



**SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch**

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Report No.: SZEM160500391502
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FCC REPORT

Application No: SZEM1605003915CR
Applicant: AG ACQUISITION CORP.
Manufacturer: AG ACQUISITION CORP.
Product Name: A50 Wireless
Model No.(EUT): A50G03
Trade Mark:

ASTRO GAMING
FCC ID: YQ6-A50G03
Standards: 47 CFR Part 15, Subpart E (2015)
Date of Receipt: 2016-05-27
Date of Test: 2016-06-23
Date of Issue: 2016-07-12

| | |
|---------------------|---------------|
| Test Result: | PASS * |
|---------------------|---------------|

* In the configuration tested, the EUT complied with the standards specified above.
Authorized Signature:



Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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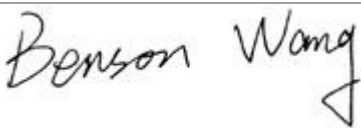


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2 Version

| Revision Record | | | | |
|-----------------|---------|------------|----------|----------|
| Version | Chapter | Date | Modifier | Remark |
| 00 | | 2016-07-12 | | Original |
| | | | | |
| | | | | |

| | | | | |
|--------------------------|--|--|--|------------|
| Authorized for issue by: | | | | |
| Tested By | |  | | 2016-06-24 |
| | | | | Date |
| Prepared By | |  | | 2016-07-12 |
| | | | | Date |
| Checked By | |  | | 2016-07-12 |
| | | | | Date |
| | | (Benson Wang) /Project Engineer | | |
| | | (Iris Zhou) /Clerk | | |
| | | (Eric Fu) /Reviewer | | |

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3 Test Summary

| Test Item | Test Requirement | Test method | Result |
|---|---|-------------------|--------|
| Antenna Requirement | 47 CFR Part 15 Section 15.203 | ANSI C63.10: 2013 | PASS |
| AC Power Line Conducted Emission | 47 CFR Part 15 Section 15.407(b) | ANSI C63.10: 2013 | PASS |
| Duty Cycle | FCC KDB 789033 D02 General UNIT Test Procedures New Rules v01 | ANSI C63.10: 2013 | PASS |
| Conducted Output Power | 47 CFR Part 15 Section 15.407(a) | ANSI C63.10: 2013 | PASS |
| Equivalent Isotropic Radiated Power (e.i.r.p.) | 47 CFR Part 15 Section 15.407(a) | ANSI C63.10: 2013 | PASS |
| 6dB Occupied Bandwidth | 47 CFR Part 15 Section 15.407(e) | ANSI C63.10: 2013 | PASS |
| 26 dB Emission Bandwidth & 99% Occupied Bandwidth | 47 CFR Part 15 Section 15.407(a) | ANSI C63.10: 2013 | PASS |
| Power Spectral Density | 47 CFR Part 15 Section 15.407(a) | ANSI C63.10: 2013 | PASS |
| Radiated Spurious Emissions | 47 CFR Part 15 Section 15.407(b) | ANSI C63.10: 2013 | PASS |
| Restricted bands around fundamental frequency (Radiated Emission) | 47 CFR Part 15 Section 15.407(b) | ANSI C63.10: 2013 | PASS |

Remark:

Model No.: A50G03

There were two styles of samples in this report, only the model A50G03 with green was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above samples, with only different on color.



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5 General Information

5.1 Client Information

| | |
|--------------------------|---|
| Applicant: | AG ACQUISITION CORP. |
| Address of Applicant: | 1441 UTE BLVD., SUITE 250, PARK CITY, UT 84098, United States |
| Manufacturer: | AG ACQUISITION CORP. |
| Address of Manufacturer: | 1441 UTE BLVD., SUITE 250, PARK CITY, UT 84098, United States |

5.2 General Description of EUT

| | |
|----------------------|---|
| Product Name: | A50 Wireless |
| Model No.: | A50G03 |
| Trade Mark: |  ASTRO GAMING |
| Operation Frequency: | 5.725-5.850GHz. |
| Channel Numbers: | 5G WiFi, 802.11a(VHT20) |
| Modulation Type | For 802.11a: OFDM(8PSK/QPSK/16QAM/64QAM) |
| Sample Type: | Portable |
| Antenna Type: | PCB Printed dipole |
| Antenna Gain: | Antenna 1: 2.12dBi, Antenna 2: 4.23dBi |
| Power Supply: | AC120V/60Hz |

Note:

In FCC 15.31, for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table, and the selected channel to perform the test as below:

| Frequency Range of Operation Operating Frequency Range (in each Band) | Number of Measurement Frequencies Required | Location of Measurement Frequency in Band of Operation |
|---|--|--|
| 1 MHz or less | 1 | centre |
| 1 MHz to 10 MHz | 2 | 1 near high end, 1 near low end |
| Greater than 10 MHz | 3 | 1 near high end, 1 near centre |



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For 802.11a(HT20)

| Mode | Channel | Frequency(MHz) |
|--------------------|---------------------|----------------|
| IEEE 802.11a 20MHz | The Lowest channel | 5745 |
| | The Middle channel | 5785 |
| | The Highest channel | 5825 |

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5.3 Test Environment and Mode

| Operating Environment: | |
|------------------------|--|
| Temperature: | 25.0 °C |
| Humidity: | 52 % RH |
| Atmospheric Pressure: | 1005 mbar |
| Test mode: | |
| Transmitting mode: | Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate. |

5.4 Description of Support Units

The EUT has been tested with associated equipment below.

| Description | Manufacturer | Model No. | Serial No. |
|---------------------------|--------------|-----------|-----------------|
| Laptop | Lenovo | T430u | REF. No.SEA1800 |
| USB cable(108cm shielded) | Skullcandy | N/A | N/A |
| Base station | Skullcandy | TXDX01 | N/A |

5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch,
No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.
518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.



5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.



5.10 Equipment List

| Conducted Emission | | | | | | |
|--------------------|-------------------|------------------------------------|-----------------|---------------|---------------------------|------------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal. date (yyyy-mm-dd) | Cal.Due date (yyyy-mm-dd) |
| 1 | Shielding Room | ZhongYu Electron | GB-88 | SEM001-06 | 2016-05-13 | 2017-05-13 |
| 2 | LISN | Rohde & Schwarz | ENV216 | SEM007-01 | 2015-10-09 | 2016-10-09 |
| 3 | LISN | ETS-LINDGREN | 3816/2 | SEM007-02 | 2016-04-25 | 2017-04-25 |
| 4 | 8 Line ISN | Fischer Custom Communications Inc. | FCC-TLISN-T8-02 | EMC0120 | 2015-08-30 | 2016-08-30 |
| 5 | 4 Line ISN | Fischer Custom Communications Inc. | FCC-TLISN-T4-02 | EMC0121 | 2015-08-30 | 2016-08-30 |
| 6 | 2 Line ISN | Fischer Custom Communications Inc. | FCC-TLISN-T2-02 | EMC0122 | 2015-08-30 | 2016-08-30 |
| 7 | EMI Test Receiver | Rohde & Schwarz | ESCI | SEM004-02 | 2016-04-25 | 2017-04-25 |
| 8 | DC Power Supply | Zhao Xin | RXN-305D | SEM011-02 | 2015-10-09 | 2016-10-09 |

| RE in Chamber | | | | | | |
|---------------|------------------------------------|----------------------|-----------|---------------|---------------------------|------------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal. date (yyyy-mm-dd) | Cal.Due date (yyyy-mm-dd) |
| 1 | 10m Semi-Anechoic Chamber | SAEMC | FSAC1018 | SEM001-03 | 2015-08-01 | 2016-08-01 |
| 2 | EMI Test Receiver (9k-3GHz) | Rohde & Schwarz | ESCI | SEM004-01 | 2016-04-25 | 2017-04-25 |
| 3 | Trilog-Broadband Antenna(30M-1GHz) | Schwarzbeck | VULB9168 | SEM003-17 | 2016-01-26 | 2017-01-26 |
| 4 | Pre-amplifier | Sonoma Instrument Co | 310N | SEM005-03 | 2016-04-25 | 2017-04-25 |
| 5 | Loop Antenna | ETS-Lindgren | 6502 | SEM003-08 | 2015-08-14 | 2016-08-14 |



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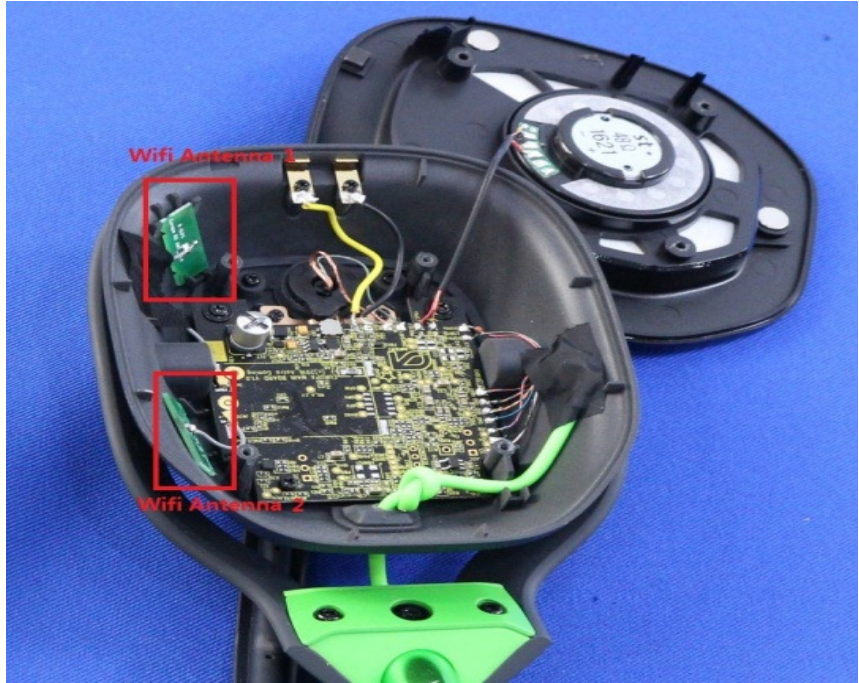
| RE in Chamber | | | | | | |
|---------------|-----------------------------------|----------------------|-------------------|---------------|---------------------------|------------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal. date (yyyy-mm-dd) | Cal.Due date (yyyy-mm-dd) |
| 1 | 3m Semi-Anechoic Chamber | AUDIX | N/A | SEM001-02 | 2016-05-13 | 2017-05-13 |
| 2 | EMI Test Receiver | Rohde & Schwarz | ESIB26 | SEM004-04 | 2016-04-25 | 2017-04-25 |
| 3 | BiConiLog Antenna (26-3000MHz) | ETS-Lindgren | 3142C | SEM003-02 | 2014-11-15 | 2017-11-15 |
| 4 | Amplifier (0.1-1300MHz) | HP | 8447D | SEM005-02 | 2015-10-09 | 2016-10-09 |
| 5 | Horn Antenna (1-18GHz) | Rohde & Schwarz | HF907 | SEM003-07 | 2015-06-14 | 2018-06-14 |
| 6 | Horn Antenna (18-26GHz) | ETS-LINDGREN | 3160 | SEM003-12 | 2014-11-24 | 2017-11-24 |
| 7 | Low Noise Amplifier | Black Diamond Series | BDLNA-0118-352810 | SEM005-05 | 2015-10-09 | 2016-10-09 |
| 8 | Band filter | Amindeon | Asi 3314 | SEM023-01 | N/A | N/A |

| RF connected test | | | | | | |
|-------------------|-------------------|-----------------|-----------|---------------|---------------------------|------------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal. date (yyyy-mm-dd) | Cal.Due date (yyyy-mm-dd) |
| 1 | DC Power Supply | ZhaoXin | RXN-305D | SEM011-02 | 2015-10-09 | 2016-10-09 |
| 2 | Spectrum Analyzer | Rohde & Schwarz | FSP | SEM004-06 | 2015-10-17 | 2016-10-17 |
| 3 | Signal Generator | Rohde & Schwarz | SML03 | SEM006-02 | 2016-04-25 | 2017-04-25 |
| 4 | Power Meter | Rohde & Schwarz | NRVS | SEM014-02 | 2015-10-09 | 2016-10-09 |

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6 Test results and Measurement Data

6.1 Antenna Requirement

| | |
|--|---|
| Test Requirement: | 47 CFR Part 15 Section 15.203 & RSS-Gen Issue 4 |
| EUT Antenna: |  |
| The antenna is integrated antenna and no consideration of replacement. The best case gain of the antenna is 2.12dBi, antenna 2 is 4.23dBi. | |



6.2 Conducted Emissions

| | | | |
|--|---|--------------|-----------|
| Test Requirement: | 47 CFR Part 15 Section 15.407(b) | | |
| Test Method: | ANSI C63.10: 2013 | | |
| Test Frequency Range: | 150kHz to 30MHz | | |
| Limit: | Frequency range (MHz) | Limit (dBuV) | |
| | | Quasi-peak | Average |
| | 0.15-0.5 | 66 to 56* | 56 to 46* |
| | 0.5-5 | 56 | 46 |
| | 5-30 | 60 | 50 |
| * Decreases with the logarithm of the frequency. | | | |
| Test Procedure: | <ol style="list-style-type: none"> 1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. | | |

| | |
|------------------------|--|
| Test Setup: | |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates at lowest, middle and highest channel. |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate of 802.11a at lowest channel is the worst case. Only the worst case is recorded in the report. |
| Instruments Used: | Refer to section 5.10 for details |
| Test Results: | Pass |

Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

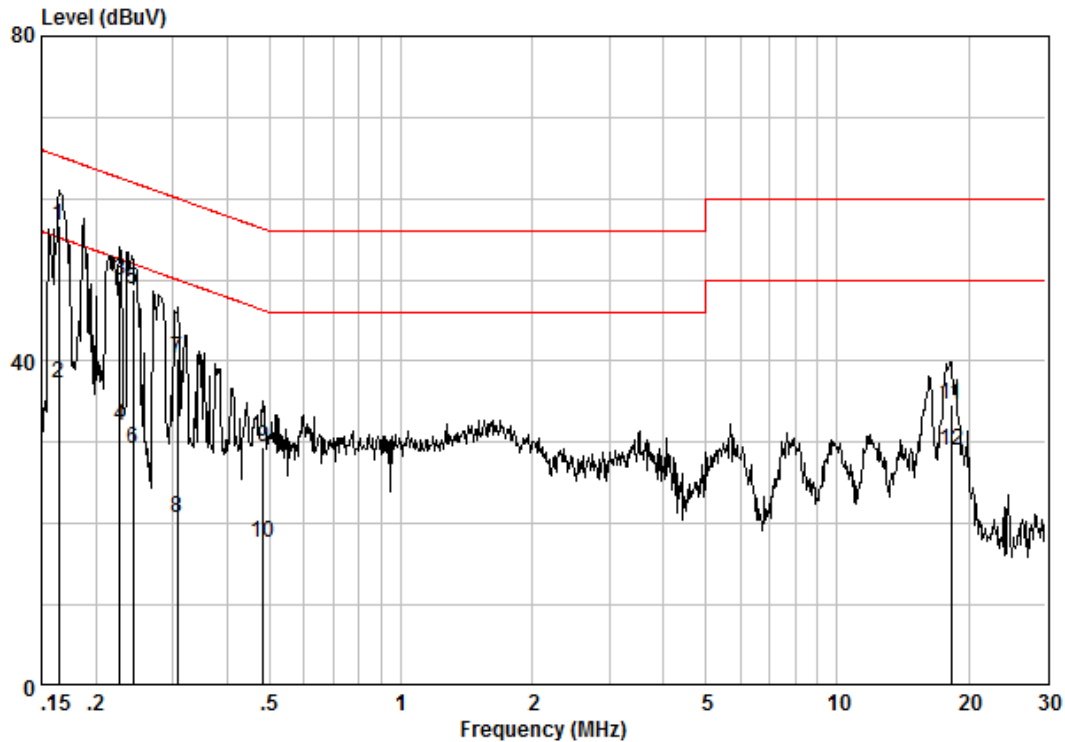
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



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Live Line:



Site : Shielding Room
Condition : CE LINE
Job No. : 3915CR
Test Mode : TX +charge

| | Freq | Cable Loss | LISN Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|----|---------|------------|-------------|------------|-------|------------|------------|---------|
| | MHz | dB | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.16414 | 0.02 | 9.60 | 47.11 | 56.73 | 65.25 | -8.52 | QP |
| 2 | 0.16414 | 0.02 | 9.60 | 27.56 | 37.18 | 55.25 | -18.07 | AVERAGE |
| 3 | 0.22676 | 0.02 | 9.60 | 40.26 | 49.88 | 62.57 | -12.69 | QP |
| 4 | 0.22676 | 0.02 | 9.60 | 22.35 | 31.97 | 52.57 | -20.60 | AVERAGE |
| 5 | 0.24293 | 0.02 | 9.60 | 39.31 | 48.93 | 62.00 | -13.06 | QP |
| 6 | 0.24293 | 0.02 | 9.60 | 19.53 | 29.15 | 52.00 | -22.85 | AVERAGE |
| 7 | 0.30671 | 0.02 | 9.59 | 30.70 | 40.31 | 60.06 | -19.75 | QP |
| 8 | 0.30671 | 0.02 | 9.59 | 11.20 | 20.81 | 50.06 | -29.25 | AVERAGE |
| 9 | 0.48375 | 0.02 | 9.59 | 19.80 | 29.41 | 56.27 | -26.86 | QP |
| 10 | 0.48375 | 0.02 | 9.59 | 8.13 | 17.74 | 46.27 | -28.53 | AVERAGE |
| 11 | 18.232 | 0.17 | 9.77 | 24.64 | 34.58 | 60.00 | -25.42 | QP |
| 12 | 18.232 | 0.17 | 9.77 | 18.98 | 28.92 | 50.00 | -21.08 | AVERAGE |

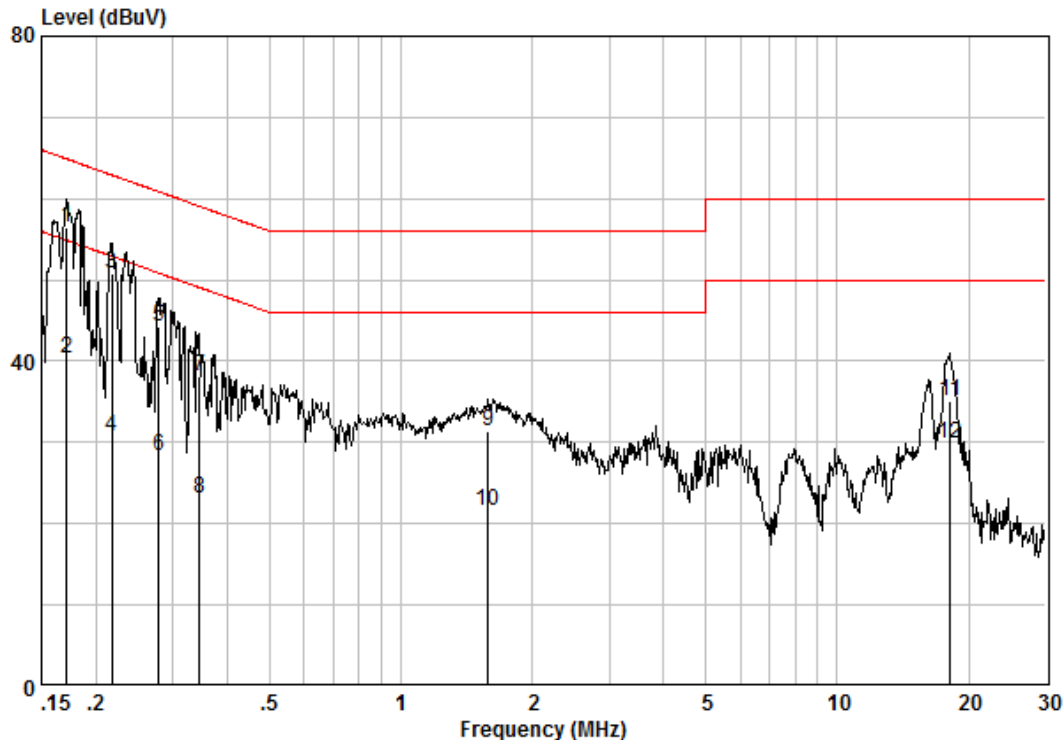
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Neutral Line:



Site : Shielding Room
Condition : CE NEUTRAL
Job No. : 3915CR
Test Mode : TX +charge

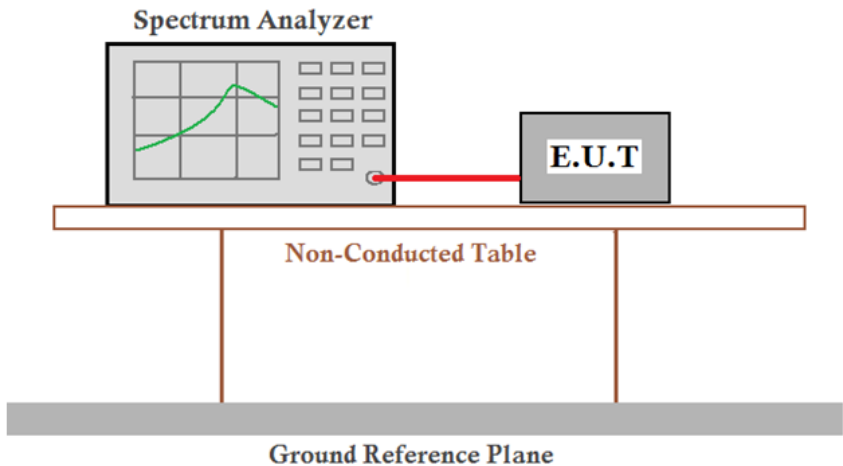
| | Freq | Cable Loss | LISN Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|-----|---------|------------|-------------|------------|-------|------------|------------|---------|
| | MHz | dB | dB | dBuV | dBuV | dBuV | dB | |
| 1 @ | 0.17124 | 0.02 | 9.60 | 46.85 | 56.47 | 64.90 | -8.43 | QP |
| 2 | 0.17124 | 0.02 | 9.60 | 30.70 | 40.32 | 54.90 | -14.58 | AVERAGE |
| 3 | 0.21735 | 0.02 | 9.62 | 41.24 | 50.88 | 62.92 | -12.04 | QP |
| 4 | 0.21735 | 0.02 | 9.62 | 21.18 | 30.81 | 52.92 | -22.11 | AVERAGE |
| 5 | 0.27881 | 0.02 | 9.62 | 34.62 | 44.25 | 60.85 | -16.60 | QP |
| 6 | 0.27881 | 0.02 | 9.62 | 18.71 | 28.35 | 50.85 | -22.51 | AVERAGE |
| 7 | 0.34463 | 0.02 | 9.62 | 28.53 | 38.17 | 59.09 | -20.92 | QP |
| 8 | 0.34463 | 0.02 | 9.62 | 13.38 | 23.02 | 49.09 | -26.07 | AVERAGE |
| 9 | 1.585 | 0.03 | 9.64 | 21.73 | 31.40 | 56.00 | -24.60 | QP |
| 10 | 1.585 | 0.03 | 9.64 | 11.96 | 21.64 | 46.00 | -24.36 | AVERAGE |
| 11 | 18.135 | 0.17 | 9.96 | 25.03 | 35.15 | 60.00 | -24.85 | QP |
| 12 | 18.135 | 0.17 | 9.96 | 19.69 | 29.81 | 50.00 | -20.19 | AVERAGE |

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

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6.3 Duty Cycle

| | |
|------------------------|---|
| Test Requirement: | 47 CFR Part 15C 15.407 and 789033 D02 General UNII Test Procedures New Rules v01, Section (B) |
| Test Method: | ANSI C63.10: 2013 |
| Test Setup: |  <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p> |
| Limit: | N/A |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20); |
| Instruments Used: | Refer to section 5.10 for details |
| Test Results: | Pass |



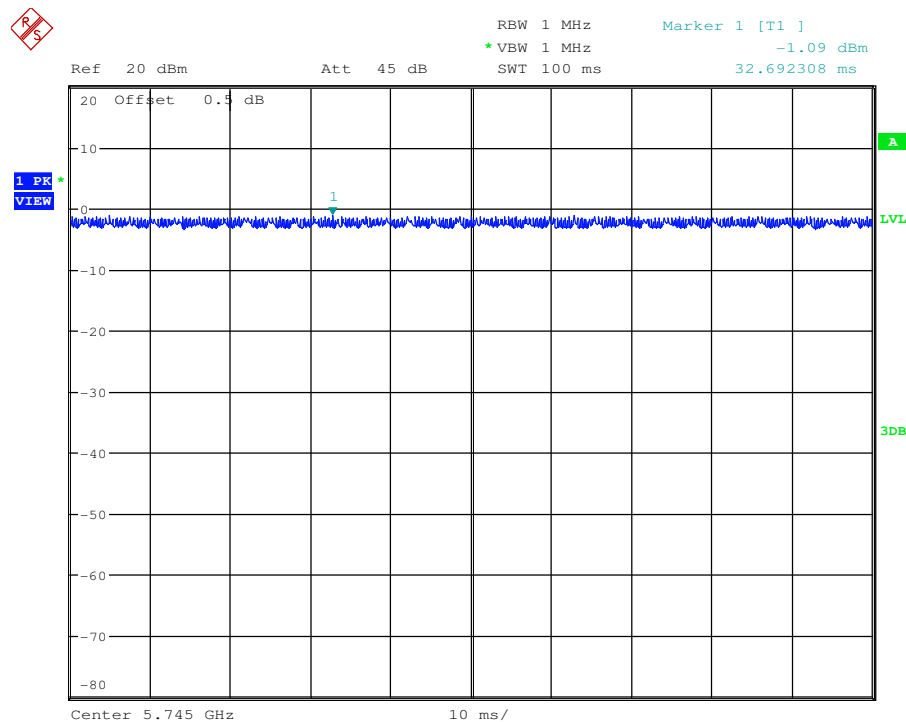
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Measurement Data

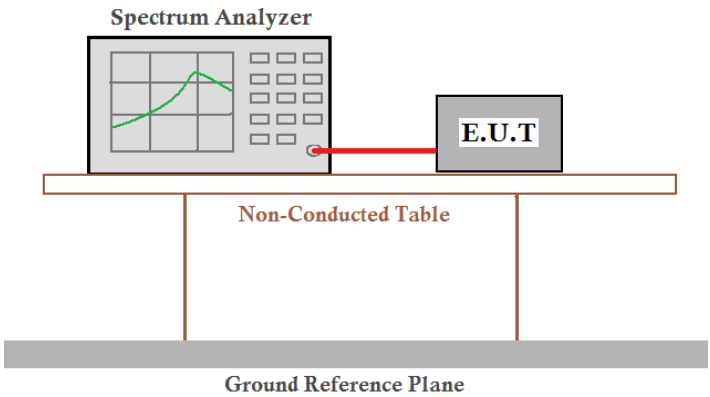
| 802.11a mode | | | |
|--------------|---------|--------|------------|
| Test channel | On time | Period | Duty Cycle |
| 149 | 100 | 100 | 1 |

| | |
|------------|---------|
| Test mode: | 802.11a |
|------------|---------|



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6.4 Conducted Output Power

| | |
|------------------------|--|
| Test Requirement: | 47 CFR Part 15 Section 15.407(a) |
| Test Method: | ANSI C63.10: 2013 |
| Test Setup: |  <p><i>Remark:</i> Offset the High-Frequency cable loss 0.5dB in the spectrum analyzer.</p> |
| Test Instruments: | Refer to section 5.10 for details |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; Only the worst case is recorded in the report. |
| Limit: | The maximum conducted output power shall not exceed 1 W. |
| Test Results: | Pass |



