

# FCC Test Report

Report No.: AGC02150190601FE05

**FCC ID** : 2A05FASC-S5  
**APPLICATION PURPOSE** : Original Equipment  
**PRODUCT DESIGNATION** : WIFI SPEAKER  
**BRAND NAME** : LUXMAN  
**MODEL NAME** : ASC-S5  
**APPLICANT** : IAG Group Ltd.  
**DATE OF ISSUE** : Aug. 27, 2019  
**STANDARD(S)** : FCC Part 15.247  
**TEST PROCEDURE(S)**  
**REPORT VERSION** : V1.0

## Attestation of Global Compliance (Shenzhen) Co., Ltd

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## REPORT REVISE RECORD

| Report Version | Revise Time | Issued Date   | Valid Version | Notes           |
|----------------|-------------|---------------|---------------|-----------------|
| V1.0           | /           | Aug. 27, 2019 | Valid         | Initial Release |



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## 1. VERIFICATION OF CONFORMITY

|                                 |                                                                                            |
|---------------------------------|--------------------------------------------------------------------------------------------|
| <b>Applicant</b>                | IAG Group Ltd.                                                                             |
| <b>Address</b>                  | Sanecore Science & Technology Industry Park, Jiuwei Village, Xixiang Town, Shenzhen, China |
| <b>manufacturer</b>             | IAG Group Ltd.                                                                             |
| <b>Address</b>                  | Sanecore Science & Technology Industry Park, Jiuwei Village, Xixiang Town, Shenzhen, China |
| <b>Factory</b>                  | Sanecore Audio(Ji'an)CO., Ltd.                                                             |
| <b>Address</b>                  | Fenghuang Industrial Park, Ji'an County, Ji'an City, Jiangxi, China                        |
| <b>Product Designation</b>      | WIFI SPEAKER                                                                               |
| <b>Brand Name</b>               | LUXMAN                                                                                     |
| <b>Test Model</b>               | ASC-S5                                                                                     |
| <b>Date of test</b>             | Jun. 27, 2019 to Aug. 16, 2019                                                             |
| <b>Deviation</b>                | None                                                                                       |
| <b>Condition of Test Sample</b> | Normal                                                                                     |
| <b>Test Result</b>              | Pass                                                                                       |
| <b>Report Template</b>          | AGCRT-US-BGN/RF                                                                            |

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.247.

Prepared By

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Aug. 16, 2019

Reviewed By

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(Reviewer)

Aug. 27, 2019

Approved By

*Forrest Lei*

Forrest Lei  
(Authorized Officer)

Aug. 27, 2019

## 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

The EUT is designed as "WIFI SPEAKER". It is designed by way of utilizing the DSSS and OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

|                                 |                                                                                                       |
|---------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>Operation Frequency</b>      | 2.412 GHz~2.462GHz                                                                                    |
| <b>Output Power</b>             | IEEE 802.11b:17.25dBm; IEEE 802.11g:16.33dBm;<br>IEEE 802.11n(20):18.04dBm; IEEE 802.11n(40):17.30dBm |
| <b>Modulation</b>               | DSSS(DBPSK/DQPSK/CCK);OFDM(BPSK/QPSK/16-QAM/64-QAM)                                                   |
| <b>Number of channels</b>       | 11                                                                                                    |
| <b>Hardware Version</b>         | A01                                                                                                   |
| <b>Software Version</b>         | LUXMANASC-S5_025M_mcu                                                                                 |
| <b>Antenna Designation</b>      | FPC Antenna                                                                                           |
| <b>Number of transmit chain</b> | 2(802.11b/g/n20/n40 all used two antennas,but 802.11b/g support SISO and 802.11n20/n40 support MIMO)  |
| <b>Antenna Gain</b>             | 3dBi                                                                                                  |
| <b>Power Supply</b>             | AC 100-240V 50/60Hz                                                                                   |

### 2.2. TABLE OF CARRIER FREQUENCIES

| Frequency Band | Channel Number | Frequency |
|----------------|----------------|-----------|
| 2400~2483.5MHZ | 1              | 2412 MHZ  |
|                | 2              | 2417 MHZ  |
|                | 3              | 2422 MHZ  |
|                | 4              | 2427 MHZ  |
|                | 5              | 2432 MHZ  |
|                | 6              | 2437 MHZ  |
|                | 7              | 2442 MHZ  |
|                | 8              | 2447 MHZ  |
|                | 9              | 2452 MHZ  |
|                | 10             | 2457 MHZ  |
|                | 11             | 2462 MHZ  |

Note: For 20MHZ bandwidth system use Channel 1 to Channel 11, For 40MHZ bandwidth system use Channel 3 to Channel 9

### 2.3. IEEE 802.11N MODULATION SCHEME

| MCS Index | Nss | Modulation | R   | NBPSC | NCBPS |       | NDBPS |       | Data rate(Mbps) |       |
|-----------|-----|------------|-----|-------|-------|-------|-------|-------|-----------------|-------|
|           |     |            |     |       |       |       |       |       | 800nsGI         |       |
|           |     |            |     |       | 20MHz | 40MHz | 20MHz | 40MHz | 20MHz           | 40MHz |
| 0         | 1   | BPSK       | 1/2 | 1     | 52    | 108   | 26    | 54    | 6.5             | 13.5  |
| 1         | 1   | QPSK       | 1/2 | 2     | 104   | 216   | 52    | 108   | 13.0            | 27.0  |
| 2         | 1   | QPSK       | 3/4 | 2     | 104   | 216   | 78    | 162   | 19.5            | 40.5  |
| 3         | 1   | 16-QAM     | 1/2 | 4     | 208   | 432   | 104   | 216   | 26.0            | 54.0  |
| 4         | 1   | 16-QAM     | 3/4 | 4     | 208   | 432   | 156   | 324   | 39.0            | 81.0  |
| 5         | 1   | 64-QAM     | 2/3 | 6     | 312   | 648   | 208   | 432   | 52.0            | 108.0 |
| 6         | 1   | 64-QAM     | 3/4 | 6     | 312   | 648   | 234   | 489   | 58.5            | 121.5 |
| 7         | 1   | 64-QAM     | 5/6 | 6     | 312   | 648   | 260   | 540   | 65.0            | 135.0 |

| Symbol | Explanation                             |
|--------|-----------------------------------------|
| NSS    | Number of spatial streams               |
| R      | Code rate                               |
| NBPSC  | Number of coded bits per single carrier |
| NCBPS  | Number of coded bits per symbol         |
| NDBPS  | Number of data bits per symbol          |
| GI     | Guard interval                          |

### 2.4. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2A05FASC-S5** filing to comply with the FCC Part 15 requirements.

### 2.5. TEST METHODOLOGY

KDB 558074 D01 15.247 Meas Guidance v05: Guidance for compliance measurements on Digital transmission system, frequency hopping spread spectrum system, and hybrid system devices operating under section 15.247 of the FCC rules

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

### 2.6. SPECIAL ACCESSORIES

Refer to section 5.2.

### 2.7. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

### 3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in measurement” (GUM) published by CISPR and ANSI.

- Uncertainty of Conducted Emission,  $U_c = \pm 3.2$  dB
- Uncertainty of Radiated Emission below 1GHz,  $U_c = \pm 3.9$  dB
- Uncertainty of Radiated Emission above 1GHz,  $U_c = \pm 4.8$  dB





#### 4. DESCRIPTION OF TEST MODES

| NO.                                                                                                                                                                                                                                                                                  | TEST MODE DESCRIPTION |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 1                                                                                                                                                                                                                                                                                    | Low channel TX        |
| 2                                                                                                                                                                                                                                                                                    | Middle channel TX     |
| 3                                                                                                                                                                                                                                                                                    | High channel TX       |
| 4                                                                                                                                                                                                                                                                                    | Normal operating      |
| Note:<br>Transmit by 802.11b with Data rate (1/2/5.5/11)<br>Transmit by 802.11g with Data rate (6/9/12/18/24/36/48/54)<br>Transmit by 802.11n (20MHz) with Data rate (6.5/13/19.5/26/39/52/58.5/65)<br>Transmit by 802.11n (40MHz) with Data rate (13.5/27/40.5/54/81/108/121.5/135) |                       |

#### Note:

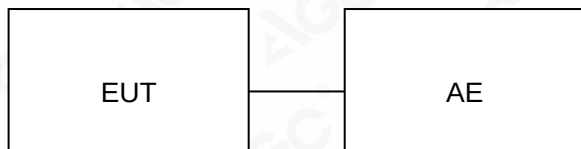
1. The EUT has been set to operate continuously on the lowest, middle and highest operation frequency Individually, and the eut is operating at its maximum duty cycle>or equal 98%
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
3. The test software is the QATool\_Dbg\_V2.0.10.3 which can set the EUT into the individual test modes.



## 5. SYSTEM TEST CONFIGURATION

### 5.1. CONFIGURATION OF EUT SYSTEM

Configure 1:



### 5.2. EQUIPMENT USED IN EUT SYSTEM

| Item | Equipment     | Model No. | ID or Specification | Remark |
|------|---------------|-----------|---------------------|--------|
| 1    | WIFI SPEAKER  | ASC-S5    | 2AO5FASC-S5         | EUT    |
| 3    | U-Disk        | Kingston  | 8G                  | AE     |
| 4    | Network Cable | --        | 6m Unshielded       | AE     |
| 5    | Smartphone    | Huawei    | V8                  | AE     |
| 6    | DVD Player    | SONY      | BDP-S370            | AE     |
| 7    | Loudspeaker   | --        | --                  | AE     |

### 5.3. SUMMARY OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST                             | RESULT    |
|-----------|-------------------------------------------------|-----------|
| §15.247   | Output Power                                    | Compliant |
| §15.247   | 6 dB Bandwidth                                  | Compliant |
| §15.247   | Conducted Spurious Emission                     | Compliant |
| §15.247   | Maximum Conducted Output Power SPECTRAL Density | Compliant |
| §15.209   | Radiated Emission                               | Compliant |
| §15.247   | Band Edges                                      | Compliant |
| §15.207   | Line Conduction Emission                        | Compliant |

## 6. TEST FACILITY

|                                          |                                                                                                                                          |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Site</b>                         | Attestation of Global Compliance (Shenzhen) Co., Ltd                                                                                     |
| <b>Location</b>                          | 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China |
| <b>Designation Number</b>                | CN1259                                                                                                                                   |
| <b>FCC Test Firm Registration Number</b> | 975832                                                                                                                                   |
| <b>A2LA Cert. No.</b>                    | 5054.02                                                                                                                                  |
| <b>Description</b>                       | Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA                                                                |

### TEST EQUIPMENT OF CONDUCTED EMISSION TEST

| Equipment     | Manufacturer | Model   | S/N    | Cal. Date     | Cal. Due      |
|---------------|--------------|---------|--------|---------------|---------------|
| TEST RECEIVER | R&S          | ESPI    | 101206 | Jun. 10, 2019 | Jun. 09, 2020 |
| LISN          | R&S          | ESH2-Z5 | 100086 | Aug. 26, 2019 | Aug. 25, 2020 |

### TEST EQUIPMENT OF RADIATED EMISSION TEST

| Equipment                      | Manufacturer  | Model       | S/N        | Cal. Date     | Cal. Due      |
|--------------------------------|---------------|-------------|------------|---------------|---------------|
| TEST RECEIVER                  | R&S           | ESCI        | 10096      | Jun. 10, 2019 | Jun. 09, 2020 |
| EXA Signal Analyzer            | Aglient       | N9010A      | MY53470504 | Dec. 20, 2018 | Dec. 19, 2019 |
| Power sensor                   | Aglient       | U2021XA     | MY54110007 | Dec. 20, 2018 | Dec. 19, 2019 |
| 2.4GHz Fliter                  | Micro-tronics | 087         | N/A        | Jun. 10, 2019 | Jun. 09, 2020 |
| Horn antenna                   | SCHWARZBECK   | BBHA 9170   | #768       | Sep. 21, 2017 | Sep. 20, 2020 |
| preamplifier                   | ChengYi       | EMC184045SE | 980508     | Sep. 21, 2017 | Sep. 20, 2020 |
| Active loop antenna (9K-30MHz) | A.H.          | SAS-562B    | N/A        | May. 26, 2018 | May. 25, 2020 |
| Double-Ridged Waveguide Horn   | ETS LINDGREN  | 3117        | 00034609   | May. 26, 2018 | May. 25, 2020 |
| Broadband Preamplifier         | SCHWARZBECK   | BBV 9718    | 9718-205   | Sep. 28, 2017 | Sep. 27, 2019 |
| ANTENNA                        | SCHWARZBECK   | VULB9168    | D69250     | Sep. 28, 2017 | Sep. 27, 2019 |

## 7. OUTPUT POWER

### 7.1. MEASUREMENT PROCEDURE

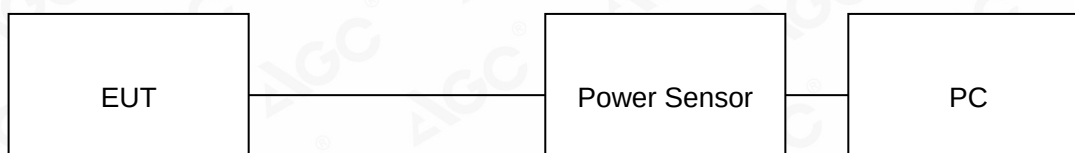
For average power test:

1. Connect EUT RF output port to power sensor through an RF attenuator.
2. Connect the power sensor to the PC.
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Record the maximum power from the software.

**Note :** The EUT was tested according to ANSI C63.10 (2013) for compliance to FCC 47CFR 15.247 requirements.

### 7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

#### AVERAGE POWER SETUP





### 7.3. LIMITS AND MEASUREMENT RESULT

|           |                          |
|-----------|--------------------------|
| TEST ITEM | OUTPUT POWER             |
| TEST MODE | 802.11b with data rate 1 |

| Frequency (GHz) | Average Power Chain 1 (dBm) | Average Power Chain 2 (dBm) | Average Power Total (dBm) | Applicable Limits (dBm) | Pass or Fail |
|-----------------|-----------------------------|-----------------------------|---------------------------|-------------------------|--------------|
| 2.412           | 17.25                       | 17.03                       | N/A                       | 30                      | Pass         |
| 2.437           | 17.18                       | 17.11                       | N/A                       | 30                      | Pass         |
| 2.462           | 17.20                       | 17.16                       | N/A                       | 30                      | Pass         |

|           |                          |
|-----------|--------------------------|
| TEST ITEM | OUTPUT POWER             |
| TEST MODE | 802.11g with data rate 6 |

| Frequency (GHz) | Average Power Chain 1 (dBm) | Average Power Chain 2 (dBm) | Average Power Total (dBm) | Applicable Limits (dBm) | Pass or Fail |
|-----------------|-----------------------------|-----------------------------|---------------------------|-------------------------|--------------|
| 2.412           | 16.28                       | 16.20                       | N/A                       | 30                      | Pass         |
| 2.437           | 16.33                       | 16.14                       | N/A                       | 30                      | Pass         |
| 2.462           | 16.21                       | 16.09                       | N/A                       | 30                      | Pass         |

|           |                               |
|-----------|-------------------------------|
| TEST ITEM | OUTPUT POWER                  |
| TEST MODE | 802.11n 20 with data rate 6.5 |

| Frequency (GHz) | Average Power Chain 1 (dBm) | Average Power Chain 2 (dBm) | Average Power Total (dBm) | Applicable Limits (dBm) | Pass or Fail |
|-----------------|-----------------------------|-----------------------------|---------------------------|-------------------------|--------------|
| 2.412           | 15.11                       | 14.85                       | 17.99                     | 30                      | Pass         |
| 2.437           | 15.07                       | 14.98                       | 18.04                     | 30                      | Pass         |
| 2.462           | 14.96                       | 15.03                       | 18.01                     | 30                      | Pass         |

|           |                                |
|-----------|--------------------------------|
| TEST ITEM | OUTPUT POWER                   |
| TEST MODE | 802.11n 40 with data rate 13.5 |

| Frequency (GHz) | Average Power Chain 1 (dBm) | Average Power Chain 2 (dBm) | Average Power Total (dBm) | Applicable Limits (dBm) | Pass or Fail |
|-----------------|-----------------------------|-----------------------------|---------------------------|-------------------------|--------------|
| 2.422           | 14.36                       | 14.22                       | 17.30                     | 30                      | Pass         |
| 2.437           | 14.22                       | 14.30                       | 17.27                     | 30                      | Pass         |
| 2.452           | 14.31                       | 14.24                       | 17.29                     | 30                      | Pass         |



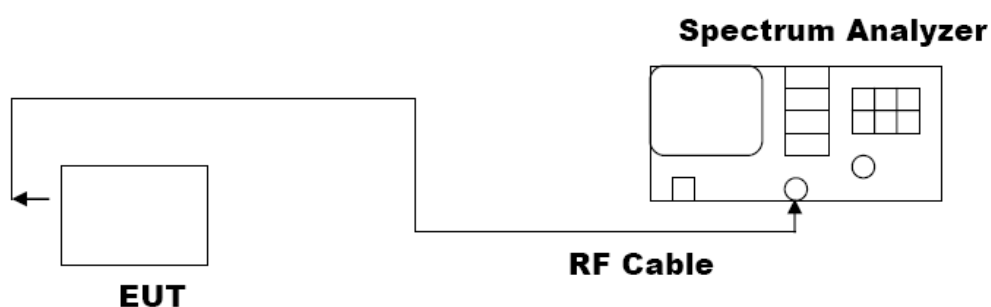
## 8. 6 DB BANDWIDTH

### 8.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW $\geq$ 3 $\times$ RBW.
4. Set SPA Trace 1 Max hold, then View.

