

# RF TEST REPORT



Report No.: FCC\_RF\_SL14091001-RUC-017A2 Rev 2.0

Supersede Report No.: FCC\_RF\_SL14091001-RUC-017A2 Rev 1.0

|                                                                               |   |                                                                            |
|-------------------------------------------------------------------------------|---|----------------------------------------------------------------------------|
| Applicant                                                                     | : | Ruckus Wireless, Inc.                                                      |
| Product Name                                                                  | : | Wireless Bridge                                                            |
| Model No.                                                                     | : | P300                                                                       |
| Test Standard                                                                 | : | 47 CFR 15.407                                                              |
| Test Method                                                                   | : | ANSI C63.10: 2013<br>789033 D02 General UNII Test Procedures New Rules v01 |
| FCC ID                                                                        | : | S9GP300                                                                    |
| IC ID                                                                         | : | 5912A-P300                                                                 |
| Dates of test                                                                 | : | 05/20/2015 to 05/21/2015                                                   |
| Issue Date                                                                    | : | 07/28/2015                                                                 |
| Test Result                                                                   | : | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail     |
| Equipment complied with the specification <input checked="" type="checkbox"/> |   |                                                                            |
| Equipment did not comply with the specification <input type="checkbox"/>      |   |                                                                            |

|                                                                                                                                      |                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| This Test Report is Issued Under the Authority of:                                                                                   |                                                                                      |
|                                                   |  |
| <b>Ricky Wang</b>                                                                                                                    | <b>David Zhang</b>                                                                   |
| Test Engineer                                                                                                                        | Engineer Reviewer                                                                    |
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Issued By:  
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## Laboratory Introduction

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| Country/Region | Accreditation Body     | Scope                             |
|----------------|------------------------|-----------------------------------|
| USA            | FCC, A2LA              | EMC, RF/Wireless, Telecom         |
| Canada         | IC, A2LA, NIST         | EMC, RF/Wireless, Telecom         |
| Taiwan         | BSMI, NCC, NIST        | EMC, RF, Telecom, Safety          |
| Hong Kong      | OFTA, NIST             | RF/Wireless, Telecom              |
| Australia      | NATA, NIST             | EMC, RF, Telecom, Safety          |
| Korea          | KCC/RRR, NIST          | EMI, EMS, RF, Telecom, Safety     |
| Japan          | VCCI, JATE, TELEC, RFT | EMI, RF/Wireless, Telecom         |
| Mexico         | NOM, COFETEL, Caniety  | Safety, EMC, RF/Wireless, Telecom |
| Europe         | A2LA, NIST             | EMC, RF, Telecom, Safety          |
| Israel         | MOC, NIST              | EMC, RF, Telecom, Safety          |

### Accreditations for Product Certifications

| Country   | Accreditation Body | Scope                 |
|-----------|--------------------|-----------------------|
| USA       | FCC TCB, NIST      | EMC, RF, Telecom      |
| Canada    | IC FCB, NIST       | EMC, RF, Telecom      |
| Singapore | iDA, NIST          | EMC, RF, Telecom      |
| EU        | NB                 | EMC & R&TTE Directive |
| Japan     | MIC (RCB 208)      | RF, Telecom           |
| Hong Kong | OFTA (US002)       | RF, Telecom           |

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## 1 Report Revision History

| Report No.                          | Report Version | Description                 | Issue Date |
|-------------------------------------|----------------|-----------------------------|------------|
| FCC_RF_SL14091001-RUC-017A2         | None           | Original                    | 05/21/2015 |
| FCC_RF_SL14091001-RUC-017A2 Rev 1.0 | Rev 1.0        | Updated antenna information | 07/06/2015 |
| FCC_RF_SL14091001-RUC-017A2 Rev 2.0 | Rev 2.0        | Updated test summary        | 07/28/2015 |
|                                     |                |                             |            |
|                                     |                |                             |            |
|                                     |                |                             |            |

## 2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: Ruckus Wireless, Inc.  
Product: Wireless Bridge  
Model: P300

against the current Stipulated Standards. This report does not demonstrate the specified model product to be fully compliance with Stipulated Standard listed on 1<sup>st</sup> page. It contains additional test data for the EUT operating under Point-to-Multipoint operation mode and need to cross reference with original FCC test report to be demonstrated fully compliance with FCC rules. Reference to original FCC test report number: FCC\_RF\_SL14091001-RUC-017\_UNII Rev3.0

## 3 Customer information

|                      |   |                                                        |
|----------------------|---|--------------------------------------------------------|
| Applicant Name       | : | Ruckus Wireless, Inc.                                  |
| Applicant Address    | : | 350 West Java Drive, Sunnyvale, California 94089 U.S.A |
| Manufacturer Name    | : | Ruckus Wireless, Inc.                                  |
| Manufacturer Address | : | 350 West Java Drive, Sunnyvale, California 94089 U.S.A |

## 4 Test site information

|                      |                                             |
|----------------------|---------------------------------------------|
| Lab performing tests | SIEMIC Laboratories                         |
| Lab Address          | 775 Montague Expressway, Milpitas, CA 95035 |
| FCC Test Site No.    | 881796                                      |
| IC Test Site No.     | 4842D-2                                     |
| VCCI Test Site No.   | A0133                                       |

## 5 Modification

| Index | Item | Description | Note |
|-------|------|-------------|------|
| -     | -    | -           | -    |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |

## 6 EUT Information

### 6.1 EUT Description

|                           |   |                 |
|---------------------------|---|-----------------|
| Product Name              | : | Wireless Bridge |
| Model No.                 | : | P300            |
| Trade Name                | : | Ruckus          |
| Serial No.                | : | 111573903705    |
| Host Model No.            | : | N/A             |
| Input Power               | : | 48VDC (PoE)     |
| Power Adapter Manu/Model  | : | N/A             |
| Power Adapter SN          | : | N/A             |
| Date of EUT received      | : | 03/25/2015      |
| Equipment Class/ Category | : | UNII            |
| Clock Frequencies         | : | N/A             |
| Port/Connectors           | : | PoE, Ethernet   |

### 6.2 Radio Description

| Radio Type             | 802.11a                                                                                                                                                                                                                           | 802.11n-HT20                    | 802.11n-HT40                    | 802.11ac                        |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Operating Frequency    | 5180-5240MHz<br>5745-5825MHz                                                                                                                                                                                                      | 5180-5240MHz<br>5745-5825MHz    | 5190-5230MHz<br>5755-5795MHz    | 5210MHz<br>5775MHz              |
| Modulation             | OFDM (BPSK, QPSK, 16QAM, 64QAM)                                                                                                                                                                                                   | OFDM (BPSK, QPSK, 16QAM, 64QAM) | OFDM (BPSK, QPSK, 16QAM, 64QAM) | OFDM (BPSK, QPSK, 16QAM, 64QAM) |
| Channel Spacing        | 20MHz                                                                                                                                                                                                                             | 20MHz                           | 40MHz                           | 80MHz                           |
| Number of Channels     | 9                                                                                                                                                                                                                                 | 9                               | 5                               | 2                               |
| Antenna Type           | Internal Antenna/External Antenna                                                                                                                                                                                                 |                                 |                                 |                                 |
| Antenna Gain (Peak)    | Internal:14dBi<br>External1:21dBi<br>External2:24dBi                                                                                                                                                                              |                                 |                                 |                                 |
| Antenna Connector Type | Internal_14dBi: U.FL<br>External1_21dBi: N-Type<br>External2_24dBi: N-Type                                                                                                                                                        |                                 |                                 |                                 |
| Note                   | EUT has 3 antenna sets , 1internal antenna with 14dBi gain, 1 external antenna with 21dBi gain and 1 external antenna with 24dBi gain. All antennas are dual polarized directional antennas. 3 anrennas shall be used separately. |                                 |                                 |                                 |

## EUT Power Level Settings

| Band   | Mode         | Frequency | 14dBi antenna | 21dBi antenna | 24dBi antenna |
|--------|--------------|-----------|---------------|---------------|---------------|
| 5.2GHz | 802.11-a     | 5180      | 22            | 15            | 12            |
|        |              | 5200      | 22            | 15            | 12            |
|        |              | 5240      | 22            | 15            | 12            |
|        | 802.11n-HT20 | 5180      | 22            | 15            | 13            |
|        |              | 5200      | 22            | 15            | 13            |
|        |              | 5240      | 22            | 15            | 12            |
|        | 802.11n-HT40 | 5190      | 20            | 18            | 15            |
|        |              | 5230      | 22            | 18            | 15            |
|        | 802.11ac     | 5210      | 18            | 14            | 8             |
| 5.8GHz | 802.11-a     | 5745      | 22            | 18            | 14            |
|        |              | 5785      | 22            | 17            | 14            |
|        |              | 5825      | 22            | 18            | 15            |
|        | 802.11n-HT20 | 5745      | 22            | 18            | 15            |
|        |              | 5785      | 22            | 17            | 14            |
|        |              | 5825      | 22            | 18            | 15            |
|        | 802.11n-HT40 | 5755      | 22            | 18            | 15            |
|        |              | 5795      | 22            | 17            | 14            |
|        | 802.11ac     | 5775      | 21            | 13            | 14            |

## 7 Supporting Equipment/Software and cabling Description

### 7.1 Supporting Equipment

| Item | Supporting Equipment Description | Model                | Serial Number | Manufacturer | Note |
|------|----------------------------------|----------------------|---------------|--------------|------|
| 1    | Laptop                           | PP01L Latitude E5440 | F1WPF12       | Dell         | -    |
| 2    | POE Adapter                      | 740-64157-001        | 133279963     | Ruckus       | -    |
|      |                                  |                      |               |              |      |

### 7.2 Cabling Description

| Name | Connection Start |          | Connection Stop |          | Length / shielding Info |            | Note |
|------|------------------|----------|-----------------|----------|-------------------------|------------|------|
|      | From             | I/O Port | To              | I/O Port | Length (m)              | Shielding  |      |
| RJ45 | EUT              | RJ45     | POE             | RJ45     | 2                       | Unshielded | -    |
| RJ45 | POE              | RJ45     | Laptop          | RJ45     | 3                       | Unshielded | -    |

### 7.3 Test Software Description

| Test Item  | Software                | Description                                                              |
|------------|-------------------------|--------------------------------------------------------------------------|
| RF Testing | Command Line in windows | Set the EUT to transmit continuously in diferent test modes and channels |
|            |                         |                                                                          |
|            |                         |                                                                          |



## 8 Test Summary

| Test Item                      | Test standard |           | Test Method/Procedure                                                      | Pass / Fail                                                              |
|--------------------------------|---------------|-----------|----------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Restricted Band of Operation   | FCC           | 15.205    | ANSI C63.10: 2013<br>789033 D02 General UNII Test Procedures New Rules v01 | <input type="checkbox"/> Pass<br><input checked="" type="checkbox"/> N/A |
| AC Conducted Emissions Voltage | FCC           | 15.207(a) | ANSI C63.10: 2013                                                          | <input type="checkbox"/> Pass<br><input checked="" type="checkbox"/> N/A |

| Test Item                                 | Test standard |                               | Test Method/Procedure                                                      | Pass / Fail                                                              |
|-------------------------------------------|---------------|-------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 26 & 6 dB Emission Bandwidth              | FCC           | 15.407 (a) (2)                | 789033 D02 General UNII Test Procedures New Rules v01                      | <input type="checkbox"/> Pass<br><input checked="" type="checkbox"/> N/A |
| Maximum conducted Output Power            | FCC           | 15.407 (a) (2)                | 789033 D02 General UNII Test Procedures New Rules v01                      | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Power reduction (Antenna Gain > 6 dBi)    | FCC           | 15.407 (a) (2)                | -                                                                          | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Band Edge and Radiated Spurious Emissions | FCC           | 15.407(b)(2),<br>15.407(b)(6) | ANSI C63.10: 2013<br>789033 D02 General UNII Test Procedures New Rules v01 | <input type="checkbox"/> Pass<br><input checked="" type="checkbox"/> N/A |
| Power Spectral Density                    | FCC           | 15.407 (a) (2)                | 789033 D02 General UNII Test Procedures New Rules v01                      | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Frequency Stability                       | FCC           | 15.407 (g)                    | -                                                                          | <input type="checkbox"/> Pass<br><input checked="" type="checkbox"/> N/A |
| Transmit Power Control (TPC)              | FCC           | 15.407 (h)(1)                 | -                                                                          | <input type="checkbox"/> Pass<br><input checked="" type="checkbox"/> N/A |
| User Manual                               | FCC           | -                             | -                                                                          | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Remark | <ol style="list-style-type: none"> <li>All measurement uncertainties are not taken into consideration for all presented test result.</li> <li>The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual.</li> <li>Current report only contains additional test data for the EUT operating under Point-to-Multipoint operation mode. For complete test data, please reference to original FCC test report.</li> <li>N/A: Refer to reports FCC_RF_SL14091001-RUC-017A1_UNII and FCC_RF_SL14091001-RUC-017_UNII.</li> </ol> |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 9 Measurement Uncertainty

| Emissions                                 |                 |                                                                                                                                                 |               |
|-------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Test Item                                 | Frequency Range | Description                                                                                                                                     | Uncertainty   |
| Band Edge and Radiated Spurious Emissions | 30MHz – 1GHz    | Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m) | +5.6dB/-4.5dB |
| Band Edge and Radiated Spurious Emissions | 1GHz – 40GHz    | Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m) | +4.3dB/-4.1dB |

## 10 Measurements, Examination and Derived Results

### 10.1 Peak Output Power

#### Requirement(s):

| Spec     | Item       | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Applicable                          |
|----------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| § 15.407 | a)(1)(i)   | For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).                                                                                                                                                                                                                                                                                       | <input checked="" type="checkbox"/> |
|          | a)(1)(ii)  | For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/>            |
|          | a)(1)(iii) | For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. | <input type="checkbox"/>            |
|          | a)(1)(iv)  | For mobile and portable 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.                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/>            |
|          | a)(2)      | 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 26 dB emission bandwidth in megahertz.                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/>            |
|          | a)(3)      | For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input checked="" type="checkbox"/> |

|            |                                                                                      |
|------------|--------------------------------------------------------------------------------------|
| Test Setup |  |
|------------|--------------------------------------------------------------------------------------|

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Procedure | <p>789033 D02 General UNII Test Procedures New Rules v01</p> <p><u>Measurement using a Power Meter (PM)</u></p> <p>Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.</p> <ul style="list-style-type: none"> <li>- Connect EUT's RF output power to power meter</li> <li>- Set EUT to be continuous transmission mode</li> <li>- Measurement the average output power using power meter and record the result</li> <li>- Repeat above steps for different test channel and other modulation type.</li> </ul> |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|           |            |                         |                                                                            |
|-----------|------------|-------------------------|----------------------------------------------------------------------------|
| Test Date | 05/20/2015 | Environmental condition | Temperature 21°C<br>Relative Humidity 40%<br>Atmospheric Pressure 1019mbar |
|-----------|------------|-------------------------|----------------------------------------------------------------------------|

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Remark | <p>Per KDB 662911 D01 Multiple Transmitter Output v02r01, the direction gain for horizontal polarization and vertical polarization is calculated separately. EUT is using cross-polarized antenna, thus the array gain is 0, and directional gain = highest individual gain of both polarization antenna, so the directional gain will be either 14 dBi, 21 dBi or 24 dBi.</p> <p>For 5.15-5.25 GHz Band and 5.725-5.85 GHz, the transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|        |                                                                        |
|--------|------------------------------------------------------------------------|
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |
|--------|------------------------------------------------------------------------|

**Test Data**    ☒ Yes                      ☐ N/A

**Test Plot**    ☐ Yes (See below)            ☒ N/A

### Output Power measurement result for 5.2GHz

| Antenna Type | Test mode    | Freq (MHz) | CH   | Conducted Power (dBm) |        |                | Limit (dBm) | Result |
|--------------|--------------|------------|------|-----------------------|--------|----------------|-------------|--------|
|              |              |            |      | Chain1                | Chain2 | Combined Power |             |        |
| 14dBi        | 802.11a      | 5180       | Low  | 15.94                 | 16.09  | 16.09          | 22          | Pass   |
|              |              | 5200       | Mid  | 16.11                 | 16.09  | 16.11          | 22          | Pass   |
|              |              | 5240       | High | 15.79                 | 15.76  | 15.79          | 22          | Pass   |
|              | 802.11n-HT20 | 5180       | Low  | 15.85                 | 15.95  | 18.91          | 22          | Pass   |
|              |              | 5200       | Mid  | 16.04                 | 16.00  | 19.03          | 22          | Pass   |
|              |              | 5240       | High | 15.70                 | 15.58  | 18.65          | 22          | Pass   |
|              | 802.11n-HT40 | 5190       | Low  | 13.13                 | 13.51  | 16.33          | 22          | Pass   |
|              |              | 5230       | Mid  | 14.86                 | 15.43  | 18.16          | 22          | Pass   |
|              | 802.11ac     | 5210       | High | 10.79                 | 10.85  | 13.83          | 22          | Pass   |
| 21dBi        | 802.11a      | 5180       | Low  | 8.87                  | 9.13   | 9.13           | 15          | Pass   |
|              |              | 5200       | Mid  | 9.29                  | 9.34   | 9.34           | 15          | Pass   |
|              |              | 5240       | High | 9.46                  | 9.12   | 9.46           | 15          | Pass   |
|              | 802.11n-HT20 | 5180       | Low  | 8.98                  | 9.19   | 12.10          | 15          | Pass   |
|              |              | 5200       | Mid  | 9.36                  | 9.30   | 12.34          | 15          | Pass   |
|              |              | 5240       | High | 9.62                  | 9.04   | 12.35          | 15          | Pass   |
|              | 802.11n-HT40 | 5190       | Low  | 11.07                 | 11.57  | 14.34          | 15          | Pass   |
|              |              | 5230       | High | 11.84                 | 11.40  | 14.64          | 15          | Pass   |
|              | 802.11ac     | 5210       | High | 6.80                  | 7.06   | 9.94           | 15          | Pass   |
| 24dBi        | 802.11a      | 5180       | Low  | 5.89                  | 6.22   | 6.22           | 12          | Pass   |
|              |              | 5200       | Mid  | 6.29                  | 6.02   | 6.29           | 12          | Pass   |
|              |              | 5240       | High | 6.00                  | 6.52   | 6.52           | 12          | Pass   |
|              | 802.11n-HT20 | 5180       | Low  | 6.76                  | 7.06   | 9.92           | 12          | Pass   |
|              |              | 5200       | Mid  | 7.13                  | 7.20   | 10.18          | 12          | Pass   |
|              |              | 5240       | High | 6.46                  | 5.88   | 9.19           | 12          | Pass   |
|              | 802.11n-HT40 | 5190       | Low  | 8.59                  | 8.67   | 11.64          | 12          | Pass   |
|              |              | 5230       | High | 8.99                  | 8.59   | 11.80          | 12          | Pass   |
|              | 802.11ac     | 5210       | High | 0.66                  | 0.92   | 3.80           | 12          | Pass   |

