

FCC Test Report

Report No.: AGC01645190302FE05

FCC ID : 2ATNXS61

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION : Smart Desk Lamp

BRAND NAME : N/A

MODEL NAME : S61, S51, S52, S53, S54, S55, S56, S57, S58, S59, S62, S63, S64, S65, S66, S67, S68, S69, S71, S72, S73, S74, S75, S76, S77, S78, S79, S81, S82, S83, S84, S85, S86, S87, S88, S89, S91, S92, S93, S94, S95, S96, S97, S98, S99

APPLICANT : Shenzhen Sonida Digital Technology Co.,Ltd

DATE OF ISSUE : Aug. 28, 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. 28, 2019 | Valid | Initial Release |



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TABLE OF CONTENTS

| | |
|--|-----------|
| 1. VERIFICATION OF CONFORMITY | 5 |
| 2. GENERAL INFORMATION..... | 6 |
| 2.1. PRODUCT DESCRIPTION | 6 |
| 2.2. TABLE OF CARRIER FREQUENCIES | 6 |
| 2.3. IEEE 802.11N MODULATION SCHEME..... | 7 |
| 2.4. RELATED SUBMITTAL(S) / GRANT (S) | 7 |
| 2.5. TEST METHODOLOGY | 7 |
| 2.6. SPECIAL ACCESSORIES..... | 7 |
| 2.7. EQUIPMENT MODIFICATIONS | 7 |
| 3. MEASUREMENT UNCERTAINTY | 8 |
| 4. DESCRIPTION OF TEST MODES..... | 9 |
| 5. SYSTEM TEST CONFIGURATION | 10 |
| 5.1. CONFIGURATION OF EUT SYSTEM | 10 |
| 5.2. EQUIPMENT USED IN EUT SYSTEM..... | 10 |
| 5.3. SUMMARY OF TEST RESULTS..... | 10 |
| 6. TEST FACILITY | 11 |
| 7. OUTPUT POWER..... | 12 |
| 7.1. MEASUREMENT PROCEDURE | 12 |
| 7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)..... | 12 |
| 7.3. LIMITS AND MEASUREMENT RESULT | 13 |
| 8. 6 DB BANDWIDTH..... | 14 |
| 8.1. MEASUREMENT PROCEDURE | 14 |
| 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)..... | 14 |
| 8.3. LIMITS AND MEASUREMENT RESULTS | 15 |
| 9. CONDUCTED SPURIOUS EMISSION | 21 |
| 9.1. MEASUREMENT PROCEDURE | 21 |
| 9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)..... | 21 |
| 9.3. MEASUREMENT EQUIPMENT USED | 21 |
| 9.4. LIMITS AND MEASUREMENT RESULT | 21 |
| 10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY | 36 |

| | |
|---|-----------|
| 10.1 MEASUREMENT PROCEDURE | 36 |
| 10.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)..... | 36 |
| 10.3 MEASUREMENT EQUIPMENT USED | 36 |
| 10.4 LIMITS AND MEASUREMENT RESULT | 36 |
| 11. RADIATED EMISSION..... | 43 |
| 11.1. MEASUREMENT PROCEDURE | 43 |
| 11.2. TEST SETUP | 44 |
| 11.3. LIMITS AND MEASUREMENT RESULT | 45 |
| 11.4. TEST RESULT | 45 |
| 12. BAND EDGE EMISSION | 51 |
| 12.1. MEASUREMENT PROCEDURE | 51 |
| 12.2. TEST SET-UP..... | 51 |
| 12.3. TEST RESULT..... | 52 |
| 13. FCC LINE CONDUCTED EMISSION TEST | 64 |
| 13.1. LIMITS OF LINE CONDUCTED EMISSION TEST..... | 64 |
| 13.2. BLOCK DIAGRAM OF TEST SETUP | 64 |
| 13.3. PROCEDURE OF LINE CONDUCTED EMISSION TEST | 65 |
| 13.4. TEST RESULT OF LINE CONDUCTED EMISSION TEST | 66 |
| APPENDIX A: PHOTOGRAPHS OF TEST SETUP | 68 |
| APPENDIX B: PHOTOGRAPHS OF EUT | 70 |

1. VERIFICATION OF CONFORMITY

| | |
|----------------------------------|--|
| Applicant | Shenzhen Sonida Digital Technology Co.,Ltd |
| Address | 6F, B Bldg, Zhengchangda Technology Park, Tangwei jian'an Rd, Fuyong St., Bao'an Dist., Shenzhen, China |
| manufacturer | Shenzhen Sonida Digital Technology Co.,Ltd |
| Address | 6F, B Bldg, Zhengchangda Technology Park, Tangwei jian'an Rd, Fuyong St., Bao'an Dist., Shenzhen, China |
| Factory | Shenzhen Sonida Digital Technology Co.,Ltd |
| Address | 6F, B Bldg, Zhengchangda Technology Park, Tangwei jian'an Rd, Fuyong St., Bao'an Dist., Shenzhen, China |
| Product Designation | Smart Desk Lamp |
| Brand Name | N/A |
| Test Model | S61 |
| Series Model | S51, S52, S53, S54, S55, S56, S57, S58, S59, S62, S63, S64, S65, S66, S67, S68, S69, S71, S72, S73, S74, S75, S76, S77, S78, S79, S81, S82, S83, S84, S85, S86, S87, S88, S89, S91, S92, S93, S94, S95, S96, S97, S98, S99 |
| Declaration of Difference | All the same except for the model name, color and shape of appearance. |
| Date of test | Jun. 04, 2019 to Aug. 23, 2019 |
| Deviation | None |
| Condition of Test Sample | Normal |
| Test Result | Pass |
| Report Template | 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

Erik Yang

Erik Yang
(Project Engineer)

Aug. 23, 2019

Reviewed By

Max Zhang

Max Zhang
(Reviewer)

Aug. 28, 2019

Approved By

Forrest Lei

Forrest Lei
(Authorized Officer)

Aug. 28, 2019

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as “Smart Desk Lamp”. 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

| | |
|------------------------------|--|
| Operation Frequency | 2.412 GHz~2.462GHz |
| Output Power(Average) | IEEE 802.11b:17.25dBm; IEEE 802.11g:16.58dBm; IEEE 802.11n(20):15.86dBm |
| Modulation | DSSS(DBPSK/DQPSK/CCK);OFDM(BPSK/QPSK/16-QAM/64-QAM) |
| Number of channels | 11 channels for 802.11b/g/n20 |
| Hardware Version | S61-power-V20 |
| Software Version | V1.0 |
| Antenna Designation | PCB antenna |
| Antenna Gain | 0dBi |
| Power Supply | DC 9V by adapter |

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

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: 2ATNXS61 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: Transmit by 802.11b with Data rate (1/2/5.5/11) Transmit by 802.11g with Data rate (6/9/12/18/24/36/48/54) Transmit by 802.11n (20MHz) with Data rate (6.5/13/19.5/26/39/52/58.5/65) | |

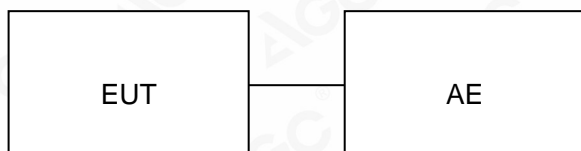
Note:

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 ESP which can set the EUT into the individual test modes

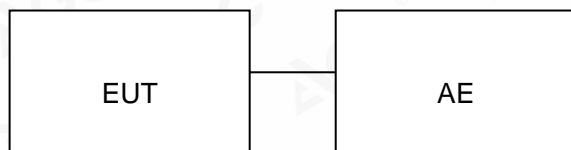
5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Radiated Emission Configure :



Conducted Emission Configure :



5.2. EQUIPMENT USED IN EUT SYSTEM

| Item | Equipment | Model No. | ID or Specification | Remark |
|------|-----------------|--------------|---------------------|-----------|
| 1 | Smart Desk Lamp | S61 | 2ATNXS61 | EUT |
| 2 | Load | N/A | 10W | Accessory |
| 3 | Adapter | BSG-0902500B | DC 9V/2.5A | Accessory |

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 | AC Power Line Conduction Emission | Compliant |

6. TEST FACILITY

| | |
|--|--|
| Test Site | Attestation of Global Compliance (Shenzhen) Co., Ltd |
| Location | 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China |
| Designation Number | CN1259 |
| FCC Test Firm Registration Number | 975832 |
| A2LA Cert. No. | 5054.02 |
| Description | 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. 12, 2019 | Jun. 11, 2020 |
| LISN | R&S | ESH2-Z5 | 100086 | Aug. 28, 2018 | Aug. 27, 2019 |

TEST EQUIPMENT OF RADIATED EMISSION TEST

| Equipment | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|--------------------------------|----------------|-----------|------------|---------------|---------------|
| TEST RECEIVER | R&S | ESCI | 10096 | Jun. 12, 2019 | Jun. 11, 2020 |
| EXA Signal Analyzer | Aglient | N9010A | MY53470504 | Dec. 20, 2018 | Dec. 19, 2019 |
| Power sensor | Aglient | U2021XA | MY54110007 | Sep. 20, 2018 | Sep. 19, 2019 |
| 2.4GHz Fliter | Micro-tronics | 087 | N/A | Jun. 12, 2019 | Jun. 11, 2020 |
| Attenuator | Weinachel Corp | 58-30-33 | N/A | Jun. 12, 2019 | Jun. 11, 2020 |
| Horn antenna | SCHWARZBECK | BBHA 9170 | #768 | Sep. 21, 2017 | Sep. 20, 2020 |
| Active loop antenna (9K-30MHz) | ZHINAN | ZN30900C | 18051 | Jun. 13, 2019 | Jun. 12, 2020 |
| Double-Ridged Waveguide Horn | ETS LINDGREN | 3117 | 00034609 | May 17, 2019 | May 16, 2020 |
| Broadband Preamplifier | ETS LINDGREN | 3117PA | 00225134 | Oct. 25, 2018 | Oct. 24, 2019 |
| ANTENNA | SCHWARZBECK | VULB9168 | D69250 | Sep. 28, 2017 | Sep. 27, 2019 |

7. OUTPUT POWER

7.1. MEASUREMENT PROCEDURE

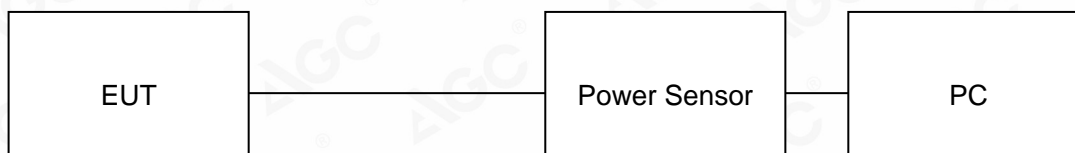
For average power test:

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 (dBm) | Applicable Limits (dBm) | Pass or Fail |
|-----------------|---------------------|-------------------------|--------------|
| 2.412 | 16.14 | 30 | Pass |
| 2.437 | 16.78 | 30 | Pass |
| 2.462 | 17.25 | 30 | Pass |

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

| Frequency (GHz) | Average Power (dBm) | Applicable Limits (dBm) | Pass or Fail |
|-----------------|---------------------|-------------------------|--------------|
| 2.412 | 16.19 | 30 | Pass |
| 2.437 | 15.83 | 30 | Pass |
| 2.462 | 16.58 | 30 | Pass |

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

| Frequency (GHz) | Average Power (dBm) | Applicable Limits (dBm) | Pass or Fail |
|-----------------|---------------------|-------------------------|--------------|
| 2.412 | 15.66 | 30 | Pass |
| 2.437 | 15.86 | 30 | Pass |
| 2.462 | 15.63 | 30 | Pass |

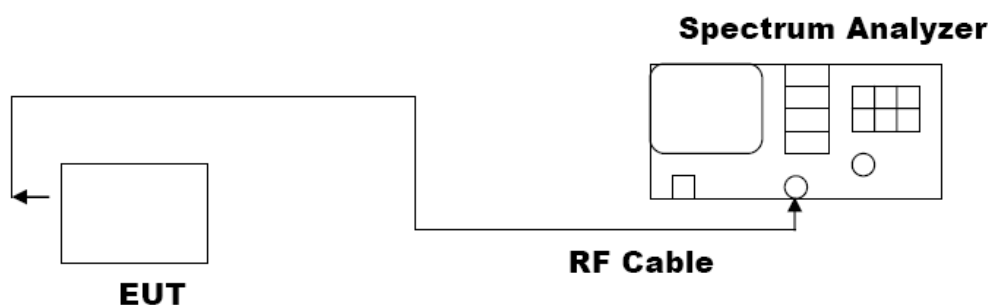
8. 6 DB BANDWIDTH

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 | 8.065 | PASS |
| | Middle Channel | 8.082 | PASS |
| | High Channel | 8.080 | PASS |

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

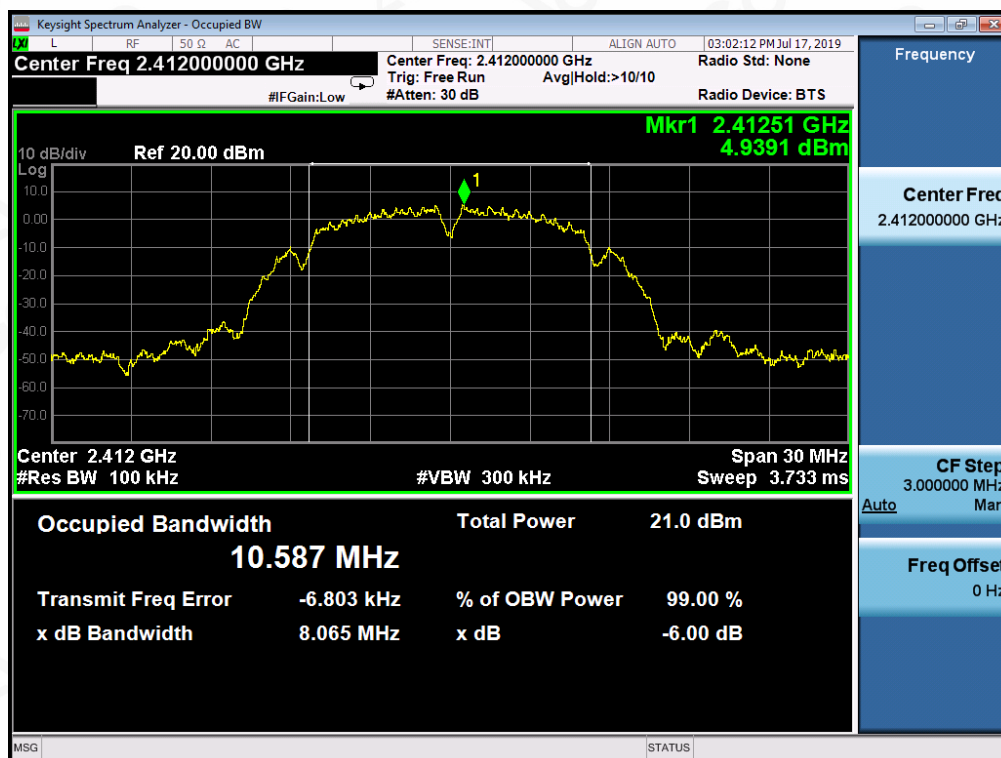
| LIMITS AND MEASUREMENT RESULT | | | |
|-------------------------------|-------------------|-------|----------|
| Applicable Limits | Applicable Limits | | |
| | Test Data (MHz) | | Criteria |
| >500KHZ | Low Channel | 16.34 | PASS |
| | Middle Channel | 16.35 | PASS |
| | High Channel | 16.35 | PASS |

| | |
|-----------|------------------------------|
| 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 | 17.56 | PASS |
| | Middle Channel | 17.58 | PASS |
| | High Channel | 17.58 | PASS |