**Note:** The EUT was tested according to ANSI C63.10 (2013) for compliance to FCC 47CFR 15.247 requirements.

### 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



### 8.3. LIMITS AND MEASUREMENT RESULTS

|           |                           |
|-----------|---------------------------|
| TEST ITEM | 6DB BANDWIDTH             |
| TEST MODE | 802.11b with data rate 11 |

| LIMITS AND MEASUREMENT RESULT |                   |       |          |
|-------------------------------|-------------------|-------|----------|
| Applicable Limits             | Applicable Limits |       |          |
|                               | Test Data (MHz)   |       | Criteria |
| >500KHZ                       | Low Channel       | 9.782 | PASS     |
|                               | Middle Channel    | 10.03 | PASS     |
|                               | High Channel      | 9.758 | PASS     |

|           |                           |
|-----------|---------------------------|
| TEST ITEM | 6DB BANDWIDTH             |
| TEST MODE | 802.11g with data rate 54 |

| LIMITS AND MEASUREMENT RESULT |                   |       |          |
|-------------------------------|-------------------|-------|----------|
| Applicable Limits             | Applicable Limits |       |          |
|                               | Test Data (MHz)   |       | Criteria |
| >500KHZ                       | Low Channel       | 15.10 | PASS     |
|                               | Middle Channel    | 15.10 | PASS     |
|                               | High Channel      | 15.09 | PASS     |

|           |                              |
|-----------|------------------------------|
| TEST ITEM | 6DB BANDWIDTH                |
| TEST MODE | 802.11n 20 with data rate 65 |

| LIMITS AND MEASUREMENT RESULT |                   |       |          |
|-------------------------------|-------------------|-------|----------|
| Applicable Limits             | Applicable Limits |       |          |
|                               | Test Data (MHz)   |       | Criteria |
| >500KHZ                       | Low Channel       | 15.11 | PASS     |
|                               | Middle Channel    | 15.08 | PASS     |
|                               | High Channel      | 15.10 | PASS     |



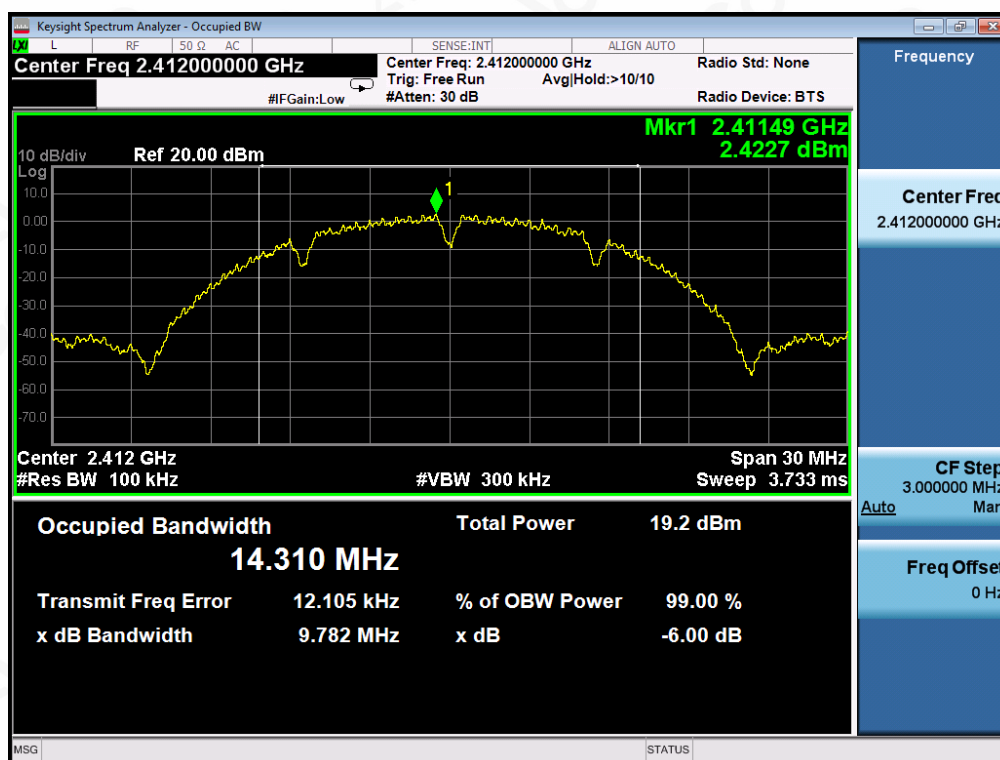
|           |                               |
|-----------|-------------------------------|
| TEST ITEM | 6DB BANDWIDTH                 |
| TEST MODE | 802.11n 40 with data rate 135 |

| LIMITS AND MEASUREMENT RESULT |                   |       |          |
|-------------------------------|-------------------|-------|----------|
| Applicable Limits             | Applicable Limits |       |          |
|                               | Test Data (MHz)   |       | Criteria |
| >500KHZ                       | Low Channel       | 35.07 | PASS     |
|                               | Middle Channel    | 35.08 | PASS     |
|                               | High Channel      | 35.06 | PASS     |

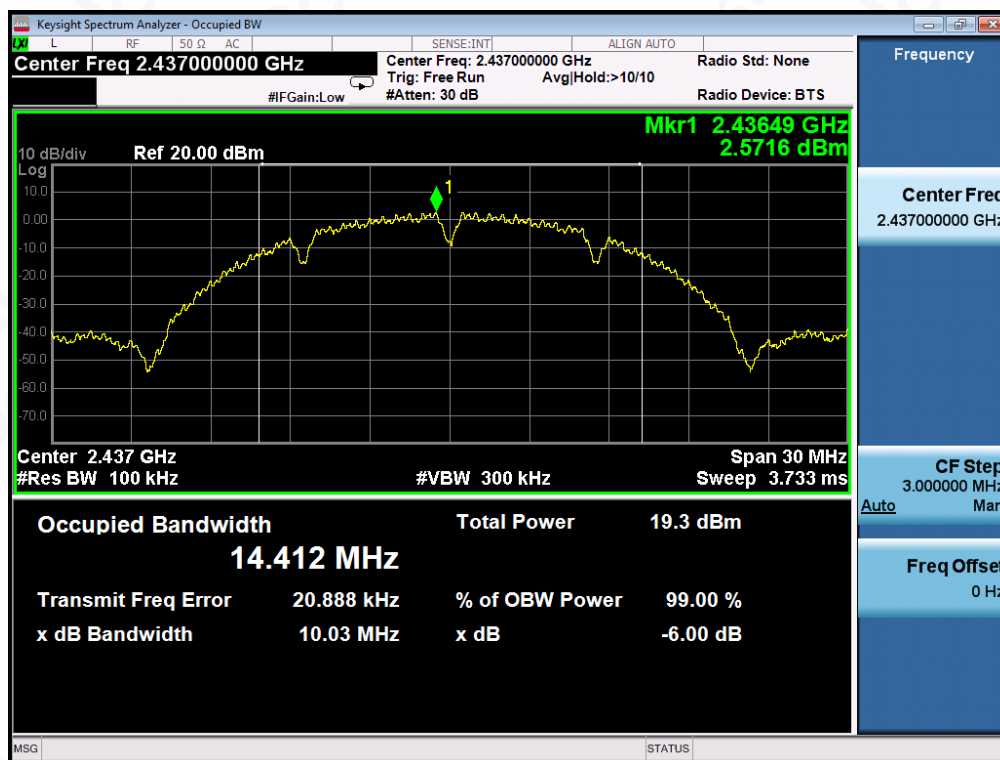


## 802.11b TEST RESULT

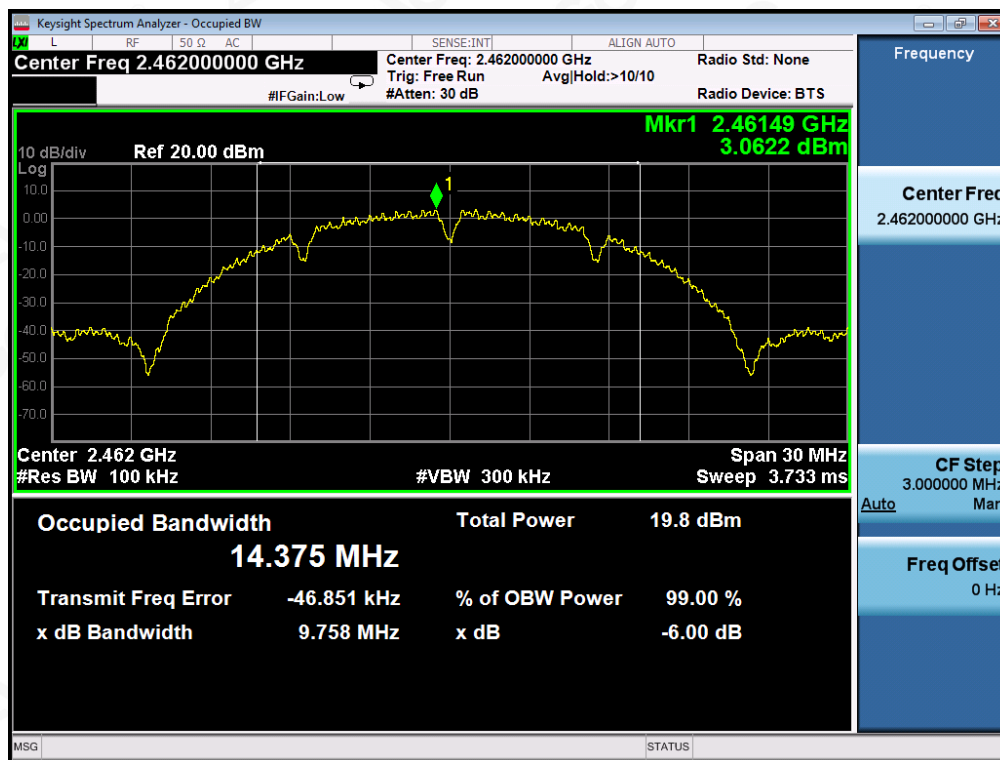
### TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

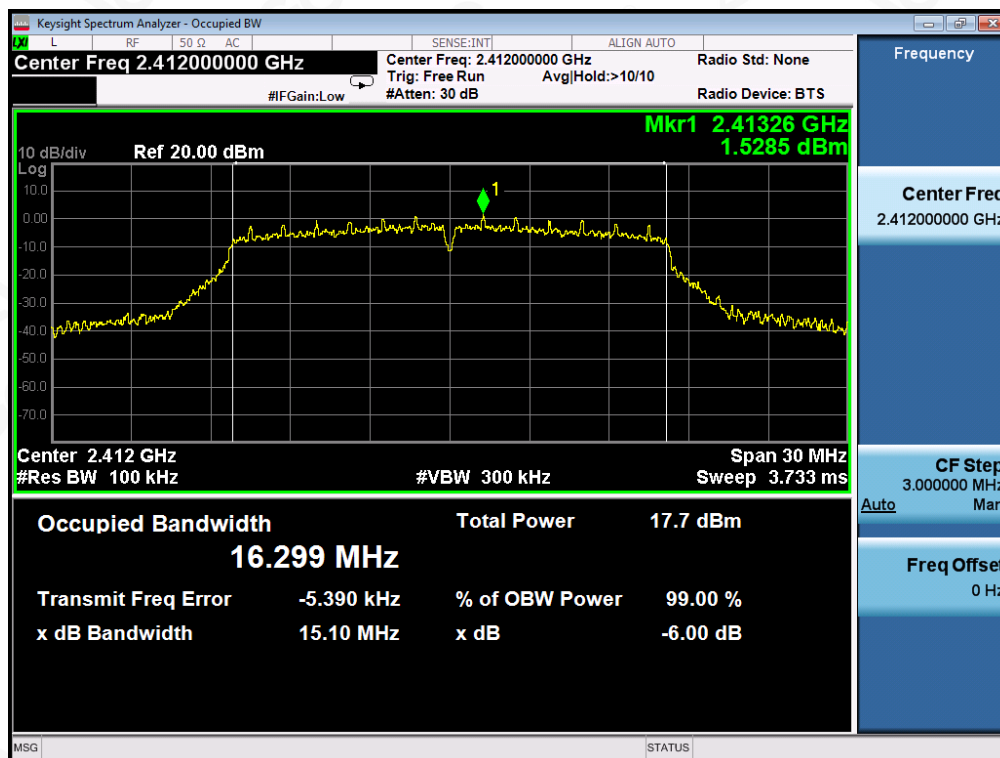


### TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

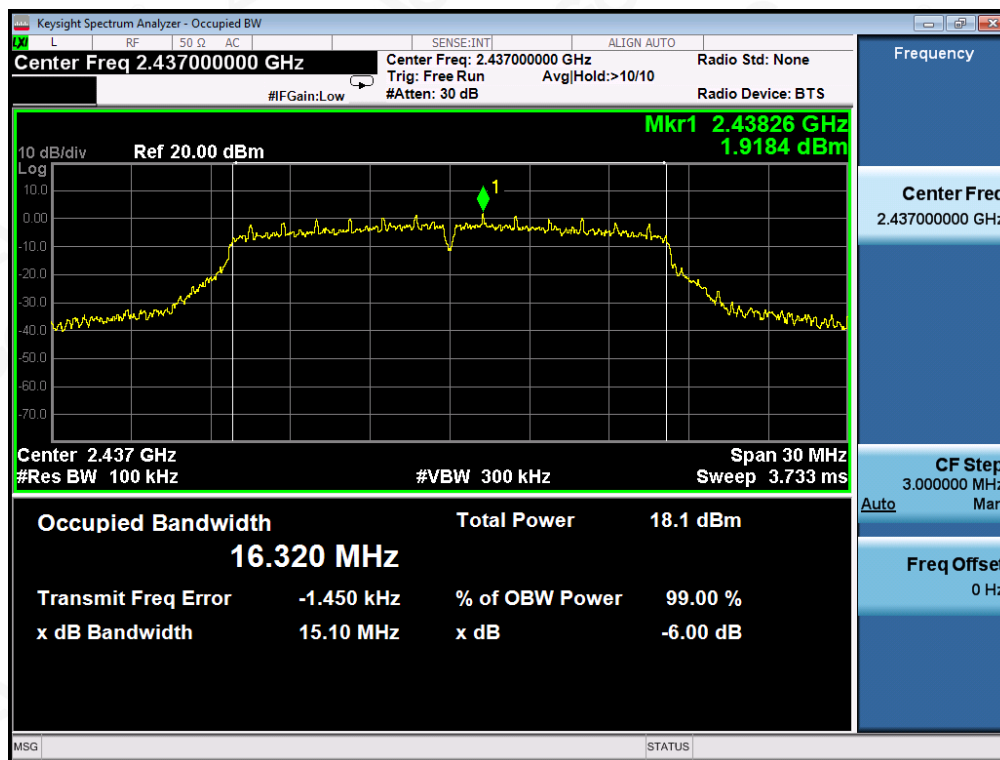


### 802.11g TEST RESULT

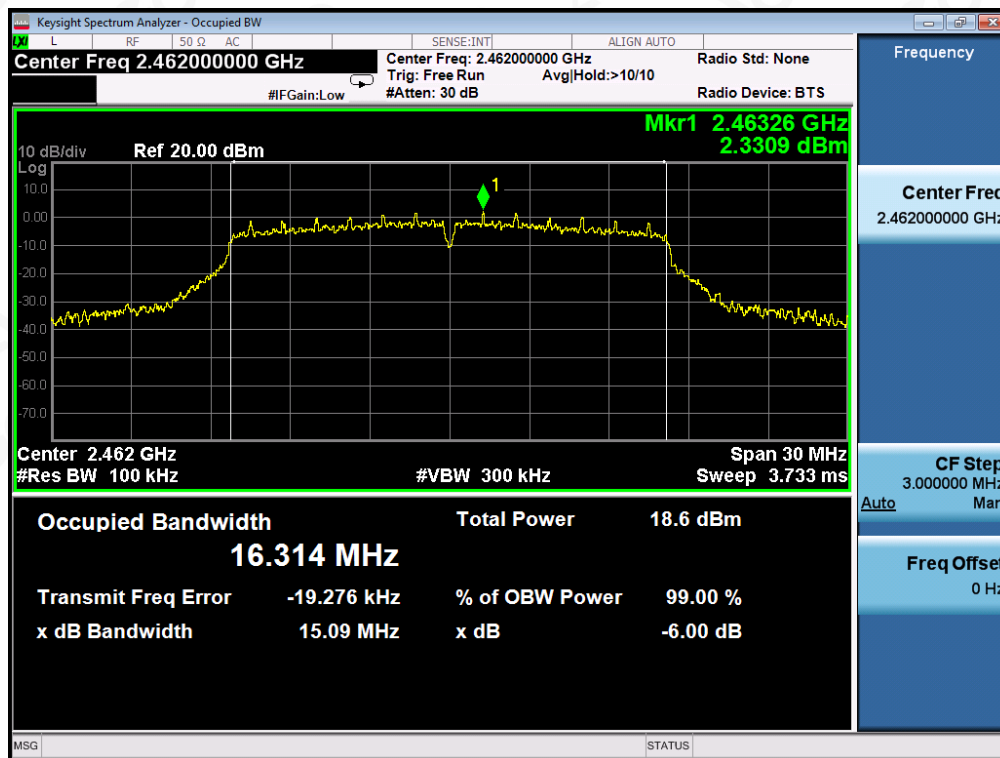
### TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



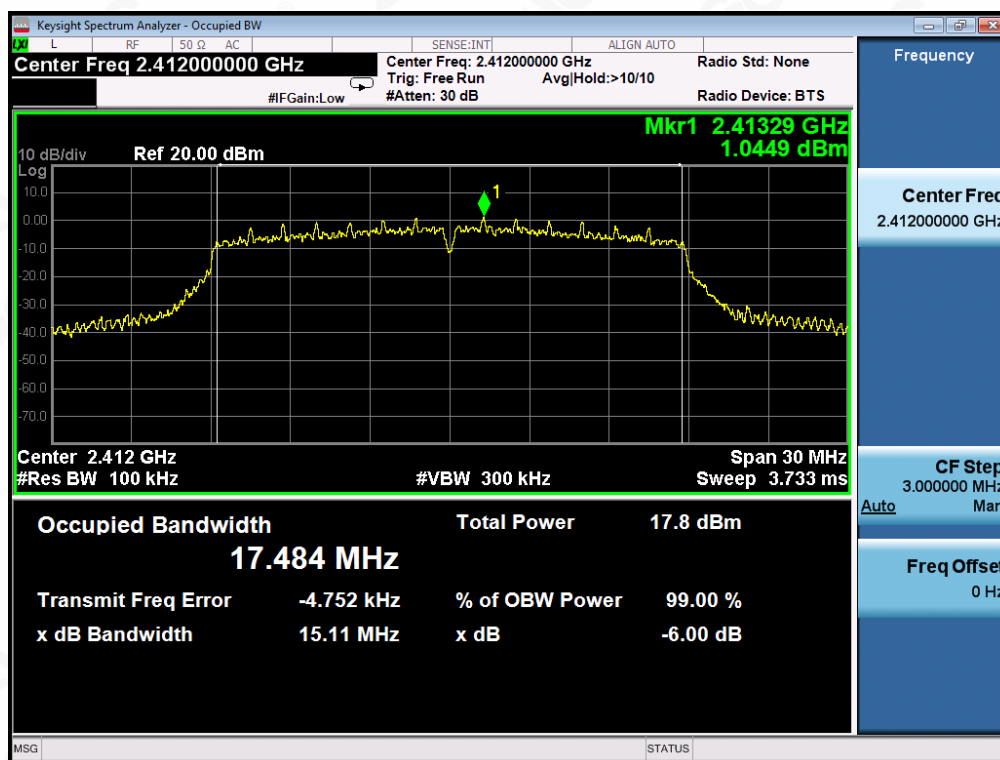
### TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



