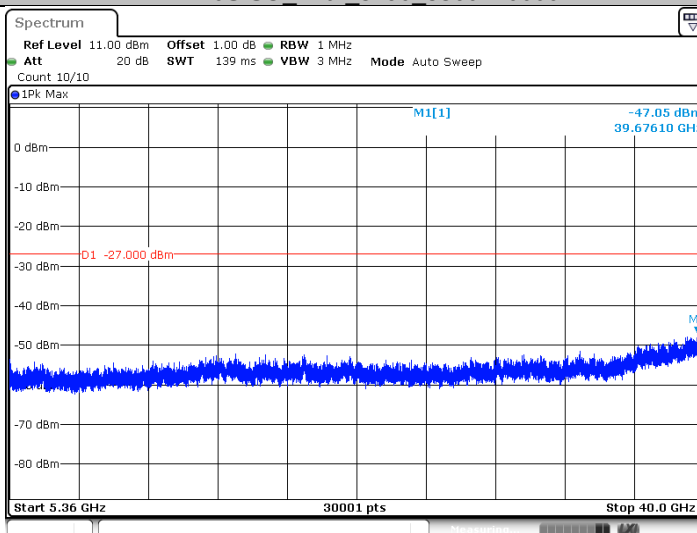


## 11N40SISO\_Ant1\_5190\_30~5140



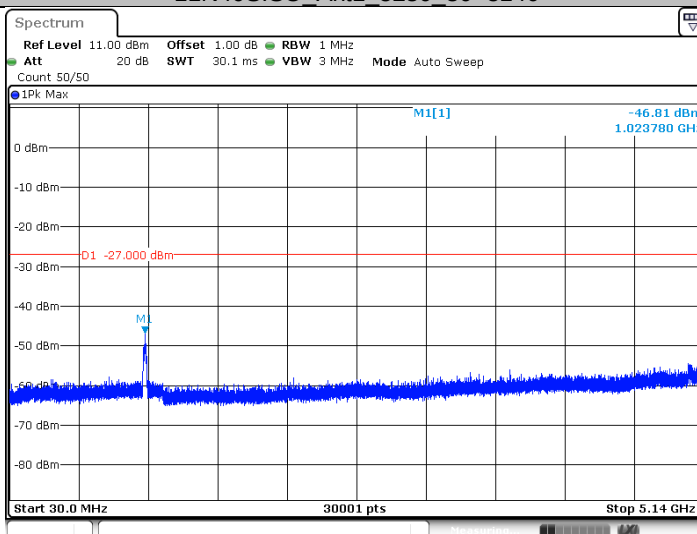
Date: 5 AUG. 2019 18:08:37

## 11N40SISO\_Ant1\_5190\_5360~40000



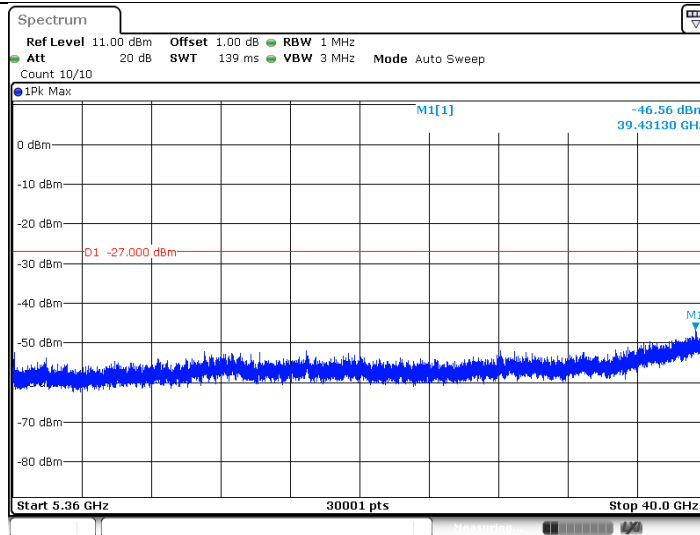
Date: 5 AUG. 2019 18:08:46

## 11N40SISO\_Ant1\_5230\_30~5140



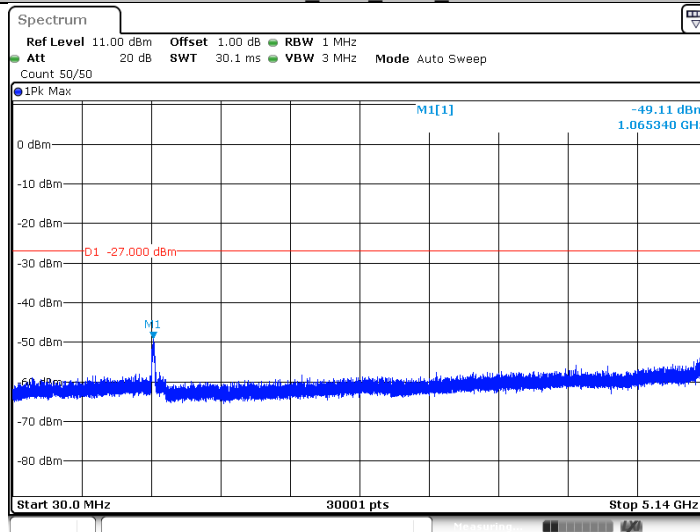
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## 11N40SISO\_Ant1\_5230\_5360~40000



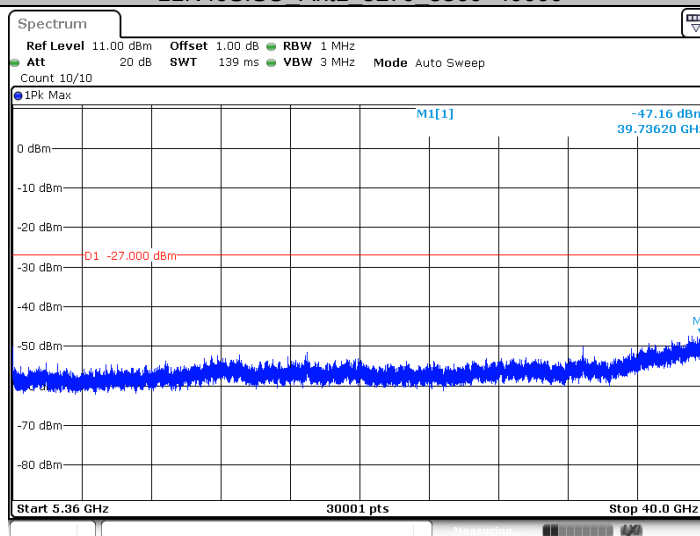
Date: 5 AUG. 2019 18:16:35

## 11N40SISO\_Ant1\_5270\_30~5140



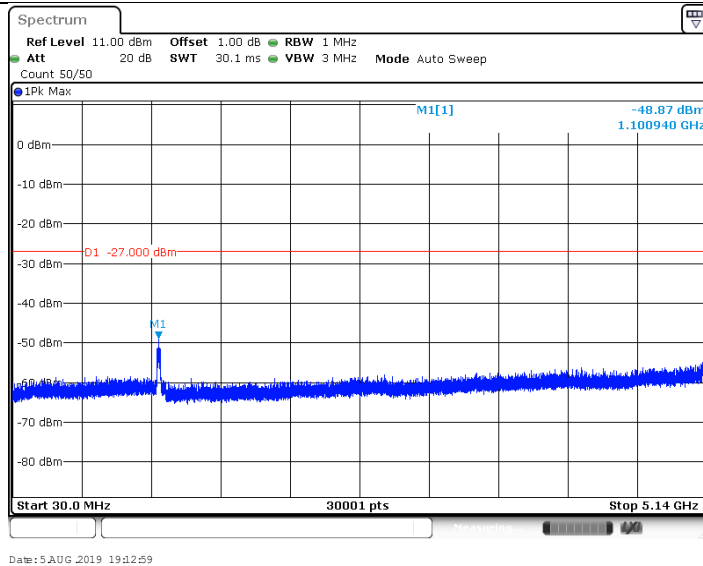
Date: 5 AUG. 2019 18:21:37

## 11N40SISO\_Ant1\_5270\_5360~40000

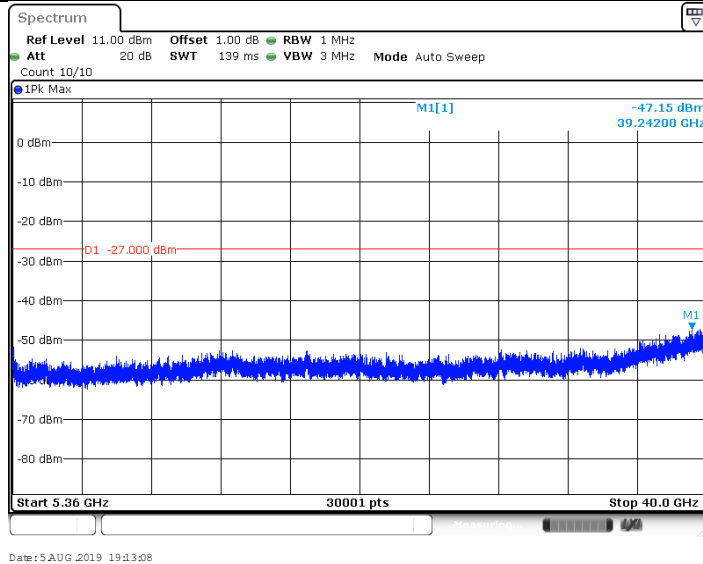


Date: 5 AUG. 2019 18:21:45

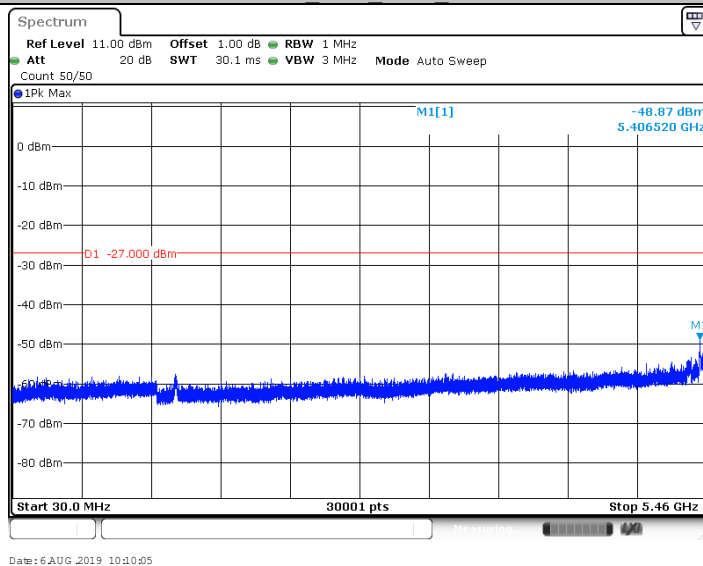
## 11N40SISO\_Ant1\_5310\_30~5140



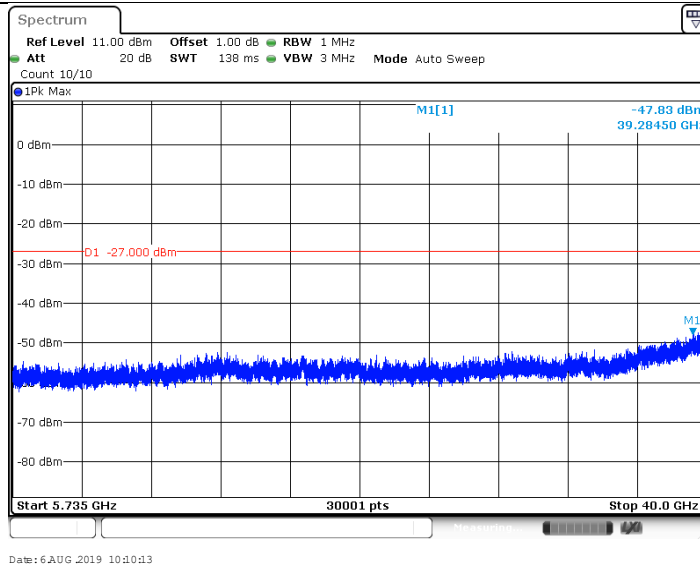
## 11N40SISO Ant1 5310 5360-40000



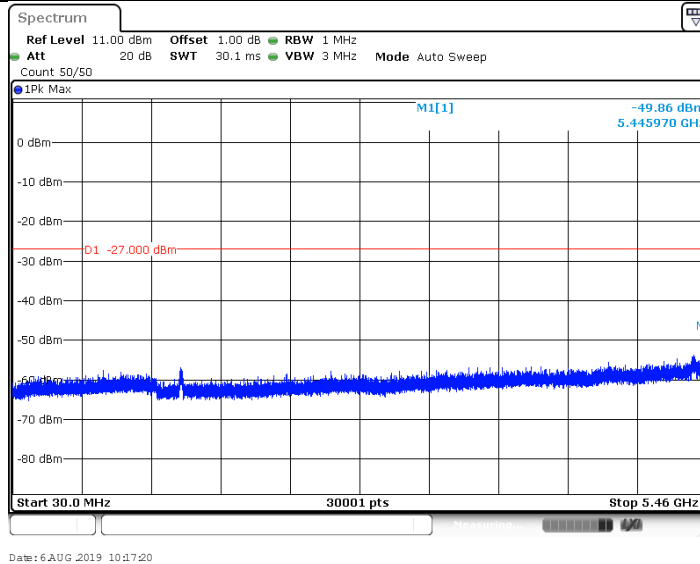
## 11N40SISO Ant1 5510 30-5460



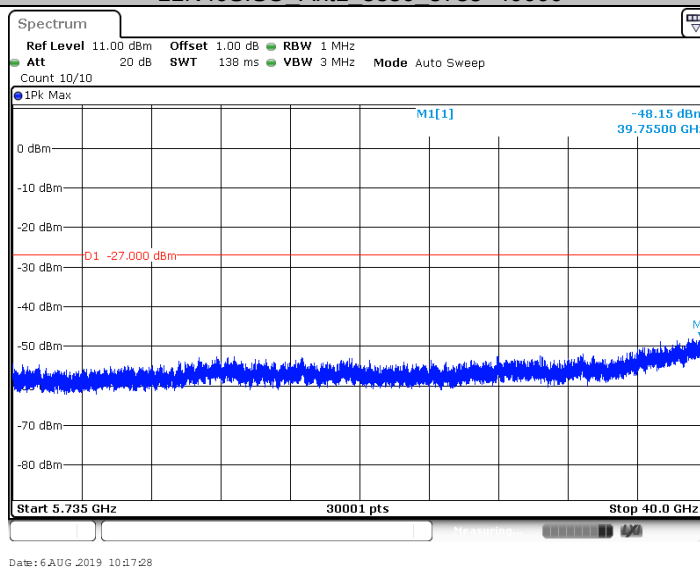
## 11N40SISO Ant1 5510 5735-40000



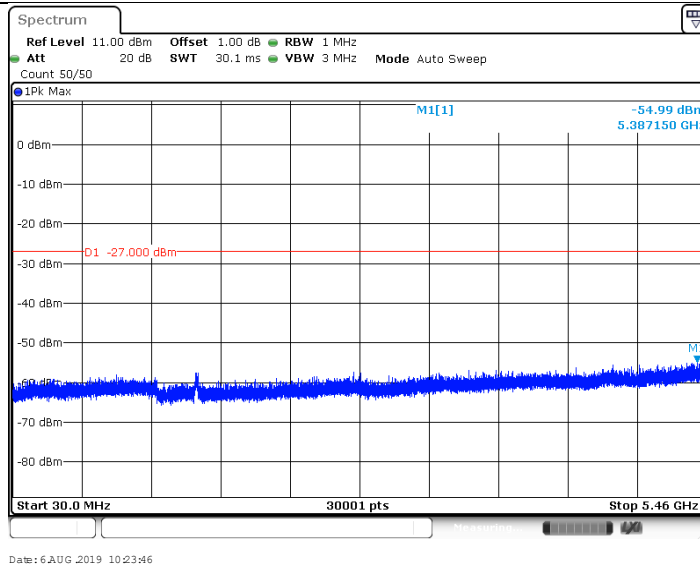
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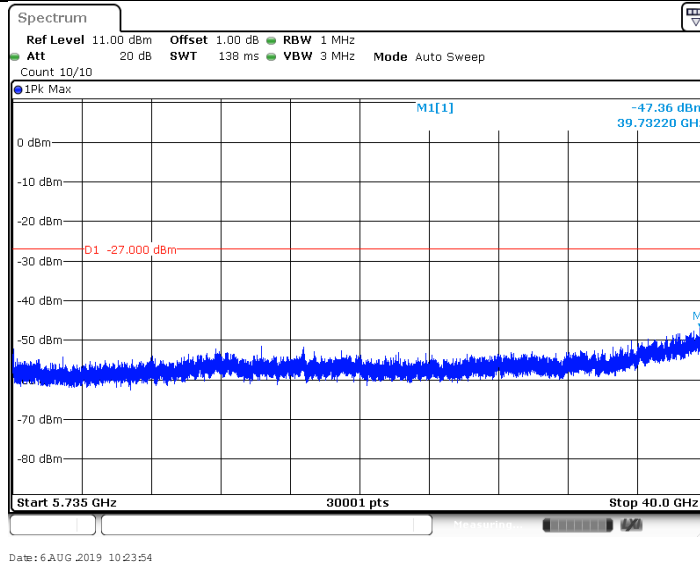
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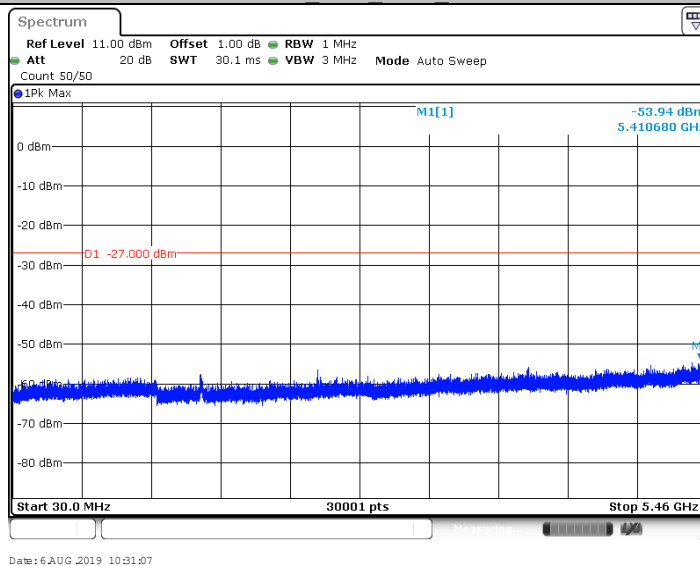
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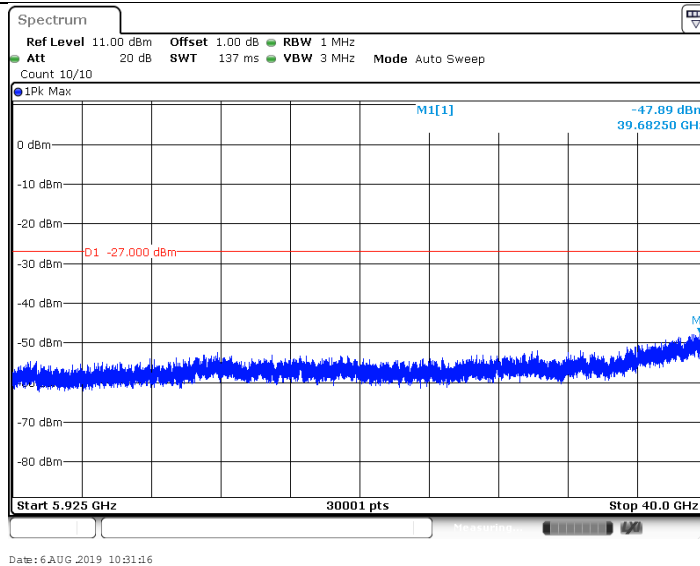
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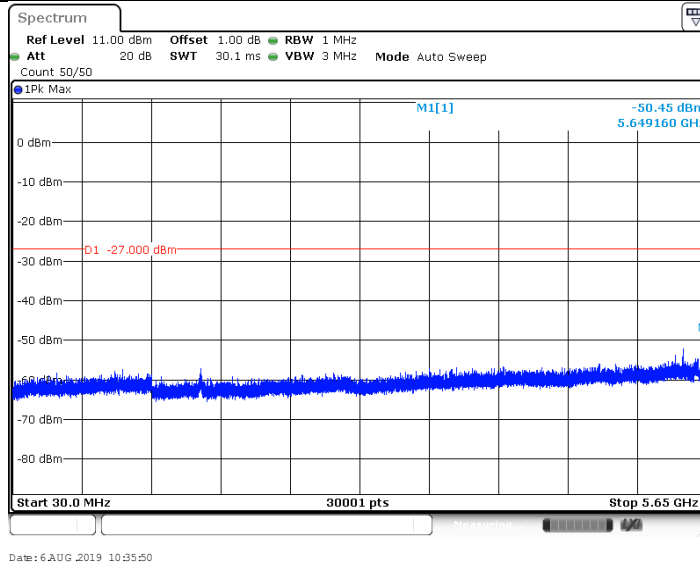
## 11N40SISO Ant1 5710 30-5460



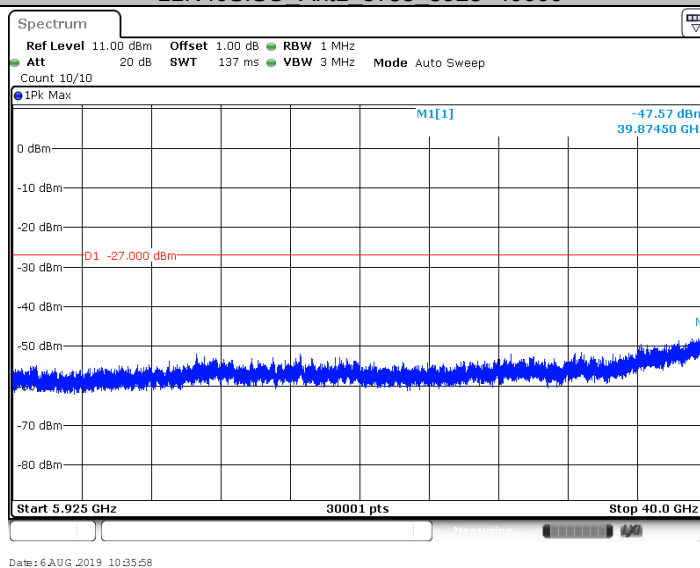
## 11N40SISO Ant1 5710 5925-40000



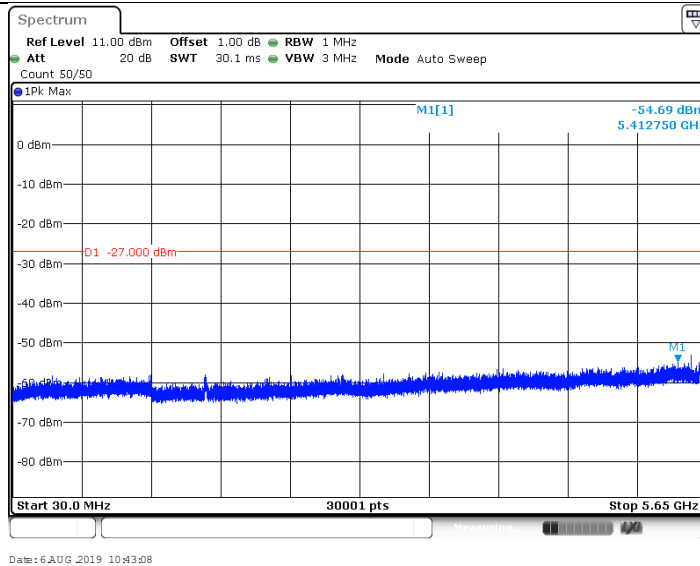
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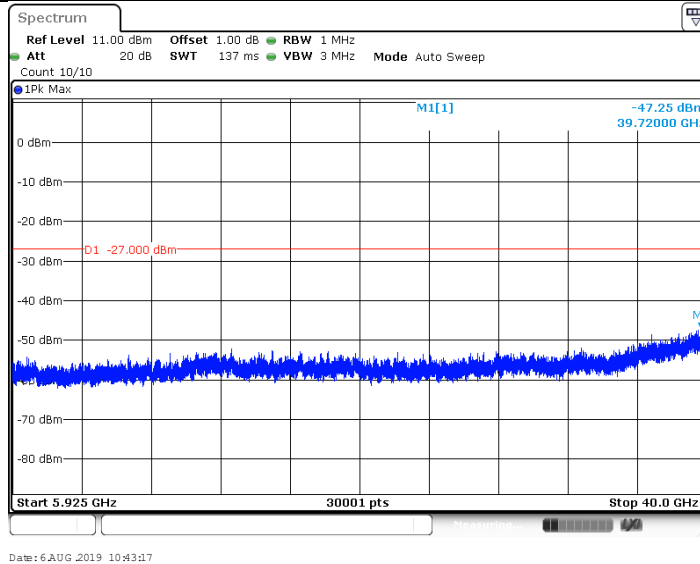
## 11N40SISO\_Ant1\_5755\_5925-40000



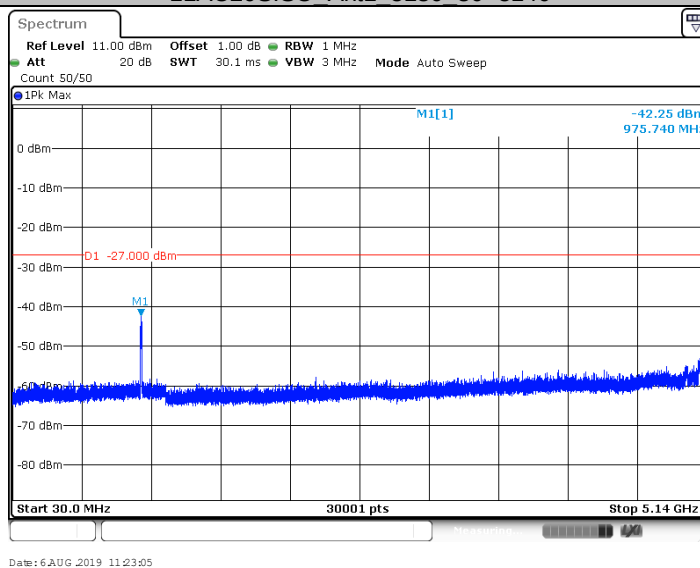
## 11N40SISO\_Ant1\_5795\_30-5650



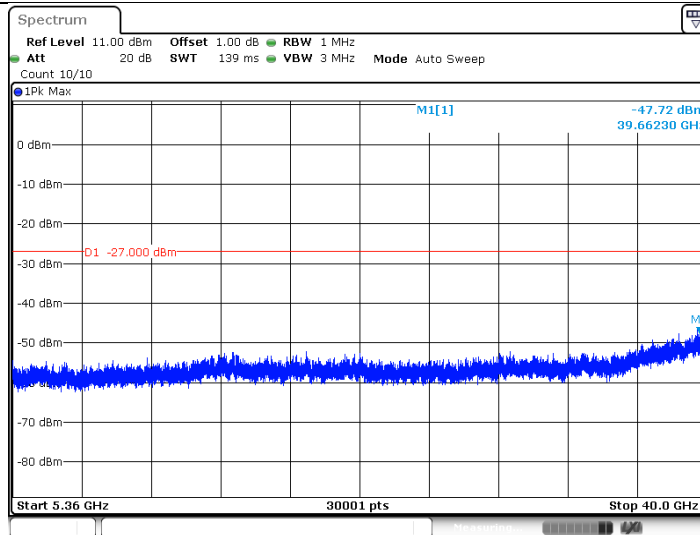
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11AC20SISO Ant1 5180 30-5140

