

# FCC TEST REPORT

For

**Handheld Data Terminal**

**Model Number: V5000, RX-V5**

**FCC ID: SWSV5000**

**Report Number : WT138000734**

Test Laboratory : Shenzhen Academy of Metrology and Quality  
Inspection  
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## Test report declaration

Applicant : Shenzhen Urovo Technology Co.,Ltd

Address : A701-710, Zondy Cyber Building, Keyuan South Road, South District of High-Tech Industrial Park, Nanshan, Shenzhen, China

Manufacturer : Shenzhen Urovo Technology Co.,Ltd

Address : A701-710, Zondy Cyber Building, Keyuan South Road, South District of High-Tech Industrial Park, Nanshan, Shenzhen, China

EUT Description : Handheld Data Terminal

Model No : V5000, RX-V5

Trade mark : UROVO

Serial Number : --

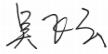
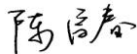

FCC ID : **SWSV5000**

Test Standards:

**FCC Part 15 15.207, 15.209, 15.247(2012)**

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with FCC Rules Part 15.207, 15.209 and 15.247.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Project Engineer:	 (Wu Feiyun)	Date:	<u>Nov.4,2013</u>
Checked by:	 (Chen QiChun)	Date:	<u>Nov.4,2013</u>
Approved by:	 (Lin Bin)	Date:	<u>Nov.4,2013</u>

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## 1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	FCC Rules	Test Results
6dB DTS bandwidth measurement	15.247 (a) (2)	Pass
Maximum Peak Conducted Power	15.247 (b) (3)	Pass
Maximum Power Spectral Density Level	15.247 (3)	Pass
Conducted Bandedge and Spurious	15.247 (d)	Pass
Radiated Bandedge and Spurious	15.247 (d) 15.209 15.205	Pass
Conducted emission test for AC power port	15.207	Pass
Antenna Requirment	15.203	Pass

Remark: “ N/A” means “ Not applicable.”

## **2. GENERAL INFORMATION**

### **2.1. Report information**

2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.

2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

### **2.2. Laboratory Accreditation and Relationship to Customer**

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at No.4 Tongfa Road, Xili Town, Nanshan District, Shenzhen, Guangdong, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Service for Conformity Assessment (CNAS) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is CNAS L0579.

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number are 446246 806614 994606(semi anechoic chamber).

The Laboratory is listed in Voluntary Control Council for Interference by Information

Technology Equipment (VCCI), and the registration number are R-1974(open area test site) , R-1966(semi anechoic chamber),C-2117(mains ports conducted interference measurement) and T-180(telecommunication ports conducted interference measurement).

The Laboratory is registered to perform emission tests with Industry Canada (IC), and the registration number is 11177A-1 11177A-2.

TUV Rhineland accredits the Laboratory for conformance to IEC and EN standards, the registration number is E2024086Z02.

### **2.3.Measurement Uncertainty**

Conducted Emission

9kHz~30MHz 3.5dB

Radiated Emission

30MHz~1000MHz 4.5dB

1GHz~18GHz 4.6dB

### 3. PRODUCT DESCRIPTION

#### 3.1.EUT Description

Description : Handheld Data Terminal

Manufacturer : Shenzhen Urovo Technology Co.,Ltd

Model Number : V5000, RX-V5

Operate : 802.11b/g: 2412-2462 MHz

Frequency

Modulation : 802.11b: DSSS (DBPSK / DQPSK / CCK)  
802.11g: OFDM (BPSK / QPSK / 16QAM / 64QAM)

Antenna : Integral Antenna

Designation 2.0dBi

The model V5000 and RX-V5 are identical in all aspects, except model numbers for marketing purpose. Tests were performed on V5000 only.

WLAN :

Table 2 Working Frequency List 802.11b/g 20MHz

Channel	Center Frequency(MHz)	Channel	Center Frequency(MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442		

#### 3.2.Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: SWSV5000, filing to comply with Section 15.207 , 15.209 , 15.247 of the FCC Part 15, Subpart C Rules.



### 3.3. Block Diagram of EUT Configuration



Figure 1 EUT setup

### 3.4. Operating Condition of EUT

Worst-case mode and channel used for 30-1000 MHz radiated and power line conducted emissions was the mode and channel with the highest output power.

Worst-case data rates as provided by the client were:

802.11b mode: 1 Mbps

802.11g mode: 6 Mbps

Test mode is configured to be with duty cycle >98%

802.11b and 802.11g operate in SISO mode. For SISO conducted measurements, the modes tested in this report will be considered as a worst case mode.

### 3.5. Directional Antenna Gain

The EUT does NOT support a WIFI MIMO function.

Directional gain need NOT to be considered.

### 3.6.Support Equipment List

Table 3 Support Equipment List

Name	Model No	S/N	Manufacturer
Adaptor	HPJ-A0552600U-01	--	HPJ

### 3.7.Test Conditions

Date of test : Oct 16-Oct 29, 2013

Date of EUT Receive : Oct 12, 2013

Temperature: 23-24 °C

Relative Humidity: 53-56%

### 3.8.Special Accessories

Not available for this EUT intended for grant.

### 3.9.Equipment Modifications

Not available for this EUT intended for grant.

#### 4. TEST EQUIPMENT USED

Table 4 Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2603	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.21, 2013	1 Year
SB3321	AMN	Rohde & Schwarz	ESH2-Z5	Jan.21, 2013	1 Year
SB2604	AMN	Rohde & Schwarz	ESH3-Z5	Jan.21, 2013	1 Year
SB8501/09	EMI Test Receiver	Rohde & Schwarz	ESU40	May.17, 2013	1 Year
SB8501/04	Bilog Antenna	Schwarzbeck	VULB9163	Jan.21, 2013	1 Year
SB3435	Horn Antenna	Rohde & Schwarz	HF906	Jan.21, 2013	1 Year
SB3435/01	Amplifier(1-18GHz)	Rohde & Schwarz	---	Jan.21, 2013	1 Year
SB3435/02	Amplifier(18-40GHz)	Rohde & Schwarz	---	May.17, 2013	1 Year
SB5392/02	Horn Antenna	Amplifier Research	AT4560	May.17, 2013	1 Year
SB3450/01	3m Semi-anechoic chamber	Albatross Projects	9X6X6	Oct.12, 2012	2 Years
SB3345	Loop Antenna	Schwarzbeck	FMZB1516	Jan.23, 2012	2 Years

## 5. 6DB BANDWIDTH MEASUREMENT

### 5.1.LIMITS OF 6dB BANDWIDTH MEASUREMENT

CFR 47 (FCC) part 15.247 (a) (2) and 558074 D01 DTS Meas Guidance v03r01

### 5.2.TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer.

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq$  3 RBW.
- 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.