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Measurement Data:

| 802.11a mode | | | | |
|--------------|------------------------------|-------|-------------|--------|
| Test channel | Conducted Output Power (dBm) | | Limit (dBm) | Result |
| | Ant.1 | Ant.2 | | |
| 149 | 2.23 | 4.35 | 30.00 | Pass |
| 157 | 2.11 | 4.20 | 30.00 | Pass |
| 165 | 2.00 | 3.94 | 30.00 | Pass |

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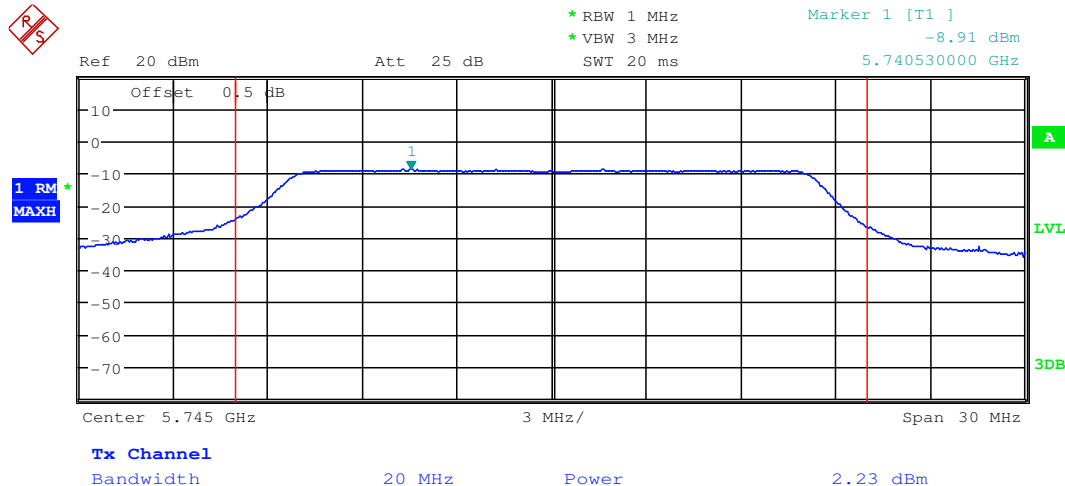
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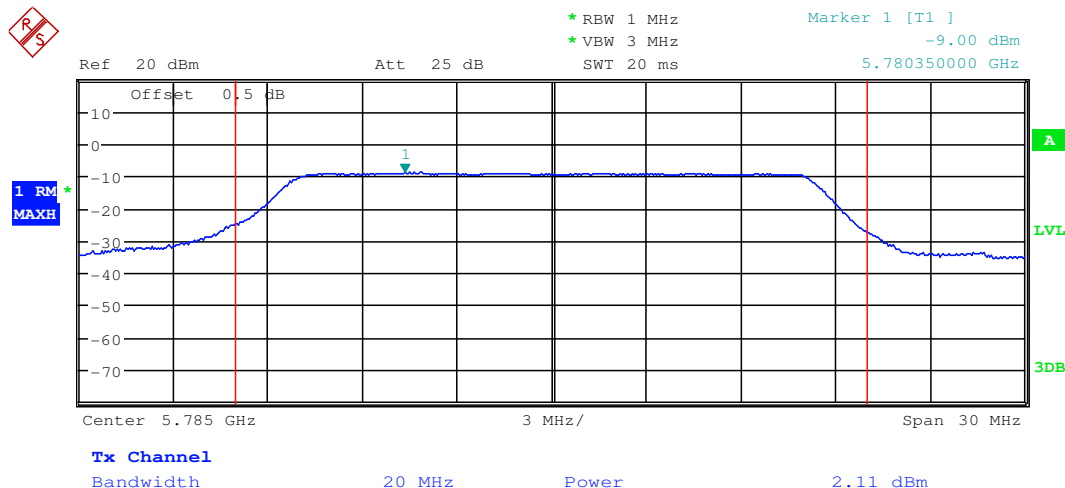
Test plot as follows:

Antenna 1:

| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 149 |
|------------|---------|---------------|-----|



| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 157 |
|------------|---------|---------------|-----|



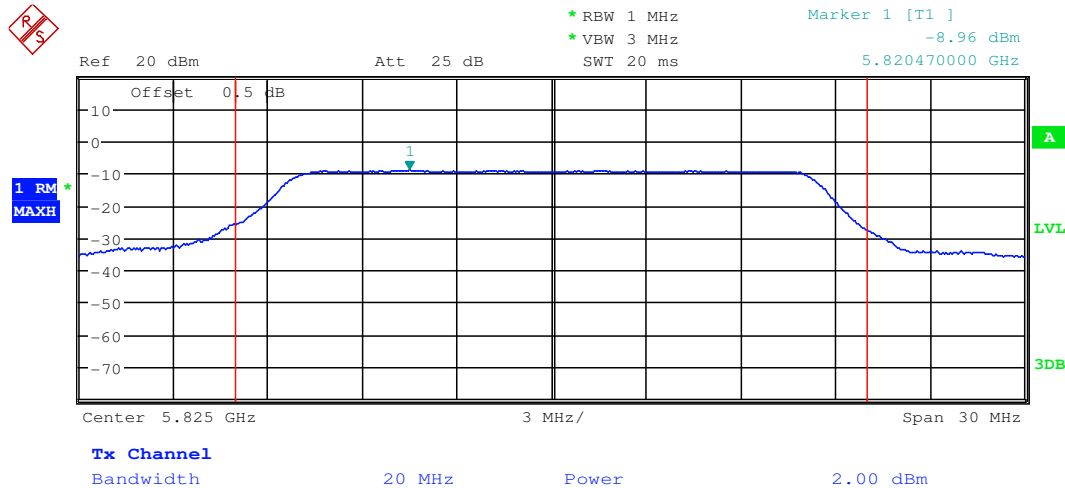
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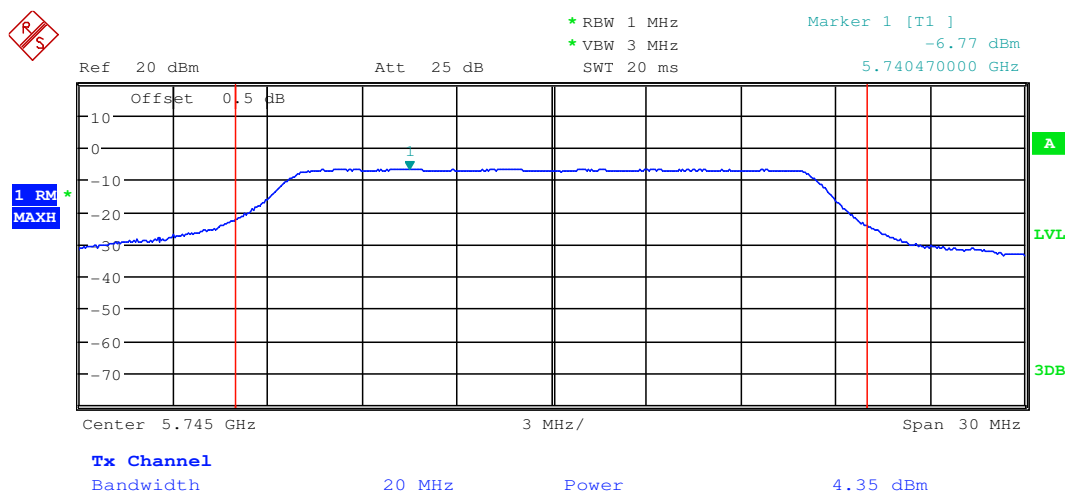
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| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 165 |
|------------|---------|---------------|-----|



Antenna 2:

| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 149 |
|------------|---------|---------------|-----|



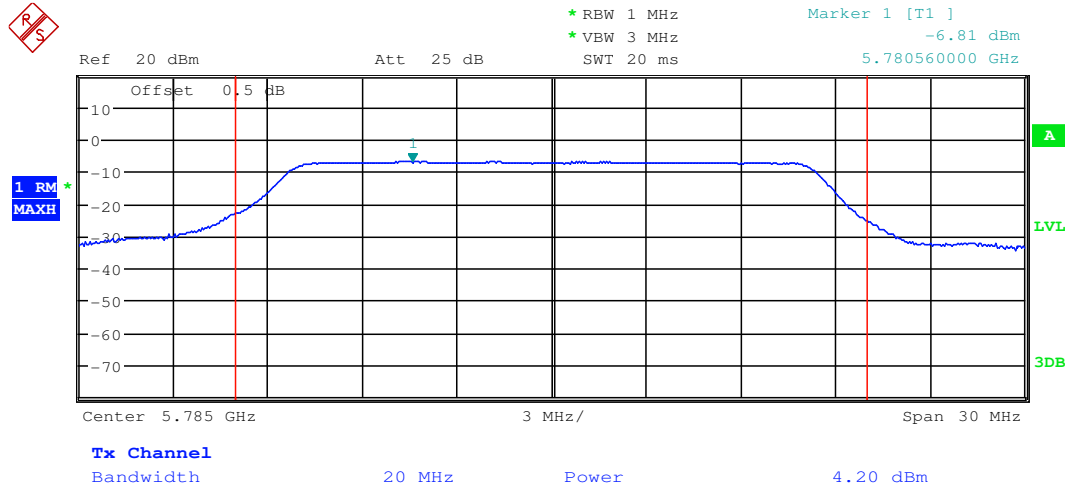
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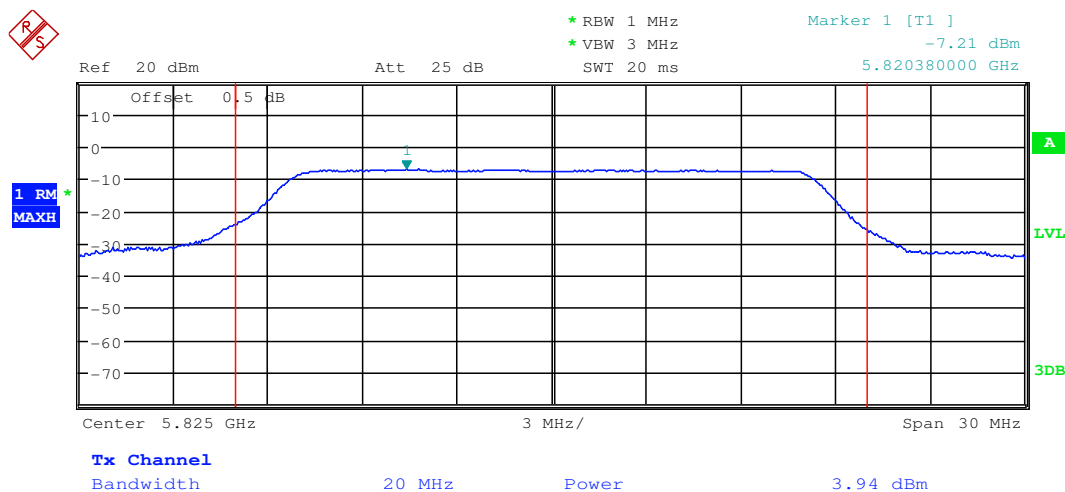
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| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 157 |
|------------|---------|---------------|-----|

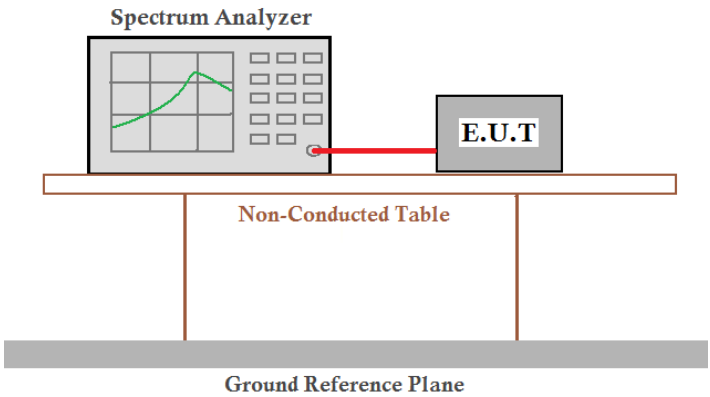


| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 165 |
|------------|---------|---------------|-----|



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6.5 Equivalent Isotropic Radiated Power (e.i.r.p.)

| | |
|------------------------|--|
| Test Requirement: | 47 CFR Part 15 Section 15.407(a) |
| Test Method: | ANSI C63.10: 2013 |
| Test Setup: |  <p><i>Remark:</i> Offset the High-Frequency cable loss 0.5dB in the spectrum analyzer.</p> |
| Test Instruments: | Refer to section 5.10 for details |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; Only the worst case is recorded in the report. |
| Limit: | *The limit =the maximum output conducted power limit+ actual antenna gain |
| Test Results: | Pass |



