

# FCC Test Report

|              |              |
|--------------|--------------|
| Product Name | Nexus Player |
| Model No     | TV500I       |
| FCC ID       | MSQ-TV500I   |

|           |  |
|-----------|--|
| Applicant | ASUSTeK COMPUTER INC.                          |
| Address   | 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan |

|                 |                     |
|-----------------|---------------------|
| Date of Receipt | Aug. 20, 2014       |
| Issued Date     | Oct. 09, 2014       |
| Report No.      | 1480461R-RFUSP06V00 |
| Report Version  | V1.0                |



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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# Test Report

Issued Date: Oct. 09, 2014

Report No.: 1480461R-RFUSP06V00



|                     |   |
|---------------------|---|
| Product Name        | Nexus Player  |
| Applicant           | ASUSTeK COMPUTER INC.   |
| Address             | 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan  |
| Manufacturer        | Digitek (Chongqing) Limited   |
| Model No.           | TV500I  |
| FCC ID.             | MSQ-TV500I  |
| EUT Rated Voltage   | AC 100-240V, 50/60Hz  |
| EUT Test Voltage    | AC 120V/60Hz  |
| Trade Name          | nexus; ASUS   |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart E: 2013<br>ANSI C63.10: 2009<br>KDB 789033 D01 General UNII Test Procedures Old Rules v01r04 |
| Test Result         | Complied  |

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( Senior Adm. Specialist / Rita Huang )

Tested By : Jack Hsu  
( Engineer / Jack Hsu )

Approved By : Vincent Lin  
( Director / Vincent Lin )

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## 1. GENERAL INFORMATION

### 1.1. EUT Description

|                    |   |
|--------------------|---|
| Product Name       | Nexus Player  |
| Trade Name         | nexus; ASUS   |
| FCC ID.            | MSQ-TV500I  |
| Model No.          | TV500I  |
| Frequency Range    | 802.11a/n-20MHz: 5180-5320MHz, 5500-5700MHz<br>802.11n-40MHz: 5190-5310, 5510-5670MHz<br>802.11ac-20MHz: 5720, 802.11ac-40MHz: 5710<br>802.11ac-80MHz: 5210-5290MHz, 5530-5690MHz |
| Number of Channels | 802.11a/n-20MHz: 19; 802.11n-40MHz: 9<br>802.11ac-20MHz: 1, 802.11ac-40MHz: 1, 802.11ac-80MHz: 4  |
| Data Rate          | 802.11a: 6 - 54Mbps<br>802.11n: up to 300Mbps<br>802.11ac-80MHz: up to 866.7MHz   |
| Channel Control    | Auto  |
| Type of Modulation | 802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM  |
| Antenna type       | Printed on PCB Antenna  |
| Antenna Gain       | Refer to the table “Antenna List”   |
| Power Adapter      | MFR: PIE, M/N: AD2036321<br>Input: 100-240V, 50/60Hz 0.5A<br>Output: 12V $\overline{=}$ 1.5A<br>Cable out: Shielded, 1.8m   |
| Contain Module     | Broadcom / BCM4354XKUBG   |

#### Antenna List

| No. | Manufacturer | Part No.                 | Antenna Type           | Peak Gain   |
|-----|--------------|--------------------------|------------------------|---|
| 1   | Digitek      | N/A (Main).<br>N/A (Aux) | Printed on PCB Antenna | 4.18dBi For 5.15~5.25GHz<br>3.67dBi For 5.25~5.35GHz<br>1.75dBi For 5.47~5.725GHz<br>2.38dBi For 5.725~5.825GHz |

Note: The antenna of EUT is conform to FCC 15.203

## 802.11a/n-20MHz Center Working Frequency of Each Channel:

| Channel      | Frequency | Channel      | Frequency | Channel      | Frequency | Channel      | Frequency |
|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| Channel 36:  | 5180 MHz  | Channel 40:  | 5200 MHz  | Channel 44:  | 5220 MHz  | Channel 48:  | 5240 MHz  |
| Channel 52:  | 5260 MHz  | Channel 56:  | 5280 MHz  | Channel 60:  | 5300 MHz  | Channel 64:  | 5320 MHz  |
| Channel 100: | 5500 MHz  | Channel 104: | 5520 MHz  | Channel 108: | 5540 MHz  | Channel 112: | 5560 MHz  |
| Channel 116: | 5580 MHz  | Channel 120: | 5600 MHz  | Channel 124: | 5620 MHz  | Channel 128: | 5640 MHz  |
| Channel 132: | 5660 MHz  | Channel 136: | 5680 MHz  | Channel 140: | 5700 MHz  |              |           |

## 802.11n-40MHz Center Working Frequency of Each Channel:

| Channel      | Frequency | Channel      | Frequency | Channel      | Frequency | Channel      | Frequency |
|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| Channel 38:  | 5190 MHz  | Channel 46:  | 5230 MHz  | Channel 54:  | 5270 MHz  | Channel 62:  | 5310 MHz  |
| Channel 102: | 5510 MHz  | Channel 110: | 5550 MHz  | Channel 118: | 5590 MHz  | Channel 126: | 5630 MHz  |
| Channel 134: | 5670 MHz  |              |           |              |           |              |           |

## 802.11ac-20MHz Center Working Frequency of Each Channel:

| Channel      | Frequency |
|--------------|-----------|
| Channel 144: | 5720 MHz  |

## 802.11ac-40MHz Center Working Frequency of Each Channel:

| Channel      | Frequency |
|--------------|-----------|
| Channel 142: | 5710 MHz  |

## 802.11ac-80MHz Center Working Frequency of Each Channel:

| Channel     | Frequency | Channel     | Frequency | Channel      | Frequency | Channel      | Frequency |
|-------------|-----------|-------------|-----------|--------------|-----------|--------------|-----------|
| Channel 42: | 5210 MHz  | Channel 58: | 5290 MHz  | Channel 106: | 5530 MHz  | Channel 138: | 5690 MHz  |

## Note:

1. This device is a Nexus Player with a built-in 802.11a/b/g/n/ac WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report. (802.11a is chain A)
4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11a is 6Mbps 、 802.11n-20BW is 14.4Mbps 、 802.11n-40BW is 30Mbps and 802.11ac(80M-BW) is 65 Mbps)
5. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.
6. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

|           |  |
|-----------|--|
| Test Mode | Mode 1: Transmit (802.11a-6Mbps)<br>Mode 2: Transmit (802.11n-20BW 14.4Mbps)<br>Mode 3: Transmit (802.11n-40BW 30Mbps)<br>Mode 4: Transmit (802.11ac-20BW-7.2Mbps)<br>Mode 5: Transmit (802.11ac-40BW-15Mbps)<br>Mode 6: Transmit (802.11ac-80BW-65Mbps) |
|-----------|--|

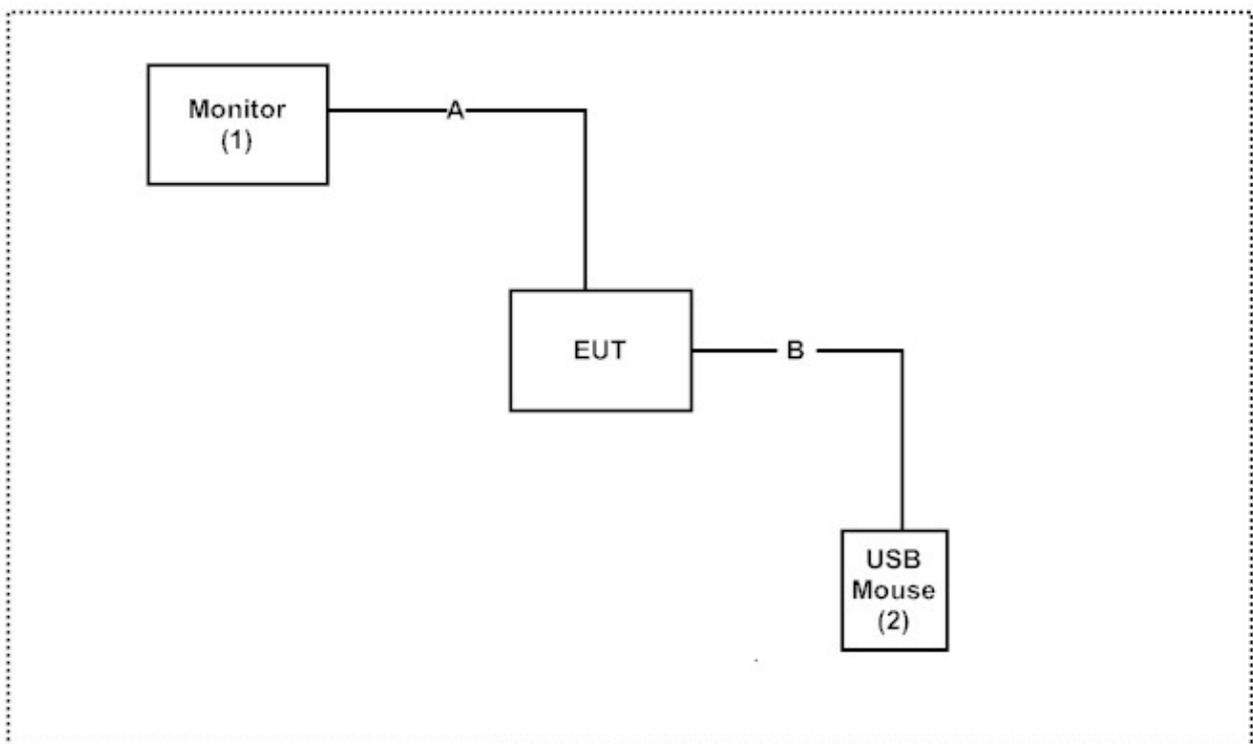
### 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

|   | Product   | Manufacturer | Model No. | Serial No.  | Power Cord         |
|---|-----------|--------------|-----------|-------------|--------------------|
| 1 | Monitor   | DELL         | ST2320LF  | N/A         | Non-Shielded, 1.8m |
| 2 | USB Mouse | Logitech     | M-BE58    | LZE11405266 | N/A                |

| Signal Cable Type | Signal cable Description |
|-------------------|--------------------------|
| A HDMI Cable      | Shielded, 1.8m           |
| B Mouse Cable     | Shielded, 1.8m           |

### 1.4. Configuration of tested System



### 1.5. EUT Exercise Software

- (1) Setup the EUT as shown on 1.4
- (2) Execute “WLAN RF Test” program on the EUT.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Start the continuous transmission.
- (5) Verify that the EUT works properly.

## 1.6. Test Facility

Ambient conditions in the laboratory:

| Items                      | Required (IEC 68-1) | Actual   |
|----------------------------|---------------------|----------|
| Temperature (°C)           | 15-35               | 20-35    |
| Humidity (%RH)             | 25-75               | 50-65    |
| Barometric pressure (mbar) | 860-1060            | 950-1000 |

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://tw.quietek.com/modules/myalbum/>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

Site Description: File on  
Federal Communications Commission  
FCC Engineering Laboratory  
7435 Oakland Mills Road  
Columbia, MD 21046  
Registration Number: 92195

Site Name: Quietek Corporation  
Site Address: No. 5-22, Rueil-Shu Valley, Rueil-Ping Tsuen,  
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FCC Accreditation Number: TW1014

## 2. Conducted Emission

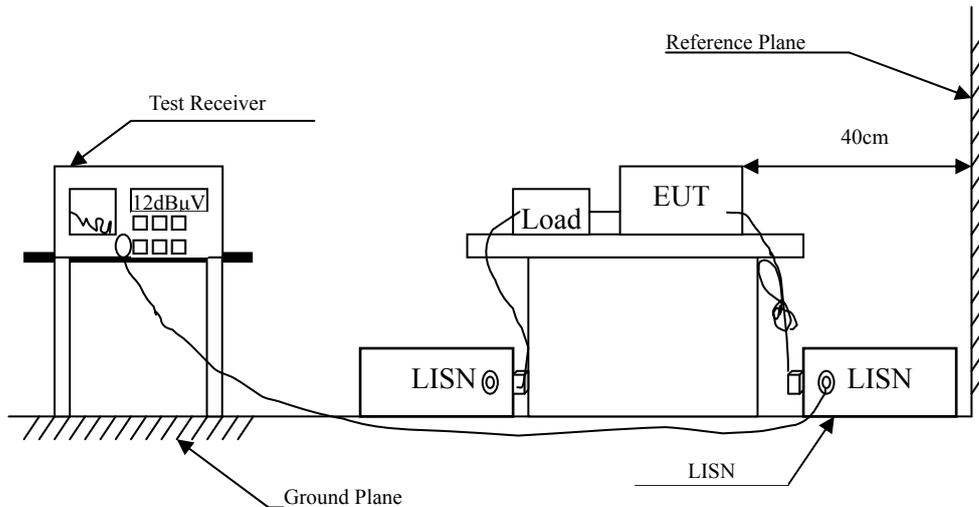
### 2.1. Test Equipment

|   | Equipment                | Manufacturer | Model No. / Serial No. | Last Cal.  | Remark      |
|---|--------------------------|--------------|------------------------|------------|-------------|
| X | Test Receiver            | R & S        | ESCS 30 / 825442/018   | Sep., 2014 |             |
| X | Artificial Mains Network | R & S        | ENV4200 / 848411/10    | Feb., 2014 | Peripherals |
| X | LISN                     | R & S        | ESH3-Z5 / 825562/002   | Feb., 2014 | EUT         |
|   | DC LISN                  | Schwarzbeck  | 8226 / 176             | Mar, 2014  | EUT         |
| X | Pulse Limiter            | R & S        | ESH3-Z2 / 357.8810.52  | Feb., 2014 |             |
|   | No.1 Shielded Room       |              |                        |            |             |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked by “X” are used to measure the final test results.

