



# FCC PART 15C TEST REPORT

No. I19Z60823-IOT04

For  
**TCL Communication Ltd.**

**Tablet PC**

**9029W**

**with**

**FCC ID: 2ACCJBT16**

**Hardware Version: 02**

**Software Version: v5F5U**

**Issued Date: 2019-06-06**



**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

No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: [ctl\\_terminals@caict.ac.cn](mailto:ctl_terminals@caict.ac.cn), website: [www.caict.ac.cn](http://www.caict.ac.cn)



## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Description</b>	<b>Issue Date</b>
I19Z60823-IOT04	Rev.0	1st edition	2019-06-06

## **CONTENTS**

1.	TEST LABORATORY .....	5
1.1.	INTRODUCTION & ACCREDITATION.....	5
1.2.	TESTING LOCATION .....	5
1.3.	TESTING ENVIRONMENT.....	5
1.4.	PROJECT DATA .....	5
1.5.	SIGNATURE.....	6
2.	CLIENT INFORMATION.....	7
2.1.	APPLICANT INFORMATION.....	7
2.2.	MANUFACTURER INFORMATION.....	7
3.	EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....	8
3.1.	ABOUT EUT .....	8
3.2.	INTERNAL IDENTIFICATION OF EUT .....	8
3.3.	INTERNAL IDENTIFICATION OF AE .....	8
3.4.	GENERAL DESCRIPTION .....	9
3.5.	INTERPRETATION OF THE TEST ENVIRONMENT .....	9
4.	REFERENCE DOCUMENTS .....	9
4.1.	DOCUMENTS SUPPLIED BY APPLICANT .....	9
4.2.	REFERENCE DOCUMENTS FOR TESTING .....	9
5.	TEST RESULTS .....	10
5.1.	SUMMARY OF TEST RESULTS .....	10
5.2.	STATEMENTS.....	10
5.3.	EXPLANATION OF RE-USE OF TEST DATA .....	10
6.	TEST FACILITIES UTILIZED .....	11
7.	MEASUREMENT UNCERTAINTY .....	12
7.1.	MAXIMUM OUTPUT POWER .....	12
7.2.	PEAK POWER SPECTRAL DENSITY.....	12
7.3.	DTS 6-DB SIGNAL BANDWIDTH .....	12
7.4.	BAND EDGES COMPLIANCE .....	12
7.5.	TRANSMITTER SPURIOUS EMISSION.....	12
7.6.	AC POWER-LINE CONDUCTED EMISSION.....	12
	ANNEX A: DETAILED TEST RESULTS .....	13



<b>A.1. MEASUREMENT METHOD.....</b>	<b>13</b>
<b>A.2. MAXIMUM OUTPUT POWER.....</b>	<b>14</b>
A.2.1. PEAK OUTPUT POWER-CONDUCTED .....	14
A.2.2. AVERAGE OUTPUT POWER-CONDUCTED.....	15
<b>A.3. PEAK POWER SPECTRAL DENSITY.....</b>	<b>17</b>
<b>A.4. DTS 6-DB SIGNAL BANDWIDTH .....</b>	<b>24</b>
<b>A.5. BAND EDGES COMPLIANCE .....</b>	<b>31</b>
<b>A.6. TRANSMITTER SPURIOUS EMISSION.....</b>	<b>36</b>
A.6.1 TRANSMITTER SPURIOUS EMISSION – CONDUCTED.....	36
A.6.2 TRANSMITTER SPURIOUS EMISSION - RADIATED .....	89
<b>A.7. AC POWER-LINE CONDUCTED EMISSION .....</b>	<b>104</b>
<b>ANNEX B: ACCREDITATION CERTIFICATE.....</b>	<b>109</b>



## **1. Test Laboratory**

### **1.1. Introduction & Accreditation**

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2005 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 (CN0066). 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

Location 2:CTTL(Shouxiang)

Address: No. 51 Shouxiang Science Building, Xueyuan Road,  
Haidian District, Beijing, P. R. China100191

### **1.3. Testing Environment**

Normal Temperature: 15-35°C

Extreme Temperature: -20/+55°C

Relative Humidity: 20-75%

### **1.4. Project data**

Testing Start Date: 2018-05-30



Testing End Date: 2018-08-06

**1.5. Signature**

A handwritten signature in black ink, appearing to read "姜雪".

---

**Jiang Xue**  
**(Prepared this test report)**

A handwritten signature in black ink, appearing to read "郑伟".

---

**Zheng Wei**  
**(Reviewed this test report)**

A handwritten signature in black ink, appearing to read "高宏".

---

**Gao Hong**  
**(Approved this test report)**



## **2. Client Information**

### **2.1. Applicant Information**

Company Name: TCL Communication Ltd.  
Address: 7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052  
City: Shenzhen,  
Postal Code: 518052  
Country: China  
Telephone: 0086-755-36611722  
Fax: /

### **2.2. Manufacturer Information**

Company Name: TCL Communication Ltd.  
Address: 7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052  
City: Shenzhen  
Postal Code: 518052  
Country: China  
Telephone: 0086-755-36611722  
Fax: /



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

#### **3.1. About EUT**

Description	Tablet PC
Model name	9029W
FCC ID	2ACCJBT16
IC ID	/
With WLAN Function	Yes
Frequency Range	ISM 2400MHz~2483.5MHz
Type of Modulation	DSSS/CCK/OFDM
Number of Channels	11
Antenna	Integral Antenna
MAX Conducted Power	26.22dBm
Power Supply	3.9V DC by Battery

#### **3.2. Internal Identification of EUT**

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	/	02	v5F5U
EUT2	/	02	v5F5U

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

#### **3.3. Internal Identification of AE**

AE ID*	Description	SN	Remarks
AE1	Battery	/	inbuilt
AE2	Charger	/	18TCT-CH-0515
AE3	Charger	/	18TCT-CH-0531
AE4	USB Cable	/	18TCT-DC-0209
AE1	Model	TLp040J1	
	Manufacturer	BYD	
	Capacitance	4000mAh	
	Nominal voltage	3.85V	
AE2	Model	UC11US	
	Manufacturer	Chenyang	
	Length of cable	/	
AE3	Model	UC11US	
	Manufacturer	PUAN	
	Length of cable	/	
AE4			



Model CDA0000024C8  
Manufacturer /  
Length of cable /

\*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 Tablet PC with integrated 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

## **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: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902-928MHz, 2400-2483.5 MHz, and 5725-5850 MHz.	2016
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013

## 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)	/	BR
Transmitter Spurious Emission - Conducted	15.247 (d)	/	BR
Transmitter Spurious Emission - Radiated	15.247, 15.205, 15.209	/	BR
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
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 9029W (FCC ID:2ACCJBT16) is a variant product of 9027W (FCC ID: 2ACCJBT13), according to the declaration of changes provided by the applicant and FCC KDB publication 484596 D01, spot check measurements were performed on this device, all the test results are derived from test report No. I18Z61163-IOT03. Please refer Annex A for detail spot check verification data and reference data.the spot check test results are consistent with basic model.

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

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	3.9V
Humidity	44%

## 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	2019-05-17
2	LISN	ENV216	101200	Rohde & Schwarz	1 year	2019-04-15
3	Test Receiver	ESCI	100344	Rohde & Schwarz	1 year	2019-02-28
4	Shielding Room	S81	/	ETS-Lindgren	/	/

### Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibration Due date
1	Test Receiver	ESU26	100235	Rohde & Schwarz	1 year	2019-03-01
2	BiLog Antenna	VULB9163	302	Schwarzbeck	3 years	2019-02-03
3	EMI Antenna	3115	00167250	ETS-Lindgren	3 Years	2020-05-21
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	ETS-Lindgren	3 years	2020-07-27

## **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	/
30MHz ≤ f ≤ 1GHz	5.40
1GHz ≤ f ≤ 18GHz	4.32
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**

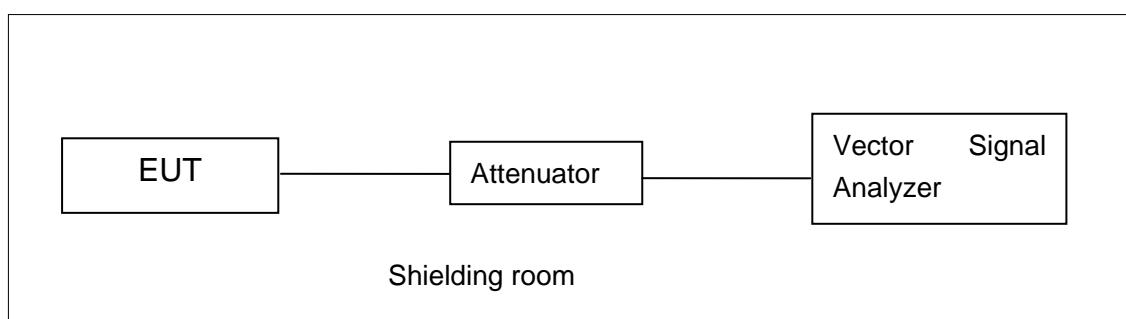
Connect the EUT to the test system as Fig.A.1.1.1 shows.

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



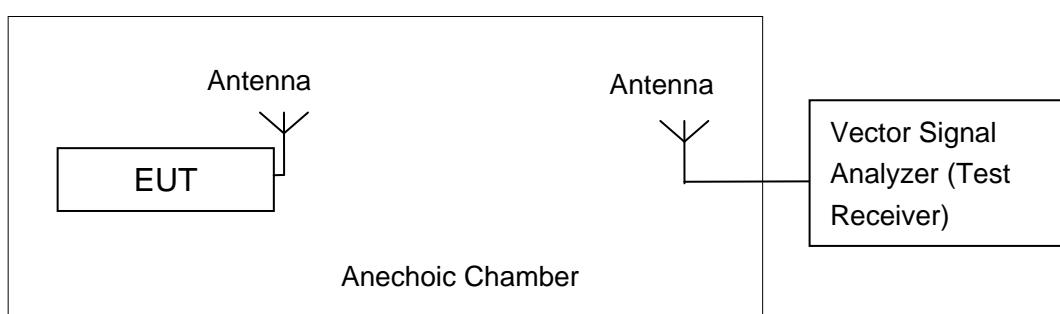
**Fig.A.1.1.1: Test Setup Diagram for Conducted Measurements**

#### **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 11.9.1.2**

- a) Set the RBW = 1 MHz.
- b) Set the VBW = 3 MHz.
- c) Set the span  $\geq [1.5 \times \text{DTS bandwidth}]$ .
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select the peak detector).

**Measurement Limit:**

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

**EUT ID: EUT2**

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

**Measurement Results:**

#### 802.11b/g mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	1	21.56	/	/
	2	22.18	/	/
	5.5	23.67	/	/
	11	24.86	25.87	25.03
802.11g	6	25.38	/	/
	9	25.43	26.11	25.73
	12	24.75	/	/
	18	24.42	/	/
	24	25.19	/	/
	36	24.92	/	/
	48	23.00	/	/
	54	22.34	/	/

The data rate 11Mbps and 9Mbps are 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	25.59	26.22	25.76
	MCS1	24.75	/	/
	MCS2	24.73	/	/
	MCS3	24.09	/	/
	MCS4	24.08	/	/
	MCS5	22.37	/	/
	MCS6	22.47	/	/
	MCS7	22.38	/	/

The data rate MCS0 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	22.94	/	/
	MCS1	22.99	/	/
	MCS2	23.03	/	/
	MCS3	23.17	/	/
	MCS4	23.37	23.41	23.16
	MCS5	21.14	/	/
	MCS6	21.05	/	/
	MCS7	20.80	/	/

The data rate MCS4 is selected as worse condition, and the following cases are performed with this condition.

**Conclusion: Pass**
**A.2.2. Average Output Power-conducted**
**Method of Measurement: See ANSI C63.10-2013-clause 11.9.2.2.2**

The procedure for this method is as follows:

- Set span = 1.5OBW.
- Set RBW = 1MHz.
- Set VBW = 3MHz
- Number of points in sweep = 625
- Sweep time = auto.
- Detector = RMS.
- If transmit duty cycle < 98%, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at the maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no OFFintervals) or at duty

cycle  $\geq 98\%$ , and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”

h) Trace average 100 traces in power averaging (rms) mode.

i) Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

#### 802.11b/g mode

Mode	Test Result (dBm)		
	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	19.35	20.60	19.42
802.11g	18.58	19.01	18.30

#### 802.11n-HT20 mode

Mode	Test Result (dBm)		
	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11n (20MHz)	18.05	18.81	18.15

#### 802.11n-HT40 mode

Mode	Test Result (dBm)		
	2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)
802.11n(40MHz)	15.55	16.05	15.44

The spot check point is 802.11b Ch6 1Mbps, and the result is 21.04dBm.

**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:**

**802.11b/g mode**

Mode	Channel	Power Spectral Density ( dBm/3 kHz )		Conclusion
802.11b	1	Fig.A.3.1	-4.68	P
	6	Fig.A.3.2	-3.85	P
	11	Fig.A.3.3	-4.83	P
802.11g	1	Fig.A.3.4	-10.21	P
	6	Fig.A.3.5	-9.31	P
	11	Fig.A.3.6	-10.06	P

**802.11n-HT20 mode**

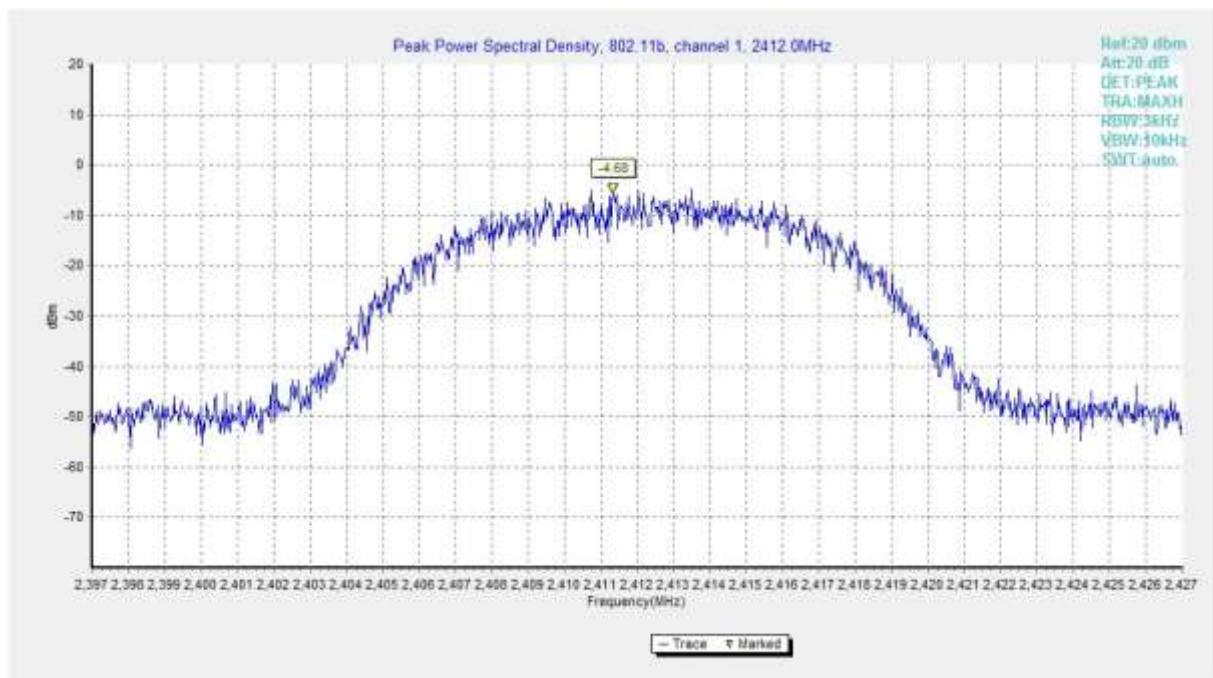
Mode	Channel	Power Spectral Density ( dBm/3 kHz )		Conclusion
802.11n (HT20)	1	Fig.A.3.7	-9.86	P
	6	Fig.A.3.8	-8.63	P
	11	Fig.A.3.9	-9.61	P

**802.11n-HT40 mode**

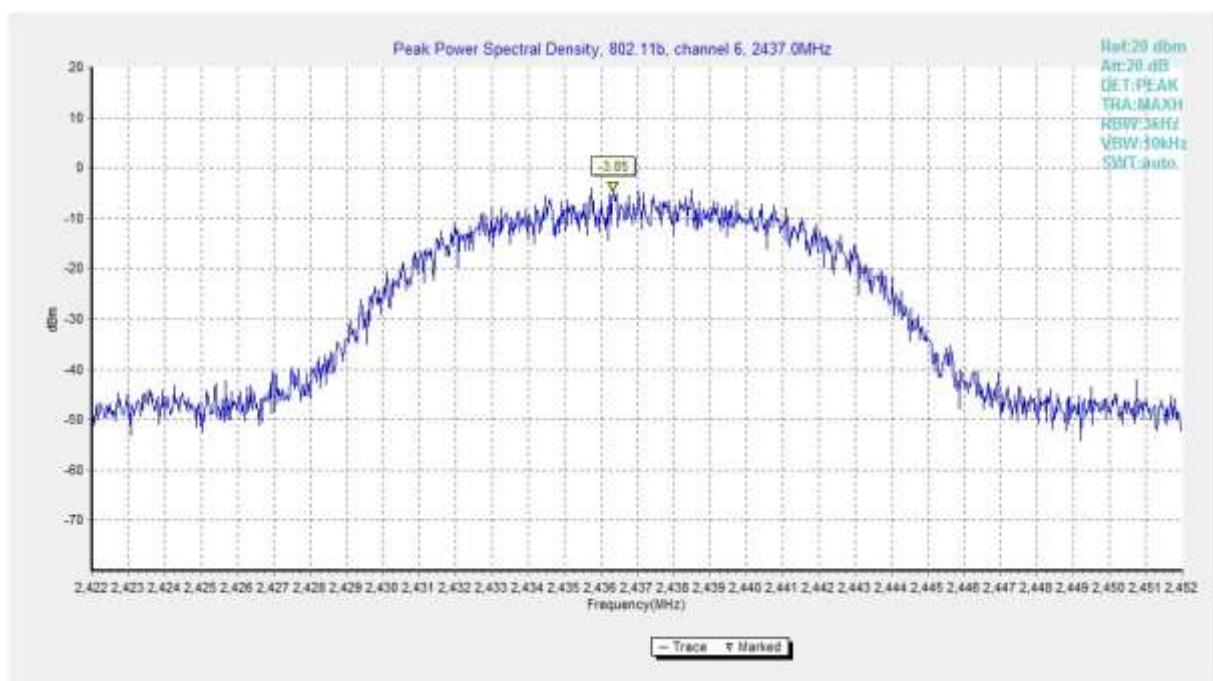
Mode	Channel	Power Spectral Density ( dBm/3 kHz )		Conclusion
802.11n (HT40)	3	Fig.A.3.10	-12.70	P
	6	Fig.A.3.11	-13.24	P
	9	Fig.A.3.12	-13.53	P

**Conclusion: Pass**

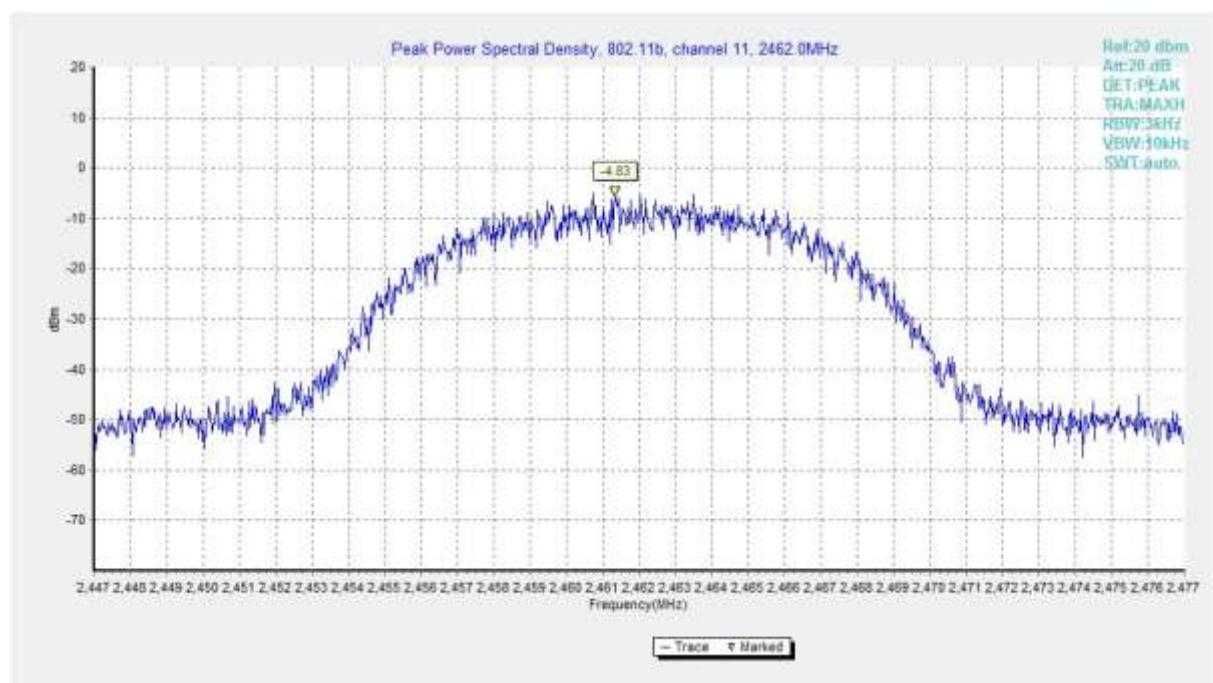
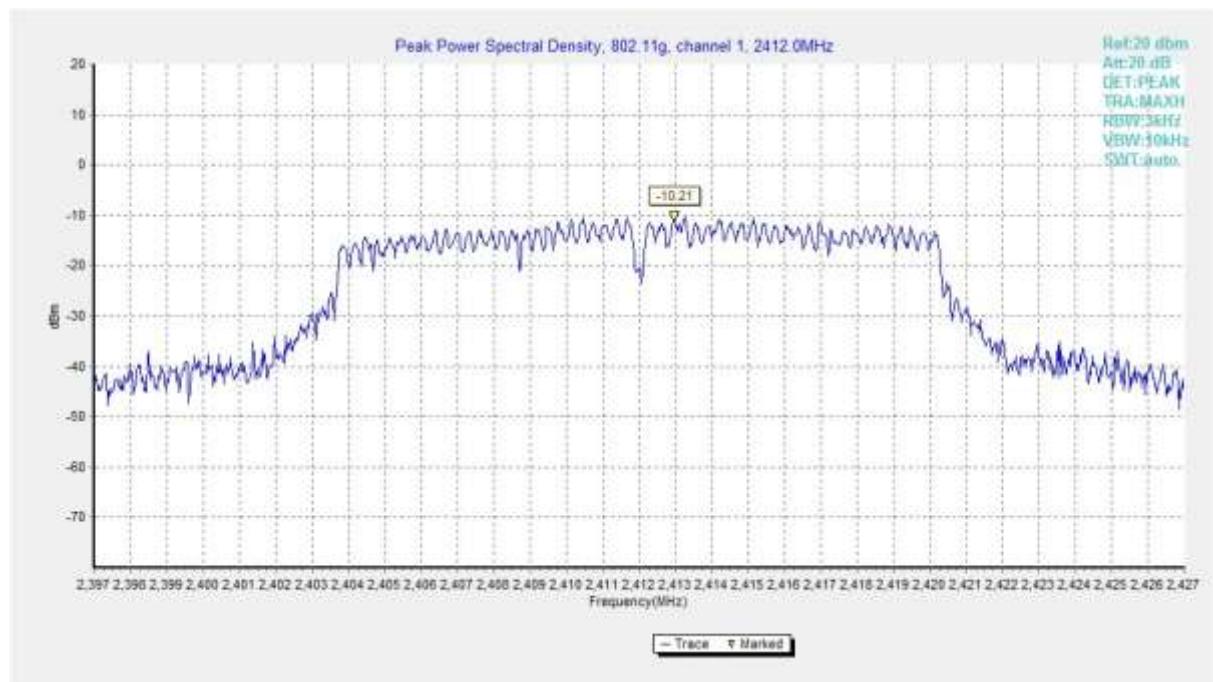
**Test graphs as below:**

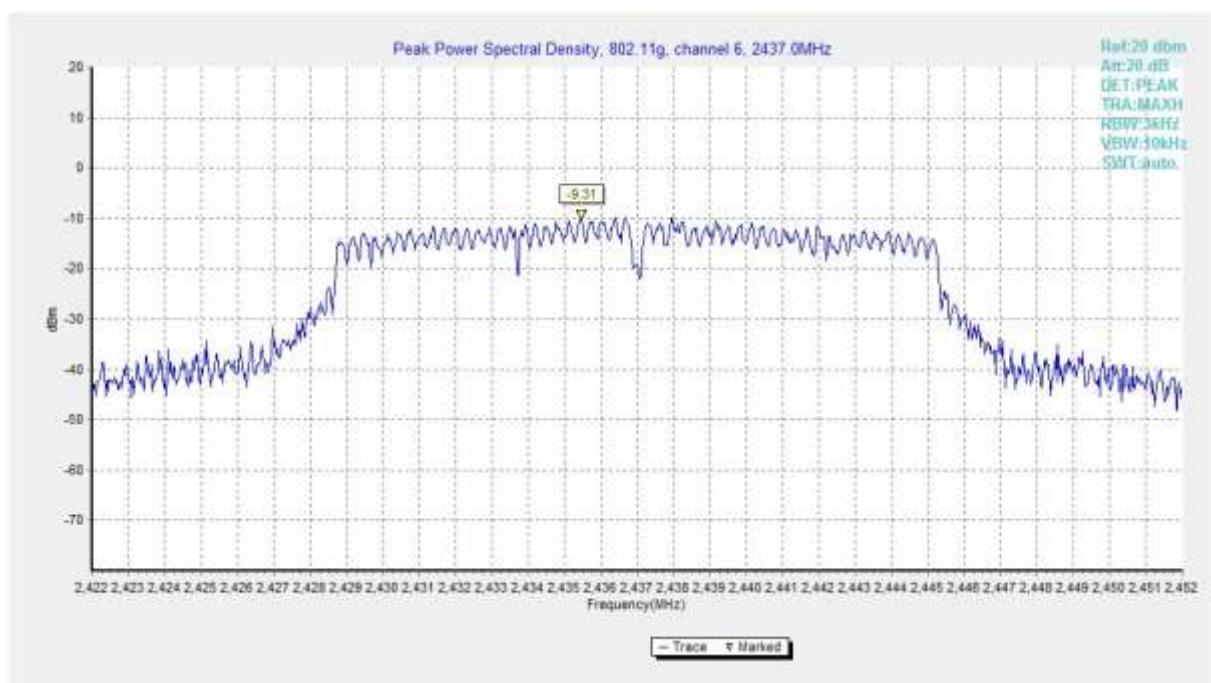


**Fig.A.3.1 Power Spectral Density(802.11b,Ch1)**

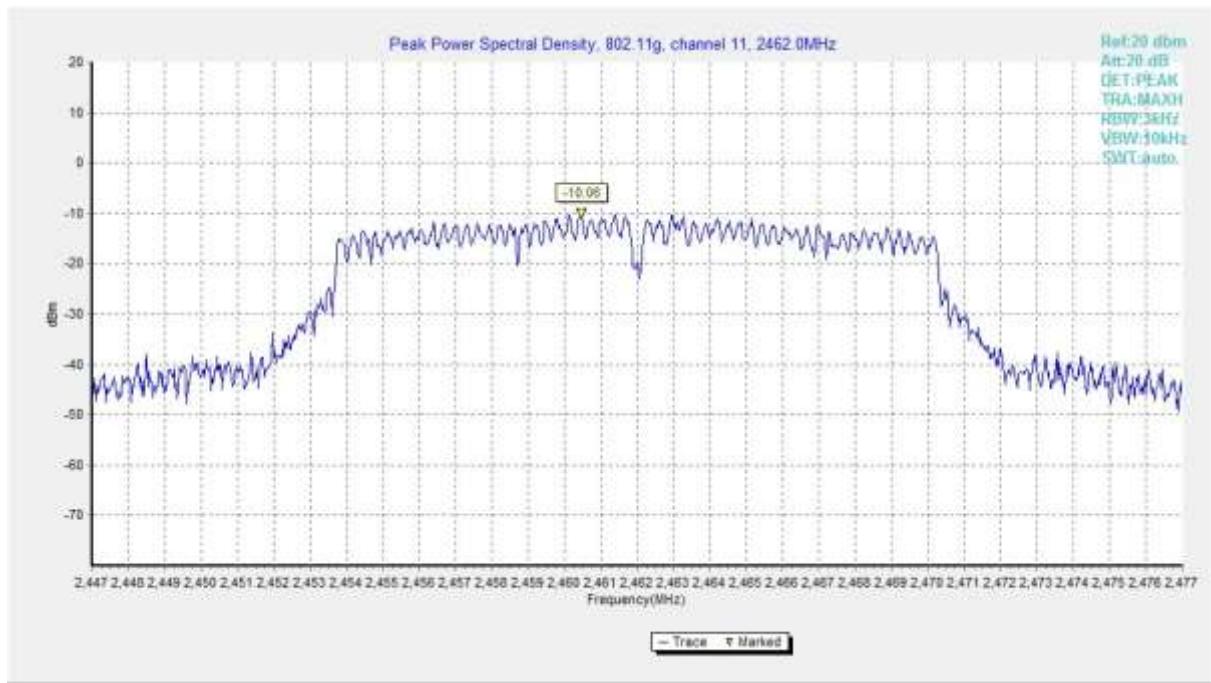


**Fig.A.3.2 Power Spectral Density (802.11b, Ch 6)**

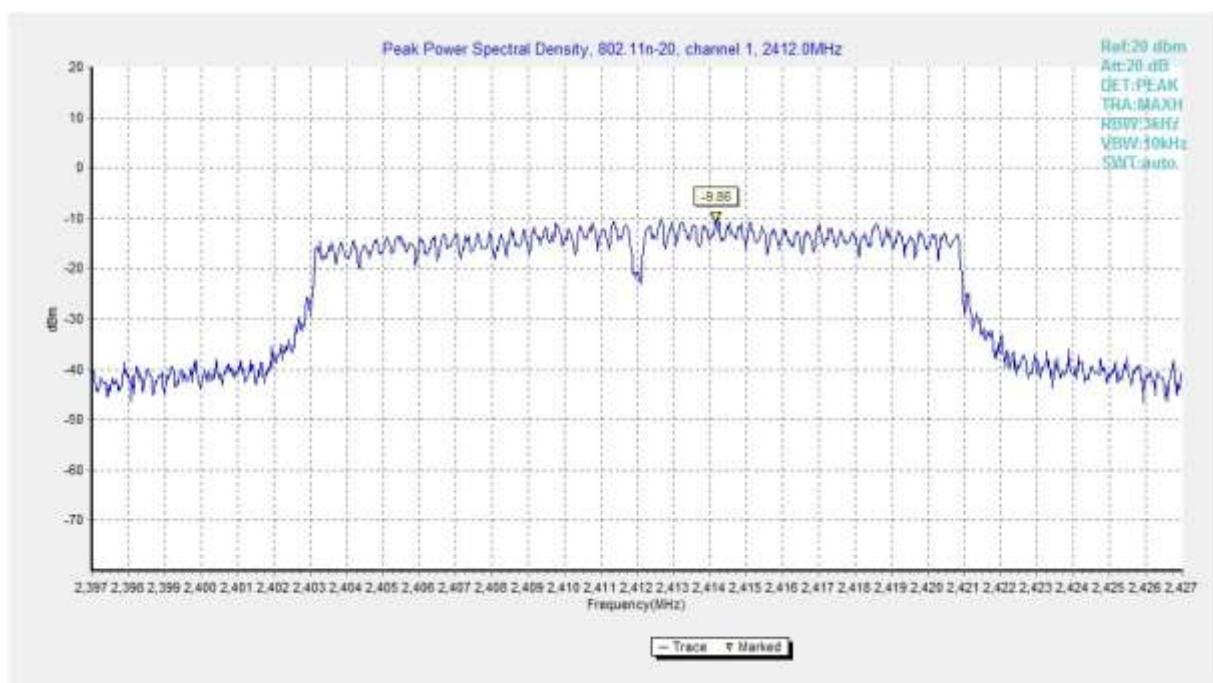
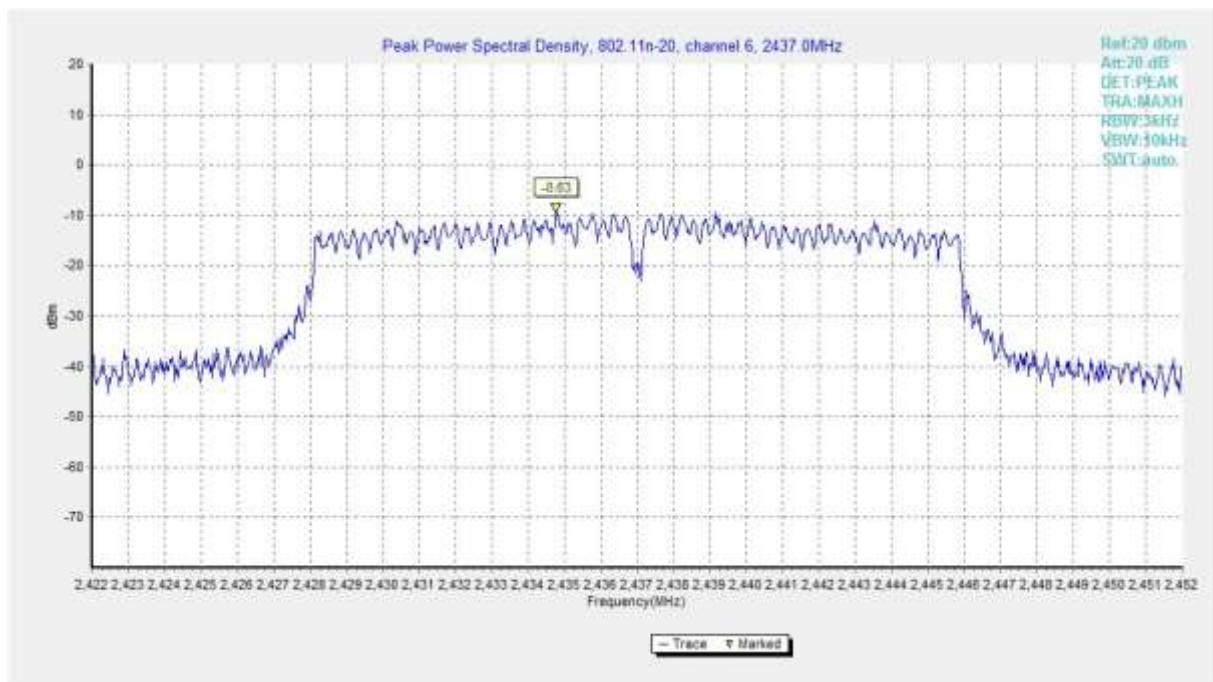

**Fig.A.3.3      Power Spectral Density (802.11b, Ch 11)**

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

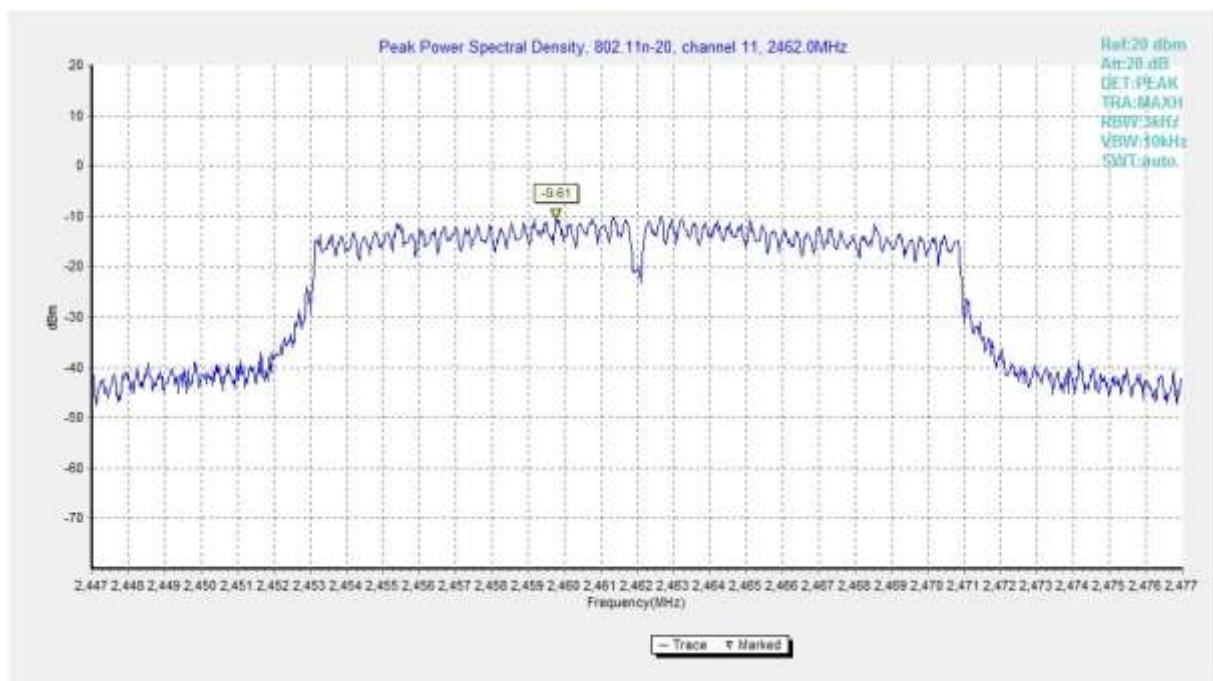


**Fig.A.3.5      Power Spectral Density (802.11g, Ch 6)**

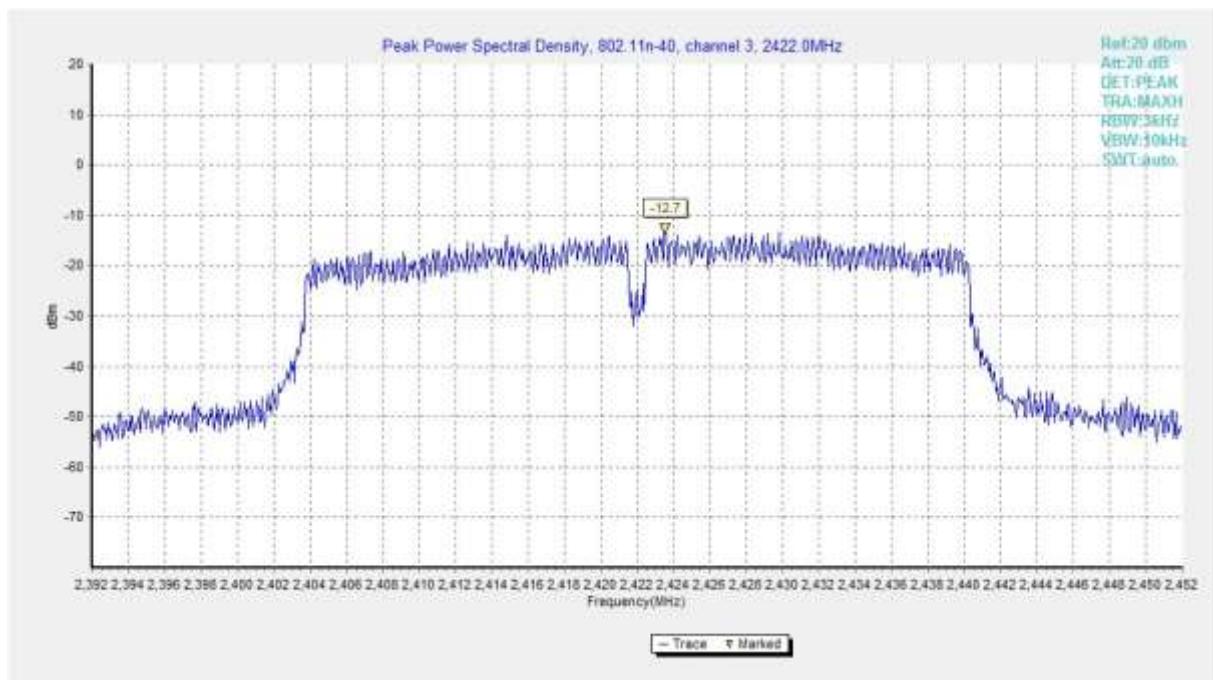


**Fig.A.3.6      Power Spectral Density (802.11g, Ch 11)**


**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)**

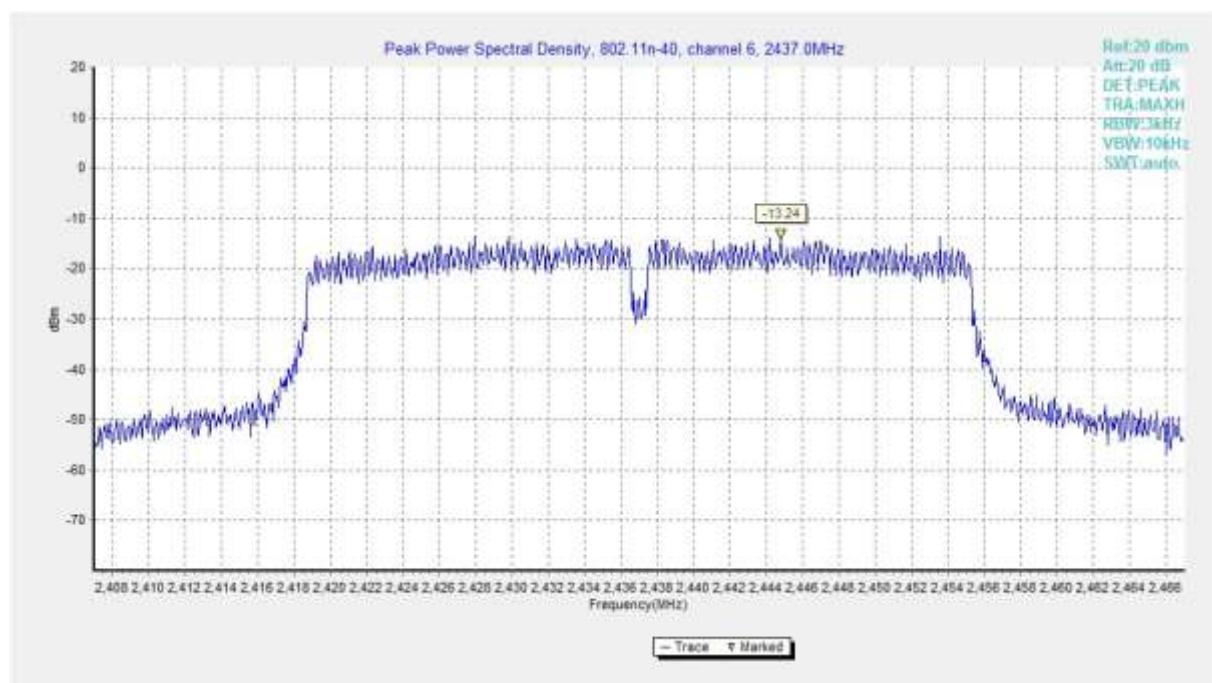


Fig.A.3.11 Power Spectral Density (802.11n-HT40, Ch 6)

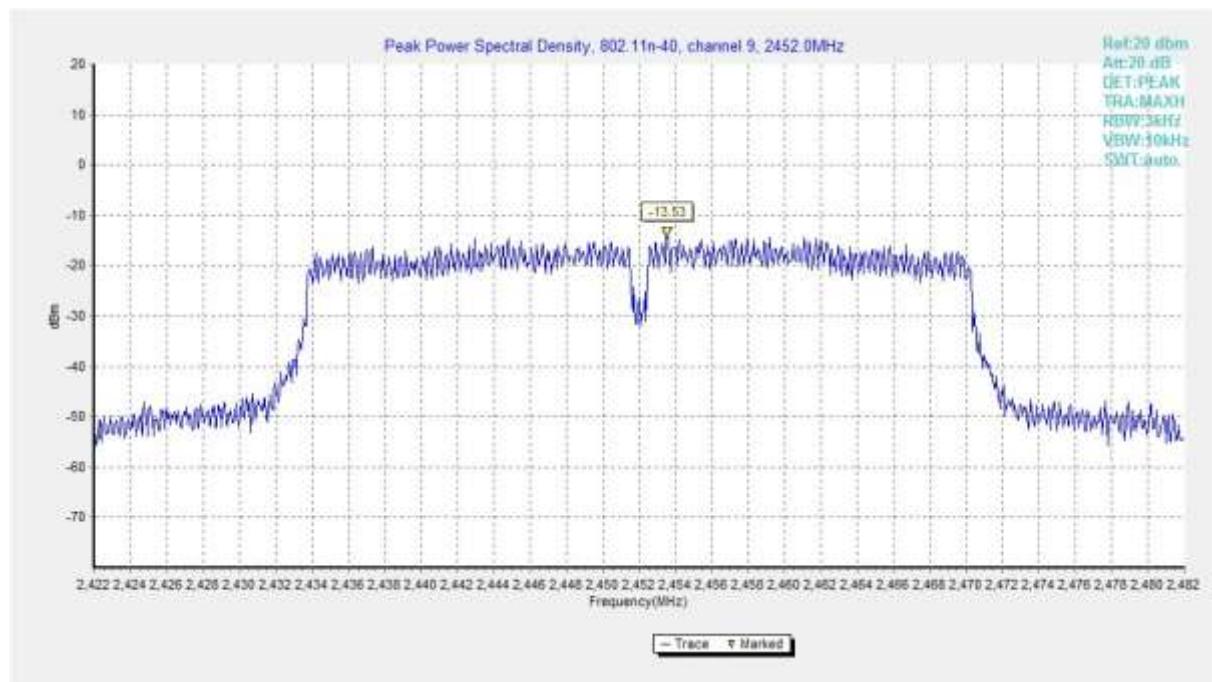


Fig.A.3.12 Power Spectral Density (802.11n-HT40, Ch 9)