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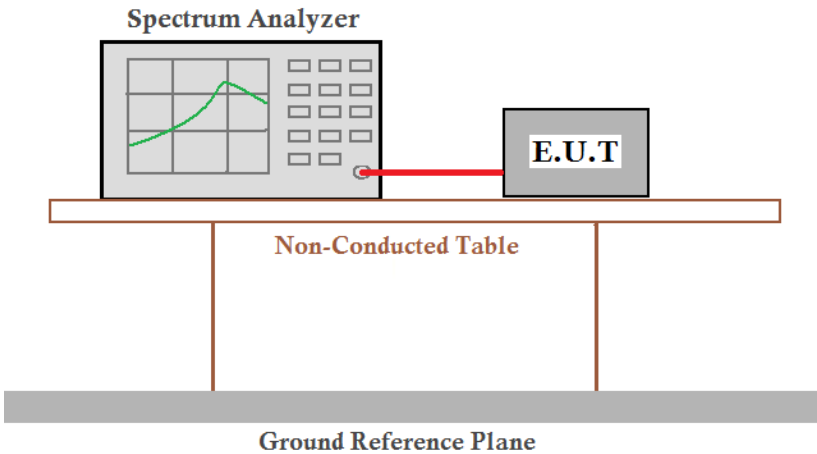
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Measurement Data:

| 802.11a mode | | | | |
|--------------|------------|-------|-------------|--------|
| Test channel | EIRP (dBm) | | Limit (dBm) | Result |
| | Ant.1 | Ant.2 | | |
| 149 | 4.35 | 8.58 | 30.00 | Pass |
| 157 | 4.23 | 8.43 | 30.00 | Pass |
| 165 | 4.12 | 8.17 | 30.00 | Pass |

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6.6 26dB Emission Bandwidth and 99% Occupied Bandwidth

| | |
|------------------------|--|
| Test Requirement: | 47 CFR Part 15 Section 15.407(a) |
| Test Method: | ANSI C63.10: 2013 |
| Test Setup: |  <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. The table is supported by two vertical legs. Below the table is a Ground Reference Plane.</p> |
| Instruments Used: | Refer to section 5.10 for details |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; Only the worst case is recorded in the report. |
| Limit: | No restriction limits |
| Test Results: | Pass |



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Measurement Data:

| 802.11a mode | | |
|-----------------|-------------------------------|------------------------------|
| Frequency (MHz) | 26dB Emission Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
| 5745 | 36.680 | 18.450 |
| 5785 | 35.187 | 17.760 |
| 5825 | 35.428 | 17.580 |

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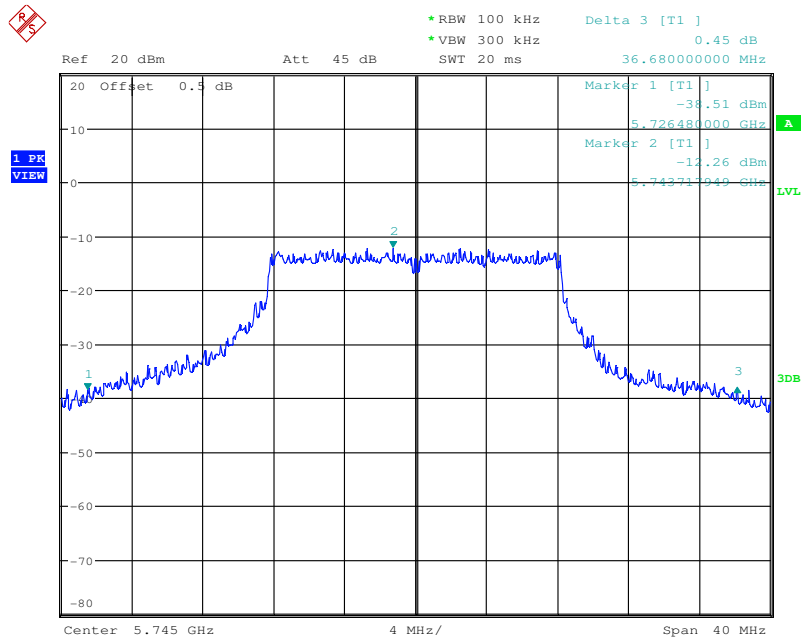
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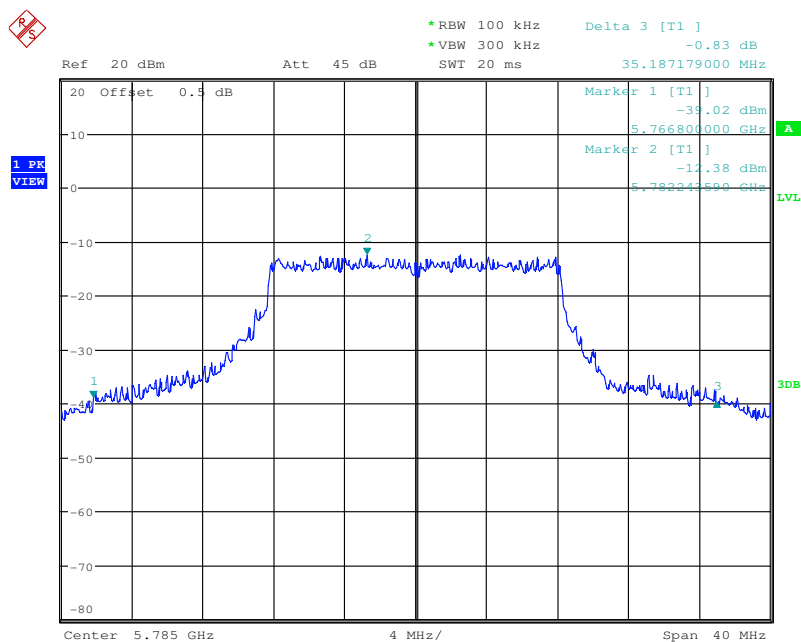
26dB Emission Bandwidth

Test plot as follows:

| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 149 |
|------------|---------|---------------|-----|



| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 157 |
|------------|---------|---------------|-----|



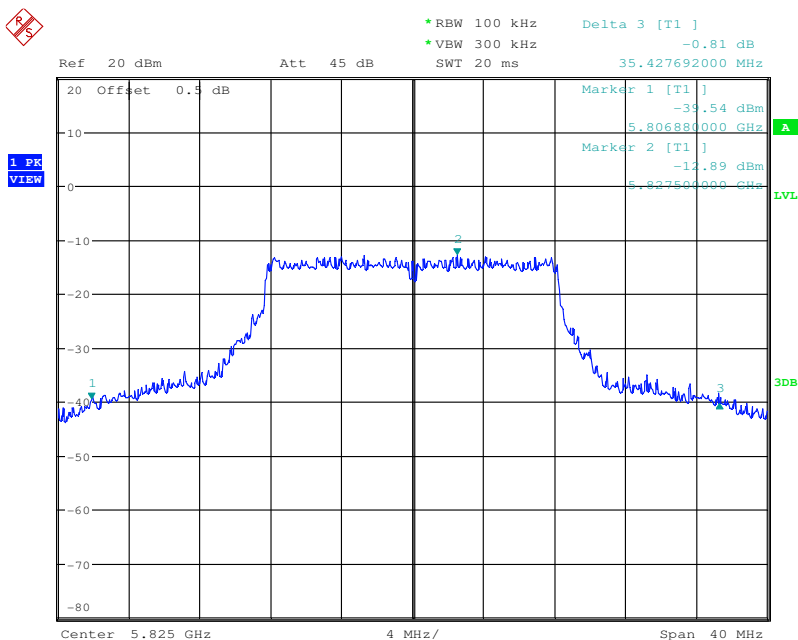
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| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 165 |
|------------|---------|---------------|-----|



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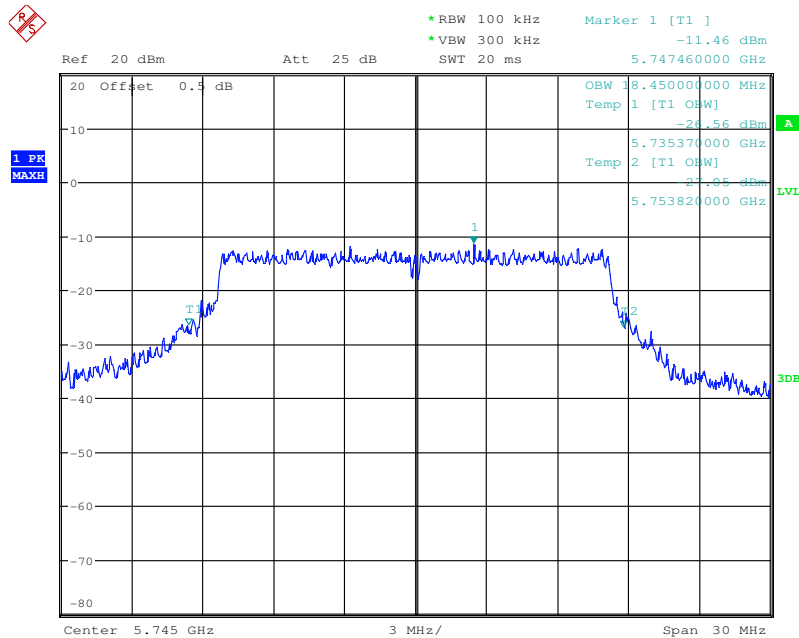
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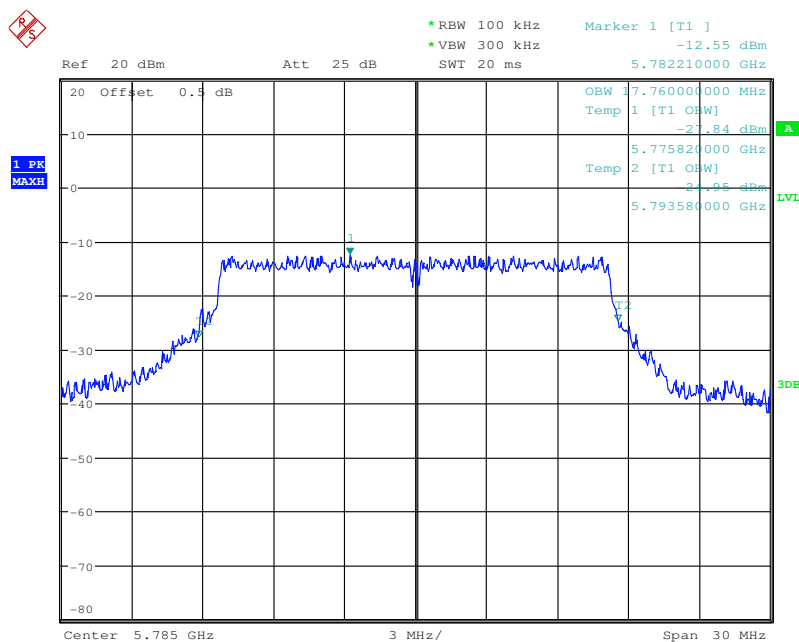
99% Occupied Bandwidth

Test plot as follows:

| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 149 |
|------------|---------|---------------|-----|



| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 157 |
|------------|---------|---------------|-----|



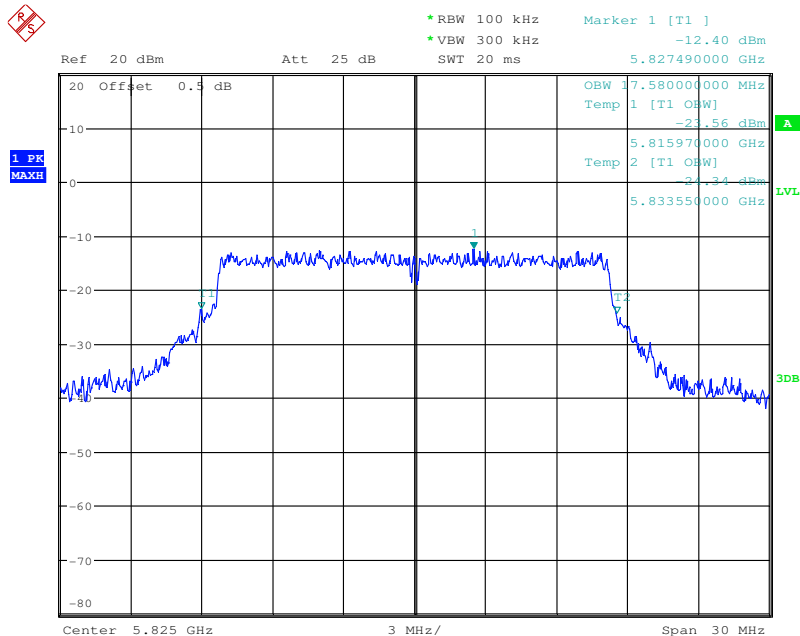
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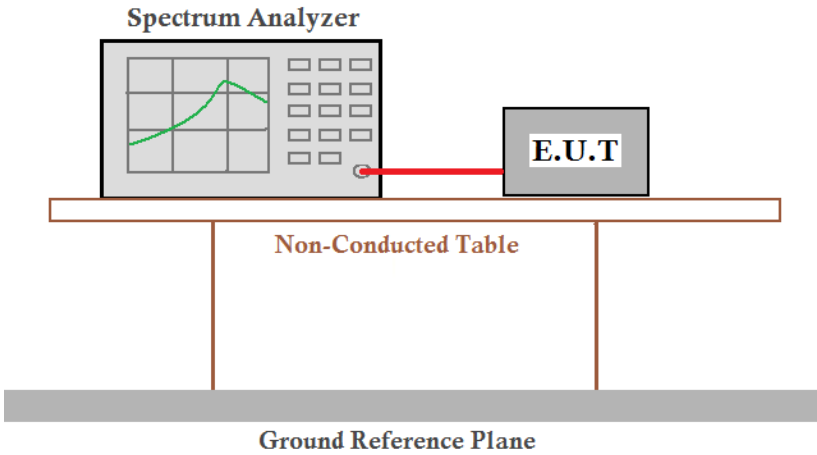
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| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 165 |
|------------|---------|---------------|-----|