## Output Power Measurement Results for 5.8GHz

| Antenna Type | Test mode    | Freq (MHz) | CH   | Conducted Power (dBm) |        |                        | Limit (dBm) | Result |
|--------------|--------------|------------|------|-----------------------|--------|------------------------|-------------|--------|
|              |              |            |      | Chain1                | Chain2 | Combined/Highest Power |             |        |
| 14dBi        | 802.11a      | 5745       | Low  | 15.31                 | 14.99  | 15.31                  | 22          | Pass   |
|              |              | 5785       | Mid  | 15.48                 | 15.04  | 15.48                  | 22          | Pass   |
|              |              | 5825       | High | 15.69                 | 14.75  | 15.69                  | 22          | Pass   |
|              | 802.11n-HT20 | 5745       | Low  | 15.25                 | 15.05  | 18.16                  | 22          | Pass   |
|              |              | 5785       | Mid  | 15.45                 | 14.88  | 18.18                  | 22          | Pass   |
|              |              | 5825       | High | 15.66                 | 14.73  | 18.23                  | 22          | Pass   |
|              | 802.11n-HT40 | 5755       | Low  | 15.19                 | 14.84  | 18.03                  | 22          | Pass   |
|              |              | 5795       | Mid  | 16.12                 | 14.88  | 18.55                  | 22          | Pass   |
|              | 802.11ac     | 5775       | High | 14.62                 | 16.72  | 18.81                  | 22          | Pass   |
| 21dBi        | 802.11a      | 5745       | Low  | 11.96                 | 11.75  | 11.96                  | 15          | Pass   |
|              |              | 5785       | Mid  | 11.24                 | 11.15  | 11.24                  | 15          | Pass   |
|              |              | 5825       | High | 11.56                 | 11.42  | 11.56                  | 15          | Pass   |
|              | 802.11n-HT20 | 5745       | Low  | 11.85                 | 11.75  | 14.81                  | 15          | Pass   |
|              |              | 5785       | Mid  | 11.19                 | 11.11  | 14.16                  | 15          | Pass   |
|              |              | 5825       | High | 11.55                 | 11.56  | 14.57                  | 15          | Pass   |
|              | 802.11n-HT40 | 5755       | Low  | 11.19                 | 11.95  | 14.60                  | 15          | Pass   |
|              |              | 5795       | Mid  | 10.30                 | 11.36  | 13.87                  | 15          | Pass   |
|              | 802.11ac     | 5775       | High | 5.94                  | 5.70   | 8.83                   | 15          | Pass   |
| 24dBi        | 802.11a      | 5745       | Low  | 8.20                  | 7.86   | 8.20                   | 12          | Pass   |
|              |              | 5785       | Mid  | 8.53                  | 8.27   | 8.53                   | 12          | Pass   |
|              |              | 5825       | High | 8.78                  | 8.79   | 8.79                   | 12          | Pass   |
|              | 802.11n-HT20 | 5745       | Low  | 8.98                  | 8.74   | 11.87                  | 12          | Pass   |
|              |              | 5785       | Mid  | 8.36                  | 8.13   | 11.26                  | 12          | Pass   |
|              |              | 5825       | High | 8.77                  | 8.70   | 11.75                  | 12          | Pass   |
|              | 802.11n-HT40 | 5755       | Low  | 8.10                  | 8.88   | 11.52                  | 12          | Pass   |
|              |              | 5795       | Mid  | 7.08                  | 8.55   | 10.89                  | 12          | Pass   |
|              | 802.11ac     | 5775       | High | 7.01                  | 6.76   | 9.90                   | 12          | Pass   |

## 10.2 Peak Spectral Density

### Requirement(s):

| Spec           | Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Requirement                                                                                                                                          | Applicable                                                                 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| § 15.407       | a)(1)(i)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. | <input checked="" type="checkbox"/>                                        |
|                | a)(1)(ii)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.  | <input type="checkbox"/>                                                   |
|                | a)(2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.                  | <input type="checkbox"/>                                                   |
|                | a)(3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.                                         | <input checked="" type="checkbox"/>                                        |
| Test Setup     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                      |                                                                            |
| Test Procedure | <p>789033 D02 General UNII Test Procedures New Rules v01, II.F. Method SA-1</p> <p><u>Maximum spectral density measurement procedure</u></p> <ul style="list-style-type: none"> <li>- Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.</li> <li>- Set RBW = 1 MHz</li> <li>- Set VBW ≥ 3 MHz</li> <li>- Detector = RMS.</li> <li>- Sweep time = auto couple.</li> <li>- Trace mode = max hold.</li> <li>- Trace average at least 100 traces in power averaging</li> <li>- Use the peak marker function to determine the maximum amplitude level within the RBW.</li> </ul> <p>Apply correction to the result if different RBW is used.</p> |                                                                                                                                                      |                                                                            |
| Test Date      | 05/20/2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Environmental condition                                                                                                                              | Temperature 22°C<br>Relative Humidity 42%<br>Atmospheric Pressure 1020mbar |
| Remark         | <p>Per KDB 662911 D01 Multiple Transmitter Output v02r01, the direction gain for horizontal polarization and vertical polarization is calculated separately. EUT is using cross-polarized antenna, thus the array gain is 0, and directional gain = highest individual gain of both polarization antenna, so the directional gain will be either 14 dBi, 21 dBi or 24 dBi.</p> <p>For 5.15-5.25 GHz Band and 5.725-5.85 GHz, the transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p>                                   |                                                                                                                                                      |                                                                            |
| Result         | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                      |                                                                            |

### Equipment Setting

| Test | RBW  | VBW   | Span | Detector | Sweep | Trace   | Notes |
|------|------|-------|------|----------|-------|---------|-------|
| PSD  | 1MHz | ≥3MHz | >EBW | RMS      | Auto  | Average | -     |

Test Data    ☒ Yes      ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

**PSD measurement result for 5.2GHz**

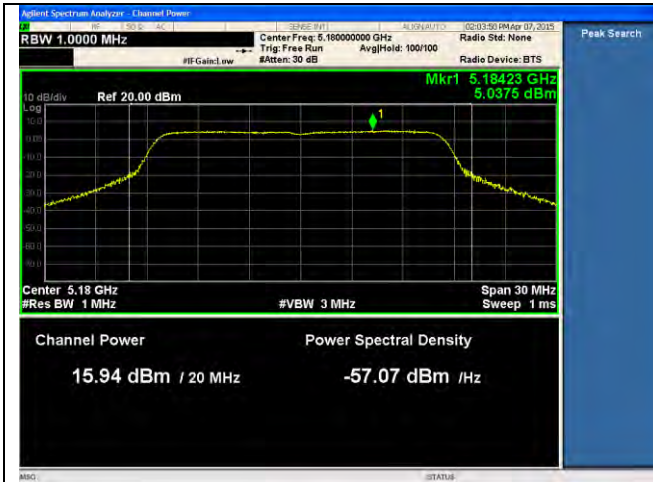
| Antenna Type | Test mode    | Freq (MHz) | CH   | Conducted PSD (dBm) |        |                      | Limit (dBm/MHz) | Result |
|--------------|--------------|------------|------|---------------------|--------|----------------------|-----------------|--------|
|              |              |            |      | Chain1              | Chain2 | Combined/highest PSD |                 |        |
| 14dBi        | 802.11a      | 5180       | Low  | 5.04                | 5.15   | 5.15                 | 9               | Pass   |
|              |              | 5200       | Mid  | 5.09                | 4.95   | 5.09                 | 9               | Pass   |
|              |              | 5240       | High | 4.86                | 4.73   | 4.86                 | 9               | Pass   |
|              | 802.11n-HT20 | 5180       | Low  | 4.55                | 5.03   | 7.81                 | 9               | Pass   |
|              |              | 5200       | Mid  | 4.76                | 4.70   | 7.74                 | 9               | Pass   |
|              |              | 5240       | High | 4.35                | 4.10   | 7.24                 | 9               | Pass   |
|              | 802.11n-HT40 | 5190       | Low  | -1.18               | -0.72  | 2.07                 | 9               | Pass   |
|              |              | 5230       | Mid  | 0.35                | 0.95   | 3.67                 | 9               | Pass   |
|              | 802.11ac     | 5210       | High | -6.45               | -6.50  | -3.46                | 9               | Pass   |
| 21dBi        | 802.11a      | 5180       | Low  | -2.05               | -1.74  | -1.74                | 2               | Pass   |
|              |              | 5200       | Mid  | -1.88               | -1.62  | -1.62                | 2               | Pass   |
|              |              | 5240       | High | -1.68               | -1.84  | -1.68                | 2               | Pass   |
|              | 802.11n-HT20 | 5180       | Low  | -2.06               | -1.99  | 0.99                 | 2               | Pass   |
|              |              | 5200       | Mid  | -2.09               | -1.97  | 0.98                 | 2               | Pass   |
|              |              | 5240       | High | -1.77               | -2.26  | 1.00                 | 2               | Pass   |
|              | 802.11n-HT40 | 5190       | Low  | -2.80               | -2.46  | 0.38                 | 2               | Pass   |
|              |              | 5230       | Mid  | -2.45               | -2.74  | 0.42                 | 2               | Pass   |
|              | 802.11ac     | 5210       | High | -10.63              | -10.39 | -7.50                | 2               | Pass   |
| 24dBi        | 802.11a      | 5180       | Low  | -4.97               | -4.77  | -4.77                | -1              | Pass   |
|              |              | 5200       | Mid  | -4.84               | -4.92  | -4.84                | -1              | Pass   |
|              |              | 5240       | High | -4.98               | -4.53  | -4.53                | -1              | Pass   |
|              | 802.11n-HT20 | 5180       | Low  | -4.39               | -4.18  | -1.27                | -1              | Pass   |
|              |              | 5200       | Mid  | -4.28               | -4.13  | -1.19                | -1              | Pass   |
|              |              | 5240       | High | -4.83               | -5.35  | -2.07                | -1              | Pass   |
|              | 802.11n-HT40 | 5190       | Low  | -5.79               | -5.41  | -2.59                | -1              | Pass   |
|              |              | 5230       | Mid  | -5.00               | -5.41  | -2.19                | -1              | Pass   |
|              | 802.11ac     | 5210       | High | -15.79              | -16.04 | -12.90               | -1              | Pass   |



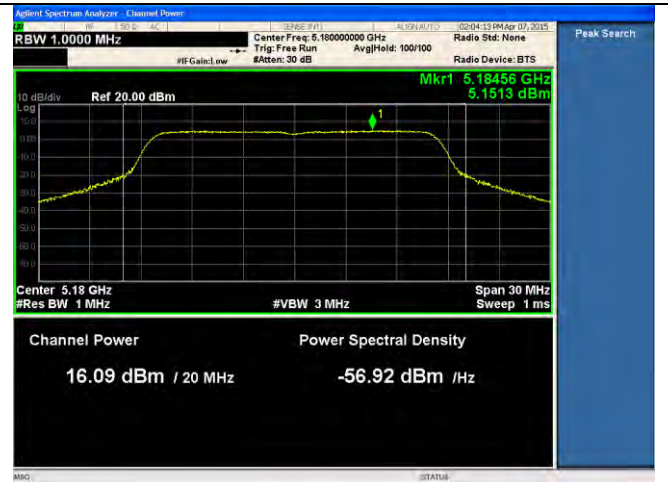
**PSD measurement result for 5.8GHz**

| Antenna Type | Test mode                                | Freq (MHz) | CH   | Conducted PSD (dBm/MHz) |        |                        | Combined PSD | Limit (dBm/MHz) | Result |
|--------------|------------------------------------------|------------|------|-------------------------|--------|------------------------|--------------|-----------------|--------|
|              |                                          |            |      | Chain1                  | Chain2 | correction factor (dB) |              |                 |        |
| 14dBi        | 802.11a                                  | 5745       | Low  | 3.24                    | 2.51   | 6.99                   | 10.23        | 22              | Pass   |
|              |                                          | 5785       | Mid  | 1.84                    | 2.65   | 6.99                   | 9.64         | 22              | Pass   |
|              |                                          | 5825       | High | 1.63                    | 1.63   | 6.99                   | 8.62         | 22              | Pass   |
|              | 802.11n-HT20                             | 5745       | Low  | 2.19                    | 2.15   | 6.99                   | 12.17        | 22              | Pass   |
|              |                                          | 5785       | Mid  | 3.20                    | 3.01   | 6.99                   | 13.11        | 22              | Pass   |
|              |                                          | 5825       | High | 0.95                    | 1.78   | 6.99                   | 11.38        | 22              | Pass   |
|              | 802.11n-HT40                             | 5755       | Low  | -1.91                   | -1.38  | 6.99                   | 8.36         | 22              | Pass   |
|              |                                          | 5795       | High | -1.41                   | -2.27  | 6.99                   | 8.18         | 22              | Pass   |
|              | 802.11ac                                 | 5775       | Mid  | -5.93                   | -7.37  | 6.99                   | 3.41         | 22              | Pass   |
| 21dBi        | 802.11a                                  | 5745       | Low  | -2.66                   | -2.29  | 6.99                   | 4.7          | 15              | Pass   |
|              |                                          | 5785       | Mid  | -3.88                   | -2.93  | 6.99                   | 4.06         | 15              | Pass   |
|              |                                          | 5825       | High | -2.94                   | -2.87  | 6.99                   | 4.12         | 15              | Pass   |
|              | 802.11n-HT20                             | 5745       | Low  | -2.92                   | -3.39  | 6.99                   | 6.85         | 15              | Pass   |
|              |                                          | 5785       | Mid  | -3.42                   | -2.07  | 6.99                   | 7.31         | 15              | Pass   |
|              |                                          | 5825       | High | -1.58                   | -1.54  | 6.99                   | 8.44         | 15              | Pass   |
|              | 802.11n-HT40                             | 5755       | Low  | -7.02                   | -5.21  | 6.99                   | 3.98         | 15              | Pass   |
|              |                                          | 5795       | High | -6.82                   | -5.66  | 6.99                   | 3.80         | 15              | Pass   |
|              | 802.11ac                                 | 5775       | Mid  | -15.01                  | -16.05 | 6.99                   | -5.50        | 15              | Pass   |
| 24dBi        | 802.11a                                  | 5745       | Low  | -6.75                   | -5.86  | 6.99                   | 1.13         | 12              | Pass   |
|              |                                          | 5785       | Mid  | -6.59                   | -6.08  | 6.99                   | 0.91         | 12              | Pass   |
|              |                                          | 5825       | High | -6.05                   | -6.13  | 6.99                   | 0.94         | 12              | Pass   |
|              | 802.11n-HT20                             | 5745       | Low  | -5.94                   | -6.56  | 6.99                   | 3.76         | 12              | Pass   |
|              |                                          | 5785       | Mid  | -7.28                   | -6.54  | 6.99                   | 3.11         | 12              | Pass   |
|              |                                          | 5825       | High | -5.29                   | -6.41  | 6.99                   | 4.19         | 12              | Pass   |
|              | 802.11n-HT40                             | 5755       | Low  | -9.63                   | -7.88  | 6.99                   | 1.33         | 12              | Pass   |
|              |                                          | 5795       | High | -9.83                   | -10.15 | 6.99                   | 0.01         | 12              | Pass   |
|              | 802.11ac                                 | 5775       | Mid  | -13.95                  | -14.58 | 6.99                   | -4.25        | 12              | Pass   |
| Note         | BW correction factor = 10log(500kHz/RBW) |            |      |                         |        |                        |              |                 |        |