802.11b TEST RESULT

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



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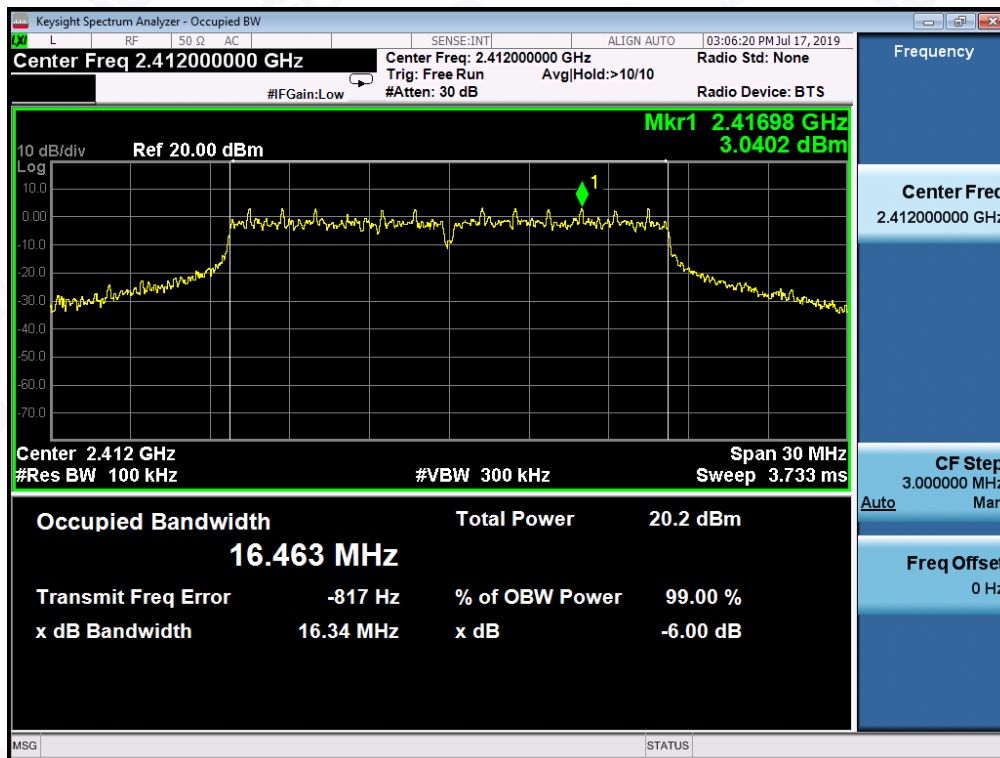
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TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



802.11g TEST RESULT

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



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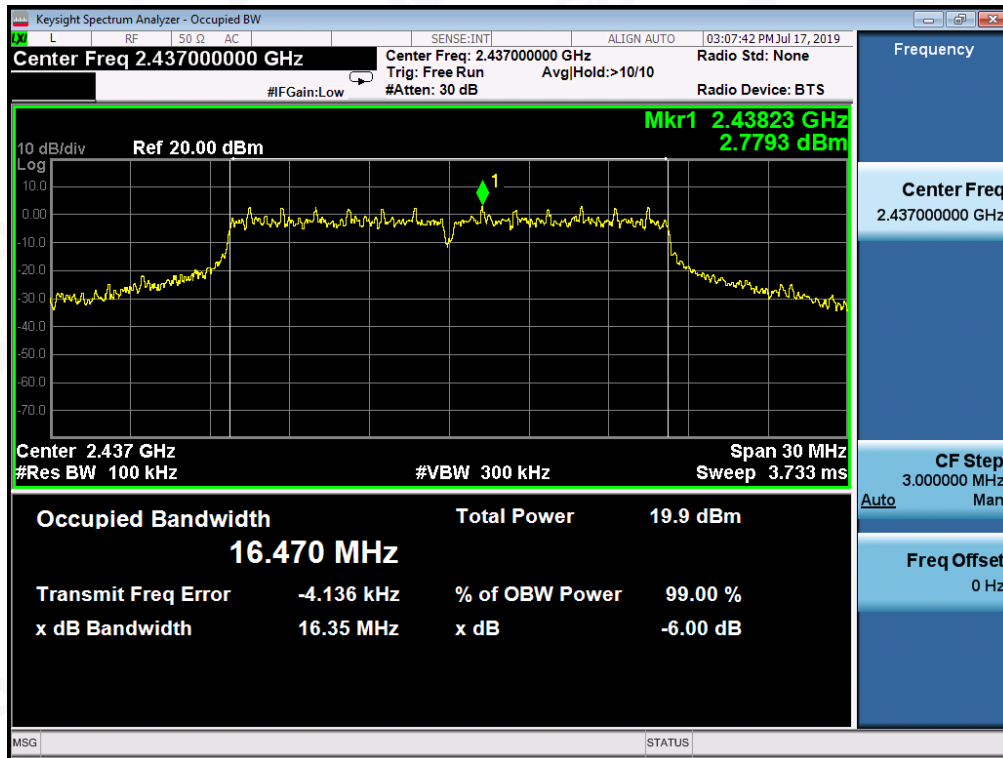
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Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755 2523 4088

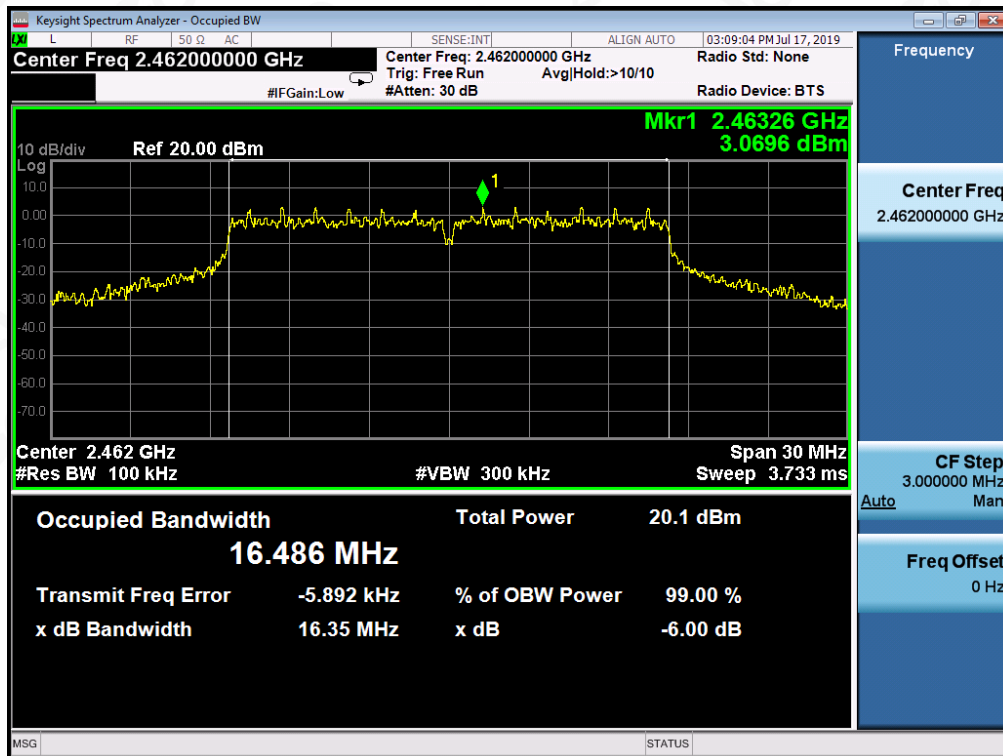
E-mail: agc@agc-cert.com

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TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

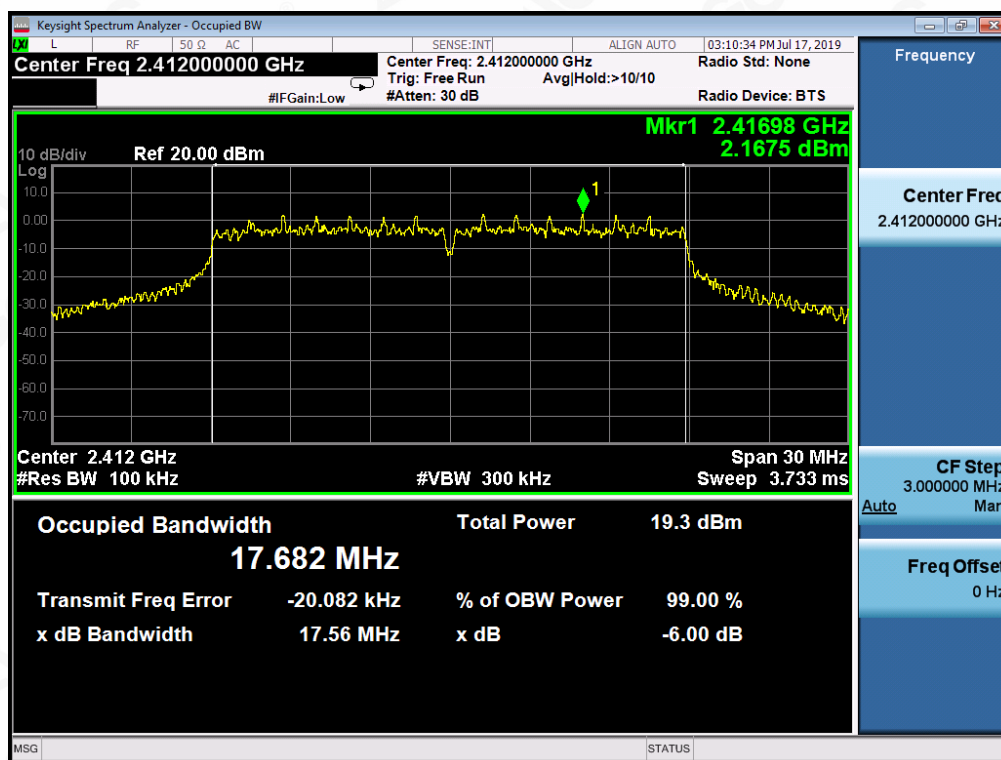


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

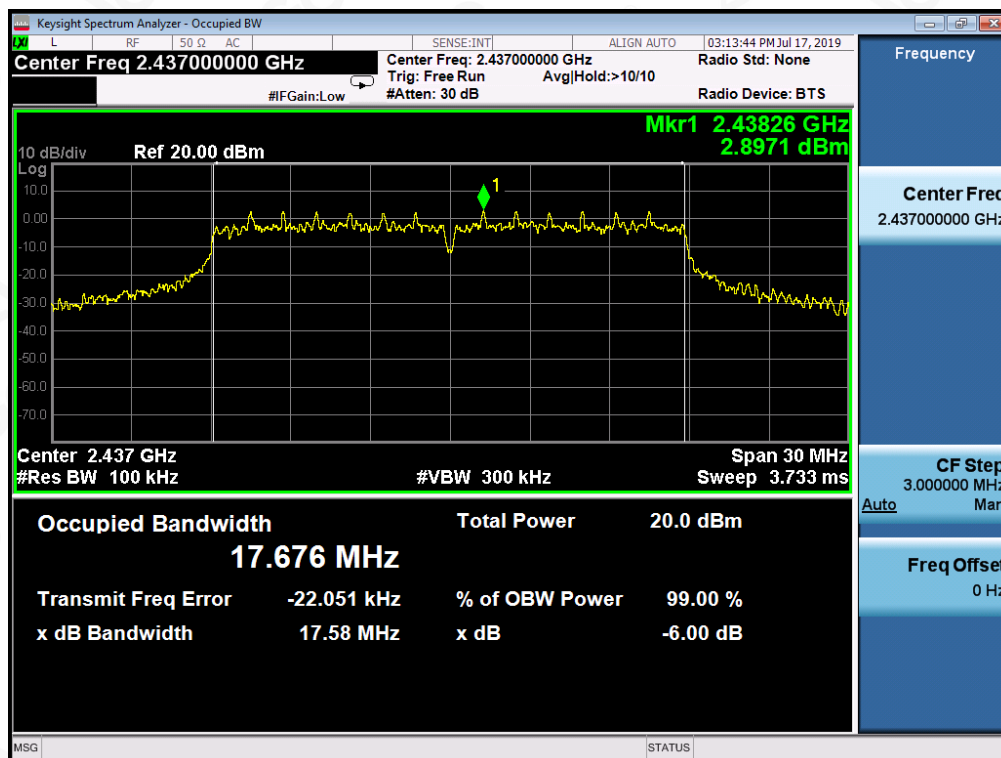


802.11n (20) TEST RESULT

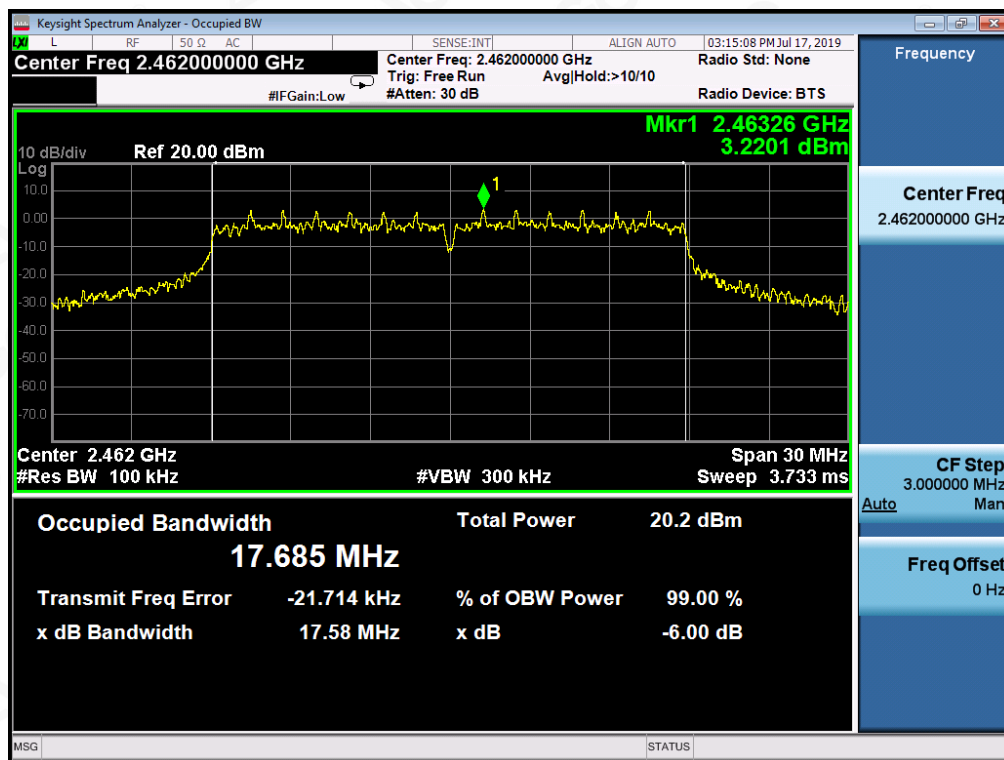
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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.