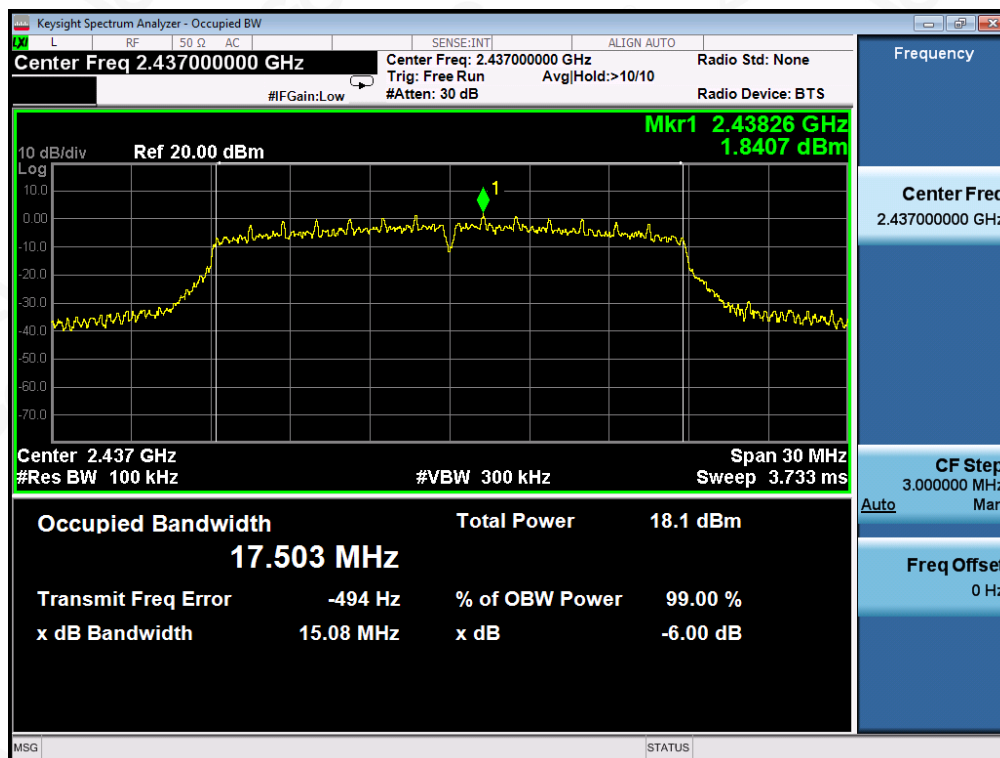


## 802.11n (20) TEST RESULT

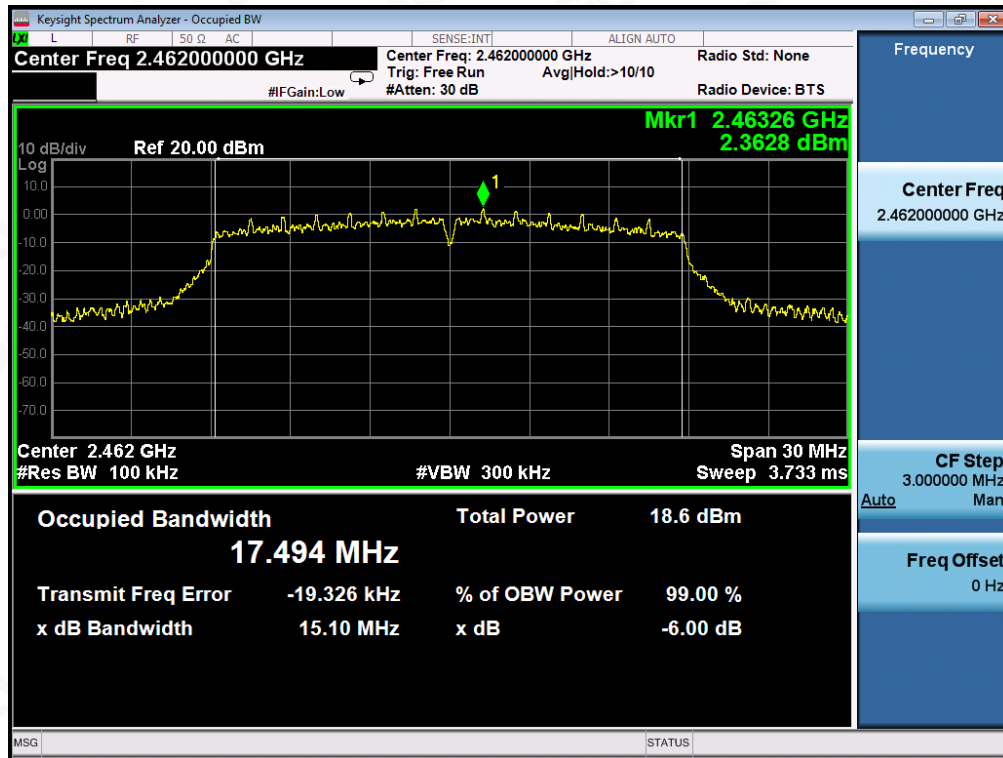
### TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

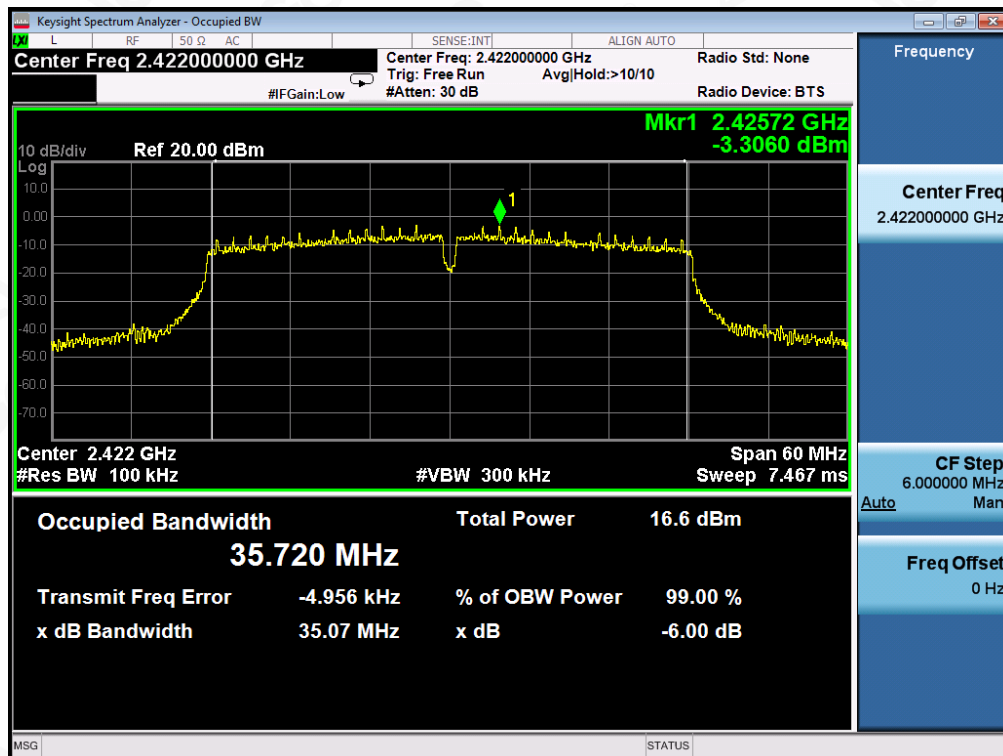


### TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

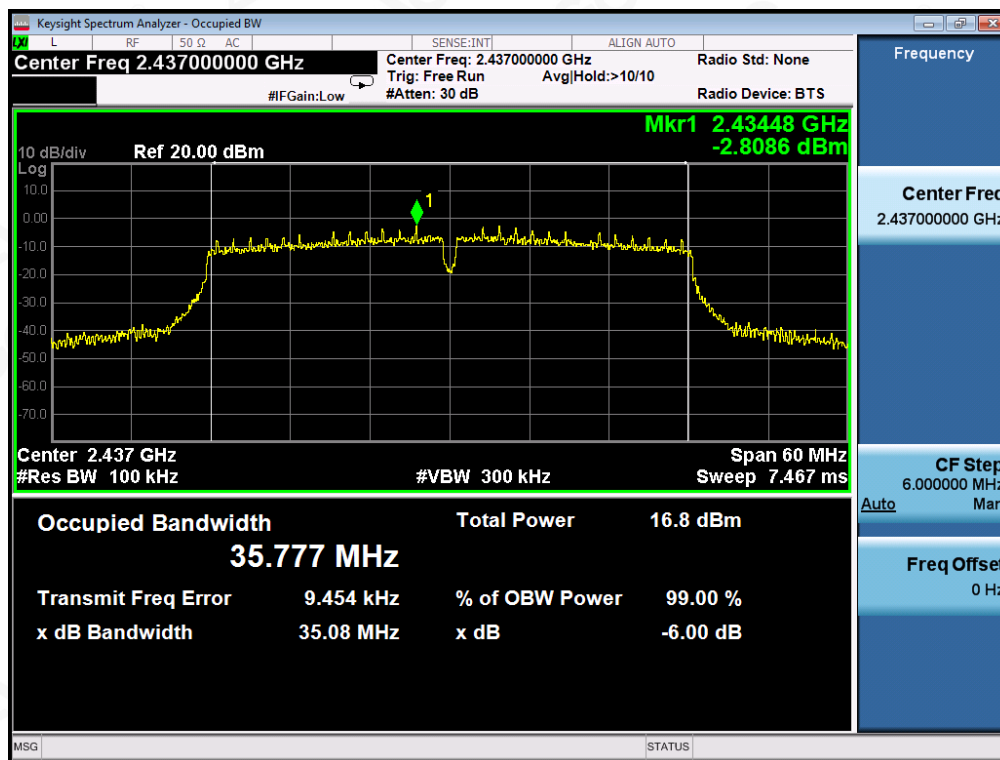


### 802.11n (40) TEST RESULT

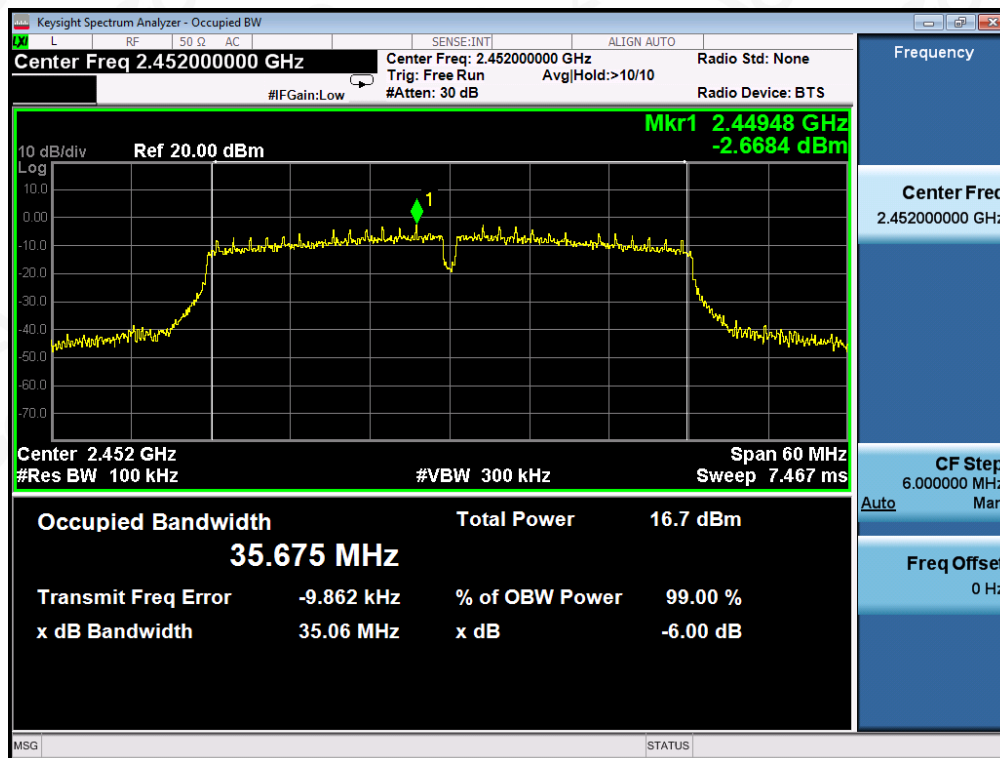
### TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



### TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



## 9. CONDUCTED SPURIOUS EMISSION

### 9.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Trace 1 Max hold, then View.

**Note:** The EUT was tested according to ANSI C63.10 (2013) for compliance to FCC 47CFR 15.247 requirements. Owing to satisfy the requirements of the number of measurement points, we set the RBW=1MHz, VBW>RBW, scan up through 10th harmonic, and consider the tested results as the worst case, if the tested results conform to the requirement, we can deem that the real tested results(set the RBW=100KHz, VBW>RBW) are conform to the requirement.

### 9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 8.2.

### 9.3. MEASUREMENT EQUIPMENT USED

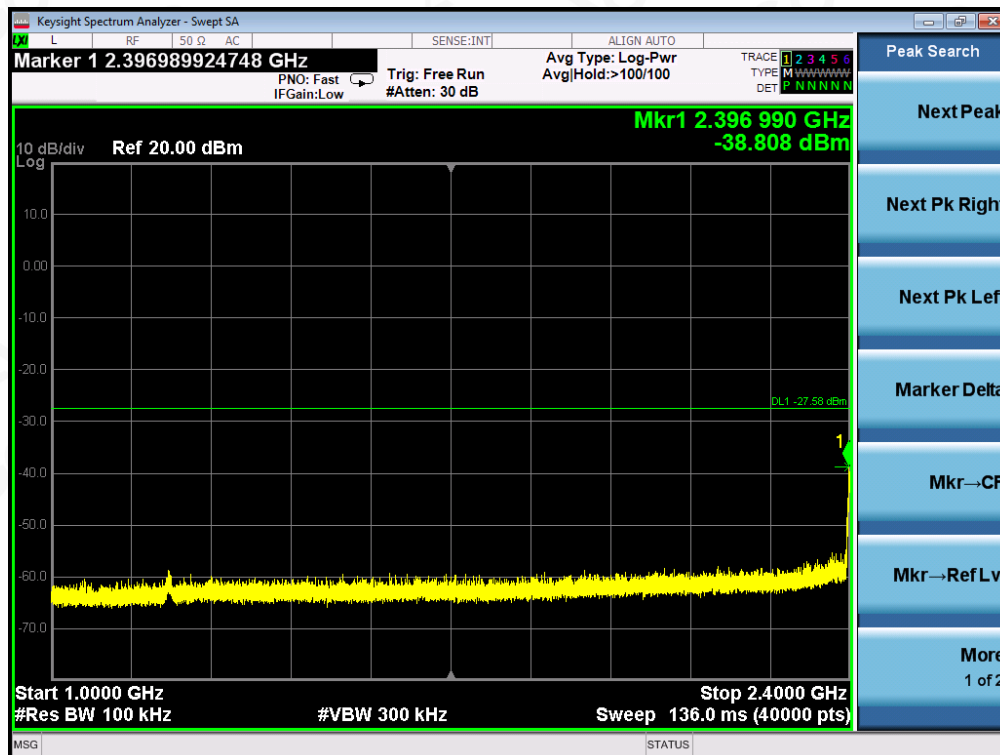
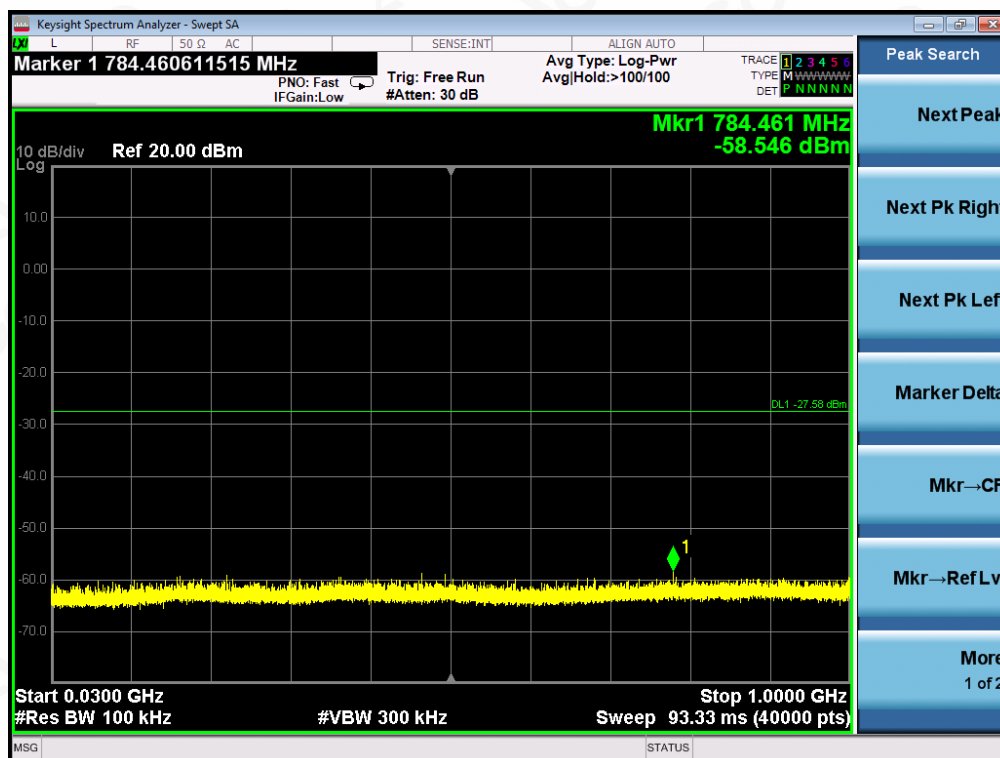
The same as described in section 6.