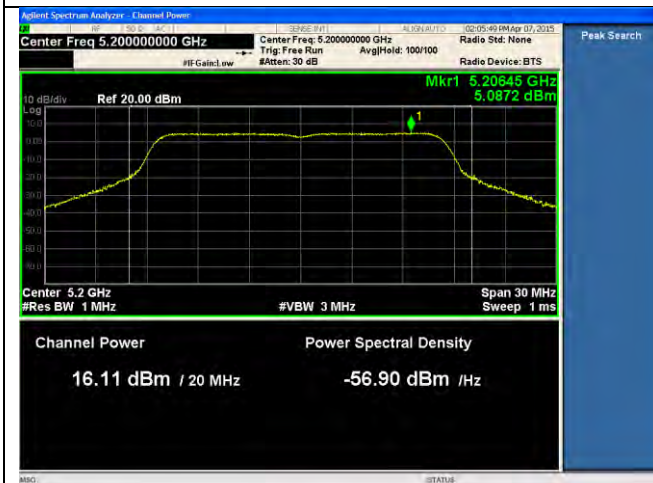
## Test Plots



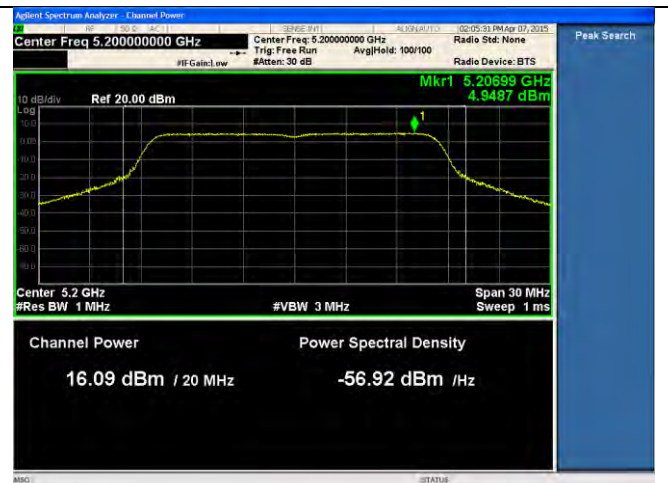
14dBi ANT-PSD-802.11a-5180M-chain1



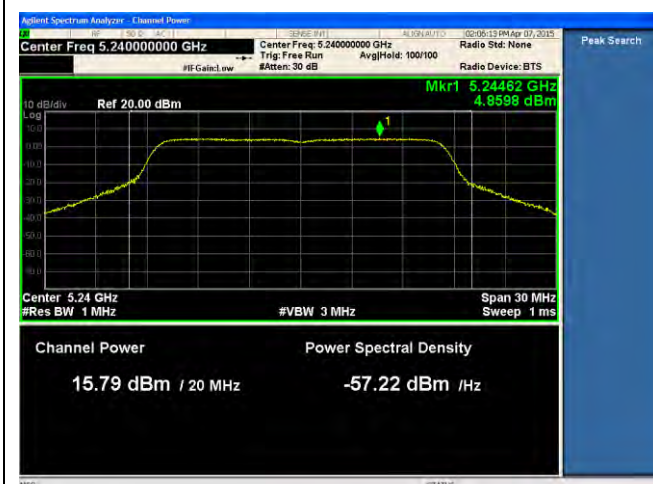
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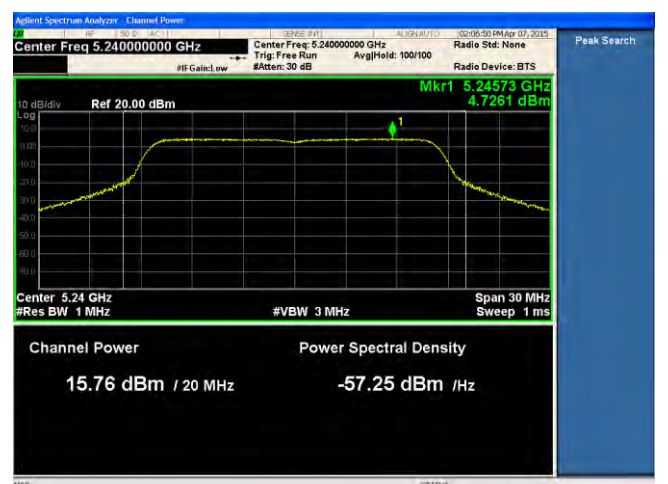
14dBi ANT-PSD-802.11a-5200M-chain1



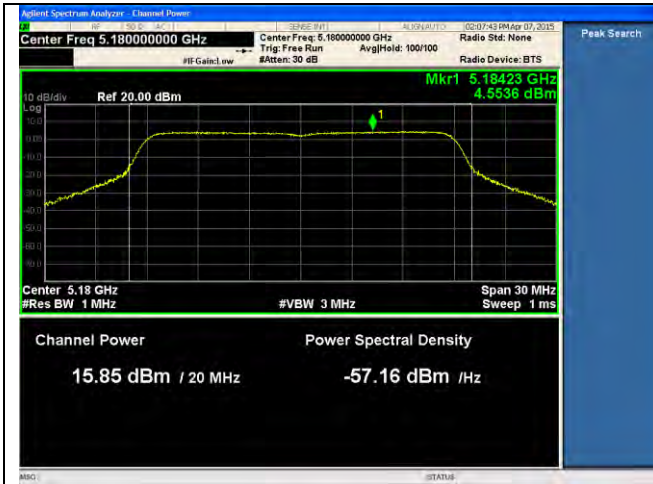
14dBi ANT-PSD-802.11a-5200M-chain2



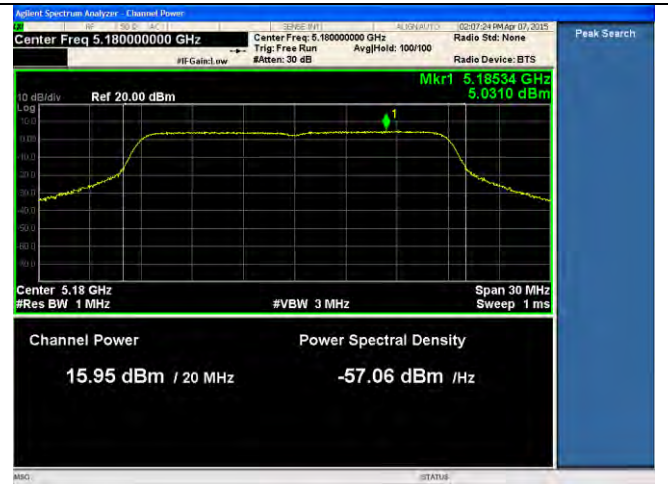
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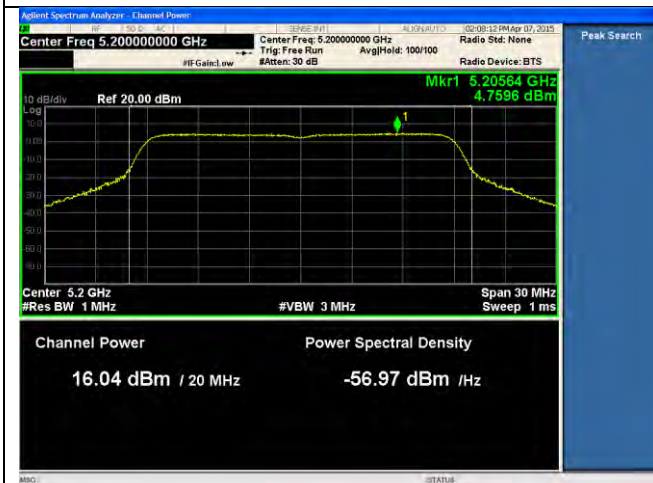
14dBi ANT-PSD-802.11a-5240M-chain2



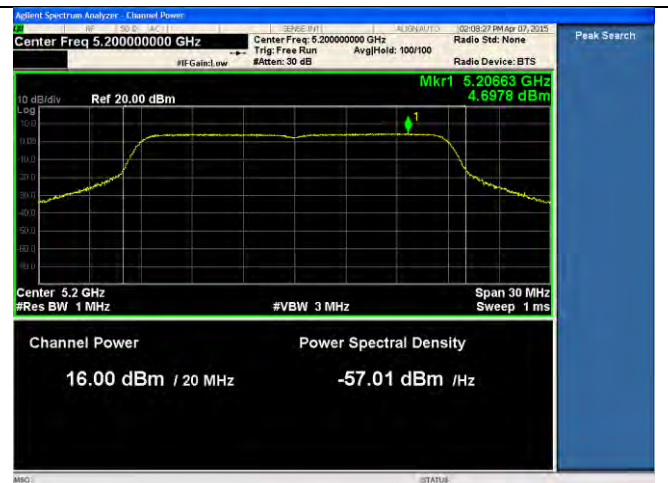
14dBi ANT-PSD-802.11n-HT20-5180M-chain1



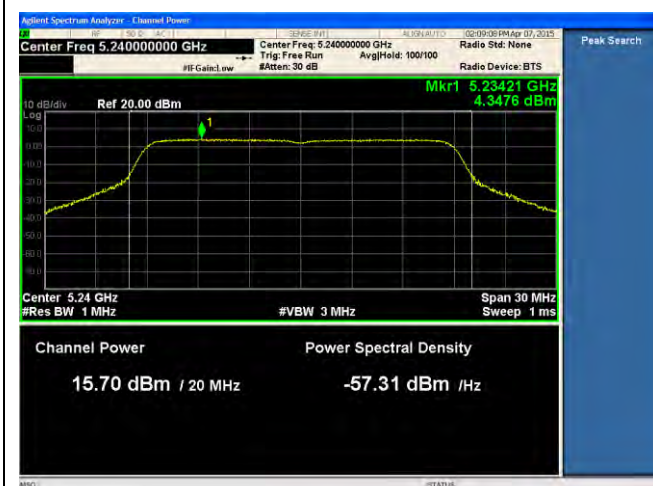
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14dBi ANT-PSD-802.11n-HT20-5200M-chain1



14dBi ANT-PSD-802.11n-HT20-5200M-chain2

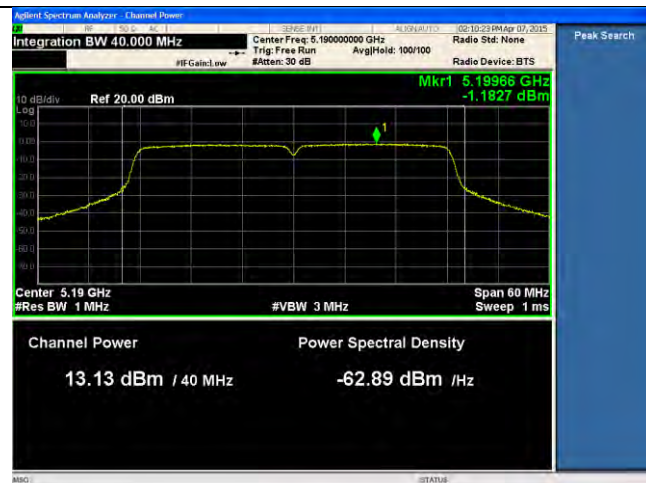


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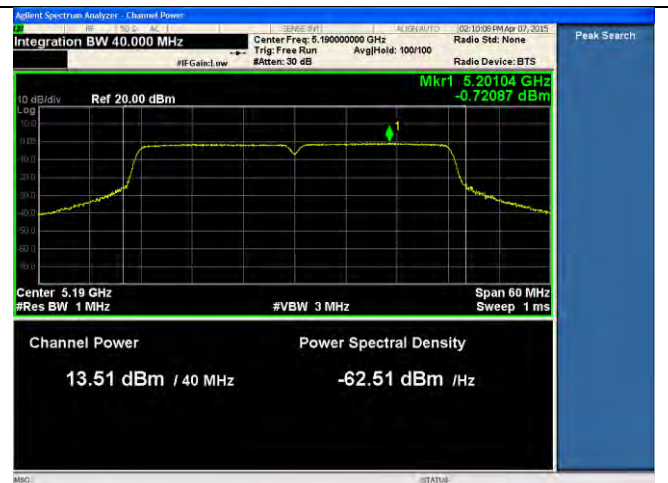


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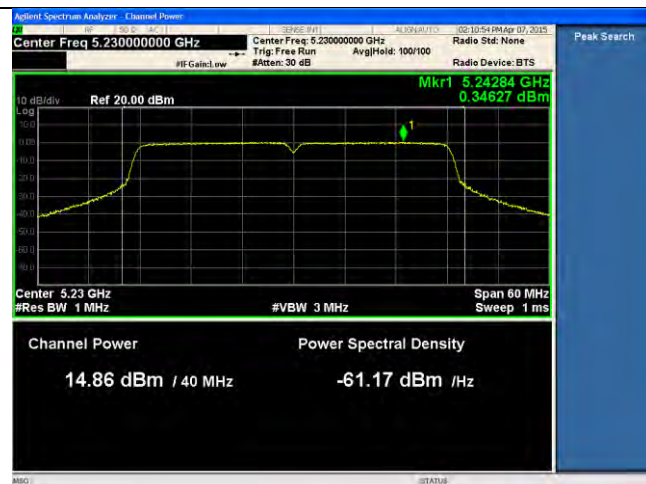




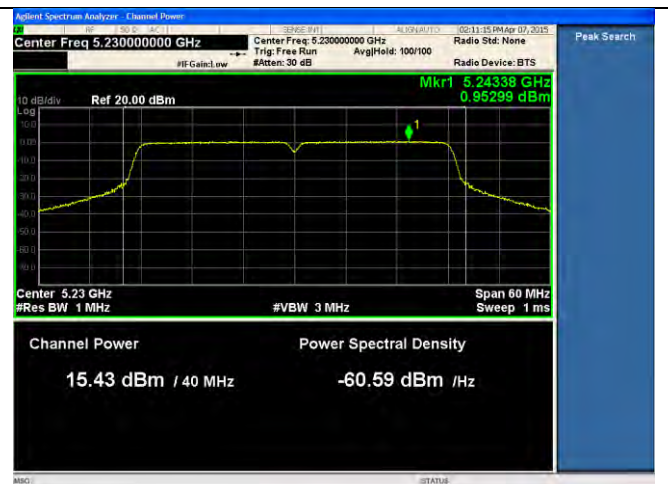
14dBi ANT-PSD-802.11n-HT40-5190M-chain1



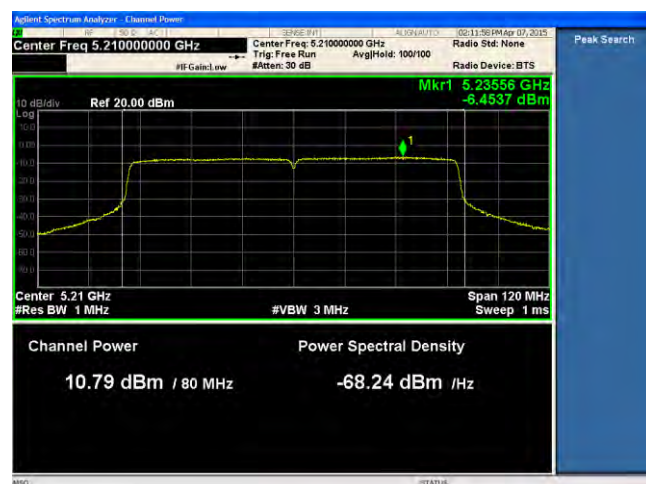
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14dBi ANT-PSD-802.11n-HT40-5230M-chain1



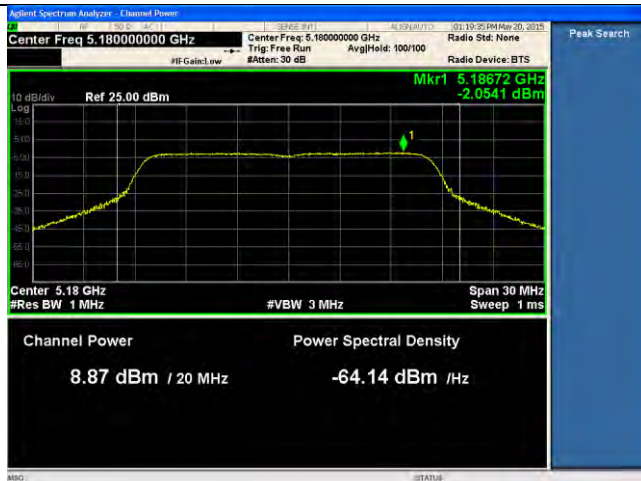
14dBi ANT-PSD-802.11n-HT40-5230M-chain2



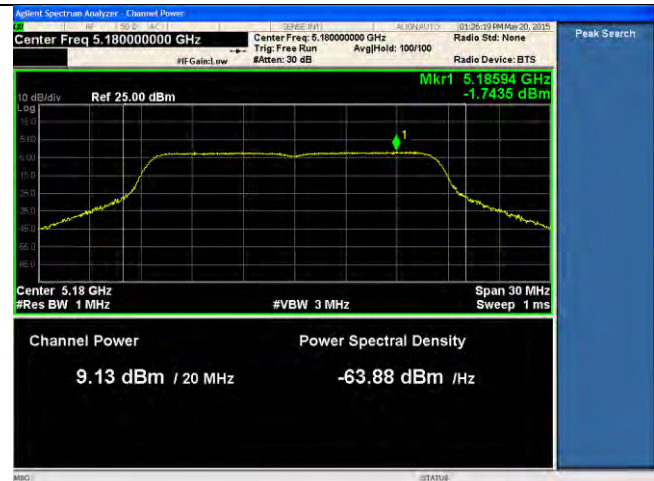
14dBi ANT-PSD-802.11ac -5210M-chain1



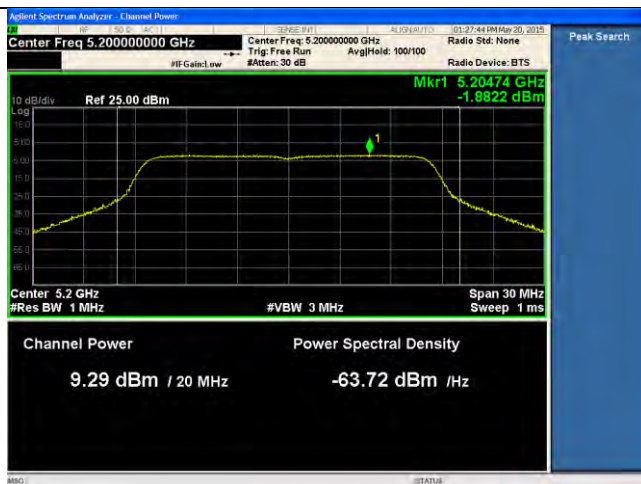
14dBi ANT-PSD-802.11ac -5210M-chain2



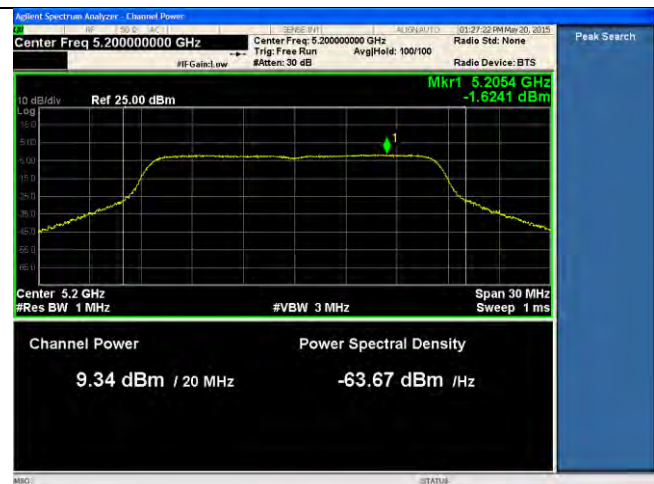
21dBi ANT-PSD-802.11a-5180M-chain1



21dBi ANT-PSD-802.11a-5180M-chain2



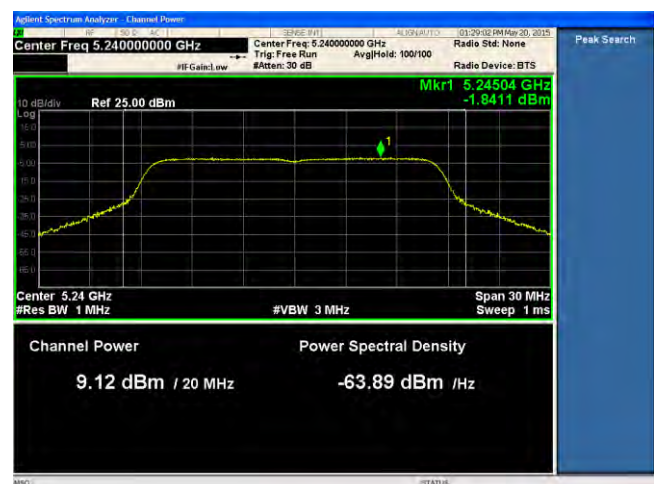
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21dBi ANT-PSD-802.11a-5200M-chain2