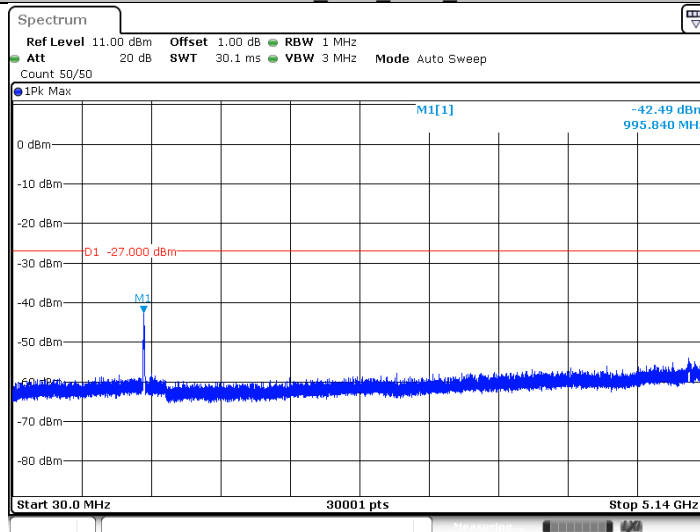


11AC20SISO Ant1 5180 5360-40000



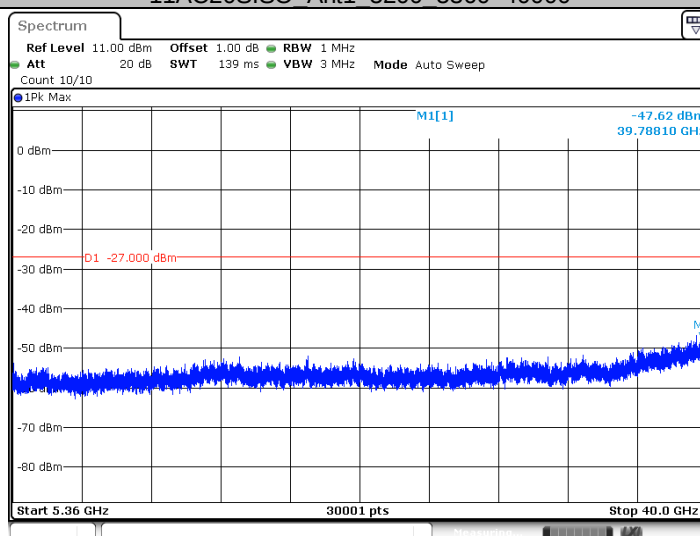
Date: 6 AUG 2019 11:23:14

## 11AC20SISO Ant1 5200 30-5140



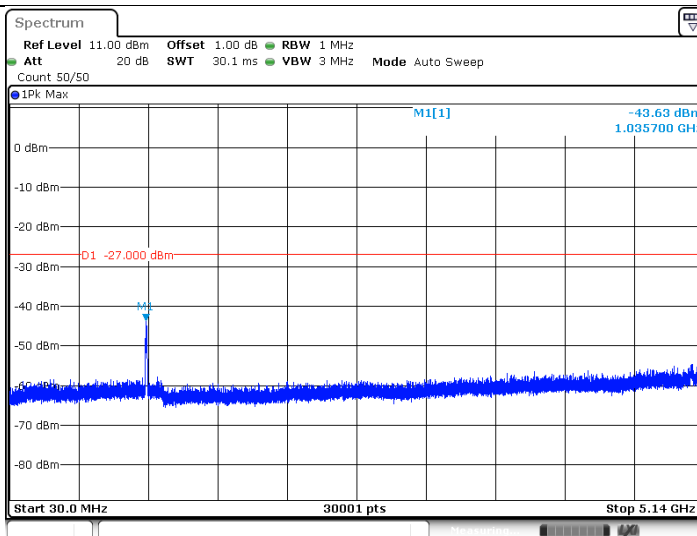
Date: 6 AUG 2019 11:24:49

## 11AC20SISO Ant1 5200 5360-40000



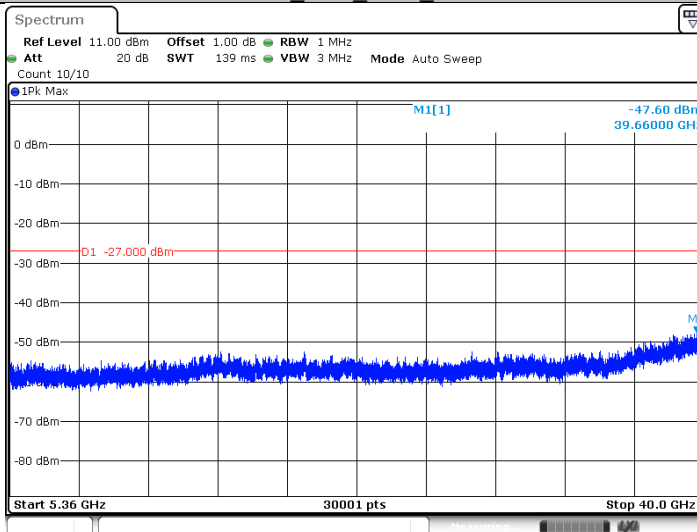
Date: 6 AUG 2019 11:24:58

## 11AC20SISO Ant1 5240 30-5140



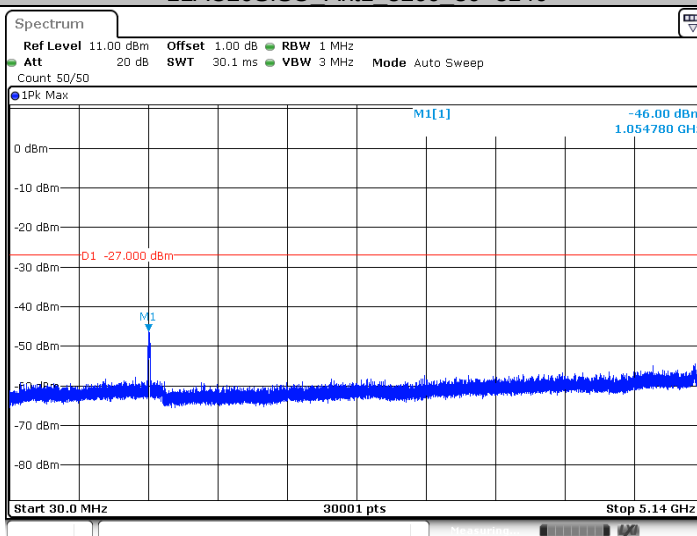
Date: 6 AUG. 2019 11:28:35

## 11AC20SISO\_Ant1\_5240\_5360-40000



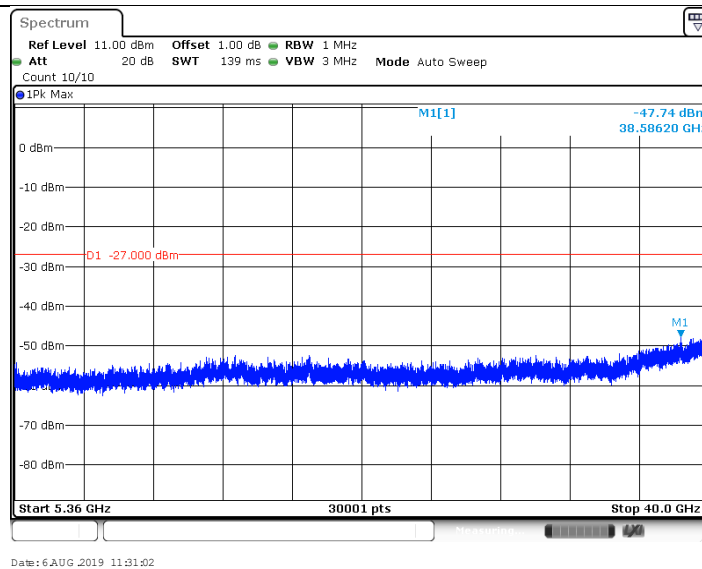
Date: 6 AUG. 2019 11:28:44

## 11AC20SISO\_Ant1\_5260\_30-5140

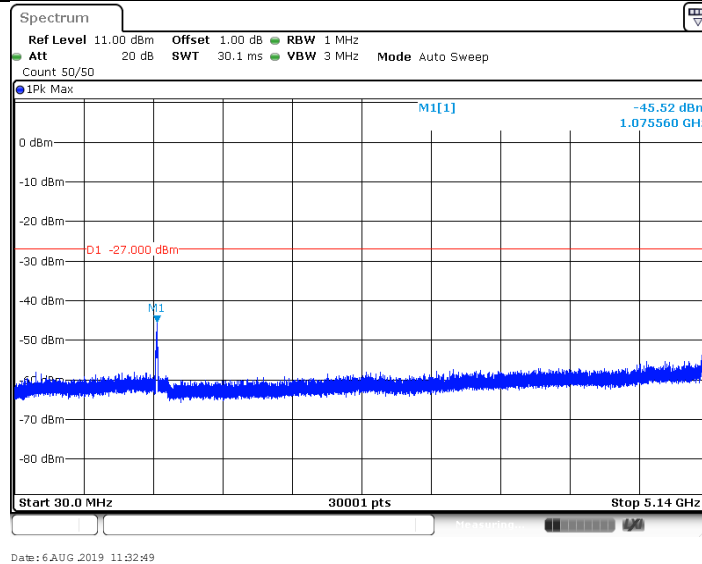


Date: 6 AUG. 2019 11:30:54

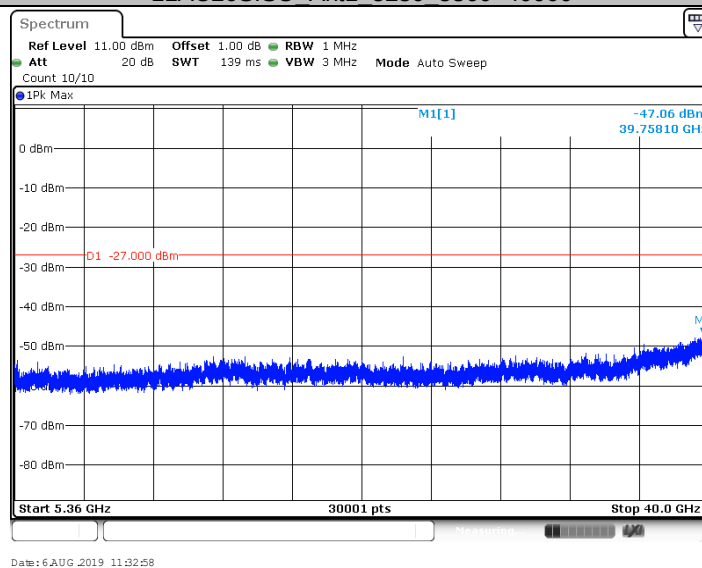
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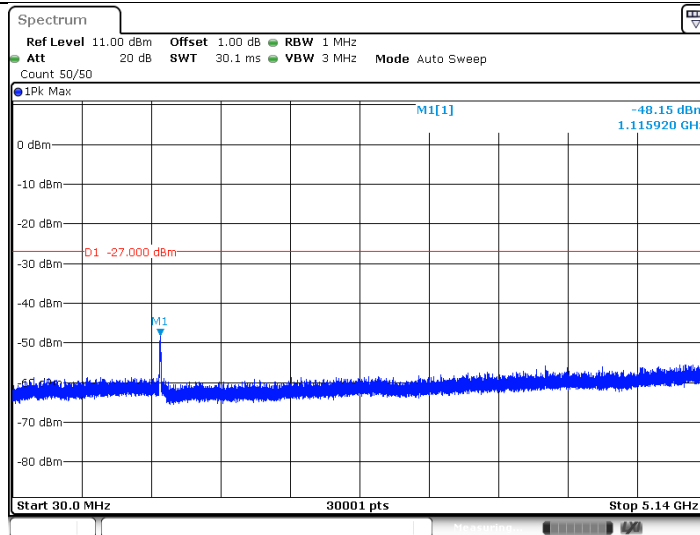
## 11AC20SISO Ant1 5280 30-5140



## 11AC20SISO Ant1 5280 5360-40000

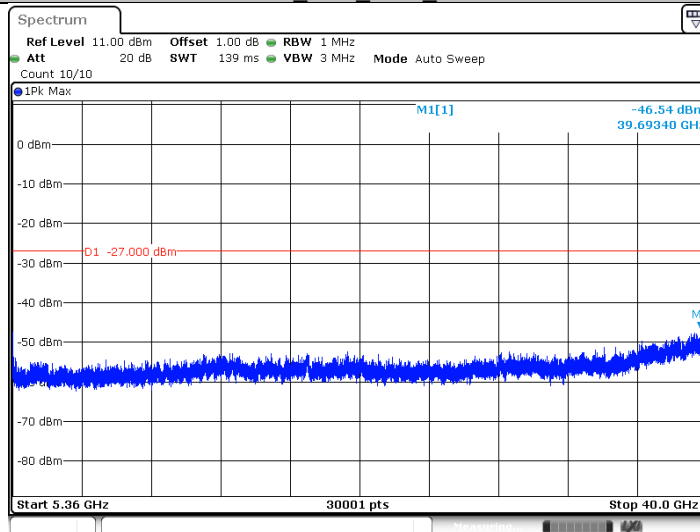


## 11AC20SISO Ant1 5320 30-5140



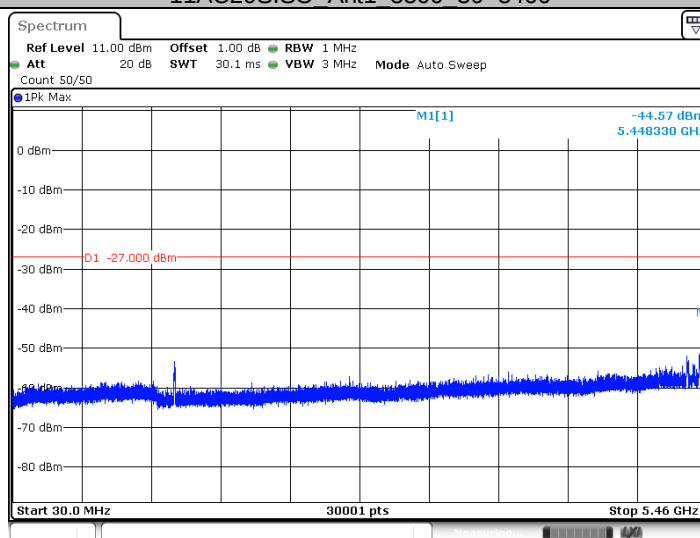
Date: 6 AUG. 2019 11:35:32

## 11AC20SISO\_Ant1\_5320\_5360-40000



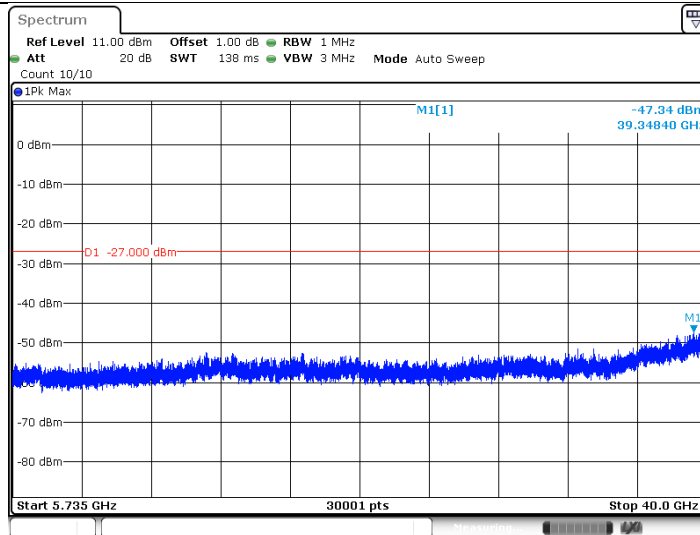
Date: 6 AUG. 2019 11:35:41

## 11AC20SISO\_Ant1\_5500\_30-5460



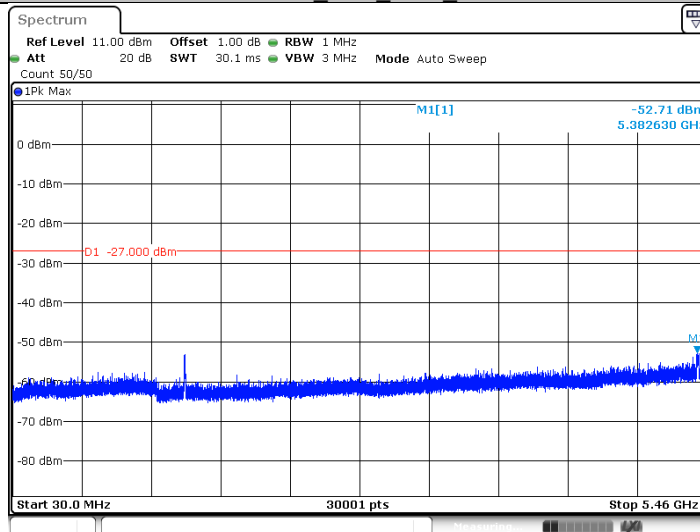
Date: 6 AUG. 2019 11:38:00

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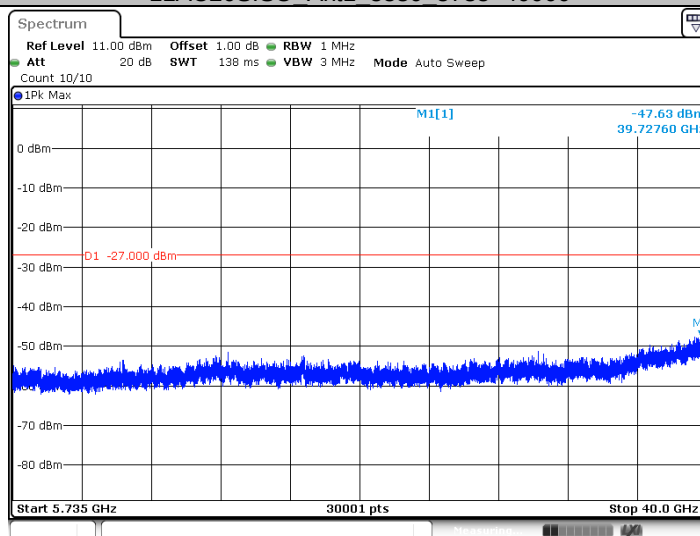
Date: 6 AUG 2019 11:38:09

## 11AC20SISO\_Ant1 5580 30-5460



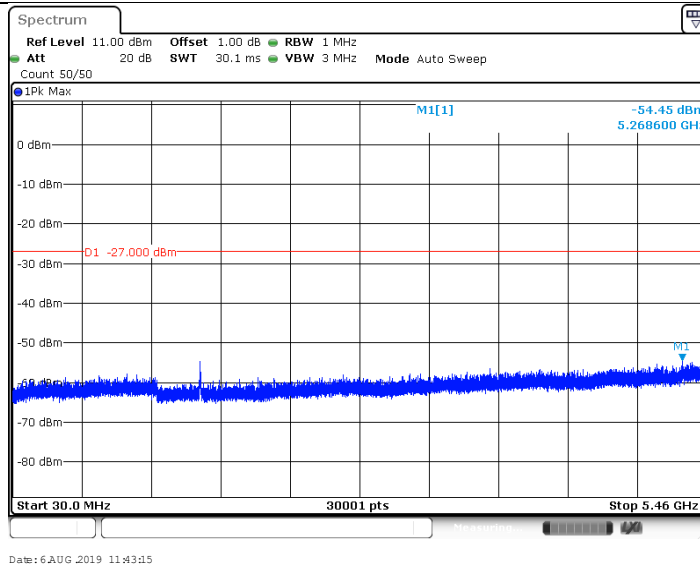
Date: 6 AUG 2019 11:40:26

## 11AC20SISO\_Ant1 5580 5735-40000

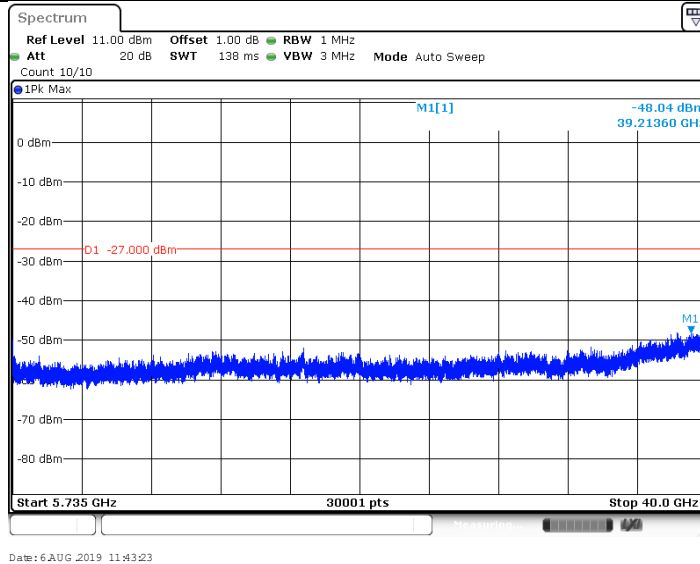


Date: 6 AUG 2019 11:40:35

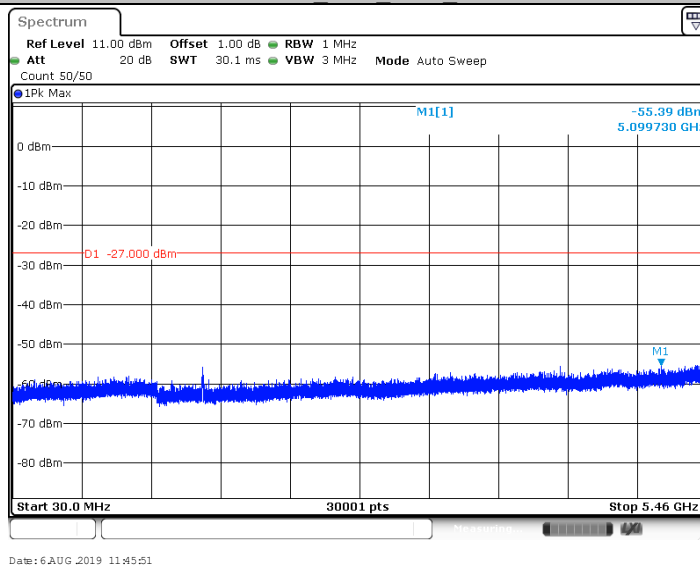
## 11AC20SISO\_Ant1 5700 30-5460



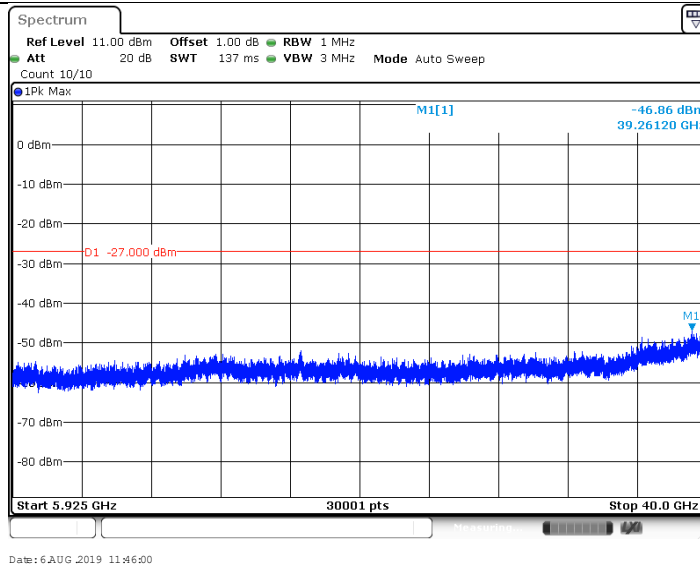
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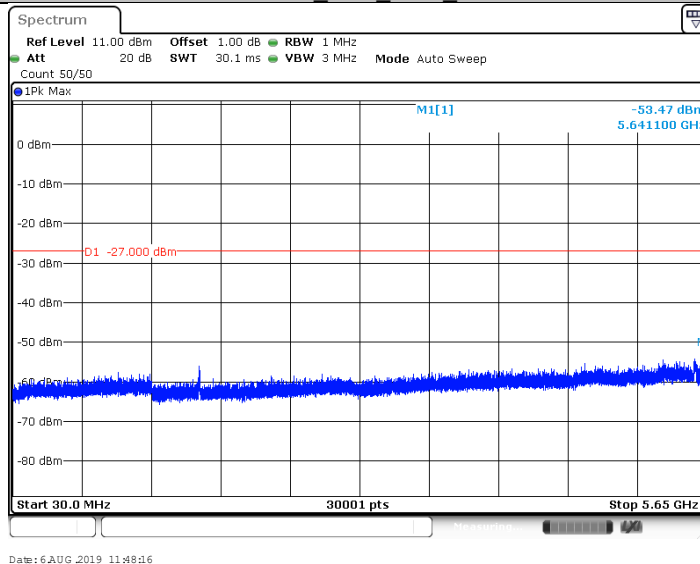
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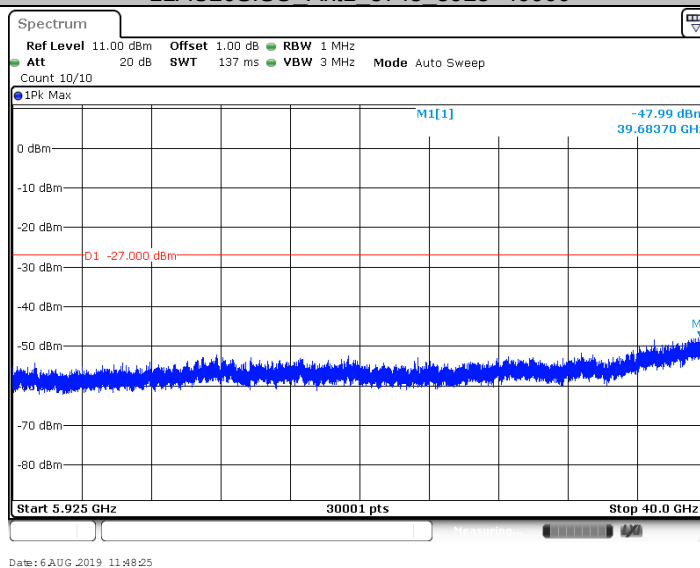
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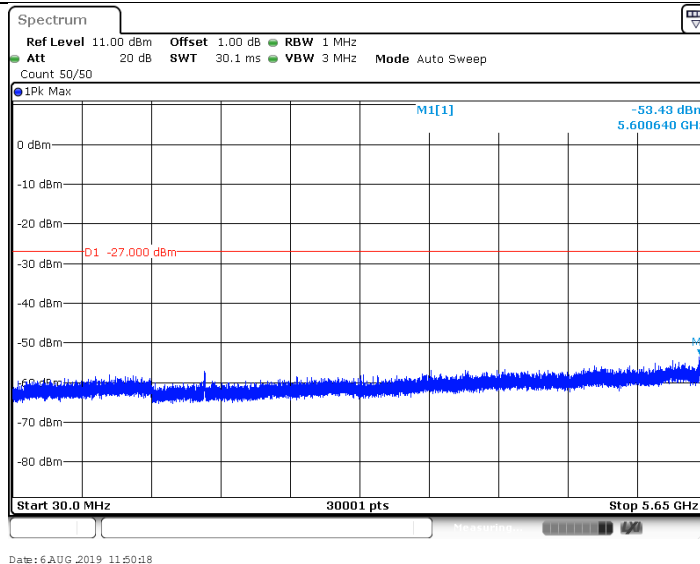
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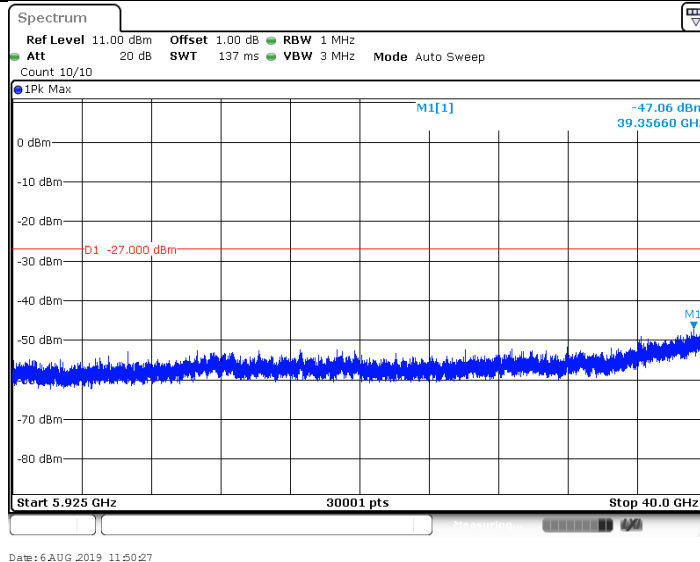
## 11AC20SISO Ant1 5745 5925-40000



