

# Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCIS15060051903

# FCC REPORT (WIFI)

**Applicant:** USA111 INC.

Address of Applicant: 5885 Green Pointe Dr. Suite B Groveport, Ohio, United States

**Equipment Under Test (EUT)** 

Product Name: INTEL Tablet PC

Model No.: W10, W1004, W1005, W1006, W1101, W1901, X10, X9, X8,

X7

FCC ID: 2ADOV-W10

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 30 Jun., 2015

**Date of Test:** 30 Jun., to 07 Sep., 2015

Date of report issued: 08 Sep., 2015

Test Result: PASS\*

#### Authorized Signature:



Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. 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.

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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.





# 2 Version

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 00          | 08 Sep., 2015 | Original    |
|             |               |             |
|             |               |             |
|             |               |             |
|             |               |             |

Reviewed by: Over then Date: 08 Sep., 2015

Project Engineer





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# 4 Test Summary

| Test Item                                     | Section in CFR 47 | Result |
|---|-------------------|--------|
| Antenna requirement                           | 15.203/15.247 (c) | Pass   |
| AC Power Line Conducted Emission              | 15.207            | Pass   |
| Conducted Peak Output Power                   | 15.247 (b)(3)     | Pass   |
| 6dB Emission Bandwidth 99% Occupied Bandwidth | 15.247 (a)(2)     | Pass   |
| Power Spectral Density                        | 15.247 (e)        | Pass   |
| Band Edge                                     | 15.247(d)         | Pass   |
| Spurious Emission                             | 15.205/15.209     | Pass   |

Pass: The EUT complies with the essential requirements in the standard.





# 5 General Information

# 5.1 Client Information

| Applicant:                        | USA111 INC.  |
|-----------------------------------|--|
| Address of Applicant:             | 5885 Green Pointe Dr. Suite B Groveport, Ohio, United States   |
| Manufacturer/ Factory:            | Shenzhen Allland Networking Co., Ltd.  |
| Address of Manufacturer /Factory: | Fourth Floor, #B Building, Weiyulong Industrial Park, Xuegang North Road #16, Bantian Street, Longgang District, Shenzhen, China |

# 5.2 General Description of E.U.T.

| _  | 1   |
|--|---|
| Product Name:                                    | INTEL Tablet PC   |
| Model No.:                                       | W10, W1004, W1005, W1006, W1101, W1901, X10, X9, X8, X7   |
| Operation Frequency:                             | 2412MHz~2462MHz (802.11b/802.11g/802.11n(H20))<br>2422MHz~2452MHz (802.11n(H40))  |
| Channel numbers:                                 | 11 for 802.11b/802.11g/802.11(H20)<br>7 for 802.11n(H40)  |
| Channel separation:                              | 5MHz  |
| Modulation technology:<br>(IEEE 802.11b)         | Direct Sequence Spread Spectrum (DSSS)  |
| Modulation technology:<br>(IEEE 802.11g/802.11n) | Orthogonal Frequency Division Multiplexing(OFDM)  |
| Data speed (IEEE 802.11b):                       | 1Mbps, 2Mbps, 5.5Mbps, 11Mbps   |
| Data speed (IEEE 802.11g):                       | 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps   |
| Data speed (IEEE 802.11n):                       | Up to 150Mbps   |
| Antenna Type:                                    | Internal Antenna  |
| Antenna gain:                                    | 2.0 dBi   |
| AC adapter:                                      | Model No.:JHD-AP012U-050200AA<br>Input:100-240V AC,50/60Hz 0.35A<br>Output:5V DC MAX 2000mA   |
| Power supply:                                    | Rechargeable Li-ion Battery DC3.7V-7800mAh  |
| Remark:  | Model No.: W10, W1004, W1005, W1006, W1101, W1901, X10, X9, X8, X7 are electrically identical, only model name and external color is different. |





| Operation Frequency each of channel For 802.11b/g/n(H20)                |         |   |         |   |         |    |         |
|---|---------|---|---------|---|---------|----|---------|
| Channel Frequency Channel Frequency Channel Frequency Channel Frequence |         |   |         |   |         |    |         |
| 1   | 2412MHz | 4 | 2427MHz | 7 | 2442MHz | 10 | 2457MHz |
| 2   | 2417MHz | 5 | 2432MHz | 8 | 2447MHz | 11 | 2462MHz |
| 3   | 2422MHz | 6 | 2437MHz | 9 | 2452MHz |    |         |

| Operation Frequency each of channel For 802.11n(H40)                    |         |   |         |   |         |  |  |  |
|---|---------|---|---------|---|---------|--|--|--|
| Channel Frequency Channel Frequency Channel Frequency Channel Frequency |         |   |         |   |         |  |  |  |
|   |         | 4 | 2427MHz | 7 | 2442MHz |  |  |  |
|   |         | 5 | 2432MHz | 8 | 2447MHz |  |  |  |
| 3   | 2422MHz | 6 | 2437MHz | 9 | 2452MHz |  |  |  |

#### Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

#### 802.11b/802.11g/802.11n (H20)

| Channel             | Frequency |  |  |
|---------------------|-----------|--|--|
| The lowest channel  | 2412MHz   |  |  |
| The middle channel  | 2437MHz   |  |  |
| The Highest channel | 2462MHz   |  |  |

#### 802.11n (H40)

| Channel             | Frequency |  |  |
|---------------------|-----------|--|--|
| The lowest channel  | 2422MHz   |  |  |
| The middle channel  | 2437MHz   |  |  |
| The Highest channel | 2452MHz   |  |  |



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#### 5.3 Test environment and mode

| Operating Environment: |   |  |  |  |
|------------------------|---|--|--|--|
| Temperature:           | 24.0 °C   |  |  |  |
| Humidity:              | 54 % RH   |  |  |  |
| Atmospheric Pressure:  | 1010 mbar   |  |  |  |
| Test mode:             |   |  |  |  |
| Operation mode         | Keep the EUT in continuous transmitting with modulation |  |  |  |

The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

#### Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

| Mode         | Data rate |  |
|--------------|-----------|--|
| 802.11b      | 1Mbps     |  |
| 802.11g      | 6Mbps     |  |
| 802.11n(H20) | 6.5Mbps   |  |
| 802.11n(H40) | 13.5Mbps  |  |

#### **Final Test Mode:**

According to ANSI C63.4 standards, the test results are both the "worst case" and "worst setup" 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20) and 13.5 Mbps for 802.11n(H40). Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.



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# 5.4 Laboratory Facility

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

#### • FCC - Registration No.: 817957

Shenzhen Zhongjian Nanfang Testing Co., Ltd. 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 out files. Registration 817957, February 27, 2012.

#### • IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

#### • CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

# 5.5 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

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# 5.6 Test Instruments list

| Radia | ated Emission:                   |                                   |                             |                  |                         |                             |
|-------|----------------------------------|-----------------------------------|-----------------------------|------------------|-------------------------|-----------------------------|
| Item  | Test Equipment                   | Manufacturer                      | Model No.                   | Inventory<br>No. | Cal. Date<br>(mm-dd-yy) | Cal. Due date<br>(mm-dd-yy) |
| 1     | 3m Semi- Anechoic<br>Chamber     | SAEMC                             | 9(L)*6(W)* 6(H)             | CCIS0001         | 08-23-2014              | 08-22-2017                  |
| 2     | BiConiLog Antenna                | SCHWARZBECK<br>MESS-ELEKTRONIK    | VULB9163                    | CCIS0005         | 03-28-2015              | 03-28-2016                  |
| 3     | Double -ridged<br>waveguide horn | SCHWARZBECK<br>MESS-ELEKTRONIK    | BBHA9120D                   | CCIS0006         | 03-28-2015              | 03-28-2016                  |
| 4     | EMI Test Software                | AUDIX                             | E3                          | N/A              | N/A                     | N/A                         |
| 5     | Amplifier<br>(10kHz-1.3GHz)      | HP                                | 8447D                       | CCIS0003         | 04-01-2015              | 03-31-2016                  |
| 6     | Amplifier<br>(1GHz-18GHz)        | Compliance Direction Systems Inc. | PAP-1G18                    | CCIS0011         | 04-01-2015              | 03-31-2016                  |
| 7     | Pre-amplifier<br>(18-26GHz)      | Rohde & Schwarz                   | AFS33-18002<br>650-30-8P-44 | GTS218           | 04-01-2015              | 03-31-2016                  |
| 8     | Horn Antenna                     | ETS-LINDGREN                      | 3160                        | GTS217           | 04-01-2015              | 03-31-2016                  |
| 9     | Printer                          | HP                                | HP LaserJet P1007           | N/A              | N/A                     | N/A                         |
| 10    | Positioning Controller           | UC                                | UC3000                      | CCIS0015         | N/A                     | N/A                         |
| 11    | Spectrum analyzer<br>9k-30GHz    | Rohde & Schwarz                   | FSP                         | CCIS0023         | 03-28-2015              | 03-28-2016                  |
| 12    | EMI Test Receiver                | Rohde & Schwarz                   | ESRP                        | CCIS0167         | 03-28-2015              | 03-28-2016                  |
| 13    | Loop antenna                     | Laplace instrument                | RF300                       | EMC0701          | 04-01-2015              | 03-31-2016                  |
| 14    | Signal Analyzer                  | Rohde & Schwarz                   | FSIQ3                       | CCIS0088         | 04-08-2015              | 04-08-2016                  |

| Conducted Emission: |                   |                    |                       |                  |                         |                             |
|---------------------|-------------------|--------------------|-----------------------|------------------|-------------------------|-----------------------------|
| Item                | Test Equipment    | Manufacturer       | Model No.             | Inventory<br>No. | Cal. Date<br>(mm-dd-yy) | Cal. Due date<br>(mm-dd-yy) |
| 1                   | Shielding Room    | ZhongShuo Electron | 11.0(L)x4.0(W)x3.0(H) | CCIS0061         | 11-10-2012              | 11-09-2015                  |
| 2                   | EMI Test Receiver | Rohde & Schwarz    | ESCI                  | CCIS0002         | 03-28-2015              | 03-28-2016                  |
| 3                   | LISN              | CHASE              | MN2050D               | CCIS0074         | 03-28-2015              | 03-28-2016                  |
| 4                   | Coaxial Cable     | CCIS               | N/A                   | CCIS0086         | 04-01-2015              | 03-31-2016                  |
| 5                   | EMI Test Software | AUDIX              | E3                    | N/A              | N/A                     | N/A                         |





### 6 Test results and Measurement Data

# **6.1 Antenna requirement:**

#### **Standard requirement:** FCC Part 15 C Section 15.203 /247(c)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

#### E.U.T Antenna:

The WiFi antenna is an internal antenna which cannot replace by end-user, the best case gain of the antenna is 2.0 dBi.