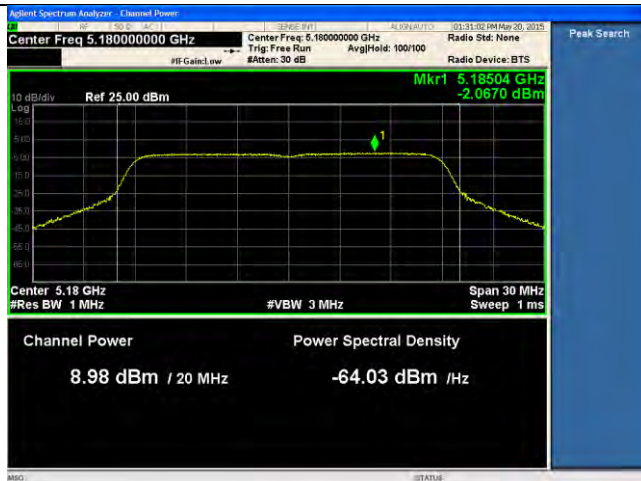


21dBi ANT-PSD-802.11a-5240M-chain1

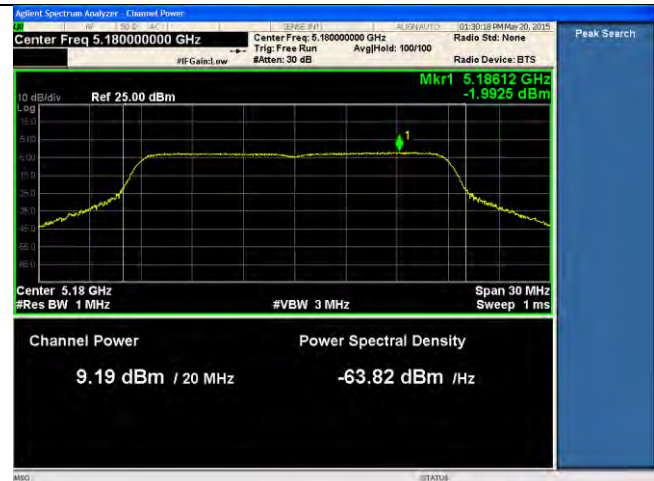


21dBi ANT-PSD-802.11a-5240M-chain2

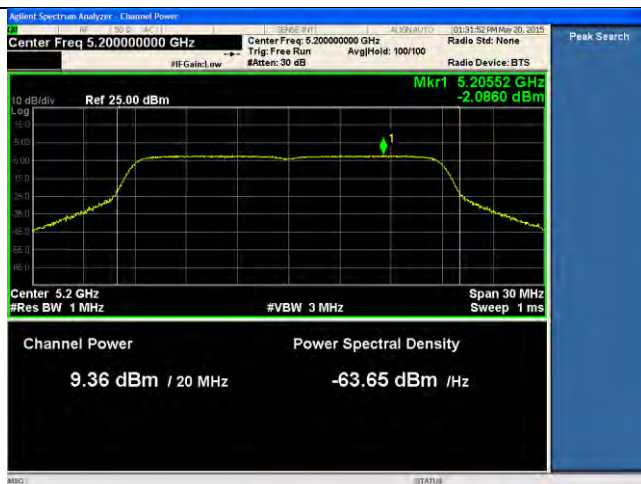




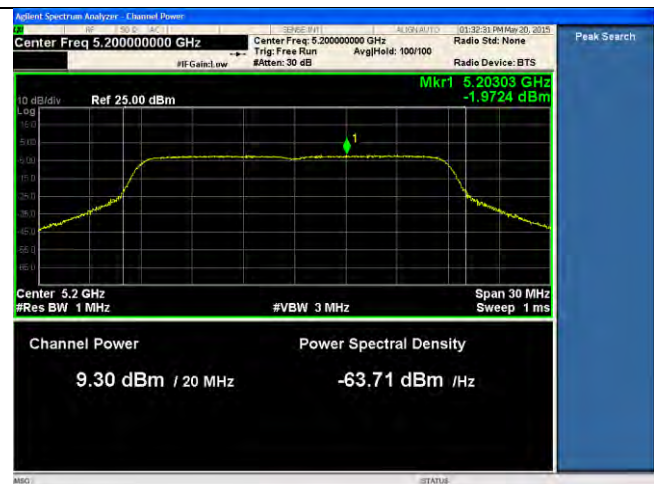
21dBi ANT-PSD-802.11n-HT20-5180M-chain1



21dBi ANT-PSD-802.11n-HT20-5180M-chain2



21dBi ANT-PSD-802.11n-HT20-5200M-chain1



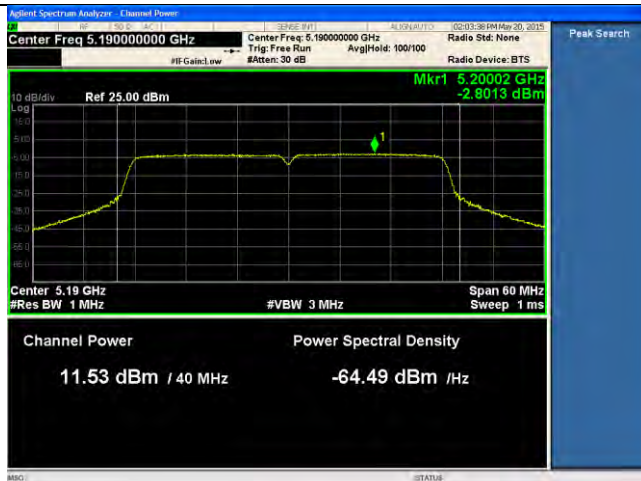
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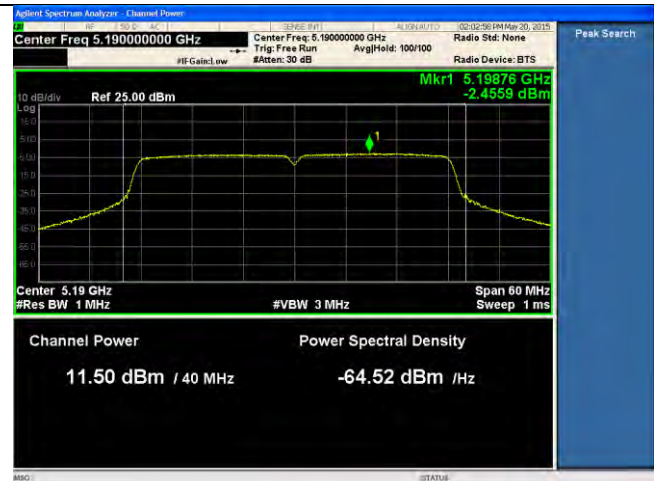
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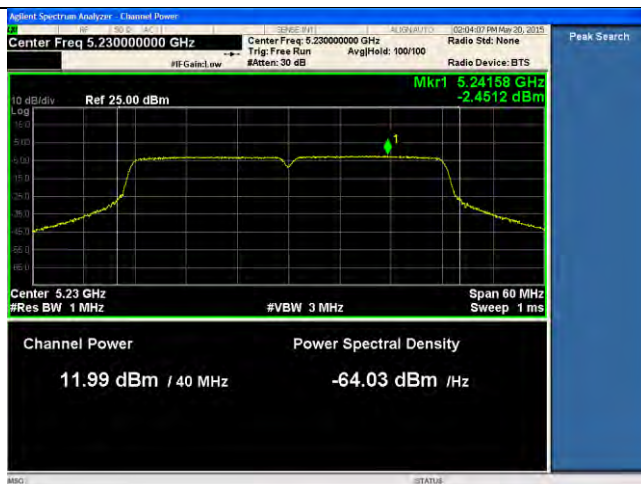
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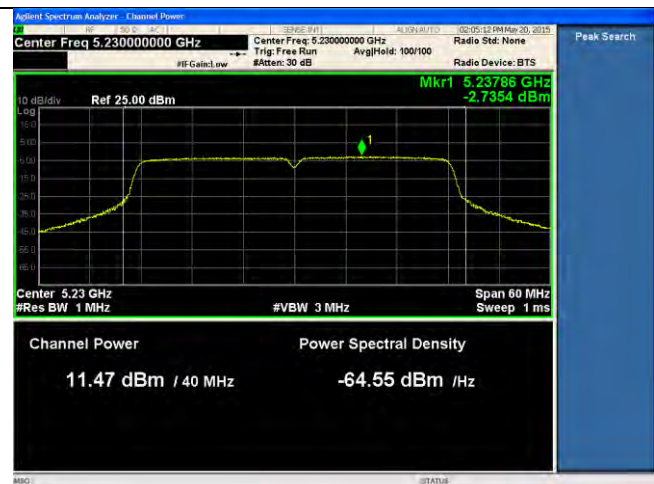
21dBi ANT-PSD-802.11n-HT40-5190M-chain1



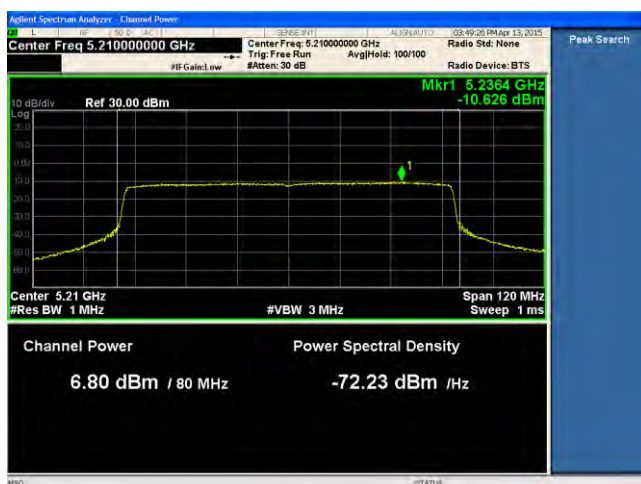
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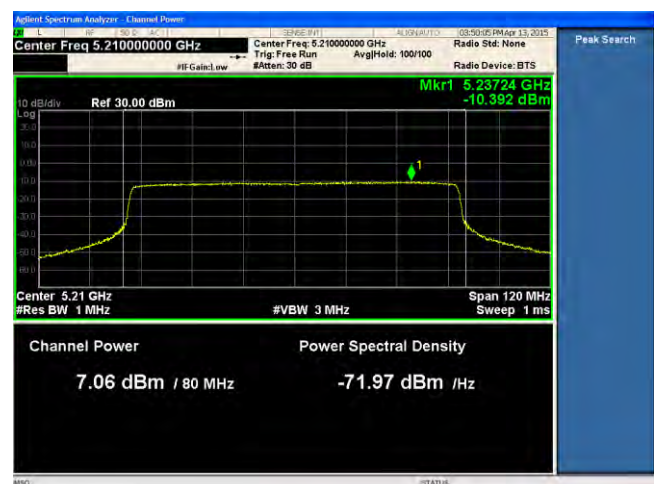
21dBi ANT-PSD-802.11n-HT40-5230M-chain1



21dBi ANT-PSD-802.11n-HT40-5230M-chain2

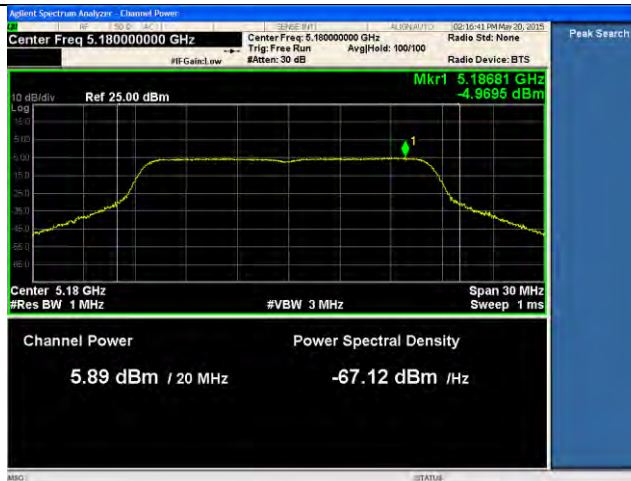


21dBi ANT-PSD-802.11ac -5210M-chain1

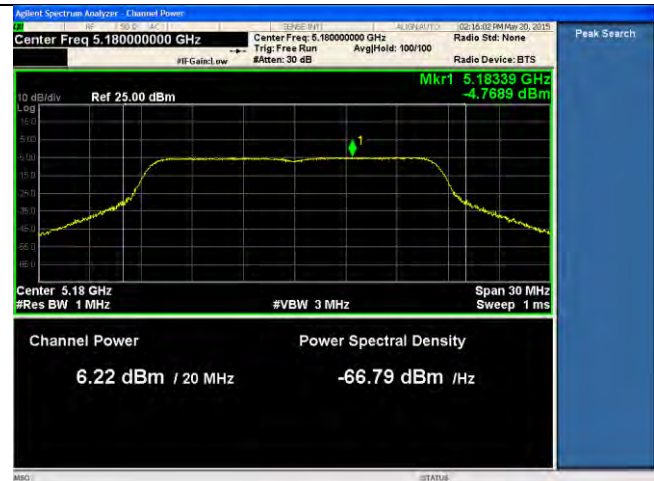


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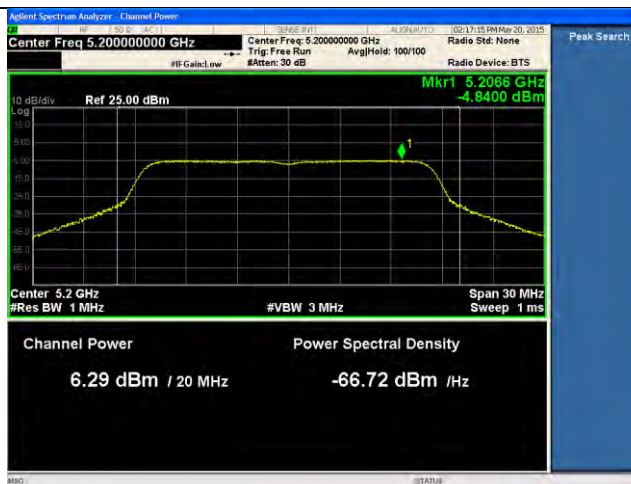




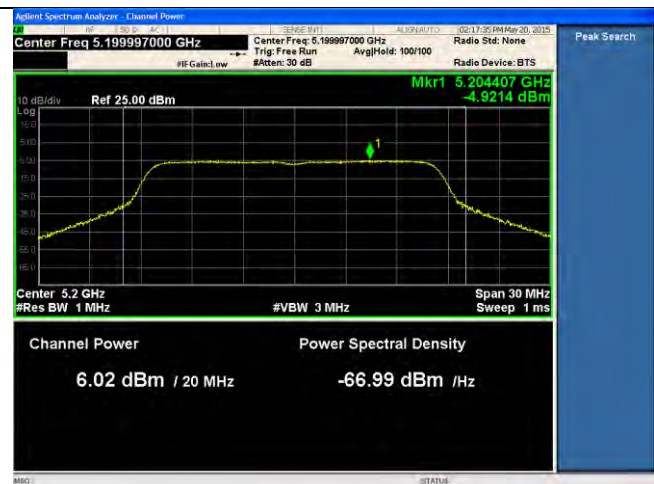
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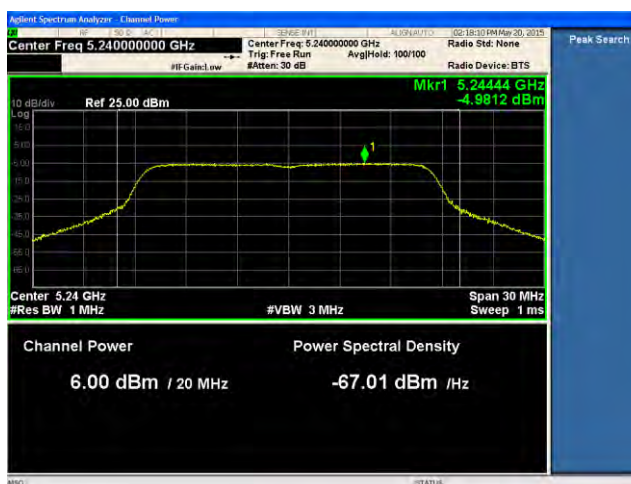
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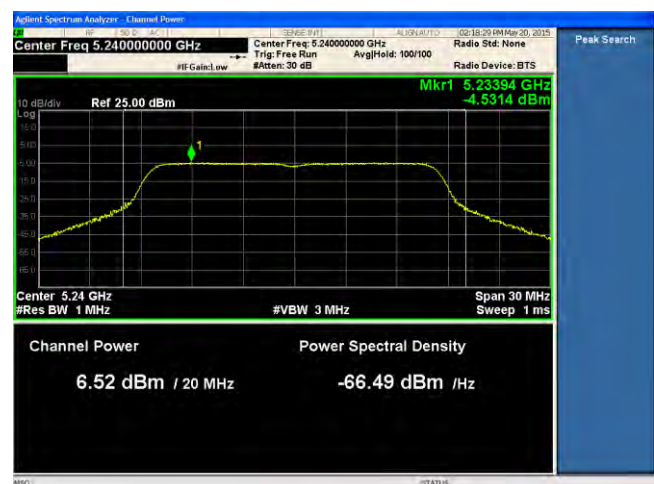
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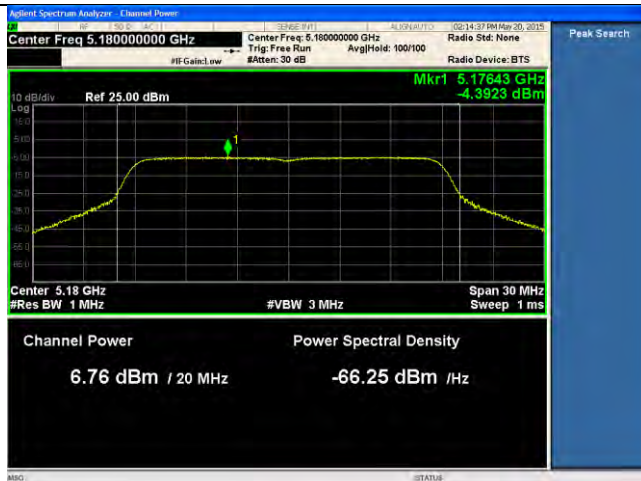