### 5.3.TEST SETUP



### 5.4.Test Data

Table 5 6dB Bandwidth Test Data 802.11b

CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	results
2412	9.127	Pass
2437	9.125	Pass
2462	9.120	Pass

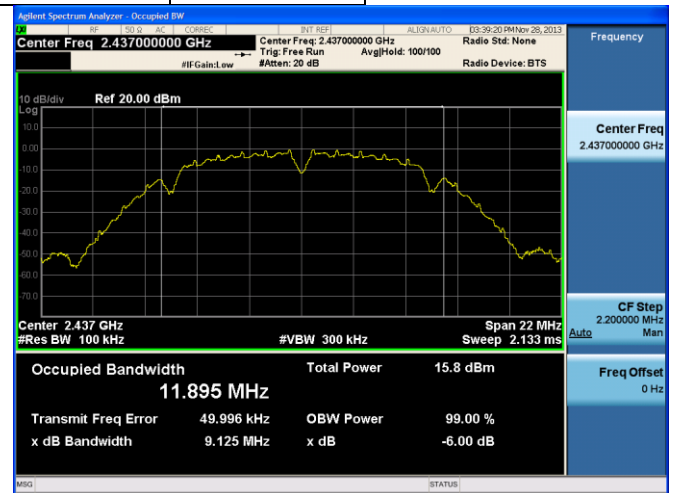
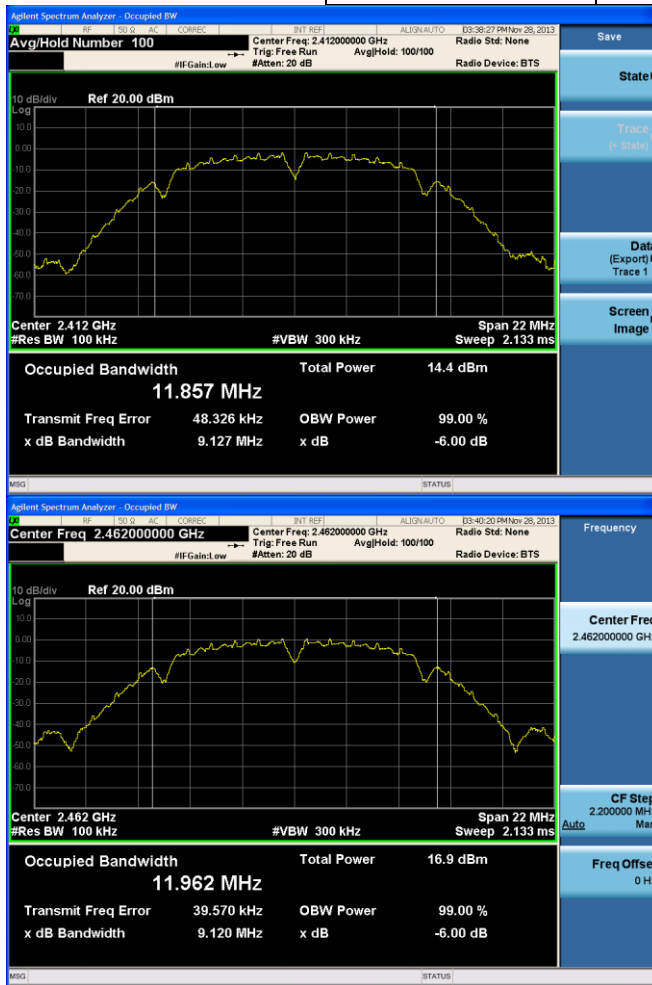
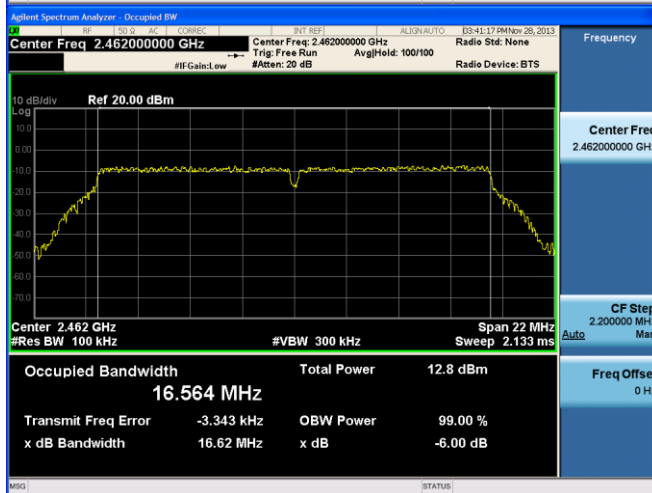
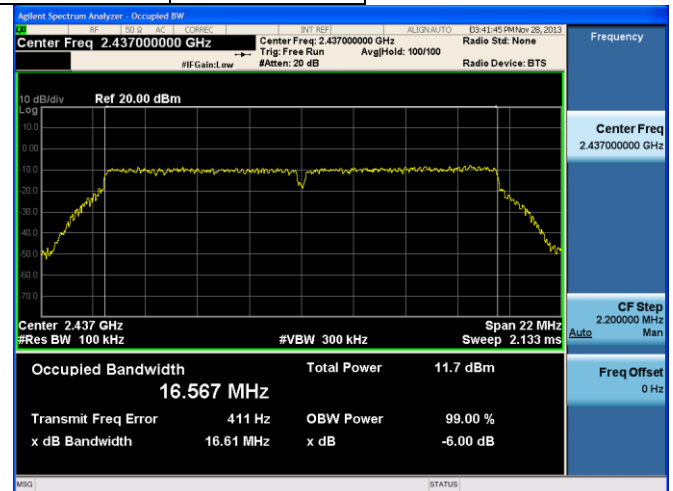
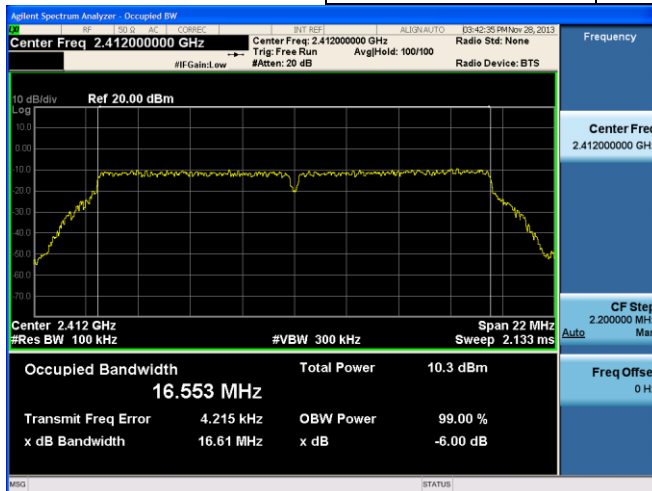


Table 6 6dB Bandwidth Test Data 802.11g

CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	results
2412	16.61	Pass
2437	16.61	Pass
2462	16.62	Pass



## **6. MAXIMUM PEAK CONDUCTED OUTPUT POWER MEASUREMENT**

### **6.1.LIMITS OF Maximum Peak Conducted Output Power Measurement**

CFR 47 (FCC) part 15.247 (b) (3) and 558074 D01 DTS Meas Guidance v03r01

### **6.2.TEST PROCEDURE**

The transmitter output was connected to the spectrum analyzer.