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# 6.2 Conducted Emission

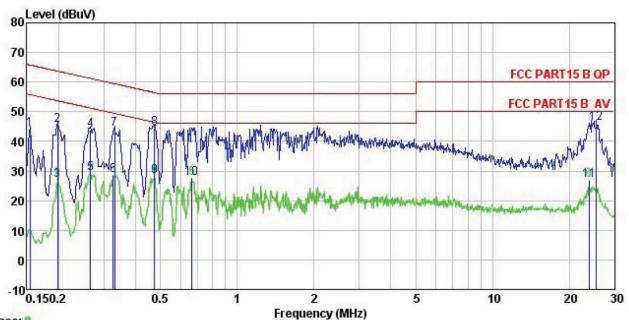
|                       | ••  |            |           |  |  |
|-----------------------|---|------------|-----------|--|--|
| Test Requirement:     | FCC Part 15 C Section 15.207  |            |           |  |  |
| Test Method:          | ANSI C63.4: 2009  |            |           |  |  |
| Test Frequency Range: | 150 kHz to 30 MHz   |            |           |  |  |
| Class / Severity:     | Class B   |            |           |  |  |
| Receiver setup:       | RBW=9 kHz, VBW=30 kHz   |            |           |  |  |
| Limit:                | Fraguera (MIII-)  | Limit (c   | dBuV)     |  |  |
|                       | Frequency range (MHz)   | Quasi-peak | Average   |  |  |
|                       | 0.15-0.5  | 66 to 56*  | 56 to 46* |  |  |
|                       | 0.5-5   | 56         | 46        |  |  |
|                       | 5-30  | 60         | 50        |  |  |
| Test procedure        | <ul><li>* Decreases with the logarithm</li><li>1. The E.U.T and simulators</li></ul>  |            |           |  |  |
|                       | <ul> <li>a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment.</li> <li>The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.</li> </ul> |            |           |  |  |
| Test setup:           | Reference Plane   |            |           |  |  |
|                       | AUX Equipment E.U.T EMI Receiver  |            |           |  |  |
|                       | Remark:<br>E.U.T: Equipment Under Test<br>LISN: Line Impedence Stabilizatio<br>Test table height=0.8m   | nn Network |           |  |  |
| Test Instruments:     | Refer to section 5.6 for details  | ·          |           |  |  |
| Test mode:            | Refer to section 5.3 for details  | 1          |           |  |  |
| Test results:         | Passed  |            |           |  |  |

#### **Measurement Data**





#### Neutral:



Trace: 9

: CCIS Shielding Room : FCC PART15 B QP LISN NEUTRAL : INTEL Tablet PC Site Condition

EUT

: W10 Model

Test Mode : WIFI mode
Power Rating : AC 120/60Hz
Environment : Temp: 23 °C Huni:56% Atmos:101KPa