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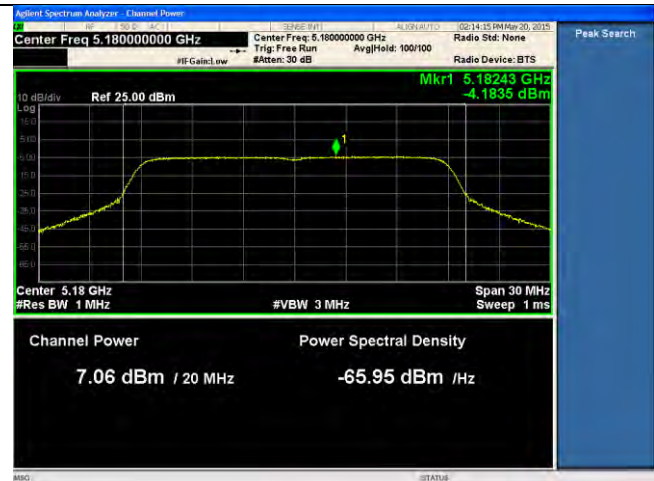


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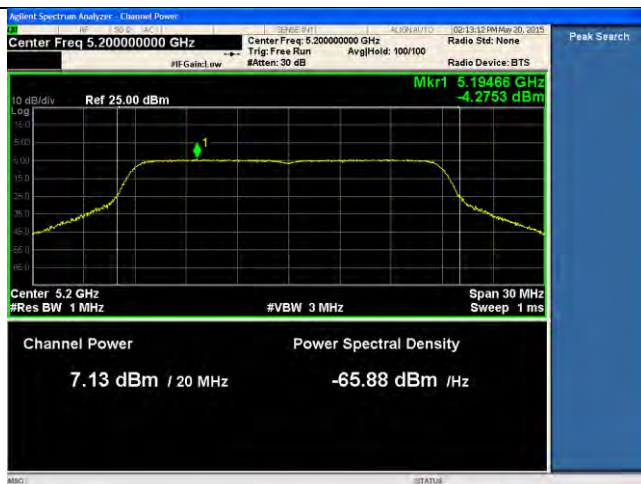




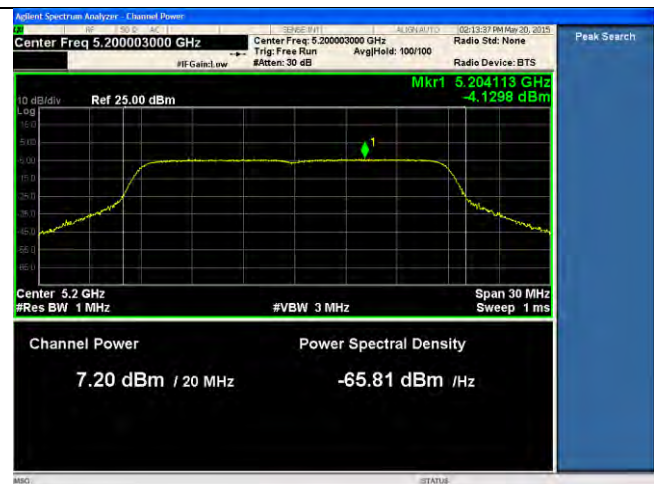
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24dBi ANT-PSD-802.11n-HT20-5180M-chain2



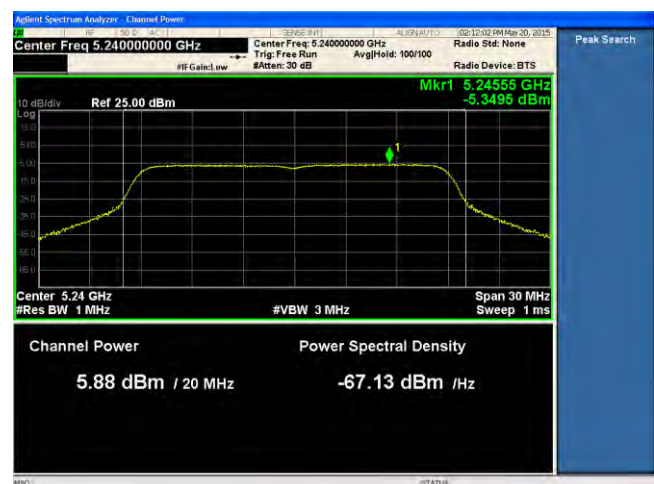
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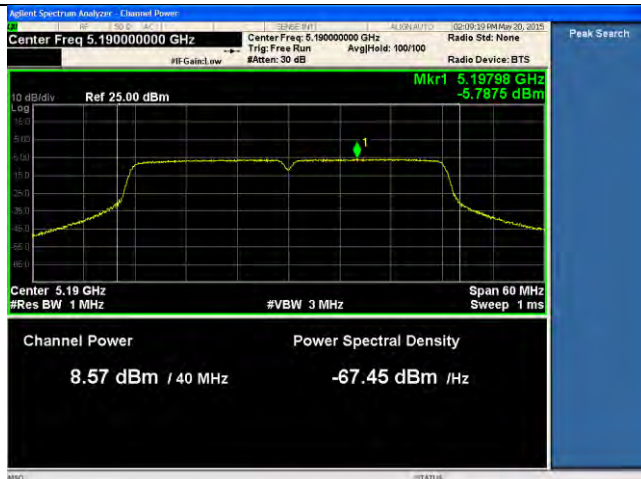
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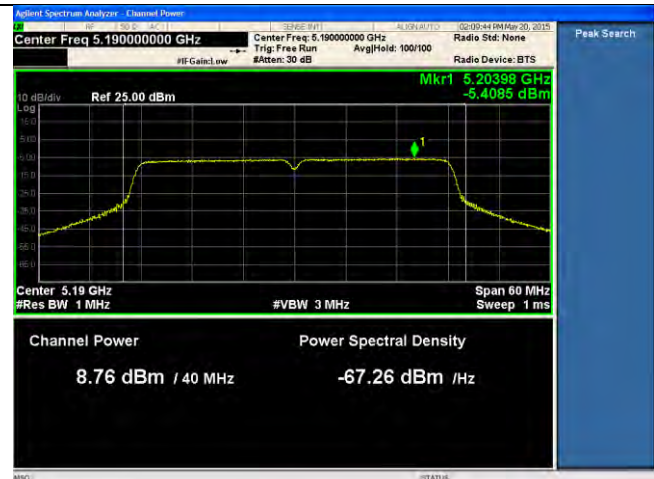
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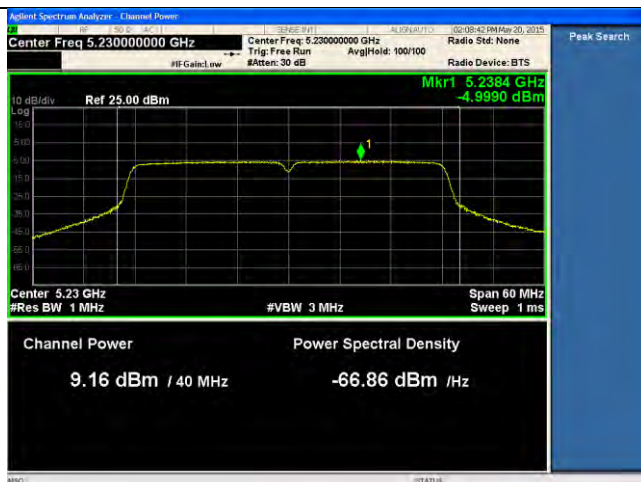
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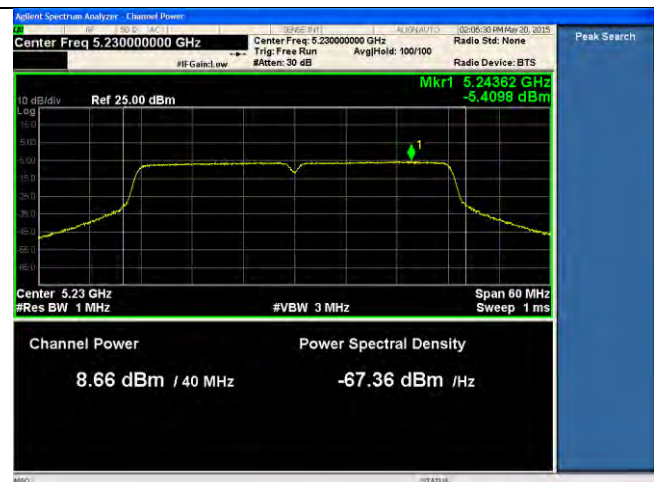
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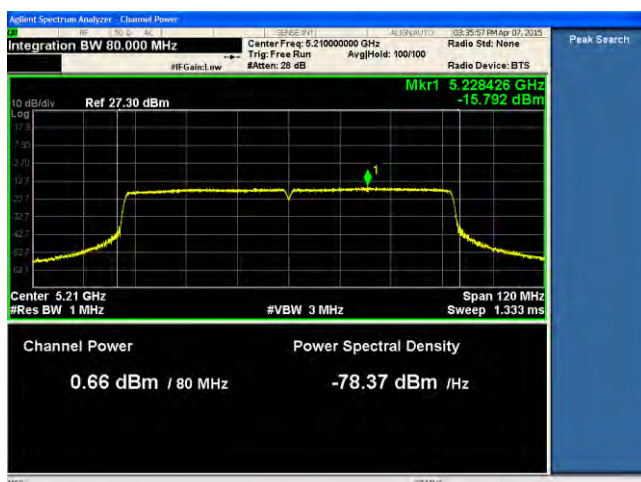
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24dBi ANT-PSD-802.11n-HT40-5230M-chain1



24dBi ANT-PSD-802.11n-HT40-5230M-chain2



24dBi ANT-PSD-802.11ac -5210M-chain1



24dBi ANT-PSD-802.11ac -5210M-chain2

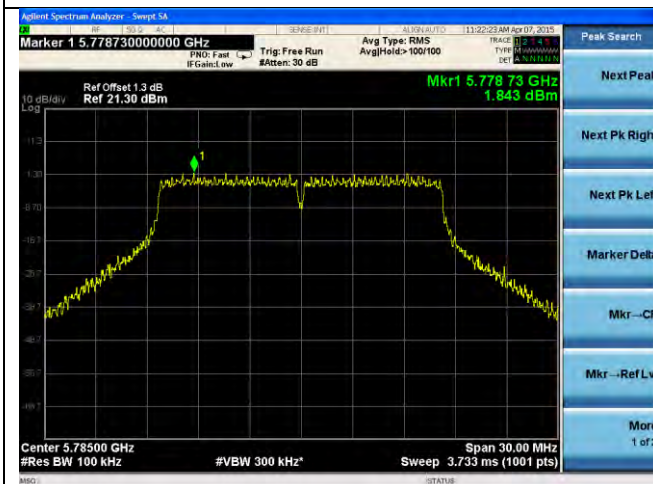




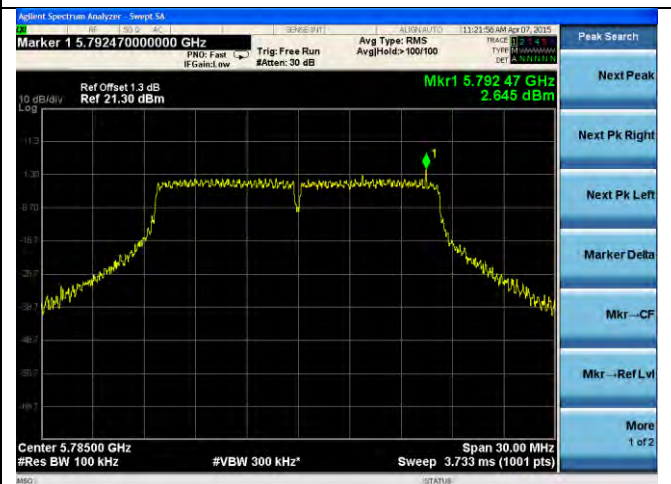
14dB ANT-PSD-802.11a-5745M-chain1



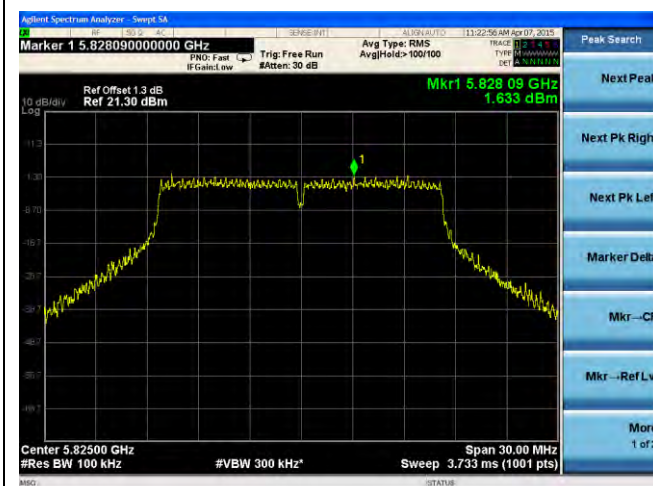
14dB ANT-PSD-802.11a-5745M-chain2



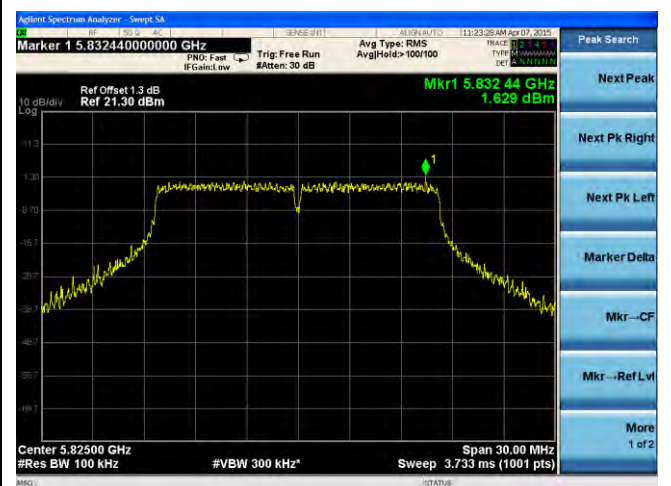
14dB ANT-PSD-802.11a-5785M-chain1



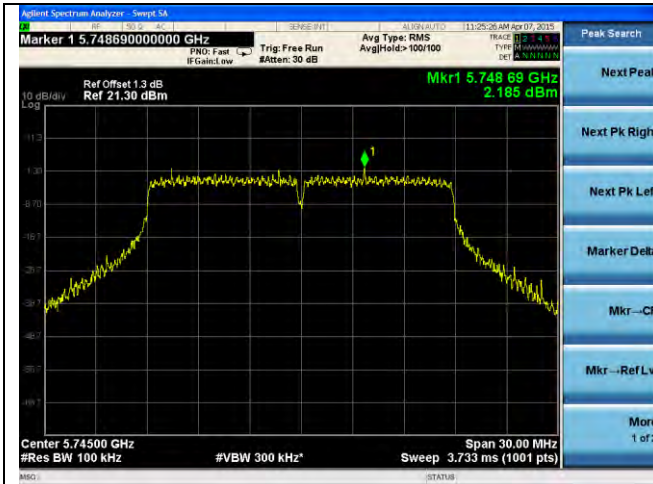
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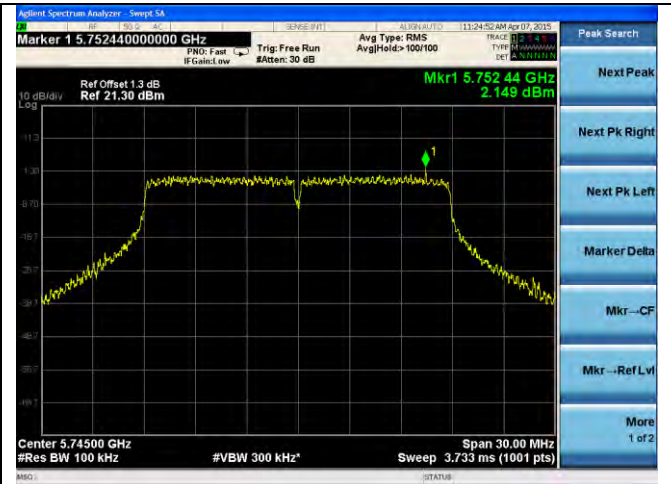
14dB ANT-PSD-802.11a-5825M-chain1