### 2.2. Test Setup



**2.3. Limits**

| <b>FCC Part 15 Subpart C Paragraph 15.207 (dBμV) Limit</b> |        |       |
|--|--------|-------|
| Frequency<br>MHz   | Limits |       |
|  | QP     | AV    |
| 0.15 - 0.50  | 66-56  | 56-46 |
| 0.50-5.0   | 56     | 46    |
| 5.0 - 30   | 60     | 50    |

Remarks : In the above table, the tighter limit applies at the band edges.

**2.4. Test Procedure**

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2009 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

The EUT was setup to ANSI C63.10, 2009; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

**2.5. Uncertainty**

± 2.26 dB

## 2.6. Test Result of Conducted Emission

Product : Nexus Player  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5210MHz)

| Frequency<br>MHz  | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V | Margin<br>dB | Limit<br>dB $\mu$ V |
|-------------------|-------------------------|--------------------------------|------------------------------------|--------------|---------------------|
| <b>LINE 1</b>     |                         |                                |                                    |              |                     |
| <b>Quasi-Peak</b> |                         |                                |                                    |              |                     |
| 0.150             | 9.661                   | 31.890                         | 41.551                             | -24.449      | 66.000              |
| 0.173             | 9.654                   | 30.340                         | 39.994                             | -25.349      | 65.343              |
| 0.361             | 9.659                   | 36.390                         | 46.049                             | -13.922      | 59.971              |
| 0.646             | 9.675                   | 25.370                         | 35.045                             | -20.955      | 56.000              |
| 0.763             | 9.681                   | 21.700                         | 31.381                             | -24.619      | 56.000              |
| 9.877             | 9.980                   | 32.710                         | 42.690                             | -17.310      | 60.000              |
| <b>Average</b>    |                         |                                |                                    |              |                     |
| 0.150             | 9.661                   | 20.650                         | 30.311                             | -25.689      | 56.000              |
| 0.173             | 9.654                   | 21.130                         | 30.784                             | -24.559      | 55.343              |
| 0.361             | 9.659                   | 30.950                         | 40.609                             | -9.362       | 49.971              |
| 0.646             | 9.675                   | 13.320                         | 22.995                             | -23.005      | 46.000              |
| 0.763             | 9.681                   | 12.760                         | 22.441                             | -23.559      | 46.000              |
| 9.877             | 9.980                   | 25.200                         | 35.180                             | -14.820      | 50.000              |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Nexus Player  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5210MHz)

| Frequency<br>MHz  | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V | Margin<br>dB | Limit<br>dB $\mu$ V |
|-------------------|-------------------------|--------------------------------|------------------------------------|--------------|---------------------|
| <b>LINE 2</b>     |                         |                                |                                    |              |                     |
| <b>Quasi-Peak</b> |                         |                                |                                    |              |                     |
| 0.162             | 9.658                   | 31.660                         | 41.318                             | -24.339      | 65.657              |
| 0.185             | 9.660                   | 30.280                         | 39.940                             | -25.060      | 65.000              |
| 0.361             | 9.659                   | 35.360                         | 45.019                             | -14.952      | 59.971              |
| 0.646             | 9.675                   | 24.870                         | 34.545                             | -21.455      | 56.000              |
| 0.752             | 9.691                   | 20.970                         | 30.661                             | -25.339      | 56.000              |
| 9.173             | 9.983                   | 28.940                         | 38.923                             | -21.077      | 60.000              |
| <b>Average</b>    |                         |                                |                                    |              |                     |
| 0.162             | 9.658                   | 19.470                         | 29.128                             | -26.529      | 55.657              |
| 0.185             | 9.660                   | 19.460                         | 29.120                             | -25.880      | 55.000              |
| 0.361             | 9.659                   | 30.450                         | 40.109                             | -9.862       | 49.971              |
| 0.646             | 9.675                   | 12.140                         | 21.815                             | -24.185      | 46.000              |
| 0.752             | 9.691                   | 10.080                         | 19.771                             | -26.229      | 46.000              |
| 9.173             | 9.983                   | 20.480                         | 30.463                             | -19.537      | 50.000              |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Nexus Player  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5290MHz)

| Frequency<br>MHz  | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V | Margin<br>dB | Limit<br>dB $\mu$ V |
|-------------------|-------------------------|--------------------------------|------------------------------------|--------------|---------------------|
| <b>LINE 1</b>     |                         |                                |                                    |              |                     |
| <b>Quasi-Peak</b> |                         |                                |                                    |              |                     |
| 0.173             | 9.654                   | 30.040                         | 39.694                             | -25.649      | 65.343              |
| 0.357             | 9.659                   | 36.330                         | 45.989                             | -14.097      | 60.086              |
| 0.599             | 9.672                   | 25.810                         | 35.482                             | -20.518      | 56.000              |
| 0.646             | 9.675                   | 25.410                         | 35.085                             | -20.915      | 56.000              |
| 1.423             | 9.727                   | 23.910                         | 33.637                             | -22.363      | 56.000              |
| 9.705             | 9.978                   | 32.490                         | 42.468                             | -17.532      | 60.000              |
| <b>Average</b>    |                         |                                |                                    |              |                     |
| 0.173             | 9.654                   | 20.930                         | 30.584                             | -24.759      | 55.343              |
| 0.357             | 9.659                   | 30.870                         | 40.529                             | -9.557       | 50.086              |
| 0.599             | 9.672                   | 18.050                         | 27.722                             | -18.278      | 46.000              |
| 0.646             | 9.675                   | 13.240                         | 22.915                             | -23.085      | 46.000              |
| 1.423             | 9.727                   | 18.050                         | 27.777                             | -18.223      | 46.000              |
| 9.705             | 9.978                   | 25.260                         | 35.238                             | -14.762      | 50.000              |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Nexus Player  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5290MHz)

| Frequency<br>MHz  | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V | Margin<br>dB | Limit<br>dB $\mu$ V |
|-------------------|-------------------------|--------------------------------|------------------------------------|--------------|---------------------|
| <b>LINE 2</b>     |                         |                                |                                    |              |                     |
| <b>Quasi-Peak</b> |                         |                                |                                    |              |                     |
| 0.185             | 9.660                   | 30.060                         | 39.720                             | -25.280      | 65.000              |
| 0.209             | 9.661                   | 28.390                         | 38.051                             | -26.263      | 64.314              |
| 0.361             | 9.659                   | 35.100                         | 44.759                             | -15.212      | 59.971              |
| 0.693             | 9.677                   | 24.500                         | 34.177                             | -21.823      | 56.000              |
| 1.334             | 9.722                   | 18.780                         | 28.502                             | -27.498      | 56.000              |
| 10.298            | 10.004                  | 28.470                         | 38.474                             | -21.526      | 60.000              |
| <b>Average</b>    |                         |                                |                                    |              |                     |
| 0.185             | 9.660                   | 19.130                         | 28.790                             | -26.210      | 55.000              |
| 0.209             | 9.661                   | 18.970                         | 28.631                             | -25.683      | 54.314              |
| 0.361             | 9.659                   | 30.360                         | 40.019                             | -9.952       | 49.971              |
| 0.693             | 9.677                   | 17.770                         | 27.447                             | -18.553      | 46.000              |
| 1.334             | 9.722                   | 12.590                         | 22.312                             | -23.688      | 46.000              |
| 10.298            | 10.004                  | 20.560                         | 30.564                             | -19.436      | 50.000              |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Nexus Player  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5530MHz)

| Frequency<br>MHz  | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V | Margin<br>dB | Limit<br>dB $\mu$ V |
|-------------------|-------------------------|--------------------------------|------------------------------------|--------------|---------------------|
| <b>LINE 1</b>     |                         |                                |                                    |              |                     |
| <b>Quasi-Peak</b> |                         |                                |                                    |              |                     |
| 0.154             | 9.660                   | 30.970                         | 40.630                             | -25.256      | 65.886              |
| 0.361             | 9.659                   | 36.650                         | 46.309                             | -13.662      | 59.971              |
| 0.392             | 9.661                   | 35.090                         | 44.751                             | -14.335      | 59.086              |
| 0.630             | 9.674                   | 26.280                         | 35.954                             | -20.046      | 56.000              |
| 1.423             | 9.727                   | 23.570                         | 33.297                             | -22.703      | 56.000              |
| 10.822            | 9.998                   | 32.990                         | 42.988                             | -17.012      | 60.000              |
| <b>Average</b>    |                         |                                |                                    |              |                     |
| 0.154             | 9.660                   | 14.330                         | 23.990                             | -31.896      | 55.886              |
| 0.361             | 9.659                   | 29.050                         | 38.709                             | -11.262      | 49.971              |
| 0.392             | 9.661                   | 32.180                         | 41.841                             | -7.245       | 49.086              |
| 0.630             | 9.674                   | 15.780                         | 25.454                             | -20.546      | 46.000              |
| 1.423             | 9.727                   | 19.470                         | 29.197                             | -16.803      | 46.000              |
| 10.822            | 9.998                   | 27.190                         | 37.188                             | -12.812      | 50.000              |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Nexus Player  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5530MHz)

| Frequency<br>MHz  | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V | Margin<br>dB | Limit<br>dB $\mu$ V |
|-------------------|-------------------------|--------------------------------|------------------------------------|--------------|---------------------|
| <b>LINE 2</b>     |                         |                                |                                    |              |                     |
| <b>Quasi-Peak</b> |                         |                                |                                    |              |                     |
| 0.197             | 9.660                   | 27.970                         | 37.630                             | -27.027      | 64.657              |
| 0.361             | 9.659                   | 35.720                         | 45.379                             | -14.592      | 59.971              |
| 0.767             | 9.691                   | 20.460                         | 30.151                             | -25.849      | 56.000              |
| 1.119             | 9.711                   | 21.230                         | 30.941                             | -25.059      | 56.000              |
| 8.119             | 9.951                   | 27.230                         | 37.181                             | -22.819      | 60.000              |
| 9.732             | 9.998                   | 29.160                         | 39.158                             | -20.842      | 60.000              |
| <b>Average</b>    |                         |                                |                                    |              |                     |
| 0.197             | 9.660                   | 17.300                         | 26.960                             | -27.697      | 54.657              |
| 0.361             | 9.659                   | 30.700                         | 40.359                             | -9.612       | 49.971              |
| 0.767             | 9.691                   | 10.900                         | 20.591                             | -25.409      | 46.000              |
| 1.119             | 9.711                   | 14.850                         | 24.561                             | -21.439      | 46.000              |
| 8.119             | 9.951                   | 18.860                         | 28.811                             | -21.189      | 50.000              |
| 9.732             | 9.998                   | 21.170                         | 31.168                             | -18.832      | 50.000              |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3. Maximun conducted output power

#### 3.1. Test Equipment

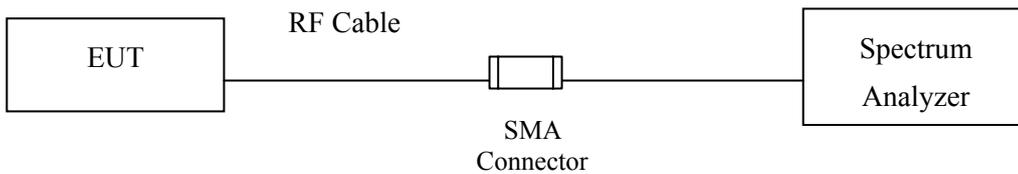
|   | Equipment         | Manufacturer | Model No./Serial No. | Last Cal.  |
|---|-------------------|--------------|----------------------|------------|
| X | Power Meter       | Anritsu      | ML2495A/6K00003357   | May, 2014  |
| X | Power Sensor      | Anritsu      | MA2411B/0738448      | Jun., 2014 |
| X | Spectrum Analyzer | Agilent      | N9010A / MY48030495  | Apr., 2014 |