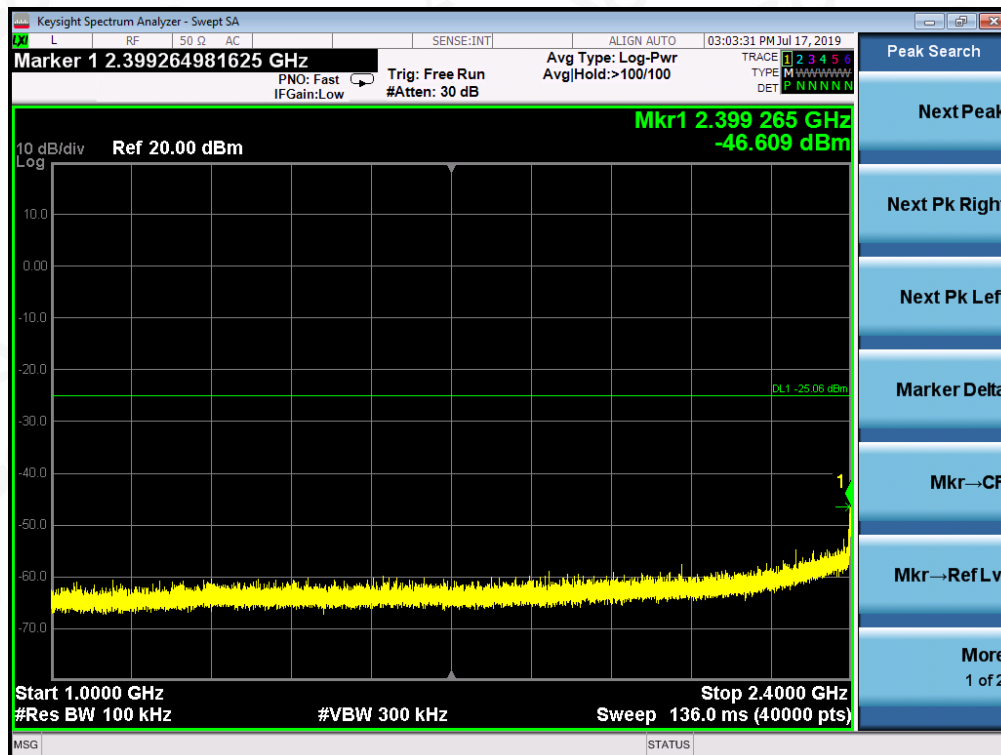
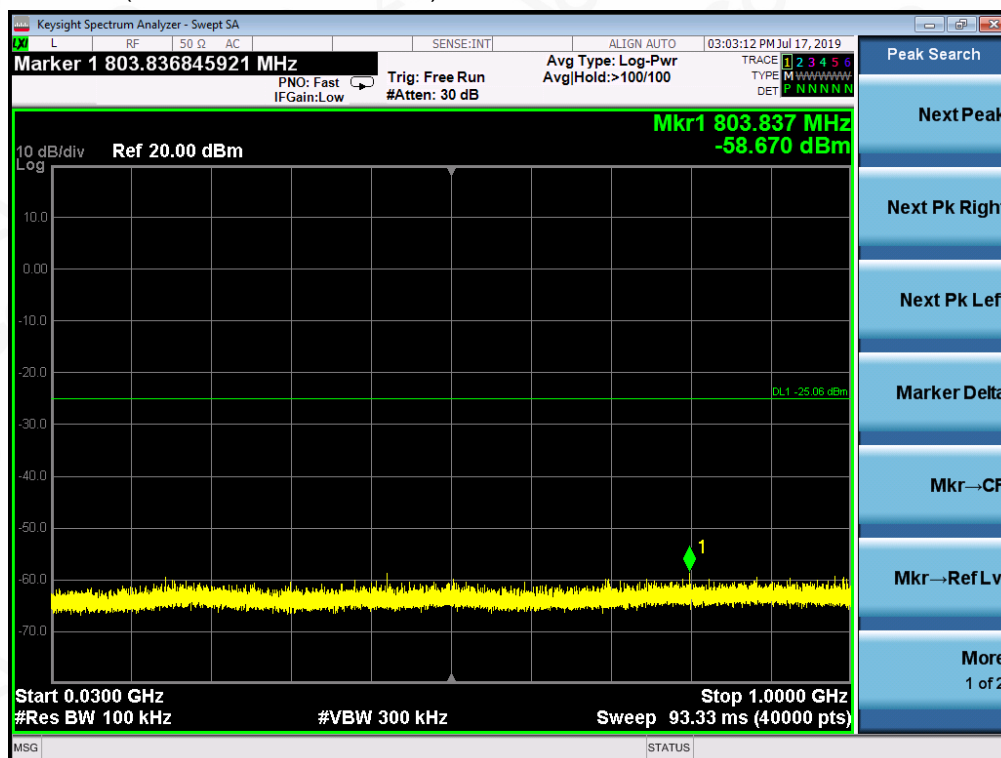
9.3. MEASUREMENT EQUIPMENT USED

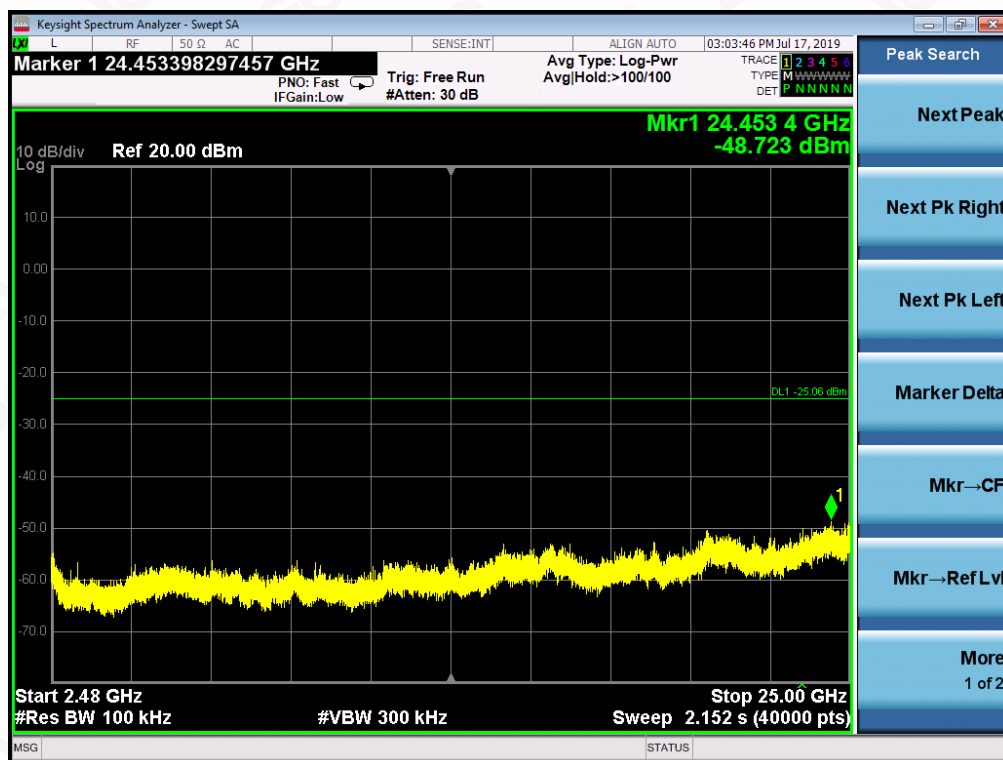
The same as described in section 6.

9.4. LIMITS AND MEASUREMENT RESULT

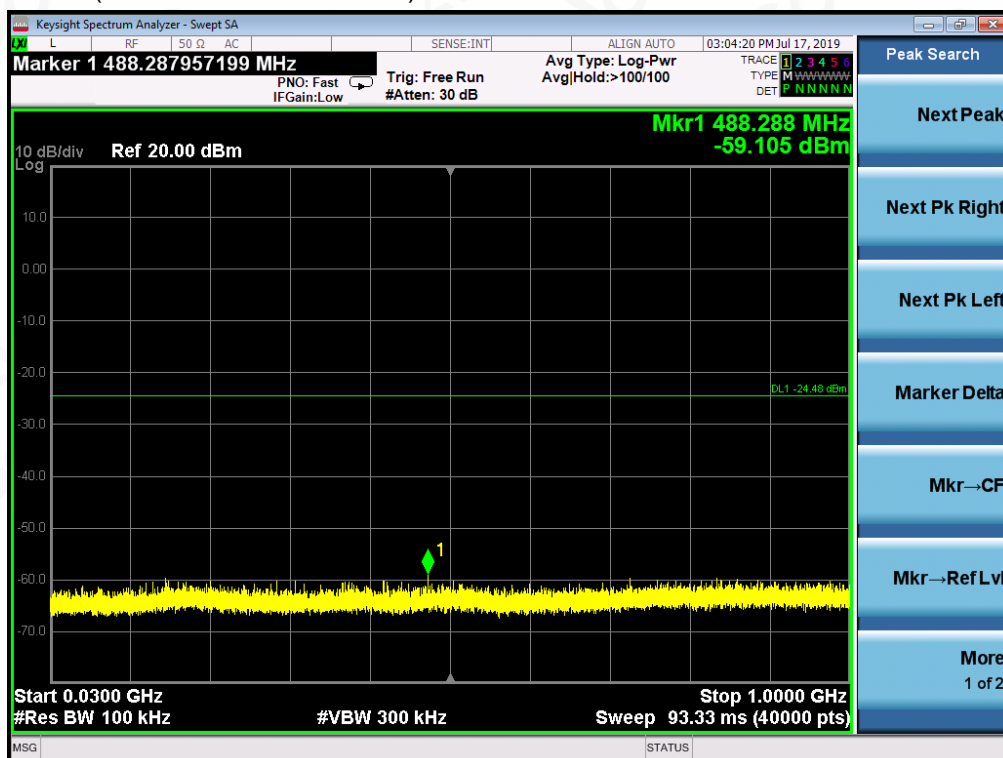
| LIMITS AND MEASUREMENT RESULT | | |
|---|--|----------|
| Applicable Limits | Measurement Result | |
| | Test Data | Criteria |
| In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 30 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power. 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 |

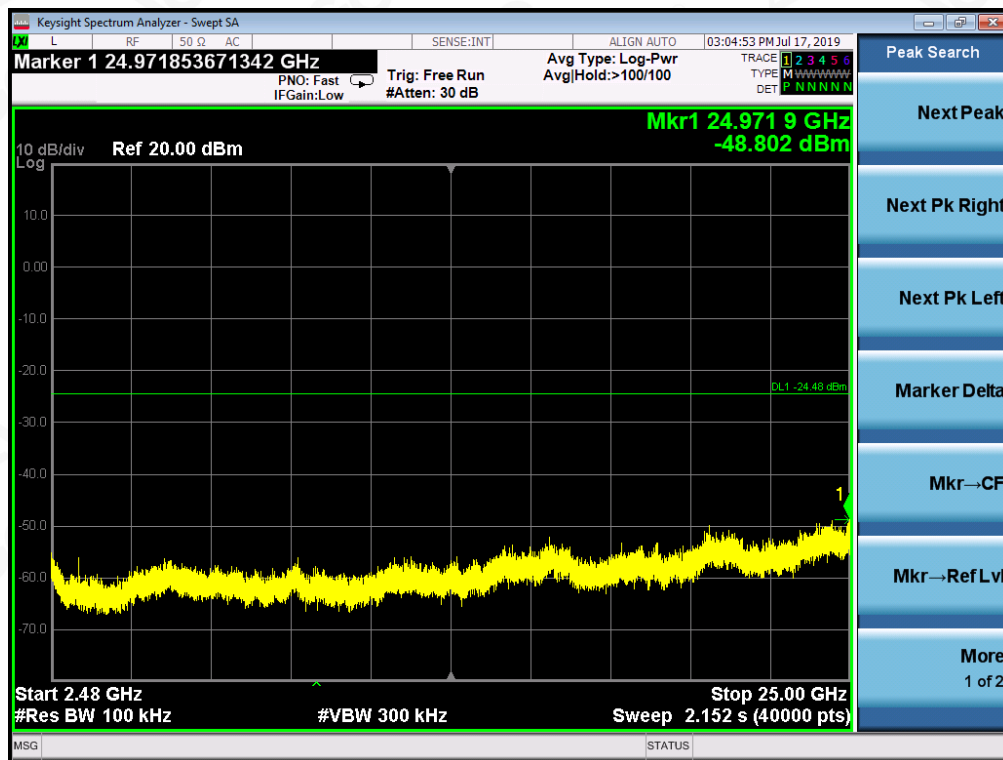
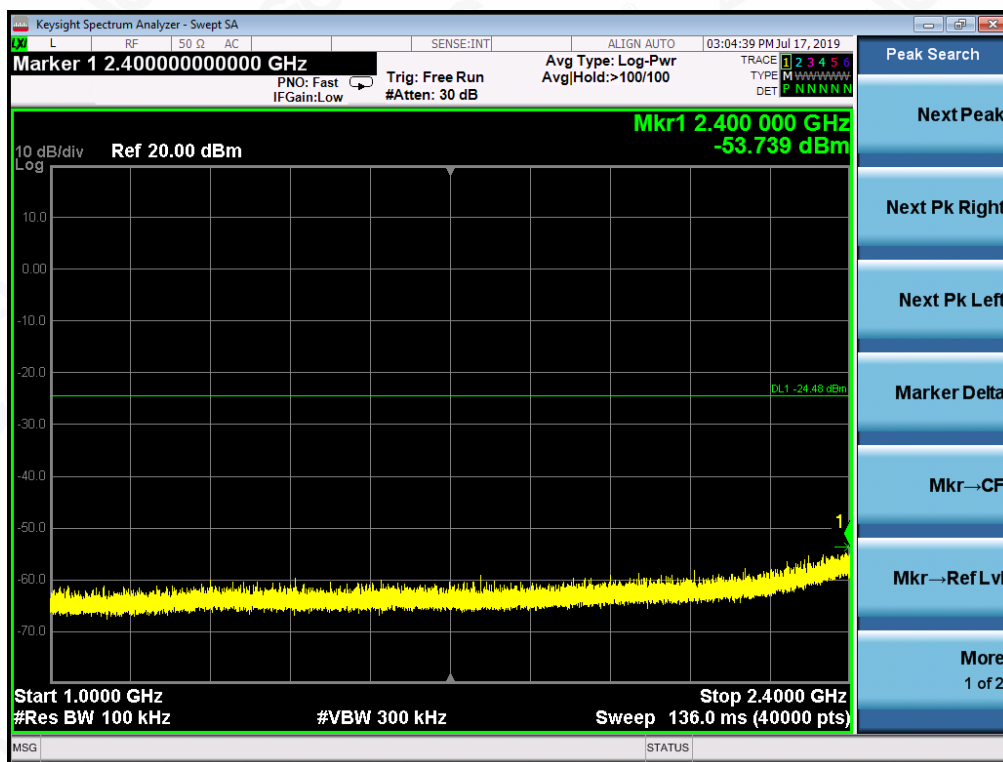
TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE
OF (802.11b with data rate 1) FOR MODULATION IN LOW CHANNEL



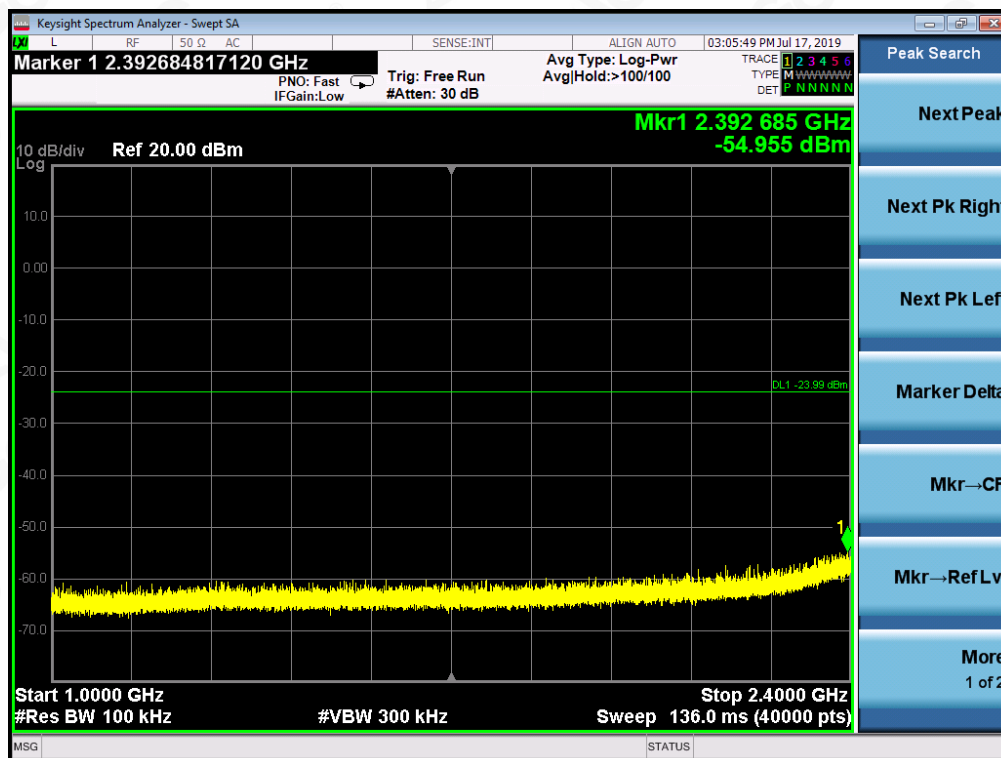
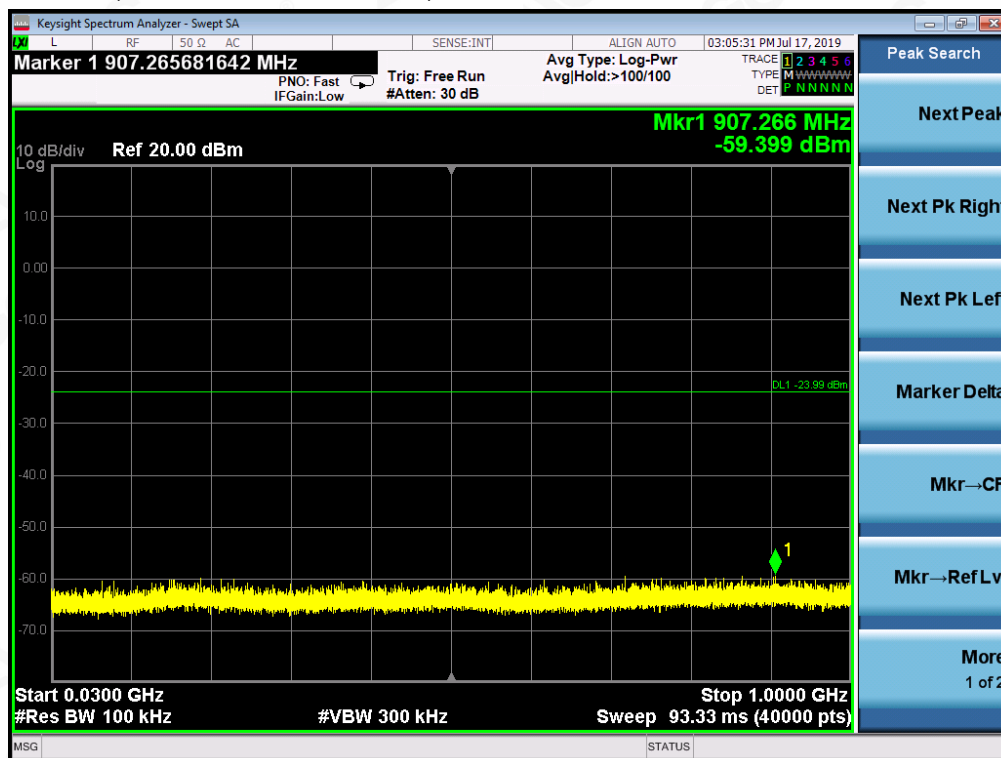