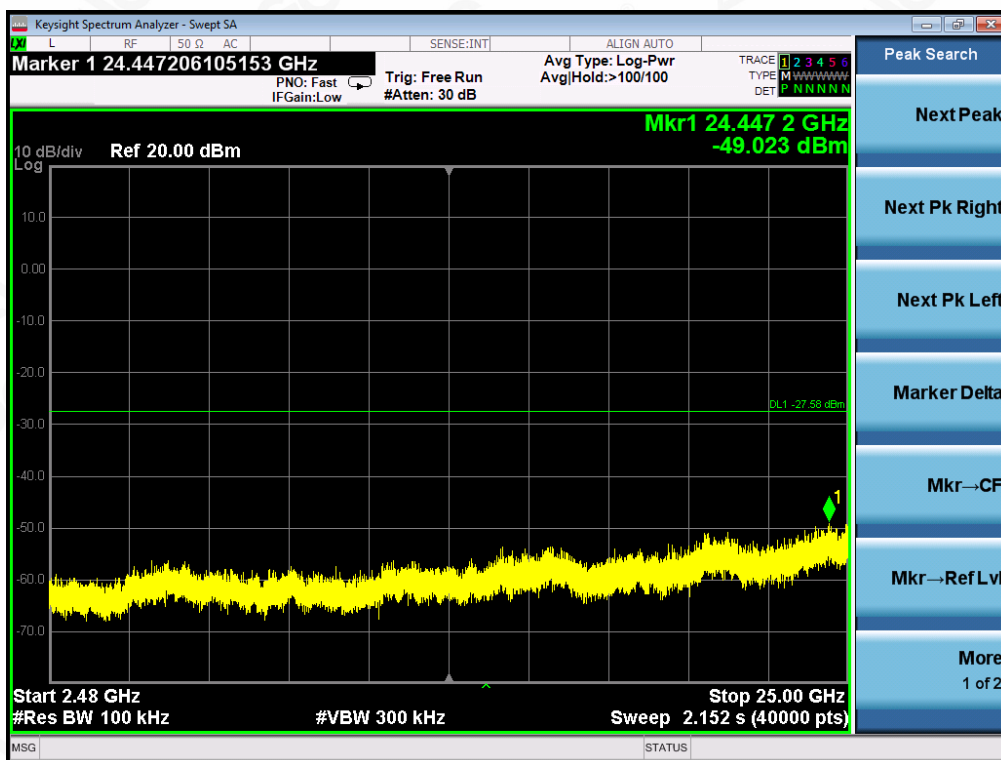
### 9.4. LIMITS AND MEASUREMENT RESULT

| LIMITS AND MEASUREMENT RESULT                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------|
| Applicable Limits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Measurement Result                                             |          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Test Data                                                      | Criteria |
| In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 30 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.<br>In addition, radiation emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in§15.209(a)) | At least -30dBc than the limit Specified on the BOTTOM Channel | PASS     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | At least -30dBc than the limit Specified on the TOP Channel    | PASS     |

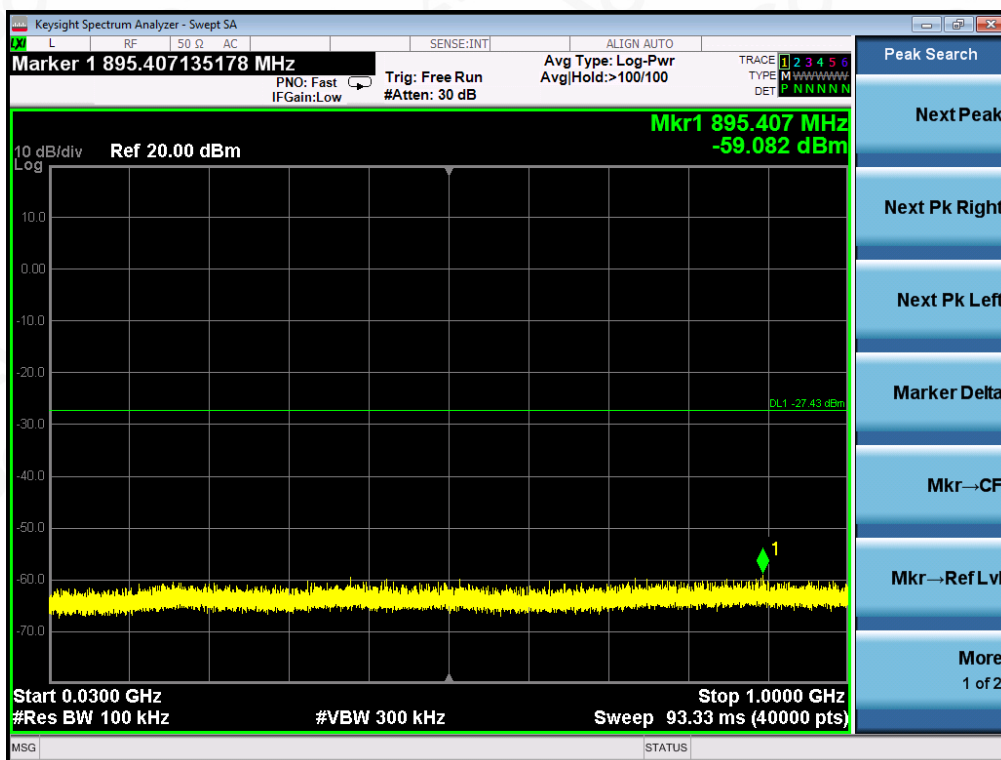


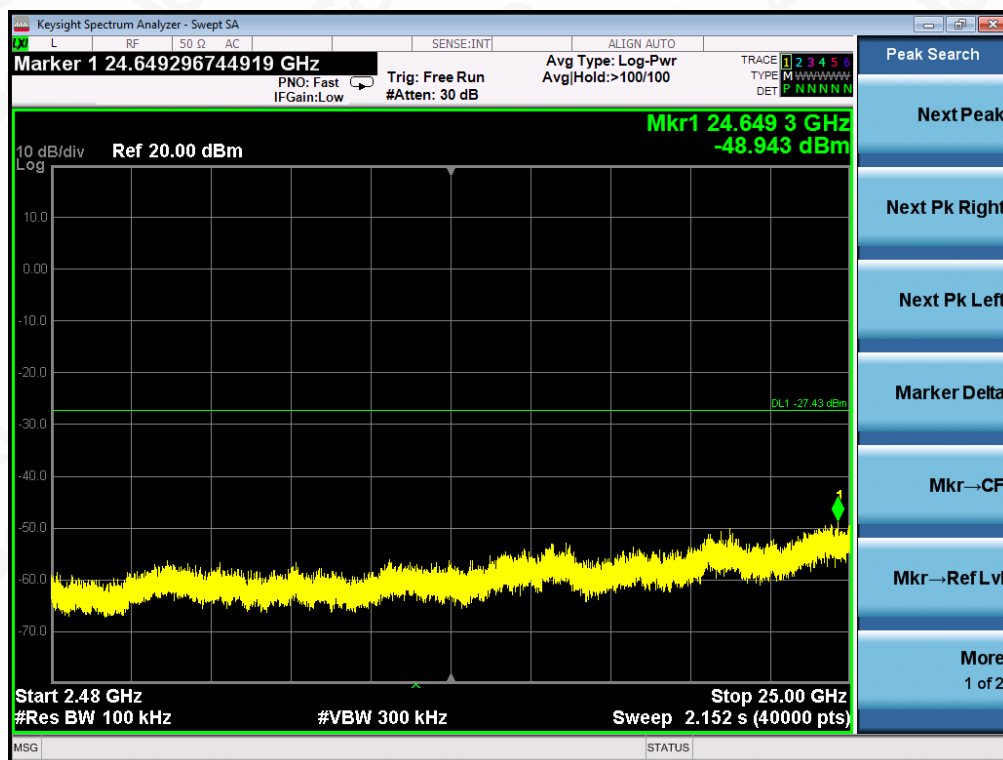
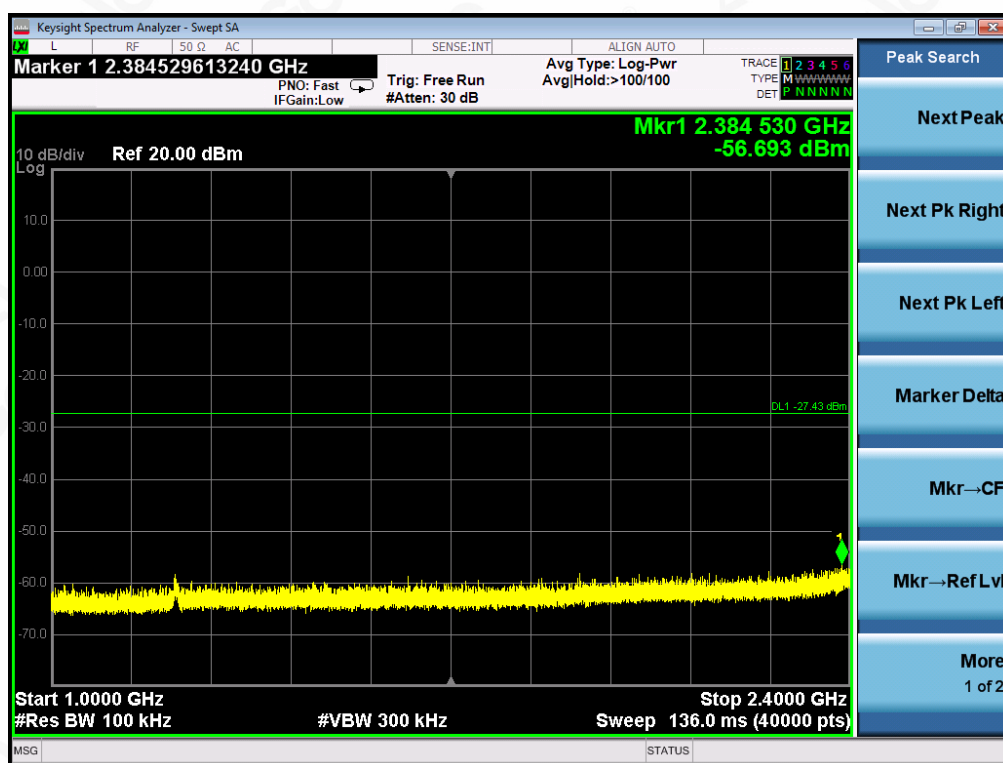
TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE  
OF 802.11b FOR MODULATION IN LOW CHANNEL





TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE  
OF 802.11b FOR MODULATION IN MIDDLE CHANNEL





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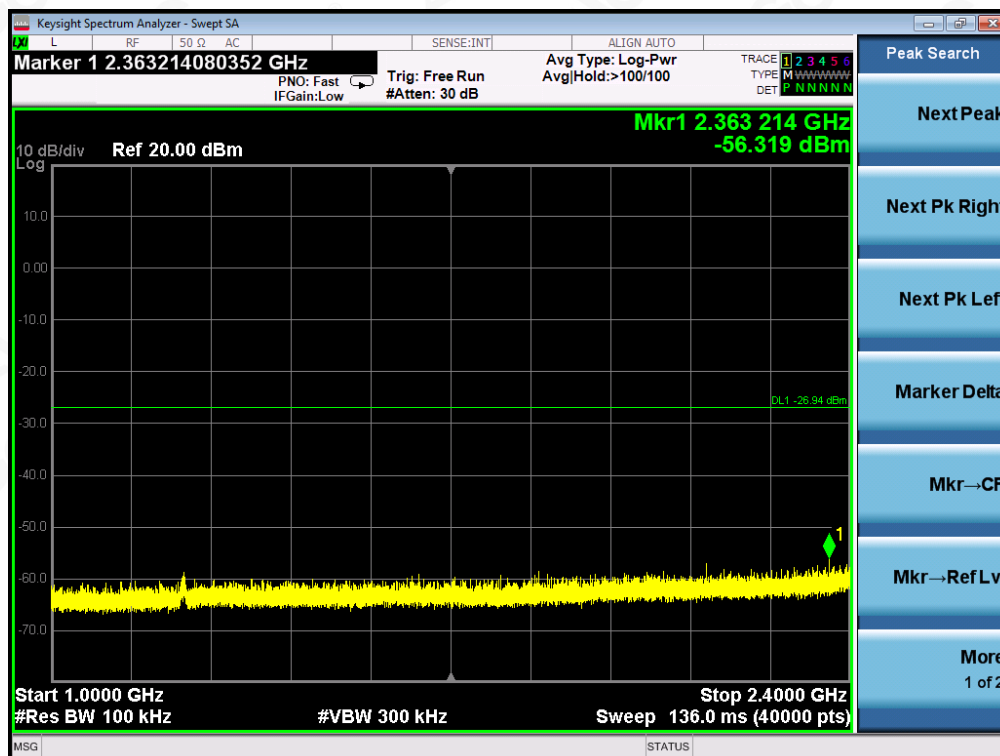
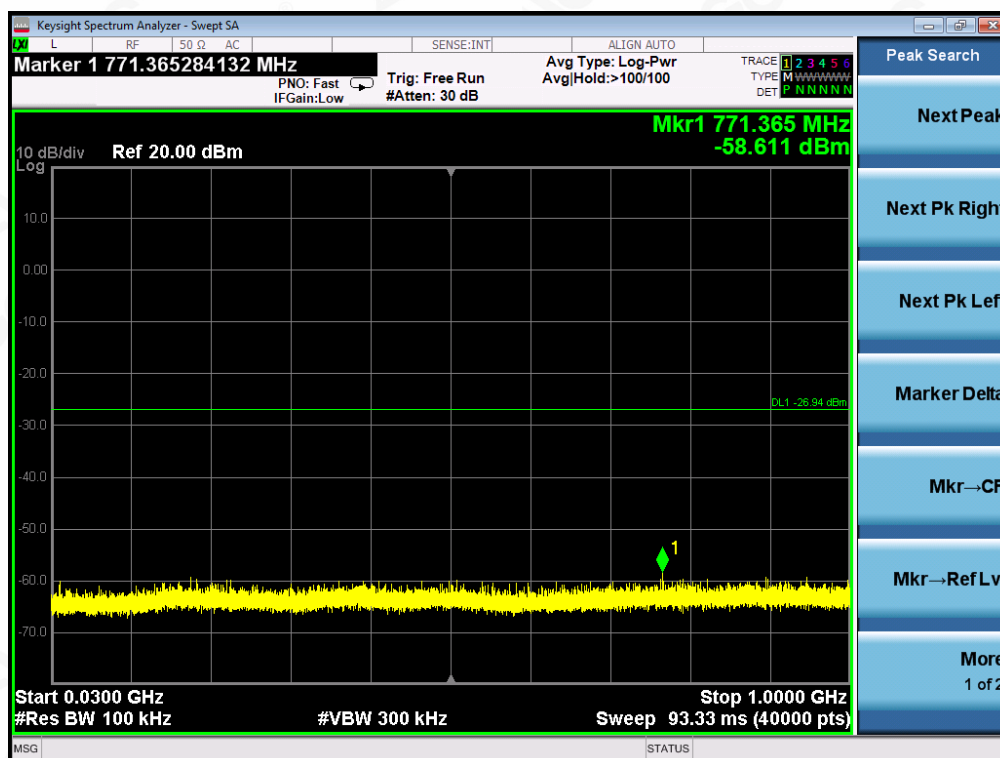
Add: 2/F., Building 2, Sanwei Chaxi Industrial Park, Sanwei Community,  
Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755 2523 4088

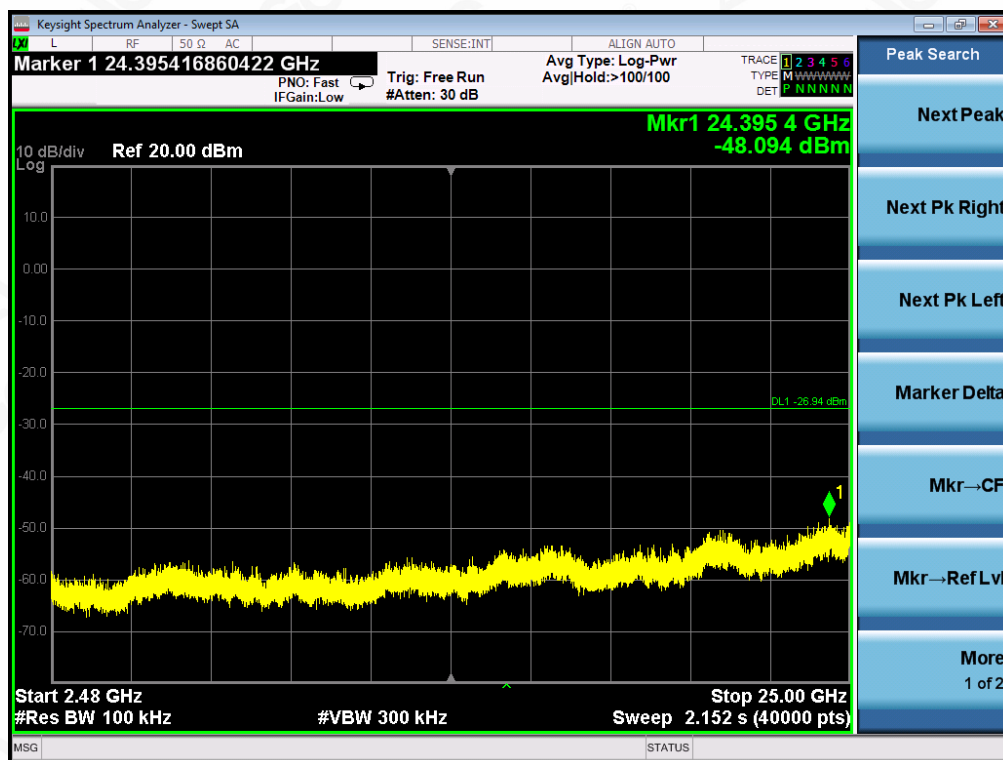
E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

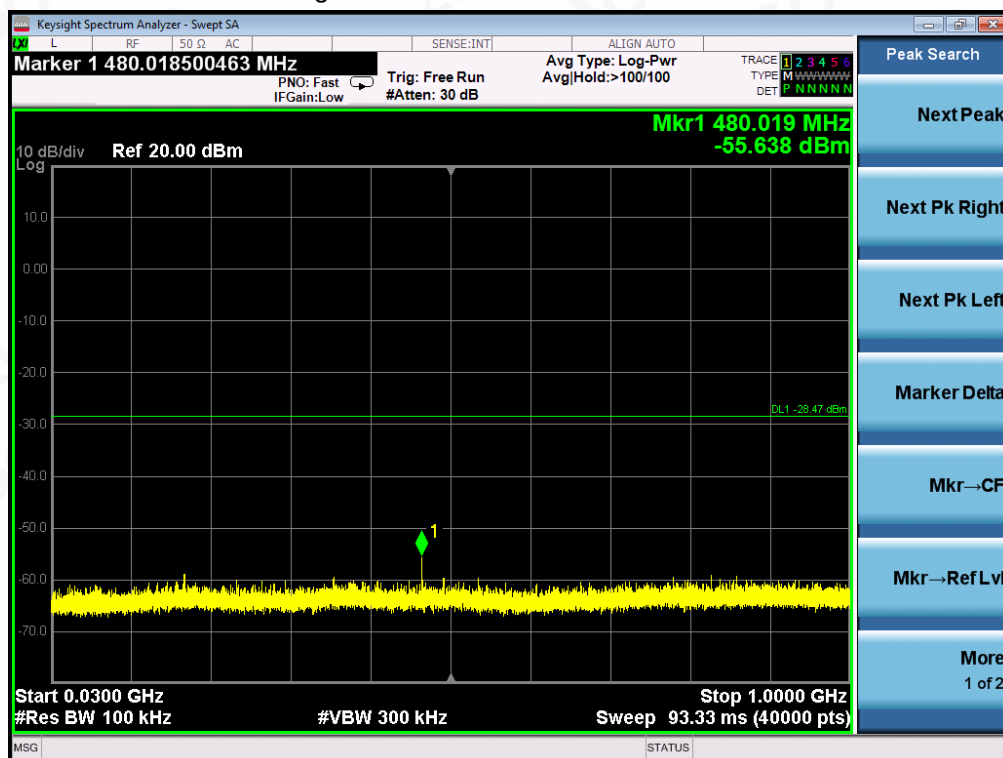
TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE  
OF 802.11b FOR MODULATION IN HIGH CHANNEL