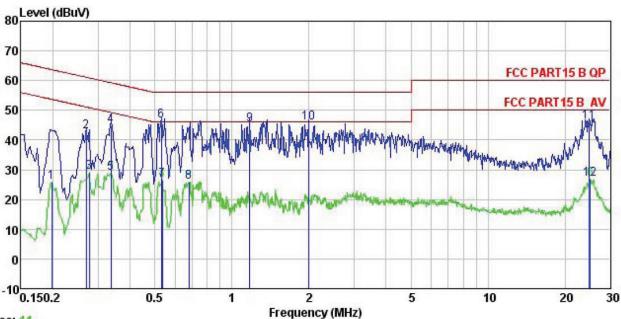
Test Engineer: Viki

| (emark                                    |        |               |                |               |       |               |               |         |
|---|--------|---------------|----------------|---------------|-------|---------------|---------------|---------|
|   | Freq   | Read<br>Level | LISN<br>Factor | Cable<br>Loss |       | Limit<br>Line | Over<br>Limit | Remark  |
|   | MHz    | <u>d</u> Bu∇  | <u>d</u> B     |               | dBu√  | <u>dB</u> u∇  | ā <u>ā</u>    |         |
| 1   | 0.154  | 33.25         | 0.25           | 10.78         | 44.28 | 65.78         | -21.50        | QP      |
| 2   | 0.198  | 34.36         | 0.25           | 10.76         | 45.37 | 63.71         | -18.34        | QP      |
| 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 | 0.198  | 15.86         | 0.25           | 10.76         | 26.87 | 53.71         | -26.84        | Average |
| 4   | 0.266  | 32.73         | 0.26           | 10.75         | 43.74 | 61.25         | -17.51        | QP      |
| 5   | 0.266  | 18.23         | 0.26           | 10.75         | 29.24 | 51.25         | -22.01        | Average |
| 6   | 0.327  | 17.64         | 0.26           | 10.73         | 28.63 | 49.53         | -20.90        | Average |
| 7   | 0.330  | 33.10         | 0.26           | 10.73         | 44.09 | 59.44         | -15.35        | QP      |
| 8   | 0.474  | 33.40         | 0.28           | 10.75         | 44.43 | 56.45         | -12.02        | QP      |
| 9   | 0.474  | 17.20         | 0.28           | 10.75         | 28.23 | 46.45         | -18.22        | Average |
| 10  | 0.665  | 16.46         | 0.20           | 10.77         | 27.43 | 46.00         | -18.57        | Average |
| 11  | 23.888 | 15.41         | 0.47           | 10.88         | 26.76 | 50.00         | -23.24        | Average |
| 12  | 25.591 | 34.70         | 0.57           | 10.87         | 46.14 | 60.00         | -13.86        | QP      |





#### Line:



Trace: 11

Site

: CCIS Shielding Room : FCC PART15 B QP LISN LINE : INTEL Tablet PC Condition

EUT

: W10 Model

Test Mode : WIFI mode Power Rating : AC 120/60Hz

Environment : Temp: 23 °C Huni: 56% Atmos: 101KPa

Test Engineer: Viki

Remark

| emark       |        |       |        |       |       |       |           |         |  |
|-------------|--------|-------|--------|-------|-------|-------|-----------|---------|--|
|             |        | Read  | LISN   | Cable |       | Limit | Over      |         |  |
|             | Freq   | Level | Factor | Loss  | Level | Line  | Limit     | Remark  |  |
|             | MHz    | dBu∀  | dB     | ₫B    | dBu₹  | dBu∀  | <u>db</u> |         |  |
| 1           | 0.198  | 14.71 | 0.28   | 10.76 | 25.75 | 53.71 | -27.96    | Average |  |
| 2           | 0.270  | 31.82 | 0.27   | 10.75 | 42.84 | 61.12 | -18.28    | QP      |  |
| 3           | 0.277  | 18.22 | 0.26   | 10.74 | 29.22 | 50.90 | -21.68    | Average |  |
| 4           | 0.337  | 33.68 | 0.27   | 10.73 | 44.68 | 59.27 | -14.59    | QP      |  |
| 5<br>6<br>7 | 0.337  | 17.95 | 0.27   | 10.73 | 28.95 | 49.27 | -20.32    | Average |  |
| 6           | 0.529  | 35.31 | 0.28   | 10.76 | 46.35 |       | -9.65     |         |  |
| 7           | 0.535  | 15.60 | 0.28   | 10.76 | 26.64 | 46.00 | -19.36    | Average |  |
| 8           | 0.679  | 14.87 | 0.23   | 10.77 | 25.87 | 46.00 | -20.13    | Average |  |
| 9           | 1.172  | 33.83 | 0.25   | 10.89 | 44.97 | 56.00 | -11.03    | QP      |  |
| 10          | 1.991  | 34.70 | 0.26   | 10.96 | 45.92 | 56.00 | -10.08    | QP      |  |
| 11          | 24.790 | 34.83 | 0.51   | 10.87 | 46.21 | 60.00 | -13.79    | QP      |  |
| 12          | 25.055 | 15.32 | 0.52   | 10.87 | 26.71 | 50.00 | -23.29    | Average |  |

#### Notes:

1 1

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss



# **6.3 Conducted Output Power**

| Test Requirement: | FCC Part 15 C Section 15.247 (b)(3)                                   |  |  |  |
|-------------------|---|--|--|--|
| Test Method:      | ANSI C63.10:2009 and KDB558074v03r03 section 9.2.2                    |  |  |  |
| Limit:            | 30dBm   |  |  |  |
| Test setup:       | Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane |  |  |  |
| Test Instruments: | Refer to section 5.6 for details                                      |  |  |  |
| Test mode:        | Refer to section 5.3 for details                                      |  |  |  |
| Test results:     | Passed  |  |  |  |

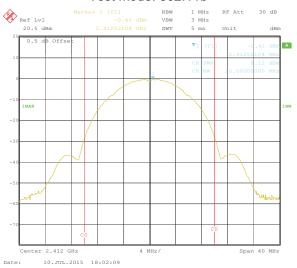
#### Measurement Data

| Test CH  | Ма      | ximum Conduct | Limit(dBm)   | Result       |                |         |
|----------|---------|---------------|--------------|--------------|----------------|---------|
| 1031 011 | 802.11b | 802.11g       | 802.11n(H20) | 802.11n(H40) | Elittik(dBitt) | rtesuit |
| Lowest   | 8.12    | 5.41          | 5.80         | 7.18         |                |         |
| Middle   | 8.41    | 6.09          | 6.02         | 7.84         | 30.00          | Pass    |
| Highest  | 8.41    | 5.74          | 6.20         | 7.97         |                |         |