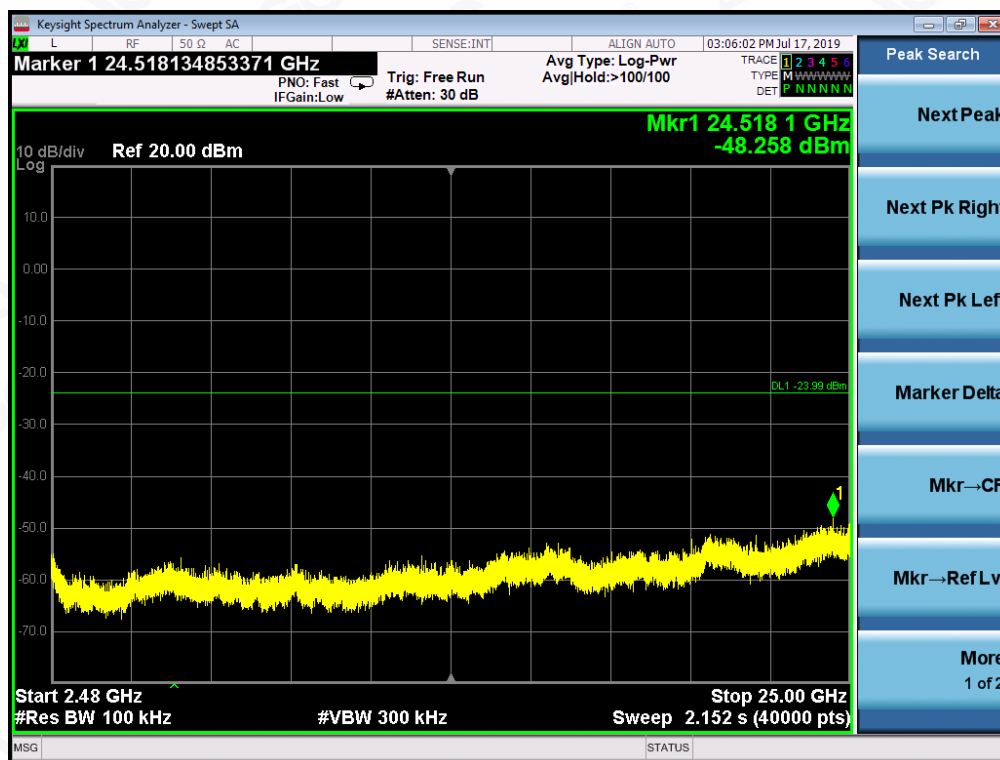
TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE
OF (802.11b with data rate 1) FOR MODULATION IN MIDDLE CHANNEL



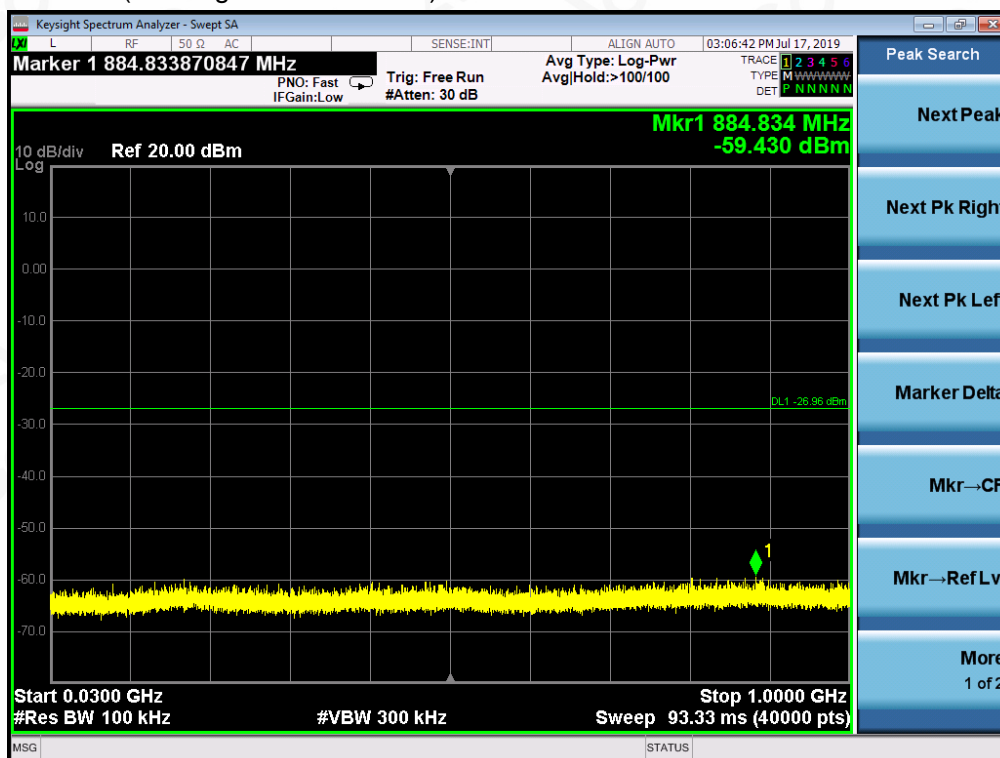


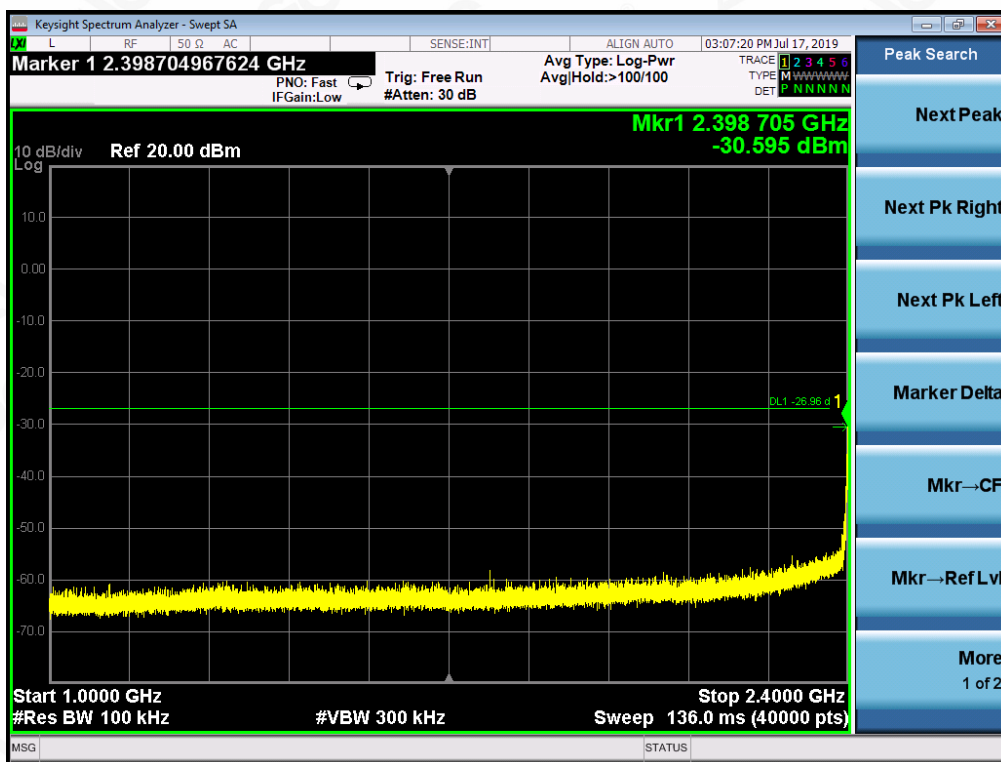
TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE
OF(802.11b with data rate 1) FOR MODULATION IN HIGH CHANNEL



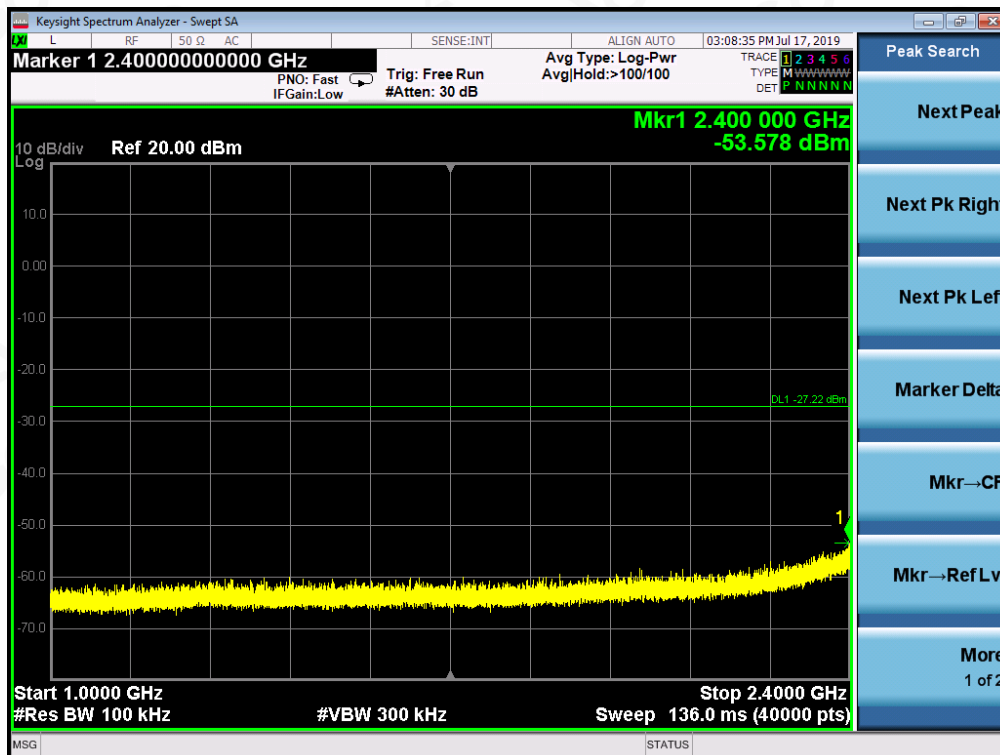
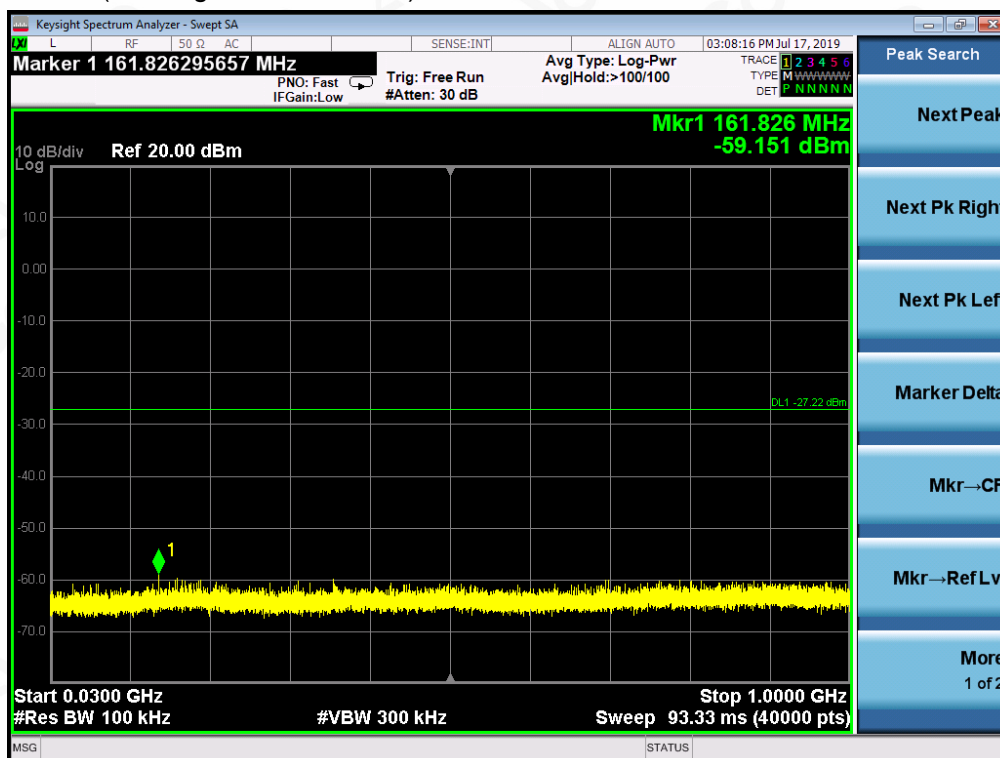


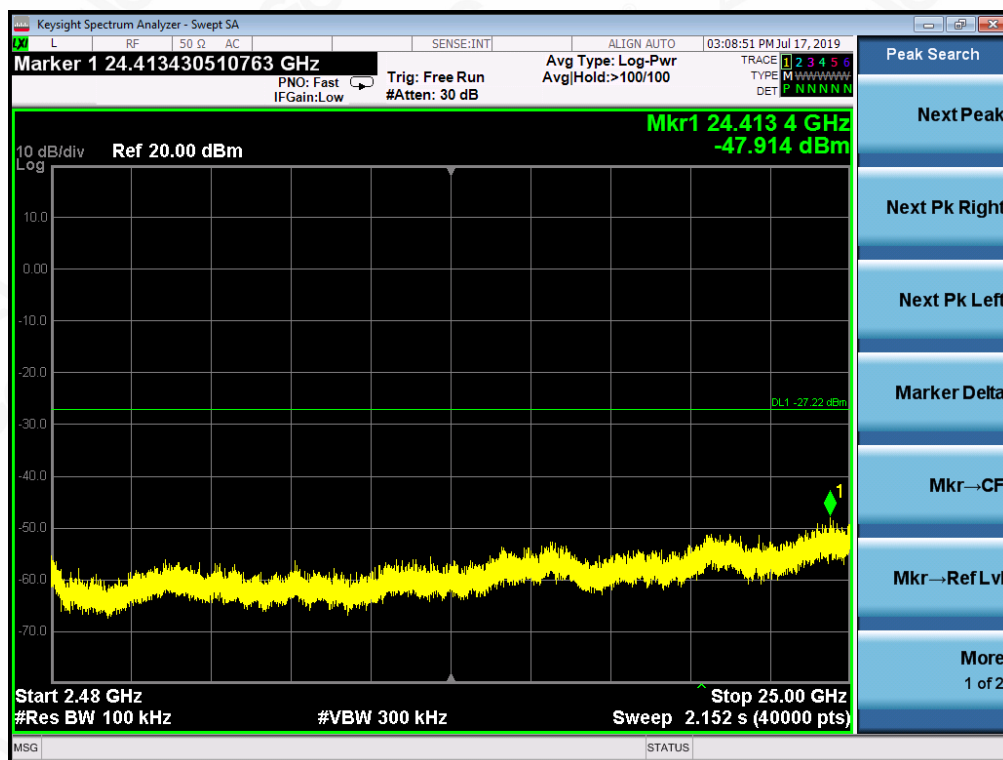
TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE
OF (802.11g with data rate 6) FOR MODULATION IN LOW CHANNEL