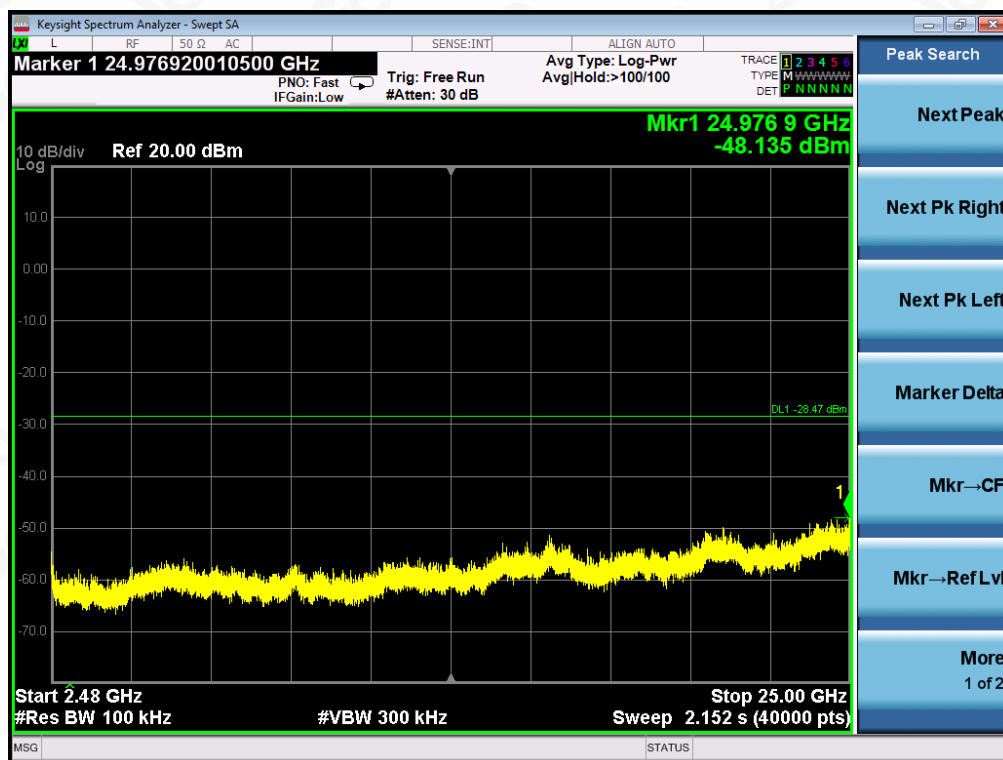
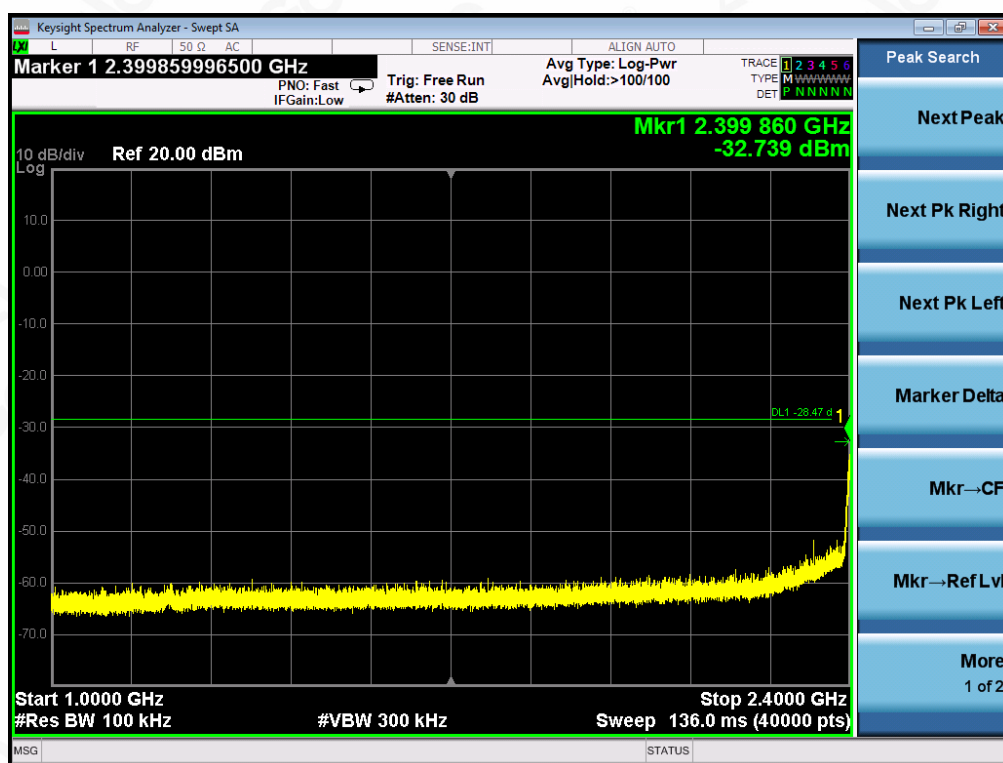




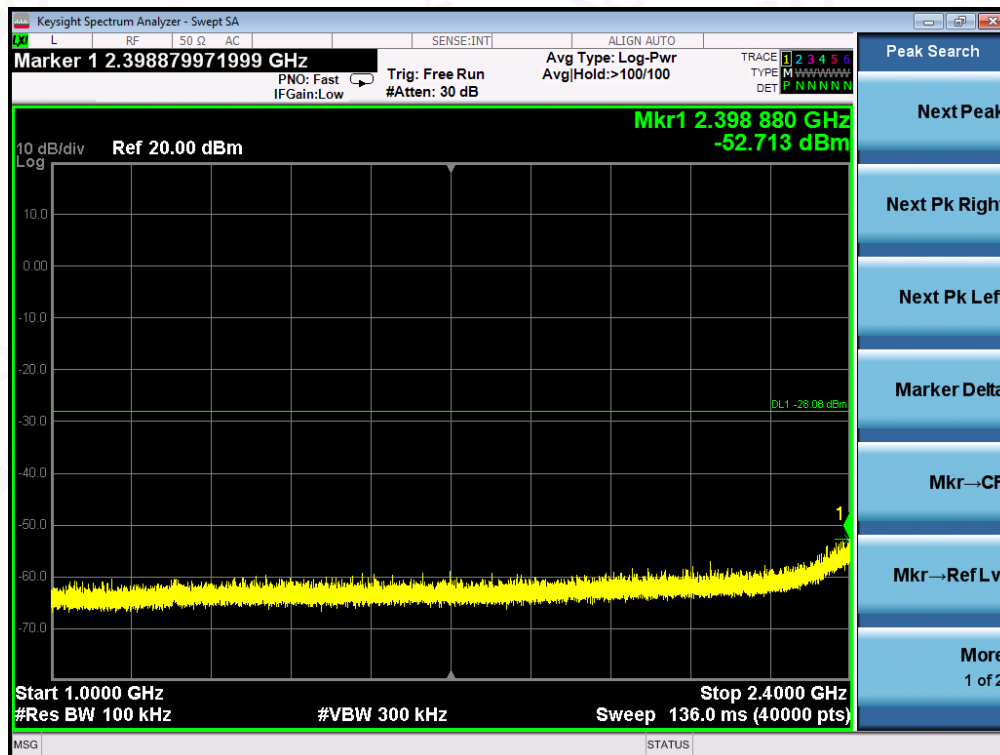
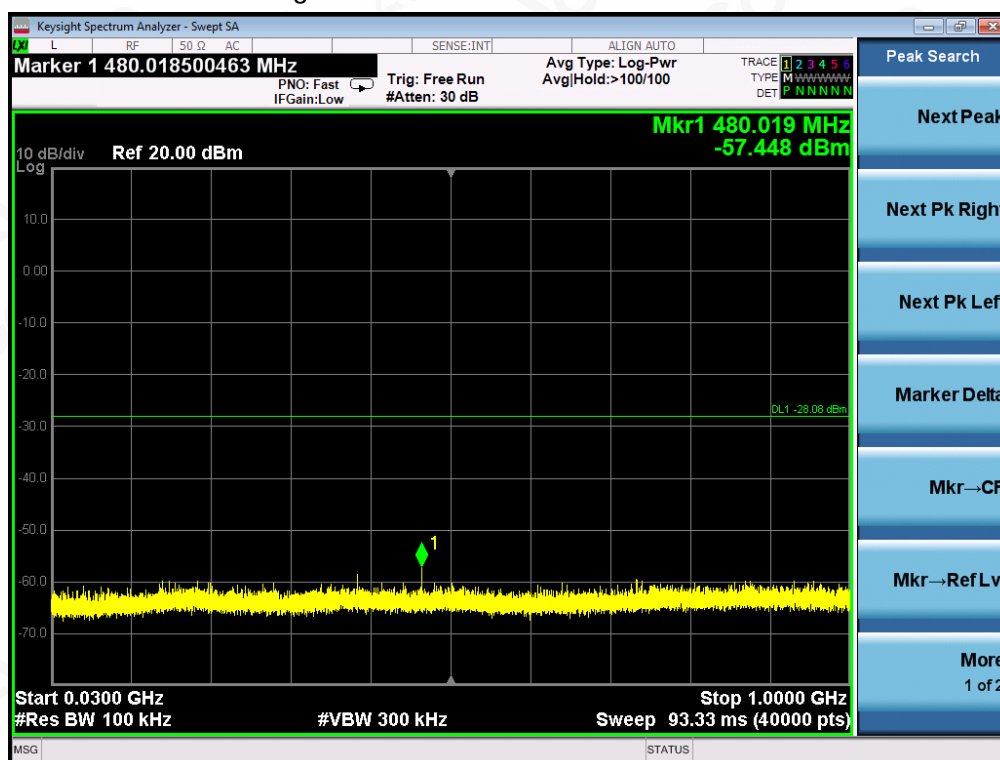


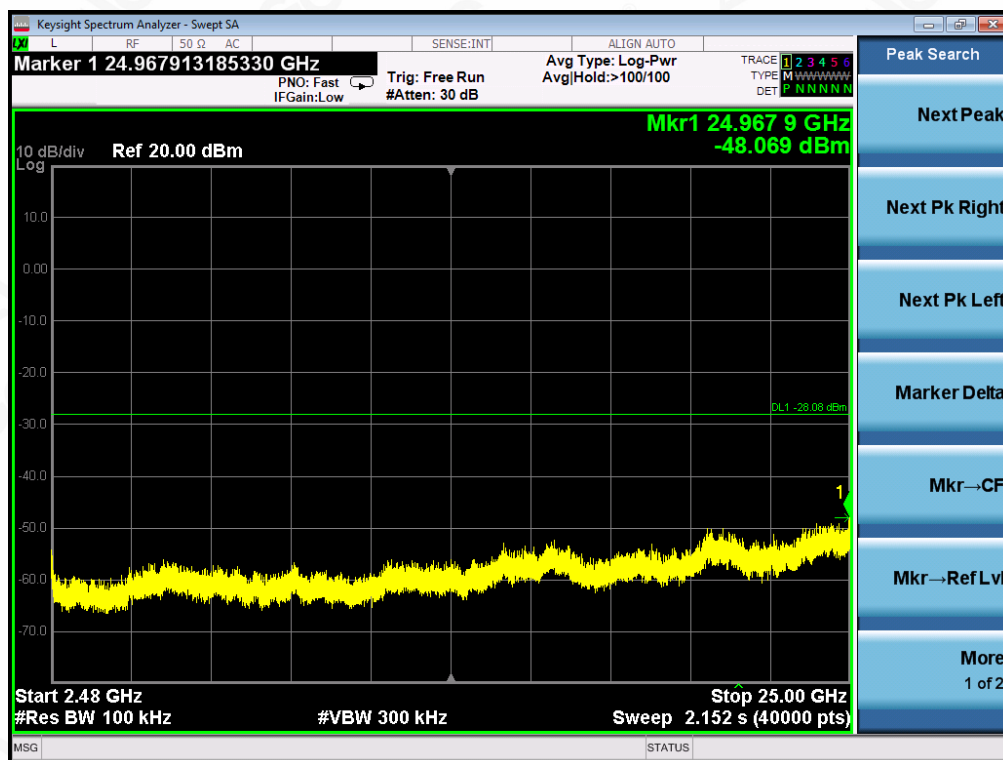
TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE  
OF 802.11g FOR MODULATION IN LOW CHANNEL



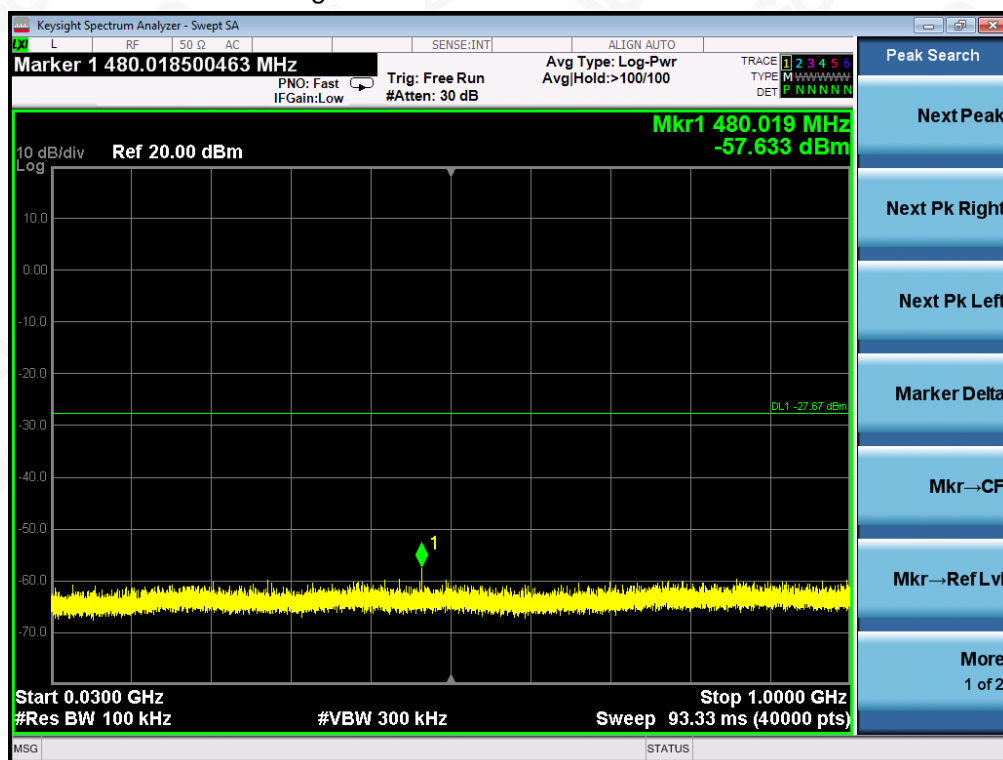


TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE  
OF 802.11g FOR MODULATION IN MIDDLE CHANNEL

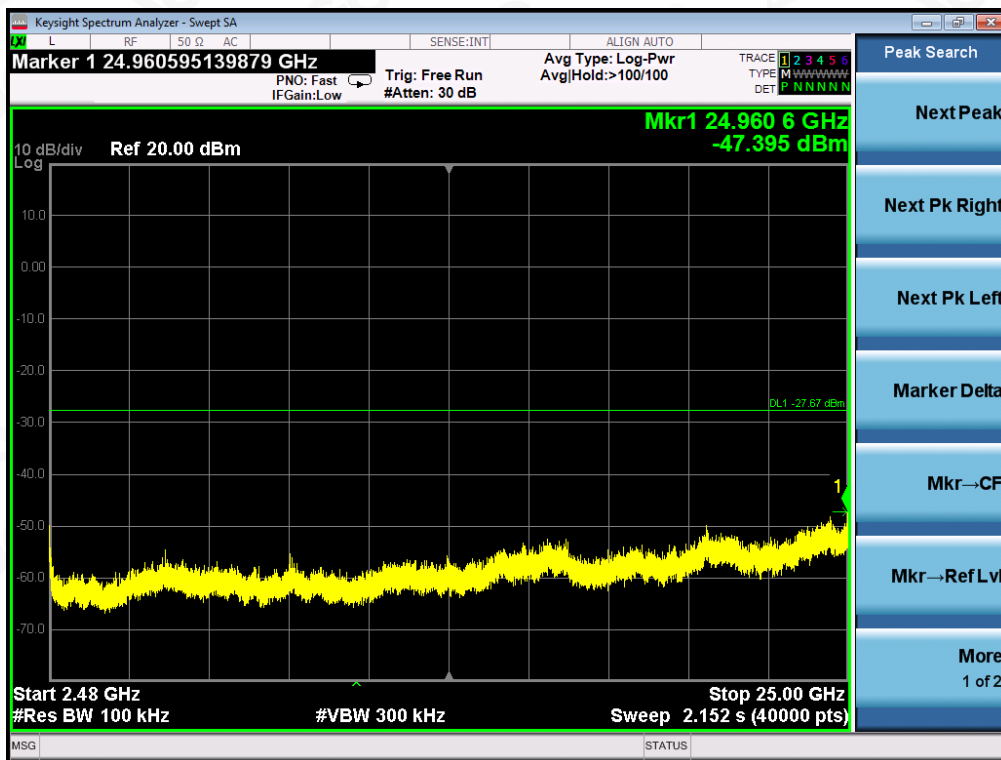
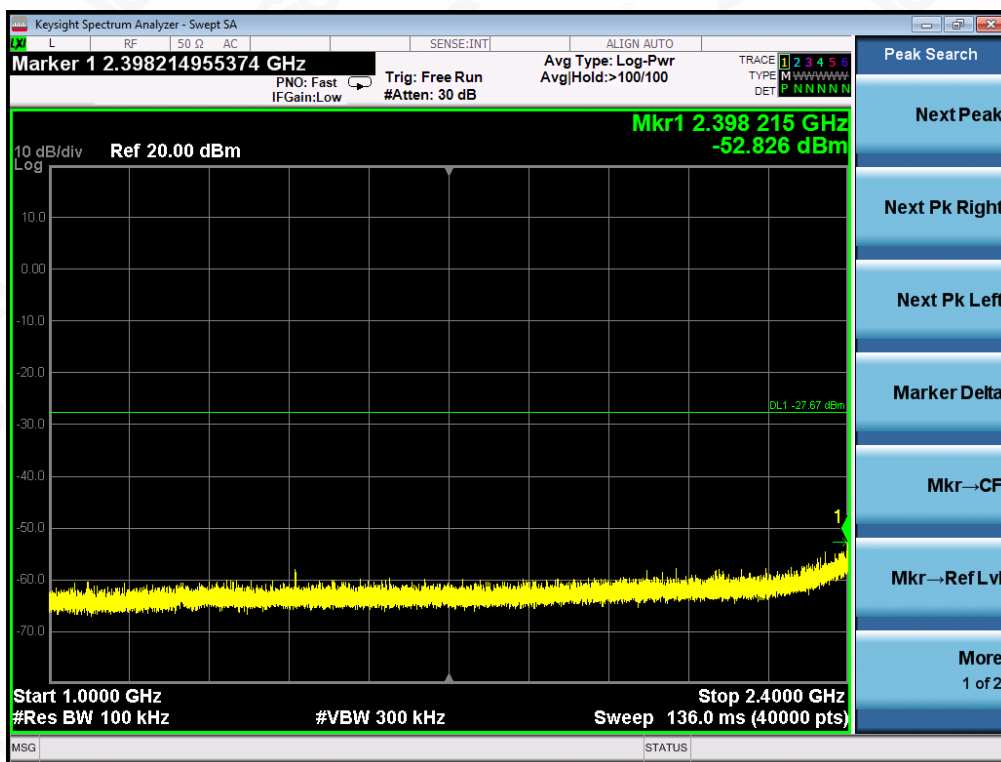