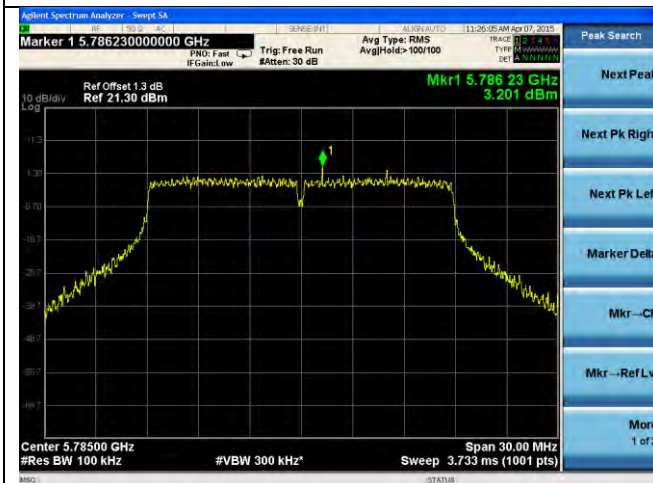
14dB ANT-PSD-802.11a-5825M-chain2



14dB ANT-PSD-802.11n-HT20-5745M-chain1



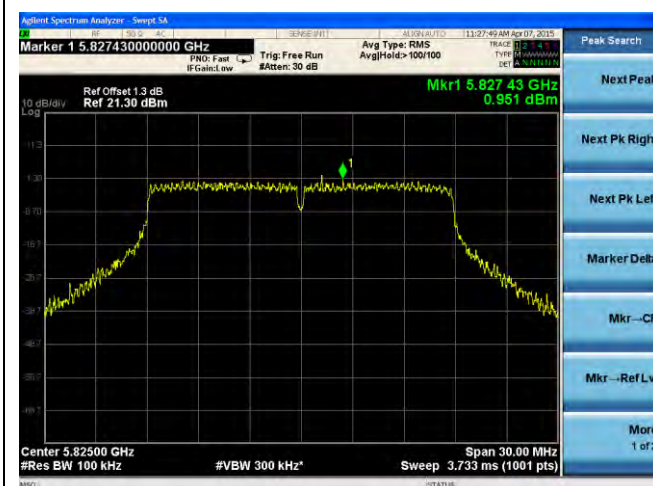
14dB ANT-PSD-802.11n-HT20-5745M-chain2



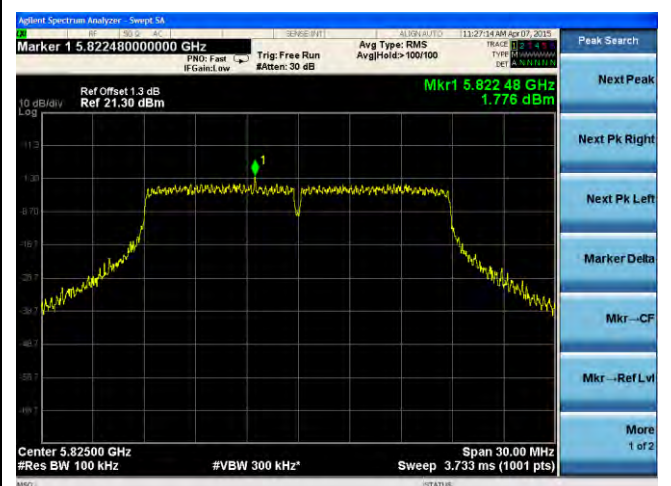
14dB ANT-PSD-802.11n-HT20-5785M-chain1



14dB ANT-PSD-802.11n-HT20-5785M-chain2

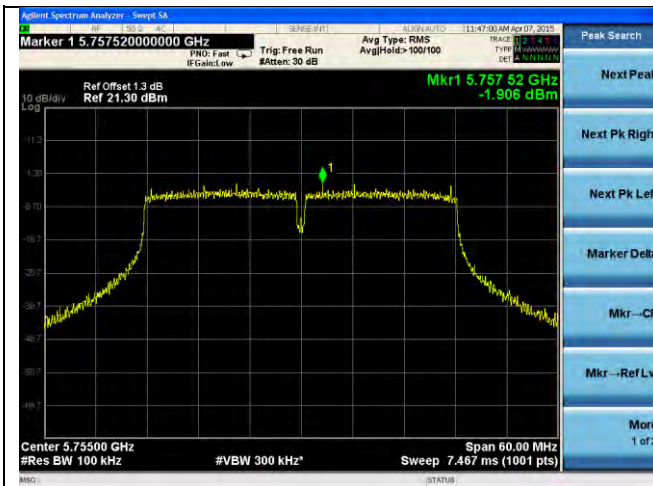


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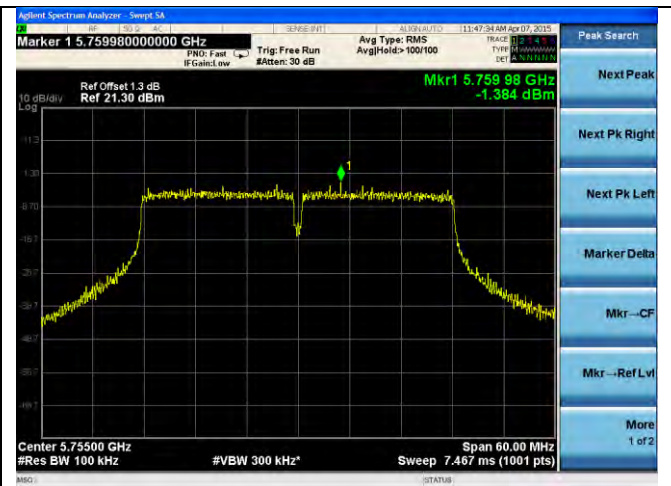


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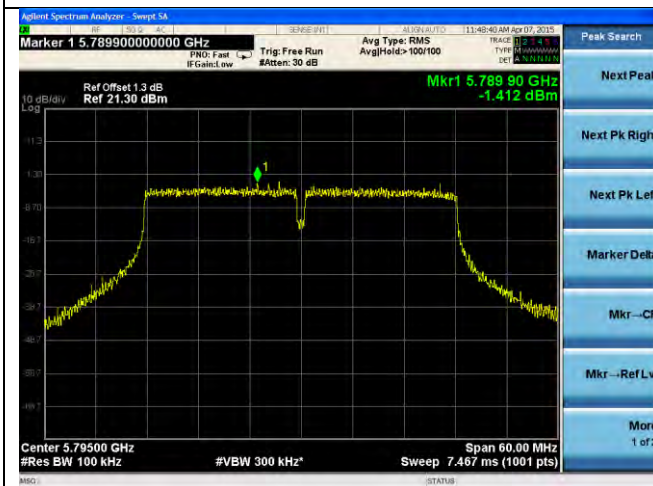




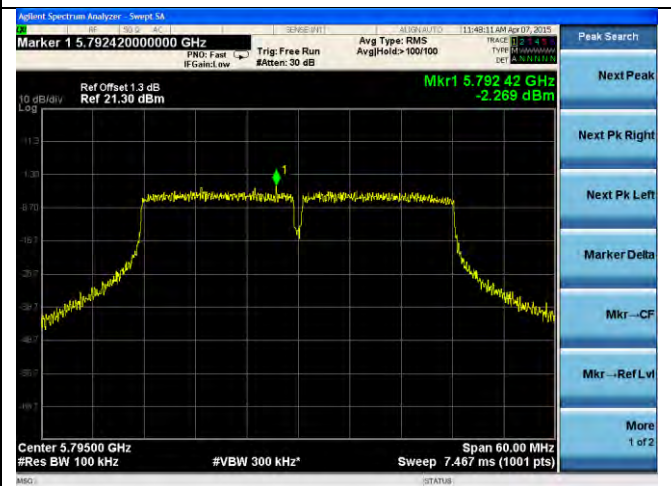
14dB ANT-PSD-802.11n-HT40-5755M-chain1



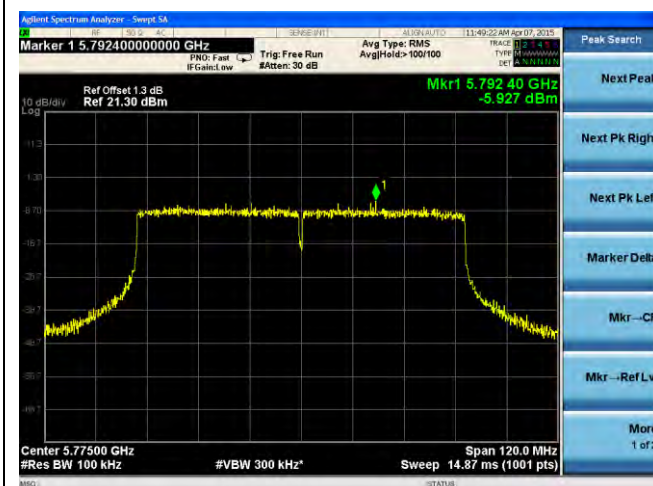
14dB ANT-PSD-802.11n-HT40-5755M-chain2



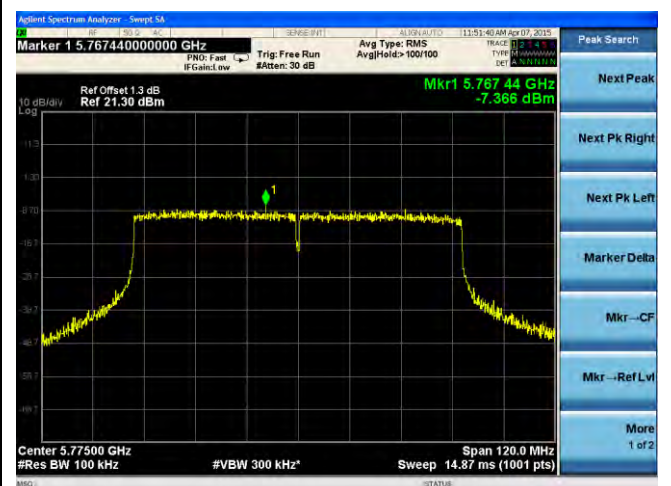
14dB ANT-PSD-802.11n-HT40-5795M-chain1



14dB ANT-PSD-802.11n-HT40-5795M-chain2

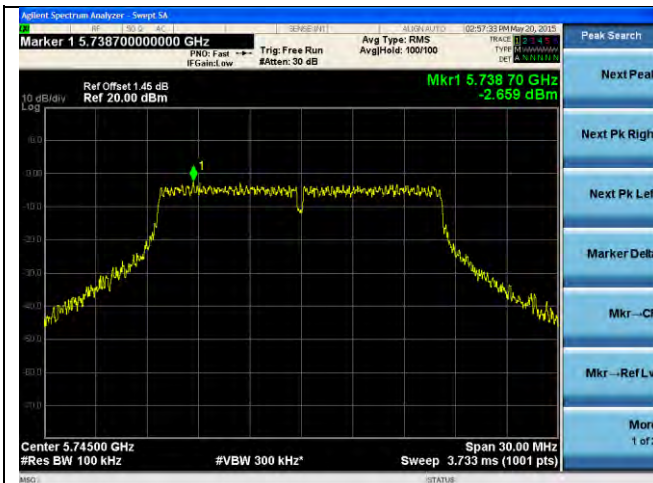


14dB ANT-PSD-802.11ac -5775M-chain1

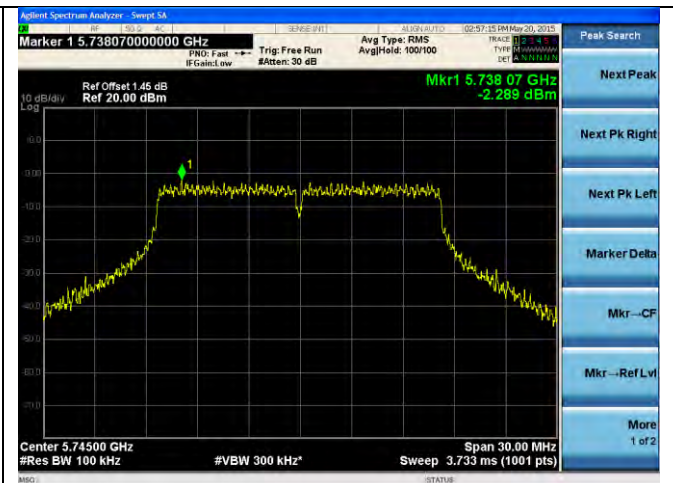


14dB ANT-PSD-802.11ac -5775M-chain2

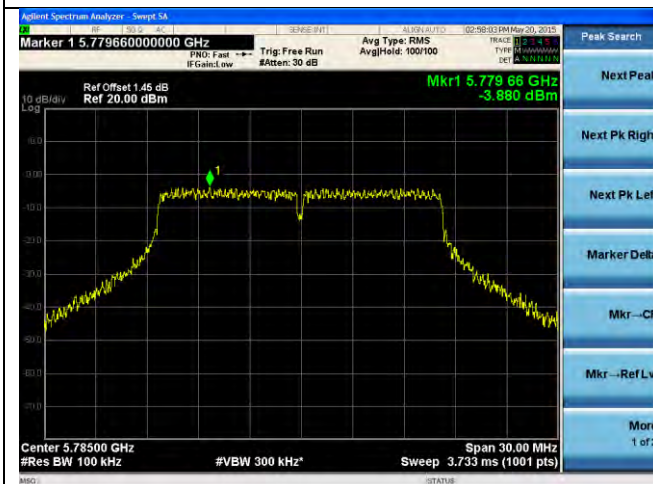




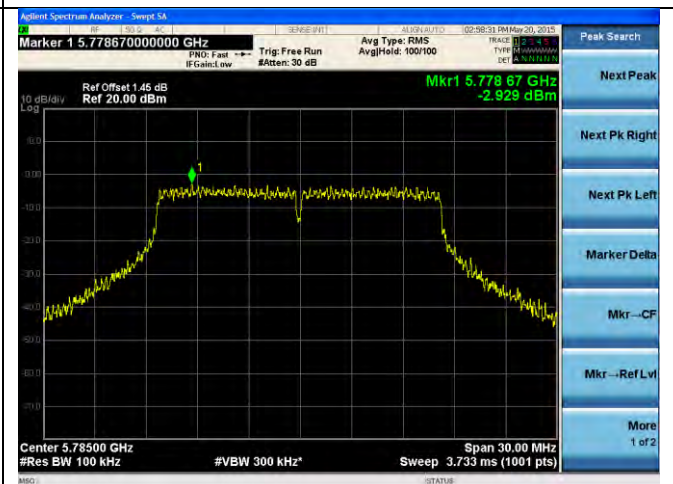
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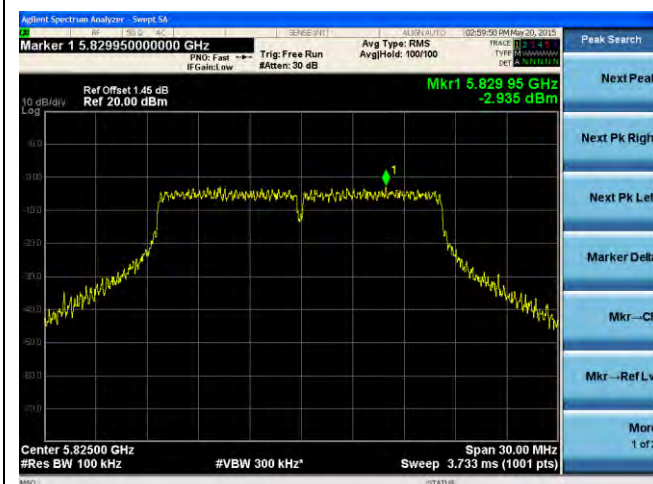
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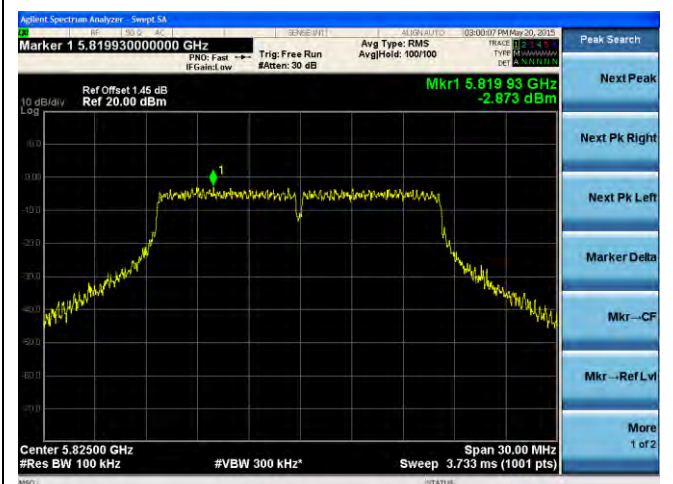
21dB ANT-PSD-802.11a-5785M-chain1



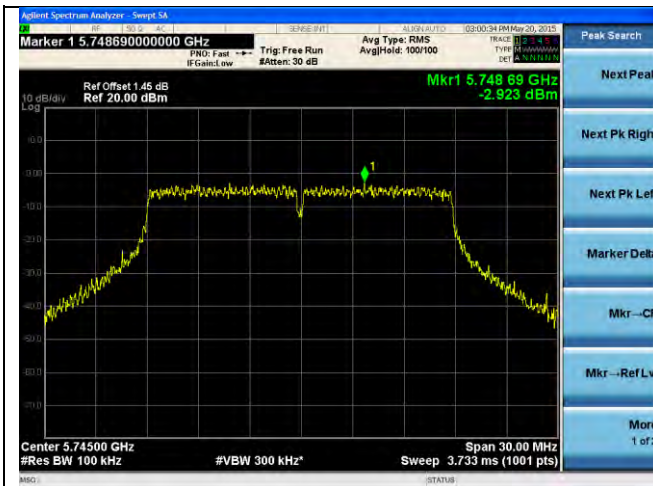
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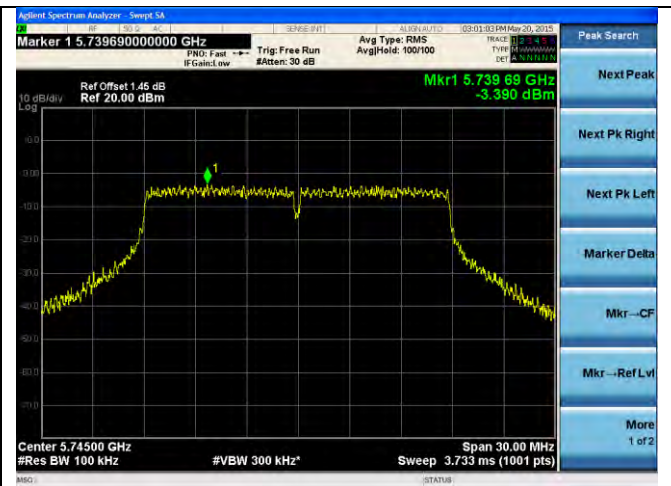
21dB ANT-PSD-802.11a-5825M-chain1