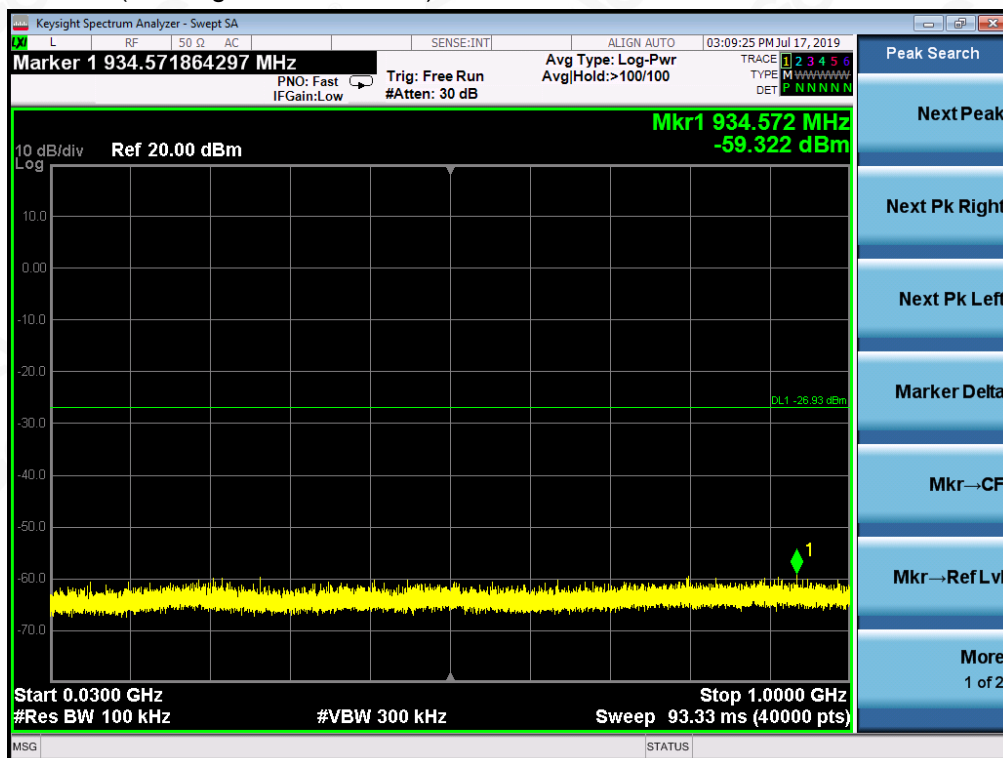


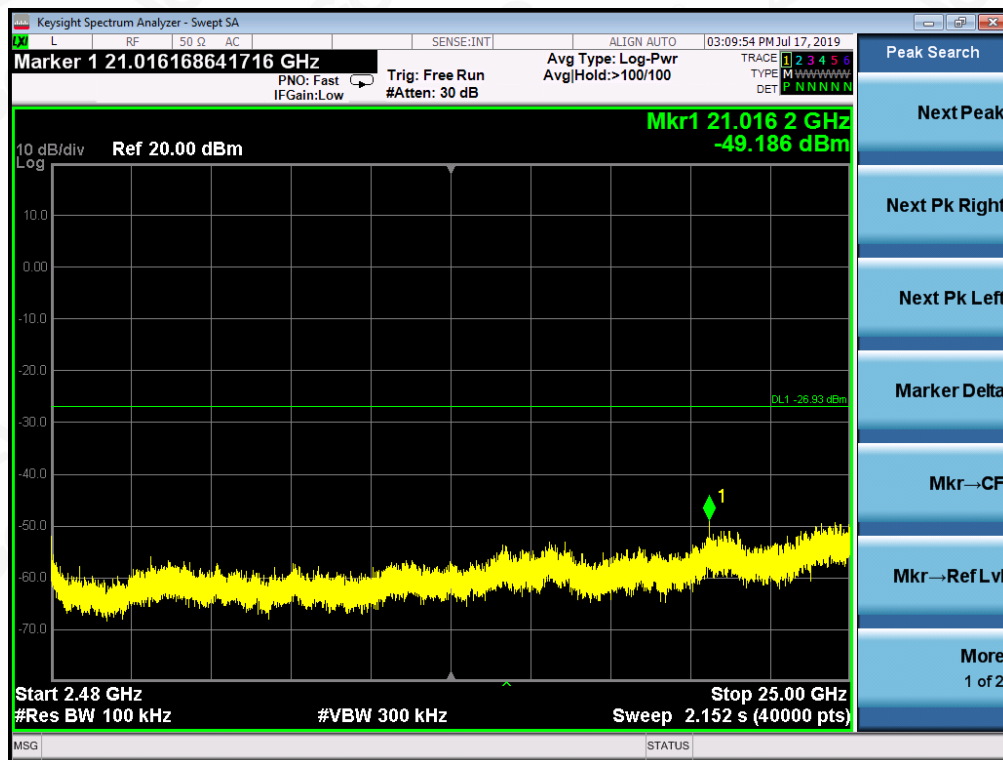
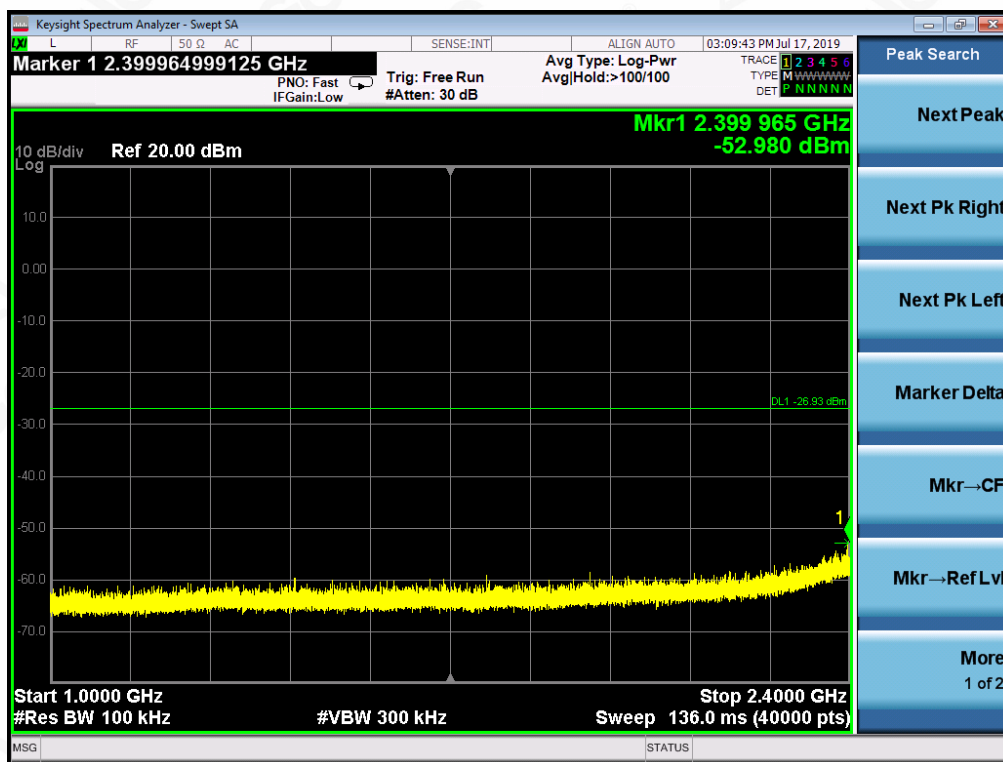
TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE
OF (802.11g with data rate 6) FOR MODULATION IN MIDDLE CHANNEL



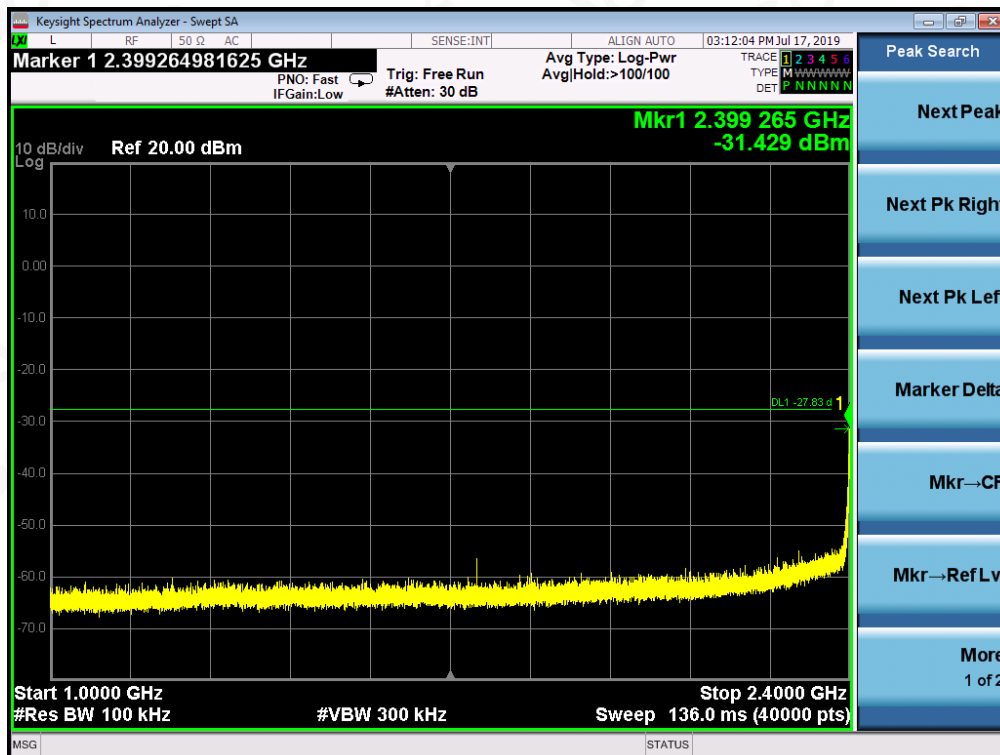
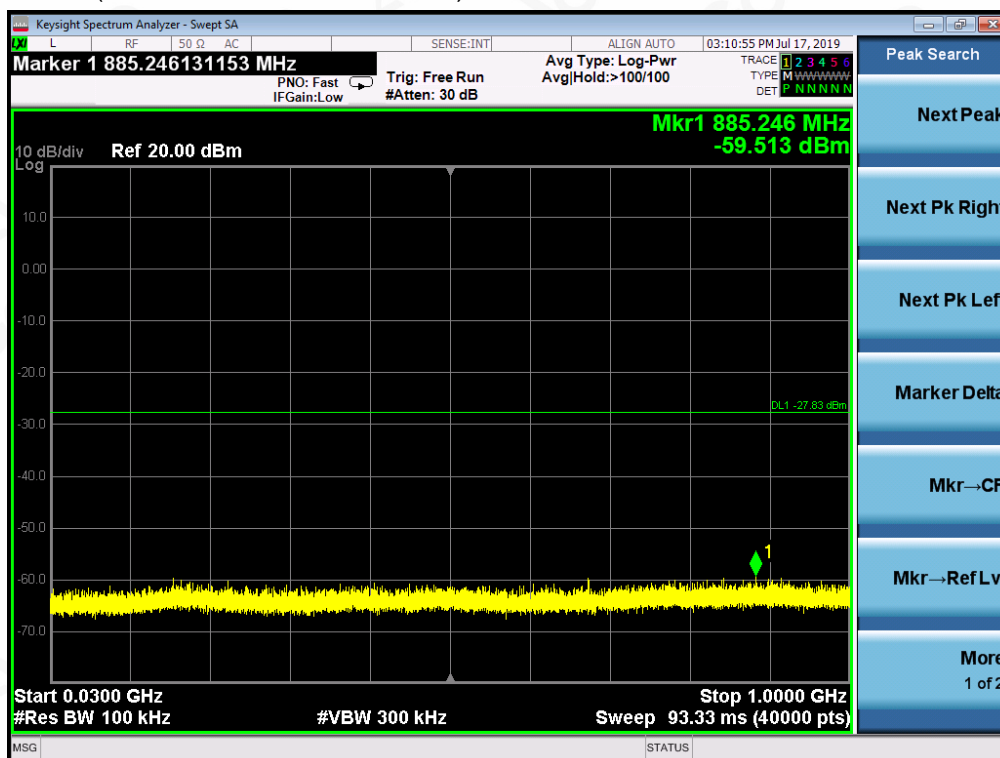


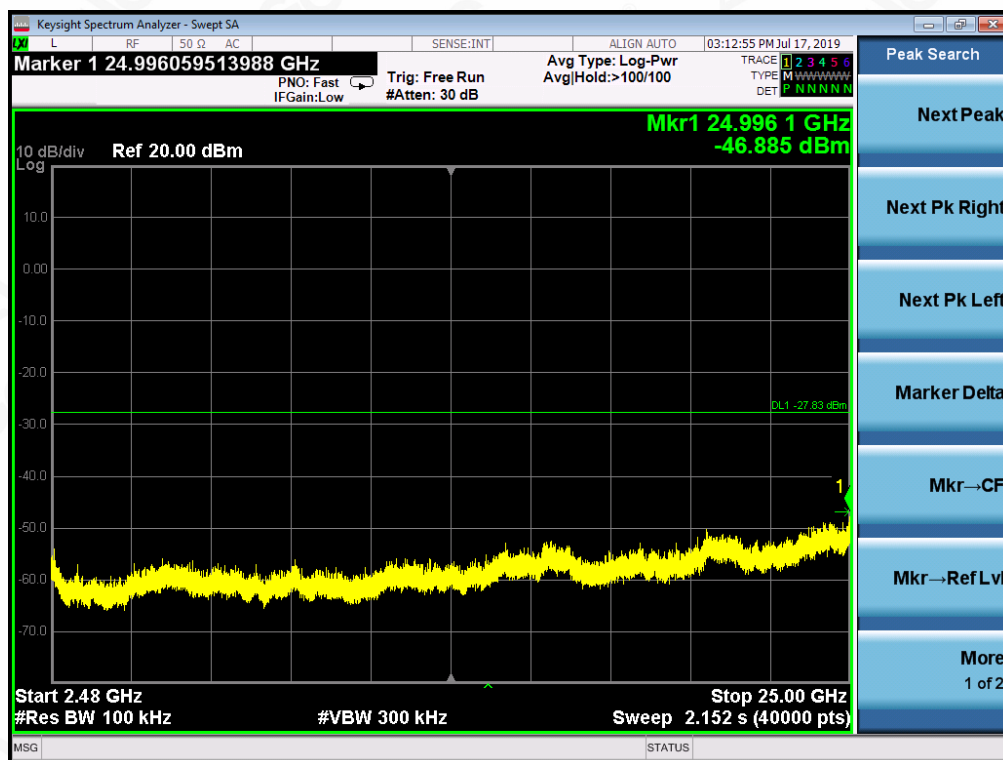
TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE
OF (802.11g with data rate 6) FOR MODULATION IN HIGH CHANNEL