- a)Set the RBW = 1 MHz.
- b)Set the VBW  $\geq 3 \times$  RBW
- c)Set the span  $\geq 1.5 \times$  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

### **6.3.TEST DATA**

Table 7 Maximum Peak Conducted Output Power Test Data 802.11b

Center Freq.[MHz]	Meas. Level (Cond.) [dBm]	Limit [dBm]	Result
2412	14.84	< 30	Pass
2437	16.32	< 30	Pass
2462	17.27	< 30	Pass

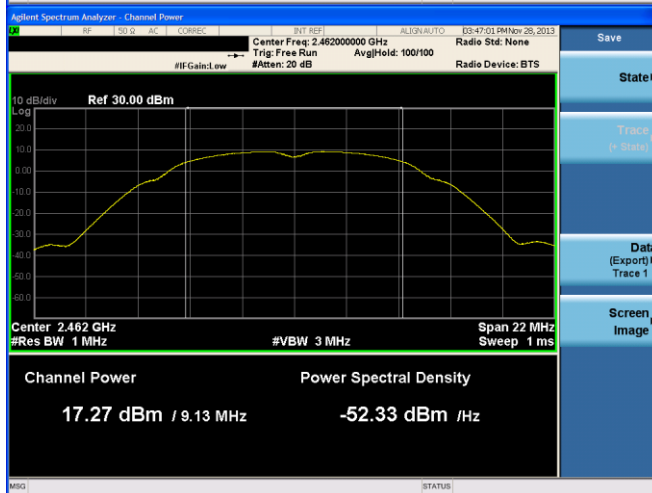
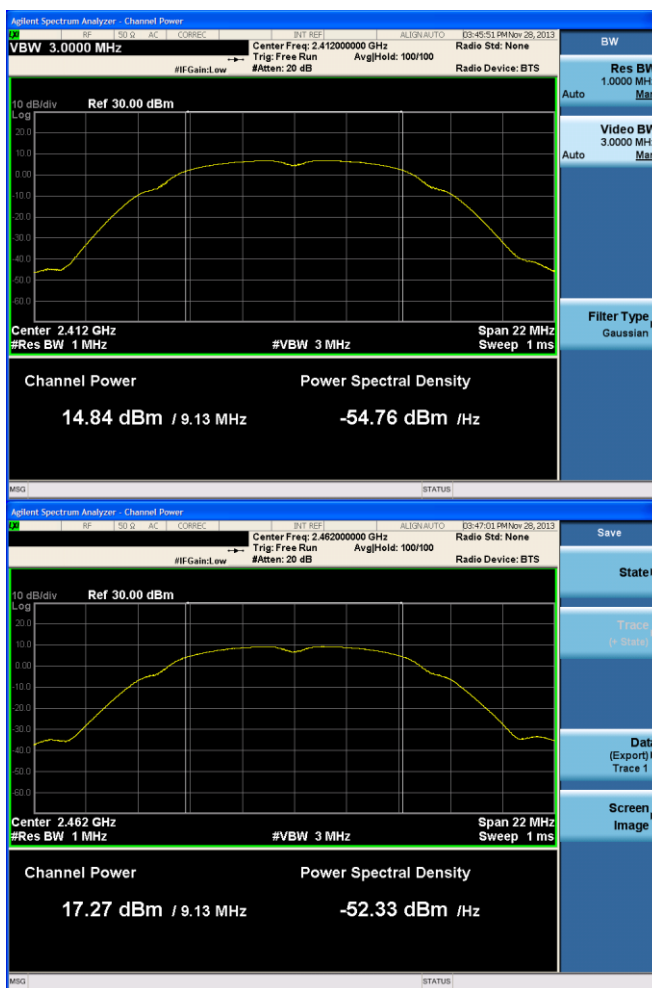
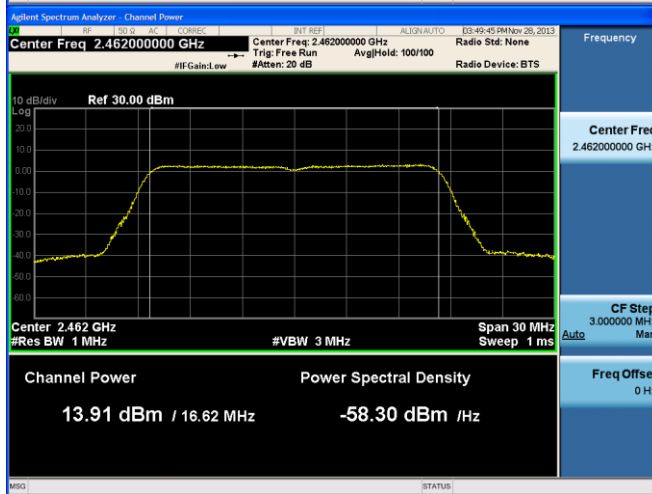
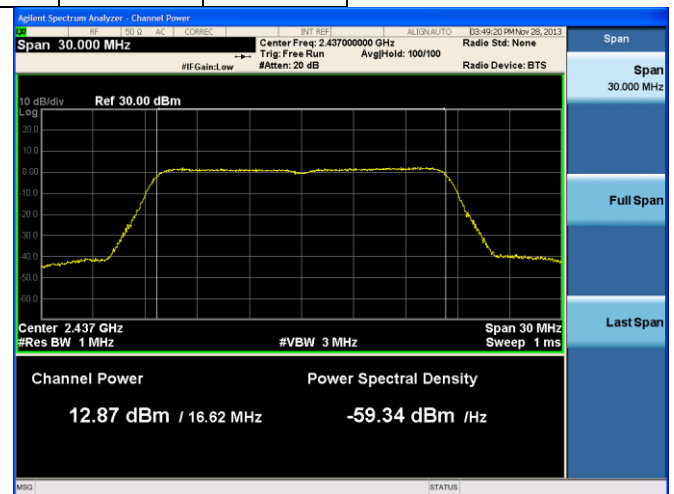




Table 8 Maximum Peak Conducted Output Power Test Data 802.11g

Center Freq.[MHz]	Meas. Level (Cond.) [dBm]	Limit [dBm]	Result
2412	11.50	< 30	Pass
2437	12.87	< 30	Pass
2462	13.91	< 30	Pass



## **7. MAXIMUM POWER SPECTRAL DENSITY LEVEL MEASUREMENT**

### **7.1.LIMITS OF Maximum Power Spectral Density Level Measurement**

CFR 47 (FCC) part 15.247 (e) and 558074 D01 DTS Meas Guidance v03r01

### **7.2.TEST PROCEDURE**

The transmitter output was connected to the spectrum analyzer.

- 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:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- d)Set the VBW  $\geq 3 \text{ RBW}$ .
- 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.
- j)If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### **7.3.TEST DATA**

Table 9 Maximum Power Spectral Density Level Test Data 802.11b

Center Freq.[MHz]	PSD [dBm]	Limit [dBm]	Result
2412	5.226	8	Pass
2437	6.713	8	Pass
2462	7.705	8	Pass