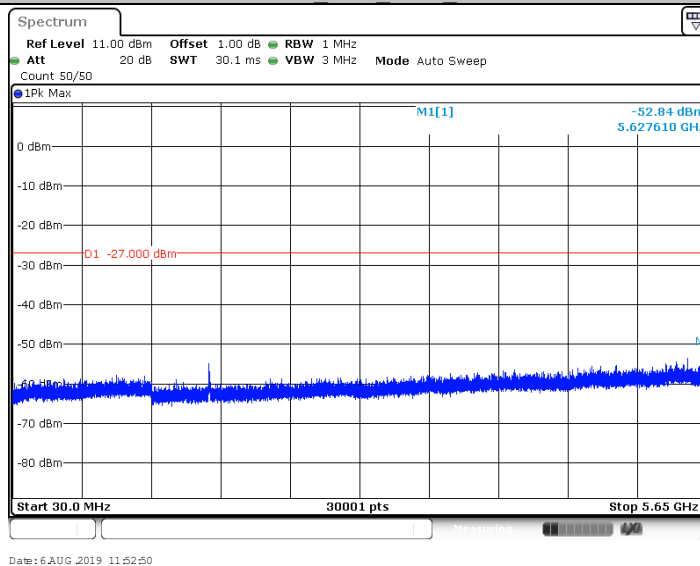
## 11AC20SISO Ant1 5785 30-5650



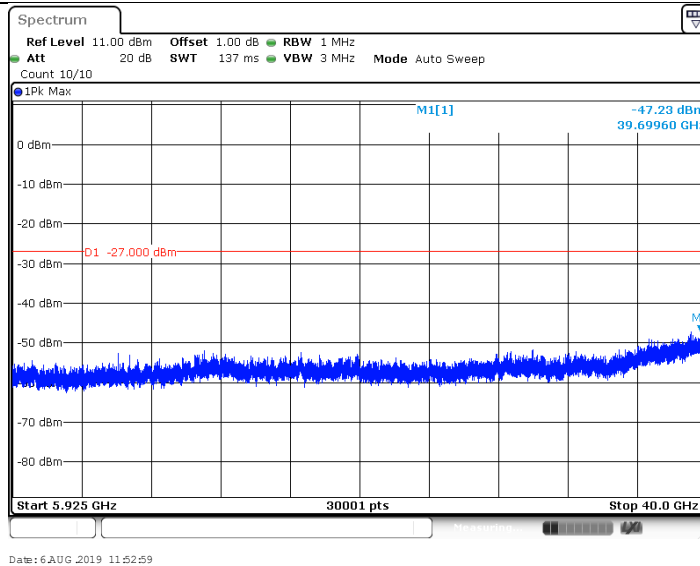
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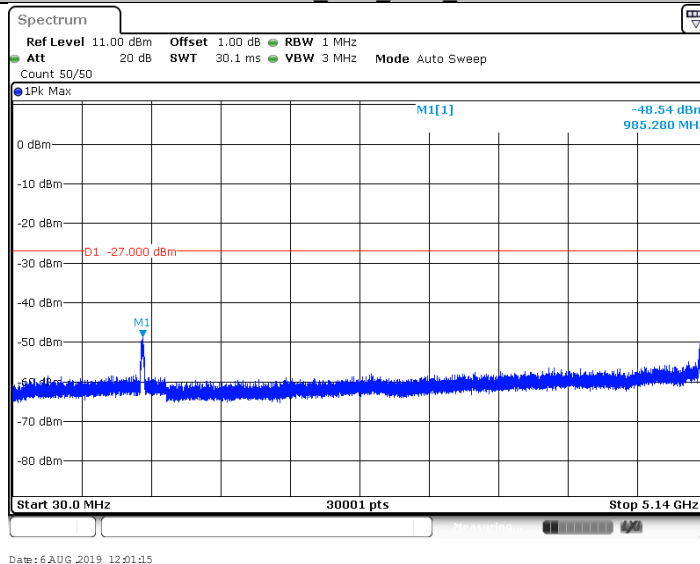
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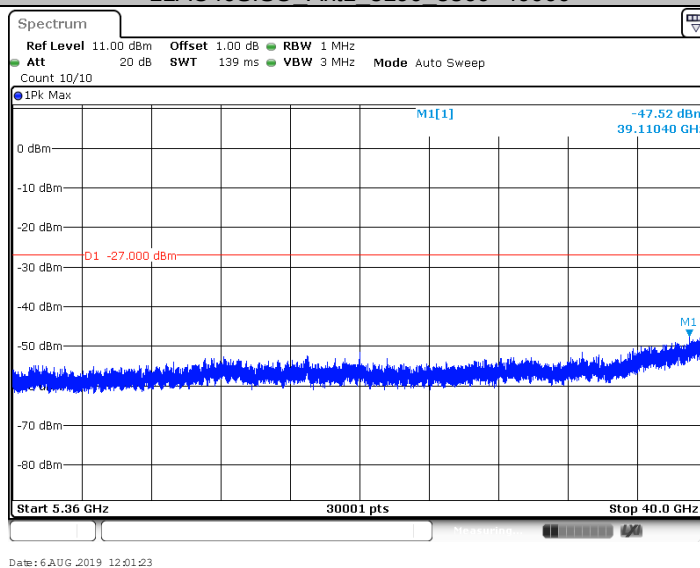
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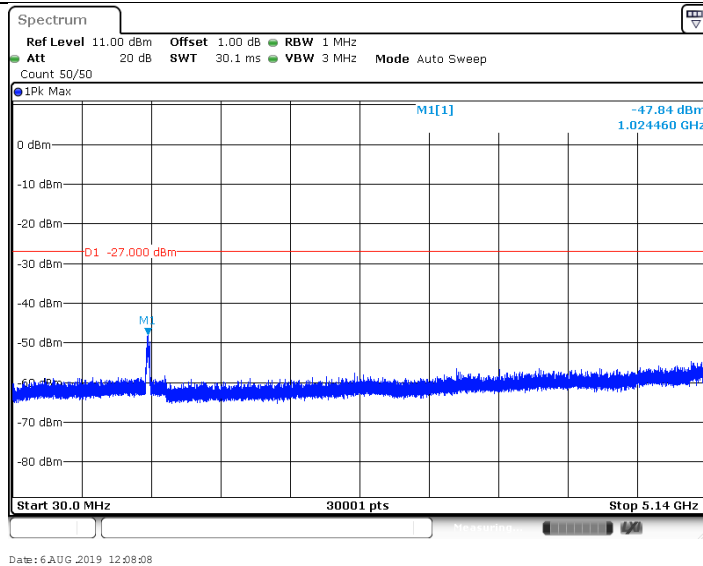
## 11AC40SISO Ant1 5190 30-5140