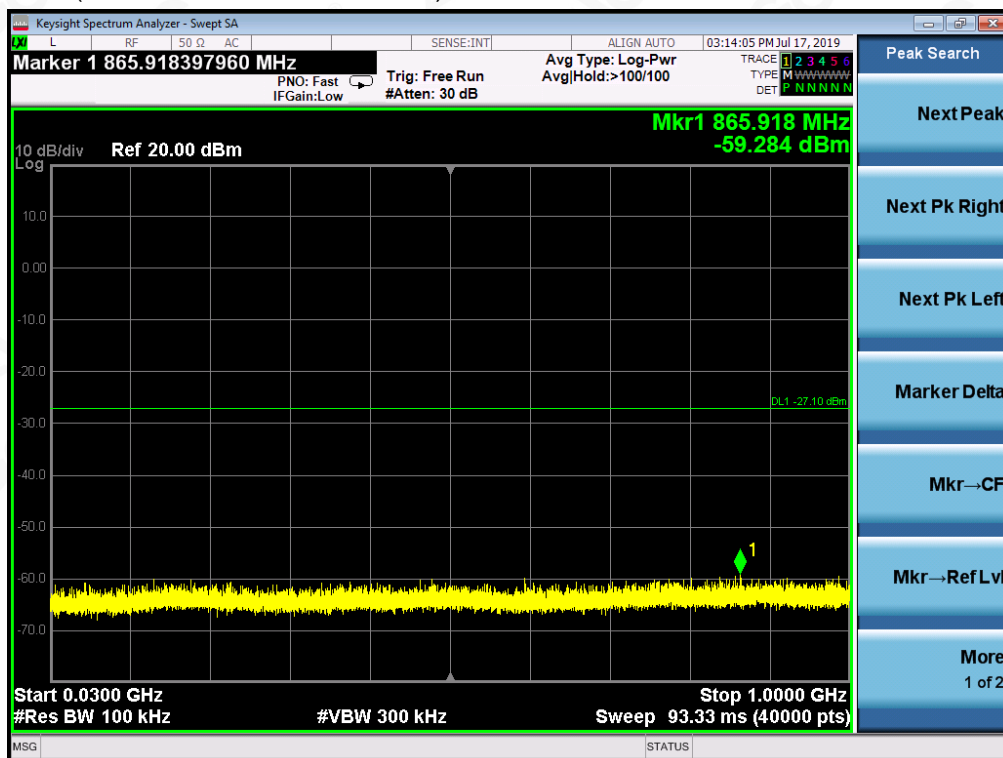


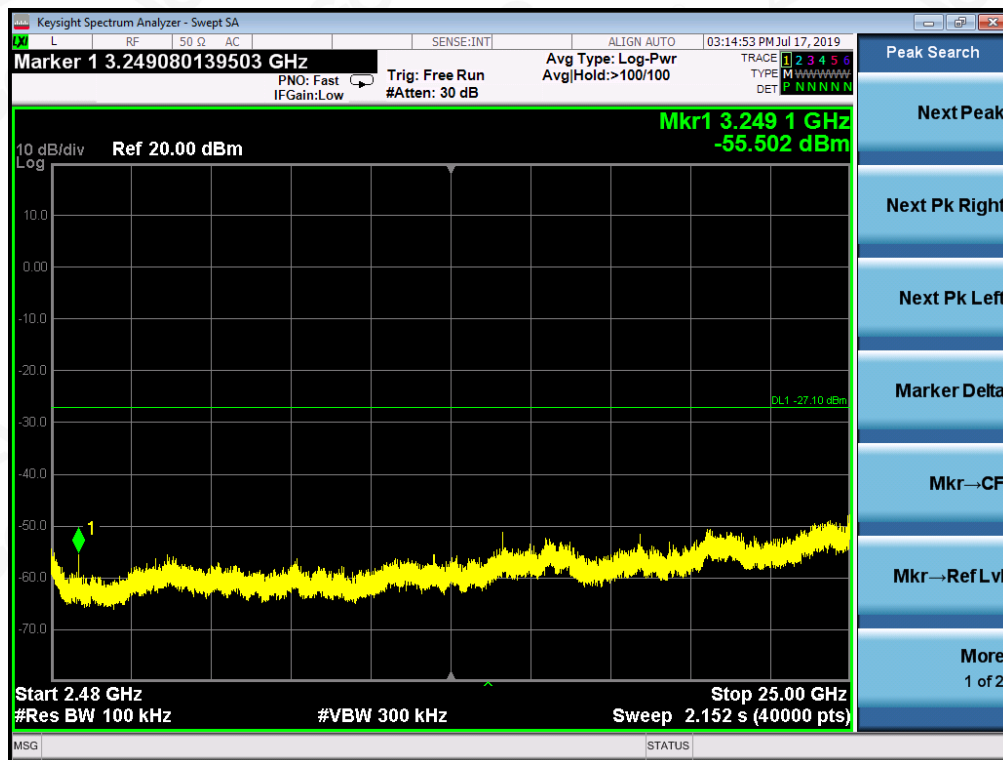
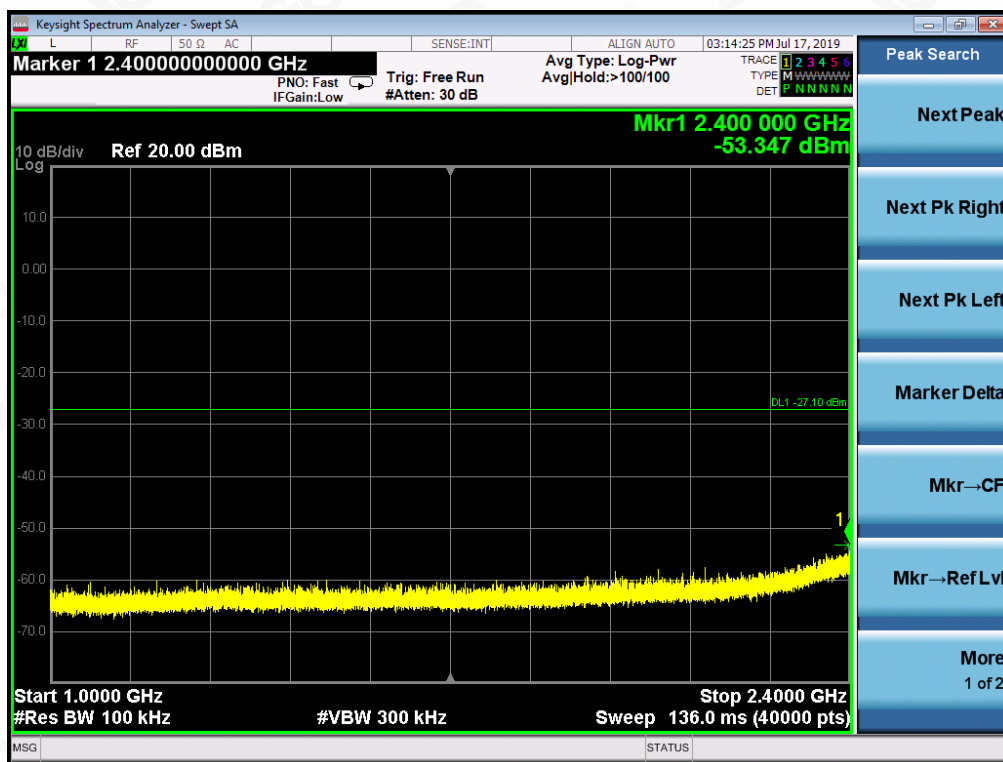
TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE
OF (802.11n20 with data rate 6.5) FOR MODULATION IN LOW CHANNEL



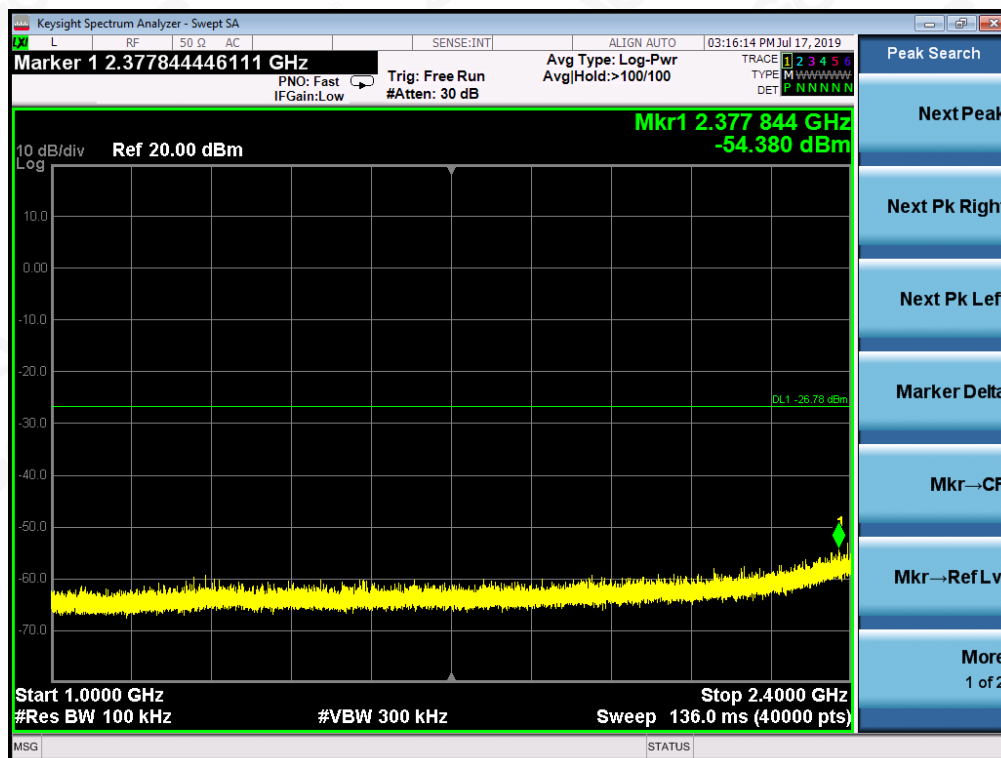
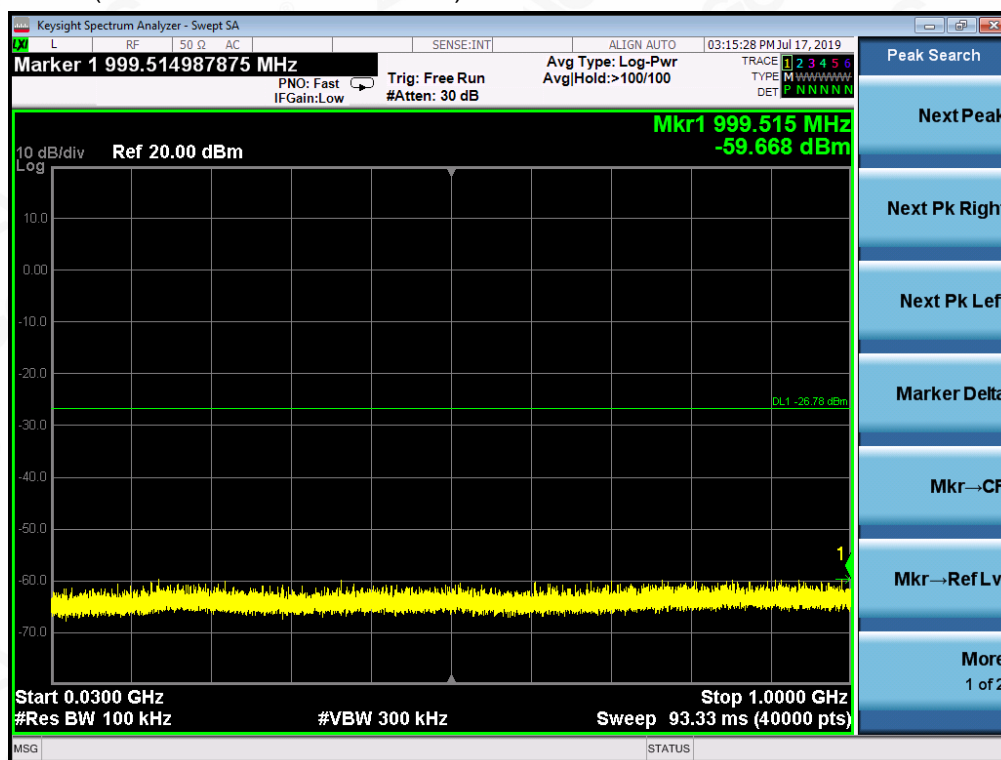


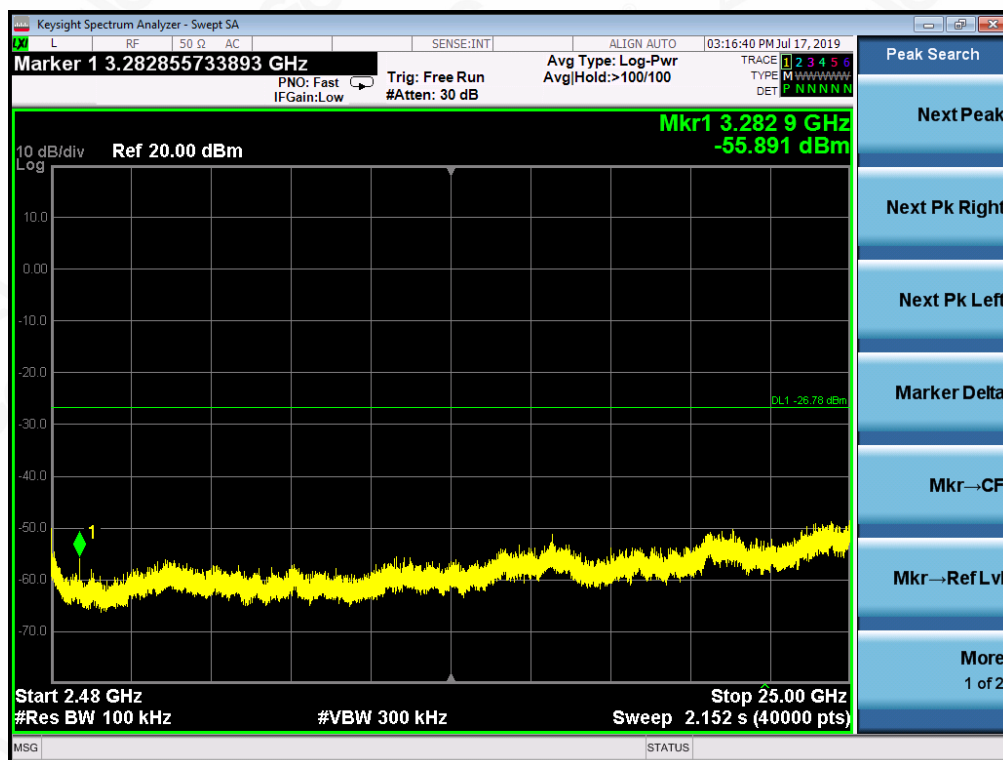
TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE
OF (802.11n20 with data rate 6.5) FOR MODULATION IN MIDDLE CHANNEL





TEST PLOT OF OUT OF BAND EMISSIONS THE WORST CASE
OF (802.11n20 with data rate 6.5) FOR MODULATION IN HIGH CHANNEL





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 11.10 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 (dBm/20kHz) | Limit (dBm/3kHz) | Result |
|----------------|---------------------------|------------------|--------|
| Low Channel | -0.794 | 8 | Pass |
| Middle Channel | -0.424 | 8 | Pass |
| High Channel | 0.006 | 8 | Pass |

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

| Channel No. | Power density (dBm/20kHz) | Limit (dBm/3kHz) | Result |
|----------------|---------------------------|------------------|--------|
| Low Channel | -4.172 | 8 | Pass |
| Middle Channel | -3.310 | 8 | Pass |
| High Channel | -2.952 | 8 | Pass |

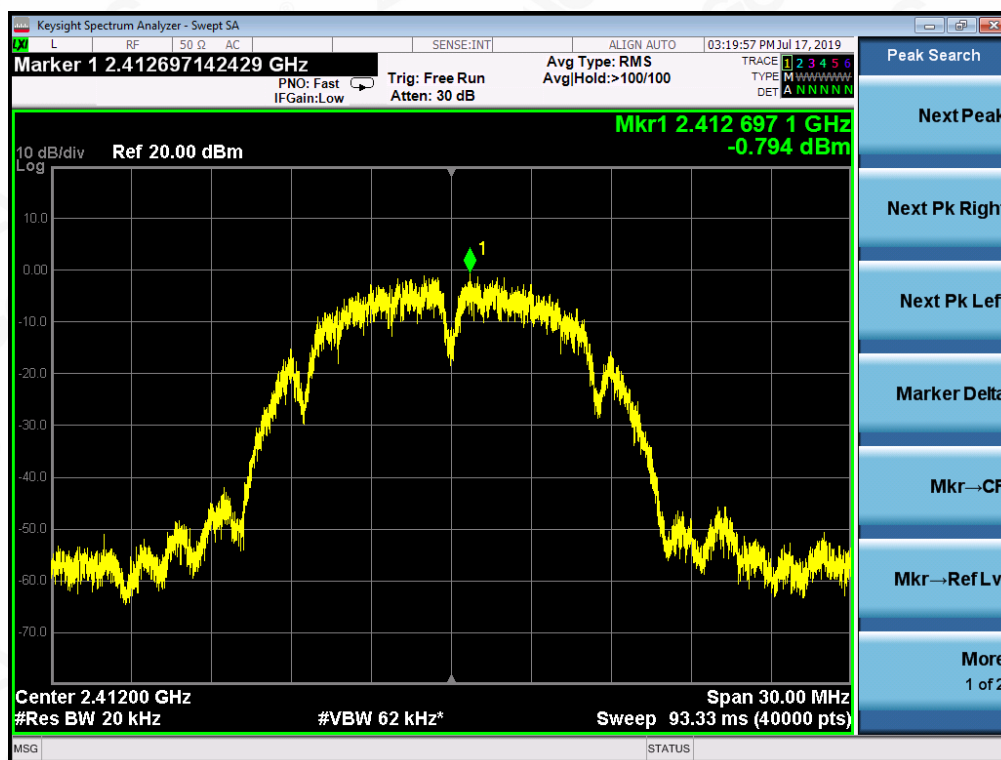
| | |
|------------------|-------------------------------|
| TEST ITEM | POWER SPECTRAL DENSITY |
| TEST MODE | 802.11n 20 with data rate 6.5 |

| Channel No. | Power density (dBm/20kHz) | Limit (dBm/3kHz) | Result |
|----------------|------------------------------|---------------------|--------|
| Low Channel | -3.568 | 8 | Pass |
| Middle Channel | -2.982 | 8 | Pass |
| High Channel | -2.682 | 8 | Pass |