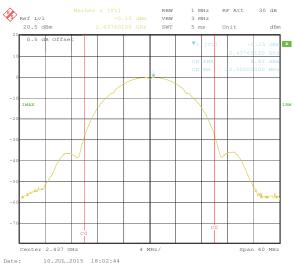
Test plot as follows:



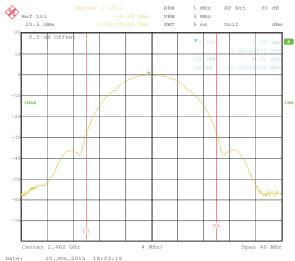
#### Test mode: 802.11b



#### Lowest channel

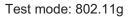


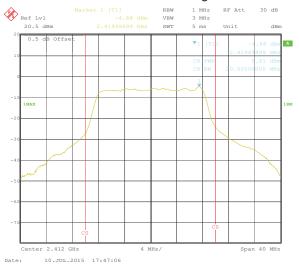
#### Middle channel



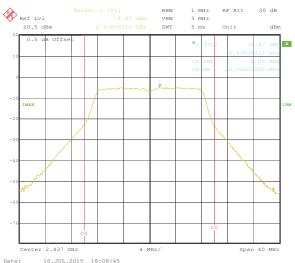
Highest channel



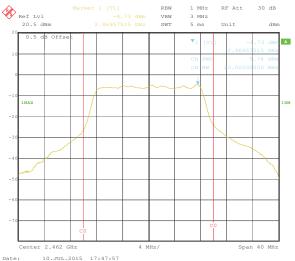




#### Lowest channel



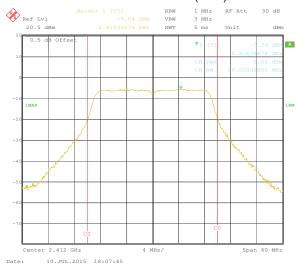
#### Middle channel



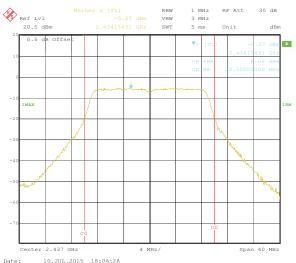
Highest channel



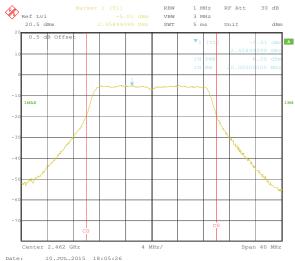
#### Test mode: 802.11n(H20)



#### Lowest channel



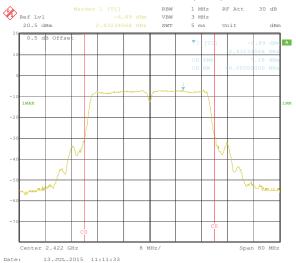
#### Middle channel



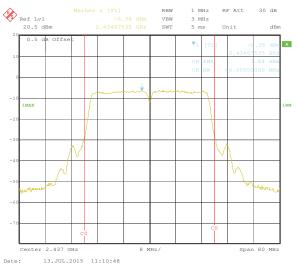
Highest channel



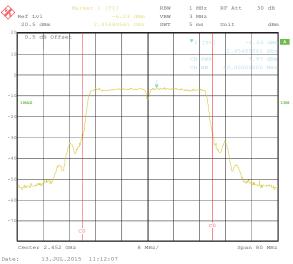
#### Test mode: 802.11n(H40)



### Lowest channel



#### Middle channel



Highest channel





# 6.4 Occupy Bandwidth

| Test Requirement: | FCC Part 15 C Section 15.247 (a)(2)                                   |  |  |
|-------------------|---|--|--|
| Test Method:      | ANSI C63.10:2009 and KDB558074v03r03 section 8.1                      |  |  |
| Limit:            | >500kHz   |  |  |
| Test setup:       | Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane |  |  |
| Test Instruments: | Refer to section 5.6 for details                                      |  |  |
| Test mode:        | Refer to section 5.3 for details                                      |  |  |
| Test results:     | Passed  |  |  |

#### Measurement Data

| _       | Dadar official Be |         |              |              |              |            |        |
|---------|-------------------|---------|--------------|--------------|--------------|------------|--------|
|         | <b>T</b> . 011    |         | 6dB Emission |              |              |            |        |
| Test CH |                   | 802.11b | 802.11g      | 802.11n(H20) | 802.11n(H40) | Limit(kHz) | Result |
|         | Lowest            | 10.19   | 16.73        | 17.95        | 36.58        |            |        |
|         | Middle            | 10.19   | 16.73        | 17.95        | 36.64        | >500       | Pass   |
|         | Highest           | 10.19   | 16.73        | 17.95        | 36.57        |            |        |