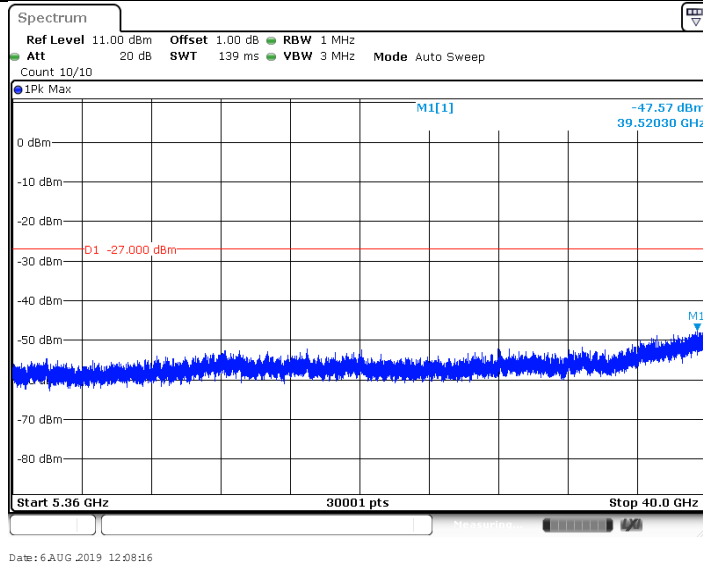
## 11AC40SISO Ant1 5190 5360-40000



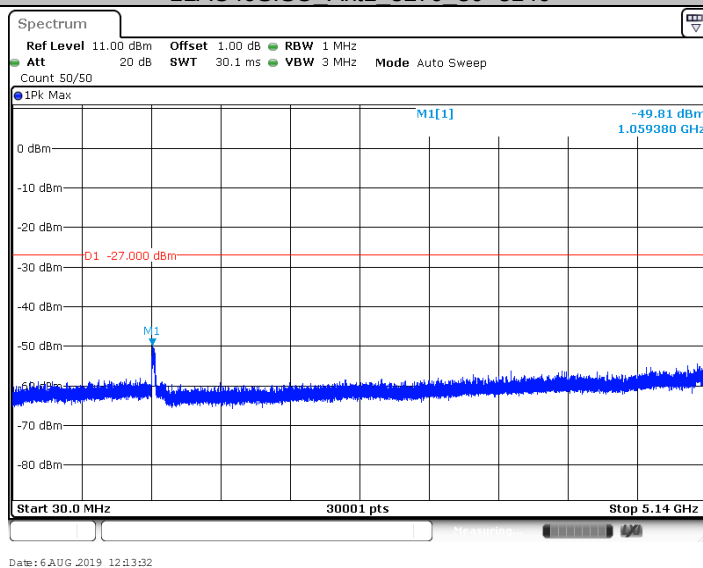
## 11AC40SISO Ant1 5230 30-5140



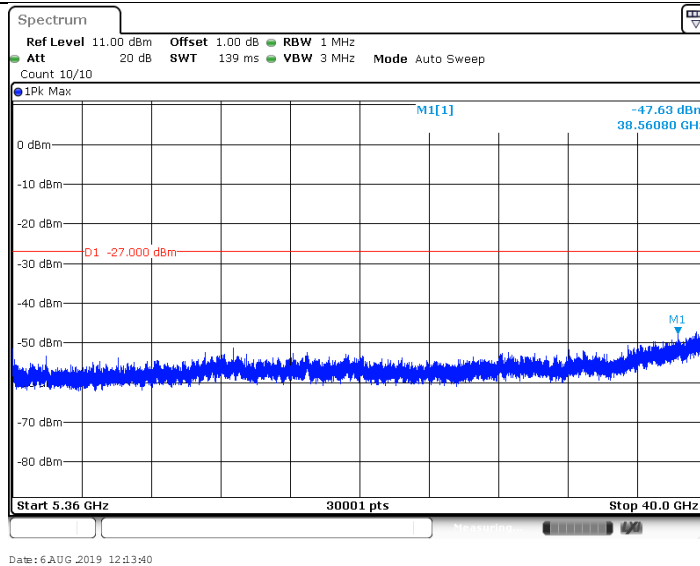
11AC40SISO\_Ant1\_5230\_5360-40000



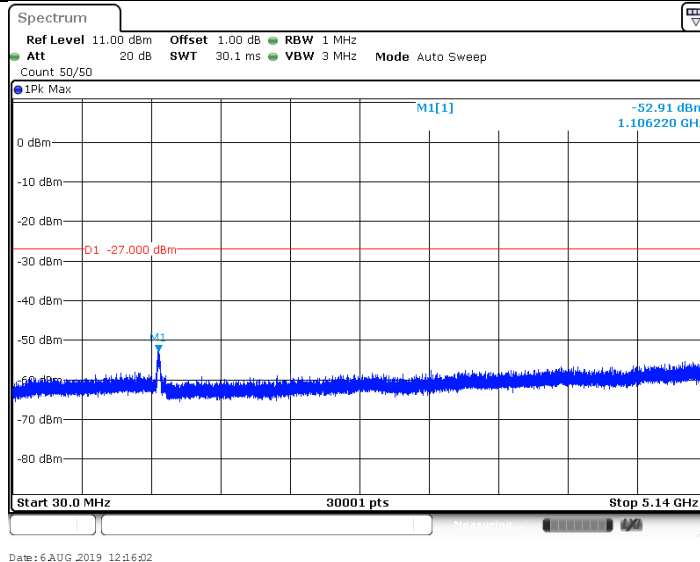
11AC40SISO\_Ant1\_5270\_30-5140



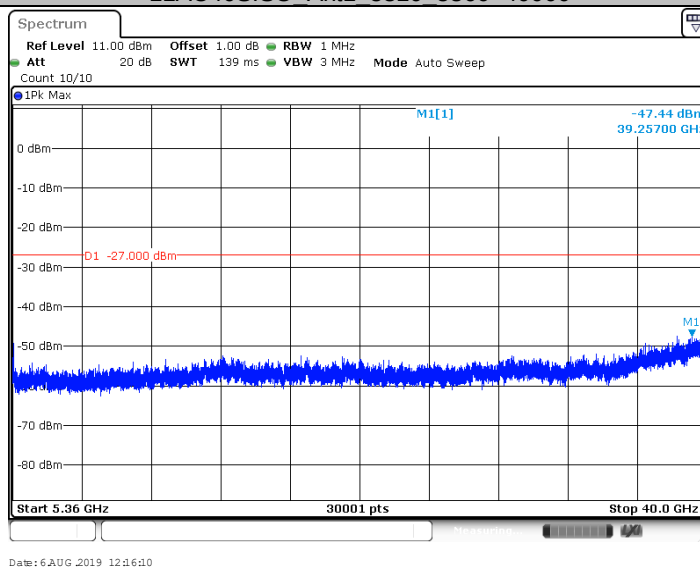
11AC40SISO\_Ant1\_5270\_5360-40000



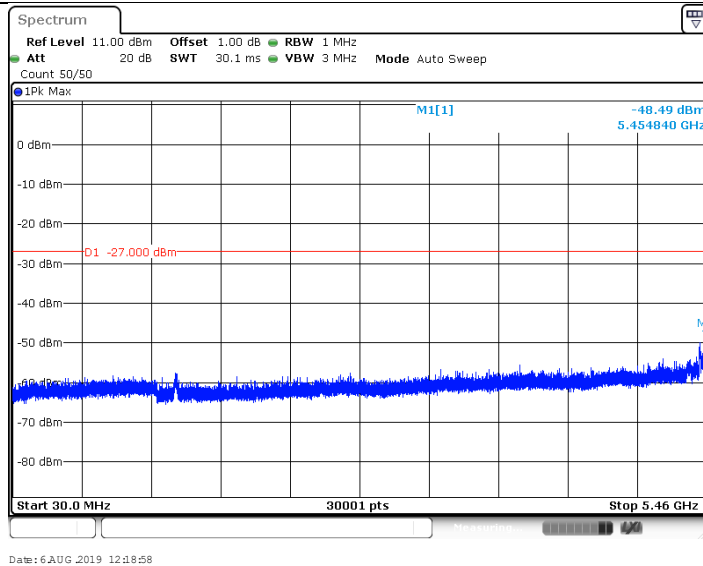
## 11AC40SISO\_Ant1\_5310\_30-5140



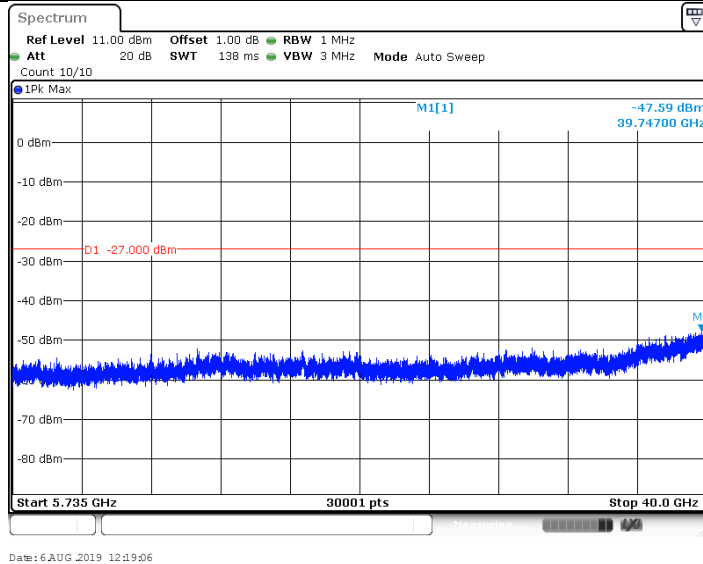
## 11AC40SISO\_Ant1\_5310\_5360-40000



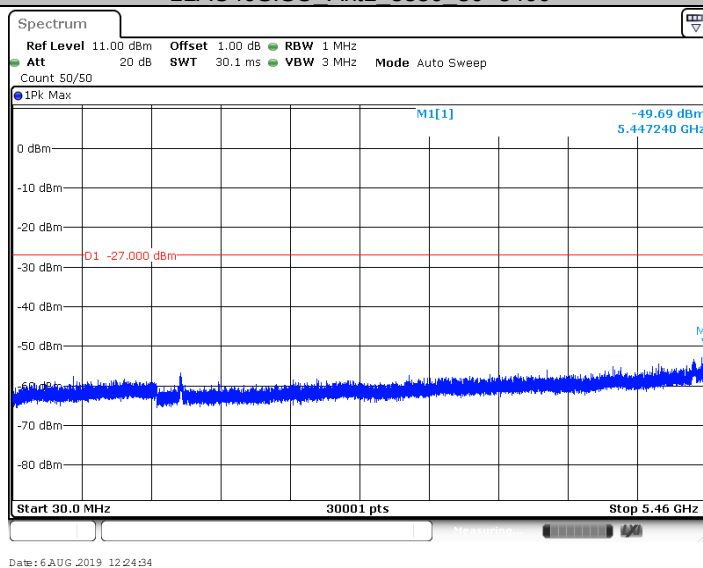
## 11AC40SISO\_Ant1\_5510\_30-5460



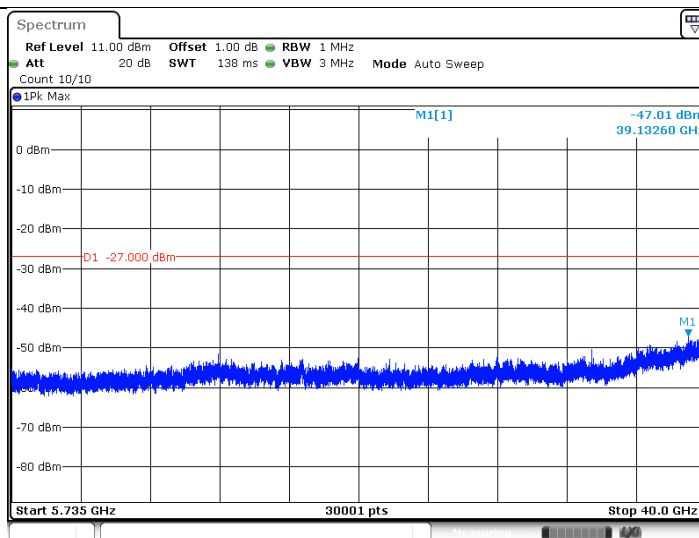
11AC40SISO\_Ant1\_5510\_5735-40000



11AC40SISO\_Ant1\_5550\_30-5460

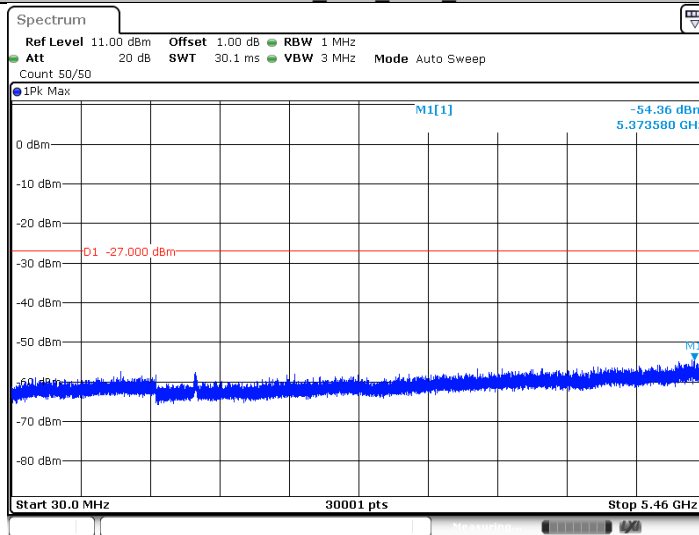


11AC40SISO\_Ant1\_5550\_5735-40000



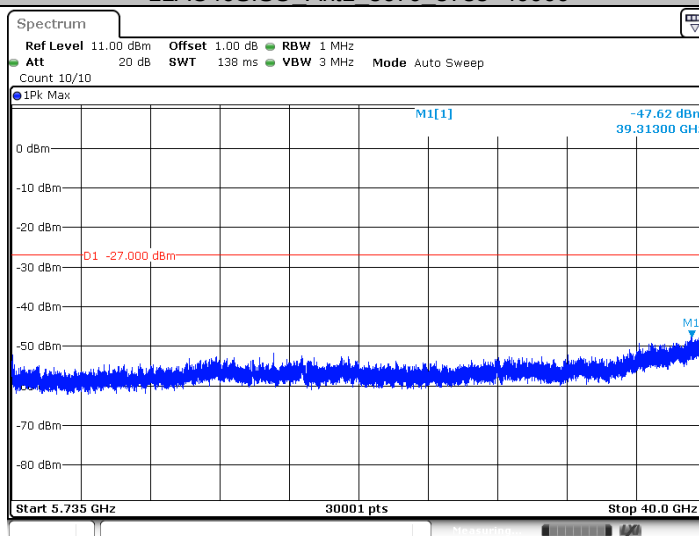
Date: 6 AUG. 2019 12:24:42

## 11AC40SISO\_Ant1\_5670\_30-5460



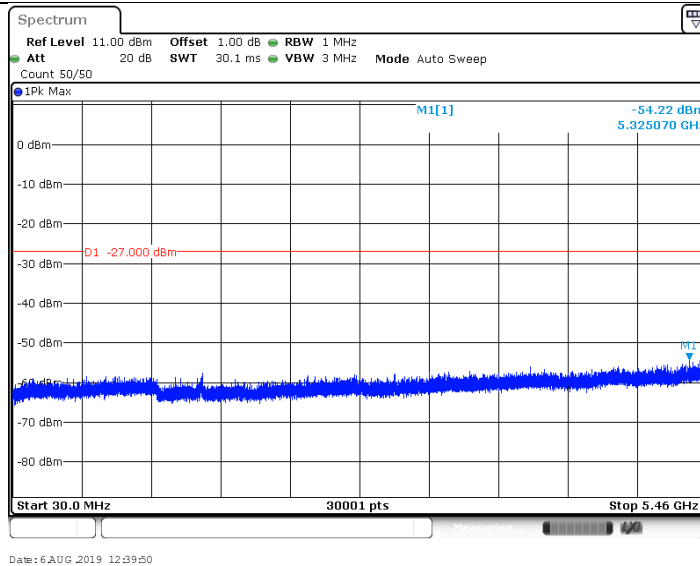
Date: 6 AUG. 2019 12:26:34

## 11AC40SISO\_Ant1\_5670\_5735-40000

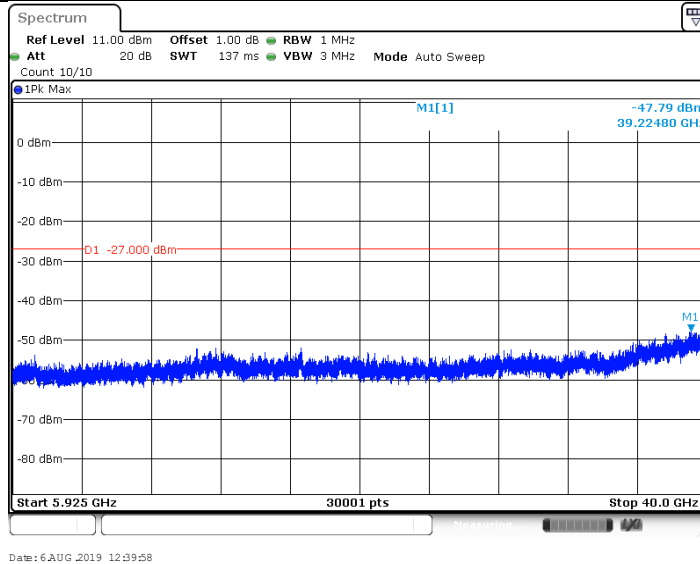


Date: 6 AUG. 2019 12:26:43

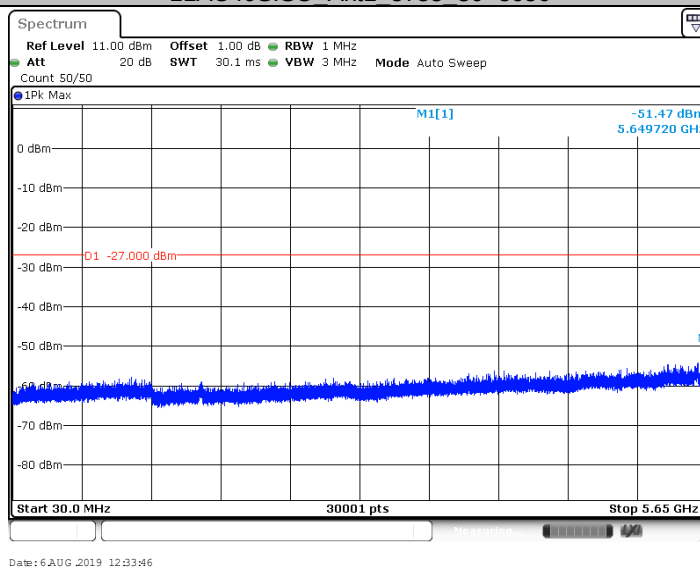
## 11AC40SISO\_Ant1\_5710\_30-5460



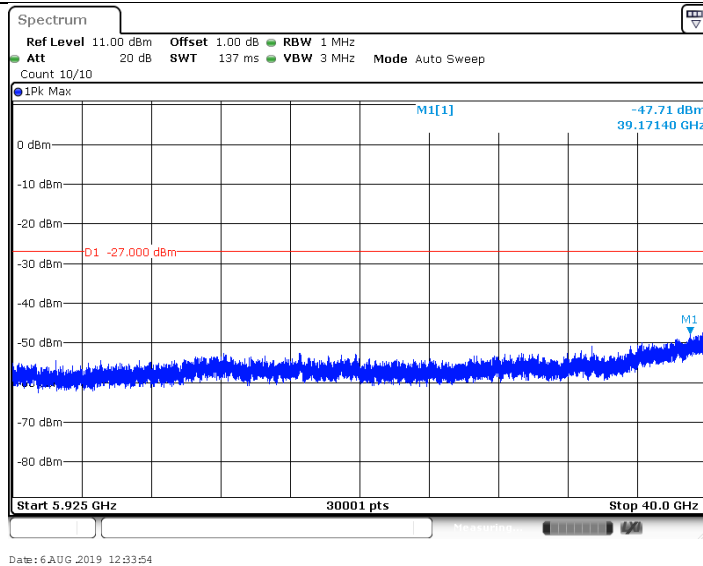
11AC40SISO\_Ant1\_5710\_5925-40000



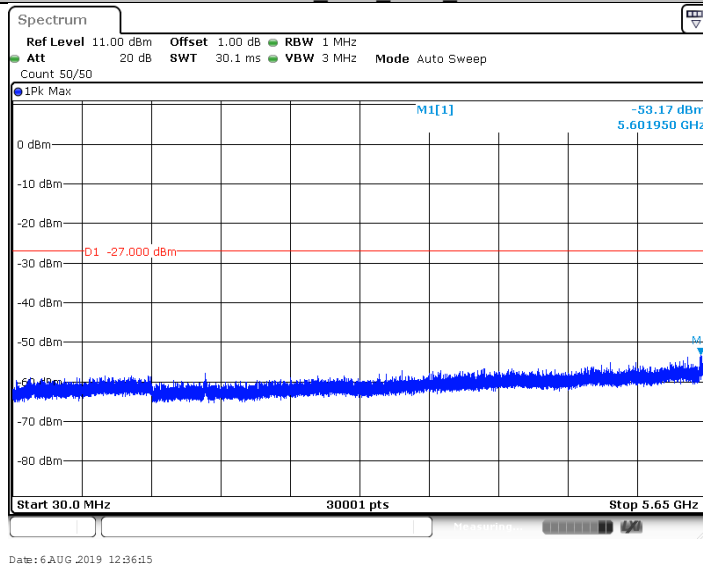
11AC40SISO\_Ant1\_5755\_30-5650



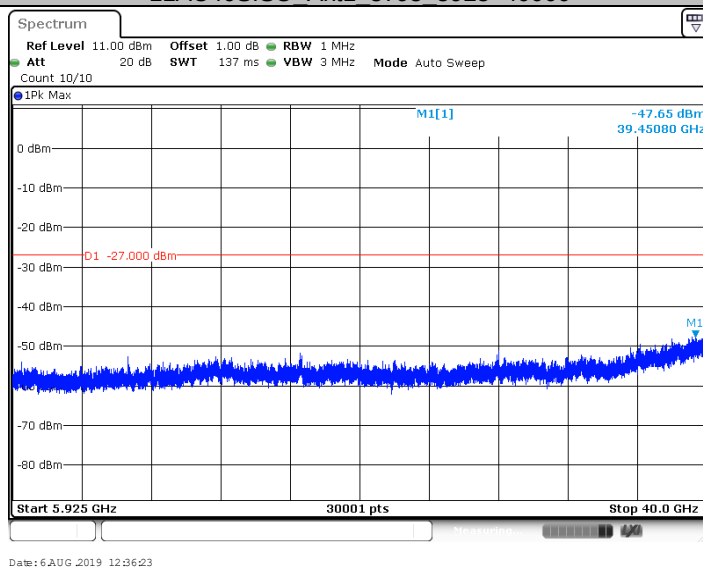
11AC40SISO\_Ant1\_5755\_5925-40000



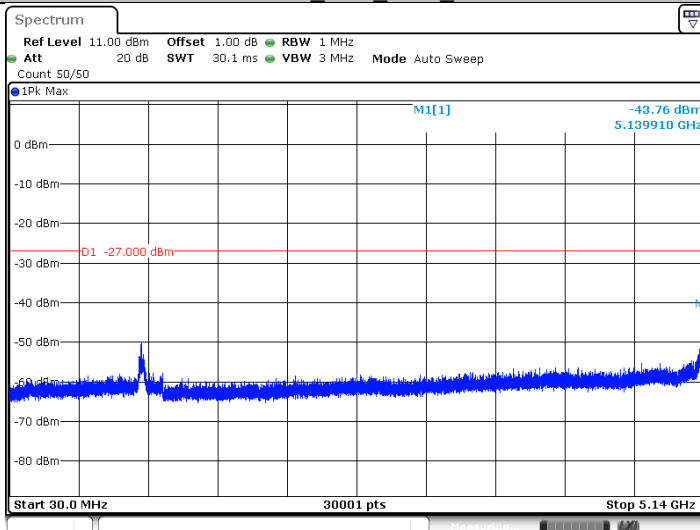
## 11AC40SISO\_Ant1\_5795\_30-5650



## 11AC40SISO\_Ant1\_5795\_5925-40000

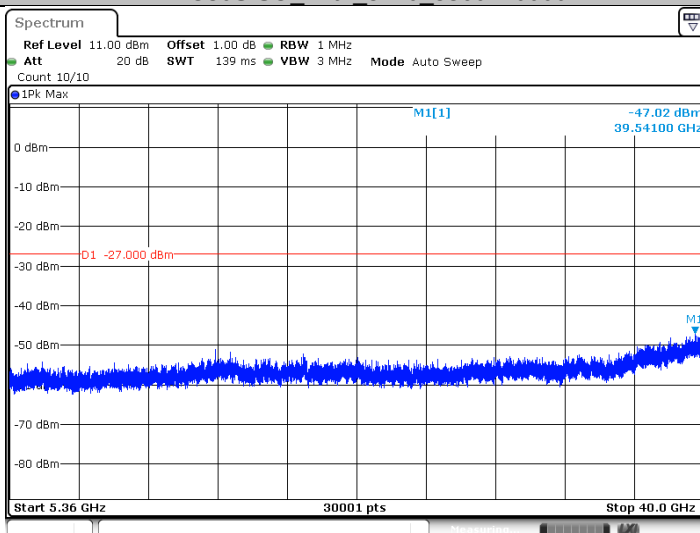


## 11AC80SISO\_Ant1\_5210\_30~5140



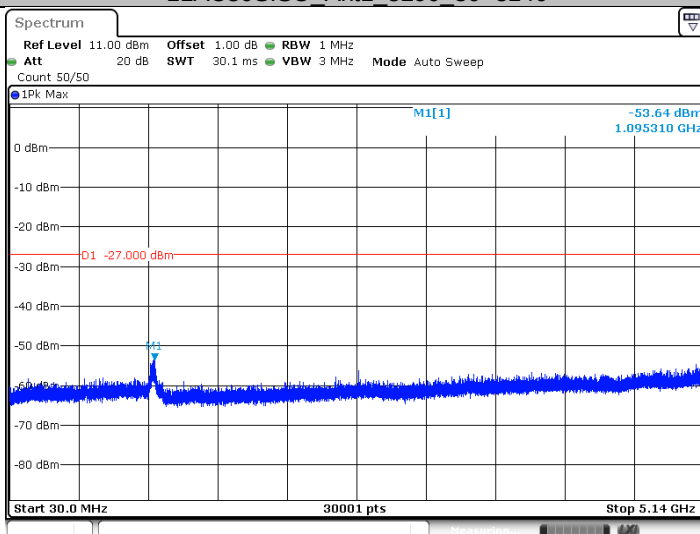
Date: 6 AUG. 2019 14:03:12

## 11AC80SISO\_Ant1\_5210\_5360~40000



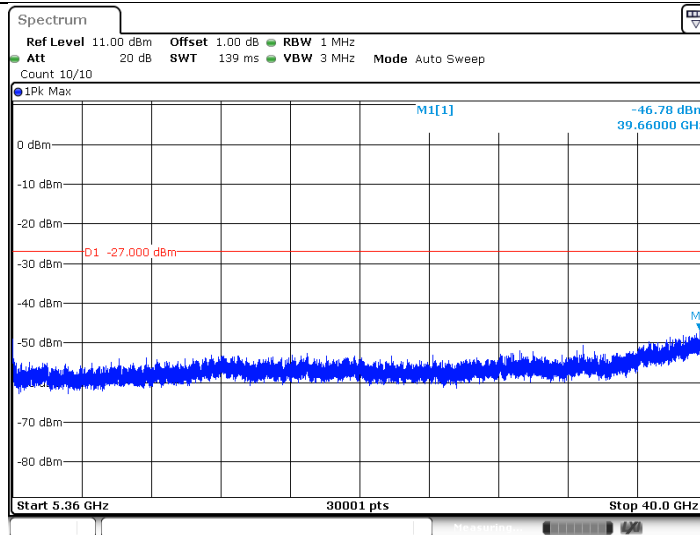
Date: 6 AUG. 2019 14:03:20

## 11AC80SISO\_Ant1\_5290\_30~5140



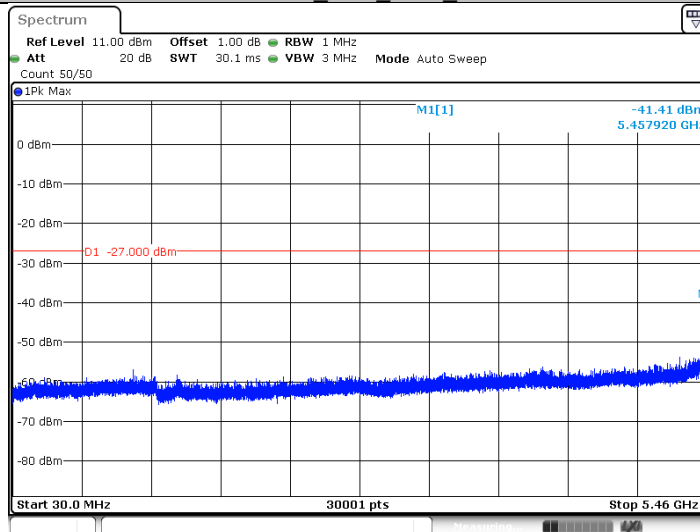
Date: 6 AUG. 2019 14:09:37

## 11AC80SISO\_Ant1\_5290\_5360~40000



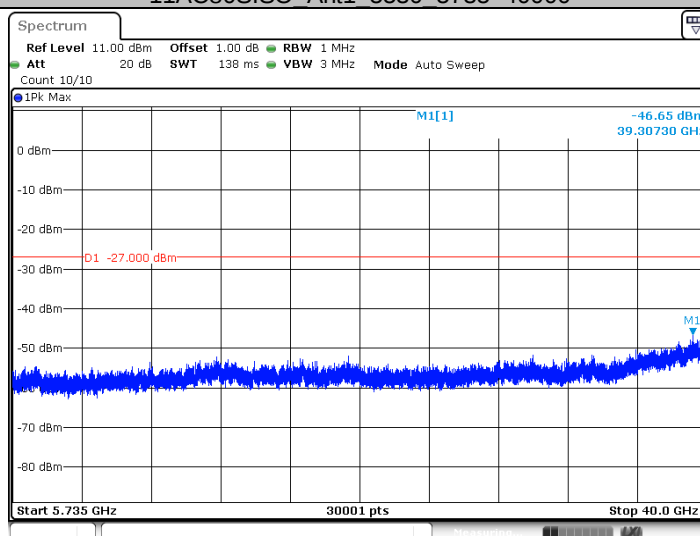
Date: 6 AUG 2019 14:09:46

## 11AC80SISO\_Ant1 5530 30-5460



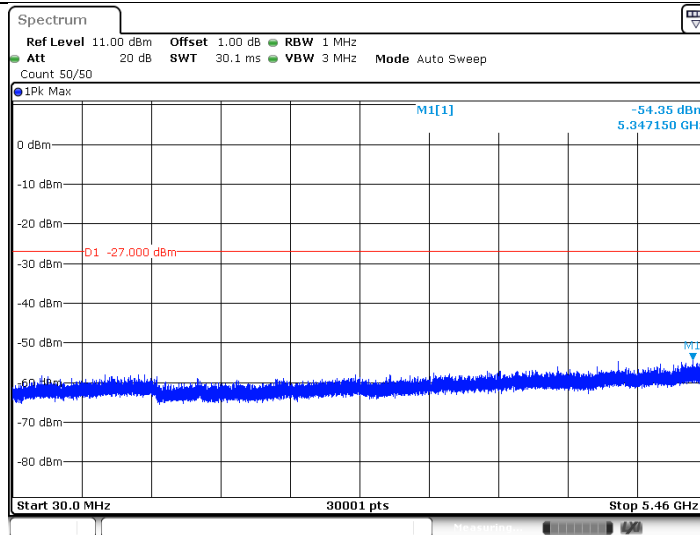
Date: 6 AUG 2019 14:17:11

## 11AC80SISO\_Ant1 5530 5735-40000



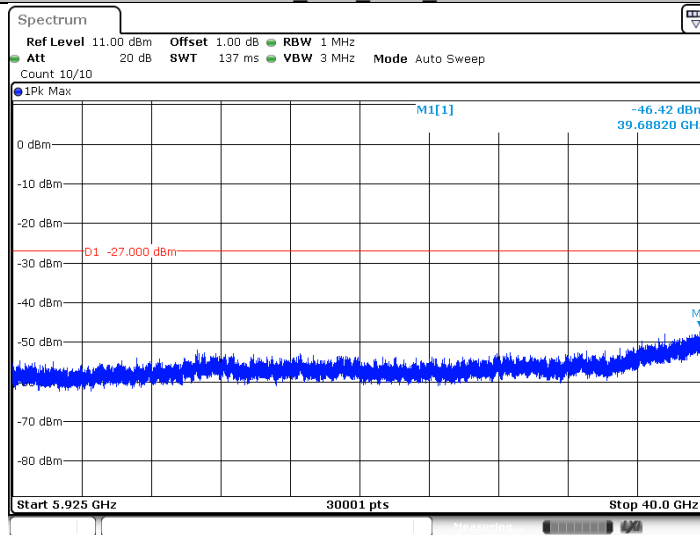
Date: 6 AUG 2019 14:17:19

## 11AC80SISO\_Ant1 5690 30-5460



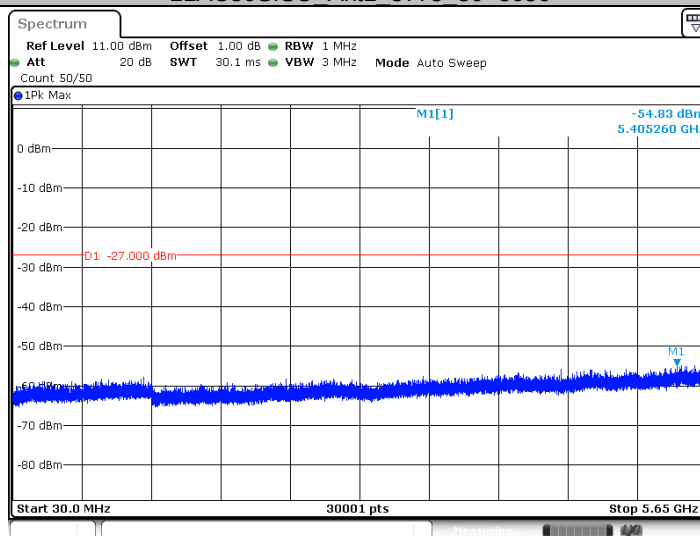
Date: 6 AUG. 2019 14:29:46

## 11AC80SISO\_Ant1\_5690\_5925-40000



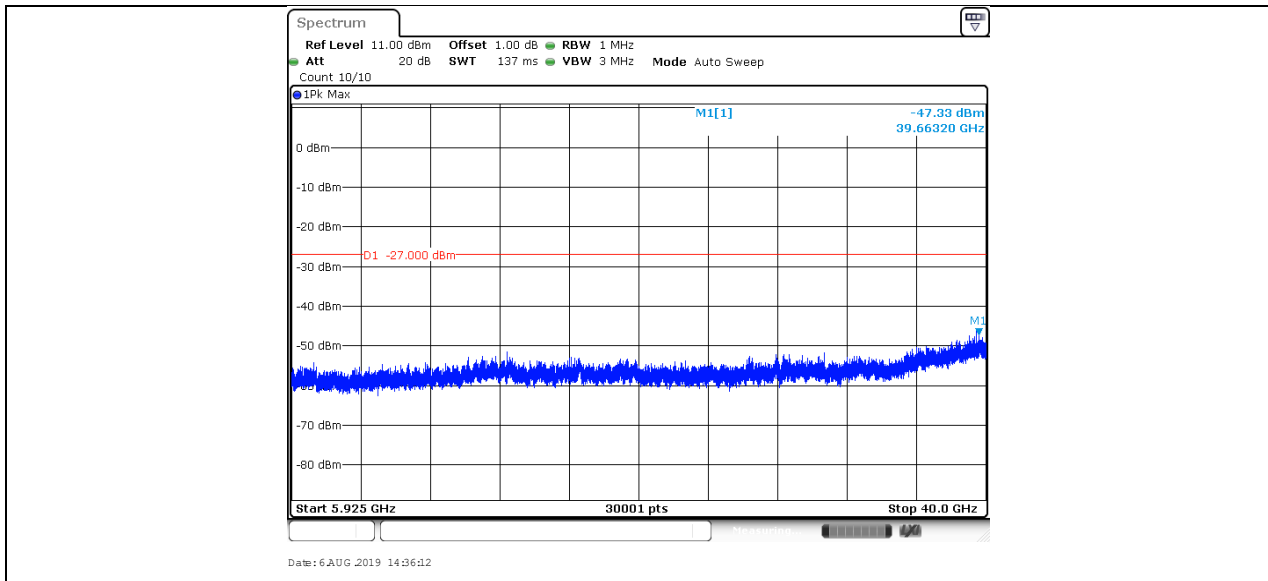
Date: 6 AUG. 2019 14:29:55

## 11AC80SISO\_Ant1\_5775\_30-5650



Date: 6 AUG. 2019 14:36:04

## 11AC80SISO\_Ant1\_5775\_5925-40000



**Transmitting spurious emission test result as below (Radiated Mode):****Test Method**

1. The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned
5. Use the following spectrum analyzer settings According to C63.10:  
For Above 1GHz  
Span = wide enough to capture the peak level of the in-band emission and all spurious  
RBW = 1MHz, VBW $\geq$ RBW for peak measurement and VBW = 10Hz for average measurement, Sweep = auto, Detector function = peak, Trace = max hold.  
For Below 1GHz  
Use the following spectrum analyzer settings:  
Span = wide enough to capture the peak level of the in-band emission and all spurious  
RBW = 100 KHz, VBW $\geq$ RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

**Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average ((duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (20log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.

## Limit

According to part 15.407b (6), the radio emission outside the operating frequency band shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Radiated emissions which fall in the restricted bands, as defined in section 15.205, must comply with the radiated emission limits specified in section 15.209.

| Frequency<br>MHz | Field Strength<br>uV/m | Field Strength<br>dBµV/m | Detector |
|------------------|------------------------|--------------------------|----------|
| 30-88            | 100                    | 40                       | QP       |
| 88-216           | 150                    | 43.5                     | QP       |
| 216-960          | 200                    | 46                       | QP       |
| 960-1000         | 500                    | 54                       | QP       |
| Above 1000       | 500                    | 54                       | AV       |
| Above 1000       | 5000                   | 74                       | PK       |

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

The only worse case (802.11a modulation) test result is listed in the report.

Transmitting spurious emission test result as below:

#### 802.11a modulation 5180MHz Test Result

| Frequency | Emission Level | Polarization | Limit  | Margin | Corr. Factor | Detector | Result |
|-----------|----------------|--------------|--------|--------|--------------|----------|--------|
| MHz       | dBuV/m         |              | dBuV/m | dB     | dB           |          |        |
| 44.23     | 30.31          | Horizontal   | 40.00  | 9.69   | -24.8        | QP       | Pass   |
| 173.21    | 32.23          | Horizontal   | 43.50  | 11.27  | -29.7        | QP       | Pass   |
| *37.46    | 34.69          | Vertical     | 40.00  | 5.31   | -26.8        | QP       | Pass   |
| 59.94     | 32.24          | Vertical     | 40.00  | 7.76   | -26.8        | QP       | Pass   |
| *9368.09  | 41.35          | Horizontal   | 74.00  | 32.65  | 8.6          | PK       | Pass   |
| 15041.00  | 47.88          | Horizontal   | 74.00  | 26.12  | 17.1         | PK       | Pass   |
| 17152.31  | 49.75          | Horizontal   | 74.00  | 24.25  | 20.4         | PK       | Pass   |
| *7550.34  | 38.18          | Vertical     | 74.00  | 35.82  | 6.0          | PK       | Pass   |
| *11944.15 | 41.58          | Vertical     | 74.00  | 32.42  | 10.7         | PK       | Pass   |
| *17945.69 | 49.45          | Vertical     | 74.00  | 24.55  | 21.5         | PK       | Pass   |

#### 802.11a modulation 5320MHz Test Result

| Frequency | Emission Level | Polarization | Limit  | Margin | Corr. Factor | Detector | Result |
|-----------|----------------|--------------|--------|--------|--------------|----------|--------|
| MHz       | dBuV/m         |              | dBuV/m | dB     | dB           |          |        |
| 9525.53   | 40.73          | Horizontal   | 74     | 33.27  | 9.0          | PK       | Pass   |
| 13135.25  | 44.64          | Horizontal   | 74     | 29.36  | 13.9         | PK       | Pass   |
| *17893.09 | 49.31          | Horizontal   | 74     | 24.69  | 21.4         | PK       | Pass   |
| 9553.72   | 42.07          | Vertical     | 74     | 31.93  | 8.9          | PK       | Pass   |
| 13121.84  | 44.39          | Vertical     | 74     | 29.61  | 13.8         | PK       | Pass   |
| *17791.69 | 50.33          | Vertical     | 74     | 23.67  | 21.3         | PK       | Pass   |

#### 802.11a modulation 5500MHz Test Result

| Frequency | Emission Level | Polarization | Limit  | Margin | Corr. Factor | Detector | Result |
|-----------|----------------|--------------|--------|--------|--------------|----------|--------|
| MHz       | dBuV/m         |              | dBuV/m | dB     | dB           |          |        |
| 9554.06   | 41.18          | Horizontal   | 74     | 32.82  | 8.9          | PK       | Pass   |
| *12697.66 | 43.44          | Horizontal   | 74     | 30.56  | 12.8         | PK       | Pass   |
| *17736.00 | 51.00          | Horizontal   | 74     | 23.00  | 21.3         | PK       | Pass   |
| *9495.28  | 41.12          | Vertical     | 74     | 32.88  | 9.2          | PK       | Pass   |
| 13241.47  | 43.76          | Vertical     | 74     | 30.24  | 13.8         | PK       | Pass   |
| 17695.44  | 49.58          | Vertical     | 74     | 24.42  | 21.3         | PK       | Pass   |

## 802.11a modulation 5700MHz Test Result

| Frequency | Emission Level | Polarization | Limit  | Margin | Corr. Factor | Detector | Result |
|-----------|----------------|--------------|--------|--------|--------------|----------|--------|
| MHz       | dBuV/m         |              | dBμV/m | dB     | dB           |          |        |
| 9532.41   | 41.40          | Horizontal   | 74     | 32.60  | 9.0          | PK       | Pass   |
| 13009.78  | 43.35          | Horizontal   | 74     | 30.65  | 13.5         | PK       | Pass   |
| *17733.59 | 50.17          | Horizontal   | 74     | 23.83  | 21.3         | PK       | Pass   |
| 9526.22   | 41.72          | Vertical     | 74     | 32.28  | 9.0          | PK       | Pass   |
| 13134.56  | 43.99          | Vertical     | 74     | 30.01  | 13.9         | PK       | Pass   |
| *17770.72 | 49.69          | Vertical     | 74     | 24.31  | 21.3         | PK       | Pass   |

## 802.11a modulation 5825MHz Test Result

| Frequency | Emission Level | Polarization | Limit  | Margin | Corr. Factor | Detector | Result |
|-----------|----------------|--------------|--------|--------|--------------|----------|--------|
| MHz       | dBuV/m         |              | dBμV/m | dB     | dB           |          |        |
| 9964.16   | 41.08          | Horizontal   | 74     | 32.92  | 8.5          | PK       | Pass   |
| *13298.88 | 44.60          | Horizontal   | 74     | 29.40  | 13.6         | PK       | Pass   |
| *17556.22 | 49.86          | Horizontal   | 74     | 24.14  | 21.1         | PK       | Pass   |
| 9971.38   | 40.95          | Vertical     | 74     | 33.05  | 8.6          | PK       | Pass   |
| *13128.03 | 44.05          | Vertical     | 74     | 29.95  | 13.9         | PK       | Pass   |
| *17535.59 | 50.13          | Vertical     | 74     | 23.87  | 21.1         | PK       | Pass   |

## Remark:

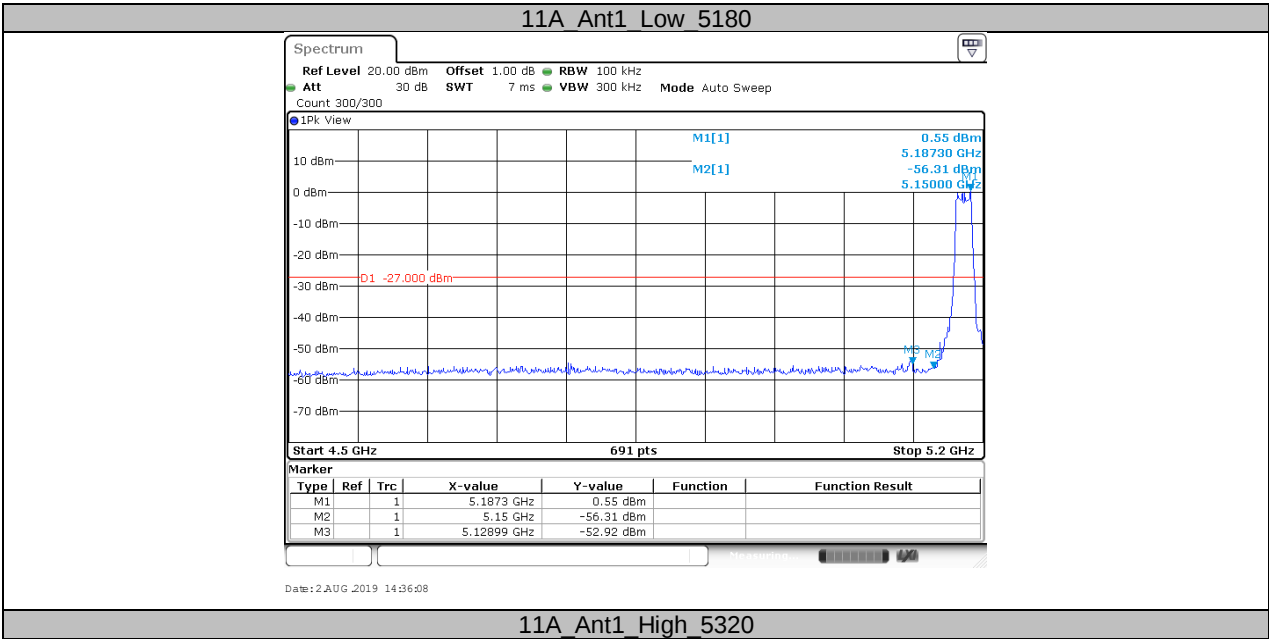
- (1) Corrected Amplitude = Read level + Corrector factor  
 Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain.  
 Below 1GHz: Corrector factor = Antenna Factor + Cable Loss.  
 (The Reading Level is recorded by software which is not shown in the sheet)
- (2) “\*” means the emission(s) appear within the restrict bands shall follow the requirement of section 15.205.
- (3) We test all modes and only the worst case recorded in the report.