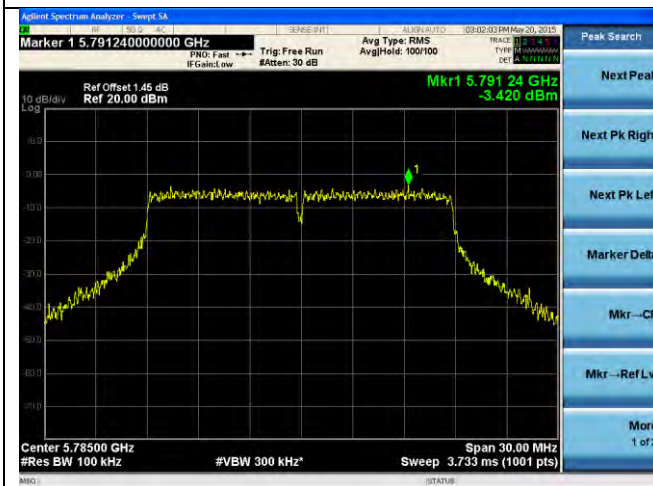
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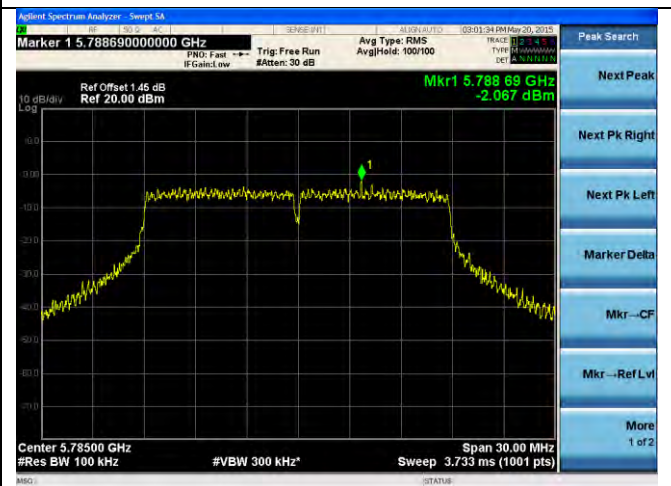
21dB ANT-PSD-802.11n-HT20-5745M-chain1



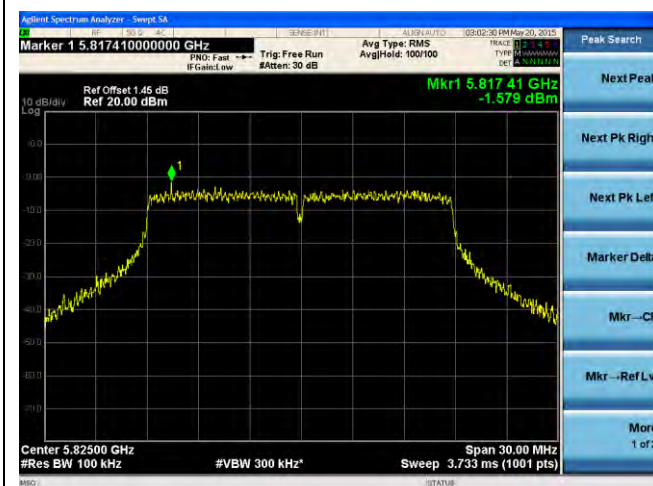
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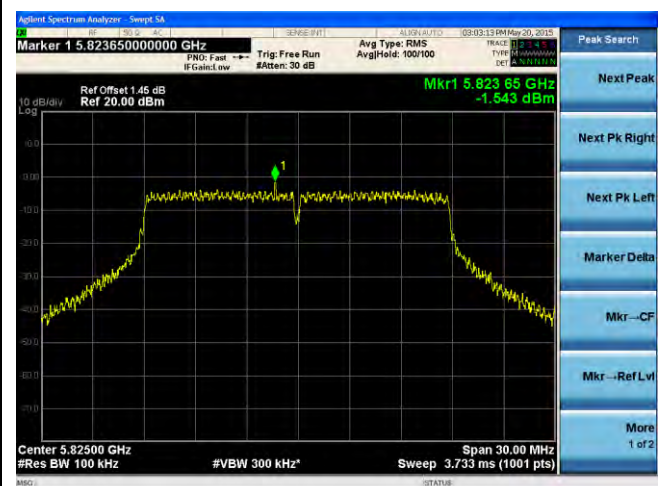
21dB ANT-PSD-802.11n-HT20-5785M-chain1