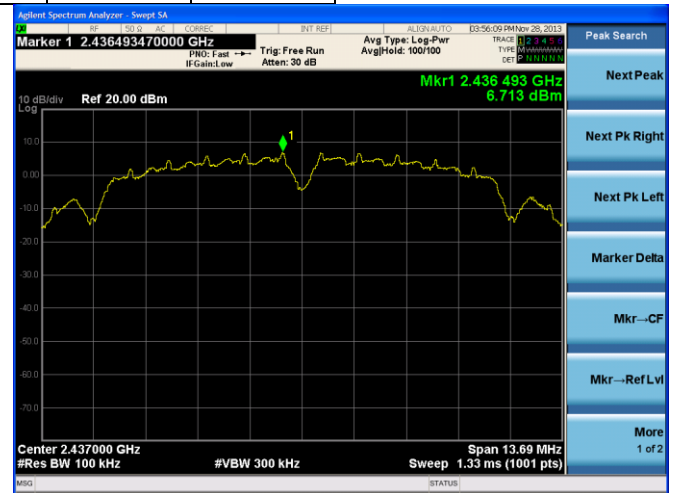
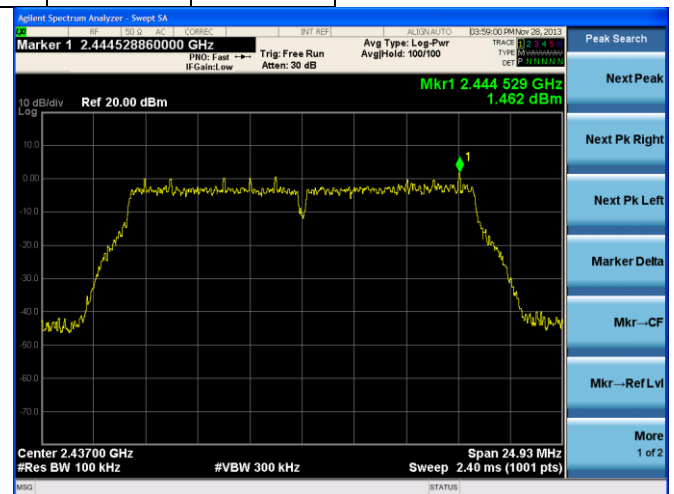


Table 10 Maximum Power Spectral Density Level Test Data 802.11g

Center Freq.[MHz]	PSD [dBm]	Limit [dBm]	Result
2412	0.983	8	Pass
2437	1.462	8	Pass
2462	0.781	8	Pass



## 8. CONDUCTED BANDEGE AND SPURIOUS MEASUREMENT

### 8.1.LIMITS OF Conducted Bandedge and Spurious Measurement

CFR 47 (FCC) part 15.247 (d) and 558074 D01 DTS Meas Guidance v03r01

### 8.2.TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer.

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  $\geq 3 \times$  RBW.
- 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.

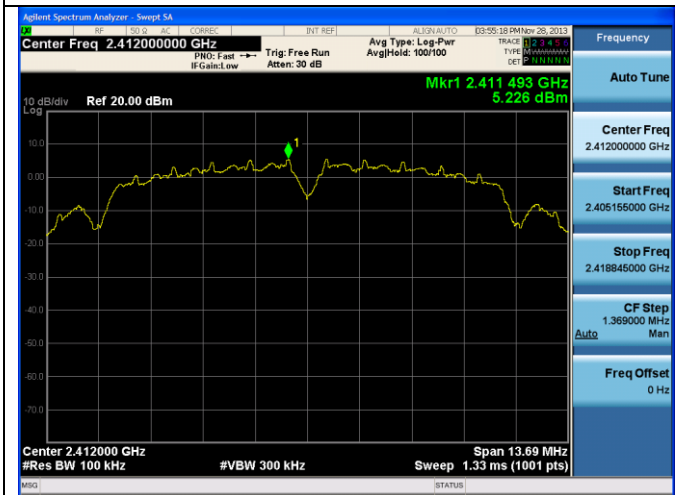
Emission level measurement

- a)Set the center frequency and span to encompass frequency range to be measured.
- b)Set the RBW = 100 kHz.
- c)Set the VBW  $\geq 3 \times$  RBW.
- d)Detector = peak.
- e)Ensure that the number of measurement points  $\geq \text{span/RBW}$
- 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.

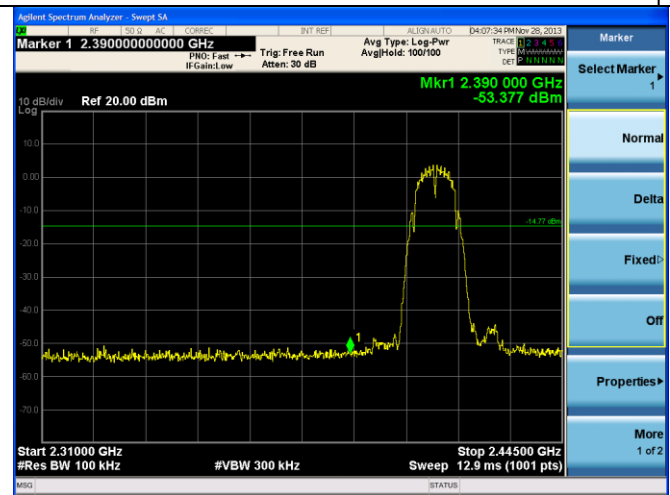
8.3.TEST DATA

802.11b CH1

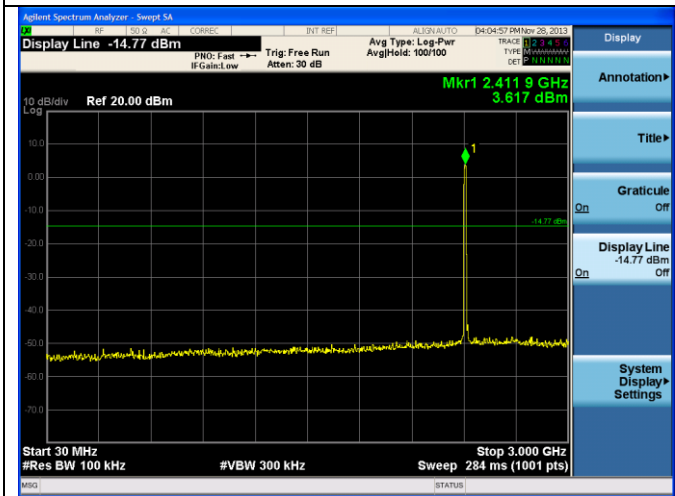
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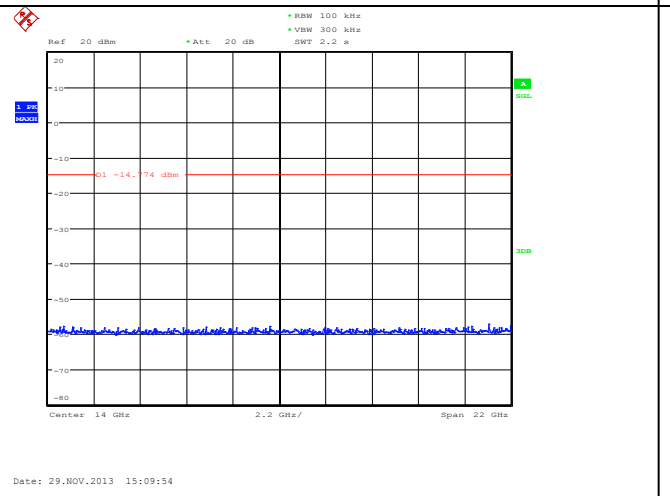
Lower Edge