#### A.4. DTS 6-dB Signal Bandwidth

**Method of Measurement: See ANSI C63.10-2013 section 11.8.1.**

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) = 300 kHz.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

**Measurement Limit:**

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

**EUT ID: EUT2**

**Measurement Result:**

**802.11b/g mode**

Mode	Channel	Occupied 6dB Bandwidth ( kHz)		conclusion
802.11b	1	Fig.A.4.1	8800	P
	6	Fig.A.4.2	8850	P
	11	Fig.A.4.3	8850	P
802.11g	1	Fig.A.4.4	16350	P
	6	Fig.A.4.5	16350	P
	11	Fig.A.4.6	16300	P

**802.11n-HT20 mode**

Mode	Channel	Occupied 6dB Bandwidth ( kHz)		conclusion
802.11n (HT20)	1	Fig.A.4.7	17700	P
	6	Fig.A.4.8	17600	P
	11	Fig.A.4.9	17600	P

**802.11n-HT40 mode**

Mode	Channel	Occupied 6dB Bandwidth ( kHz)		conclusion
802.11n (HT40)	3	Fig.A.4.10	35680	P
	6	Fig.A.4.11	36320	P
	9	Fig.A.4.12	35760	P

**Conclusion: Pass**

Test graphs as below:

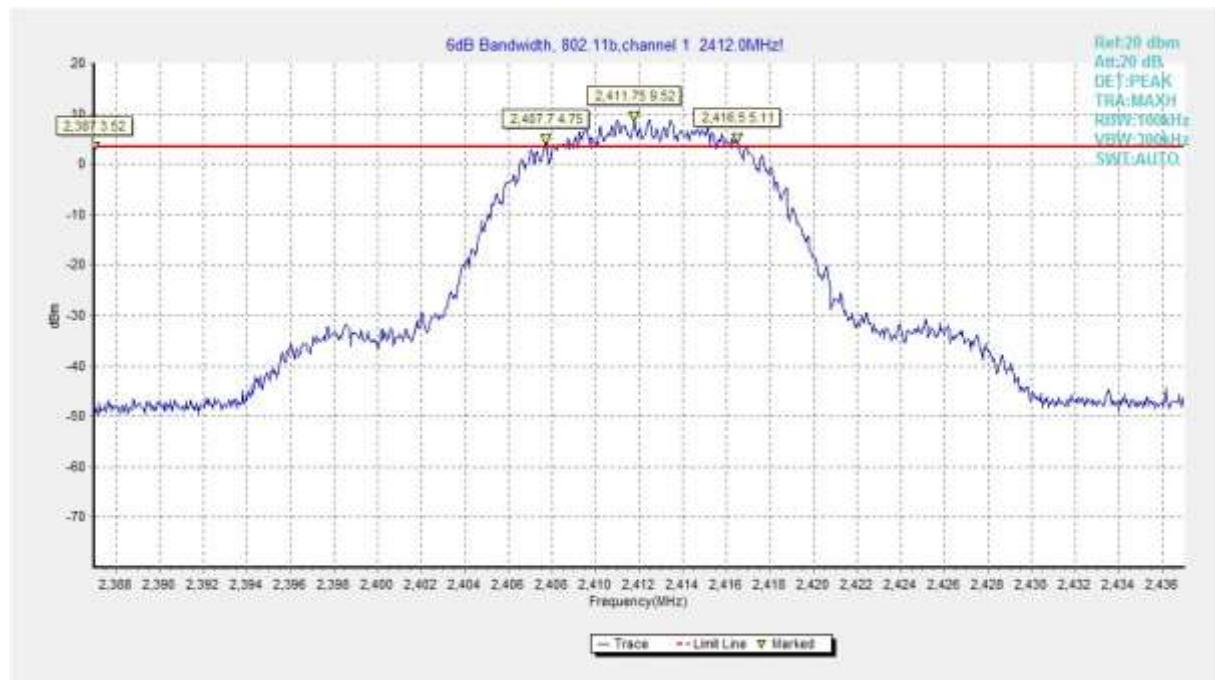


Fig.A.4.1 Occupied 6dB Bandwidth(802.11b,Ch 1)

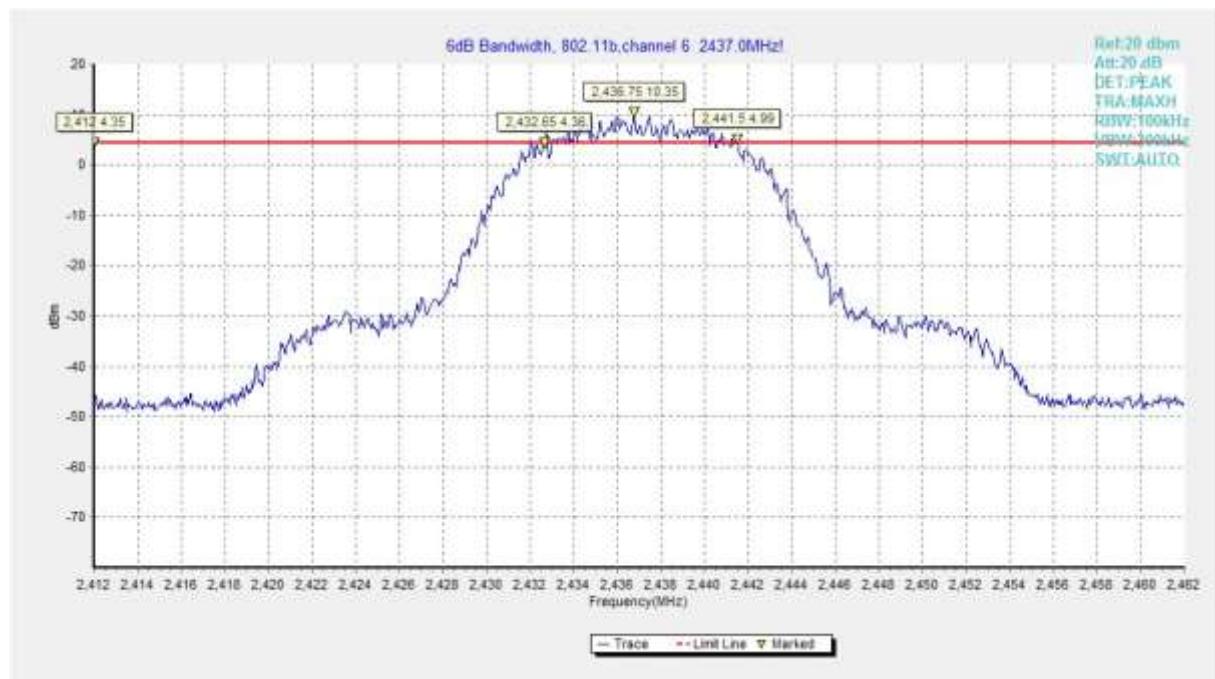
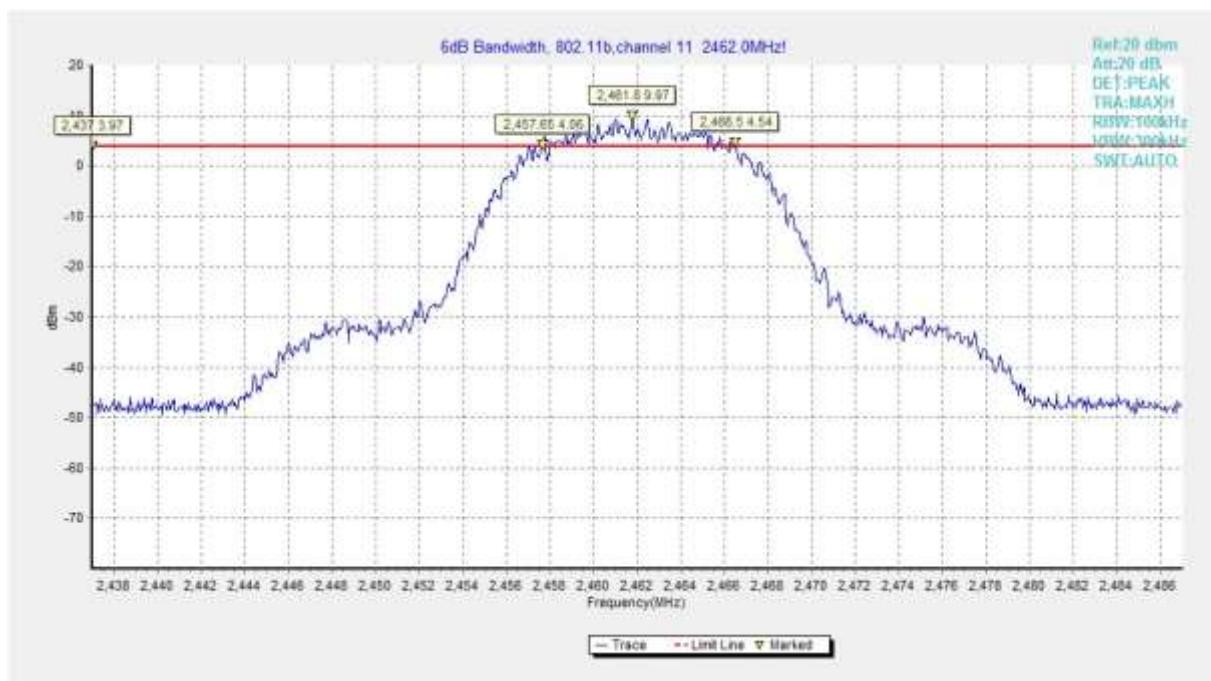
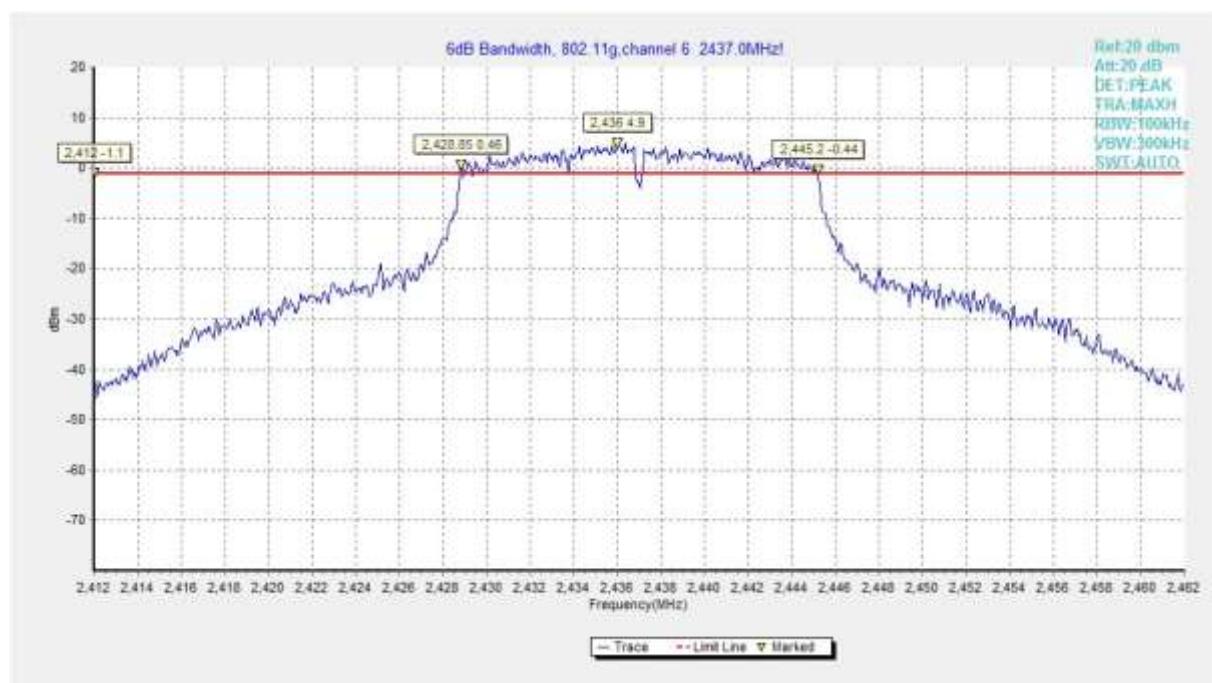
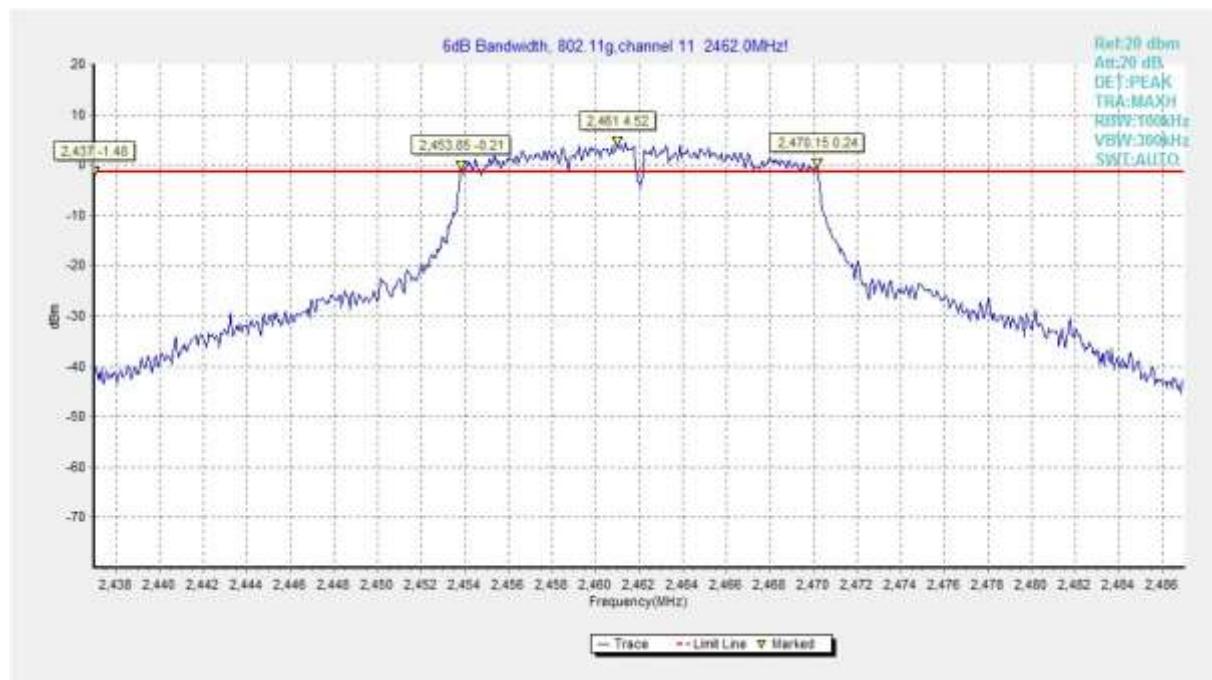
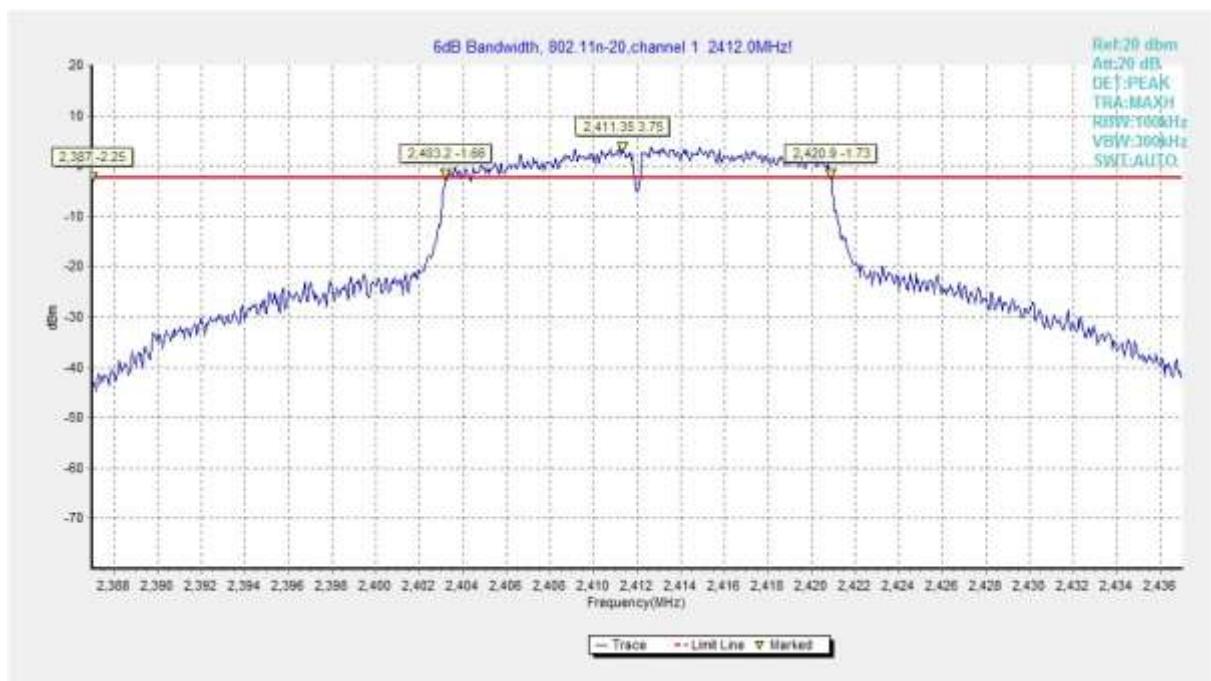


Fig.A.4.2 Occupied 6dB Bandwidth (802.11b, Ch 6)


**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. Band Edges Compliance

**Method of Measurement: See ANSI C63.10-2013-clause 6.10.4**

Connect the spectrum analyzer to the EUT using an appropriate RF cable connected to the EUT output. Configure the spectrum analyzer settings as described below.

- a) Set Span = 100MHz
- b) Sweep Time: coupled
- c) Set the RBW= 100 kHz
- c) Set the VBW= 300 kHz
- d) Detector: Peak
- e) Trace: Max hold

**Measurement Limit:**

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

**EUT ID: EUT2**

**Measurement Result:**

**802.11b/g mode**

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.A.5.1	P
	11	Fig.A.5.2	P
802.11g	1	Fig.A.5.3	P
	11	Fig.A.5.4	P

**802.11n-HT20 mode**

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	1	Fig.A.5.5	P
	11	Fig.A.5.6	P

**802.11n-HT40 mode**

Mode	Channel	Test Results	Conclusion
802.11n (HT40)	3	Fig.A.5.7	P
	9	Fig.A.5.8	P

**Conclusion: Pass**

**Test graphs as below:**


**Fig.A.5.1 Band Edges (802.11b, Ch 1)**

**Fig.A.5.2 Band Edges (802.11b, Ch 11)**


**Fig.A.5.3 Band Edges (802.11g, Ch 1)**

**Fig.A.5.4 Band Edges (802.11g, Ch 11)**


**Fig.A.5.5 Band Edges (802.11n-HT20, Ch 1)**

**Fig.A.5.6 Band Edges (802.11n-HT20, Ch 11)**


**Fig.A.5.7 Band Edges (802.11n-HT40, Ch 3)**

**Fig.A.5.8 Band Edges (802.11n-HT40, Ch 9)**

## **A.6. Transmitter Spurious Emission**

### **A.6.1 Transmitter Spurious Emission – Conducted**

#### **Method of Measurement: See ANSI C63.10-2013-clause 11.11.2**

Establish a reference level by using the following procedure:

- a) Set instrument center frequency to DTS channel center frequency
- b) Set the span to  $\geq 1.5$  times the DTS bandwidth
- c) Set the RBW= 100 kHz
- d) Set the VBW= 300 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 PSD level

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Establish an emission level by using the following procedure:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW = 300 kHz.
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

#### **Measurement Limit:**

<b>Standard</b>	<b>Limit</b>
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100 kHz bandwidth

**EUT ID: EUT2**

#### **Measurement Results:**

## 802.11b mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412 GHz	Fig.A.6.1.1	P
		30 MHz ~ 1 GHz	Fig.A.6.1.2	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.3	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.4	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.5	P
		10 GHz ~ 15 GHz	Fig.A.6.1.6	P
		15 GHz ~ 20 GHz	Fig.A.6.1.7	P
		20 GHz ~ 26 GHz	Fig.A.6.1.8	P
	6	2.437 GHz	Fig.A.6.1.9	P
		30 MHz ~ 1 GHz	Fig.A.6.1.10	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.11	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.12	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.13	P
		10 GHz ~ 15 GHz	Fig.A.6.1.14	P
		15 GHz ~ 20 GHz	Fig.A.6.1.15	P
		20 GHz ~ 26 GHz	Fig.A.6.1.16	P
	11	2.462 GHz	Fig.A.6.1.17	P
		30 MHz ~ 1 GHz	Fig.A.6.1.18	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.19	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.20	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.21	P
		10 GHz ~ 15 GHz	Fig.A.6.1.22	P
		15 GHz ~ 20 GHz	Fig.A.6.1.23	P
		20 GHz ~ 26 GHz	Fig.A.6.1.24	P

**802.11g mode**

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11g	1	2.412 GHz	Fig.A.6.1.25	P
		30 MHz ~ 1 GHz	Fig.A.6.1.26	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.27	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.28	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.29	P
		10 GHz ~ 15 GHz	Fig.A.6.1.30	P
		15 GHz ~ 20 GHz	Fig.A.6.1.31	P
		20 GHz ~ 26 GHz	Fig.A.6.1.32	P
	6	2.437 GHz	Fig.A.6.1.33	P
		30 MHz ~ 1 GHz	Fig.A.6.1.34	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.35	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.36	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.37	P
		10 GHz ~ 15 GHz	Fig.A.6.1.38	P
		15 GHz ~ 20 GHz	Fig.A.6.1.39	P
		20 GHz ~ 26 GHz	Fig.A.6.1.40	P
	11	2.462 GHz	Fig.A.6.1.41	P
		30 MHz ~ 1 GHz	Fig.A.6.1.42	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.43	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.44	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.45	P
		10 GHz ~ 15 GHz	Fig.A.6.1.46	P
		15 GHz ~ 20 GHz	Fig.A.6.1.47	P
		20 GHz ~ 26 GHz	Fig.A.6.1.48	P

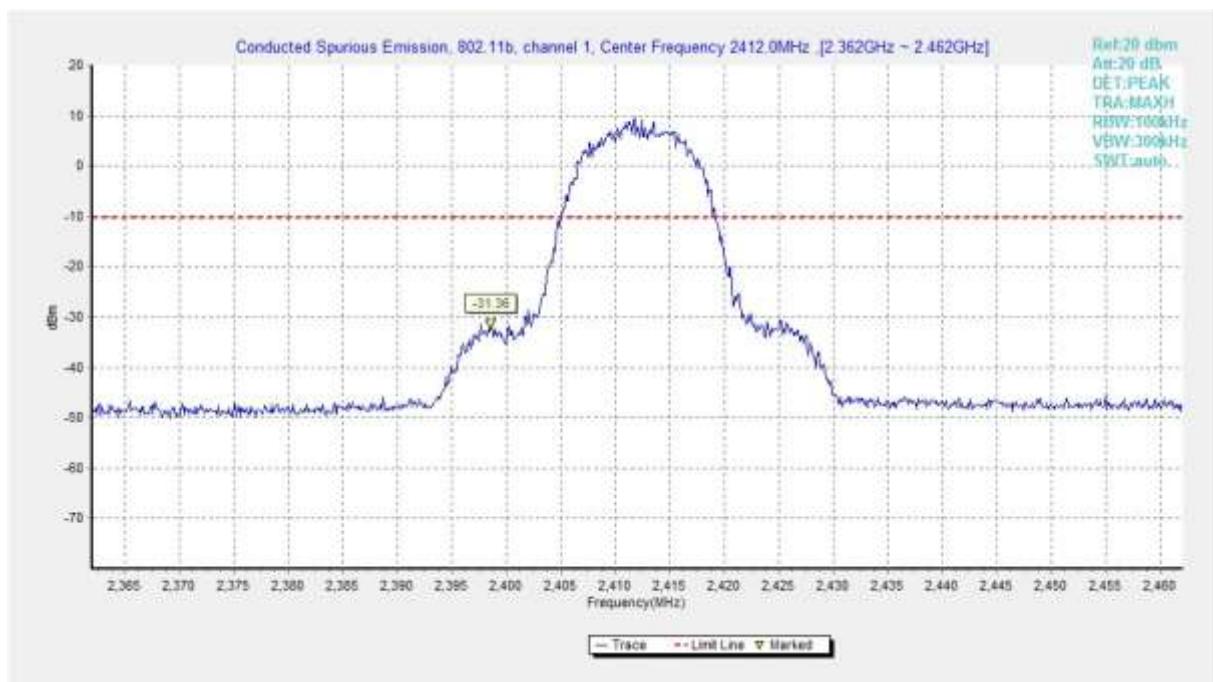
**802.11n-HT20 mode**

<b>MODE</b>	<b>Channel</b>	<b>Frequency Range</b>	<b>Test Results</b>	<b>Conclusion</b>
802.11n (HT20)	1	2.412 GHz	Fig.A.6.1.49	P
		30 MHz ~ 1 GHz	Fig.A.6.1.50	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.51	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.52	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.53	P
		10 GHz ~ 15 GHz	Fig.A.6.1.54	P
		15 GHz ~ 20 GHz	Fig.A.6.1.55	P
		20 GHz ~ 26 GHz	Fig.A.6.1.56	P
	6	2.437 GHz	Fig.A.6.1.57	P
		30 MHz ~ 1 GHz	Fig.A.6.1.58	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.59	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.60	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.61	P
		10 GHz ~ 15 GHz	Fig.A.6.1.62	P
		15 GHz ~ 20 GHz	Fig.A.6.1.63	P
		20 GHz ~ 26 GHz	Fig.A.6.1.64	P
	11	2.462 GHz	Fig.A.6.1.65	P
		30 MHz ~ 1 GHz	Fig.A.6.1.66	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.67	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.68	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.69	P
		10 GHz ~ 15 GHz	Fig.A.6.1.70	P
		15 GHz ~ 20 GHz	Fig.A.6.1.71	P
		20 GHz ~ 26 GHz	Fig.A.6.1.72	P

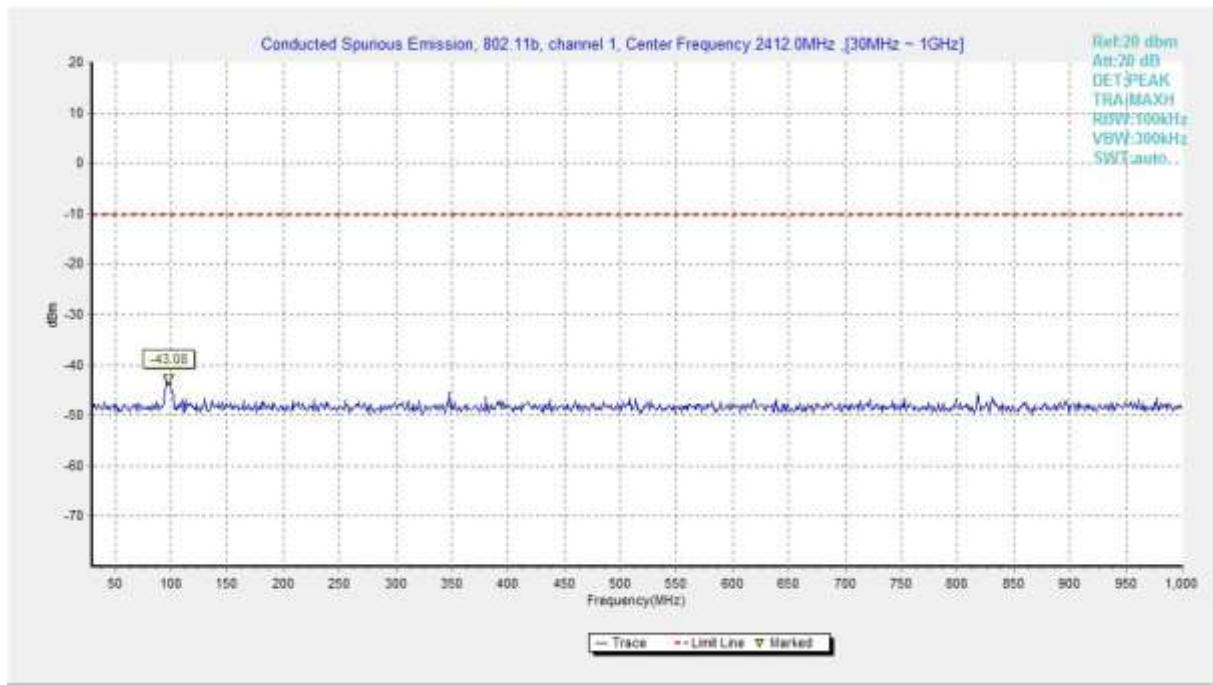
**802.11n-HT40 mode**

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	3	2.422 GHz	Fig.A.6.1.73	P
		30 MHz ~ 1 GHz	Fig.A.6.1.74	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.75	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.76	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.77	P
		10 GHz ~ 15 GHz	Fig.A.6.1.78	P
		15 GHz ~ 20 GHz	Fig.A.6.1.79	P
		20 GHz ~ 26 GHz	Fig.A.6.1.80	P
	6	2.437 GHz	Fig.A.6.1.81	P
		30 MHz ~ 1 GHz	Fig.A.6.1.82	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.83	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.84	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.85	P
		10 GHz ~ 15 GHz	Fig.A.6.1.86	P
		15 GHz ~ 20 GHz	Fig.A.6.1.87	P
		20 GHz ~ 26 GHz	Fig.A.6.1.88	P
	9	2.452 GHz	Fig.A.6.1.89	P
		30 MHz ~ 1 GHz	Fig.A.6.1.90	P
		1 GHz ~ 2.5 GHz	Fig.A.6.1.91	P
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.92	P
		7.5 GHz ~ 10 GHz	Fig.A.6.1.93	P
		10 GHz ~ 15 GHz	Fig.A.6.1.94	P
		15 GHz ~ 20 GHz	Fig.A.6.1.95	P
		20 GHz ~ 26 GHz	Fig.A.6.1.96	P

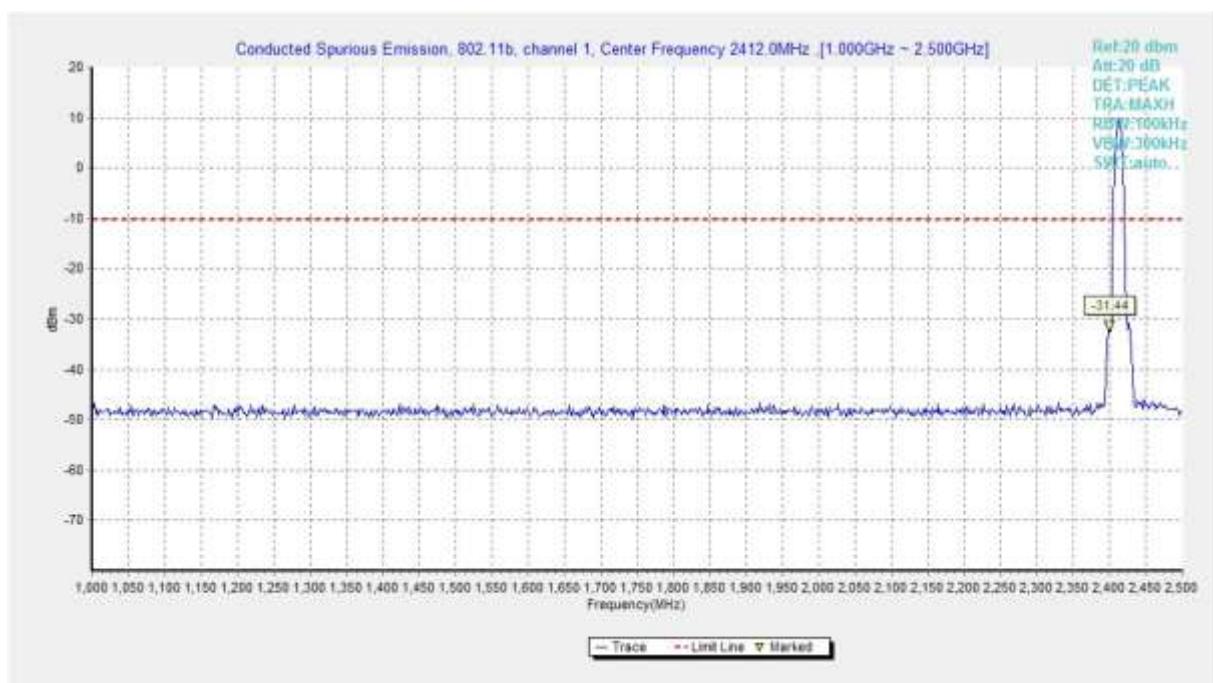
**Conclusion: Pass**
**Test graphs as below:**



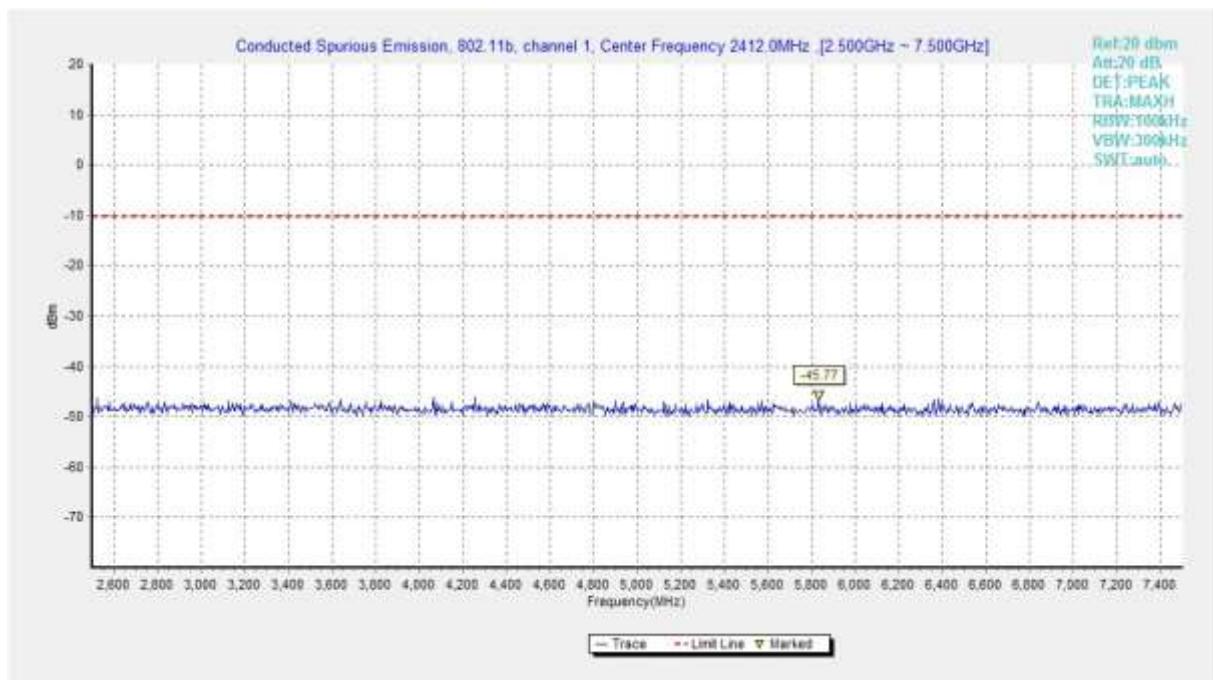
**Fig.A.6.1.1 Transmitter Spurious Emission - Conducted (802.11b, Ch1, Center Frequency)**



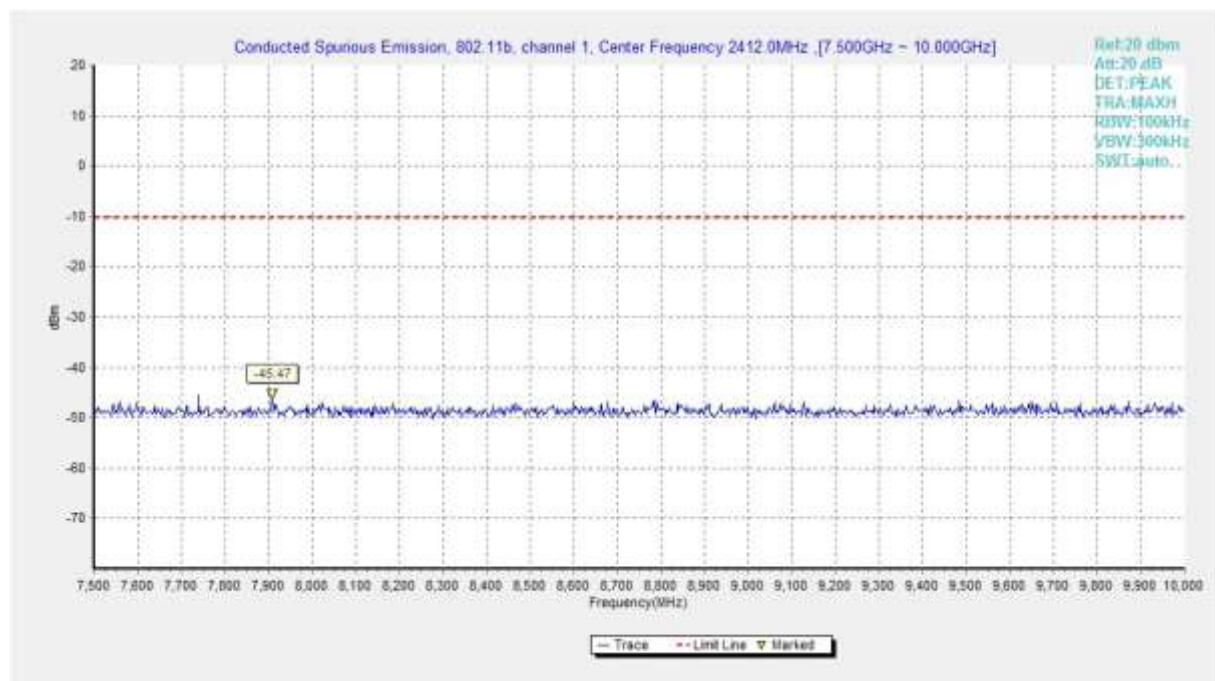
**Fig.A.6.1.2 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 30 MHz-1 GHz)**



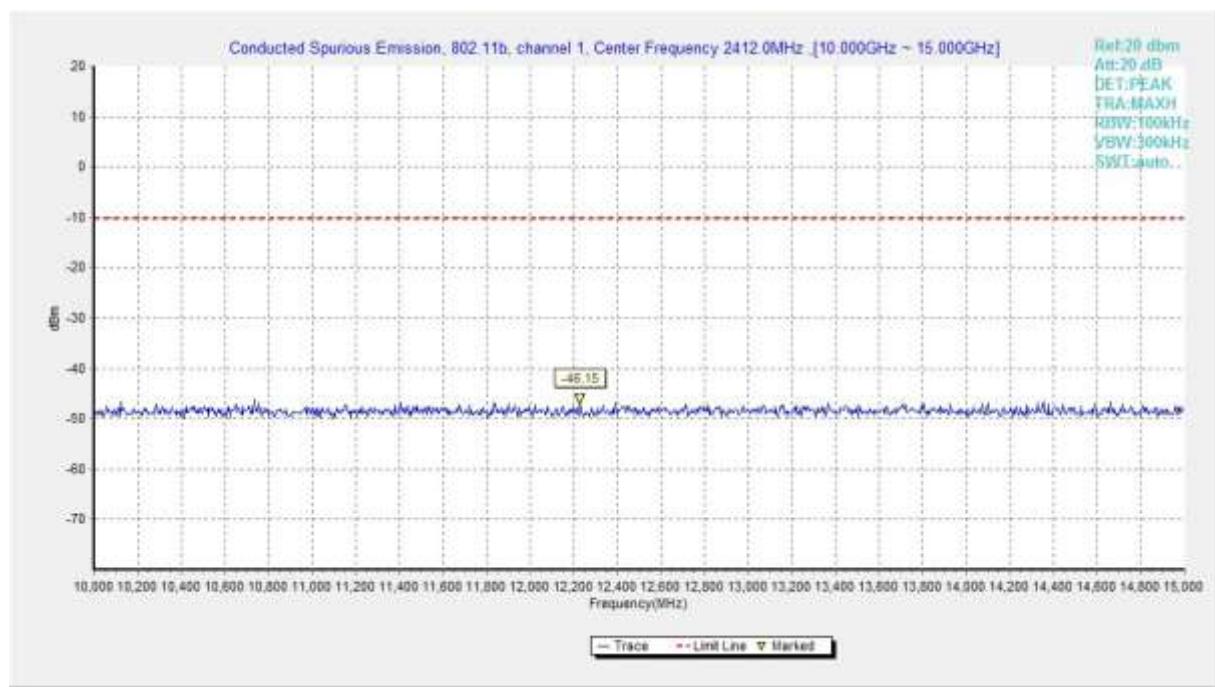
**Fig.A.6.1.3 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 1 GHz-2.5 GHz)**



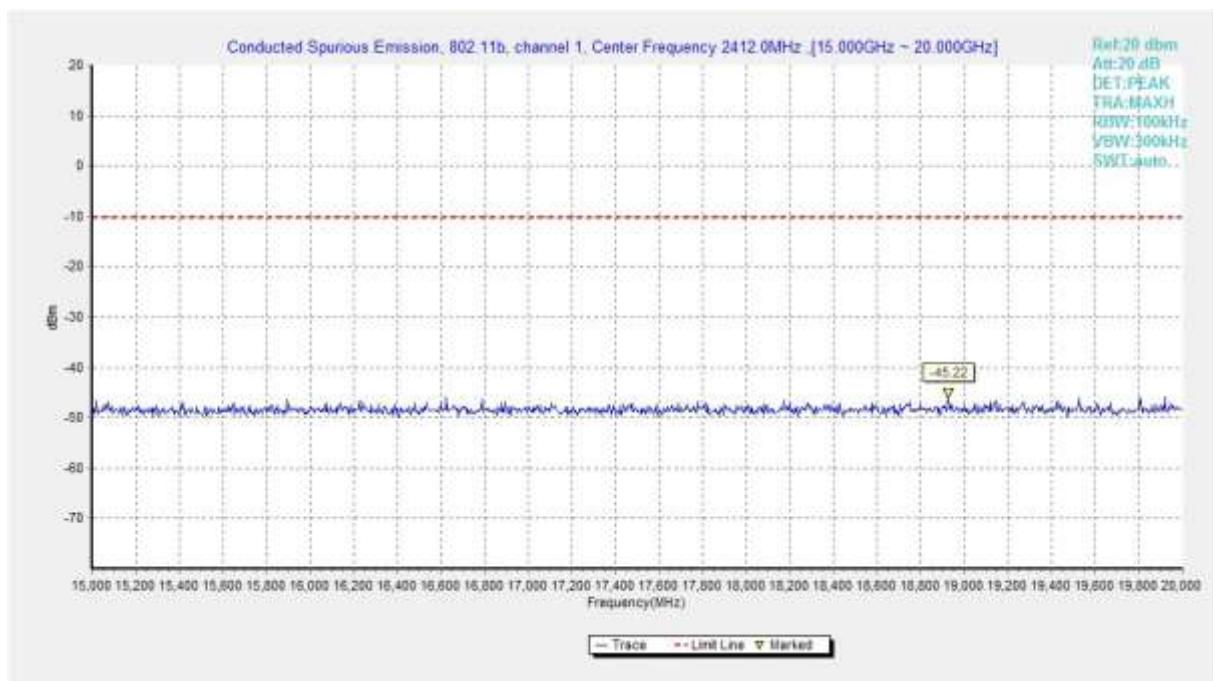
**Fig.A.6.1.4 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 2.5 GHz-7.5 GHz)**



