



# FCC PART 15C/IC RSS-210 TEST REPORT

No. 2013WLN0839

for

**Sony Mobile Communications AB**

**GSM/WCDMA/LTE mobile phone**

**Type: PM-0762-BV**

**FCC ID: PY7PM-0762**

With

**Hardware Version: AP1**

**Software Version: 19.0.A.0.250**

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## 1. TEST LATORATORY

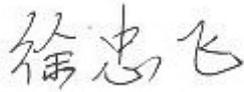
### 1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT  
Address: No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China  
Postal Code: 100191  
Telephone: +86-10-62304633-2561  
Fax: +86-10-62304633-2504

### 1.2. Project data

Testing Start Date: 2013-12-27  
Testing End Date: 2014-01-06

### 1.3. Signature



---

Xu Zhongfei  
(Prepared this test report)



---

Jiang Afang  
(Reviewed this test report)



---

Xiao Li  
Deputy Director of the laboratory  
(Approved this test report)

## **2. CLIENT INFORMATION**

### **2.1. Applicant Information**

Company Name: Sony Mobile Communications AB  
Address /Post: Sony Mobile R&D Center, No. 16, Guangshun South Street,  
Chaoyang District  
City: Beijing  
Postal Code: 100102  
Country: China  
Contact Person: Ma, Gang  
Telephone: +86-10-58656312  
Fax: +86-10-58659049

### **2.2. Manufacturer Information**

Company Name: Sony Mobile Communications AB  
Address /Post: Sony Mobile R&D Center, No. 16, Guangshun South Street,  
Chaoyang District  
City: Beijing  
Postal Code: 100102  
Country: China  
Contact Person: Ma, Gang  
Telephone: +86-10-58656312  
Fax: +86-10-58659049

### 3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY

#### EQUIPMENT(AE)

##### 3.1. About EUT

|                      |  |
|----------------------|--|
| Description          | GSM 850/900/1800/1900 quad bands, GPRS, EDGE, WCDMA FDD bands 1/5/8, HSDPA, HSUPA, LTE FDD bands 1/3/5/7/8/20 Bluetooth (EDR and 4.0), ANT+, WLAN ( 802.11 a/b/g/n), NFC, FM, GPS mobile phone |
| Type                 | PM-0762-BV   |
| FCC ID               | PY7PM-0762   |
| WLAN Frequency Range | ISM Band: 2400MHz~2483.5MHz  |
| Type of modulation   | DSSS/CCK/OFDM  |
| Number of Channels   | 11   |
| Antenna              | Internal   |
| MAX Conducted Power  | 22.22dBm(OFDM)   |
| MAX Radiated Power   | 23.38dBm(OFDM)   |
| Extreme Temperature  | -20/+55°C  |
| Extreme vol. Limits  | 3.5VDC to 4.1VDC (nominal: 3.7VDC)   |

Note: Photographs of EUT are shown in ANNEX C of this test report. Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

##### 3.2. Internal Identification of EUT used during the test

| EUT ID* | S/N        | IMEI            | HW Version | SW Version   |
|---------|------------|-----------------|------------|--------------|
| EUT1    | CB512686FD | 004402451819274 | AP1        | 19.0.A.0.250 |
| EUT2    | CB512686RD | 004402451819183 | AP1        | 19.0.A.0.250 |

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

##### 3.3. Internal Identification of AE used during the test

| AE ID* | Description    | Type       | SN              |
|--------|----------------|------------|-----------------|
| AE1    | Travel Charger | AC-0400-EU | 4413W 18 511285 |
| AE2    | USB Cable      | AI-0401    | 131307D20BE8904 |

\*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 GSM/WCDMA/LTE Mobile Phone with integrated antenna and inbuilt battery.

The EUT supports GSM 850/900/1800/1900MHz bands, WCDMA FDD bands 1/5/8 and LTE FDD bands 1/3/5/7/8/20. It supports GPRS service with multi-slots class 33 and EGPRS service with multi-slots class 33. The HSDPA and HSUPA (Cat 6) features are also supported.

It has MP3, camera, USB memory, Mobile High-Definition Link (MHL), FM radio, GPS receiver, NFC, Bluetooth (EDR and Bluetooth 4.0), ANT+, WLAN (802.11 a/b/g/n) and Wi-Fi hotspot functions. For WLAN 802.11n, it supports 20MHz and 40MHz bandwidths on both 2.4GHz band and 5GHz/5.8GHz band.

It includes normal option: USB cable.

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

Samples undergoing test were selected by the client.

## **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.

|             |  |         |
|-------------|--|---------|
|             | FCC CFR 47, Part 15, Subpart C:  |         |
|             | 15.205 Restricted bands of operation;  |         |
| FCC Part15  | 15.209 Radiated emission limits, general requirements;   | Oct,    |
|             | 15.247 Operation within the bands 902–928MHz,  | 2012    |
|             | 2400–2483.5 MHz, and 5725–5850 MHz.  |         |
| ANSI C63.10 | Methods of Measurement of Radio-Noise Emissions from<br>Low-Voltage Electrical and Electronic Equipment in the<br>Range of 9 kHz to 40 GHz | 2009    |
| RSS-GEN     | Spectrum Management and Telecommunications - Radio<br>Standards Specification  | Issue 3 |
|             | General Requirements and Information for the Certification<br>of Radio communication Equipment   |         |
| RSS-210     | Spectrum Management and Telecommunications - Radio<br>Standards Specification  | Issue 8 |
|             | Low-power License-exempt Radio communication Devices<br>(All Frequency Bands): Category I Equipment  |         |

## **5. LABORATORY ENVIRONMENT**

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

## 6. SUMMARY OF TEST RESULTS

### 6.1. Summary of Test Results

| SUMMARY OF MEASUREMENT RESULTS                 | Sub-clause of Part15C | Sub-clause of IC | Verdict  |
|--|-----------------------|------------------|----------|
| Maximum Peak Output Power                      | 15.247 (b)            | A8               | <b>P</b> |
| Peak Power Spectral Density                    | 15.247 (e)            | A8               | <b>P</b> |
| Occupied 6dB Bandwidth                         | 15.247 (a)            | A8               | <b>P</b> |
| 99% Occupied Bandwidth                         | /                     | RSS-Gen 4.6.1    | <b>P</b> |
| Band Edges Compliance                          | 15.247 (d)            | A8               | <b>P</b> |
| Transmitter Spurious Emission - Conducted      | 15.247 (d)            | A8               | <b>P</b> |
| Transmitter Spurious Emission - Radiated       | 15.247, 15.209        | A8               | <b>P</b> |
| Transmitter Spurious Emission - Radiated<30MHz | 15.247, 15.209        | A8               | <b>P</b> |
| AC Powerline Conducted Emission                | 15.107, 15.207        | 7.2              | <b>P</b> |

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 TMC                                |
| NA | Not Applicable, The test was not applicable                                   |
| F  | Fail, The EUT does not comply with the essential requirements in the standard |

### 6.2. Statements

TMC has evaluated the test cases requested by the client/matrix manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

This report only deals with the WLAN function among the features described in section 3.

### 6.3. Test Conditions

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

|             |      |
|-------------|------|
| Temperature | 26°C |
| Voltage     | 3.7V |
| Humidity    | 44%  |

## 7. TEST EQUIPMENTS UTILIZED

### Conducted test system

| No. | Equipment              | Model   | Serial Number | Manufacturer    | Calibration date | Calibration Due date |
|-----|------------------------|---------|---------------|-----------------|------------------|----------------------|
| 1   | Vector Signal Analyzer | FSQ40   | 200089        | Rohde & Schwarz | 2013-07-08       | 2014-07-07           |
| 2   | Test Receiver          | ESS     | 847151/015    | Rohde & Schwarz | 2013-10-30       | 2014-10-29           |
| 3   | LISN                   | ESH2-Z5 | 829991/012    | Rohde & Schwarz | 2013-4-15        | 2014-08-12           |
| 4   | Shielding Room         | S81     | /             | ETS-Lindgren    | /                | /                    |

### Radiated emission test system

| No. | Equipment                         | Model    | Serial Number | Manufacturer     | Calibration date | Calibration Due date |
|-----|-----------------------------------|----------|---------------|------------------|------------------|----------------------|
| 1   | Test Receiver                     | ESCI     | 100344        | Rohde & Schwarz  | 2013-11-8        | 2014-11-7            |
| 2   | Test Receiver                     | ESCI 7   | 100948        | Rohde & Schwarz  | 2013-07-19       | 2014-07-18           |
| 3   | BiLog Antenna                     | VULB9163 | 9163-514      | Schwarzbeck      | 2011-11-11       | 2014-11-10           |
| 4   | Dual-Ridge Waveguide Horn Antenna | 3117     | 00119024      | ETS-Lindgren     | 2011-2-2         | 2014-2-1             |
| 5   | Dual-Ridge Waveguide Horn Antenna | 3116     | 2661          | EMCO             | 2011-7-1         | 2014-06-30           |
| 6   | Loop antenna                      | HFH2-Z2  | 829324/007    | Rohde & Schwarz  | 2011-12-21       | 2014-12-20           |
| 7   | Semi-anechoic chamber             | /        | CT000332-1074 | Frankonia German | /                | /                    |

## ANNEX A: MEASUREMENT RESULTS

### A.1. Measurement Method

#### A.1.1. Conducted Measurements

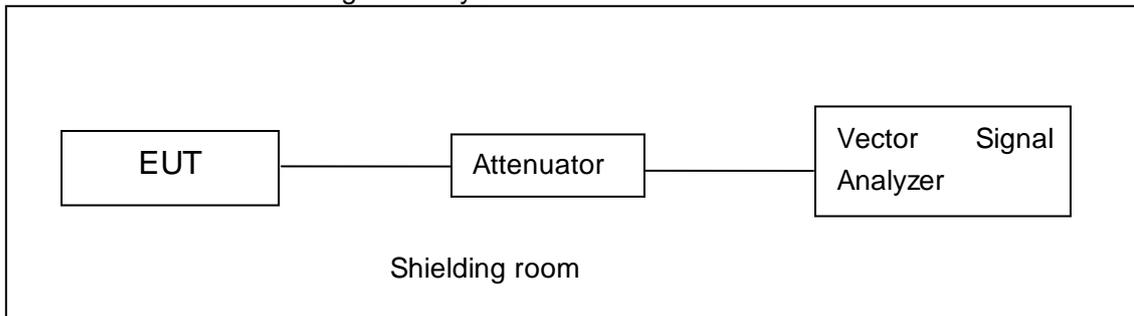
Connect the EUT to the test system as follow shows.

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

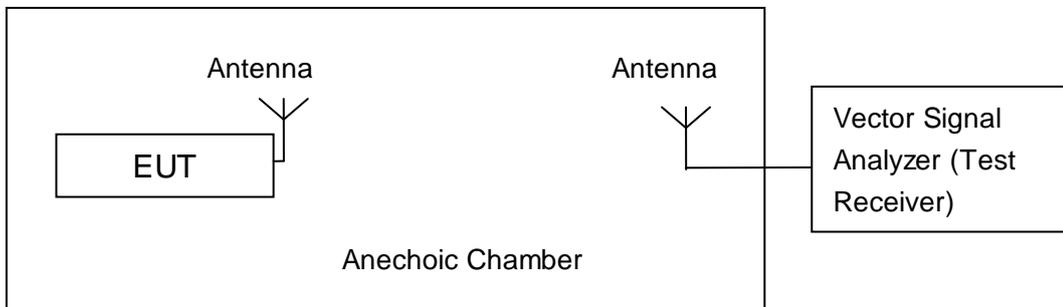


#### A.1.2. Radiated Emission Measurements

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;



The measurement is made according to ANSI C63.10

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

## A.2. Maximum Peak Output Power

### Measurement Limit and Method:

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

The measurement is made according to ANSI C63.10.

