# FCC Report (WIFI)

| | |
|---|---|
| **Applicant:** | SHEN ZHEN HOOZO ELECTRONIC CO.,LTD |
| **Address of Applicant:** | Block B, Hengmingzhu Industrial Park, Qianjin Road, Xixiang, Bao'an District, Shenzhen City, China |
| **Manufacturer:** | SHEN ZHEN HOOZO ELECTRONIC CO.,LTD |
| **Address of Manufacturer:** | Block B, Hengmingzhu Industrial Park, Qianjin Road, Xixiang, Bao'an District, Shenzhen City, China |
| **Factory:** | SHEN ZHEN HOOZO ELECTRONIC CO.,LTD |
| **Address of Factory:** | Block B, Hengmingzhu Industrial Park, Qianjin Road, Xixiang, Bao'an District, Shenzhen City, China |

**Equipment Under Test (EUT)**

| | |
|---|---|
| Product Name: | Tablet PC |
| Model No.: | KT0007,KTP0007,KTB0007,WSKT,WSKT07,WM07,V07, F07, L07,BK-7,JE07 |
| Trade Mark: | HOOZO WINSING Wecool Victbing FLYING TECH LECTRUS IBBWB JUSTETHAN |
| **FCC ID:** | 2AT4N-KT0007 |
| **Applicable standards:** | FCC CFR Title 47 Part 15 Subpart C Section 15.247<br>KDB558074 D01 DTS Meas Guidance V05r02 |
| **Date of sample receipt:** | December 16, 2019 |
| **Date of Test:** | December 16- December 24, 2019 |
| **Date of report issued:** | December 24, 2019 |
| **Test Result :** | PASS * |

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

Authorized Signature:

**Robinson Lo**
**Laboratory Manager**

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

## 2 Version

| Version No. | Date | Description |
|---|---|---|
| *00* | *December 24* | *Original* |
| | | |
| | | |
| | | |
| | | |

***Prepared By:*** ***Date:*** *December 24*

***Project Engineer***

***Check By:*** ***Date:*** *December 24*

***Reviewer***

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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 |
| Channel 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 |

*Remark: Test according to ANSI C63.10:2013.*

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

**Measurement Uncertainty**

| Test Item | Measurement Uncertainty | Notes |
|---|---|---|
| Conducted Peak Output Power | 0.65dB | (1) |
| Power Spectral Density | 1.31dB | (1) |
| Unwanted Emission, conducted | 2.8dB | (1) |
| Radiated Emission (30MHz-200MHz) | 3.8039dB | (1) |
| Radiated Emission (200MHz-1GHz) | 3.9679dB | (1) |
| Radiated Emission (1GHz-18GHz) | 4.29dB | (1) |
| Radiated Emission (18GHz-40GHz) | 3.30dB | (1) |
| AC Power Line Conducted Emission (0.15MHz ~ 30MHz) | 3.44dB | (1) |
| Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%. | | |

# 5 General Information

## 5.1 General Description of EUT

| | |
|---|---|
| Product Name: | Tablet PC |
| Model No.: | KT0007, KTP0007,KTB0007,WSKT,WSKT07,WM07,V07,F07, L07, BK-7,JE07 |
| Test Model No: | KT0007 |
| Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits.<br>The differences are system version, product appearance and model name for commercial purpose. | |
| Serial No.: | HTZ500F |
| Hardware version: | HV1.0 |
| Software version: | SV1.0 |
| Test sample(s) ID: | GTS201912000196-1 |
| Sample(s) Status | Engineer sample |
| Channel numbers: | 802.11b/802.11g /802.11n(HT20): 11<br>802.11n(HT40):7 |
| Channel separation: | 5MHz |
| Modulation technology: | 802.11b: Direct Sequence Spread Spectrum (DSSS)<br>802.11g/802.11n(H20)/802.11n(HT40):<br>Orthogonal Frequency Division Multiplexing (OFDM) |
| Antenna Type: | FPCB antenna |
| Antenna gain: | 1.0dBi |
| Power supply: | AC 120V / 60Hz |

| Operation Frequency each of channel | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1 | 2412MHz | 4 | 2427MHz | 7 | 2442MHz | 10 | 2457MHz |
| 2 | 2417MHz | 5 | 2432MHz | 8 | 2447MHz | 11 | 2462MHz |
| 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:

| **Test channel** | **Frequency (MHz)** | |
|---|---|---|
| | 802.11b/802.11g/802.11n(HT20) | 802.11n(HT40) |
| Lowest channel | 2412MHz | 2422MHz |
| Middle channel | 2437MHz | 2437MHz |
| Highest channel | 2462MHz | 2452MHz |

## 5.2 Test mode

| | |
|---|---|
| Transmitting mode | Keep the EUT in continuously transmitting mode |

*Remark: During the test, the dutycycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.*

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:

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

| Mode | 802.11b | 802.11g | 802.11n(HT20) | 802.11n(HT40) |
|---|---|---|---|---|
| Data rate | 1Mbps | 6Mbps | 6.5Mbps | 13Mbps |

## 5.3 Description of Support Units

None

## 5.4 Test Facility

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

● **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

## 5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone,
Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Telephone: +86 (0) 755 2779 8480

Fax: +86 (0) 755 2779 8960

## 5.6 Additional Instructions

EUT Software Settings:

| | | | |
|---|---|---|---|
| Mode | Special software is used.<br>The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually. | | |
| | | | |
| Test Software Name | DRTU Version 1.7.7-02972 | | |
| Mode | Channel | Frequency (MHz) | Software Set |
| 802.11b/g/n(HT20) | CH1 | 2412 | TX level : default |
| | CH6 | 2437 | |
| | CH11 | 2462 | |
| 802.11n(HT40) | CH3 | 2422 | |
| | CH6 | 2437 | |
| | CH9 | 2452 | |

# 6 Test Instruments list

| Radiated Emission: | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| 1 | 3m Semi- Anechoic Chamber | ZhongYu Electron | 9.2(L)*6.2(W)* 6.4(H) | GTS250 | July. 03 2015 | July. 02 2020 |
| 2 | Control Room | ZhongYu Electron | 6.2(L)*2.5(W)* 2.4(H) | GTS251 | N/A | N/A |
| 3 | EMI Test Receiver | Rohde & Schwarz | ESU26 | GTS203 | June. 26 2019 | June. 25 2020 |
| 4 | BiConiLog Antenna | SCHWARZBECK MESS-ELEKTRONIK | VULB9163 | GTS214 | June. 26 2019 | June. 25 2020 |
| 5 | Double -ridged waveguide horn | SCHWARZBECK MESS-ELEKTRONIK | BBHA 9120 D | GTS208 | June. 26 2019 | June. 25 2020 |
| 6 | Horn Antenna | ETS-LINDGREN | 3160 | GTS217 | June. 26 2019 | June. 25 2020 |
| 7 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| 8 | Coaxial Cable | GTS | N/A | GTS213 | June. 26 2019 | June. 25 2020 |
| 9 | Coaxial Cable | GTS | N/A | GTS211 | June. 26 2019 | June. 25 2020 |
| 10 | Coaxial cable | GTS | N/A | GTS210 | June. 26 2019 | June. 25 2020 |
| 11 | Coaxial Cable | GTS | N/A | GTS212 | June. 26 2019 | June. 25 2020 |
| 12 | Amplifier(100kHz-3GHz) | HP | 8347A | GTS204 | June. 26 2019 | June. 25 2020 |
| 13 | Amplifier(2GHz-20GHz) | HP | 84722A | GTS206 | June. 26 2019 | June. 25 2020 |
| 14 | Amplifier (18-26GHz) | Rohde & Schwarz | AFS33-18002 650-30-8P-44 | GTS218 | June. 26 2019 | June. 25 2020 |
| 15 | Band filter | Amindeon | 82346 | GTS219 | June. 26 2019 | June. 25 2020 |
| 16 | Power Meter | Anritsu | ML2495A | GTS540 | June. 26 2019 | June. 25 2020 |
| 17 | Power Sensor | Anritsu | MA2411B | GTS541 | June. 26 2019 | June. 25 2020 |
| 18 | Wideband Radio Communication Tester | Rohde & Schwarz | CMW500 | GTS575 | June. 26 2019 | June. 25 2020 |
| 19 | Splitter | Agilent | 11636B | GTS237 | June. 26 2019 | June. 25 2020 |
| 20 | Loop Antenna | ZHINAN | ZN30900A | GTS534 | June. 26 2019 | June. 25 2020 |
| 21 | Breitband hornantenne | SCHWARZBECK | BBHA 9170 | GTS579 | Oct. 20 2018 | Oct. 19 2019 |
| 22 | Amplifier | TDK | PA-02-02 | GTS574 | Oct. 20 2018 | Oct. 19 2019 |
| 23 | Amplifier | TDK | PA-02-03 | GTS576 | Oct. 20 2018 | Oct. 19 2019 |
| 24 | PSA Series Spectrum Analyzer | Rohde & Schwarz | FSP | GTS578 | June. 26 2019 | June. 25 2020 |

| Conducted Emission | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| 1 | Shielding Room | ZhongYu Electron | 7.3(L)x3.1(W)x2.9(H) | GTS252 | May.15 2019 | May.14 2022 |
| 2 | EMI Test Receiver | R&S | ESCI 7 | GTS552 | June. 26 2019 | June. 25 2020 |
| 3 | Coaxial Switch | ANRITSU CORP | MP59B | GTS225 | June. 26 2019 | June. 25 2020 |
| 4 | Artificial Mains Network | SCHWARZBECK MESS | NSLK8127 | GTS226 | June. 26 2019 | June. 25 2020 |
| 5 | Coaxial Cable | GTS | N/A | GTS227 | N/A | N/A |
| 6 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| 7 | Thermo meter | KTJ | TA328 | GTS233 | June. 26 2019 | June. 25 2020 |
| 8 | Absorbing clamp | Elektronik-Feinmechanik | MDS21 | GTS229 | June. 26 2019 | June. 25 2020 |
| 9 | ISN | SCHWARZBECK | NTFM 8158 | GTD565 | June. 26 2019 | June. 25 2020 |

| RF Conducted Test: | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| 1 | MXA Signal Analyzer | Agilent | N9020A | GTS566 | June. 26 2019 | June. 25 2020 |
| 2 | EMI Test Receiver | R&S | ESCI 7 | GTS552 | June. 26 2019 | June. 25 2020 |
| 3 | Spectrum Analyzer | Agilent | E4440A | GTS533 | June. 26 2019 | June. 25 2020 |
| 4 | MXG vector Signal Generator | Agilent | N5182A | GTS567 | June. 26 2019 | June. 25 2020 |
| 5 | ESG Analog Signal Generator | Agilent | E4428C | GTS568 | June. 26 2019 | June. 25 2020 |
| 6 | USB RF Power Sensor | DARE | RPR3006W | GTS569 | June. 26 2019 | June. 25 2020 |
| 7 | RF Switch Box | Shongyi | RFSW3003328 | GTS571 | June. 26 2019 | June. 25 2020 |
| 8 | Programmable Constant Temp & Humi Test Chamber | WEWON | WHTH-150L-40-880 | GTS572 | June. 26 2019 | June. 25 2020 |

| General used equipment: | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| 1 | Humidity/ Temperature Indicator | KTJ | TA328 | GTS243 | June. 26 2019 | June. 25 2020 |
| 2 | Barometer | ChangChun | DYM3 | GTS255 | June. 26 2019 | June. 25 2020 |

# 7 Test results and Measurement Data

## 7.1 Antenna requirement

| Standard requirement: | FCC Part15 C Section 15.203 /247(c) |
|---|---|

**15.203 requirement:**

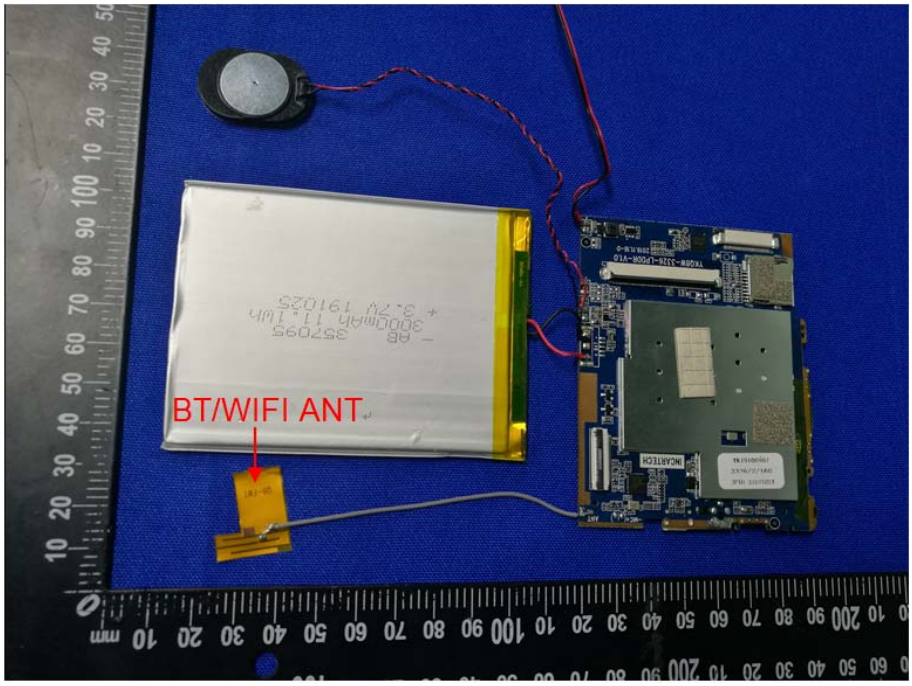
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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.

**EUT Antenna:**

The antenna is FPCB antenna, the best case gain of the antenna is 1.0dBi.



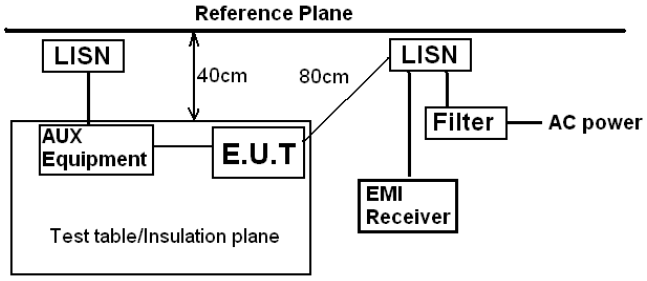
## 7.2 Conducted Emissions

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.207 |
| Test Method: | Clause 6.2 of ANSI C63.10:2013 |
| Test Frequency Range: | 150KHz to 30MHz |
| Receiver setup: | RBW=9KHz, VBW=30KHz, Sweep time=auto |
| Limit: | |

| Frequency range (MHz) | Limit (dBuV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

* Decreases with the logarithm of the frequency.

Test setup:




*Remark:*
*E.U.T: Equipment Under Test*
*LISN: Line Impedence Stabilization Network*
*Test table height=0.8m*

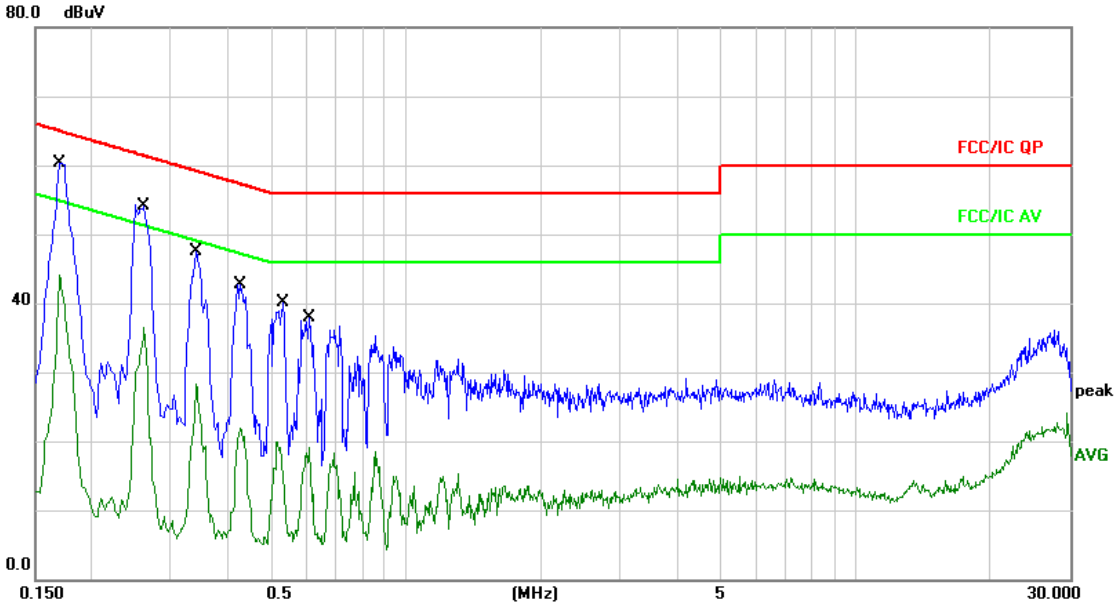
Test procedure:

1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. 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 C63.10:2013 on conducted measurement.
4. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s).The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
5. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
6. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
7. LISN at least 80 cm from nearest part of EUT chassis.
8. For the actual test configuration, please refer to the related Item –EUT

| | | | | | | |
|---|---|---|---|---|---|---|
| | Test Photos. | | | | | |
| Test Instruments: | Refer to section 6.0 for details | | | | | |
| Test mode: | Refer to section 5.2 for details | | | | | |
| Test environment: | Temp.: | 25 °C | Humid.: | 52% | Press.: | 1012mbar |
| Test voltage: | AC 120V, 60Hz | | | | | |
| Test results: | Pass | | | | | |

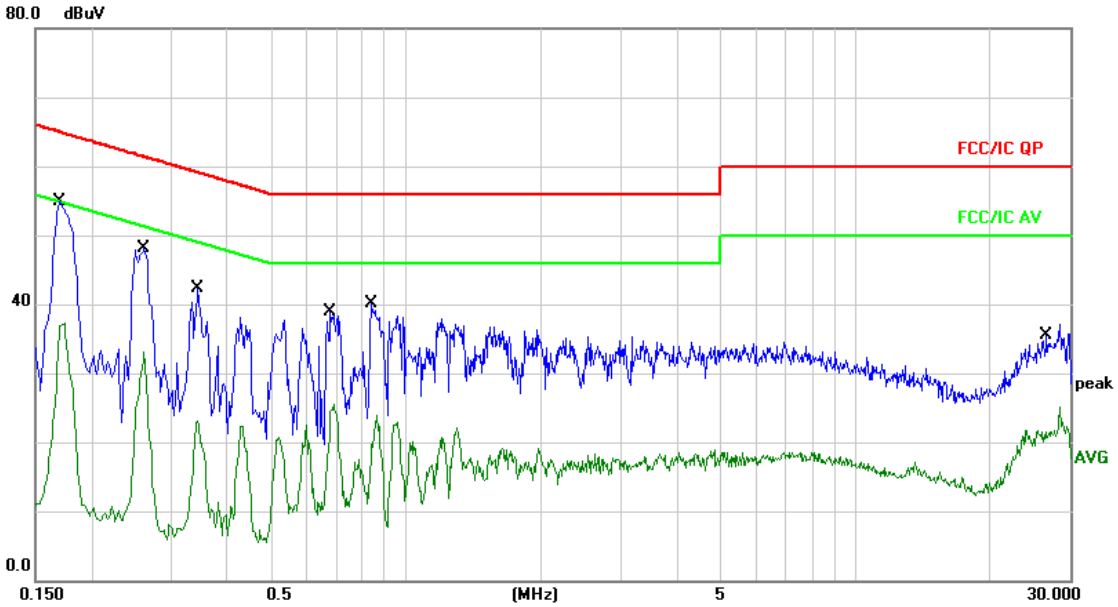
**Measurement data**

Line:




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | * | 0.1700 | 50.72 | 9.66 | 60.38 | 64.96 | -4.58 | QP | |
| 2 | | 0.1700 | 34.42 | 9.66 | 44.08 | 54.96 | -10.88 | AVG | |
| 3 | | 0.2620 | 44.38 | 9.66 | 54.04 | 61.36 | -7.32 | QP | |
| 4 | | 0.2620 | 26.86 | 9.66 | 36.52 | 51.36 | -14.84 | AVG | |
| 5 | | 0.3420 | 37.86 | 9.66 | 47.52 | 59.15 | -11.63 | QP | |
| 6 | | 0.3420 | 18.66 | 9.66 | 28.32 | 49.15 | -20.83 | AVG | |
| 7 | | 0.4300 | 33.09 | 9.67 | 42.76 | 57.25 | -14.49 | QP | |
| 8 | | 0.4300 | 12.28 | 9.67 | 21.95 | 47.25 | -25.30 | AVG | |
| 9 | | 0.5340 | 30.38 | 9.68 | 40.06 | 56.00 | -15.94 | QP | |
| 10 | | 0.5340 | 10.30 | 9.68 | 19.98 | 46.00 | -26.02 | AVG | |
| 11 | | 0.6100 | 28.22 | 9.68 | 37.90 | 56.00 | -18.10 | QP | |
| 12 | | 0.6100 | 9.49 | 9.68 | 19.17 | 46.00 | -26.83 | AVG | |

Neutral:

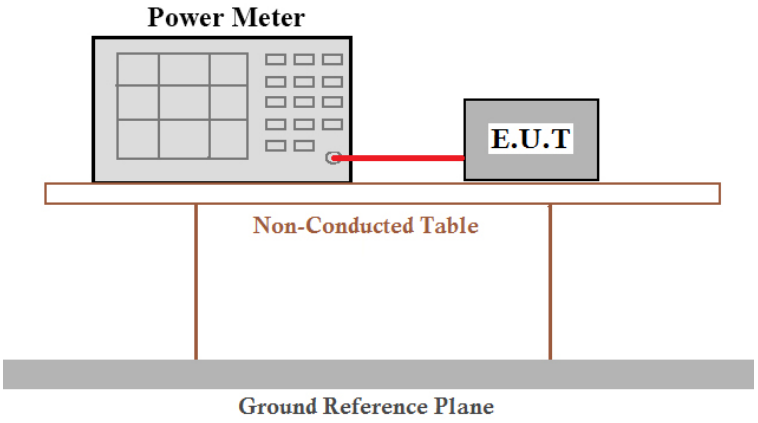



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | * | 0.1700 | 45.32 | 9.66 | 54.98 | 64.96 | -9.98 | QP | |
| 2 | | 0.1700 | 27.60 | 9.66 | 37.26 | 54.96 | -17.70 | AVG | |
| 3 | | 0.2620 | 38.36 | 9.66 | 48.02 | 61.36 | -13.34 | QP | |
| 4 | | 0.2620 | 23.47 | 9.66 | 33.13 | 51.36 | -18.23 | AVG | |
| 5 | | 0.3460 | 32.67 | 9.66 | 42.33 | 59.06 | -16.73 | QP | |
| 6 | | 0.3460 | 13.45 | 9.66 | 23.11 | 49.06 | -25.95 | AVG | |
| 7 | | 0.6820 | 29.26 | 9.68 | 38.94 | 56.00 | -17.06 | QP | |
| 8 | | 0.6820 | 15.77 | 9.68 | 25.45 | 46.00 | -20.55 | AVG | |
| 9 | | 0.8420 | 30.43 | 9.69 | 40.12 | 56.00 | -15.88 | QP | |
| 10 | | 0.8420 | 14.19 | 9.69 | 23.88 | 46.00 | -22.12 | AVG | |
| 11 | | 26.6260 | 25.53 | 9.87 | 35.40 | 60.00 | -24.60 | QP | |
| 12 | | 26.6260 | 11.83 | 9.87 | 21.70 | 50.00 | -28.30 | AVG | |

*Notes:*

1. An initial pre-scan was performed on the line 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
4. *If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.*

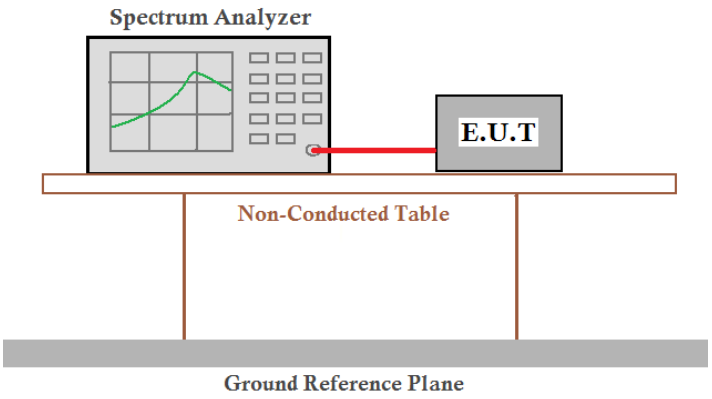
## 7.3 Conducted Peak Output Power

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (b)(3) |
| Test Method: | Clause 8.3 of KDB558074 D01 DTS Meas Guidance V05r02 |
| Limit: | 30dBm |
| Test setup: |  |
| Test procedure: | 1.The Eut was directly connected to the power meter. |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

**Measurement Data**

| Test CH | Peak Output Power (dBm) | | | | Limit(dBm) | Result |
|---|---|---|---|---|---|---|
| | 802.11b | 802.11g | 802.11n(HT20) | 802.11n(HT40) | | |
| Lowest | 10.68 | 8.88 | 6.73 | 5.46 | 30.00 | Pass |
| Middle | 10.72 | 8.15 | 6.26 | 5.29 | | |
| Highest | 10.45 | 8.39 | 6.53 | 5.32 | | |

## 7.4 Channel Bandwidth

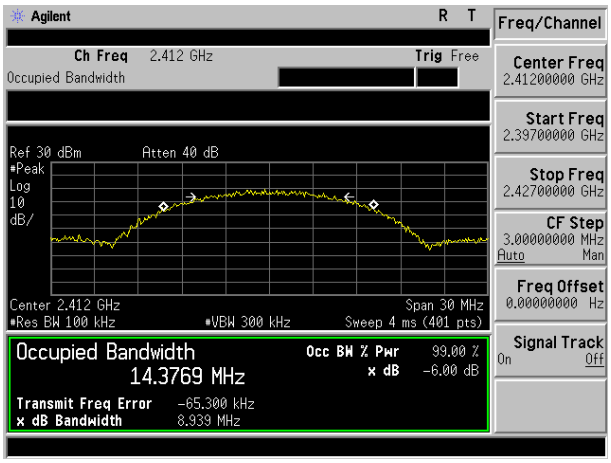
| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(2) |
| Test Method: | Clause 8.2 of KDB558074 D01 DTS Meas Guidance V05r02 and Subclause 11.8 of ANSI C63.10. |
| Limit: | >500KHz |
| Test setup: |  |
| Test procedure: | The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW⩾3RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be⩾6 dB. |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

**Measurement Data**

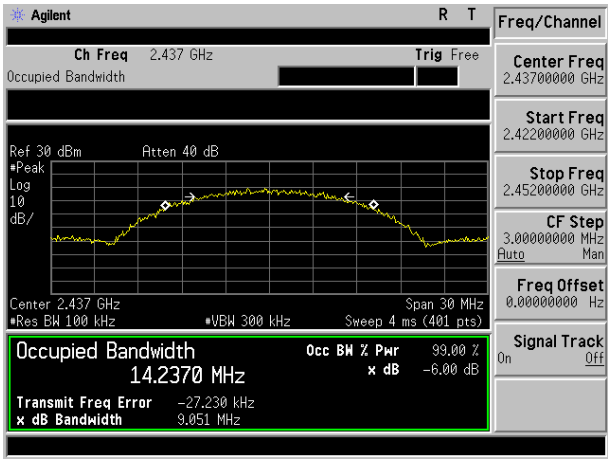
| Test CH | Channel Bandwidth (MHz) | | | | Limit(KHz) | Result |
|---|---|---|---|---|---|---|
| | 802.11b | 802.11g | 802.11n(HT20) | 802.11n(HT40) | | |
| Lowest | 8.939 | 15.168 | 15.167 | 35.108 | >500 | Pass |
| Middle | 9.051 | 15.113 | 15.145 | 35.152 | | |
| Highest | 9.087 | 15.396 | 15.164 | 35.080 | | |

**Test plot as follows:**

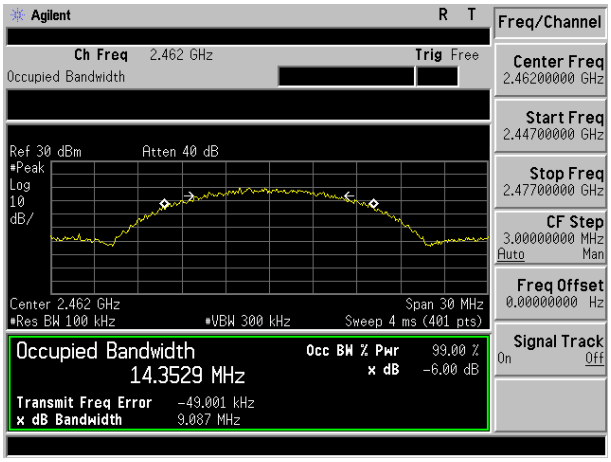
| Test mode: | 802.11b |
|---|---|




Lowest channel

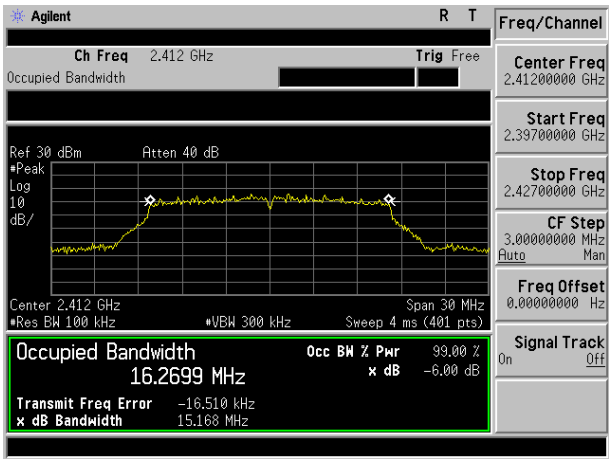



Middle channel

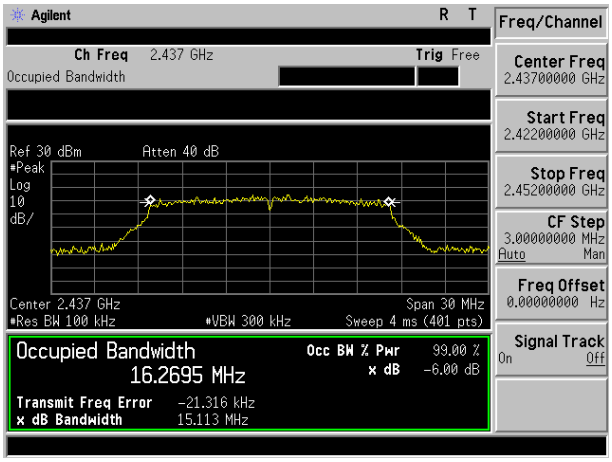



Highest channel

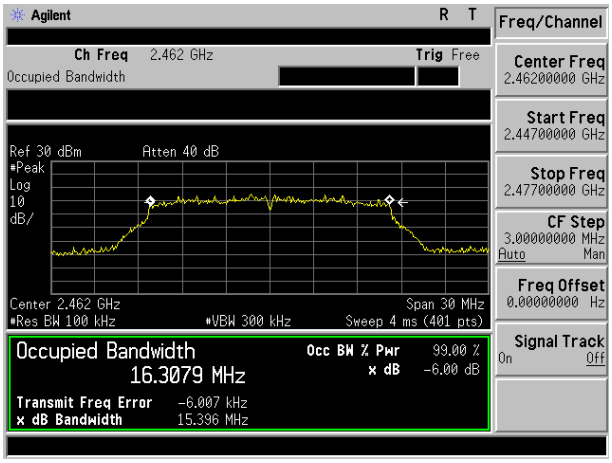
| Test mode: | 802.11g |
|---|---|




Lowest channel

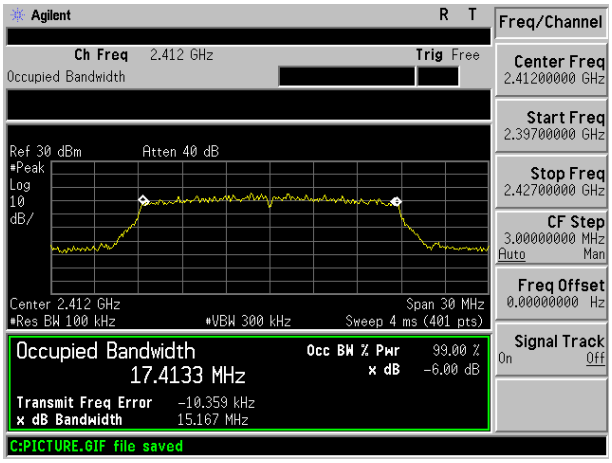



Middle channel

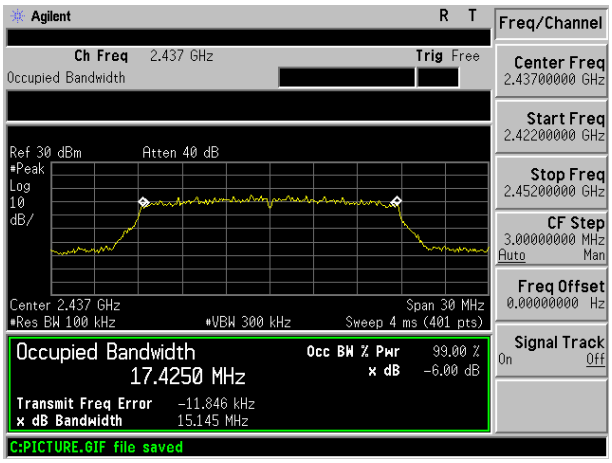



Highest channel

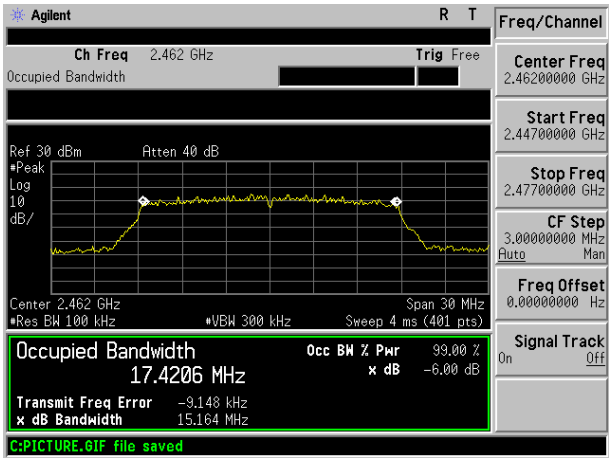
| Test mode: | 802.11n(HT20) |
|---|---|




Lowest channel

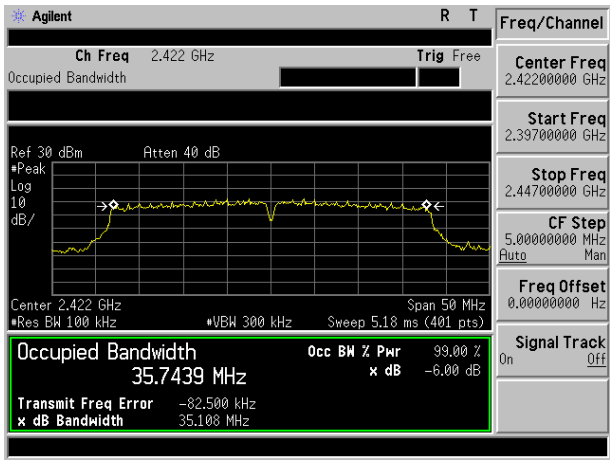



Middle channel

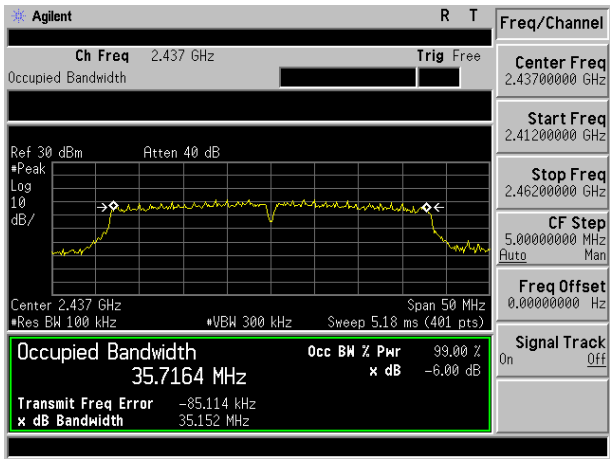



Highest channel

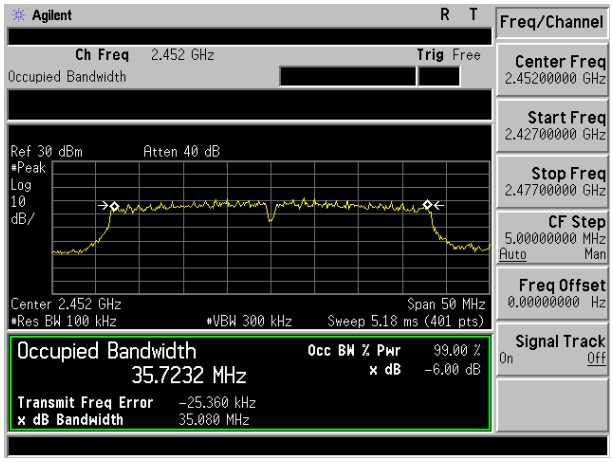
| Test mode: | 802.11n(HT40) |
|---|---|




Lowest channel

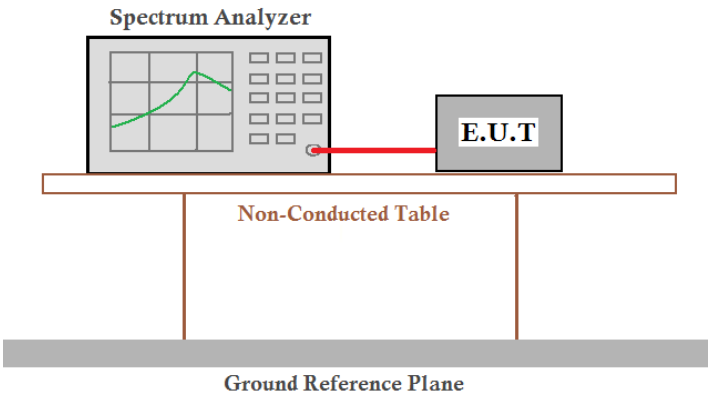



Middle channel




Highest channel

## 7.5 Power Spectral Density

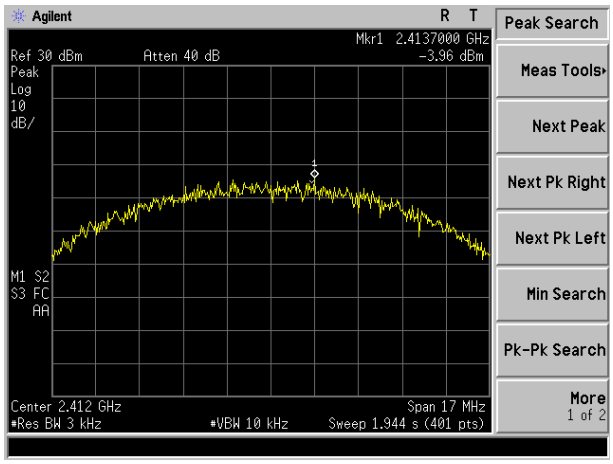
| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (e) |
| Test Method: | Clause 8.4 of KDB 558074 D01 15.247 Meas Guidance v05r02 and subclause 11.10 of ANSI C63.10 |
| Limit: | 8dBm/3kHz |
| Test setup: |  |
| Test procedure: | 1.Set analyzer center frequency to DTS channel center frequency.<br>2.Set the span to 1.5 times the DTS channel bandwidth.<br>3.Set the 100 kHz ⩾ RBW ⩾3 kHz.<br>4.Set the VBW ⩾ 3 x RBW.<br>5.Detector = peak.<br>6.Sweep time = auto couple.<br>7.Trace mode = max hold.<br>8.Allow trace to fully stabilize.<br>9.Use the peak marker function to determine the maximum amplitude level.<br>10.If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat. |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

**Measurement Data**

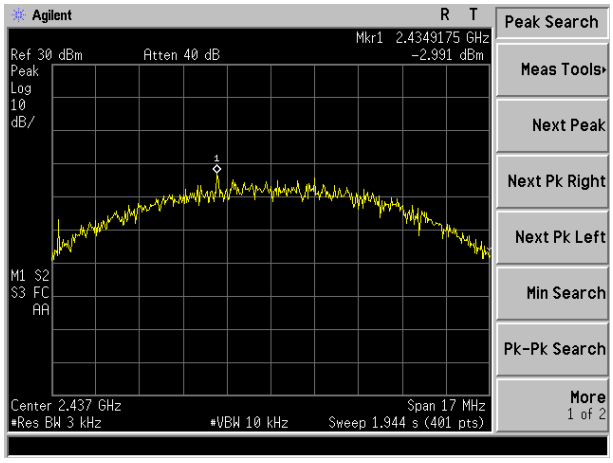
| Test CH | Power Spectral Density (dBm) | | | | Limit (dBm/3kHz) | Result |
|---|---|---|---|---|---|---|
| | 802.11b | 802.11g | 802.11n(HT20) | 802.11n(HT40) | | |
| Lowest | -3.96 | -10.49 | -9.661 | -14.29 | 8.00 | Pass |
| Middle | -2.991 | -9.946 | -9.644 | -12.93 | | |
| Highest | -2.543 | -10.48 | -10.38 | -14.67 | | |

**Test plot as follows:**

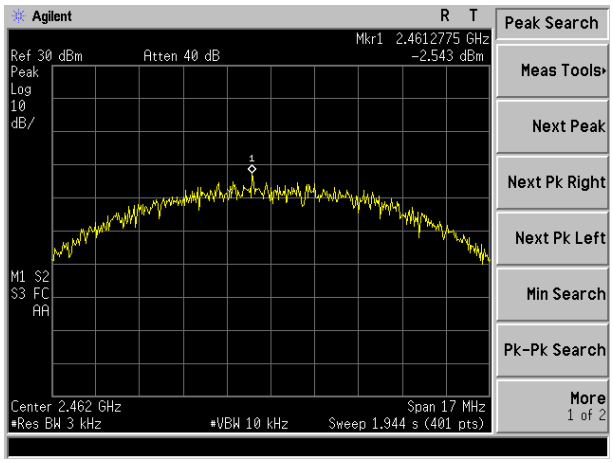
| Test mode: | 802.11b |
|---|---|




Lowest channel

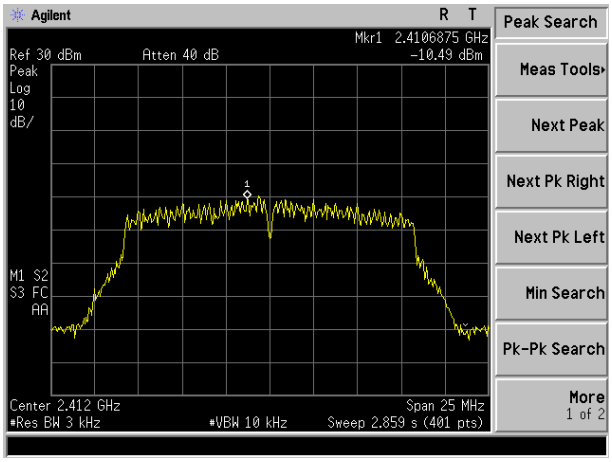



Middle channel

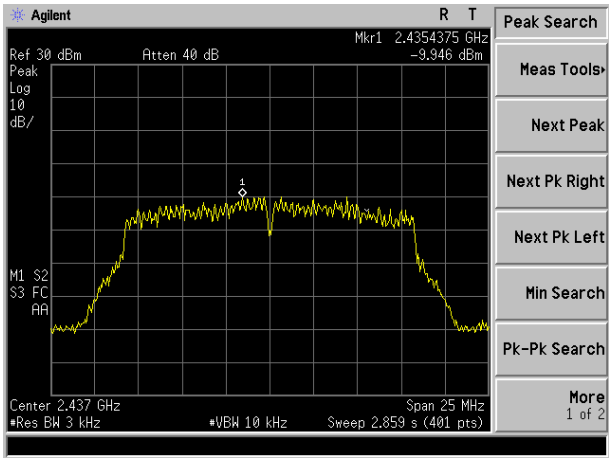



Highest channel

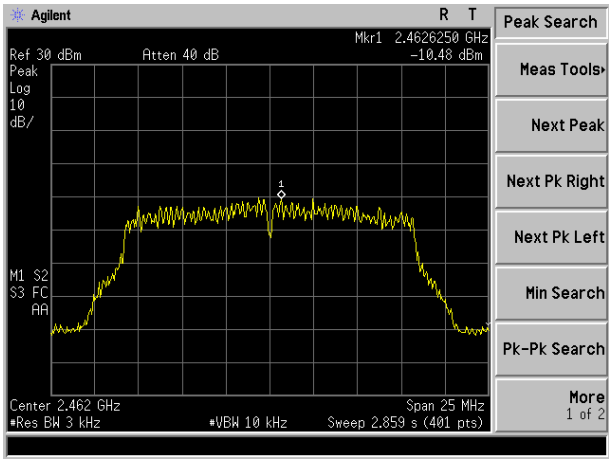
| Test mode: | 802.11g |
|---|---|




Lowest channel

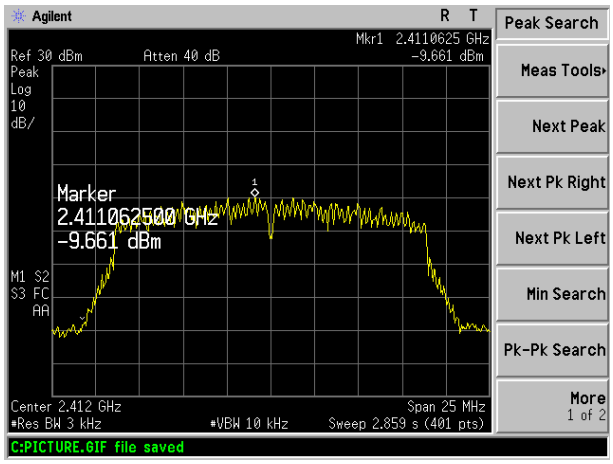



Middle channel

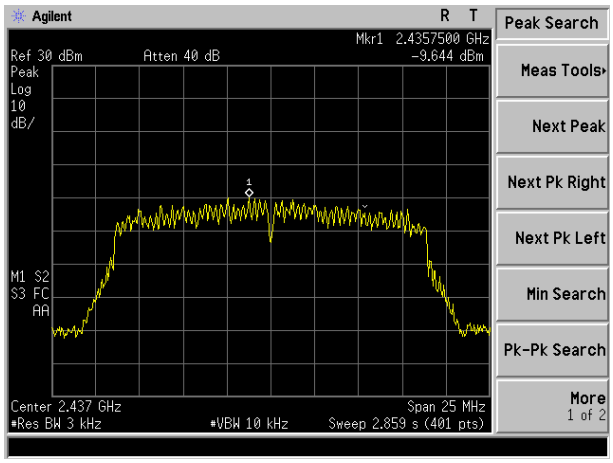



Highest channel

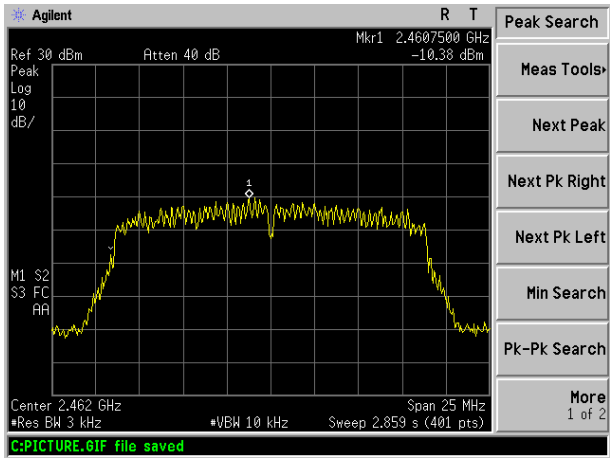
| Test mode: | 802.11n(HT20) |
|---|---|




Lowest channel

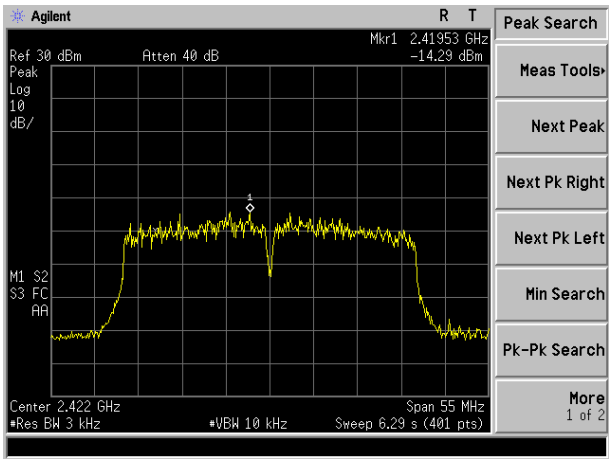



Middle channel

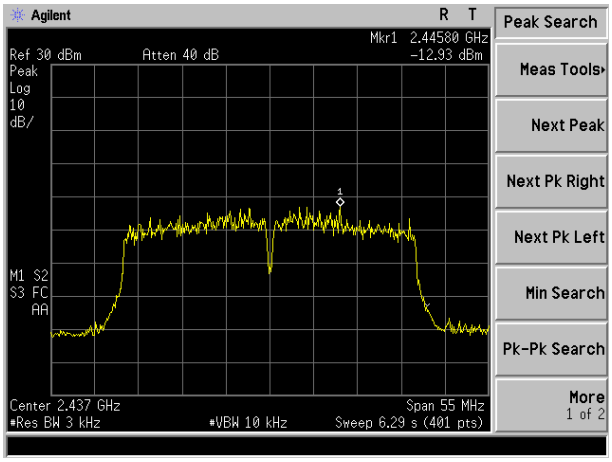



Highest channel

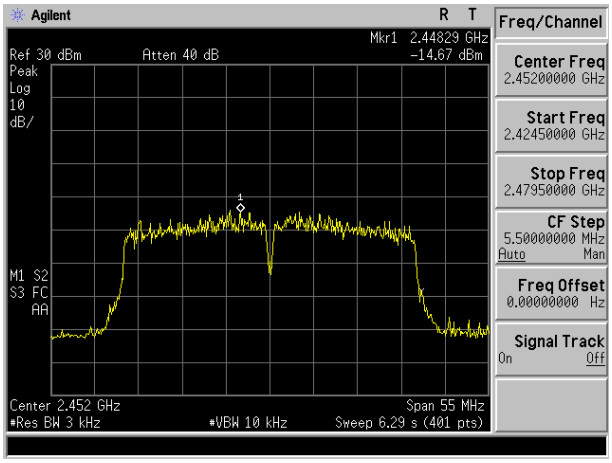
| Test mode: | 802.11n(HT40) |
|---|---|




Lowest channel



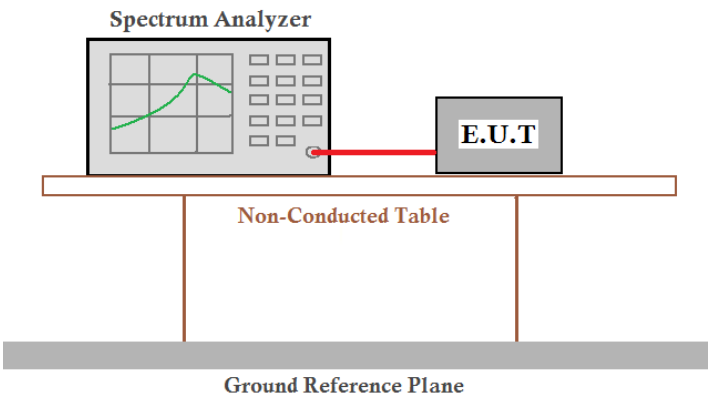

Middle channel




Highest channel

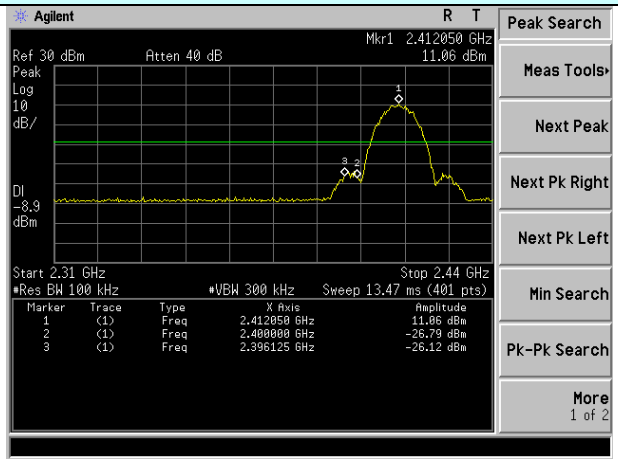
## 7.6 Band edges

### 7.6.1 Conducted Emission Method

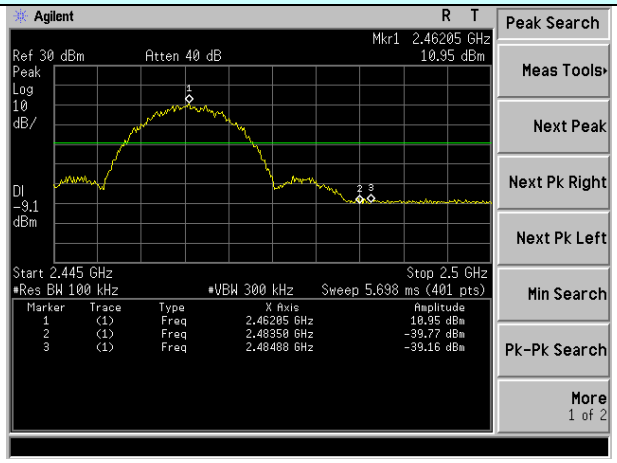
| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (d) |
| Test Method: | Clause 8.7 of KDB558074 D01 DTS Meas Guidance V05r02 and subclause 11.13 of ANSI C63.10 |
| Limit: | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 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. |
| Test setup: |  |
| Test procedure: | The EUT which is powered by the AC Line, is connected to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.<br>Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

**Test plot as follows:**

| Test mode: | 802.11b |
|---|---|

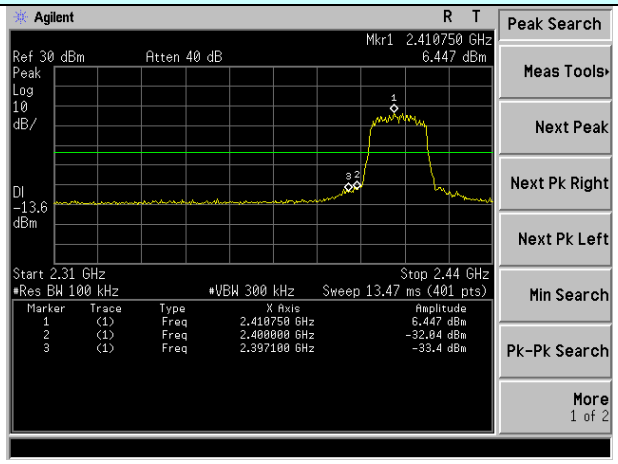



Lowest channel

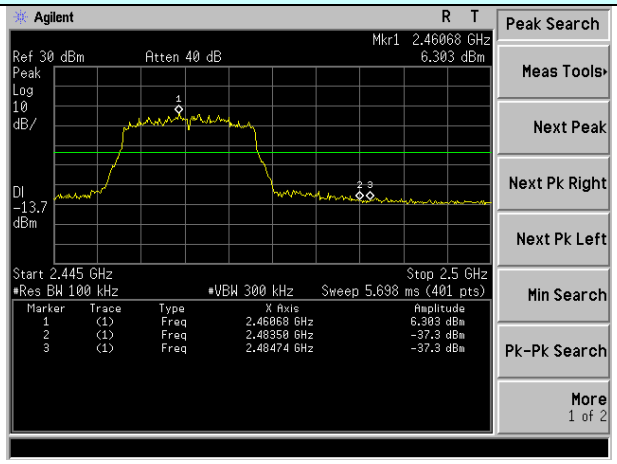



Highest channel

| Test mode: | 802.11g |
|---|---|

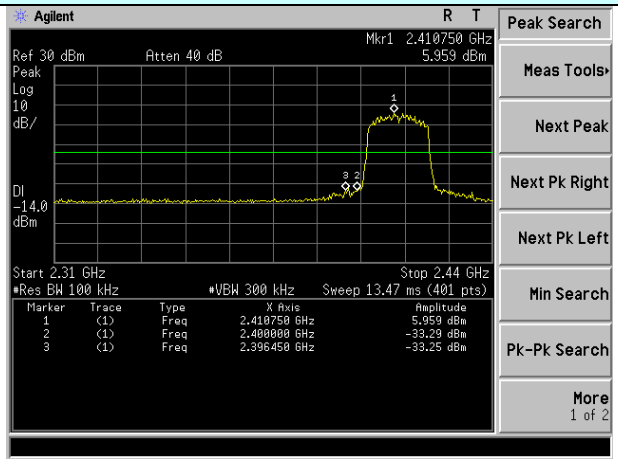



Lowest channel

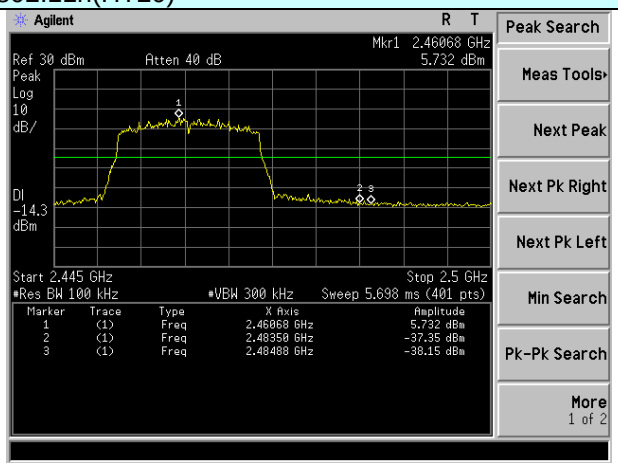



Highest channel

| Test mode: | 802.11n(HT20) |
|---|---|

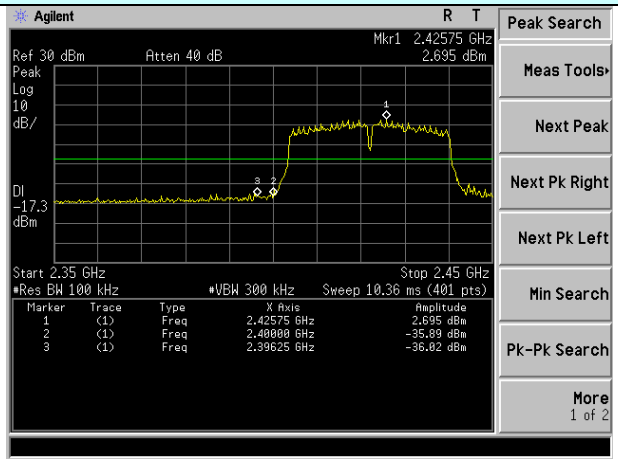



Lowest channel

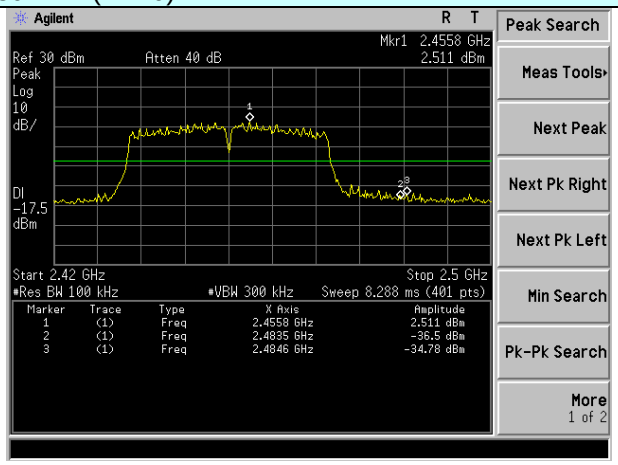



Highest channel

| Test mode: | 802.11n(HT40) |
|---|---|




Lowest channel




Highest channel

### 7.6.2 Radiated Emission Method

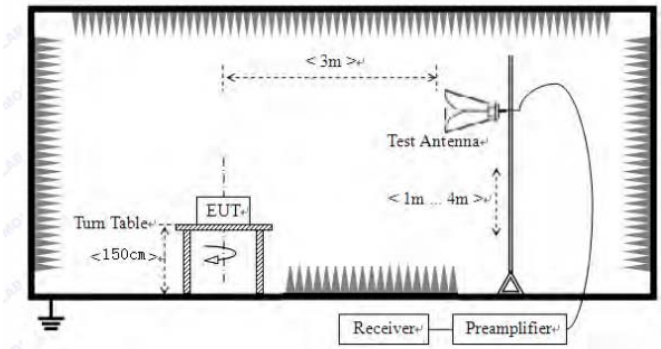
| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.209 and 15.205 |
| Test Method: | Clause 6 of ANSI C63.10:2013 |
| Test Frequency Range: | All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed. |
| Test site: | Measurement Distance: 3m |
| Receiver setup: | |

| Frequency | Detector | RBW | VBW | Value |
|---|---|---|---|---|
| Above 1GHz | Peak | 1MHz | 3MHz | Peak |
| | Average | 1MHz | 3MHz | Average |

Limit:

| Frequency | Limit (dBuV/m @3m) | Value |
|---|---|---|
| Above 1GHz | 54.00 | Average |
| | 74.00 | Peak |

Test setup:




Test Procedure:

1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
7. The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test worst case mode is recorded in the report.

| | |
|---|---|
| Test Instruments: | Refer to section 6.0 for details |

| | |
|---|---|
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

Measurement data:

*Remark: The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.*

| Test mode: | 802.11b | Test channel: | Lowest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2390.00 | 38.63 | 27.91 | 5.30 | 24.64 | 47.20 | 74.00 | -26.80 | Horizontal |
| 2400.00 | 41.72 | 27.59 | 5.38 | 24.71 | 49.98 | 74.00 | -24.02 | Horizontal |
| 2390.00 | 42.06 | 27.91 | 5.30 | 24.64 | 50.63 | 74.00 | -23.37 | Vertical |
| 2400.00 | 40.42 | 27.59 | 5.38 | 24.71 | 48.68 | 74.00 | -25.32 | Vertical |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2390.00 | 24.60 | 27.91 | 5.30 | 24.64 | 33.17 | 54.00 | -20.83 | Horizontal |
| 2400.00 | 33.10 | 27.59 | 5.38 | 24.71 | 41.36 | 54.00 | -12.64 | Horizontal |
| 2390.00 | 24.79 | 27.91 | 5.30 | 24.64 | 33.36 | 54.00 | -20.64 | Vertical |
| 2400.00 | 31.12 | 27.59 | 5.38 | 24.71 | 39.38 | 54.00 | -14.62 | Vertical |

| Test mode: | 802.11b | Test channel: | Highest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2483.50 | 38.97 | 27.53 | 5.47 | 24.80 | 47.17 | 74.00 | -26.83 | Horizontal |
| 2500.00 | 42.85 | 27.55 | 5.49 | 24.86 | 51.03 | 74.00 | -22.97 | Horizontal |
| 2483.50 | 38.32 | 27.53 | 5.47 | 24.80 | 46.52 | 74.00 | -27.48 | Vertical |
| 2500.00 | 39.13 | 27.55 | 5.49 | 24.86 | 47.31 | 74.00 | -26.69 | Vertical |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2483.50 | 34.86 | 27.53 | 5.47 | 24.80 | 43.06 | 54.00 | -10.94 | Horizontal |
| 2500.00 | 35.37 | 27.55 | 5.49 | 24.86 | 43.55 | 54.00 | -10.45 | Horizontal |
| 2483.50 | 33.73 | 27.53 | 5.47 | 24.80 | 41.93 | 54.00 | -12.07 | Vertical |
| 2500.00 | 36.55 | 27.55 | 5.49 | 24.86 | 44.73 | 54.00 | -9.27 | Vertical |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Test mode: | 802.11g | Test channel: | Lowest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2310.00 | 34.68 | 27.91 | 5.30 | 24.64 | 43.25 | 74.00 | -30.75 | Horizontal |
| 2390.00 | 36.15 | 27.59 | 5.38 | 24.71 | 44.41 | 74.00 | -29.59 | Horizontal |
| 2310.00 | 33.58 | 27.91 | 5.30 | 24.64 | 42.15 | 74.00 | -31.85 | Vertical |
| 2390.00 | 36.52 | 27.59 | 5.38 | 24.71 | 44.78 | 74.00 | -29.22 | Vertical |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2310.00 | 28.12 | 27.91 | 5.30 | 24.64 | 36.69 | 54.00 | -17.31 | Horizontal |
| 2390.00 | 35.37 | 27.59 | 5.38 | 24.71 | 43.63 | 54.00 | -10.37 | Horizontal |
| 2310.00 | 28.72 | 27.91 | 5.30 | 24.64 | 37.29 | 54.00 | -16.71 | Vertical |
| 2390.00 | 32.36 | 27.59 | 5.38 | 24.71 | 40.62 | 54.00 | -13.38 | Vertical |

| Test mode: | 802.11g | Test channel: | Highest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2483.50 | 39.67 | 27.53 | 5.47 | 24.80 | 47.87 | 74.00 | -26.13 | Horizontal |
| 2500.00 | 38.11 | 27.55 | 5.49 | 24.86 | 46.29 | 74.00 | -27.71 | Horizontal |
| 2483.50 | 39.48 | 27.53 | 5.47 | 24.80 | 47.68 | 74.00 | -26.32 | Vertical |
| 2500.00 | 41.01 | 27.55 | 5.49 | 24.86 | 49.19 | 74.00 | -24.81 | Vertical |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2483.50 | 28.78 | 27.53 | 5.47 | 24.80 | 36.98 | 54.00 | -17.02 | Horizontal |
| 2500.00 | 24.23 | 27.55 | 5.49 | 24.86 | 32.41 | 54.00 | -21.59 | Horizontal |
| 2483.50 | 25.58 | 27.53 | 5.47 | 24.80 | 33.78 | 54.00 | -20.22 | Vertical |
| 2500.00 | 26.92 | 27.55 | 5.49 | 24.86 | 35.10 | 54.00 | -18.90 | Vertical |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Test mode: | 802.11n(HT20) | Test channel: | Lowest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2310.00 | 40.69 | 27.91 | 5.30 | 24.64 | 49.26 | 74.00 | -24.74 | Horizontal |
| 2390.00 | 46.06 | 27.59 | 5.38 | 24.71 | 54.32 | 74.00 | -19.68 | Horizontal |
| 2310.00 | 43.03 | 27.91 | 5.30 | 24.64 | 51.60 | 74.00 | -22.40 | Vertical |
| 2390.00 | 40.52 | 27.59 | 5.38 | 24.71 | 48.78 | 74.00 | -25.22 | Vertical |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2310.00 | 28.13 | 27.91 | 5.30 | 24.64 | 36.70 | 54.00 | -17.30 | Horizontal |
| 2390.00 | 33.42 | 27.59 | 5.38 | 24.71 | 41.68 | 54.00 | -12.32 | Horizontal |
| 2310.00 | 29.91 | 27.91 | 5.30 | 24.64 | 38.48 | 54.00 | -15.52 | Vertical |
| 2390.00 | 30.82 | 27.59 | 5.38 | 24.71 | 39.08 | 54.00 | -14.92 | Vertical |

| Test mode: | 802.11n(HT20) | Test channel: | Highest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2483.50 | 39.27 | 27.53 | 5.47 | 24.80 | 47.47 | 74.00 | -26.53 | Horizontal |
| 2500.00 | 39.66 | 27.55 | 5.49 | 24.86 | 47.84 | 74.00 | -26.16 | Horizontal |
| 2483.50 | 39.77 | 27.53 | 5.47 | 24.80 | 47.97 | 74.00 | -26.03 | Vertical |
| 2500.00 | 40.70 | 27.55 | 5.49 | 24.86 | 48.88 | 74.00 | -25.12 | Vertical |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2483.50 | 30.16 | 27.53 | 5.47 | 24.80 | 38.36 | 54.00 | -15.64 | Horizontal |
| 2500.00 | 29.57 | 27.55 | 5.49 | 24.86 | 37.75 | 54.00 | -16.25 | Horizontal |
| 2483.50 | 29.61 | 27.53 | 5.47 | 24.80 | 37.81 | 54.00 | -16.19 | Vertical |
| 2500.00 | 29.17 | 27.55 | 5.49 | 24.86 | 37.35 | 54.00 | -16.65 | Vertical |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Test mode: | 802.11n(HT40) | Test channel: | Lowest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2310.00 | 36.56 | 27.91 | 5.30 | 24.64 | 45.13 | 74.00 | -28.87 | Horizontal |
| 2390.00 | 42.18 | 27.59 | 5.38 | 24.71 | 50.44 | 74.00 | -23.56 | Horizontal |
| 2310.00 | 39.43 | 27.91 | 5.30 | 24.64 | 48.00 | 74.00 | -26.00 | Vertical |
| 2390.00 | 42.82 | 27.59 | 5.38 | 24.71 | 51.08 | 74.00 | -22.92 | Vertical |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2310.00 | 27.90 | 27.91 | 5.30 | 24.64 | 36.47 | 54.00 | -17.53 | Horizontal |
| 2390.00 | 34.68 | 27.59 | 5.38 | 24.71 | 42.94 | 54.00 | -11.06 | Horizontal |
| 2310.00 | 28.64 | 27.91 | 5.30 | 24.64 | 37.21 | 54.00 | -16.79 | Vertical |
| 2390.00 | 35.60 | 27.59 | 5.38 | 24.71 | 43.86 | 54.00 | -10.14 | Vertical |

| Test mode: | 802.11n(HT40) | Test channel: | Highest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2483.50 | 40.15 | 27.53 | 5.47 | 24.80 | 48.35 | 74.00 | -25.65 | Horizontal |
| 2500.00 | 39.21 | 27.55 | 5.49 | 24.86 | 47.39 | 74.00 | -26.61 | Horizontal |
| 2483.50 | 41.64 | 27.53 | 5.47 | 24.80 | 49.84 | 74.00 | -24.16 | Vertical |
| 2500.00 | 42.37 | 27.55 | 5.49 | 24.86 | 50.55 | 74.00 | -23.45 | Vertical |

**Average value:**

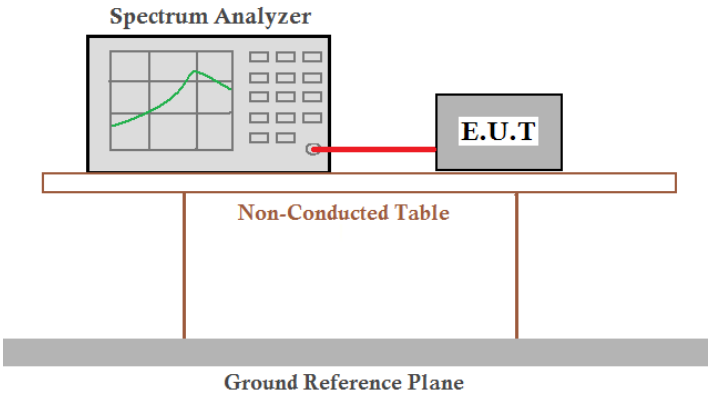
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2483.50 | 31.46 | 27.53 | 5.47 | 24.80 | 39.66 | 54.00 | -14.34 | Horizontal |
| 2500.00 | 30.62 | 27.55 | 5.49 | 24.86 | 38.80 | 54.00 | -15.20 | Horizontal |
| 2483.50 | 31.39 | 27.53 | 5.47 | 24.80 | 39.59 | 54.00 | -14.41 | Vertical |
| 2500.00 | 32.75 | 27.55 | 5.49 | 24.86 | 40.93 | 54.00 | -13.07 | Vertical |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

## 7.7 Spurious Emission

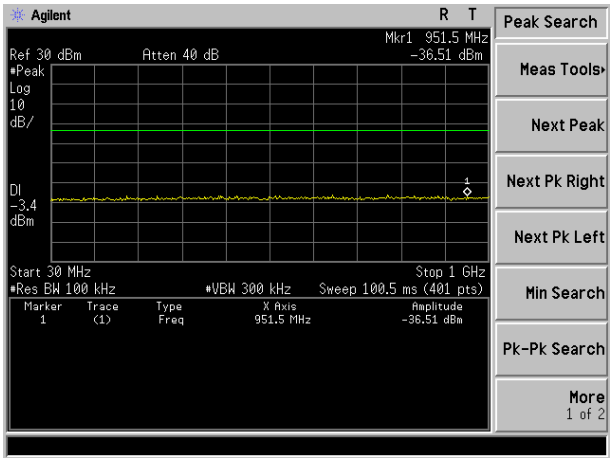
### 7.7.1 Conducted Emission Method

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (d) |
| Test Method: | Clause 6 of KDB558074 D01 DTS Meas Guidance V05r02 and subclause 6.7 of ANSI C63.10 |
| 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 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. |
| Test setup: |  |
| Test Procedure: | The EUT which is powered by the Battery, is connected to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.<br>Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

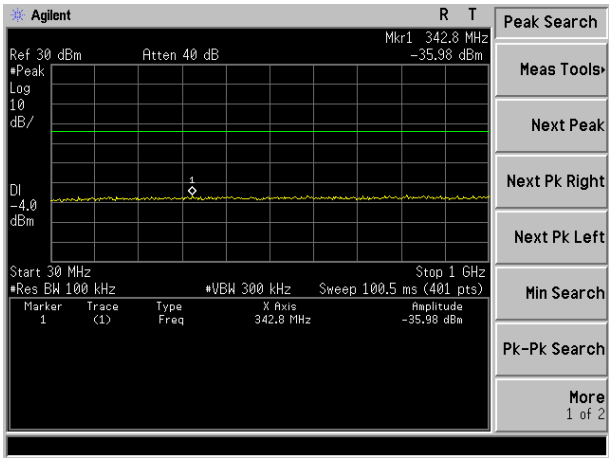
**Test plot as follows:**

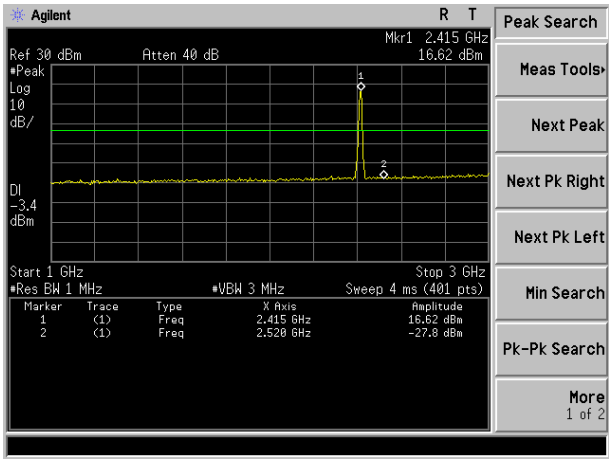
Test mode:

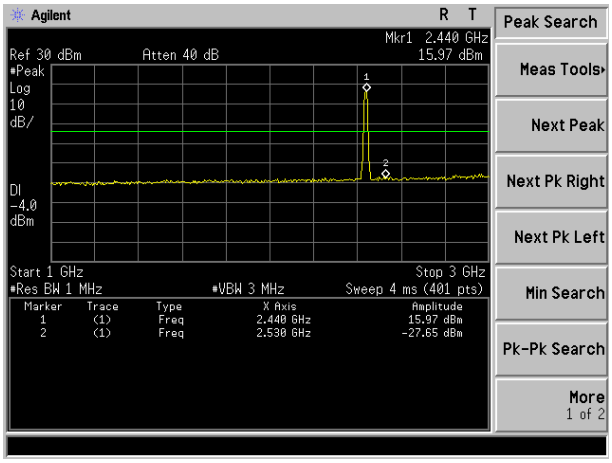
802.11b-Low Channel 2412MHz



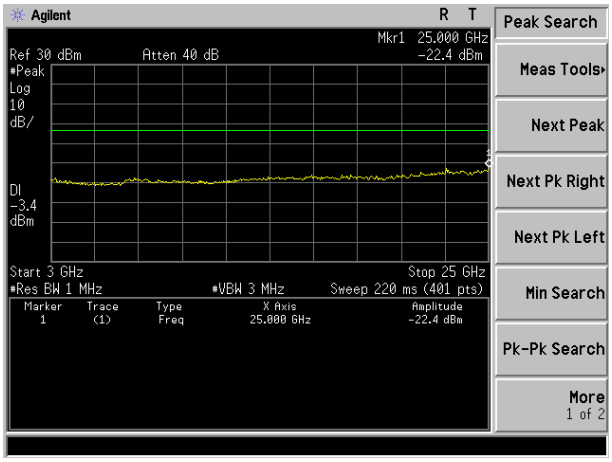

802.11b-Middle Channel 2437MHz

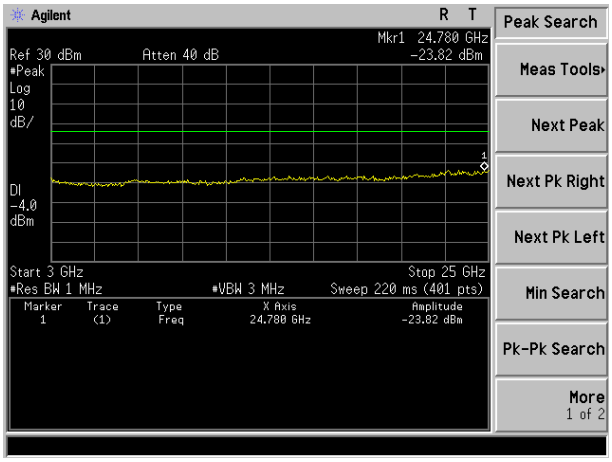


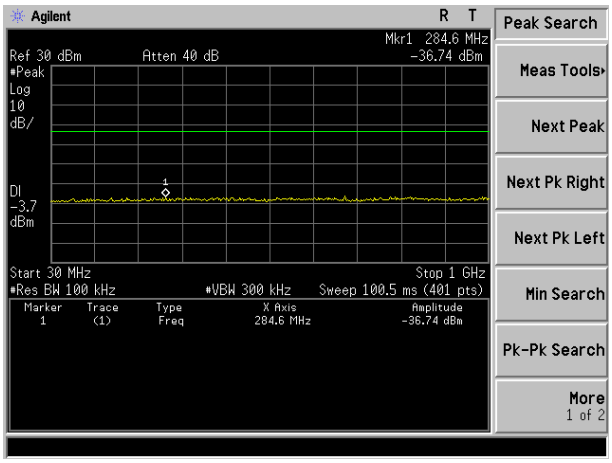

High Channel 2462MHz



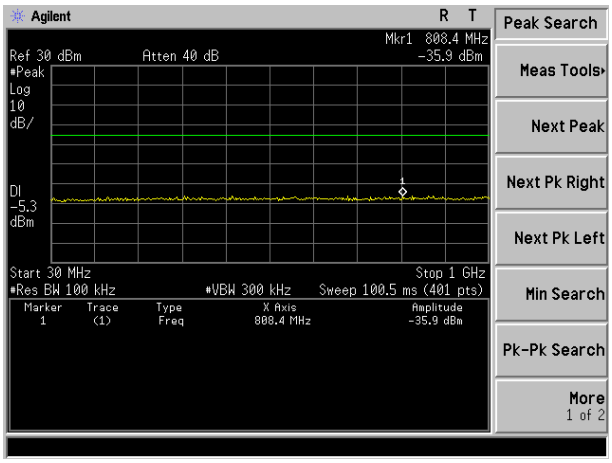



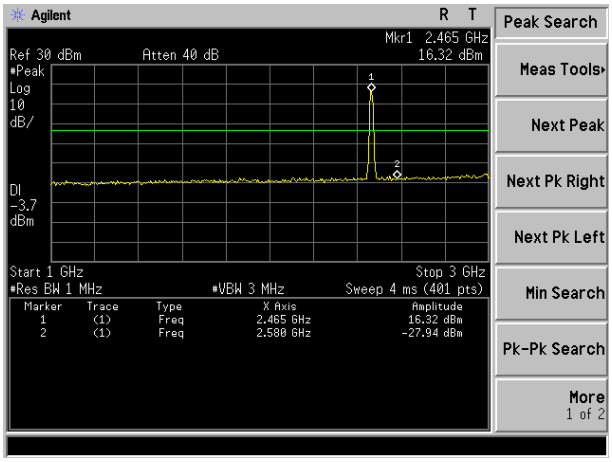
Test mode:

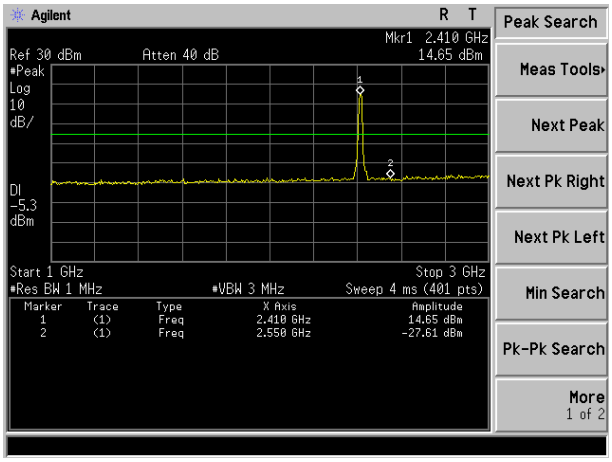
802.11b-High Channel 2462MHz

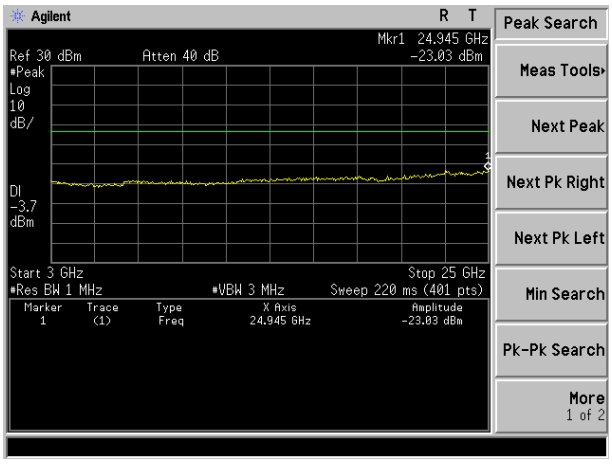


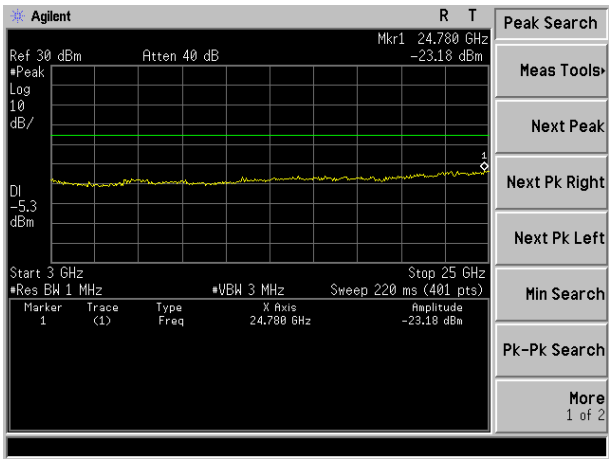

802.11g-Low Channel 2412MHz



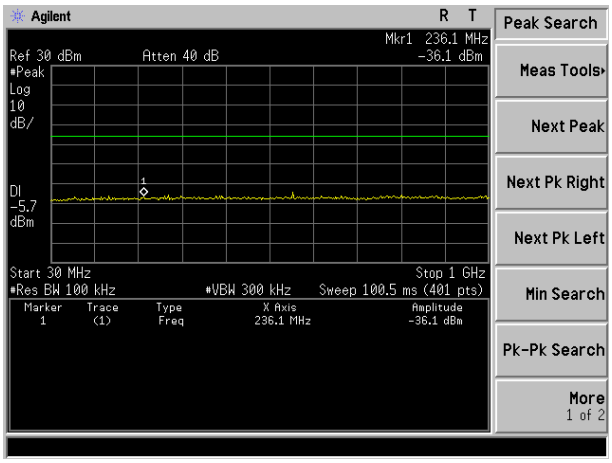



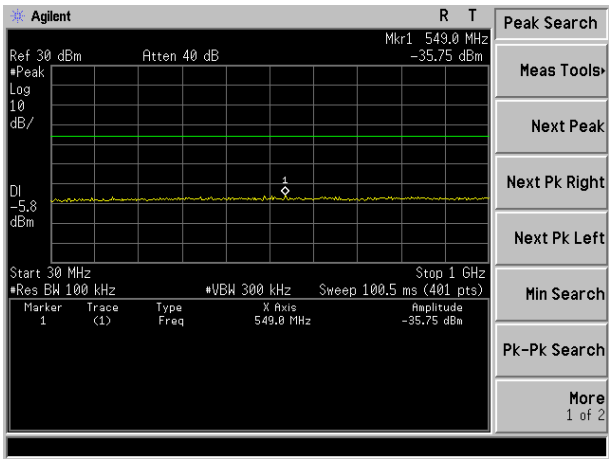



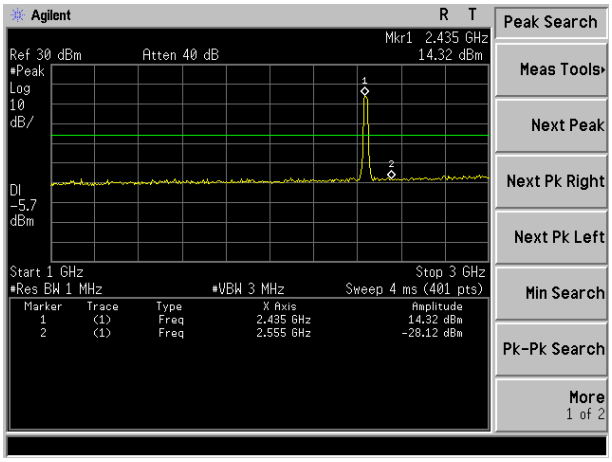
Test mode:

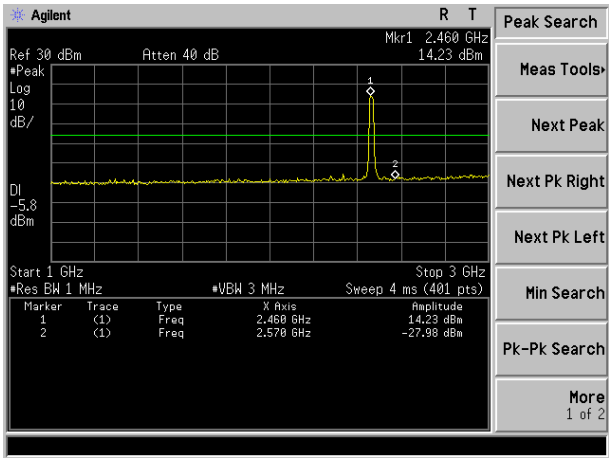
802.11g-Middle Channel 2437MHz

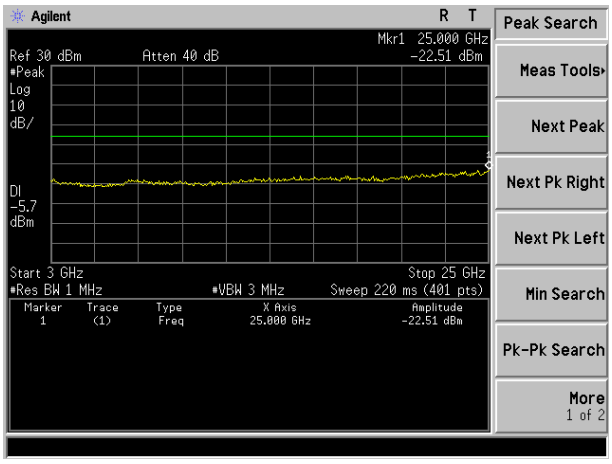


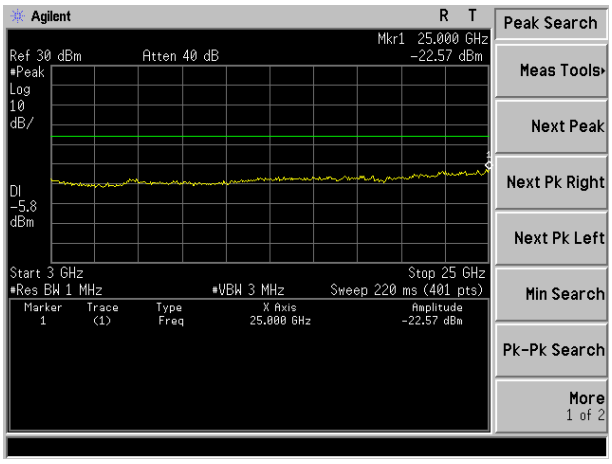

802.11g-High Channel 2462MHz



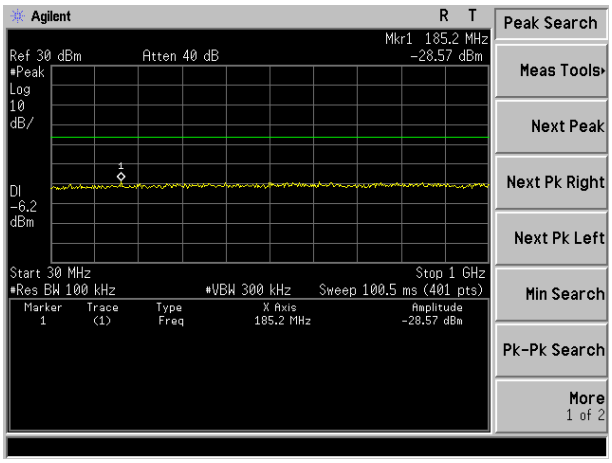



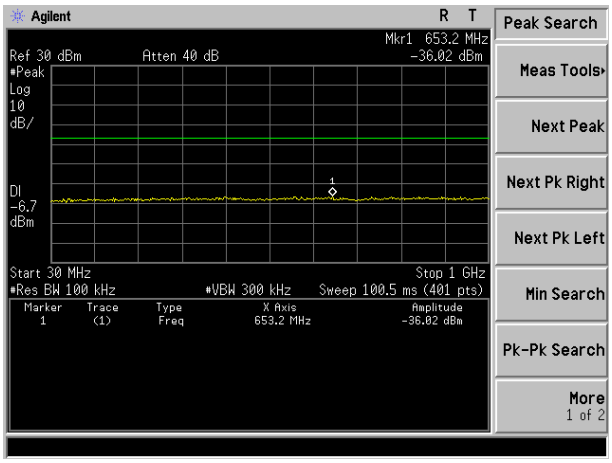



Test mode:

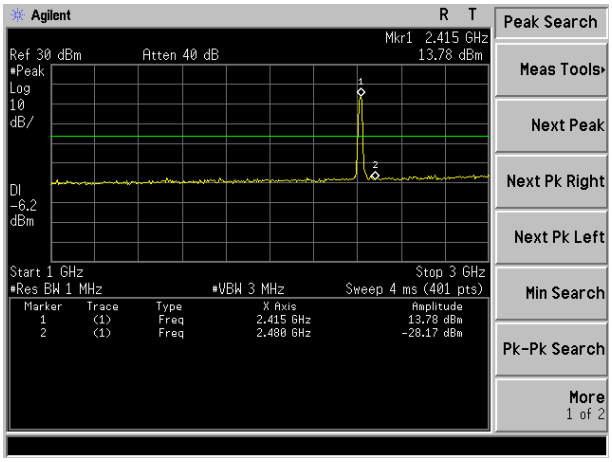
802.11n20-Low Channel 2412MHz

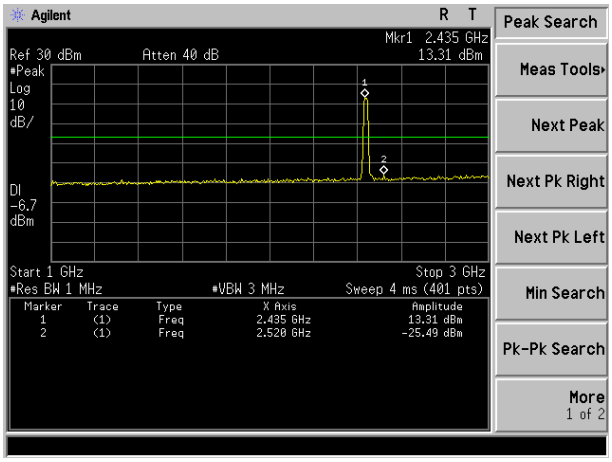



802.11n20-Middle Channel 2437MHz

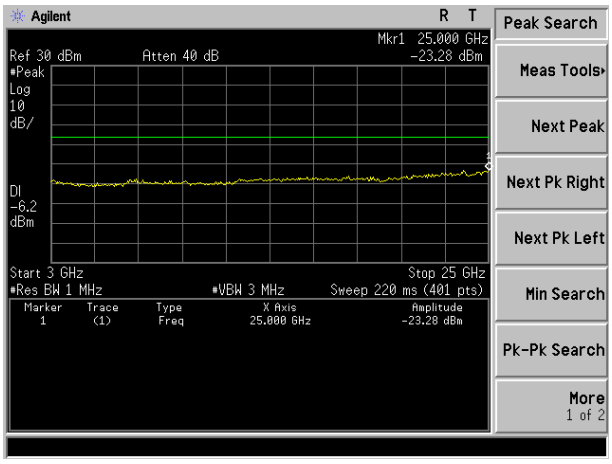


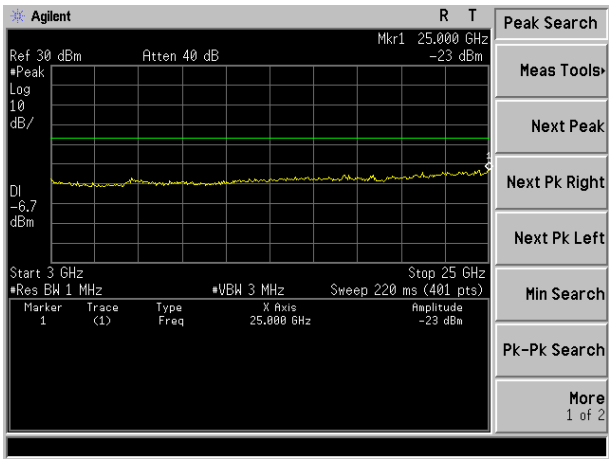

Middle Channel 2437MHz



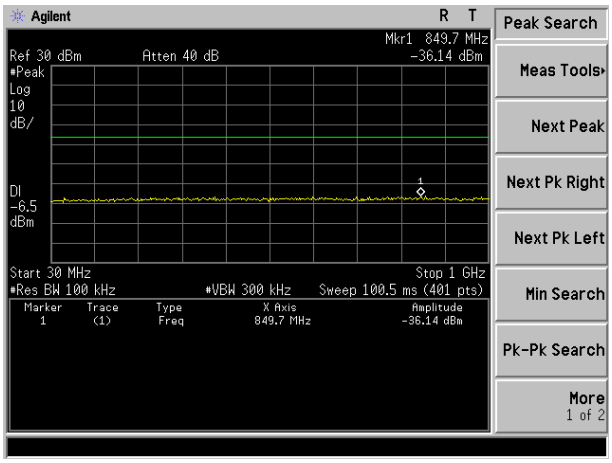

High Channel 2452MHz



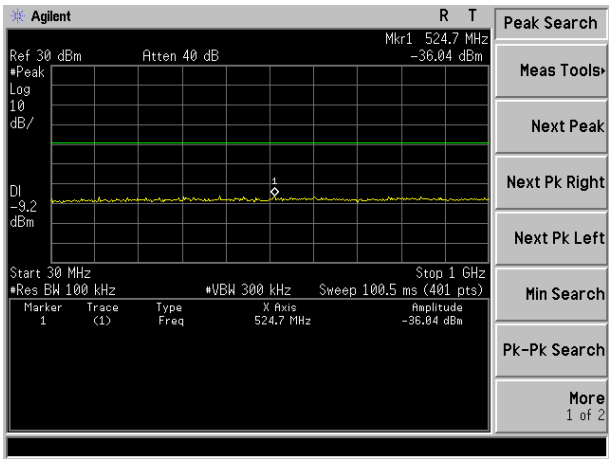



Test mode:

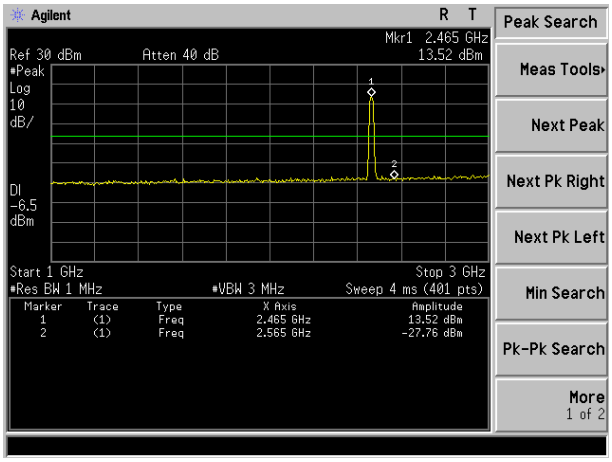
802.11n20-High Channel 2462MHz

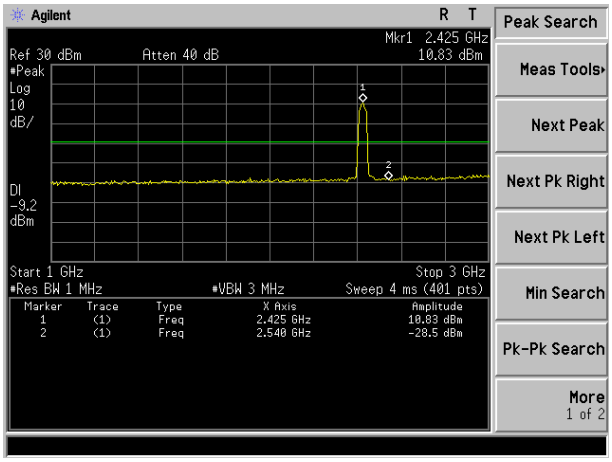



802.11n40-Low Channel 2422MHz

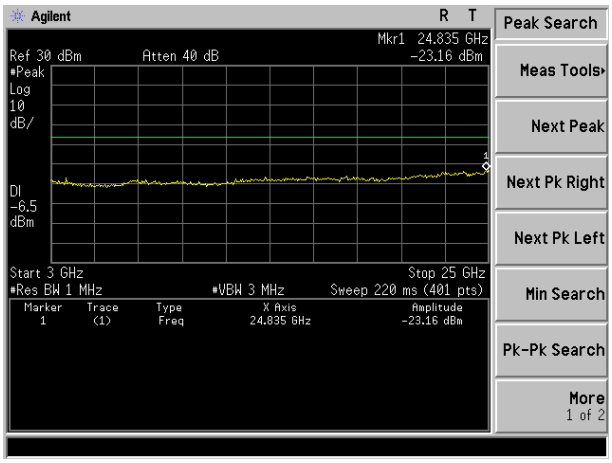


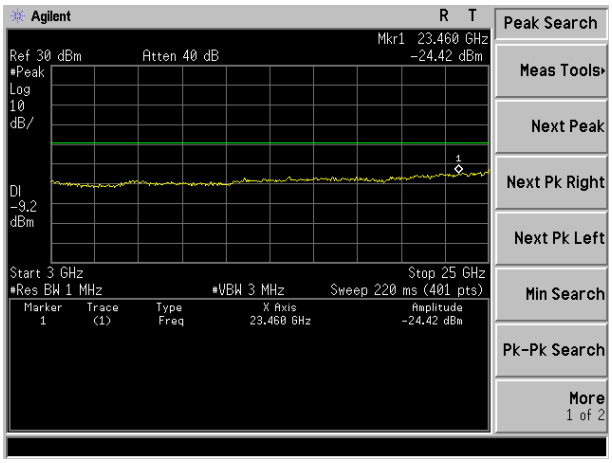

Middle Channel 2437MHz



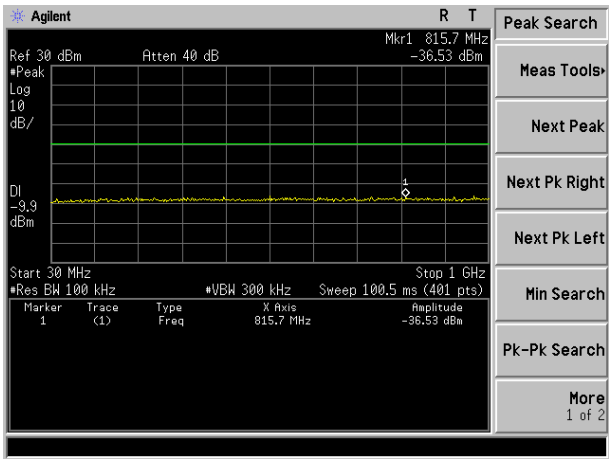

High Channel 2452MHz



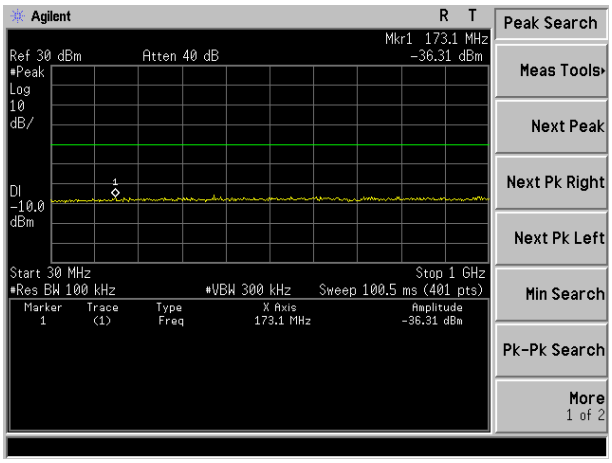



Test mode:

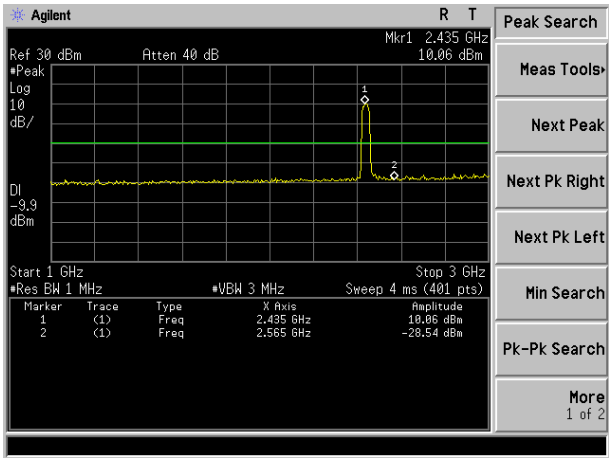
802.11n40-Middle Channel 2437MHz

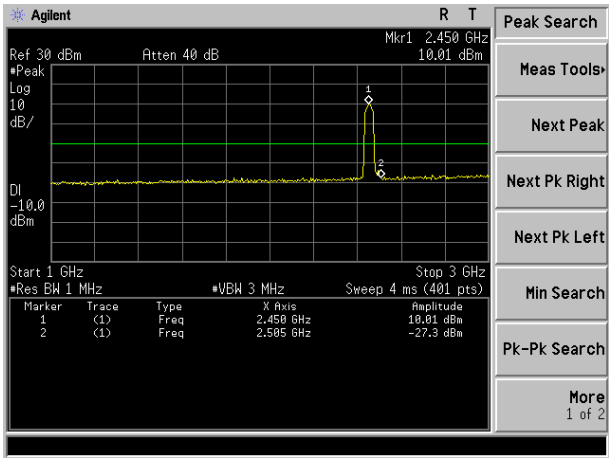



802.11n40-High Channel 2452MHz

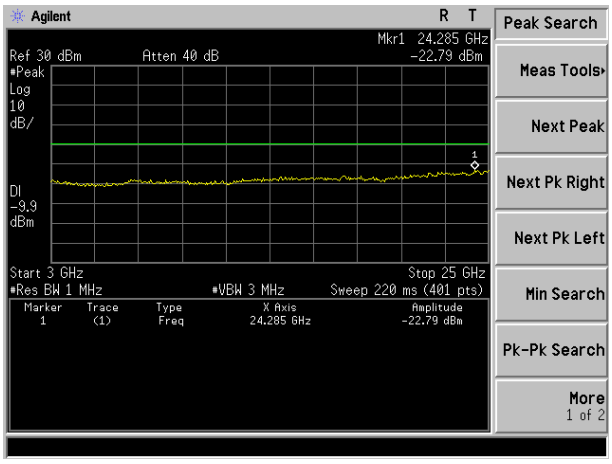


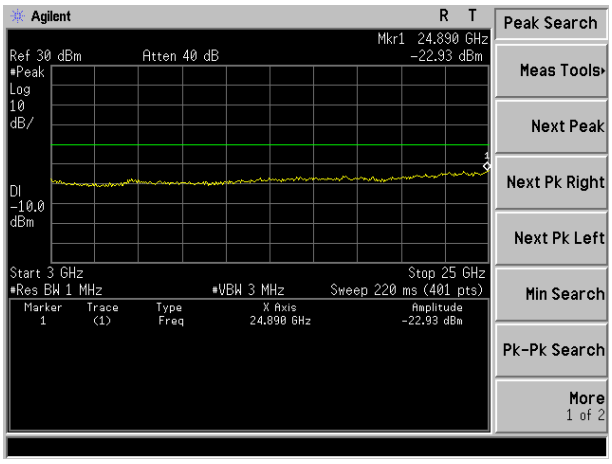

Middle Channel 2437MHz




High Channel 2452MHz



### 7.7.2 Radiated Emission Method

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.209 |
| Test Method: | ANSI C63.10:2013 |
| Test Frequency Range: | 9kHz to 25GHz |
| Test site: | Measurement Distance: 3m |

Receiver setup:

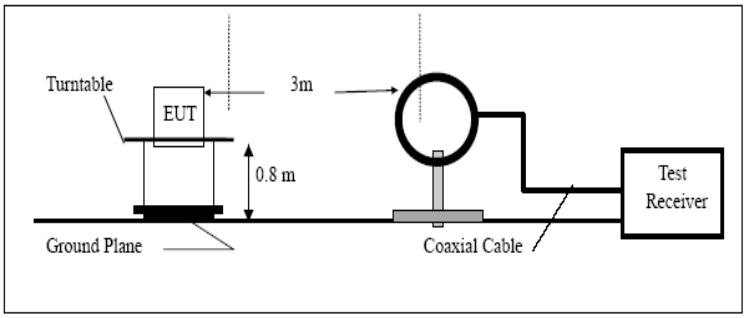
| Frequency | Detector | RBW | VBW | Value |
|---|---|---|---|---|
| 9KHz-150KHz | Quasi-peak | 200Hz | 600Hz | Quasi-peak |
| 150KHz-30MHz | Quasi-peak | 9KHz | 30KHz | Quasi-peak |
| 30MHz-1GHz | Quasi-peak | 100KHz | 300KHz | Quasi-peak |
| Above 1GHz | Peak | 1MHz | 3MHz | Peak |
| | Peak | 1MHz | 10Hz | Average |

Limit:

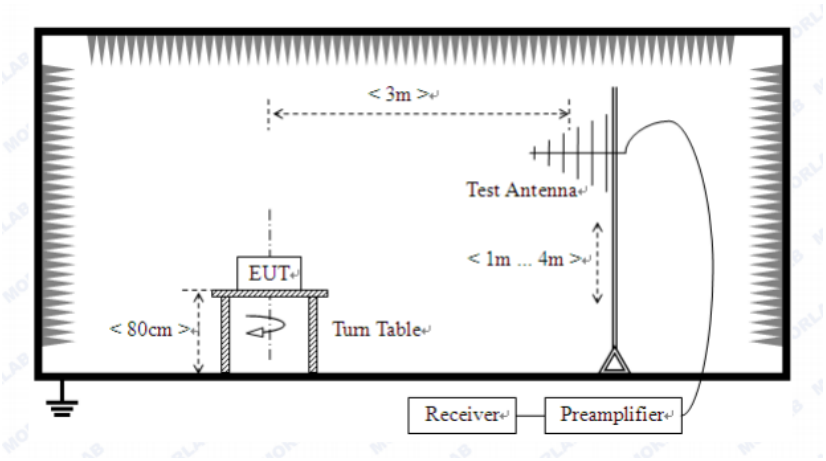
| Frequency | Limit (uV/m) | Value | Measurement Distance |
|---|---|---|---|
| 0.009MHz-0.490MHz | 2400/F(KHz) | QP | 300m |
| 0.490MHz-1.705MHz | 24000/F(KHz) | QP | 300m |
| 1.705MHz-30MHz | 30 | QP | 30m |
| 30MHz-88MHz | 100 | QP | 3m |
| 88MHz-216MHz | 150 | QP | |
| 216MHz-960MHz | 200 | QP | |
| 960MHz-1GHz | 500 | QP | |
| Above 1GHz | 500 | Average | |
| | 5000 | Peak | |

Test setup:

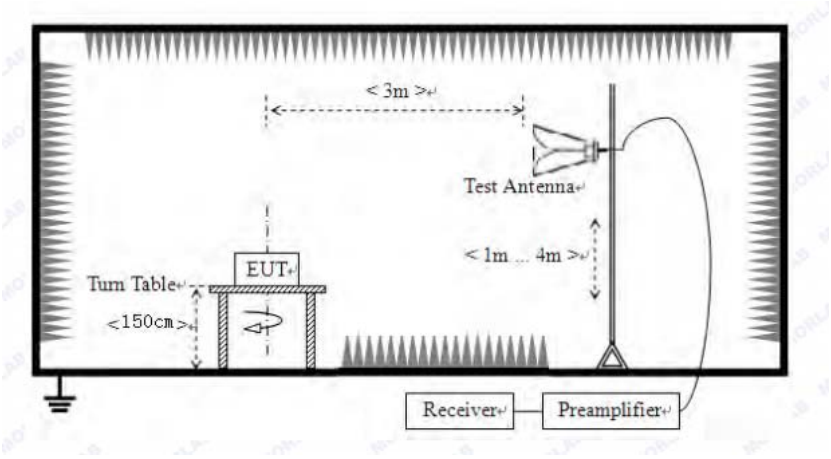
Below 30MHz




Below 1GHz


< 3m >
Test Antenna
< 1m ... 4m >
EUT
< 80cm >
Turn Table
Receiver
Preamplifier

Above 1GHz


< 3m >
Test Antenna
< 1m ... 4m >
EUT
Turn Table
<150cm >
Receiver
Preamplifier

| | | | | | | |
|---|---|---|---|---|---|---|
| Test Procedure: | 1. The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.<br>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.<br>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. | | | | | |
| Test Instruments: | Refer to section 6.0 for details | | | | | |
| Test mode: | Refer to section 5.2 for details | | | | | |
| Test environment: | Temp.: | 25 °C | Humid.: | 52% | Press.: | 1012mbar |
| Test voltage: | AC 120V, 60Hz | | | | | |
| Test results: | Pass | | | | | |

*Remark:*

*Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.*

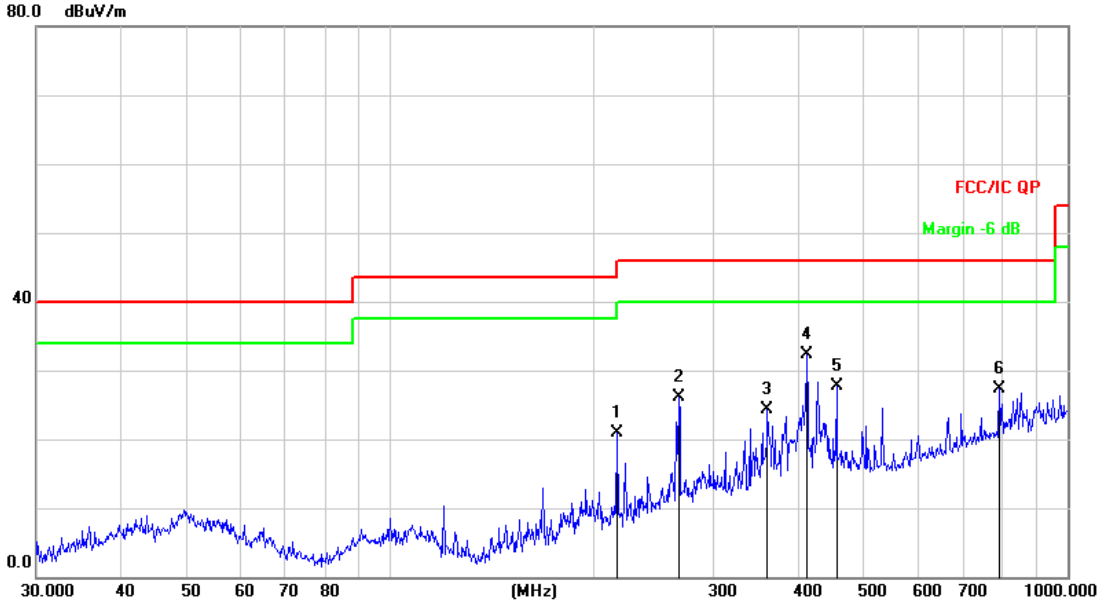
**Measurement data:**

■ **9kHz~30MHz**

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

■ **Below 1GHz**

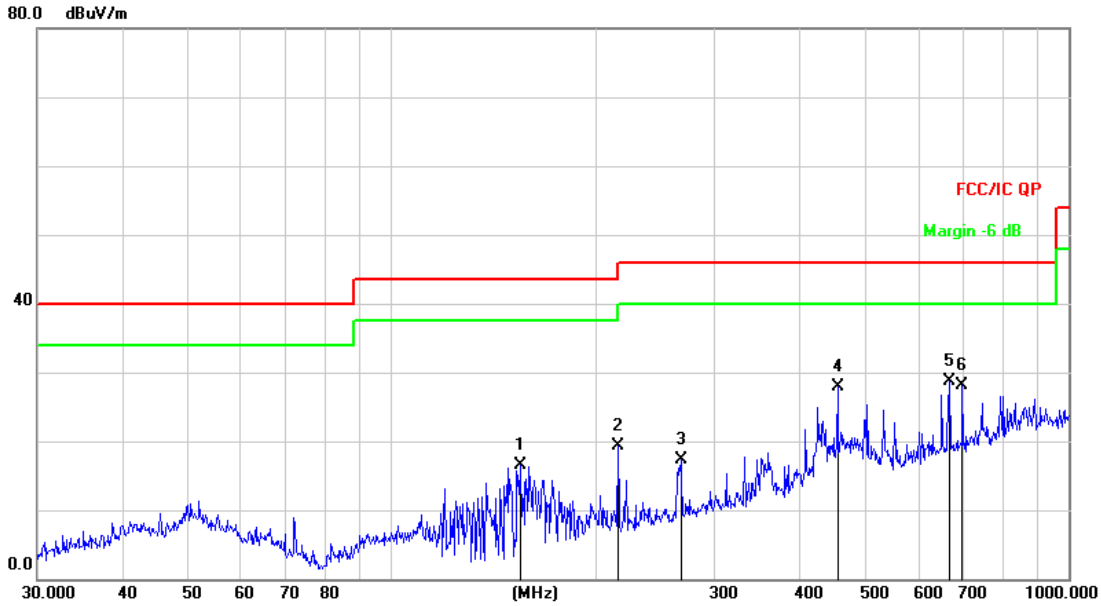
**Horizontal:**




Remark:
1. Final Level = Reading Level + Correct Factor

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | |
|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dB/m | dB | Detector |
| 1 | | 216.0240 | 36.56 | -15.61 | 20.95 | 46.00 | -25.05 | QP |
| 2 | | 266.6089 | 39.24 | -13.18 | 26.06 | 46.00 | -19.94 | QP |
| 3 | | 360.4477 | 34.71 | -10.40 | 24.31 | 46.00 | -21.69 | QP |
| 4 | * | 411.8240 | 41.37 | -9.06 | 32.31 | 46.00 | -13.69 | QP |
| 5 | | 455.9058 | 36.11 | -8.33 | 27.78 | 46.00 | -18.22 | QP |
| 6 | | 793.3960 | 28.50 | -1.24 | 27.26 | 46.00 | -18.74 | QP |

**Vertical:**




Remark:
1. Final Level = Reading Level + Correct Factor

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | |
|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dB/m | dB | Detector |
| 1 | | 154.8205 | 35.82 | -19.36 | 16.46 | 43.50 | -27.04 | QP |
| 2 | | 216.0240 | 34.83 | -15.61 | 19.22 | 46.00 | -26.78 | QP |
| 3 | | 267.5455 | 30.39 | -13.15 | 17.24 | 46.00 | -28.76 | QP |
| 4 | | 455.9058 | 36.31 | -8.33 | 27.98 | 46.00 | -18.02 | QP |
| 5 | * | 668.1423 | 32.17 | -3.50 | 28.67 | 46.00 | -17.33 | QP |
| 6 | | 696.8567 | 31.13 | -3.06 | 28.07 | 46.00 | -17.93 | QP |

■ **Above 1GHz**

| Test mode: | 802.11b | Test channel: | Lowest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4824.00 | 39.81 | 31.79 | 8.62 | 32.10 | 48.12 | 74.00 | -25.88 | Vertical |
| 7236.00 | 33.99 | 36.19 | 11.68 | 31.97 | 49.89 | 74.00 | -24.11 | Vertical |
| 9648.00 | 32.60 | 38.07 | 14.16 | 31.56 | 53.27 | 74.00 | -20.73 | Vertical |
| 12060.00 | * | | | | | 74.00 | | Vertical |
| 14472.00 | * | | | | | 74.00 | | Vertical |
| 16884.00 | * | | | | | 74.00 | | Vertical |
| 4824.00 | 38.89 | 31.79 | 8.62 | 32.10 | 47.20 | 74.00 | -26.80 | Horizontal |
| 7236.00 | 33.24 | 36.19 | 11.68 | 31.97 | 49.14 | 74.00 | -24.86 | Horizontal |
| 9648.00 | 32.32 | 38.07 | 14.16 | 31.56 | 52.99 | 74.00 | -21.01 | Horizontal |
| 12060.00 | * | | | | | 74.00 | | Horizontal |
| 14472.00 | * | | | | | 74.00 | | Horizontal |
| 16884.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4824.00 | 27.85 | 31.79 | 8.62 | 32.10 | 36.16 | 54.00 | -17.84 | Vertical |
| 7236.00 | 21.67 | 36.19 | 11.68 | 31.97 | 37.57 | 54.00 | -16.43 | Vertical |
| 9648.00 | 21.19 | 38.07 | 14.16 | 31.56 | 41.86 | 54.00 | -12.14 | Vertical |
| 12060.00 | * | | | | | 54.00 | | Vertical |
| 14472.00 | * | | | | | 54.00 | | Vertical |
| 16884.00 | * | | | | | 54.00 | | Vertical |
| 4824.00 | 27.59 | 31.79 | 8.62 | 32.10 | 35.90 | 54.00 | -18.10 | Horizontal |
| 7236.00 | 21.33 | 36.19 | 11.68 | 31.97 | 37.23 | 54.00 | -16.77 | Horizontal |
| 9648.00 | 20.48 | 38.07 | 14.16 | 31.56 | 41.15 | 54.00 | -12.85 | Horizontal |
| 12060.00 | * | | | | | 54.00 | | Horizontal |
| 14472.00 | * | | | | | 54.00 | | Horizontal |
| 16884.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test*
3. *The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.*

| Test mode: | 802.11b | Test channel: | Middle |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4874.00 | 38.04 | 31.85 | 8.66 | 32.12 | 46.43 | 74.00 | -27.57 | Vertical |
| 7311.00 | 33.12 | 36.37 | 11.71 | 31.91 | 49.29 | 74.00 | -24.71 | Vertical |
| 9748.00 | 32.69 | 38.27 | 14.25 | 31.56 | 53.65 | 74.00 | -20.35 | Vertical |
| 12185.00 | * | | | | | 74.00 | | Vertical |
| 14622.00 | * | | | | | 74.00 | | Vertical |
| 17059.00 | * | | | | | 74.00 | | Vertical |
| 4874.00 | 38.44 | 31.85 | 8.66 | 32.12 | 46.83 | 74.00 | -27.17 | Horizontal |
| 7311.00 | 31.91 | 36.37 | 11.71 | 31.91 | 48.08 | 74.00 | -25.92 | Horizontal |
| 9748.00 | 32.78 | 38.27 | 14.25 | 31.56 | 53.74 | 74.00 | -20.26 | Horizontal |
| 12185.00 | * | | | | | 74.00 | | Horizontal |
| 14622.00 | * | | | | | 74.00 | | Horizontal |
| 17059.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4874.00 | 30.21 | 31.85 | 8.66 | 32.12 | 38.60 | 54.00 | -15.40 | Vertical |
| 7311.00 | 23.06 | 36.37 | 11.71 | 31.91 | 39.23 | 54.00 | -14.77 | Vertical |
| 9748.00 | 22.56 | 38.27 | 14.25 | 31.56 | 43.52 | 54.00 | -10.48 | Vertical |
| 12185.00 | * | | | | | 54.00 | | Vertical |
| 14622.00 | * | | | | | 54.00 | | Vertical |
| 17059.00 | * | | | | | 54.00 | | Vertical |
| 4874.00 | 29.68 | 31.85 | 8.66 | 32.12 | 38.07 | 54.00 | -15.93 | Horizontal |
| 7311.00 | 22.17 | 36.37 | 11.71 | 31.91 | 38.34 | 54.00 | -15.66 | Horizontal |
| 9748.00 | 23.41 | 38.27 | 14.25 | 31.56 | 44.37 | 54.00 | -9.63 | Horizontal |
| 12185.00 | * | | | | | 54.00 | | Horizontal |
| 14622.00 | * | | | | | 54.00 | | Horizontal |
| 17059.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.*

| Test mode: | 802.11b | Test channel: | Highest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4924.00 | 44.86 | 31.90 | 8.70 | 32.15 | 53.31 | 74.00 | -20.69 | Vertical |
| 7386.00 | 35.13 | 36.49 | 11.76 | 31.83 | 51.55 | 74.00 | -22.45 | Vertical |
| 9848.00 | 36.71 | 38.62 | 14.31 | 31.77 | 57.87 | 74.00 | -16.13 | Vertical |
| 12310.00 | * | | | | | 74.00 | | Vertical |
| 14772.00 | * | | | | | 74.00 | | Vertical |
| 17234.00 | * | | | | | 74.00 | | Vertical |
| 4924.00 | 43.79 | 31.90 | 8.70 | 32.15 | 52.24 | 74.00 | -21.76 | Horizontal |
| 7386.00 | 33.94 | 36.49 | 11.76 | 31.83 | 50.36 | 74.00 | -23.64 | Horizontal |
| 9848.00 | 33.48 | 38.62 | 14.31 | 31.77 | 54.64 | 74.00 | -19.36 | Horizontal |
| 12310.00 | * | | | | | 74.00 | | Horizontal |
| 14772.00 | * | | | | | 74.00 | | Horizontal |
| 17234.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4924.00 | 37.58 | 31.90 | 8.70 | 32.15 | 46.03 | 54.00 | -7.97 | Vertical |
| 7386.00 | 27.11 | 36.49 | 11.76 | 31.83 | 43.53 | 54.00 | -10.47 | Vertical |
| 9848.00 | 27.40 | 38.62 | 14.31 | 31.77 | 48.56 | 54.00 | -5.44 | Vertical |
| 12310.00 | * | | | | | 54.00 | | Vertical |
| 14772.00 | * | | | | | 54.00 | | Vertical |
| 17234.00 | * | | | | | 54.00 | | Vertical |
| 4924.00 | 36.33 | 31.90 | 8.70 | 32.15 | 44.78 | 54.00 | -9.22 | Horizontal |
| 7386.00 | 25.09 | 36.49 | 11.76 | 31.83 | 41.51 | 54.00 | -12.49 | Horizontal |
| 9848.00 | 24.29 | 38.62 | 14.31 | 31.77 | 45.45 | 54.00 | -8.55 | Horizontal |
| 12310.00 | * | | | | | 54.00 | | Horizontal |
| 14772.00 | * | | | | | 54.00 | | Horizontal |
| 17234.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.*

| Test mode: | 802.11g | Test channel: | lowest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4824.00 | 38.80 | 31.79 | 8.62 | 32.10 | 47.11 | 74.00 | -26.89 | Vertical |
| 7236.00 | 32.94 | 36.19 | 11.68 | 31.97 | 48.84 | 74.00 | -25.16 | Vertical |
| 9648.00 | 31.53 | 38.07 | 14.16 | 31.56 | 52.20 | 74.00 | -21.80 | Vertical |
| 12060.00 | * | | | | | 74.00 | | Vertical |
| 14472.00 | * | | | | | 74.00 | | Vertical |
| 16884.00 | * | | | | | 74.00 | | Vertical |
| 4824.00 | 37.45 | 31.79 | 8.62 | 32.10 | 45.76 | 74.00 | -28.24 | Horizontal |
| 7236.00 | 32.71 | 36.19 | 11.68 | 31.97 | 48.61 | 74.00 | -25.39 | Horizontal |
| 9648.00 | 31.12 | 38.07 | 14.16 | 31.56 | 51.79 | 74.00 | -22.21 | Horizontal |
| 12060.00 | * | | | | | 74.00 | | Horizontal |
| 14472.00 | * | | | | | 74.00 | | Horizontal |
| 16884.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4824.00 | 27.96 | 31.79 | 8.62 | 32.10 | 36.27 | 54.00 | -17.73 | Vertical |
| 7236.00 | 21.81 | 36.19 | 11.68 | 31.97 | 37.71 | 54.00 | -16.29 | Vertical |
| 9648.00 | 22.24 | 38.07 | 14.16 | 31.56 | 42.91 | 54.00 | -11.09 | Vertical |
| 12060.00 | * | | | | | 54.00 | | Vertical |
| 14472.00 | * | | | | | 54.00 | | Vertical |
| 16884.00 | * | | | | | 54.00 | | Vertica |
| 4824.00 | 27.15 | 31.79 | 8.62 | 32.10 | 35.46 | 54.00 | -18.54 | Horizontal |
| 7236.00 | 21.32 | 36.19 | 11.68 | 31.97 | 37.22 | 54.00 | -16.78 | Horizontal |
| 9648.00 | 20.94 | 38.07 | 14.16 | 31.56 | 41.61 | 54.00 | -12.39 | Horizontal |
| 12060.00 | * | | | | | 54.00 | | Horizontal |
| 14472.00 | * | | | | | 54.00 | | Horizontal |
| 16884.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.*

| Test mode: | 802.11g | Test channel: | Middle |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4874.00 | 37.98 | 31.85 | 8.66 | 32.12 | 46.37 | 74.00 | -27.63 | Vertical |
| 7311.00 | 32.48 | 36.37 | 11.71 | 31.91 | 48.65 | 74.00 | -25.35 | Vertical |
| 9748.00 | 32.62 | 38.27 | 14.25 | 31.56 | 53.58 | 74.00 | -20.42 | Vertical |
| 12185.00 | * | | | | | 74.00 | | Vertical |
| 14622.00 | * | | | | | 74.00 | | Vertical |
| 17059.00 | * | | | | | 74.00 | | Vertical |
| 4874.00 | 38.52 | 31.85 | 8.66 | 32.12 | 46.91 | 74.00 | -27.09 | Horizontal |
| 7311.00 | 31.86 | 36.37 | 11.71 | 31.91 | 48.03 | 74.00 | -25.97 | Horizontal |
| 9748.00 | 32.51 | 38.27 | 14.25 | 31.56 | 53.47 | 74.00 | -20.53 | Horizontal |
| 12185.00 | * | | | | | 74.00 | | Horizontal |
| 14622.00 | * | | | | | 74.00 | | Horizontal |
| 17059.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4874.00 | 29.65 | 31.85 | 8.66 | 32.12 | 38.04 | 54.00 | -15.96 | Vertical |
| 7311.00 | 23.50 | 36.37 | 11.71 | 31.91 | 39.67 | 54.00 | -14.33 | Vertical |
| 9748.00 | 22.86 | 38.27 | 14.25 | 31.56 | 43.82 | 54.00 | -10.18 | Vertical |
| 12185.00 | * | | | | | 54.00 | | Vertical |
| 14622.00 | * | | | | | 54.00 | | Vertical |
| 17059.00 | * | | | | | 54.00 | | Vertical |
| 4874.00 | 30.31 | 31.85 | 8.66 | 32.12 | 38.70 | 54.00 | -15.30 | Horizontal |
| 7311.00 | 21.54 | 36.37 | 11.71 | 31.91 | 37.71 | 54.00 | -16.29 | Horizontal |
| 9748.00 | 23.89 | 38.27 | 14.25 | 31.56 | 44.85 | 54.00 | -9.15 | Horizontal |
| 12185.00 | * | | | | | 54.00 | | Horizontal |
| 14622.00 | * | | | | | 54.00 | | Horizontal |
| 17059.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.*

| Test mode: | 802.11g | Test channel: | Highest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4924.00 | 42.89 | 31.90 | 8.70 | 32.15 | 51.34 | 74.00 | -22.66 | Vertical |
| 7386.00 | 33.34 | 36.49 | 11.76 | 31.83 | 49.76 | 74.00 | -24.24 | Vertical |
| 9848.00 | 36.14 | 38.62 | 14.31 | 31.77 | 57.30 | 74.00 | -16.70 | Vertical |
| 12310.00 | * | | | | | 74.00 | | Vertical |
| 14772.00 | * | | | | | 74.00 | | Vertical |
| 17234.00 | * | | | | | 74.00 | | Vertical |
| 4924.00 | 42.37 | 31.90 | 8.70 | 32.15 | 50.82 | 74.00 | -23.18 | Horizontal |
| 7386.00 | 32.32 | 36.49 | 11.76 | 31.83 | 48.74 | 74.00 | -25.26 | Horizontal |
| 9848.00 | 31.94 | 38.62 | 14.31 | 31.77 | 53.10 | 74.00 | -20.90 | Horizontal |
| 12310.00 | * | | | | | 74.00 | | Horizontal |
| 14772.00 | * | | | | | 74.00 | | Horizontal |
| 17234.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4924.00 | 34.41 | 31.90 | 8.70 | 32.15 | 42.86 | 54.00 | -11.14 | Vertical |
| 7386.00 | 24.19 | 36.49 | 11.76 | 31.83 | 40.61 | 54.00 | -13.39 | Vertical |
| 9848.00 | 24.60 | 38.62 | 14.31 | 31.77 | 45.76 | 54.00 | -8.24 | Vertical |
| 12310.00 | * | | | | | 54.00 | | Vertical |
| 14772.00 | * | | | | | 54.00 | | Vertical |
| 17234.00 | * | | | | | 54.00 | | Vertical |
| 4924.00 | 33.41 | 31.90 | 8.70 | 32.15 | 41.86 | 54.00 | -12.14 | Horizontal |
| 7386.00 | 22.22 | 36.49 | 11.76 | 31.83 | 38.64 | 54.00 | -15.36 | Horizontal |
| 9848.00 | 21.54 | 38.62 | 14.31 | 31.77 | 42.70 | 54.00 | -11.30 | Horizontal |
| 12310.00 | * | | | | | 54.00 | | Horizontal |
| 14772.00 | * | | | | | 54.00 | | Horizontal |
| 17234.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.*

| Test mode: | 802.11n(HT20) | Test channel: | Lowest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4824.00 | 38.32 | 31.79 | 8.62 | 32.10 | 46.63 | 74.00 | -27.37 | Vertical |
| 7236.00 | 33.66 | 36.19 | 11.68 | 31.97 | 49.56 | 74.00 | -24.44 | Vertical |
| 9648.00 | 33.23 | 38.07 | 14.16 | 31.56 | 53.90 | 74.00 | -20.10 | Vertical |
| 12060.00 | * | | | | | 74.00 | | Vertical |
| 14472.00 | * | | | | | 74.00 | | Vertical |
| 16884.00 | * | | | | | 74.00 | | Vertical |
| 4824.00 | 38.75 | 31.79 | 8.62 | 32.10 | 47.06 | 74.00 | -26.94 | Horizontal |
| 7236.00 | 34.51 | 36.19 | 11.68 | 31.97 | 50.41 | 74.00 | -23.59 | Horizontal |
| 9648.00 | 31.84 | 38.07 | 14.16 | 31.56 | 52.51 | 74.00 | -21.49 | Horizontal |
| 12060.00 | * | | | | | 74.00 | | Horizontal |
| 14472.00 | * | | | | | 74.00 | | Horizontal |
| 16884.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4824.00 | 29.64 | 31.79 | 8.62 | 32.10 | 37.95 | 54.00 | -16.05 | Vertical |
| 7236.00 | 24.92 | 36.19 | 11.68 | 31.97 | 40.82 | 54.00 | -13.18 | Vertical |
| 9648.00 | 23.40 | 38.07 | 14.16 | 31.56 | 44.07 | 54.00 | -9.93 | Vertical |
| 12060.00 | * | | | | | 54.00 | | Vertical |
| 14472.00 | * | | | | | 54.00 | | Vertical |
| 16884.00 | * | | | | | 54.00 | | Vertical |
| 4824.00 | 28.43 | 31.79 | 8.62 | 32.10 | 36.74 | 54.00 | -17.26 | Horizontal |
| 7236.00 | 23.67 | 36.19 | 11.68 | 31.97 | 39.57 | 54.00 | -14.43 | Horizontal |
| 9648.00 | 22.86 | 38.07 | 14.16 | 31.56 | 43.53 | 54.00 | -10.47 | Horizontal |
| 12060.00 | * | | | | | 54.00 | | Horizontal |
| 14472.00 | * | | | | | 54.00 | | Horizontal |
| 16884.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

*1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*

*2. "*", means this data is the too weak instrument of signal is unable to test.*

*3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.*

| Test mode: | 802.11n(HT20) | Test channel: | Middle |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4874.00 | 38.95 | 31.85 | 8.66 | 32.12 | 47.34 | 74.00 | -26.66 | Vertical |
| 7311.00 | 34.38 | 36.37 | 11.71 | 31.91 | 50.55 | 74.00 | -23.45 | Vertical |
| 9748.00 | 32.92 | 38.27 | 14.25 | 31.56 | 53.88 | 74.00 | -20.12 | Vertical |
| 12185.00 | * | | | | | 74.00 | | Vertical |
| 14622.00 | * | | | | | 74.00 | | Vertical |
| 17059.00 | * | | | | | 74.00 | | Vertical |
| 4874.00 | 39.39 | 31.85 | 8.66 | 32.12 | 47.78 | 74.00 | -26.22 | Horizontal |
| 7311.00 | 33.07 | 36.37 | 11.71 | 31.91 | 49.24 | 74.00 | -24.76 | Horizontal |
| 9748.00 | 34.56 | 38.27 | 14.25 | 31.56 | 55.52 | 74.00 | -18.48 | Horizontal |
| 12185.00 | * | | | | | 74.00 | | Horizontal |
| 14622.00 | * | | | | | 74.00 | | Horizontal |
| 17059.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4874.00 | 29.90 | 31.85 | 8.66 | 32.12 | 38.29 | 54.00 | -15.71 | Vertical |
| 7311.00 | 22.37 | 36.37 | 11.71 | 31.91 | 38.54 | 54.00 | -15.46 | Vertical |
| 9748.00 | 21.87 | 38.27 | 14.25 | 31.56 | 42.83 | 54.00 | -11.17 | Vertical |
| 12185.00 | * | | | | | 54.00 | | Vertical |
| 14622.00 | * | | | | | 54.00 | | Vertical |
| 17059.00 | * | | | | | 54.00 | | Vertical |
| 4874.00 | 30.64 | 31.85 | 8.66 | 32.12 | 39.03 | 54.00 | -14.97 | Horizontal |
| 7311.00 | 23.21 | 36.37 | 11.71 | 31.91 | 39.38 | 54.00 | -14.62 | Horizontal |
| 9748.00 | 21.78 | 38.27 | 14.25 | 31.56 | 42.74 | 54.00 | -11.26 | Horizontal |
| 12185.00 | * | | | | | 54.00 | | Horizontal |
| 14622.00 | * | | | | | 54.00 | | Horizontal |
| 17059.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.

| Test mode: | 802.11n(HT20) | Test channel: | Highest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4924.00 | 41.89 | 31.90 | 8.70 | 32.15 | 50.34 | 74.00 | -23.66 | Vertical |
| 7386.00 | 34.37 | 36.49 | 11.76 | 31.83 | 50.79 | 74.00 | -23.21 | Vertical |
| 9848.00 | 37.70 | 38.62 | 14.31 | 31.77 | 58.86 | 74.00 | -15.14 | Vertical |
| 12310.00 | * | | | | | 74.00 | | Vertical |
| 14772.00 | * | | | | | 74.00 | | Vertical |
| 17234.00 | * | | | | | 74.00 | | Vertical |
| 4924.00 | 42.94 | 31.90 | 8.70 | 32.15 | 51.39 | 74.00 | -22.61 | Horizontal |
| 7386.00 | 33.21 | 36.49 | 11.76 | 31.83 | 49.63 | 74.00 | -24.37 | Horizontal |
| 9848.00 | 32.44 | 38.62 | 14.31 | 31.77 | 53.60 | 74.00 | -20.40 | Horizontal |
| 12310.00 | * | | | | | 74.00 | | Horizontal |
| 14772.00 | * | | | | | 74.00 | | Horizontal |
| 17234.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4924.00 | 34.84 | 31.90 | 8.70 | 32.15 | 43.29 | 54.00 | -10.71 | Vertical |
| 7386.00 | 24.36 | 36.49 | 11.76 | 31.83 | 40.78 | 54.00 | -13.22 | Vertical |
| 9848.00 | 22.90 | 38.62 | 14.31 | 31.77 | 44.06 | 54.00 | -9.94 | Vertical |
| 12310.00 | * | | | | | 54.00 | | Vertical |
| 14772.00 | * | | | | | 54.00 | | Vertical |
| 17234.00 | * | | | | | 54.00 | | Vertical |
| 4924.00 | 33.74 | 31.90 | 8.70 | 32.15 | 42.19 | 54.00 | -11.81 | Horizontal |
| 7386.00 | 23.59 | 36.49 | 11.76 | 31.83 | 40.01 | 54.00 | -13.99 | Horizontal |
| 9848.00 | 22.66 | 38.62 | 14.31 | 31.77 | 43.82 | 54.00 | -10.18 | Horizontal |
| 12310.00 | * | | | | | 54.00 | | Horizontal |
| 14772.00 | * | | | | | 54.00 | | Horizontal |
| 17234.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

*1 Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*

*2 "*", means this data is the too weak instrument of signal is unable to test.*

*3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.*

| Test mode: | 802.11n(HT40) | Test channel: | Lowest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4844.00 | 39.49 | 31.81 | 8.63 | 32.11 | 47.82 | 74.00 | -26.18 | Vertical |
| 7266.00 | 33.66 | 36.28 | 11.69 | 31.94 | 49.69 | 74.00 | -24.31 | Vertical |
| 9688.00 | 31.47 | 38.13 | 14.21 | 31.52 | 52.29 | 74.00 | -21.71 | Vertical |
| 12060.00 | * | | | | | 74.00 | | Vertical |
| 14472.00 | * | | | | | 74.00 | | Vertical |
| 16884.00 | * | | | | | 74.00 | | Vertical |
| 4844.00 | 37.87 | 31.81 | 8.63 | 32.11 | 46.20 | 74.00 | -27.80 | Horizontal |
| 7266.00 | 33.11 | 36.28 | 11.69 | 31.94 | 49.14 | 74.00 | -24.86 | Horizontal |
| 9688.00 | 31.88 | 38.13 | 14.21 | 31.52 | 52.70 | 74.00 | -21.30 | Horizontal |
| 12060.00 | * | | | | | 74.00 | | Horizontal |
| 14472.00 | * | | | | | 74.00 | | Horizontal |
| 16884.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4844.00 | 28.91 | 31.81 | 8.63 | 32.11 | 37.24 | 54.00 | -16.76 | Vertical |
| 7266.00 | 22.55 | 36.28 | 11.69 | 31.94 | 38.58 | 54.00 | -15.42 | Vertical |
| 9688.00 | 23.14 | 38.13 | 14.21 | 31.52 | 43.96 | 54.00 | -10.04 | Vertical |
| 12060.00 | * | | | | | 54.00 | | Vertical |
| 14472.00 | * | | | | | 54.00 | | Vertical |
| 16884.00 | * | | | | | 54.00 | | Vertical |
| 4844.00 | 27.99 | 31.81 | 8.63 | 32.11 | 36.32 | 54.00 | -17.68 | Horizontal |
| 7266.00 | 22.99 | 36.28 | 11.69 | 31.94 | 39.02 | 54.00 | -14.98 | Horizontal |
| 9688.00 | 21.56 | 38.13 | 14.21 | 31.52 | 42.38 | 54.00 | -11.62 | Horizontal |
| 12060.00 | * | | | | | 54.00 | | Horizontal |
| 14472.00 | * | | | | | 54.00 | | Horizontal |
| 16884.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

*1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*

*2. "*", means this data is the too weak instrument of signal is unable to test.*

*3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.*

| Test mode: | 802.11n(HT40) | Test channel: | Middle |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4874.00 | 39.18 | 31.85 | 8.66 | 32.12 | 47.57 | 74.00 | -26.43 | Vertical |
| 7311.00 | 35.79 | 36.37 | 11.71 | 31.91 | 51.96 | 74.00 | -22.04 | Vertical |
| 9748.00 | 34.07 | 38.27 | 14.25 | 31.56 | 55.03 | 74.00 | -18.97 | Vertical |
| 12185.00 | * | | | | | 74.00 | | Vertical |
| 14622.00 | * | | | | | 74.00 | | Vertical |
| 17059.00 | * | | | | | 74.00 | | Vertical |
| 4874.00 | 39.18 | 31.85 | 8.66 | 32.12 | 47.57 | 74.00 | -26.43 | Horizontal |
| 7311.00 | 33.41 | 36.37 | 11.71 | 31.91 | 49.58 | 74.00 | -24.42 | Horizontal |
| 9748.00 | 32.60 | 38.27 | 14.25 | 31.56 | 53.56 | 74.00 | -20.44 | Horizontal |
| 12185.00 | * | | | | | 74.00 | | Horizontal |
| 14622.00 | * | | | | | 74.00 | | Horizontal |
| 17059.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4874.00 | 29.42 | 31.85 | 8.66 | 32.12 | 37.81 | 54.00 | -16.19 | Vertical |
| 7311.00 | 22.27 | 36.37 | 11.71 | 31.91 | 38.44 | 54.00 | -15.56 | Vertical |
| 9748.00 | 22.70 | 38.27 | 14.25 | 31.56 | 43.66 | 54.00 | -10.34 | Vertical |
| 12185.00 | * | | | | | 54.00 | | Vertical |
| 14622.00 | * | | | | | 54.00 | | Vertical |
| 17059.00 | * | | | | | 54.00 | | Vertical |
| 4874.00 | 29.44 | 31.85 | 8.66 | 32.12 | 37.83 | 54.00 | -16.17 | Horizontal |
| 7311.00 | 21.92 | 36.37 | 11.71 | 31.91 | 38.09 | 54.00 | -15.91 | Horizontal |
| 9748.00 | 23.51 | 38.27 | 14.25 | 31.56 | 44.47 | 54.00 | -9.53 | Horizontal |
| 12185.00 | * | | | | | 54.00 | | Horizontal |
| 14622.00 | * | | | | | 54.00 | | Horizontal |
| 17059.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.

| Test mode: | 802.11n(HT40) | Test channel: | Highest |
|---|---|---|---|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4904.00 | 44.46 | 31.88 | 8.68 | 32.13 | 52.89 | 74.00 | -21.11 | Vertical |
| 7356.00 | 35.00 | 36.45 | 11.75 | 31.86 | 51.34 | 74.00 | -22.66 | Vertical |
| 9808.00 | 35.71 | 38.43 | 14.29 | 31.68 | 56.75 | 74.00 | -17.25 | Vertical |
| 12310.00 | * | | | | | 74.00 | | Vertical |
| 14772.00 | * | | | | | 74.00 | | Vertical |
| 17234.00 | * | | | | | 74.00 | | Vertical |
| 4904.00 | 43.67 | 31.88 | 8.68 | 32.13 | 52.10 | 74.00 | -21.90 | Horizontal |
| 7356.00 | 32.74 | 36.45 | 11.75 | 31.86 | 49.08 | 74.00 | -24.92 | Horizontal |
| 9808.00 | 32.97 | 38.43 | 14.29 | 31.68 | 54.01 | 74.00 | -19.99 | Horizontal |
| 12310.00 | * | | | | | 74.00 | | Horizontal |
| 14772.00 | * | | | | | 74.00 | | Horizontal |
| 17234.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|---|---|---|---|---|---|---|---|---|
| 4904.00 | 33.07 | 31.88 | 8.68 | 32.13 | 41.50 | 54.00 | -12.50 | Vertical |
| 7356.00 | 21.46 | 36.45 | 11.75 | 31.86 | 37.80 | 54.00 | -16.20 | Vertical |
| 9808.00 | 22.86 | 38.43 | 14.29 | 31.68 | 43.90 | 54.00 | -10.10 | Vertical |
| 12310.00 | * | | | | | 54.00 | | Vertical |
| 14772.00 | * | | | | | 54.00 | | Vertical |
| 17234.00 | * | | | | | 54.00 | | Vertical |
| 4904.00 | 33.48 | 31.88 | 8.68 | 32.13 | 41.91 | 54.00 | -12.09 | Horizontal |
| 7356.00 | 22.86 | 36.45 | 11.75 | 31.86 | 39.20 | 54.00 | -14.80 | Horizontal |
| 9808.00 | 21.58 | 38.43 | 14.29 | 31.68 | 42.62 | 54.00 | -11.38 | Horizontal |
| 12310.00 | * | | | | | 54.00 | | Horizontal |
| 14772.00 | * | | | | | 54.00 | | Horizontal |
| 17234.00 | * | | | | | 54.00 | | Horizontal |

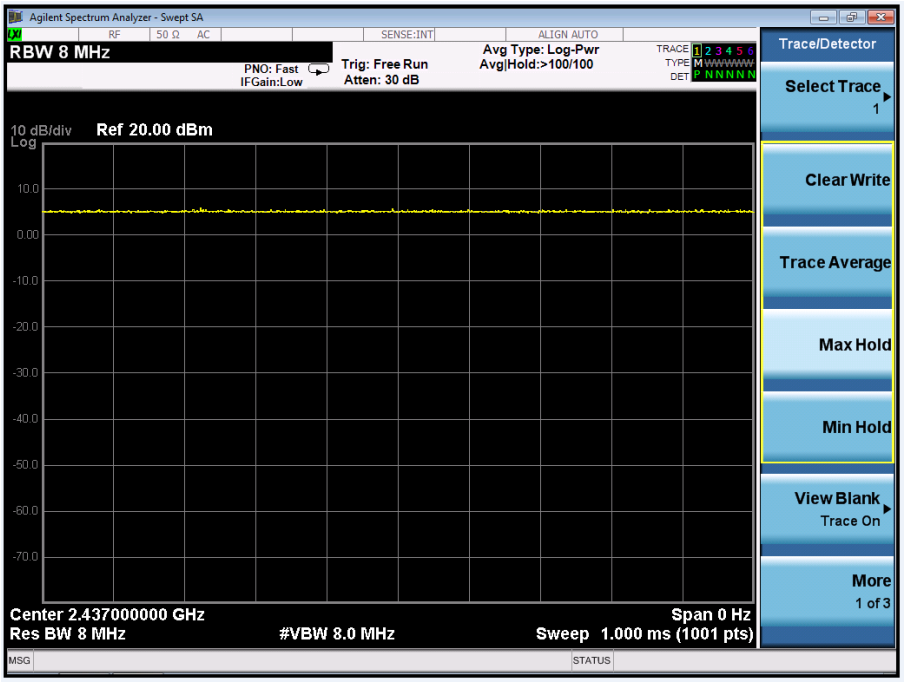
*Remark:*

*1 Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*

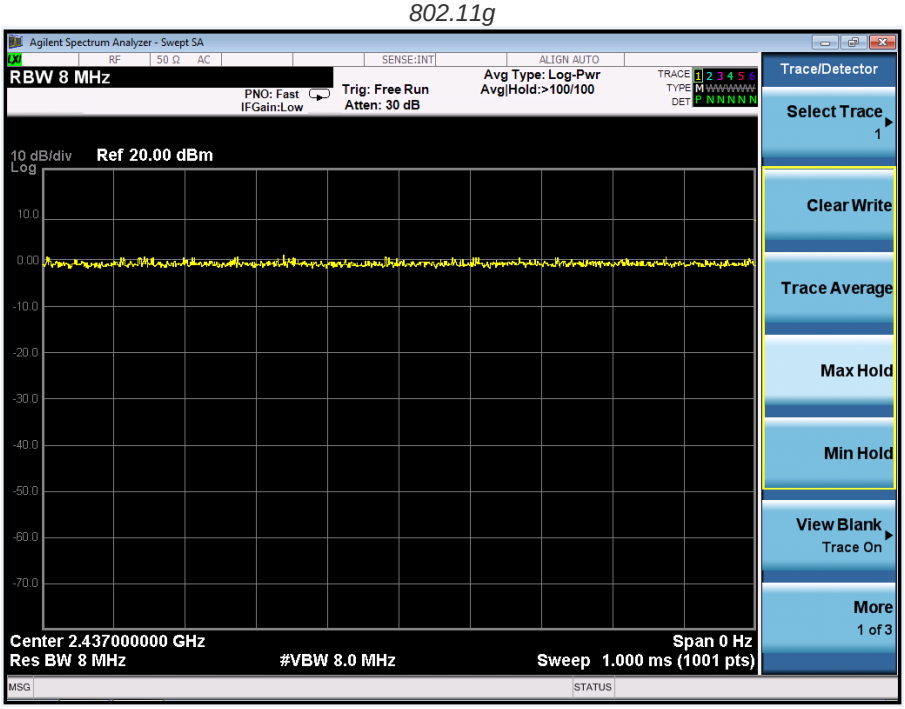
*2 "*", means this data is the too weak instrument of signal is unable to test.*

3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.

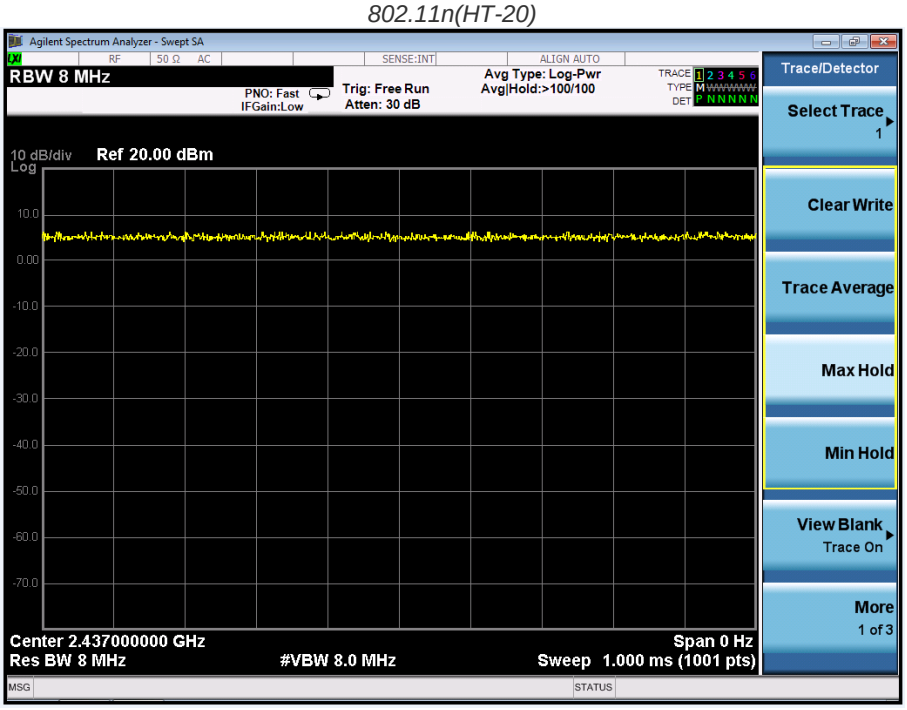
***Duty-cycle***
***802.11b***



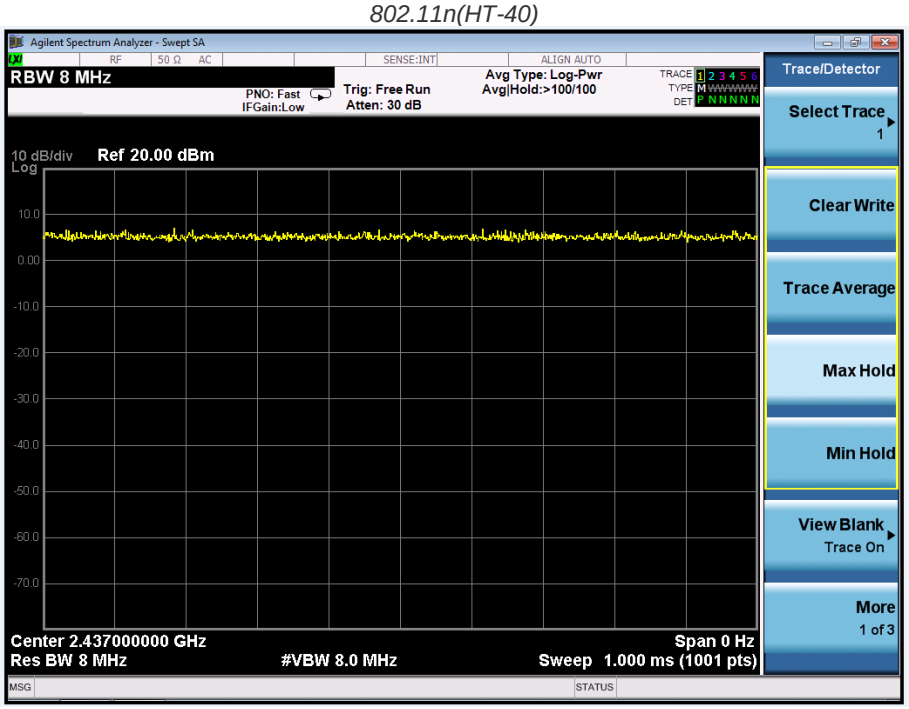

*802.11g*



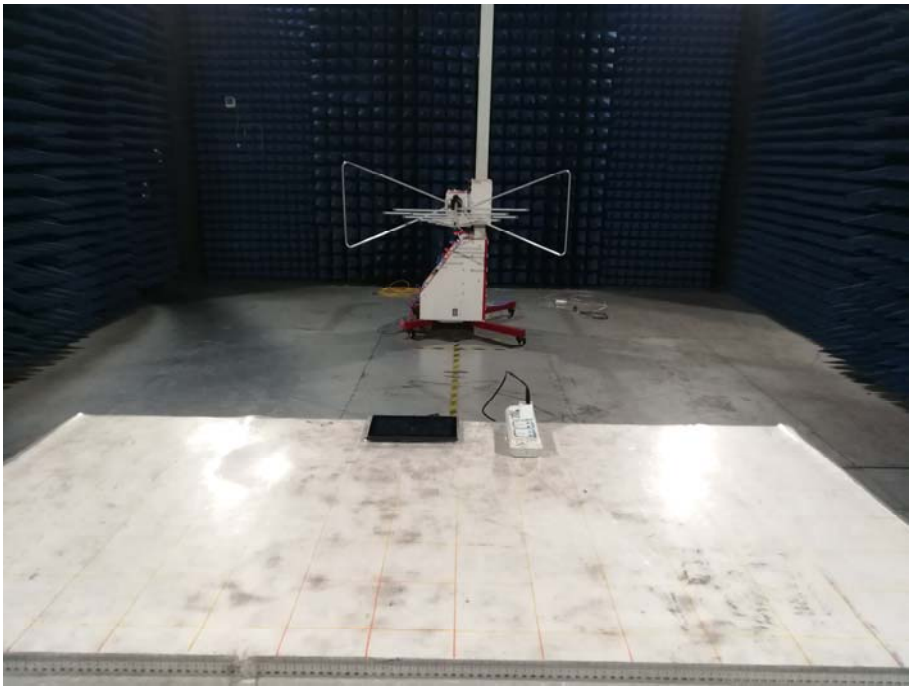
*802.11n(HT-20)*



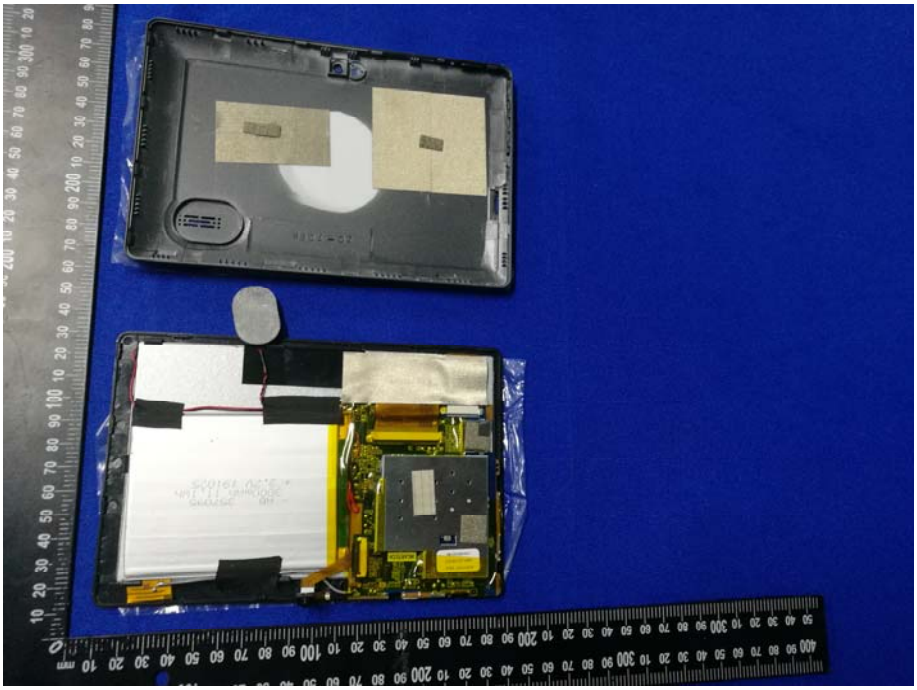

*802.11n(HT-40)*

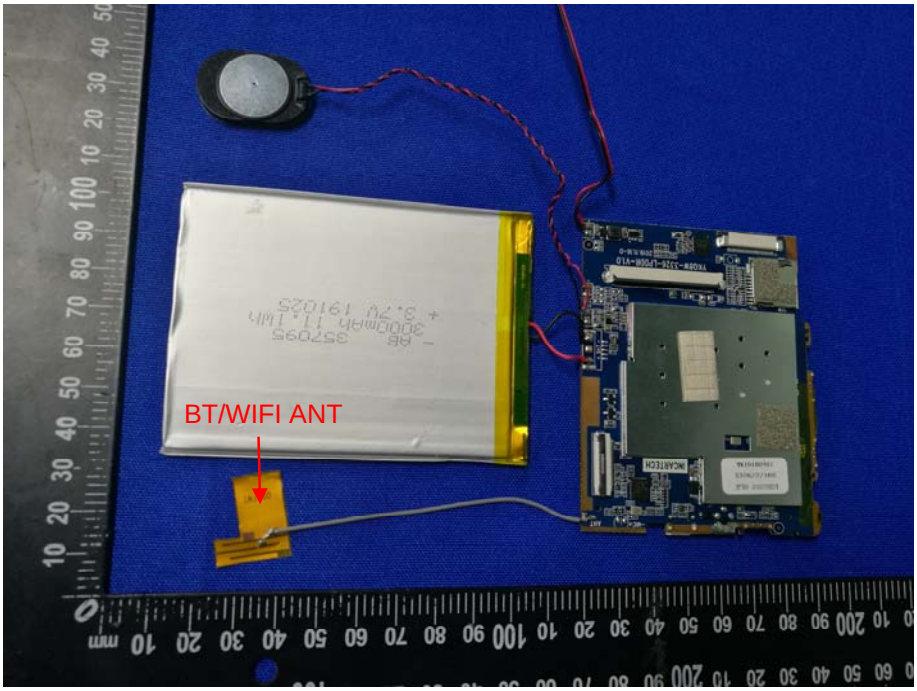


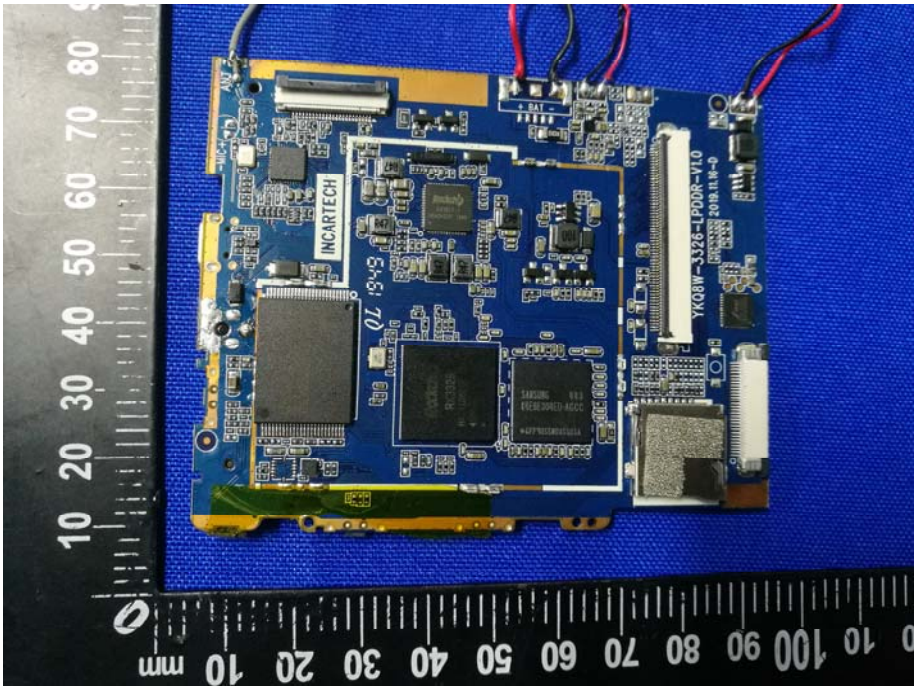
# 8 Test Setup Photo

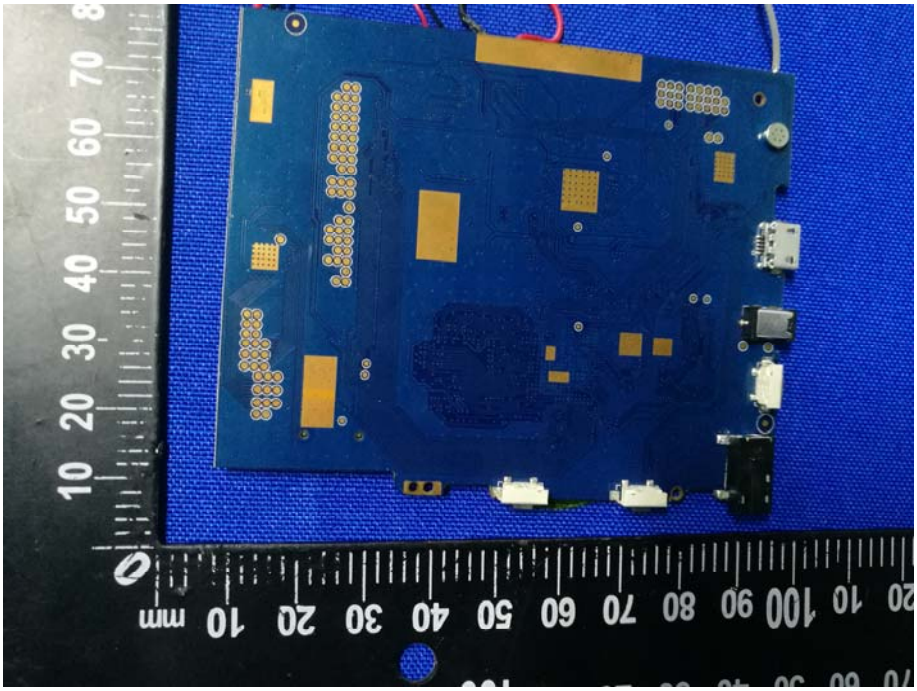


# 9 EUT Constructional Details




BT/WIFI ANT



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