21dB ANT-PSD-802.11n-HT20-5785M-chain2

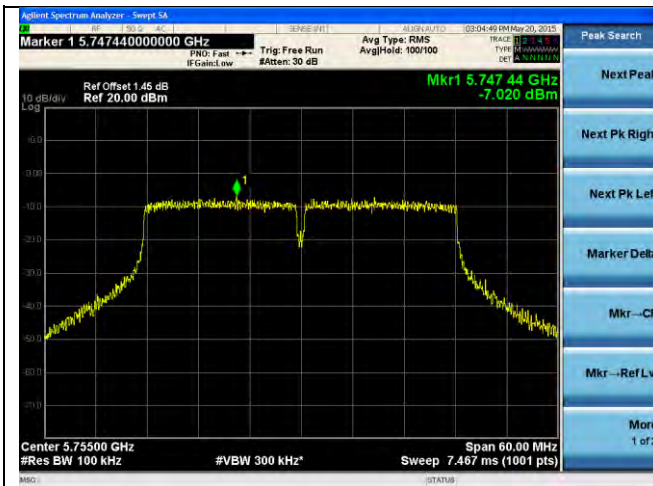


21dB ANT-PSD-802.11n-HT20-5825M-chain1

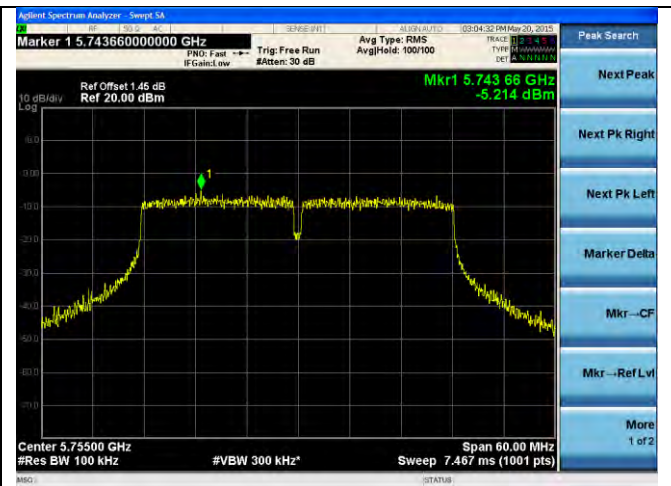


21dB ANT-PSD-802.11n-HT20-5825M-chain2

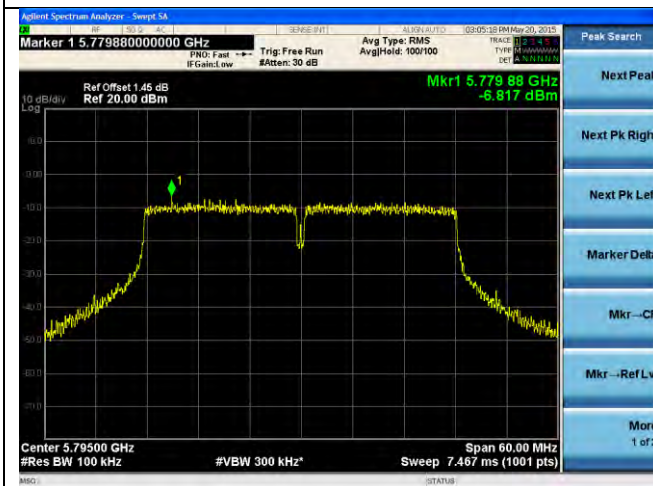




21dB ANT-PSD-802.11n-HT40-5755M-chain1



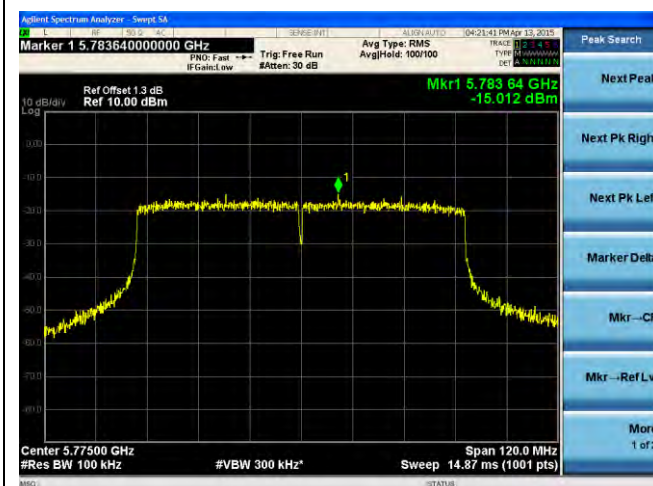
21dB ANT-PSD-802.11n-HT40-5755M-chain2



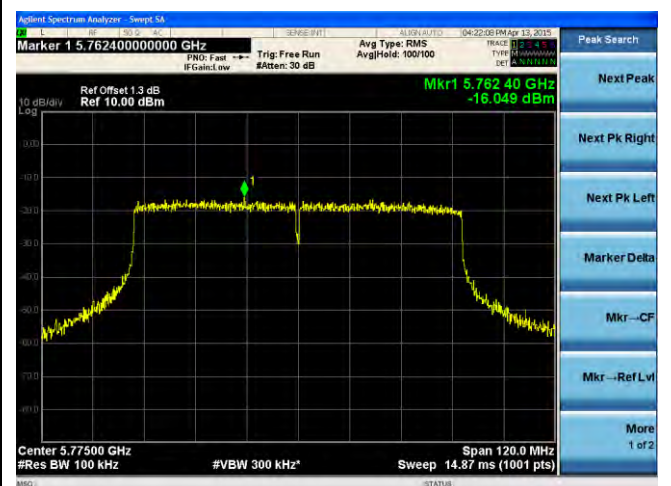
21dB ANT-PSD-802.11n-HT40-5795M-chain1



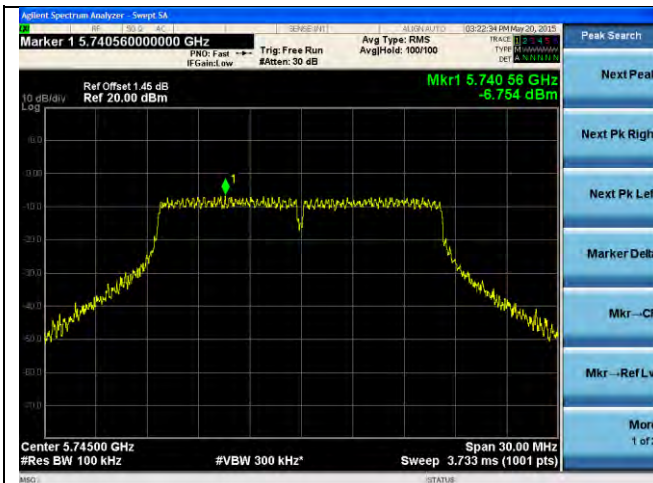
21dB ANT-PSD-802.11n-HT40-5795M-chain2



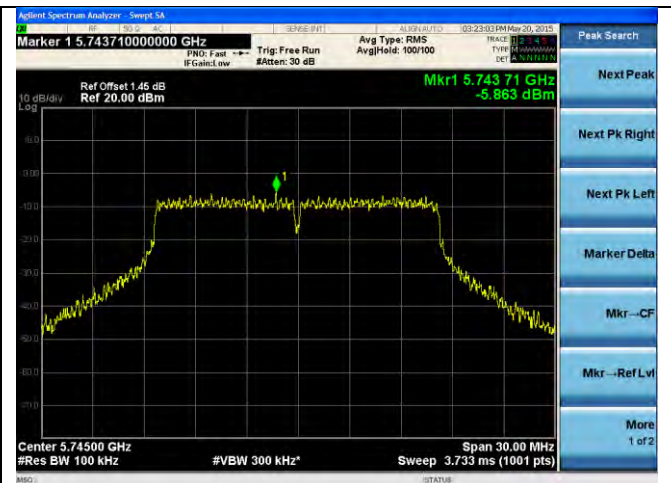
21dB ANT-PSD-802.11ac -5775M-chain1



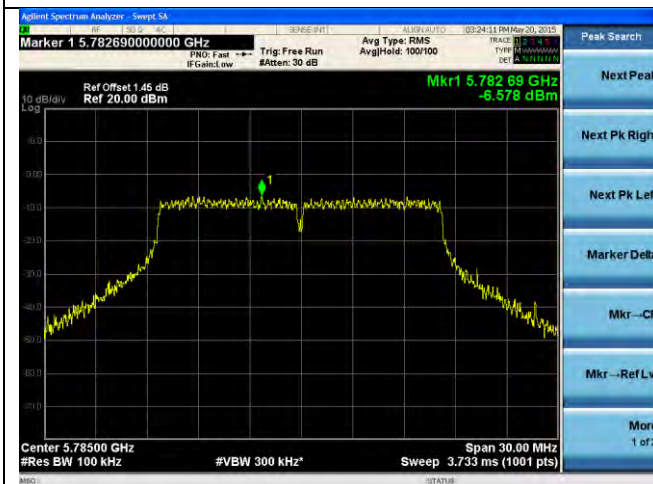
21dB ANT-PSD-802.11ac -5775M-chain2



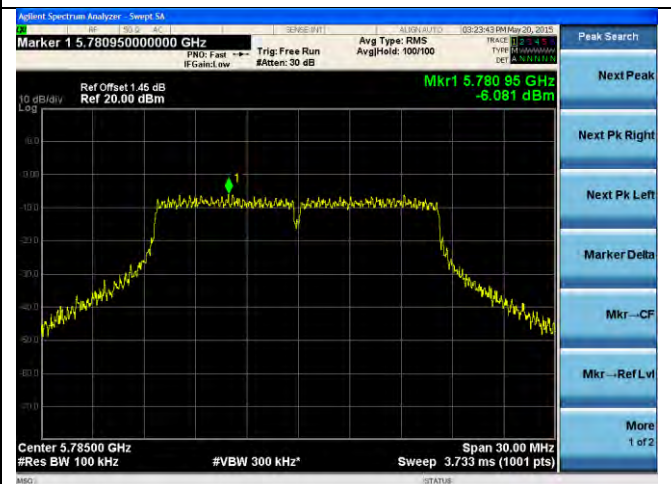
24dB ANT-PSD-802.11a-5745M-chain1



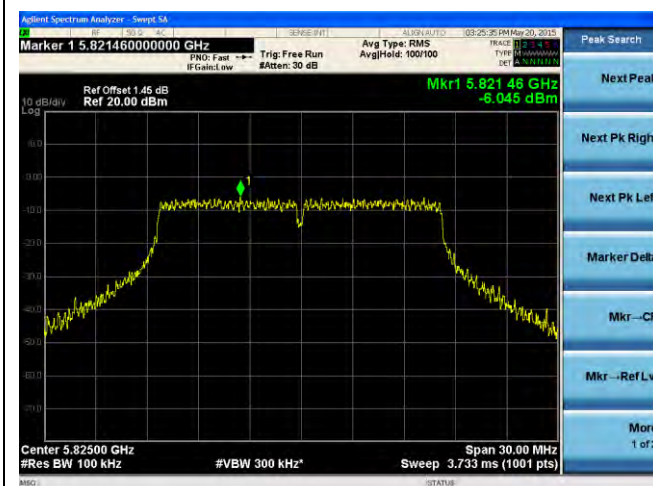
24dB ANT-PSD-802.11a-5745M-chain2



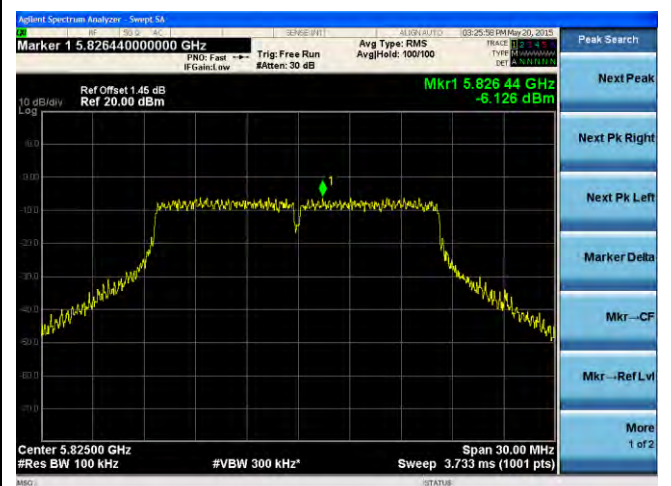
24dB ANT-PSD-802.11a-5785M-chain1



24dB ANT-PSD-802.11a-5785M-chain2

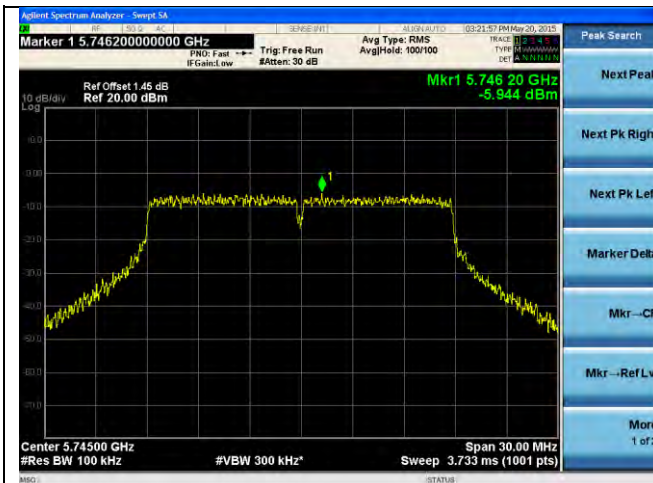


24dB ANT-PSD-802.11a-5825M-chain1

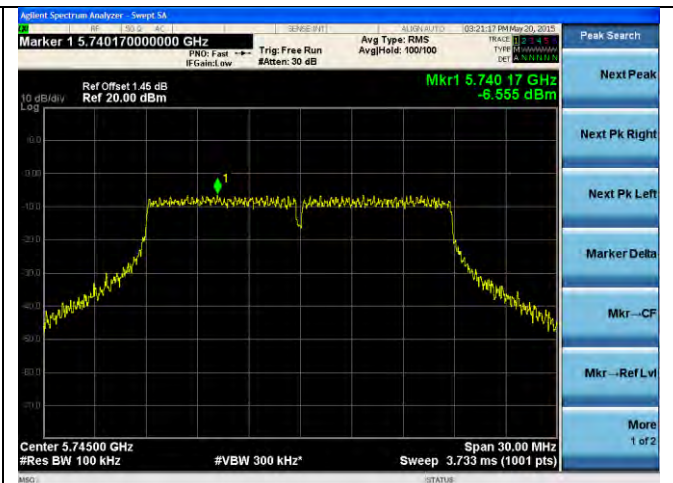


24dB ANT-PSD-802.11a-5825M-chain2

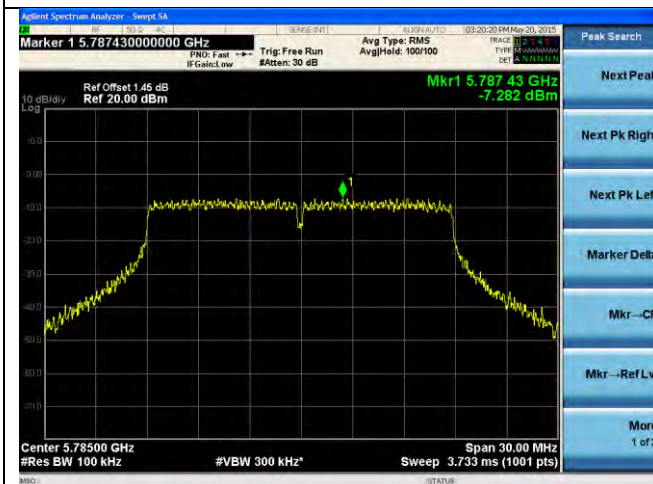




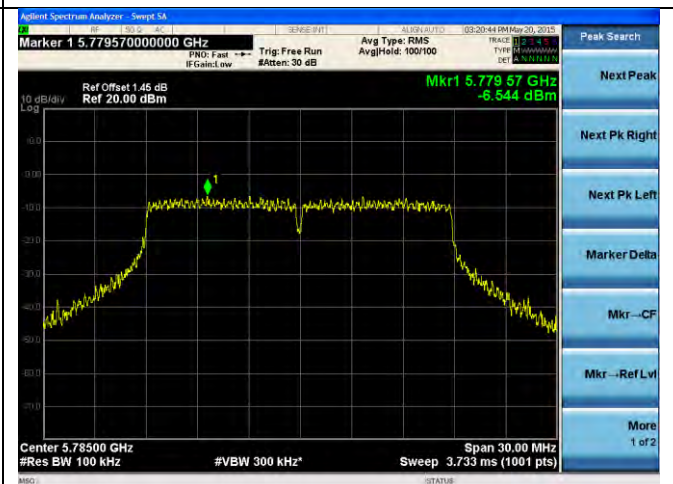
24dB ANT-PSD-802.11n-HT20-5745M-chain1



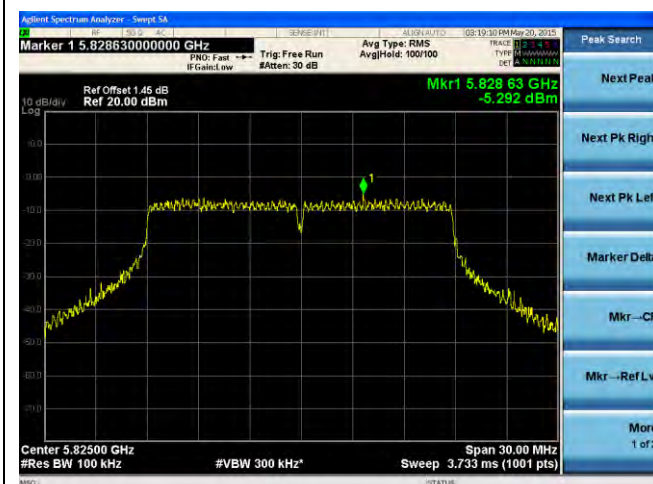
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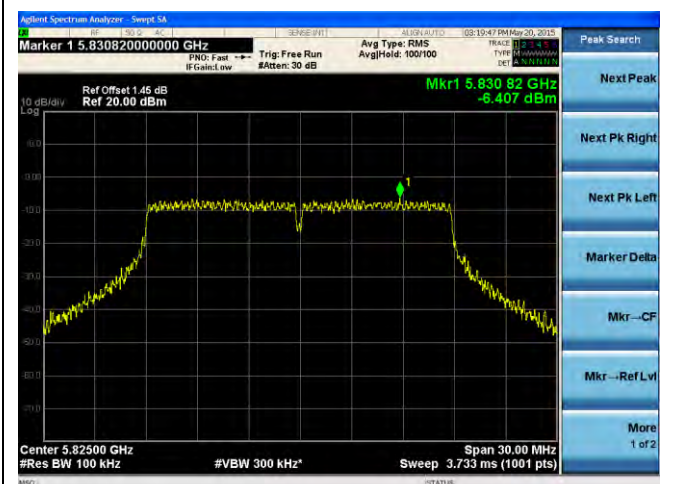
24dB ANT-PSD-802.11n-HT20-5785M-chain1



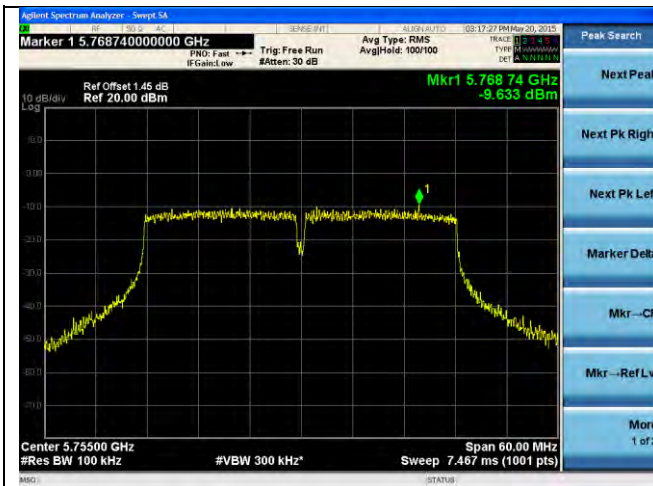
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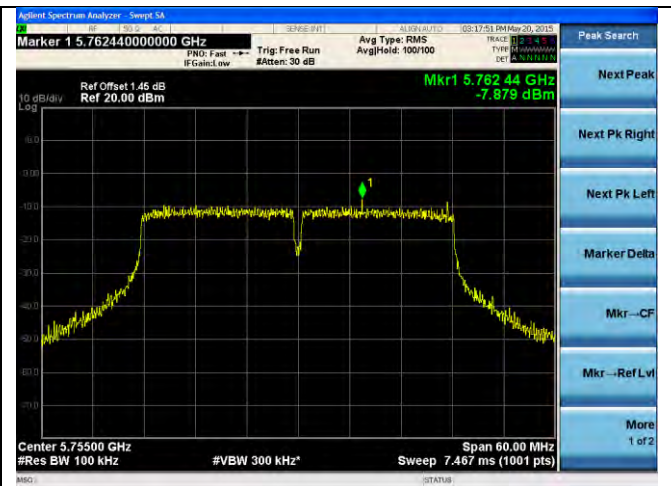
24dB ANT-PSD-802.11n-HT20-5825M-chain1



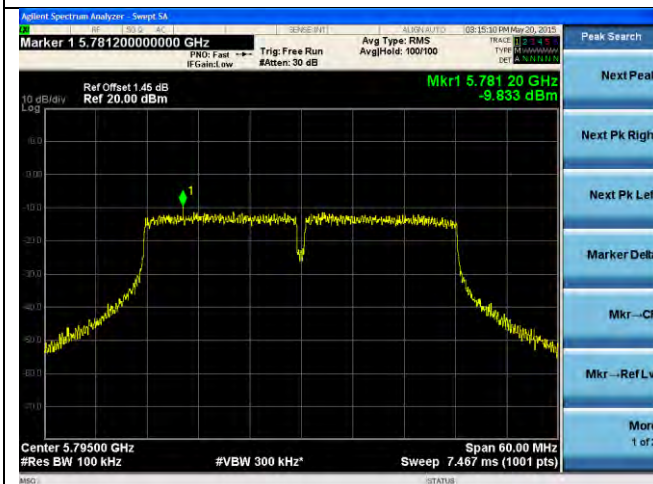
24dB ANT-PSD-802.11n-HT20-5825M-chain2



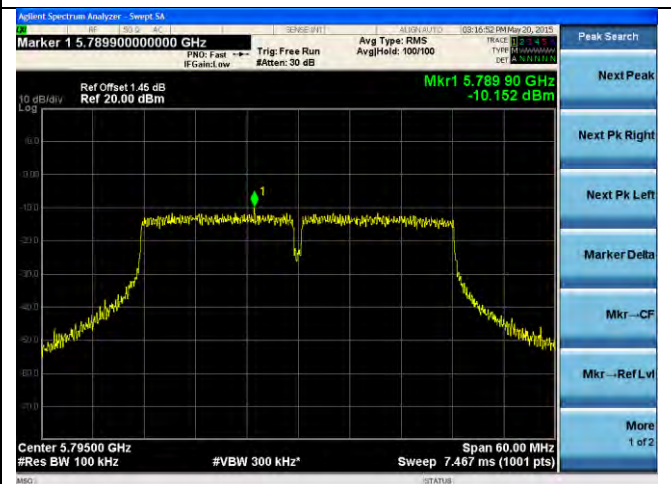
24dB ANT-PSD-802.11n-HT40-5755M-chain1



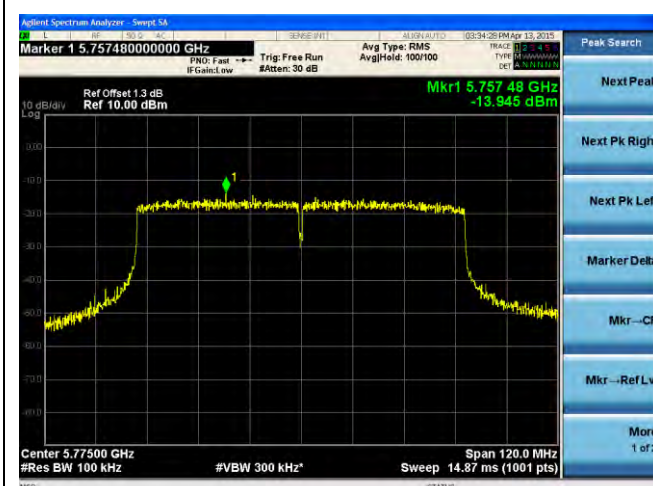
24dB ANT-PSD-802.11n-HT40-5755M-chain2



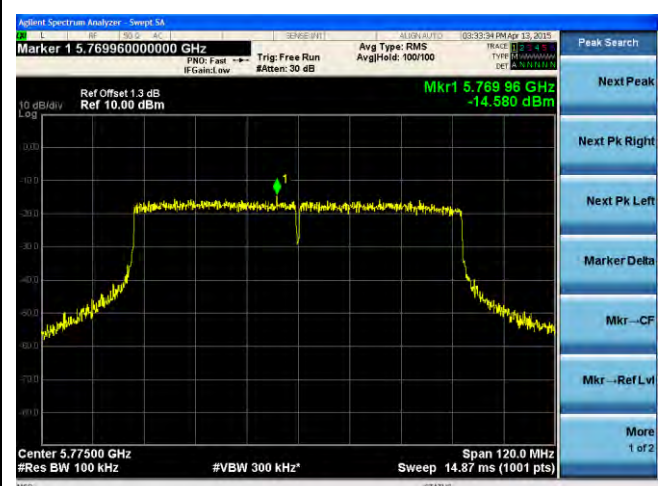
24dB ANT-PSD-802.11n-HT40-5795M-chain1



24dB ANT-PSD-802.11n-HT40-5795M-chain2



24dB ANT-PSD-802.11ac -5775M-chain1



24dB ANT-PSD-802.11ac -5775M-chain2

## Annex A. TEST INSTRUMENT

| Instrument                                     | Model     | Serial #    | Cal Cycle | Cal Due    | In use                              |
|------------------------------------------------|-----------|-------------|-----------|------------|-------------------------------------|
| <b>Conducted Emissions</b>                     |           |             |           |            |                                     |
| Spectrum Analyzer                              | N9010A    | MY50210206  | 1 Year    | 8/13/2015  | <input checked="" type="checkbox"/> |
| Signal Analyzer                                | FSIQ7     | 825555/013  | 1 Year    | 05/31/2015 | <input checked="" type="checkbox"/> |
| V-LISN (150 kHz – 30 MHz)                      | NNLK 8129 | 8129-190    | 1 Year    | 08/11/2015 | <input checked="" type="checkbox"/> |
| LISN (9 kHz – 30 MHz)                          | MN2050B   | 1018        | 1 Year    | 07/31/2015 | <input checked="" type="checkbox"/> |
| TLISN                                          | ISN T800  | 30814       | 1 Year    | 08/08/2015 | <input checked="" type="checkbox"/> |
| Hygro Hermograph                               | ST-50     | HE01-000092 | 1 Year    | 05/25/2015 | <input checked="" type="checkbox"/> |
| <b>Radiated Emissions</b>                      |           |             |           |            |                                     |
| EMI Test Receiver                              | ESIB 40   | 100179      | 1 Year    | 05/24/2015 | <input checked="" type="checkbox"/> |
| Antenna - Biconlog (30 MHz – 2 GHz)            | JB1       | A030702     | 1 Year    | 08/12/2015 | <input checked="" type="checkbox"/> |
| DoubleRidged Waveguide Horn Antenna (1-18 GHz) | 3115      | 10SL0059    | 1 Year    | 08/11/2015 | <input checked="" type="checkbox"/> |
| Horn Antenna (18-40 GHz)                       | AH-840    | 101013      | 1 Year    | 08/11/2015 | <input checked="" type="checkbox"/> |
| RF Pre-Amplifier                               | LPA-6-30  | 11140711    | 1 Year    | 02/19/2016 | <input checked="" type="checkbox"/> |
| Microwave Preamplifier (18-40 GHz)             | PA-840    | 181251      | 1 Year    | 02/19/2016 | <input checked="" type="checkbox"/> |
| 10 Meters SAC                                  | 10M       | N/A         | 1 Year    | 09/05/2015 | <input checked="" type="checkbox"/> |
| Hygro Hermograph                               | ST-50     | HE01-000092 | 1 Year    | 05/25/2015 | <input checked="" type="checkbox"/> |
| <b>RF Conducted Measurement</b>                |           |             |           |            |                                     |
| Spectrum Analyzer                              | N9010A    | MY50210206  | 1 Year    | 8/13/2015  | <input checked="" type="checkbox"/> |



## Annex B. SIEMIC Accreditation

| Accreditations                          | Document                                                                            | Scope / Remark                                                                                                                                                            |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISO 17025 (A2LA)                        |    | Please see the documents for the detailed scope                                                                                                                           |
| ISO Guide 65 (A2LA)                     |    | Please see the documents for the detailed scope                                                                                                                           |
| TCB Designation                         |                                                                                     | <a href="#">A1</a> , <a href="#">A2</a> , <a href="#">A3</a> , <a href="#">A4</a> , <a href="#">B1</a> , <a href="#">B2</a> , <a href="#">B3</a> , <a href="#">B4</a> , C |
| FCC DoC Accreditation                   |    | FCC Declaration of Conformity Accreditation                                                                                                                               |
| FCC Site Registration                   |    | 3 meter site                                                                                                                                                              |
| FCC Site Registration                   |    | 10 meter site                                                                                                                                                             |
| IC Site Registration                    |    | 3 meter site                                                                                                                                                              |
| IC Site Registration                    |    | 10 meter site                                                                                                                                                             |
| EU NB                                   |    | <b>Radio &amp; Telecommunications Terminal Equipment:</b><br>EN45001 – EN ISO/IEC 17025                                                                                   |
|                                         |  | <b>Electromagnetic Compatibility:</b><br>EN45001 – EN ISO/IEC 17025                                                                                                       |
| Singapore iDA<br>CB(Certification Body) |  | <a href="#">Phase I</a> , <a href="#">Phase II</a>                                                                                                                        |
| Vietnam MIC<br>CAB Accreditation        |  | Please see the document for the detailed scope                                                                                                                            |
| Hong Kong OFCA                          |  | <b>(Phase II)</b> OFCA Foreign Certification Body for Radio and Telecom                                                                                                   |
|                                         |  | <b>(Phase I)</b> Conformity Assessment Body for Radio and Telecom                                                                                                         |
| Industry Canada CAB                     |  | <b>Radio:</b> Scope A – All Radio Standard Specification in Category I                                                                                                    |
|                                         |  | <b>Telecom:</b> CS-03 Part I, II, V, VI, VII, VIII                                                                                                                        |

|                                                    |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Japan Recognized Certification<br>Body Designation |    | <p><b>Radio:</b> A1. Terminal equipment for purpose of calling</p> <p><b>Telecom:</b> B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Korea CAB Accreditation                            |    | <p><b>EMI:</b> KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI<br/>KN22: Test Method for EMI</p> <p><b>EMS:</b> KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS<br/>KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS</p> <p><b>Radio:</b> RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68</p> <p><b>Telecom:</b> President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4</p> |
| Taiwan NCC CAB Recognition                         |    | LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Taiwan BSMI CAB Recognition                        |  | CNS 13438                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Japan VCCI                                         |  | <p>R-3083: Radiation 3 meter site</p> <p>C-3421: Main Ports Conducted Interference Measurement</p> <p>T-1597: Telecommunication Ports Conducted Interference Measurement</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Australia CAB Recognition                          |  | <p><b>EMC:</b> AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4</p> <p><b>Radio communications:</b> AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771</p> <p><b>Telecommunications:</b> AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1</p>                                                                                                              |
| Australia NATA Recognition                         |  | AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016, AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |