# FCC TEST REPORT

**Test report**
**On Behalf of**
**Shenzhen Zidoo Technology Co.,Ltd**
**For**
**SMART TV BOX**
**Model No.: X9, X9 Ⅱ**

**FCC ID: 2AGN7-X9**

| | |
|---|---|
| **Prepared for :** | **Shenzhen Zidoo Technology Co.,Ltd**<br>**Central Avenue building A m, Unit 12D Xixiang Ave,BaoAn District,Shenzhen.** |
| **Prepared By :** | **WST Certification & Testing (HK) Limited**<br>**12/F., San Toi Building,137-139 Connaught Road Central,HongKong** |
| **Date of Test:** | **Mar. 13, 2016 ~ Mar. 22, 2016** |
| **Date of Report:** | **Mar. 22, 2016** |
| **Report Number:** | **WST160303017-E** |

# TEST RESULT CERTIFICATION

**Applicant's name** ..... Shenzhen Zidoo Technology Co.,Ltd

Address ..... Central Avenue building A m, Unit 12D Xixiang Ave,BaoAn District,Shenzhen.

**Manufacture's Name**..... Shenzhen Zidoo Technology Co.,Ltd

Address ..... Central Avenue building A m, Unit 12D Xixiang Ave,BaoAn District,Shenzhen.

**Product description**

Trade Mark: ZIDOO

Product name..... SMART TV BOX

Model and/ or type reference ..... X9, X9 Ⅱ

**Standards** ..... FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.10: 2013

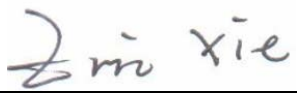


**Date of Test**.....

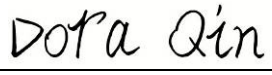
Date (s) of performance of tests..... **Mar. 13, 2016 ~ Mar. 22, 2016**

Date of Issue..... **Mar. 22, 2016**

Test Result..... **Pass**

Testing Engineer : 

(Eric Xie)

Technical Manager : 

(Dora Qin)

Authorized Signatory : 

(Kait Chen)

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## 1. TEST SUMMARY

| FCC Rules | Description of Test | Result |
|---|---|---|
| Section 15.247(a)(2) | 6dB Bandwidth Test | Compliant |
| Section 15.247(e) | Power Spectral Density Test | Compliant |
| Section 15.247(b)(3) | Maximum Peak Output Power Test | Compliant |
| Section 15.247(d) | Band Edge Compliance Tes | Compliant |
| Section 15.247(d)<br>Section 15.209) | Radiated Spurious Emission Test | Compliant |
| Section 15.247(d) | Conducted Spurious Emission Test | Compliant |
| Section 15.207 | AC Power Line Conducted Emission Test | Compliant |
| Section 15.203 | Antenna Requirement | Compliant |

## 1.1 TEST FACILITY


| | | |
|---|---|---|
| Test Firm | : | Shenzhen WST Testing Technology Co., Ltd.<br>Certificated by FCC, Registration No.: 939433 |
| Address | : | 1F,No.9 Building,TGK Science & Technology Park,Yangtian Rd.,<br>NO.72 Bao'an Dist., Shenzhen,Guangdong,China. 518101 |
| Tel | : | (86)755-33916437 |
| Fax | : | (86)755-27822175 |


## 1.2 MEASUREMENT UNCERTAINTY

Measurement Uncertainty

| | | |
|---|---|---|
| Conducted Emission Expanded Uncertainty | = | 2.23dB, k=2 |
| Radiated emission expanded uncertainty(9kHz-30MHz) | = | 3.08dB, k=2 |
| Radiated emission expanded uncertainty(30MHz-1000MHz) | = | 4.42dB, k=2 |
| Radiated emission expanded uncertainty(Above 1GHz) | = | 4.06dB, k=2 |

## 2. GENERAL INFORMATION

2.1 General description of EUT

| | |
|---|---|
| Equipment | SMART TV BOX |
| Model Name | X9, X9 Ⅱ |
| Serial No | N/A |
| FCC ID | 2AGN7-X9 |
| Model Difference | All model's the function, software and electric circuit are the same, only with a product color and model named different.Test sample model: X9 |
| Modulation Type | WIFI:DBPSK,DQPSK,CCK,BPSK, |
| Antenna Type | External antenna |
| WLA□ Operation frequency | 802.11b: 2412-2462MHz<br>802.11g: 2412-2462MHz<br>802.11n HT20: 2412-2462MHz<br>802.11n HT40: 2422-2452MHz |
| Number of Channels | 802.11b/g/n (HT20):11<br>802.11n (HT40): 7 |
| Data Rate | 802.11b: 11, 5.5, 2, 1 Mbps<br>802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps<br>802.11n: up to 150Mbps |
| Modulation Type | CCK, OFDM |
| Power Source | DC Voltage |
| Power Rating | DC 12V from adapter Input: AC 100-240V ,1.5A, 50/60Hz,<br>Output: DC12V ,2A |
| Adapter Model | CS-1202000 |

2.2 Carrier frequency of channels

| Channel List for 802.11b/g/n(20 MHz) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 01 | 2412 | 04 | 2427 | 07 | 2442 | 10 | 2457 |
| 02 | 2417 | 05 | 2432 | 08 | 2447 | 11 | 2462 |
| 03 | 2422 | 06 | 2437 | 09 | 2452 | | |

| Channel List for 802.11n(40MHz) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 03 | 2422 | 06 | 2437 | 09 | 2452 | | |
| 04 | 2427 | 07 | 2442 | | | | |
| 05 | 2432 | 08 | 2447 | | | | |

2.3 Operation of EUT during testing

Operating Mode

The mode is used: **802.11b Transmitting mode**

Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

**802.11g Transmitting mode**

Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

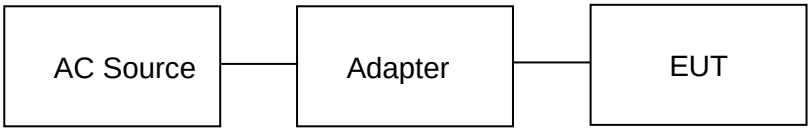
**802.11n (HT20) Transmitting mode**

Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

**802.11n (HT40) Transmitting mode**

Low Channel: 2422MHz
Middle Channel: 2437MHz
High Channel: 2452MHz

## 2.4 Description of test setup



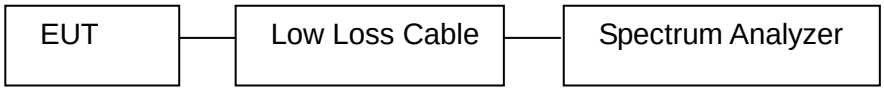
## 2.5 Measurement instruments list

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | EMI Receiver | Rohde & Schwarz | ESCI | 100627 | May 19, 2015 | 1 Year |
| 2. | LISN | SchwarzBeck | NSLK 8126 | 8126377 | May 19, 2015 | 1 Year |
| 3. | RF Switching Unit | Compliance Direction | RSU-M2 | 38303 | May 19, 2015 | 1 Year |
| 4. | EMI Test Software ES-K1 | Rohde & Schwarz | N/A | N/A | N/A | N/A |
| 5. | EMI Test Receiver | Rohde & Schwarz | ESCI | 100627 | May 19, 2015 | 1 Year |
| 6. | Trilog Broadband Antenna | Schwarzbeck | VULB9163 | VULB 9163-289 | May 17, 2015 | 1 Year |
| 7. | Pre-amplifier | Compliance Direction | PAP-0203 | 22008 | May 19, 2015 | 1 Year |
| 8. | EMI Test Software EZ-EMC | SHURPLE | N/A | N/A | N/A | N/A |
| 9. | EMI Receiver | Rohde & Schwarz | ESCI | 100627 | May 19, 2015 | 1 Year |
| 10. | LISN | SchwarzBeck | NSLK 8126 | 8126377 | May 19, 2015 | 1 Year |
| 11. | RF Switching Unit | Compliance Direction | RSU-M2 | 38303 | May 19, 2015 | 1 Year |
| 12. | EMI Test Software ES-K1 | Rohde & Schwarz | N/A | N/A | N/A | N/A |
| 13. | EMI Receiver | Rohde & Schwarz | ESCI | 100627 | May 19, 2015 | 1 Year |
| 14. | EMI Receiver | Rohde & Schwarz | ESCI | 100627 | May 19, 2015 | 1 Year |
| 15. | LISN | SchwarzBeck | NSLK 8126 | 8126377 | May 19, 2015 | 1 Year |
| 16. | RF Switching Unit | Compliance Direction | RSU-M2 | 38303 | May 19, 2015 | 1 Year |
| 17. | EMI Test Software ES-K1 | Rohde & Schwarz | N/A | N/A | N/A | N/A |
| 18. | Programmable AC Power source | SOPH POWER | PAG-1050 | 630250 | May 26, 2015 | 1 Year |
| 19. | Harmonic and Flicker Analyzer | LAPLACE | AC2000A | 272629 | May 26, 2015 | 1 Year |
| 20. | Harmonic and Flicker Test Software AC 2000A | LAPLACE | N/A | N/A | N/A | N/A |
| 21. | ESD Simulators | KIKUSUI | KES4021 | LJ003477 | May 25, 2015 | 1 Year |
| 22. | EFT Generator | EMPEK | EFT-4040B | 0430928N | May 19, 2015 | 1 Year |
| 23. | Shielding Room | ChangZhou ZhongYu | JB88 | SEL0166 | May 19, 2015 | 1 Year |
| 24. | Signal Generator 9KHz~2.2GHz | R&S | SML02 | SEL0143 | May 19, 2015 | 1 Year |
| 25. | Signal Generator 9KHz~1.1GHz | R&S | SML01 | SEL0135 | May 19, 2015 | 1 Year |
| 26. | Power Meter | R&S | NRVS | SEL0144 | May 19, 2015 | 1 Year |
| 27. | RF Level Meter | | URV35 | SEL0137 | May 19, 2015 | 1 Year |
| 28. | Audio Analyzer | R&S | UPL | SEL0136 | May 19, 2015 | 1 Year |

| | | | | | | |
|---|---|---|---|---|---|---|
| 29. | RF-Amplifier 150KHz~150MHz | BONN Elektronik | BSA1515-25 | SEL0157 | May 19, 2015 | 1 Year |
| 30. | Stripline Test Cell | Erika Fiedler | VDE0872 | SEL0167 | N/A | N/A |
| 31. | TV Test Transmitter | R&S | SFM | SEL0159 | May 17, 2015 | 1 Year |
| 32. | TV Generator PAL | R&S | SGPF | SEL0138 | May 19, 2015 | 1 Year |
| 33. | TV Generator Ntsc | R&S | SGMF | SEL0140 | May 19, 2015 | 1 Year |
| 34. | TV Generator Secam | R&S | SGSF | SEL0139 | May 19, 2015 | 1 Year |
| 35. | TV Test Transmitter 0.3MHz~3300MHz | R&S | SFQ | SEL0142 | May 19, 2015 | 1 Year |
| 36. | MPEG2 Measurement Generator | R&S | DVG | SEL0141 | May 19, 2015 | 1 Year |
| 37. | Spectrum Analyzer | R&S | FSP | SEL0177 | May 19, 2015 | 1 Year |
| 38. | Matching | R&S | RAM | SEL0146 | N/A | N/A |
| 39. | Matching | R&S | RAM | SEL0148 | N/A | N/A |
| 40. | Absorbing Clamp | R&S | MDS21 | SEL0158 | May 17, 2015 | 1 Year |
| 41. | Coupling Set | Erika Fiedler | Rco, Rci, MC, AC, LC | SEL0149 | N/A | N/A |
| 42. | Filters | Erika Fiedler | Sr, LBS | SEL0150 | N/A | N/A |
| 43. | Matching Network | Erika Fiedler | MN, X9 | SEL0151 | N/A | N/A |
| 44. | Fully Anechoic Room | ChangZhou ZhongYu | 854 | SEL0169 | Jun. 10, 2015 | 1 Year |
| 45. | Signal Generator | R&S | SML03 | SEL0068 | May 17, 2015 | 1 Year |
| 46. | RF-Amplifier 30M~1GHz | Amplifier Reasearch | 250W1000A | SEL0066 | Oct. 24, 2015 | 1 Year |
| 47. | RF-Amplifier 0.8~3.0GHz | Amplifier Reasearch | 60S1G3 | SEL0065 | Oct. 24, 2015 | 1 Year |
| 48. | Power Meter | R&S | NRVD | SEL0069 | May 17, 2015 | 1 Year |
| 49. | Power Sensor | R&S | URV5-Z2 | SEL0071 | May 17, 2015 | 1 Year |
| 50. | Power Sensor | R&S | URV5-Z2 | SEL0072 | May 17, 2015 | 1 Year |
| 51. | Software EMC32 | R&S | EMC32-S | SEL0082 | N/A | N/A |
| 52. | Log-periodic Antenna | Amplifier Reasearch | AX9080 | SEL0073 | N/A | N/A |
| 53. | Antenna Tripod | Amplifier Reasearch | TP1000A | SEL0074 | N/A | N/A |
| 54. | High Gain Horn Antenna(0.8-5GHz) | Amplifier Reasearch | AT4002A | SEL0075 | N/A | N/A |

## 3. 6DB BANDWIDTH MEASUREMENT

3.1 Block diagram of test setup




3.2 Limit

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz

3.3 Block diagram of test setup

3.3.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

3.3.2. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz

3.3.3. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

3.4 Test result

**Antenna port 1 is worst**

| 802.11b | | | |
|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **6DB Bandwidth(MHz)** | **Limit(MHz)** |
| Low | 2412 | 10.075 | >0.5MHz |
| Middle | 2437 | 10.019 | >0.5MHz |
| High | 2462 | 10.081 | >0.5MHz |

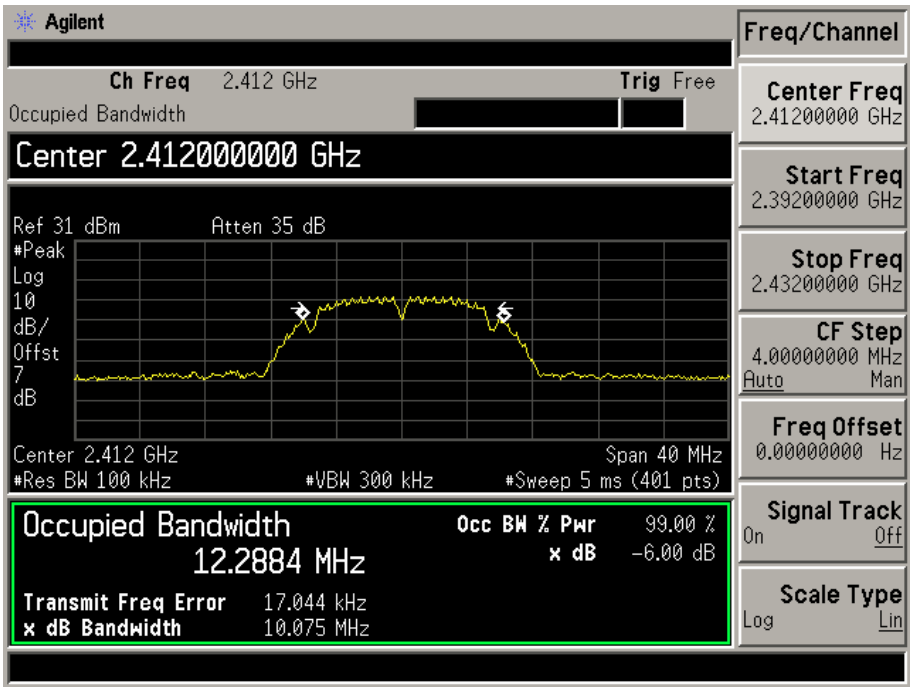
| 802.11g | | | |
|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **6DB Bandwidth(MHz)** | **Limit(MHz)** |
| Low | 2412 | 16.533 | >0.5MHz |
| Middle | 2437 | 16.446 | >0.5MHz |
| High | 2462 | 16.472 | >0.5MHz |

| 802.11n (HT20) | | | |
|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **6DB Bandwidth(MHz)** | **Limit(MHz)** |
| Low | 2412 | 17.670 | >0.5MHz |
| Middle | 2437 | 17.193 | >0.5MHz |
| High | 2462 | 17.415 | >0.5MHz |

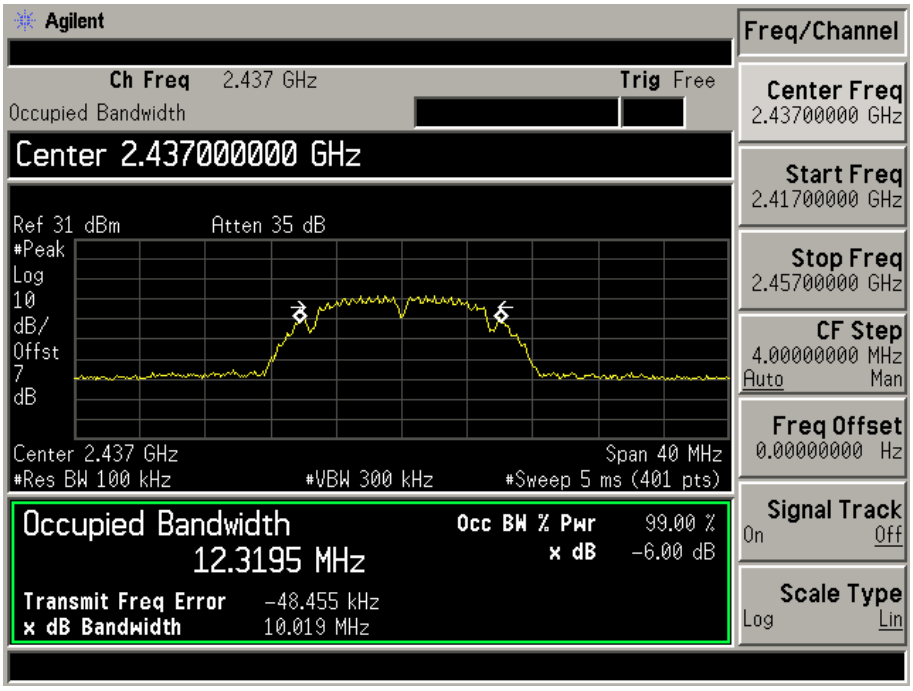
| 802.11n (HT40) | | | |
|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **6DB Bandwidth(MHz)** | **Limit(MHz)** |
| Low | 2422 | 36.667 | >0.5MHz |
| Middle | 2437 | 36.458 | >0.5MHz |
| High | 2452 | 36.523 | >0.5MHz |

The spectrum analyzer plots are attached as below.

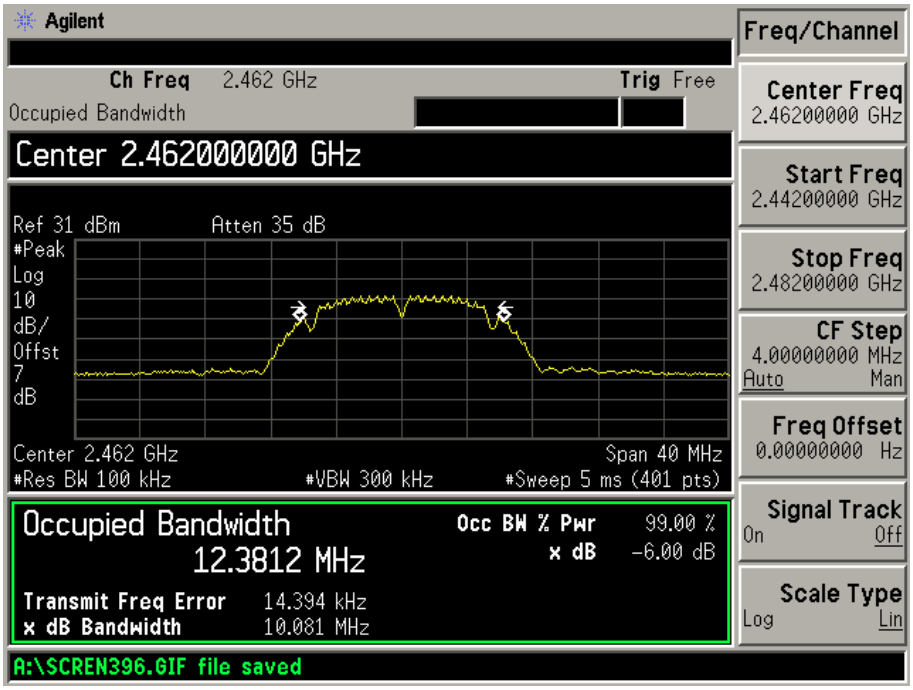
802.11b Channel Low 2412MHz



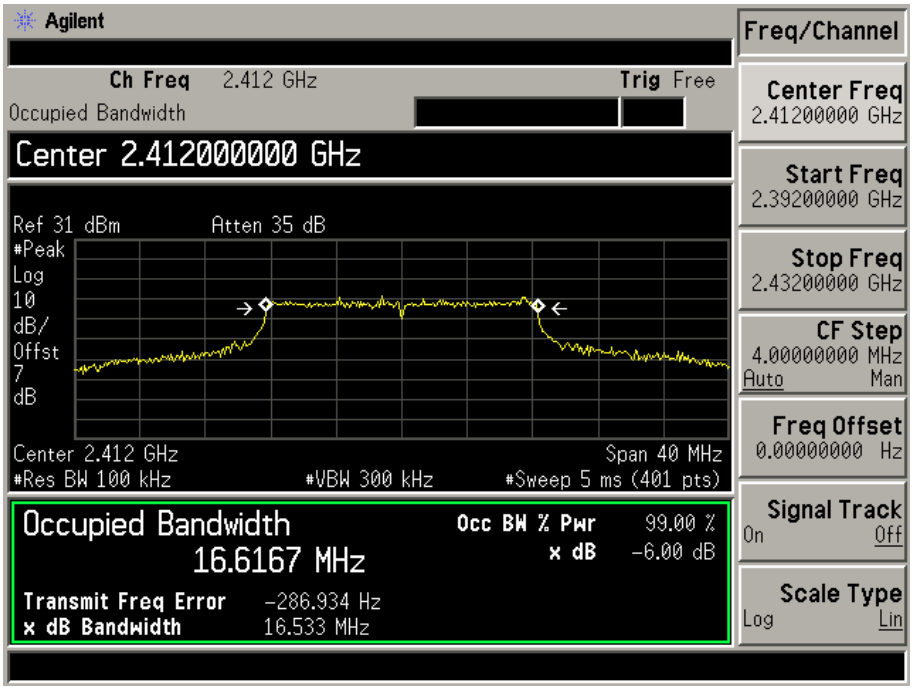
802.11b Channel Middle 2437MHz



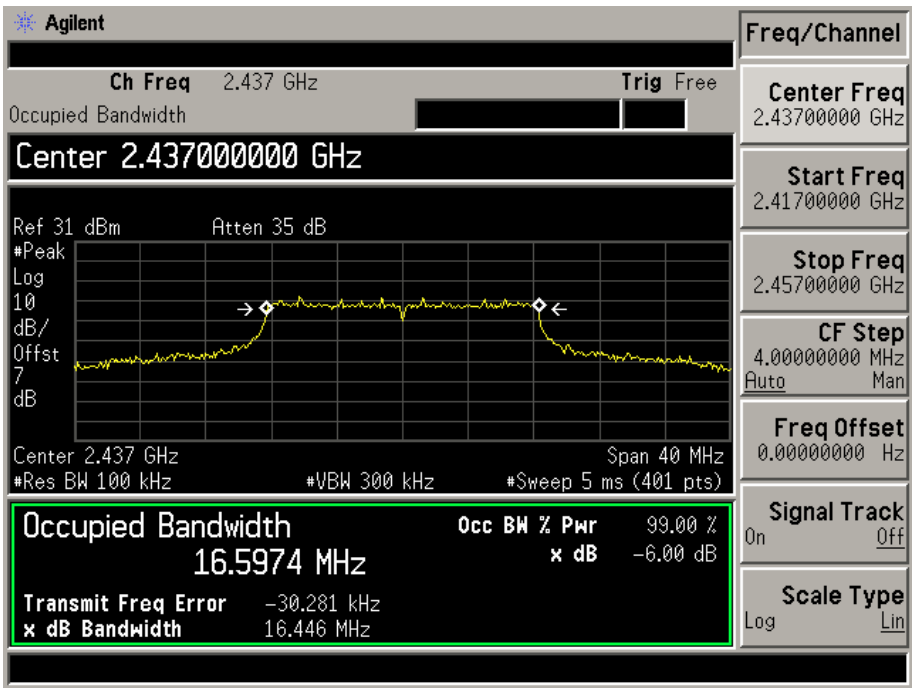

802.11b Channel High 2462MHz



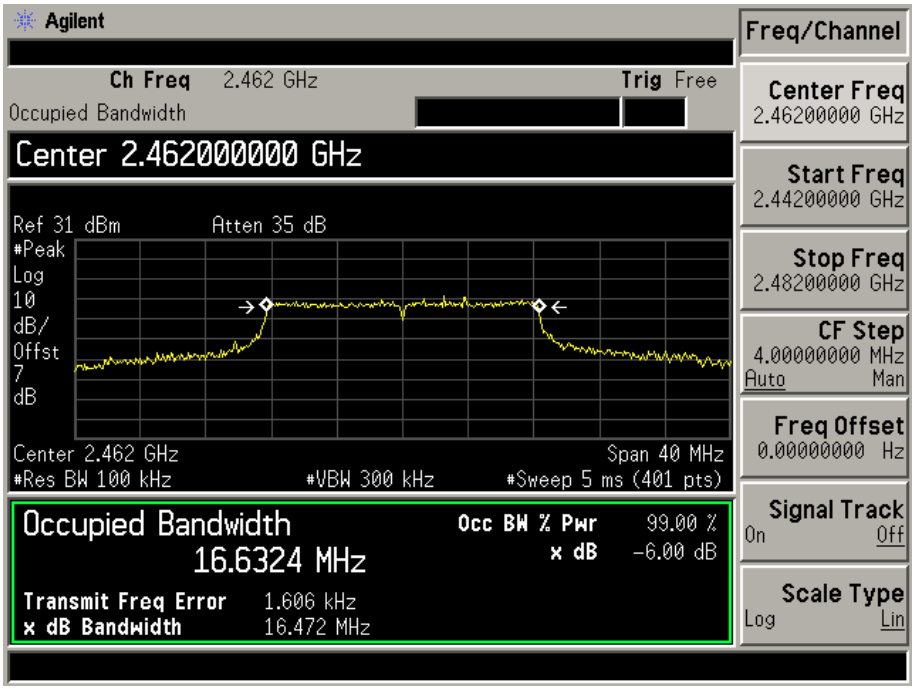
802.11g Channel Low 2412MHz



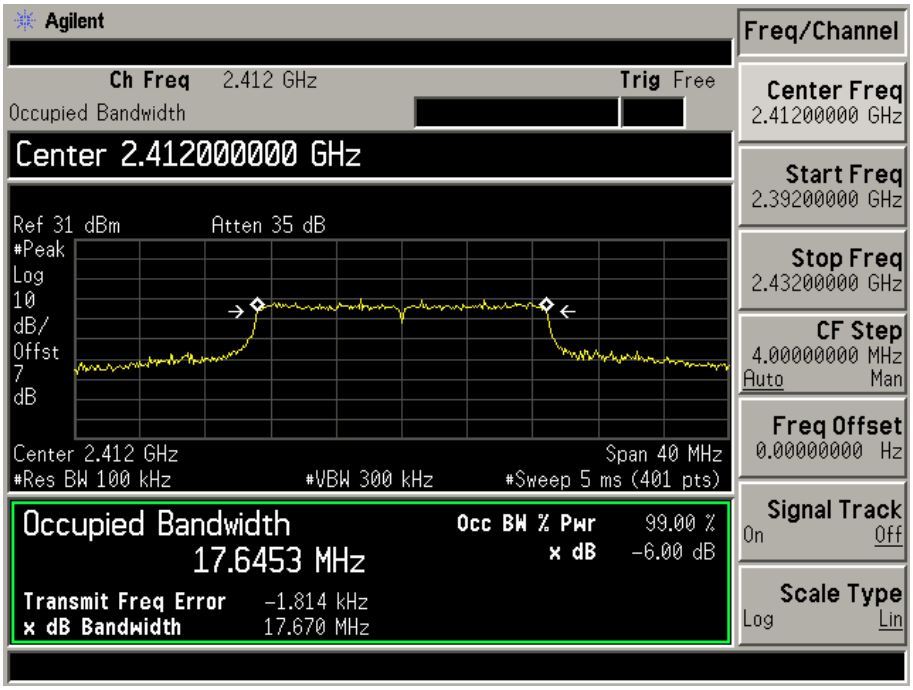

802.11g Channel Middle 2437MHz



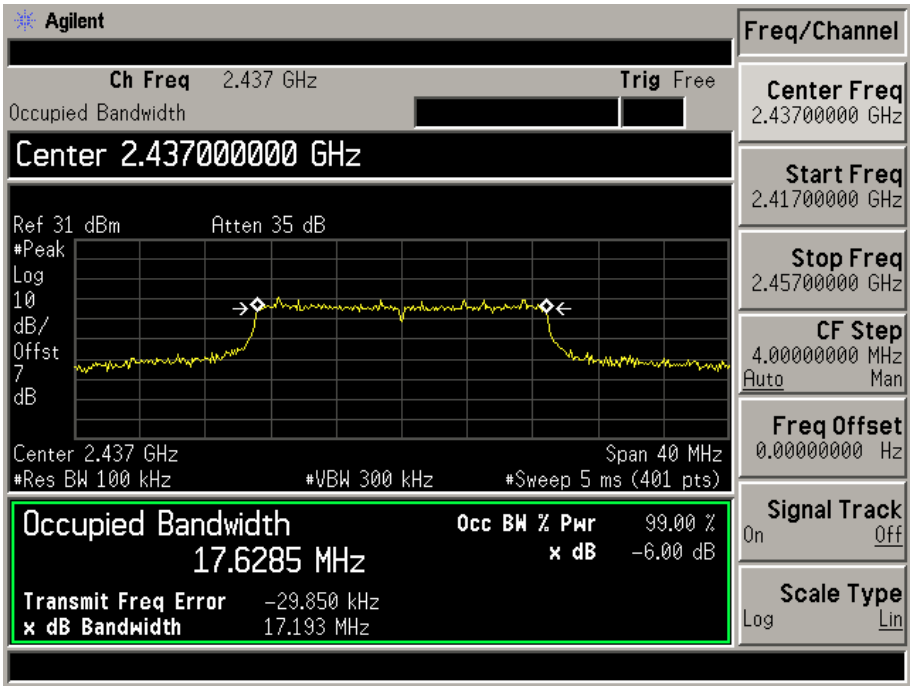
802.11g Channel High 2462MHz



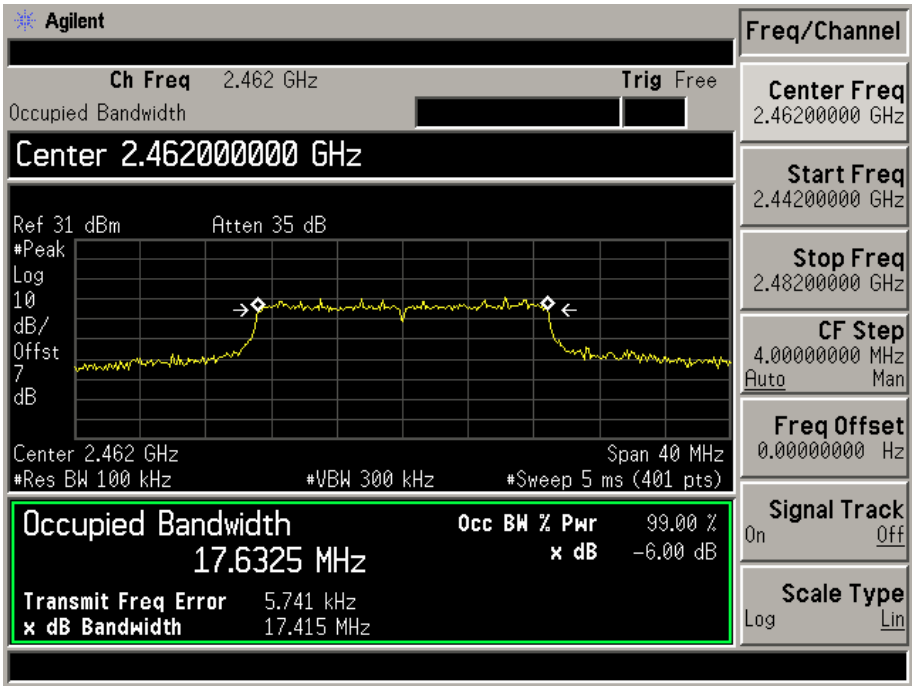

802.11n(HT20) Channel Low 2412MHz



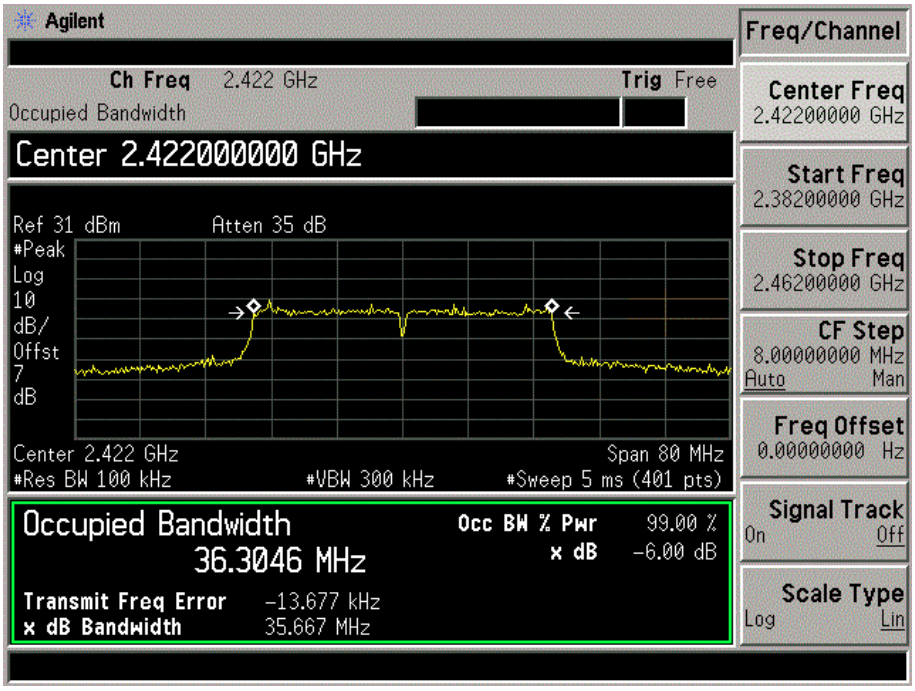
802.11n(HT20) Channel Middle 2437MHz



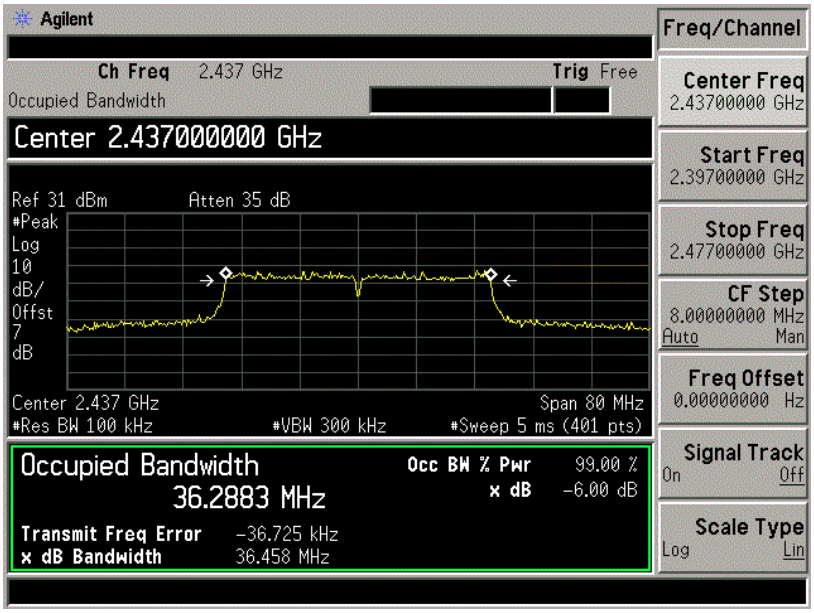

802.11n(HT20) Channel High 2462MHz



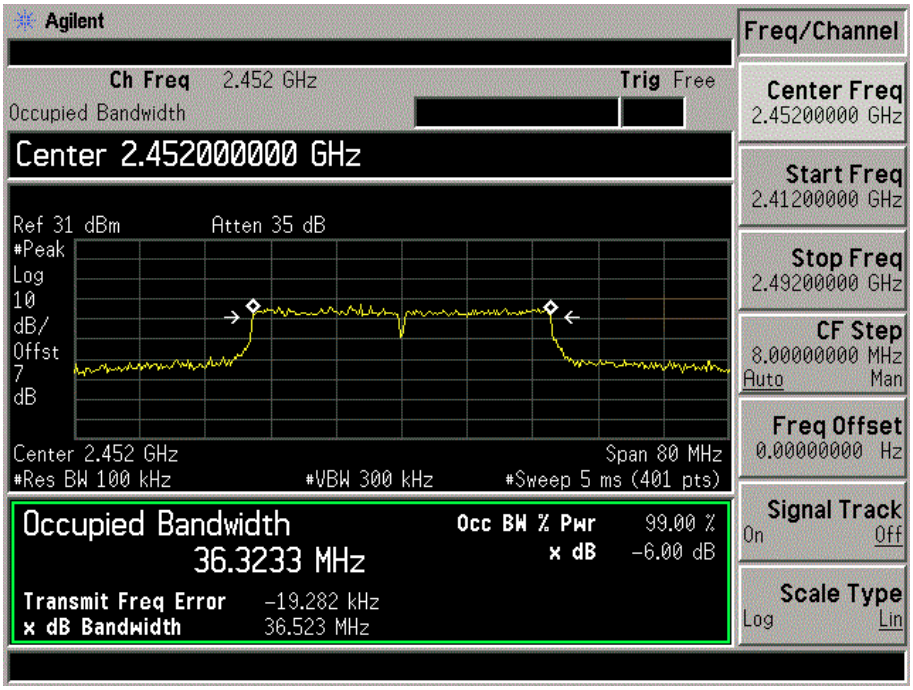
802.11n(HT40) Channel Low 2422MHz




802.11n(HT40) Channel Middle 2437MHz

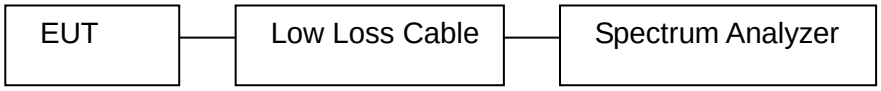


802.11n(HT40) Channel High 2452MHz



## 4. MAXIMUM CONDUCTED (AVERAGE) OUTPUT POWER

4.1 Block diagram of test setup




4.2 Limits

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

4.3 Test procedure

1. According to section 15.247(b)-power output of the KDB NO. 558074 DTS D01 Meas. Guidance v03r04.(channel integration method) When this option is exercised, the measured power is to be referenced to the OBW rather than the DTS bandwidth
2. Set span to at least 1.5 times the OBW
3. Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
4. Set VBW ≥ 3 x RBW
5. Number of points in sweep ≥ 2 × span / RBW. (This gives bin-to-bin spacing ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
6. Sweep time = auto
7. Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
8. If transmit duty cycle < 98 %, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”
9. Trace average at least 100 traces in power averaging (i.e., RMS) mode.
10. Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

4.4 Test result

Pass

802.11b

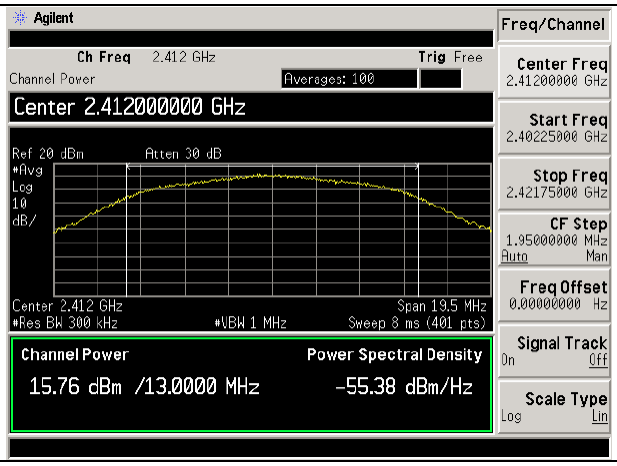
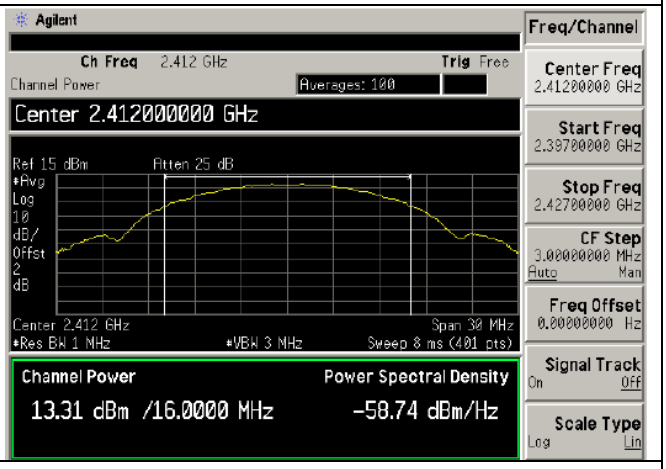
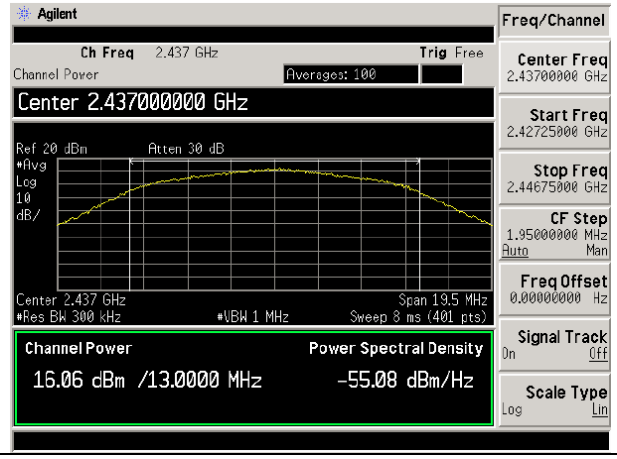
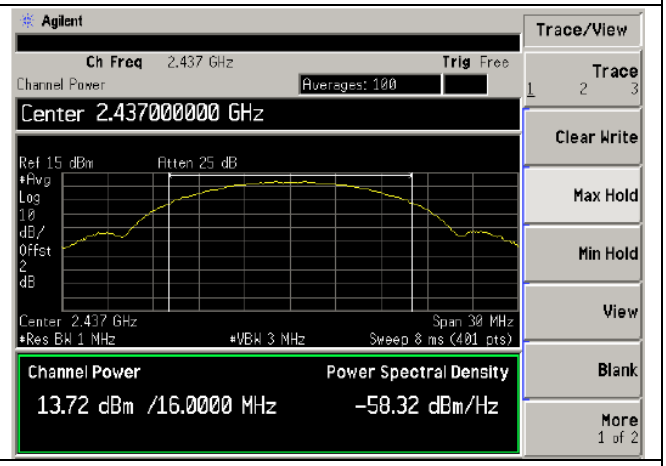
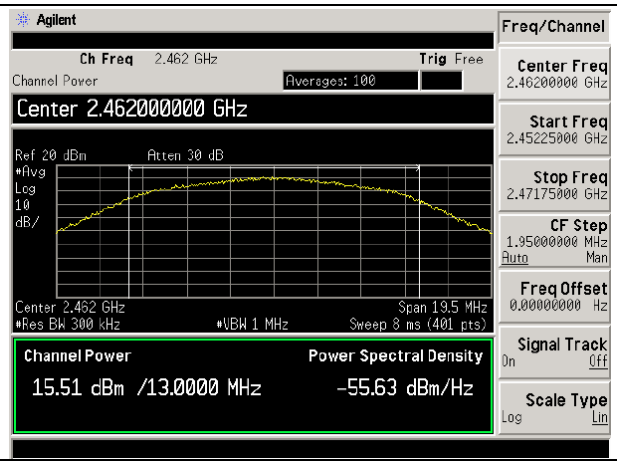
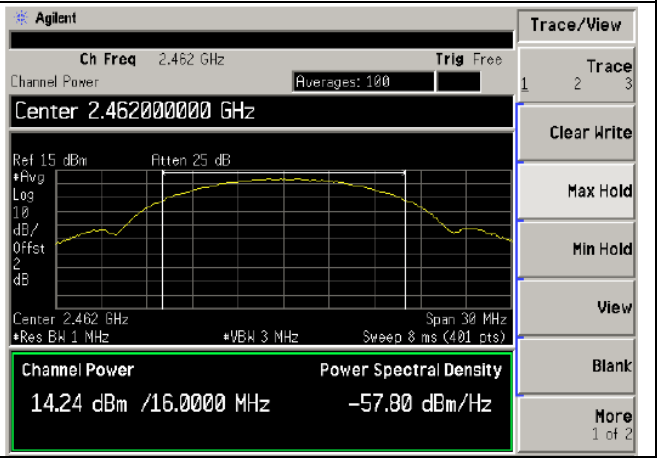
| Channel | Frequency (MHz) | Antenna 1 output power(average) (dBm) | Antenna 2 output power(average) (dBm) | Limit (dBm) |
|---|---|---|---|---|
| Low | 2412 | 15.76 | 13.31 | 30 |
| Middle | 2437 | 16.60 | 13.72 | 30 |
| High | 2462 | 15.51 | 14.24 | 30 |

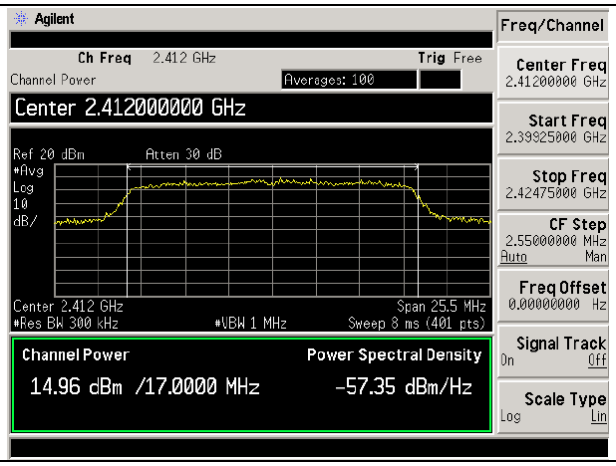
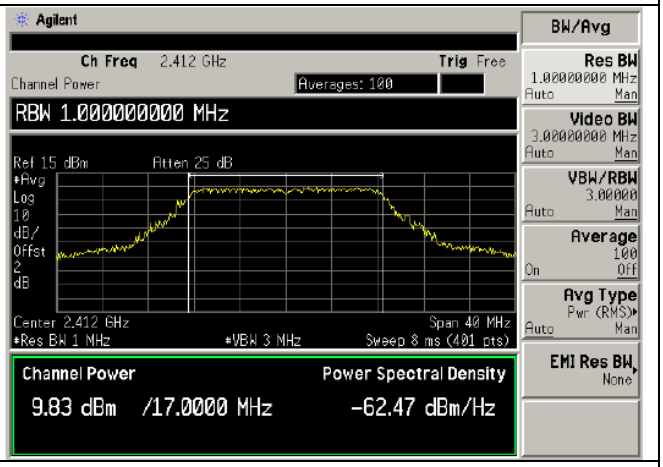
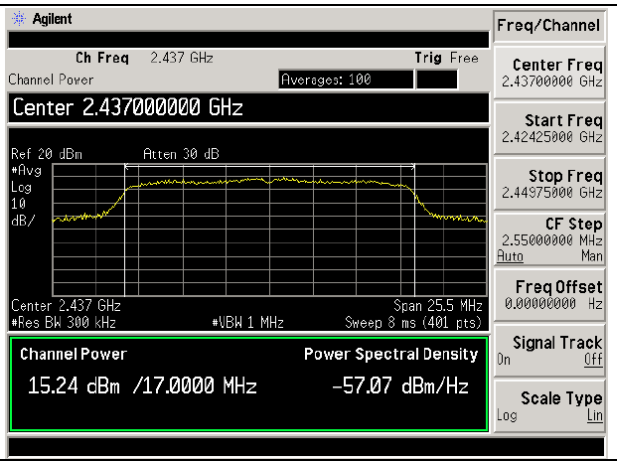
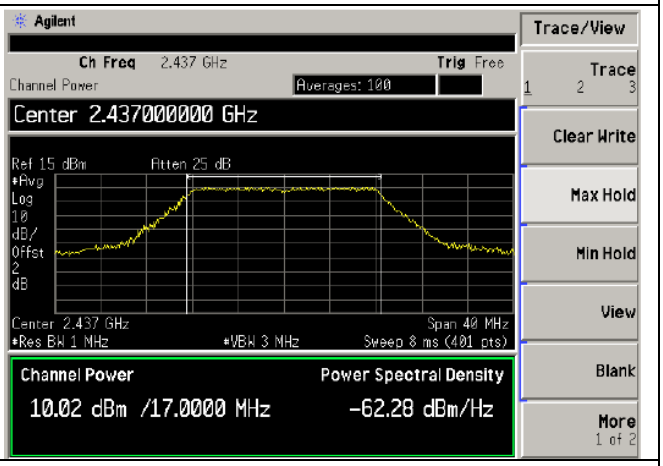
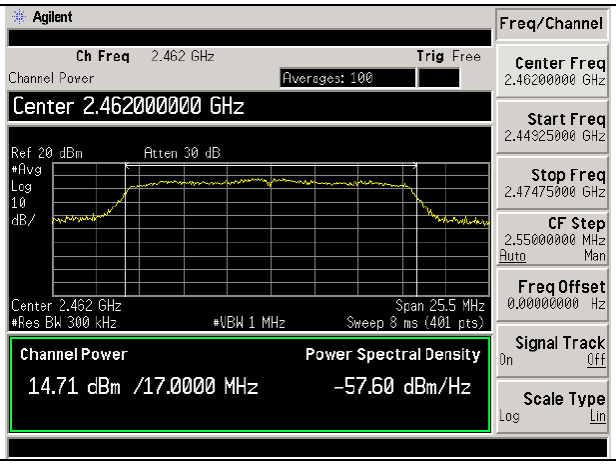
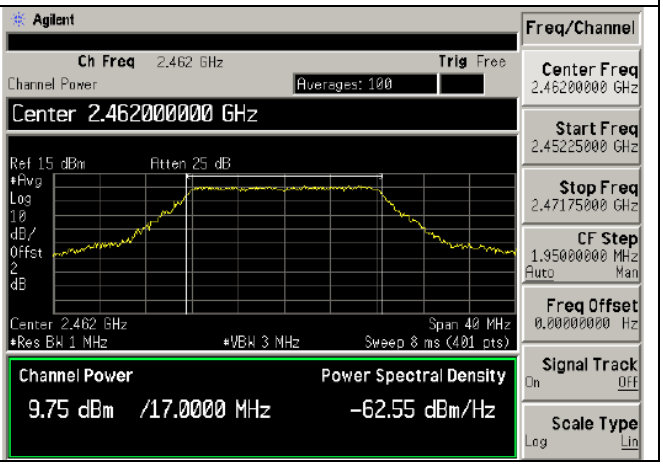
| 802.11g | | | | |
|---|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **Antenna 1 output power(average) (dBm)** | **Antenna 2 output power(average) (dBm)** | **Limit (dBm)** |
| Low | 2412 | 14.96 | 9.83 | 30 |
| Middle | 2437 | 15.24 | 10.02 | 30 |
| High | 2462 | 14.71 | 9.75 | 30 |

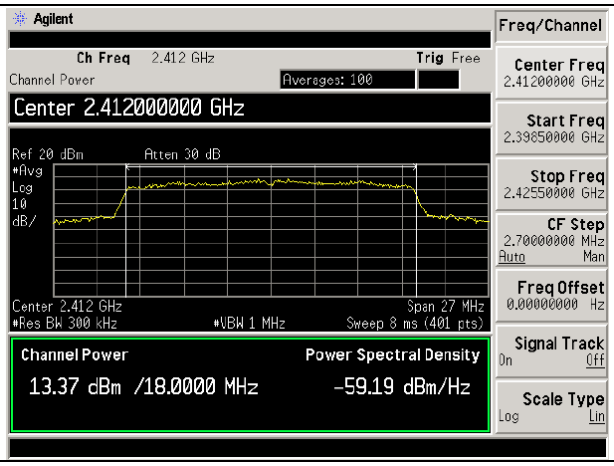
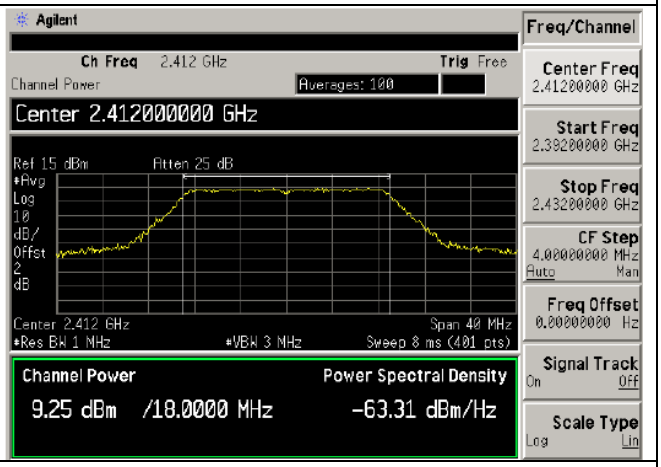
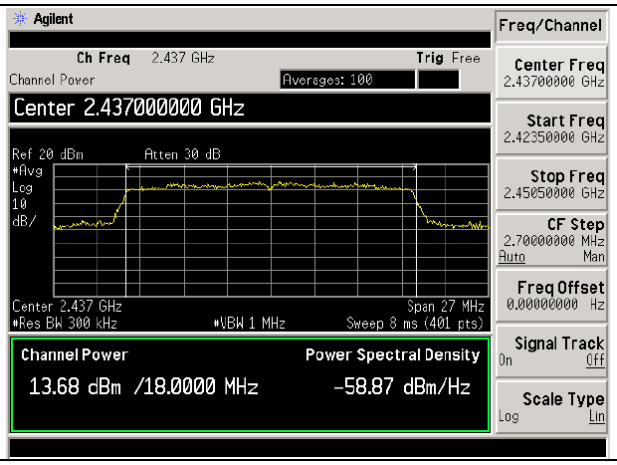
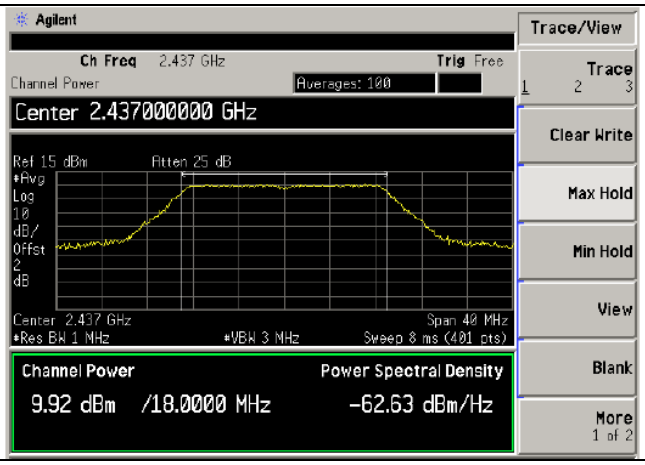
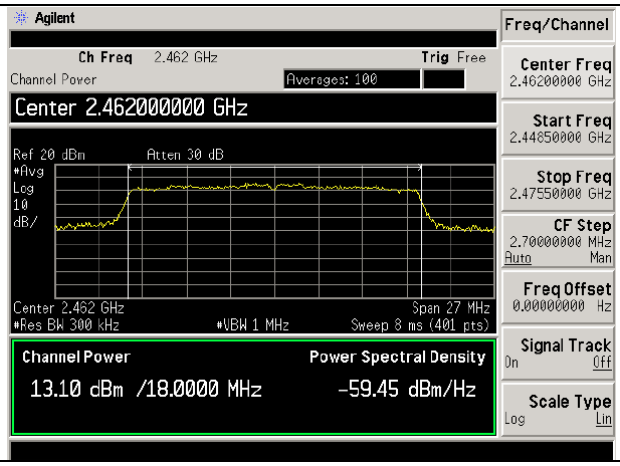
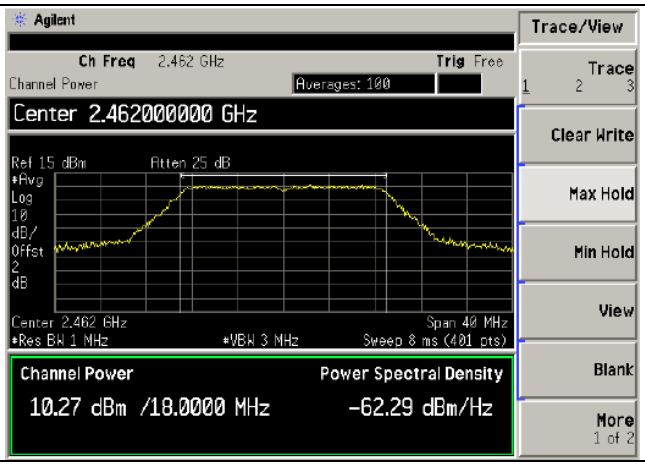
| 802.11n HT20 | | | | | |
|---|---|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **Antenna 1 output power(average) (dBm)** | **Antenna 2 output power(average) (dBm)** | **Total output power(average) (dBm)** | **Limit (dBm)** |
| Low | 2412 | 13.37 | 9.25 | 14.78 | 30 |
| Middle | 2437 | 13.68 | 9.92 | 15.20 | 30 |
| High | 2462 | 13.10 | 10.27 | 14.92 | 30 |

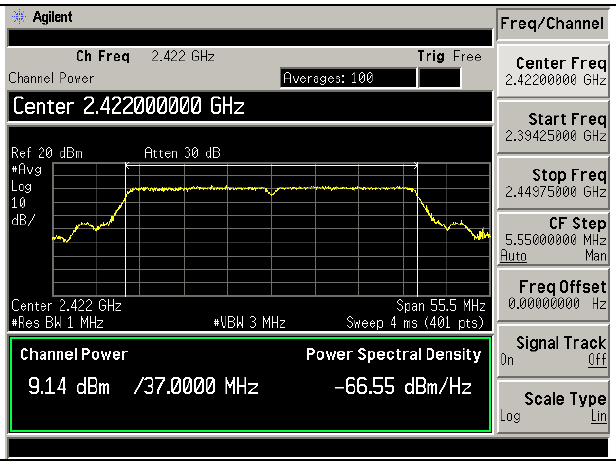
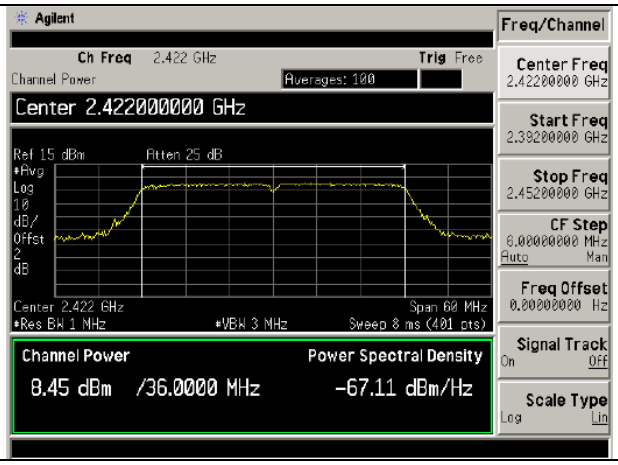
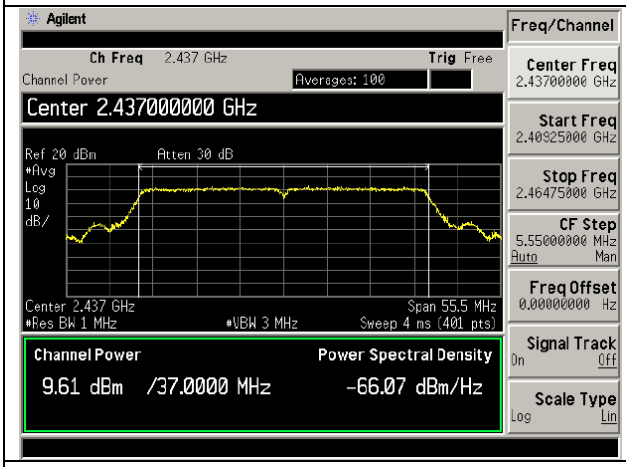
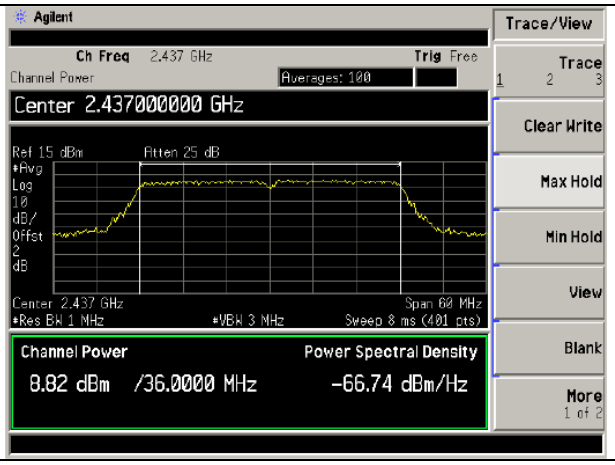
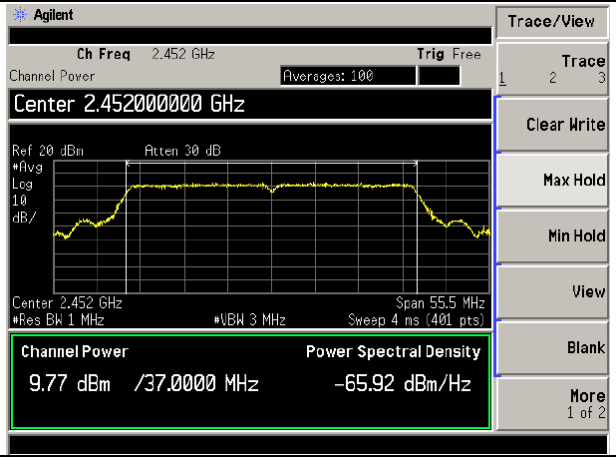
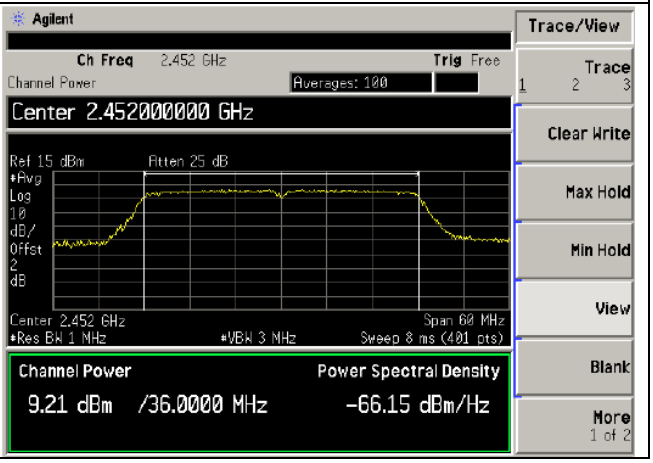
| 802.11n HT40 | | | | | |
|---|---|---|---|---|---|
| **Channel** | **Frequency (MHz)** | **Antenna 1 output power(average) (dBm)** | **Antenna 2 output power(average) (dBm)** | **Total output power(average) (dBm)** | **Limit (dBm)** |
| Low | 2422 | 9.14 | 8.45 | 11.81 | 30 |
| Middle | 2437 | 9.61 | 8.82 | 12.24 | 30 |
| High | 2452 | 9.77 | 9.21 | 12.50 | 30 |

Pls. refer to the following test plots:

| Antenna 1 | Antenna 2 |
|---|---|
| 802.11b Channel Low 2412MHz | 802.11b Channel Low 2412MHz |
|  |  |
| 802.11b Channel Middle 2437MHz | 802.11b Channel Middle 2437MHz |
|  |  |
| 802.11b Channel High 2462MHz | 802.11b Channel High 2462MHz |
|  |  |

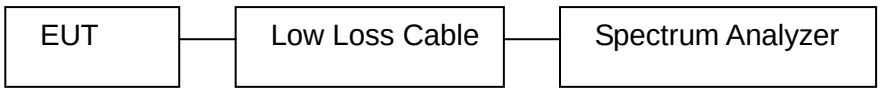
| Antenna 1 | Antenna 2 |
|---|---|
| 802.11g Channel Low 2412MHz | 802.11g Channel Low 2412MHz |
|  |  |
| 802.11g Channel Middle 2437MHz | 802.11g Channel Middle 2437MHz |
|  |  |
| 802.11g Channel High 2462MHz | 802.11g Channel High 2462MHz |
|  |  |

| Antenna 1 | Antenna 2 |
|---|---|
| 802.11n HT20 Channel Low 2412MHz | 802.11n HT20 Channel Low 2412MHz |
|  |  |
| 802.11n HT20 Channel Middle 2437MHz | 802.11n HT20 Channel Middle 2437MHz |
|  |  |
| 802.11n HT20 Channel High 2462MHz | 802.11n HT20 Channel High 2462MHz |
|  |  |

| Antenna 1 | Antenna 2 |
|---|---|
| 802.11n HT40 Channel Low 2422MHz | 802.11n HT40 Channel Low 2422MHz |
|  |  |
| 802.11n HT40 Channel Middle 2437MHz | 802.11n HT40 Channel Middle 2437MHz |
|  |  |
| 802.11n HT40 Channel High 2452MHz | 802.11n HT40 Channel High 2452MHz |
|  |  |

## 5. POWER SPECTRAL DENSITY TEST

5.1 Block diagram of test setup




5.2 Limits

According to 15.247(a)(1)(iii), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.3 Test procedure

According to the KDB 558074 D01 DTS Meas Guidance v03r04, such specifications require that the same method as used to determine the conducted output power shall also be used to determine the power spectral density. The test method of power spectral density as below:

a. Set instrument center frequency to DTS channel center frequency.
b. Set span to at least 1.5 times the OBW.
c. Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d. Set VBW ≥3 x RBW.
e. Detector = Peak
f. Sweep time = auto couple.
g. Use the peak marker function to determine the maximum amplitude level within the RBW.
h. Use the peak marker function to determine the maximum amplitude level.
i. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat

5.4 Test result

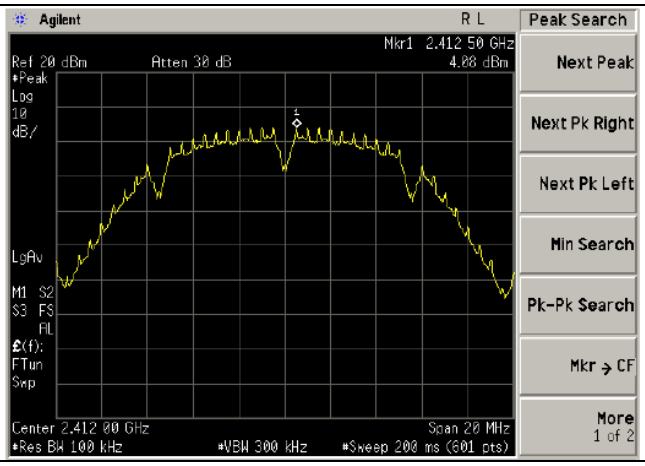
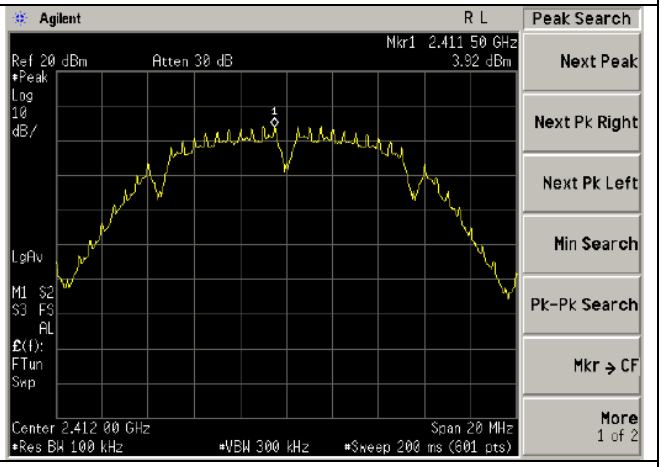
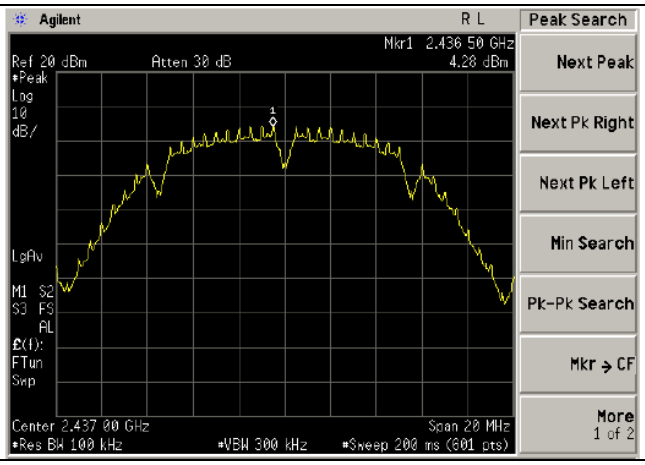
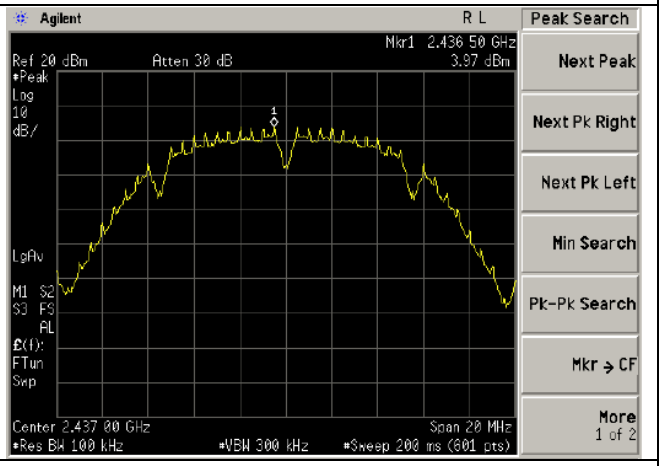
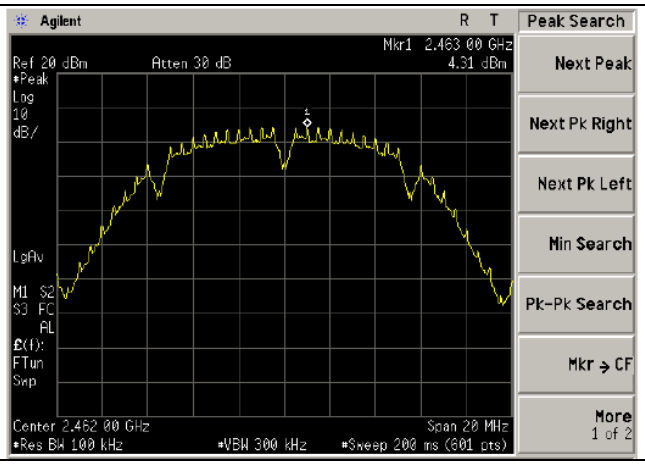
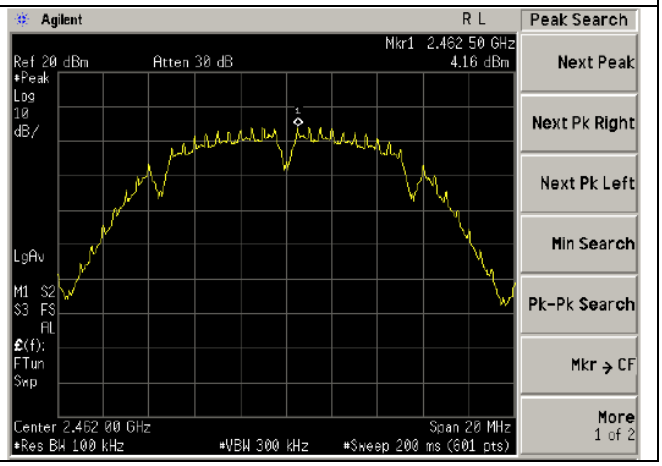
Pass

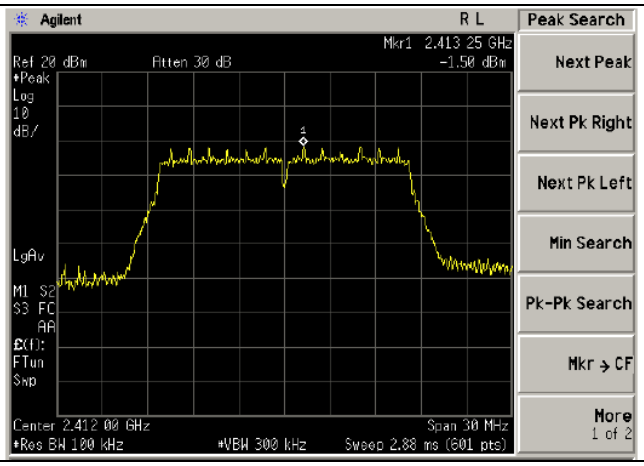
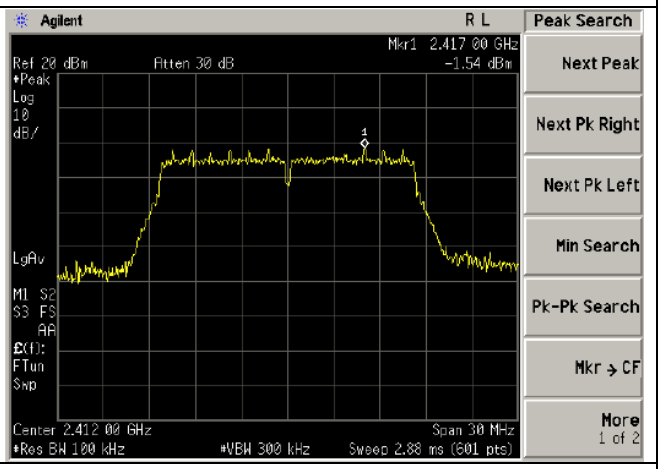
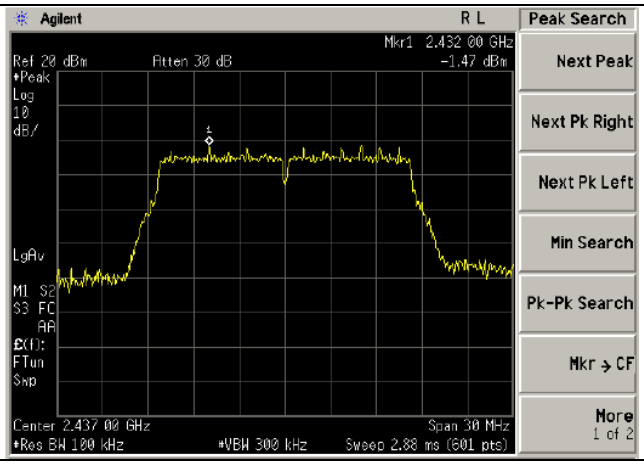
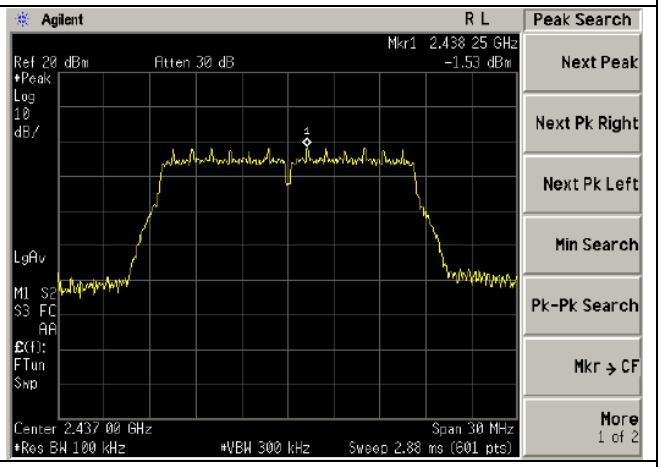
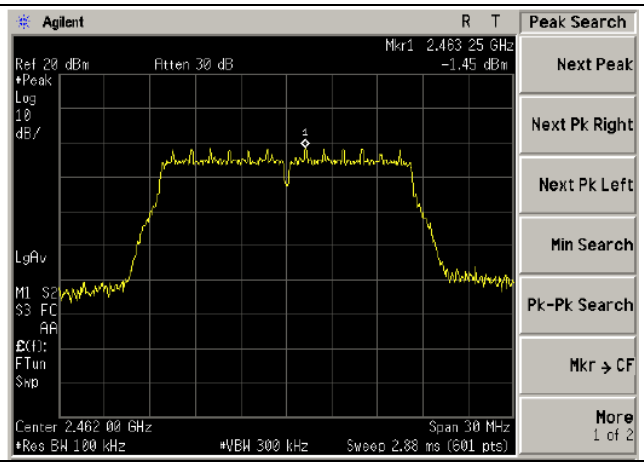
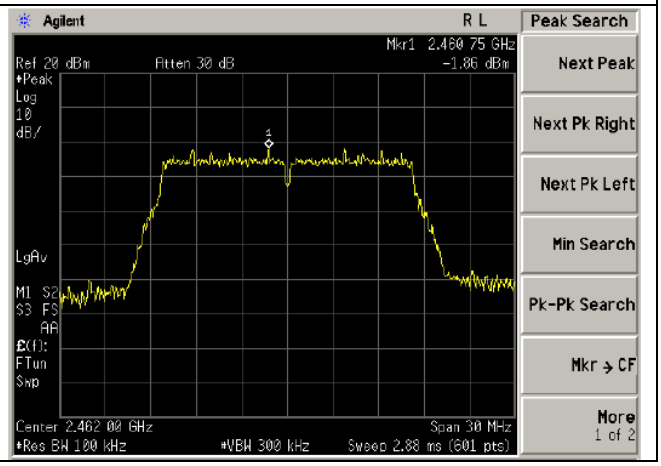
| 802.11b | | | | |
|---|---|---|---|---|
| Channel | Frequency (MHz) | Antenna 1 Power Spectral Density (dBm) | Antenna 2 Power Spectral Density (dBm) | Limit (dBm) |
| Low | 2412 | 4.08 | 3.92 | 8 |
| Middle | 2437 | 4.28 | 3.97 | 8 |
| High | 2462 | 4.31 | 4.16 | 8 |

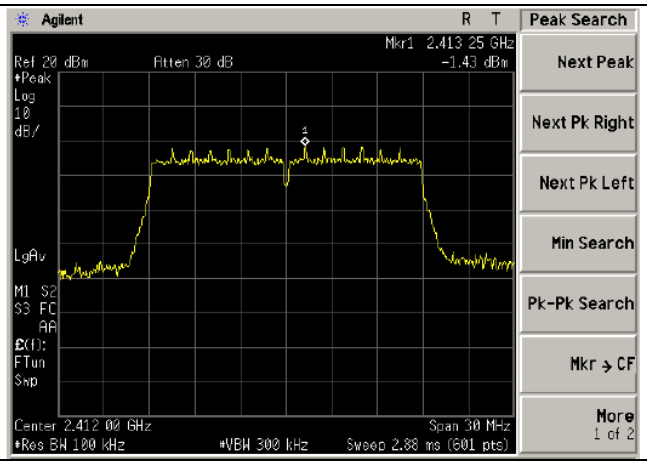
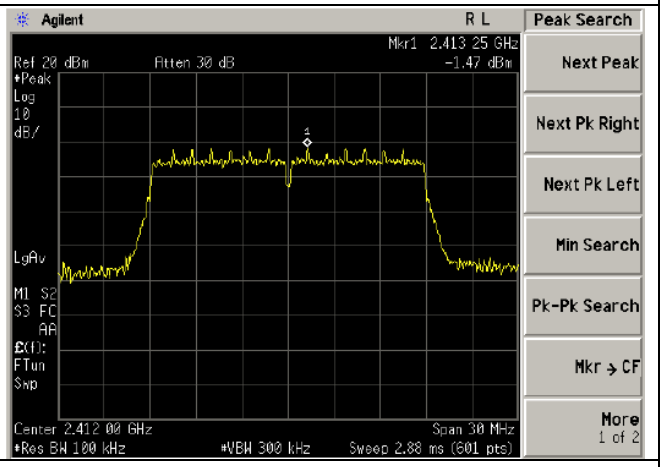
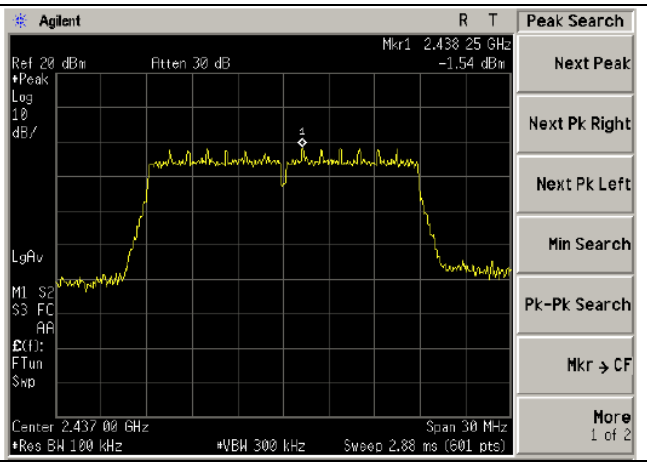
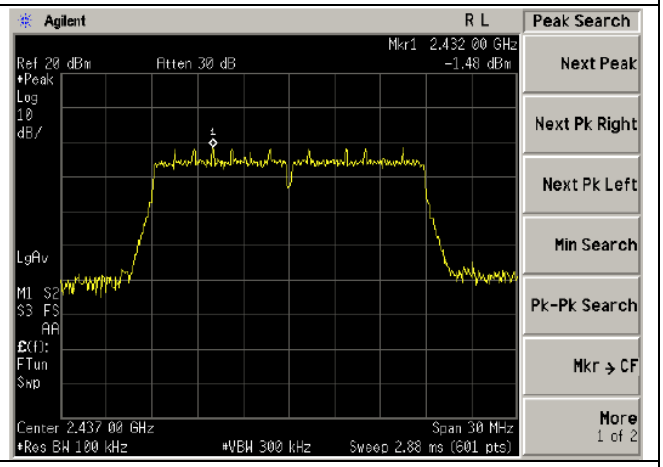
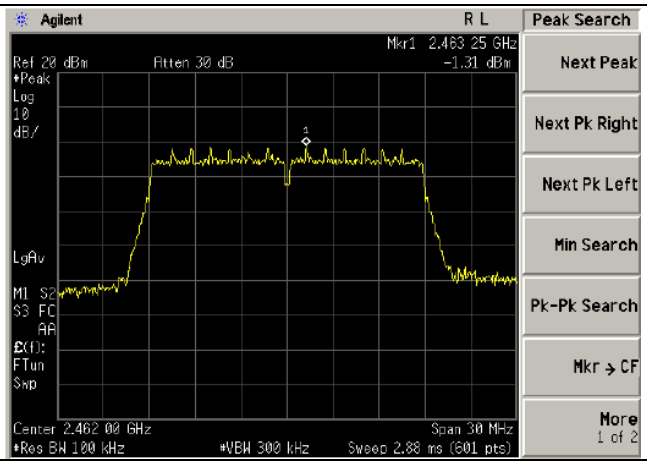
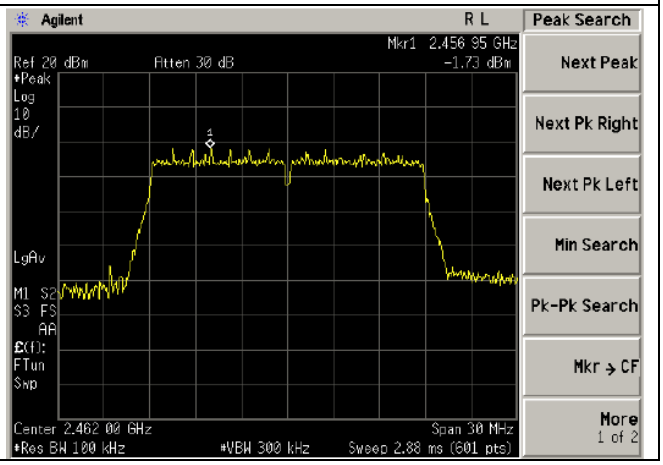
| 802.11g | | | | |
|---|---|---|---|---|
| Channel | Frequency (MHz) | Antenna 1 Power Spectral Density (dBm) | Antenna 2 Power Spectral Density (dBm) | Limit (dBm) |
| Low | 2412 | -1.50 | -1.54 | 8 |
| Middle | 2437 | -1.47 | -1.53 | 8 |
| High | 2462 | -1.45 | -1.86 | 8 |

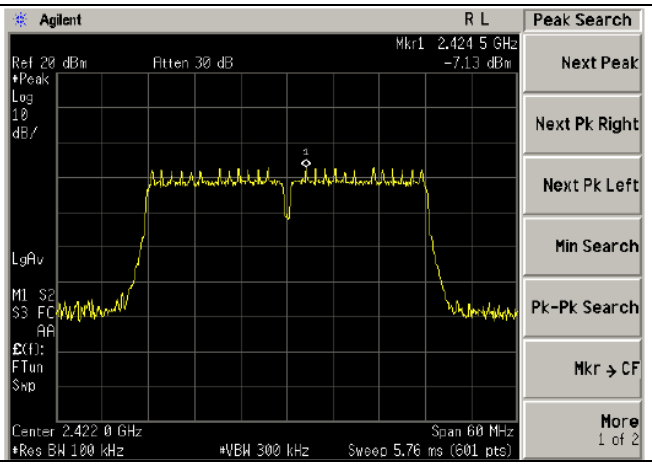
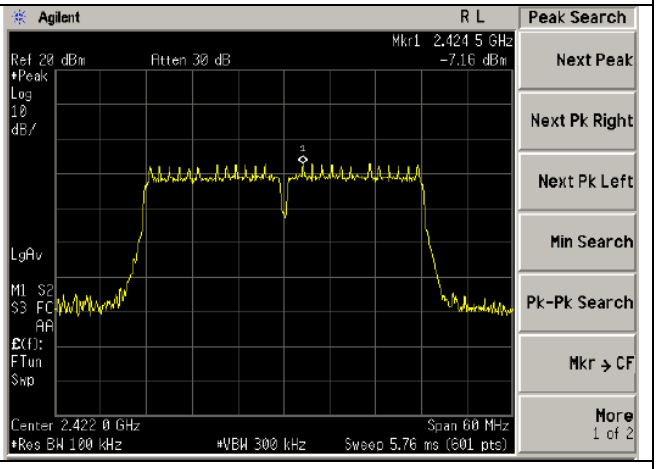
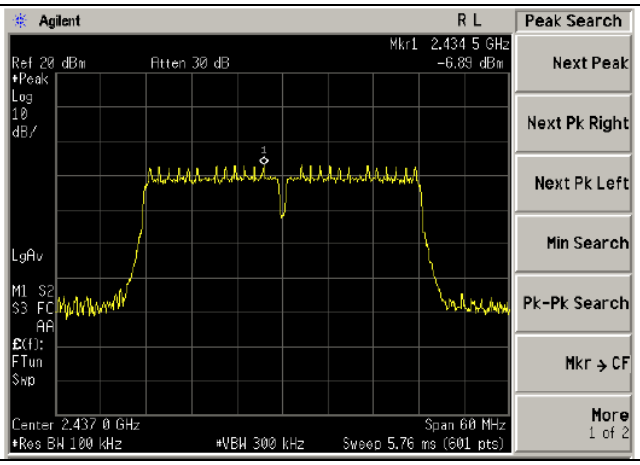
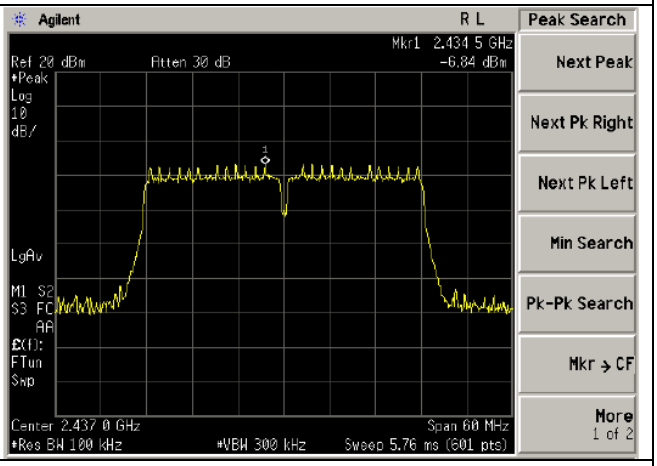
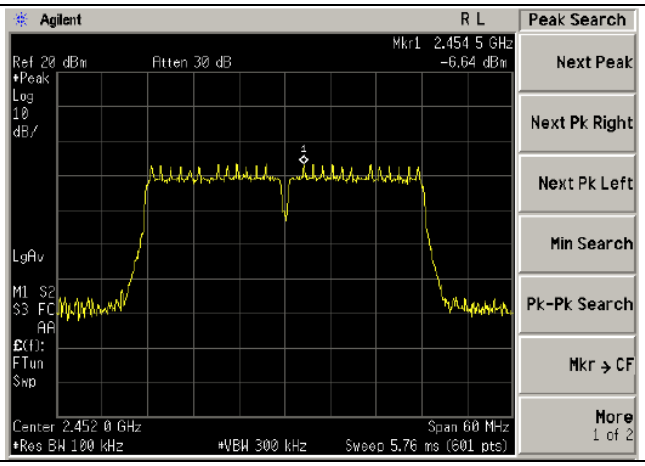
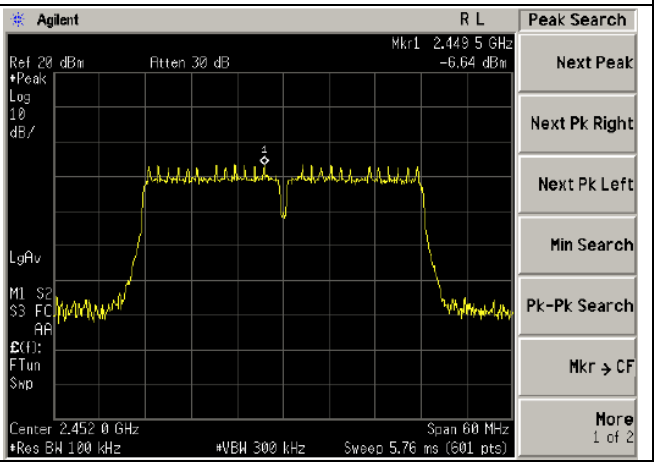
| 802.11n HT20 | | | | | |
|---|---|---|---|---|---|
| Channel | Frequency (MHz) | Antenna 1 Power Spectral Density (dBm) | Antenna 2 Power Spectral Density (dBm) | Total Power Spectral Density (dBm) | Limit (dBm) |
| Low | 2412 | -1.43 | -1.47 | 1.55 | 8 |
| Middle | 2437 | -1.54 | -1.48 | 1.49 | 8 |
| High | 2462 | -1.31 | -1.73 | 1.49 | 8 |

| 802.11n HT40 | | | | | |
|---|---|---|---|---|---|
| Channel | Frequency (MHz) | Antenna 1 Power Spectral Density (dBm) | Antenna 2 Power Spectral Density (dBm) | Total Power Spectral Density (dBm) | Limit (dBm) |
| Low | 2412 | -7.13 | -7.16 | -4.20 | 8 |
| Middle | 2437 | -6.89 | -6.84 | -3.87 | 8 |
| High | 2462 | -6.64 | -6.64 | -3.57 | 8 |

| Antenna 1 | Antenna 2 |
|---|---|
| 802.11b Channel Low 2412MHz | 802.11b Channel Low 2412MHz |
|  |  |
| 802.11b Channel Middle 2437MHz | 802.11b Channel Middle 2437MHz |
|  |  |
| 802.11b Channel High 2462MHz | 802.11b Channel High 2462MHz |
|  |  |

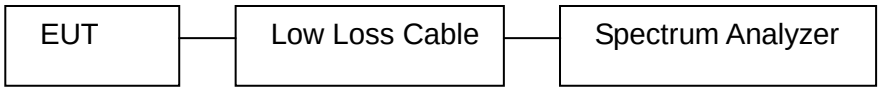
| Antenna 1 | Antenna 2 |
|---|---|
| 802.11g Channel Low 2412MHz | 802.11g Channel Low 2412MHz |
|  |  |
| 802.11g Channel Middle 2437MHz | 802.11g Channel Middle 2437MHz |
|  |  |
| 802.11g Channel High 2462MHz | 802.11g Channel High 2462MHz |
|  |  |

| Antenna 1 | Antenna 2 |
|---|---|
| 802.11n HT20 Channel Low 2412MHz | 802.11n HT20 Channel Low 2412MHz |
|  |  |
| 802.11n HT20 Channel Middle 2437MHz | 802.11n HT20 Channel Middle 2437MHz |
|  |  |
| 802.11n HT20 Channel High 2462MHz | 802.11n HT20 Channel High 2462MHz |
|  |  |

| Antenna 1 | Antenna 2 |
|---|---|
| 802.11n HT40 Channel Low 2422MHz | 802.11n HT40 Channel Low 2422MHz |
|  |  |
| 802.11n HT40 Channel Middle 2437MHz | 802.11n HT40 Channel Middle 2437MHz |
|  |  |
| 802.11n HT40 Channel High 2452MHz | 802.11n HT40 Channel High 2452MHz |
|  |  |

## 6. BAND EDGE COMPLIANCE TEST

6.1 Block diagram of test setup




6.2 Limits

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

6.3 Test procedure

Conducted Band Edge:

a. The transmitter output was connected to the spectrum analyzer via a low loss cable.
b. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz.

Radiate Band Edge:

a. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
b. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
c. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
d. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission: RBW=1MHz, VBW=1MHz
e. The band edges was measured and recorded.

6.4 Test result

Pass

**Antenna port 1 data is worst as following:**

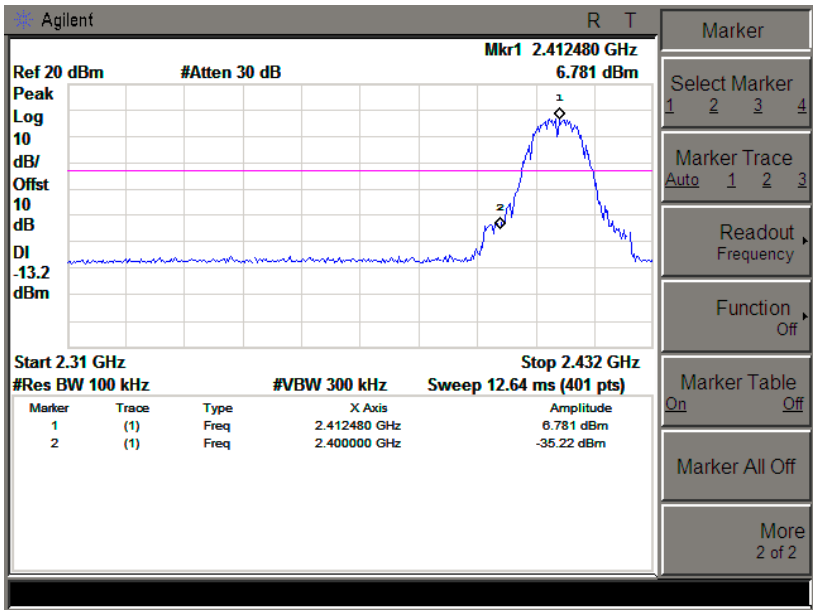
| 802.11b | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | Result of Band Edge (dBc) | Limit (dBc) |
| Low | 2412 | 42.00 | >30dBc |
| High | 2462 | 53.26 | > 30dBc |

| 802.11g | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | Result of Band Edge (dBc) | Limit (dBc) |
| Low | 2412 | 37.33 | >30dBc |
| High | 2462 | 44.72 | > 30dBc |

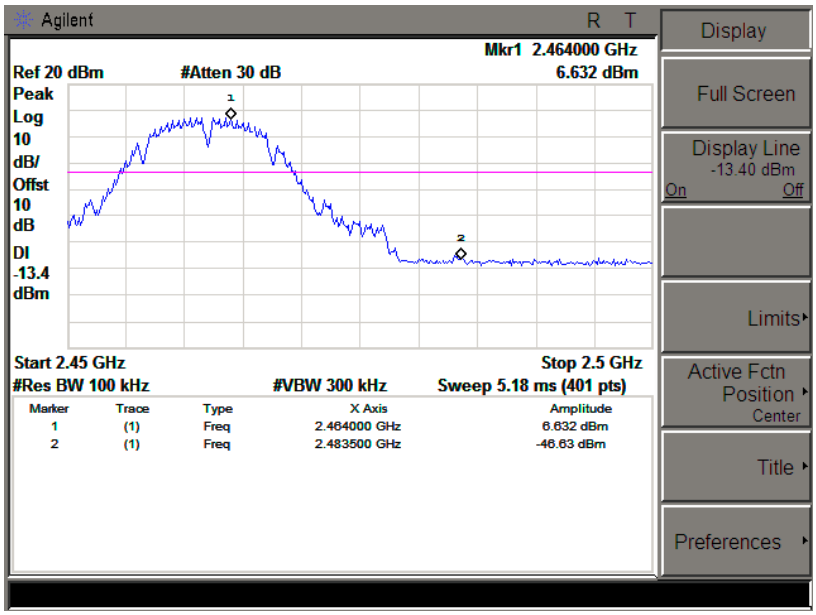
| 802.11n (20MHz) | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | Result of Band Edge (dBc) | Limit (dBc) |
| Low | 2412 | 30.32 | >30dBc |
| High | 2462 | 44.17 | > 30dBc |

| 802.11n (40MHz) | | | |
|---|---|---|---|
| Channel | Frequency (MHz) | Result of Band Edge (dBc) | Limit (dBc) |
| Low | 2422 | 36.33 | >30dBc |
| High | 2452 | 42.21 | > 30dBc |

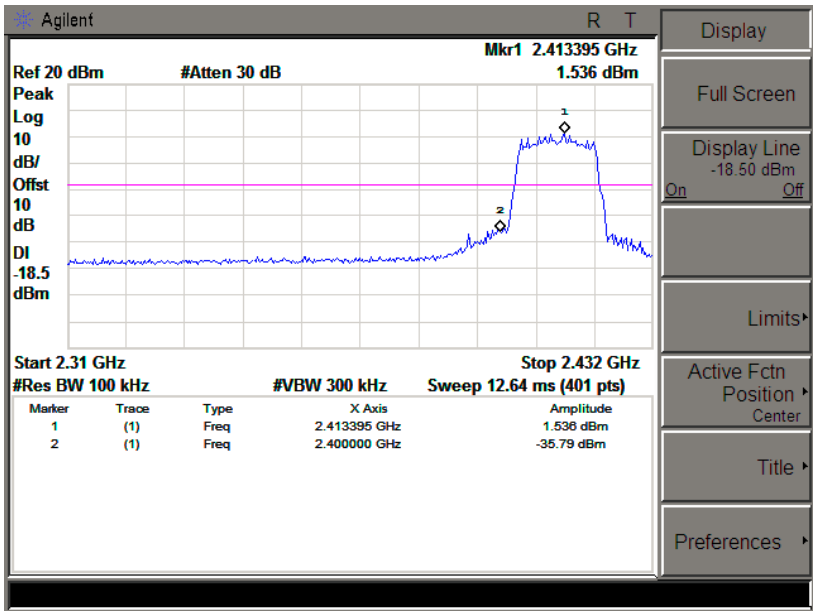
802.11b Channel Low 2412MHz



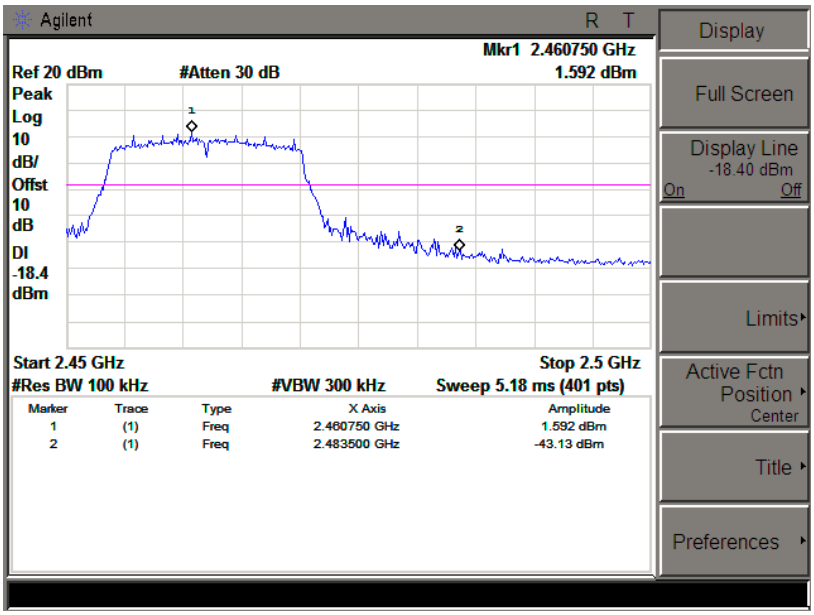

802.11b Channel High 2462MHz



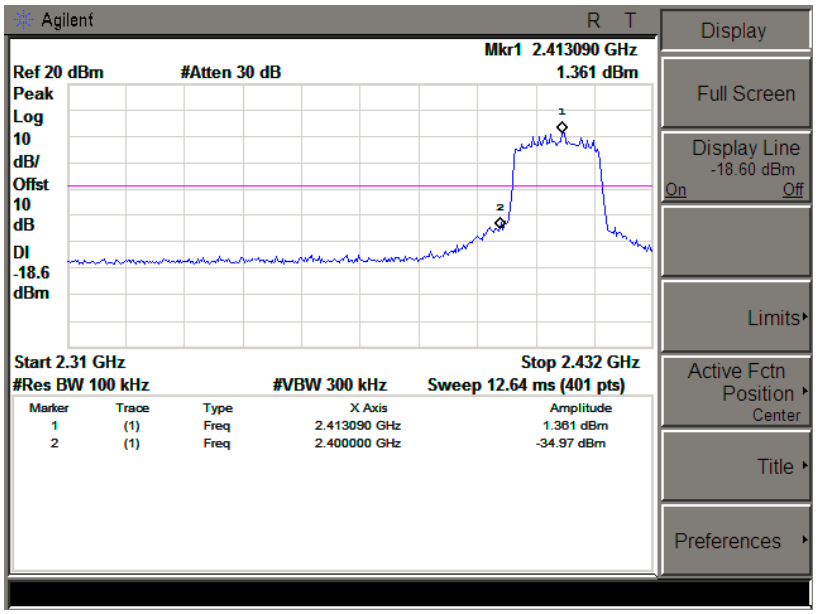
802.11g Channel Low 2412MHz



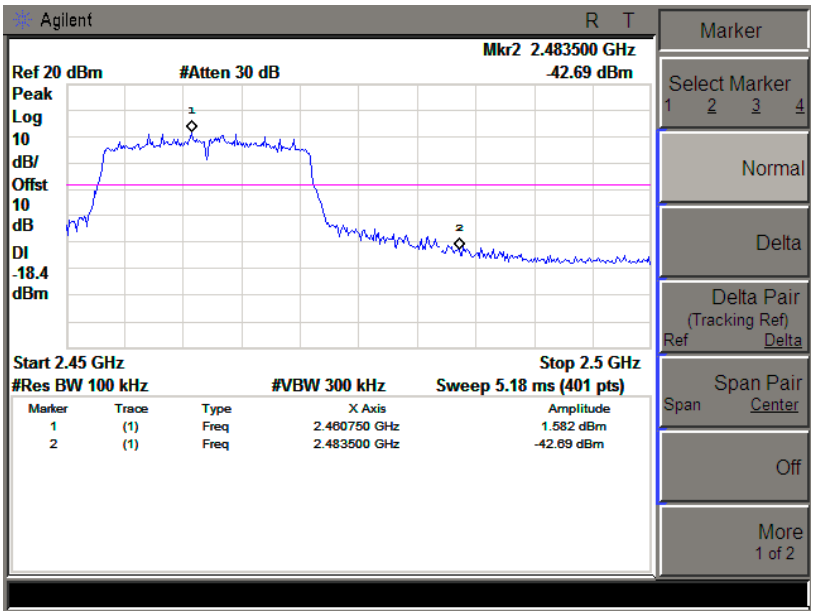

802.11g Channel High 2462MHz



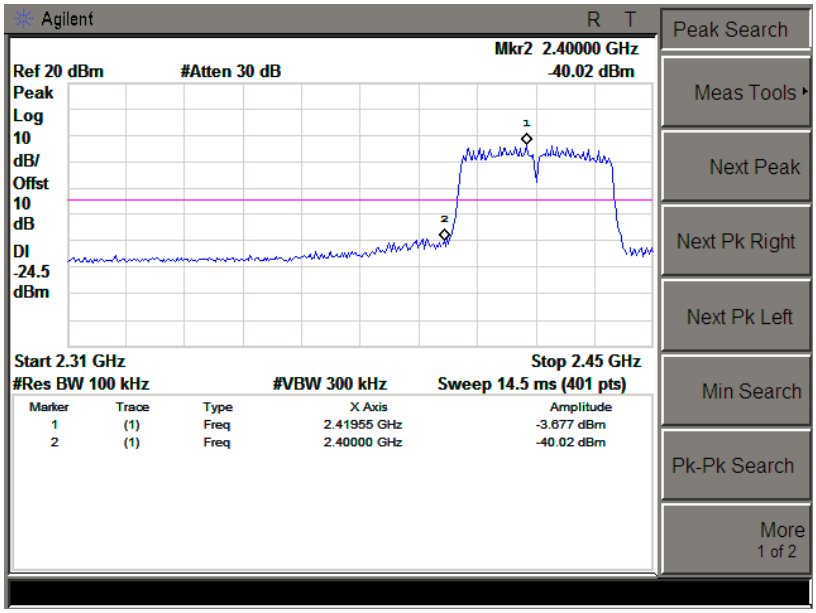
802.11n(HT20) Channel Low 2412MHz



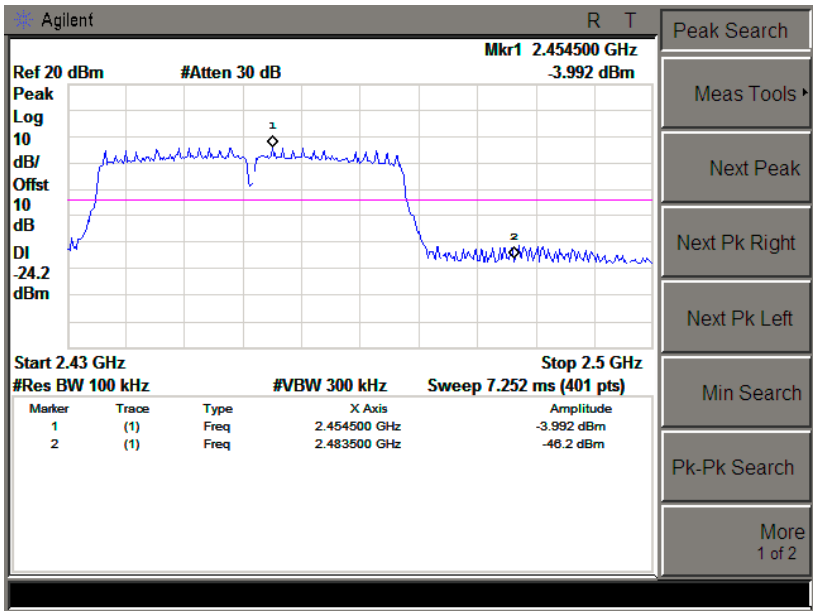

802.11n(HT20) Channel High 2462MHz



802.11n(HT40) Channel Low 2422MHz




802.11n(HT40) Channel High 2452MHz



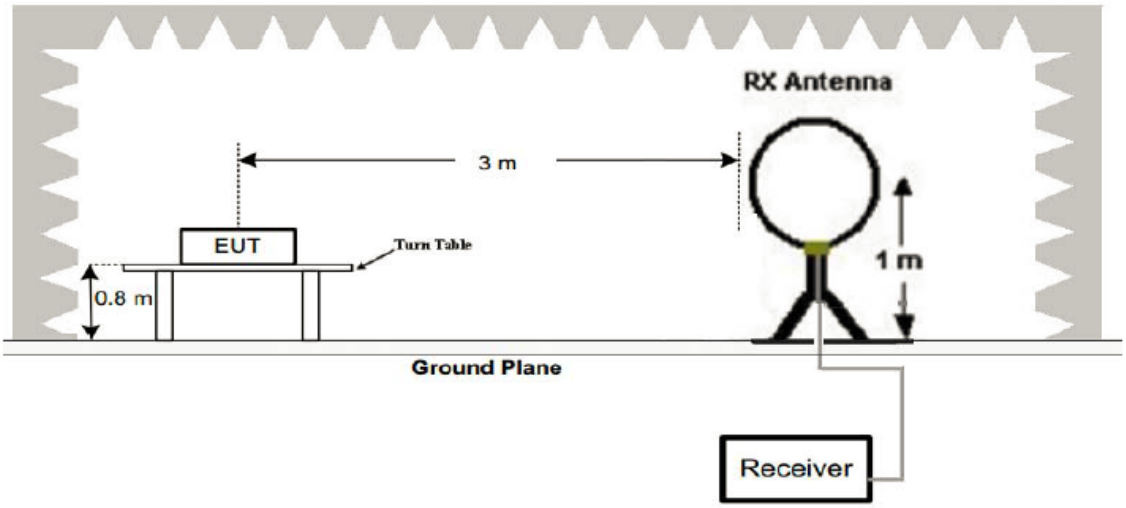
Radiated Band Edge Result

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type | Comment |
|---|---|---|---|---|---|---|---|
| 802.11 b | | | | | | | |
| 2390 | 58.48 | -13.06 | 45.42 | 74 | -28.58 | peak | Vertical |
| 2390 | 58.22 | -13.06 | 45.16 | 74 | -28.84 | peak | Horizontal |
| 2483.5 | 59.41 | -12.78 | 46.63 | 74 | -27.37 | peak | Vertical |
| 2483.5 | 59.46 | -12.78 | 46.68 | 74 | -27.32 | peak | Horizontal |
| 802.11g | | | | | | | |
| 2390 | 58.38 | -13.06 | 45.32 | 74 | -28.68 | peak | Vertical |
| 2390 | 57.56 | -13.06 | 44.5 | 74 | -29.50 | peak | Horizontal |
| 2483.5 | 59.27 | -12.78 | 46.49 | 74 | -27.51 | peak | Vertical |
| 2483.5 | 59.49 | -12.78 | 46.71 | 74 | -27.29 | peak | Horizontal |
| 802.11 HT20 | | | | | | | |
| 2390 | 60.6 | -13.06 | 47.54 | 74 | -26.46 | peak | Vertical |
| 2390 | 60.38 | -13.06 | 47.32 | 74 | -26.68 | peak | Horizontal |
| 2483.5 | 60.52 | -12.78 | 47.74 | 74 | -26.26 | peak | Vertical |
| 2483.5 | 60.64 | -12.78 | 47.86 | 74 | -26.14 | peak | Horizontal |
| 802.11 HT 40 | | | | | | | |
| 2390 | 61.39 | -13.06 | 48.33 | 74 | -25.67 | peak | Vertical |
| 2390 | 62.48 | -13.06 | 49.42 | 74 | -24.58 | peak | Horizontal |
| 2483.5 | 61.02 | -12.78 | 48.24 | 74 | -25.76 | peak | Vertical |
| 2483.5 | 60.87 | -12.78 | 48.09 | 74 | -25.91 | peak | Horizontal |

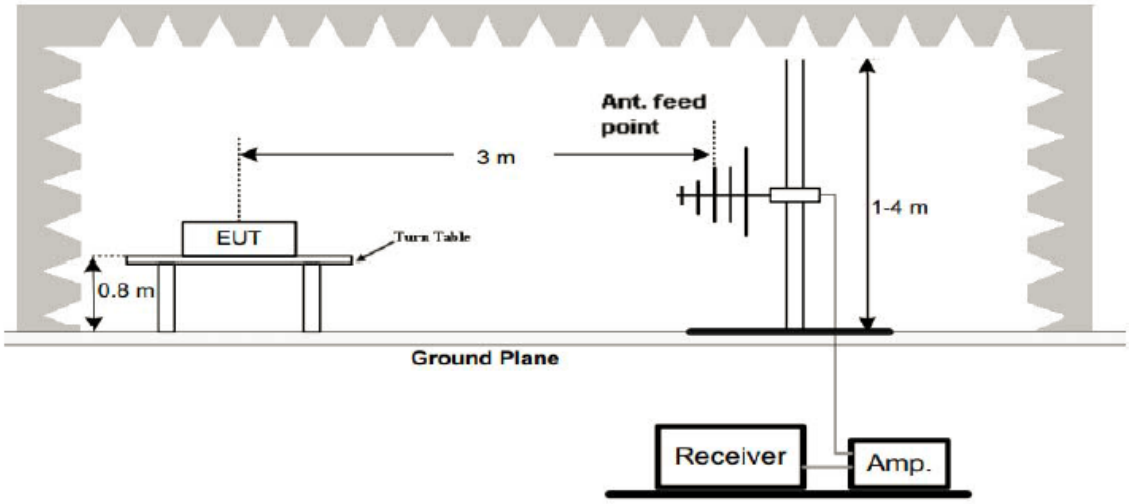
## 7. RADIATED SPURIOUS EMISSION TEST

7.1 Block diagram of test setup

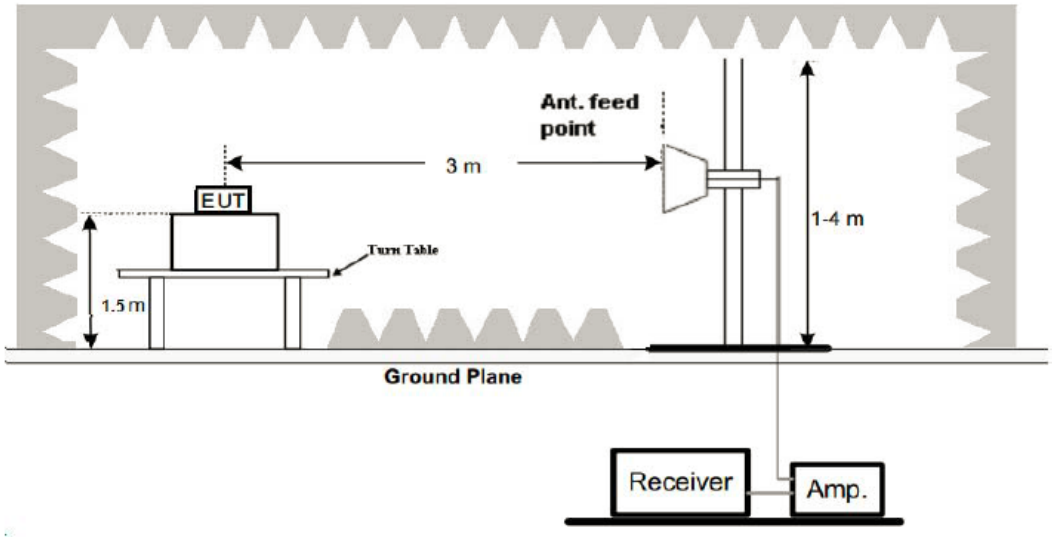
（1） Radiated Emission Test-Up Frequency Below 30MHz




（2） Radiated Emission Test-Up Frequency 30MHz~1GHz




（3） Radiated Emission Test-Up Frequency Above 1GHz



## 7.2 Limits

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

## 7.3 Restricted bands of operation

FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090-0.110 | 16.42-16.423 | 399.9-410 | 4.5-5.15 |
| [1]0.495-0.505 | 16.69475-16.69525 | 608-614 | 5.35-5.46 |
| 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 | 7.25-7.75 |
| 4.125-4.128 | 25.5-25.67 | 1300-1427 | 8.025-8.5 |
| 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 |
| 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 | 9.3-9.5 |
| 6.215-6.218 | 74.8-75.2 | 1660-1710 | 10.6-12.7 |
| 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 | 13.25-13.4 |
| 6.31175-6.31225 | 123-138 | 2200-2300 | 14.47-14.5 |
| 8.291-8.294 | 149.9-150.05 | 2310-2390 | 15.35-16.2 |
| 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 |
| 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 |
| 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 |
| 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 |
| 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 |
| 12.57675-12.57725 | 322-335.4 | 3600-4400 | ([2]) |
| 13.36-13.41 | | | |

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

## 7.4 Test procedure

1, Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m above ground plane.

2, Support equipment, if needed, was placed as per ANSI C63.10

3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5, All support equipments received AC power from a second LISN, if any.
6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

Note:
For battery operated equipment, the equipment tests shall be performed using a new battery.

7.5 Test result

Pass

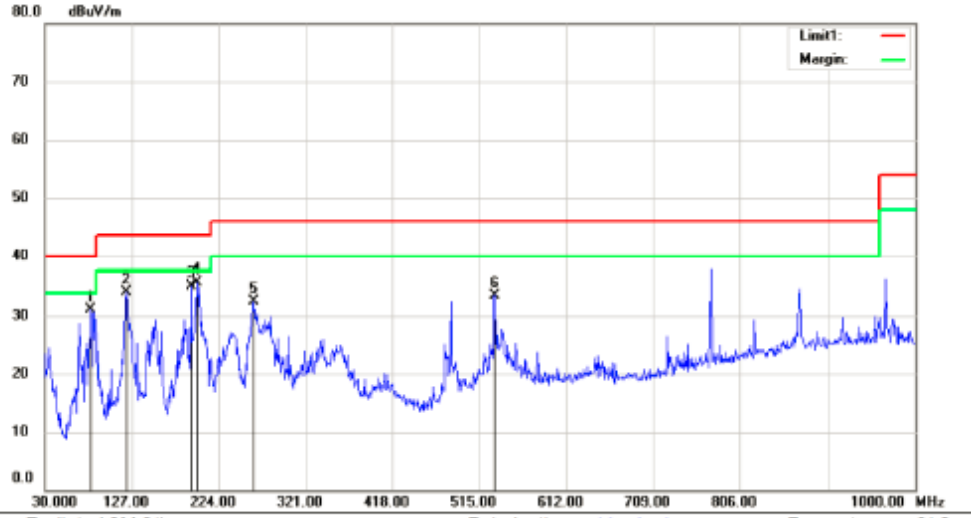
Test mode: 802.11b
For Below 30MHz

| Freq.(MHz) | Reading (dBuV/m) (QP) | Factor(dB) Corr. | Result (dBuV/m) | Limit (dBuV/m) | Margin(dB) |
|---|---|---|---|---|---|
| / | / | / | / | / | / |

Test mode: 802.11b
For 30MHz-1000MHz


Site :Radiated 3M 3# Polarization: *Horizontal* Temperature: 24 C
Limit: ( RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %
Mode:TX CH1
Note:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 82.3800 | 51.56 | -18.98 | 32.58 | 40.00 | -7.42 | QP | | | |
| 2 | * | 192.9600 | 55.01 | -17.01 | 38.00 | 43.50 | -5.50 | QP | | | |
| 3 | | 258.9200 | 48.45 | -12.85 | 35.60 | 46.00 | -10.40 | QP | | | |
| 4 | | 338.4600 | 51.41 | -12.55 | 38.86 | 46.00 | -7.14 | QP | | | |
| 5 | | 483.9600 | 44.89 | -9.18 | 35.71 | 46.00 | -10.29 | QP | | | |
| 6 | | 699.3000 | 45.68 | -5.99 | 39.69 | 46.00 | -6.31 | QP | | | |




Site :Radiated 3M 3# Polarization: *Vertical* Temperature: 24 C

Limit: ( RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:TX CH1

Note:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 81.4100 | 50.19 | -19.15 | 31.04 | 40.00 | -8.96 | QP | | | |
| 2 | | 121.1800 | 50.53 | -16.45 | 34.08 | 43.50 | -9.42 | QP | | | |
| 3 | | 192.9600 | 52.03 | -17.01 | 35.02 | 43.50 | -8.48 | QP | | | |
| 4 | * | 199.7500 | 52.11 | -16.42 | 35.69 | 43.50 | -7.81 | QP | | | |
| 5 | | 263.7700 | 45.26 | -12.75 | 32.51 | 46.00 | -13.49 | QP | | | |
| 6 | | 532.4600 | 41.13 | -7.53 | 33.60 | 46.00 | -12.40 | QP | | | |

Test mode: 802.11b
For 1GHz-25GHz

CH low

| Freq. (MHz) | Ant.Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|---|---|---|---|---|---|---|---|
| | | PK | AV | PK | AV | PK | AV |
| 4824.00 | V | 54.19 | 44.17 | 74.00 | 54.00 | -19.81 | -9.83 |
| 7236.00 | V | 56.09 | 44.77 | 74.00 | 54.00 | -17.91 | -9.23 |
| 9648.00 | V | 57.92 | 46.83 | 74.00 | 54.00 | -16.08 | -7.17 |
| 12060.00 | V | 61.23 | 49.68 | 74.00 | 54.00 | -12.77 | -4.32 |
| 14472.00 | V | 64.13 | 49.30 | 74.00 | 54.00 | -9.87 | -4.70 |
| 16884.00 | V | 64.34 | 49.65 | 74.00 | 54.00 | -9.66 | -4.35 |
| 4824.00 | H | 54.20 | 44.12 | 74.00 | 54.00 | -19.80 | -9.88 |
| 7236.00 | H | 56.59 | 45.63 | 74.00 | 54.00 | -17.41 | -8.37 |
| 9648.00 | H | 58.18 | 48.36 | 74.00 | 54.00 | -15.82 | -5.64 |
| 12060.00 | H | 59.81 | 47.68 | 74.00 | 54.00 | -14.19 | -6.32 |
| 14472.00 | H | 60.53 | 47.45 | 74.00 | 54.00 | -13.47 | -6.55 |
| 16884.00 | H | 63.55 | 50.08 | 74.00 | 54.00 | -10.45 | -3.92 |

CH Middle

| Freq. (MHz) | Ant.Pol. H/V | Emission Level(dBuV/m) | | Limit 3m(dBuV/m) | | Over(dB) | |
|---|---|---|---|---|---|---|---|
| | | PK | AV | PK | AV | PK | AV |
| 4874.00 | V | 55.35 | 44.90 | 74.00 | 54.00 | -18.65 | -9.10 |
| 7311.00 | V | 57.25 | 45.50 | 74.00 | 54.00 | -16.75 | -8.50 |
| 9748.00 | V | 59.08 | 47.56 | 74.00 | 54.00 | -14.92 | -6.44 |
| 12185.00 | V | 62.39 | 50.41 | 74.00 | 54.00 | -11.61 | -3.59 |
| 14622.00 | V | 65.29 | 49.82 | 74.00 | 54.00 | -8.71 | -4.18 |
| 17059.00 | V | 65.50 | 50.38 | 74.00 | 54.00 | -8.50 | -3.62 |
| 4874.00 | H | 55.36 | 44.85 | 74.00 | 54.00 | -18.64 | -9.15 |
| 7311.00 | H | 57.75 | 46.36 | 74.00 | 54.00 | -16.25 | -7.64 |
| 9748.00 | H | 59.34 | 48.59 | 74.00 | 54.00 | -14.66 | -5.41 |
| 12185.00 | H | 60.97 | 47.91 | 74.00 | 54.00 | -13.03 | -6.09 |
| 14622.00 | H | 61.69 | 47.48 | 74.00 | 54.00 | -12.31 | -6.52 |
| 17059.00 | H | 64.71 | 50.81 | 74.00 | 54.00 | -9.29 | -3.19 |

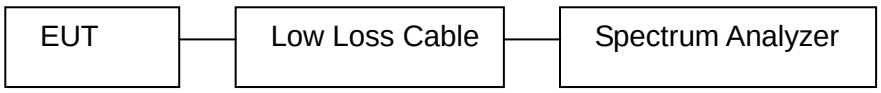
CH High

| Freq. (MHz) | Ant.Pol. H/V | Emission Level(dBuV/m) PK | Emission Level(dBuV/m) AV | Limit 3m(dBuV/m) PK | Limit 3m(dBuV/m) AV | Over(dB) PK | Over(dB) AV |
|---|---|---|---|---|---|---|---|
| 4924.00 | V | 55.17 | 44.86 | 74.00 | 54.00 | -18.83 | -9.14 |
| 7386.00 | V | 57.07 | 45.46 | 74.00 | 54.00 | -16.93 | -8.54 |
| 9848.00 | V | 58.90 | 47.52 | 74.00 | 54.00 | -15.10 | -6.48 |
| 12310.00 | V | 62.21 | 50.37 | 74.00 | 54.00 | -11.79 | -3.63 |
| 14772.00 | V | 65.11 | 49.99 | 74.00 | 54.00 | -8.89 | -4.01 |
| 17234.00 | V | 65.32 | 50.34 | 74.00 | 54.00 | -8.68 | -3.66 |
| 4924.00 | H | 55.18 | 44.81 | 74.00 | 54.00 | -18.82 | -9.19 |
| 7386.00 | H | 57.57 | 46.32 | 74.00 | 54.00 | -16.43 | -7.68 |
| 9848.00 | H | 59.16 | 49.05 | 74.00 | 54.00 | -14.84 | -4.95 |
| 12310.00 | H | 60.79 | 48.37 | 74.00 | 54.00 | -13.21 | -5.63 |
| 14772.00 | H | 61.51 | 48.14 | 74.00 | 54.00 | -12.49 | -5.86 |
| 17234.00 | H | 64.53 | 50.77 | 74.00 | 54.00 | -9.47 | -3.23 |

Note: “802.11b” mode is worst mode

## 8. CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

8.1 Block diagram of test setup




8.2 Limits

Se Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

8.3 Test procedure

a. The transmitter output was connected to the spectrum analyzer via a low loss cable.

b. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz.

c. The Conducted Spurious Emission was measured and recorded.

8.4 Test Result

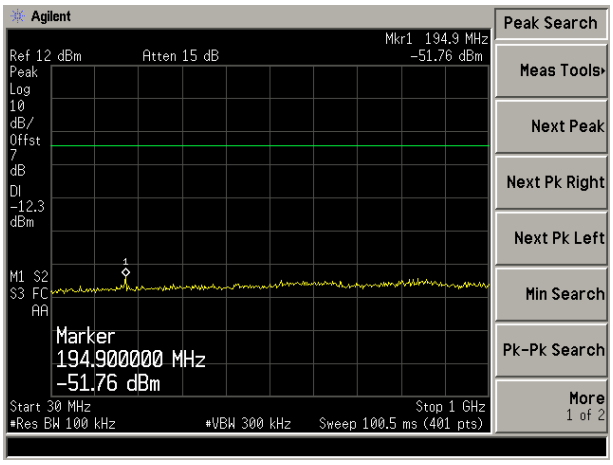
Pass

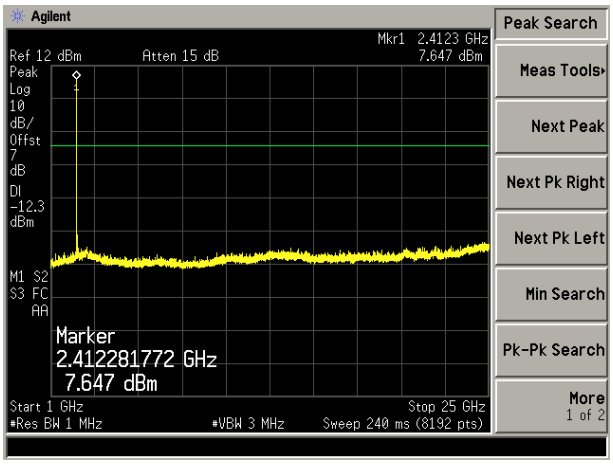
The spectrum analyzer plots are attached as below.

Antenna port 1 data is worst:

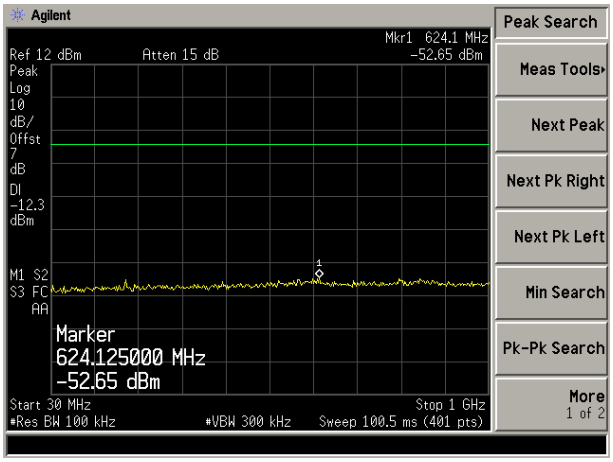
**The worst test mode: 802.11b**

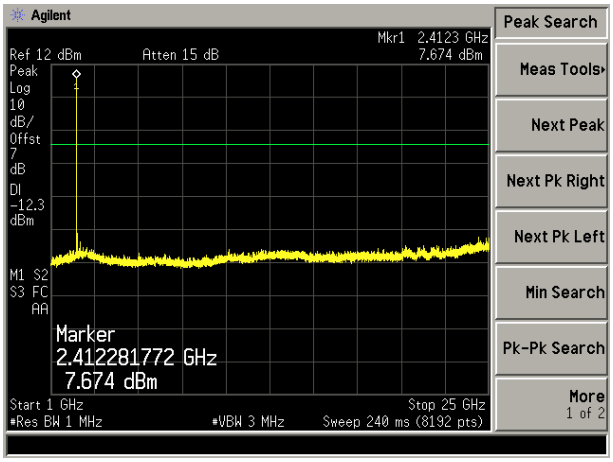
**TX 802.11b Channel Low 2412MHz**



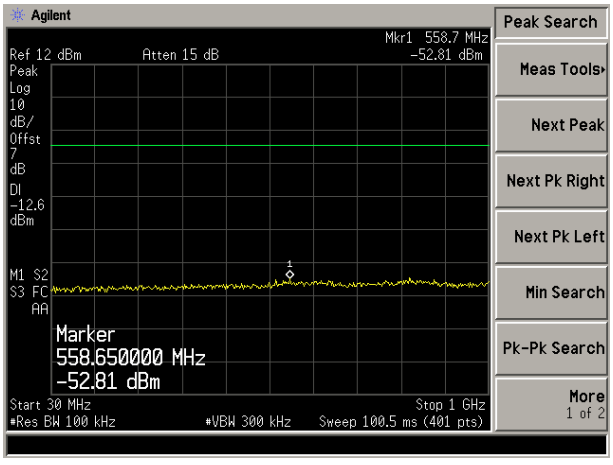



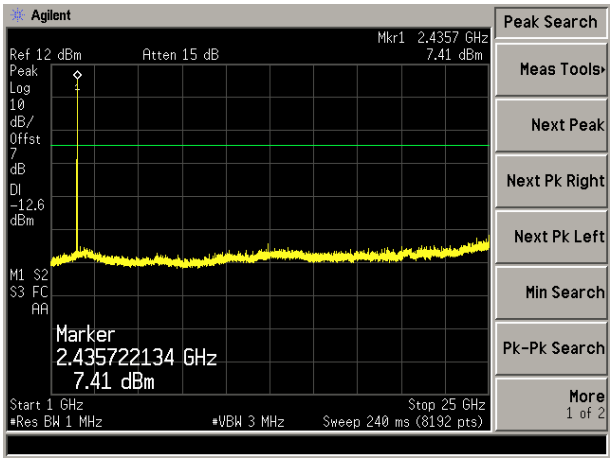

**TX 802.11b Channel Middle 2437MHz**



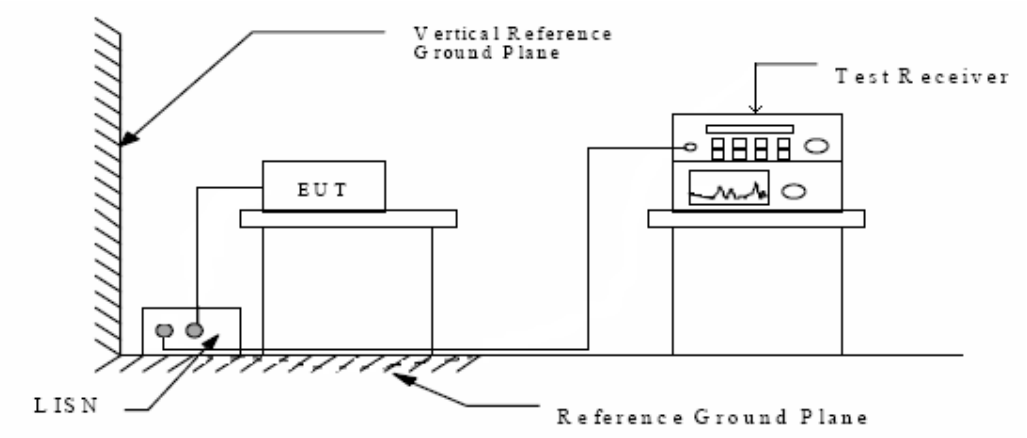

**TX 802.11b Channel High 2462MHz**



## 9. AC POWER LINE CONDUCTED EMISSION

9.1 Block diagram of test setup




9.2 Limits

Conducted Emission Measurement Limits According to Section 15.207(a)

| Frequency MHz | Limits (dBμV) | |
|---|---|---|
| | Quasi-peak Level | Average Level |
| 0.15 ~ 0.50 | 66 ~ 56* | 56 ~ 46* |
| 0.50 ~ 5.00 | 56 | 46 |
| 5.00 ~ 30.00 | 60 | 50 |

* Decreases with the logarithm of the frequency.

9.3 Test procedure

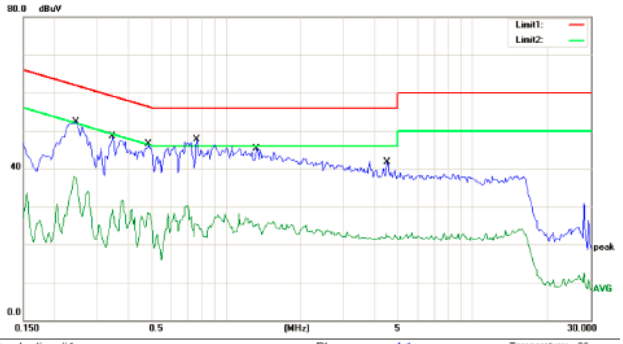
The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESPI) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

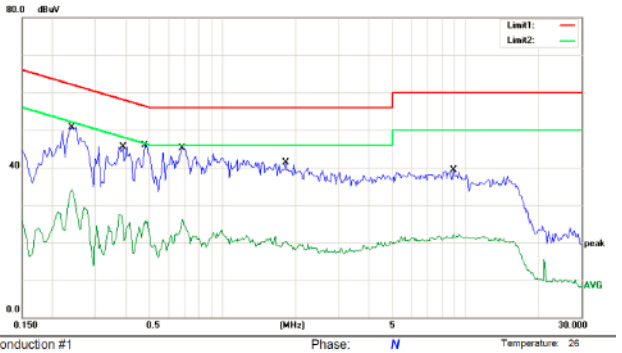
9.4 Test Result

PASS




Site Conduction #1 Phase: L1 Temperature: 26
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 60 %
Mode: ON
Note:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.2450 | 52.27 | 0.00 | 52.27 | 61.92 | -9.65 | QP | |
| 2 | | 0.2450 | 36.33 | 0.00 | 36.33 | 51.92 | -15.59 | AVG | |
| 3 | | 0.3450 | 48.52 | 0.00 | 48.52 | 59.08 | -10.56 | QP | |
| 4 | | 0.3450 | 28.65 | 0.00 | 28.65 | 49.08 | -20.43 | AVG | |
| 5 | | 0.4850 | 46.43 | 0.00 | 46.43 | 56.25 | -9.82 | QP | |
| 6 | | 0.4850 | 28.19 | 0.00 | 28.19 | 46.25 | -18.06 | AVG | |
| 7 | * | 0.7600 | 47.79 | 0.00 | 47.79 | 56.00 | -8.21 | QP | |
| 8 | | 0.7600 | 25.06 | 0.00 | 25.06 | 46.00 | -20.94 | AVG | |
| 9 | | 1.3300 | 45.29 | 0.00 | 45.29 | 56.00 | -10.71 | QP | |
| 10 | | 1.3300 | 25.06 | 0.00 | 25.06 | 46.00 | -20.94 | AVG | |
| 11 | | 4.5200 | 41.71 | 0.00 | 41.71 | 56.00 | -14.29 | QP | |
| 12 | | 4.5200 | 22.19 | 0.00 | 22.19 | 46.00 | -23.81 | AVG | |



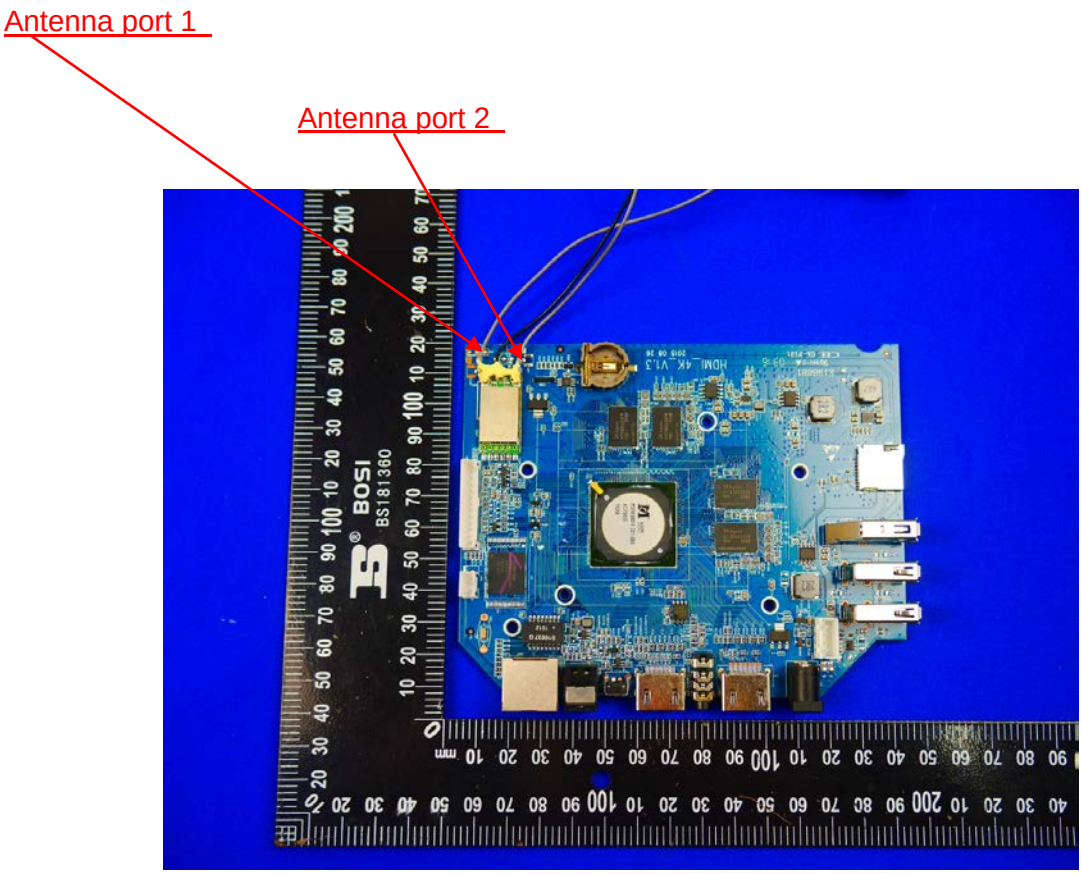

Site Conduction #1 Phase: N Temperature: 26
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 60 %
Mode: ON
Note:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.2400 | 50.61 | 0.00 | 50.61 | 62.10 | -11.49 | QP | |
| 2 | | 0.2400 | 33.95 | 0.00 | 33.95 | 52.10 | -18.15 | AVG | |
| 3 | | 0.3900 | 45.57 | 0.00 | 45.57 | 58.06 | -12.49 | QP | |
| 4 | | 0.3900 | 22.91 | 0.00 | 22.91 | 48.06 | -25.15 | AVG | |
| 5 | * | 0.4800 | 45.82 | 0.00 | 45.82 | 56.34 | -10.52 | QP | |
| 6 | | 0.4800 | 24.71 | 0.00 | 24.71 | 46.34 | -21.63 | AVG | |
| 7 | | 0.6850 | 45.19 | 0.00 | 45.19 | 56.00 | -10.81 | QP | |
| 8 | | 0.6850 | 25.88 | 0.00 | 25.88 | 46.00 | -20.12 | AVG | |
| 9 | | 1.8200 | 41.21 | 0.00 | 41.21 | 56.00 | -14.79 | QP | |
| 10 | | 1.8200 | 20.19 | 0.00 | 20.19 | 46.00 | -25.81 | AVG | |
| 11 | | 8.9500 | 39.29 | 0.00 | 39.29 | 60.00 | -20.71 | QP | |
| 12 | | 8.9500 | 22.18 | 0.00 | 22.18 | 50.00 | -27.82 | AVG | |

## 10. ANTENNA REQUIREMENT

According to Section 15.203, 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.

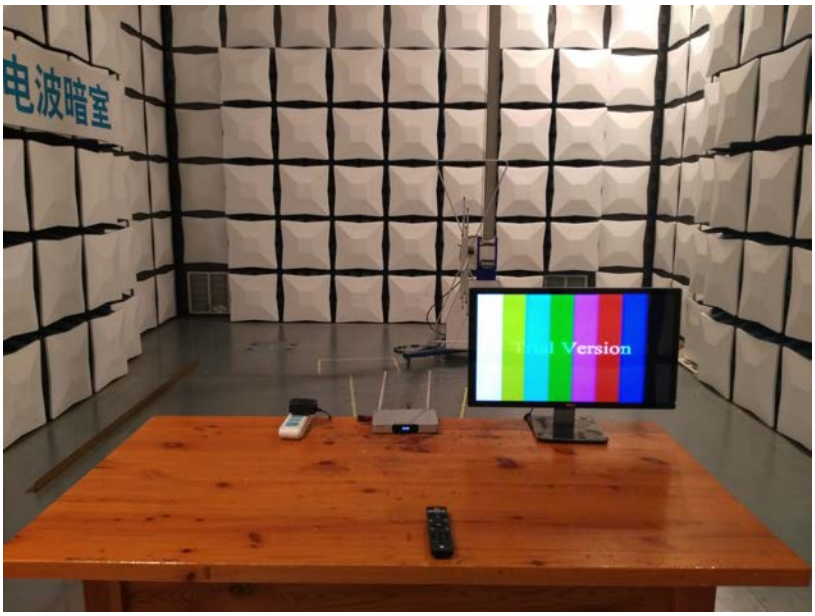
Antenna is fixed by enclosure, can not be changed except take apart the product.

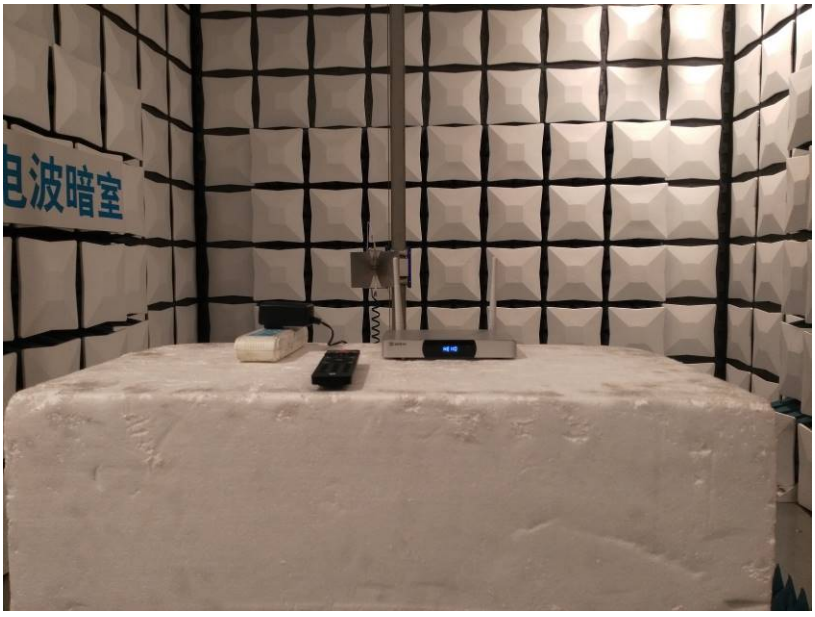



Note: Two antennas transmitting at the same time

## 11. POTOGRAPH OF TEST

11.1 Radiated Emission




DELL

## 11.2 Conducted Emission