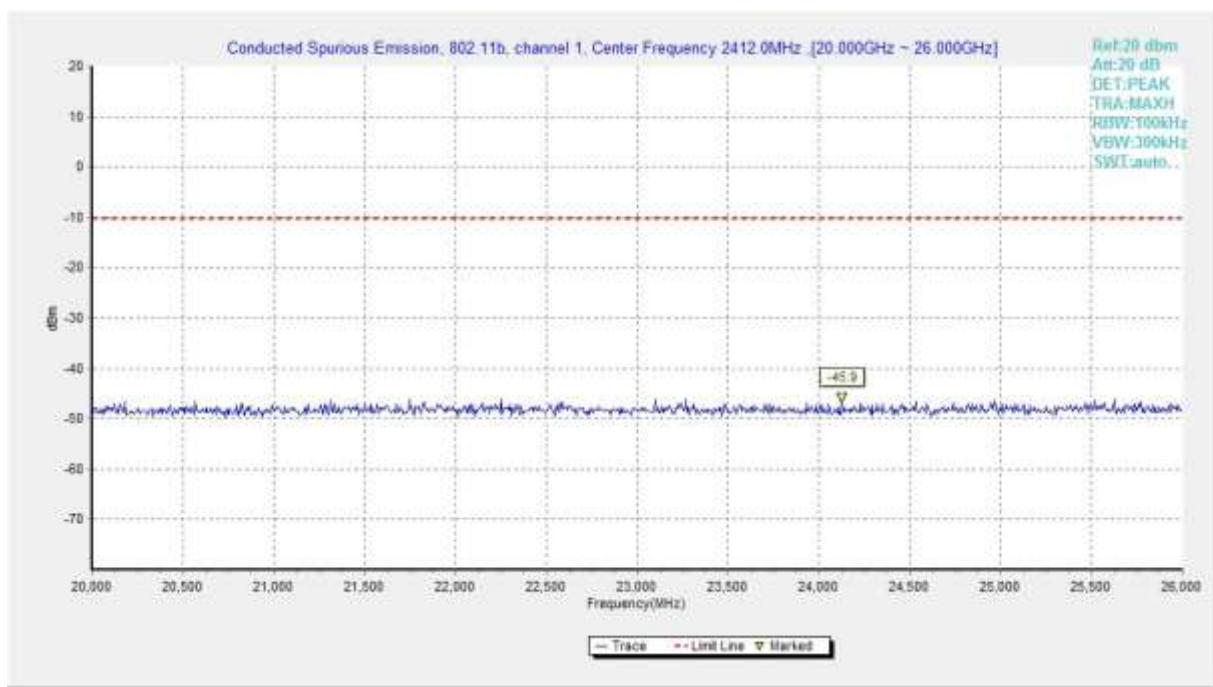
**Fig.A.6.1.5 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 7.5 GHz-10 GHz)**



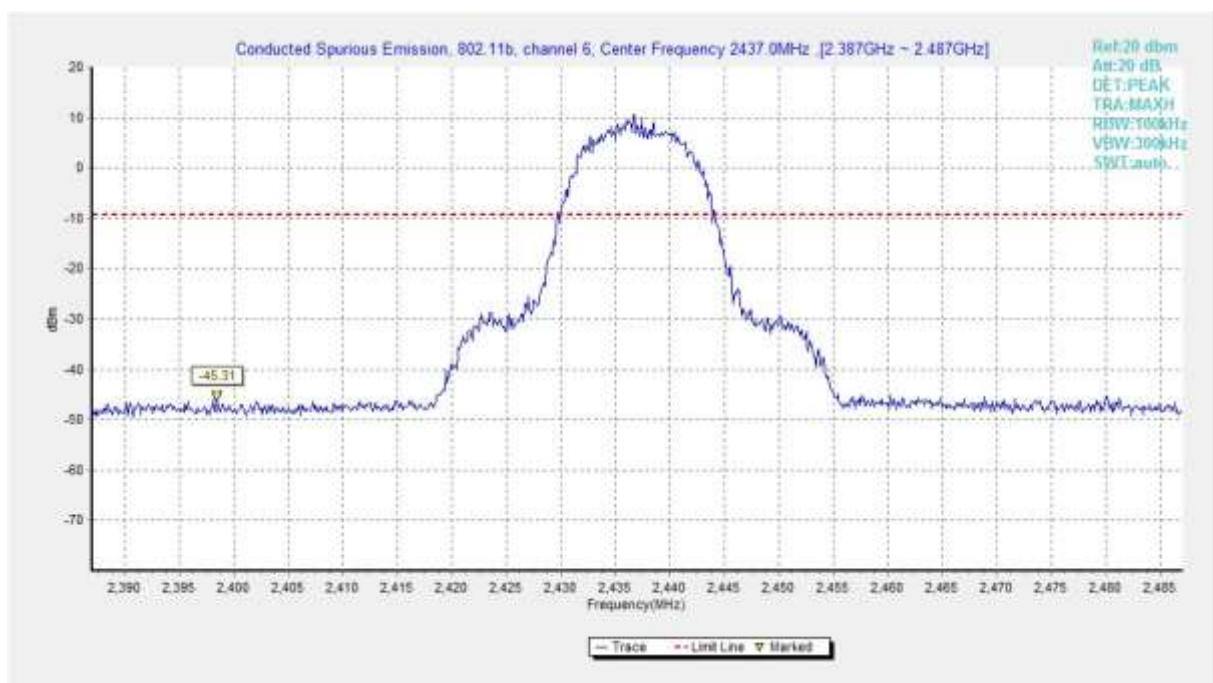
**Fig.A.6.1.6 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 10 GHz-15 GHz)**



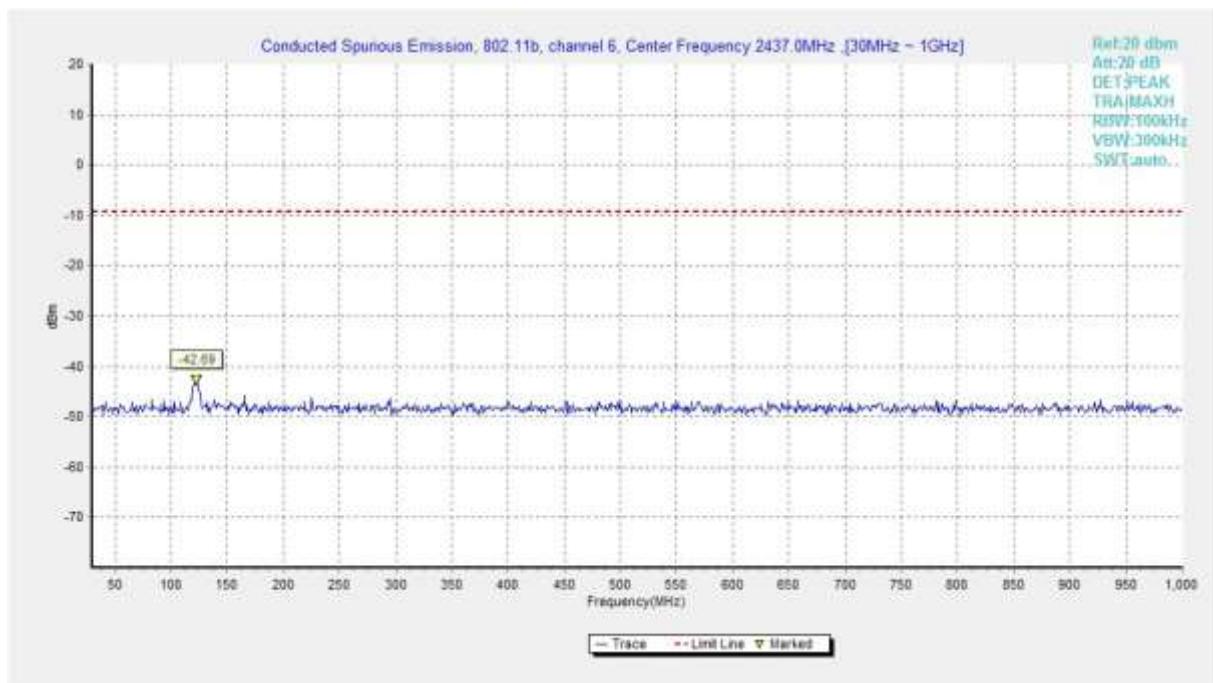
**Fig.A.6.1.7 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 15 GHz-20 GHz)**



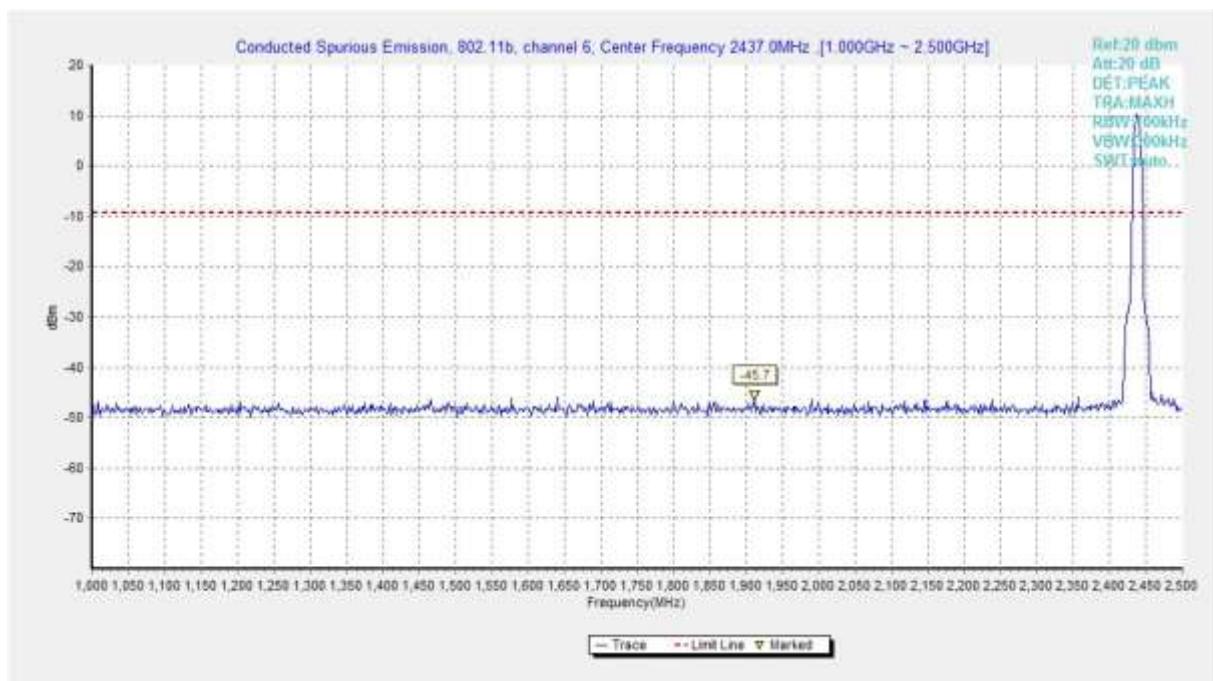
**Fig.A.6.1.8 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 20 GHz-26 GHz)**



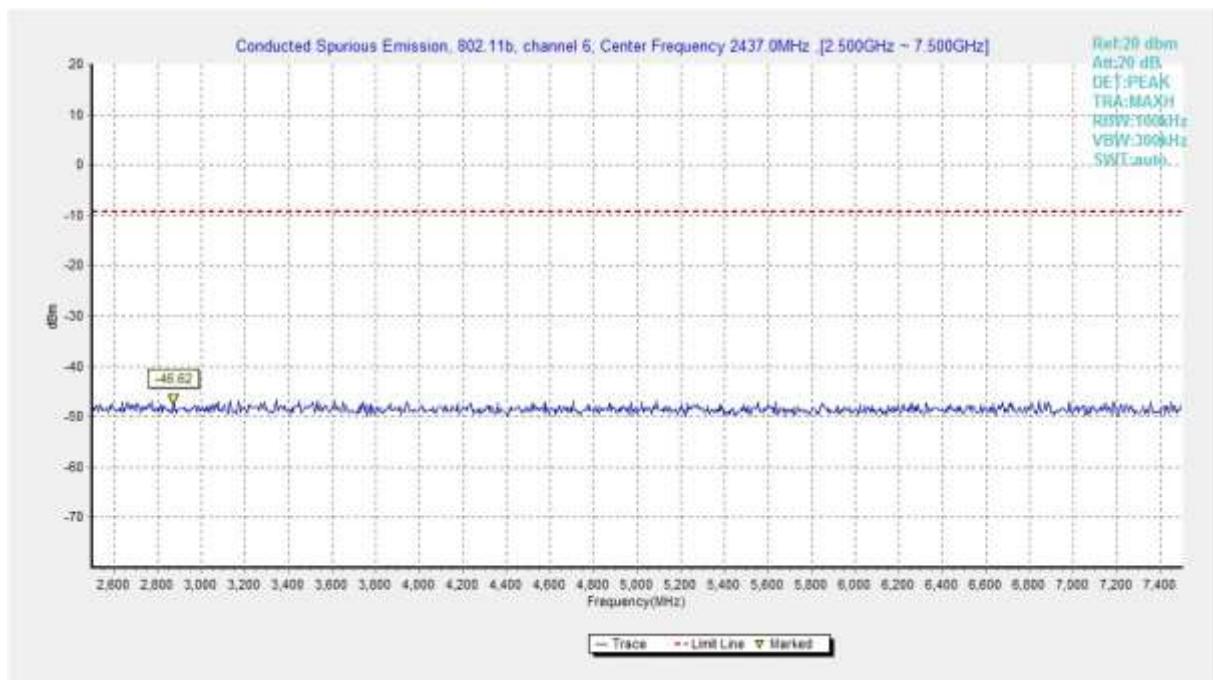
**Fig.A.6.1.9 Transmitter Spurious Emission - Conducted (802.11b, Ch6, Center Frequency)**



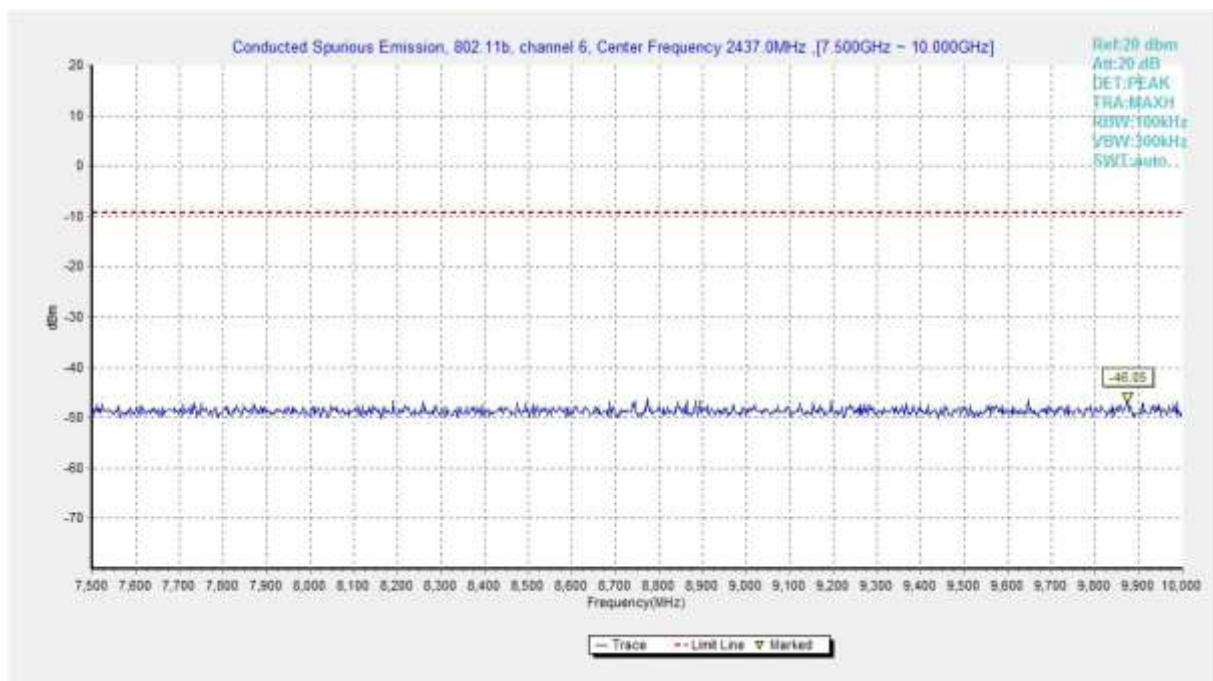
**Fig.A.6.1.10 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 30 MHz-1 GHz)**



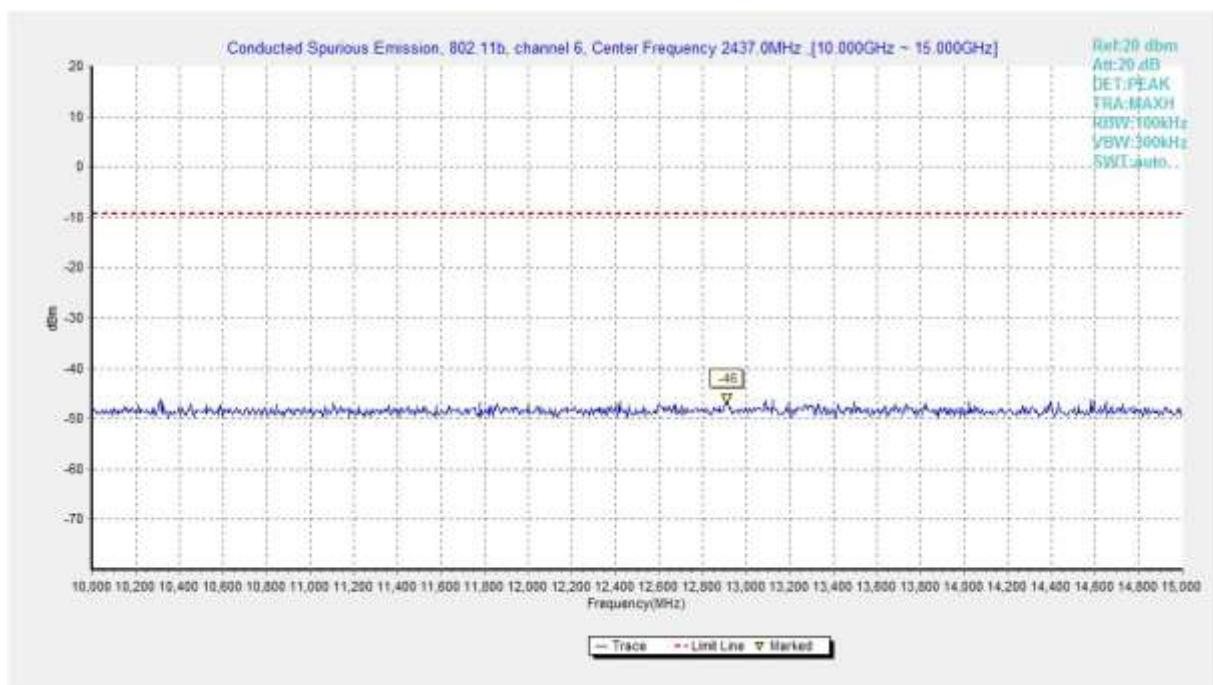
**Fig.A.6.1.11 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 1 GHz-2.5 GHz)**



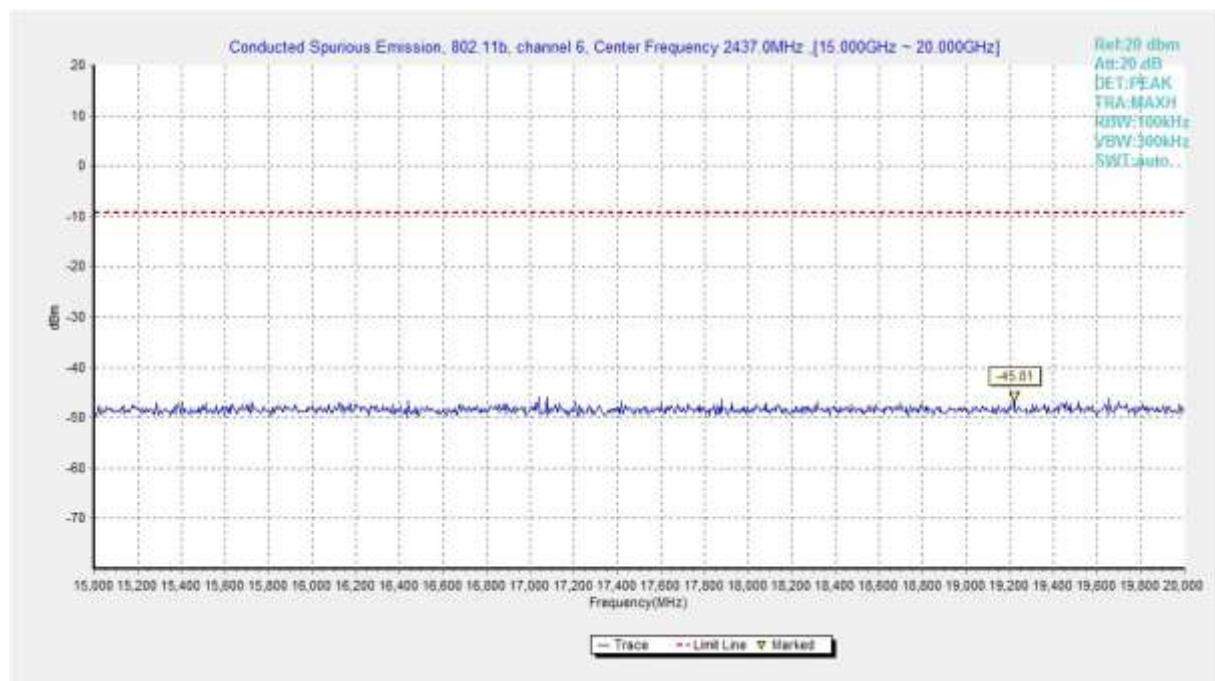
**Fig.A.6.1.12 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 2.5 GHz-7.5 GHz)**



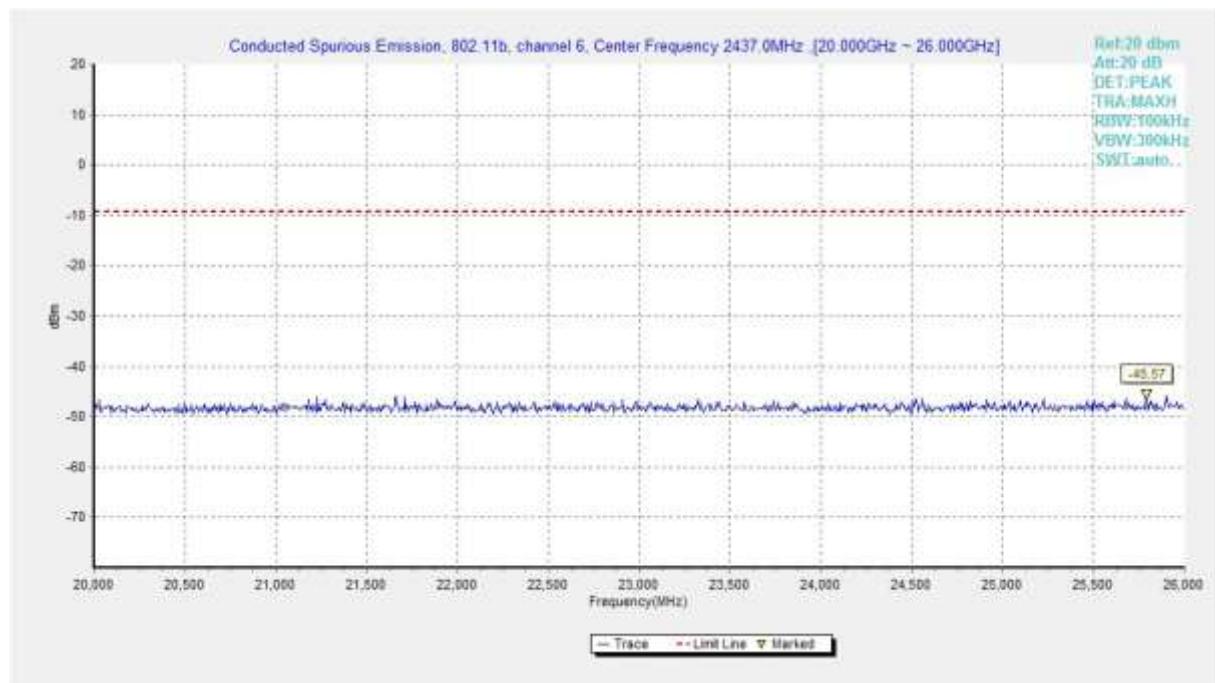
**Fig.A.6.1.13 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 7.5 GHz-10 GHz)**



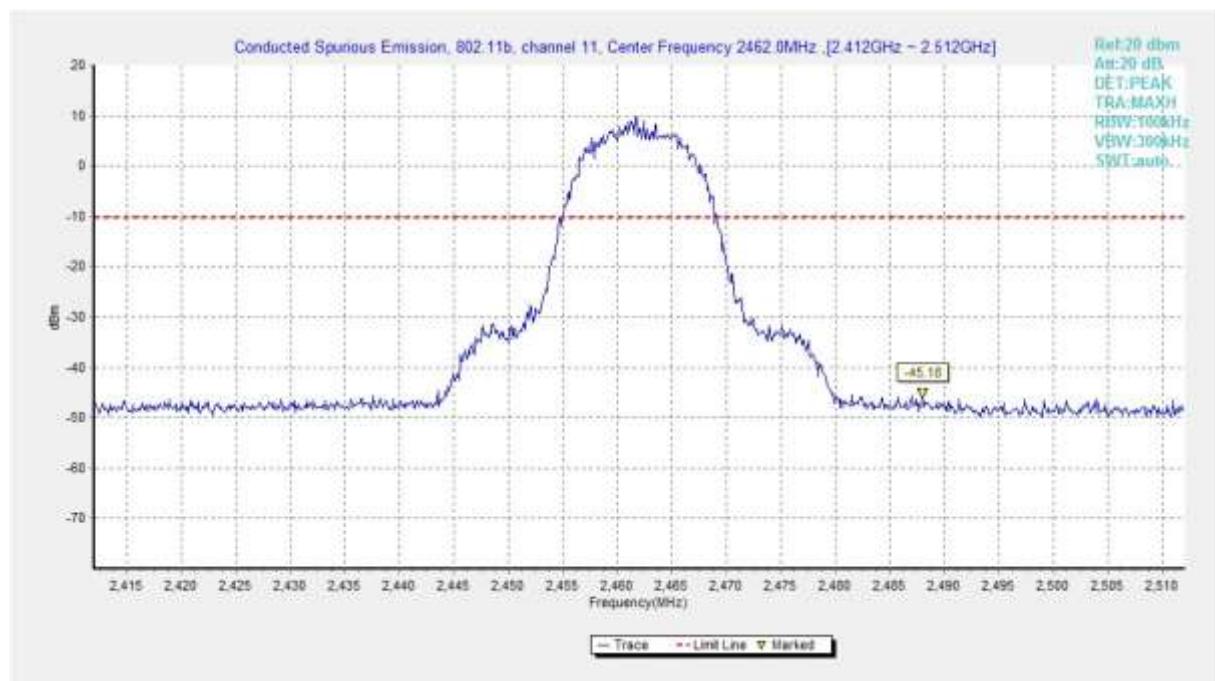
**Fig.A.6.1.14 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 10 GHz-15 GHz)**



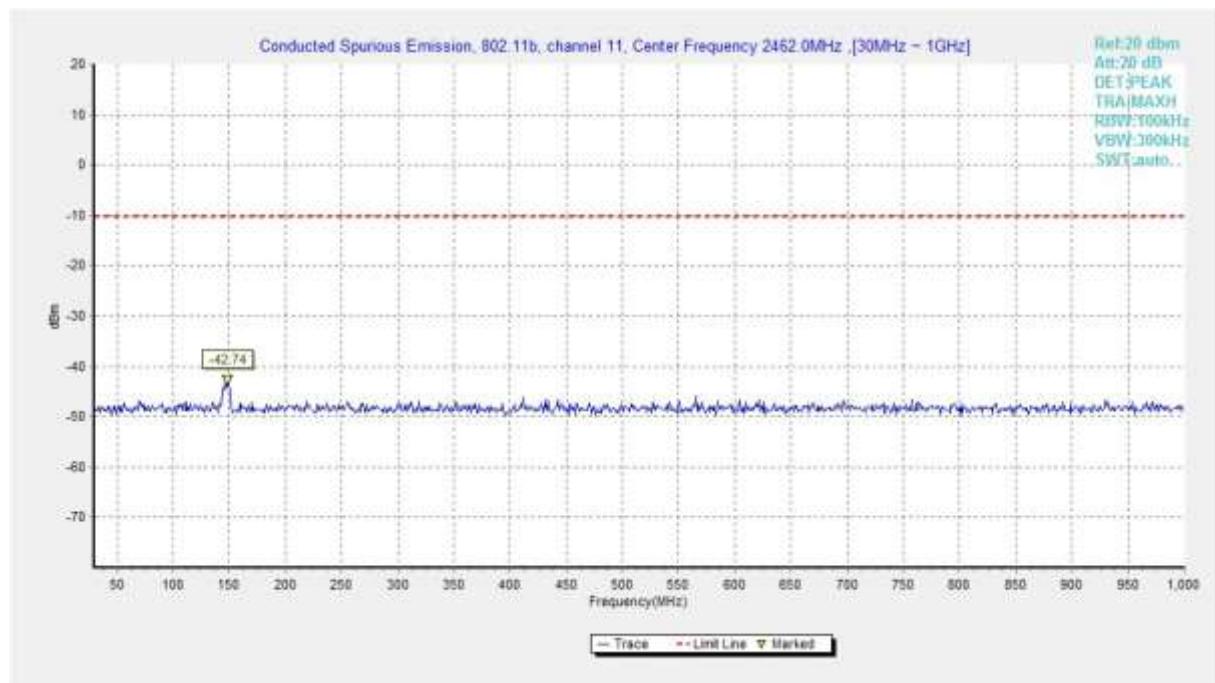
**Fig.A.6.1.15 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 15 GHz-20 GHz)**



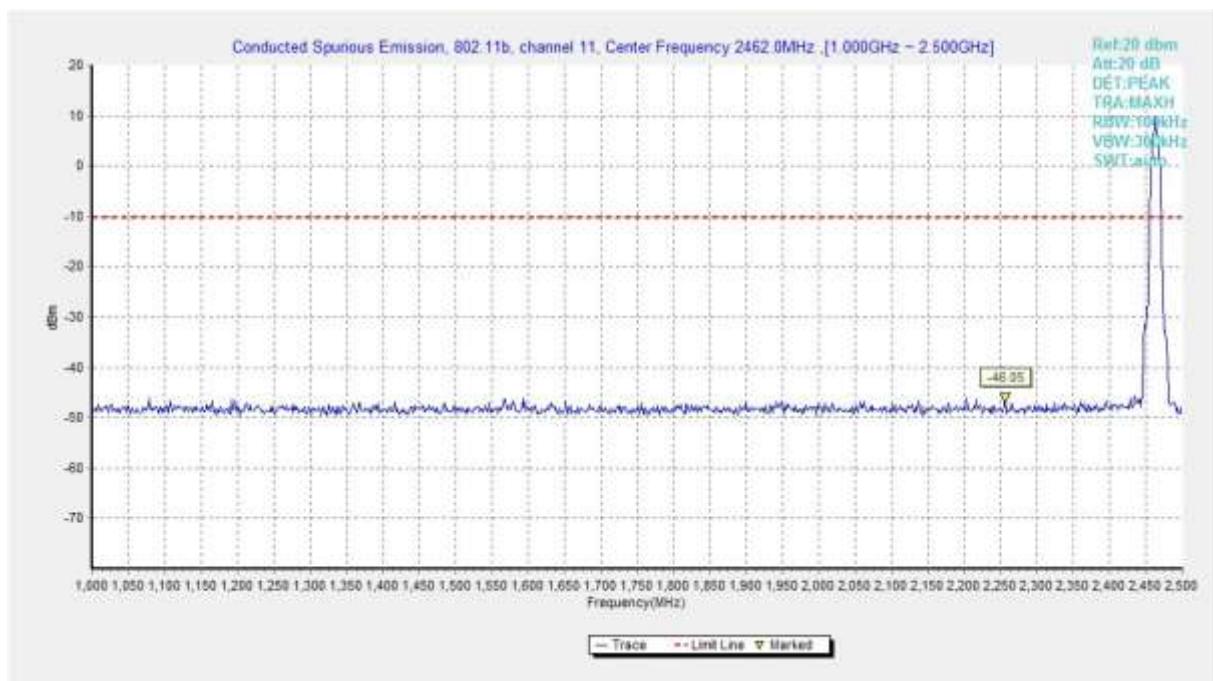
**Fig.A.6.1.16 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 20 GHz-26 GHz)**



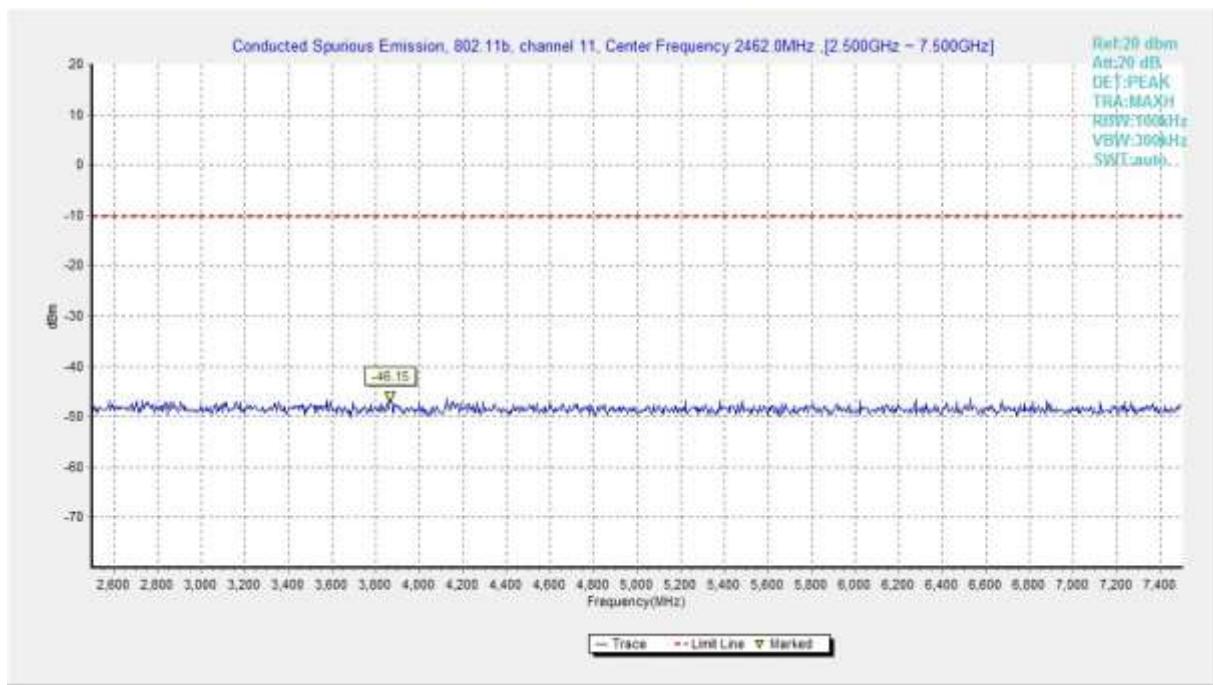
**Fig.A.6.1.17 Transmitter Spurious Emission - Conducted (802.11b, Ch11, Center Frequency)**



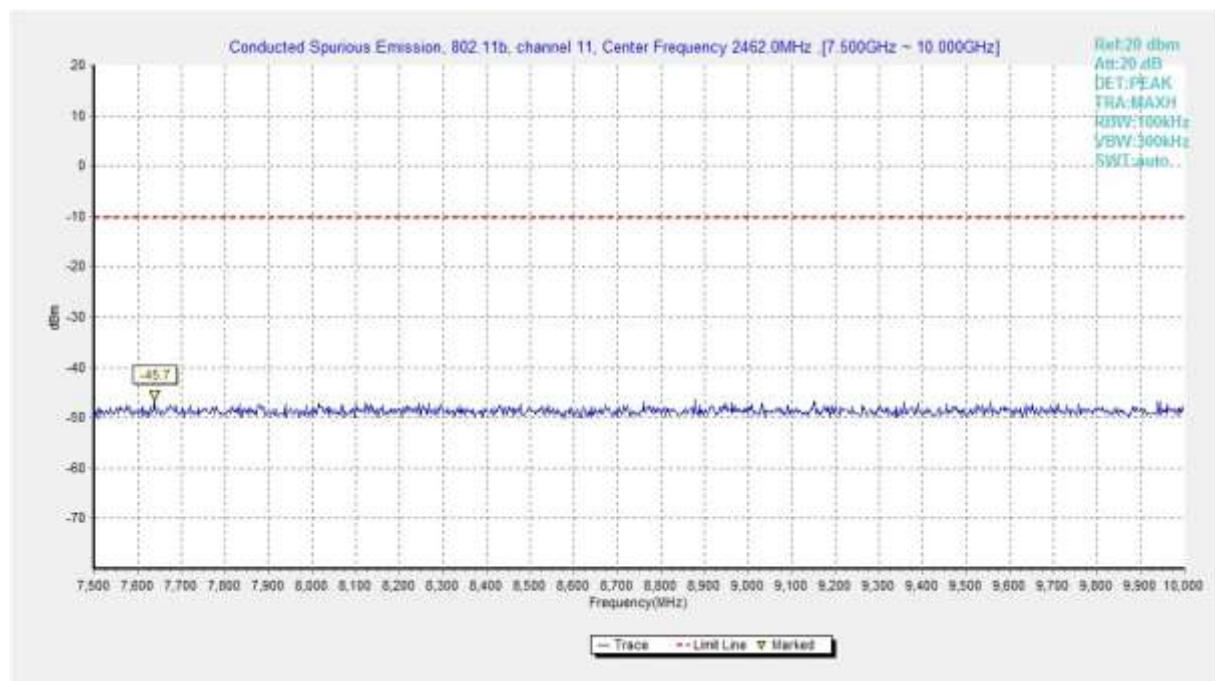
**Fig.A.6.1.18 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 30 MHz-1 GHz)**



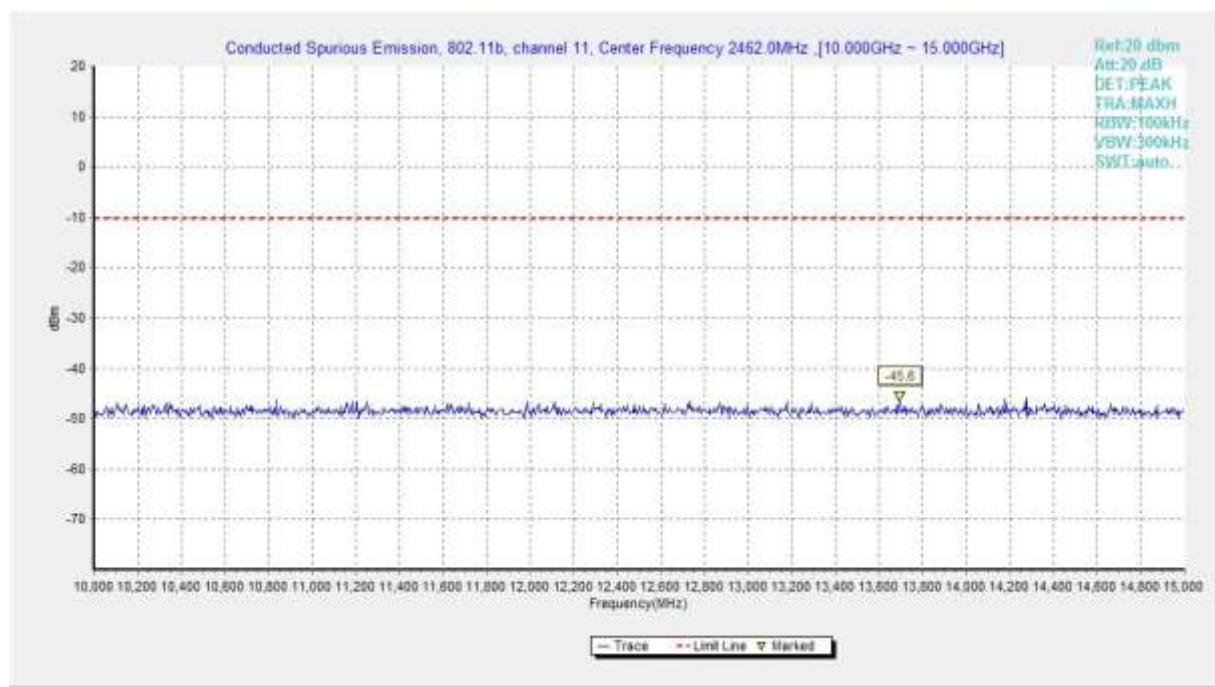
**Fig.A.6.1.19 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 1 GHz-2.5 GHz)**



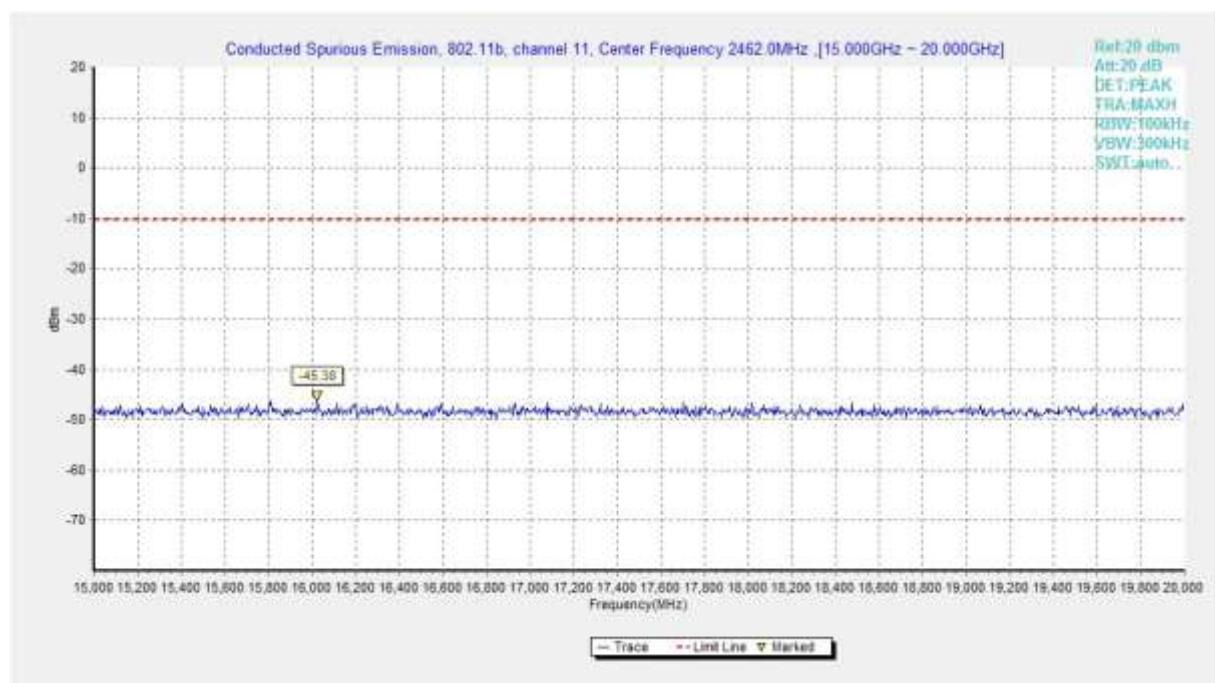
**Fig.A.6.1.20 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 2.5 GHz-7.5 GHz)**



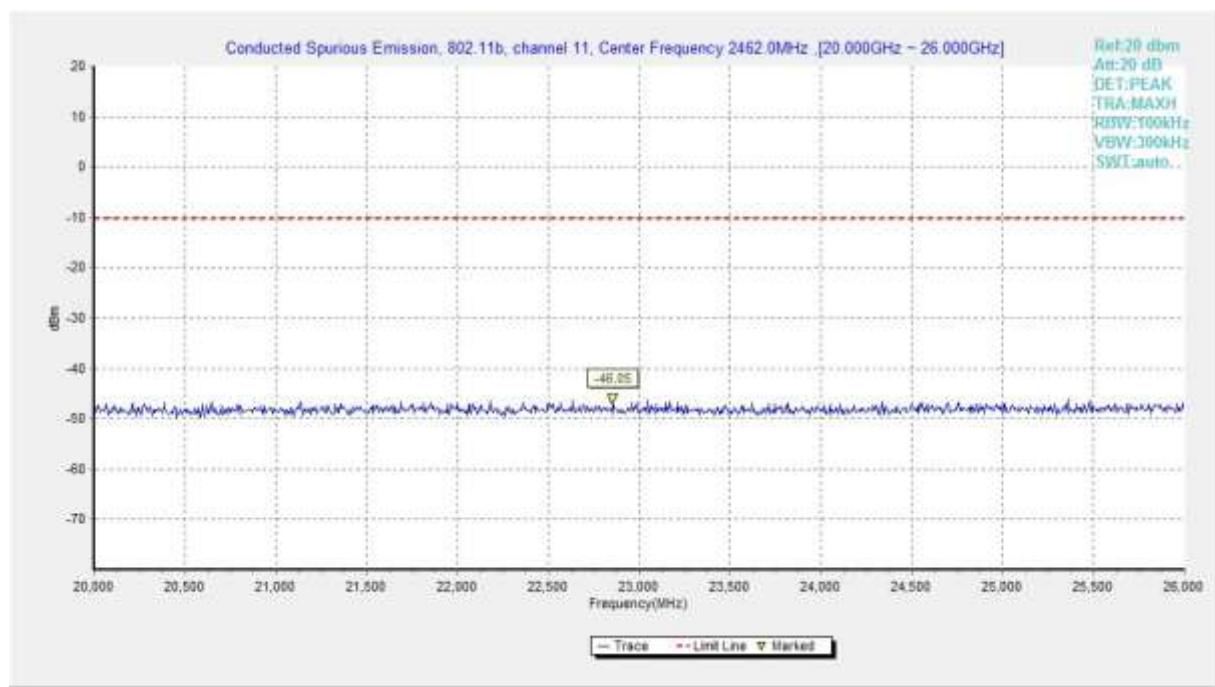
**Fig.A.6.1.21 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 7.5 GHz-10 GHz)**