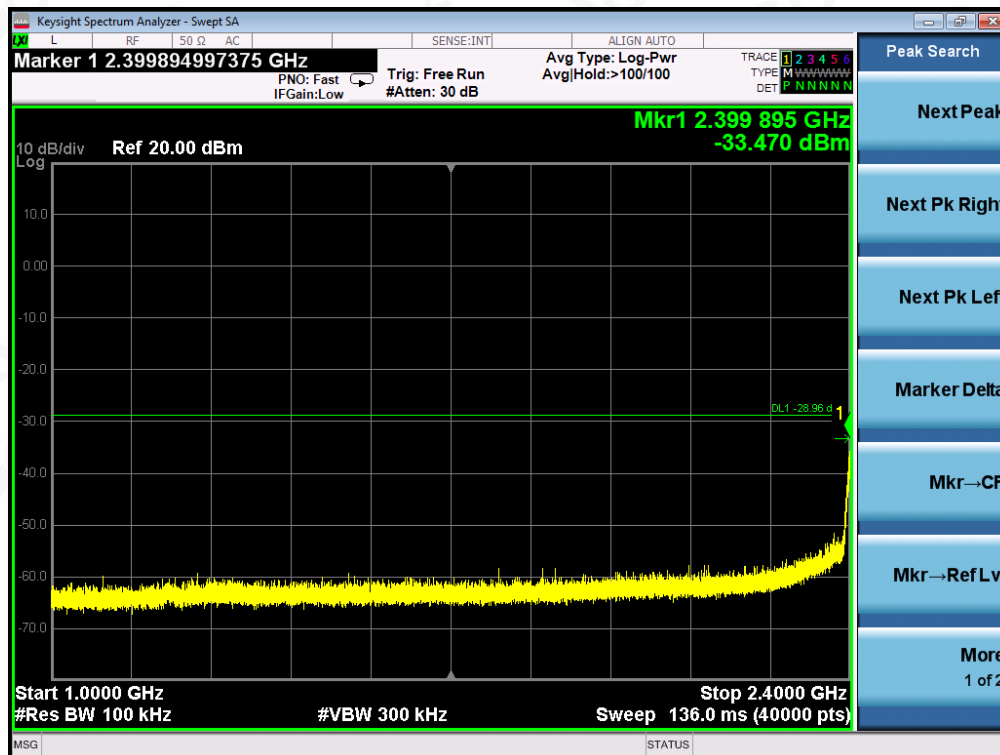
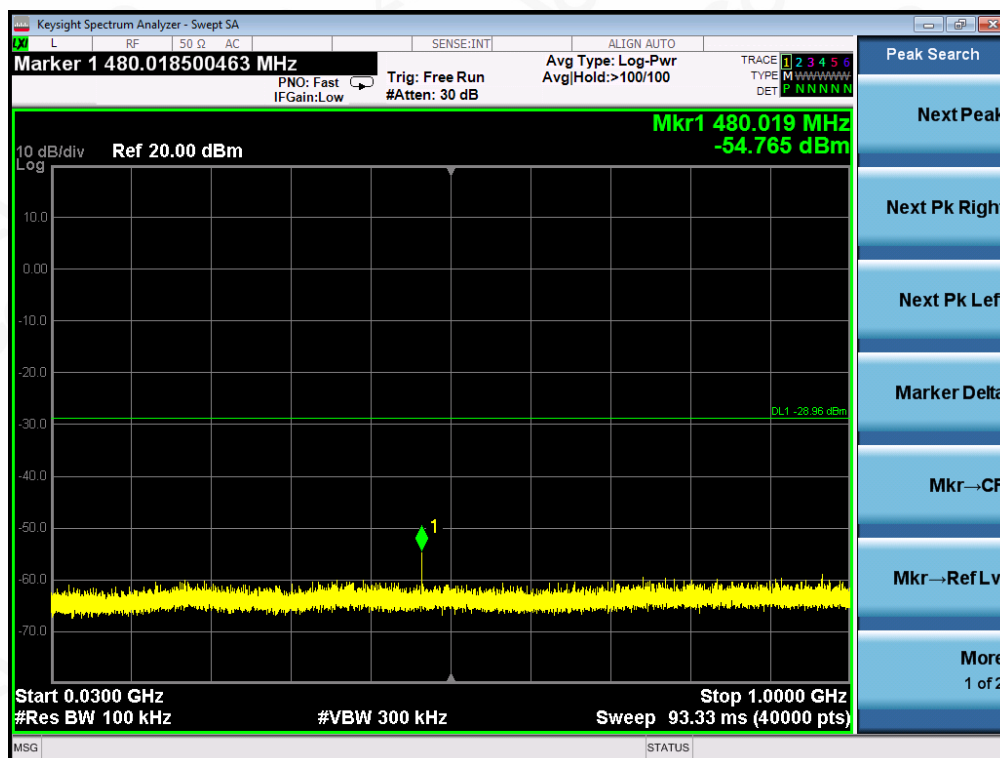
TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE  
OF 802.11g FOR MODULATION IN HIGH CHANNEL

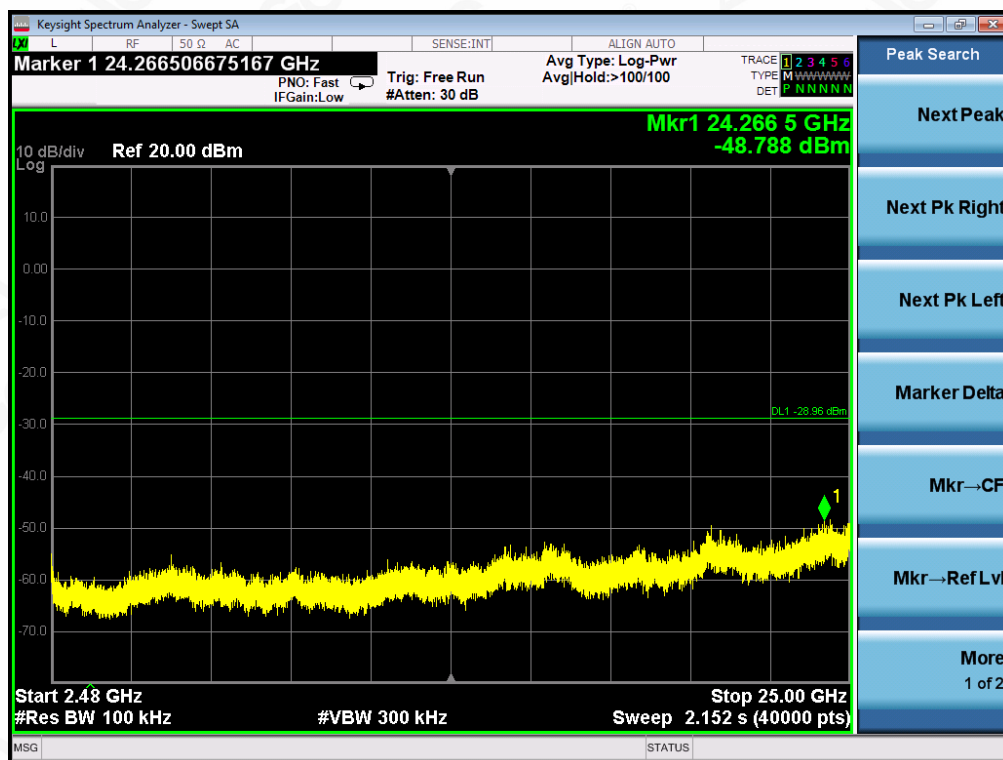




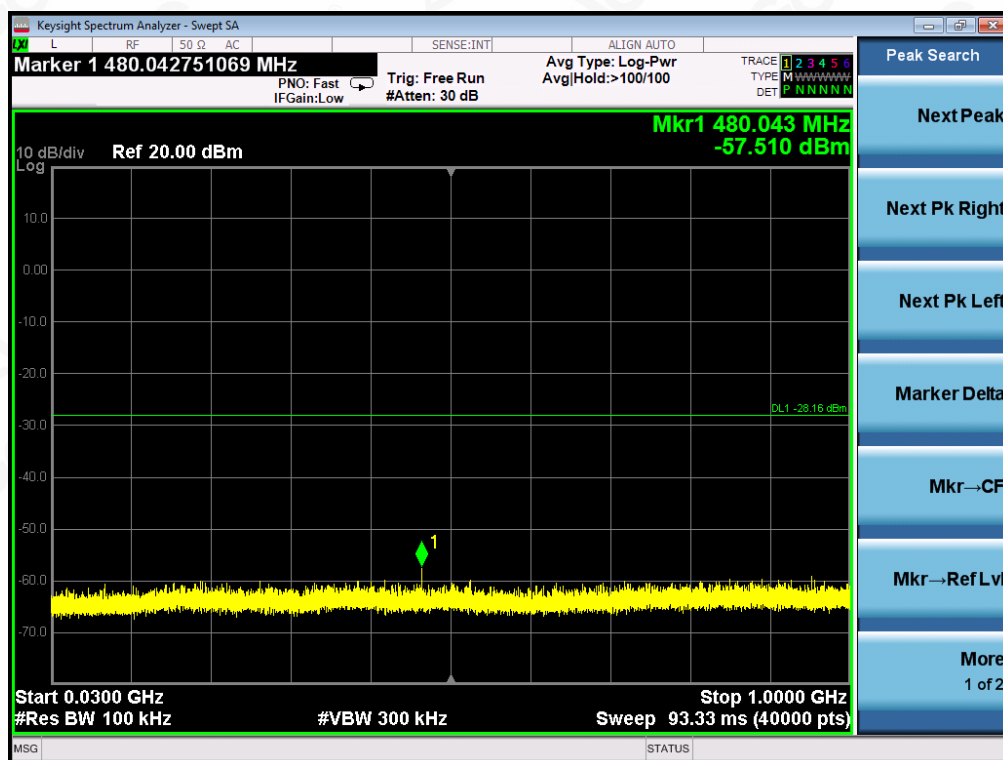


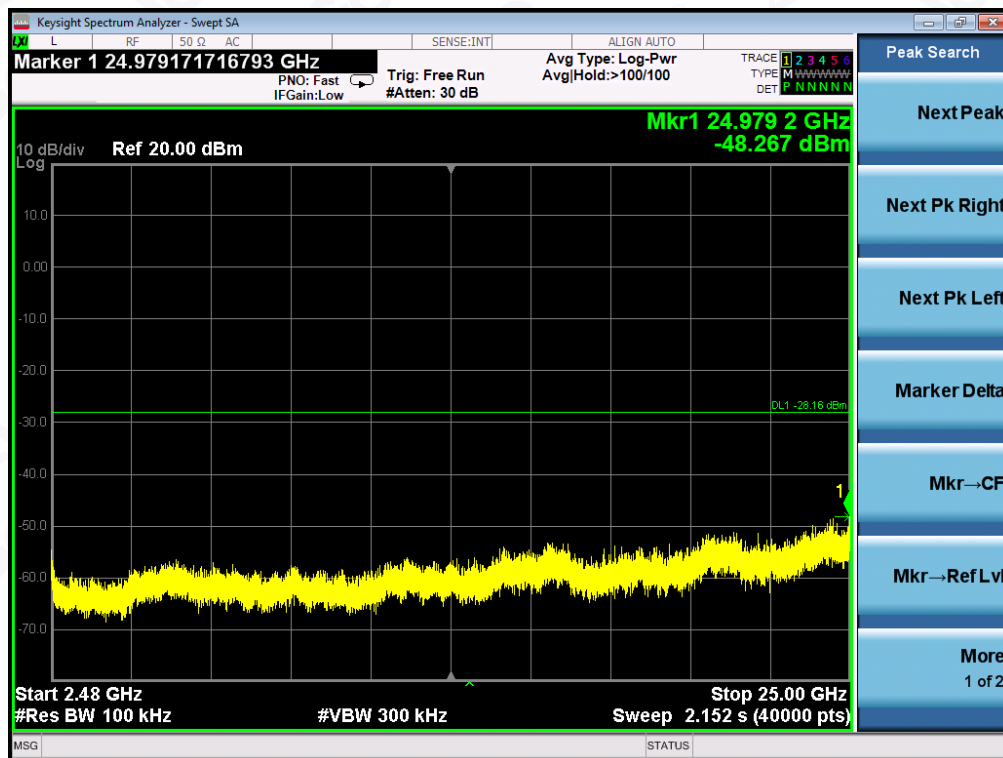
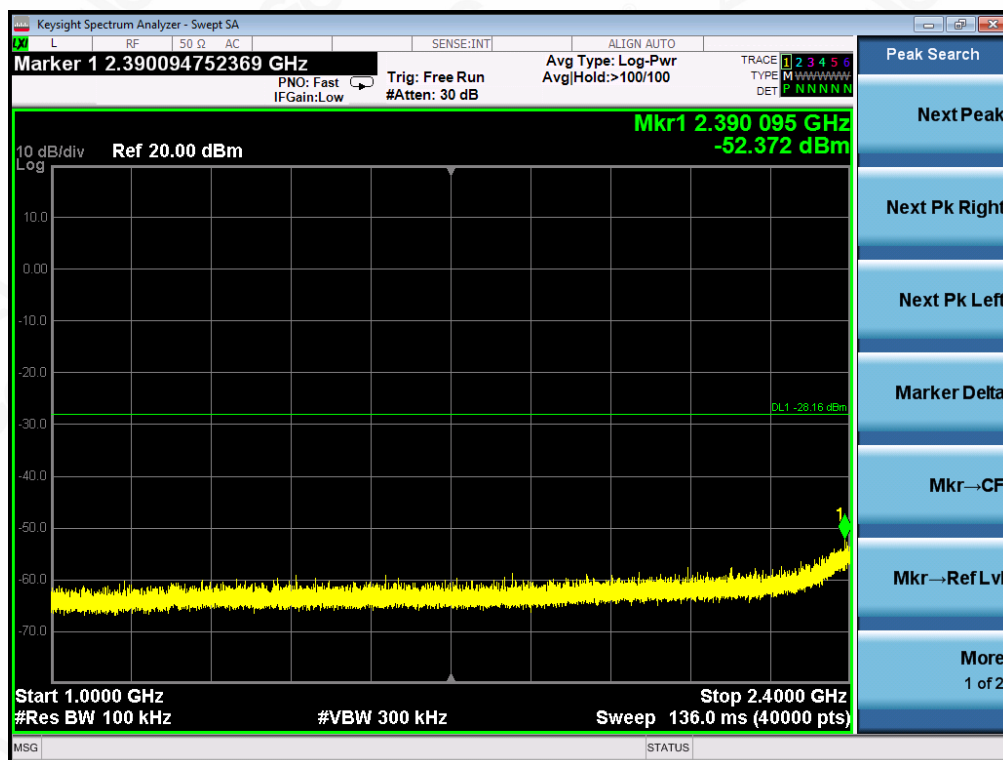
TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE  
OF 802.11n20 FOR MODULATION IN LOW CHANNEL





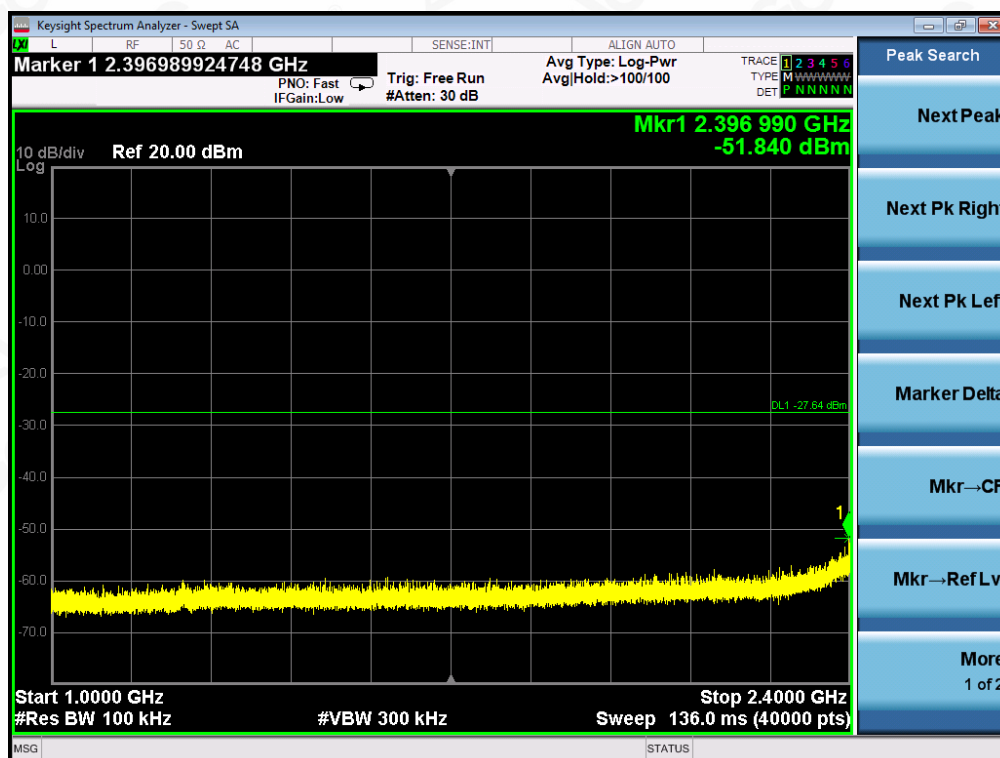
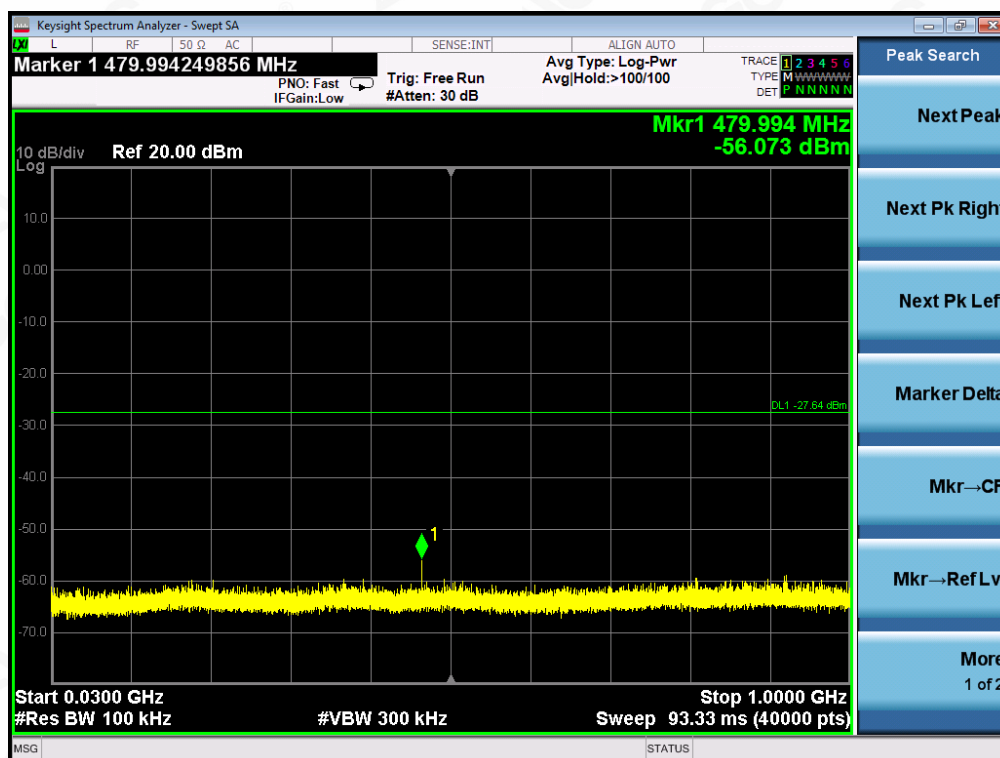
TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE  
OF 802.11n20 FOR MODULATION IN MIDDLE CHANNEL