### Measurement Uncertainty:

|                         |        |
|-------------------------|--------|
| Measurement Uncertainty | 0.75dB |
|-------------------------|--------|

### A.2.1. Antenna Gain

The antenna gain of the complete system is calculated by the difference of radiated power and the conducted power of the EUT.

| Test                        | Channel |        |       |
|-----------------------------|---------|--------|-------|
|                             | Low     | Middle | High  |
| Tnom,Vnom                   |         |        |       |
| <b>Conducted Power(dBm)</b> | 17.75   | 17.56  | 17.33 |
| <b>Radiated Power(dBm)</b>  | 18.91   | 18.60  | 18.81 |
| <b>Gain(dBi)</b>            | 1.16    | 1.04   | 1.48  |

Antenna Gain = Radiated value (with radiated sample) - Conducted values (with conducted samples)

### A.2.2. Maximum Peak Output Power-conducted

#### Measurement Results:

#### 802.11b mode

| Mode    | Data Rate (Mbps) | Test Result (dBm) |               |                 |
|---------|------------------|-------------------|---------------|-----------------|
|         |                  | 2412MHz (Ch1)     | 2437MHz (Ch6) | 2462 MHz (Ch11) |
| 802.11b | 1                | 19.26             | /             | /               |
|         | 2                | 19.45             | /             | /               |
|         | 5.5              | 21.02             | /             | /               |
|         | 11               | 22.22             | 21.82         | 21.35           |

The data rate 11Mbps is selected as worse condition, and the following cases are performed with this condition.

**802.11g mode**

| Mode    | Data Rate (Mbps) | Test Result (dBm) |               |                 |
|---------|------------------|-------------------|---------------|-----------------|
|         |                  | 2412MHz (Ch1)     | 2437MHz (Ch6) | 2462 MHz (Ch11) |
| 802.11g | 6                | 18.05             | /             | /               |
|         | 9                | 18.08             | /             | /               |
|         | 12               | 17.93             | /             | /               |
|         | 18               | 17.97             | /             | /               |
|         | 24               | 18.37             | /             | /               |
|         | 36               | 18.36             | /             | /               |
|         | 48               | 18.43             | /             | /               |
|         | 54               | 18.45             | 17.62         | 16.99           |

The data rate 54Mbps is selected 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) |
| 802.11n (20MHz) | MCS0              | 18.08             | /             | /               |
|                 | MCS1              | 17.97             | /             | /               |
|                 | MCS2              | 17.92             | /             | /               |
|                 | MCS3              | 18.33             | /             | /               |
|                 | MCS4              | 18.39             | /             | /               |
|                 | MCS5              | 18.44             | /             | /               |
|                 | MCS6              | 18.46             | /             | /               |
|                 | MCS7              | 18.48             | 17.68         | 17.03           |

The data rate MCS7 is selected as worse 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              | 18.01             | /             | /              |
|                 | MCS1              | 17.92             | /             | /              |
|                 | MCS2              | 17.85             | /             | /              |
|                 | MCS3              | 18.32             | 17.97         | 16.87          |
|                 | MCS4              | 18.24             | /             | /              |
|                 | MCS5              | 18.26             | /             | /              |
|                 | MCS6              | 18.27             | /             | /              |
|                 | MCS7              | 18.22             | /             | /              |

The data rate MCS3 is selected as worse condition, and the following cases are performed with this condition.

**Conclusion: PASS**

**A.2.3. Maximum Peak Output Power-Radiated**

**Measurement Results:**

| Mode         | Test Result (dBm) |          |                |          |              |          |
|--------------|-------------------|----------|----------------|----------|--------------|----------|
|              | Low channel       |          | Middle channel |          | High channel |          |
|              | Conducted         | Radiated | Conducted      | Radiated | Conducted    | Radiated |
| 802.11b      | 22.22             | 23.38    | 21.82          | 22.86    | 21.35        | 22.83    |
| 802.11g      | 18.45             | 19.61    | 17.62          | 18.66    | 16.99        | 18.47    |
| 802.11n-HT20 | 18.48             | 19.64    | 17.68          | 18.72    | 17.03        | 18.51    |
| 802.11n-HT40 | 18.32             | 19.48    | 17.97          | 19.01    | 16.87        | 18.35    |

Radiated value = Conducted values (with conducted samples) + Antenna Gain.

**Conclusion: PASS**

**A.3. Peak Power Spectral Density**

**Measurement Limit:**

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

The measurement is made according to ANSI C63.10.

**Measurement Uncertainty:**

|                         |        |
|-------------------------|--------|
| Measurement Uncertainty | 0.75dB |
|-------------------------|--------|

Note: Configuration information to be tested as follows:

Modulation type and data rate:

|             |              |              |              |
|-------------|--------------|--------------|--------------|
| 802.11b     | 802.11g      | 802.11n-HT20 | 802.11n-HT40 |
| 11Mbps(CCK) | 54Mbps(OFDM) | MCS7(OFDM)   | MCS3(OFDM)   |

**Measurement Results:**

| Mode         | Channel | Power Spectral Density ( dBm/3 kHz ) | Conclusion |
|--------------|---------|--------------------------------------|------------|
| 802.11b      | 1       | -8.34                                | P          |
|              | 6       | -9.26                                | P          |
|              | 11      | -8.31                                | P          |
| 802.11g      | 1       | -16.15                               | P          |
|              | 6       | -16.45                               | P          |
|              | 11      | -17.40                               | P          |
| 802.11n-HT20 | 1       | -15.04                               | P          |
|              | 6       | -16.63                               | P          |
|              | 11      | -17.09                               | P          |
| 802.11n-HT40 | 3       | -18.44                               | P          |
|              | 6       | -18.06                               | P          |
|              | 9       | -20.79                               | P          |

**Conclusion: PASS**

**A.4. Occupied 6dB Bandwidth**

**Measurement Limit:**

| Standard                   | Limit (kHz) |
|----------------------------|-------------|
| FCC 47 CFR Part 15.247 (a) | ≥ 500       |

The measurement is made according to ANSI C63.10.

**Measurement Uncertainty:**

|                         |         |
|-------------------------|---------|
| Measurement Uncertainty | 60.80Hz |
|-------------------------|---------|

Note: Configuration information to be tested as follows:

Modulation type and data rate:

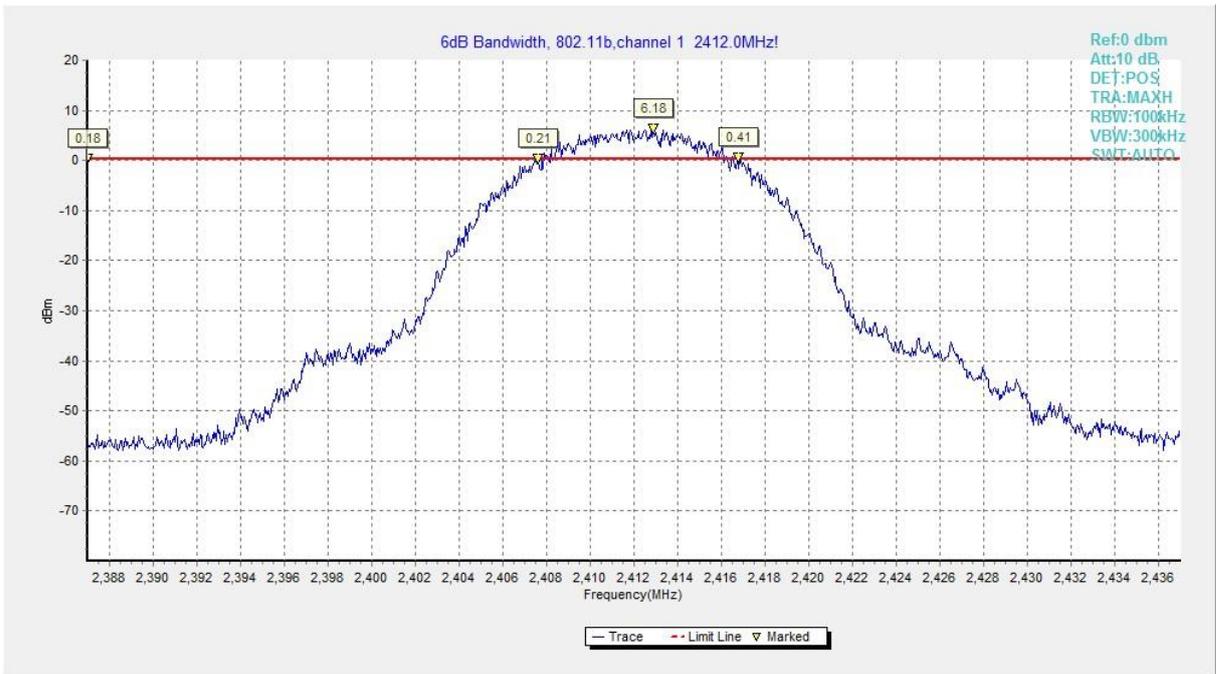
|             |              |              |              |
|-------------|--------------|--------------|--------------|
| 802.11b     | 802.11g      | 802.11n-HT20 | 802.11n-HT40 |
| 11Mbps(CCK) | 54Mbps(OFDM) | MCS7(OFDM)   | MCS3(OFDM)   |

**Measurement Result:**

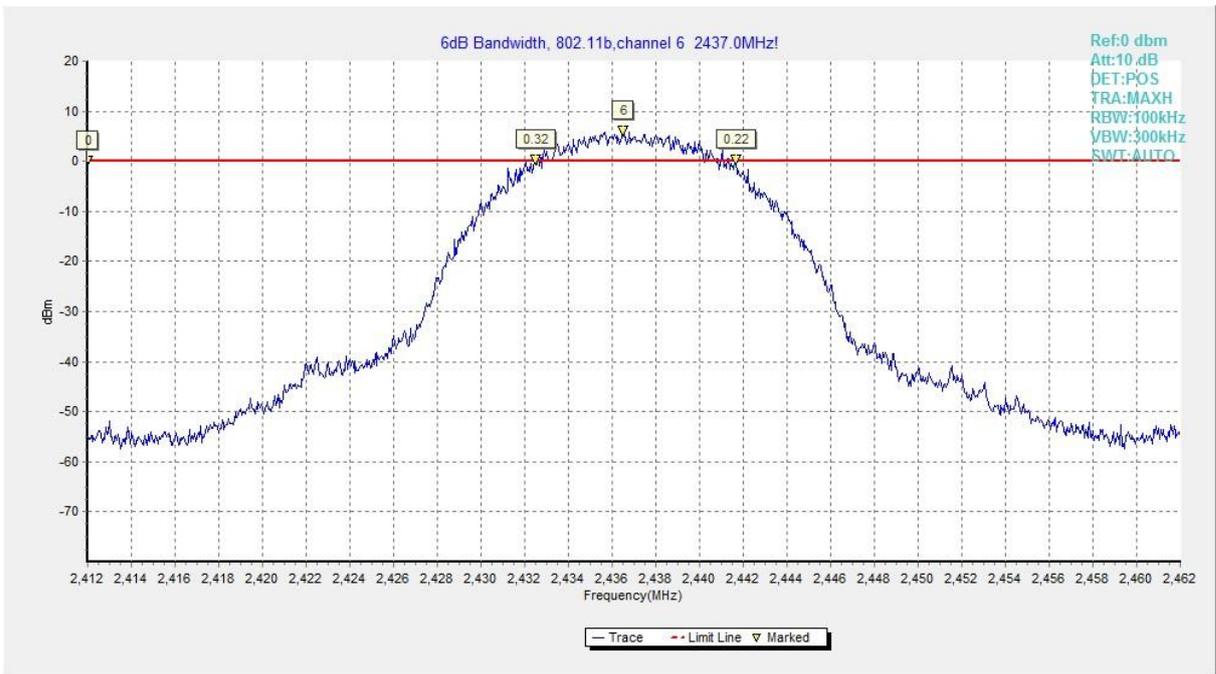
| Mode         | Channel | Occupied 6dB Bandwidth ( kHz) |       | conclusion |
|--------------|---------|-------------------------------|-------|------------|
|              |         | Fig.A.4.x                     | Value |            |
| 802.11b      | 1       | Fig.A.4.1                     | 9200  | P          |
|              | 6       | Fig.A.4.2                     | 9150  | P          |
|              | 11      | Fig.A.4.3                     | 8700  | P          |
| 802.11g      | 1       | Fig.A.4.4                     | 16400 | P          |
|              | 6       | Fig.A.4.5                     | 16450 | P          |
|              | 11      | Fig.A.4.6                     | 16400 | P          |
| 802.11n-HT20 | 1       | Fig.A.4.7                     | 17650 | P          |
|              | 6       | Fig.A.4.8                     | 17650 | P          |
|              | 11      | Fig.A.4.9                     | 17600 | P          |
| 802.11n-HT40 | 3       | Fig.A.4.10                    | 35120 | P          |
|              | 6       | Fig.A.4.11                    | 36000 | P          |
|              | 9       | Fig.A.4.12                    | 35280 | P          |

**Conclusion: PASS**

**Test graphs as below:**



**Fig.A.4.1 Occupied 6dB Bandwidth (802.11b, Ch 1)**



**Fig.A.4.2 Occupied 6dB Bandwidth (802.11b, Ch 6)**

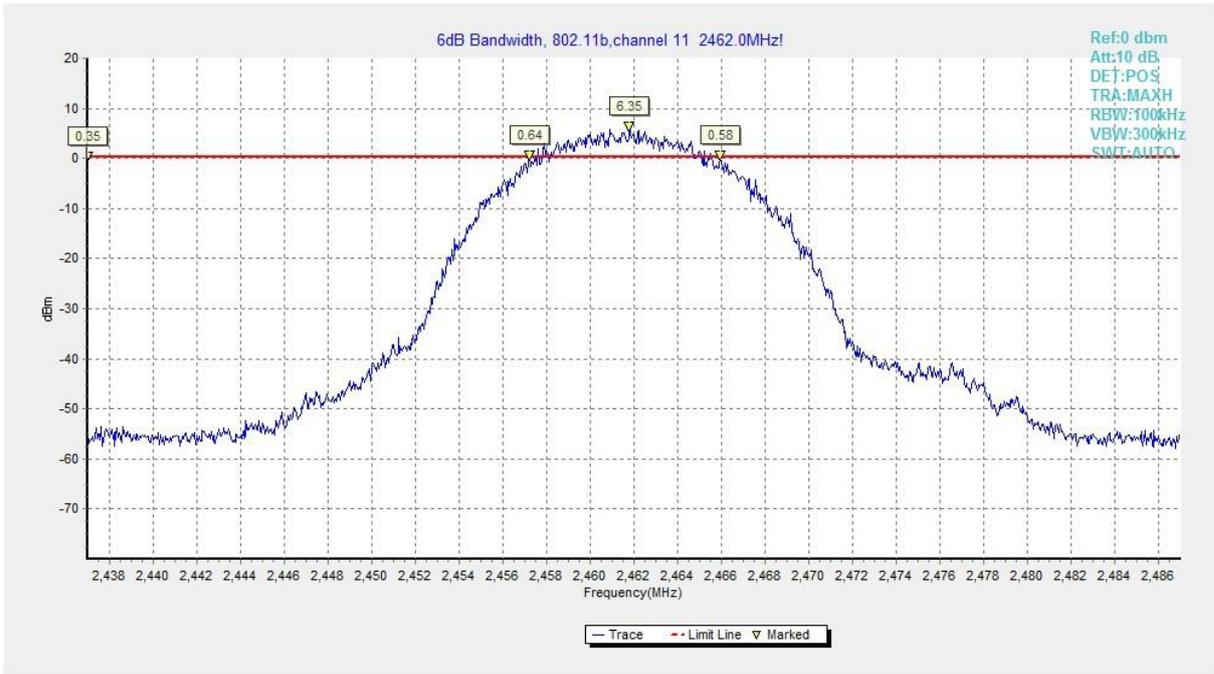


Fig.A.4.3 Occupied 6dB Bandwidth (802.11b, Ch 11)

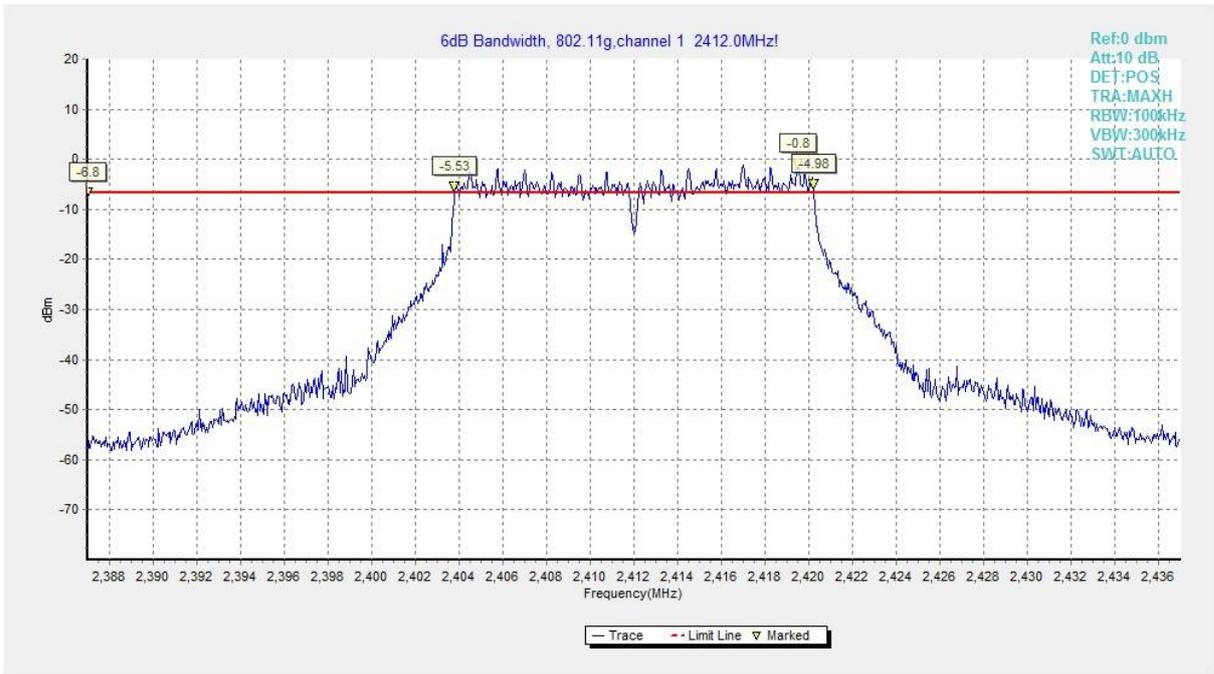


Fig.A.4.4 Occupied 6dB Bandwidth (802.11g, Ch 1)

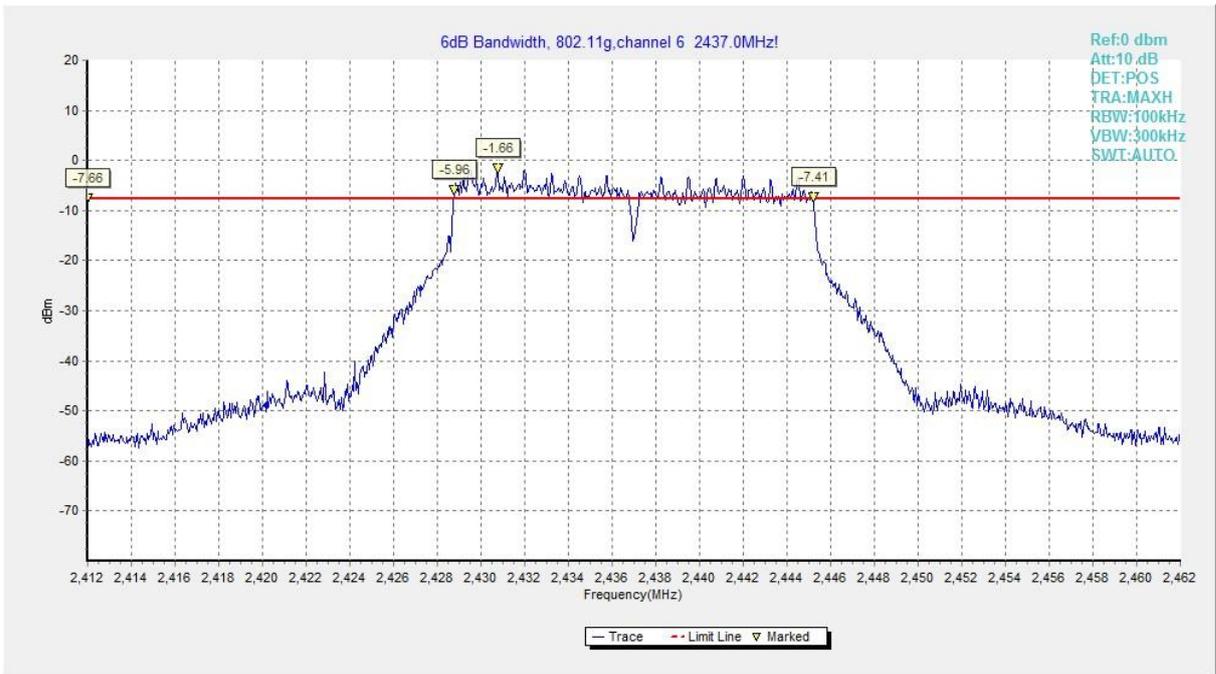


Fig.A.4.5 Occupied 6dB Bandwidth (802.11g, Ch 6)

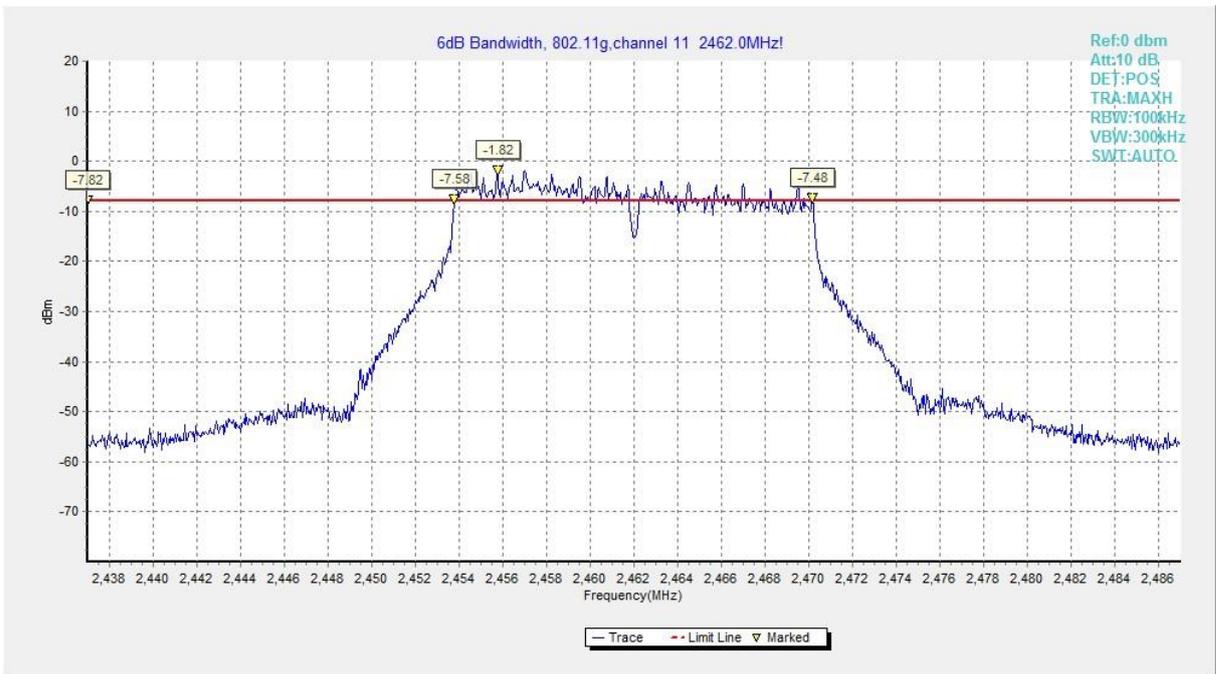


Fig.A.4.6 Occupied 6dB Bandwidth (802.11g, Ch 11)

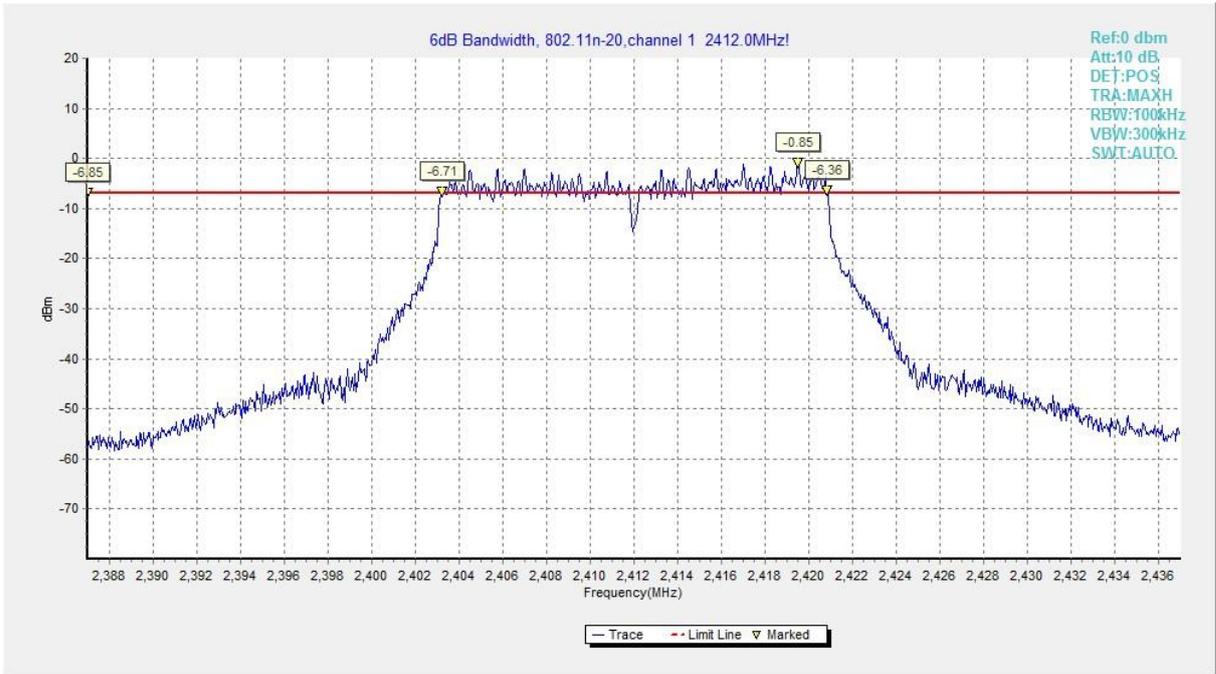


Fig.A.4.7 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 1)

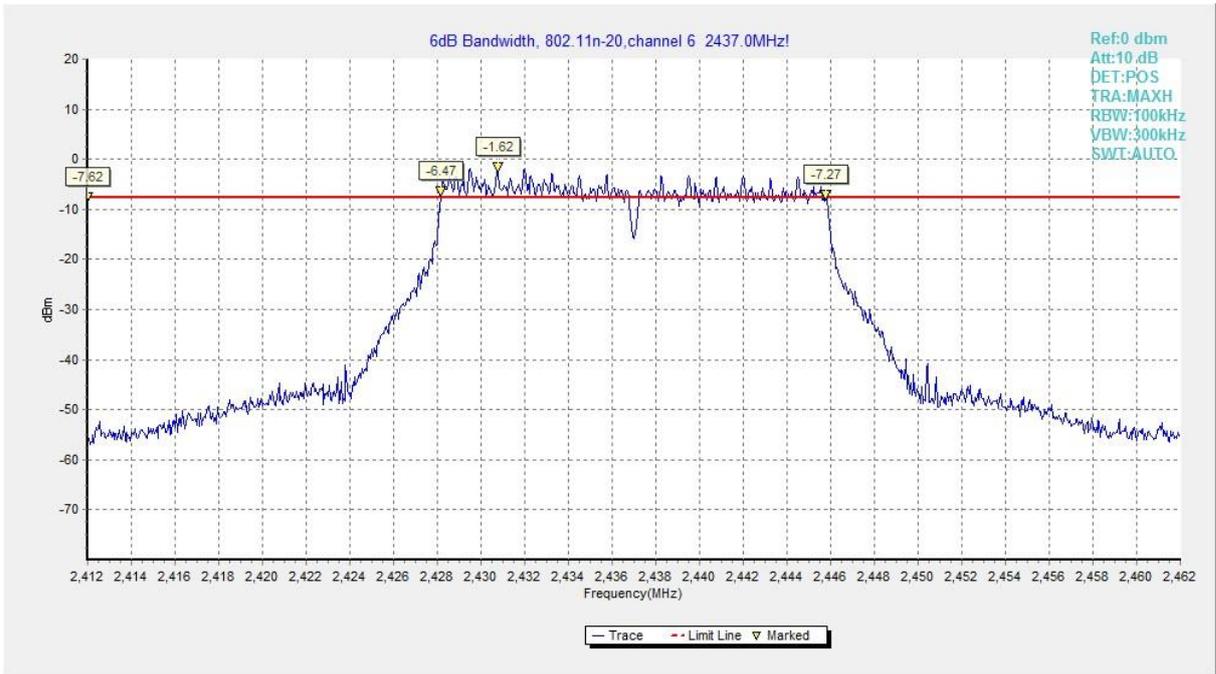


Fig.A.4.8 Occupied 6dB Bandwidth (802.11n-HT20, Ch 6)

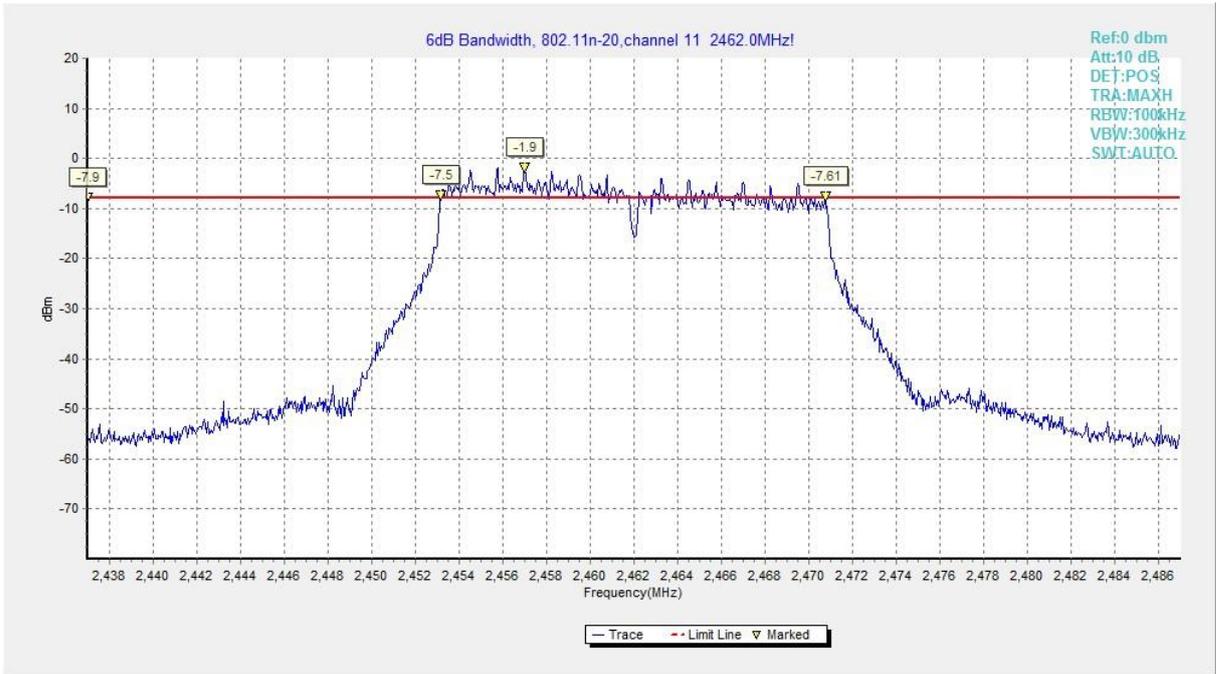


Fig.A.4.9 Occupied 6dB Bandwidth (802.11n-HT20, Ch 11)

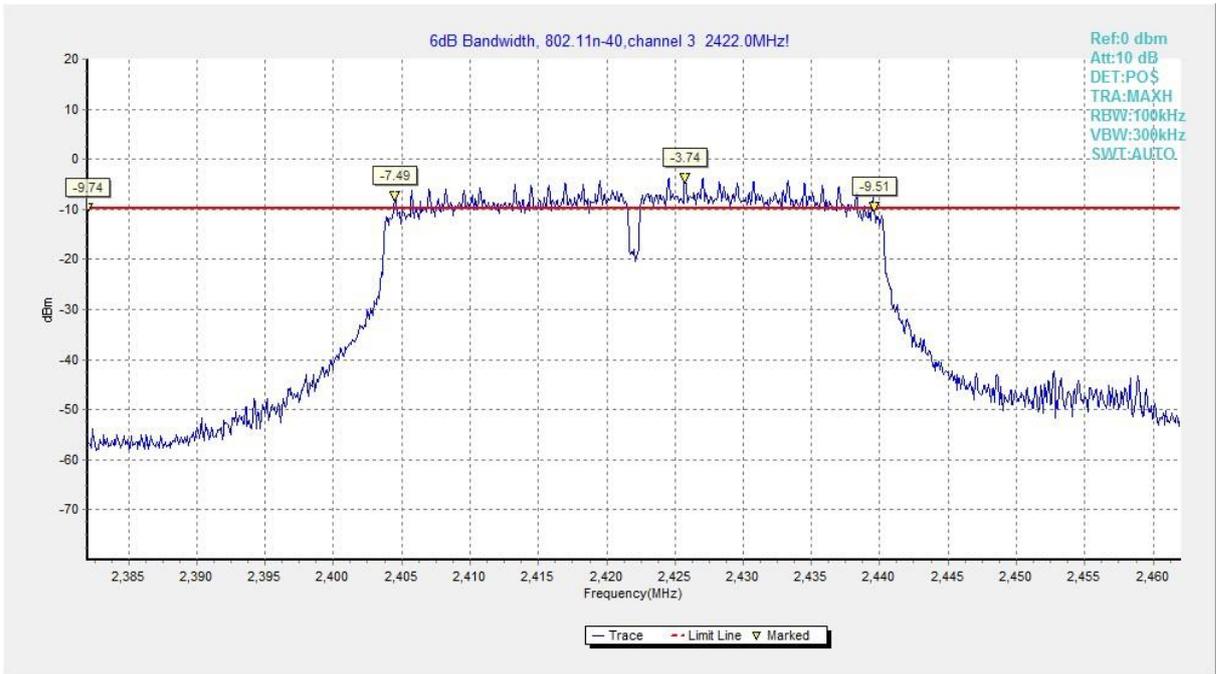


Fig.A.4.10 Occupied 6dB Bandwidth (802.11n-40MHz, Ch 3)

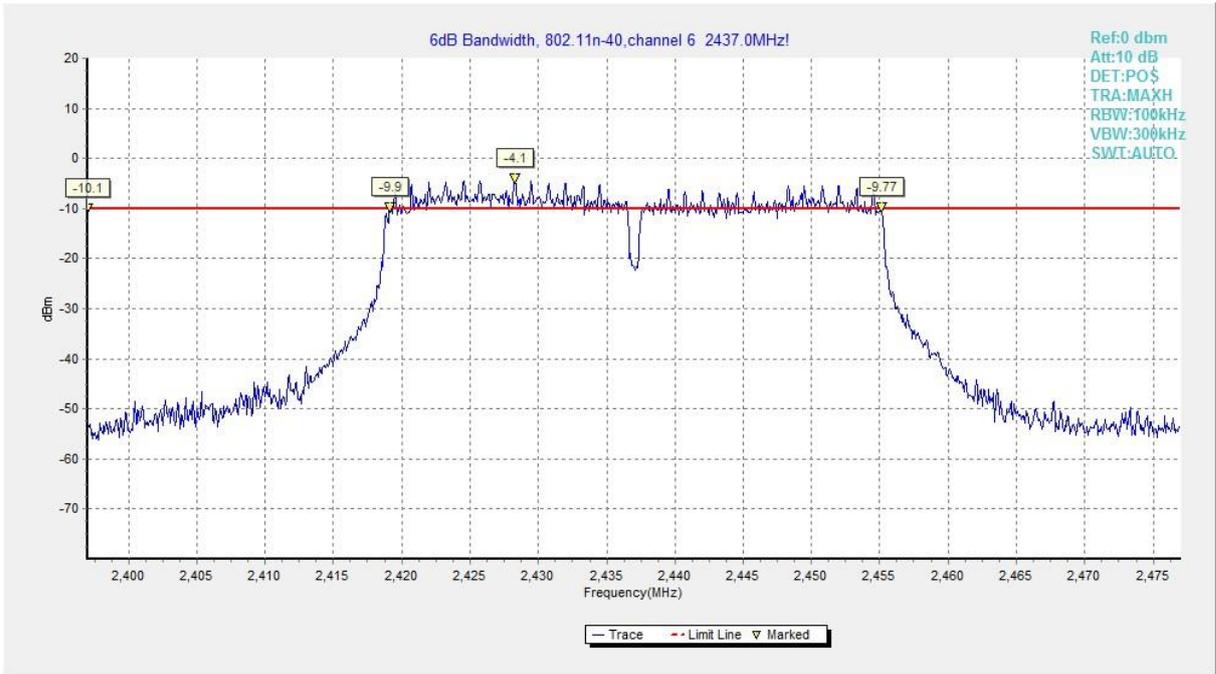


Fig.A.4.11 Occupied 6dB Bandwidth (802.11n-HT40, Ch 6)

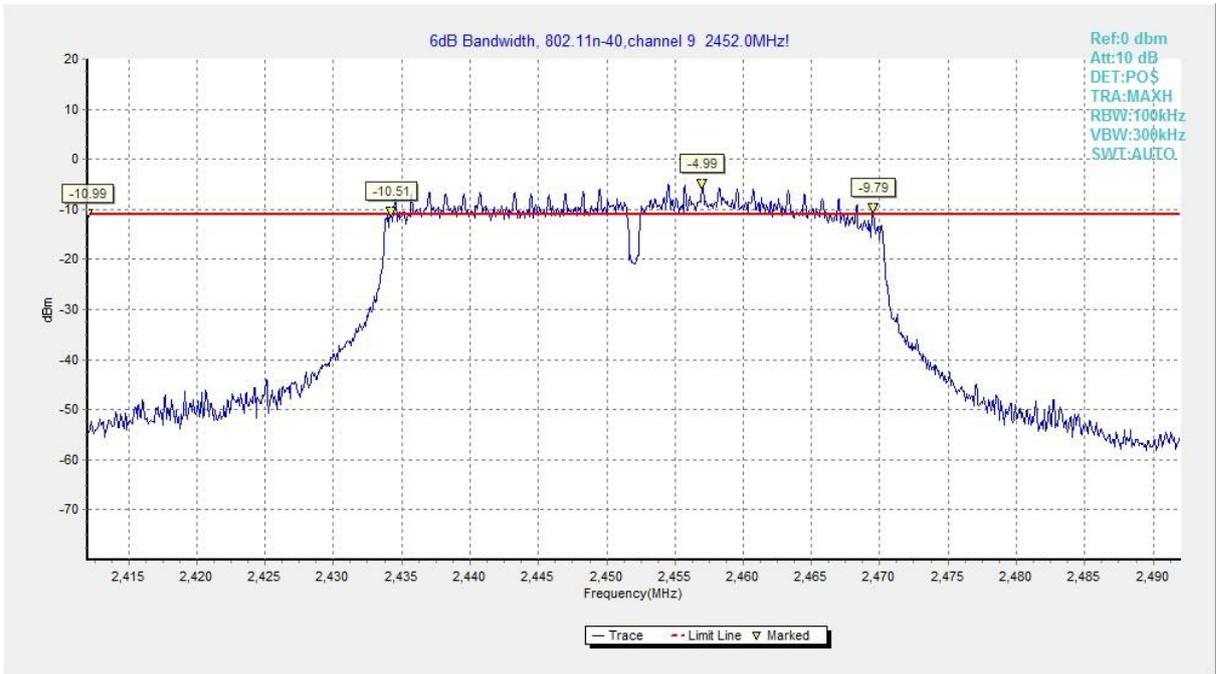


Fig.A.4.12 Occupied 6dB Bandwidth (802.11n-HT40, Ch 9)

## A.5 99% Occupied Channel Bandwidth

Reference : RSS-Gen 4.6.1

Measurement Uncertainty:

|                         |         |
|-------------------------|---------|
| Measurement Uncertainty | 60.80Hz |
|-------------------------|---------|

Note: Configuration information to be tested as follows:

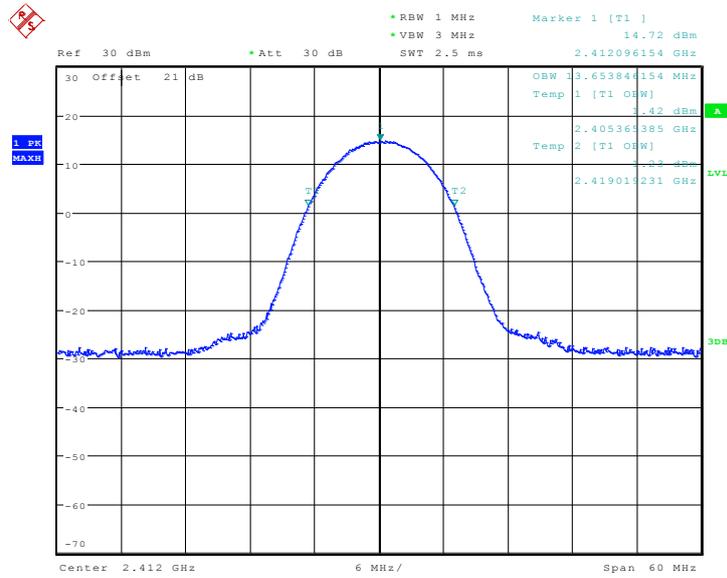
Modulation type and data rate:

|             |              |              |              |
|-------------|--------------|--------------|--------------|
| 802.11b     | 802.11g      | 802.11n-HT20 | 802.11n-HT40 |
| 11Mbps(CCK) | 54Mbps(OFDM) | MCS7(OFDM)   | MCS3(OFDM)   |

Measurement Result:

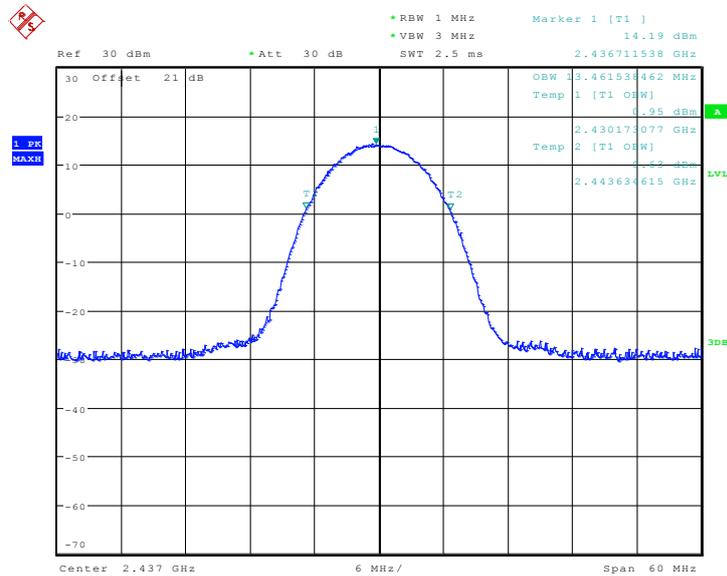
| Mode         | Channel | Occupied Bandwidth<br>( kHz) |       | Conclusion |
|--------------|---------|------------------------------|-------|------------|
|              |         | Fig.A.5.x                    | Value |            |
| 802.11b      | 1       | Fig.A.5.1                    | 13654 | P          |
|              | 6       | Fig.A.5.2                    | 13462 | P          |
|              | 11      | Fig.A.5.3                    | 13269 | P          |
| 802.11g      | 1       | Fig.A.5.4                    | 18846 | P          |
|              | 6       | Fig.A.5.5                    | 18846 | P          |
|              | 11      | Fig.A.5.6                    | 18558 | P          |
| 802.11n-HT20 | 1       | Fig.A.5.7                    | 19519 | P          |
|              | 6       | Fig.A.5.8                    | 19519 | P          |
|              | 11      | Fig.A.5.9                    | 19327 | P          |
| 802.11n-HT40 | 3       | Fig.A.5.10                   | 36667 | P          |
|              | 6       | Fig.A.5.11                   | 37179 | P          |
|              | 9       | Fig.A.5.12                   | 36795 | P          |

Conclusion: PASS



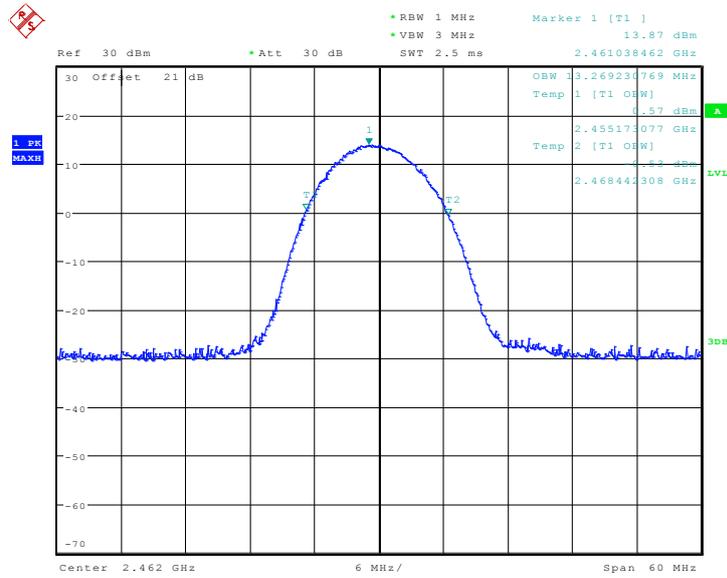
Date: 12..JAN.2014 14:18:29

**Fig.A.5.1 99% Occupied Bandwidth: (802.11b, Ch 1)**



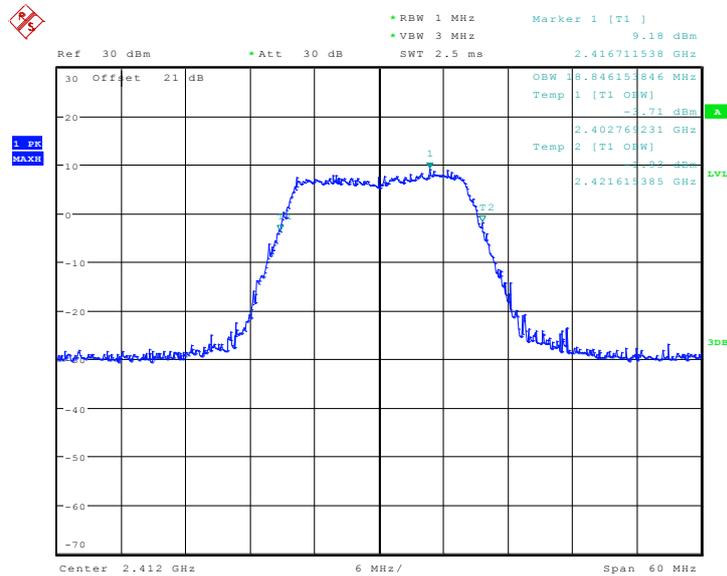
Date: 12.JAN.2014 14:19:26

**Fig.A.5.2 99% Occupied Bandwidth: (802.11b, Ch 6)**



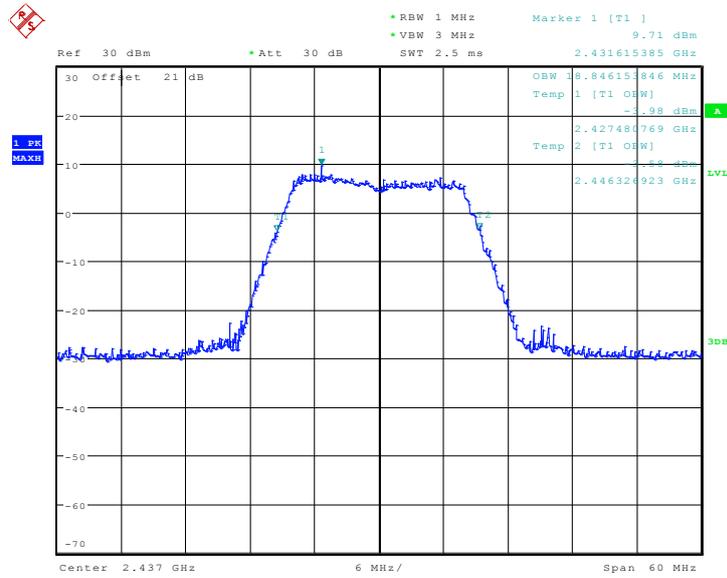
Date: 12..JAN.2014 14:20:17

**Fig.A.5.3 99% Occupied Bandwidth: (802.11b, Ch 11)**



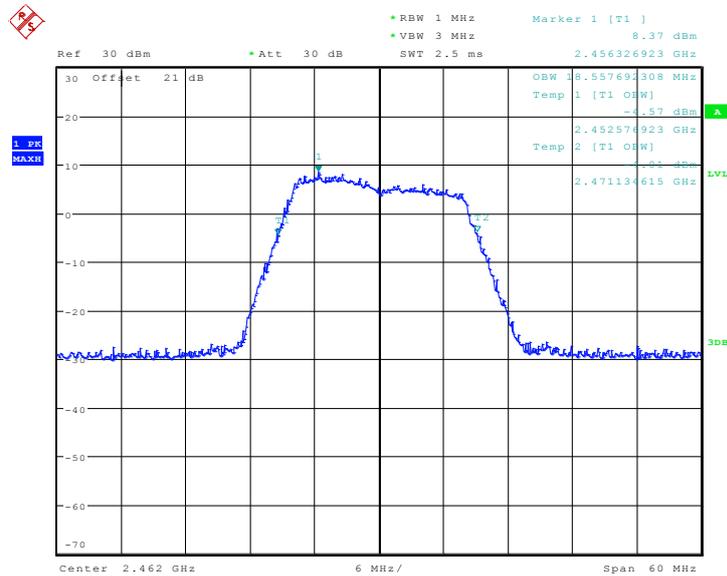
Date: 12.JAN.2014 14:21:43

**Fig.A.5.4 99% Occupied Bandwidth: (802.11g, Ch 1)**



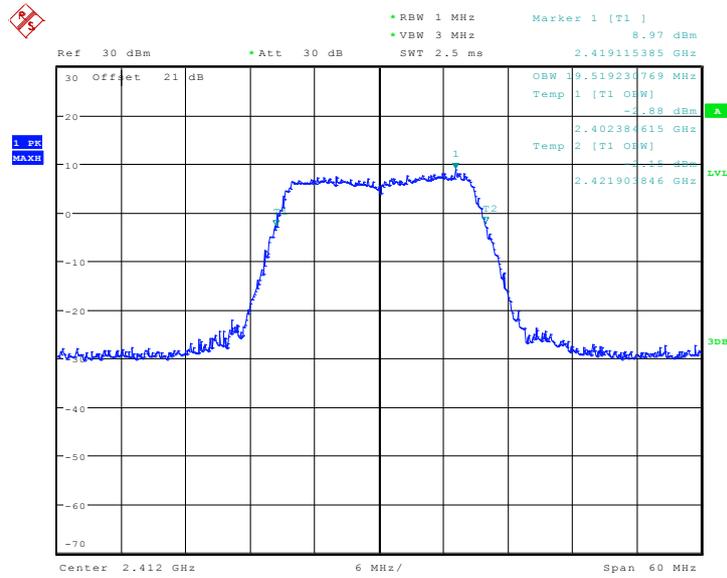
Date: 12..JAN..2014 14:23:06

**Fig.A.5.5 99% Occupied Bandwidth: (802.11g, Ch 6)**



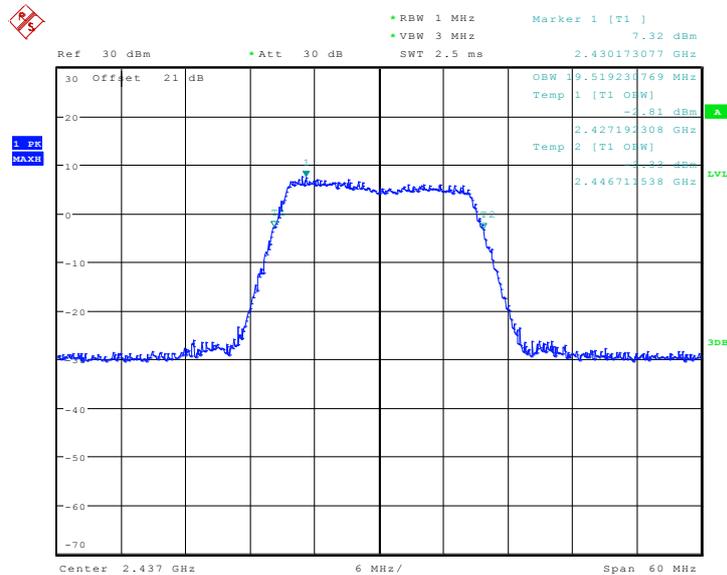
Date: 12.JAN.2014 14:24:07

**Fig.A.5.6 99% Occupied Bandwidth: (802.11g, Ch 11)**



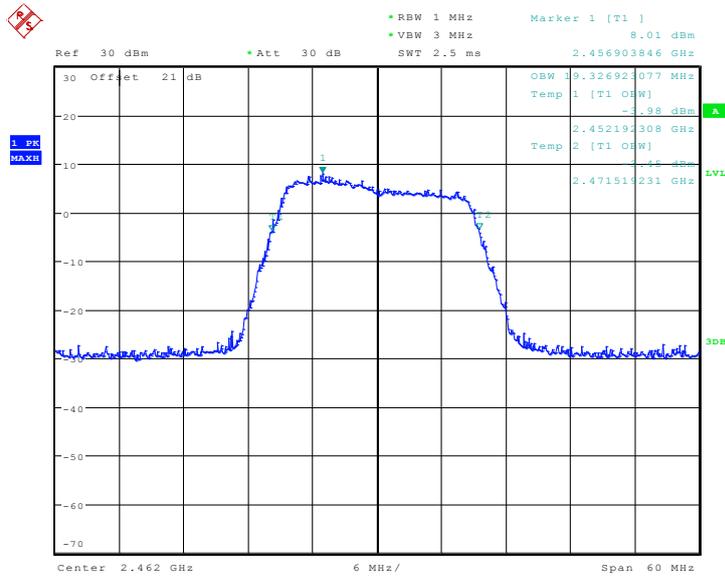
Date: 12..JAN.2014 14:25:30

**Fig.A.5.7 99% Occupied Bandwidth: (802.11n-HT20, Ch 1)**



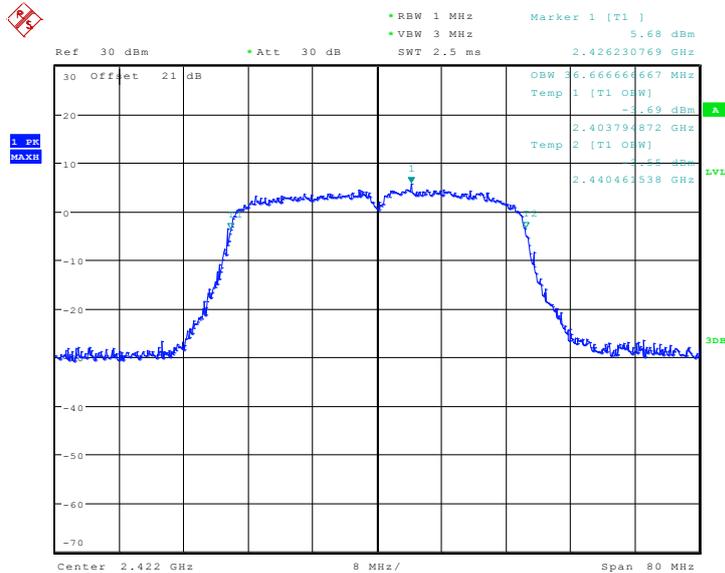
Date: 12..JAN.2014 14:26:22

**Fig.A.5.8 99% Occupied Bandwidth: (802.11n-HT20, Ch 6)**



Date: 12..JAN.2014 14:27:20

**Fig.A.5.9 99% Occupied Bandwidth: (802.11n-HT20, Ch 11)**



Date: 12..JAN.2014 14:28:51

**Fig.A.5.10 99% Occupied Bandwidth: (802.11n-HT40, Ch 3)**



## A.6. Band Edges Compliance

### Measurement Limit:

| Standard                   | Limit (dBc) |
|----------------------------|-------------|
| FCC 47 CFR Part 15.247 (d) | > 20        |

The measurement is made according to ANSI C63.10

### Measurement Uncertainty:

|                         |        |
|-------------------------|--------|
| Measurement Uncertainty | 0.75dB |
|-------------------------|--------|

Note: Configuration information to be tested as follows:

Modulation type and data rate:

|             |              |              |              |
|-------------|--------------|--------------|--------------|
| 802.11b     | 802.11g      | 802.11n-HT20 | 802.11n-HT40 |
| 11Mbps(CCK) | 54Mbps(OFDM) | MCS7(OFDM)   | MCS3(OFDM)   |

### Measurement Result:

| Mode         | Channel | Test Results | Conclusion |
|--------------|---------|--------------|------------|
| 802.11b      | 1       | Fig.A.6.1    | P          |
|              | 11      | Fig.A.6.2    | P          |
| 802.11g      | 1       | Fig.A.6.3    | P          |
|              | 11      | Fig.A.6.4    | P          |
| 802.11n-HT20 | 1       | Fig.A.6.5    | P          |
|              | 11      | Fig.A.6.6    | P          |
| 802.11n-HT40 | 3       | Fig.A.6.7    | P          |
|              | 9       | Fig.A.6.8    | P          |

**Conclusion: PASS**

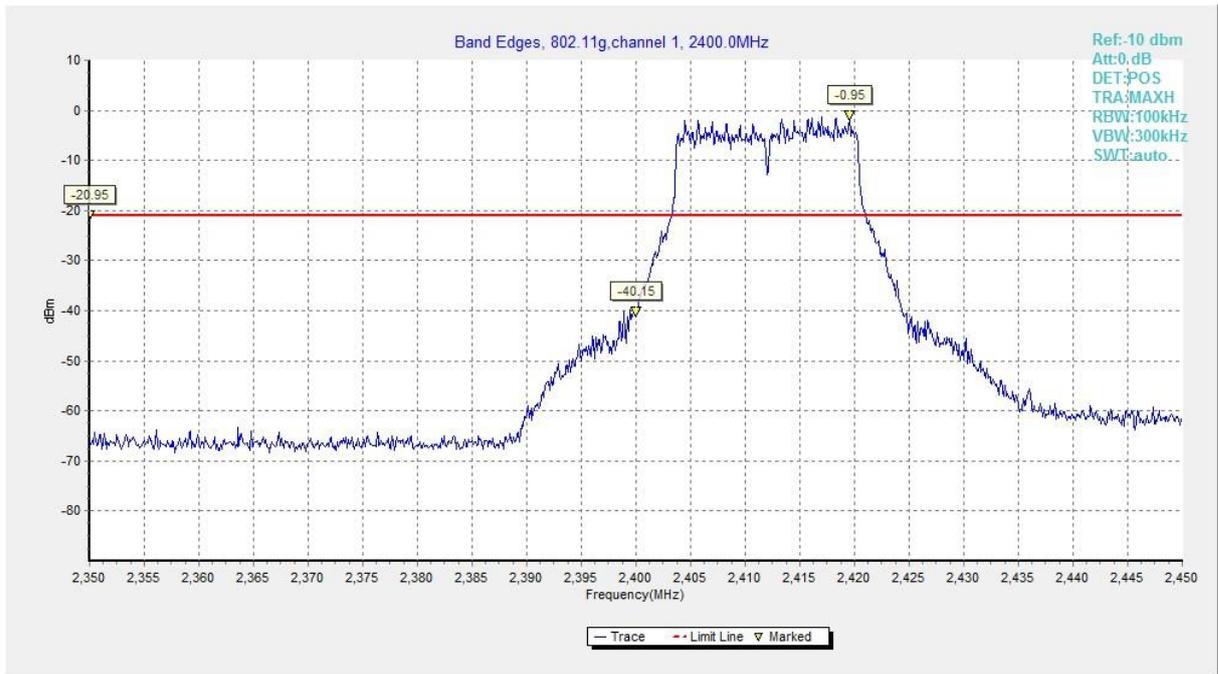
**Test graphs as below:**



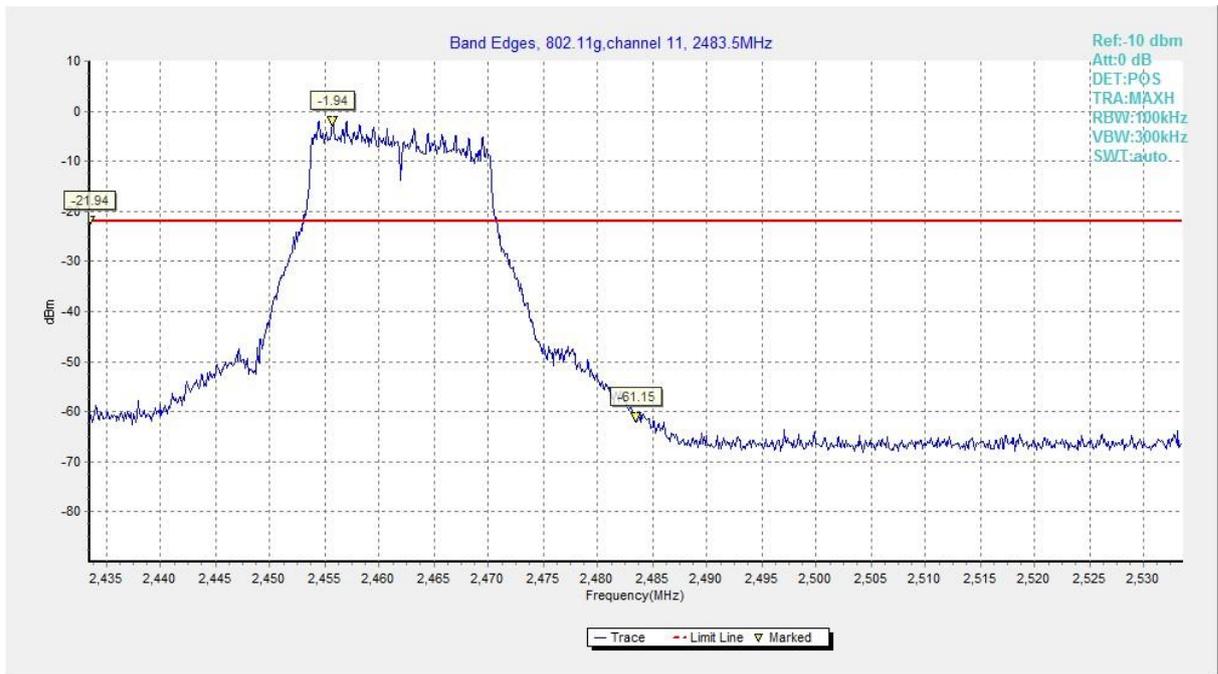
Fig.A.6.1 Band Edges (802.11b, Ch 1)



Fig.A.6.2 Band Edges (802.11b, Ch 11)



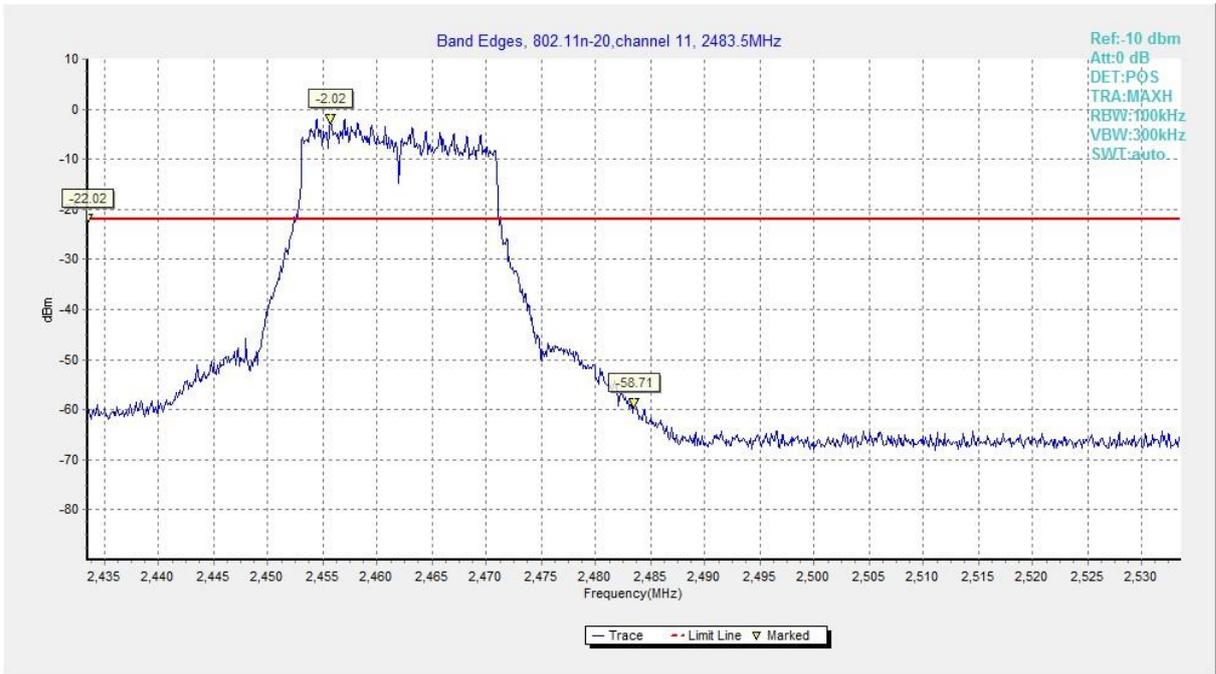
**Fig.A.6.3 Band Edges (802.11g, Ch 1)**



**Fig.A.6.4 Band Edges (802.11g, Ch 11)**



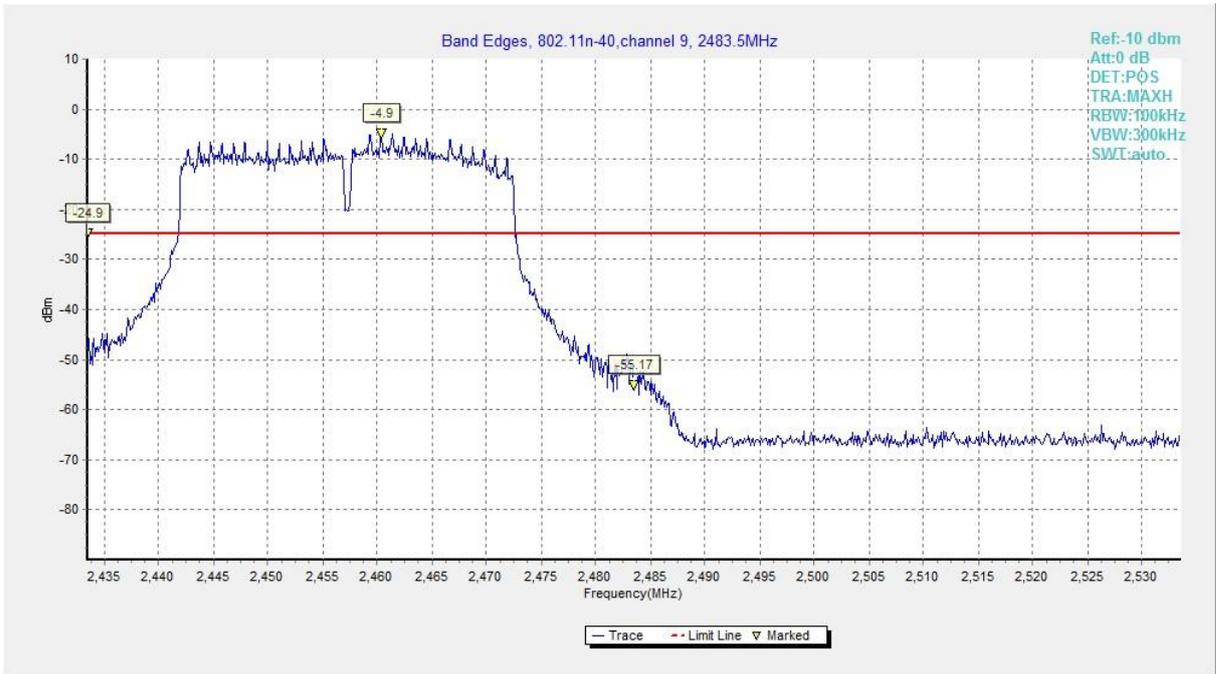
**Fig.A.6.5 Band Edges (802.11n-HT20, Ch 1)**



**Fig.A.6.6 Band Edges (802.11n-HT20, Ch 11)**



**Fig.A.6.7 Band Edges (802.11n-HT40, Ch 3)**



**Fig.A.6.8 Band Edges (802.11n-HT40, Ch 9)**

## A.7. Transmitter Spurious Emission

### Measurement Limit:

| Standard                   | Limit   |
|----------------------------|---|
| FCC 47 CFR Part 15.247 (d) | 20dB below peak output power in 100 kHz bandwidth |

The measurement is made according to ANSI C63.10.

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

| Frequency of emission (MHz) | Field strength(uV/m) | Field strength(dBuV/m) |
|-----------------------------|----------------------|------------------------|
| 30-88                       | 100                  | 40                     |
| 88-216                      | 150                  | 43.5                   |
| 216-960                     | 200                  | 46                     |
| Above 960                   | 500                  | 54                     |

### Measurement Uncertainty:

| Frequency Range   | Uncertainty |
|-------------------|-------------|
| 30MHz ≤ f ≤ 2GHz  | 0.63 dB     |
| 2GHz ≤ f ≤ 3.6GHz | 0.82 dB     |
| 3.6GHz ≤ f ≤ 8GHz | 1.55 dB     |
| 8GHz ≤ f ≤ 20GHz  | 1.86 dB     |
| 20GHz ≤ f ≤ 22GHz | 1.90 dB     |
| 22GHz ≤ f ≤ 26GHz | 2.20 dB     |

Note: Configuration information to be tested as follows:

Modulation type and data rate:

|             |              |              |              |
|-------------|--------------|--------------|--------------|
| 802.11b     | 802.11g      | 802.11n-HT20 | 802.11n-HT40 |
| 11Mbps(CCK) | 54Mbps(OFDM) | MCS7(OFDM)   | MCS3(OFDM)   |

### A.7.1 Transmitter Spurious Emission - Conducted

#### Measurement Results:

802.11b mode

| MODE    | Channel | Frequency Range   | Test Results | Conclusion |
|---------|---------|-------------------|--------------|------------|
| 802.11b | 1       | 2.412 GHz         | Fig.A.7.1.1  | P          |
|         |         | 30 MHz ~ 1 GHz    | Fig.A.7.1.2  | P          |
|         |         | 1 GHz ~ 2.5 GHz   | Fig.A.7.1.3  | P          |
|         |         | 2.5 GHz ~ 7.5 GHz | Fig.A.7.1.4  | P          |
|         |         | 7.5 GHz ~ 10 GHz  | Fig.A.7.1.5  | P          |
|         |         | 10 GHz ~ 15 GHz   | Fig.A.7.1.6  | P          |
|         |         | 15 GHz ~ 20 GHz   | Fig.A.7.1.7  | P          |
|         |         | 20 GHz ~ 26 GHz   | Fig.A.7.1.8  | P          |
|         | 6       | 2.437 GHz         | Fig.A.7.1.9  | P          |
|         |         | 30 MHz ~ 1 GHz    | Fig.A.7.1.10 | P          |
|         |         | 1 GHz ~ 2.5 GHz   | Fig.A.7.1.11 | P          |
|         |         | 2.5 GHz ~ 7.5 GHz | Fig.A.7.1.12 | P          |
|         |         | 7.5 GHz ~ 10 GHz  | Fig.A.7.1.13 | P          |
|         |         | 10 GHz ~ 15 GHz   | Fig.A.7.1.14 | P          |
|         |         | 15 GHz ~ 20 GHz   | Fig.A.7.1.15 | P          |
|         |         | 20 GHz ~ 26 GHz   | Fig.A.7.1.16 | P          |
|         | 11      | 2.462 GHz         | Fig.A.7.1.17 | P          |
|         |         | 30 MHz ~ 1 GHz    | Fig.A.7.1.18 | P          |
|         |         | 1 GHz ~ 2.5 GHz   | Fig.A.7.1.19 | P          |
|         |         | 2.5 GHz ~ 7.5 GHz | Fig.A.7.1.20 | P          |
|         |         | 7.5 GHz ~ 10 GHz  | Fig.A.7.1.21 | P          |
|         |         | 10 GHz ~ 15 GHz   | Fig.A.7.1.22 | P          |
|         |         | 15 GHz ~ 20 GHz   | Fig.A.7.1.23 | P          |
|         |         | 20 GHz ~ 26 GHz   | Fig.A.7.1.24 | P          |

802.11g mode

| MODE    | Channel | Frequency Range   | Test Results | Conclusion |
|---------|---------|-------------------|--------------|------------|
| 802.11g | 1       | 2.412 GHz         | Fig.A.7.1.25 | P          |
|         |         | 30 MHz ~ 1 GHz    | Fig.A.7.1.26 | P          |
|         |         | 1 GHz ~ 2.5 GHz   | Fig.A.7.1.27 | P          |
|         |         | 2.5 GHz ~ 7.5 GHz | Fig.A.7.1.28 | P          |
|         |         | 7.5 GHz ~ 10 GHz  | Fig.A.7.1.29 | P          |
|         |         | 10 GHz ~ 15 GHz   | Fig.A.7.1.30 | P          |
|         |         | 15 GHz ~ 20 GHz   | Fig.A.7.1.31 | P          |
|         |         | 20 GHz ~ 26 GHz   | Fig.A.7.1.32 | P          |
|         | 6       | 2.437 GHz         | Fig.A.7.1.33 | P          |
|         |         | 30 MHz ~ 1 GHz    | Fig.A.7.1.34 | P          |
|         |         | 1 GHz ~ 2.5 GHz   | Fig.A.7.1.35 | P          |
|         |         | 2.5 GHz ~ 7.5 GHz | Fig.A.7.1.36 | P          |
|         |         | 7.5 GHz ~ 10 GHz  | Fig.A.7.1.37 | P          |
|         |         | 10 GHz ~ 15 GHz   | Fig.A.7.1.38 | P          |
|         |         | 15 GHz ~ 20 GHz   | Fig.A.7.1.39 | P          |
|         |         | 20 GHz ~ 26 GHz   | Fig.A.7.1.40 | P          |
|         | 11      | 2.462 GHz         | Fig.A.7.1.41 | P          |
|         |         | 30 MHz ~ 1 GHz    | Fig.A.7.1.42 | P          |
|         |         | 1 GHz ~ 2.5 GHz   | Fig.A.7.1.43 | P          |
|         |         | 2.5 GHz ~ 7.5 GHz | Fig.A.7.1.44 | P          |
|         |         | 7.5 GHz ~ 10 GHz  | Fig.A.7.1.45 | P          |
|         |         | 10 GHz ~ 15 GHz   | Fig.A.7.1.46 | P          |
|         |         | 15 GHz ~ 20 GHz   | Fig.A.7.1.47 | P          |
|         |         | 20 GHz ~ 26 GHz   | Fig.A.7.1.48 | P          |

802.11n-HT20 mode

| MODE               | Channel | Frequency Range   | Test Results | Conclusion |
|--------------------|---------|-------------------|--------------|------------|
| 802.11n<br>(20MHz) | 1       | 2.412 GHz         | Fig.A.7.1.49 | P          |
|                    |         | 30 MHz ~ 1 GHz    | Fig.A.7.1.50 | P          |
|                    |         | 1 GHz ~ 2.5 GHz   | Fig.A.7.1.51 | P          |
|                    |         | 2.5 GHz ~ 7.5 GHz | Fig.A.7.1.52 | P          |
|                    |         | 7.5 GHz ~ 10 GHz  | Fig.A.7.1.53 | P          |
|                    |         | 10 GHz ~ 15 GHz   | Fig.A.7.1.54 | P          |
|                    |         | 15 GHz ~ 20 GHz   | Fig.A.7.1.55 | P          |
|                    |         | 20 GHz ~ 26 GHz   | Fig.A.7.1.56 | P          |
|                    | 6       | 2.437 GHz         | Fig.A.7.1.57 | P          |
|                    |         | 30 MHz ~ 1 GHz    | Fig.A.7.1.58 | P          |
|                    |         | 1 GHz ~ 2.5 GHz   | Fig.A.7.1.59 | P          |
|                    |         | 2.5 GHz ~ 7.5 GHz | Fig.A.7.1.60 | P          |
|                    |         | 7.5 GHz ~ 10 GHz  | Fig.A.7.1.61 | P          |
|                    |         | 10 GHz ~ 15 GHz   | Fig.A.7.1.62 | P          |
|                    |         | 15 GHz ~ 20 GHz   | Fig.A.7.1.63 | P          |
|                    |         | 20 GHz ~ 26 GHz   | Fig.A.7.1.64 | P          |
|                    | 11      | 2.462 GHz         | Fig.A.7.1.65 | P          |
|                    |         | 30 MHz ~ 1 GHz    | Fig.A.7.1.66 | P          |
|                    |         | 1 GHz ~ 2.5 GHz   | Fig.A.7.1.67 | P          |
|                    |         | 2.5 GHz ~ 7.5 GHz | Fig.A.7.1.68 | P          |
|                    |         | 7.5 GHz ~ 10 GHz  | Fig.A.7.1.69 | P          |
|                    |         | 10 GHz ~ 15 GHz   | Fig.A.7.1.70 | P          |
|                    |         | 15 GHz ~ 20 GHz   | Fig.A.7.1.71 | P          |
|                    |         | 20 GHz ~ 26 GHz   | Fig.A.7.1.72 | P          |