Note:

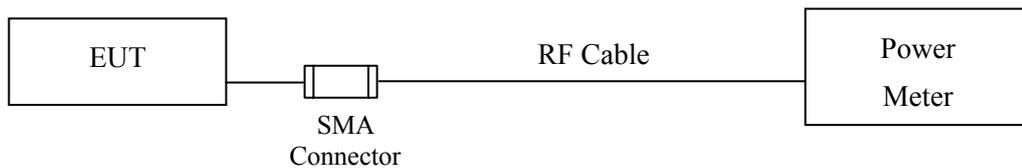
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

#### 3.2. Test Setup

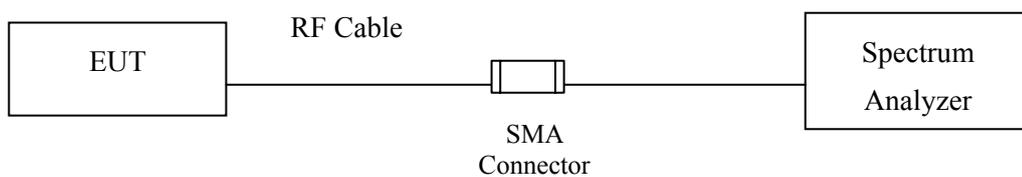
##### 26dBc Occupied Bandwidth



##### Conduction Power Measurement (for 802.11a)



##### Conduction Power Measurement (for 802.11ac)



### 3.3. Limits

- (1) For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or  $4 \text{ dBm} + 10\log B$ , where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (2) For the band 5.25-5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10\log B$ , where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (3) For the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1W or  $17 \text{ dBm} + 10\log B$ , where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

### 3.4. Test Procedur

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater than 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

802.11an ( $BW \leq 40\text{MHz}$ ) Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)

Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu/ MA2411B video bandwidth: 65MHz)

802.11ac ( $BW=80\text{MHz}$ ) Maximum conducted output power using KDB 789033 section E)2)b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D01 section F) procedure is used for measurements.

### 3.5. Uncertainty

$\pm 1.27$  dB

### 3.6. Test Result of Maximum conducted output power

Product : Nexus Player  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)

#### CHAIN A

| Cable loss=1dB |                 | Maximum conducted output power |       |       |       |       |       |       |       |                |
|----------------|-----------------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No.    | Frequency (MHz) | Data Rate (Mbps)               |       |       |       |       |       |       |       | Required Limit |
|                |                 | 6                              | 9     | 12    | 18    | 24    | 36    | 48    | 54    |                |
|                |                 | Measurement Level (dBm)        |       |       |       |       |       |       |       |                |
| 36             | 5180            | 13.30                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 44             | 5220            | 13.26                          | 13.19 | 13.12 | 13.05 | 12.98 | 12.91 | 12.84 | 12.77 | <24dBm         |
| 48             | 5240            | 13.18                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 52             | 5260            | 13.26                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 60             | 5300            | 12.44                          | 12.37 | 12.3  | 12.23 | 12.16 | 12.09 | 12.02 | 11.95 | <24dBm         |
| 64             | 5320            | 12.51                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 100            | 5500            | 13.26                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 116            | 5580            | 13.71                          | 13.67 | 13.63 | 13.59 | 13.55 | 13.51 | 13.47 | 13.43 | <24dBm         |
| 140            | 5700            | 13.79                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

#### CHAIN B

| Cable loss=1dB |                 | Maximum conducted output power |       |       |       |       |       |       |       |                |
|----------------|-----------------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No.    | Frequency (MHz) | Data Rate (Mbps)               |       |       |       |       |       |       |       | Required Limit |
|                |                 | 6                              | 9     | 12    | 18    | 24    | 36    | 48    | 54    |                |
|                |                 | Measurement Level (dBm)        |       |       |       |       |       |       |       |                |
| 36             | 5180            | 13.27                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 44             | 5220            | 13.21                          | 13.17 | 13.13 | 13.09 | 13.05 | 13.01 | 12.97 | 12.93 | <24dBm         |
| 48             | 5240            | 13.05                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 52             | 5260            | 13.17                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 60             | 5300            | 12.37                          | 12.28 | 12.19 | 12.1  | 12.01 | 11.92 | 11.83 | 11.74 | <24dBm         |
| 64             | 5320            | 12.46                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 100            | 5500            | 13.15                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 116            | 5580            | 13.65                          | 13.59 | 13.53 | 13.47 | 13.41 | 13.35 | 13.29 | 13.23 | <24dBm         |
| 140            | 5700            | 13.71                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

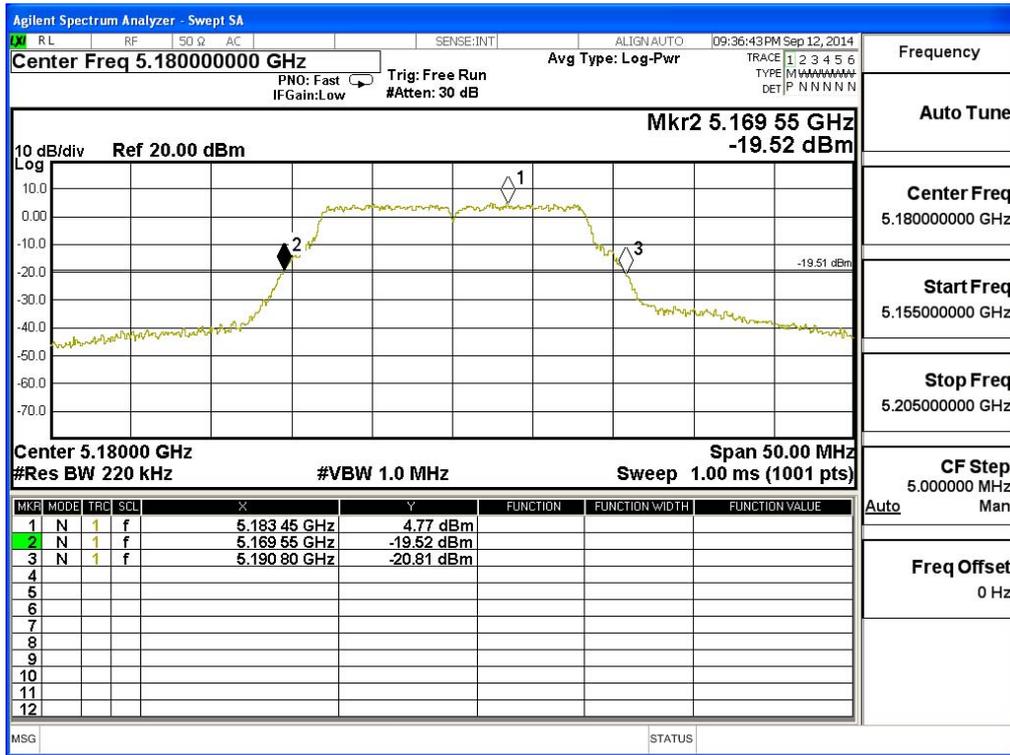
**Maximum conducted output power Measurement:**
**CHAIN B**

| Channel No | Frequency Range<br>(MHz) | 26dB Bandwidth<br>(MHz) | Output Power<br>(dBm) | Output Power Limit |               |
|------------|--------------------------|-------------------------|-----------------------|--------------------|---------------|
|            |                          |                         |                       | (dBm)              | dBm+10log(BW) |
| 36         | 5180                     | 21.250                  | 13.30                 | 24                 | 24.27         |
| 44         | 5220                     | 21.150                  | 13.26                 | 24                 | 24.25         |
| 48         | 5240                     | 18.300                  | 13.18                 | 24                 | 23.62         |
| 52         | 5260                     | 18.400                  | 13.26                 | 24                 | 23.65         |
| 60         | 5300                     | 21.250                  | 12.44                 | 24                 | 24.27         |
| 64         | 5320                     | 21.350                  | 12.51                 | 24                 | 24.29         |
| 100        | 5500                     | 21.200                  | 13.26                 | 24                 | 24.26         |
| 116        | 5580                     | 18.400                  | 13.71                 | 24                 | 23.65         |
| 140        | 5700                     | 21.300                  | 13.79                 | 24                 | 24.28         |

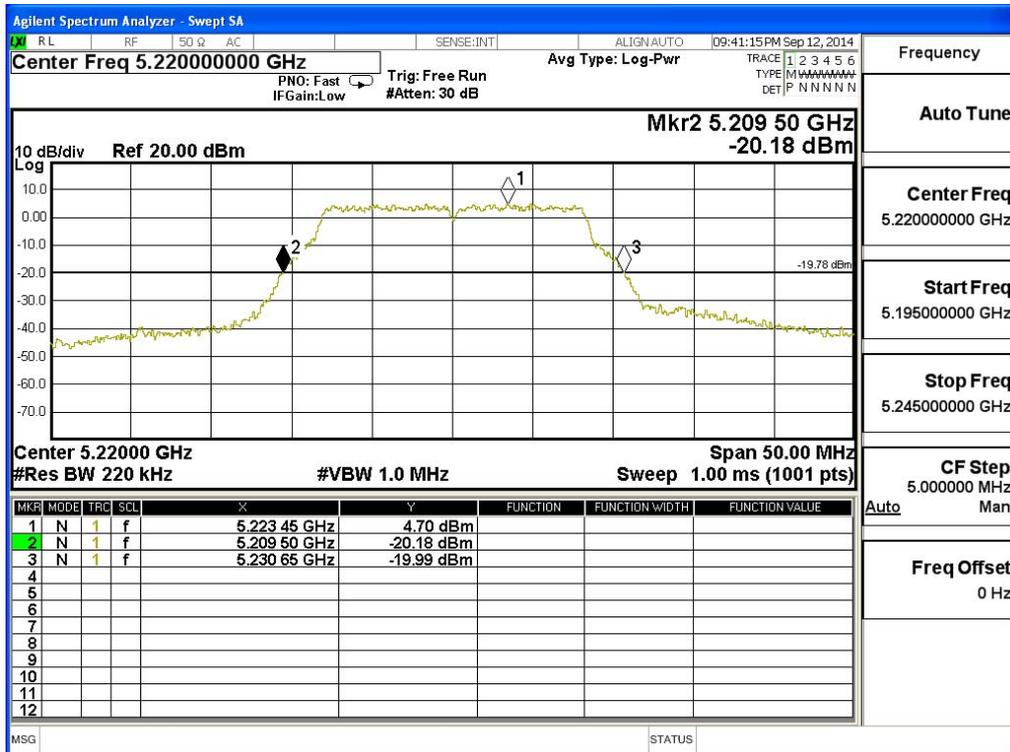
Note:

1. Power Output Value = Reading value on average power meter + cable loss
2. 26 dB Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

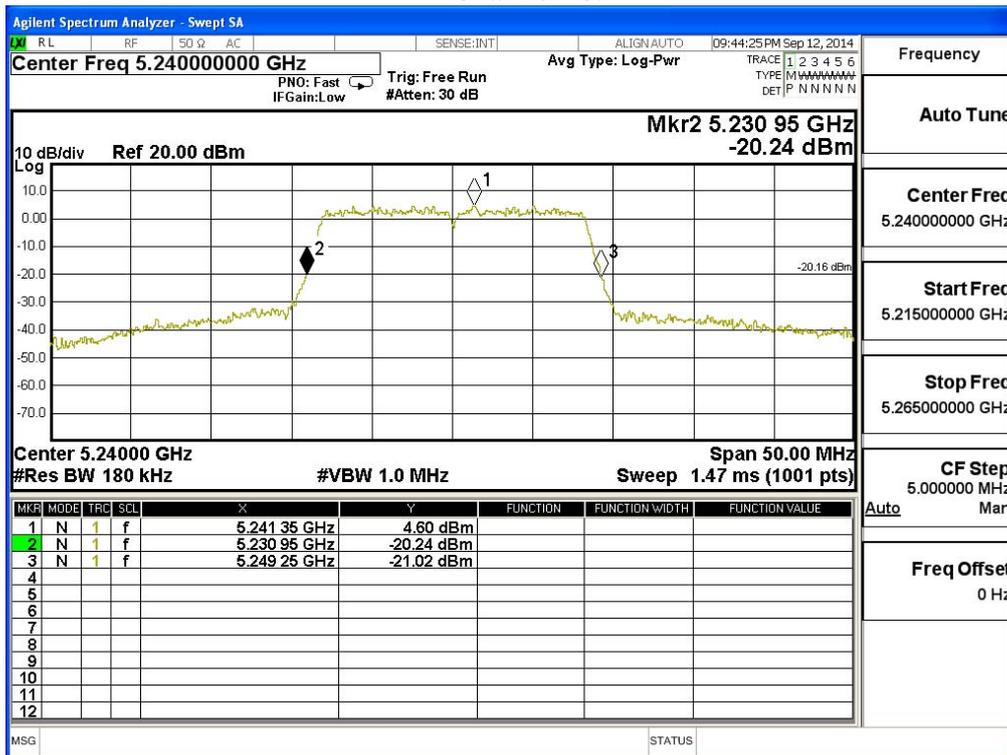
### 26dBc Occupied Bandwidth: Channel 36:



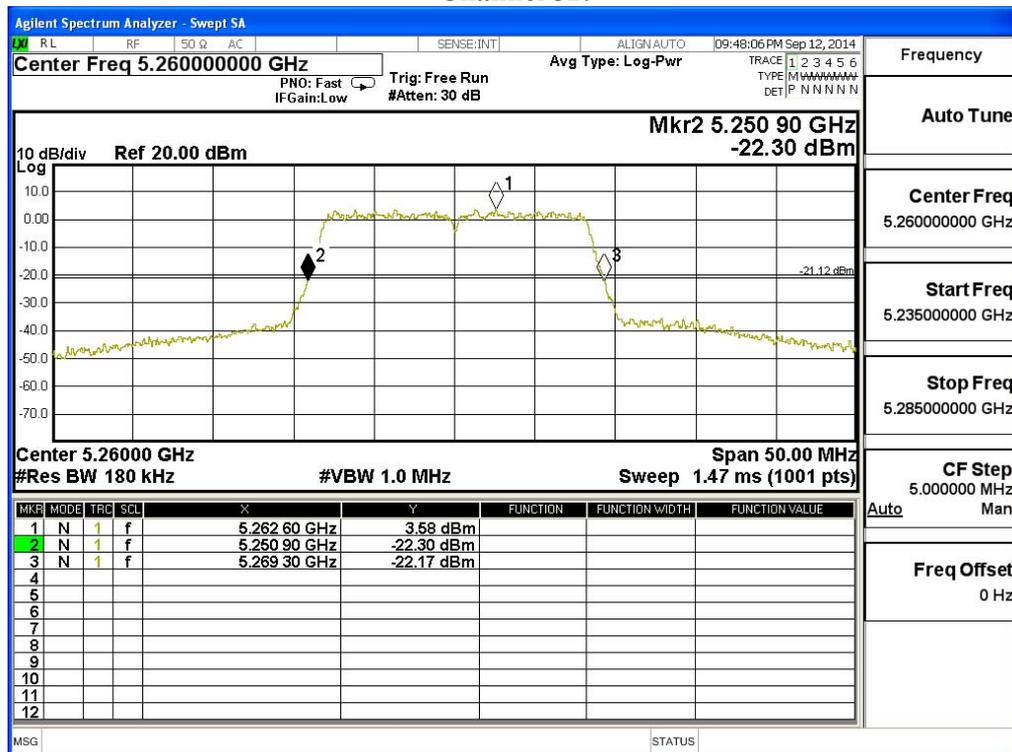
### Channel 44:



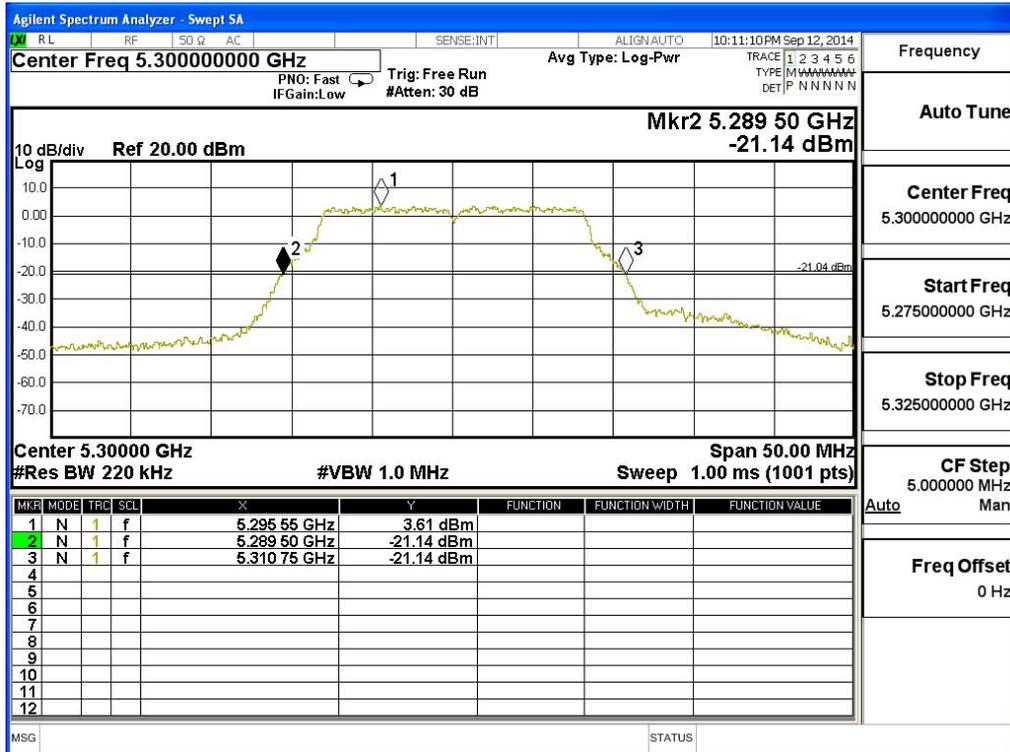
### Channel 48:



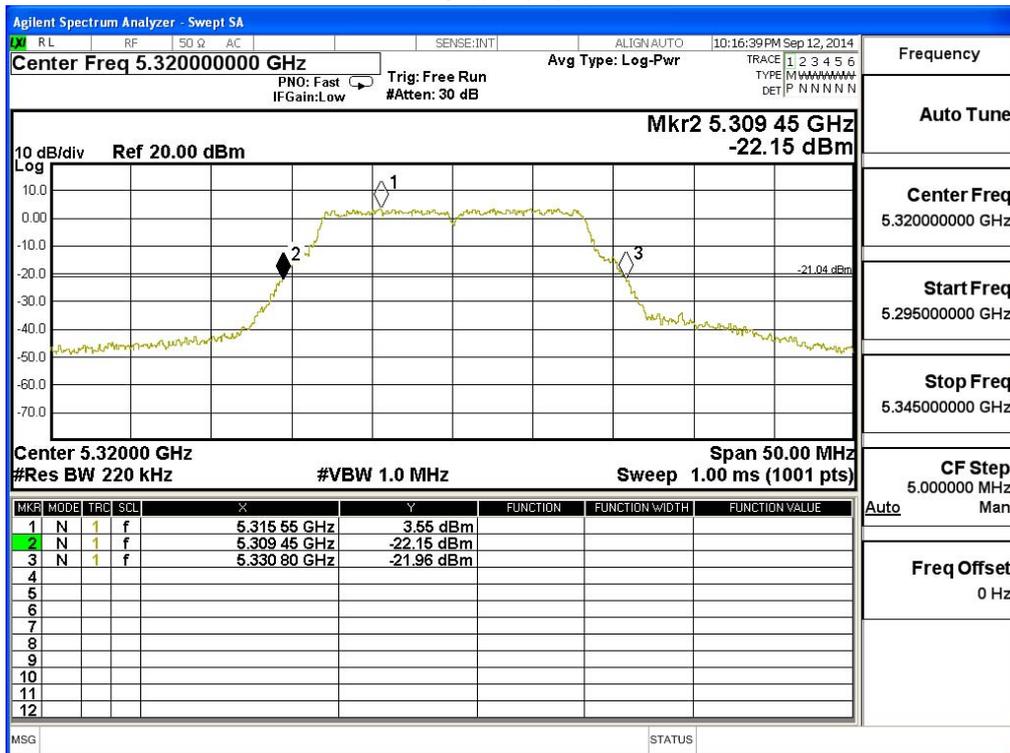
### Channel 52:



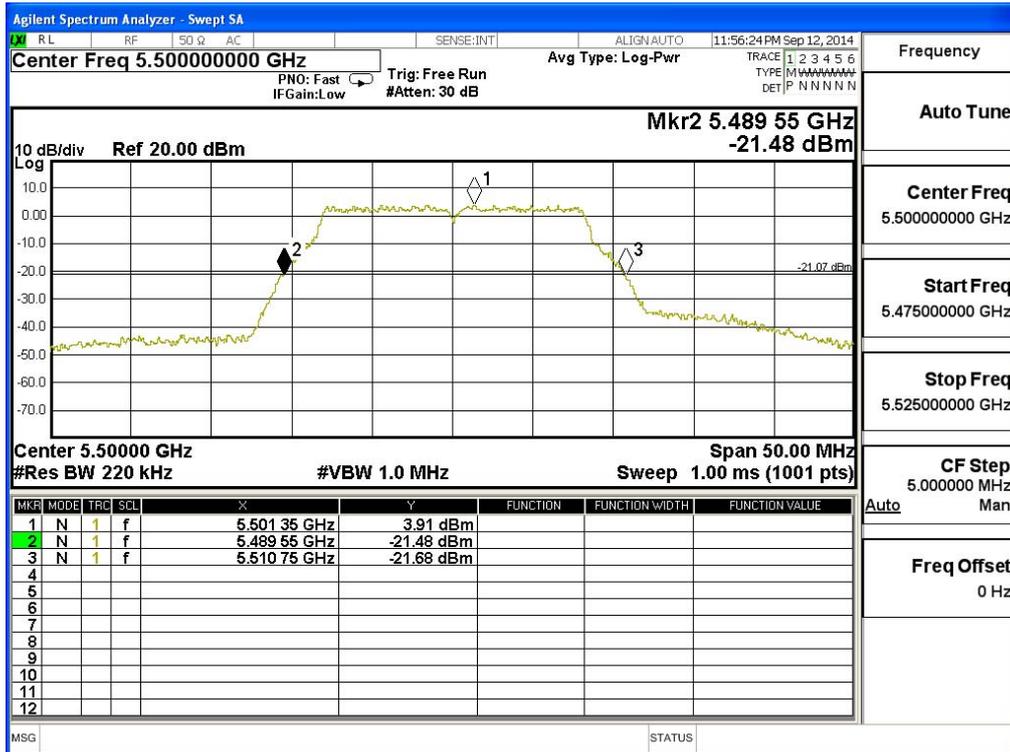
**Channel 60:**



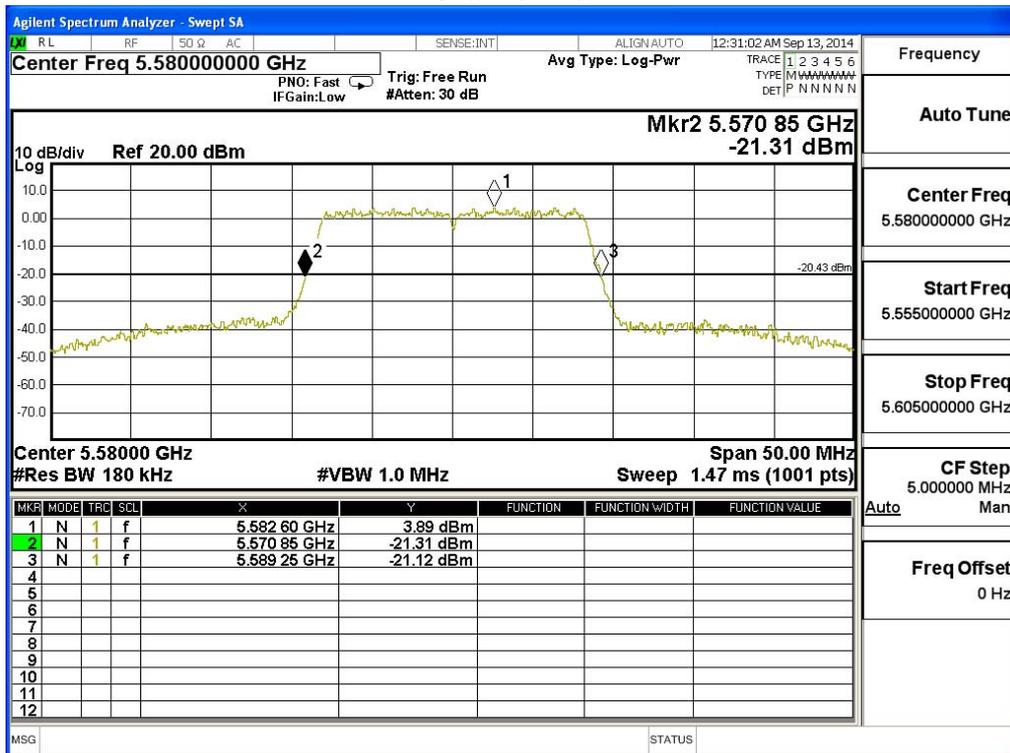
**Channel 64:**



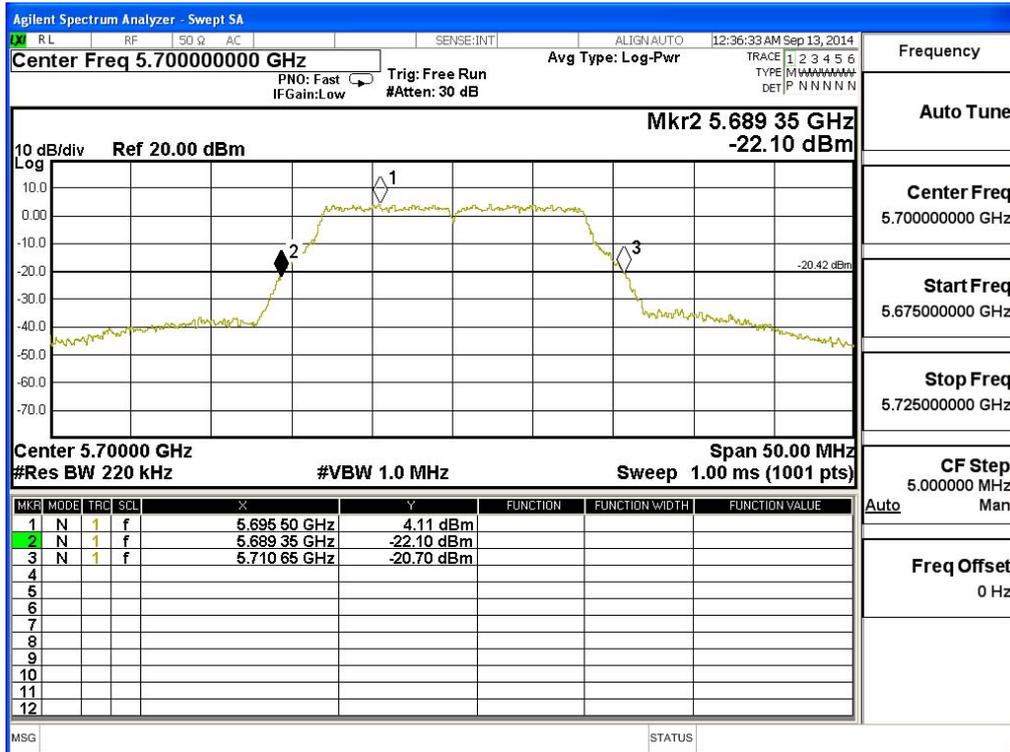
**Channel 100:**



**Channel 116:**



**Channel 140:**



Product : Nexus Player  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)

**CHAIN A**

| Cable loss=1dB |                 | Maximum conducted output power |       |       |       |       |       |       |       |                |
|----------------|-----------------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No.    | Frequency (MHz) | Data Rate (Mbps)               |       |       |       |       |       |       |       | Required Limit |
|                |                 | 14.4                           | 28.9  | 43.3  | 57.8  | 86.7  | 115.6 | 130   | 144.4 |                |
|                |                 | Measurement Level (dBm)        |       |       |       |       |       |       |       |                |
| 36             | 5180            | 11.30                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 44             | 5220            | 11.28                          | 11.11 | 10.98 | 10.82 | 10.67 | 10.52 | 10.37 | 10.22 | <24dBm         |
| 48             | 5240            | 11.04                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 52             | 5260            | 11.69                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 60             | 5300            | 11.60                          | 11.47 | 11.26 | 11.10 | 10.93 | 10.76 | 10.59 | 10.42 | <24dBm         |
| 64             | 5320            | 11.54                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 100            | 5500            | 11.55                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 116            | 5580            | 11.62                          | 11.42 | 11.31 | 11.14 | 10.99 | 10.83 | 10.68 | 10.52 | <24dBm         |
| 140            | 5700            | 11.74                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**CHAIN B**

| Cable loss=1dB |                 | Maximum conducted output power |       |       |       |       |       |       |       |                |
|----------------|-----------------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No.    | Frequency (MHz) | Data Rate (Mbps)               |       |       |       |       |       |       |       | Required Limit |
|                |                 | 14.4                           | 28.9  | 43.3  | 57.8  | 86.7  | 115.6 | 130   | 144.4 |                |
|                |                 | Measurement Level (dBm)        |       |       |       |       |       |       |       |                |
| 36             | 5180            | 9.21                           | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 44             | 5220            | 10.01                          | 9.88  | 9.74  | 9.61  | 9.47  | 9.34  | 9.20  | 9.07  | <24dBm         |
| 48             | 5240            | 10.01                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 52             | 5260            | 10.59                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 60             | 5300            | 10.44                          | 10.31 | 10.19 | 10.06 | 9.94  | 9.81  | 9.69  | 9.56  | <24dBm         |
| 64             | 5320            | 10.90                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 100            | 5500            | 10.91                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |
| 116            | 5580            | 10.91                          | 10.82 | 10.66 | 10.55 | 10.42 | 10.30 | 10.17 | 10.05 | <24dBm         |
| 140            | 5700            | 10.92                          | --    | --    | --    | --    | --    | --    | --    | <24dBm         |

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

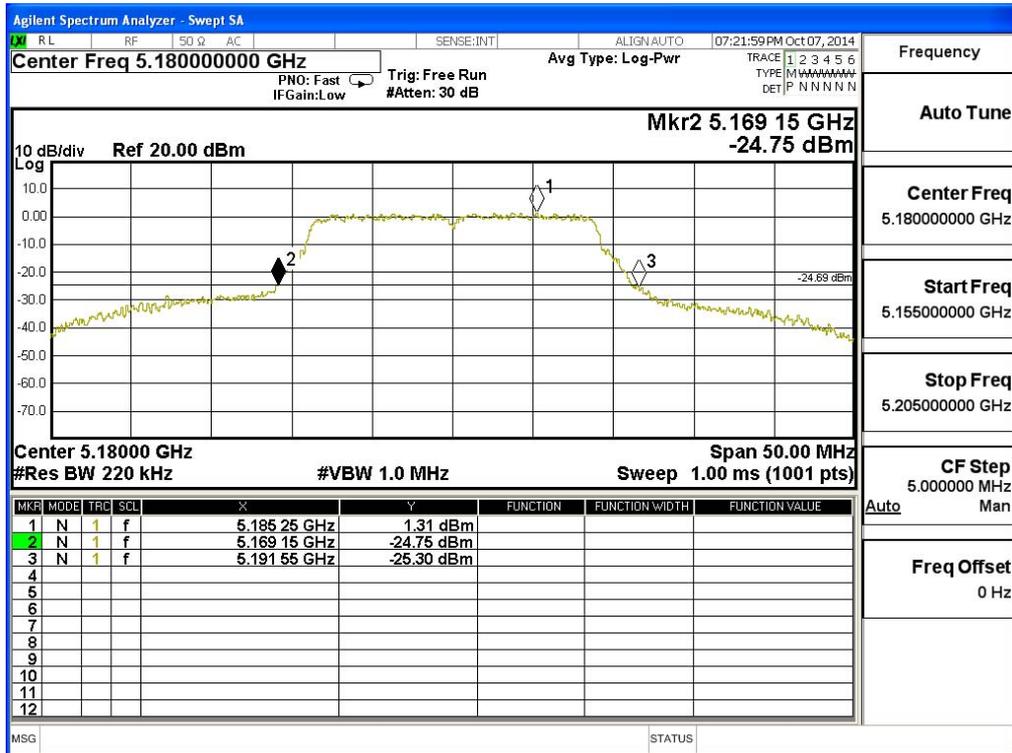
**Maximum conducted output power Measurement:**
**(CHAIN A+ B)**

| Channel Number | Frequency (MHz) | 26dB Bandwidth (MHz) | Chain A Power (dBm) | Chain B Power (dBm) | Output Power (dBm) | Output Power Limit |               |
|----------------|-----------------|----------------------|---------------------|---------------------|--------------------|--------------------|---------------|
|                |                 |                      |                     |                     |                    | (dBm)              | dBm+10log(BW) |
| 36             | 5180            | 21.850               | 11.30               | 9.21                | 13.39              | 24                 | 24.39         |
| 44             | 5220            | 21.650               | 11.28               | 10.01               | 13.70              | 24                 | 24.35         |
| 48             | 5240            | 18.850               | 11.04               | 10.01               | 13.57              | 24                 | 23.75         |
| 52             | 5260            | 18.850               | 11.69               | 10.59               | 14.19              | 24                 | 23.75         |
| 60             | 5300            | 21.550               | 11.60               | 10.44               | 14.07              | 24                 | 24.33         |
| 64             | 5320            | 21.700               | 11.54               | 10.90               | 14.24              | 24                 | 24.36         |
| 100            | 5500            | 21.650               | 11.55               | 10.91               | 14.25              | 24                 | 24.35         |
| 116            | 5580            | 18.950               | 11.62               | 10.91               | 14.29              | 24                 | 23.78         |
| 140            | 5700            | 21.850               | 11.74               | 10.92               | 14.36              | 24                 | 24.39         |

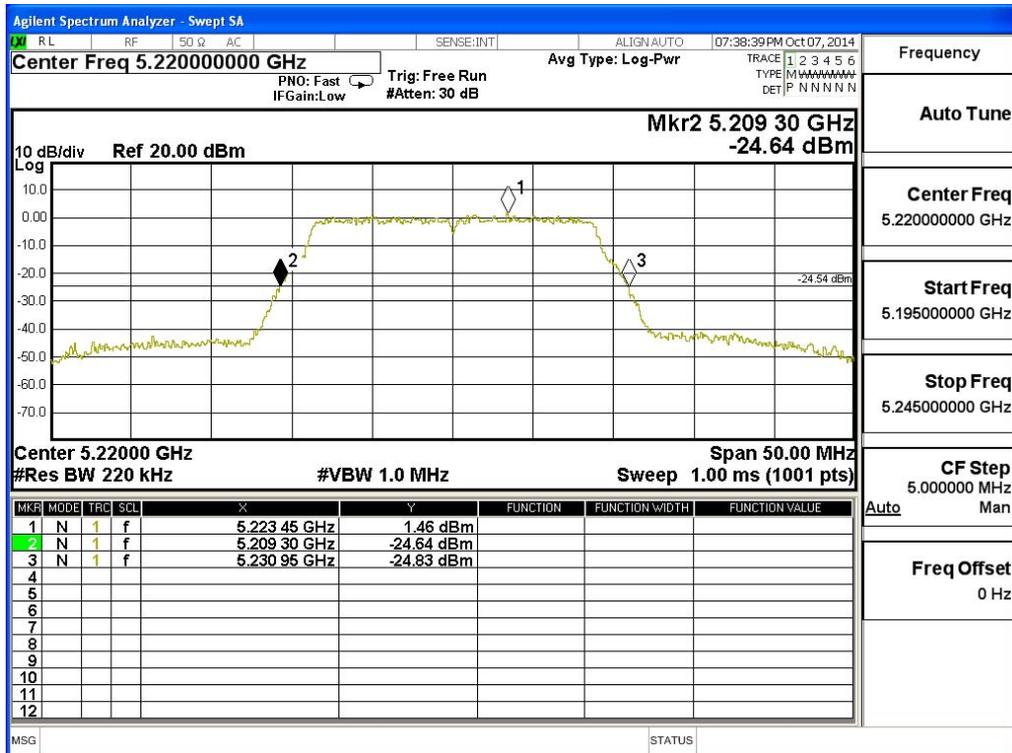
Note:

1. Power Output Value = Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))
3. 26 dB Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