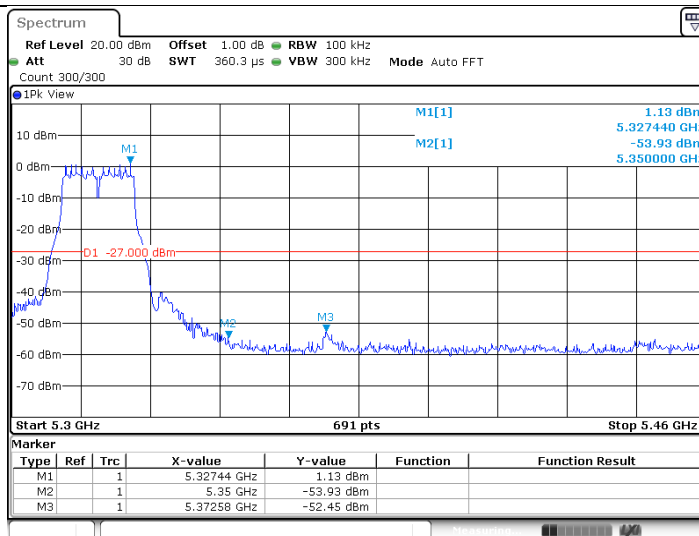
9.6 Band Edge

Test Method  
According to KBD789033 D02

Limits:  
For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.  
For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.  
For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.  
For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

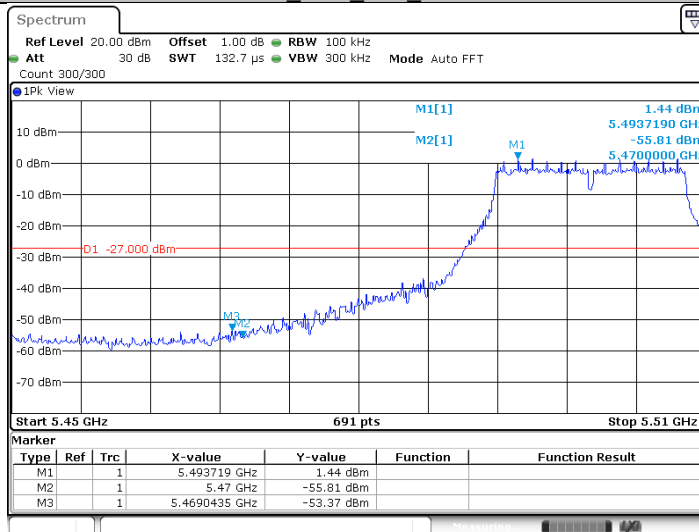
Test Result:





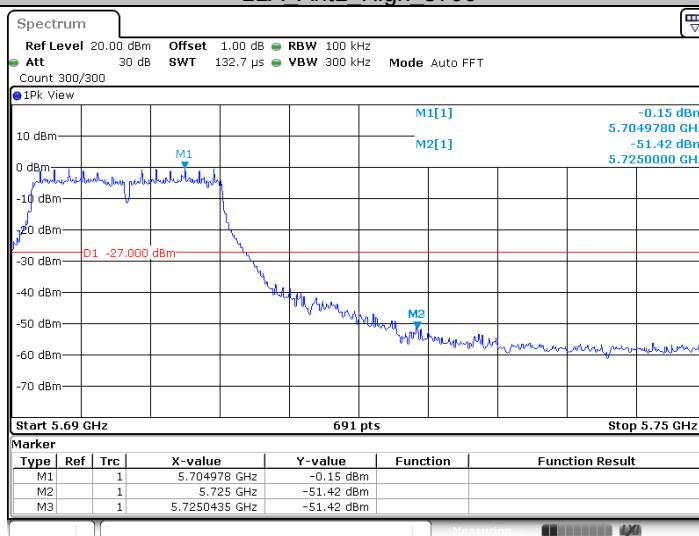
Date: 2 AUG. 2019 15:20:14

## 11A Ant1 Low 5500



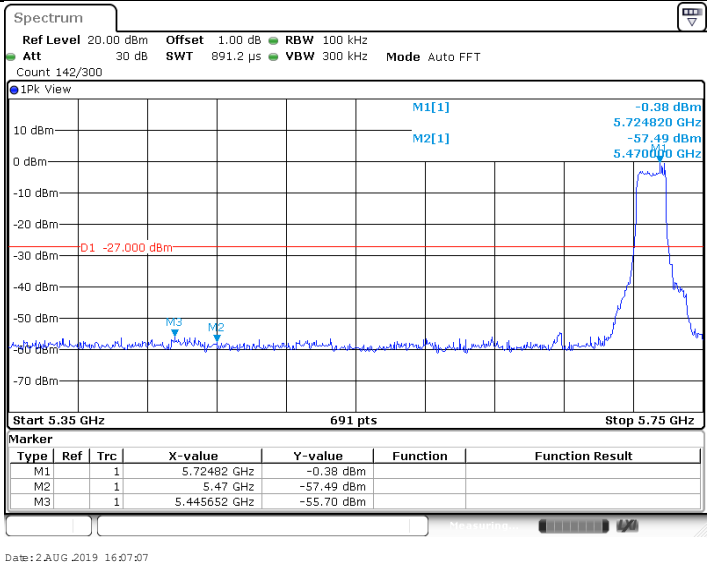
Date: 2 AUG. 2019 15:27:54

## 11A Ant1 High 5700

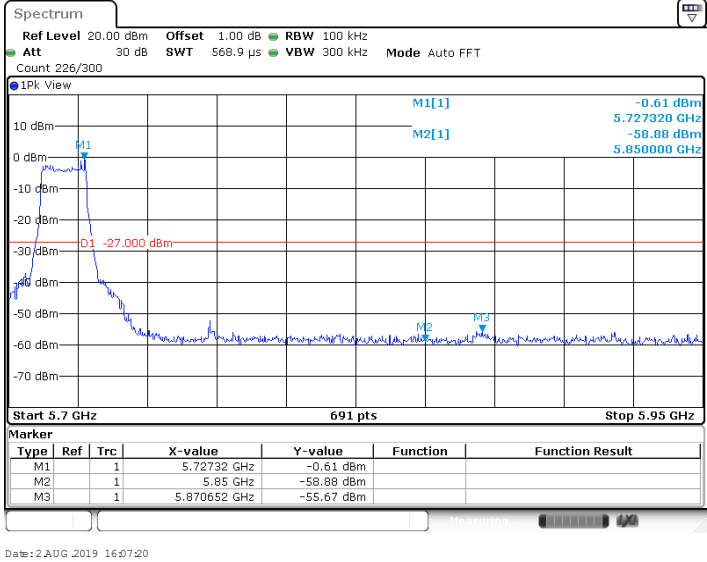


Date: 2 AUG. 2019 15:57:09

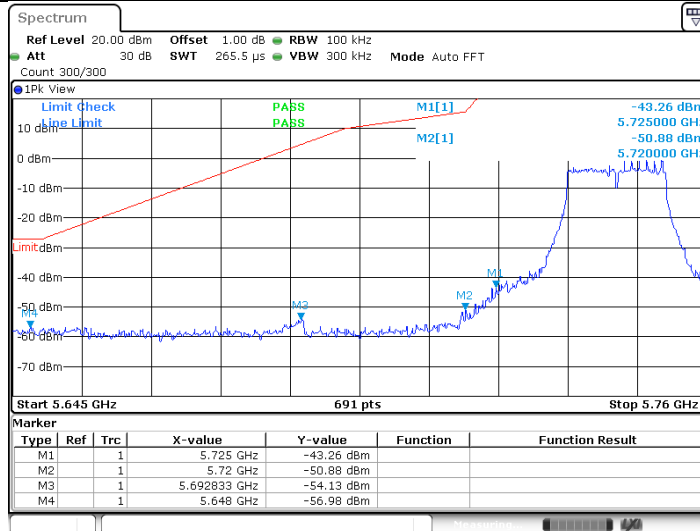
## 11A Ant1 Low 5720



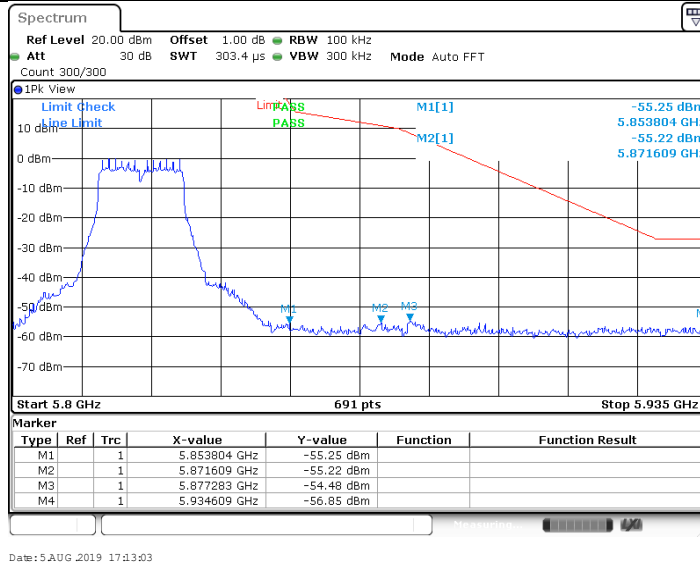
11A Ant1\_High 5720



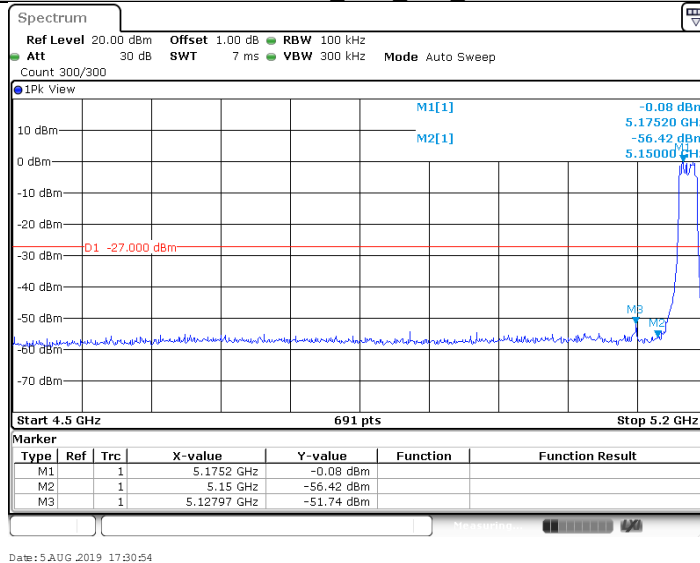
## 11A Ant1 Low 5745



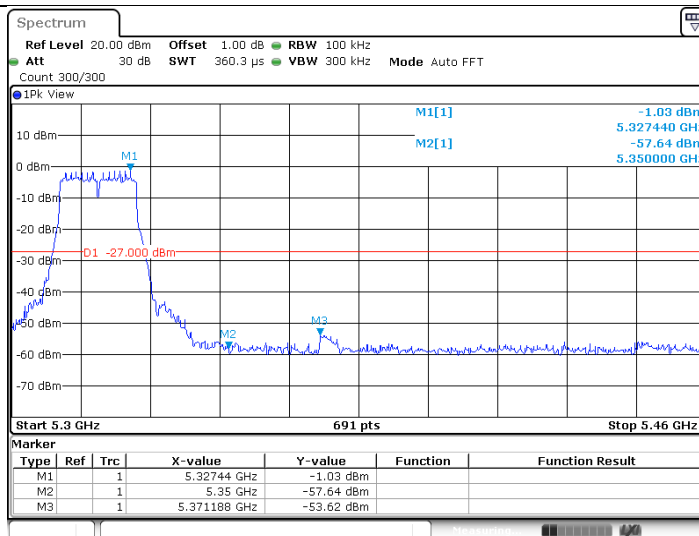
## 11A Ant1 High 5825



## 11N20SISO Ant1 Low 5180

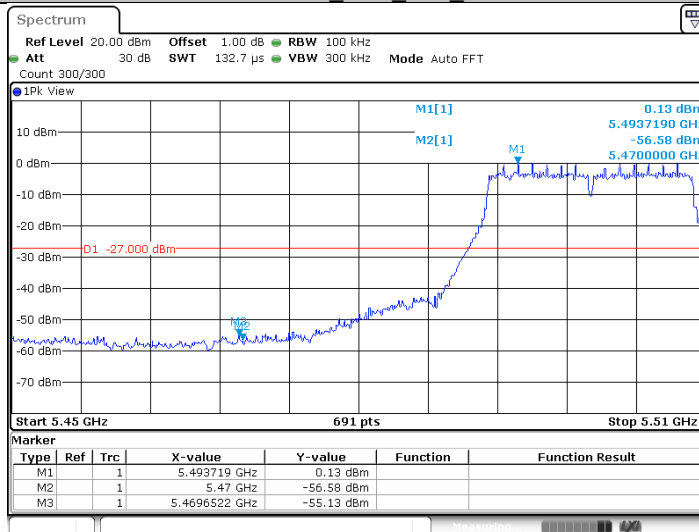


## 11N20SISO Ant1 High 5320



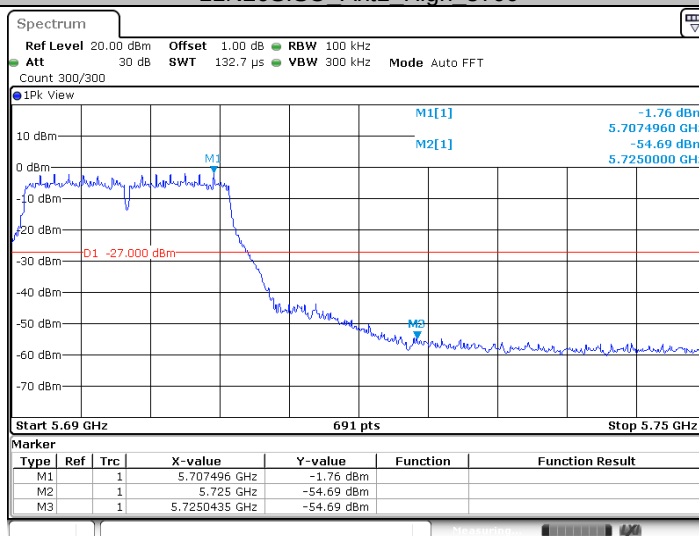
Date: 5 AUG 2019 17:41:45

## 11N20SISO Ant1 Low 5500



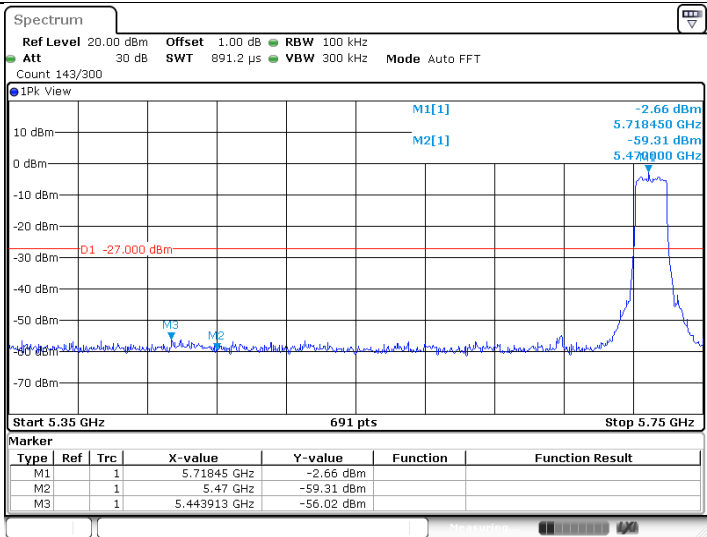
Date: 5 AUG 2019 17:43:56

## 11N20SISO Ant1 High 5700



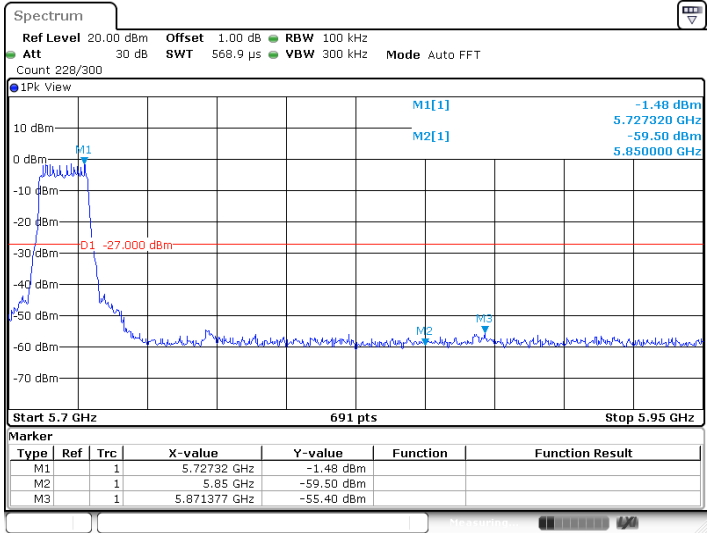
Date: 5 AUG 2019 17:48:50

## 11N20SISO Ant1 Low 5720



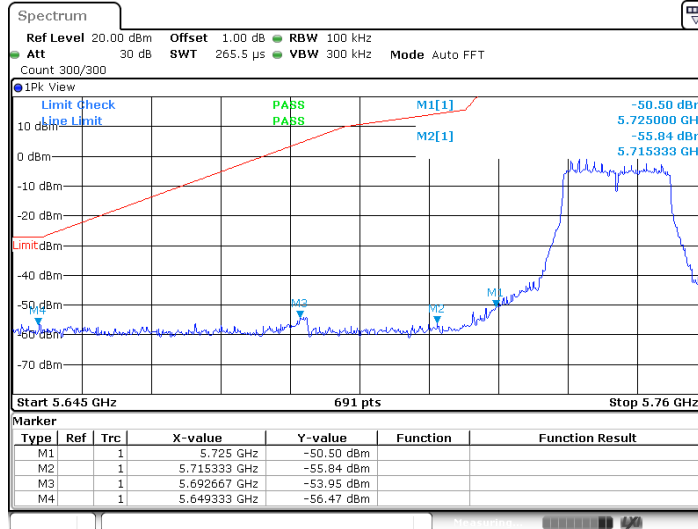
Date: 5 AUG 2019 17:51:21

11N20SISO\_Ant1\_High\_5720

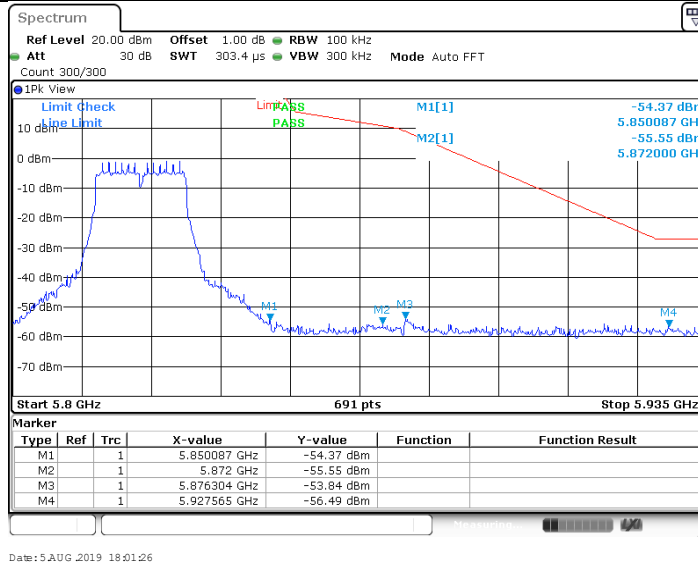


Date: 5 AUG 2019 17:51:34

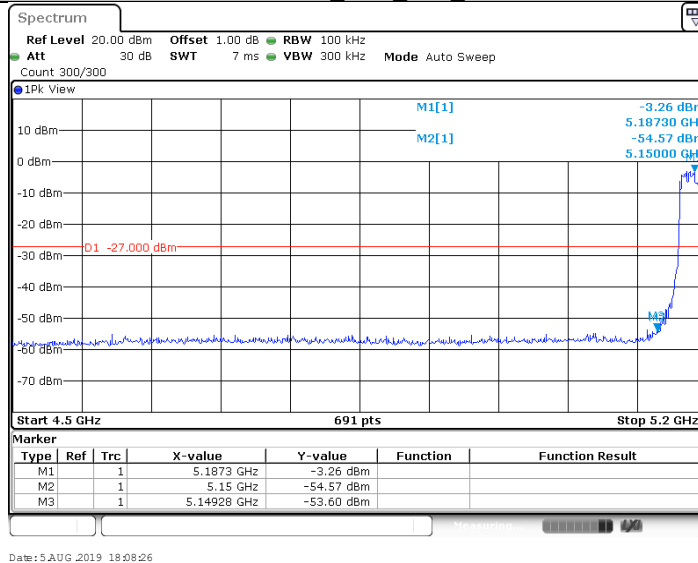
## 11N20SISO\_Ant1\_Low\_5745



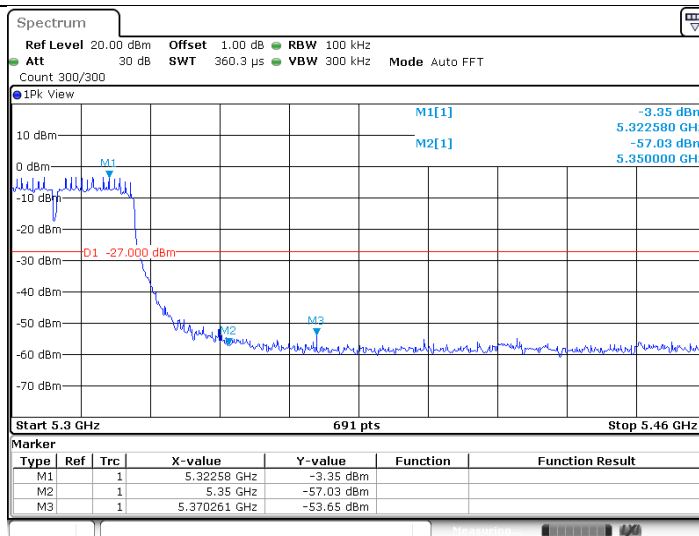
## 11N20SISO\_Ant1\_High\_5825



## 11N40SISO\_Ant1\_Low\_5190

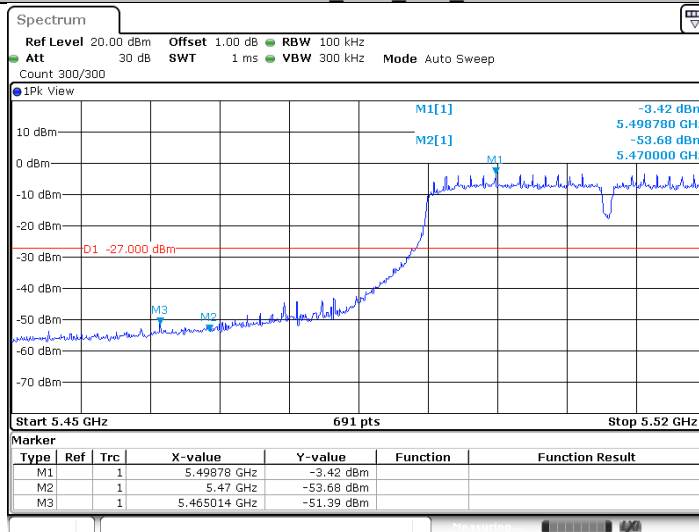


## 11N40SISO\_Ant1\_High\_5310



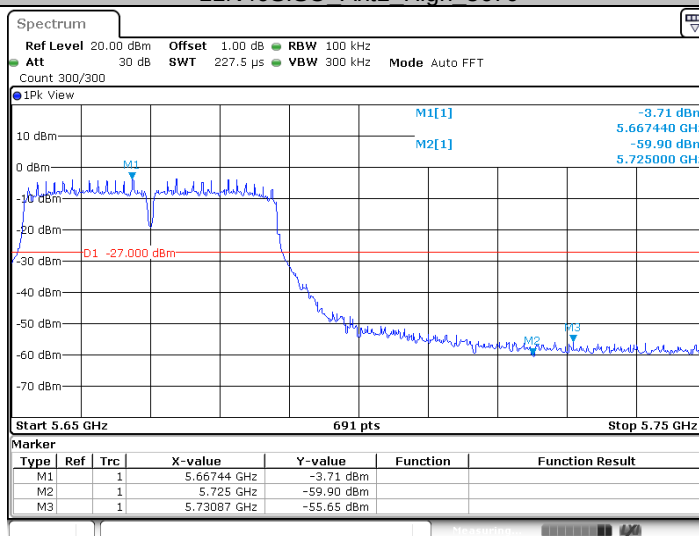
Date: 5 AUG 2019 19:12:48

## 11N40SISO Ant1 Low 5510



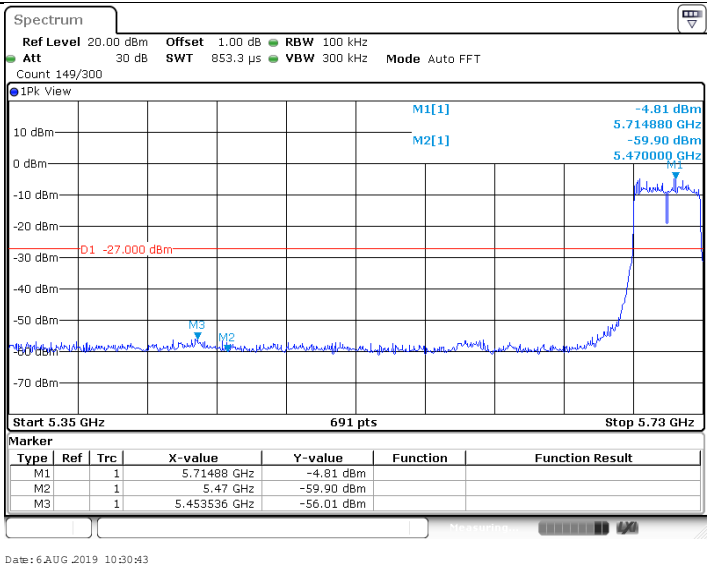
Date: 6 AUG 2019 10:09:53

## 11N40SISO Ant1 High 5670

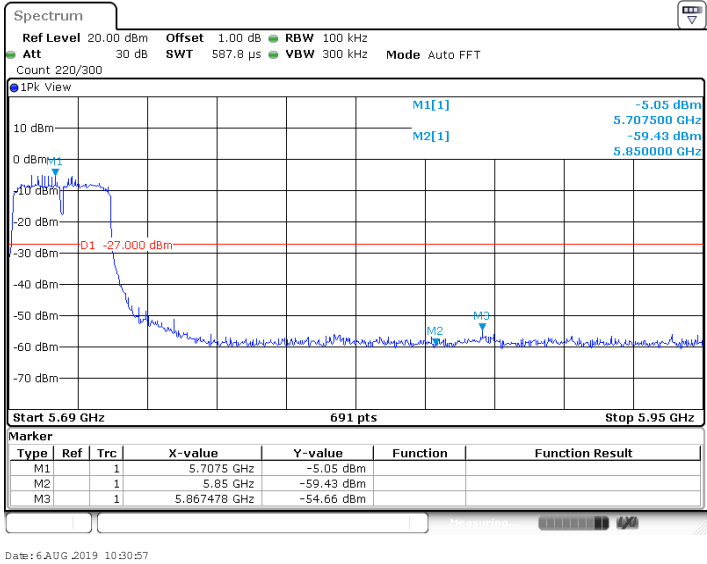


Date: 6 AUG 2019 10:23:35

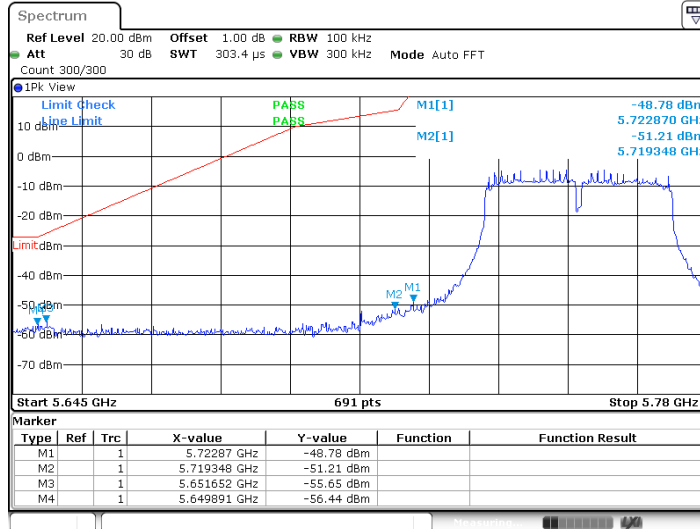
## 11N40SISO Ant1 Low 5710



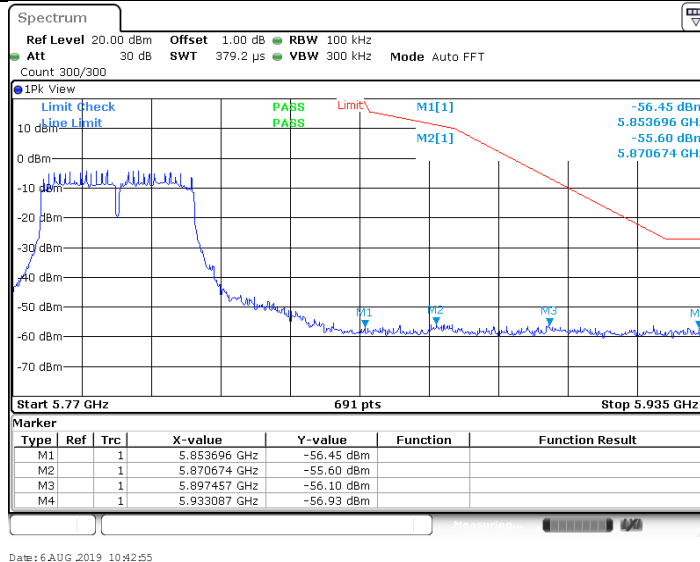
11N40SISO\_Ant1\_High\_5710



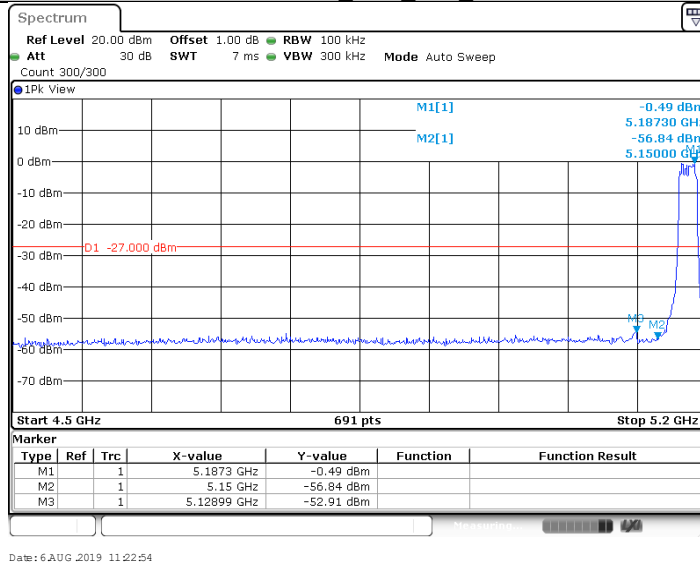
## 11N40SISO\_Ant1\_Low\_5755



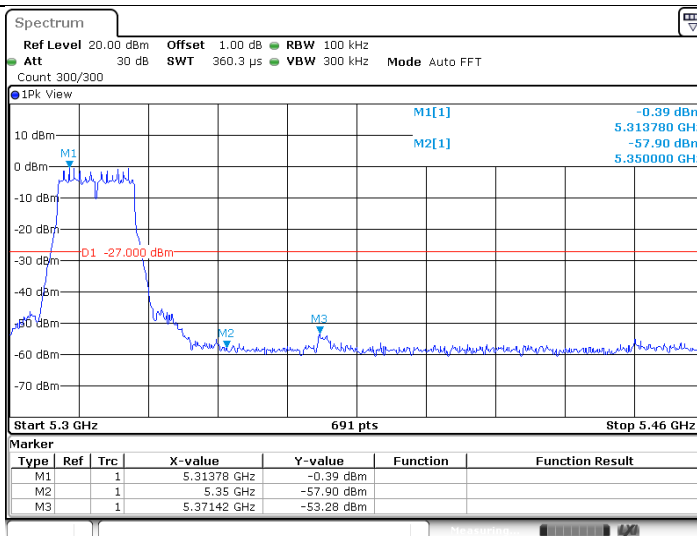
## 11N40SISO\_Ant1\_High\_5795



## 11AC20SISO\_Ant1\_Low\_5180

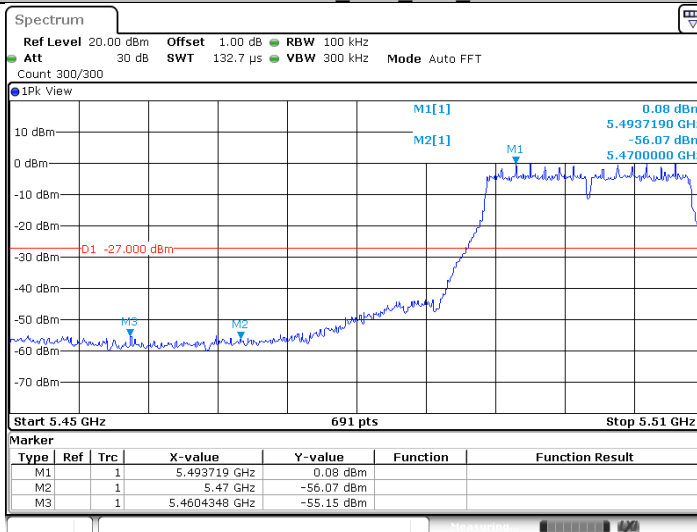


## 11AC20SISO\_Ant1\_High\_5320



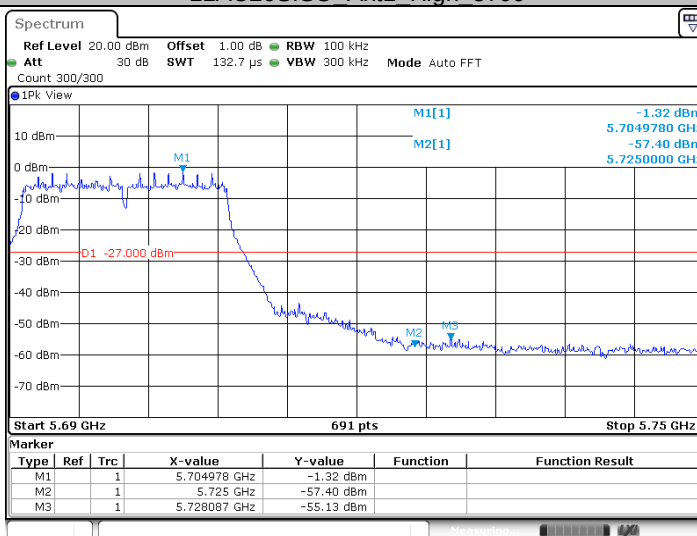
Date: 6 AUG 2019 11:35:22

## 11AC20SISO\_Ant1\_Low 5500



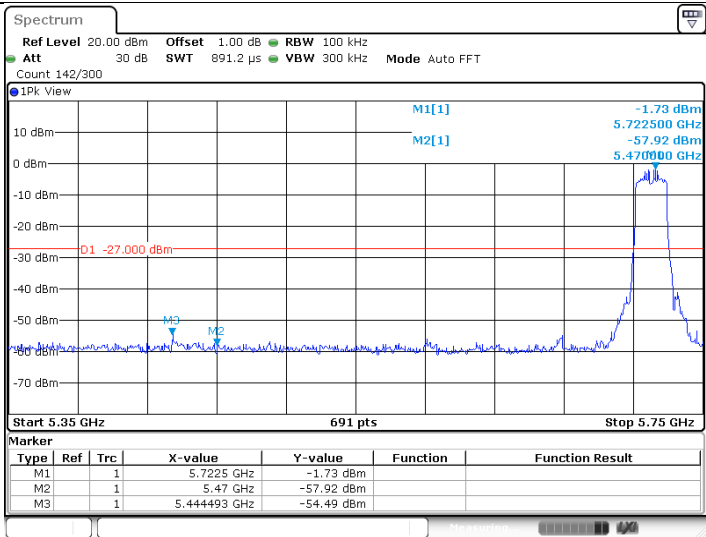
Date: 6 AUG 2019 11:37:50

## 11AC20SISO\_Ant1\_High 5700



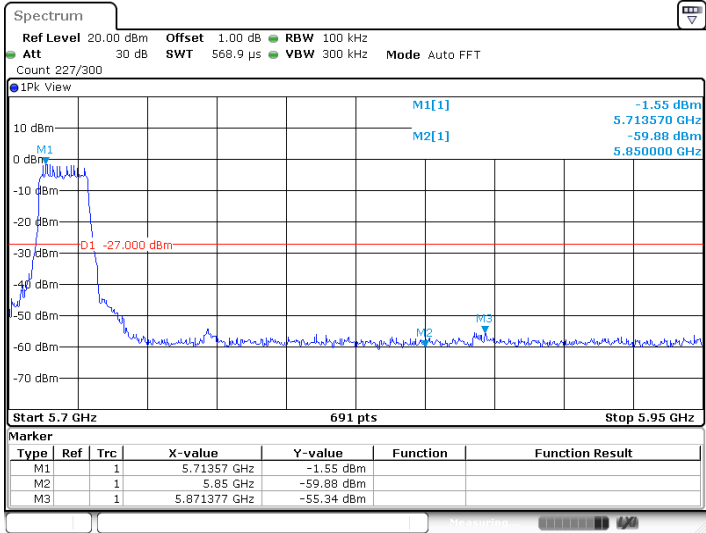
Date: 6 AUG 2019 11:43:04

## 11AC20SISO\_Ant1\_Low 5720



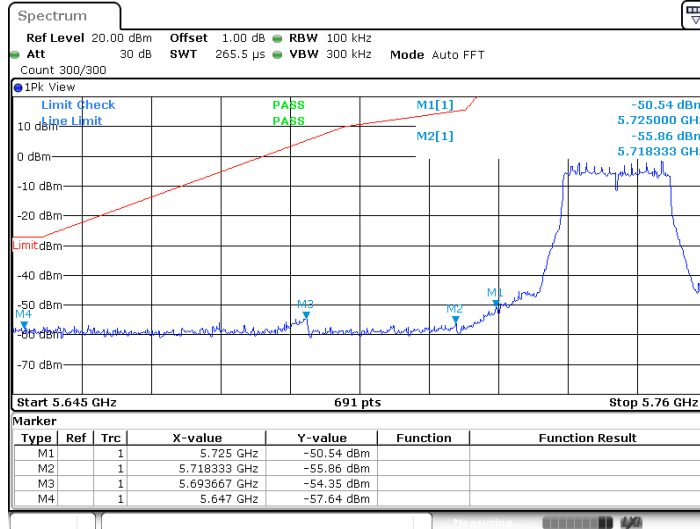
Date: 6 AUG 2019 11:45:27

11AC20SISO\_Ant1\_High\_5720

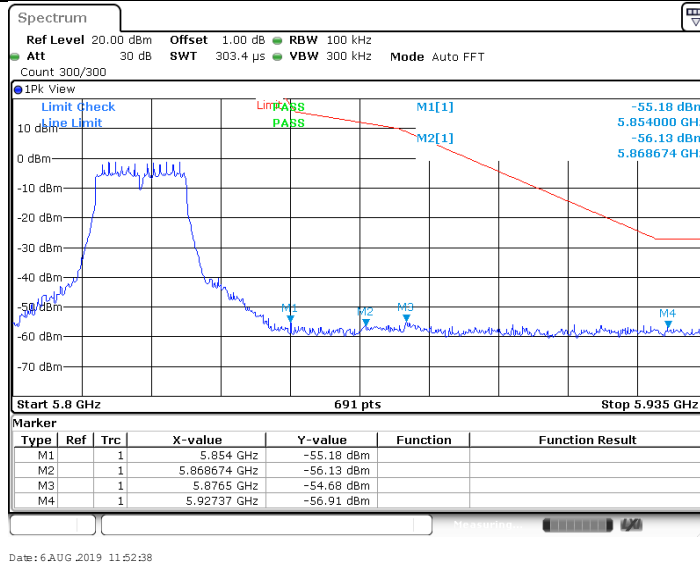


Date: 6 AUG 2019 11:45:41

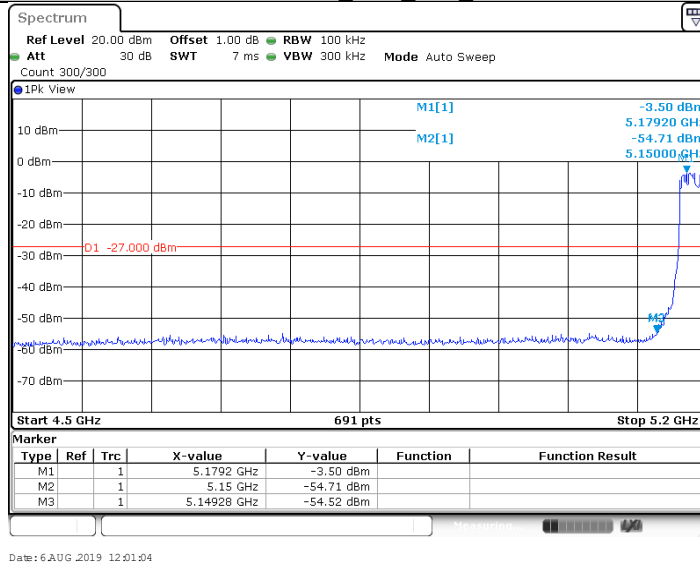
## 11AC20SISO\_Ant1\_Low\_5745



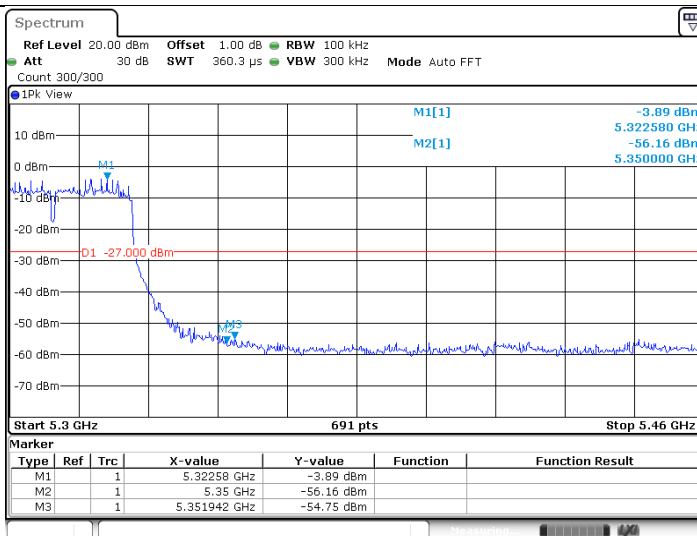
## 11AC20SISO\_Ant1\_High\_5825



## 11AC40SISO\_Ant1\_Low\_5190

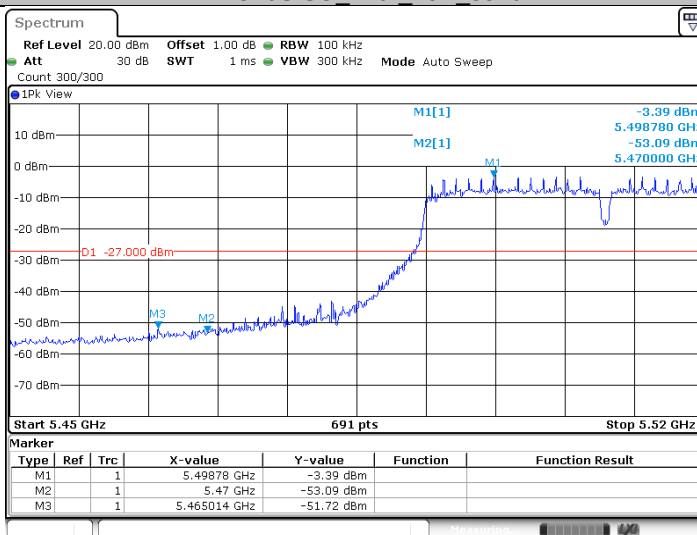


## 11AC40SISO\_Ant1\_High\_5310



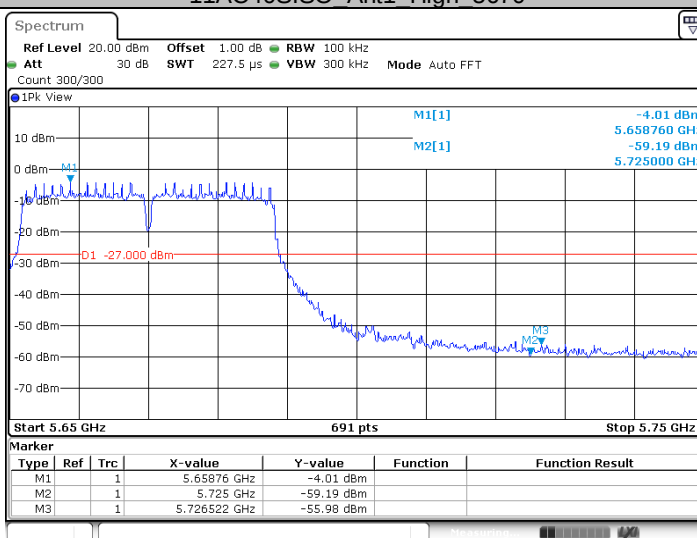
Date: 6 AUG. 2019 12:15:51

## 11AC40SISO\_Ant1\_Low 5510



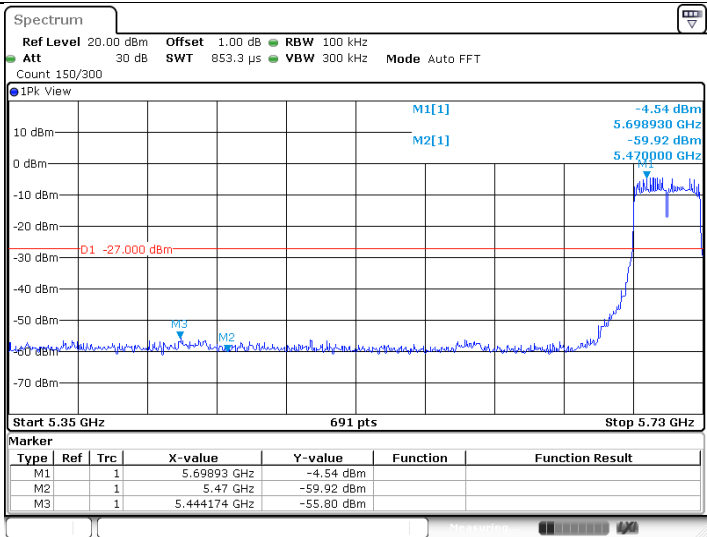
Date: 6 AUG. 2019 12:18:47

## 11AC40SISO\_Ant1\_High 5670



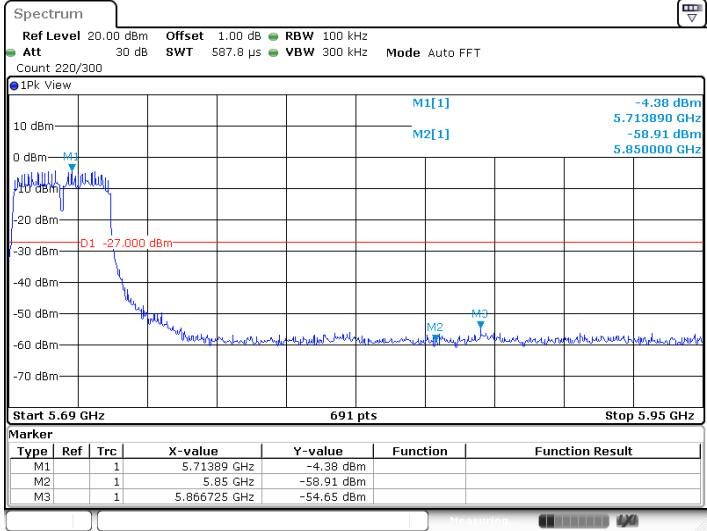
Date: 6 AUG. 2019 12:26:23

## 11AC40SISO\_Ant1\_Low 5710

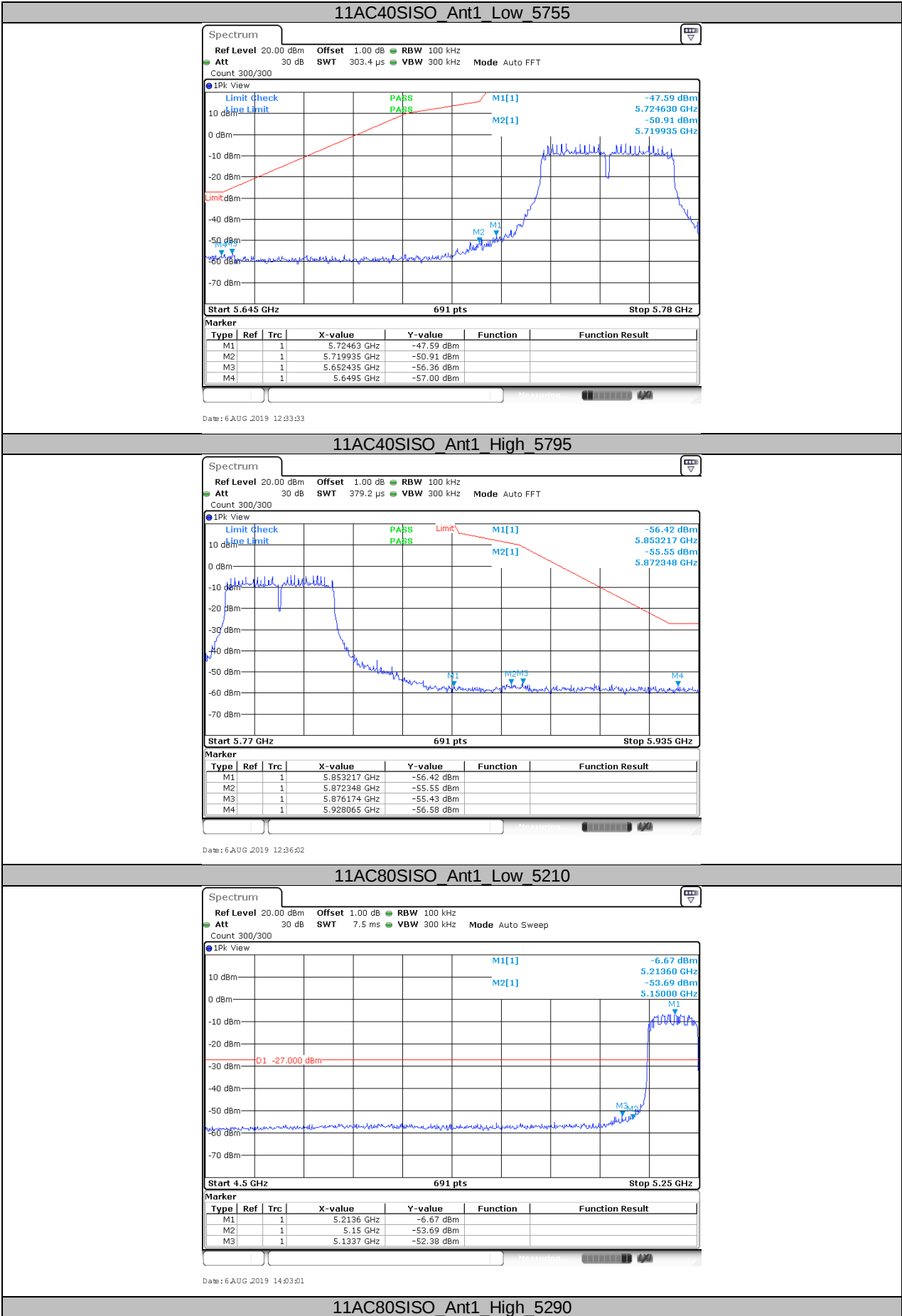


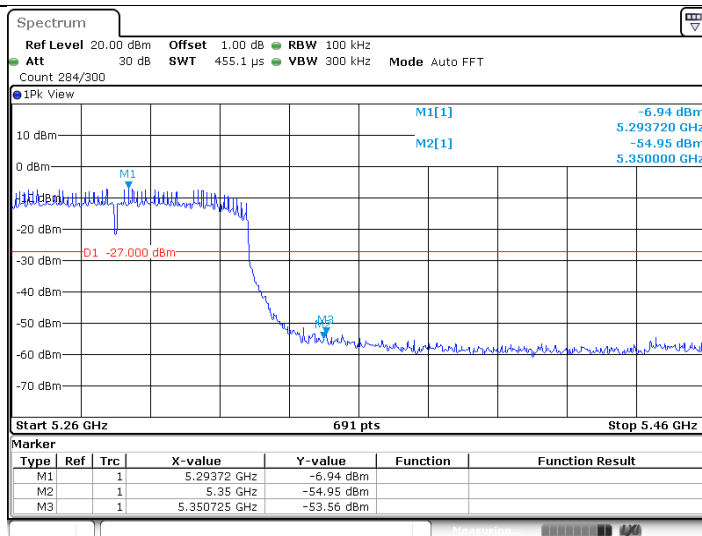
Date: 6 AUG 2019 12:39:25

11AC40SISO\_Ant1\_High\_5710



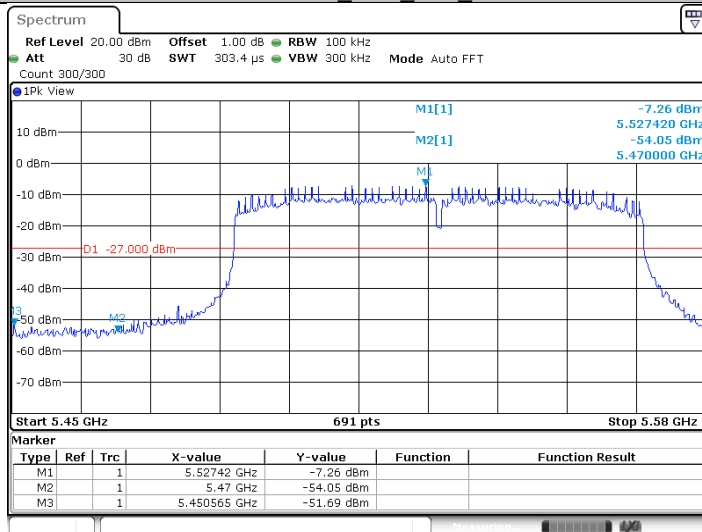
Date: 6 AUG 2019 12:39:39





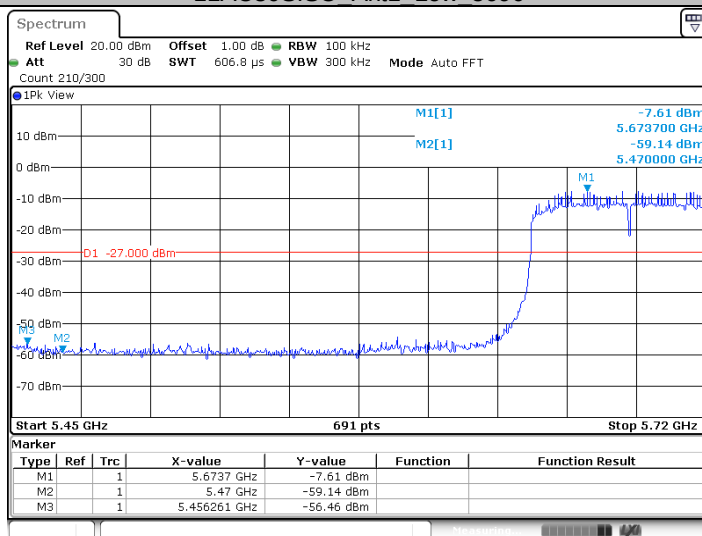
Date: 6 AUG. 2019 14:09:26

## 11AC80SISO\_Ant1\_Low 5530



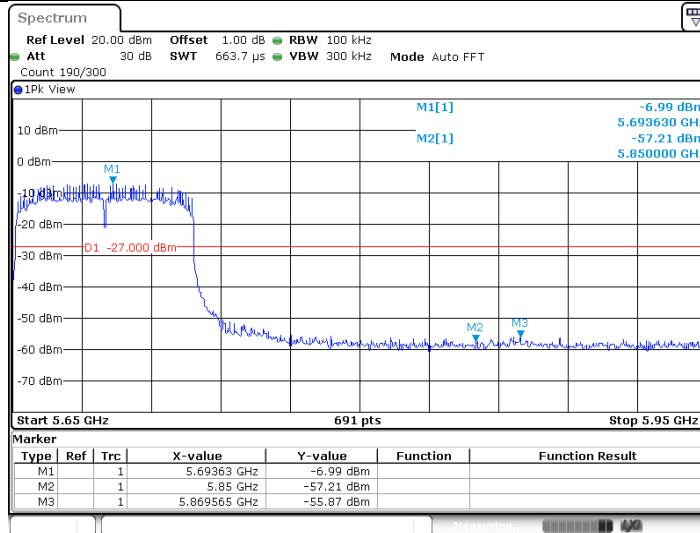
Date: 6 AUG. 2019 14:17:00

## 11AC80SISO\_Ant1\_Low 5690



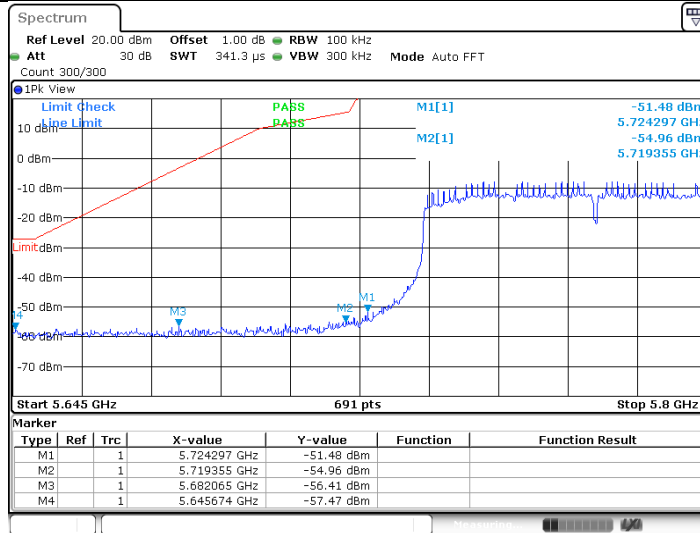
Date: 6 AUG. 2019 14:29:21

## 11AC80SISO\_Ant1\_High 5690



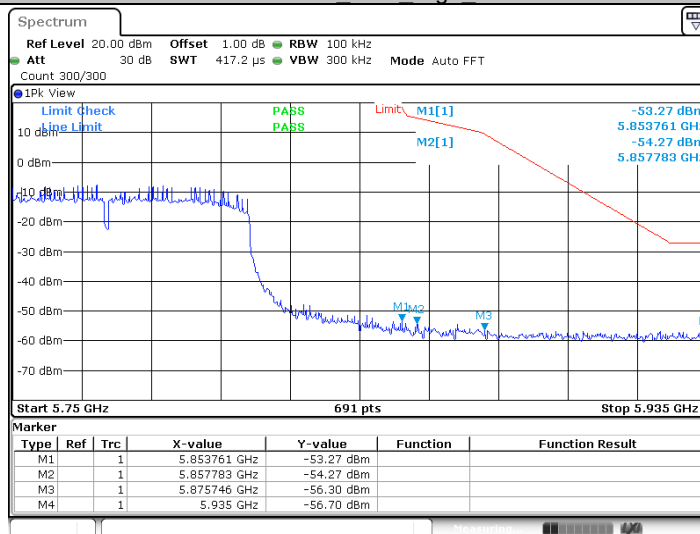
Date: 6 AUG 2019 14:29:35

## 11AC80SISO\_Ant1\_Low 5775



Date: 6 AUG 2019 14:35:35

## 11AC80SISO\_Ant1\_High 5775



Date: 6 AUG 2019 14:35:51

## 9.8 Duty Cycle

### Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Use the following spectrum analyzer settings:  
Span = 0, RBW = 100 kHz, VBW ≥ RBW, Sweep = auto, Detector function = peak, Trace = max hold
3. Allow the trace to stabilize. Mark the OFF time and ON time. and the duty cycle is  $T_{on} / T_{on} + T_{off}$
4. Repeat above procedures until all frequencies measured were complete.

| TestMode   | Antenna | Channel | Duty Cycle [%] |
|------------|---------|---------|----------------|
| 11A        | Ant1    | 5180    | 87.20          |
|            |         | 5200    | 87.12          |
|            |         | 5240    | 87.12          |
|            |         | 5260    | 87.12          |
|            |         | 5280    | 87.12          |
|            |         | 5320    | 87.12          |
|            |         | 5500    | 87.20          |
|            |         | 5580    | 87.12          |
|            |         | 5700    | 87.12          |
|            |         | 5720    | 87.12          |
|            |         | 5745    | 87.12          |
|            |         | 5785    | 87.12          |
|            |         | 5825    | 87.20          |
| 11N20SISO  | Ant1    | 5180    | 86.35          |
|            |         | 5200    | 86.42          |
|            |         | 5240    | 86.43          |
|            |         | 5260    | 86.35          |
|            |         | 5280    | 86.43          |
|            |         | 5320    | 86.43          |
|            |         | 5500    | 86.35          |
|            |         | 5580    | 86.35          |
|            |         | 5700    | 86.43          |
|            |         | 5720    | 86.43          |
|            |         | 5745    | 86.43          |
|            |         | 5785    | 86.35          |
|            |         | 5825    | 86.35          |
| 11N40SISO  | Ant1    | 5190    | 75.90          |
|            |         | 5230    | 75.90          |
|            |         | 5270    | 75.75          |
|            |         | 5310    | 75.90          |
|            |         | 5510    | 75.75          |
|            |         | 5550    | 75.75          |
|            |         | 5670    | 75.90          |
|            |         | 5710    | 75.90          |
|            |         | 5755    | 75.75          |
|            |         | 5795    | 75.90          |
| 11AC20SISO | Ant1    | 5180    | 82.87          |
|            |         | 5200    | 82.96          |
|            |         | 5240    | 82.96          |
|            |         | 5260    | 82.96          |
|            |         | 5280    | 82.96          |
|            |         | 5320    | 82.96          |
|            |         | 5500    | 82.96          |
|            |         | 5580    | 82.96          |
|            |         | 5700    | 82.96          |
|            |         | 5720    | 86.43          |

|            |      |      |       |
|------------|------|------|-------|
|            |      | 5745 | 82.96 |
|            |      | 5785 | 82.87 |
|            |      | 5825 | 82.96 |
| 11AC40SISO | Ant1 | 5190 | 70.91 |
|            |      | 5230 | 70.73 |
|            |      | 5270 | 70.73 |
|            |      | 5310 | 70.86 |
|            |      | 5510 | 70.73 |
|            |      | 5550 | 70.86 |
|            |      | 5670 | 70.73 |
|            |      | 5710 | 70.86 |
|            |      | 5755 | 70.86 |
|            |      | 5795 | 70.73 |
| 11AC80SISO | Ant1 | 5210 | 54.78 |
|            |      | 5290 | 54.78 |
|            |      | 5530 | 54.78 |
|            |      | 5610 | 55.06 |
|            |      | 5690 | 55.06 |
|            |      | 5775 | 55.06 |

## 9.8 Frequencies Stability

### Test Method

1. Connect the UUT to the spectrum analyzer
2. Set Centre Frequency of the channel under test.
3. Set Detector PEAK
4. Set RBW: 10KHz, VBW: 3RBW
5. Set Span: Encompass the entire emissions bandwidth (EBW) of the signal.
6. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

User manual temperature is 0°C to 40°C

Limit: 20ppm

Test Results (All conditions and all modes were performed, only list Worst-Case in the report)

| TestMode | Antenna | Channel | Voltage       |                  |                |                 |             | Verdict |
|----------|---------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
|          |         |         | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) |         |
| 11A      | Ant1    | 5180    | NV            | NT               | -6000          | -1.158301       | 20          | PASS    |
|          |         | 5180    | LV            | NT               | -6000          | -1.158301       | 20          | PASS    |
|          |         | 5180    | HV            | NT               | -6000          | -1.158301       | 20          | PASS    |
|          |         | 5200    | NV            | NT               | -6000          | -1.153846       | 20          | PASS    |
|          |         | 5200    | LV            | NT               | -6000          | -1.153846       | 20          | PASS    |
|          |         | 5200    | HV            | NT               | -6000          | -1.153846       | 20          | PASS    |
|          |         | 5240    | NV            | NT               | -6000          | -1.145038       | 20          | PASS    |
|          |         | 5240    | LV            | NT               | -6000          | -1.145038       | 20          | PASS    |
|          |         | 5240    | HV            | NT               | -6000          | -1.145038       | 20          | PASS    |
|          |         | 5260    | NV            | NT               | -6000          | -1.140684       | 20          | PASS    |
|          |         | 5260    | LV            | NT               | -6000          | -1.140684       | 20          | PASS    |
|          |         | 5260    | HV            | NT               | -7000          | -1.330798       | 20          | PASS    |
|          |         | 5280    | NV            | NT               | -6000          | -1.136364       | 20          | PASS    |
|          |         | 5280    | LV            | NT               | -6000          | -1.136364       | 20          | PASS    |
|          |         | 5280    | HV            | NT               | -7000          | -1.325758       | 20          | PASS    |
|          |         | 5320    | NV            | NT               | -7000          | -1.315789       | 20          | PASS    |
|          |         | 5320    | LV            | NT               | -7000          | -1.315789       | 20          | PASS    |
|          |         | 5320    | HV            | NT               | -7000          | -1.315789       | 20          | PASS    |
|          |         | 5500    | NV            | NT               | -7000          | -1.272727       | 20          | PASS    |
|          |         | 5500    | LV            | NT               | -7000          | -1.272727       | 20          | PASS    |
|          |         | 5500    | HV            | NT               | -7000          | -1.272727       | 20          | PASS    |
|          |         | 5580    | NV            | NT               | -7000          | -1.25448        | 20          | PASS    |
|          |         | 5580    | LV            | NT               | -7000          | -1.25448        | 20          | PASS    |
|          |         | 5580    | HV            | NT               | -7000          | -1.25448        | 20          | PASS    |
|          |         | 5700    | NV            | NT               | -7000          | -1.22807        | 20          | PASS    |
|          |         | 5700    | LV            | NT               | -7000          | -1.22807        | 20          | PASS    |
|          |         | 5700    | HV            | NT               | -7000          | -1.22807        | 20          | PASS    |
|          |         | 5720    | NV            | NT               | -6000          | -1.048951       | 20          | PASS    |
|          |         | 5720    | LV            | NT               | -7000          | -1.223776       | 20          | PASS    |
|          |         | 5720    | HV            | NT               | -7000          | -1.223776       | 20          | PASS    |
|          |         | 5745    | NV            | NT               | -1000          | -0.174064       | 20          | PASS    |