30MHz-3GHz



3GHz-25GHz

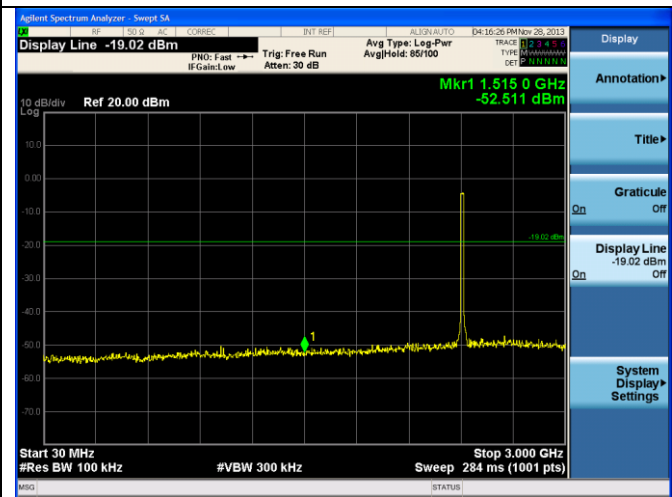


802.11b CH6

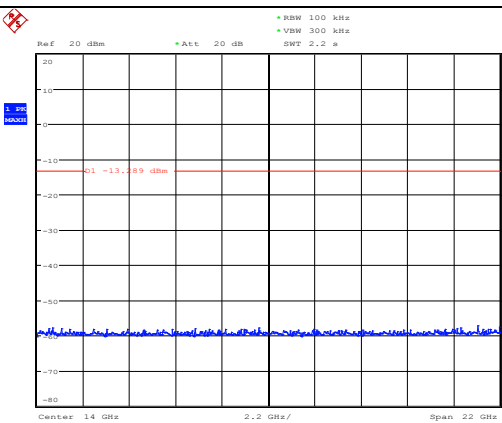
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30MHz-3GHz



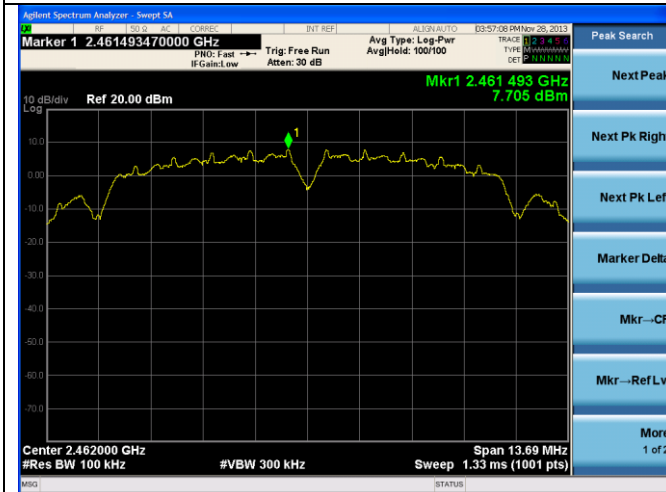
3GHz-25GHz



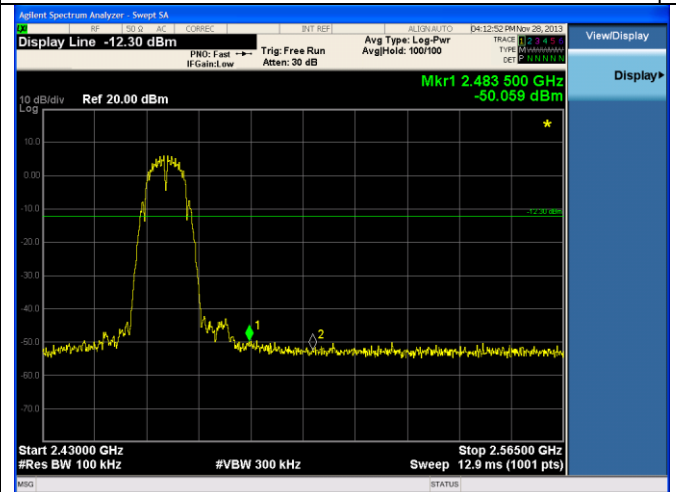
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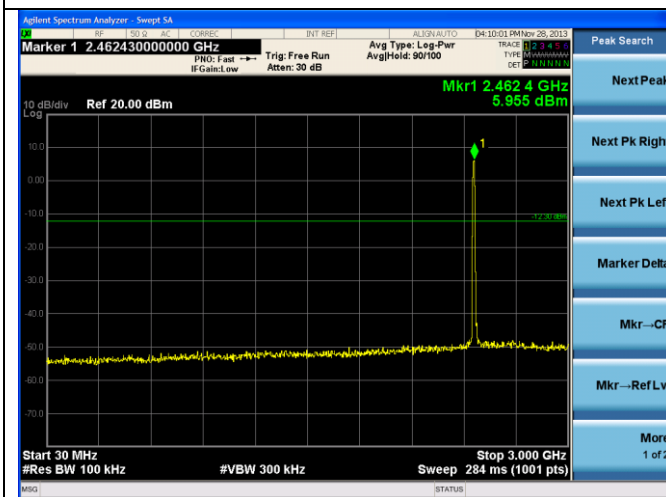
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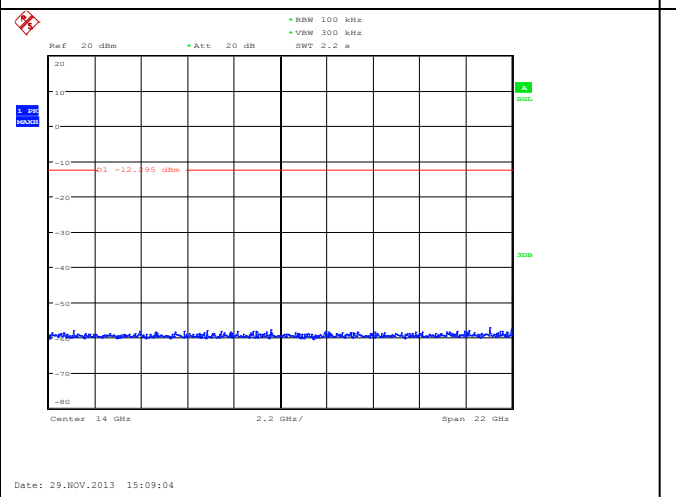
## Upper Edge