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6.7 6dB Emission Bandwidth

| | |
|------------------------|--|
| Test Requirement: | 47 CFR Part 15 Section 15.407(e) |
| Test Method: | ANSI C63.10: 2013 |
| Test Setup: |  <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. The table is supported by two vertical legs. Below the table is a Ground Reference Plane.</p> |
| Instruments Used: | Refer to section 5.10 for details |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; Only the worst case is recorded in the report. |
| Limit: | ≥ 500 kHz |
| Test Results: | Pass |



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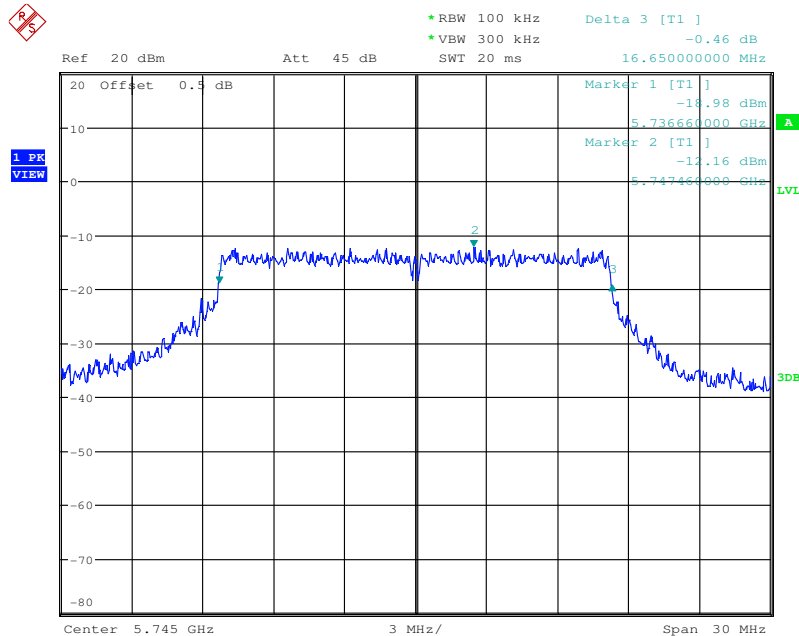
Measurement Data:

| 802.11a mode | | | |
|-----------------|----------------------------|-------------|--------|
| Frequency (MHz) | 6dB Occupy Bandwidth (MHz) | Limit (kHz) | Result |
| 5745 | 16.650 | ≥500 | Pass |
| 5785 | 16.650 | ≥500 | Pass |
| 5825 | 16.650 | ≥500 | Pass |

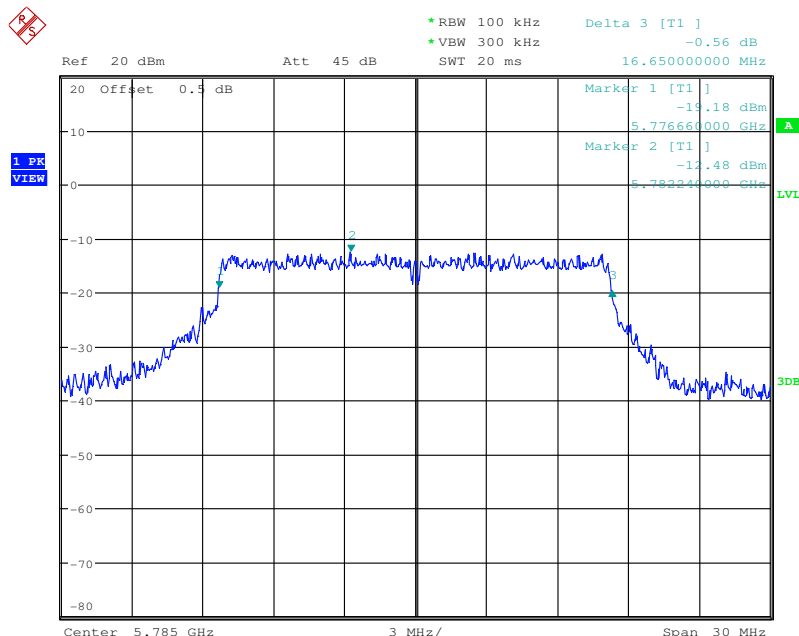
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Test plot as follows:

| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 149 |
|------------|---------|---------------|-----|



| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 157 |
|------------|---------|---------------|-----|



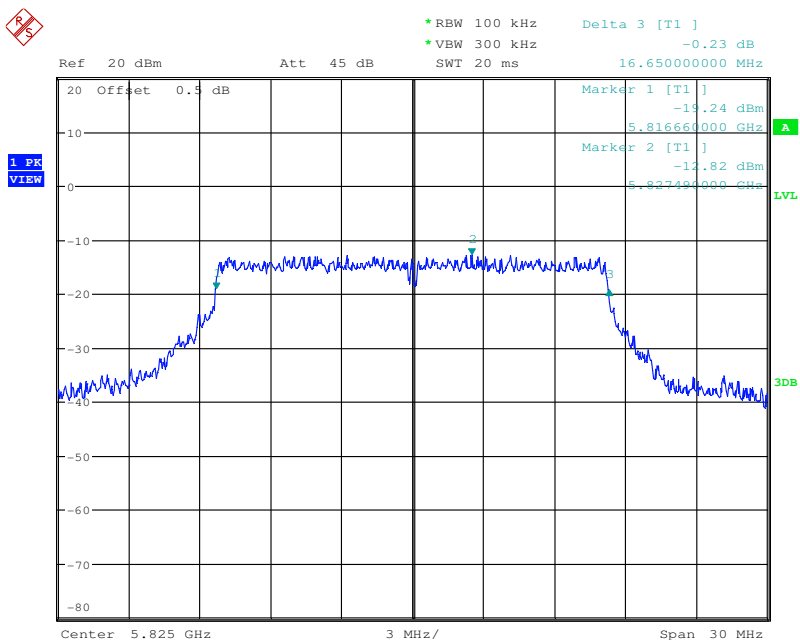
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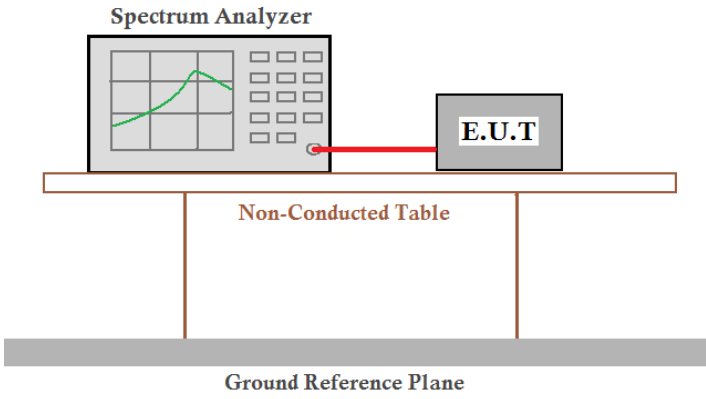
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| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 165 |
|------------|---------|---------------|-----|



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6.8 Power Spectral Density

| | |
|------------------------|--|
| Test Requirement: | 47 CFR Part 15 Section 15.407(a) |
| Test Method: | ANSI C63.10: 2013 |
| Test Setup: |  <p><i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</p> |
| Test Instruments: | Refer to section 5.10 for details |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; Only the worst case is recorded in the report. |
| Limit: | ≤30dBm/500KHz |
| Test Results: | Pass |



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Measurement Data:

| 802.11a mode | | | | |
|--------------|-------------------------------------|-------|--------------------|--------|
| Test channel | Power Spectral Density (dBm/500kHz) | | Limit (dBm/500kHz) | Result |
| | Ant.1 | Ant.2 | | |
| 149 | -11.68 | -9.41 | ≤30dBm/500kHz | Pass |
| 157 | -11.78 | -9.61 | ≤30dBm/500kHz | Pass |
| 165 | -12.02 | -9.88 | ≤30dBm/500kHz | Pass |

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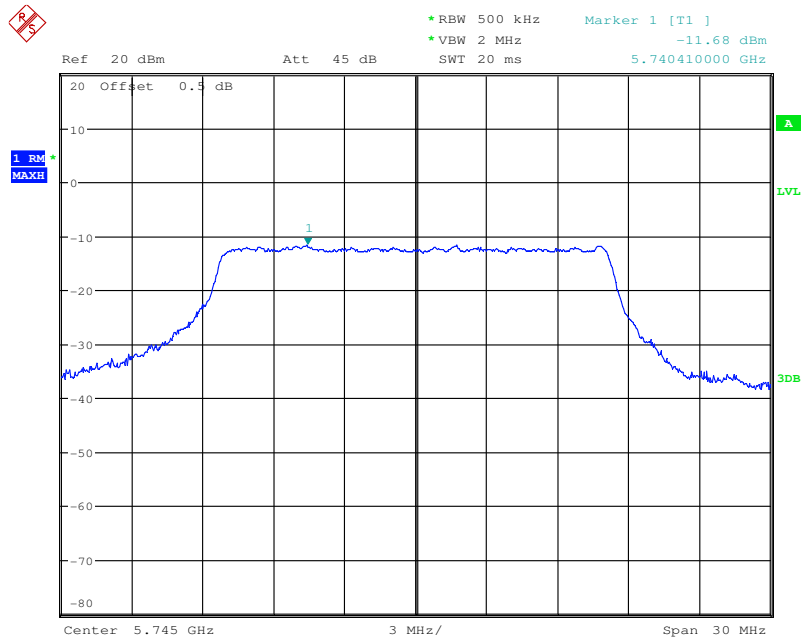
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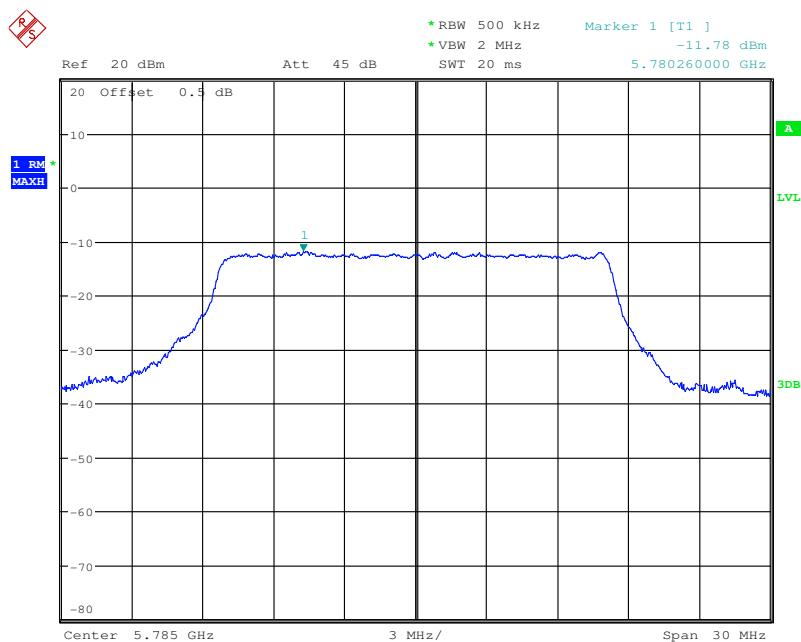
Test plot as follows:

Antenna 1:

| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 149 |
|------------|---------|---------------|-----|



| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 157 |
|------------|---------|---------------|-----|



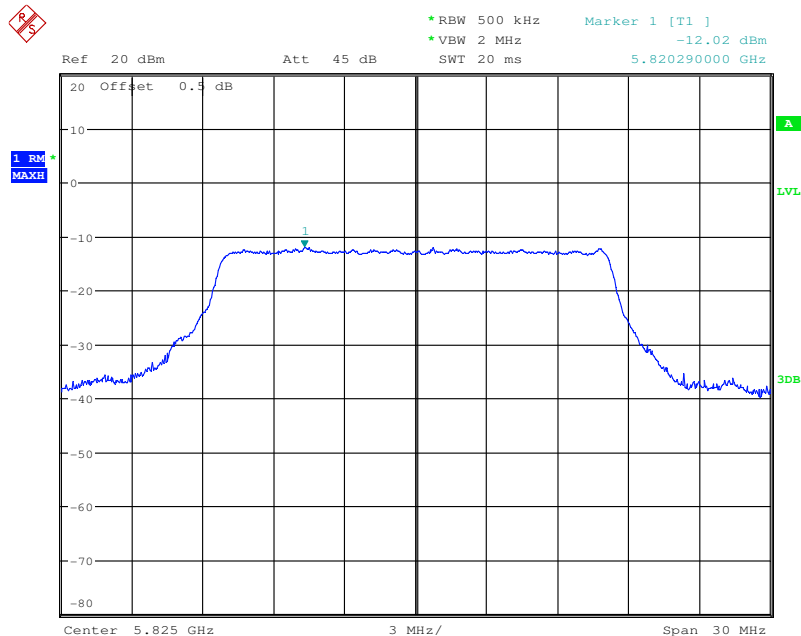
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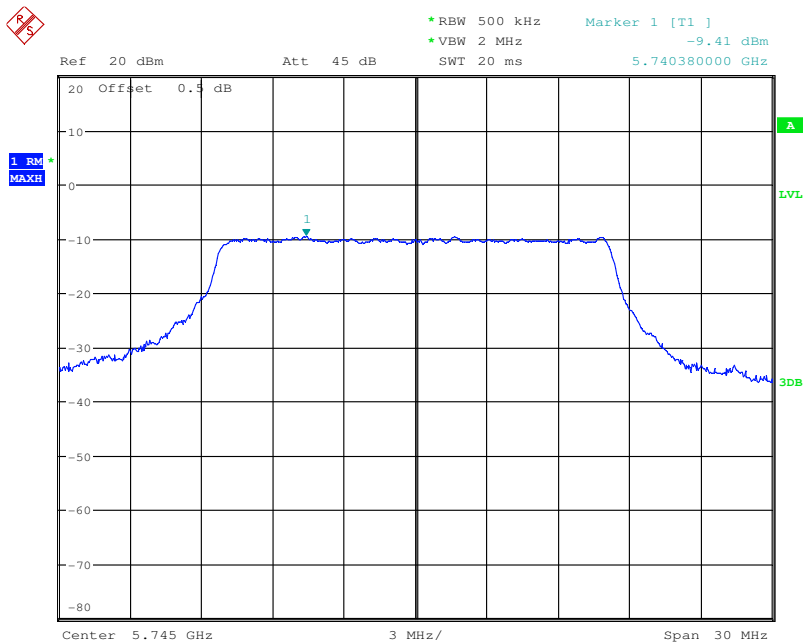
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| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 165 |
|------------|---------|---------------|-----|