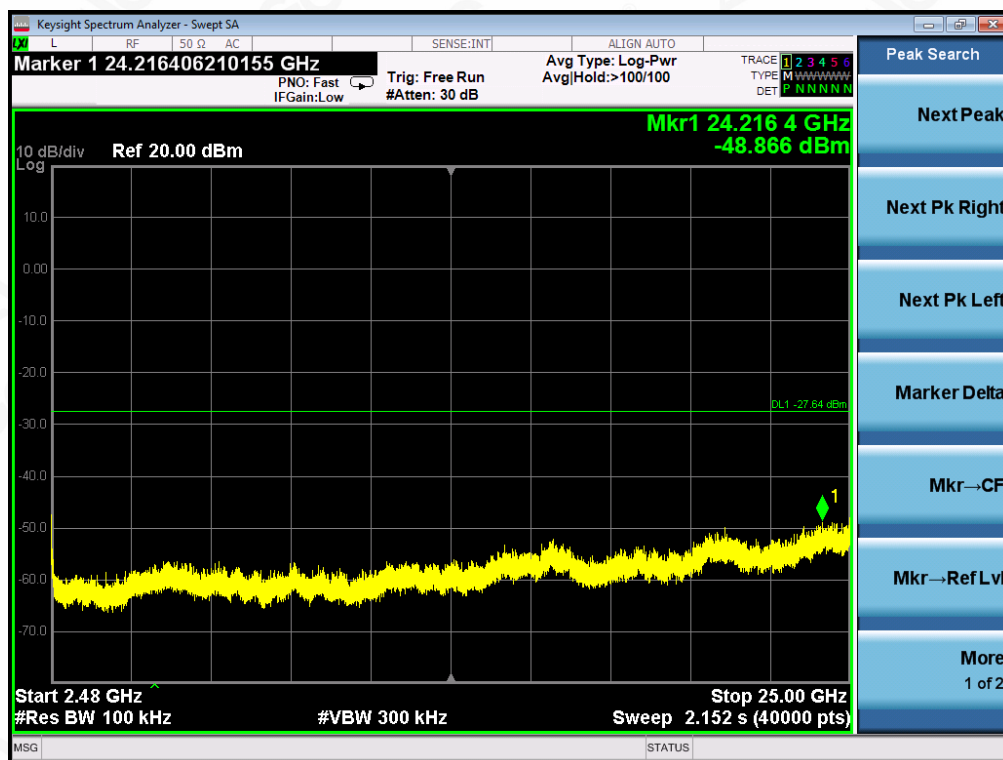




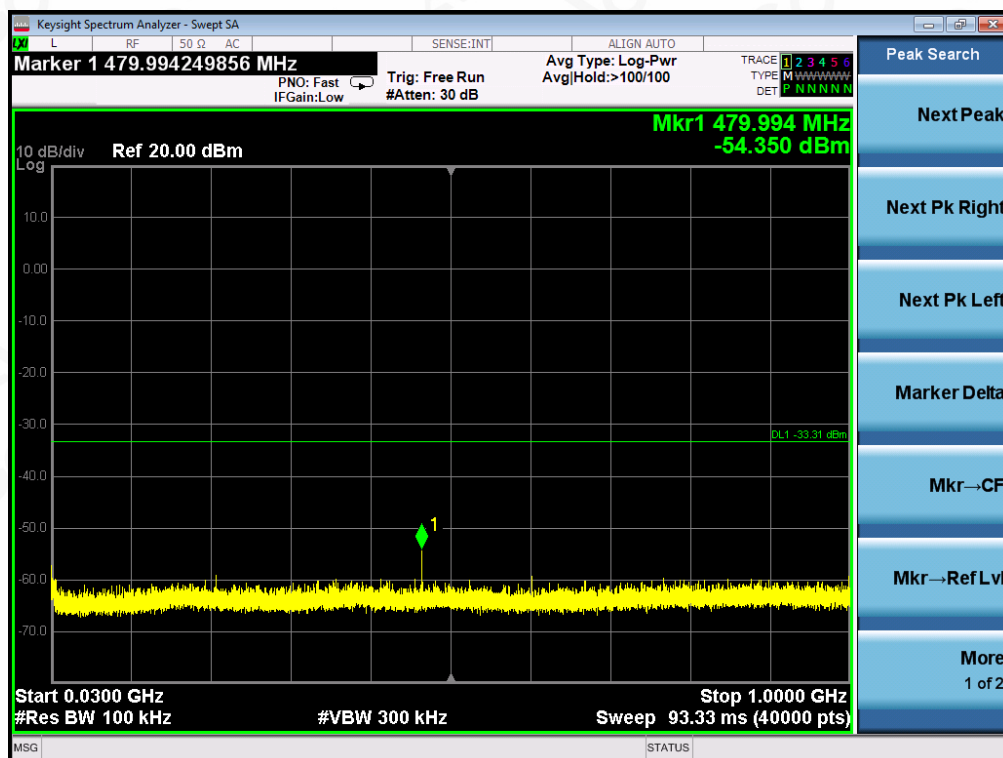


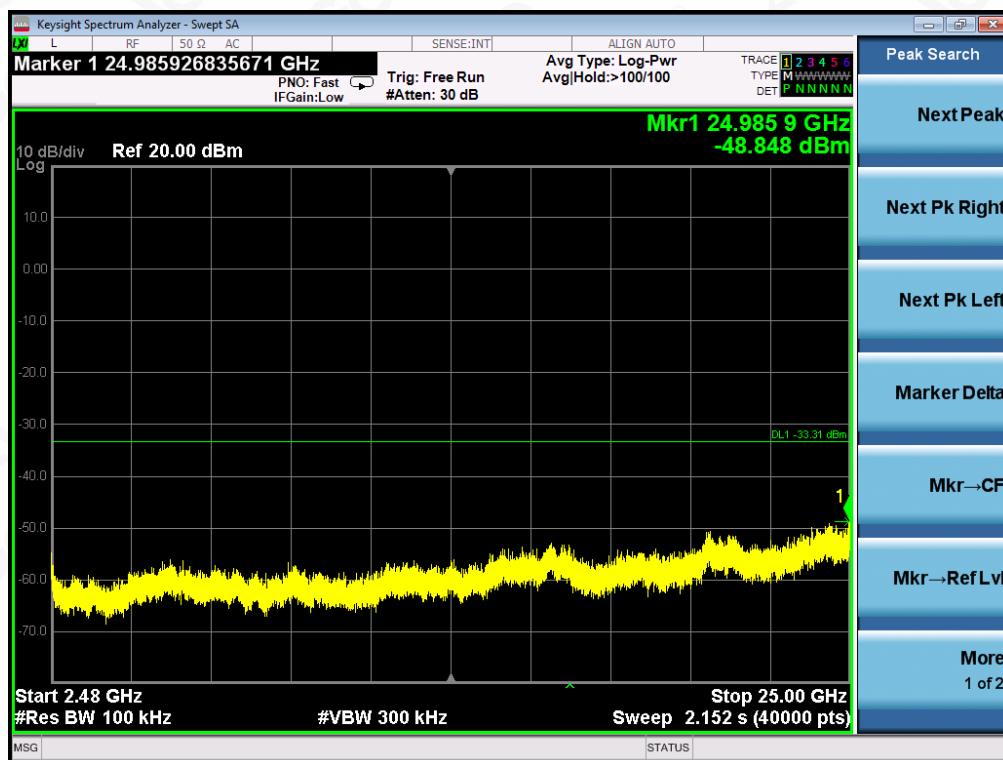
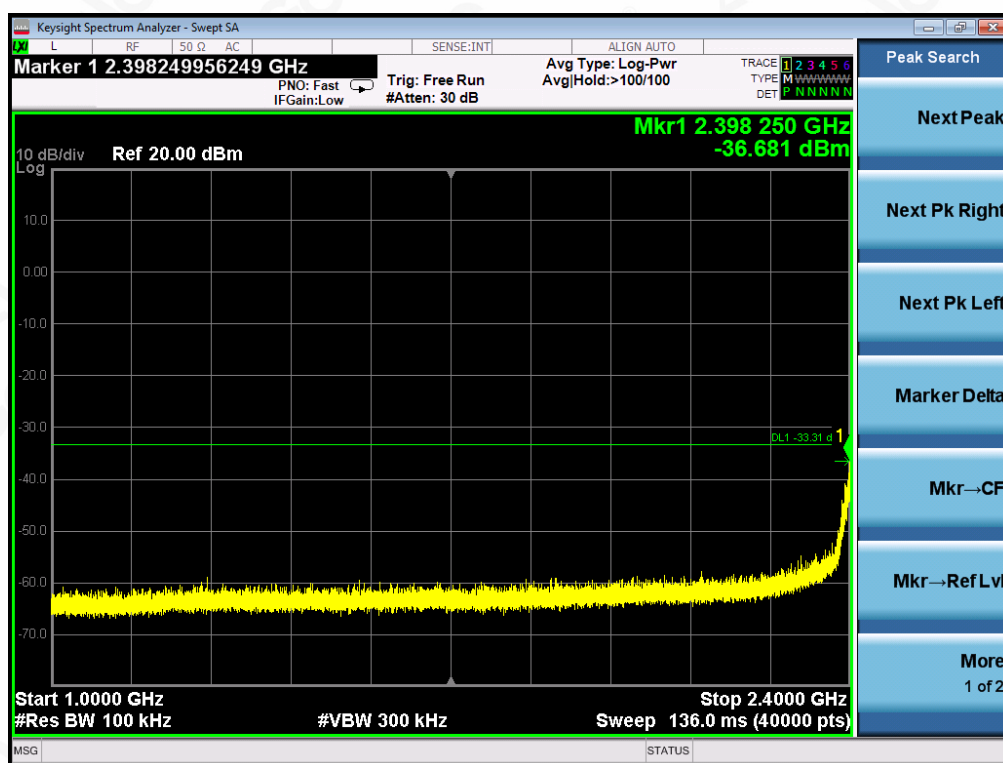
TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE  
OF 802.11n20 FOR MODULATION IN HIGH CHANNEL



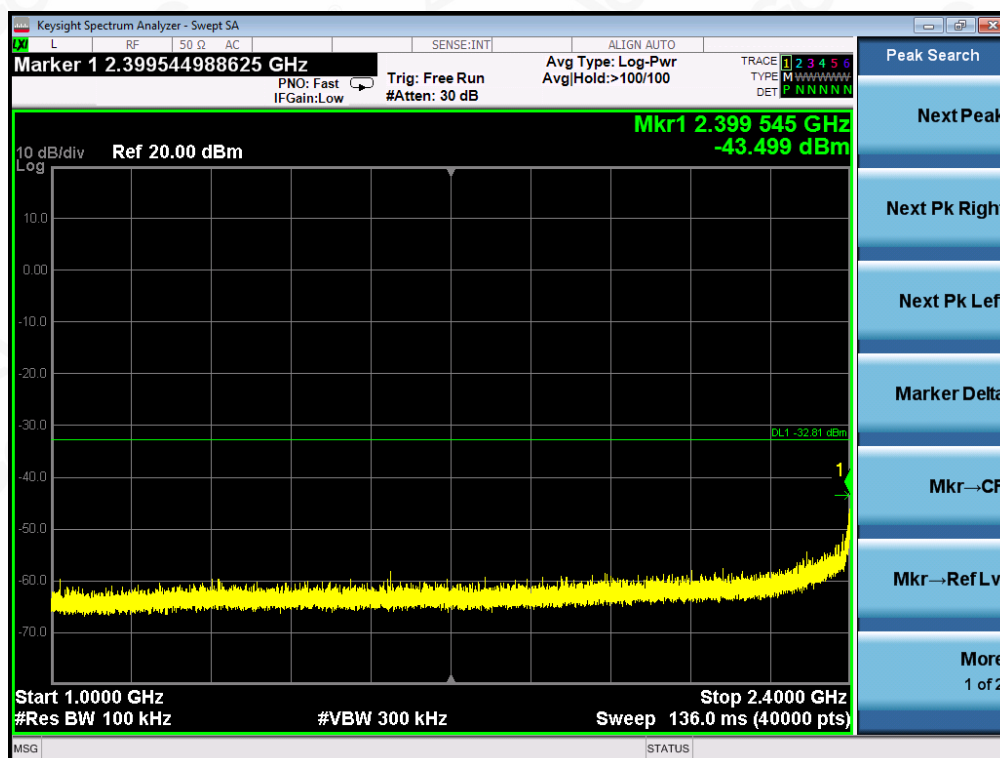
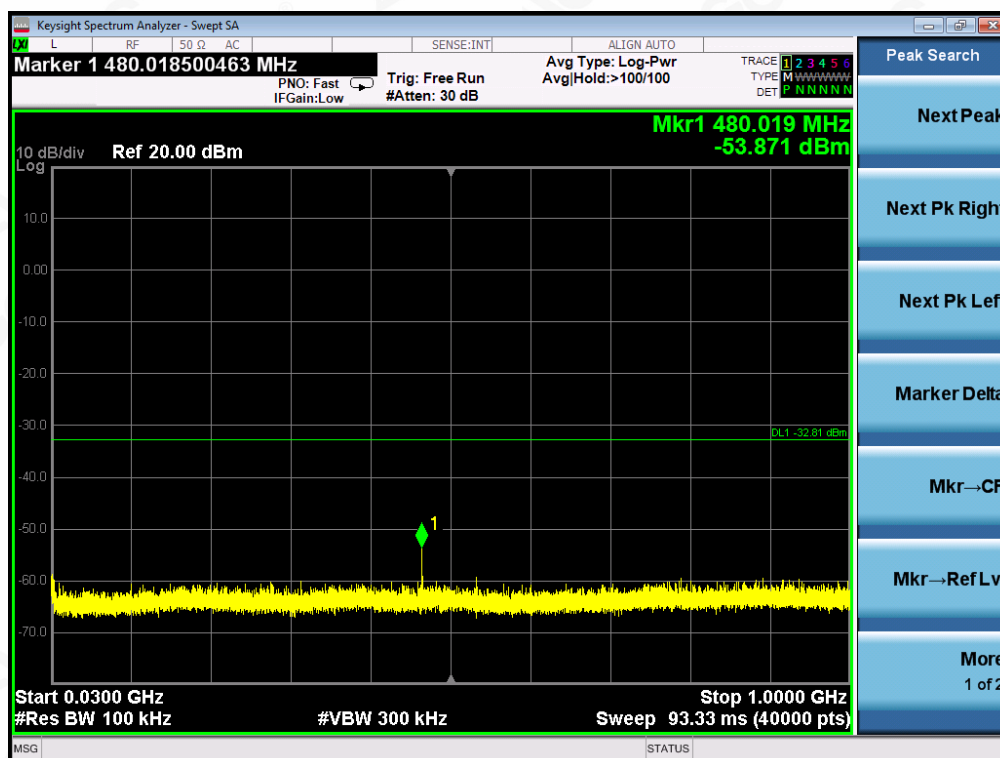


TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE OF 802.11n40 FOR MODULATION IN LOW CHANNEL

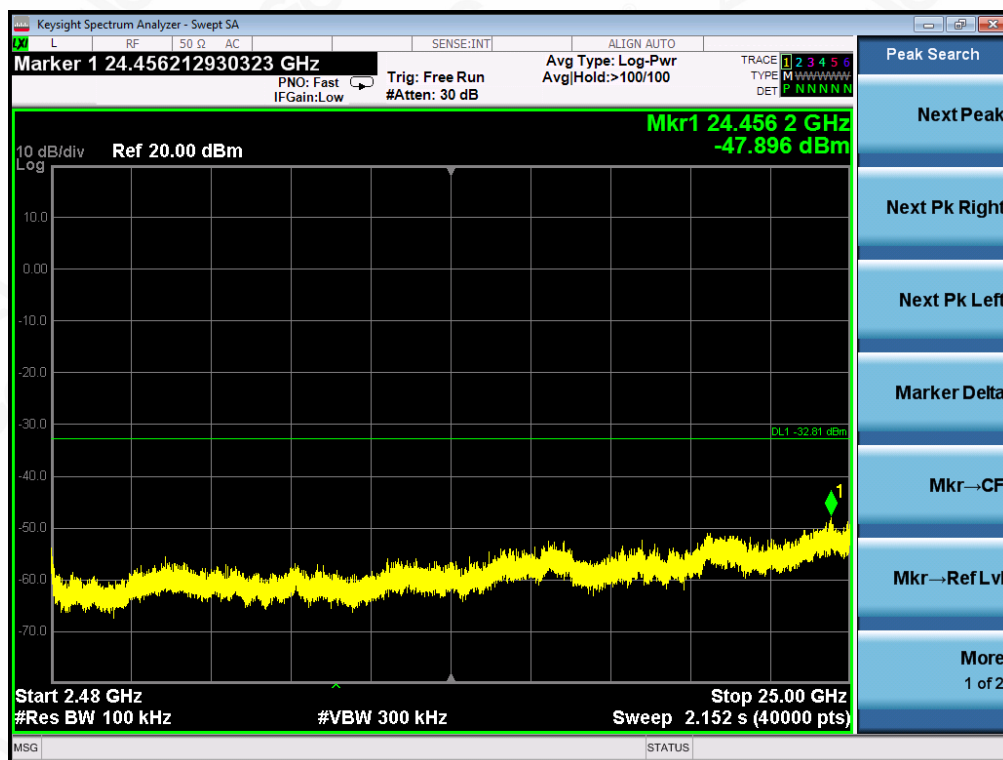




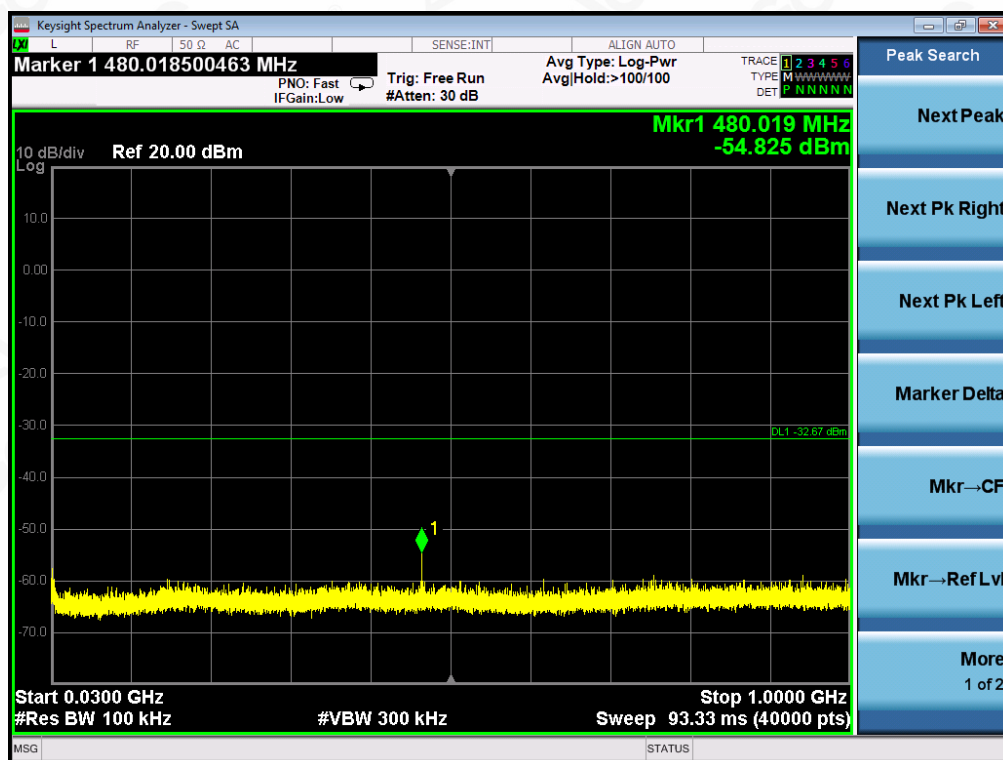
TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE  
OF 802.11n40 FOR MODULATION IN MIDDLE CHANNEL