## 30MHz-3GHz



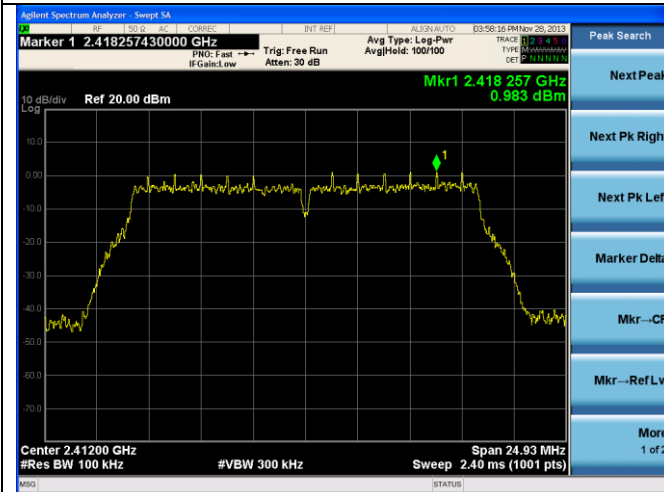
## 3GHz-25GHz



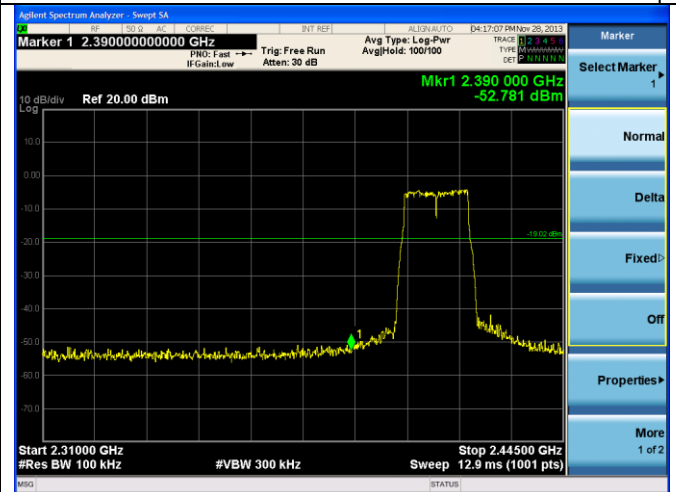


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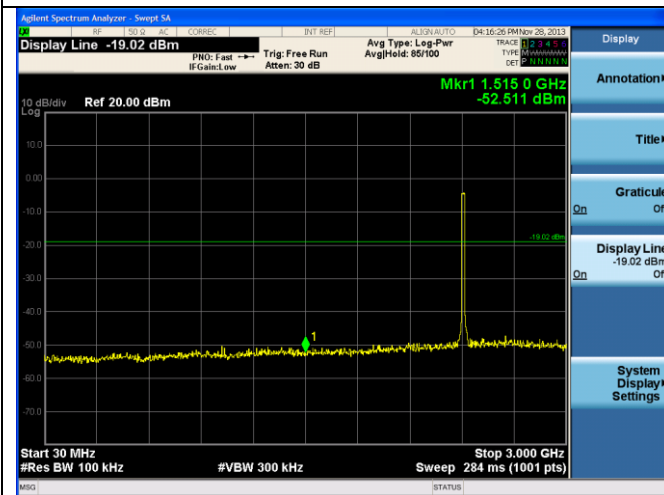
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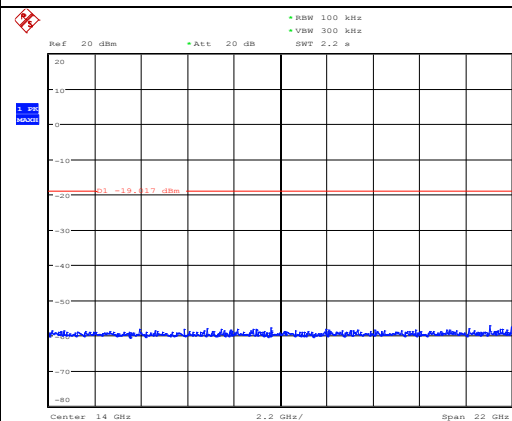
## Lower Edge



## 30MHz-3GHz



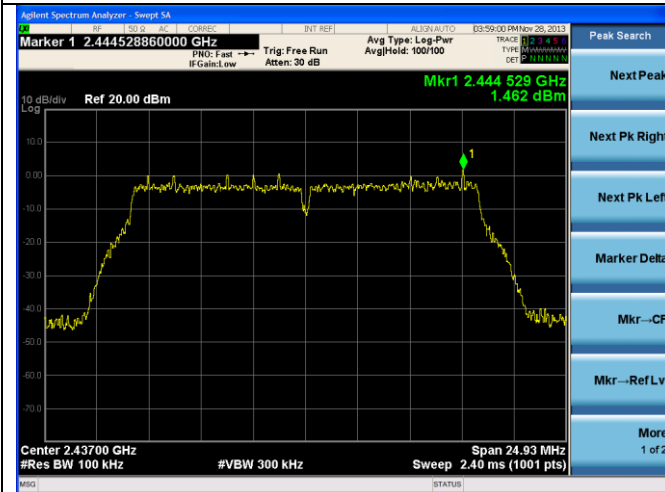
## 3GHz-25GHz



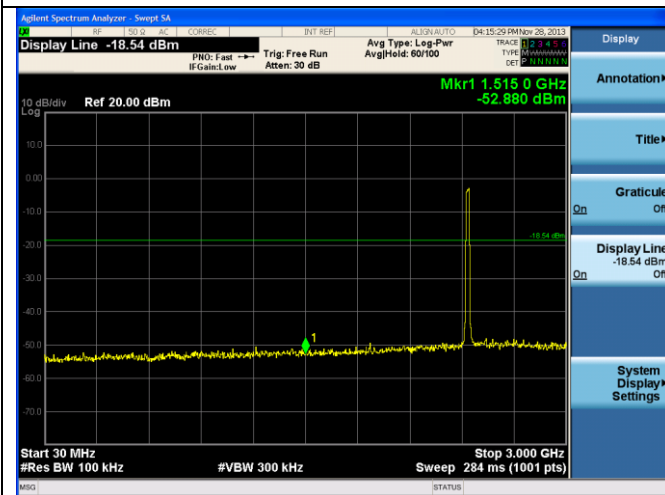
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## 802.11g CH6