Antenna 2:

| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 149 |
|------------|---------|---------------|-----|



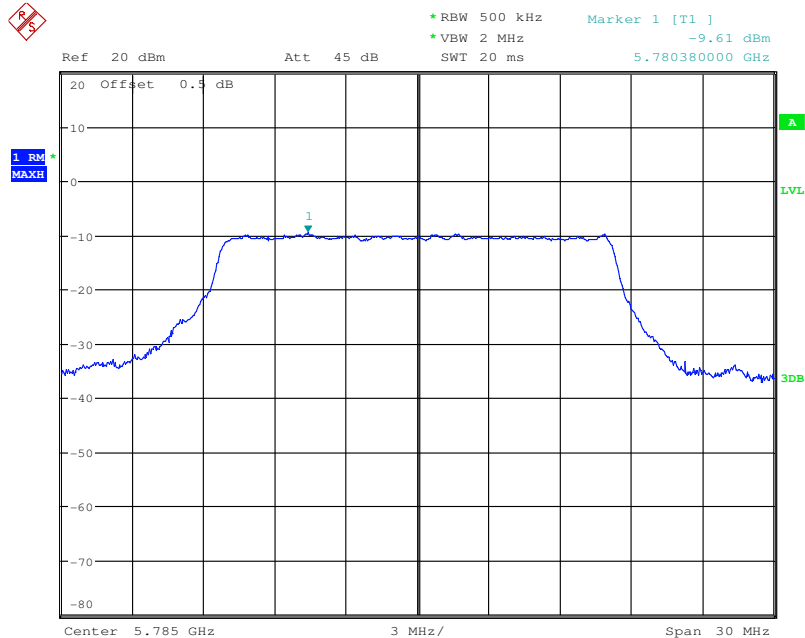
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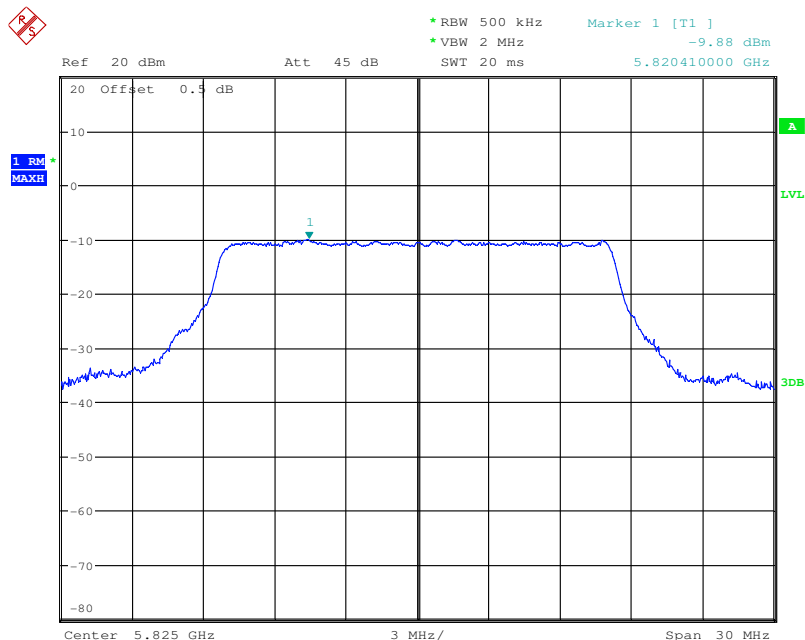
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| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 157 |
|------------|---------|---------------|-----|

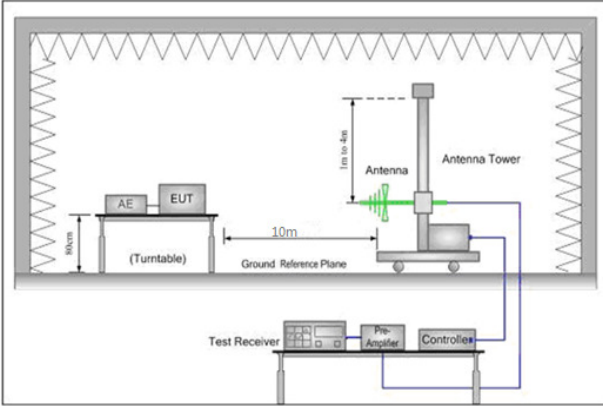
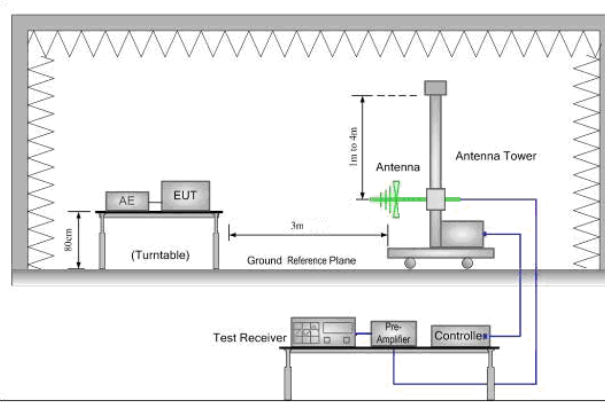


| | | | |
|------------|---------|---------------|-----|
| Test mode: | 802.11a | Test channel: | 165 |
|------------|---------|---------------|-----|



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6.9 Radiated Spurious Emissions

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15 Section 15.407(b) |
| Test Method: | ANSI C63.10: 2013 |
| Test Site: | Measurement Distance: 3m (Semi-Anechoic Chamber) Measurement Distance: 10m (Semi-Anechoic Chamber) |
| Test Setup: | |
|  | |
|  | |
| Figure 1. 30MHz to 1GHz | Figure 2. Above 1 GHz |
| Test Procedure: | <ol style="list-style-type: none"> For below 1GHz test, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 and 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. For above 1GHz test, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. Test the EUT in the outermost channels. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. Repeat above procedures until all frequencies measured was complete. |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates. |



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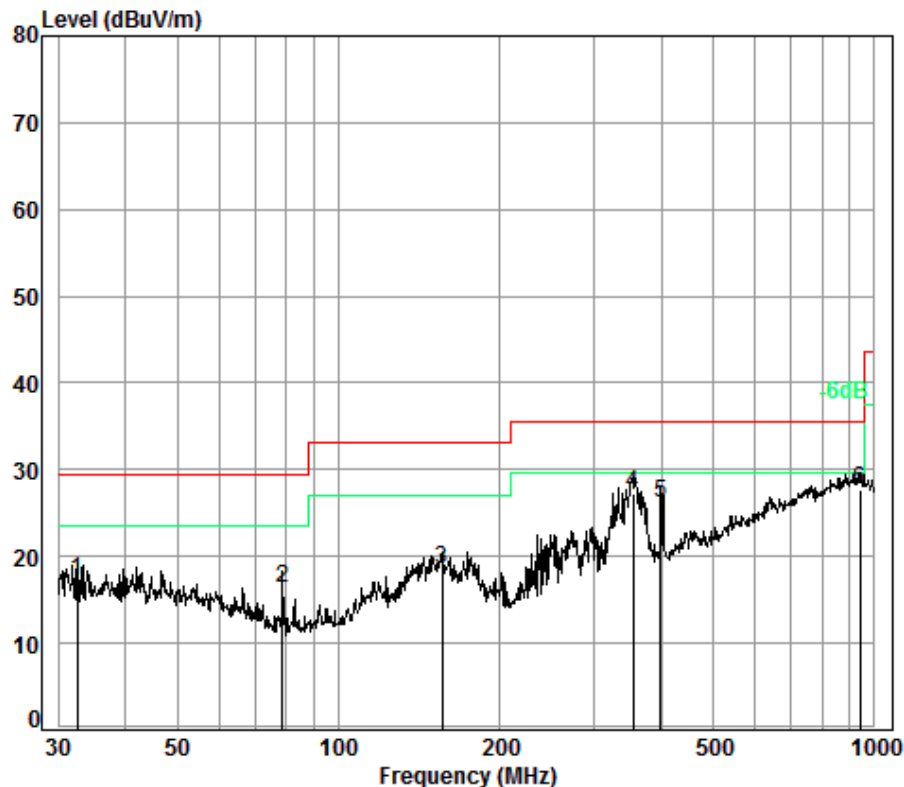
| | |
|-------------------|--|
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; For below 1GHz, through Pre-scan, find the 1Mbps of rate of 802.11a at lowest channel is the worst case. Only the worst case is recorded in the report. |
| Instruments Used: | Refer to section 5.10 for details |
| Test Results: | Pass |

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6.9.1 Radiated emission below 1GHz

| 30MHz~1GHz (QP) | | |
|-----------------|-------------------|----------|
| Test mode: | Transmitting mode | Vertical |



Condition: 10m Vertical

Job No. : 3915CR

Test Mode: TX +charge

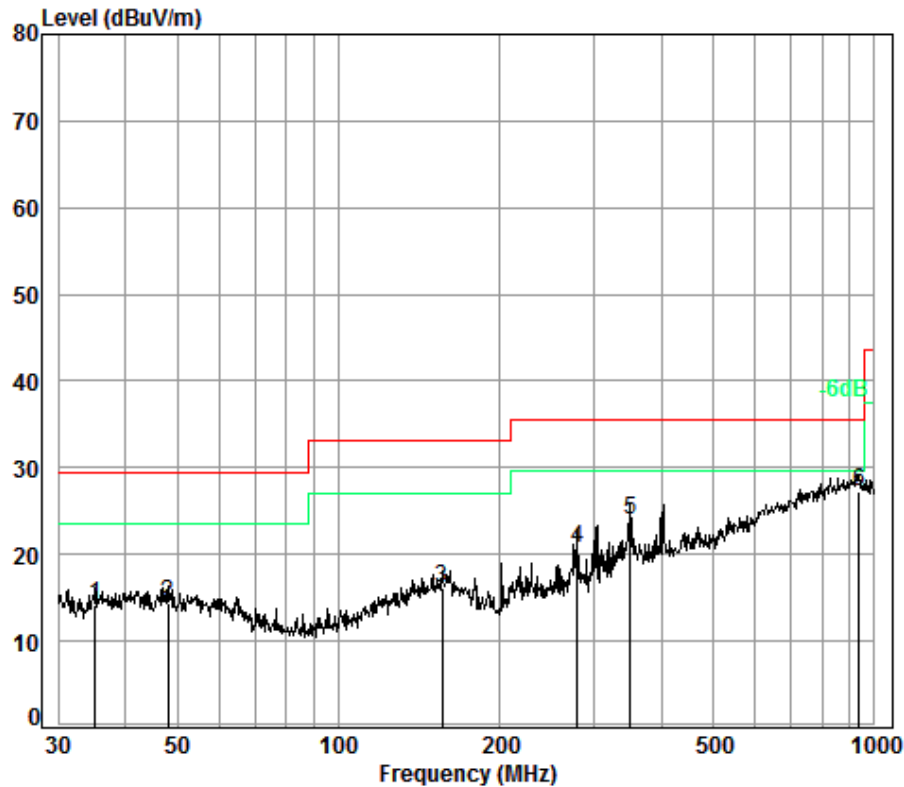
| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit |
|------|--------|------------|------------|---------------|------------|--------|------------|------------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 | 32.63 | 6.70 | 12.56 | 32.30 | 30.17 | 17.13 | 29.50 | -12.37 |
| 2 | 78.69 | 7.08 | 8.73 | 32.30 | 32.80 | 16.31 | 29.50 | -13.19 |
| 3 | 155.91 | 7.48 | 13.40 | 32.30 | 29.89 | 18.47 | 33.10 | -14.63 |
| 4 | 354.18 | 8.27 | 13.93 | 32.18 | 37.23 | 27.25 | 35.60 | -8.35 |
| 5 | 399.03 | 8.30 | 14.84 | 32.10 | 35.05 | 26.09 | 35.60 | -9.51 |
| 6 pp | 938.83 | 9.55 | 22.65 | 32.34 | 27.73 | 27.59 | 35.60 | -8.01 |



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| | | |
|------------|-------------------|------------|
| Test mode: | Transmitting mode | Horizontal |
|------------|-------------------|------------|



Condition: 10m Horizontal
Job No. : 3915CR
Test Mode: TX +charge

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit |
|------|--------|---------------|---------------|------------------|---------------|--------|---------------|---------------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 | 35.25 | 6.71 | 12.68 | 32.30 | 27.00 | 14.09 | 29.50 | -15.41 |
| 2 | 48.16 | 6.86 | 12.82 | 32.30 | 27.06 | 14.44 | 29.50 | -15.06 |
| 3 | 155.91 | 7.48 | 13.40 | 32.30 | 27.55 | 16.13 | 33.10 | -16.97 |
| 4 | 279.04 | 8.00 | 12.13 | 32.30 | 32.97 | 20.80 | 35.60 | -14.80 |
| 5 | 350.48 | 8.25 | 13.85 | 32.19 | 34.10 | 24.01 | 35.60 | -11.59 |
| 6 pp | 935.55 | 9.54 | 22.63 | 32.32 | 27.29 | 27.14 | 35.60 | -8.46 |