|          |         | 5745    | LV            | NT               | -2000          | -0.348129       | 20          | PASS    |
|          |         | 5745    | HV            | NT               | -3000          | -0.522193       | 20          | PASS    |
|          |         | 5785    | NV            | NT               | -6000          | -1.037165       | 20          | PASS    |
|          |         | 5785    | LV            | NT               | -7000          | -1.210026       | 20          | PASS    |
|          |         | 5785    | HV            | NT               | -7000          | -1.210026       | 20          | PASS    |
|          |         | 5825    | NV            | NT               | -7000          | -1.201717       | 20          | PASS    |

|                |      |      |    |    |       |           |    |      |
|----------------|------|------|----|----|-------|-----------|----|------|
| 11N40SIS<br>O  | Ant1 | 5825 | LV | NT | -7000 | -1.201717 | 20 | PASS |
|                |      | 5825 | HV | NT | -8000 | -1.373391 | 20 | PASS |
|                |      | 5190 | NV | NT | -7000 | -1.348748 | 20 | PASS |
|                |      | 5190 | LV | NT | -7000 | -1.348748 | 20 | PASS |
|                |      | 5190 | HV | NT | -7000 | -1.348748 | 20 | PASS |
|                |      | 5230 | NV | NT | -6000 | -1.147228 | 20 | PASS |
|                |      | 5230 | LV | NT | -7000 | -1.338432 | 20 | PASS |
|                |      | 5230 | HV | NT | -7000 | -1.338432 | 20 | PASS |
|                |      | 5270 | NV | NT | -7000 | -1.328273 | 20 | PASS |
|                |      | 5270 | LV | NT | -7000 | -1.328273 | 20 | PASS |
|                |      | 5270 | HV | NT | -7000 | -1.328273 | 20 | PASS |
|                |      | 5310 | NV | NT | 0     | 0         | 20 | PASS |
|                |      | 5310 | LV | NT | -1000 | -0.188324 | 20 | PASS |
|                |      | 5310 | HV | NT | -2000 | -0.376648 | 20 | PASS |
|                |      | 5510 | NV | NT | -4000 | -0.725953 | 20 | PASS |
|                |      | 5510 | LV | NT | -5000 | -0.907441 | 20 | PASS |
|                |      | 5510 | HV | NT | -6000 | -1.088929 | 20 | PASS |
|                |      | 5550 | NV | NT | -6000 | -1.081081 | 20 | PASS |
|                |      | 5550 | LV | NT | -7000 | -1.261261 | 20 | PASS |
|                |      | 5550 | HV | NT | -7000 | -1.261261 | 20 | PASS |
|                |      | 5670 | NV | NT | -8000 | -1.410935 | 20 | PASS |
|                |      | 5670 | LV | NT | -8000 | -1.410935 | 20 | PASS |
|                |      | 5670 | HV | NT | -8000 | -1.410935 | 20 | PASS |
|                |      | 5710 | NV | NT | -8000 | -1.401051 | 20 | PASS |
|                |      | 5710 | LV | NT | -8000 | -1.401051 | 20 | PASS |
|                |      | 5710 | HV | NT | -8000 | -1.401051 | 20 | PASS |
|                |      | 5755 | NV | NT | -7000 | -1.216334 | 20 | PASS |
|                |      | 5755 | LV | NT | -8000 | -1.390096 | 20 | PASS |
|                |      | 5755 | HV | NT | -8000 | -1.390096 | 20 | PASS |
|                |      | 5795 | NV | NT | -8000 | -1.3805   | 20 | PASS |
|                |      | 5795 | LV | NT | -8000 | -1.3805   | 20 | PASS |
|                |      | 5795 | HV | NT | -8000 | -1.3805   | 20 | PASS |
| 11AC80SI<br>SO | Ant1 | 5210 | NV | NT | -7000 | -1.34357  | 20 | PASS |
|                |      | 5210 | LV | NT | -7000 | -1.34357  | 20 | PASS |
|                |      | 5210 | HV | NT | -7000 | -1.34357  | 20 | PASS |
|                |      | 5290 | NV | NT | -7000 | -1.323251 | 20 | PASS |
|                |      | 5290 | LV | NT | -7000 | -1.323251 | 20 | PASS |
|                |      | 5290 | HV | NT | -7000 | -1.323251 | 20 | PASS |
|                |      | 5530 | NV | NT | -8000 | -1.446655 | 20 | PASS |
|                |      | 5530 | LV | NT | -8000 | -1.446655 | 20 | PASS |
|                |      | 5530 | HV | NT | -8000 | -1.446655 | 20 | PASS |
|                |      | 5690 | NV | NT | -8000 | -1.405975 | 20 | PASS |
|                |      | 5690 | LV | NT | -8000 | -1.405975 | 20 | PASS |
|                |      | 5690 | HV | NT | -8000 | -1.405975 | 20 | PASS |
|                |      | 5775 | NV | NT | -7000 | -1.212121 | 20 | PASS |
|                |      | 5775 | LV | NT | -8000 | -1.385281 | 20 | PASS |
|                |      | 5775 | HV | NT | -8000 | -1.385281 | 20 | PASS |

| TestMode | Antenna | Channel | Temperature   |                  |                |                 |             | Verdict |
|----------|---------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
|          |         |         | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) |         |
| 11A      | Ant1    | 5180    | NV            | 0                | -6000          | -1.158301       | 20          | PASS    |
|          |         | 5180    | NV            | 10               | -7000          | -1.351351       | 20          | PASS    |
|          |         | 5180    | NV            | 20               | -7000          | -1.351351       | 20          | PASS    |
|          |         | 5180    | NV            | 30               | -7000          | -1.351351       | 20          | PASS    |
|          |         | 5180    | NV            | 40               | -7000          | -1.351351       | 20          | PASS    |
|          |         | 5200    | NV            | 0                | -7000          | -1.346154       | 20          | PASS    |
|          |         | 5200    | NV            | 10               | -7000          | -1.346154       | 20          | PASS    |
|          |         | 5200    | NV            | 20               | -7000          | -1.346154       | 20          | PASS    |
|          |         | 5200    | NV            | 30               | -6000          | -1.153846       | 20          | PASS    |
|          |         | 5200    | NV            | 40               | -6000          | -1.153846       | 20          | PASS    |
|          |         | 5240    | NV            | 0                | -7000          | -1.335878       | 20          | PASS    |
|          |         | 5240    | NV            | 10               | -7000          | -1.335878       | 20          | PASS    |
|          |         | 5240    | NV            | 20               | -7000          | -1.335878       | 20          | PASS    |
|          |         | 5240    | NV            | 30               | -6000          | -1.145038       | 20          | PASS    |
|          |         | 5240    | NV            | 40               | -7000          | -1.335878       | 20          | PASS    |
|          |         | 5260    | NV            | 0                | -7000          | -1.330798       | 20          | PASS    |
|          |         | 5260    | NV            | 10               | -7000          | -1.330798       | 20          | PASS    |
|          |         | 5260    | NV            | 20               | -7000          | -1.330798       | 20          | PASS    |
|          |         | 5260    | NV            | 30               | -7000          | -1.330798       | 20          | PASS    |
|          |         | 5260    | NV            | 40               | -7000          | -1.330798       | 20          | PASS    |
|          |         | 5280    | NV            | 0                | -7000          | -1.325758       | 20          | PASS    |
|          |         | 5280    | NV            | 10               | -7000          | -1.325758       | 20          | PASS    |
|          |         | 5280    | NV            | 20               | -6000          | -1.136364       | 20          | PASS    |
|          |         | 5280    | NV            | 30               | -7000          | -1.325758       | 20          | PASS    |
|          |         | 5280    | NV            | 40               | -7000          | -1.325758       | 20          | PASS    |
|          |         | 5320    | NV            | 0                | -7000          | -1.315789       | 20          | PASS    |
|          |         | 5320    | NV            | 10               | -7000          | -1.315789       | 20          | PASS    |
|          |         | 5320    | NV            | 20               | -7000          | -1.315789       | 20          | PASS    |
|          |         | 5320    | NV            | 30               | -7000          | -1.315789       | 20          | PASS    |
|          |         | 5320    | NV            | 40               | -7000          | -1.315789       | 20          | PASS    |
|          |         | 5500    | NV            | 0                | -7000          | -1.272727       | 20          | PASS    |
|          |         | 5500    | NV            | 10               | -7000          | -1.272727       | 20          | PASS    |
|          |         | 5500    | NV            | 20               | -7000          | -1.272727       | 20          | PASS    |
|          |         | 5500    | NV            | 30               | -7000          | -1.272727       | 20          | PASS    |
|          |         | 5500    | NV            | 40               | -7000          | -1.272727       | 20          | PASS    |
|          |         | 5580    | NV            | 0                | -7000          | -1.25448        | 20          | PASS    |
|          |         | 5580    | NV            | 10               | -7000          | -1.25448        | 20          | PASS    |
|          |         | 5580    | NV            | 20               | -7000          | -1.25448        | 20          | PASS    |
|          |         | 5580    | NV            | 30               | -7000          | -1.25448        | 20          | PASS    |
|          |         | 5580    | NV            | 40               | -7000          | -1.25448        | 20          | PASS    |
|          |         | 5700    | NV            | 0                | -7000          | -1.22807        | 20          | PASS    |
|          |         | 5700    | NV            | 10               | -7000          | -1.22807        | 20          | PASS    |
|          |         | 5700    | NV            | 20               | -7000          | -1.22807        | 20          | PASS    |
|          |         | 5700    | NV            | 30               | -7000          | -1.22807        | 20          | PASS    |
|          |         | 5700    | NV            | 40               | -7000          | -1.22807        | 20          | PASS    |
|          |         | 5720    | NV            | 0                | -7000          | -1.223776       | 20          | PASS    |
|          |         | 5720    | NV            | 10               | -7000          | -1.223776       | 20          | PASS    |
|          |         | 5720    | NV            | 20               | -7000          | -1.223776       | 20          | PASS    |
|          |         | 5720    | NV            | 30               | -7000          | -1.223776       | 20          | PASS    |
|          |         | 5720    | NV            | 40               | -7000          | -1.223776       | 20          | PASS    |
|          |         | 5745    | NV            | 0                | -5000          | -0.870322       | 20          | PASS    |
|          |         | 5745    | NV            | 10               | -4000          | -0.696258       | 20          | PASS    |
|          |         | 5745    | NV            | 20               | -4000          | -0.696258       | 20          | PASS    |
|          |         | 5745    | NV            | 30               | -5000          | -0.870322       | 20          | PASS    |
|          |         | 5745    | NV            | 40               | -5000          | -0.870322       | 20          | PASS    |
|          |         | 5785    | NV            | 0                | -7000          | -1.210026       | 20          | PASS    |
|          |         | 5785    | NV            | 10               | -7000          | -1.210026       | 20          | PASS    |
|          |         | 5785    | NV            | 20               | -7000          | -1.210026       | 20          | PASS    |
|          |         | 5785    | NV            | 30               | -7000          | -1.210026       | 20          | PASS    |