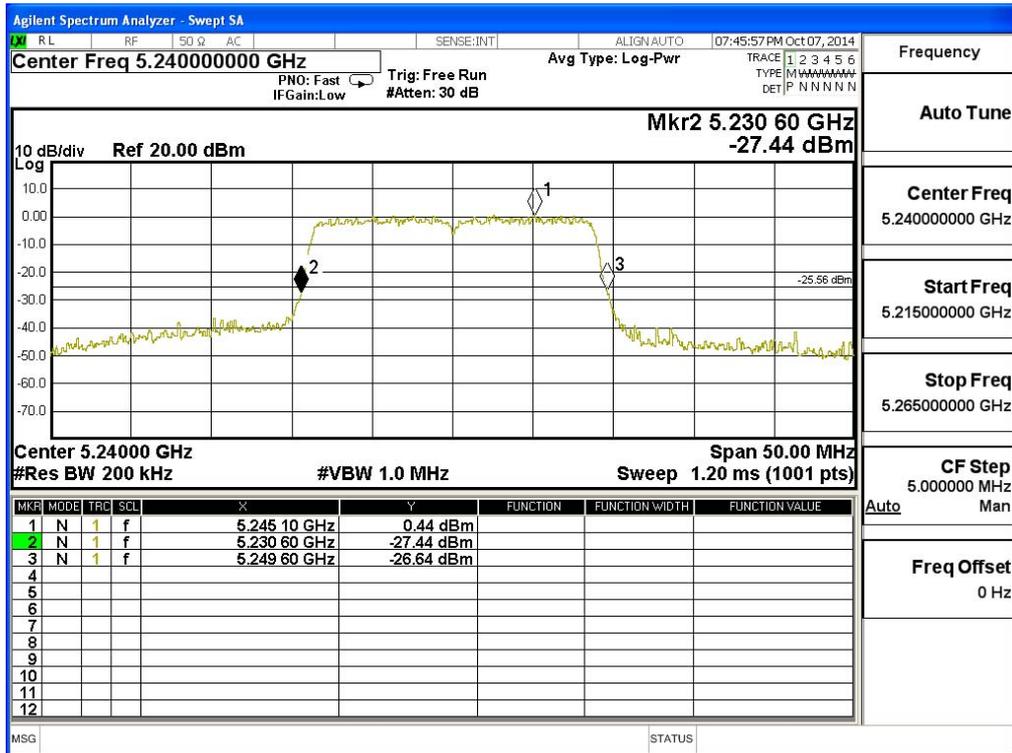
### 26dBc Occupied Bandwidth: Channel 36 -Chain A