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6.9.2 Transmitter emission above 1GHz

Test plot as follows:

| Test mode: | | 802.11a | | Frequency(MHz): | | 5745 | Remark: | | Peak |
|-----------------|-----------------------|-----------------|--------------------|-------------------|----------------|---------------------|-----------------|--------------|------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Read Level (dBuV) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization | |
| 7678.832 | 36.04 | 10.89 | 37.44 | 42.58 | 52.07 | 74.00 | -21.93 | Vertical | |
| 9659.786 | 37.10 | 12.53 | 36.28 | 39.15 | 52.50 | 74.00 | -21.50 | Vertical | |
| 11490.000 | 37.45 | 14.01 | 36.68 | 35.16 | 49.94 | 74.00 | -24.06 | Vertical | |
| 13192.440 | 38.29 | 15.60 | 38.42 | 37.39 | 52.86 | 74.00 | -21.14 | Vertical | |
| 15185.920 | 40.69 | 16.72 | 39.49 | 34.44 | 52.36 | 74.00 | -21.64 | Vertical | |
| 17235.000 | 43.05 | 19.50 | 37.03 | 27.86 | 53.38 | 74.00 | -20.62 | Vertical | |
| 7039.780 | 35.44 | 10.62 | 37.71 | 43.20 | 51.55 | 74.00 | -22.45 | Horizontal | |
| 7678.832 | 36.04 | 10.89 | 37.44 | 42.22 | 51.71 | 74.00 | -22.29 | Horizontal | |
| 9007.715 | 37.00 | 11.80 | 37.18 | 38.13 | 49.75 | 74.00 | -24.25 | Horizontal | |
| 11490.000 | 37.45 | 14.01 | 36.68 | 34.53 | 49.31 | 74.00 | -24.69 | Horizontal | |
| 14512.850 | 40.01 | 16.40 | 39.72 | 36.45 | 53.14 | 74.00 | -20.86 | Horizontal | |
| 17235.000 | 43.05 | 19.50 | 37.03 | 28.14 | 53.66 | 74.00 | -20.34 | Horizontal | |

| Test mode: | | 802.11a | | Frequency(MHz): | | 5785 | | Remark: | | Peak | |
|-----------------|-----------------------|-----------------|--------------------|-------------------|----------------|---------------------|-----------------|--------------|--|------|--|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Read Level (dBuV) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization | | | |
| 7678.832 | 36.04 | 10.89 | 37.44 | 41.79 | 51.28 | 74.00 | -22.72 | Vertical | | | |
| 9007.715 | 37.00 | 11.80 | 37.18 | 39.60 | 51.22 | 74.00 | -22.78 | Vertical | | | |
| 10616.590 | 37.11 | 13.17 | 36.05 | 37.26 | 51.49 | 74.00 | -22.51 | Vertical | | | |
| 11570.000 | 37.49 | 14.09 | 36.75 | 34.51 | 49.34 | 74.00 | -24.66 | Vertical | | | |
| 14485.460 | 39.99 | 16.39 | 39.72 | 36.07 | 52.73 | 74.00 | -21.27 | Vertical | | | |
| 17355.000 | 43.23 | 19.92 | 37.01 | 27.05 | 53.19 | 74.00 | -20.81 | Vertical | | | |
| 7678.832 | 36.04 | 10.89 | 37.44 | 41.23 | 50.72 | 74.00 | -23.28 | Horizontal | | | |
| 9659.786 | 37.10 | 12.53 | 36.28 | 40.20 | 53.55 | 74.00 | -20.45 | Horizontal | | | |
| 11570.000 | 37.49 | 14.09 | 36.75 | 36.18 | 51.01 | 74.00 | -22.99 | Horizontal | | | |
| 13217.380 | 38.32 | 15.61 | 38.46 | 35.82 | 51.29 | 74.00 | -22.71 | Horizontal | | | |
| 15800.410 | 41.20 | 17.31 | 38.51 | 32.88 | 52.88 | 74.00 | -21.12 | Horizontal | | | |
| 17355.000 | 43.23 | 19.92 | 37.01 | 27.79 | 53.93 | 74.00 | -20.07 | Horizontal | | | |

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| Test mode: | | 802.11a | | Frequency(MHz): | | 5825 | Remark: | | Peak |
|-----------------|-----------------------|-----------------|--------------------|-------------------|----------------|---------------------|-----------------|--------------|------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Read Level (dBuV) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization | |
| 7160.481 | 35.56 | 10.66 | 37.66 | 40.39 | 48.95 | 74.00 | -25.05 | Vertical | |
| 9007.715 | 37.00 | 11.80 | 37.18 | 40.23 | 51.85 | 74.00 | -22.15 | Vertical | |
| 11650.000 | 37.50 | 14.18 | 36.83 | 33.72 | 48.57 | 74.00 | -25.43 | Vertical | |
| 13192.440 | 38.29 | 15.60 | 38.42 | 37.34 | 52.81 | 74.00 | -21.19 | Vertical | |
| 15417.140 | 40.82 | 16.95 | 39.11 | 34.80 | 53.46 | 74.00 | -20.54 | Vertical | |
| 17475.000 | 43.45 | 20.33 | 36.99 | 26.54 | 53.33 | 74.00 | -20.67 | Vertical | |
| 7678.832 | 36.04 | 10.89 | 37.44 | 43.27 | 52.76 | 74.00 | -21.24 | Horizontal | |
| 9007.715 | 37.00 | 11.80 | 37.18 | 39.46 | 51.08 | 74.00 | -22.92 | Horizontal | |
| 11650.000 | 37.50 | 14.18 | 36.83 | 34.22 | 49.07 | 74.00 | -24.93 | Horizontal | |
| 13217.380 | 38.32 | 15.61 | 38.46 | 36.75 | 52.22 | 74.00 | -21.78 | Horizontal | |
| 16040.990 | 41.38 | 17.51 | 38.15 | 32.15 | 52.89 | 74.00 | -21.11 | Horizontal | |
| 17475.000 | 43.45 | 20.33 | 36.99 | 27.20 | 53.99 | 74.00 | -20.01 | Horizontal | |

Remark:

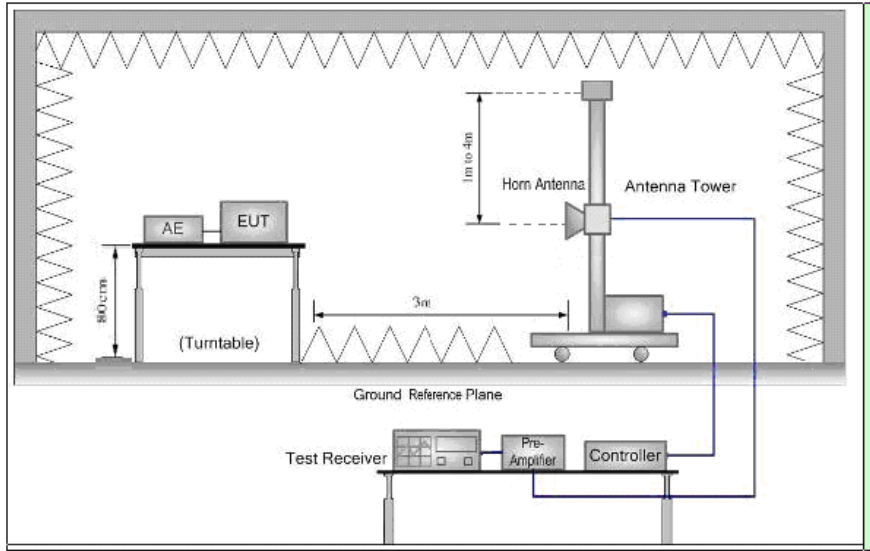
1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

2) Scan from 9kHz to 25GHz, The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

6.10 Restricted bands around fundamental frequency

| | | | |
|-------------------|---|--------------------|------------------|
| Test Requirement: | 47 CFR Part 15 Section 15.407(b) | | |
| Test Method: | ANSI C63.10: 2013 | | |
| Test Site: | Measurement Distance: 3m (Semi-Anechoic Chamber) | | |
| Limit: | Frequency | Limit (dBuV/m @3m) | Remark |
| | 30MHz-88MHz | 40.0 | Quasi-peak Value |
| | 88MHz-216MHz | 43.5 | Quasi-peak Value |
| | 216MHz-960MHz | 46.0 | Quasi-peak Value |
| | 960MHz-1GHz | 54.0 | Quasi-peak Value |
| | Above 1GHz | 54.0 | Average Value |
| | | 74.0 | Peak Value |
| Test Setup: |  | | |



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| | |
|------------------------|---|
| Test Procedure: | <ul style="list-style-type: none">a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channelg. Test the EUT in the outermost channels.h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.i. Repeat above procedures until all frequencies measured was complete. |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates. |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; Only the worst case is recorded in the report. |
| Instruments Used: | Refer to section 5.10 for details |
| Test Results: | Pass |

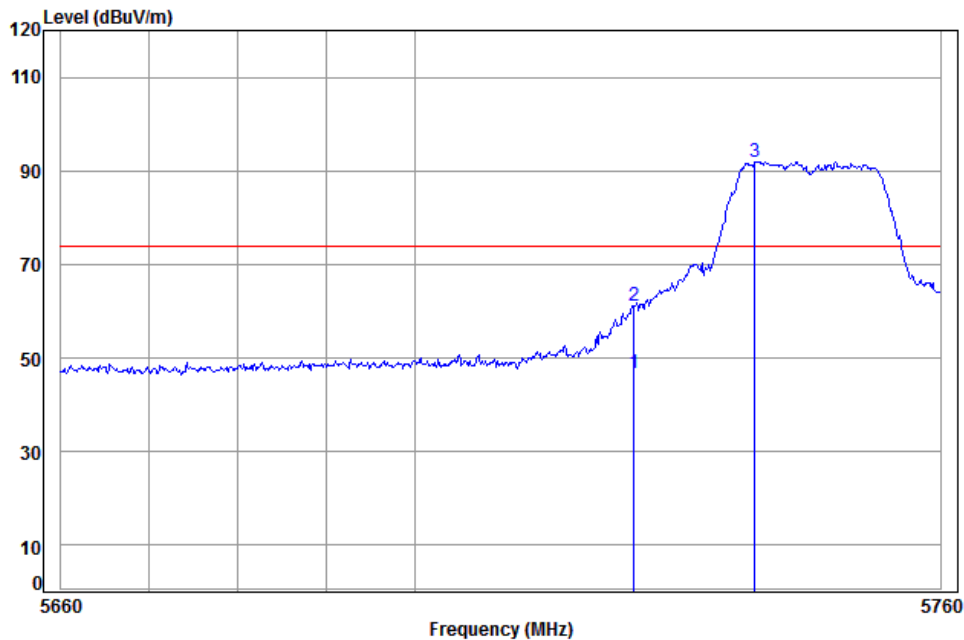


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Test plot as follows:

| | | | | | | |
|------------|---------|-----------------|------|---------|------|----------|
| Test mode: | 802.11a | Frequency(MHz): | 5745 | Remark: | Peak | Vertical |
|------------|---------|-----------------|------|---------|------|----------|



Condition: 3m Vertical

Job No: : 3914CR

Mode: : 5745 Band edge

| | | Cable | Ant | Preamp | Read | Limit | Over | |
|------|----------|-------|--------|--------|-------|--------|--------|---------------|
| | Freq | Loss | Factor | Factor | Level | Line | Limit | Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 av | 5725.000 | 8.48 | 34.24 | 38.92 | 43.00 | 46.80 | 54.00 | -7.20 Average |
| 2 | 5725.000 | 8.48 | 34.24 | 38.92 | 57.37 | 61.17 | 74.00 | -12.83 Peak |
| 3 pp | 5738.754 | 8.49 | 34.23 | 38.92 | 88.20 | 92.00 | 74.00 | 18.00 Peak |

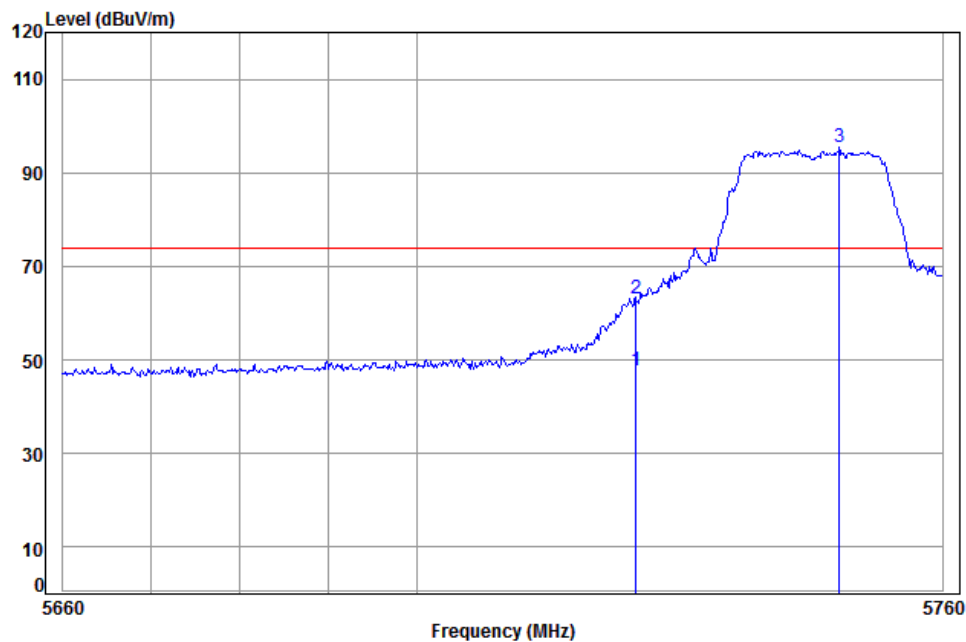
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| | | | | | | |
|------------|---------|-----------------|------|---------|------|------------|
| Test mode: | 802.11a | Frequency(MHz): | 5745 | Remark: | Peak | Horizontal |
|------------|---------|-----------------|------|---------|------|------------|