|  |  |      |    |    |       |           |    |      |
|--|--|------|----|----|-------|-----------|----|------|
|  |  | 5785 | NV | 40 | -7000 | -1.210026 | 20 | PASS |
|  |  | 5825 | NV | 0  | -8000 | -1.373391 | 20 | PASS |
|  |  | 5825 | NV | 10 | -8000 | -1.373391 | 20 | PASS |
|  |  | 5825 | NV | 20 | -8000 | -1.373391 | 20 | PASS |
|  |  | 5825 | NV | 30 | -8000 | -1.373391 | 20 | PASS |
|  |  | 5825 | NV | 40 | -8000 | -1.373391 | 20 | PASS |

|               |      |      |    |    |       |           |    |      |
|---------------|------|------|----|----|-------|-----------|----|------|
| 11N40SIS<br>O | Ant1 | 5190 | NV | 0  | -7000 | -1.348748 | 20 | PASS |
|               |      | 5190 | NV | 10 | -7000 | -1.348748 | 20 | PASS |
|               |      | 5190 | NV | 20 | -7000 | -1.348748 | 20 | PASS |
|               |      | 5190 | NV | 30 | -7000 | -1.348748 | 20 | PASS |
|               |      | 5190 | NV | 40 | -7000 | -1.348748 | 20 | PASS |
|               |      | 5230 | NV | 0  | -7000 | -1.338432 | 20 | PASS |
|               |      | 5230 | NV | 10 | -7000 | -1.338432 | 20 | PASS |
|               |      | 5230 | NV | 20 | -7000 | -1.338432 | 20 | PASS |
|               |      | 5230 | NV | 30 | -7000 | -1.338432 | 20 | PASS |
|               |      | 5230 | NV | 40 | -7000 | -1.338432 | 20 | PASS |
|               |      | 5270 | NV | 0  | -7000 | -1.328273 | 20 | PASS |
|               |      | 5270 | NV | 10 | -7000 | -1.328273 | 20 | PASS |
|               |      | 5270 | NV | 20 | -7000 | -1.328273 | 20 | PASS |
|               |      | 5270 | NV | 30 | -7000 | -1.328273 | 20 | PASS |
|               |      | 5270 | NV | 40 | -7000 | -1.328273 | 20 | PASS |
|               |      | 5310 | NV | 0  | -3000 | -0.564972 | 20 | PASS |
|               |      | 5310 | NV | 10 | -3000 | -0.564972 | 20 | PASS |
|               |      | 5310 | NV | 20 | -3000 | -0.564972 | 20 | PASS |
|               |      | 5310 | NV | 30 | -3000 | -0.564972 | 20 | PASS |
|               |      | 5310 | NV | 40 | -4000 | -0.753296 | 20 | PASS |
|               |      | 5510 | NV | 0  | -6000 | -1.088929 | 20 | PASS |
|               |      | 5510 | NV | 10 | -6000 | -1.088929 | 20 | PASS |
|               |      | 5510 | NV | 20 | -6000 | -1.088929 | 20 | PASS |
|               |      | 5510 | NV | 30 | -6000 | -1.088929 | 20 | PASS |
|               |      | 5510 | NV | 40 | -7000 | -1.270417 | 20 | PASS |
|               |      | 5550 | NV | 0  | -7000 | -1.261261 | 20 | PASS |
|               |      | 5550 | NV | 10 | -7000 | -1.261261 | 20 | PASS |
|               |      | 5550 | NV | 20 | -7000 | -1.261261 | 20 | PASS |
|               |      | 5550 | NV | 30 | -8000 | -1.441441 | 20 | PASS |
|               |      | 5550 | NV | 40 | -7000 | -1.261261 | 20 | PASS |
|               |      | 5670 | NV | 0  | -8000 | -1.410935 | 20 | PASS |
|               |      | 5670 | NV | 10 | -8000 | -1.410935 | 20 | PASS |
|               |      | 5670 | NV | 20 | -8000 | -1.410935 | 20 | PASS |
|               |      | 5670 | NV | 30 | -8000 | -1.410935 | 20 | PASS |
|               |      | 5670 | NV | 40 | -8000 | -1.410935 | 20 | PASS |
|               |      | 5710 | NV | 0  | -8000 | -1.401051 | 20 | PASS |
|               |      | 5710 | NV | 10 | -8000 | -1.401051 | 20 | PASS |
|               |      | 5710 | NV | 20 | -8000 | -1.401051 | 20 | PASS |
|               |      | 5710 | NV | 30 | -8000 | -1.401051 | 20 | PASS |
|               |      | 5710 | NV | 40 | -8000 | -1.401051 | 20 | PASS |
|               |      | 5755 | NV | 0  | -8000 | -1.390096 | 20 | PASS |
|               |      | 5755 | NV | 10 | -8000 | -1.390096 | 20 | PASS |
|               |      | 5755 | NV | 20 | -8000 | -1.390096 | 20 | PASS |
|               |      | 5755 | NV | 30 | -8000 | -1.390096 | 20 | PASS |
|               |      | 5755 | NV | 40 | -8000 | -1.390096 | 20 | PASS |
|               |      | 5795 | NV | 0  | -8000 | -1.3805   | 20 | PASS |
|               |      | 5795 | NV | 10 | -8000 | -1.3805   | 20 | PASS |
|               |      | 5795 | NV | 20 | -8000 | -1.3805   | 20 | PASS |
|               |      | 5795 | NV | 30 | -8000 | -1.3805   | 20 | PASS |
|               |      | 5795 | NV | 40 | -8000 | -1.3805   | 20 | PASS |

|  |  |      |    |    |       |           |    |      |
|--|--|------|----|----|-------|-----------|----|------|
|  |  | 5210 | NV | 0  | -7000 | -1.34357  | 20 | PASS |
|  |  | 5210 | NV | 10 | -7000 | -1.34357  | 20 | PASS |
|  |  | 5210 | NV | 20 | -7000 | -1.34357  | 20 | PASS |
|  |  | 5210 | NV | 30 | -7000 | -1.34357  | 20 | PASS |
|  |  | 5210 | NV | 40 | -7000 | -1.34357  | 20 | PASS |
|  |  | 5290 | NV | 0  | -8000 | -1.512287 | 20 | PASS |
|  |  | 5290 | NV | 10 | -7000 | -1.323251 | 20 | PASS |
|  |  | 5290 | NV | 20 | -7000 | -1.323251 | 20 | PASS |
|  |  | 5290 | NV | 30 | -7000 | -1.323251 | 20 | PASS |
|  |  | 5290 | NV | 40 | -7000 | -1.323251 | 20 | PASS |
|  |  | 5530 | NV | 0  | -8000 | -1.446655 | 20 | PASS |
|  |  | 5530 | NV | 10 | -8000 | -1.446655 | 20 | PASS |
|  |  | 5530 | NV | 20 | -8000 | -1.446655 | 20 | PASS |
|  |  | 5530 | NV | 30 | -7000 | -1.265823 | 20 | PASS |
|  |  | 5530 | NV | 40 | -7000 | -1.265823 | 20 | PASS |
|  |  | 5690 | NV | 0  | -8000 | -1.405975 | 20 | PASS |
|  |  | 5690 | NV | 10 | -8000 | -1.405975 | 20 | PASS |
|  |  | 5690 | NV | 20 | -8000 | -1.405975 | 20 | PASS |
|  |  | 5690 | NV | 30 | -8000 | -1.405975 | 20 | PASS |
|  |  | 5690 | NV | 40 | -8000 | -1.405975 | 20 | PASS |
|  |  | 5775 | NV | 0  | -8000 | -1.385281 | 20 | PASS |
|  |  | 5775 | NV | 10 | -8000 | -1.385281 | 20 | PASS |
|  |  | 5775 | NV | 20 | -8000 | -1.385281 | 20 | PASS |
|  |  | 5775 | NV | 30 | -8000 | -1.385281 | 20 | PASS |
|  |  | 5775 | NV | 40 | -8000 | -1.385281 | 20 | PASS |

## 9.9 Dynamic Frequency Selection (DFS)

### 1、 General Test Condition

| Parameters of EUT  |                                   |
|--------------------|-----------------------------------|
| Frequency          | 5250 – 5350 MHz & 5470 – 5725 MHz |
| Operational Mode   | Slave                             |
| Modulation:        | OFDM                              |
| Channel Bandwidth: | 20 MHz , 40 MHz, 80 MHz           |

Note: This device was functioned as a Slave device during the DFS

### 2、 Test requirement

The manufacturer shall whether the EUT is capable of operating as a master and a client. If the EUT is capable of operating in more than one operating mode then each operating mode shall be tested separately.

DFS Applicability

| Requirement                     | Operational Mode |                                |                             |
|---------------------------------|------------------|--------------------------------|-----------------------------|
|                                 | Master           | Client Without Radar Detection | Client With Radar Detection |
| Non-Occupancy Period            | Yes              | Not required                   | Yes                         |
| DFS Detection Threshold         | Yes              | Not required                   | Yes                         |
| Channel Availability Check Time | Yes              | Not required                   | Not required                |
| Uniform Spreading               | Yes              | Not required                   | Not required                |
| U-NII Detection Bandwidth       | Yes              | Not required                   | Yes                         |

DFS Applicability During Normal Operation

| Requirement                     | Operational Mode |                                |                 |
|---------------------------------|------------------|--------------------------------|-----------------|
|                                 | Master           | Client Without Radar Detection | Radar Detection |
| Non-Occupancy Period            | Yes              | Not required                   | Yes             |
| DFS Detection Threshold         | Yes              | Not required                   | Yes             |
| Channel Availability Check Time | Yes              | Yes                            | Not required    |
| Uniform Spreading               | Yes              | Yes                            | Not required    |
| U-NII Detection Bandwidth       | Yes              | Not required                   | Yes             |

### 3、Test Limited

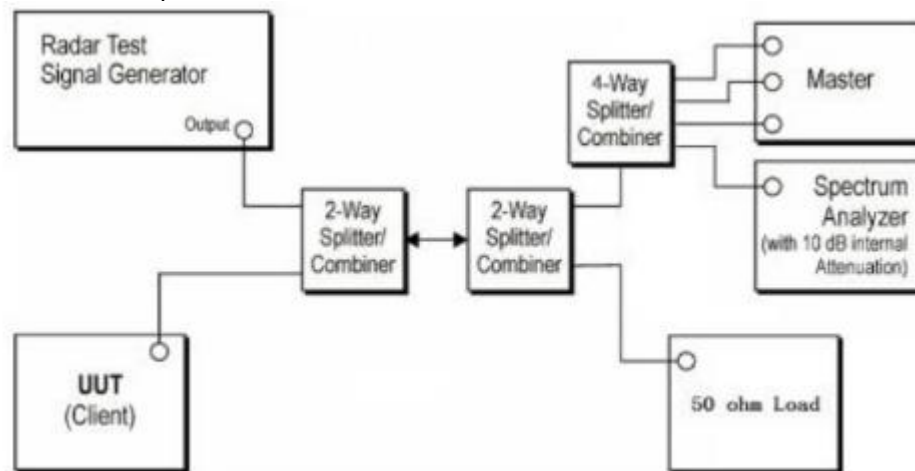
According to KDB 905462 D02 Table 4 DFS Response Requirement Values

| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Value                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <i>Non-occupancy period</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Minimum 30 minutes                                                                                        |
| <i>Channel Availability Check Time</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 60 seconds                                                                                                |
| <i>Channel Move Time</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 10 seconds<br>See Note 1.                                                                                 |
| <i>Channel Closing Transmission Time</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period.<br>See Notes 1 and 2. |
| <i>U-NII Detection Bandwidth</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.                                   |
| <p><b>Note 1:</b> <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.</p> <p><b>Note 2:</b> The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.</p> <p><b>Note 3:</b> During the <i>U-NII Detection Bandwidth</i> detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.</p> |                                                                                                           |

### 4、Calibration of Radar Waveform

- (1) A 50ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to place of the master.
- (2) The interference Radar Detection Threshold Level is  $-62\text{dBm} + 3.7\text{dB} + 1.5\text{dB} = -55.8\text{dBm}$  that had been taken into account the output power range and antenna gain.
- (3) The following equipment setup was used to calibrate the conducted radar waveform. A vector signal generator was utilized to establish the test signal level for radar type 0. During this process there were no transmissions by either the master or client device. The spectrum analyzer was switched to the zero spans (time domain) at the frequency of the radar waveform generator. Peak detection was used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3MHz. The spectrum analyzer had offset -1.5dB to compensate RF cable loss 1.5dB.
- (4) The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was  $-62\text{dBm} + 3.7\text{dB} + 1.5\text{dB} = -55.8\text{dBm}$ . Capture the spectrum analyzer plots on short pulse radar waveform.

## Conducted Calibration Setup:



Radar Waveform Calibration result:

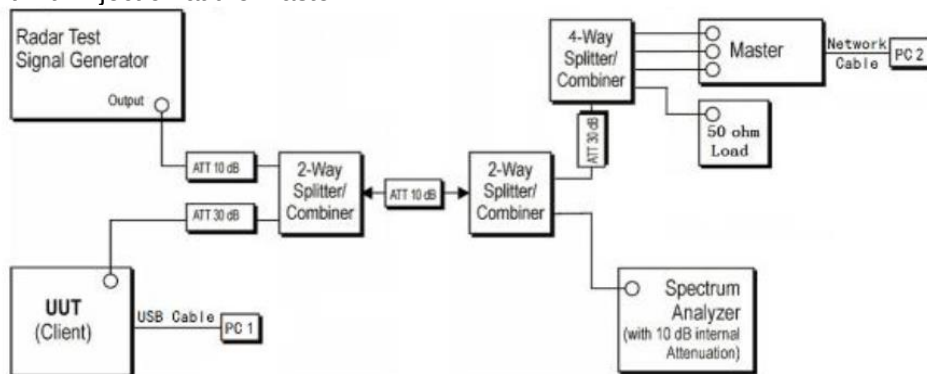
## 5、Channel Closing Transmission Time, Channel Move Time and Non-Occupancy Period.

Block Diagram of test setup test procedure.

- (1) The Radar Pulse generator is setup to provide a pulse at frequency that the master and client are operating, A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- (2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -55.8dBm at the antenna of the master device.
- (3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- (4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using test software in order to properly load the network for the entire period of the test.
- (5) When radar burst with a Level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection threshold +1dB.
- (6) Observer the transmissions of the EUT at the end of the radar Burst on the Operating channel. Measure and record the transmissions from the UUT during The observation time (channel move time). One 15 seconds plot is reported for the short pulse radar type 0. The plot for the short pulse radar burst. The channel move time will be calculated based on the zoom in 600ms plot of the short pulse radar type.
- (7) Measurement of the aggregate duration of the channel closed transmission time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by:  $Dwell(3.0) = S(12000ms)/B(4000)$ ; where dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of channel closing transmission time is calculated by:  $C(ms) = N \times Dwell(0.3ms)$ ; where C is the closing time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and dwell is the dwell time per bin.
- (8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

## Test Setup:

Setup for client with injection at the master.

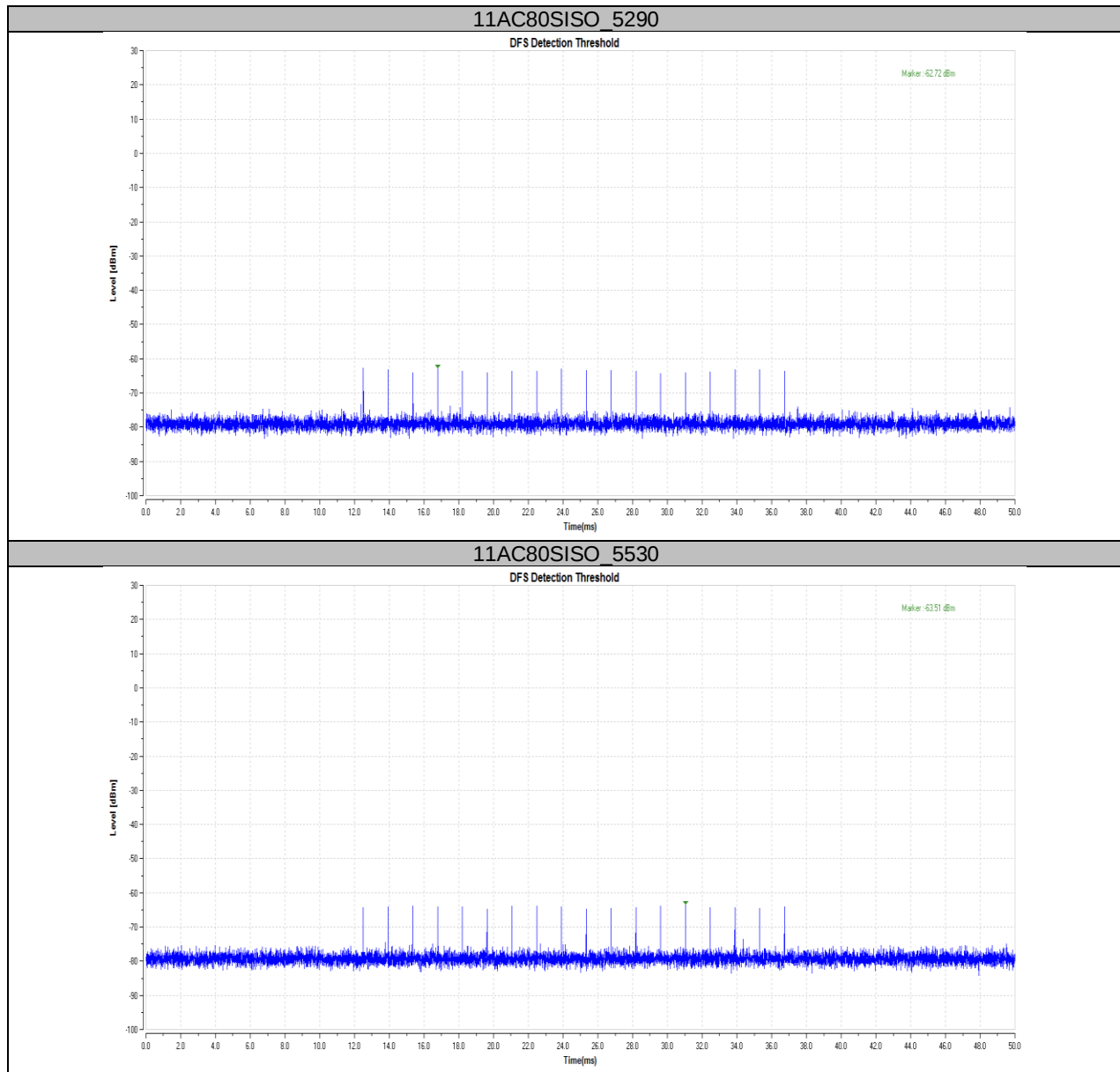


## 6、Test Result

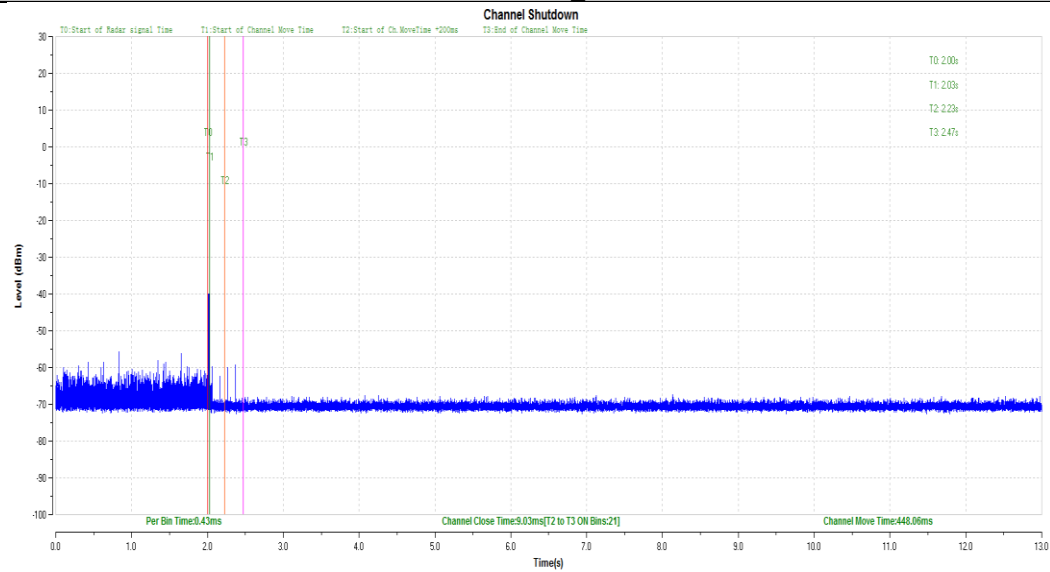
| Clause | Test Parameter                    | Remarks       | Pass/Fail |
|--------|-----------------------------------|---------------|-----------|
| 15.407 | DFS Detection Threshold           | No Applicable | N/A       |
| 15.407 | Channel Availability Check time   | No Applicable | N/A       |
| 15.407 | Channel Move time                 | Applicable    | Pass      |
| 15.407 | Channel Closing Transmission Time | Applicable    | Pass      |
| 15.407 | Non-Occupancy Period              | Applicable    | Pass      |
| 15.407 | Uniform Spreading                 | No Applicable | N/A       |
| 15.407 | U-NII Detection Bandwidth         | No Applicable | N/A       |

| TestMode   | Channel | CCT[ms] | Limit[ms] | CMT[ms] | Limit[ms] | Verdict |
|------------|---------|---------|-----------|---------|-----------|---------|
| 11AC80SISO | 5290    | 9.03    | 60        | 448.06  | 10000     | PASS    |
|            | 5530    | 30.1    | 60        | 452.79  | 10000     | PASS    |

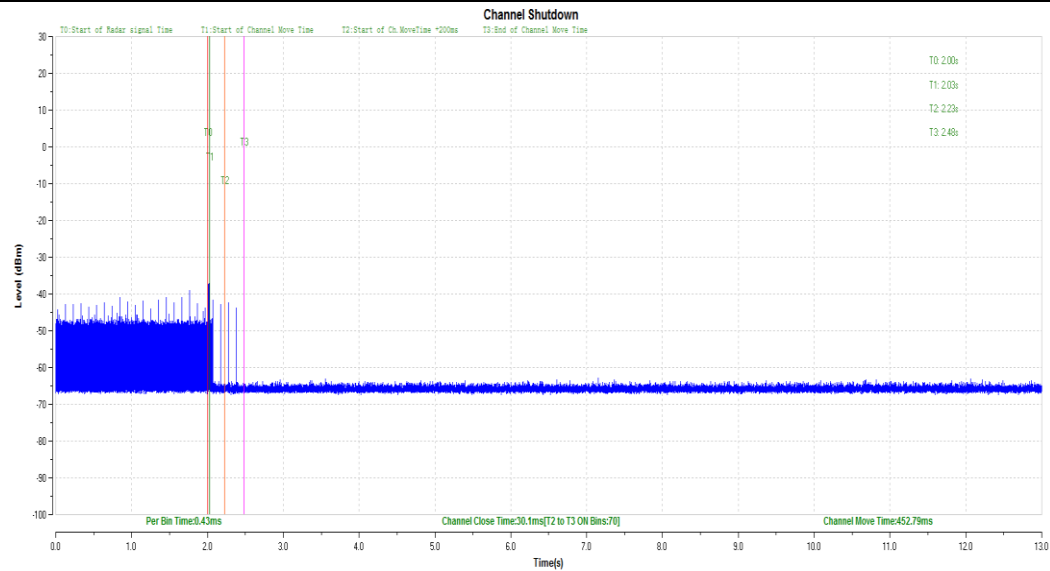
## Test Graphs



## 11AC80SISO\_5290



## 11AC80SISO\_5530



## 10 Test Equipment List

### Conducted Emission Test

| Description       | Manufacturer      | Model no. | Serial no.     | cal. due date |
|-------------------|-------------------|-----------|----------------|---------------|
| EMI Test Receiver | Rohde & Schwarz   | ESR 3     | 101782         | 2020-6-28     |
| LISN              | Rohde & Schwarz   | ENV4200   | 100249         | 2020-6-28     |
| Attenuator        | Shanghai Huaxiang | TS2-26-3  | 080928189      | 2020-6-28     |
| Test software     | Rohde & Schwarz   | EMC32     | Version9.15.00 | N/A           |

### Radiated Emission Test

| DESCRIPTION                         | MANUFACTURER    | MODEL NO.         | SERIAL NO.      | CAL. DUE DATE |
|-------------------------------------|-----------------|-------------------|-----------------|---------------|
| EMI Test Receiver                   | Rohde & Schwarz | ESR 26            | 101269          | 2020-6-28     |
| Trilog Super Broadband Test Antenna | Schwarzbeck     | VULB 9163         | 707             | 2020-6-29     |
| Horn Antenna                        | Rohde & Schwarz | HF907             | 102294          | 2020-6-22     |
| Wideband Horn Antenna               | Q-PAR           | QWH-SL-18-40-K-SG |                 | 2020-7-12     |
| Pre-amplifier                       | Rohde & Schwarz | SCU 40A           |                 | 2020-6-28     |
| Pre-amplifier                       | Rohde & Schwarz | SCU 18            | 102230          | 2020-6-28     |
| Signal Generator                    | Rohde & Schwarz | SMY01             | 839369/005      | 2020-7-7      |
| Attenuator                          | Agilent         | 8491A             | MY39264334      | 2020-6-28     |
| 3m Semi-anechoic chamber            | TDK             | 9X6X6             | ----            | 2020-6-29     |
| Test software                       | Rohde & Schwarz | EMC32             | Version 9.15.00 | N/A           |

### TS8997 Test System

| DESCRIPTION      | MANUFACTURER    | MODEL NO.          | SERIAL NO.    | CAL. DUE DATE |
|------------------|-----------------|--------------------|---------------|---------------|
| Signal Analyzer  | Rohde & Schwarz | FSV40              | 101030        | 2020-6-28     |
| RF Switch Module | Rohde & Schwarz | OSP120/OSP-B157    | 101226/100851 | 2020-6-28     |
| Power Splitter   | Weinschel       | 1580               | SC319         | 2020-7-7      |
| Test software    | Tonscend        | System for BT/WIFI | Version 2.6   | N/A           |

## 11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

| System Measurement Uncertainty                                                         |                                                                                   |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Test Items                                                                             | Extended Uncertainty                                                              |
| Uncertainty for Conducted Emission 150kHz-30MHz (for test using AMN ENV432 or ENV4200) | 3.21dB                                                                            |
| Uncertainty for Radiated Spurious Emission 25MHz-3000MHz                               | Horizontal: 4.91dB;<br>Vertical: 4.89dB;                                          |
| Uncertainty for Radiated Spurious Emission 3000MHz-18000MHz                            | Horizontal: 4.80dB;<br>Vertical: 4.79dB;                                          |
| Uncertainty for Radiated Spurious Emission 18000MHz-40000MHz                           | Horizontal: 5.05dB;<br>Vertical: 5.04dB;                                          |
| Uncertainty for Conducted RF test with TS 8997                                         | RF Power Conducted: 1.16dB<br>Frequency test involved: $0.6 \times 10^{-7}$ or 1% |

THE END