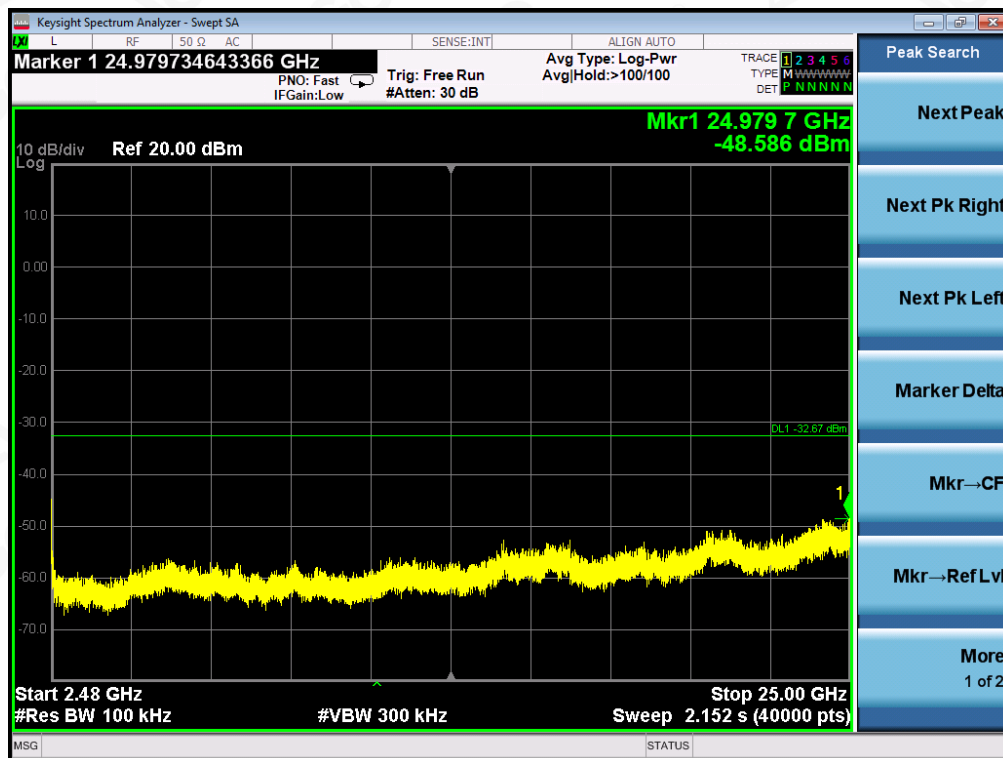
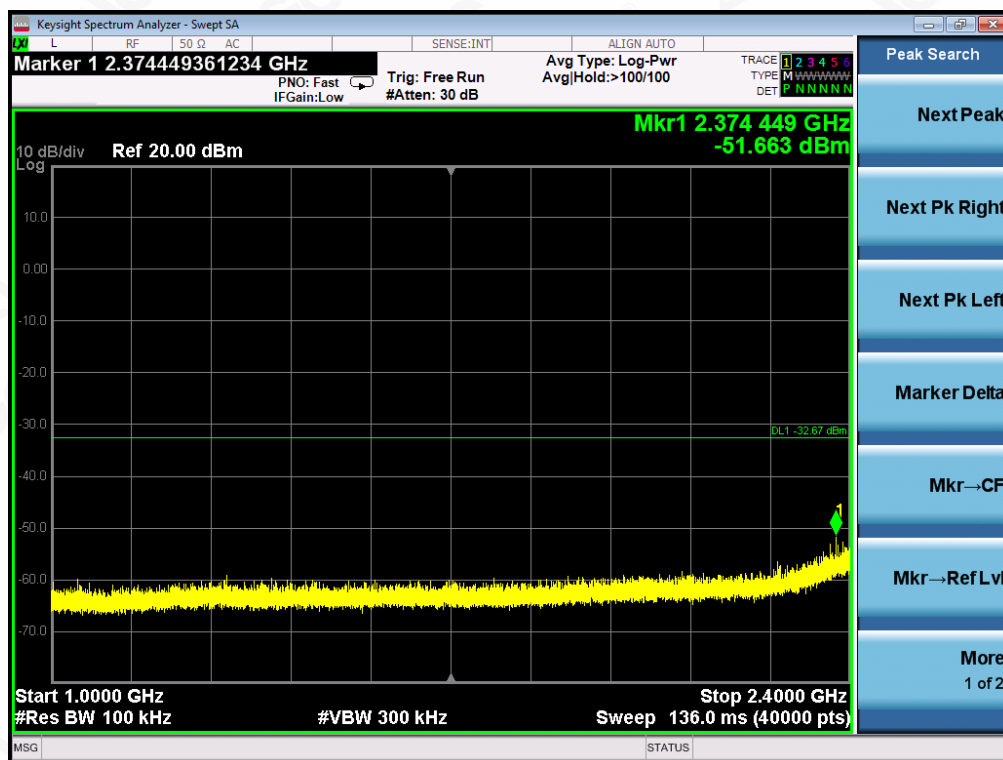






TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE  
OF 802.11n40 FOR MODULATION IN HIGH CHANNEL





Note: Two transmit chains had been tested, the chain 0 was the worst case and record in the test report.

## 10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

### 10.1 MEASUREMENT PROCEDURE

- (1). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- (2). Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- (3). Set SPA Trace 1 Max hold, then View.

Note: The method of AVGPS-1 in the ANSI C63.10 (2013) item 10.3 was used in this testing.

### 10.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

Refer To Section 8.2.

### 10.3 MEASUREMENT EQUIPMENT USED

Refer To Section 6.

### 10.4 LIMITS AND MEASUREMENT RESULT

| TEST ITEM | POWER SPECTRAL DENSITY   |
|-----------|--------------------------|
| TEST MODE | 802.11b with data rate 1 |

| Channel No.    | Power density Chain 1 (dBm/20kHz) | Power density Chain 2 (dBm/20kHz) | Power density Total (dBm/20kHz) | Limit (dBm/3kHz) | Result |
|----------------|-----------------------------------|-----------------------------------|---------------------------------|------------------|--------|
| Low Channel    | 1.880                             | 1.834                             | N/A                             | 8                | Pass   |
| Middle Channel | 2.369                             | 2.381                             | N/A                             | 8                | Pass   |
| High Channel   | 2.845                             | 2.205                             | N/A                             | 8                | Pass   |

| TEST ITEM | POWER SPECTRAL DENSITY   |
|-----------|--------------------------|
| TEST MODE | 802.11g with data rate 6 |

| Channel No.    | Power density Chain 1 (dBm/20kHz) | Power density Chain 2 (dBm/20kHz) | Power density Total (dBm/20kHz) | Limit (dBm/3kHz) | Result |
|----------------|-----------------------------------|-----------------------------------|---------------------------------|------------------|--------|
| Low Channel    | -4.908                            | -5.657                            | N/A                             | 8                | Pass   |
| Middle Channel | -3.905                            | -4.990                            | N/A                             | 8                | Pass   |
| High Channel   | -2.563                            | -4.285                            | N/A                             | 8                | Pass   |



|                  |                               |
|------------------|-------------------------------|
| <b>TEST ITEM</b> | POWER SPECTRAL DENSITY        |
| <b>TEST MODE</b> | 802.11n 20 with data rate 6.5 |

| Channel No.    | Power density Chain 1 (dBm/20kHz) | Power density Chain 2 (dBm/20kHz) | Power density Total (dBm/20kHz) | Limit (dBm/3kHz) | Result |
|----------------|-----------------------------------|-----------------------------------|---------------------------------|------------------|--------|
| Low Channel    | -4.398                            | -4.180                            | -1.277                          | 8                | Pass   |
| Middle Channel | -4.228                            | -4.398                            | -1.302                          | 8                | Pass   |
| High Channel   | -3.387                            | -3.730                            | -0.545                          | 8                | Pass   |

|                  |                                |
|------------------|--------------------------------|
| <b>TEST ITEM</b> | POWER SPECTRAL DENSITY         |
| <b>TEST MODE</b> | 802.11n 40 with data rate 13.5 |

| Channel No.    | Power density Chain 1 (dBm/20kHz) | Power density Chain 2 (dBm/20kHz) | Power density Total (dBm/20kHz) | Limit (dBm/3kHz) | Result |
|----------------|-----------------------------------|-----------------------------------|---------------------------------|------------------|--------|
| Low Channel    | -8.053                            | -7.809                            | -4.919                          | 8                | Pass   |
| Middle Channel | -8.033                            | -8.472                            | -5.237                          | 8                | Pass   |
| High Channel   | -8.219                            | -7.908                            | -5.050                          | 8                | Pass   |





### 802.11b TEST RESULT AT CHAIN 1

#### TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL



#### TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL



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### TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL



### 802.11b TEST RESULT AT CHAIN 2

### TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL



### TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL

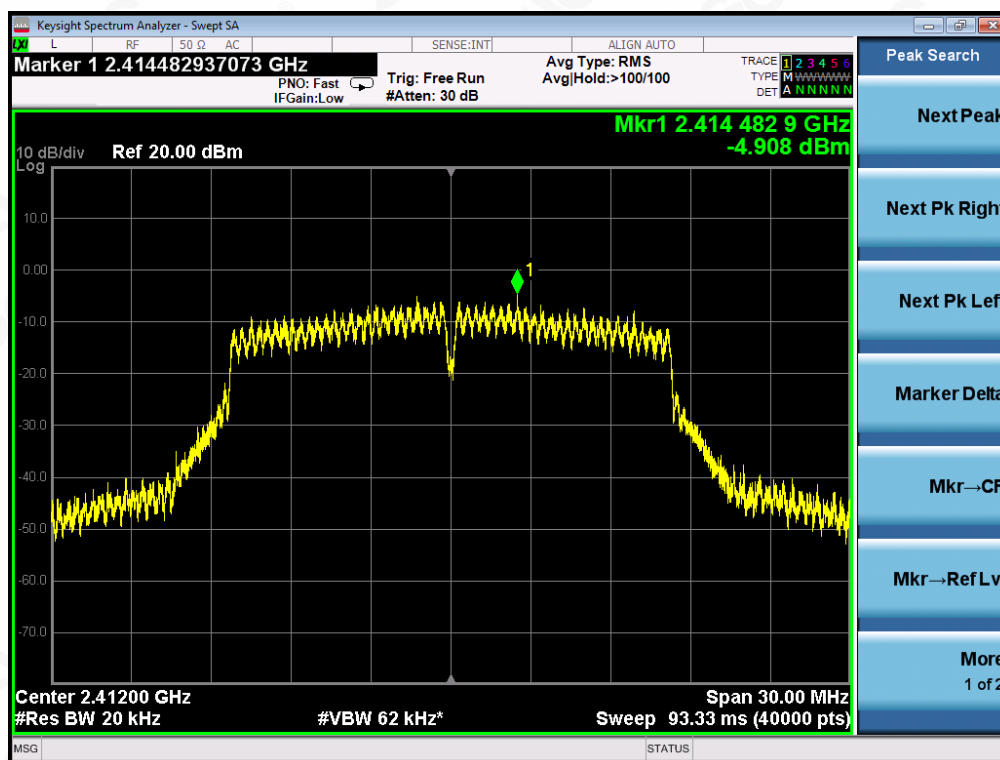


### TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL

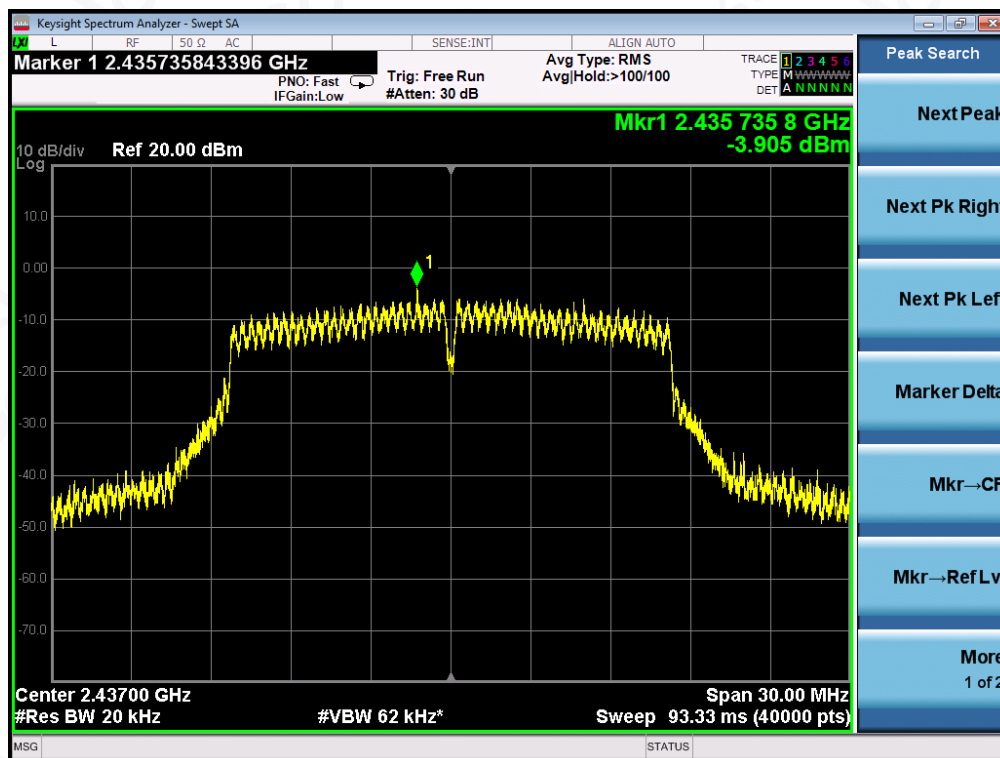


### 802.11g TEST RESULT AT CHAIN 1

#### TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL



#### TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL



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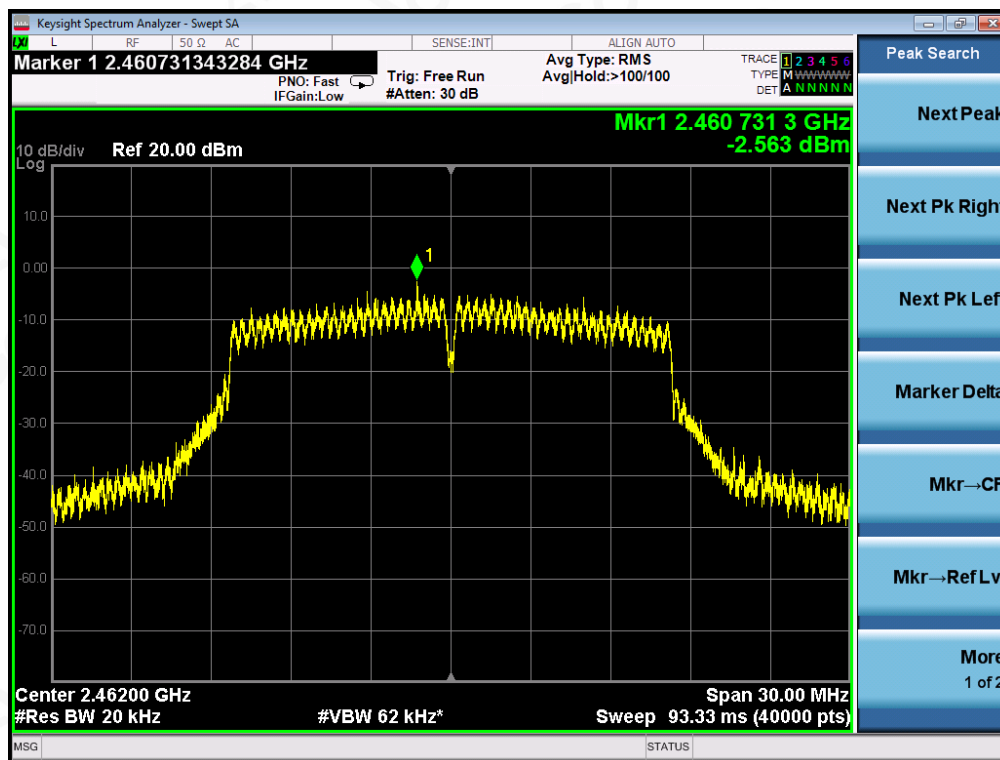
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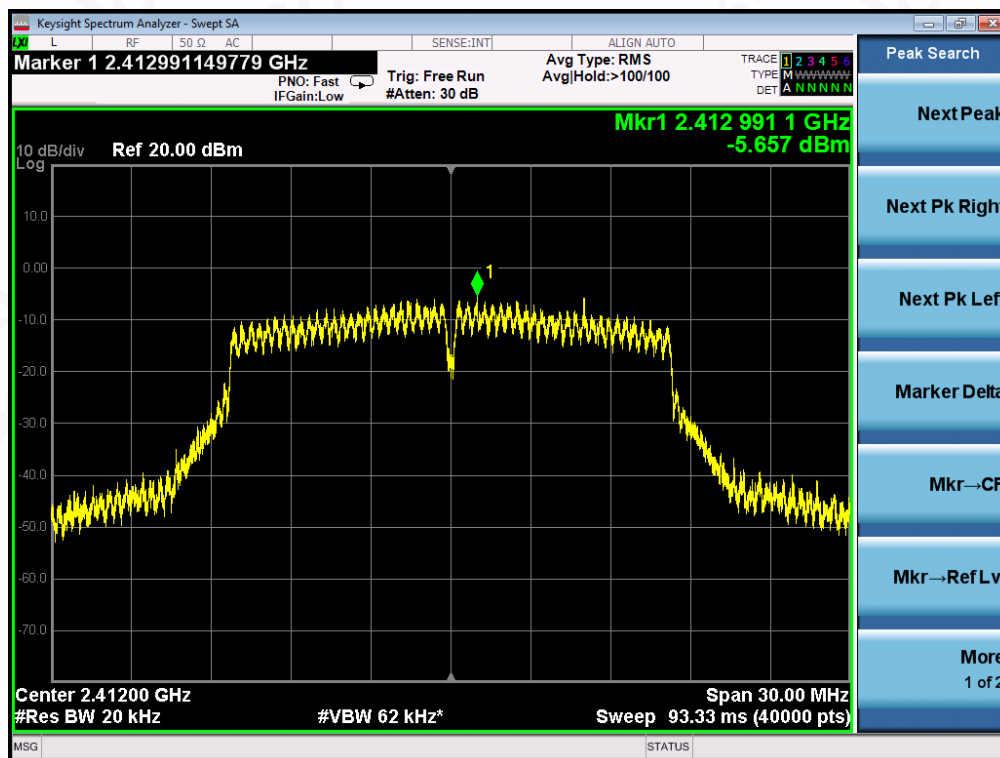


### TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL



### 802.11g TEST RESULT AT CHAIN 2

### TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL



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