Condition: 3m Horizontal

Job No: : 3914CR

Mode: : 5745 Band edge

| | | Cable | Ant | Preamp | Read | Limit | Over | |
|------|----------|-------|--------|--------|-------|--------|--------|---------------|
| | Freq | Loss | Factor | Factor | Level | Line | Limit | Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 av | 5725.000 | 8.48 | 34.24 | 38.92 | 44.00 | 47.80 | 54.00 | -6.20 Average |
| 2 | 5725.000 | 8.48 | 34.24 | 38.92 | 59.18 | 62.98 | 74.00 | -11.02 Peak |
| 3 pp | 5748.209 | 8.50 | 34.23 | 38.92 | 91.58 | 95.39 | 74.00 | 21.39 Peak |

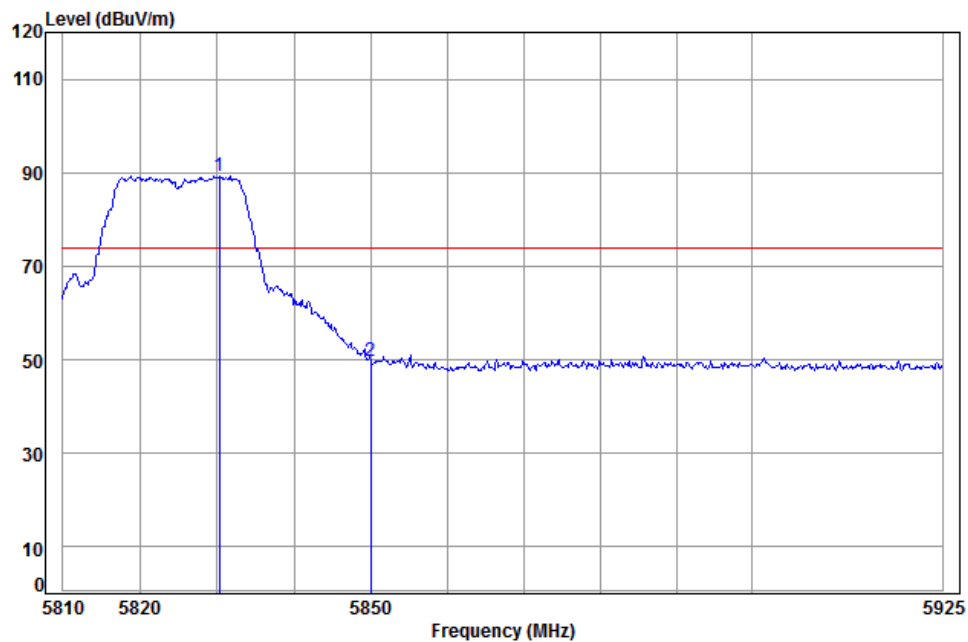
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| | | | | | | |
|------------|---------|-----------------|------|---------|------|----------|
| Test mode: | 802.11a | Frequency(MHz): | 5825 | Remark: | Peak | Vertical |
|------------|---------|-----------------|------|---------|------|----------|



Condition: 3m Vertical

Job No: : 3914CR

Mode: : 5825 Band edge

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|------|----------|------------|------------|---------------|------------|--------|------------|------------|--------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 pp | 5830.306 | 8.59 | 34.28 | 38.93 | 85.22 | 89.16 | 74.00 | 15.16 | Peak |
| 2 | 5850.000 | 8.60 | 34.33 | 38.94 | 45.75 | 49.74 | 74.00 | -24.26 | Peak |

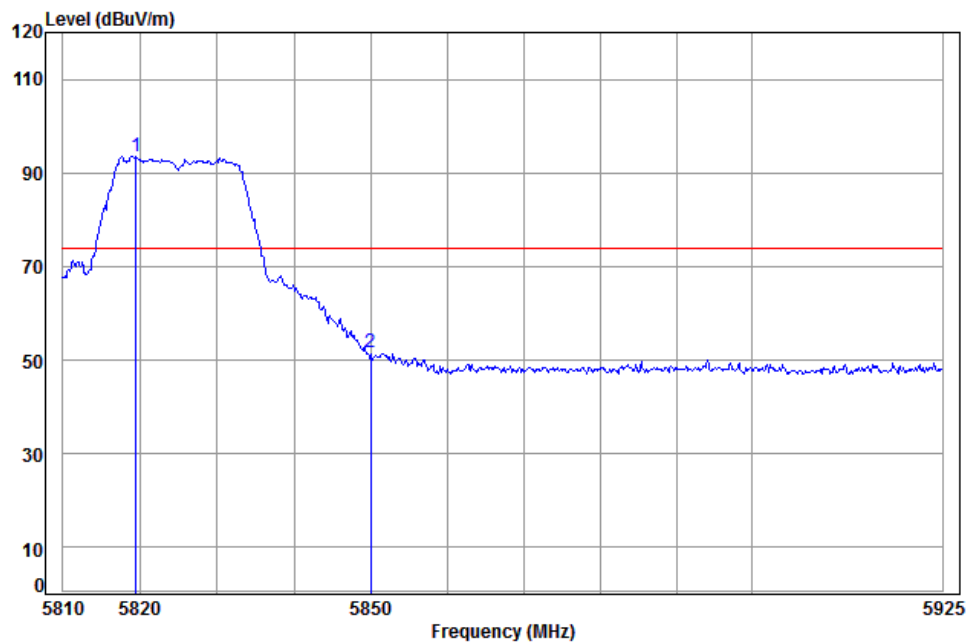
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| | | | | | | |
|------------|---------|-----------------|------|---------|------|------------|
| Test mode: | 802.11a | Frequency(MHz): | 5825 | Remark: | Peak | Horizontal |
|------------|---------|-----------------|------|---------|------|------------|



Condition: 3m Horizontal
Job No: : 3914CR
Mode: : 5825 Band edge

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|------|----------|---------------|---------------|------------------|---------------|--------|---------------|---------------|--------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 pp | 5819.459 | 8.57 | 34.25 | 38.93 | 89.72 | 93.61 | 74.00 | 19.61 | Peak |
| 2 | 5850.000 | 8.60 | 34.33 | 38.94 | 47.58 | 51.57 | 74.00 | -22.43 | Peak |

Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor



6.11 Frequency Stability

| | |
|------------------------|--|
| Test Requirement: | 47 CFR Part 15 Section 15.407(g) |
| Test Method: | ANSI C63.10: 2013 |
| Test Setup: | <pre> graph LR SA[Spectrum Analyzer] --- EUT[EUT] EUT --- TCh[Temperature Chamber] PWS[AC/DC Power supply] --- TCh </pre> |
| Limit: | The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. |
| Test Procedure: | <ol style="list-style-type: none"> The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage. Turn the EUT on and couple its output to a spectrum analyzer. Turn the EUT off and set the chamber to the highest temperature specified. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record. |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates. |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; Only the worst case is recorded in the report. |



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| | | | |
|------------|---------|-----------------|------|
| Test mode: | 802.11a | Frequency(MHz): | 5745 |
|------------|---------|-----------------|------|

| Temperature (°C) | Voltage(VAC) | Measurement Frequency(MHz) | Delta Frequency(Hz) | Result |
|------------------|--------------|----------------------------|---------------------|--------|
| 45 | 120 | 5745.0078 | 7800 | Pass |
| 35 | | 5745.0065 | 6500 | Pass |
| 25 | | 5745.0049 | 4900 | Pass |
| 15 | | 5745.0053 | 5300 | Pass |
| 5 | | 5744.9960 | -4000 | Pass |
| -5 | | 5744.9974 | -2600 | Pass |
| 25 | 138 | 5745.0089 | 8900 | Pass |
| | 120 | 5745.0090 | 9000 | Pass |
| | 102 | 5745.0065 | 6500 | Pass |

| | | | |
|------------|---------|-----------------|------|
| Test mode: | 802.11a | Frequency(MHz): | 5785 |
|------------|---------|-----------------|------|

| Temperature (°C) | Voltage(VAC) | Measurement Frequency(MHz) | Delta Frequency(Hz) | Result |
|------------------|--------------|----------------------------|---------------------|--------|
| 45 | 120 | 5785.0063 | 6300 | Pass |
| 35 | | 5785.0053 | 5300 | Pass |
| 25 | | 5785.0040 | 4000 | Pass |
| 15 | | 5785.0038 | 3800 | Pass |
| 5 | | 5785.0027 | 2700 | Pass |
| -5 | | 5785.0021 | 2100 | Pass |
| 25 | 138 | 5785.0059 | 5900 | Pass |
| | 120 | 5785.0074 | 7400 | Pass |
| | 102 | 5784.9960 | -4000 | Pass |

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| | | | |
|------------|---------|-----------------|------|
| Test mode: | 802.11a | Frequency(MHz): | 5825 |
|------------|---------|-----------------|------|

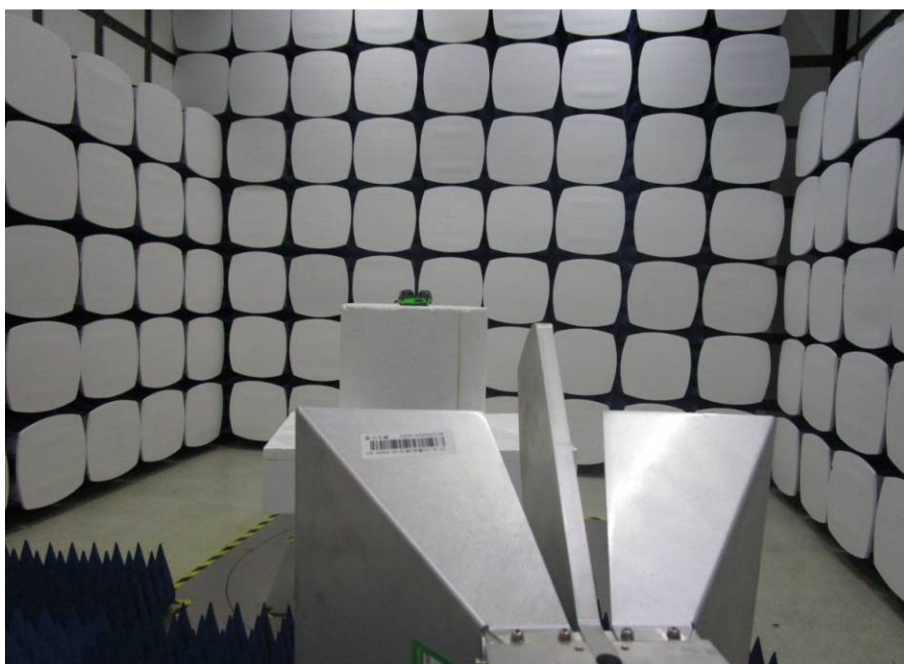
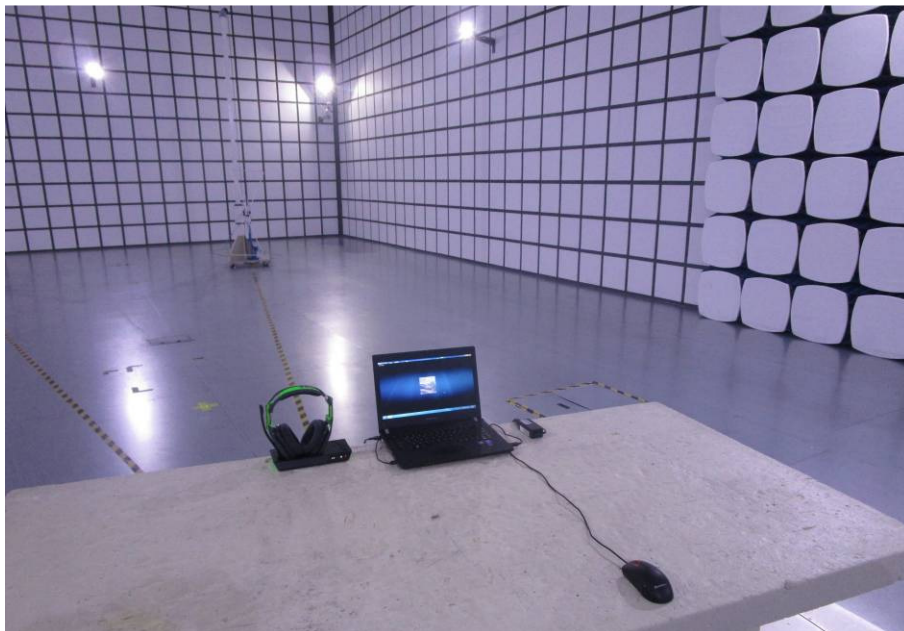
| Temperature (°C) | Voltage(VAC) | Measurement Frequency(MHz) | Delta Frequency(Hz) | Result |
|------------------|--------------|----------------------------|---------------------|--------|
| 45 | 120 | 5825.0073 | 7300 | Pass |
| 35 | | 5825.0066 | 6600 | Pass |
| 25 | | 5825.0053 | 5300 | Pass |
| 15 | | 5824.9950 | -5000 | Pass |
| 5 | | 5824.9919 | -8100 | Pass |
| -5 | | 5824.9924 | -7600 | Pass |
| 25 | 138 | 5825.0093 | 9300 | Pass |
| | 120 | 5825.0059 | 5900 | Pass |
| | 102 | 5825.0042 | 4200 | Pass |

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7 Photographs - EUT Test Setup

Test model No.: A50G03

7.1 Radiated Spurious Emission



7.2 Conducted Emission



8 Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1605003915CR.