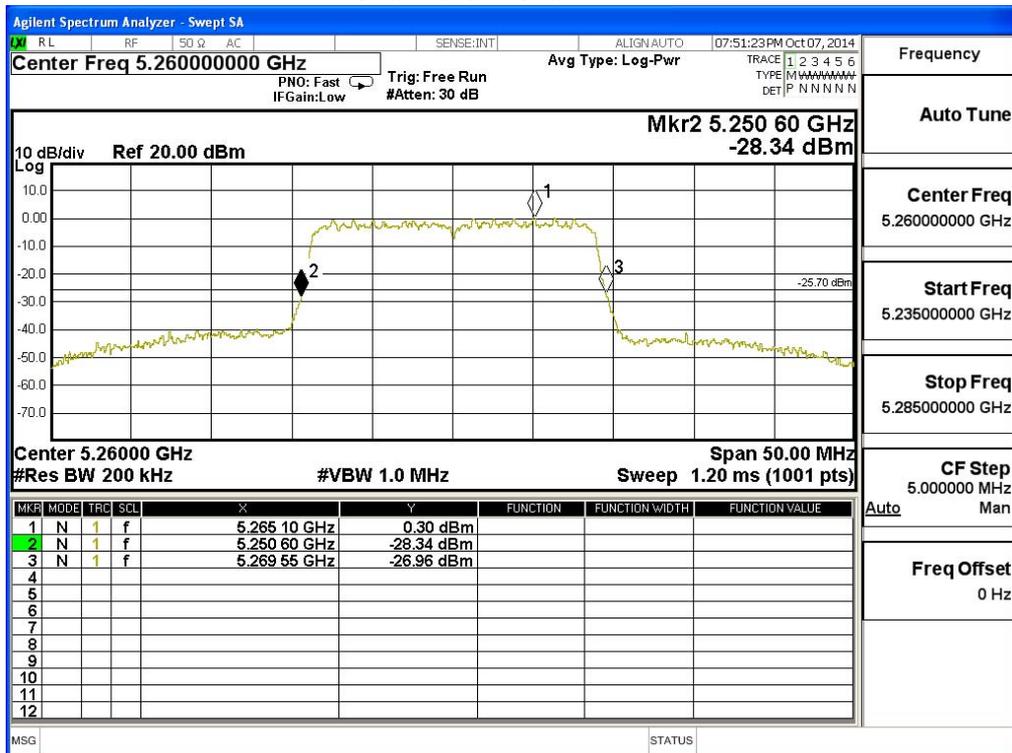
### Channel 44 -Chain A



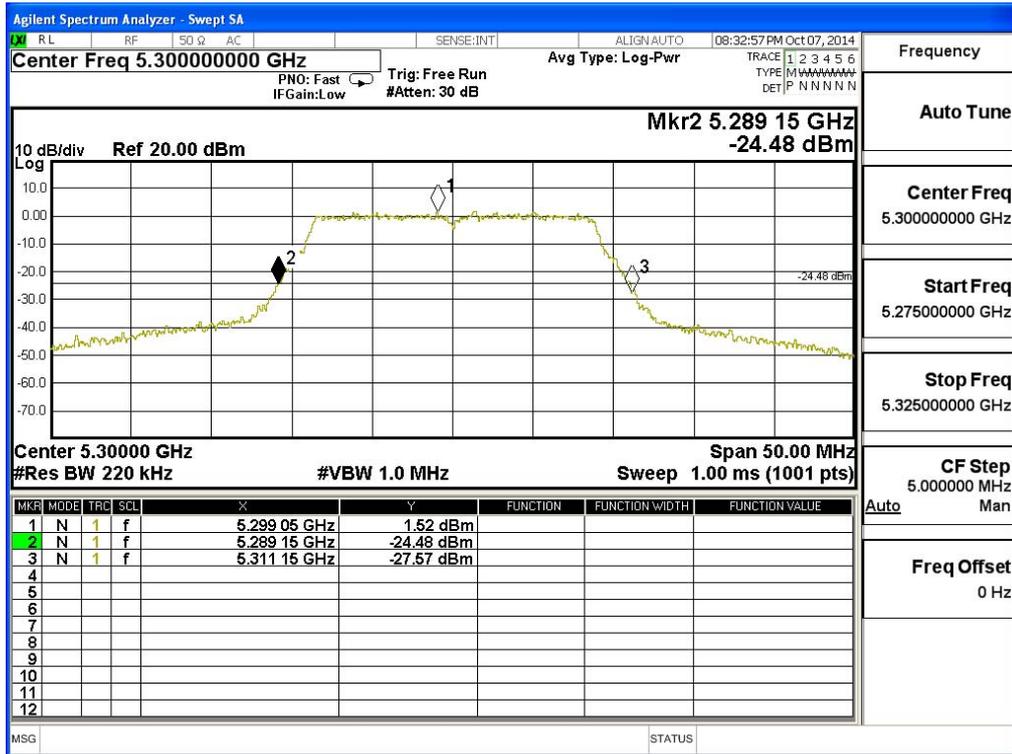
### Channel 48 -Chain A



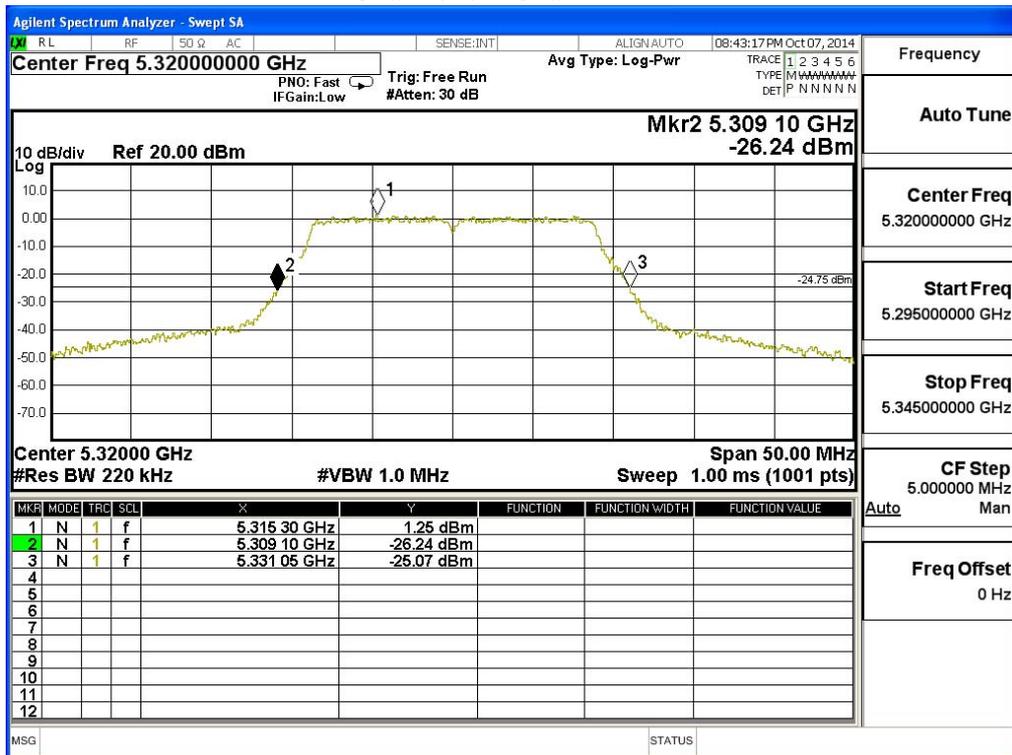
### Channel 52 -Chain A



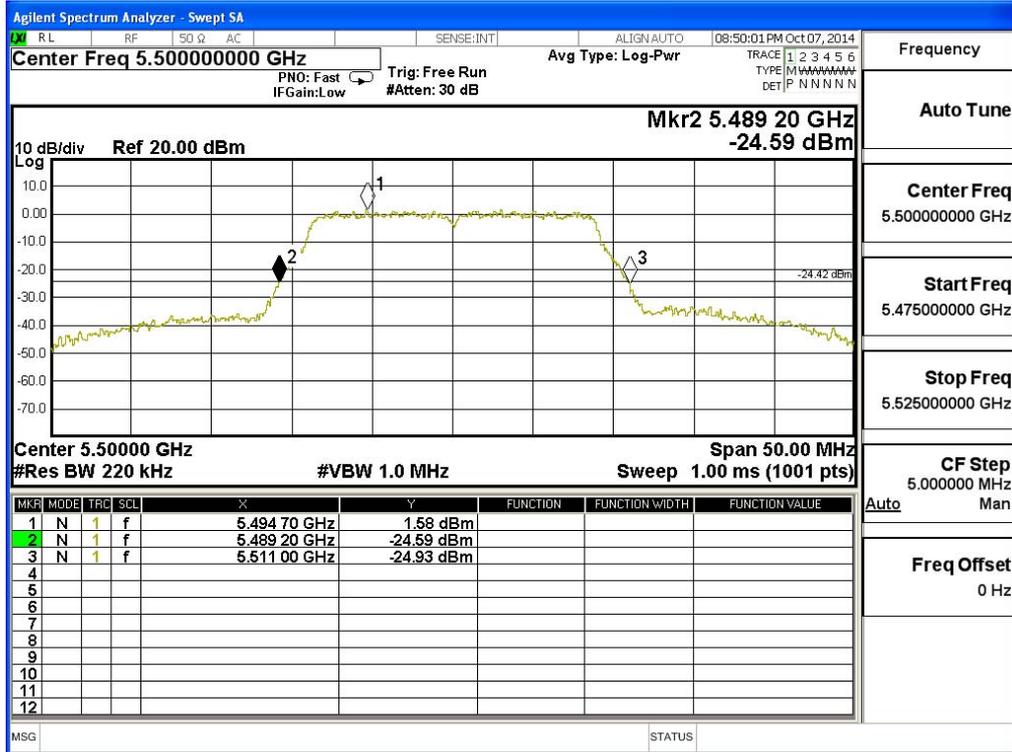
### Channel 60 -Chain A



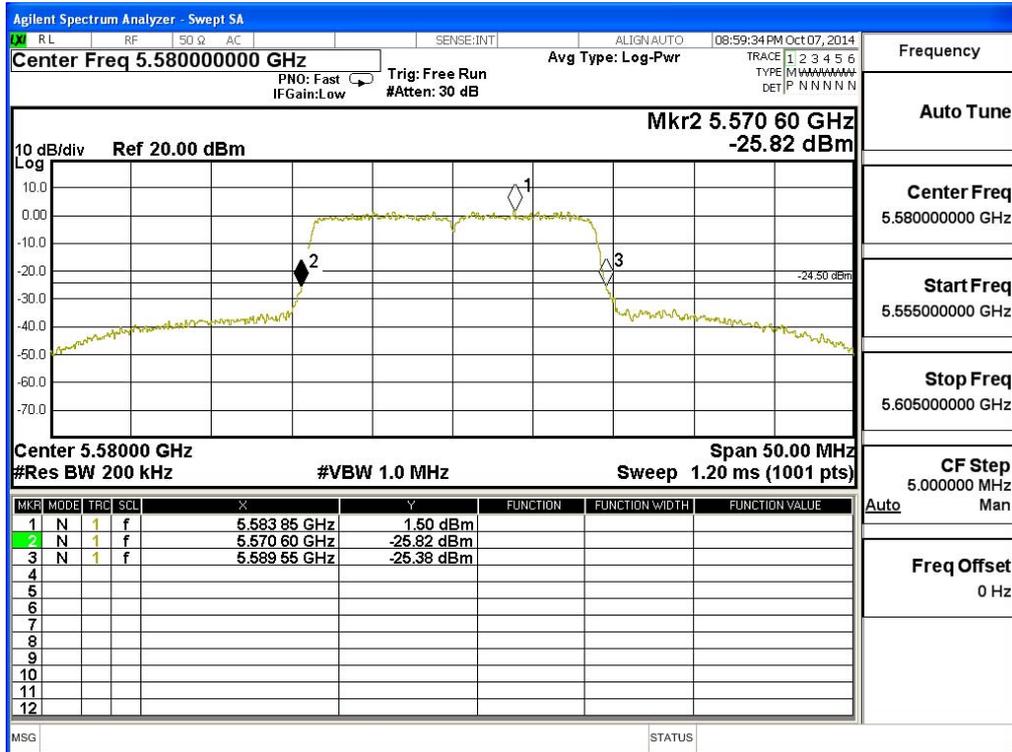
### Channel 64 -Chain A



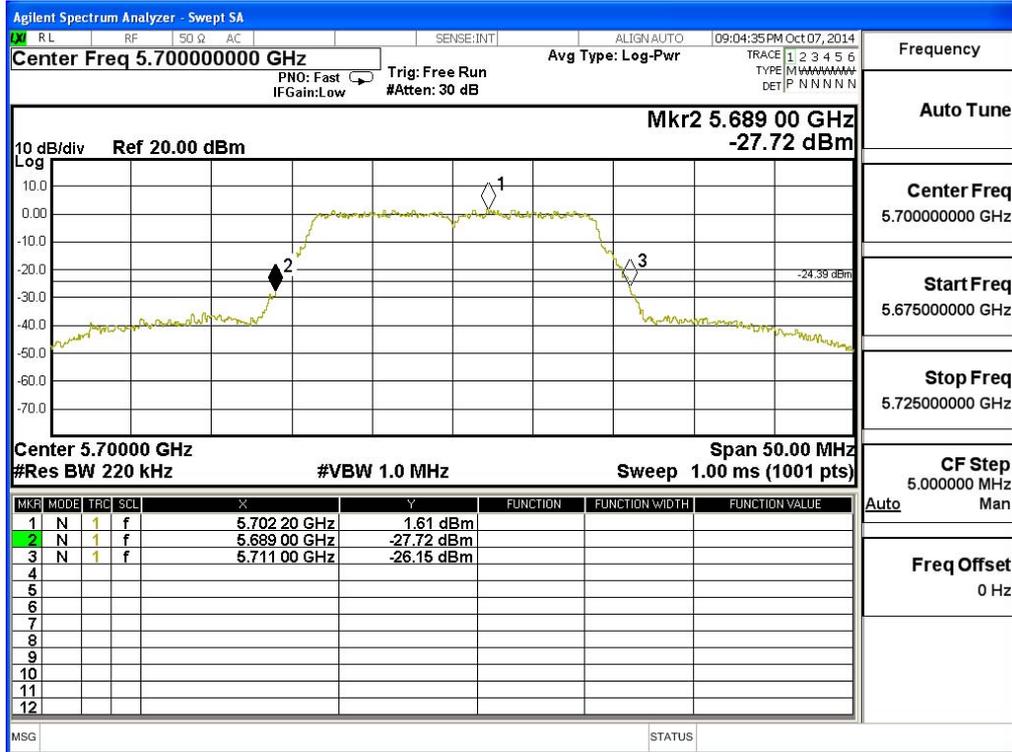
### Channel 100 -Chain A



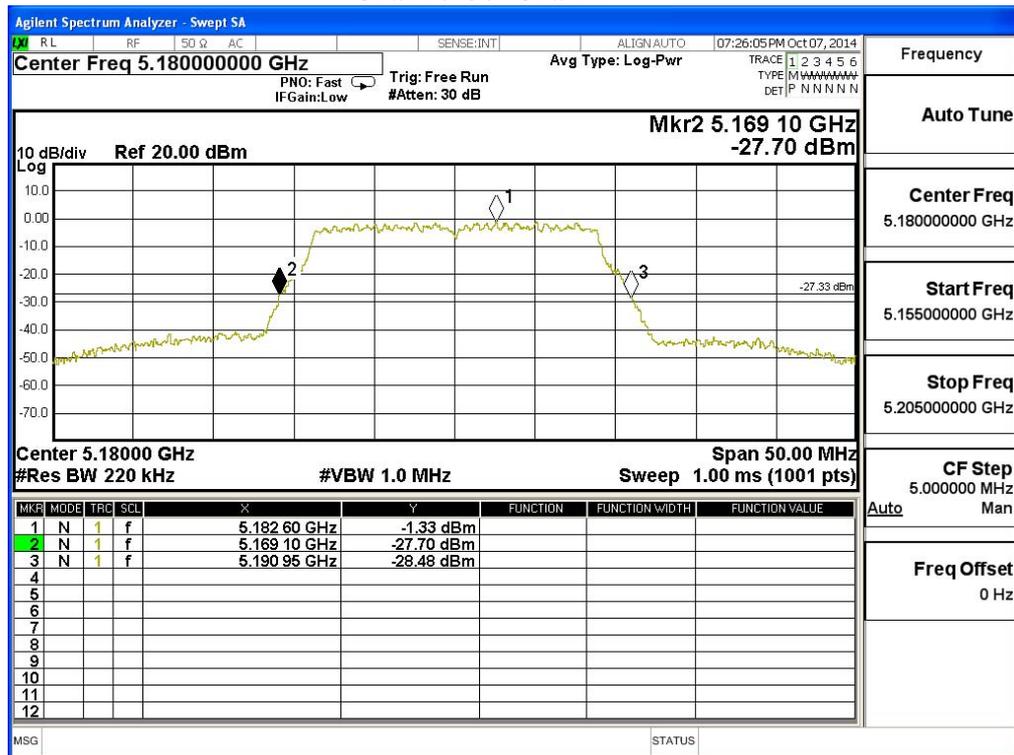
### Channel 116 -Chain A



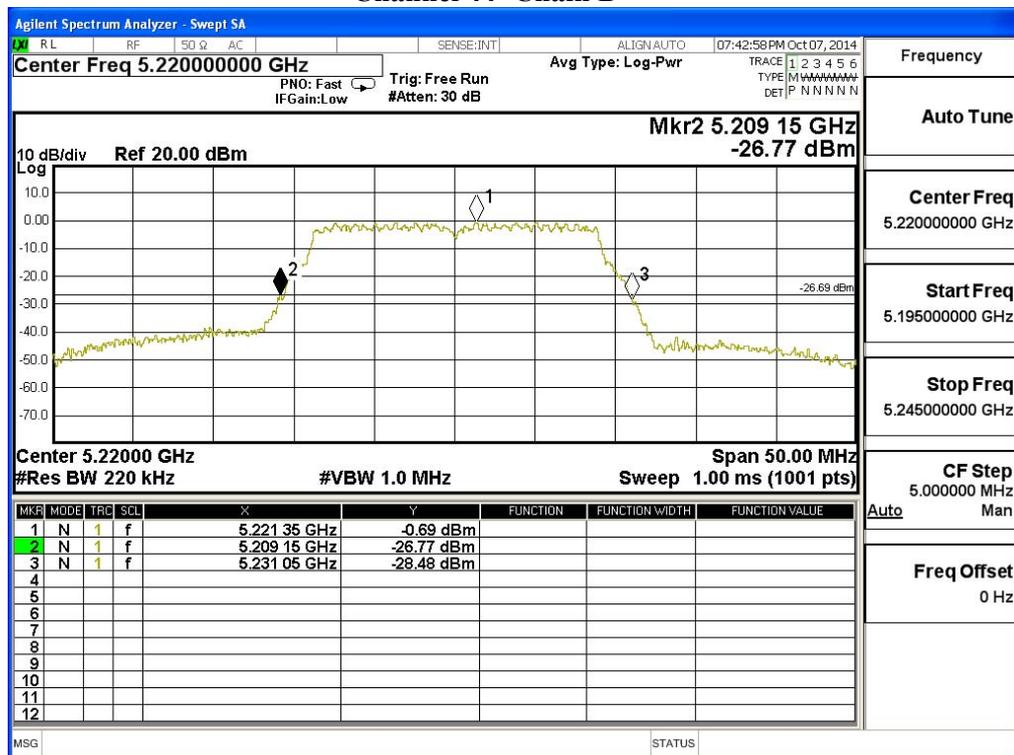
**Channel 140 -Chain A**



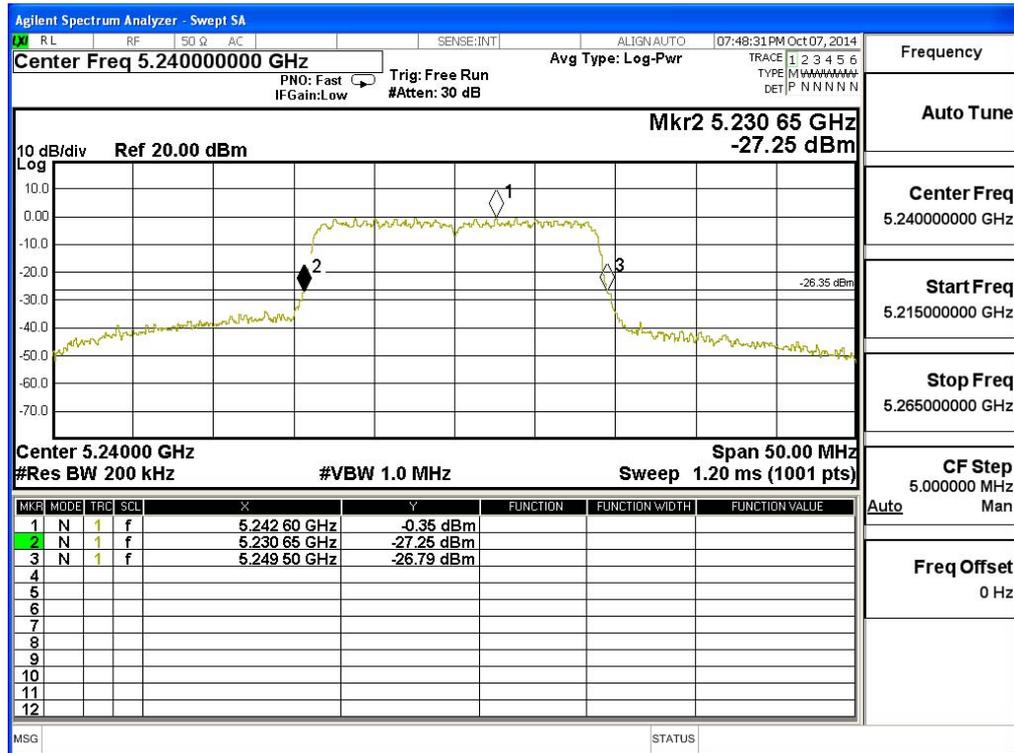
### 26dBc Occupied Bandwidth: Channel 36 -Chain B