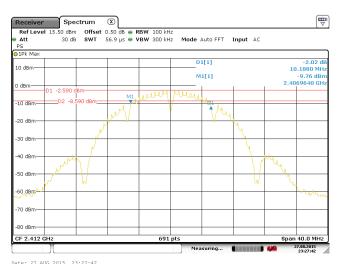
| T       |         | 99% Occupy |              | 5 "          |            |        |
|---------|---------|------------|--------------|--------------|------------|--------|
| Test CH | 802.11b | 802.11g    | 802.11n(H20) | 802.11n(H40) | Limit(kHz) | Result |
| Lowest  | 15.05   | 16.50      | 17.77        | 36.12        |            |        |
| Middle  | 15.05   | 16.50      | 17.71        | 36.12        | N/A        | N/A    |
| Highest | 15.05   | 16.50      | 17.71        | 36.12        |            |        |

Test plot as follows:

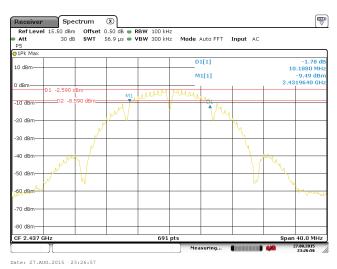


#### 6dB EBW

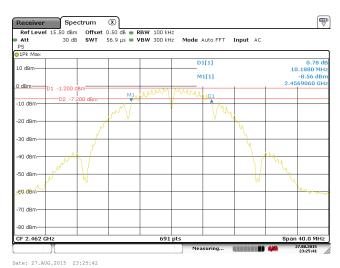
Test mode: 802.11b



#### Lowest channel



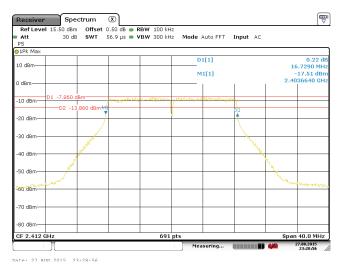
#### Middle channel



Highest channel

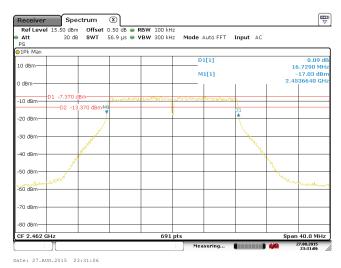


#### Test mode: 802.11g



#### Lowest channel

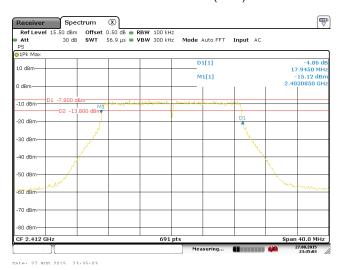




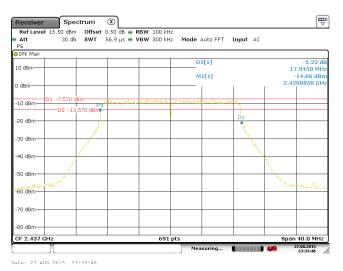
Highest channel

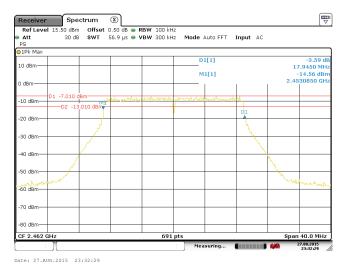


Test mode: 802.11n(H20)



#### Lowest channel

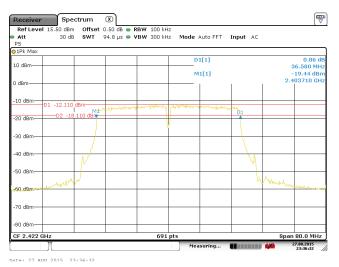




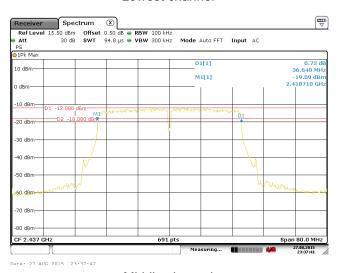
Highest channel

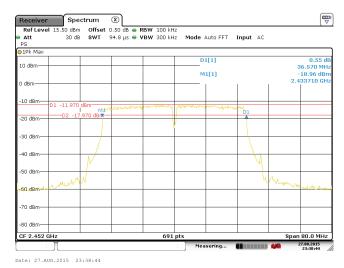


Test mode: 802.11n(H40)