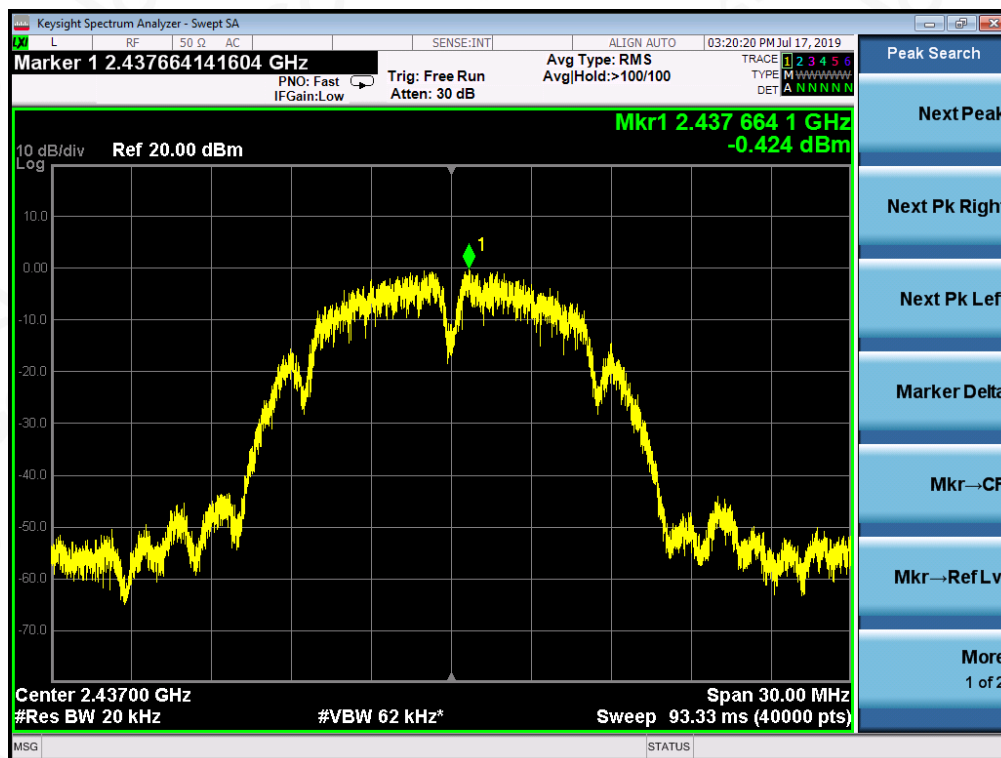


802.11b TEST RESULT

TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL



TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL



Attestation of Global Compliance

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

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

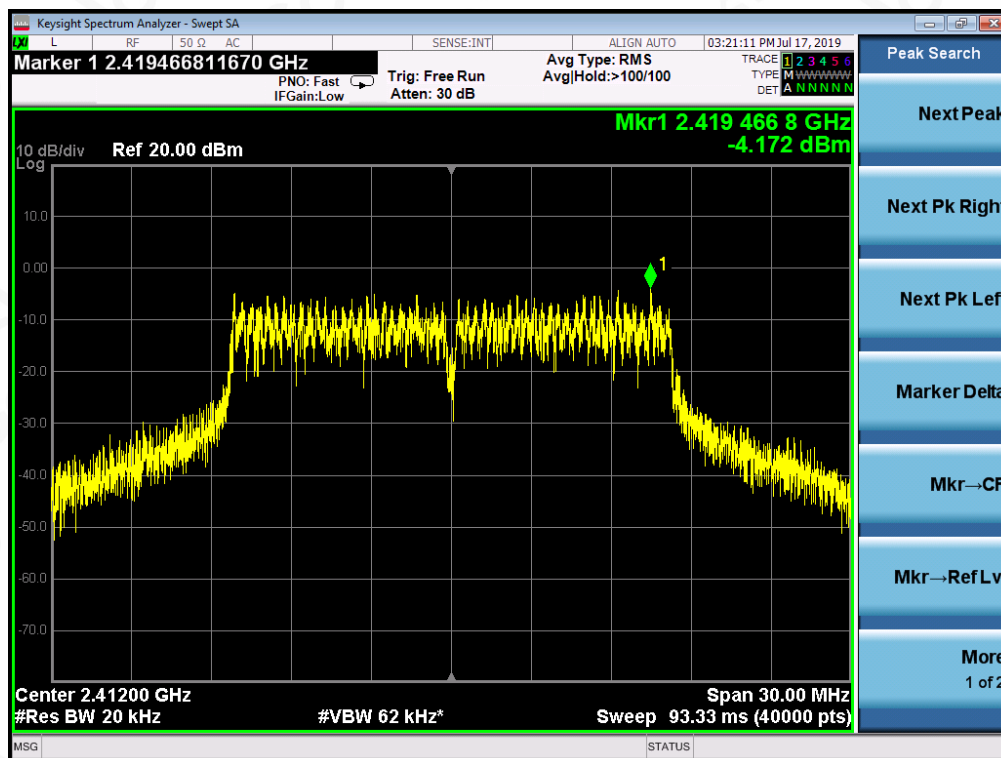
Service Hotline: 400 089 2118

TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL



802.11g TEST RESULT

TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL



Attestation of Global Compliance

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

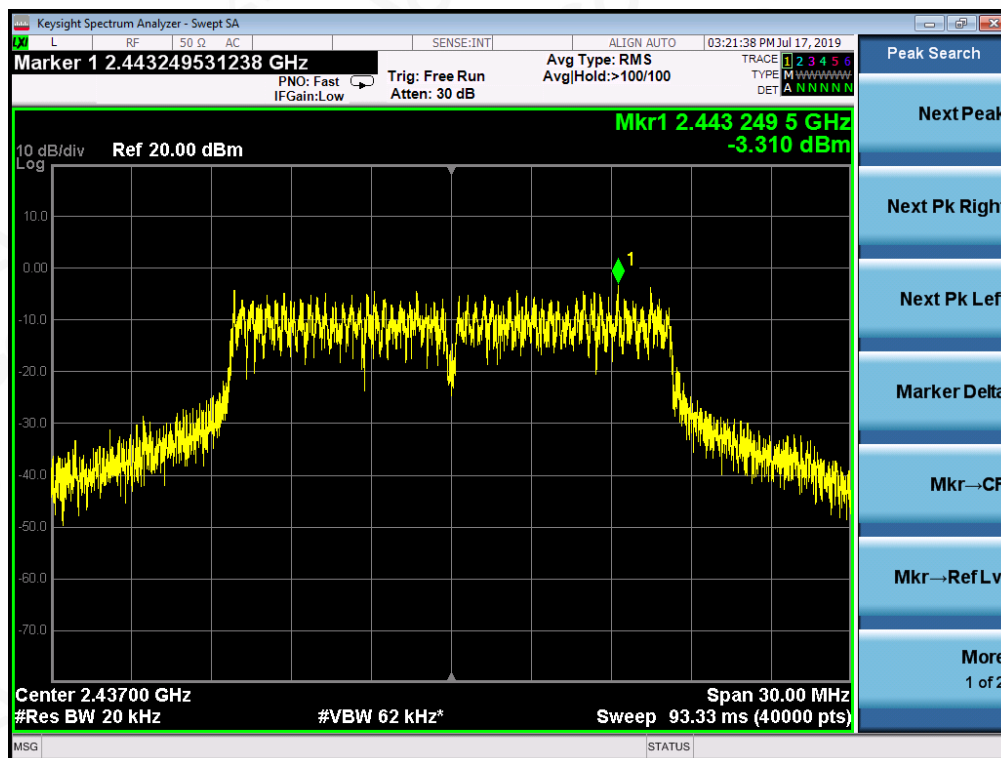
Add: 2/F., Building 2, Sanwei Chaxi Industrial Park, Sanwei Community,
Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755 2523 4088

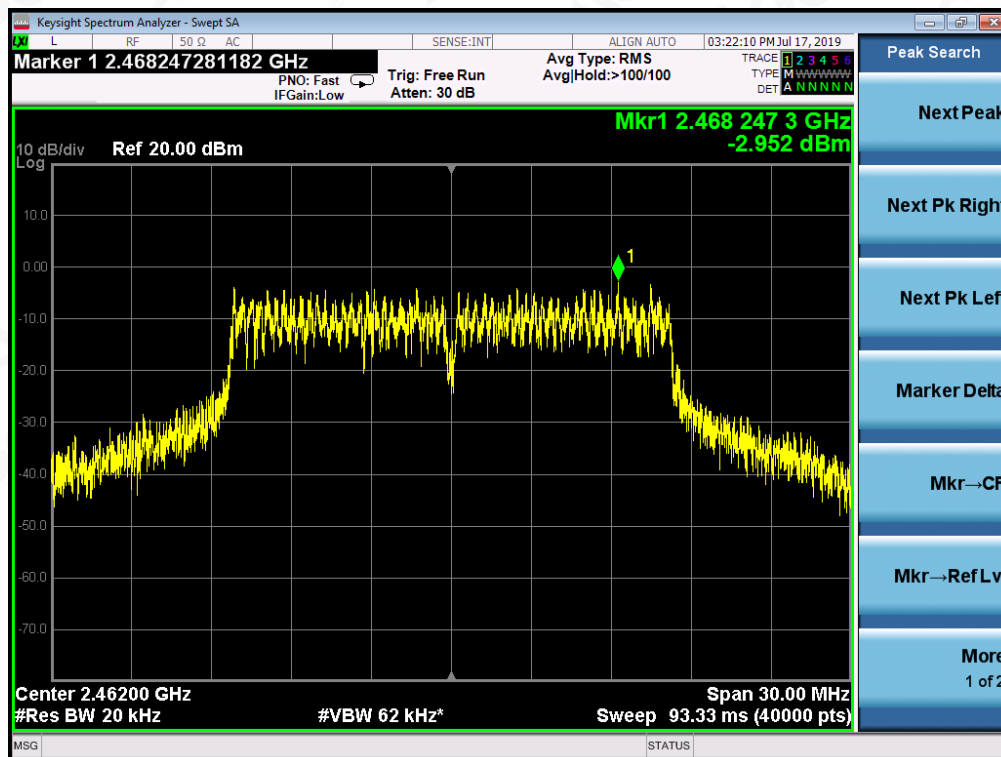
E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL



TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL



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

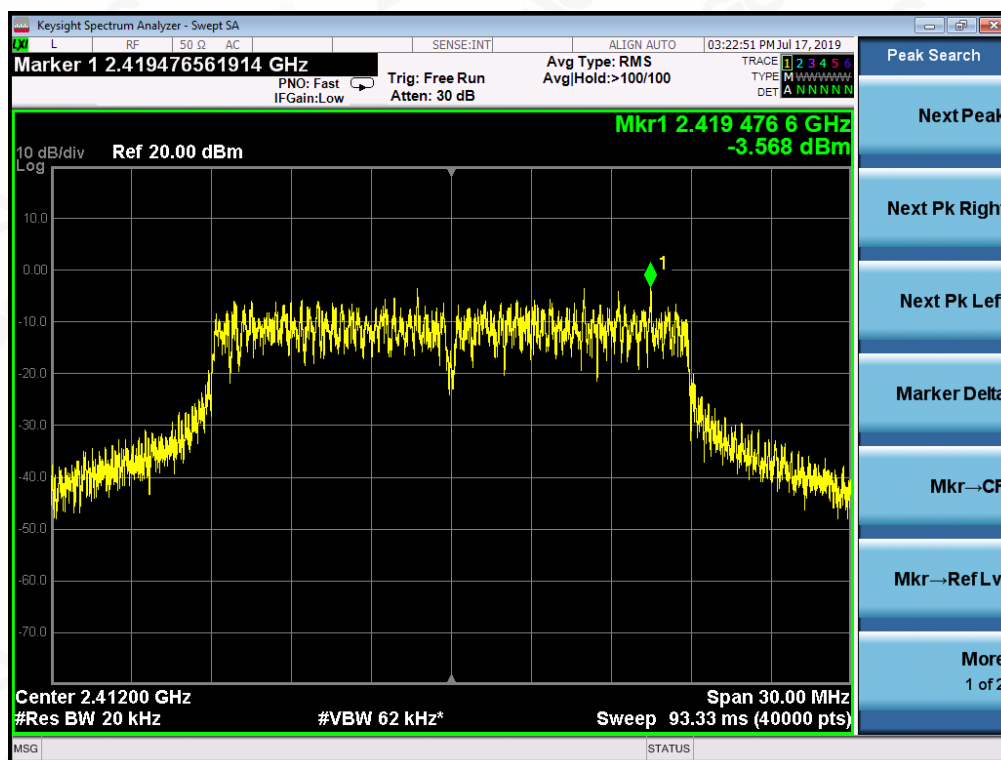
Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

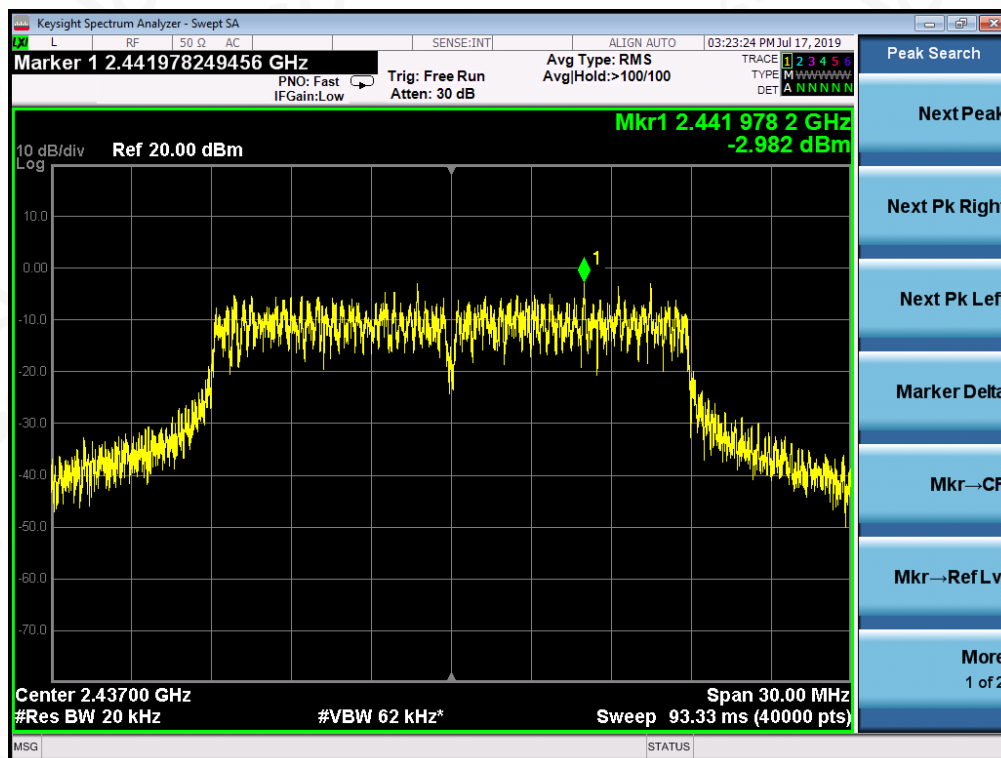
Service Hotline: 400 089 2118

802.11n 20 TEST RESULT

TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL



TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL



Attestation of Global Compliance

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

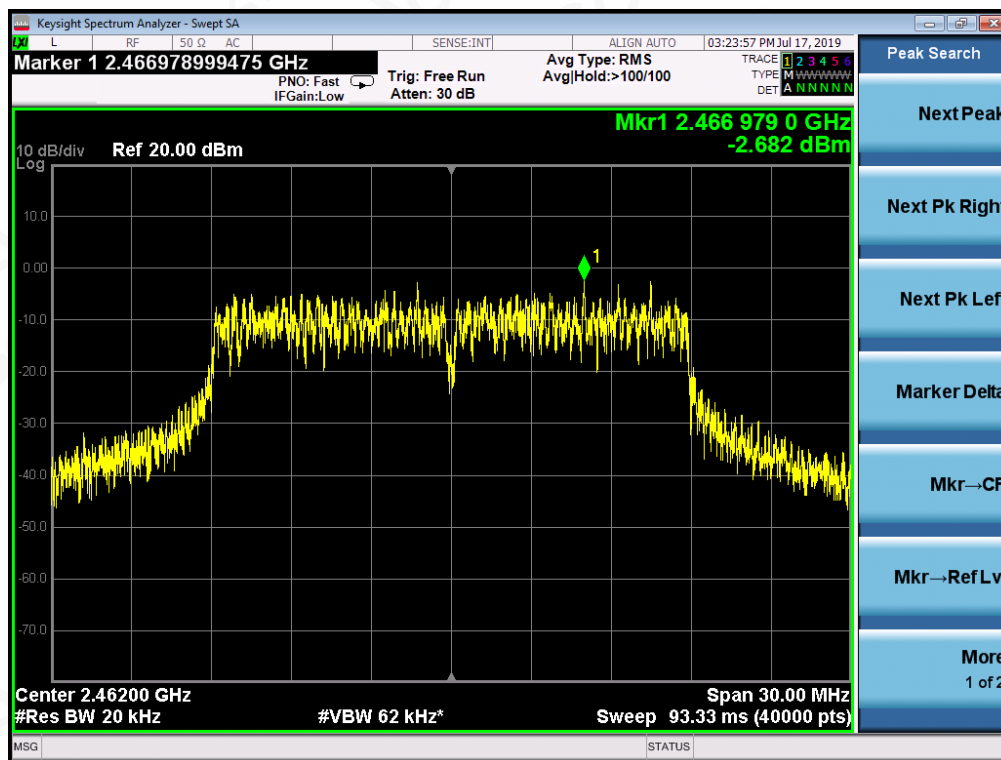
Add: 2/F., Building 2, Sanwei Chaxi Industrial Park, Sanwei Community,
Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL



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E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

11. RADIATED EMISSION

11.1. MEASUREMENT PROCEDURE

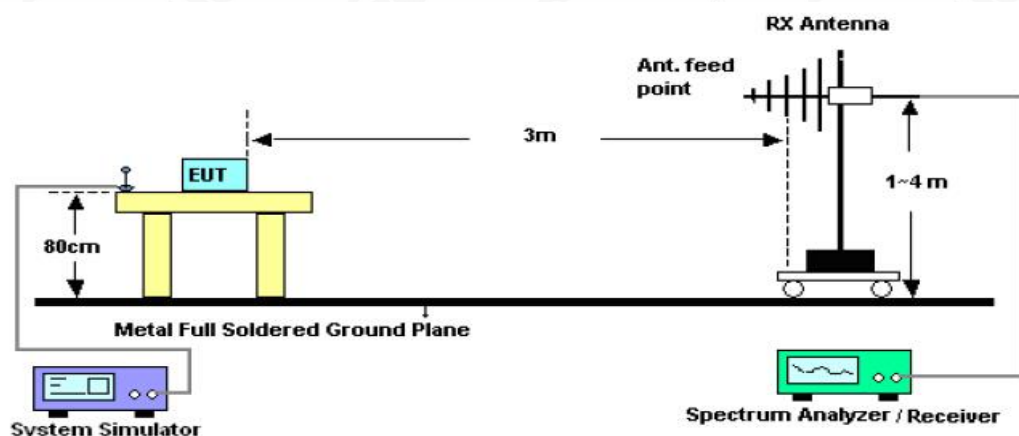
1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

11.2. TEST SETUP

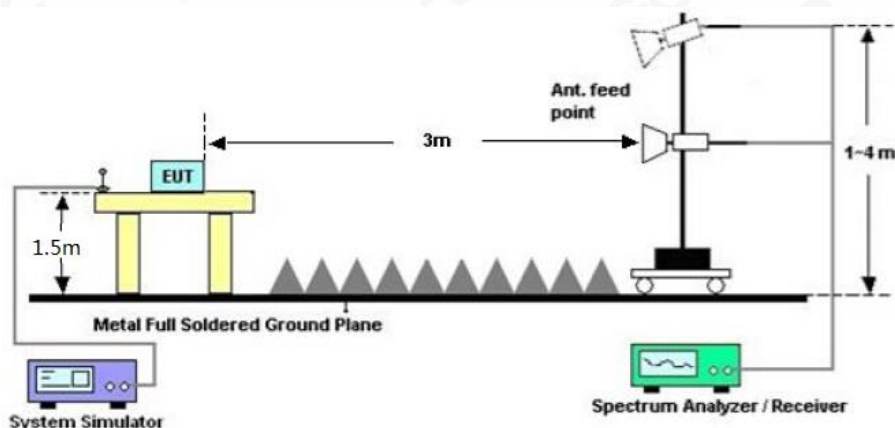
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



11.3. LIMITS AND MEASUREMENT RESULT

15.209(a) Limit in the below table has to be followed

| Frequencies (MHz) | Field Strength (micorvolts/meter) | Measurement Distance (meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| Above 960 | 500 | 3 |

Note: All modes were tested For restricted band radiated emission, the test records reported below are the worst result compared to other modes.

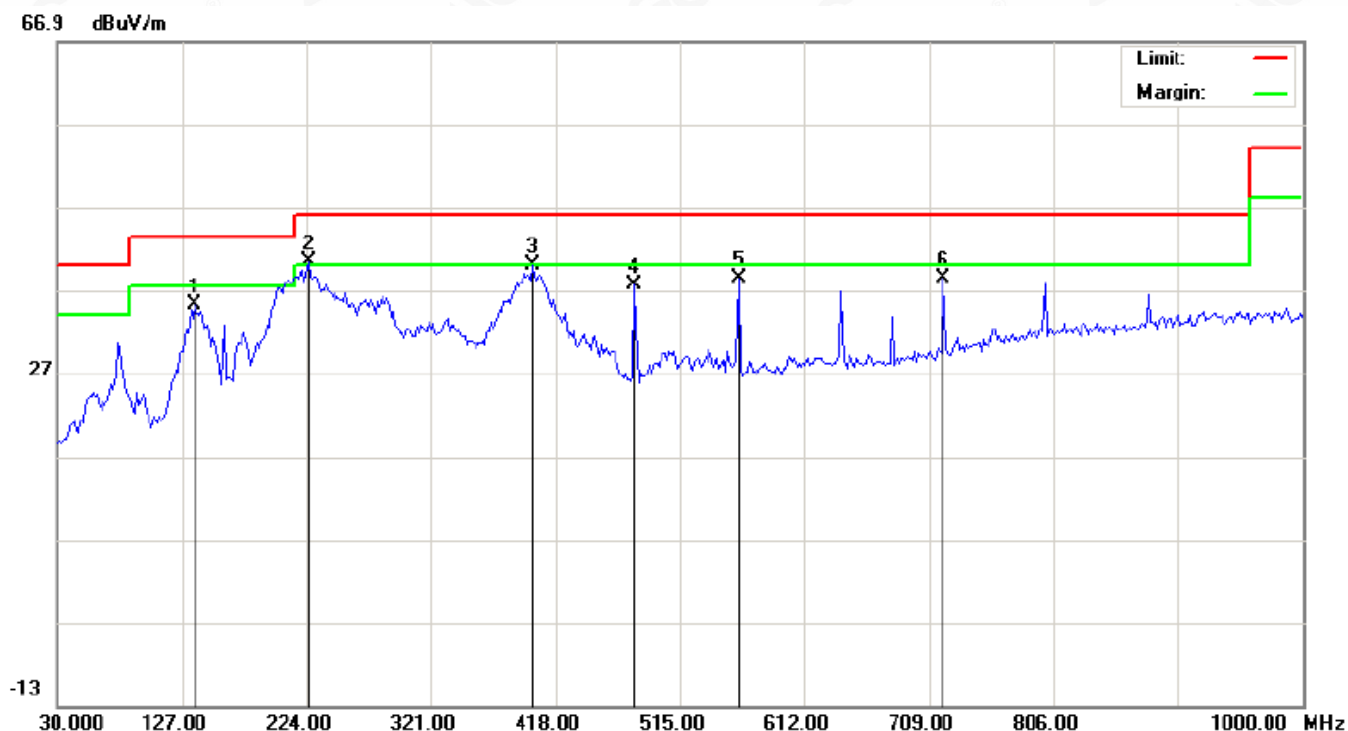
11.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHZ

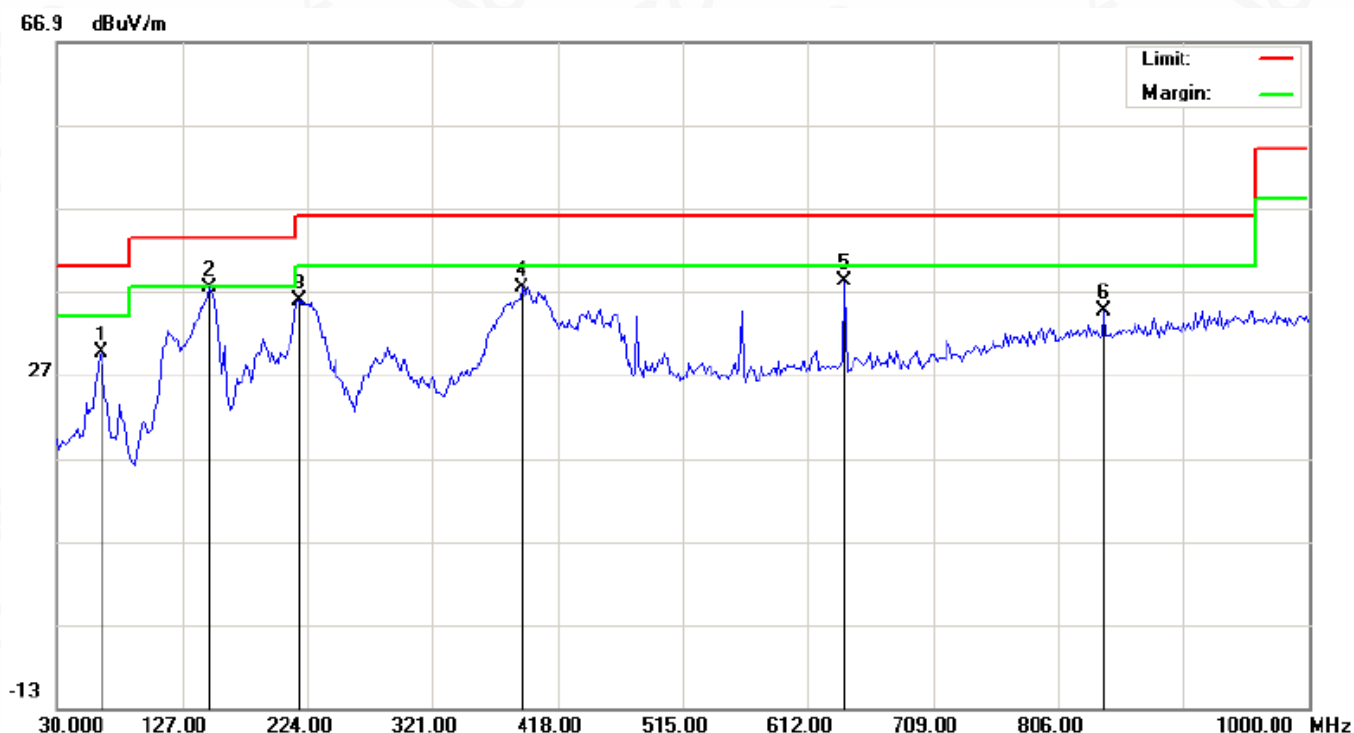
| | | | |
|-------------|-------------------------------------|-------------------|----------------|
| EUT | Smart Desk Lamp | Model Name | S61 |
| Temperature | 25°C | Relative Humidity | 55.5% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11b with data rate 1 2412MHZ | Antenna | Horizontal |



| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|-------|----------|----------------|--------------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | | 136.7000 | 16.11 | 19.02 | 35.13 | 43.50 | -8.37 | peak | | | |
| 2 | * | 225.6167 | 22.73 | 17.64 | 40.37 | 46.00 | -5.63 | peak | | | |
| 3 | ! | 400.2167 | 17.05 | 22.98 | 40.03 | 46.00 | -5.97 | peak | | | |
| 4 | | 479.4333 | 13.06 | 24.58 | 37.64 | 46.00 | -8.36 | peak | | | |
| 5 | | 560.2667 | 12.29 | 26.17 | 38.46 | 46.00 | -7.54 | peak | | | |
| 6 | | 720.3167 | 9.78 | 28.61 | 38.39 | 46.00 | -7.61 | peak | | | |

RESULT: PASS

| | | | |
|-------------|-------------------------------------|-------------------|----------------|
| EUT | Smart Desk Lamp | Model Name | S61 |
| Temperature | 25°C | Relative Humidity | 55.5% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11b with data rate 1 2412MHZ | Antenna | Vertical |



| No. | Mk | Freq. MHz | Reading dBuV | Factor dB/m | Measurement dBuV/m | Limit dBuV/m | Over dB | Detector | Antenna Height cm | Table Degree degree | Comment |
|-----|----|--------------|-----------------|----------------|-----------------------|-----------------|------------|----------|-------------------------|---------------------------|---------|
| 1 | | 63.9500 | 11.47 | 18.17 | 29.64 | 40.00 | -10.36 | peak | | | |
| 2 | * | 148.0167 | 18.18 | 19.21 | 37.39 | 43.50 | -6.11 | peak | | | |
| 3 | | 217.5333 | 18.76 | 17.09 | 35.85 | 46.00 | -10.15 | peak | | | |
| 4 | | 390.5167 | 14.83 | 22.65 | 37.48 | 46.00 | -8.52 | peak | | | |
| 5 | | 639.4833 | 10.70 | 27.42 | 38.12 | 46.00 | -7.88 | peak | | | |
| 6 | | 841.5667 | 3.68 | 30.95 | 34.63 | 46.00 | -11.37 | peak | | | |

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

3. All test modes had been pre-tested. The 802.11b at low channel is the worst case and recorded in the report.

RADIATED EMISSION ABOVE 1GHZ

| | | | |
|--------------------|-------------------------------------|--------------------------|----------------|
| EUT | Smart Desk Lamp | Model Name | S61 |
| Temperature | 25°C | Relative Humidity | 55.5% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11b with data rate 1 2412MHZ | Antenna | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Value Type |
|---|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4824.064 | 53.36 | 3.72 | 57.08 | 74 | -16.92 | peak |
| 4824.093 | 43.02 | 3.72 | 46.74 | 54 | -7.26 | AVG |
| 7236.102 | 50.21 | 8.15 | 58.36 | 74 | -15.64 | peak |
| 7236.106 | 41.47 | 8.15 | 49.62 | 54 | -4.38 | AVG |
| | | | | | | |
| | | | | | | |
| Remark: | | | | | | |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. | | | | | | |

| | | | |
|--------------------|-------------------------------------|--------------------------|----------------|
| EUT | Smart Desk Lamp | Model Name | S61 |
| Temperature | 25°C | Relative Humidity | 55.5% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11b with data rate 1 2412MHZ | Antenna | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Value Type |
|---|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4824.073 | 50.11 | 3.72 | 53.83 | 74 | -20.17 | peak |
| 4824.11 | 41.56 | 3.72 | 45.28 | 54 | -8.72 | AVG |
| 7236.071 | 52.53 | 8.15 | 60.68 | 74 | -13.32 | peak |
| 7236.055 | 45.55 | 8.15 | 53.7 | 54 | -0.3 | AVG |
| | | | | | | |
| | | | | | | |
| Remark: | | | | | | |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. | | | | | | |

| | | | |
|--------------------|-------------------------------------|--------------------------|----------------|
| EUT | Smart Desk Lamp | Model Name | S61 |
| Temperature | 25°C | Relative Humidity | 55.5% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11b with data rate 1 2437MHZ | Antenna | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Value Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4874.063 | 60.28 | 3.75 | 64.03 | 74 | -9.97 | peak |
| 4874.045 | 44.17 | 3.75 | 47.92 | 54 | -6.08 | AVG |
| 7311.096 | 59.64 | 8.16 | 67.8 | 74 | -6.2 | peak |
| 7311.109 | 42.89 | 8.16 | 51.05 | 54 | -2.95 | AVG |
| | | | | | | |
| | | | | | | |

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

| | | | |
|--------------------|-------------------------------------|--------------------------|----------------|
| EUT | Smart Desk Lamp | Model Name | S61 |
| Temperature | 25°C | Relative Humidity | 55.5% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11b with data rate 1 2437MHZ | Antenna | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Value Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4874.062 | 60.16 | 3.75 | 63.91 | 74 | -10.09 | peak |
| 4874.022 | 44.24 | 3.75 | 47.99 | 54 | -6.01 | AVG |
| 7311.026 | 56.56 | 8.16 | 64.72 | 74 | -9.28 | peak |
| 7311.053 | 43.05 | 8.16 | 51.21 | 54 | -2.79 | AVG |
| | | | | | | |
| | | | | | | |

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.