# FCC PART 15C
# TEST REPORT
# No.I22Z60885-IOT03

**for**

**Razer Inc.**

**Gaming Tablet**

**RZ45-0461**

**With**

**FCC ID: RWO-RZ450461**

**Hardware Version: V4**

**Software Version: Razer Edge WiFi-12-user**

**Issued Date: 2022-10.28**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S.Government.

**Test Laboratory:**


**CTTL-Telecommunication Technology Labs, CAICT**

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# REPORT HISTORY

| Report Number | Revision | Description | Issue Date |
|---|---|---|---|
| I22Z60885-IOT03 | Rev.0 | 1st edition | 2022-09-01 |
| I22Z60885-IOT03 | Rev.1 | Update the resuset transmitter spurious emission(radiated). | 2022-10-28 |

# CONTENTS

# 1. Test Laboratory

## 1.1. Introduction & Accreditation

**Telecommunication Technology Labs, CAICT** is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

## 1.2. Testing Location

Location 1:CTTL(Huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China100191

## 1.3. Testing Environment

Normal Temperature: 15-35℃

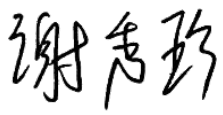
Relative Humidity: 20-75%

## 1.4. Project date

Testing Start Date: 2022-04-20

Testing End Date: 2022-09-01

## 1.5. Signature



**Xie Xiuzhen**

**(Prepared this test report)**

**Zheng Wei**

**(Reviewed this test report)**

**Pang Shuai**

**(Approved this test report)**

# 2. Client Information

## 2.1. Applicant Information

| | |
|---|---|
| Company Name: | Razer Inc. |
| Address /Post: | 9 Pasteur, Suite 100, Irvine, CA 92618, USA. |
| Contact: | Johnsen Tia |
| Email: | Johnsen.tia@razer.com |
| Telephone: | +65 6571 6828 |

## 2.2. Manufacturer Information

| | |
|---|---|
| Company Name: | Razer Inc. |
| Address /Post: | 9 Pasteur, Suite 100, Irvine, CA 92618, USA. |
| Contact: | Johnsen Tia |
| Email: | Johnsen.tia@razer.com |
| Telephone: | +65 6571 6828 |

# 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

## 3.1. About EUT

| | |
|---|---|
| Description | Gaming Tablet |
| Model name | RZ45-0461 |
| FCC ID | RWO-RZ450461 |
| With WLAN Function | Yes |
| Frequency Band | ISM 2400MHz~2483.5MHz |
| Type of Modulation | DSSS/CCK/OFDM/OFDMA |
| Number of Channels | 11 |
| Antenna | Embedded Antenna |
| MAX Conducted Power | 28.87dBm |
| Power Supply | 3.87V |

## 3.2. Internal Identification of EUT

| EUT ID* | SN or IMEI | HW Version | SW Version |
|---|---|---|---|
| UT65a | / | V4 | Razer Edge WiFi-12-user |
| UT10a | / | V4 | Razer Edge WiFi-12-user |
| UT18a | / | V4 | Razer Edge WiFi-12-user |

*EUT ID: is used to identify the test sample in the lab internally.

## 3.3. Internal Identification of AE

| AE ID* | Description | | |
|---|---|---|---|
| AE1 | Battery | / | Inbuilt |
| AE2 | USB Cable | / | / |
| AE3 | Adapter | / | / |

AE1

| | |
|---|---|
| Model | RC30-046001 |
| Manufacturer | ATL |
| Capacitance | 5000mAh |
| Nominal voltage | 3.87V |

AE2

| | |
|---|---|
| Model | LS2-A001A |
| Manufacturer | / |
| Length | / |

AE3

| | |
|---|---|
| Model | A849-200225C-US 1 |
| Manufacturer | / |
| Note | / |

*AE ID: is used to identify the test sample in the lab internally.

## 3.4. General Description

The Equipment under Test (EUT) is a model of Gaming Tablet with embedded antenna and inbuilt battery.

It has Bluetooth (EDR) function.

It consists of normal options: travel charger, USB cable.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

## 3.5. Interpretation of the Test Environment

For the test methods, the test environment uncertainty figures correspond to an expansion factor k=2.

Measurement Uncertainty

| Parameter | Uncertainty |
|---|---|
| temperature | 0.48°C |
| humidity | 2 % |
| DC voltages | 0.003V |

## 3.6. EUT set-ups

| EUT set-up No. | Combination of EUT and AE | Remarks |
|---|---|---|
| Set.1 | UT65a + AE1 + AE2+ AE3 | / |
| Set.2 | UT18a + AE1 + AE2+ AE3 | / |

# 4. Reference Documents

## 4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

## 4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference | Title | Version |
|---|---|---|
| FCC Part15 | FCC CFR 47, Part 15, Subpart C:<br>15.205 Restricted bands of operation;<br>15.209 Radiated emission limits, general requirements;<br>15.247 Operation within the bands 902-928MHz, 2400-2483.5 MHz, and 5725-5850 MHz. | 2018 |
| ANSI C63.10 | American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices | 2013 |
| KDB 558074 D01 | Federal Communications Commission Office of Engineering and Technology Laboratory Division<br>GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES | 2019 |
| KDB 662911 D01 | Emissions Testing of Transmitters with Multiple Outputs in the Same Band(e.g., MIMO, Smart Antenna, etc) | 2013-10 |

# 5. Test Results

## 5.1. Summary of Test Results

| SUMMARY OF MEASUREMENT RESULTS | Sub-clause of Part15C | Sub-clause of IC | Verdict |
|---|---|---|---|
| Maximum Peak Output Power | 15.247 (b) | / | BR |
| Peak Power Spectral Density | 15.247 (e) | / | BR |
| Occupied 6dB Bandwidth | 15.247 (a) | / | BR |
| Band Edges Compliance | 15.247 (d) | / | P |
| Transmitter Spurious Emission - Conducted | 15.247 (d) | / | BR |
| Transmitter Spurious Emission - Radiated | 15.247, 15.205, 15.209 | / | P |
| AC Powerline Conducted Emission | 15.107, 15.207 | / | BR |

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

| | |
|---|---|
| P | Pass, The EUT complies with the essential requirements in the standard. |
| NP | Not Perform, The test was not performed by CTTL |
| BR | Re-use test data from basic model report. |
| NA | Not Applicable, The test was not applicable |
| F | Fail, The EUT does not comply with the essential requirements in the standard |

## 5.2. Statements

The test cases as listed in section 5.1 of this report for the EUT specified in section 3 was performed by CTTL and according to the standards or reference documents listed in section 4.2

The EUT met all requirements of the standards or reference documents, and only the WLAN function was tested in this report.

## 5.3. Explanation of re-use of test data

The Equipment Under Test (EUT) model RZ45-0461 (FCC ID: RWO-RZ450461) is a variant product of RZ45-0460VWQ (FCC ID: RWO-RZ450460), according to the declaration of changes provided by the applicant and FCC KDB publication 484596 D01, spot check (power) measurements, band edges compliance(radiated) and transmitter spurious emission(radiated) were performed on this device, other test results are derived from test report No.I22Z60808-IOT03.

For detail differences between two models please refer the Declaration of Changes document.

For this report, if the test cases listed above are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

| | | |
|---|---|---|
| Temperature | T nom | 26℃ |
| Voltage | V nom | 3.87V |
| Humidity | H nom | 20-75% |

# 6. Test Facilities Utilized

## Conducted test system

| No. | Equipment | Model | Serial Number | Manufacturer | Calibration Period | Calibration Due date |
|---|---|---|---|---|---|---|
| 1 | Vector Signal Analyzer | FSQ40 | 200089 | Rohde & Schwarz | 1 year | 2023-05-15 |
| 2 | Test Receiver | ESCI 3 | 100344 | R&S | 1 year | 2023-02-21 |
| 3 | LISN | ENV216 | 101200 | R&S | 1 year | 2022-06-29 |
| 4 | Attenuator | 10dB/2W | / | Rosenberger | / | / |
| 5 | Shielding Room | S81 | / | ETS-Lindgren | / | / |

Note:

The test dates were before the calibration due dates of equipment used (the LISN whose series number is 101200)

## Radiated emission test system

| No. | Equipment | Model | Serial Number | Manufacturer | Calibration Period | Calibration Due date |
|---|---|---|---|---|---|---|
| 1 | Test Receiver | ESW44 | 103023 | R&S | 1 year | 2022-10-28 |
| 2 | EMI Antenna | VULB 9163 | 483 | SCHWARZBECK | 1 year | 2022-08-24 |
| 3 | EMI Antenna | 3115 | 00167250 | ETS-Lindgren | 1 year | 2022-07-01 |
| 4 | Loop Antenna | HFH2-Z2 | 829324/007 | R&S | 1 year | 2022-12-22 |

Note:

The test dates were before the calibration due dates of equipment used (the EMI Antenna which series number is 00167250, the EMI Antenna which series number is 483)

# 7. Measurement Uncertainty

## 7.1. Maximum Output Power

Measurement Uncertainty: 0.387dB,k=1.96

## 7.2. Peak Power Spectral Density

Measurement Uncertainty: 0.705dB,k=1.96

## 7.3. DTS 6-dB Signal Bandwidth

Measurement Uncertainty: 60.80Hz,k=1.96

## 7.4. Band Edges Compliance

Measurement Uncertainty : 0.62dB,k=1.96

## 7.5. Transmitter Spurious Emission

**Conducted (k=1.96)**

| Frequency Range | Uncertainty(dB) |
|---|---|
| 30MHz ≤ f ≤ 2GHz | 1.22 |
| 2GHz ≤ f ≤3.6GHz | 1.22 |
| 3.6GHz ≤ f ≤8GHz | 1.22 |
| 8GHz ≤ f ≤12.75GHz | 1.51 |
| 12.75GHz ≤ f ≤26GHz | 1.51 |
| 26GHz ≤ f ≤40GHz | 1.59 |

**Radiated (k=2)**

| Frequency Range | Uncertainty(dB) |
|---|---|
| 9kHz-30MHz | 4.92 |
| 30MHz ≤ f ≤ 1GHz | 5.15 |
| 1GHz ≤ f ≤18GHz | 5.54 |
| 18GHz ≤ f ≤40GHz | 5.26 |

## 7.6. AC Power-line Conducted Emission

Measurement Uncertainty : 3.08dB,k=2

# ANNEX A: Detailed Test Results

## A.1. Measurement Method

### A.1.1. Conducted Measurements

Connect the EUT to the test system as Fig.A.1.1.1 shows.
Set the EUT to the required work mode.
Set the EUT to the required channel.
Set the Vector Signal Analyzer and start measurement.
Record the values. Vector Signal Analyzer

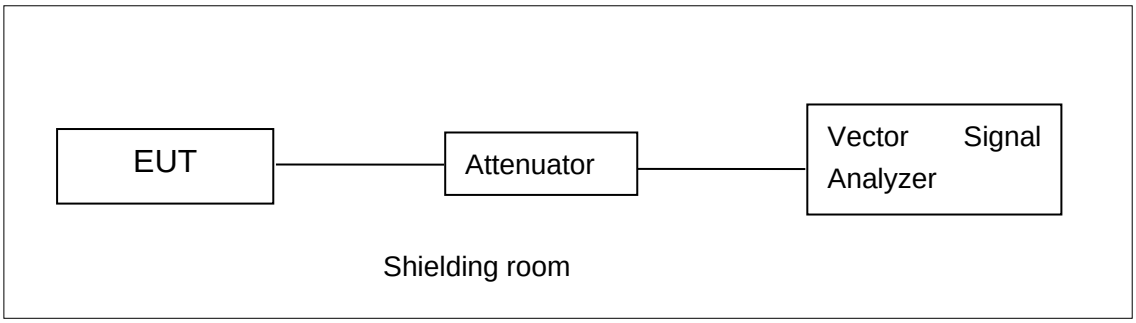



**Fig.A.1.1.1: Test Setup Diagram for Conducted Measurements**

### A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows,
Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;
Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 10Hz;

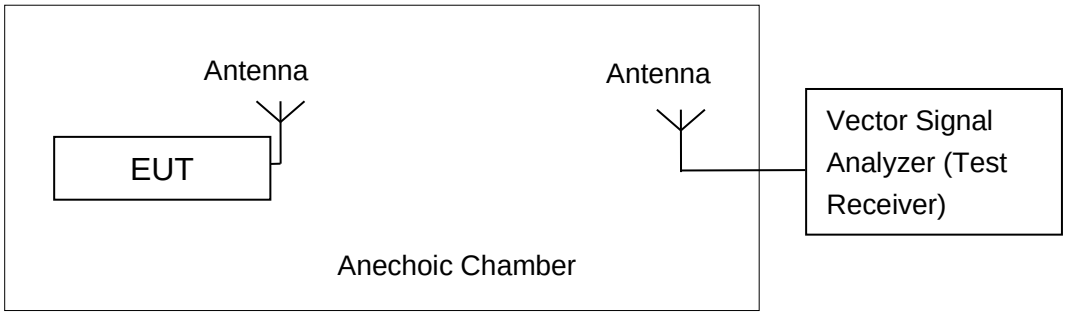



**Fig.A.1.2.1: Test Setup Diagram for Radiated Measurements**

## A.2. Maximum Output Power

**Method of Measurement: See ANSI C63.10-2013-clause 11.9.1.1**

a) Set the RBW ≥ DTS bandwidth.
b) Set VBW ≥ [3 × RBW].
c) Set span ≥ [3 × RBW].
d) Sweep time = auto couple.
e) Detector = peak.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use peak marker function to determine the peak amplitude level.

**Measurement Limit:**

| Standard | Limit (dBm) |
|---|---|
| FCC CRF Part 15.247(b) | < 30 |

**EUT ID: UT10a**

### A.2.1. Peak Output Power-conducted

**Measurement Results:**

| Frequency | Ant4(dBi) | Ant5(dBi) | DG(dBi) beamforming |
|---|---|---|---|
| 2412 | 0.4 | -0.1 | 3.16 |
| 2437 | 0.1 | 0.0 | 3.06 |
| 2462 | -0.2 | -0.3 | 2.76 |
| 2422 | 0.3 | -0.1 | 3.11 |
| 2437 | 0.1 | 0.0 | 3.06 |
| 2452 | 0 | -0.1 | 2.96 |

For BF transmissions, power and PSD directional gain is calculated as:

Directional gain = 10 log [(10G1 /20 + 10G2 /20 + … + 10Gn /20) 2 /NANT] dBi, as following table for PSD. NANT = number of transmit antennas NSS = number of spatial streams. (The worst case directional gain will occur when NSS = 1)

**SISO-Ant4**

**802.11b/g mode**

| Mode | Data Rate (Mbps) | Test Result (dBm) | | |
|---|---|---|---|---|
| | | 2412MHz (Ch1) | 2437MHz (Ch6) | 2462 MHz (Ch11) |
| 802.11b | 1 | 18.42 | 19.04 | 18.37 |

| | | | | |
|---|---|---|---|---|
| 802.11g | 6 | 23.76 | 23.47 | 17.70 |

The data rate 1Mbps and 6Mbps are selected as worst condition, and the following cases are performed with this condition.

**802.11n-HT20 mode**

| Mode | Data Rate (Index) | Test Result (dBm) | | |
|---|---|---|---|---|
| | | 2412MHz (Ch1) | 2437MHz (Ch6) | 2462 MHz (Ch11) |
| 802.11n(20MHz) | MCS0 | 23.31 | 23.29 | 17.43 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

**802.11n-HT40 mode**

| Mode | Data Rate (Index) | Test Result (dBm) | | |
|---|---|---|---|---|
| | | 2422MHz (Ch3) | 2437MHz (Ch6) | 2452 MHz (Ch9) |
| 802.11n(40MHz) | MCS0 | 22.48 | 22.59 | 22.34 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

**802.11ax-HE20 mode(RU26-index0)**

| Mode | Data Rate (Index) | Test Result (dBm) | | |
|---|---|---|---|---|
| | | 2412MHz (Ch1) | 2437MHz (Ch6) | 2462 MHz (Ch11) |
| 802.11ax(20MHz) | MCS0 | 25.01 | 24.37 | 25.32 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

**802.11ax-HE40 mode(RU26-index0)**

| Mode | Data Rate (Index) | Test Result (dBm) | | |
|---|---|---|---|---|
| | | 2422MHz (Ch3) | 2437MHz (Ch6) | 2452 MHz (Ch9) |
| 802.11ax(40MHz) | MCS0 | 23.32 | 24.73 | 24.05 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

**SISO-Ant5**

**802.11b/g mode**

| Mode | Data Rate (Mbps) | Test Result (dBm) | | |
|---|---|---|---|---|
| | | 2412MHz (Ch1) | 2437MHz (Ch6) | 2462 MHz (Ch11) |
| 802.11b | 1 | 17.97 | 17.96 | 17.75 |
| 802.11g | 6 | 23.44 | 23.32 | 17.50 |

The data rate 1Mbps and 6Mbps are selected as worst condition, and the following cases are performed with this condition.

**802.11n-HT20 mode**

| Mode | Data Rate (Index) | Test Result (dBm) | | |
|---|---|---|---|---|
| | | 2412MHz (Ch1) | 2437MHz (Ch6) | 2462 MHz (Ch11) |
| 802.11n(20MHz) | MCS0 | 22.99 | 22.83 | 17.46 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

**802.11n-HT40 mode**

| Mode | Data Rate (Index) | Test Result (dBm) | | |
|---|---|---|---|---|
| | | 2422MHz (Ch3) | 2437MHz (Ch6) | 2452 MHz (Ch9) |
| 802.11n(40MHz) | MCS0 | 21.85 | 21.80 | 21.61 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

**802.11ax-HE20 mode(RU26-index0)**

| Mode | Data Rate (Index) | Test Result (dBm) | | |
|---|---|---|---|---|
| | | 2412MHz (Ch1) | 2437MHz (Ch6) | 2462 MHz (Ch11) |
| 802.11ax(20MHz) | MCS0 | 25.69 | 25.03 | 25.91 |

The data rate  is selected as worst condition, and the following cases are performed with this condition.

**802.11ax-HE40 mode(RU26-index0)**

| Mode | Data Rate (Index) | Test Result (dBm) | | |
|---|---|---|---|---|
| | | 2422MHz (Ch3) | 2437MHz (Ch6) | 2452 MHz (Ch9) |
| 802.11ax(40MHz) | MCS0 | 24.84 | 24.45 | 24.37 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

**MIMO**

**802.11b/g mode**

| Mode | Data Rate (Mbps) | Test Result (dBm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2412MHz (Ch1) | | | 2437MHz (Ch6) | | | 2462 MHz (Ch11) | | |
| | | Ant4 | Ant5 | Sum | Ant4 | Ant5 | Sum | Ant4 | Ant5 | Sum |
| 802.11b | 1 | 17.89 | 17.70 | 20.81 | 18.55 | 17.21 | 20.94 | 18.21 | 17.33 | 20.80 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 802.11g | 6 | 24.09 | 23.88 | 27.00 | 22.87 | 23.30 | 26.10 | 18.24 | 17.27 | 20.79 |

The data rate 1Mbps and 6Mbps are selectet as worse condition, and the following cases are performed with this condition.

**802.11n-HT20 mode**

| Mode | Data Rate (Index) | Test Result (dBm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2412MHz (Ch1) | | | 2437MHz (Ch6) | | | 2462 MHz (Ch11) | | |
| | | Ant4 | Ant5 | Sum | Ant4 | Ant5 | Sum | Ant4 | Ant5 | Sum |
| 802.11n (20MHz) | MCS0 | 23.30 | 23.35 | 26.34 | 22.98 | 23.36 | 26.18 | 17.48 | 17.51 | 20.51 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

**802.11n-HT40 mode**

| Mode | Data Rate (Index) | Test Result (dBm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2422MHz (Ch3) | | | 2437MHz (Ch6) | | | 2452 MHz (Ch9) | | |
| | | Ant4 | Ant5 | Sum | Ant4 | Ant5 | Sum | Ant4 | Ant5 | Sum |
| 802.11n (40MHz) | MCS0 | 22.27 | 22.87 | 25.59 | 22.20 | 22.60 | 25.41 | 21.99 | 22.33 | 25.17 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

**802.11ax-HE20 mode(RU26-index0)**

| Mode | Data Rate (Index) | Test Result (dBm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2412MHz (Ch1) | | | 2437MHz (Ch6) | | | 2462 MHz (Ch11) | | |
| | | Ant4 | Ant5 | Sum | Ant4 | Ant5 | Sum | Ant4 | Ant5 | Sum |
| 802.11ax (20MHz) | MCS0 | 25.06 | 25.86 | 28.49 | 24.71 | 25.22 | 27.98 | 25.91 | 25.81 | 28.87 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this condition.

**802.11ax-HE40 mode(RU26-index0)**

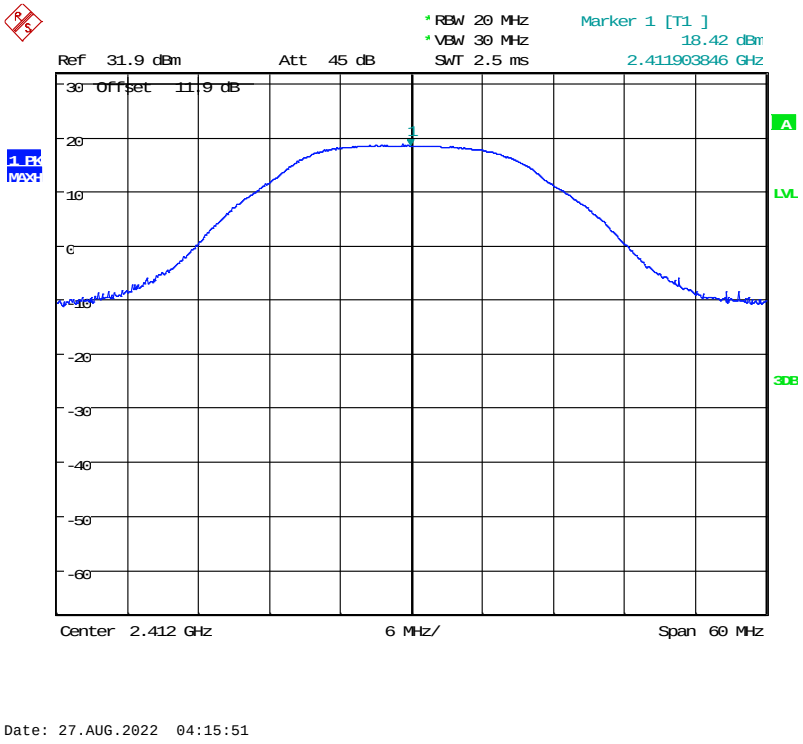
| Mode | Data Rate (Index) | Test Result (dBm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2422MHz (Ch3) | | | 2437MHz (Ch6) | | | 2452 MHz (Ch9) | | |
| | | Ant4 | Ant5 | Sum | Ant4 | Ant5 | Sum | Ant4 | Ant5 | Sum |
| 802.11ax (40MHz) | MCS0 | 25.46 | 25.33 | 28.41 | 24.13 | 24.76 | 27.47 | 24.09 | 24.40 | 27.26 |

The data rate MCS0 is selected as worst condition, and the following cases are performed with this

condition.

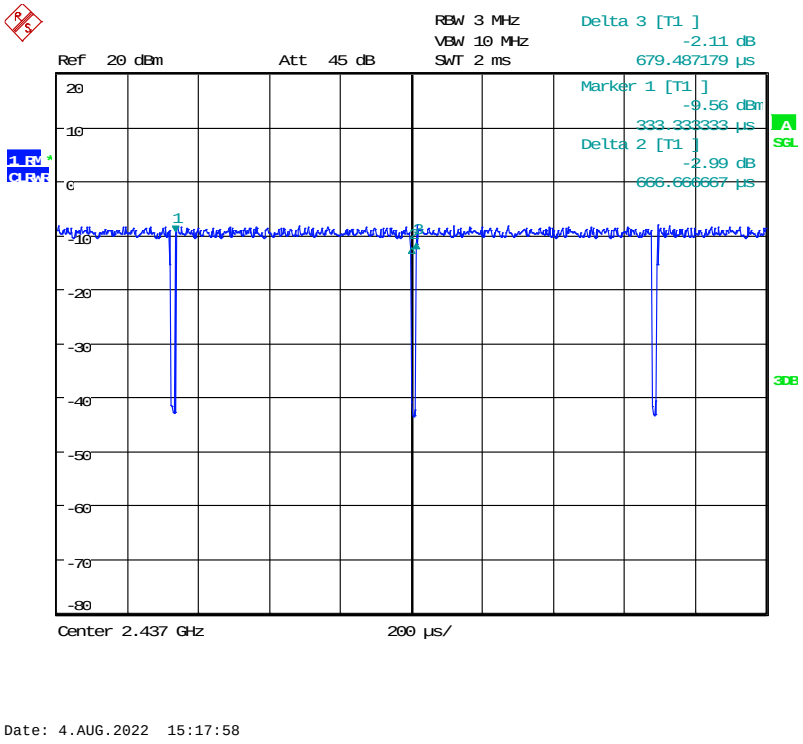
The spot check result of average output power are 15.57dBm (ant4 802.11b 1Mbps ch1 prototype result: 15.99dBm) and 18.27dBm (mimo 802.11b 1Mbps ch1 prototype result: 18.54dBm).

802.11b-2412MHz-ant4:




Duty Cycle

| Mode | 802.11b | 802.11g | 802.11n20 | 802.11n40 | 802.11ax20 | 802.11ax40 |
|---|---|---|---|---|---|---|
| Duty Cycle | 98% | 99% | 99% | 99% | 99% | 99% |




Note: The following cases are performed with this condition:

a) 802.11b/g/n20/n40 mode (Ant4) are selected as the worst condition (SISO);

802.11ax20/40 mode (Ant5) are selected as the worst condition (SISO);

b) 802.11b/g/ax20/ax40 mode (Ant4) is selected as the worst condition (MIMO);

802.11n20/n40 mode (Ant5) is selected as the worst condition (MIMO);

c) The maximum power of 802.11ax20/40 is got with RU26-index0(SISO/MIMO).

**Conclusion: Pass**

## A.3. Peak Power Spectral Density

**Method of Measurement: See ANSI C63.10-2013-clause 11.10.2**

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to RBW = 3 kHz.
d) Set the VBW = 10 kHz.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.

**Measurement Limit:**

| Standard | Limit |
|---|---|
| FCC CRF Part 15.247(e) | < 8 dBm/3 kHz |

**Measurement Results:**

**SISO-Ant4**

**802.11b/g mode**

| Mode | Channel | Power Spectral Density ( dBm/3 kHz ) | | Conclusion |
|---|---|---|---|---|
| 802.11b | 1 | Fig.A.3.1 | -7.10 | P |
| | 6 | Fig.A.3.2 | -7.48 | P |
| | 11 | Fig.A.3.3 | -7.50 | P |
| 802.11g | 1 | Fig.A.3.4 | -9.20 | P |
| | 6 | Fig.A.3.5 | -10.15 | P |
| | 11 | Fig.A.3.6 | -15.49 | P |

**802.11n-HT20 mode**

| Mode | Channel | Power Spectral Density ( dBm/3 kHz ) | | Conclusion |
|---|---|---|---|---|
| 802.11n (HT20) | 1 | Fig.A.3.7 | -3.25 | P |
| | 6 | Fig.A.3.8 | -4.14 | P |
| | 11 | Fig.A.3.9 | -8.47 | P |

**802.11n-HT40 mode**

| Mode | Channel | Power Spectral Density ( dBm/3 kHz ) | | Conclusion |
|---|---|---|---|---|
| 802.11n (HT40) | 3 | Fig.A.3.10 | -13.40 | P |
| | 6 | Fig.A.3.11 | -13.23 | P |
| | 9 | Fig.A.3.12 | -12.12 | P |

**SISO-Ant5**

**802.11ax-HE20 mode(RU26-index0)**

| Mode | Channel | Power Spectral Density ( dBm/3 kHz ) | | Conclusion |
|---|---|---|---|---|
| 802.11ax (HE20) | 1 | Fig.A.3.13 | -3.44 | P |
| | 6 | Fig.A.3.14 | -2.68 | P |
| | 11 | Fig.A.3.15 | -2.99 | P |

**802.11ax-HE40 mode(RU26-index0)**

| Mode | Channel | Power Spectral Density ( dBm/3 kHz ) | | Conclusion |
|---|---|---|---|---|
| 802.11ax (HE40) | 3 | Fig.A.3.16 | -4.46 | P |
| | 6 | Fig.A.3.17 | -3.76 | P |
| | 9 | Fig.A.3.18 | -4.74 | P |

**MIMO**

**802.11b mode**

| Mode | Power Spectral Density ( dBm/3 kHz ) | | | | Conclusion |
|---|---|---|---|---|---|
| 802.11b | Ant4 | 2412 | -7.86 | Fig.A.3.19 | P |
| | Ant5 | 2412 | -8.28 | / | P |
| | total | 2412 | -5.05 | / | P |
| | Ant4 | 2437 | -4.82 | Fig.A.3.20 | P |
| | Ant5 | 2437 | -8.39 | / | P |
| | total | 2437 | -3.24 | / | P |
| | Ant4 | 2462 | -9.79 | Fig.A.3.21 | P |
| | Ant5 | 2462 | -9.12 | / | P |
| | total | 2462 | -6.43 | / | P |

**802.11g mode**

| Mode | Power Spectral Density ( dBm/3 kHz ) | | | | Conclusion |
|---|---|---|---|---|---|
| 802.11g | Ant4 | 2412 | -10.62 | Fig.A.3.22 | P |
| | Ant5 | 2412 | -10.60 | / | P |
| | total | 2412 | -7.60 | / | P |
| | Ant4 | 2437 | -10.13 | Fig.A.3.23 | P |
| | Ant5 | 2437 | -11.21 | / | P |
| | total | 2437 | -7.63 | / | P |
| | Ant4 | 2462 | -14.74 | Fig.A.3.24 | P |
| | Ant5 | 2462 | -16.46 | / | P |
| | total | 2462 | -12.51 | / | P |

**802.11n-HT20 mode**

| Mode | Power Spectral Density ( dBm/3 kHz ) | | | | Conclusion |
|---|---|---|---|---|---|
| 802.11n | Ant4 | 2412 | -9.55 | / | P |

| | | | | | |
|---|---|---|---|---|---|
| (HT20) | Ant5 | 2412 | -11.13 | Fig.A.3.25 | P |
| | total | 2412 | -7.26 | / | P |
| | Ant4 | 2437 | -10.12 | / | P |
| | Ant5 | 2437 | -11.04 | Fig.A.3.26 | P |
| | total | 2437 | -7.55 | / | P |
| | Ant4 | 2462 | -15.40 | / | P |
| | Ant5 | 2462 | -16.21 | Fig.A.3.27 | P |
| | total | 2462 | -12.78 | / | P |

**802.11n-HT40 mode**

| Mode | Power Spectral Density ( dBm/3 kHz ) | | | | Conclusion |
|---|---|---|---|---|---|
| 802.11n (HT40) | Ant4 | 2422 | -14.00 | / | P |
| | Ant5 | 2422 | -13.73 | Fig.A.3.28 | P |
| | total | 2422 | -10.85 | / | P |
| | Ant4 | 2437 | -13.13 | / | P |
| | Ant5 | 2437 | -14.19 | Fig.A.3.29 | P |
| | total | 2437 | -10.62 | / | P |
| | Ant4 | 2452 | -14.06 | / | P |
| | Ant5 | 2452 | -14.27 | Fig.A.3.30 | P |
| | total | 2452 | -11.15 | / | P |

**802.11ax-HE20 mode(RU26-index0)**

| Mode | Power Spectral Density ( dBm/3 kHz ) | | | | Conclusion |
|---|---|---|---|---|---|
| 802.11ax (HE20) | Ant4 | 2412 | -3.85 | Fig.A.3.31 | P |
| | Ant5 | 2412 | -3.45 | / | P |
| | total | 2412 | -0.64 | / | P |
| | Ant4 | 2437 | -3.62 | Fig.A.3.32 | P |
| | Ant5 | 2437 | -2.74 | / | P |
| | total | 2437 | -0.15 | / | P |

| | | | | | |
|---|---|---|---|---|---|
| | Ant4 | 2462 | -2.21 | Fig.A.3.33 | P |
| | Ant5 | 2462 | -2.28 | / | P |
| | total | 2462 | 0.77 | / | P |

**802.11ax-HE40 mode(RU26-index0)**

| Mode | Power Spectral Density ( dBm/3 kHz ) | | | | Conclusion |
|---|---|---|---|---|---|
| 802.11ax (HE20) | Ant4 | 2422 | -3.76 | Fig.A.3.34 | P |
| | Ant5 | 2422 | -4.53 | / | P |
| | total | 2422 | -1.12 | / | P |
| | Ant4 | 2437 | -4.04 | Fig.A.3.35 | P |
| | Ant5 | 2437 | -4.06 | / | P |
| | total | 2437 | -1.04 | / | P |
| | Ant4 | 2452 | -5.72 | Fig.A.3.36 | P |
| | Ant5 | 2452 | -3.85 | / | P |
| | total | 2452 | -1.67 | / | P |

Note: All Antenna are tested, only the worst-case plot have been reported.

**Conclusion: Pass**

**Test graphs as below:**

**SISO-Ant4**

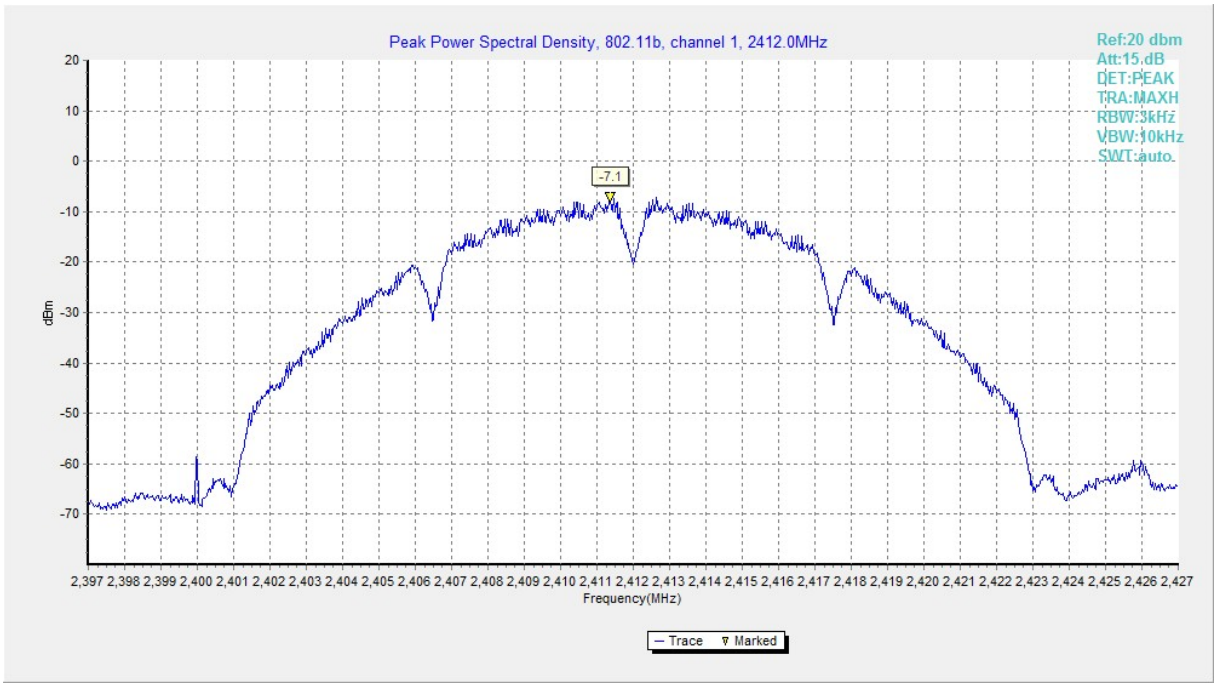



**Fig.A.3.1 Power Spectral Density(802.11b,Ch1)**

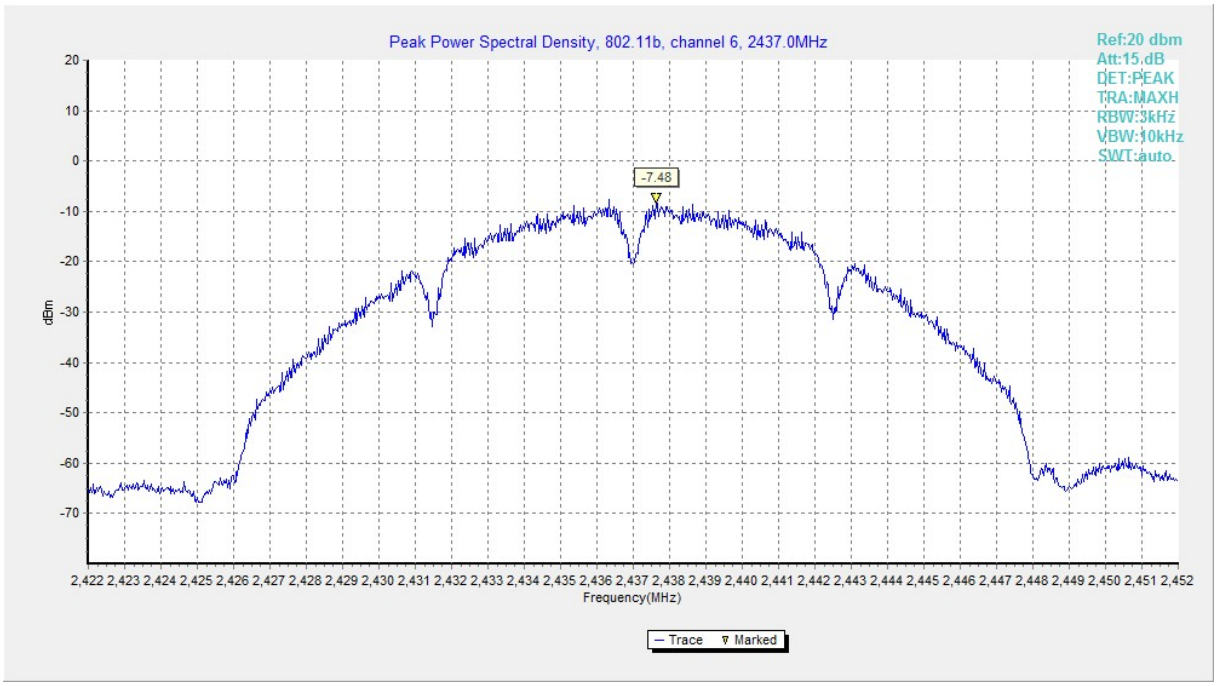



**Fig.A.3.2 Power Spectral Density (802.11b, Ch 6)**

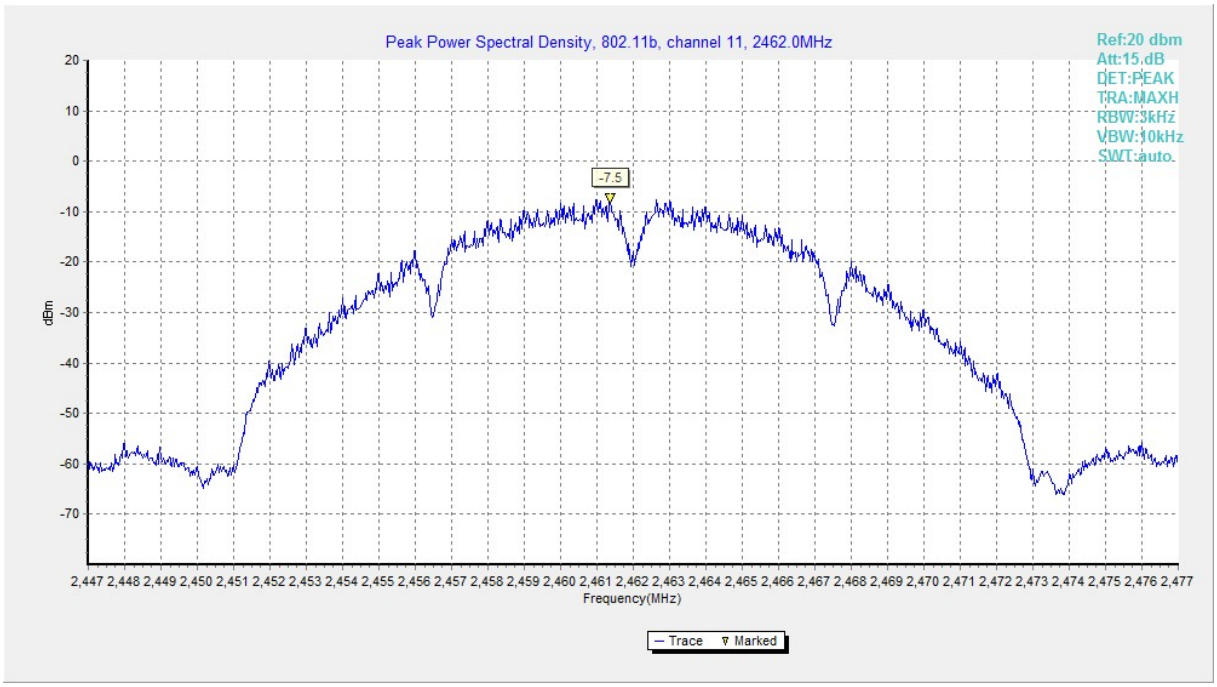



**Fig.A.3.3 Power Spectral Density (802.11b, Ch 11)**

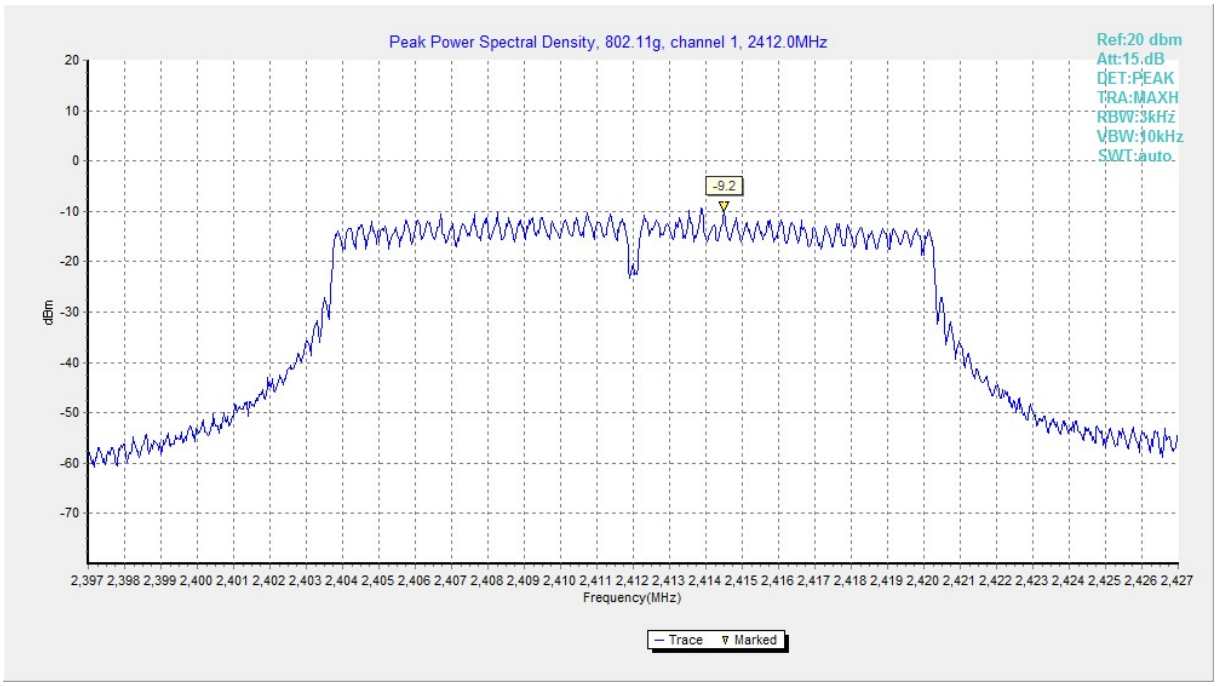



**Fig.A.3.4 Power Spectral Density (802.11g, Ch 1)**

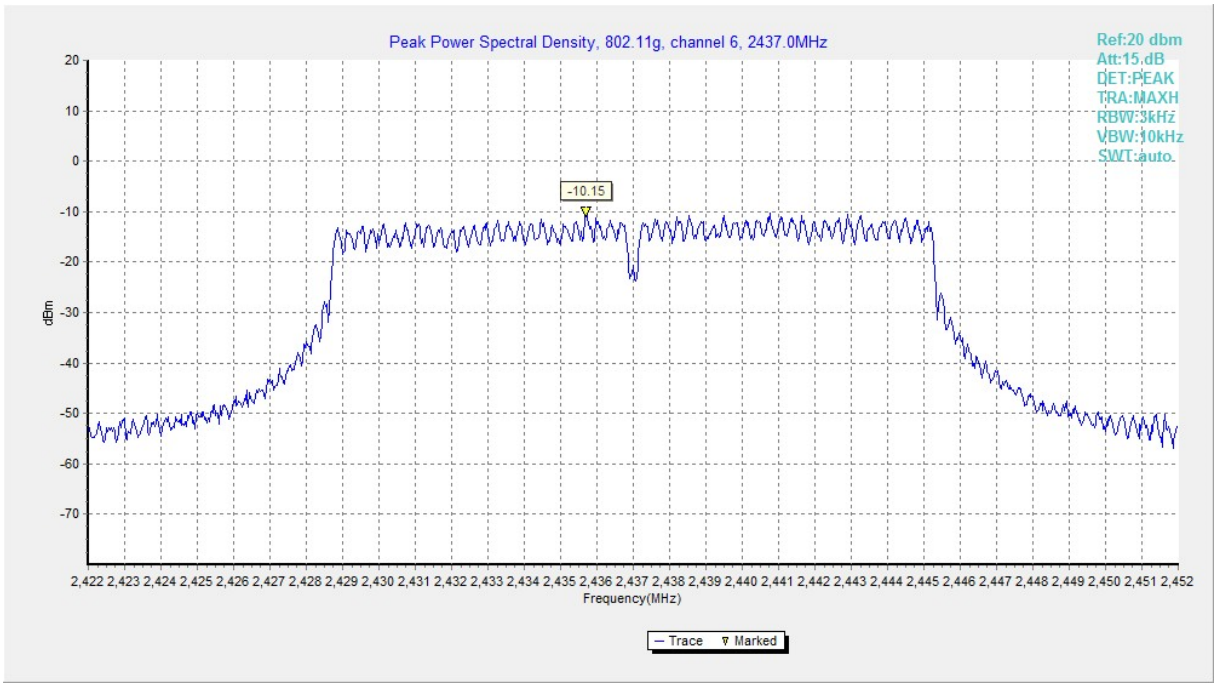



**Fig.A.3.5 Power Spectral Density (802.11g, Ch 6)**

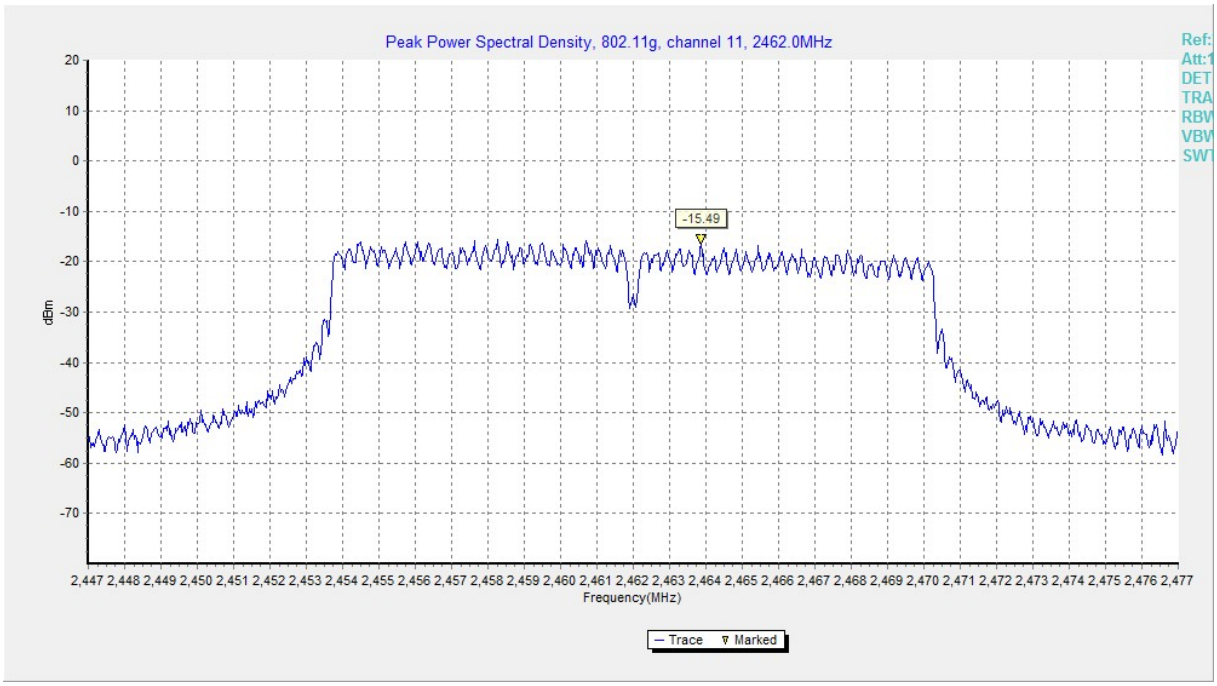



**Fig.A.3.6 Power Spectral Density (802.11g, Ch 11)**

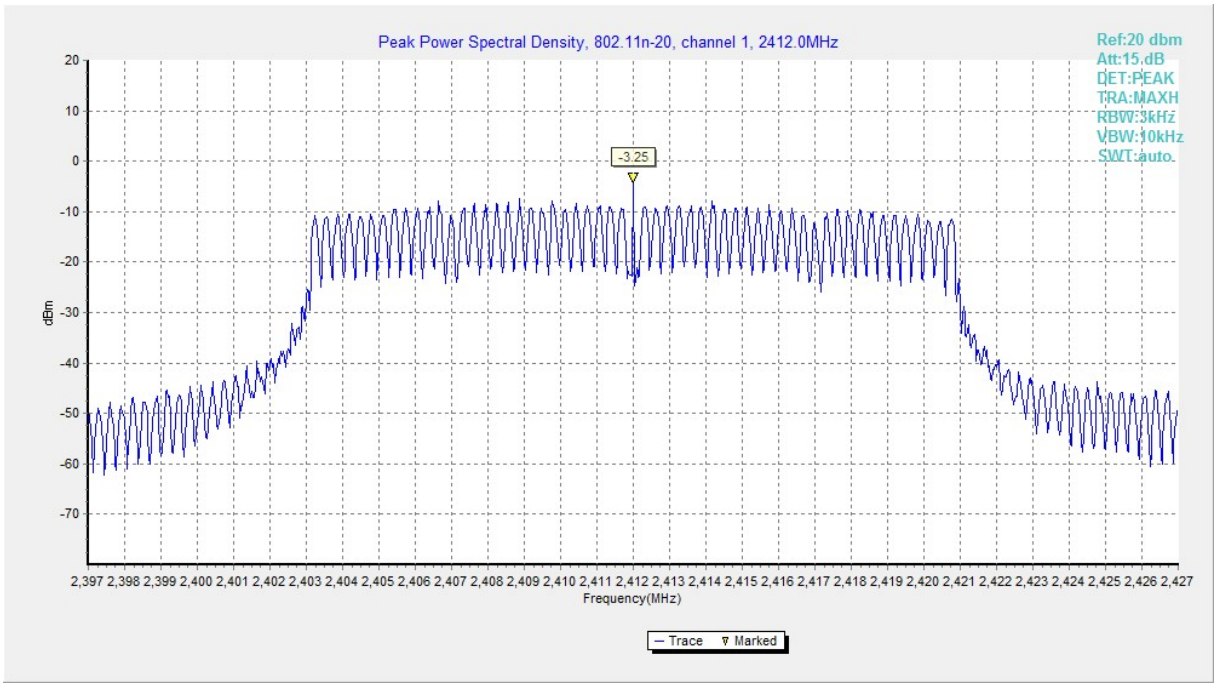



**Fig.A.3.7 Power Spectral Density (802.11n-HT20, Ch 1)**

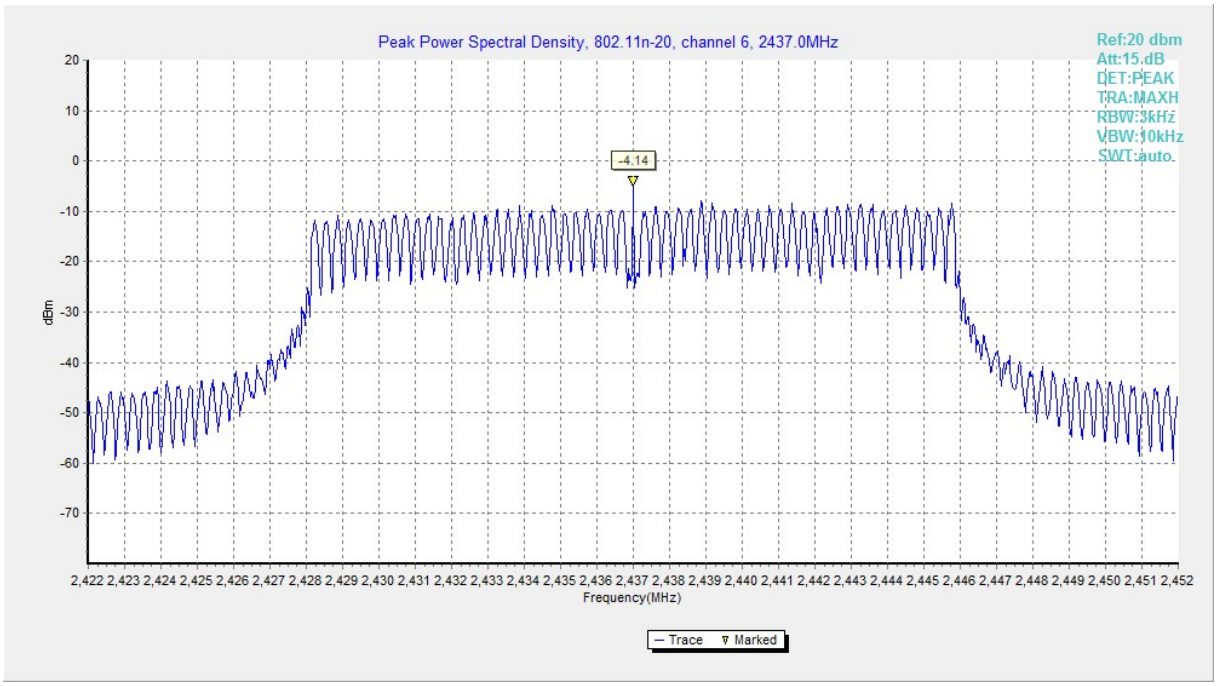



**Fig.A.3.8 Power Spectral Density (802.11n-HT20, Ch 6)**

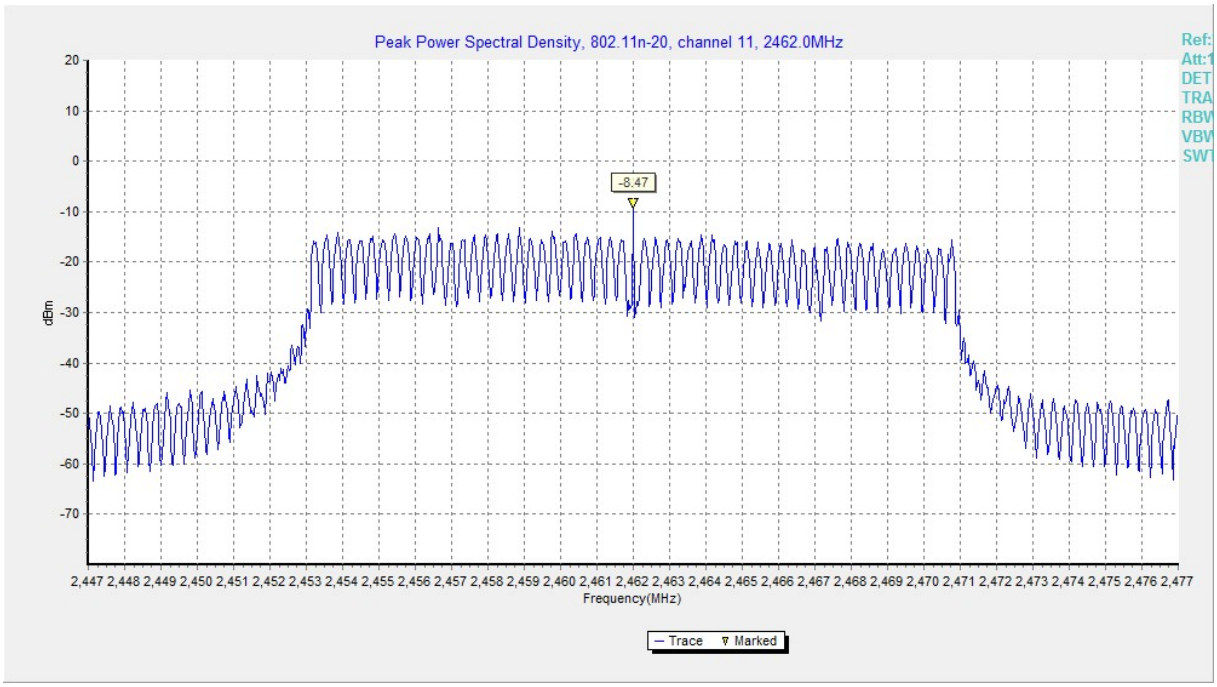



**Fig.A.3.9 Power Spectral Density (802.11n-HT20, Ch 11)**

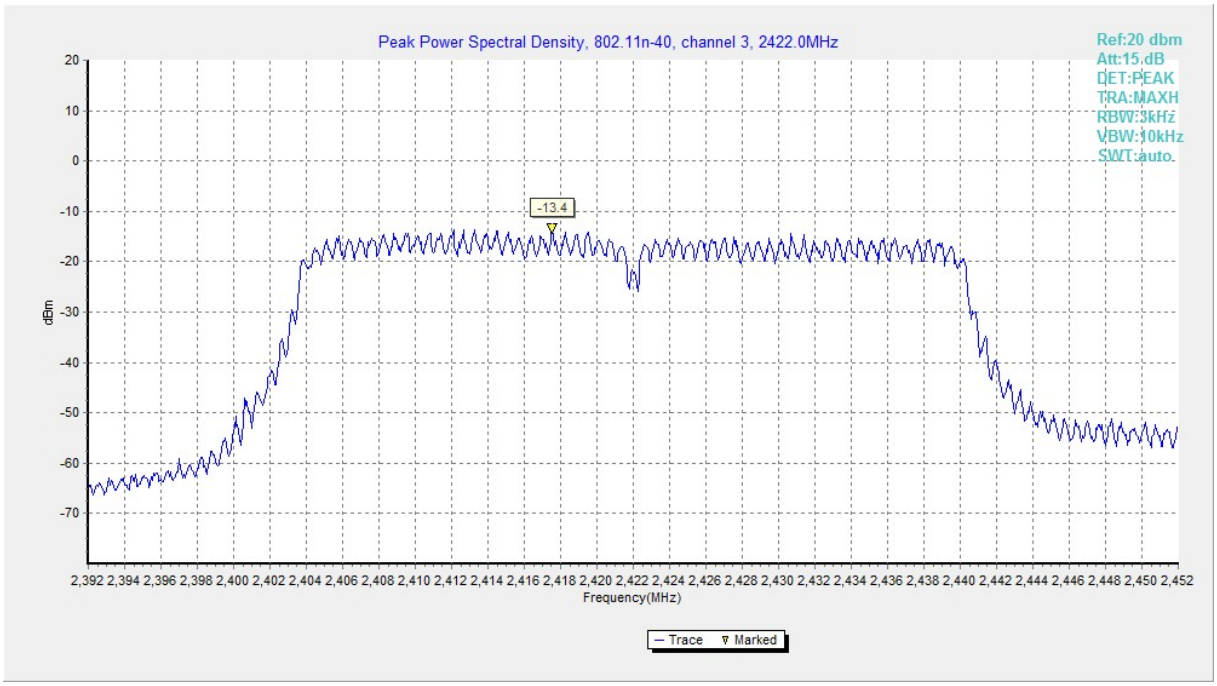



**Fig.A.3.10 Power Spectral Density (802.11n-HT40, Ch 3)**

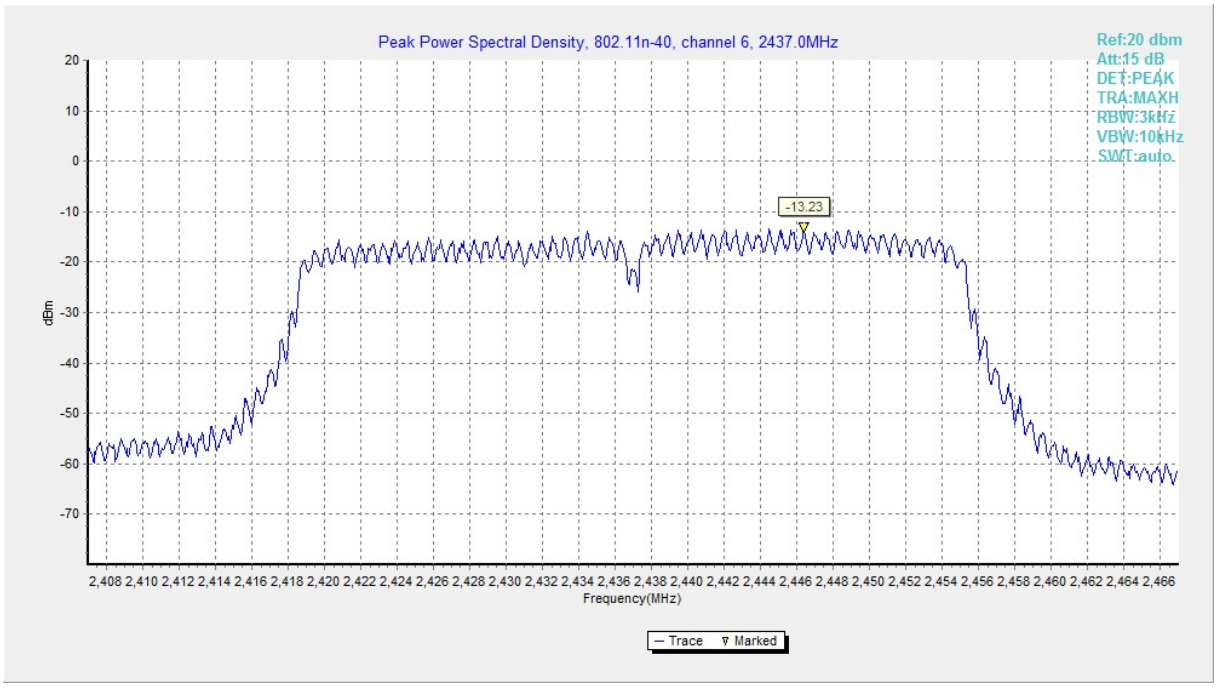



**Fig.A.3.11 Power Spectral Density (802.11n-HT40, Ch 6)**

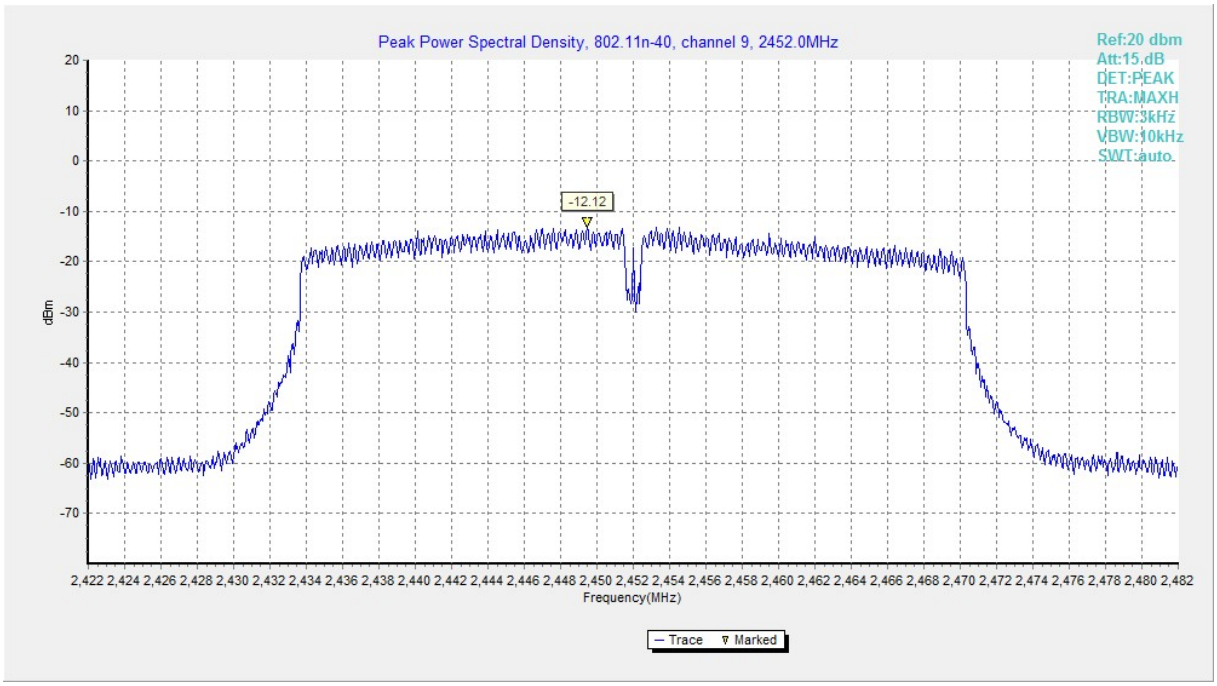



**Fig.A.3.12 Power Spectral Density (802.11n-HT40, Ch 9)**

**SISO-Ant5**

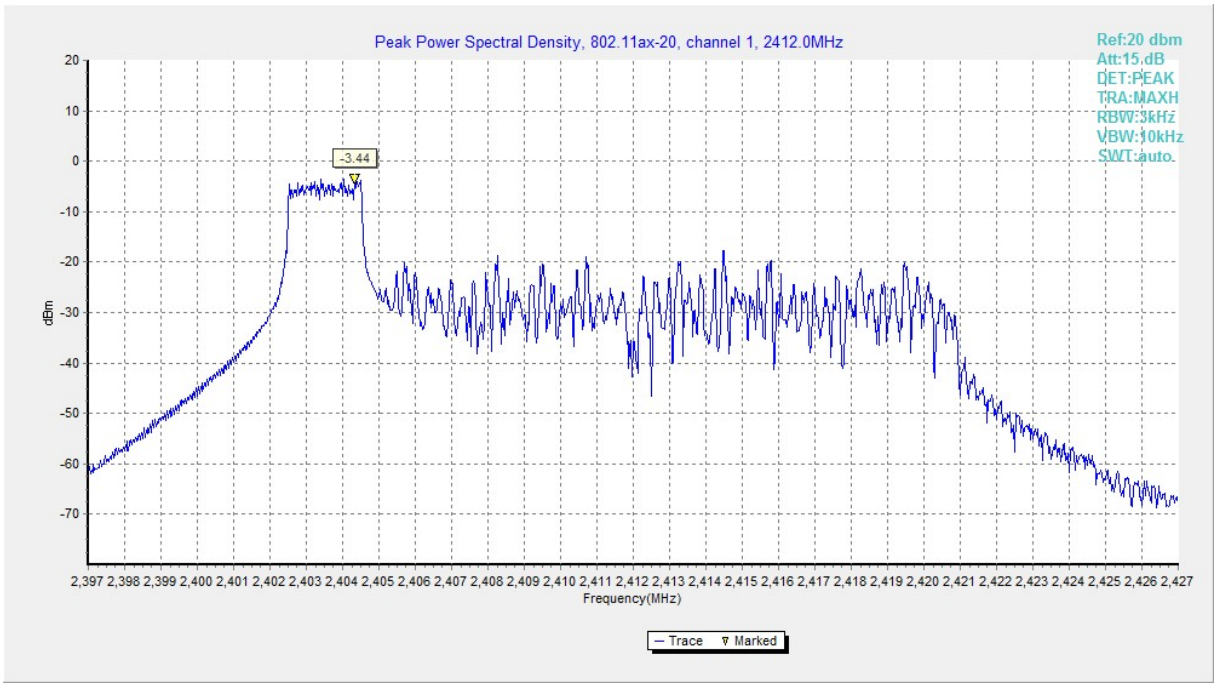



**Fig.A.3.13 Power Spectral Density (802.11ax-HE20 RU26-index0, Ch 1)**

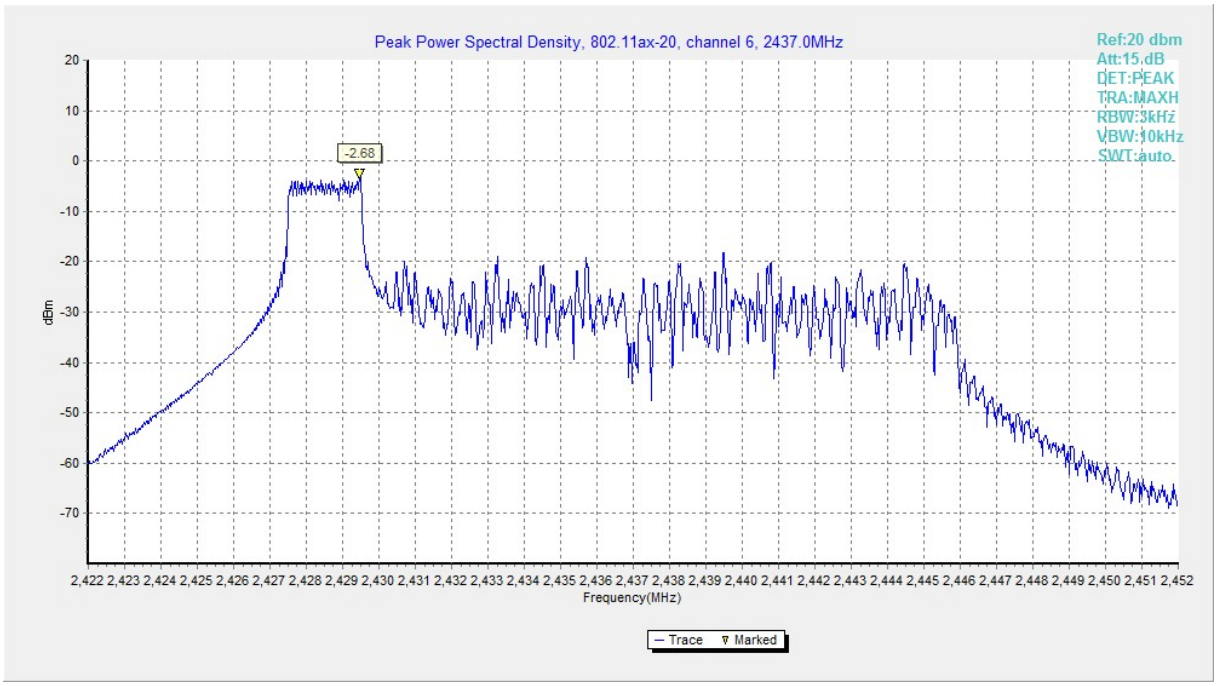



**Fig.A.3.14 Power Spectral Density (802.11ax-HE20 RU26-index0, Ch 6)**

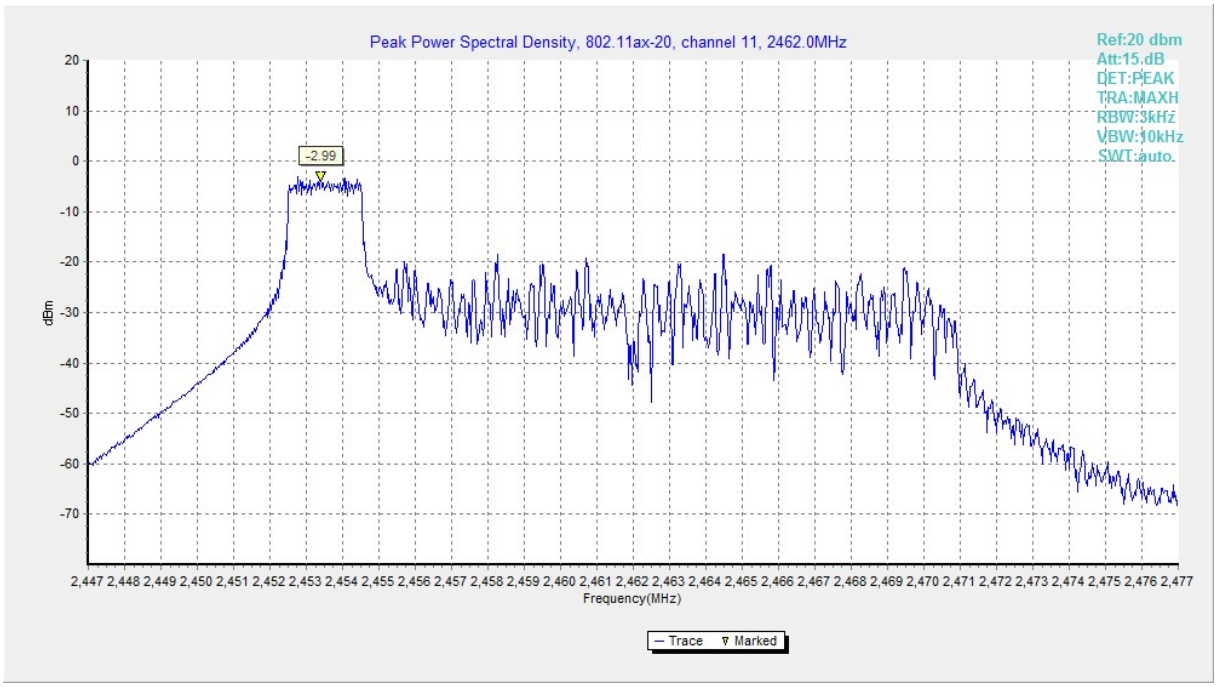



**Fig.A.3.15 Power Spectral Density (802.11ax-HE20 RU26-index0, Ch 11)**

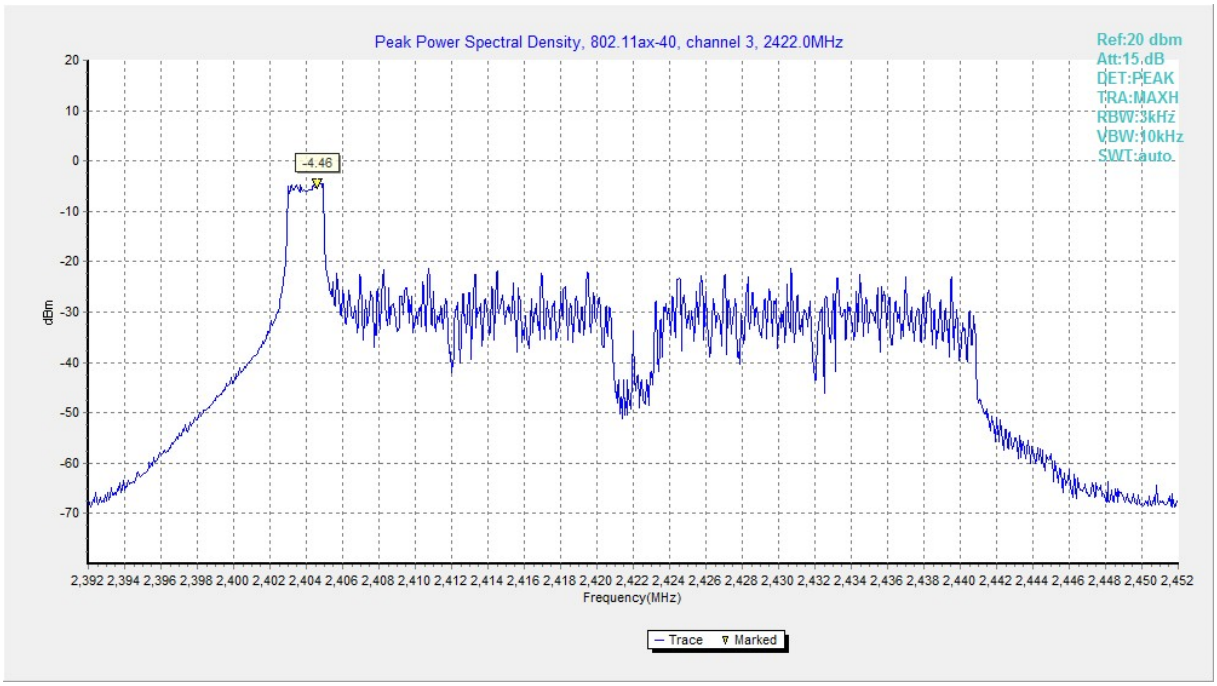



**Fig.A.3.16 Power Spectral Density (802.11ax-HE40 RU26-index0, Ch 3)**

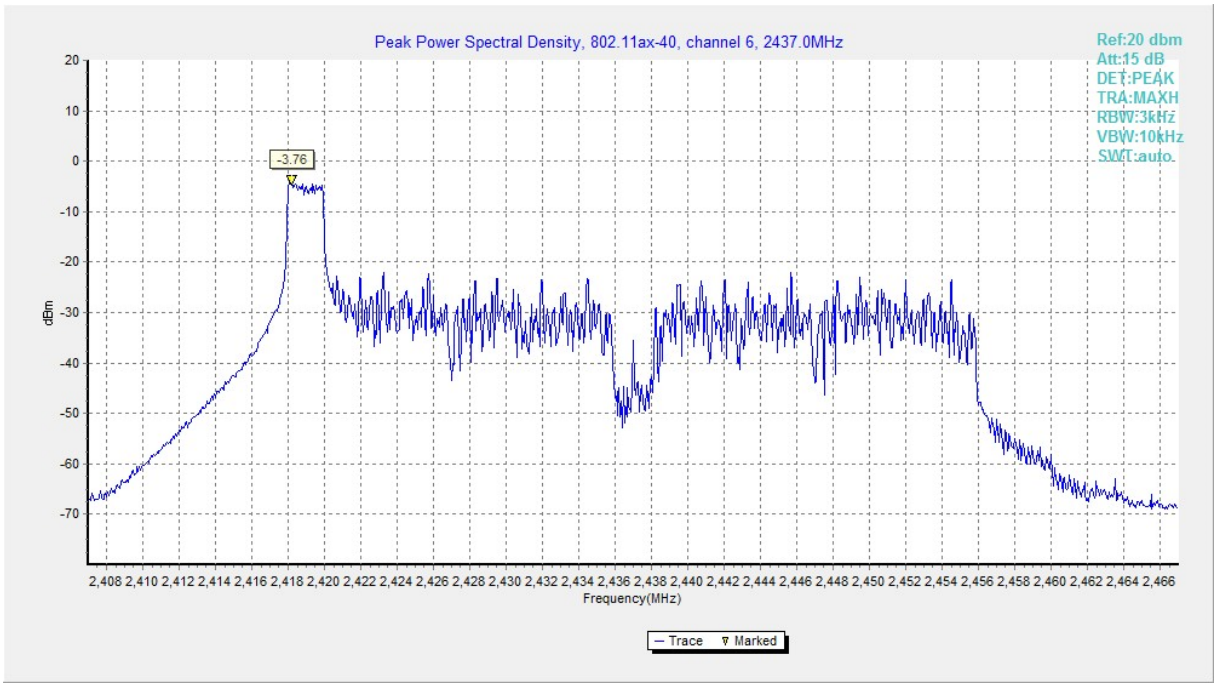



**Fig.A.3.17 Power Spectral Density (802.11ax-HE40 RU26-index0, Ch 6)**

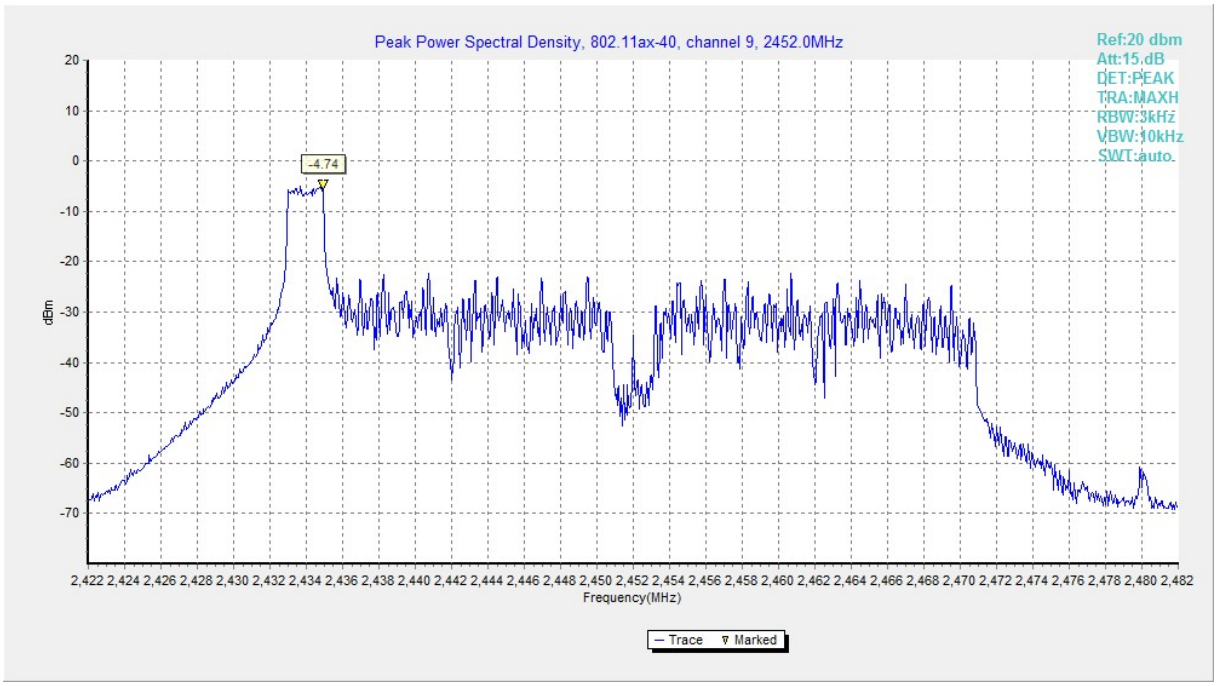



**Fig.A.3.18 Power Spectral Density (802.11ax-HE40 RU26-index0, Ch 9)**

**MIMO-Ant4**

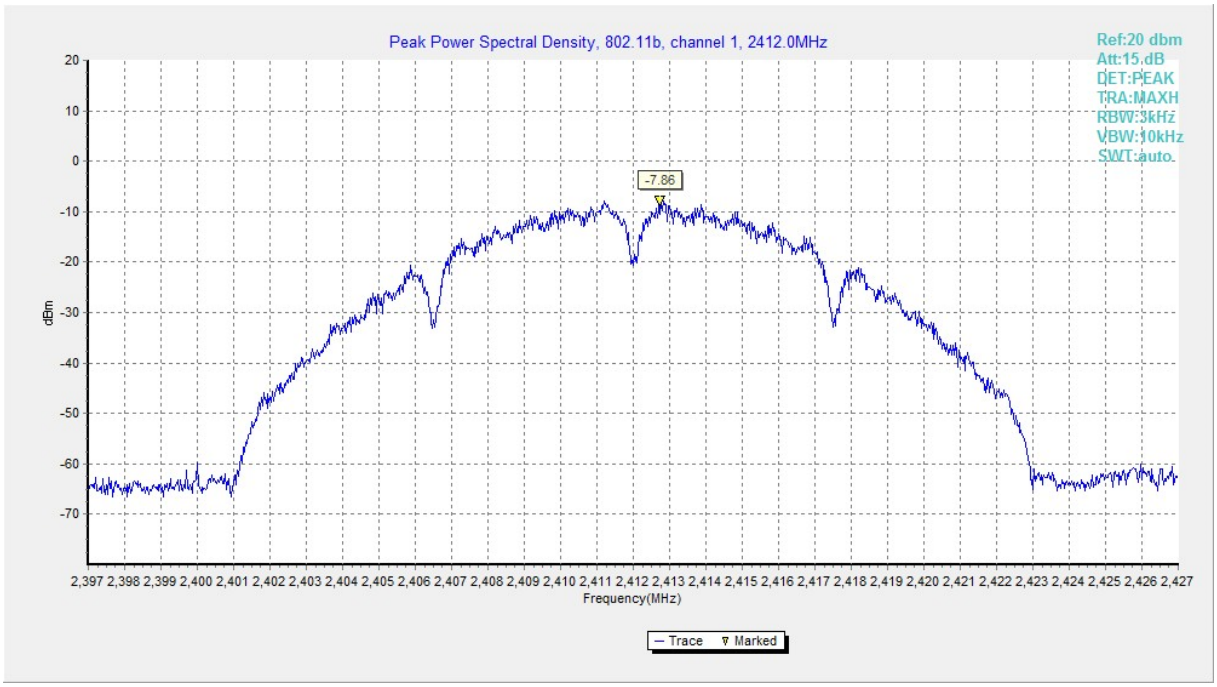



**Fig.A.3.19 Power Spectral Density(802.11b,Ch1)**

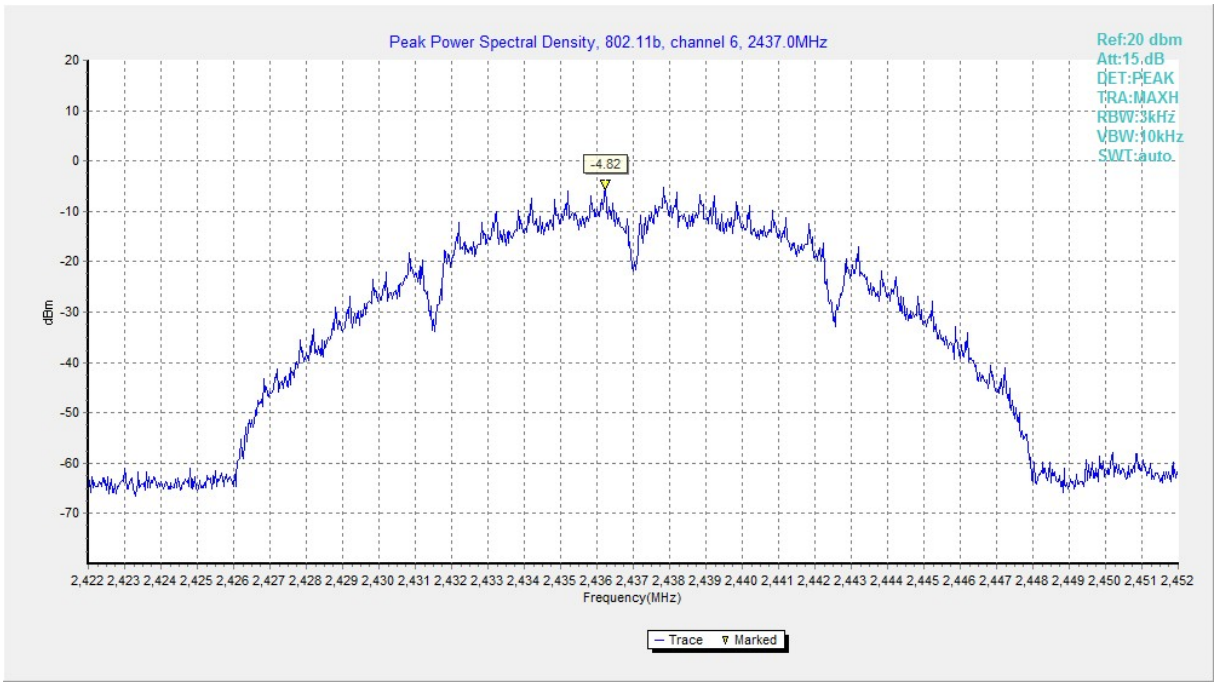



**Fig.A.3.20 Power Spectral Density (802.11b, Ch 6)**

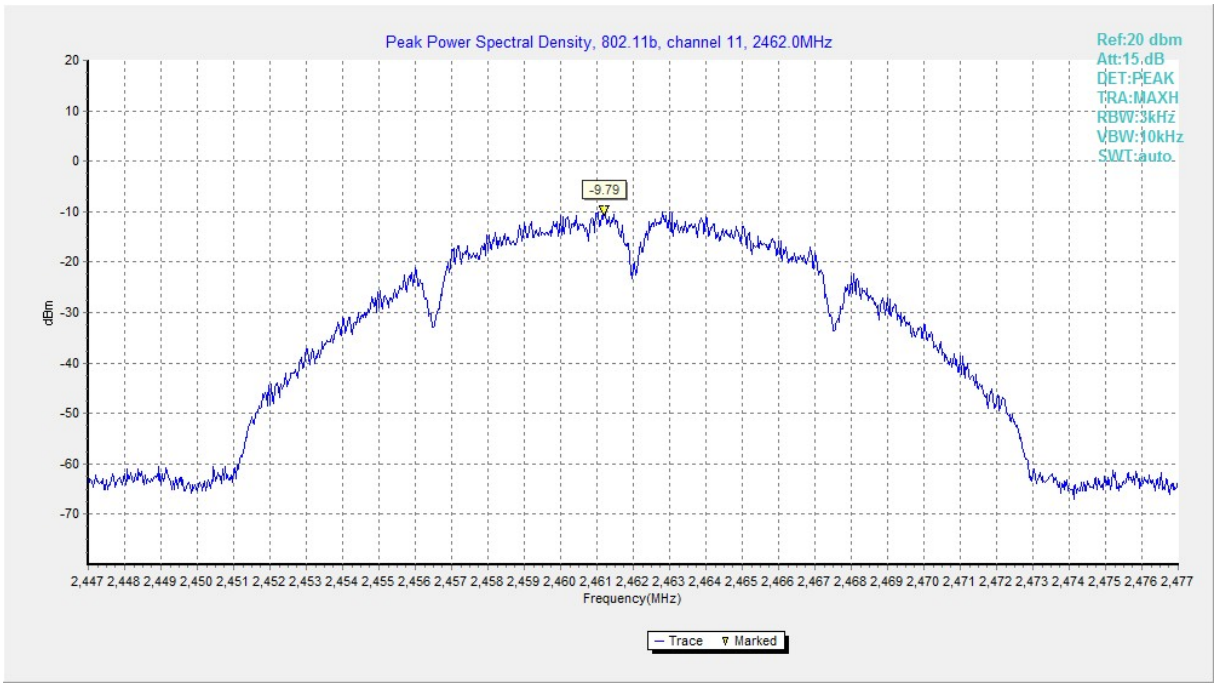



**Fig.A.3.21 Power Spectral Density (802.11b, Ch 11)**

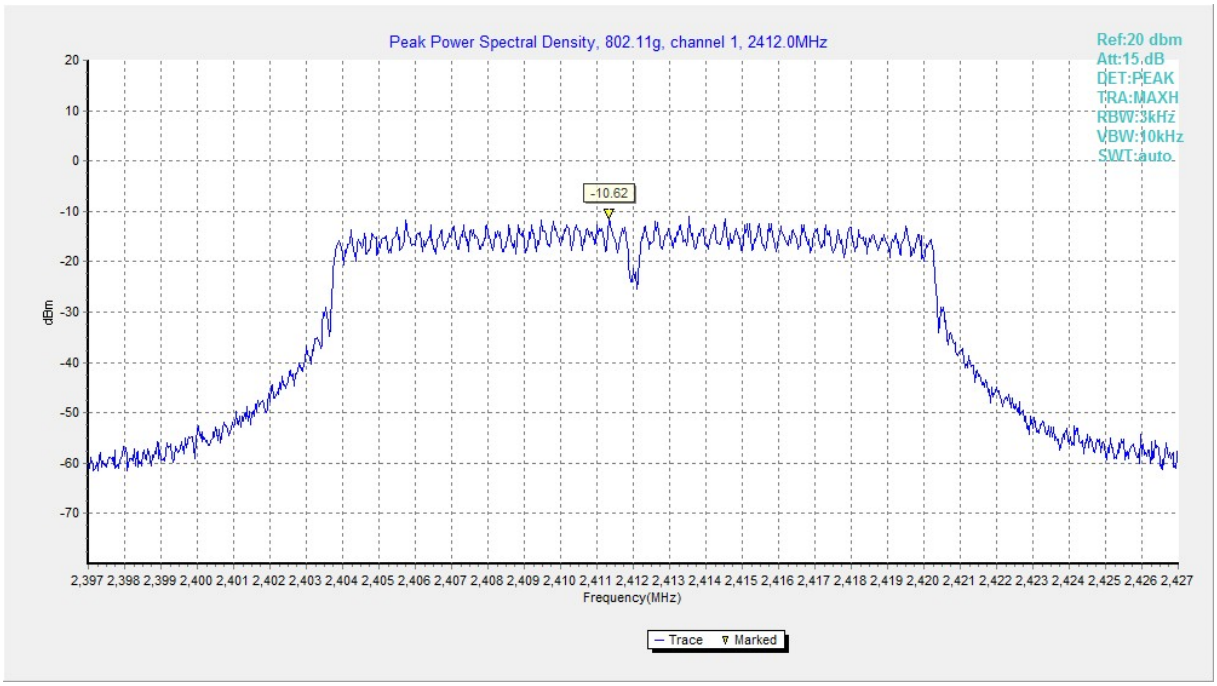



**Fig.A.3.22 Power Spectral Density (802.11g, Ch 1)**