#### Lowest channel



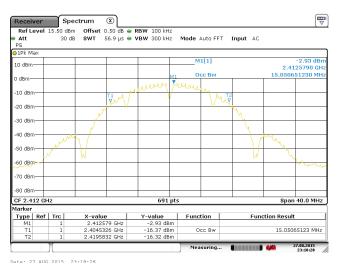


Highest channel

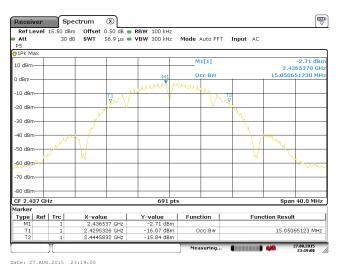


#### 99% **OBW**

Test mode: 802.11b



Lowest channel



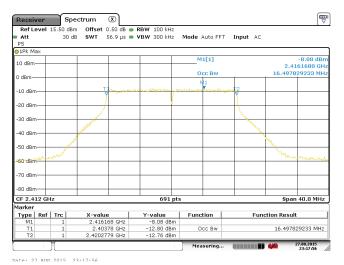
#### Middle channel



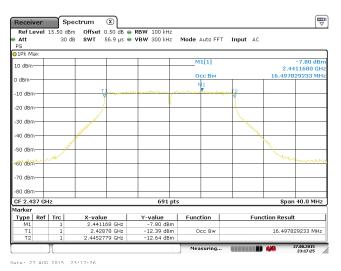
Highest channel



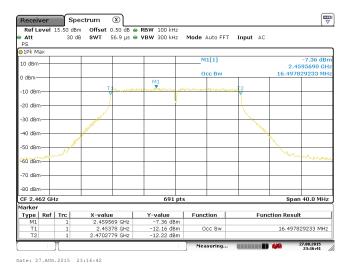
#### Test mode: 802.11g



#### Lowest channel



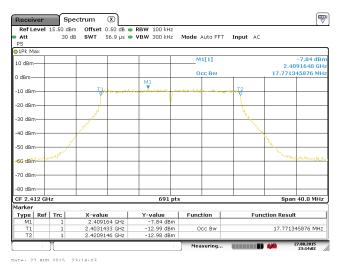
### Middle channel



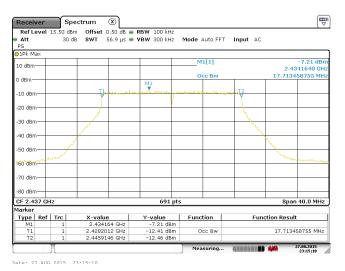
Highest channel



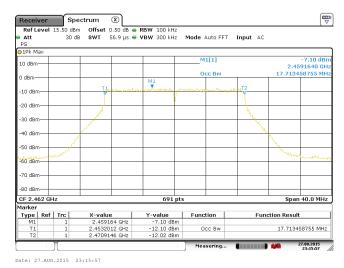
#### Test mode: 802.11n(H20)



#### Lowest channel



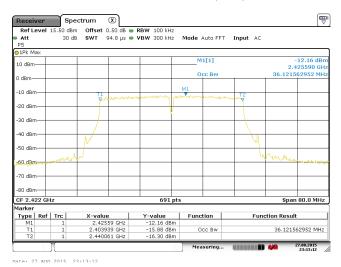
### Middle channel



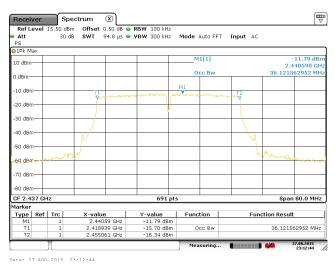
Highest channel

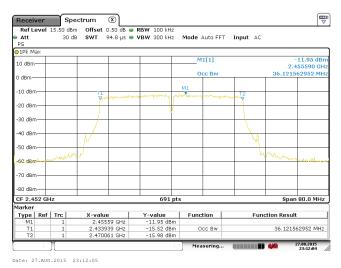


#### Test mode: 802.11n(H40)



#### Lowest channel





Highest channel



# 6.5 Power Spectral Density

| Test Requirement: | FCC Part 15 C Section 15.247 (e)                                      |  |  |
|-------------------|---|--|--|
| Test Method:      | ANSI C63.10:2009 and KDB558074v03r03 section 10.2                     |  |  |
| Limit:            | 8dBm  |  |  |
| Test setup:       | Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane |  |  |
| Test Instruments: | Refer to section 5.6 for details                                      |  |  |
| Test mode:        | Refer to section 5.3 for details                                      |  |  |
| Test results:     | Passed  |  |  |

#### Measurement Data

| T ( 0)  |         | Power Spec | 1: "//15 )   | Б            |            |        |
|---------|---------|------------|--------------|--------------|------------|--------|
| Test CH | 802.11b | 802.11g    | 802.11n(H20) | 802.11n(H40) | Limit(dBm) | Result |
| Lowest  | -2.65   | -8.01      | -7.54        | -11.92       |            |        |
| Middle  | -2.28   | -7.73      | -7.22        | -11.88       | 8.00       | Pass   |
| Highest | -2.34   | -7.24      | -7.29        | -11.54       |            |        |

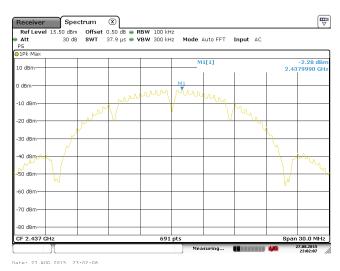
Test plot as follows:



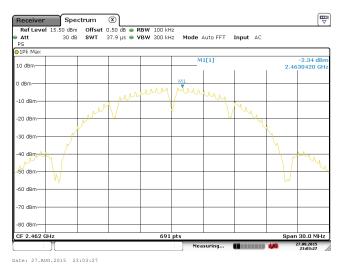
#### Test mode: 802.11b



#### Lowest channel



#### Middle channel



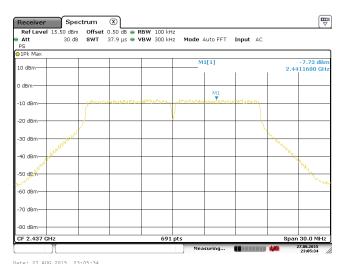
Highest channel







#### Lowest channel



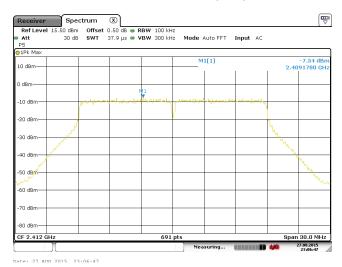
#### Middle channel



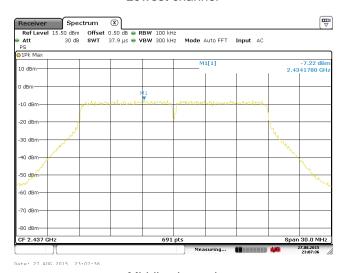
Highest channel



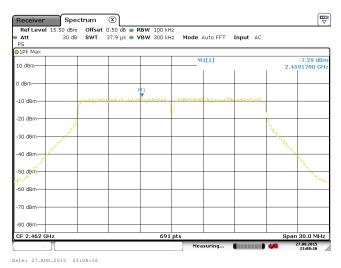
#### Test mode: 802.11n(H20)



#### Lowest channel



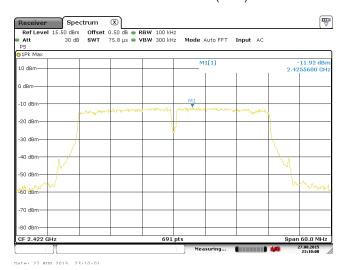
#### Middle channel



Highest channel



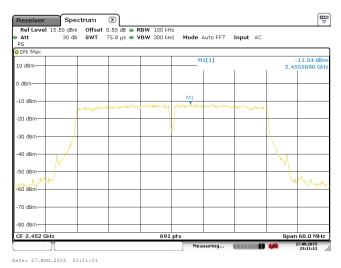
#### Test mode: 802.11n(H40)



#### Lowest channel



#### Middle channel



Highest channel





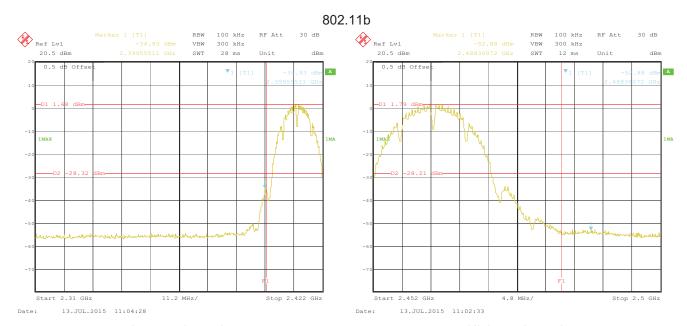
# 6.6 Band Edge

### 6.6.1 Conducted Emission Method

| Test Requirement: | FCC Part 15 C Section 15.247 (d)  |  |  |
|-------------------|---|--|--|
| Test Method:      | ANSI C63.10:2009 and KDB558074v03r03 section 13   |  |  |
| Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. |  |  |
| Test setup:       | Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane   |  |  |
| Test Instruments: | Refer to section 5.6 for details  |  |  |
| Test mode:        | Refer to section 5.3 for details  |  |  |
| Test results:     | Passed  |  |  |

Test plot as follows:





Lowest channel

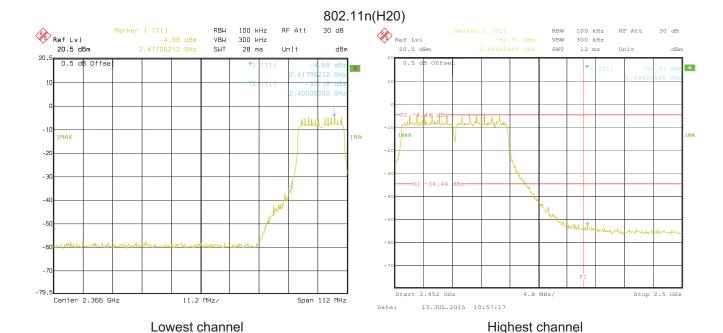
Highest channel



Lowest channel

Highest channel





802.11n(H40) 100 kHz 30 dB 100 kHz Ref Lvl Ref Lvl VBW 300 kHz VBW 300 kHz 33 ms 2.48828056 GHz 17 ms 0.5 dB Offse 0.5 dB Offse -D1 -5 1MAX 35.25 -79.5 -79.5 Start 2.31 GHz 13.2 MHz/ Stop 2.442 GHz Start 2,432 GHz 6.8 MHz/ Stop 2.5 GHz 02.SEP.2015 23:14:12 02.SEP.2015 15:38:36

Lowest channel

Project No.: CCIS150600519RF

Highest channel