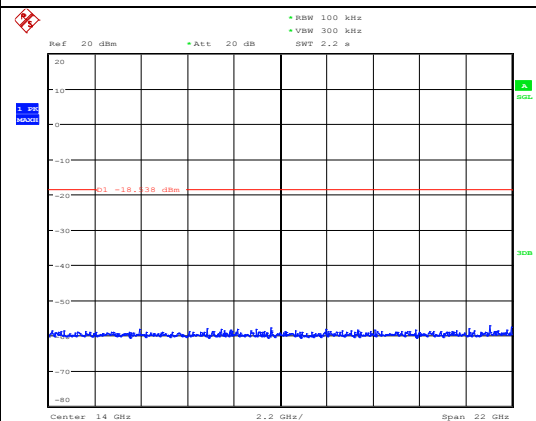
### Pref



### 30MHz-3GHz



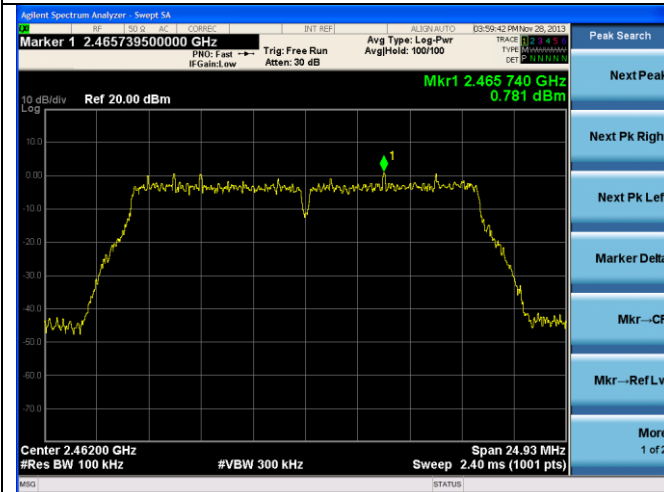
### 3GHz-25GHz



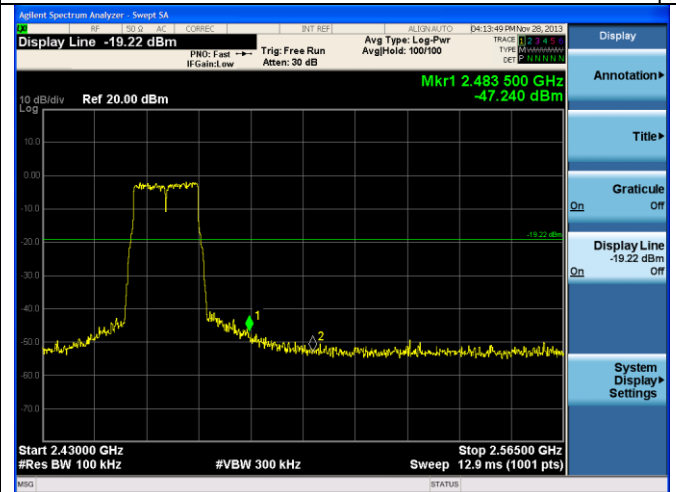
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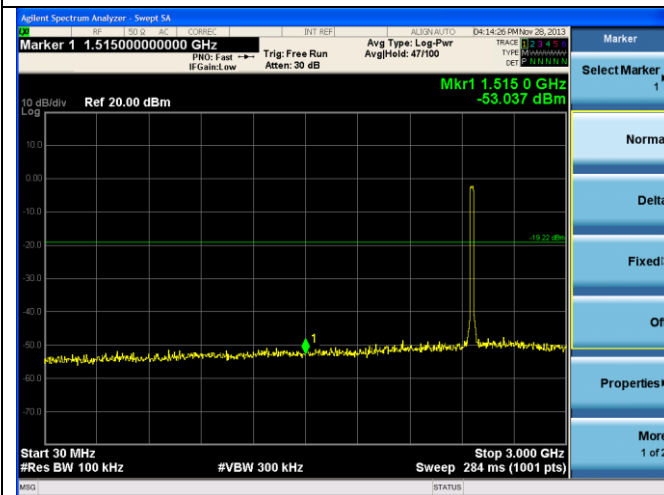
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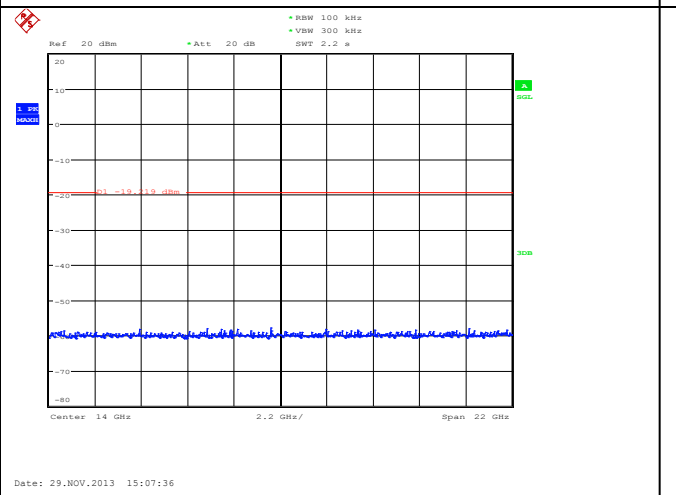
## Upper Edge



## 30MHz-3GHz



## 3GHz-25GHz



## 9. RADIATED BANDEDGE AND SPURIOUS MEASUREMENT

### 9.1.LIMITS OF Radiated Bandedge and Spurious Measurement

CFR 47 (FCC) part 15.247 (d) and 558074 D01 DTS Meas Guidance v03r01

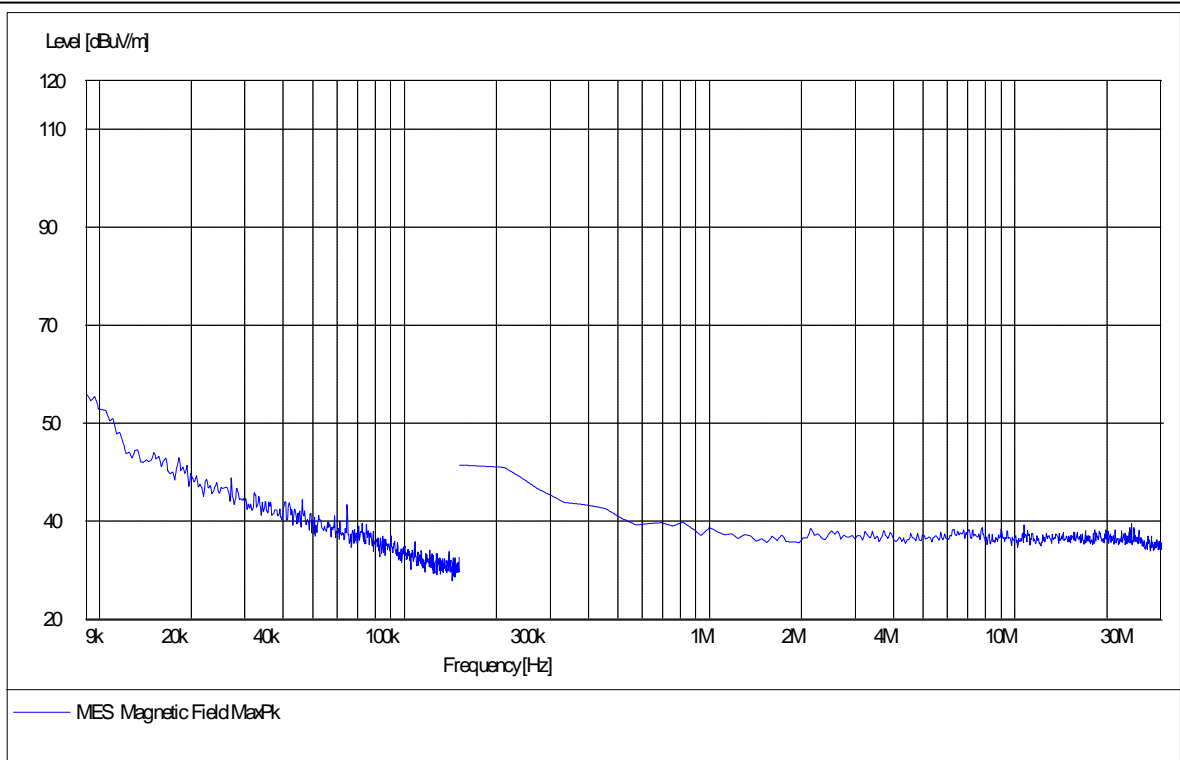
### 9.2.TEST PROCEDURE

1. The testing follows the guidelines in 558074 D01.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 kHz for  $f < 1$  GHz; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f > 1$  GHz for peak measurement.  
Set RBW = 1 MHz, VBW= 10Hz for  $f > 1$  GHz for AV measurement.

### 9.3.TEST DATA

9kHz-30MHz

As per 15.31(o). emissions more than 20 dB below the limit need not be reported unless specifically required elsewhere in part 15.



30MHz-1GHz

Worst case is shown below for 30MHz-1GHz only.