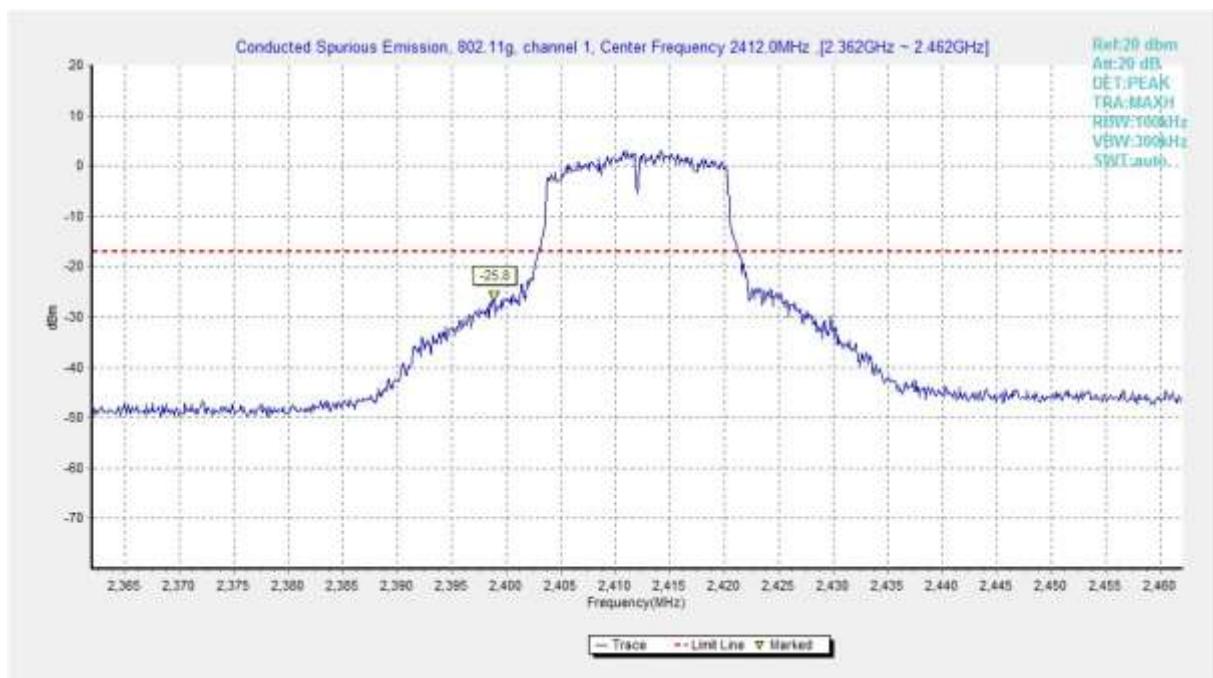
**Fig.A.6.1.22 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 10 GHz-15 GHz)**



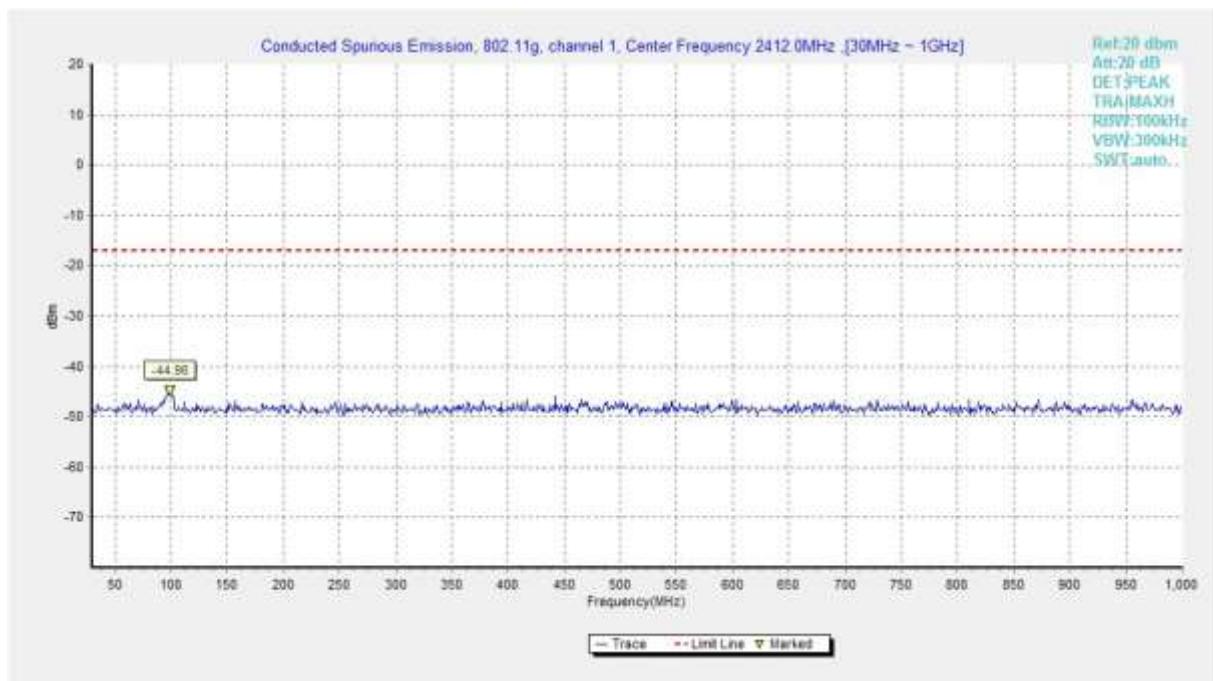
**Fig.A.6.1.23 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 15 GHz-20 GHz)**



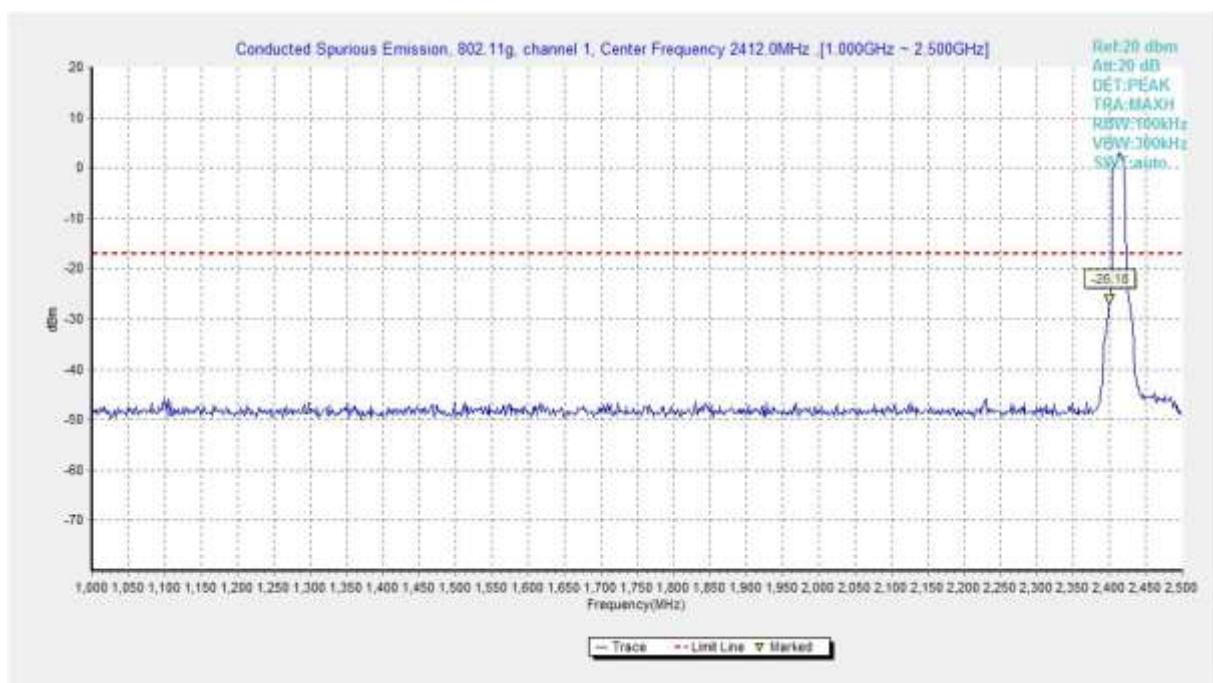
**Fig.A.6.1.24 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 20 GHz-26 GHz)**



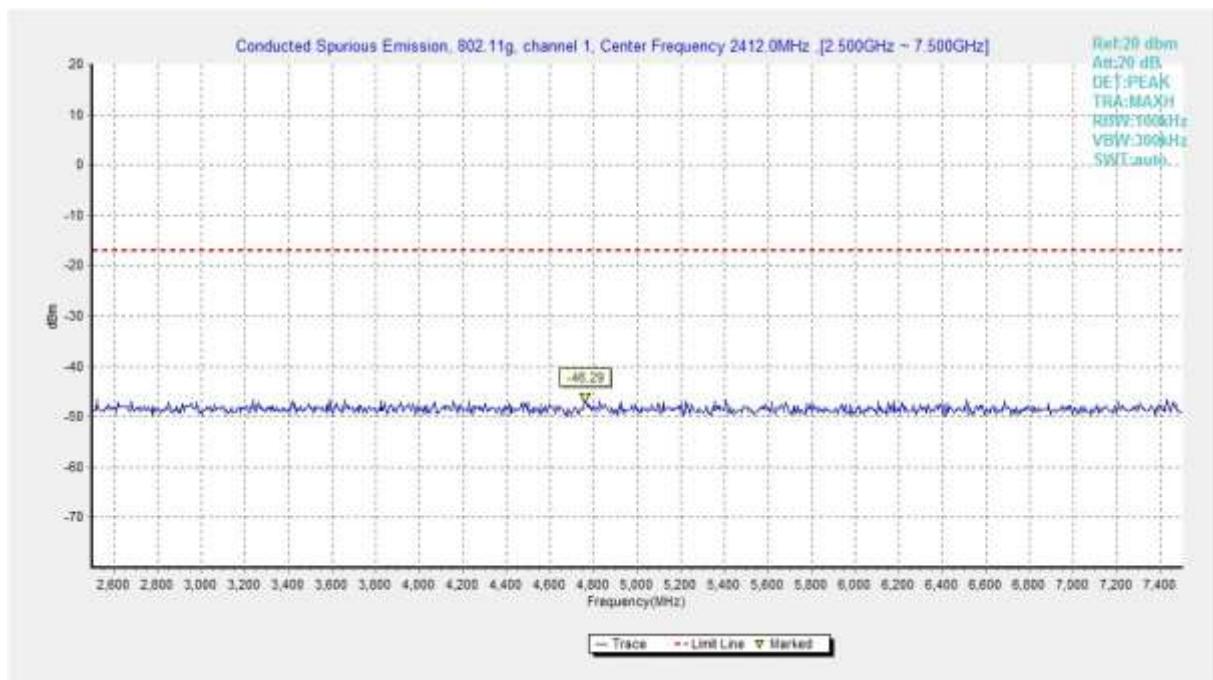
**Fig.A.6.1.25 Transmitter Spurious Emission - Conducted (802.11g, Ch1, Center Frequency)**



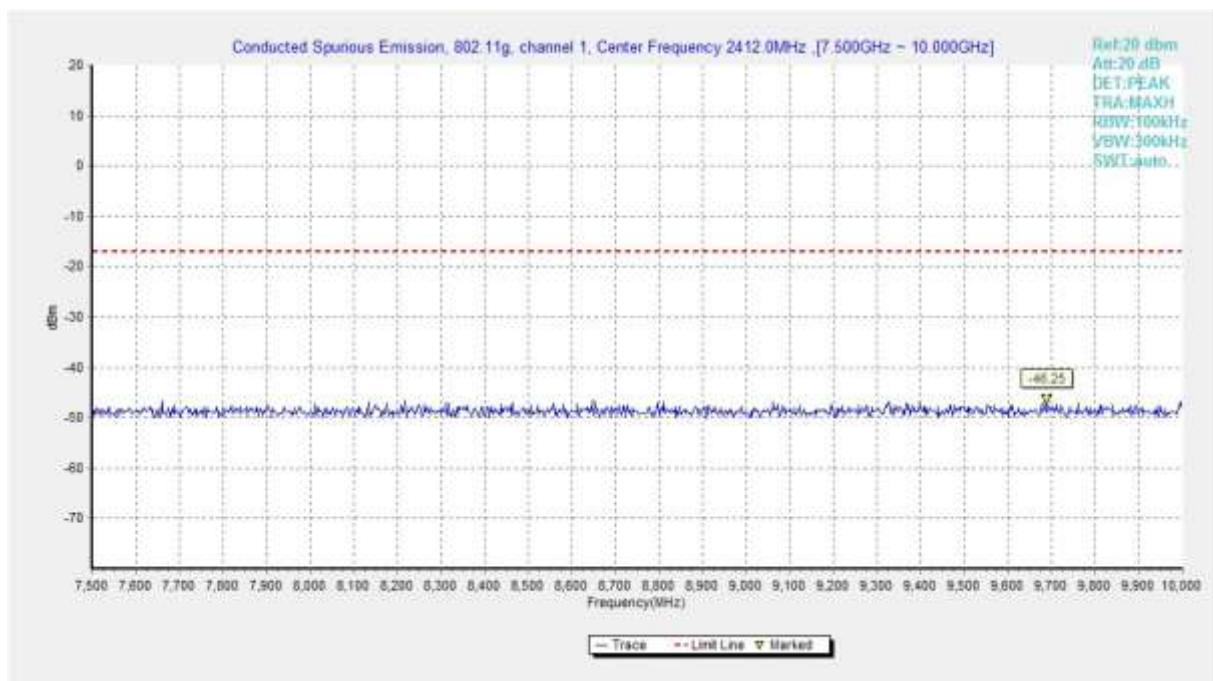
**Fig.A.6.1.26 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 30 MHz-1 GHz)**



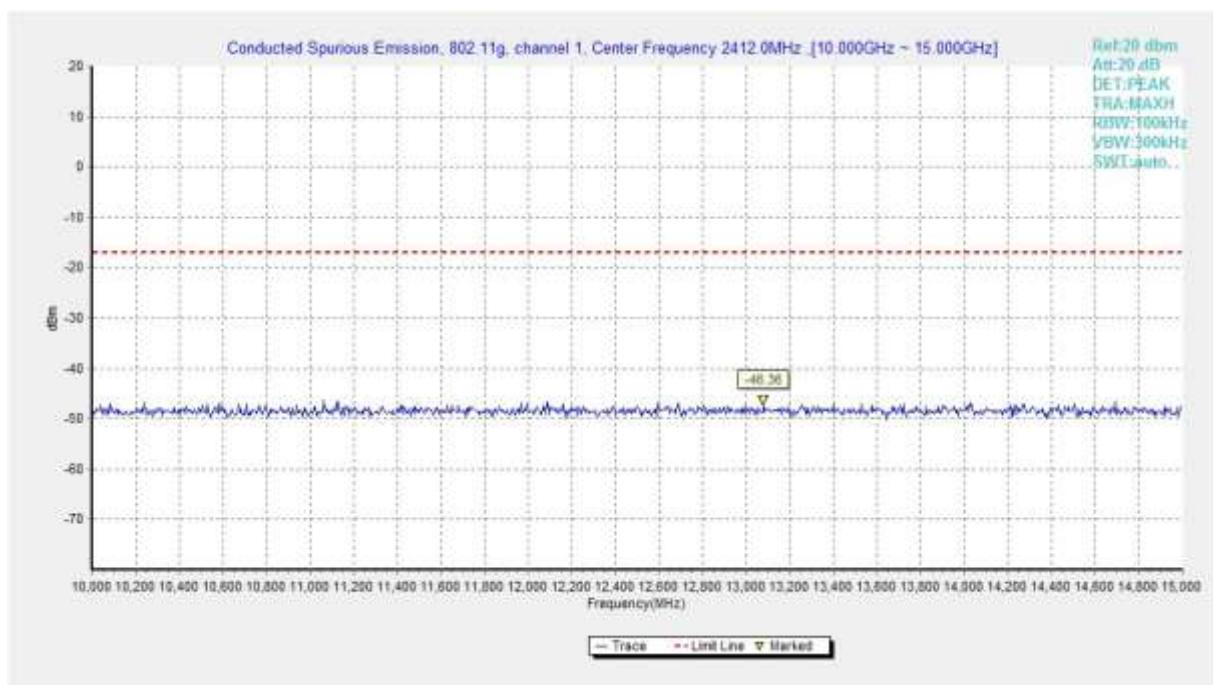
**Fig.A.6.1.27 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 1 GHz-2.5 GHz)**



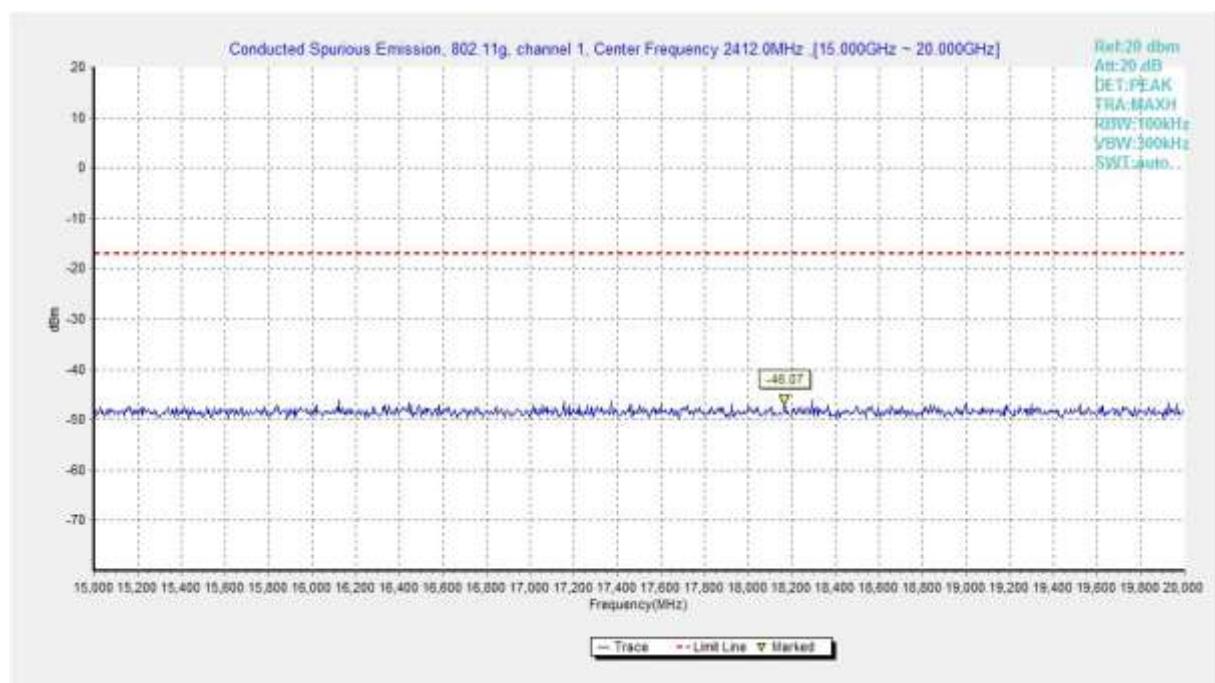
**Fig.A.6.1.28 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 2.5 GHz-7.5 GHz)**



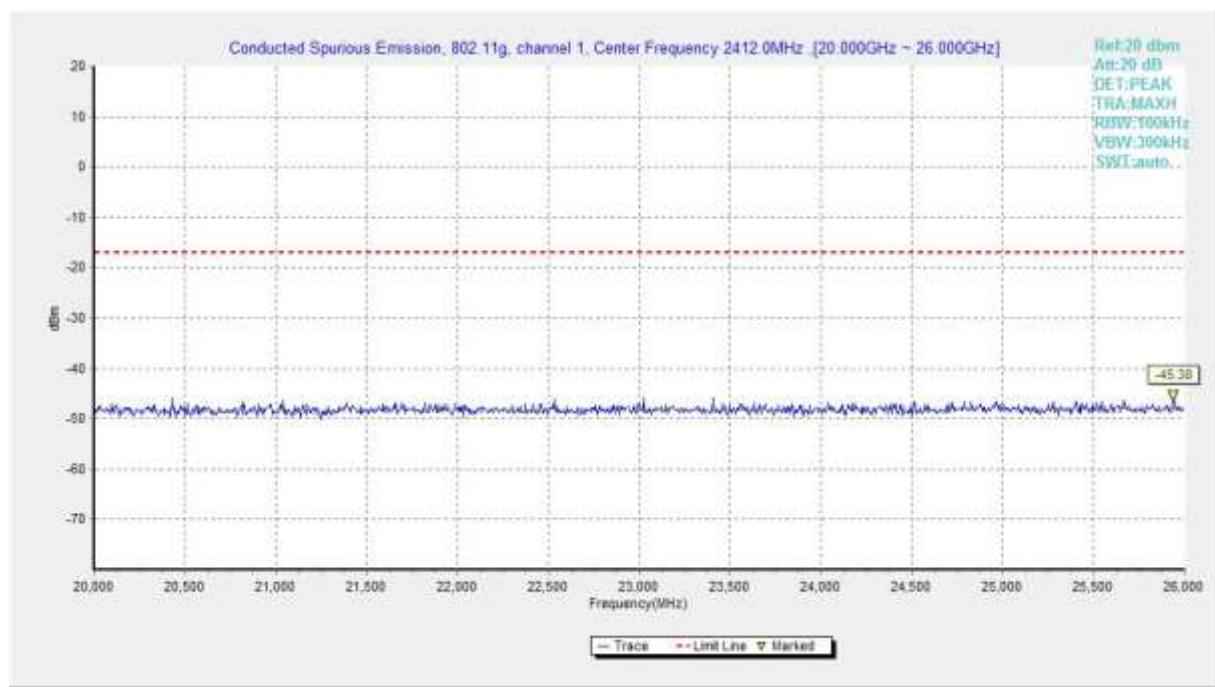
**Fig.A.6.1.29 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 7.5 GHz-10 GHz)**



**Fig.A.6.1.30 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 10 GHz-15 GHz)**



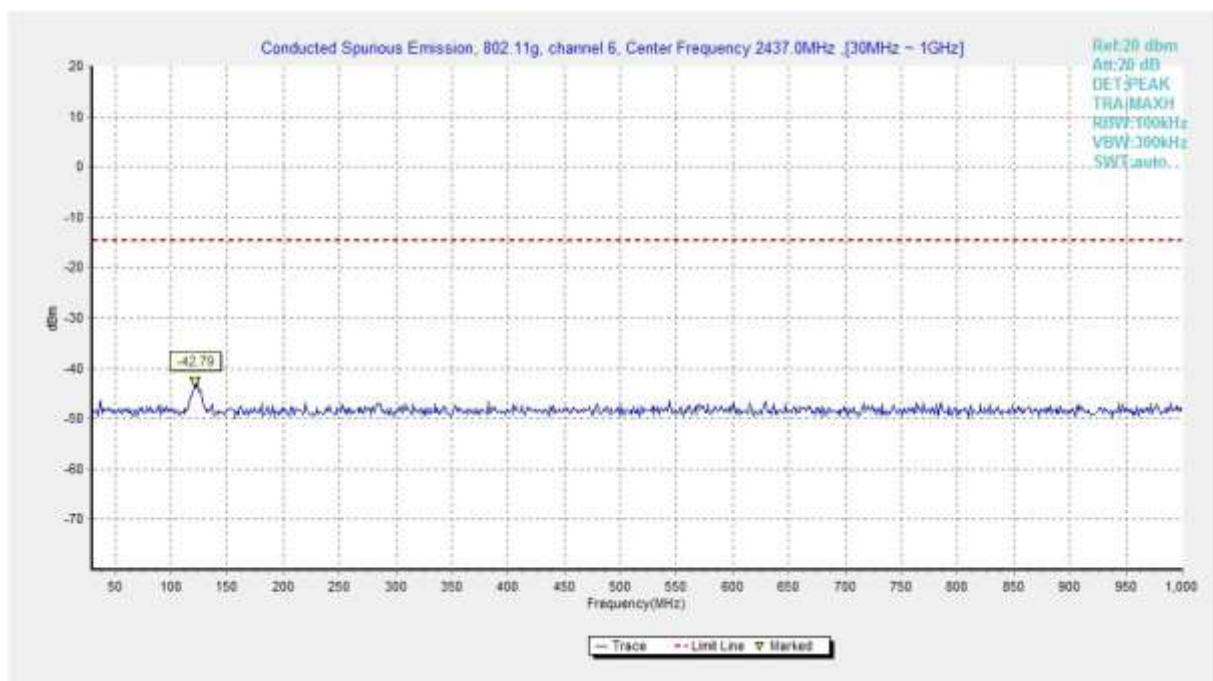
**Fig.A.6.1.31 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 15 GHz-20 GHz)**



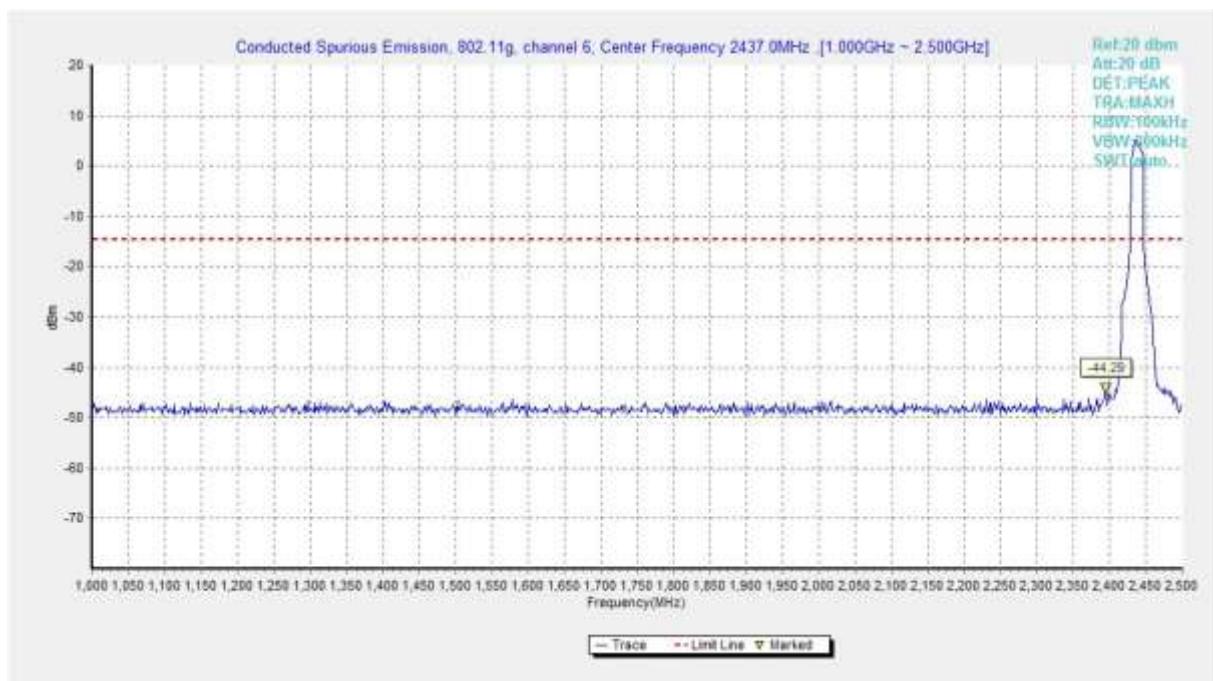
**Fig.A.6.1.32 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 20 GHz-26 GHz)**



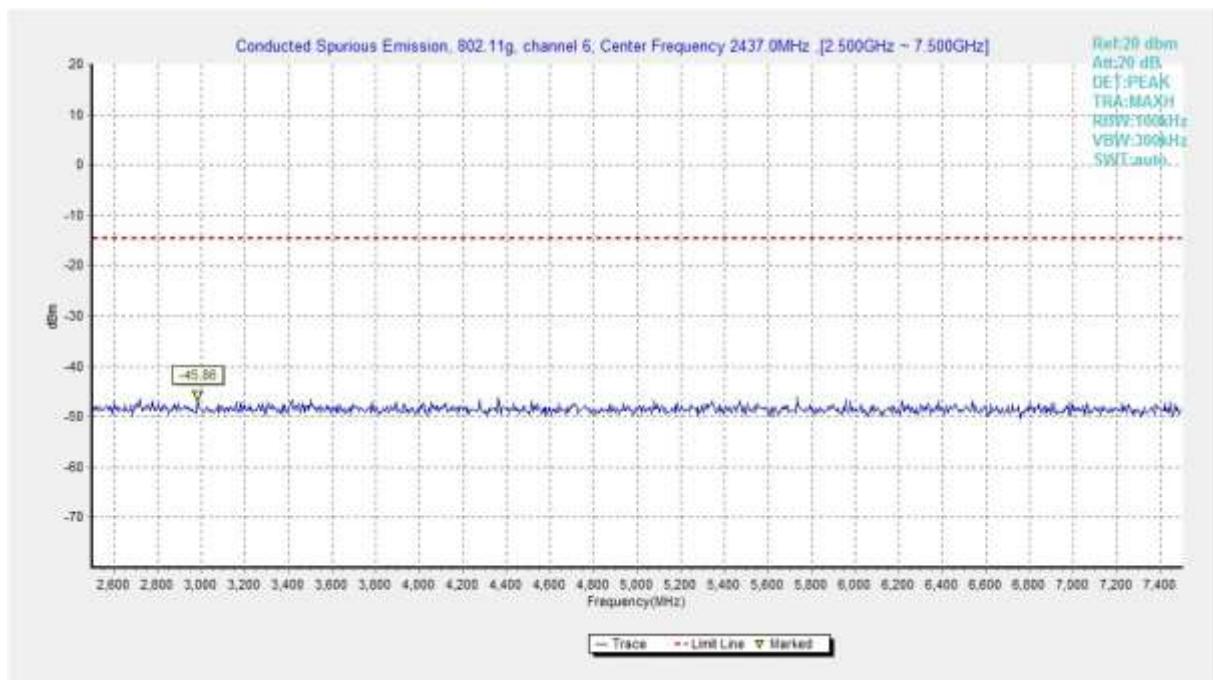
**Fig.A.6.1.33 Transmitter Spurious Emission - Conducted (802.11g, Ch6, Center Frequency)**



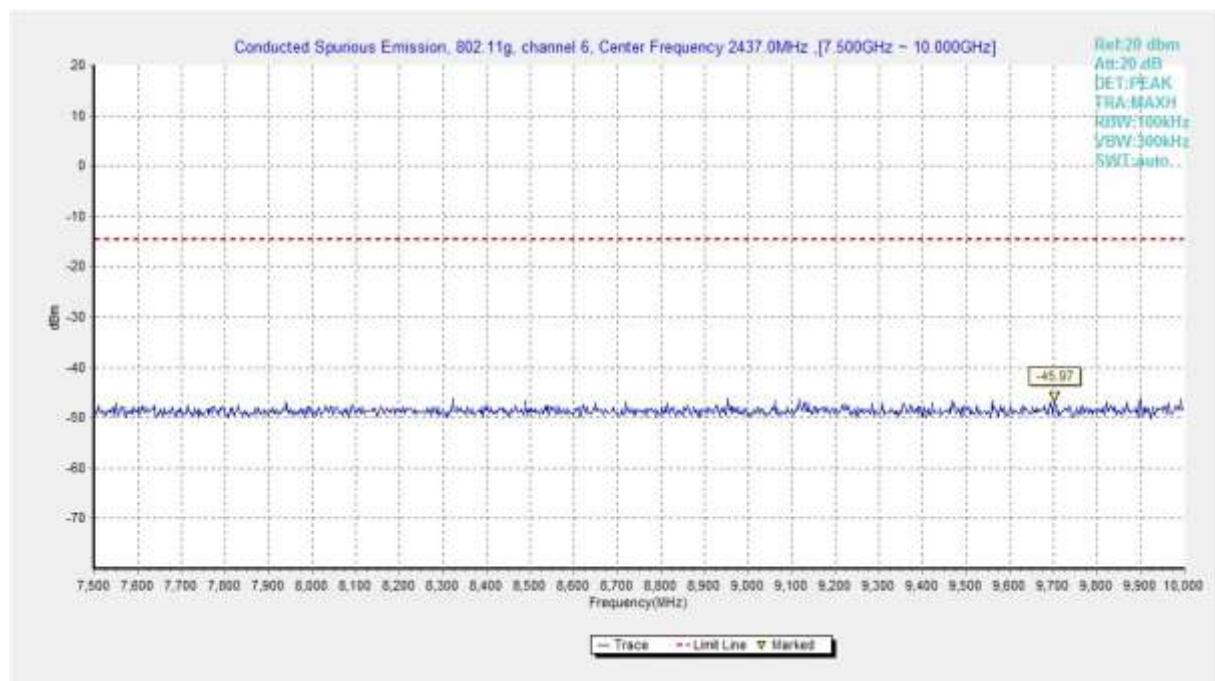
**Fig.A.6.1.34 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 30 MHz-1 GHz)**



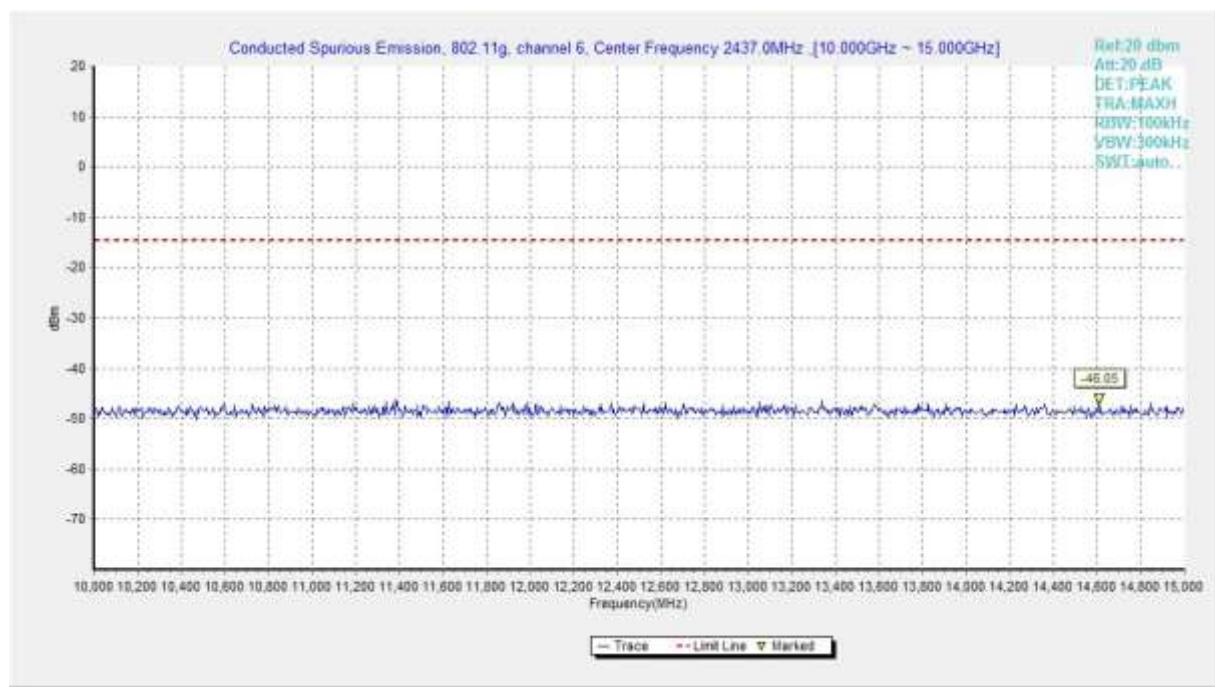
**Fig.A.6.1.35 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 1 GHz-2.5 GHz)**



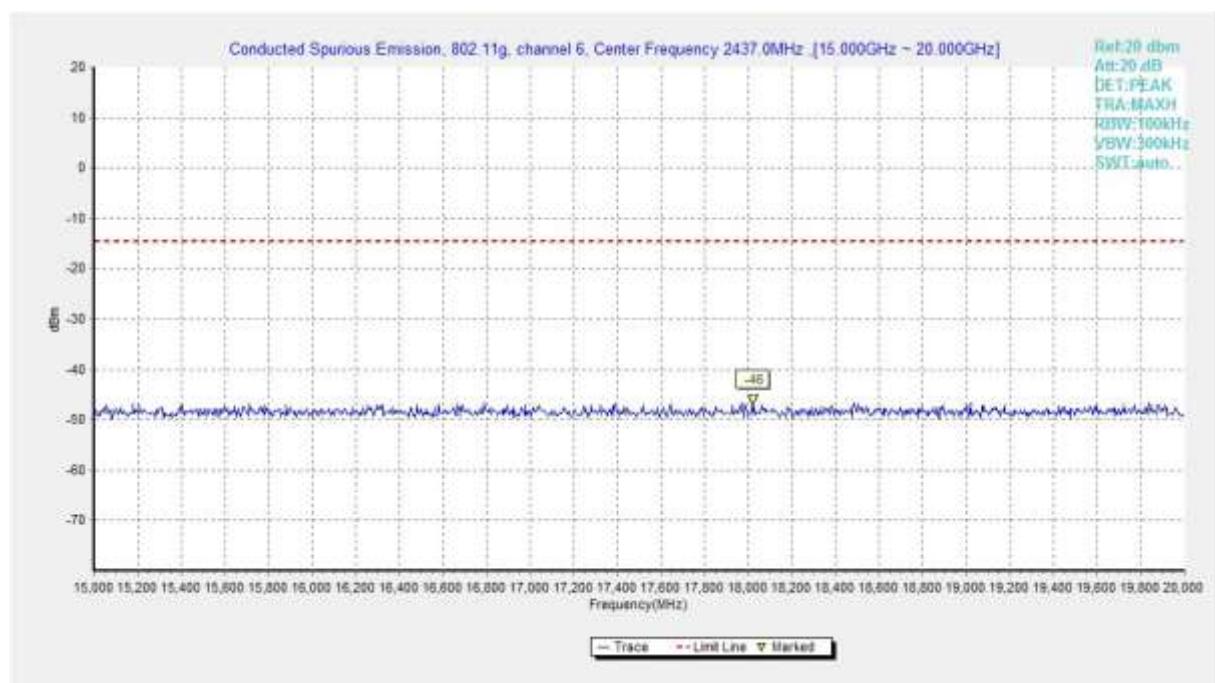
**Fig.A.6.1.36 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 2.5 GHz-7.5 GHz)**



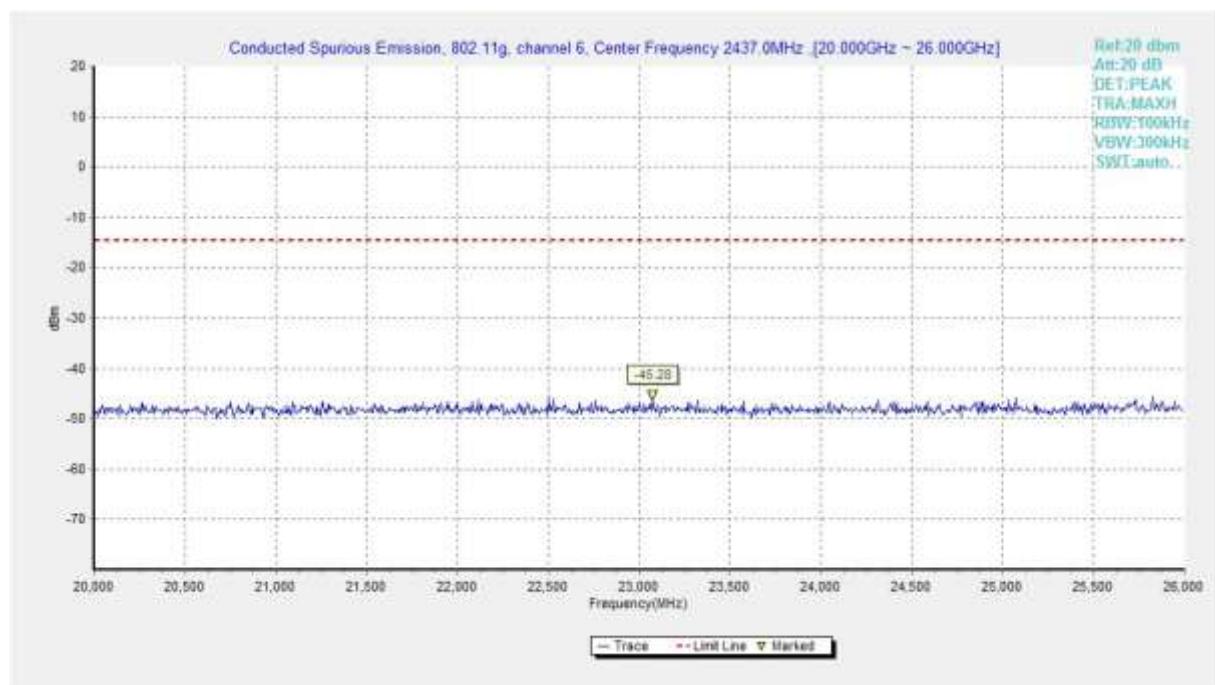
**Fig.A.6.1.37 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 7.5 GHz-10 GHz)**



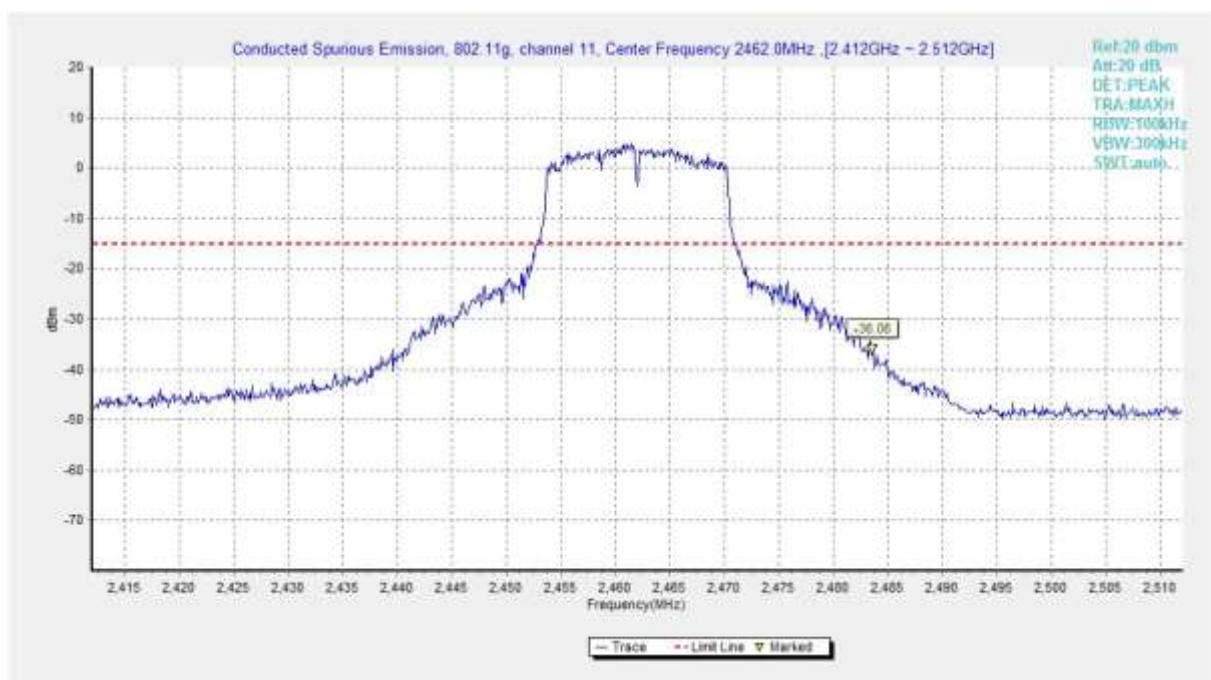
**Fig.A.6.1.38 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 10 GHz-15 GHz)**



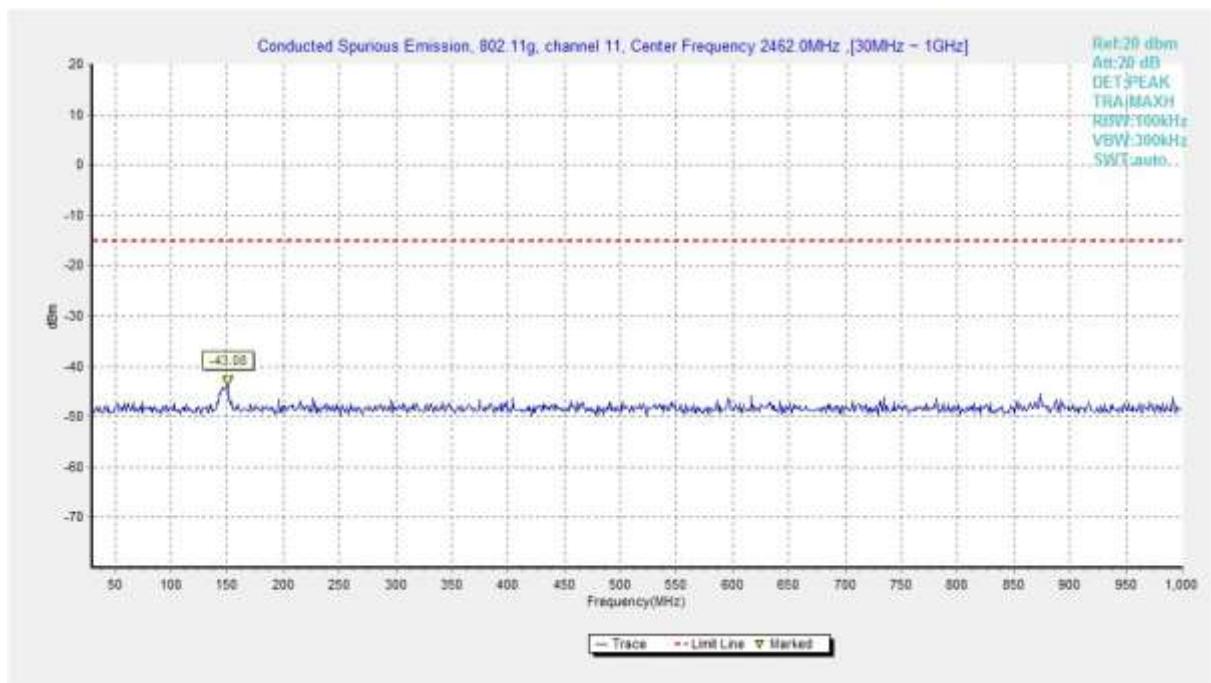
**Fig.A.6.1.39 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 15 GHz-20 GHz)**



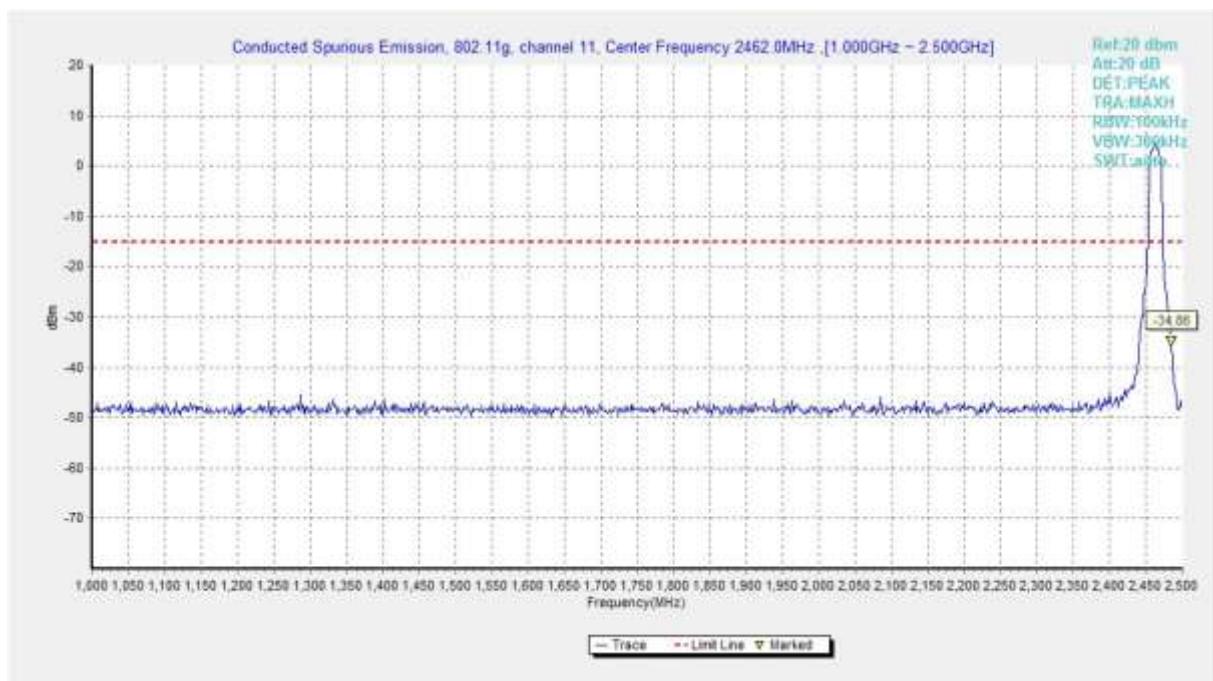
**Fig.A.6.1.40 Transmitter Spurious Emission - Conducted (802.11g, Ch6, 20 GHz-26 GHz)**



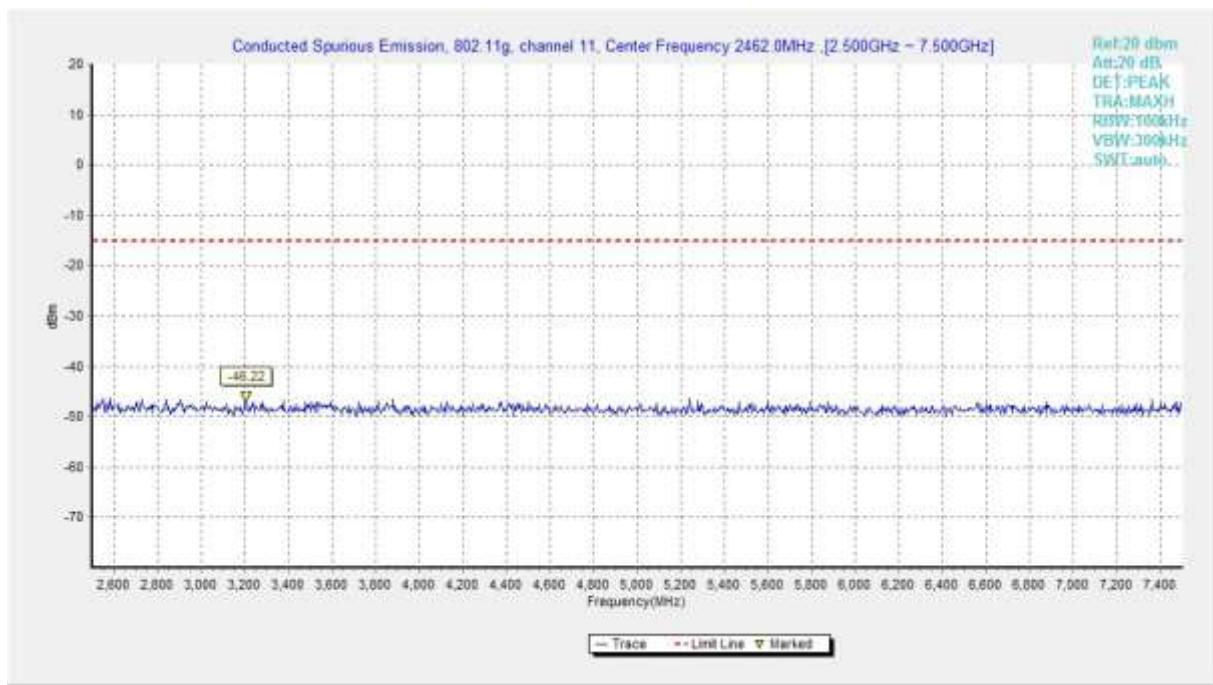
**Fig.A.6.1.41 Transmitter Spurious Emission - Conducted (802.11g, Ch11, Center Frequency)**



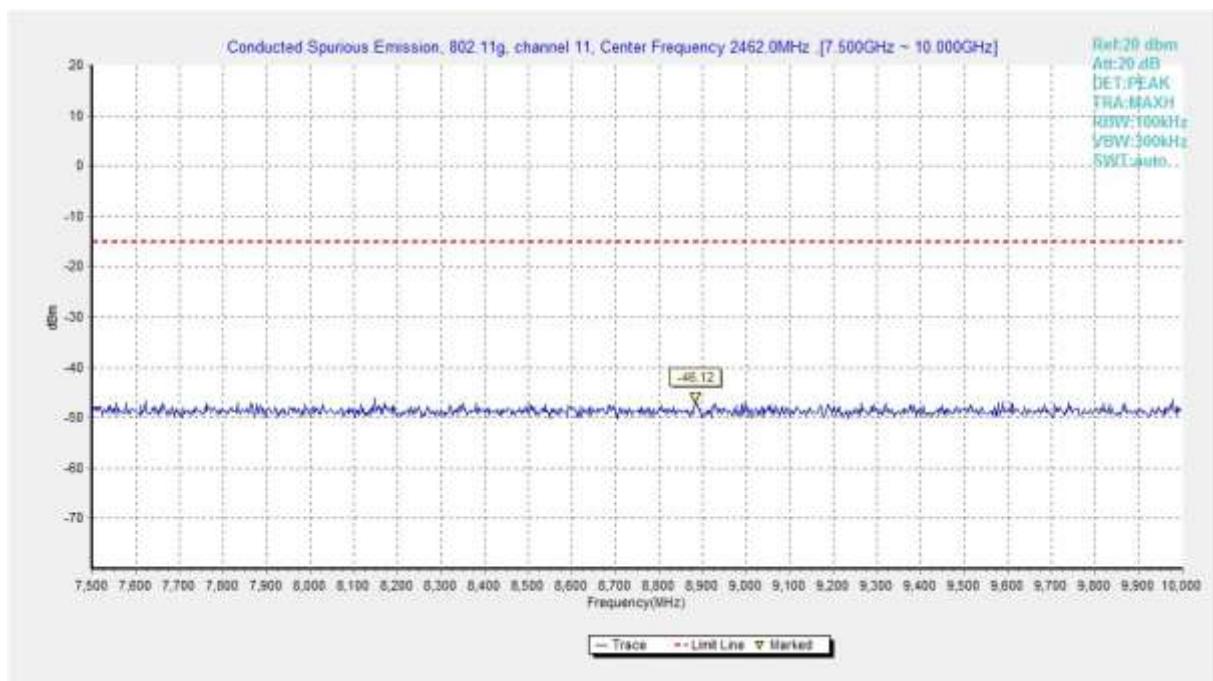
**Fig.A.6.1.42 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 30 MHz-1 GHz)**



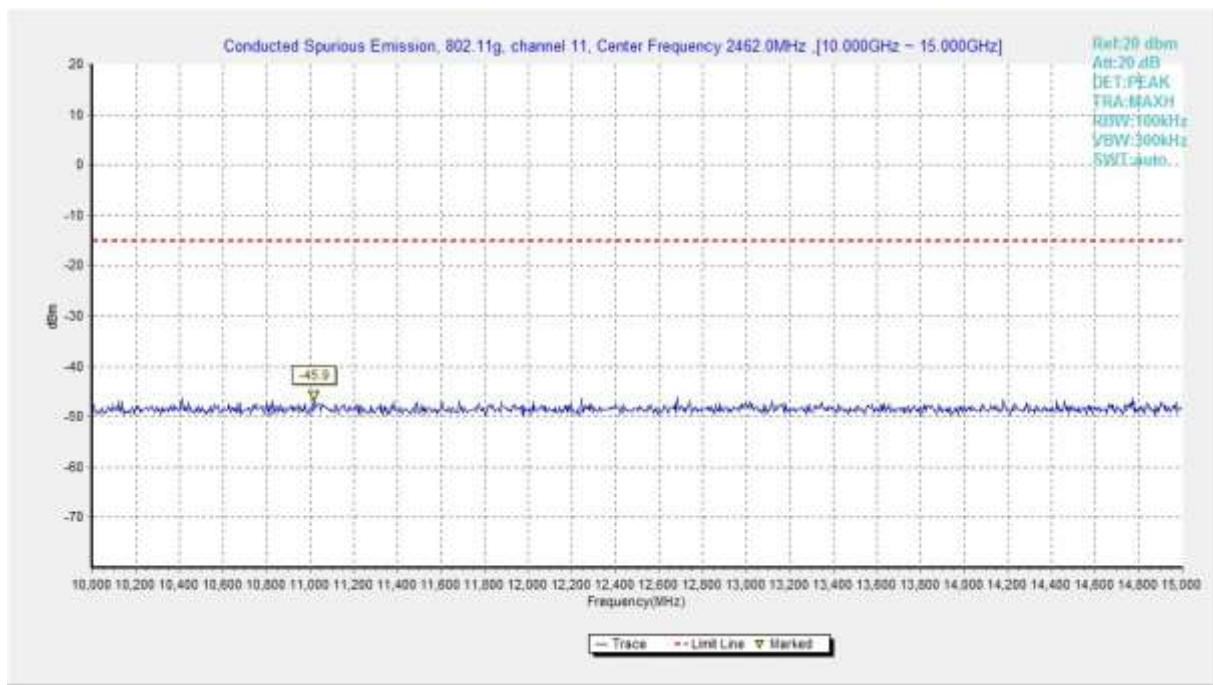
**Fig.A.6.1.43 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 1 GHz-2.5 GHz)**



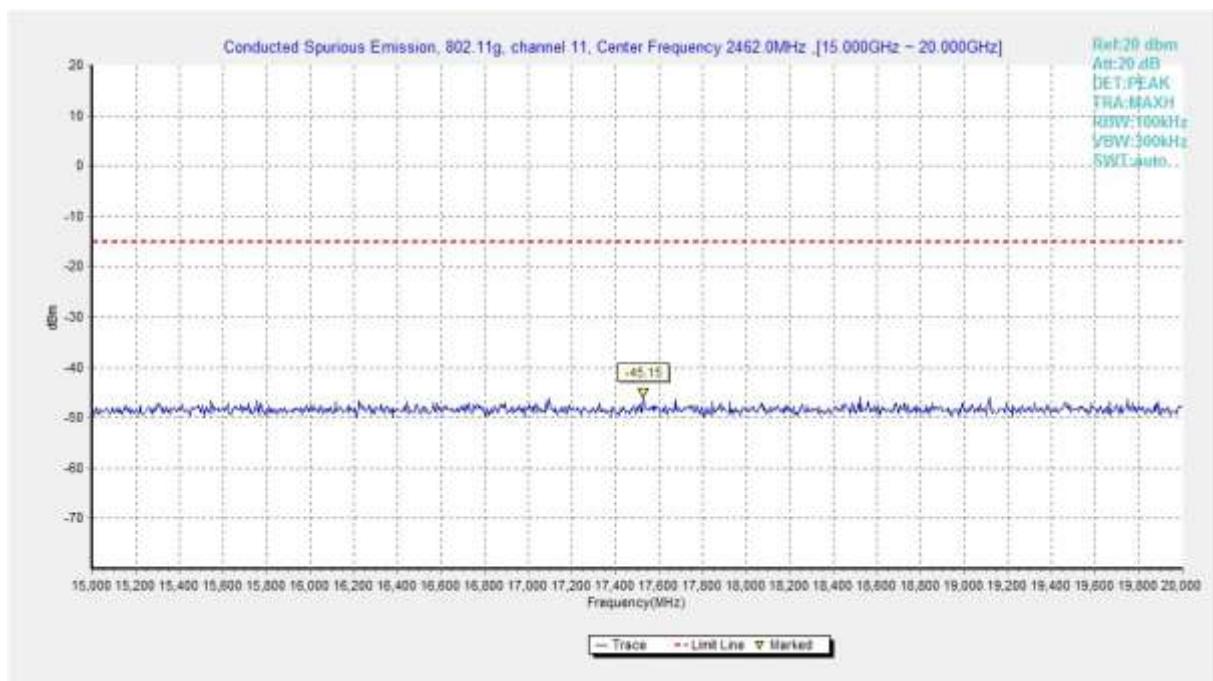
**Fig.A.6.1.44 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 2.5 GHz-7.5 GHz)**



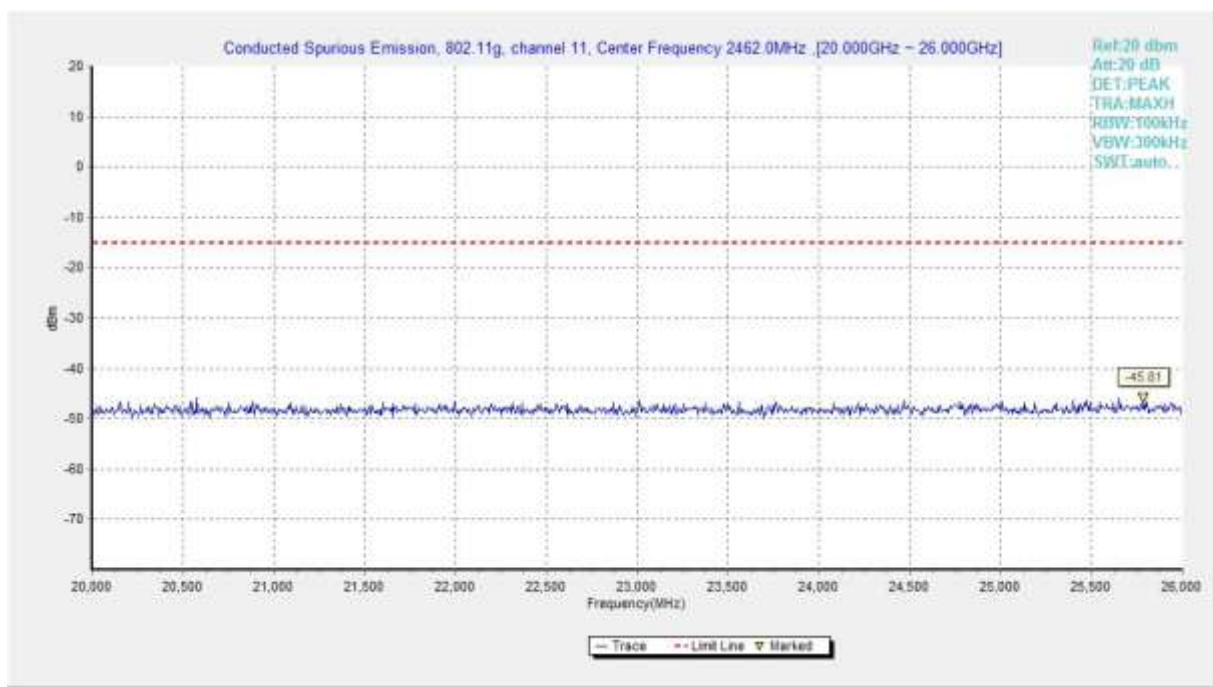
**Fig.A.6.1.45 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 7.5 GHz-10 GHz)**



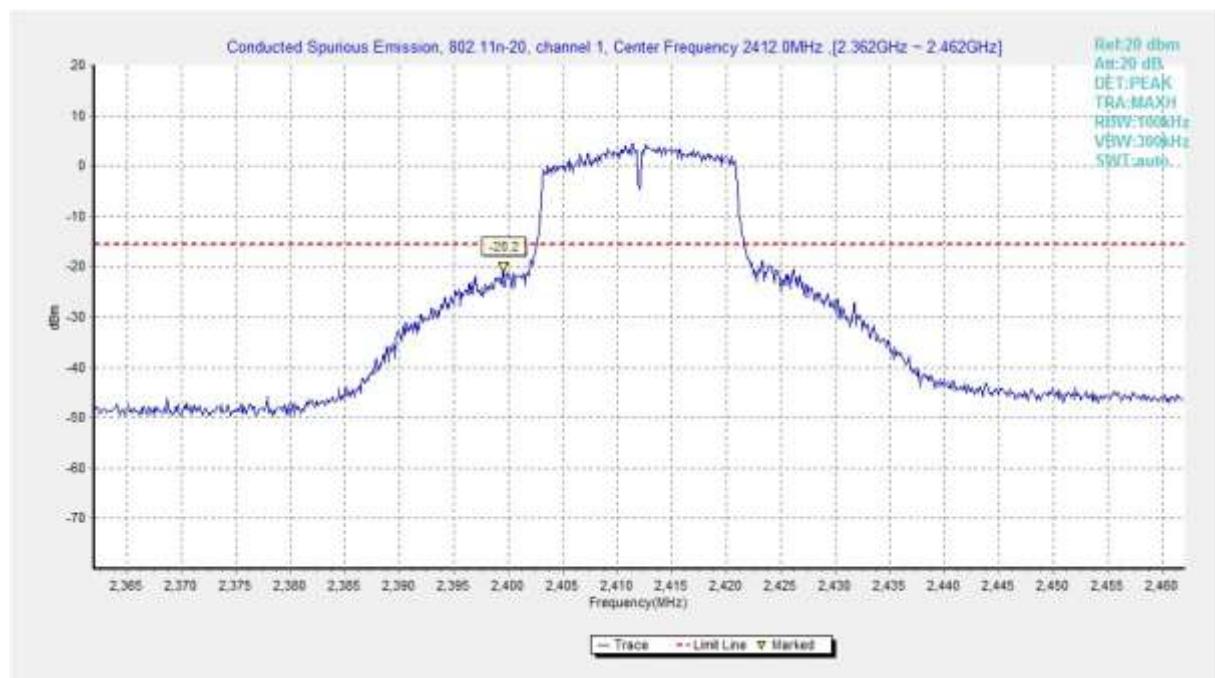
**Fig.A.6.1.46 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 10 GHz-15 GHz)**



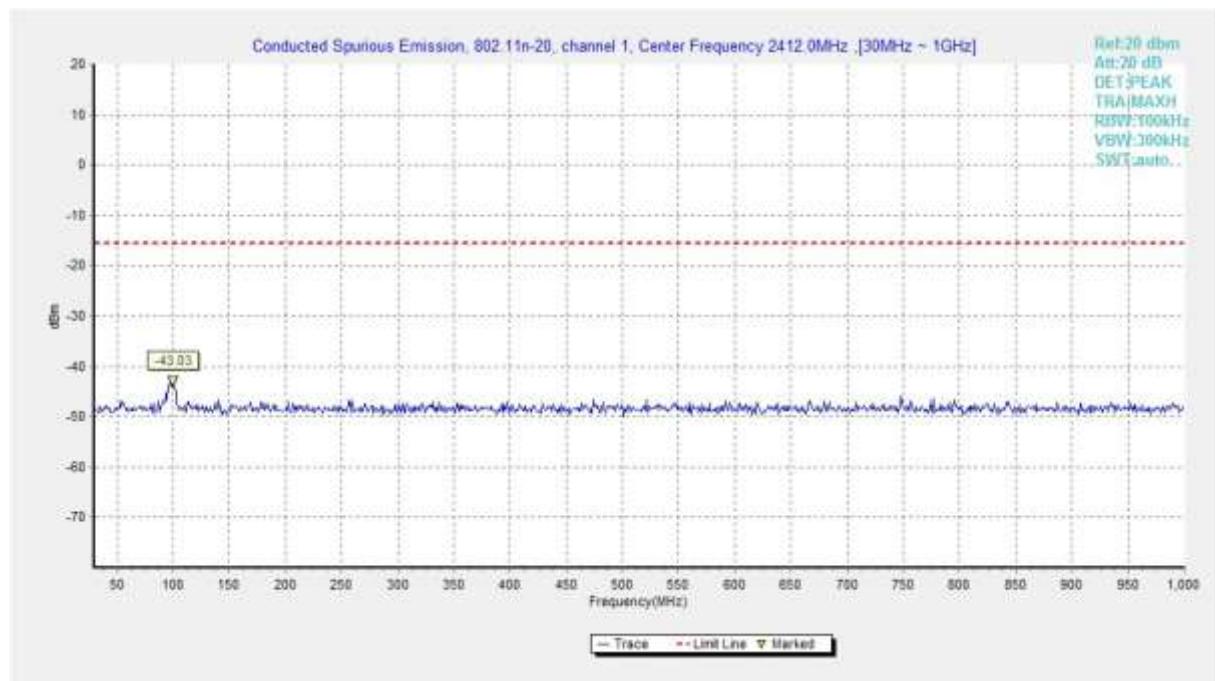
**Fig.A.6.1.47 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 15 GHz-20 GHz)**



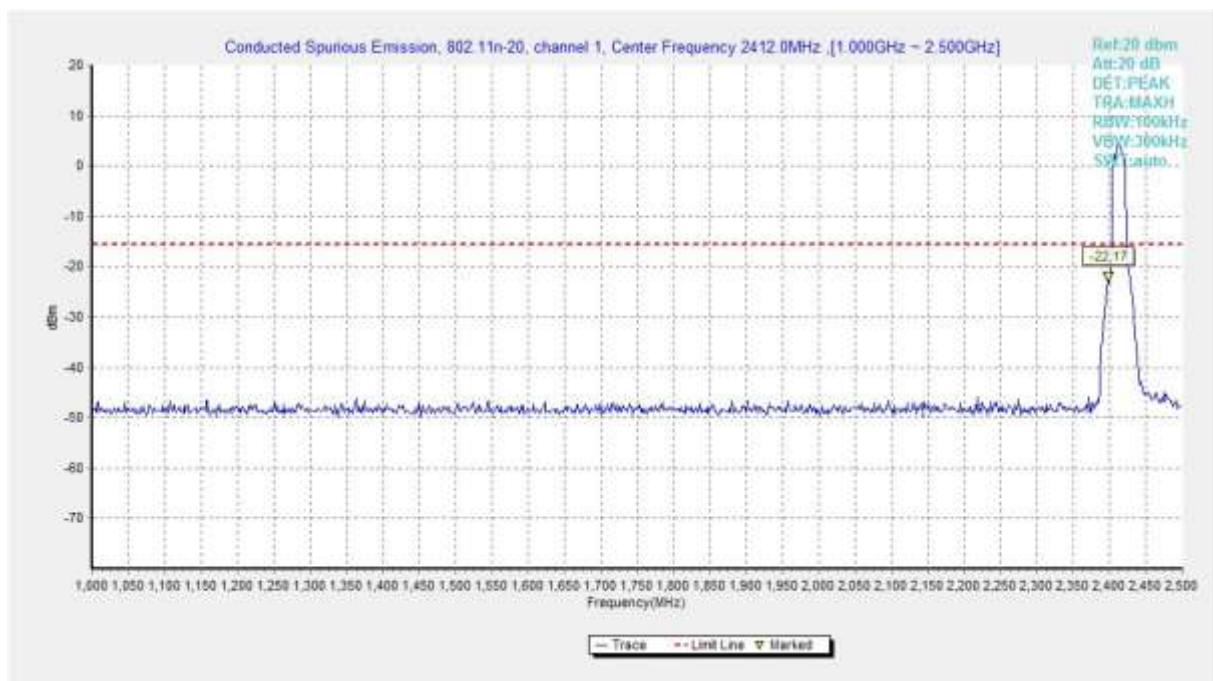
**Fig.A.6.1.48 Transmitter Spurious Emission - Conducted (802.11g, Ch11, 20 GHz-26 GHz)**



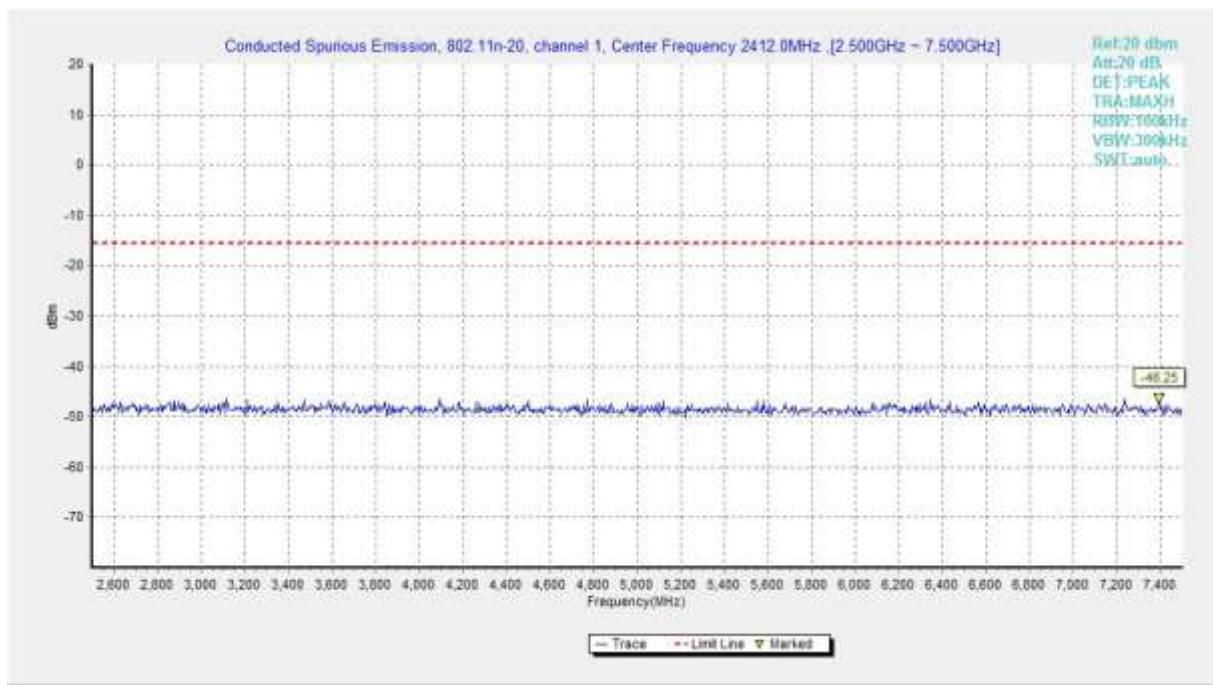
**Fig.A.6.1.49 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, Center Frequency)**



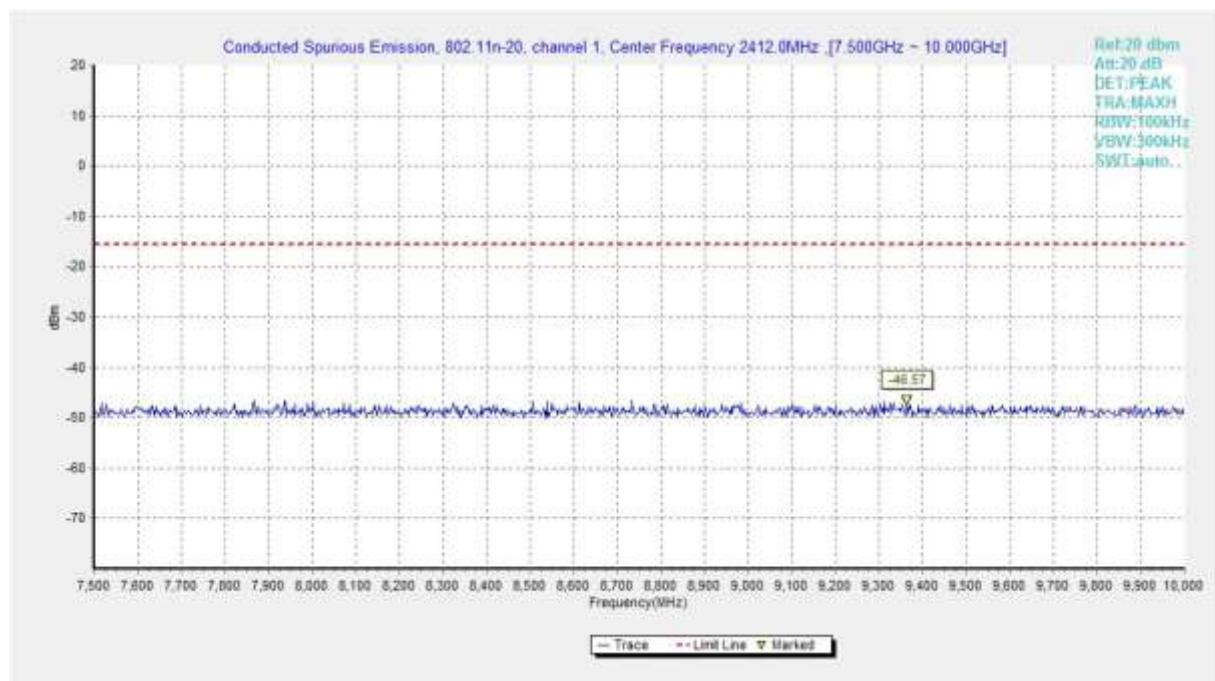
**Fig.A.6.1.50 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 30 MHz-1 GHz)**



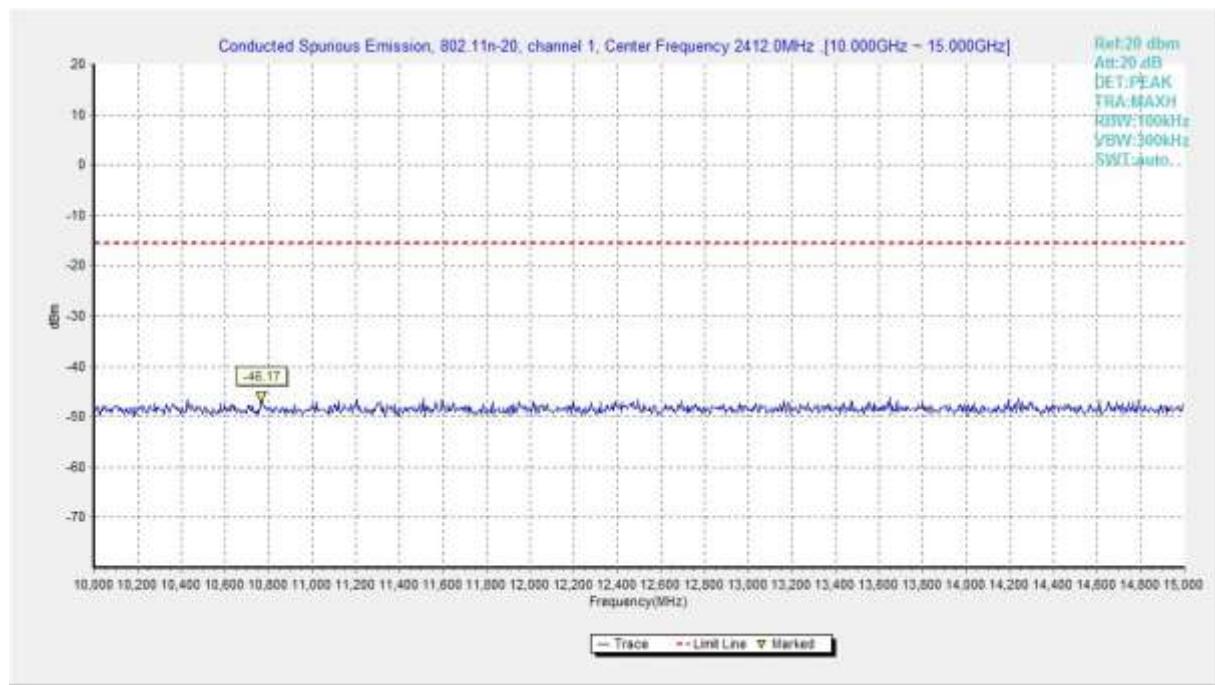
**Fig.A.6.1.51 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 1 GHz-2.5 GHz)**



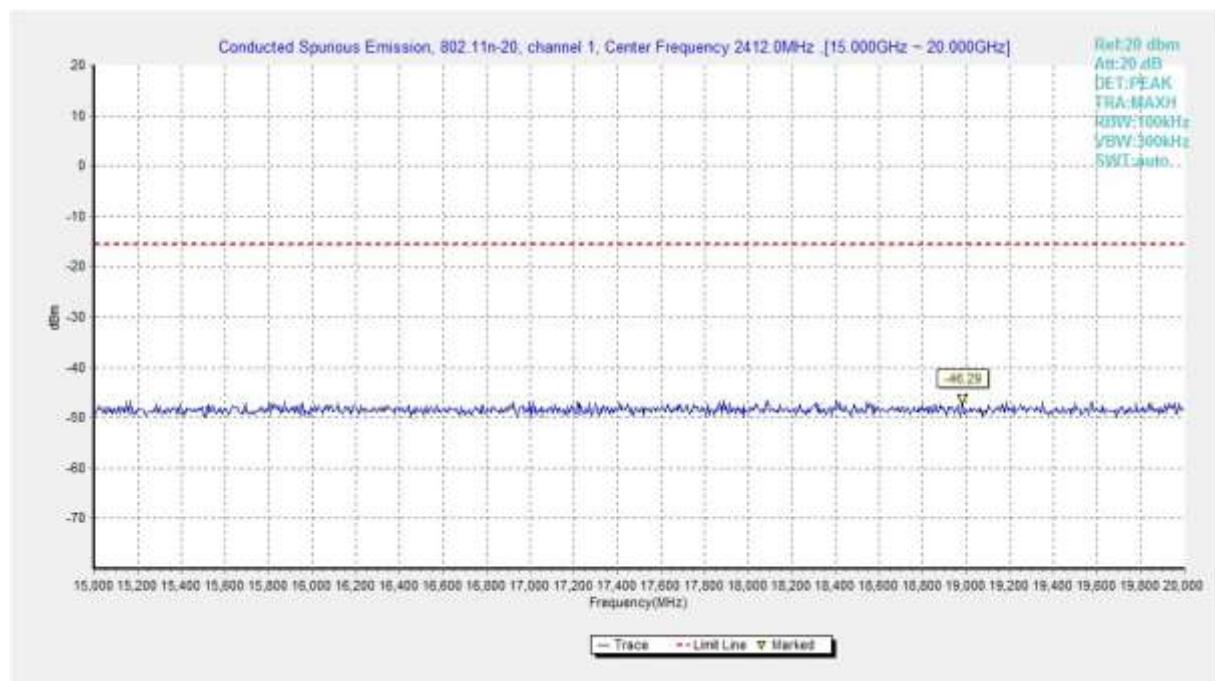
**Fig.A.6.1.52 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 2.5 GHz-7.5 GHz)**



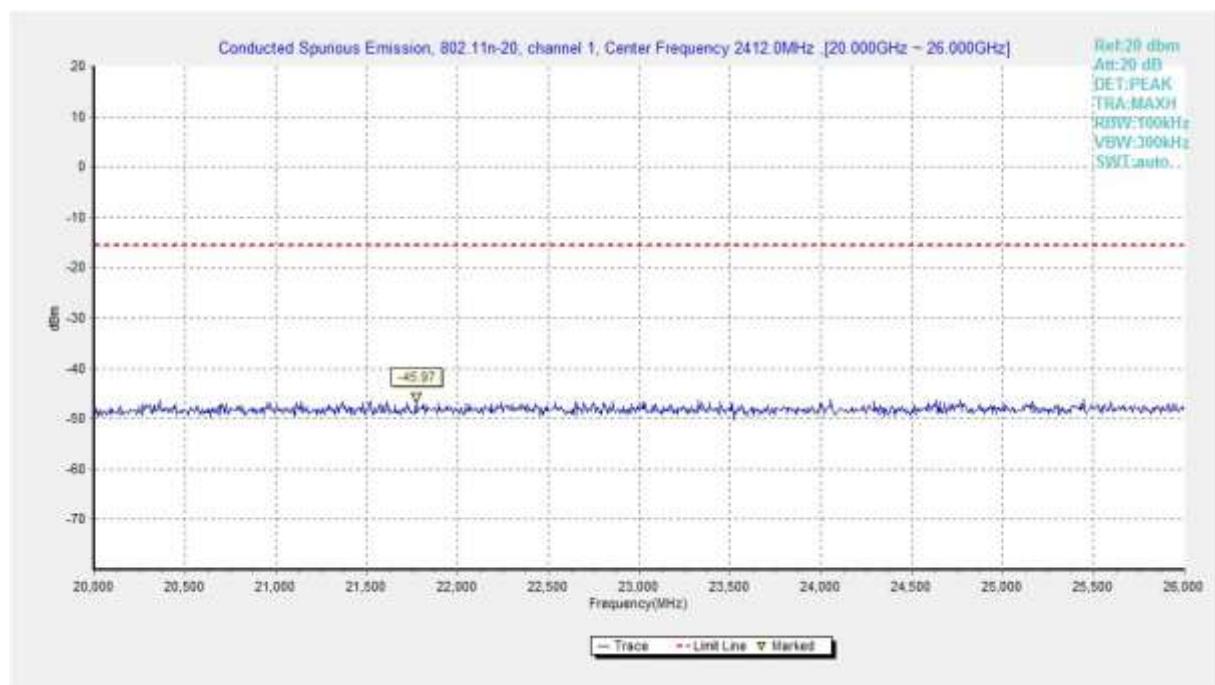
**Fig.A.6.1.53 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 7.5 GHz-10 GHz)**



**Fig.A.6.1.54 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 10 GHz-15 GHz)**



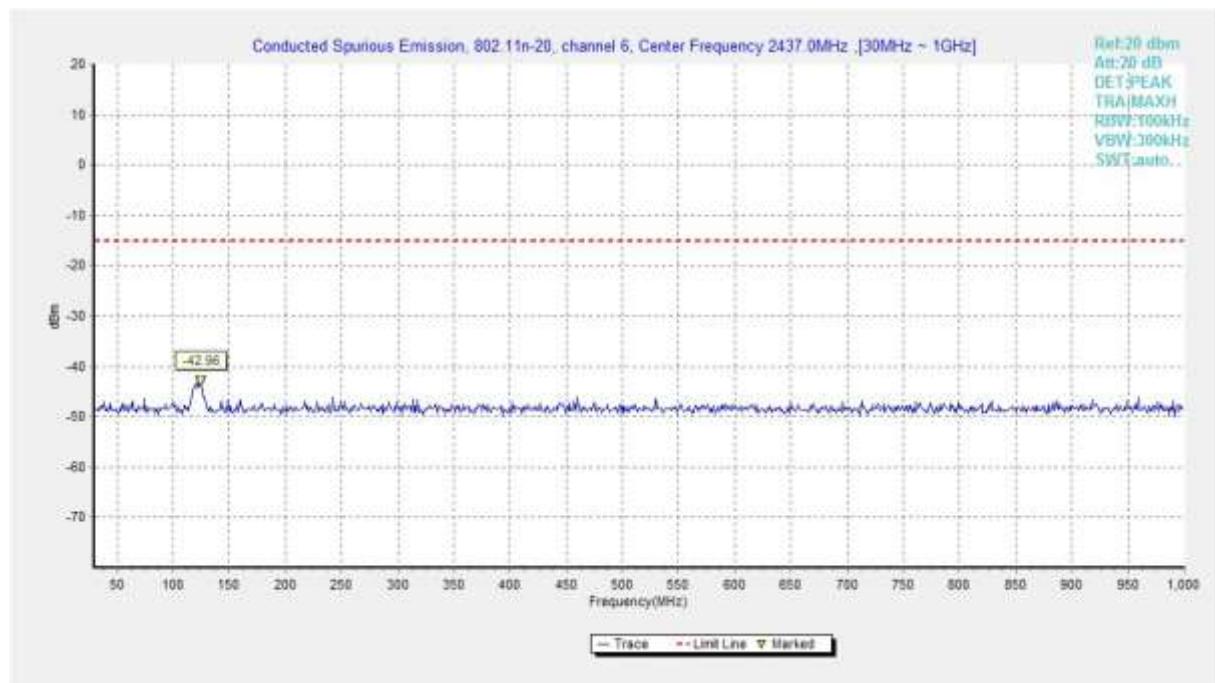
**Fig.A.6.1.55 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 15 GHz-20 GHz)**



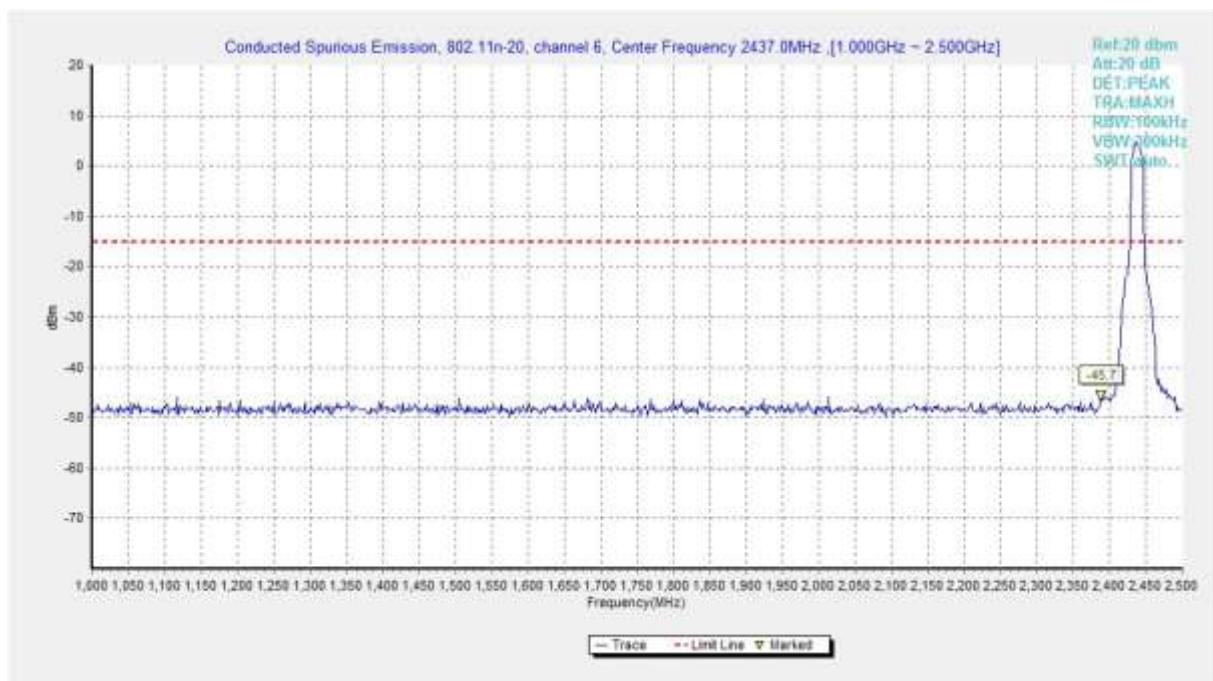
**Fig.A.6.1.56 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch1, 20 GHz-26 GHz)**



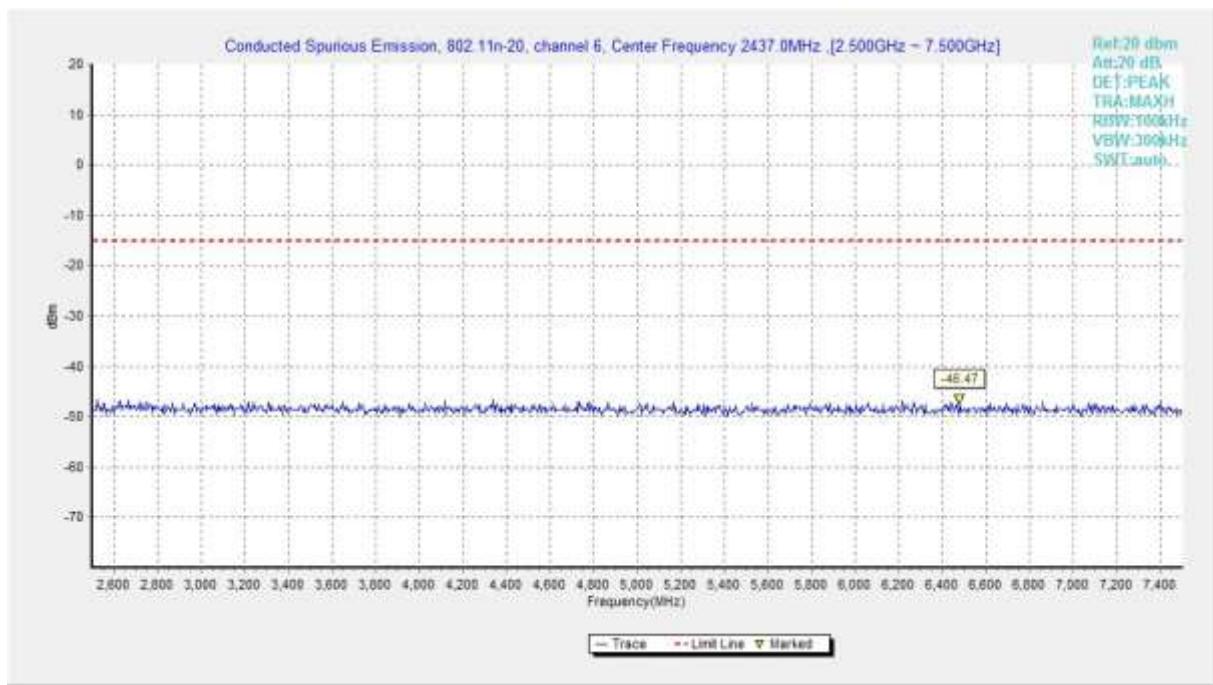
**Fig.A.6.1.57 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, Center Frequency)**



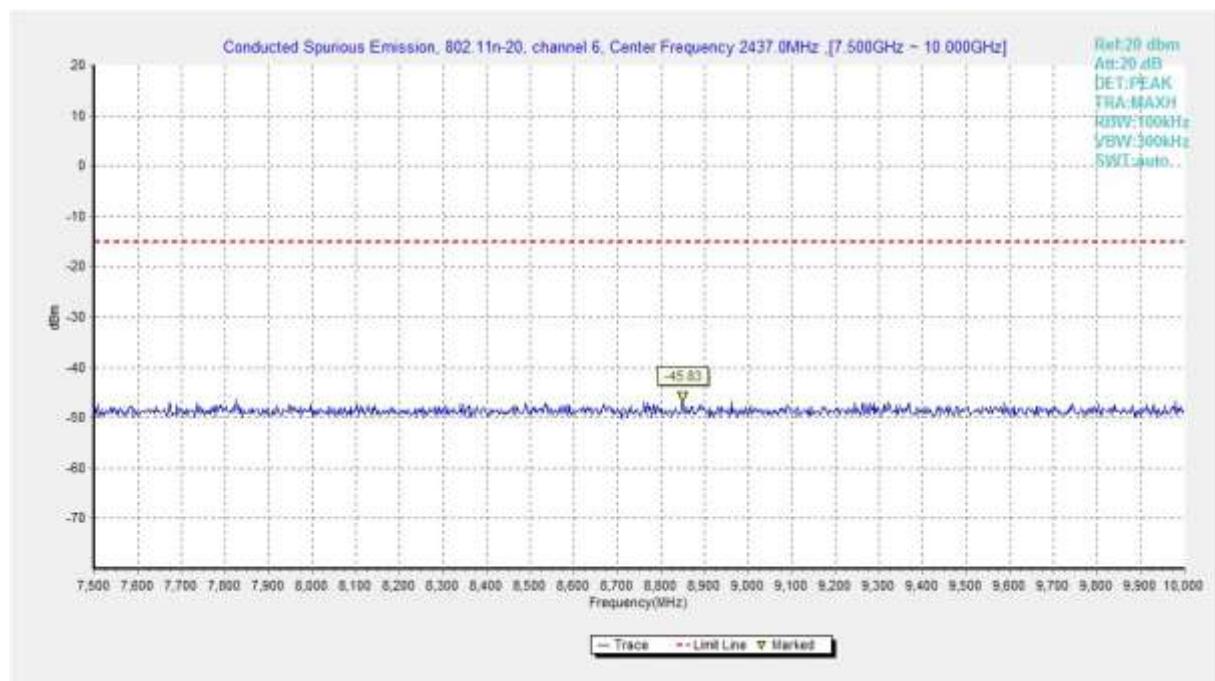
**Fig.A.6.1.58 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 30 MHz-1 GHz)**



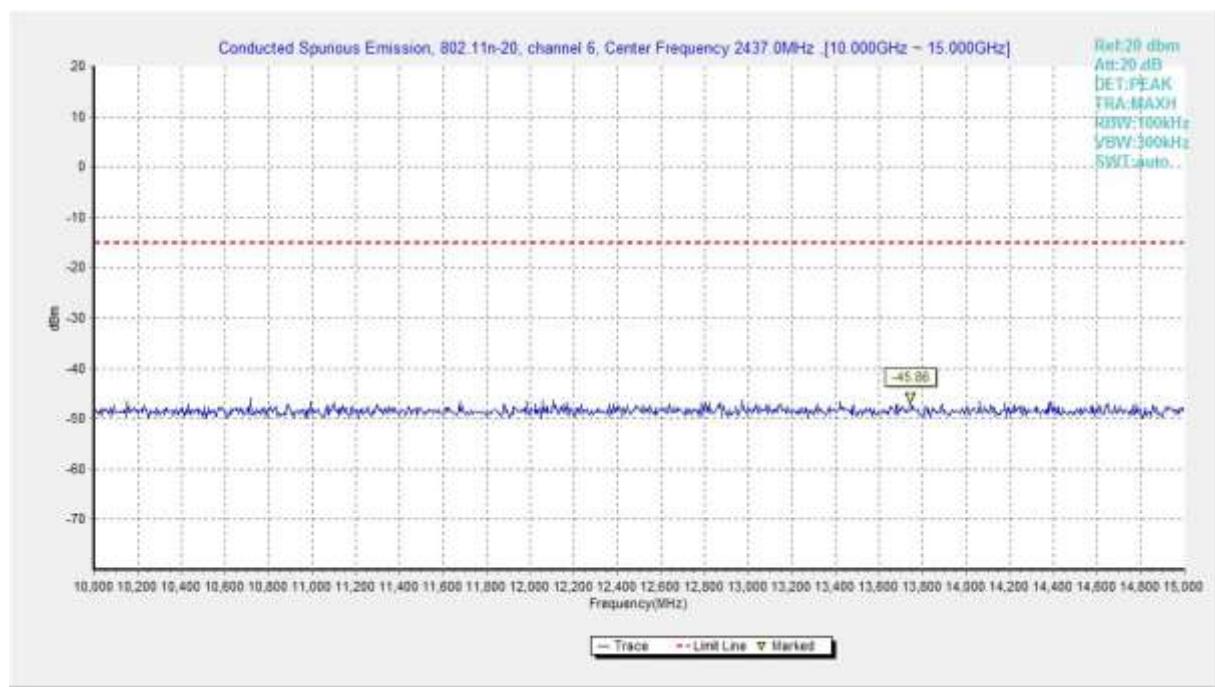
**Fig.A.6.1.59 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 1 GHz-2.5 GHz)**



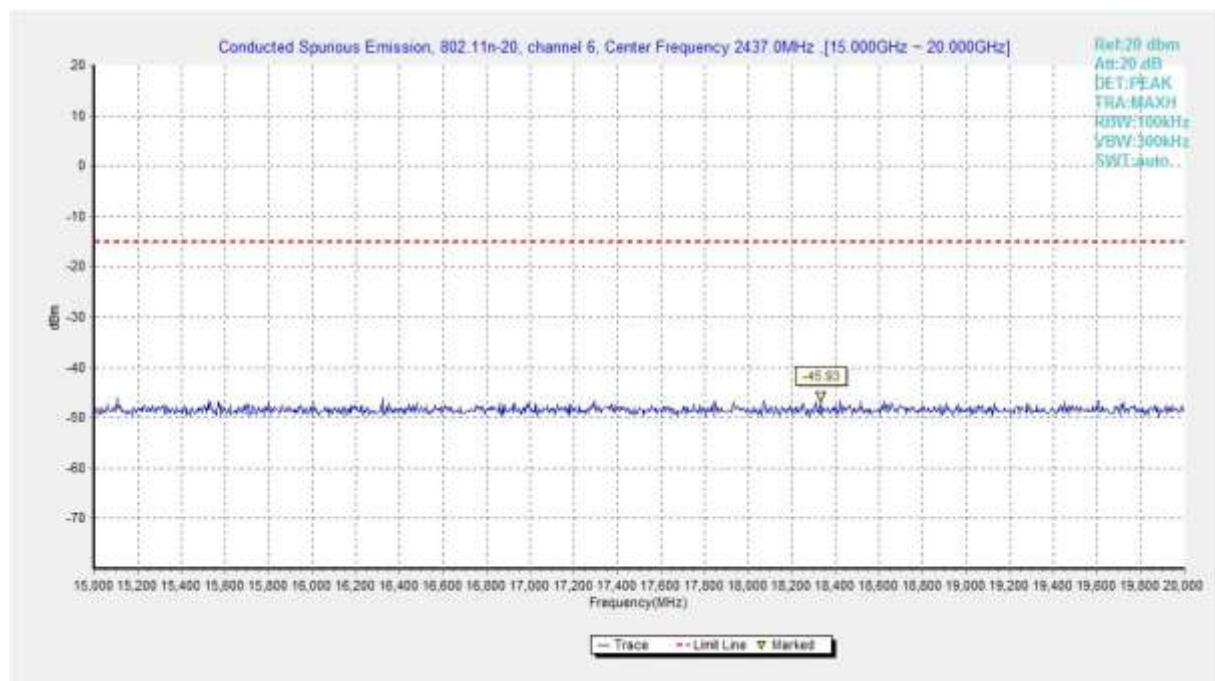
**Fig.A.6.1.60 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 2.5 GHz-7.5 GHz)**



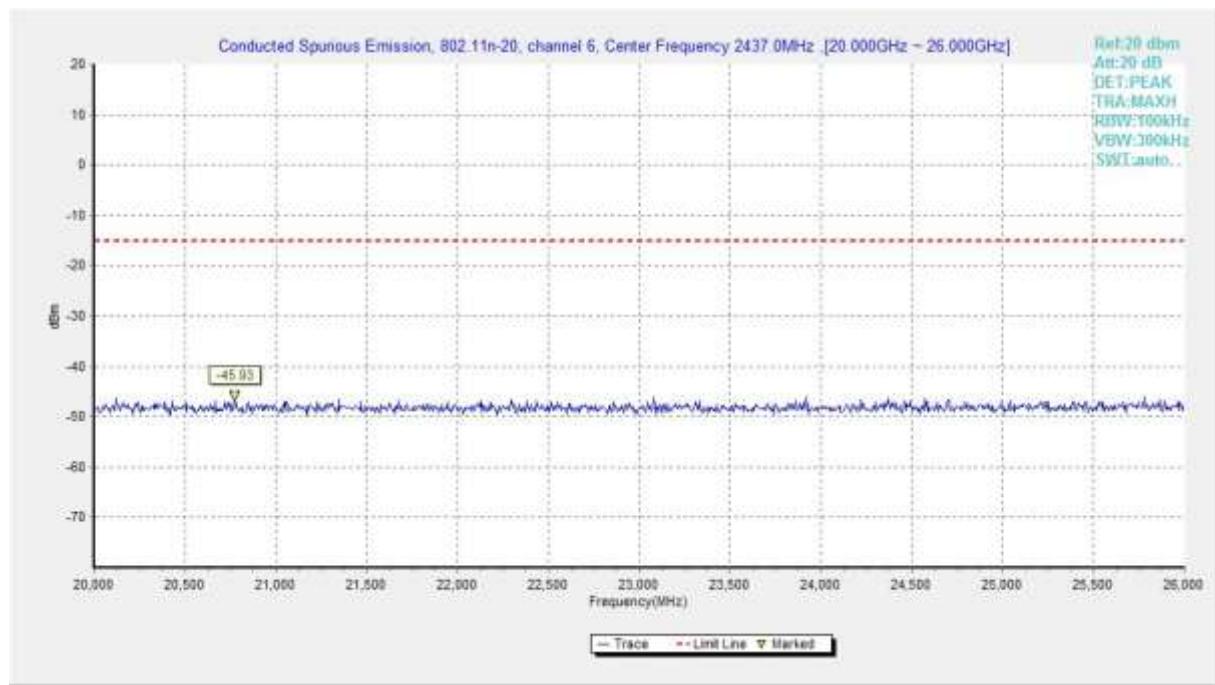
**Fig.A.6.1.61 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 7.5 GHz-10 GHz)**



**Fig.A.6.1.62 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 10 GHz-15 GHz)**



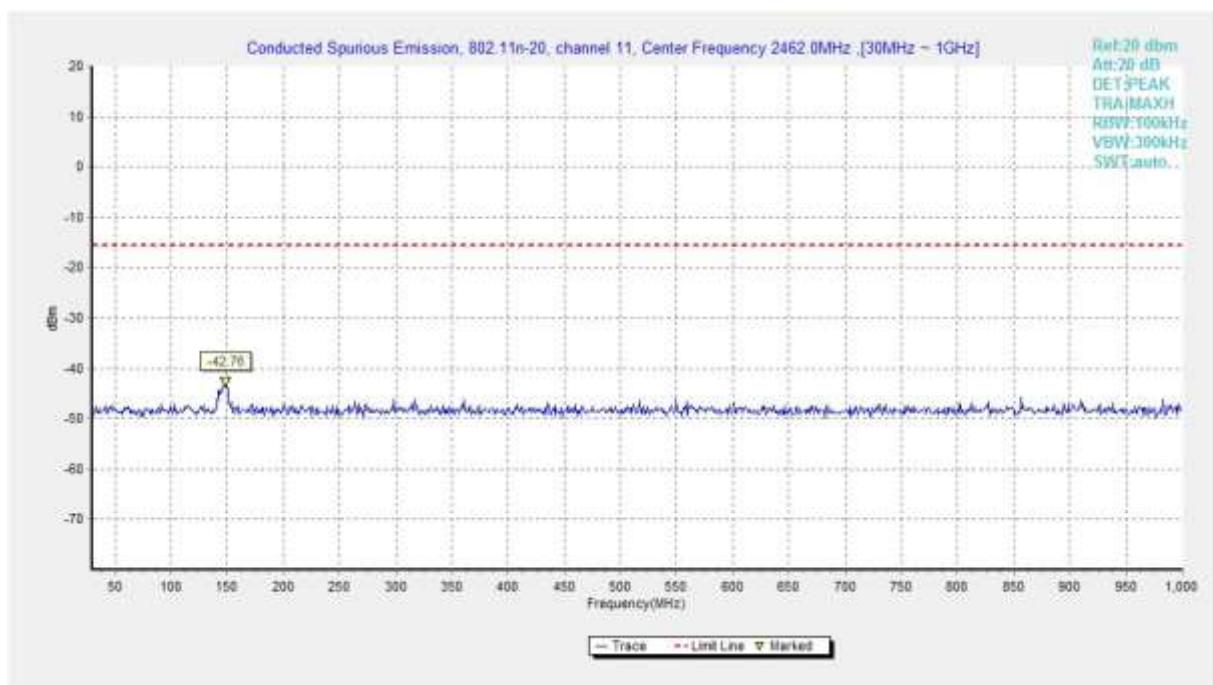
**Fig.A.6.1.63 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 15 GHz-20 GHz)**



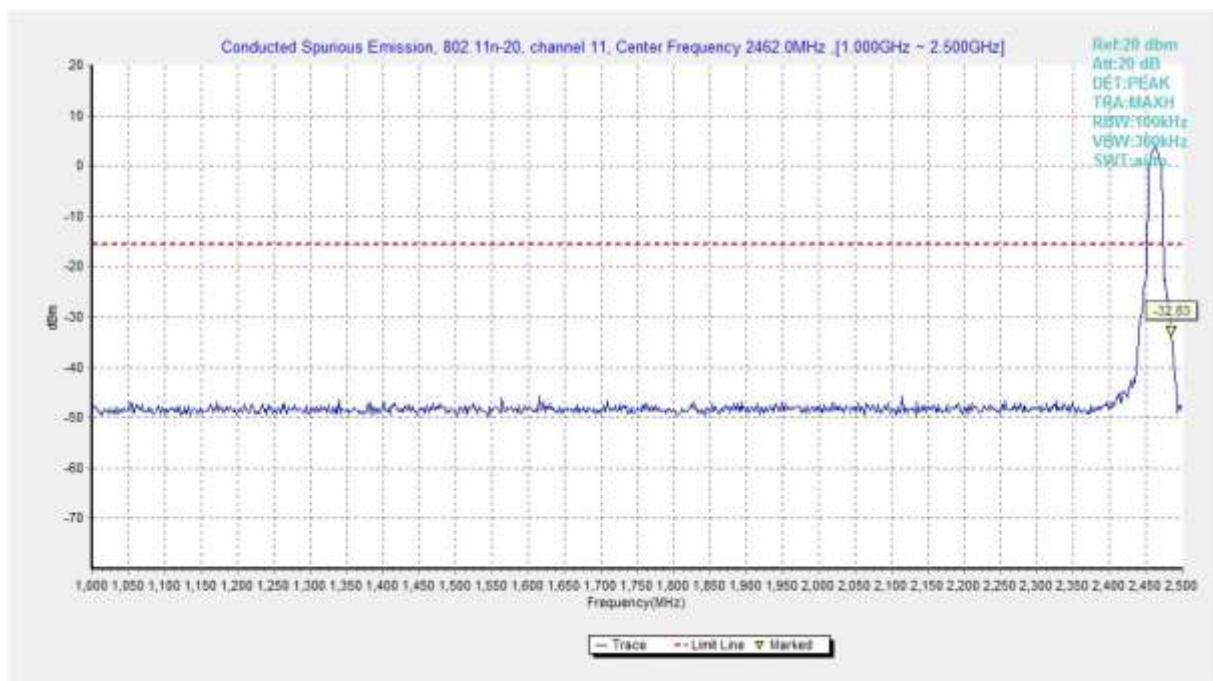
**Fig.A.6.1.64 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch6, 20 GHz-26 GHz)**



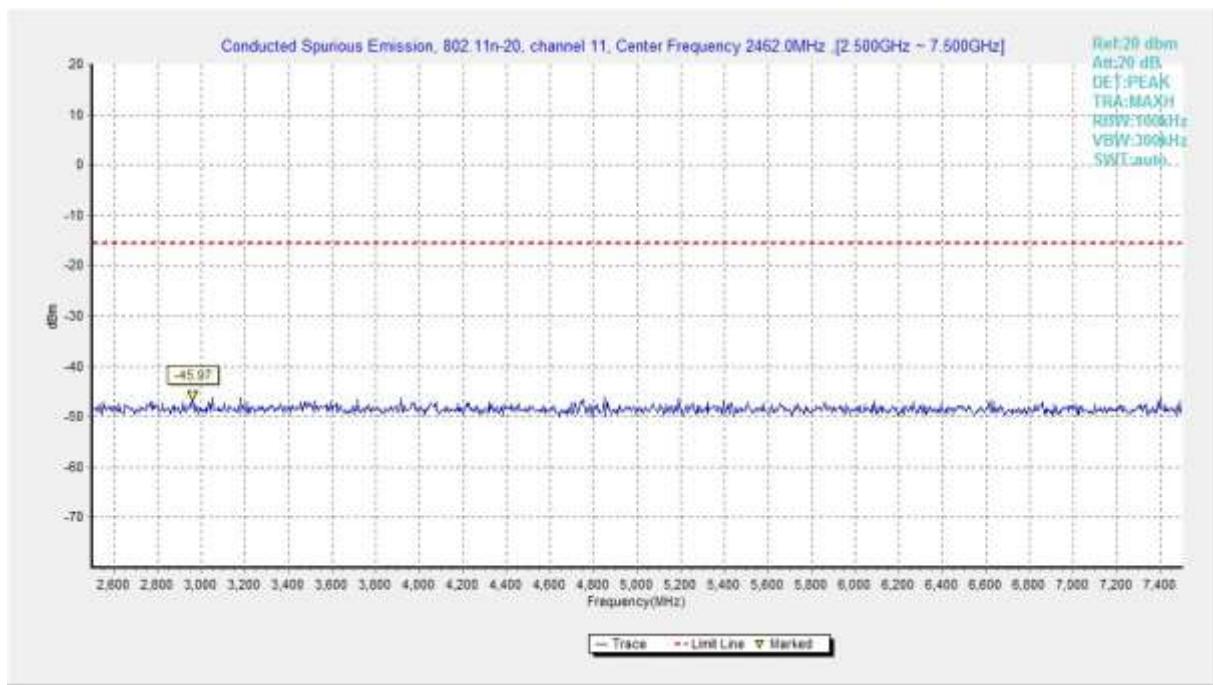
**Fig.A.6.1.65 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, Center Frequency)**



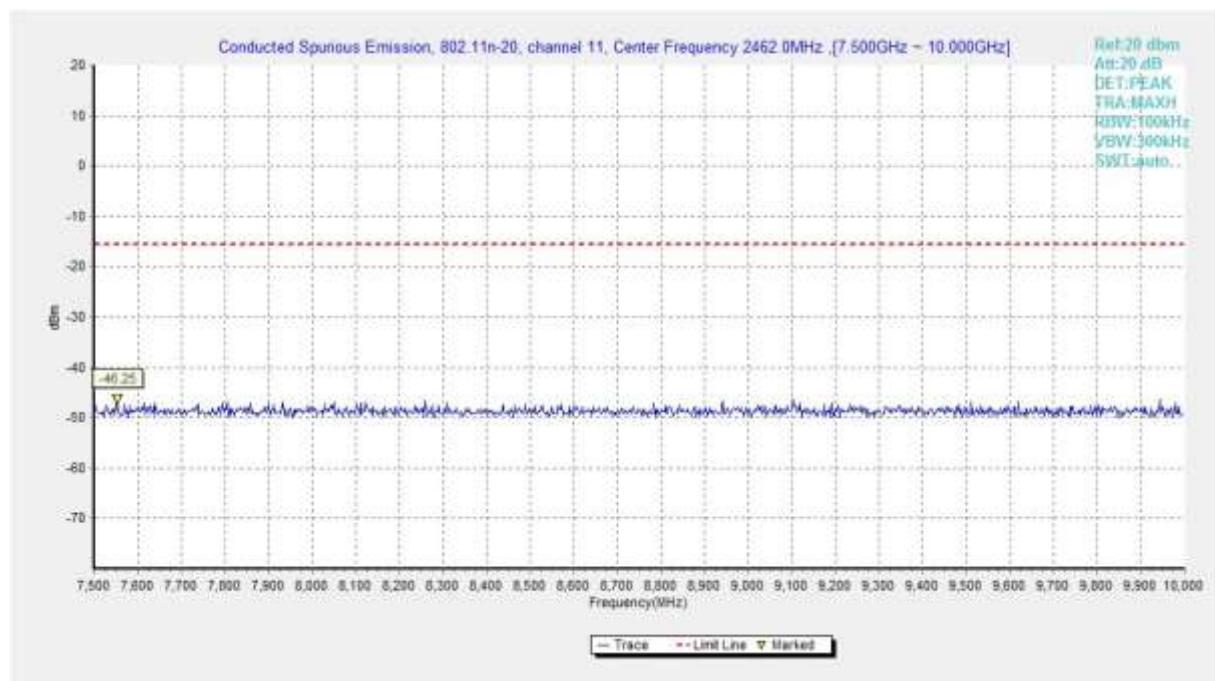
**Fig.A.6.1.66 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 30 MHz-1 GHz)**



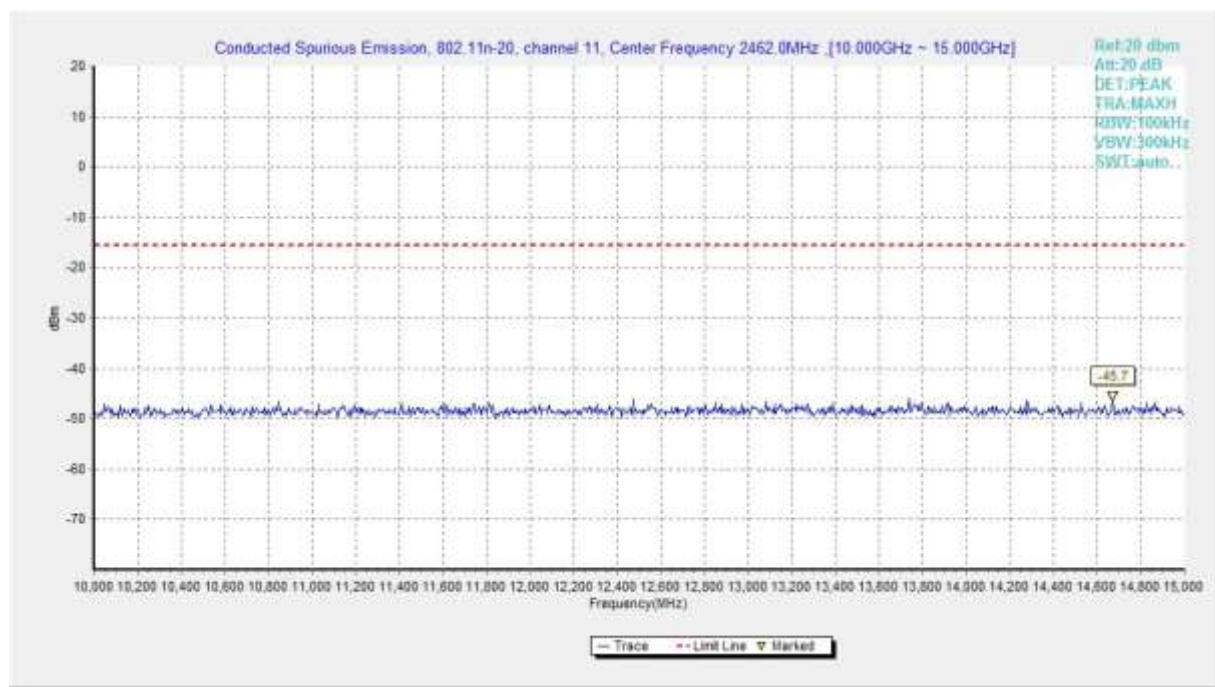
**Fig.A.6.1.67 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 1 GHz-2.5 GHz)**



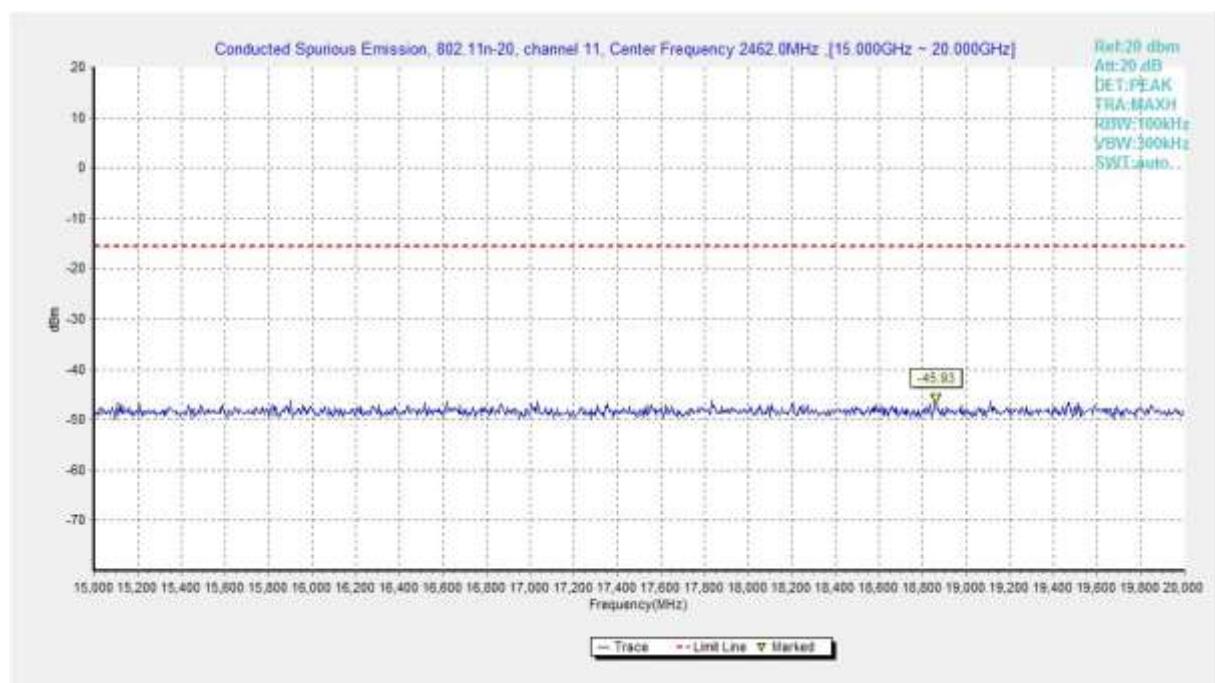
**Fig.A.6.1.68 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 2.5 GHz-7.5 GHz)**



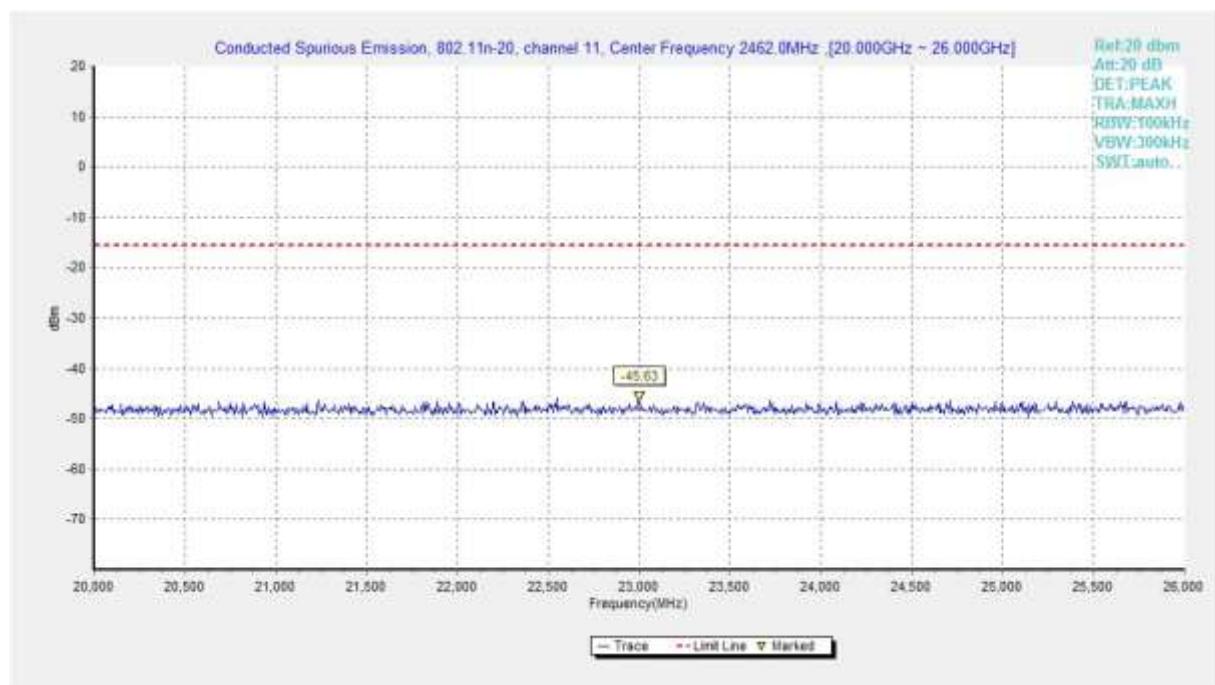
**Fig.A.6.1.69 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 7.5 GHz-10 GHz)**



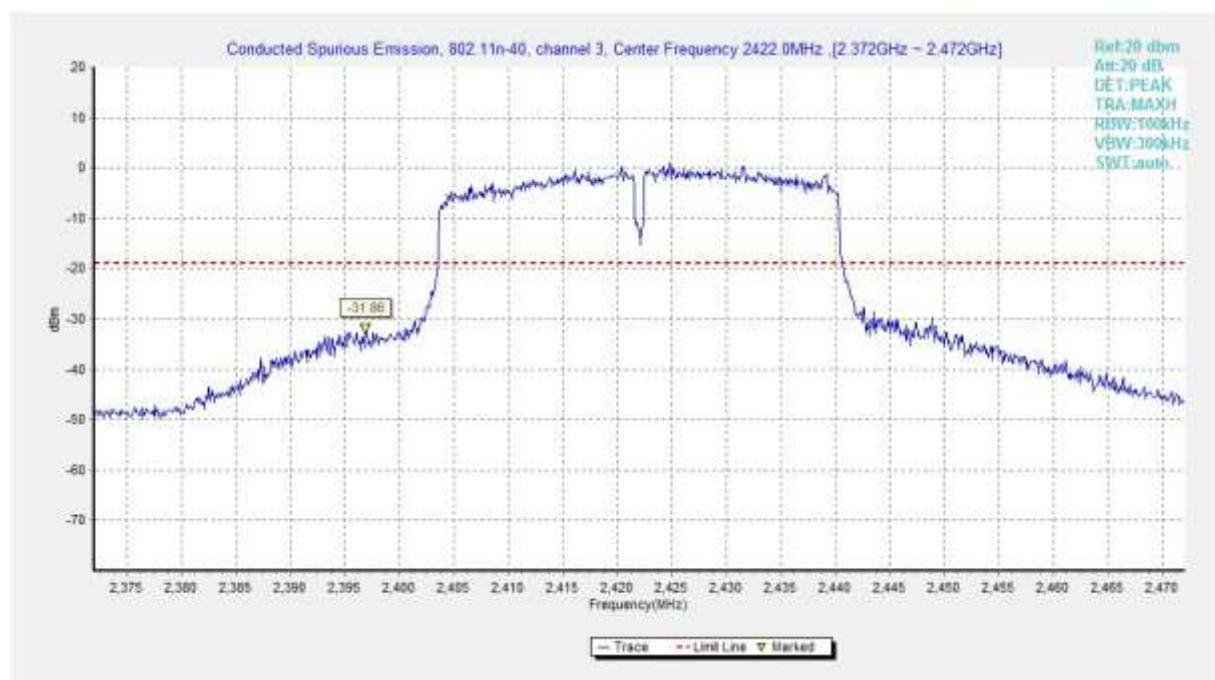
**Fig.A.6.1.70 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 10 GHz-15 GHz)**



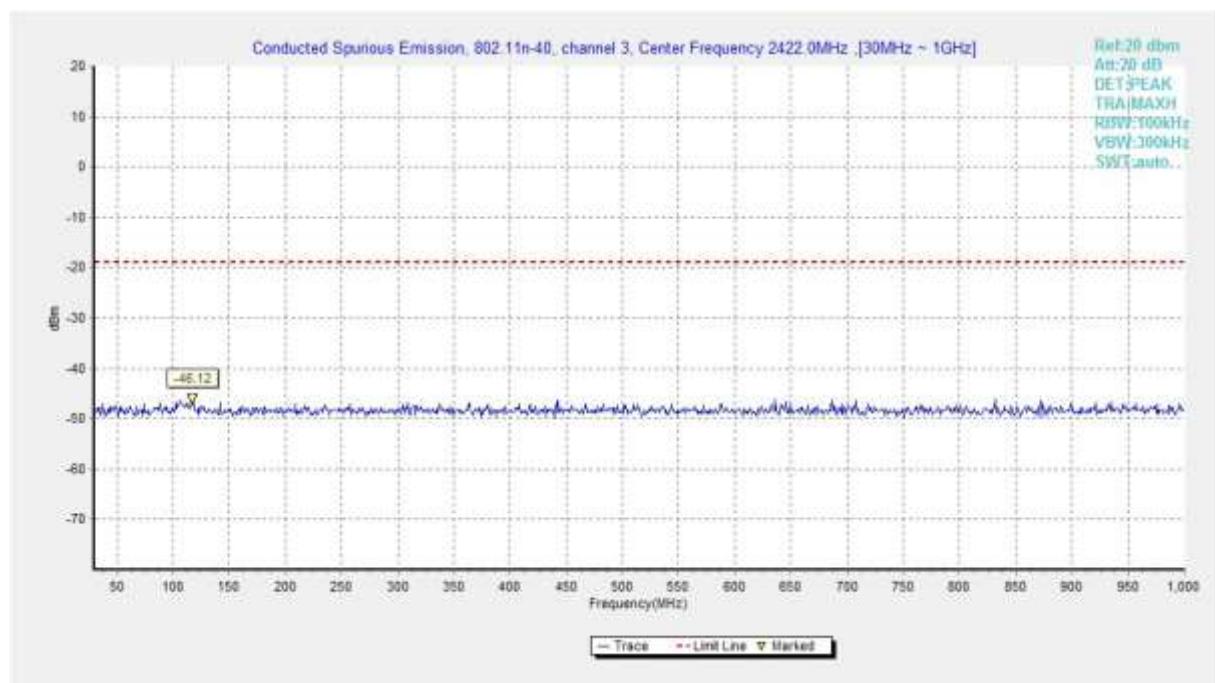
**Fig.A.6.1.71 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 15 GHz-20 GHz)**



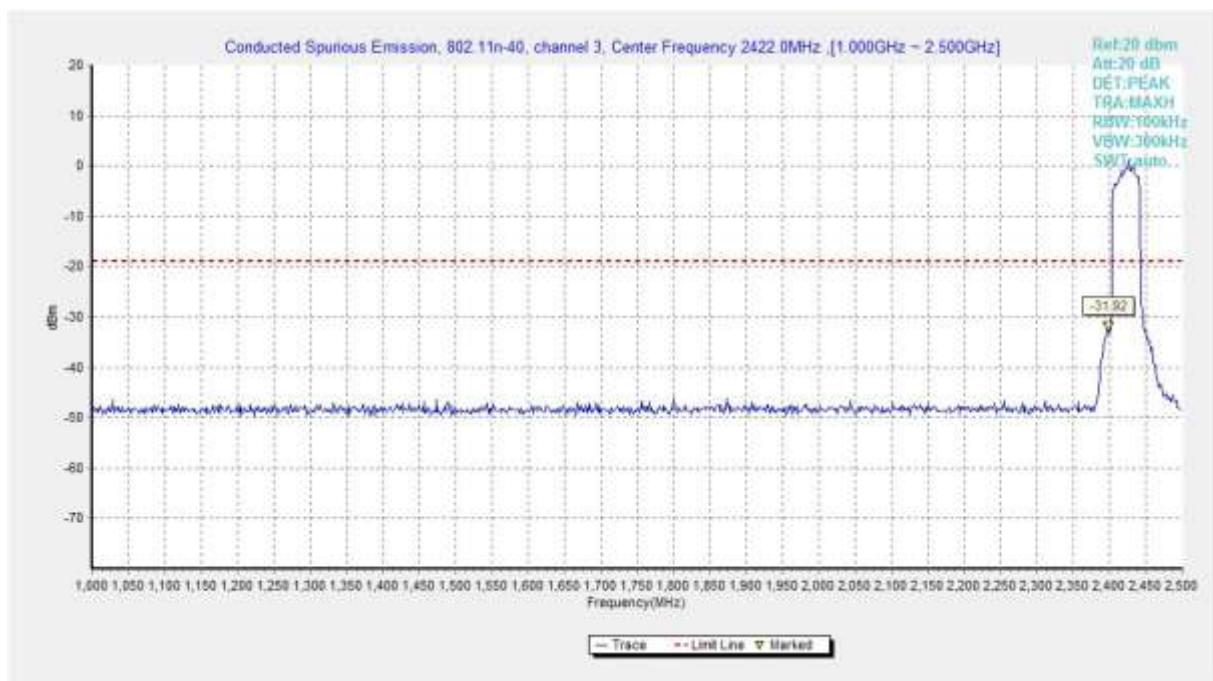
**Fig.A.6.1.72 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 20 GHz-26 GHz)**



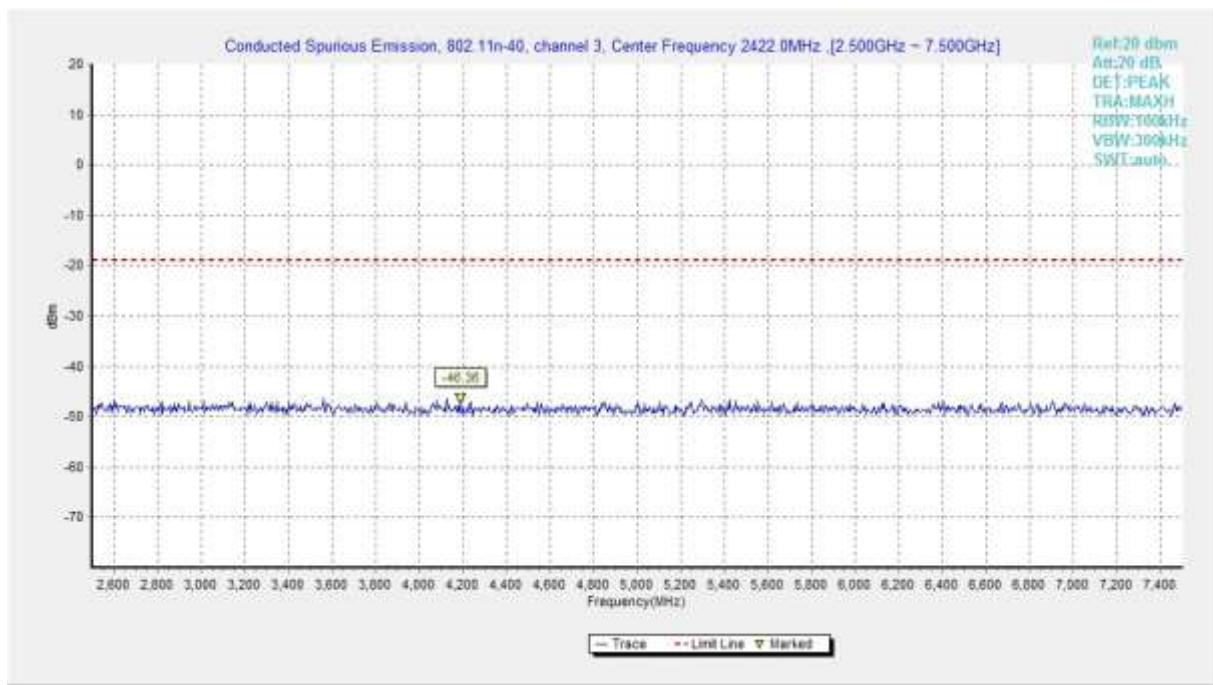
**Fig.A.6.1.73 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, Center Frequency)**



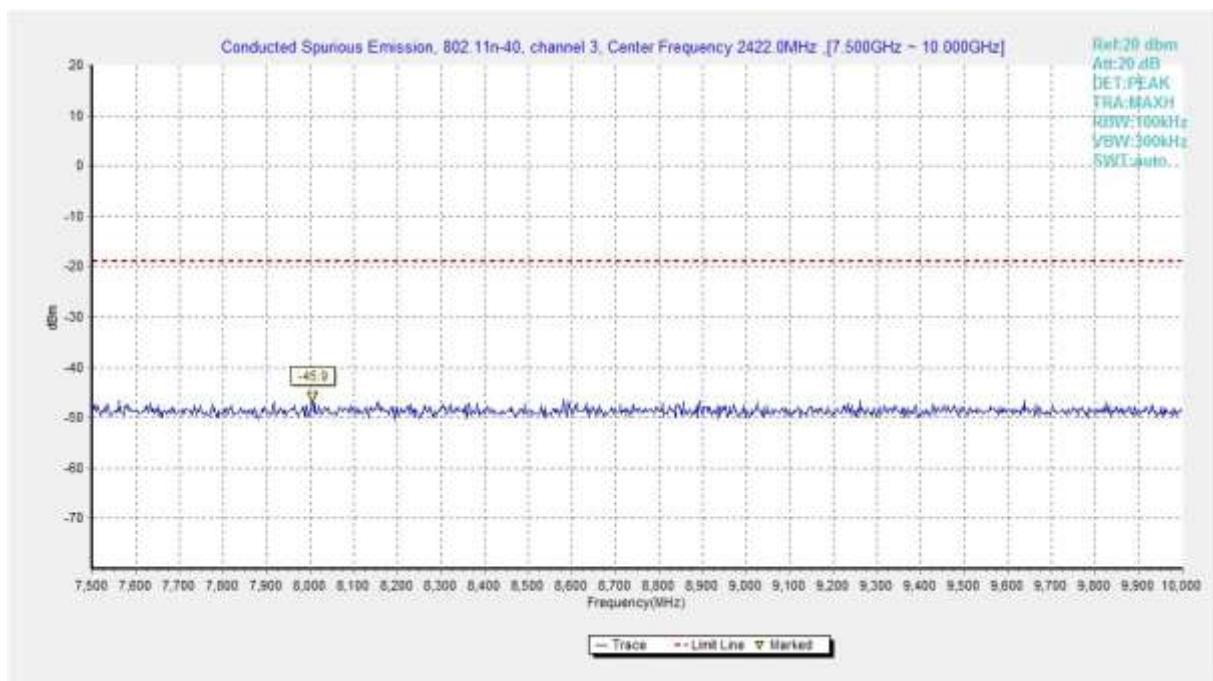
**Fig.A.6.1.74 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 30 MHz-1 GHz)**



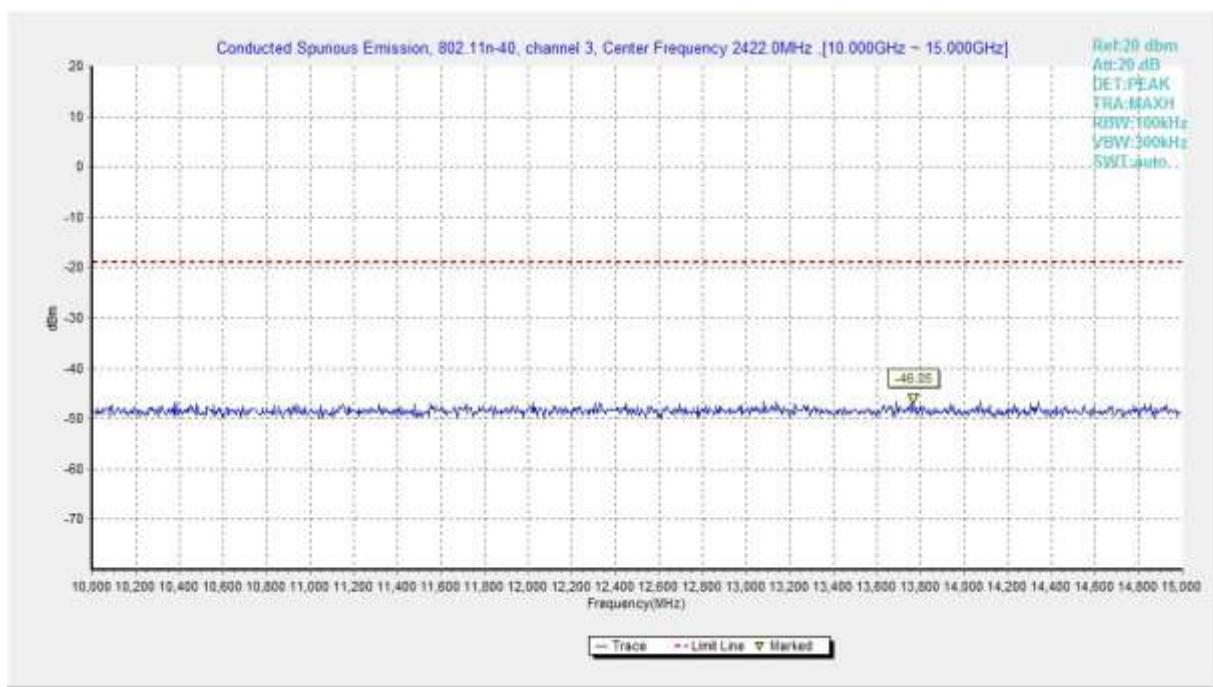
**Fig.A.6.1.75 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 1 GHz-2.5 GHz)**



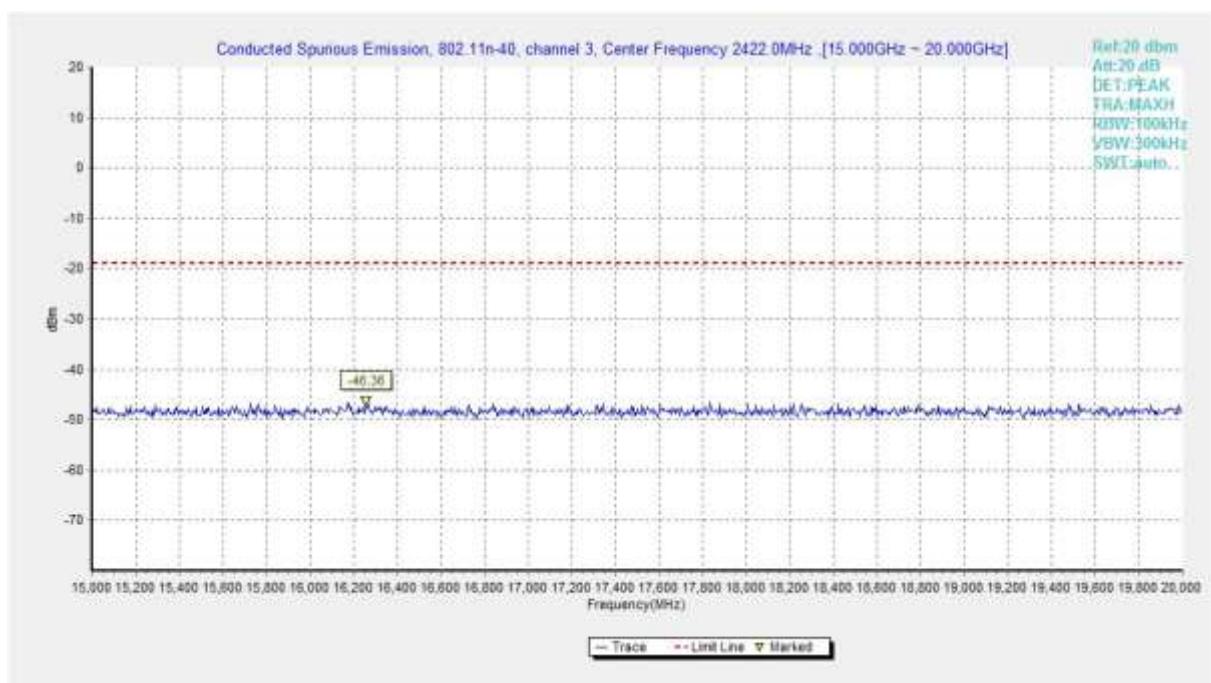
**Fig.A.6.1.76 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 2.5 GHz-7.5 GHz)**



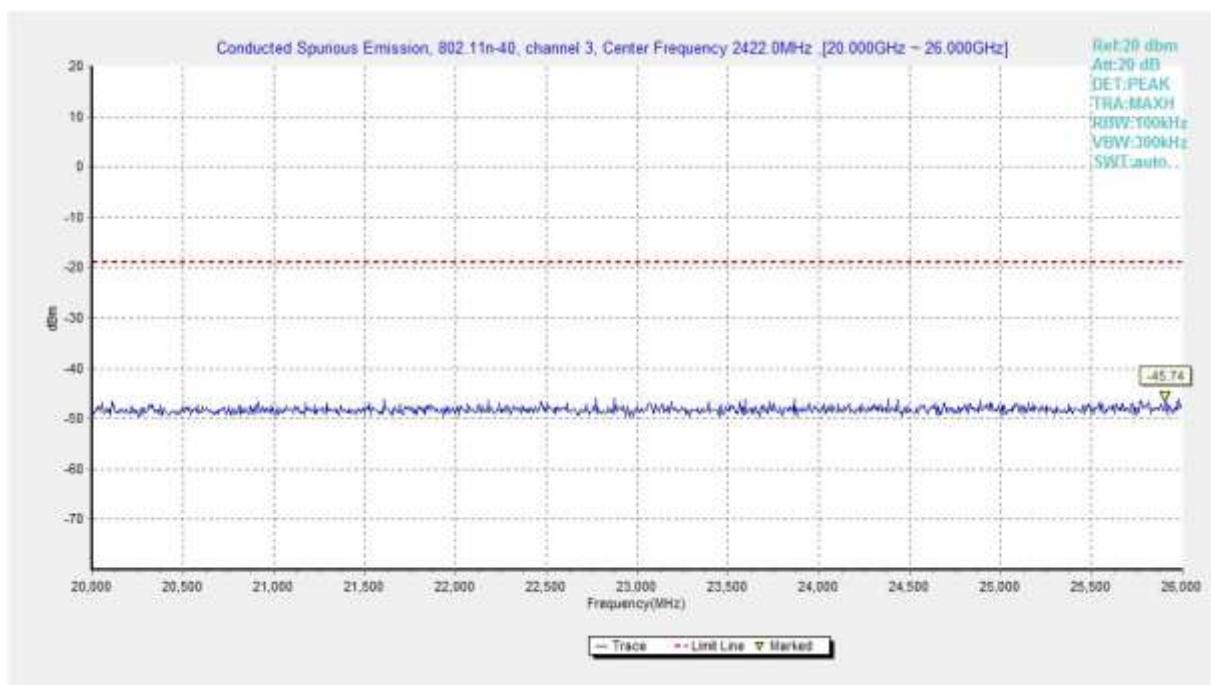
**Fig.A.6.1.77 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 7.5 GHz-10 GHz)**



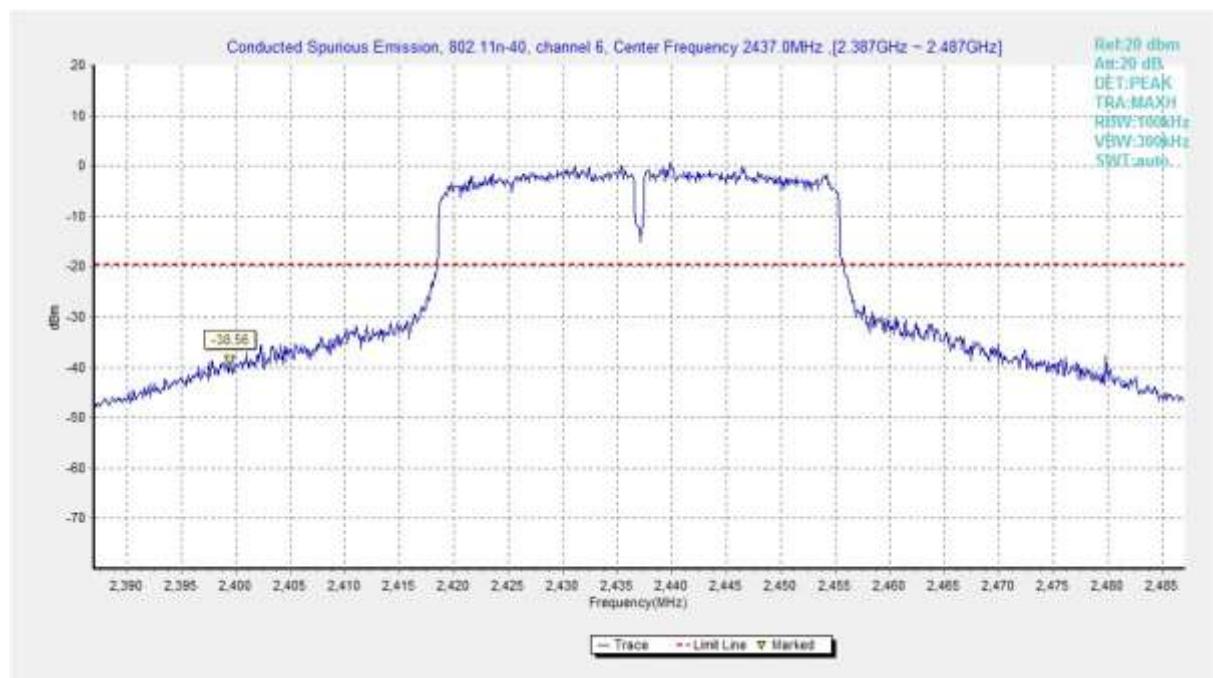
**Fig.A.6.1.78 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 10 GHz-15 GHz)**



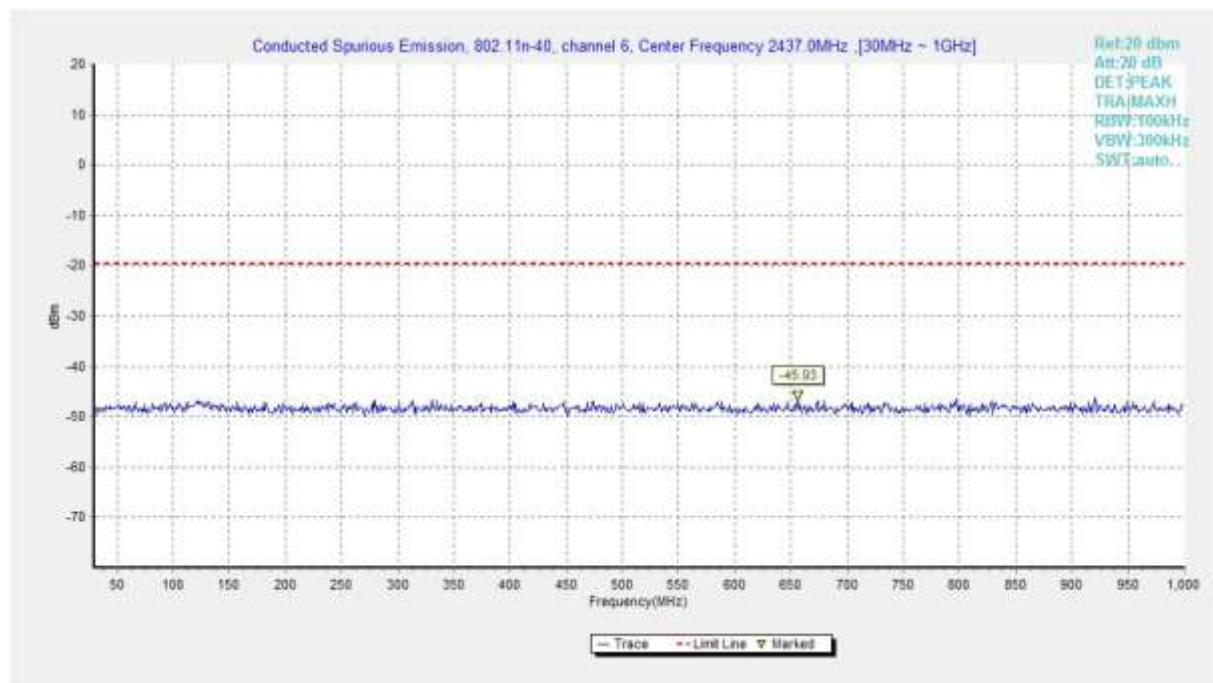
**Fig.A.6.1.79 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 15 GHz-20 GHz)**



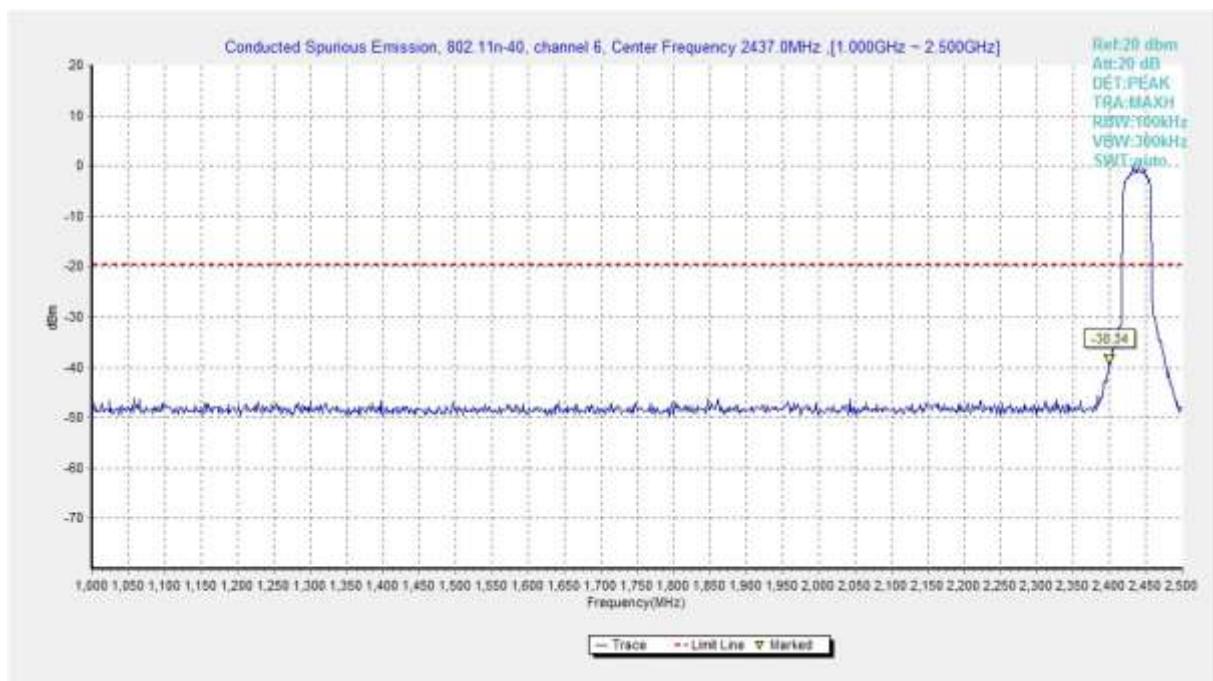
**Fig.A.6.1.80 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 20 GHz-26 GHz)**



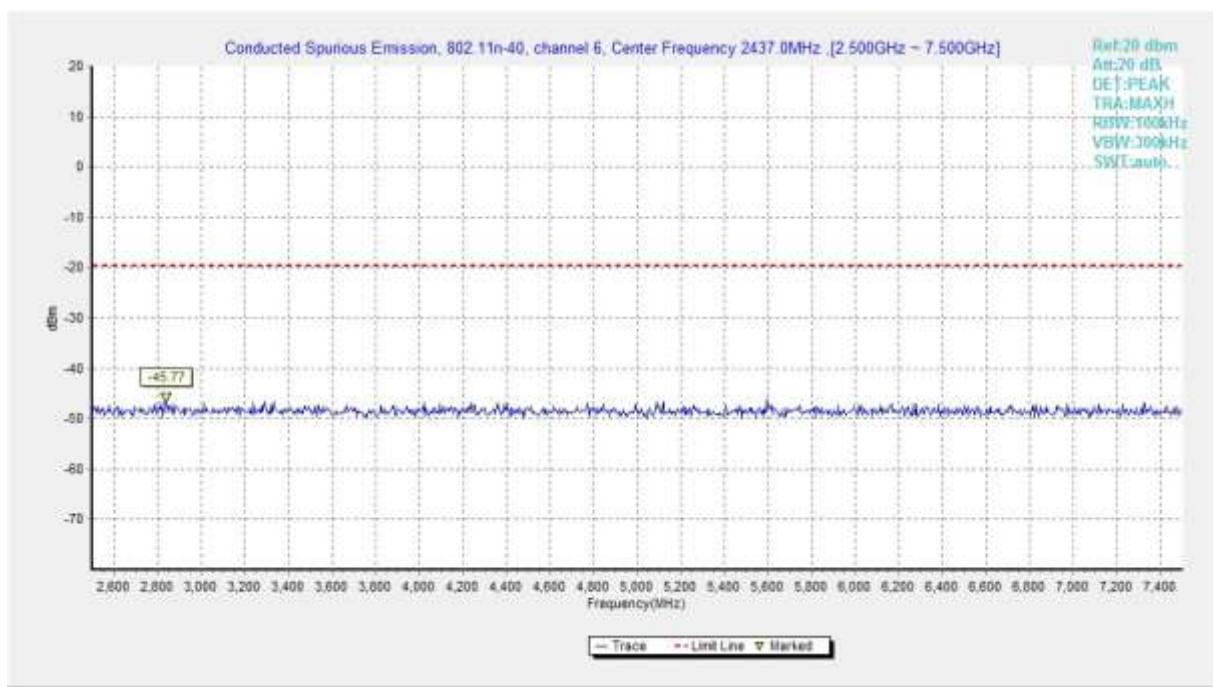
**Fig.A.6.1.81 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, Center Frequency)**



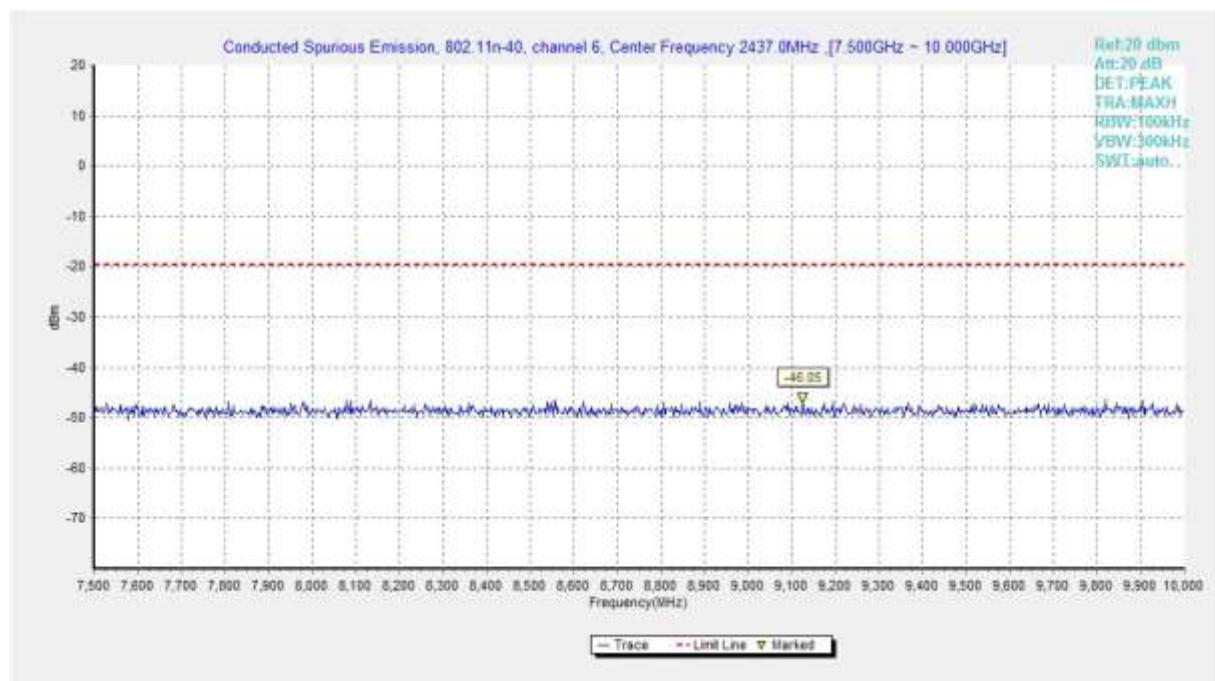
**Fig.A.6.1.82 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 30 MHz-1 GHz)**



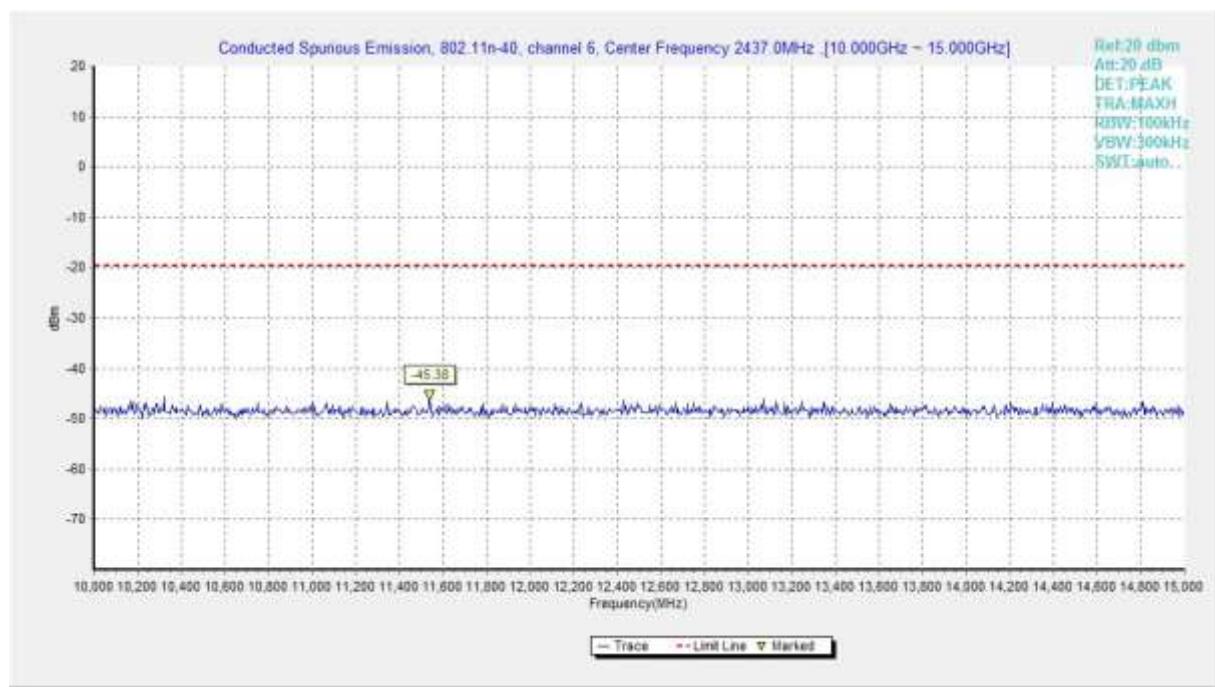
**Fig.A.6.1.83 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 1 GHz-2.5 GHz)**



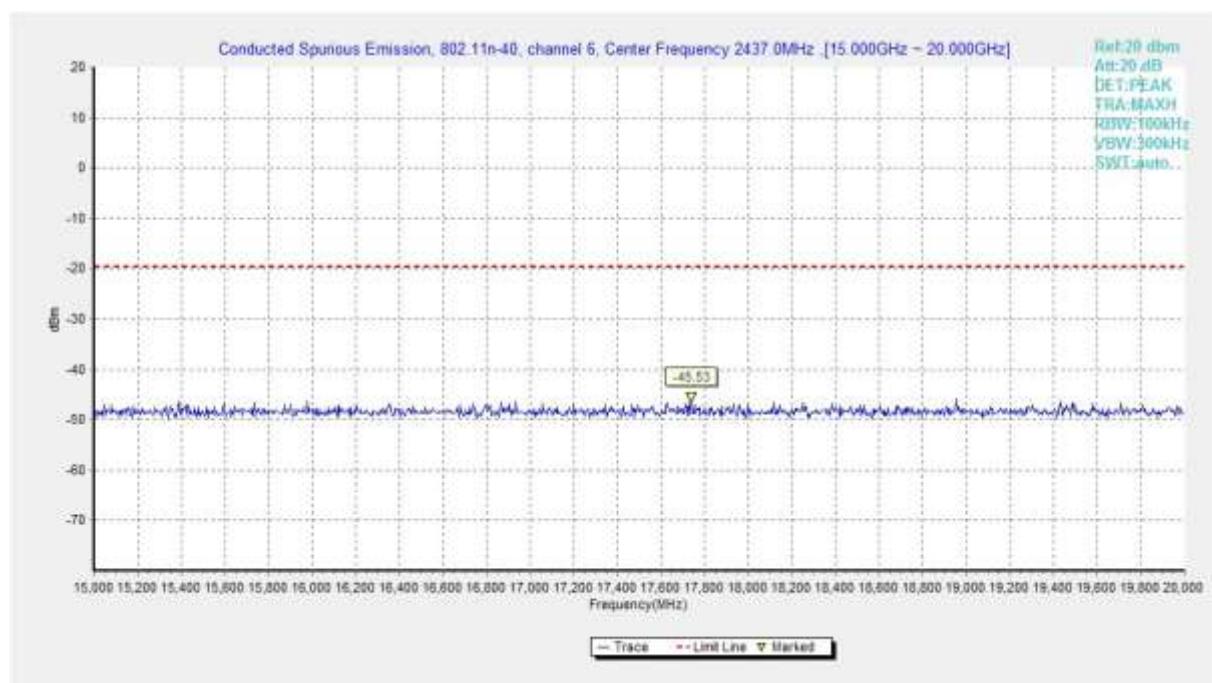
**Fig.A.6.1.84 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 2.5 GHz-7.5 GHz)**



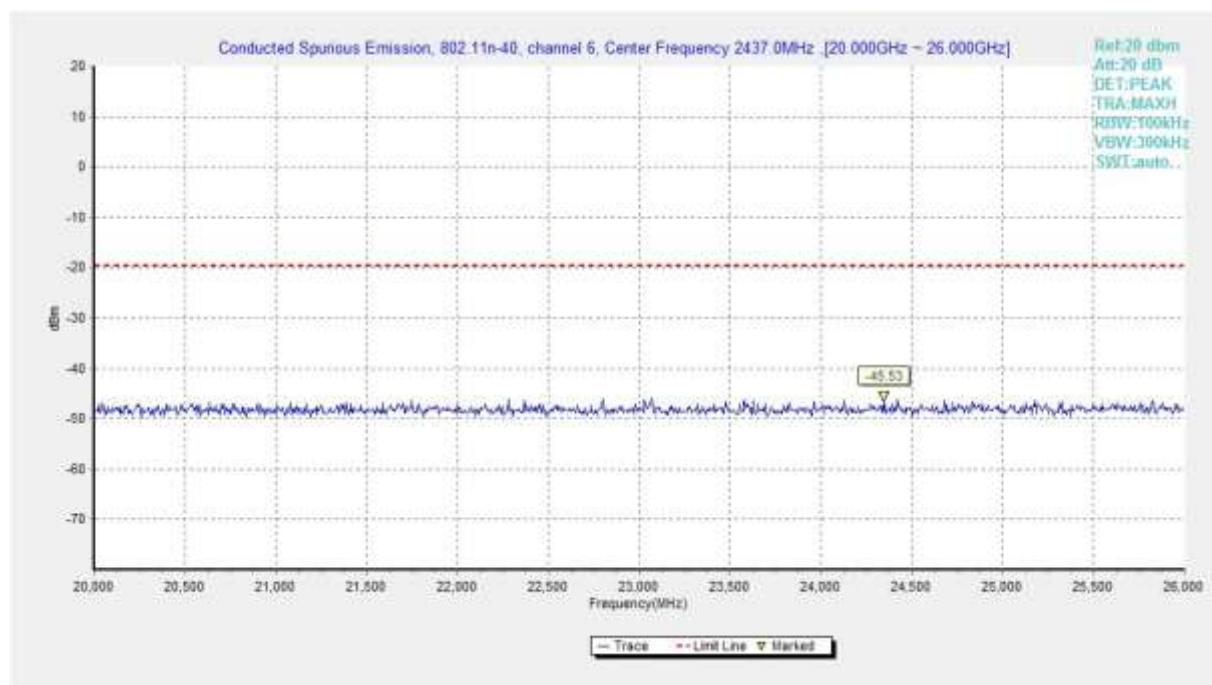
**Fig.A.6.1.85 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 7.5 GHz-10 GHz)**



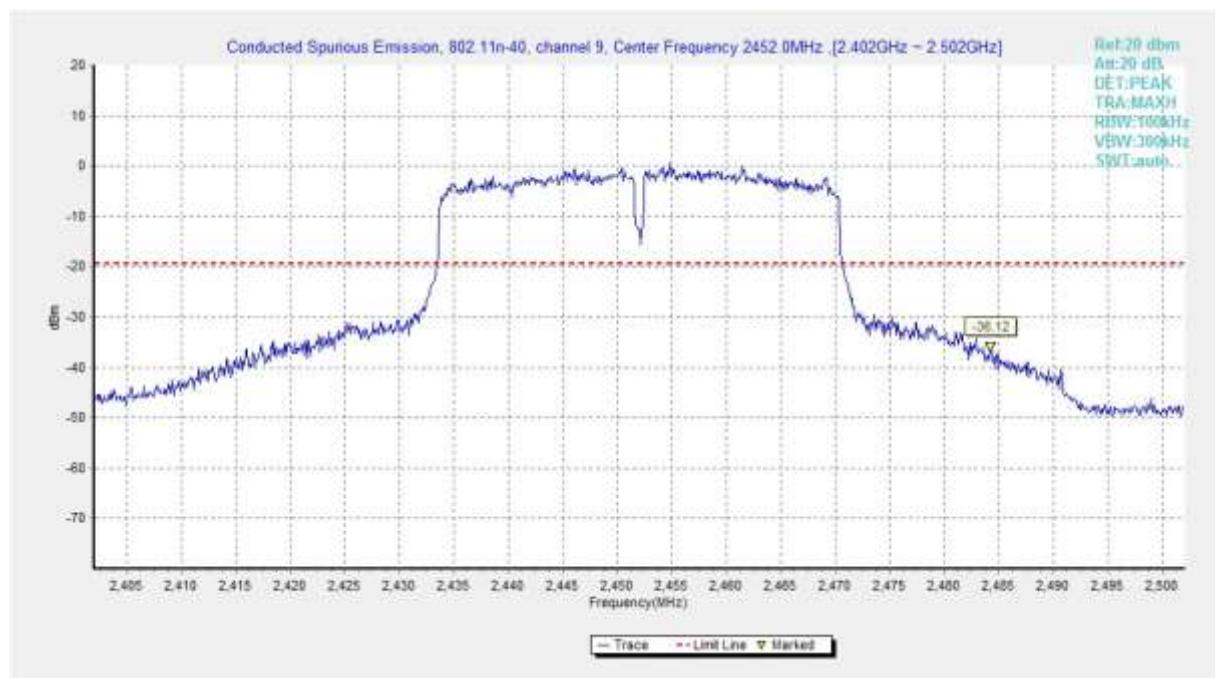
**Fig.A.6.1.86 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 10 GHz-15 GHz)**



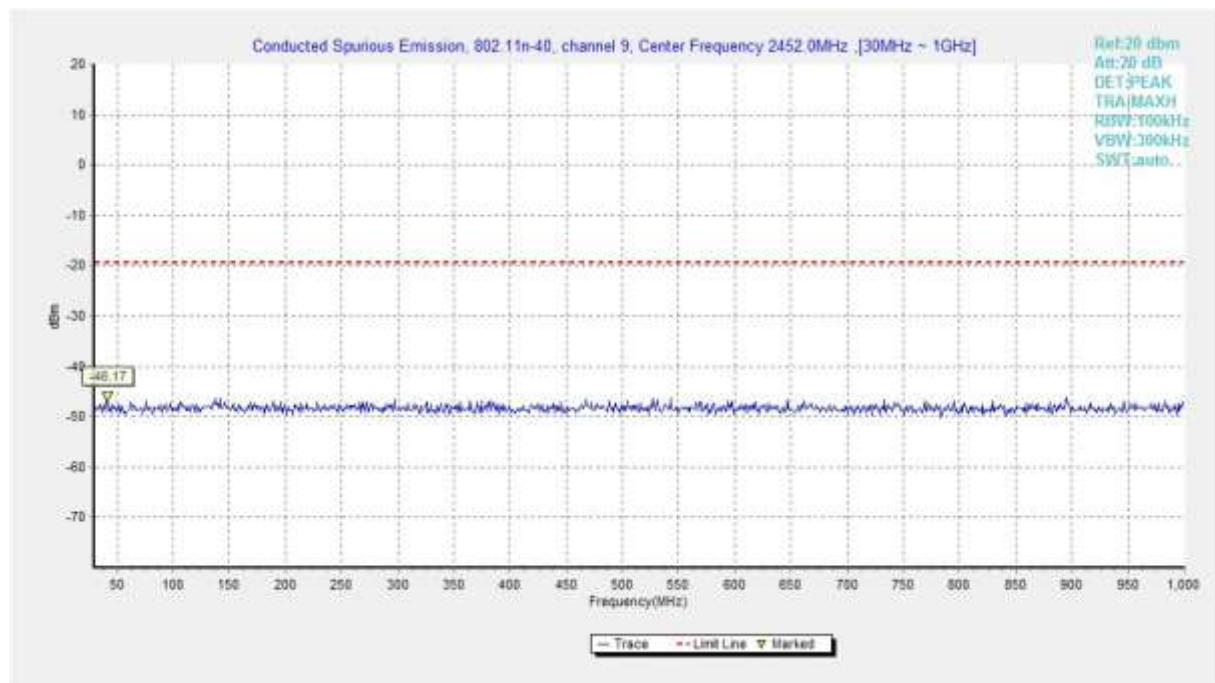
**Fig.A.6.1.87 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 15 GHz-20 GHz)**



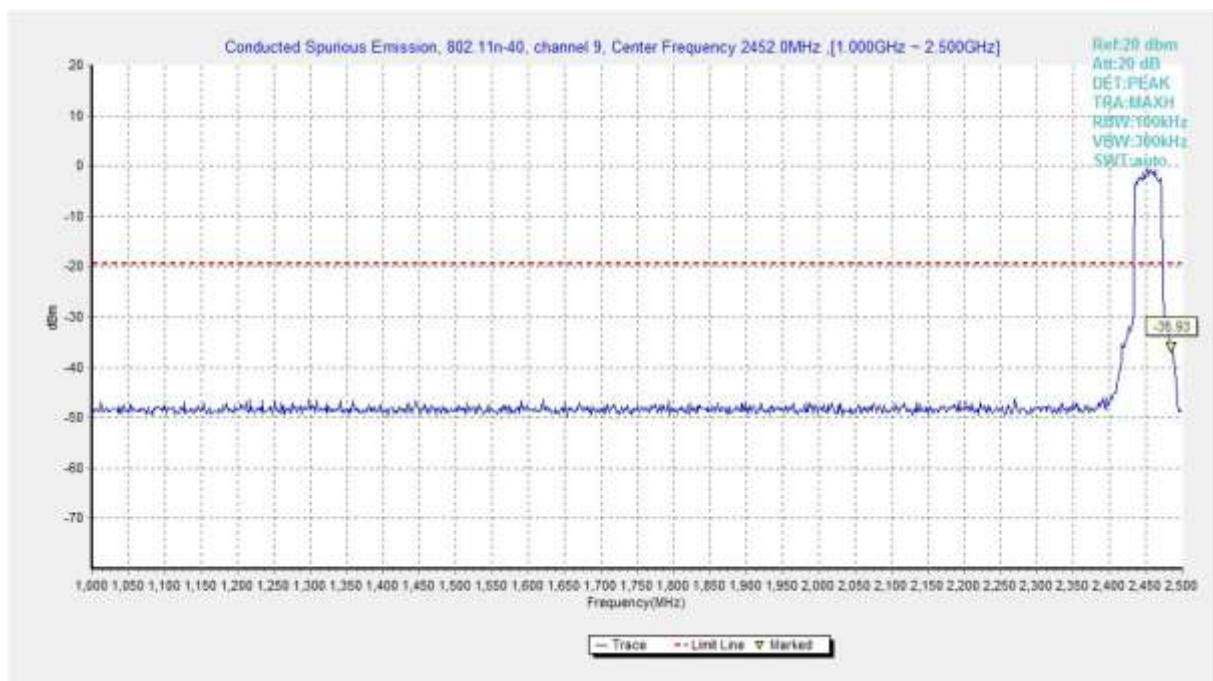
**Fig.A.6.1.88 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 20 GHz-26 GHz)**



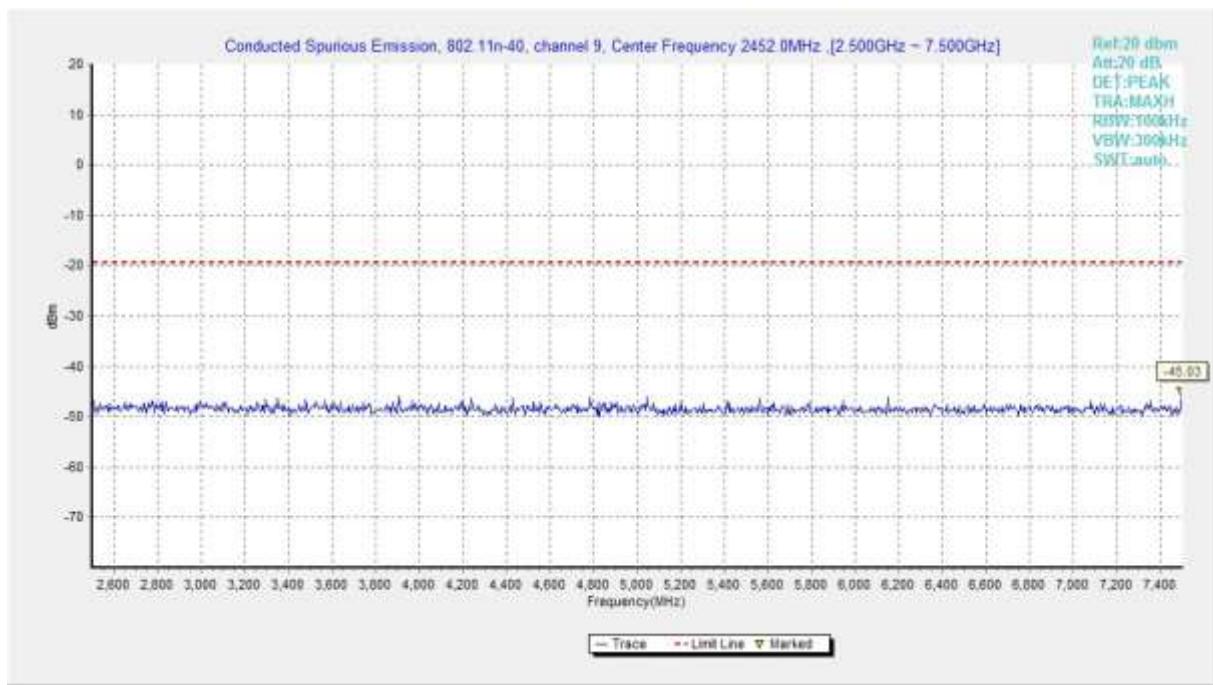
**Fig.A.6.1.89 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, Center Frequency)**



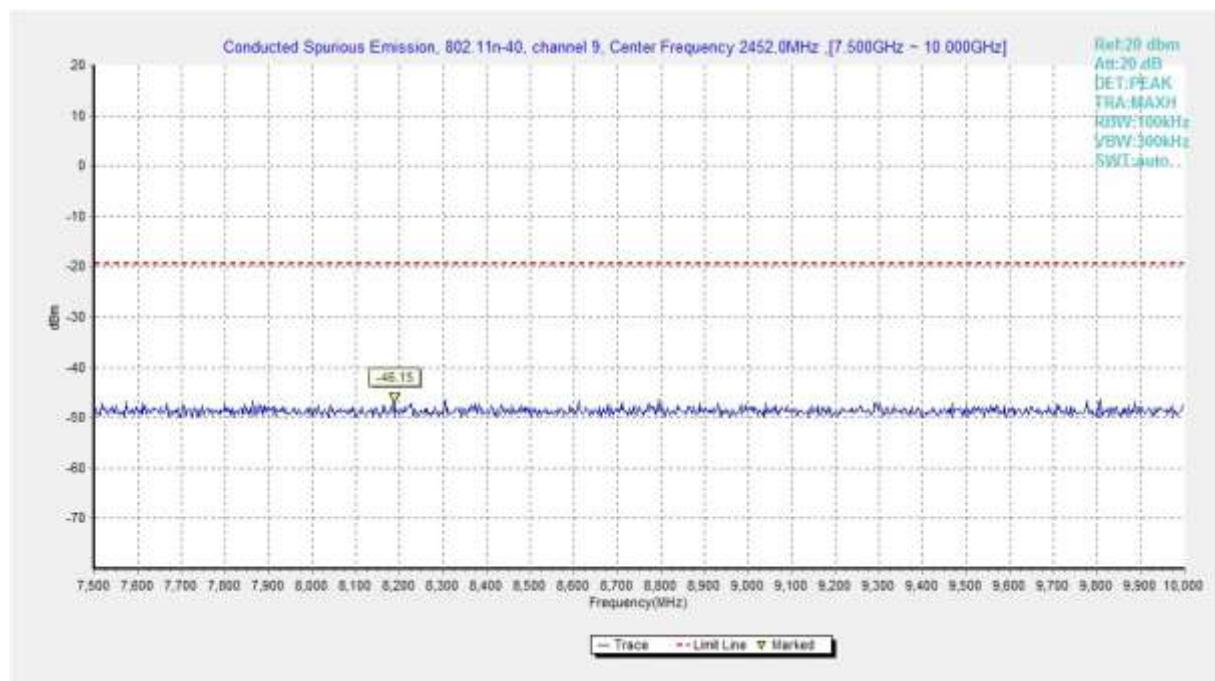
**Fig.A.6.1.90 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 30 MHz-1 GHz)**



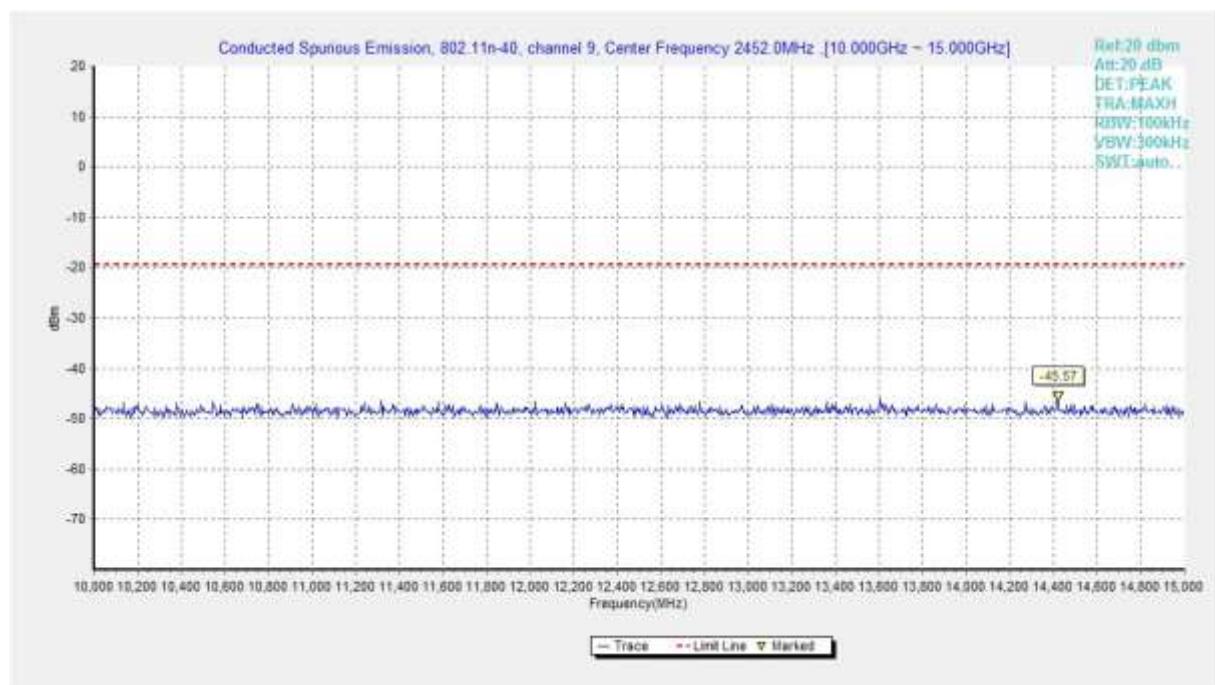
**Fig.A.6.1.91 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 1 GHz-2.5 GHz)**



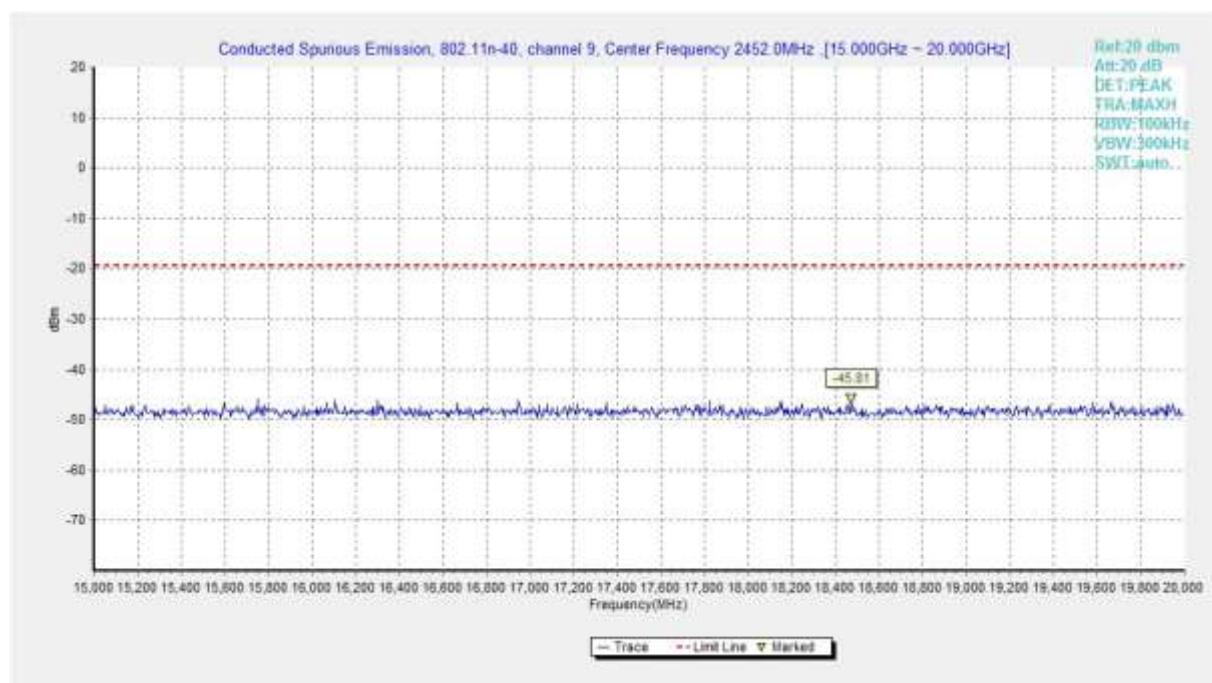
**Fig.A.6.1.92 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 2.5 GHz-7.5 GHz)**



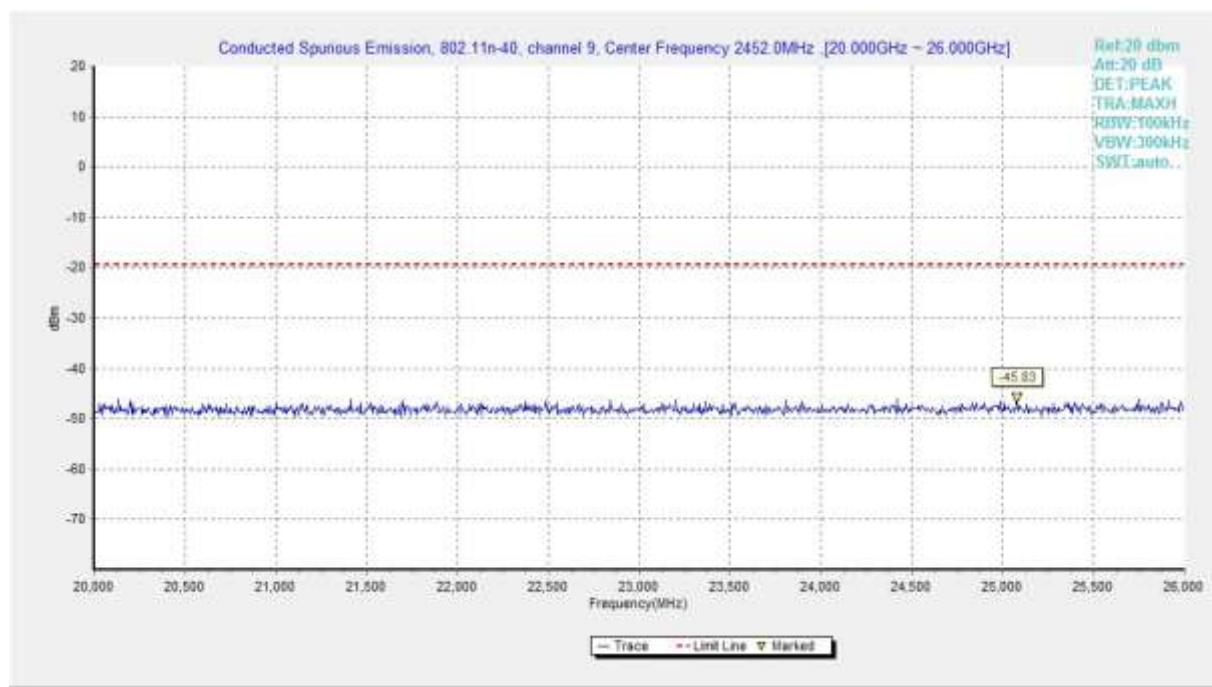
**Fig.A.6.1.93 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 7.5 GHz-10 GHz)**



**Fig.A.6.1.94 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 10 GHz-15 GHz)**



**Fig.A.6.1.95 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 15 GHz-20 GHz)**



**Fig.A.6.1.96 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 20 GHz-26 GHz)**

### A.6.2 Transmitter Spurious Emission - Radiated

**Method of Measurement: See ANSI C63.10-2013-clause 6.4 &6.5 & 6.6**

**Measurement Limit:**

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

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)).

**Limit in restricted band:**

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

Frequency (MHz)	Field strength( $\mu$ V/m)	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

**Test Condition**

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15
4000-18000	1MHz/1MHz	40
18000-26500	1MHz/1MHz	20

**EUT ID: EUT1**

**Measurement Results for Set.11:**
**802.11b mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	Power	2.38GHz ~2.43GHz	Fig.A.6.2.1	P
	1	1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P
	6	9 kHz ~30 MHz	--	P
		30 MHz ~1 GHz	--	P
		1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P
		18 GHz~ 26.5 GHz	--	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.2	P
	11	1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P

**802.11g mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	Power	2.38GHz ~2.43GHz	Fig.A.6.2.3	P
	1	1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P
	6	30 MHz ~1 GHz	--	P
		1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P
		18 GHz~ 26.5 GHz	--	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.4	P
	11	1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P

**802.11n-HT20 mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	Power	2.38GHz ~2.43GHz	Fig.A.6.2.5	P
	1	1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P
	6	30 MHz ~1 GHz	--	P
		1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P
		18 GHz~ 26.5 GHz	--	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.6	P
	11	1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P

**802.11n-HT40 mode**

<b>Mode</b>	<b>Channel</b>	<b>Frequency Range</b>	<b>Test Results</b>	<b>Conclusion</b>
802.11n (HT40)	Power	2.38GHz ~2.43GHz	Fig.A.6.2.7	P
	3	1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P
	6	30 MHz ~1 GHz	--	P
		1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P
		18 GHz~ 26.5 GHz	--	P
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.8	P
	9	1 GHz ~ 3 GHz	--	P
		3 GHz ~ 18 GHz	--	P

**Conclusion: Pass**

**Note:**

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

$P_{Mea}$  is the field strength recorded from the instrument.

The measurement results are obtained as described below:

$$\text{Result} = P_{Mea} + A_{Rpl} = P_{Mea} + \text{Cable Loss} + \text{Antenna Factor}$$

**802.11b-Average**

Ch1

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2384.840	41.7	-38.8	27.2	53.349	H
4824.000	45.4	-37.3	32.3	50.372	H
18000.000	41.0	-26.5	46.4	21.105	V
17988.000	40.8	-25.5	43.4	22.902	H
17994.000	40.8	-25.5	43.4	22.902	H
17997.000	40.7	-25.5	43.4	22.802	H

Ch6

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
4873.500	49.1	-37.5	32.3	54.274	H
17995.500	41.2	-25.5	43.4	23.302	H
17998.500	40.8	-25.5	43.4	22.902	V
17991.000	40.8	-25.5	43.4	22.902	H
17985.000	40.8	-25.5	43.4	22.902	H
17986.500	40.8	-25.5	43.4	22.902	H

Ch11

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2486.755	42.4	-39.0	27.2	54.214	H
4923.000	42.8	-37.2	32.3	47.701	H
17992.500	40.9	-25.5	43.4	23.002	V
17998.500	40.8	-25.5	43.4	22.902	H
18000.000	40.7	-26.5	46.4	20.805	H
17995.500	40.7	-25.5	43.4	22.802	H

**802.11b-Peak**

Ch1

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2388.425	54.5	-38.8	27.2	66.149	H
17967.000	52.6	-25.5	43.4	34.702	H
17983.500	52.6	-25.5	43.4	34.702	V
17722.500	52.5	-26.9	43.4	35.952	H
17925.000	52.4	-25.5	43.4	34.502	H
4824.000	52.3	-37.3	32.3	57.272	H

Ch6

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
4873.500	53.9	-37.5	32.3	59.074	H
17911.500	53.0	-25.7	43.4	35.342	H
17947.500	52.6	-25.5	43.4	34.702	V
17895.000	52.5	-25.7	43.4	34.842	H
17940.000	52.4	-25.5	43.4	34.502	H
18000.000	52.1	-26.5	46.4	32.205	H

Ch11

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2486.575	54.6	-39.0	27.2	66.414	H
17935.500	52.3	-25.5	43.4	34.402	H
17826.000	52.0	-25.7	43.4	34.342	V
17649.000	52.0	-26.9	43.4	35.452	H
17943.000	52.0	-25.5	43.4	34.102	H
17958.000	51.8	-25.5	43.4	33.902	H

**802.11g - Average**

Ch1

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2389.050	44.6	-38.8	27.2	56.249	H
17991.000	53.1	-25.5	43.4	35.202	H
17995.500	40.8	-25.5	43.4	22.902	V
18000.000	40.7	-26.5	46.4	20.805	H
17994.000	40.7	-25.5	43.4	22.802	H
17928.000	40.7	-25.5	43.4	22.802	H

Ch6

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
4873.500	41.2	-37.5	32.3	46.374	H
4870.500	40.9	-37.5	32.3	46.074	H
18000.000	40.7	-26.5	46.4	20.805	V
17994.000	40.7	-25.5	43.4	22.802	H
17991.000	40.7	-25.5	43.4	22.802	H
17988.000	40.7	-25.5	43.4	22.802	H

Ch11

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2485.145	44.0	-39.0	27.2	55.814	H
17997.000	40.9	-25.5	43.4	23.002	H
18000.000	40.7	-26.5	46.4	20.805	V
17986.500	40.7	-25.5	43.4	22.802	H
17994.000	40.6	-25.5	43.4	22.702	H
17943.000	40.6	-25.5	43.4	22.702	H

**802.11g - Peak**

Ch1

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2389.500	59.9	-38.8	27.2	71.549	H
17917.500	53.1	-25.5	43.4	35.202	H
17989.500	52.7	-25.5	43.4	34.802	V
17992.500	52.5	-25.5	43.4	34.602	H
17935.500	52.5	-25.5	43.4	34.602	H
18000.000	52.3	-26.5	46.4	32.405	H

Ch6

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
17956.500	52.5	-25.5	43.4	34.602	H
17914.500	52.4	-25.5	43.4	34.502	H
17991.000	52.1	-25.5	43.4	34.202	V
4873.500	52.0	-37.5	32.3	57.174	H
4875.000	52.0	-37.5	32.3	57.174	H
17976.000	51.8	-25.5	43.4	33.902	H

Ch11

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2484.040	59.3	-39.0	27.2	71.114	H
17922.000	52.2	-25.5	43.4	34.302	H
17811.000	52.2	-25.7	43.4	34.542	V
17784.000	51.9	-25.7	43.4	34.242	H
17991.000	51.9	-25.5	43.4	34.002	H
17950.500	51.7	-25.5	43.4	33.802	H

**802.11n-HT20-Average**

Ch1

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2386.465	45.7	-38.8	27.2	57.349	H
17992.500	40.9	-25.5	43.4	23.002	H
18000.000	40.8	-26.5	46.4	20.905	V
17989.500	40.8	-25.5	43.4	22.902	H
17994.000	40.7	-25.5	43.4	22.802	H
17988.000	40.7	-25.5	43.4	22.802	H

Ch6

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
4870.500	41.9	-37.5	32.3	47.074	H
4873.500	41.8	-37.5	32.3	46.974	H
4872.000	41.7	-37.5	32.3	46.874	V
4875.000	41.6	-37.5	32.3	46.774	H
4869.000	41.4	-37.5	32.3	46.574	H
4876.500	41.2	-37.5	32.3	46.374	H

Ch11

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2483.710	45.2	-39.0	27.2	57.014	H
17998.500	40.8	-25.5	43.4	22.902	H
17995.500	40.7	-25.5	43.4	22.802	V
17994.000	40.7	-25.5	43.4	22.802	H
18000.000	40.7	-26.5	46.4	20.805	H
17986.500	40.7	-25.5	43.4	22.802	H

**802.11n-HT20-Peak**

Ch1

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2387.385	62.3	-38.8	27.2	73.949	H
17952.000	52.7	-25.5	43.4	34.802	H
17937.000	52.5	-25.5	43.4	34.602	V
17971.500	52.4	-25.5	43.4	34.502	H
17997.000	52.2	-25.5	43.4	34.302	H
17794.500	52.0	-25.7	43.4	34.342	H

Ch6

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
4873.500	54.8	-37.5	32.3	59.974	H
4872.000	54.8	-37.5	32.3	59.974	H
4866.000	54.2	-37.5	32.3	59.374	V
4869.000	54.1	-37.5	32.3	59.274	H
4878.000	53.8	-37.5	32.3	58.974	H
4870.500	53.7	-37.5	32.3	58.874	H

Ch11

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2483.605	58.0	-39.0	27.2	69.814	H
17985.000	53.2	-25.5	43.4	35.302	H
17826.000	52.4	-25.7	43.4	34.742	V
17983.500	52.3	-25.5	43.4	34.402	H
17874.000	52.3	-25.7	43.4	34.642	H
17998.500	51.9	-25.5	43.4	34.002	H

**802.11n-HT40-Average**

Ch3

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2388.855	64.3	-38.8	27.2	75.949	H
17997.000	40.8	-25.5	43.4	22.902	H
17992.500	40.8	-25.5	43.4	22.902	V
18000.000	40.7	-26.5	46.4	20.805	H
17994.000	40.7	-25.5	43.4	22.802	H
17929.500	40.7	-25.5	43.4	22.802	H

Ch6

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
17995.500	41.0	-25.5	43.4	23.102	H
18000.000	40.9	-26.5	46.4	21.005	H
17994.000	40.8	-25.5	43.4	22.902	V
17997.000	40.8	-25.5	43.4	22.902	H
17988.000	40.8	-25.5	43.4	22.902	H
17998.500	40.8	-25.5	43.4	22.902	H

Ch9

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2484.615	47.9	-39.0	27.2	59.714	H
17991.000	40.7	-25.5	43.4	22.802	H
17992.500	40.7	-25.5	43.4	22.802	V
17995.500	40.7	-25.5	43.4	22.802	H
17989.500	40.7	-25.5	43.4	22.802	H
17959.500	40.6	-25.5	43.4	22.702	H

**802.11n-HT40-Peak**

Ch3

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2388.855	64.3	-38.8	27.2	75.949	H
17998.500	52.2	-25.5	43.4	34.302	H
18000.000	52.2	-26.5	46.4	32.305	V
17824.500	52.1	-25.7	43.4	34.442	H
17805.000	52.1	-25.7	43.4	34.442	H
17932.500	52.0	-25.5	43.4	34.102	H

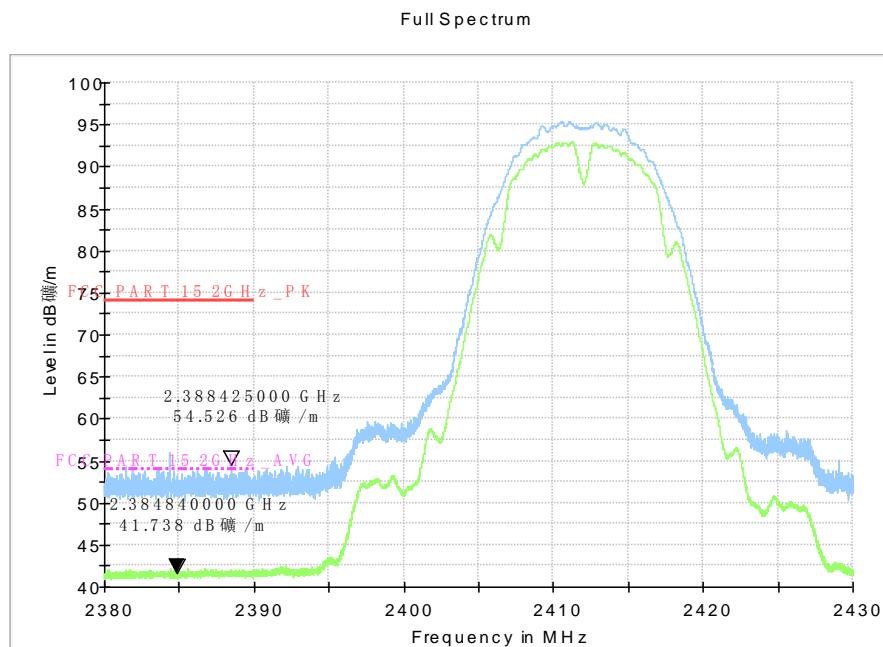
Ch6

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
17968.500	53.1	-25.5	43.4	35.202	H
17859.000	52.4	-25.7	43.4	34.742	H
17982.000	52.2	-25.5	43.4	34.302	V
17983.500	52.2	-25.5	43.4	34.302	H
17961.000	52.2	-25.5	43.4	34.302	H
17953.500	52.1	-25.5	43.4	34.202	H

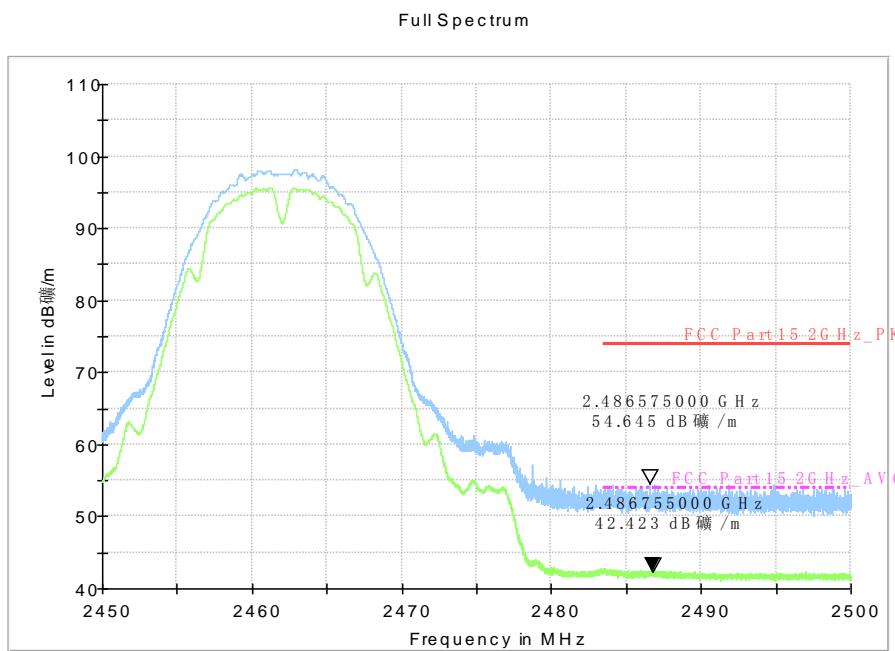
Ch9

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Antenna Pol. (H/V)
2484.405	60.3	-39.0	27.2	72.114	H
17983.500	52.9	-25.5	43.4	35.002	H
17958.000	52.6	-25.5	43.4	34.702	V
17974.500	52.4	-25.5	43.4	34.502	H
17944.500	52.3	-25.5	43.4	34.402	H
17959.500	52.2	-25.5	43.4	34.302	H

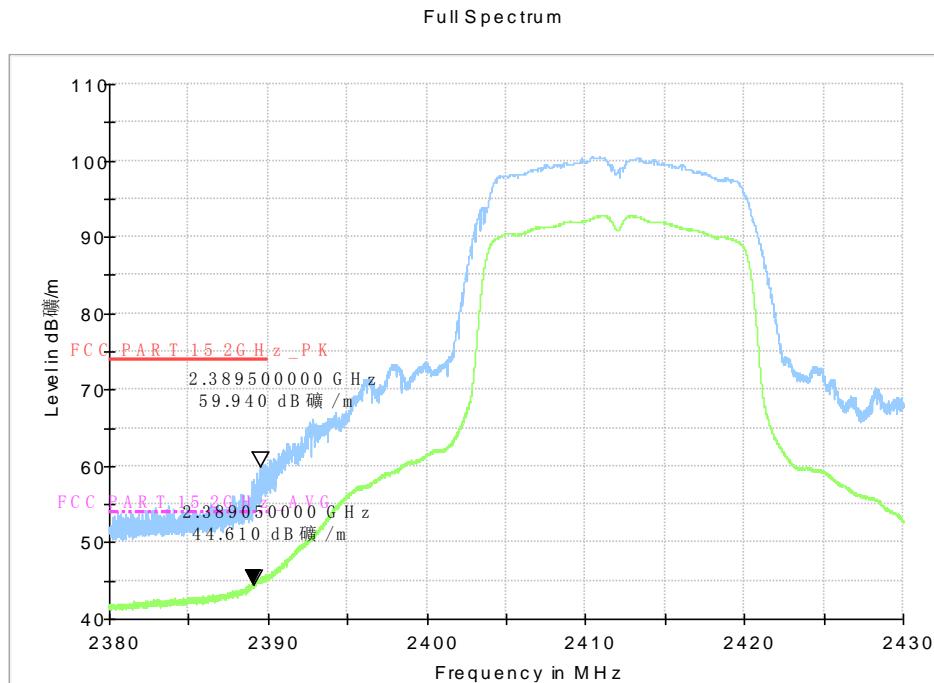
**Test graphs as below:**



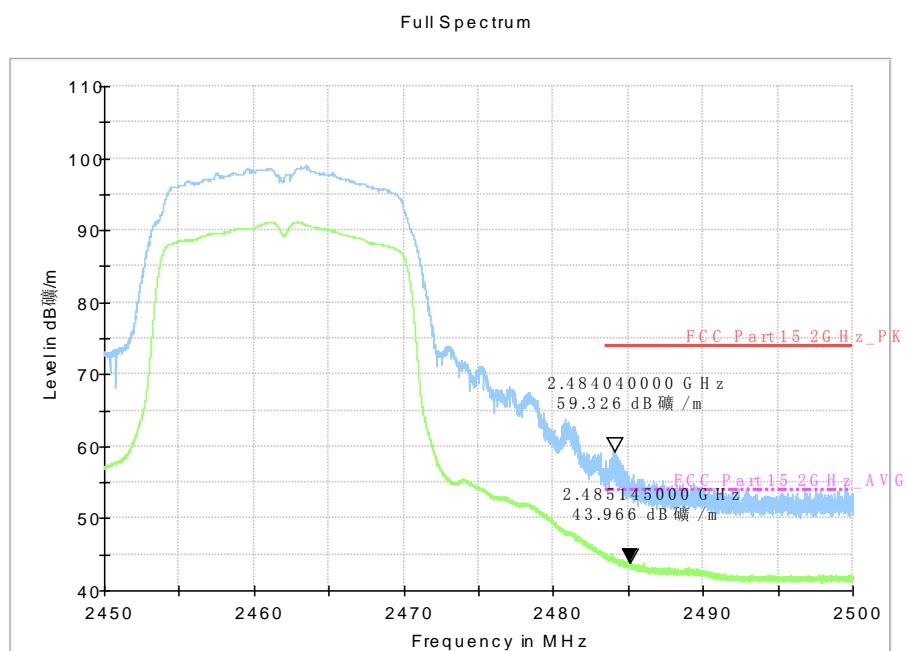
**Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.38 GHz – 2.43GHz**



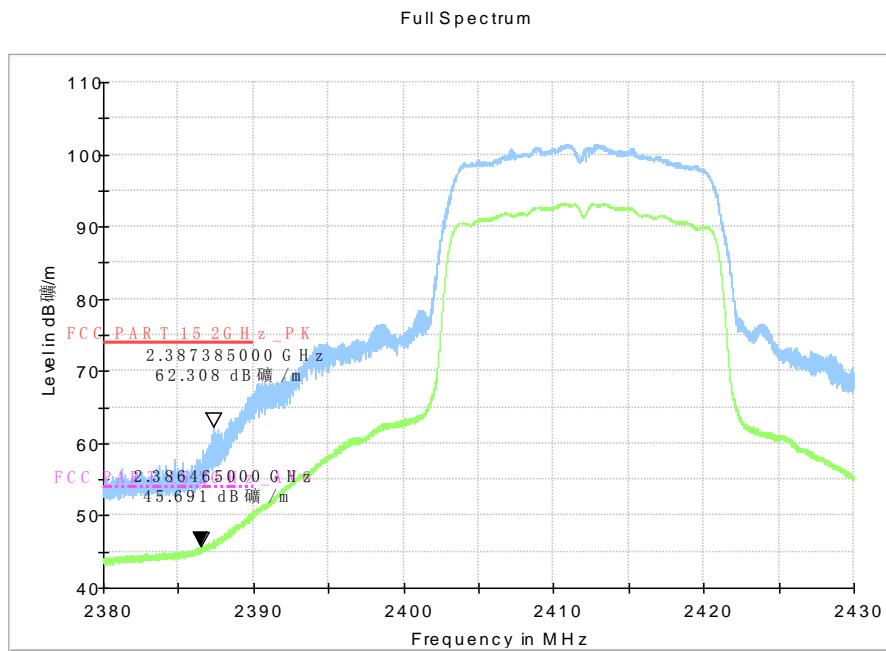
**Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz**



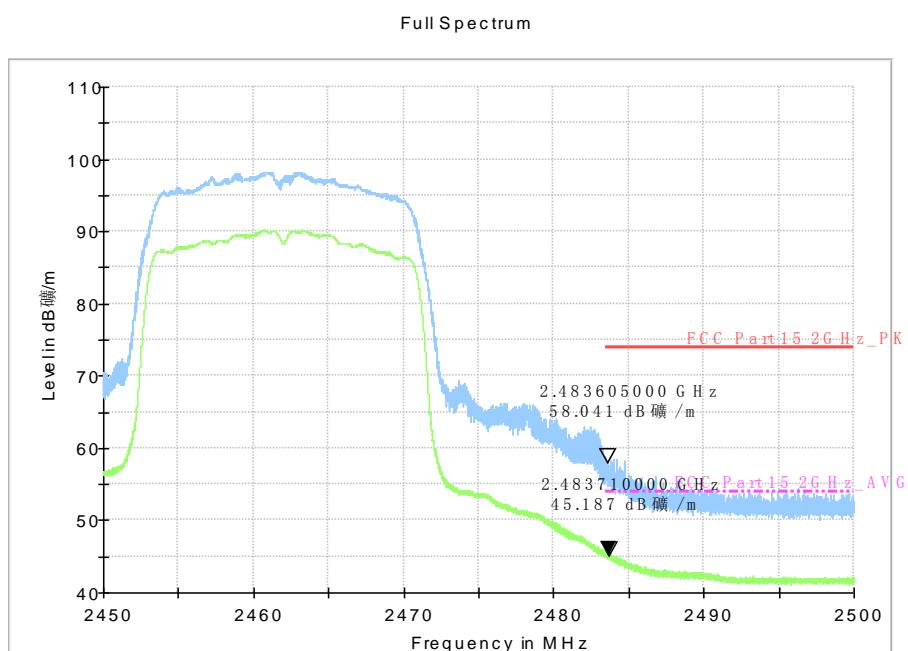
**Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.38 GHz - 2.43GHz**



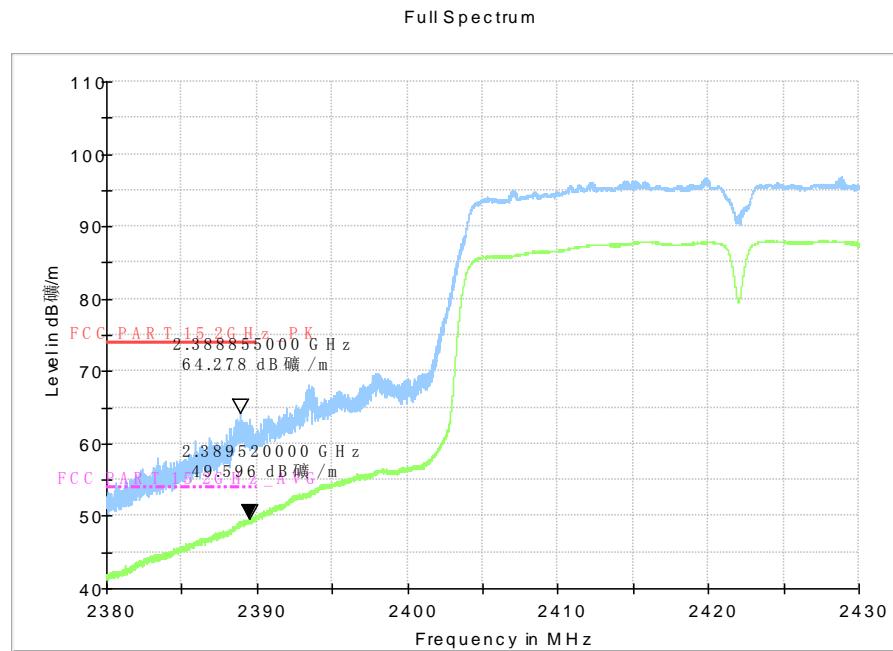
**Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz**



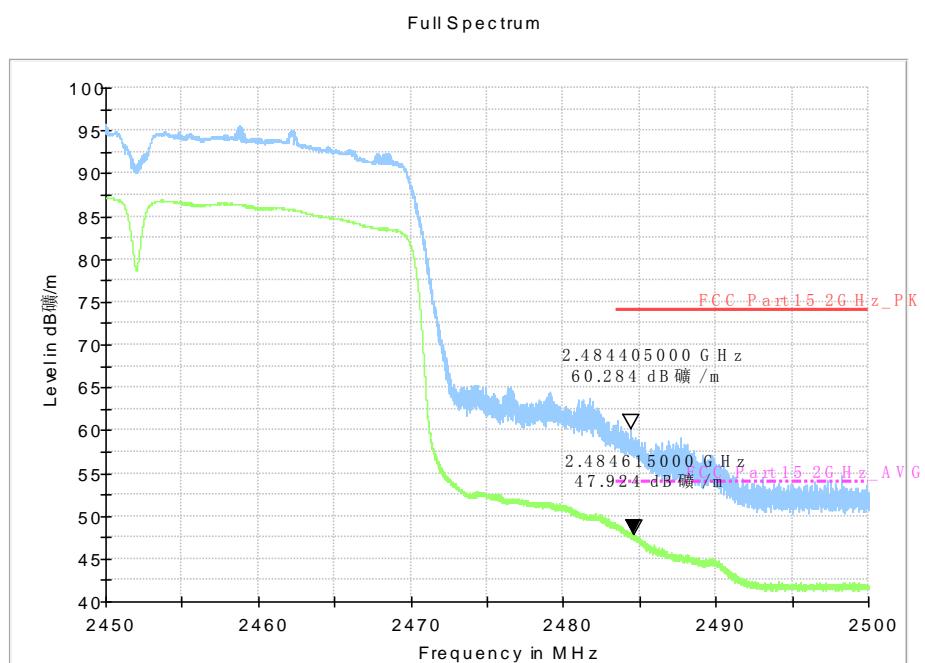
**Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz**



**Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz**



**Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.38 GHz - 2.43GHz**



**Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz**

## A.7. AC Power-line Conducted Emission

**Method of Measurement: See ANSI C63.10-2013-clause 6.2**

- 1 The one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT.
- 2 If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed.
- 3 The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation.
- 4 If the EUT is comprised of equipment units that have their own separate ac power connections, e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network, each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be separately measured. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.
- 5 If the EUT uses a detachable antenna, these measurements shall be made with a suitable dummy load connected to the antenna output terminals; otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended. When measuring the ac conducted emissions from a device that operates between 150 kHz and 30 MHz a non-detachable antenna may be replaced with a dummy load for the measurements.<sup>36</sup> Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency. Diagram or photograph the test setup that was used. See Clause 8 for full reporting requirements.

**Test Condition:**

Voltage (V)	Frequency (Hz)
120	60

**Measurement Result and limit:**

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion	
		With charger			
		802.11b	Idle		
0.15 to 0.5	66 to 56	Fig.A.7.1 Fig.A.7.2	Fig.A.7.3	P	
0.5 to 5	56				
5 to 30	60				

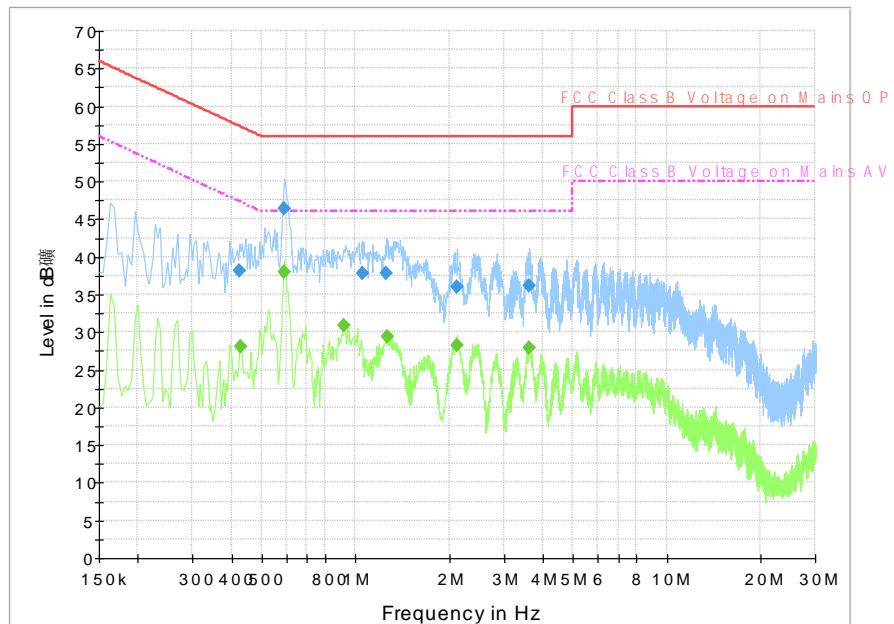
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion	
		With charger			
		802.11b	Idle		
0.15 to 0.5	56 to 46	Fig.A.7.1 Fig.A.7.2	Fig.A.7.3	P	
0.5 to 5	46				
5 to 30	50				

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

**Conclusion: Pass**
**Test graphs as below:**

**Traffic: Set.10**

**Fig.A.7.1 AC Powerline Conducted Emission-802.11b**

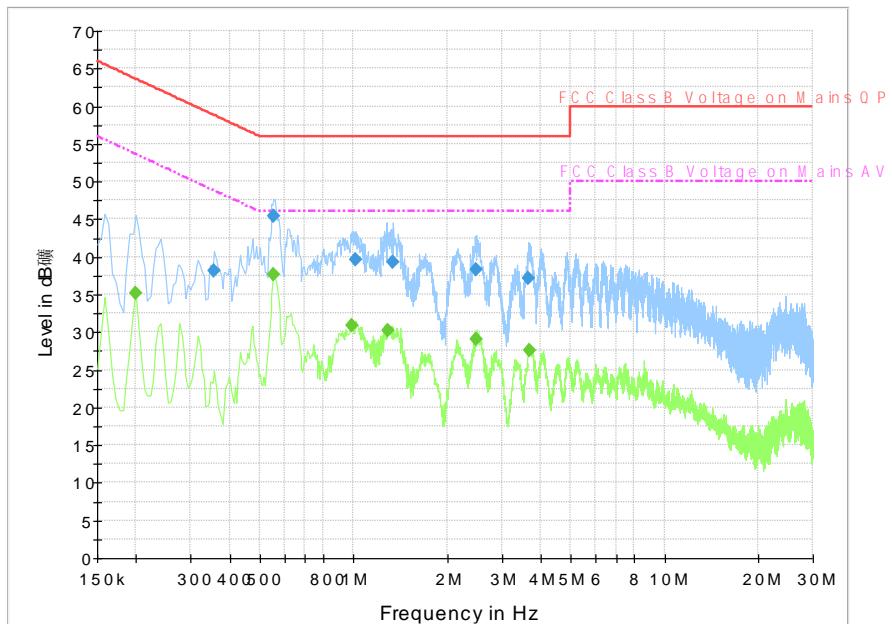
Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

**Final Result 1**

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.424500	38.1	2000.0	9.000	On	L1	19.9	19.3	57.4	
0.591000	46.4	2000.0	9.000	On	L1	19.9	9.6	56.0	
1.050000	37.8	2000.0	9.000	On	N	19.7	18.2	56.0	
1.261500	37.7	2000.0	9.000	On	L1	19.6	18.3	56.0	
2.125500	36.1	2000.0	9.000	On	L1	19.7	19.9	56.0	
3.628500	36.2	2000.0	9.000	On	L1	19.6	19.8	56.0	

**Final Result 2**

Frequency (MHz)	Average (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.429000	28.1	2000.0	9.000	On	L1	19.9	19.2	47.3	
0.591000	38.0	2000.0	9.000	On	L1	19.9	8.0	46.0	
0.919500	30.8	2000.0	9.000	On	L1	19.7	15.2	46.0	
1.270500	29.5	2000.0	9.000	On	L1	19.6	16.5	46.0	
2.125500	28.3	2000.0	9.000	On	L1	19.7	17.7	46.0	
3.619500	27.9	2000.0	9.000	On	L1	19.6	18.1	46.0	

**Traffic: Set.11**

**Fig.A.7.2 AC Powerline Conducted Emission-802.11b**

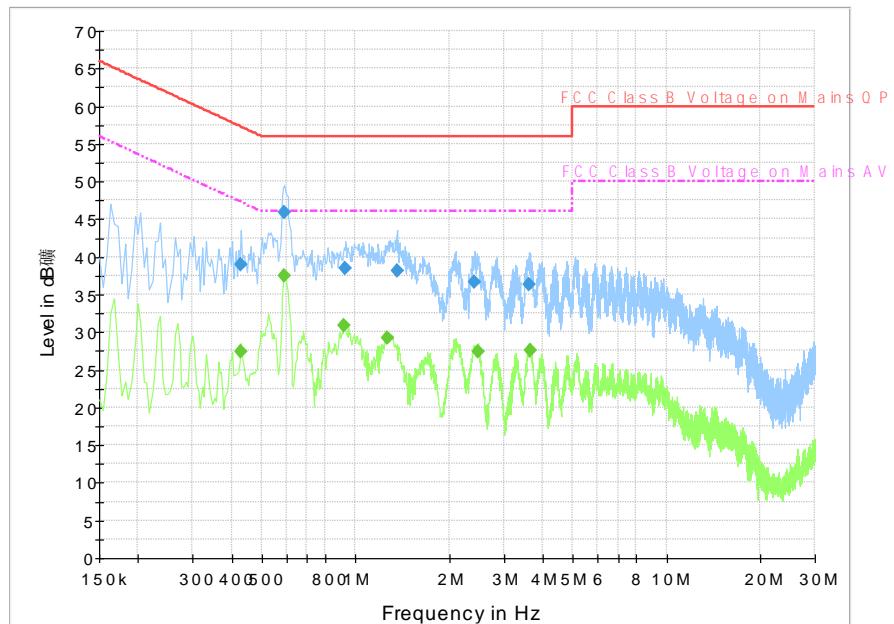
Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

### Final Result 1

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.357000	38.2	2000.0	9.000	On	N	19.9	20.6	58.8	
0.555000	45.3	2000.0	9.000	On	L1	19.9	10.7	56.0	
1.018500	39.7	2000.0	9.000	On	L1	19.6	16.3	56.0	
1.342500	39.2	2000.0	9.000	On	L1	19.6	16.8	56.0	
2.490000	38.3	2000.0	9.000	On	L1	19.7	17.7	56.0	
3.651000	37.2	2000.0	9.000	On	L1	19.6	18.8	56.0	

### Final Result 2

Frequency (MHz)	Average (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.199500	35.1	2000.0	9.000	On	N	19.8	18.5	53.6	
0.555000	37.6	2000.0	9.000	On	N	19.9	8.4	46.0	
0.987000	30.9	2000.0	9.000	On	L1	19.6	15.1	46.0	
1.293000	30.2	2000.0	9.000	On	L1	19.6	15.8	46.0	
2.490000	29.0	2000.0	9.000	On	L1	19.7	17.0	46.0	
3.682500	27.6	2000.0	9.000	On	L1	19.6	18.4	46.0	

**Idle: Set.10**

**Fig.A.7.3 AC Powerline Conducted Emission-Idle**

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

**Final Result 1**

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.429000	39.0	2000.0	9.000	On	L1	19.9	18.2	57.3	
0.591000	45.9	2000.0	9.000	On	L1	19.9	10.1	56.0	
0.928500	38.4	2000.0	9.000	On	L1	19.7	17.6	56.0	
1.360500	38.2	2000.0	9.000	On	N	19.6	17.8	56.0	
2.418000	36.7	2000.0	9.000	On	L1	19.7	19.3	56.0	
3.606000	36.3	2000.0	9.000	On	L1	19.6	19.7	56.0	

**Final Result 2**

Frequency (MHz)	Average (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.429000	27.3	2000.0	9.000	On	L1	19.9	19.9	47.3	
0.591000	37.4	2000.0	9.000	On	L1	19.9	8.6	46.0	
0.919500	30.9	2000.0	9.000	On	L1	19.7	15.1	46.0	
1.266000	29.2	2000.0	9.000	On	L1	19.6	16.8	46.0	
2.481000	27.4	2000.0	9.000	On	L1	19.7	18.6	46.0	
3.646500	27.6	2000.0	9.000	On	L1	19.6	18.4	46.0	



## ANNEX B: Accreditation Certificate

United States Department of Commerce  
National Institute of Standards and Technology



### Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 600118-0

**Telecommunication Technology Labs, CAICT**

Beijing  
China

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:*

**Electromagnetic Compatibility & Telecommunications**

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-09-28 through 2019-09-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

\*\*\*END OF REPORT\*\*\*