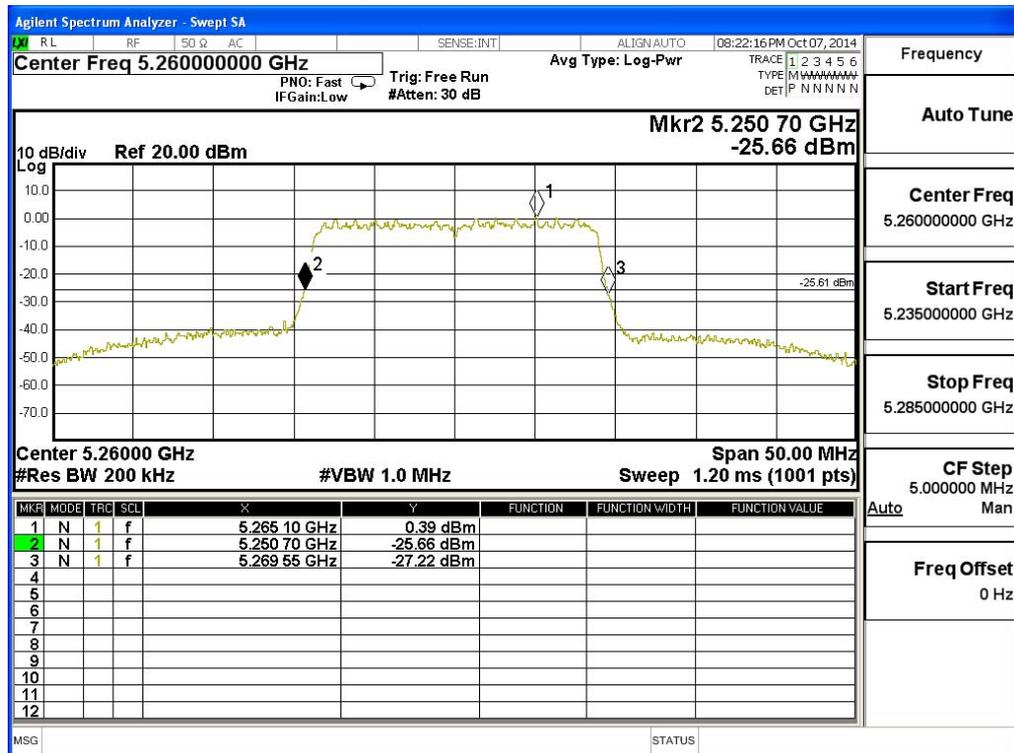
### Channel 44 -Chain B



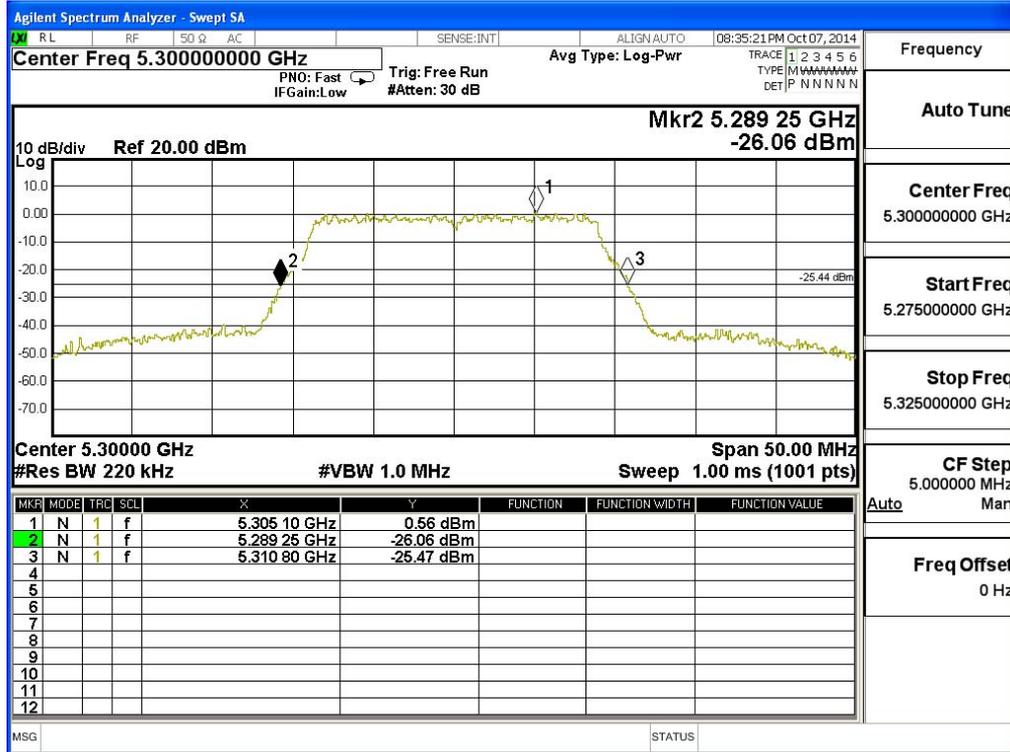
### Channel 48 -Chain B



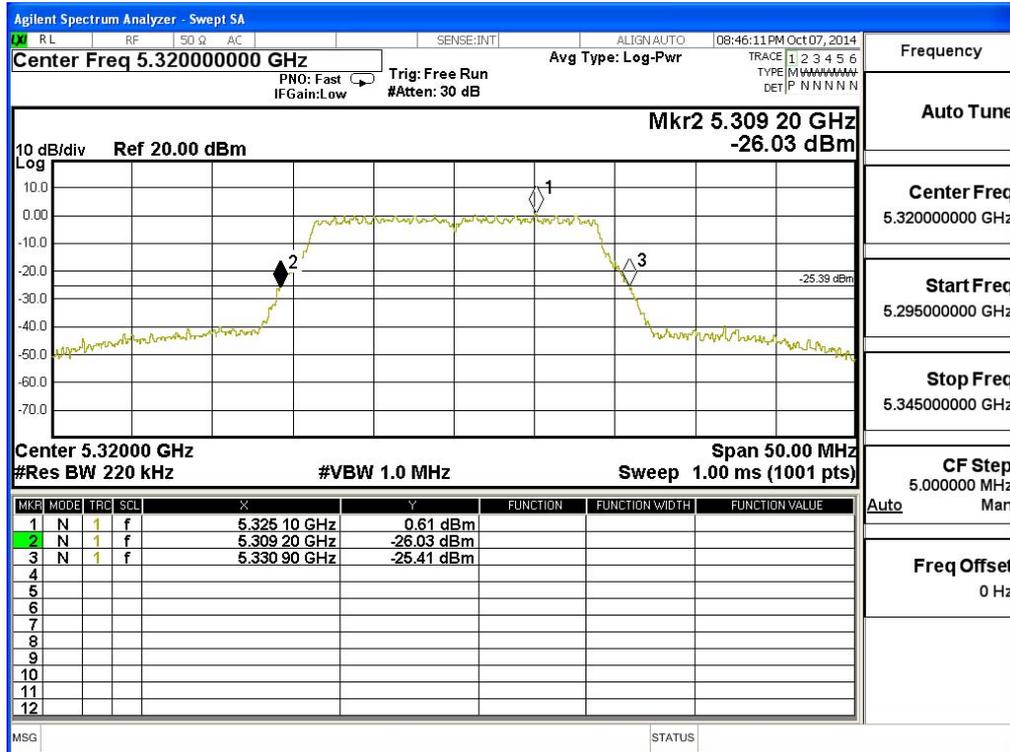
### Channel 52 -Chain B



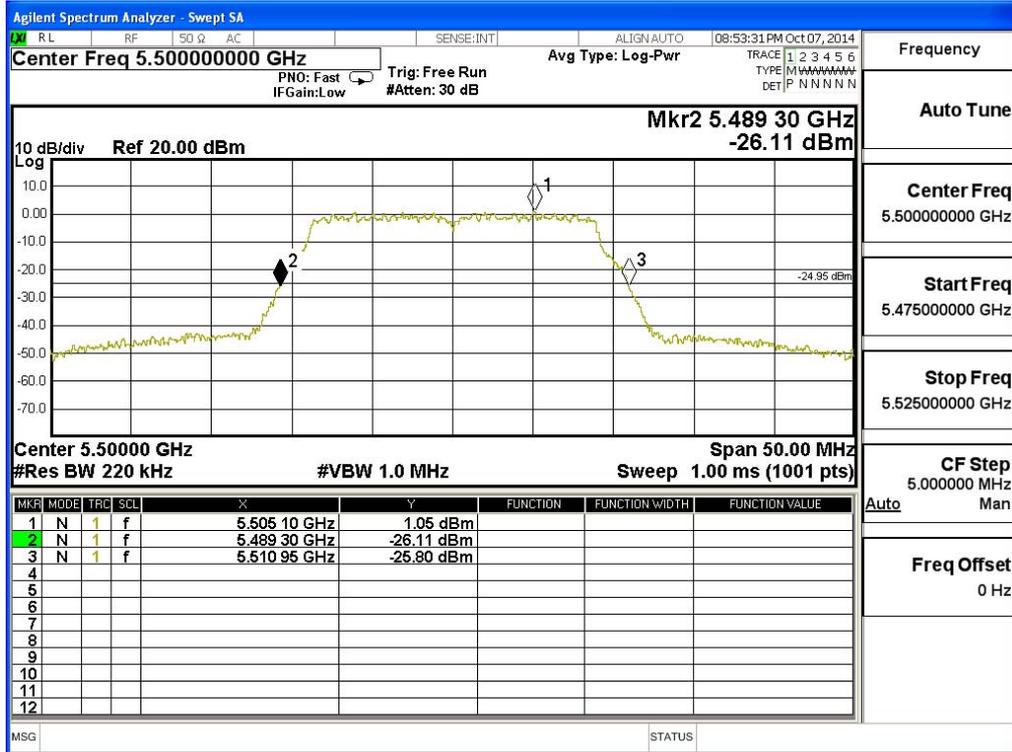
### Channel 60 -Chain B



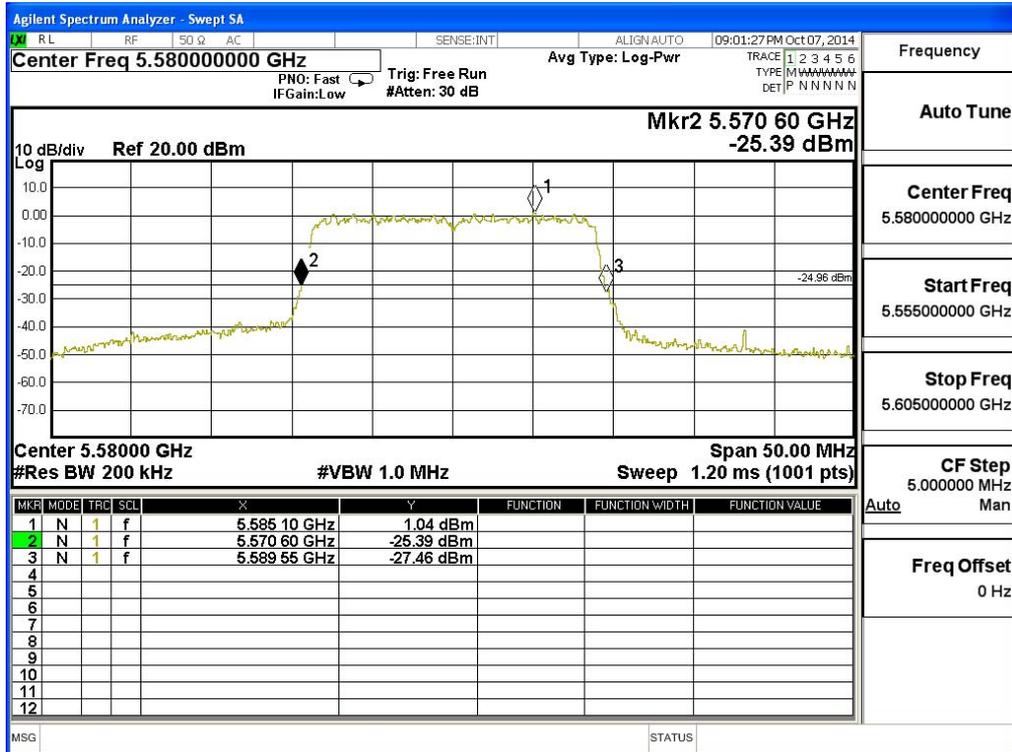
### Channel 64 -Chain B



### Channel 100 -Chain B



### Channel 116 -Chain B



### Channel 140 -Chain B