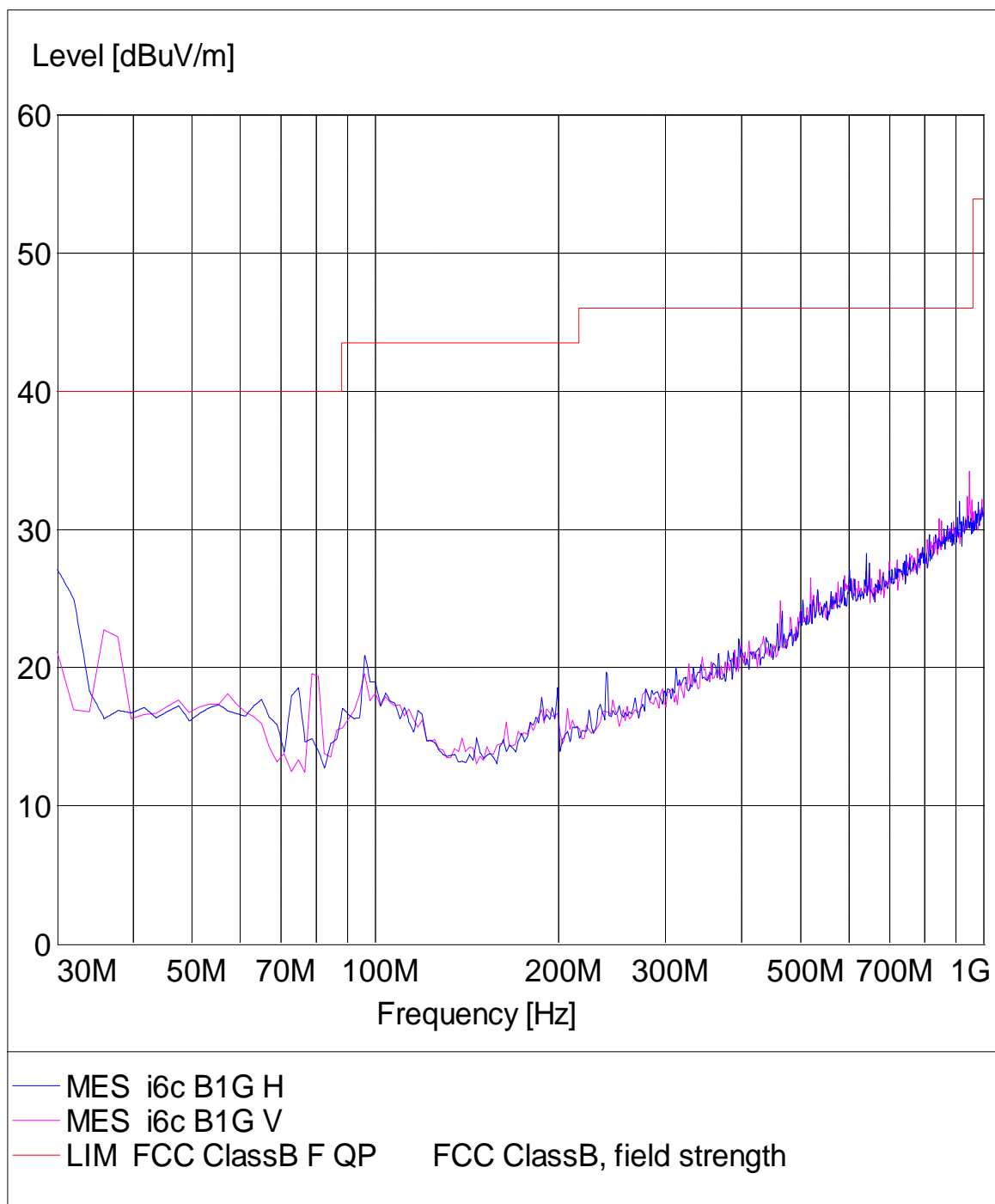
Table 11 Radiated Emission Test Data 30-1GHz

Frequency MHz	Cable Loss(dB )	Antenna Factor(dB )	Readings(dB μV/m)	Level(dBμ V/m)	Polarity(H/V )	Turntable Angle(de g)	Antenna Height(m )	Limits(dB μV/m)	Margin(dB )
372.124	2.4	2.4	14.3	25.4	H	156.4	1.1	46.0	20.5
414.889	2.5	2.5	15.1	26.8	H	175.7	1.1	46.0	19.6
535.410	2.8	2.8	16.6	28.1	H	336.1	1.3	46.0	18.2
667.595	3.3	3.3	18.5	34.6	H	340.2	1.2	46.0	8.8
760.901	3.6	3.6	18.8	35.3	H	123.0	1.2	46.0	11.7
817.274	3.6	3.6	20.1	37.5	H	123.6	1.0	46.0	11.7
33.887	0.7	12.3	18.2	31.2	V	182.4	1.2	40.0	10.0
53.326	0.7	13.3	16.1	30.1	V	112.6	1.1	40.0	13.9
59.158	0.9	13.0	11.7	25.6	V	308.4	1.2	40.0	14.4
179.679	1.6	9.0	14.0	24.6	V	17.2	1.0	43.5	21.4
385.731	2.4	14.6	10.8	27.8	V	53.9	1.2	46.0	22.1
667.595	3.3	18.5	12.5	34.3	V	279.8	1.0	46.0	17.5

## Radiated Emission

### SMQ NETC EMC Lab.3m Chamber

EUT Name: V5000  
Operating Condition: WIFI  
Antenna Position: Horizontal & Vertical  
Comment: AC 120V/60Hz



1GHz-18GHz

11B CH1

## Radiated Emission

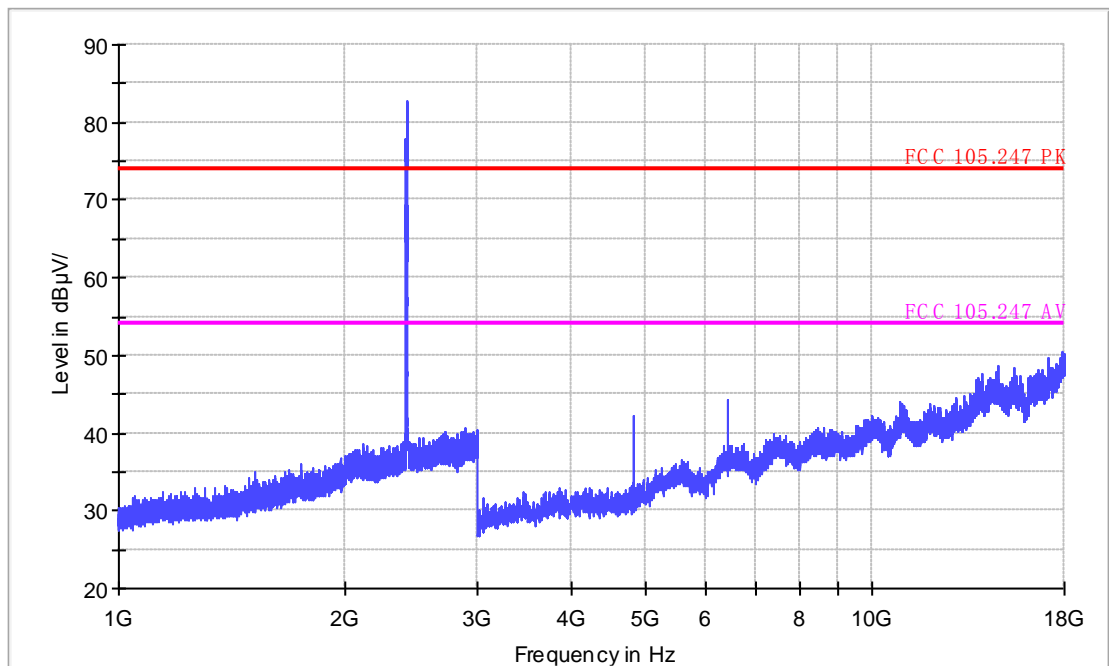
### EUT Information

EUT Model Name: V5000  
Operation mode: 11b CH1  
Test Voltage:  
Comment:

### Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



# Radiated Emission

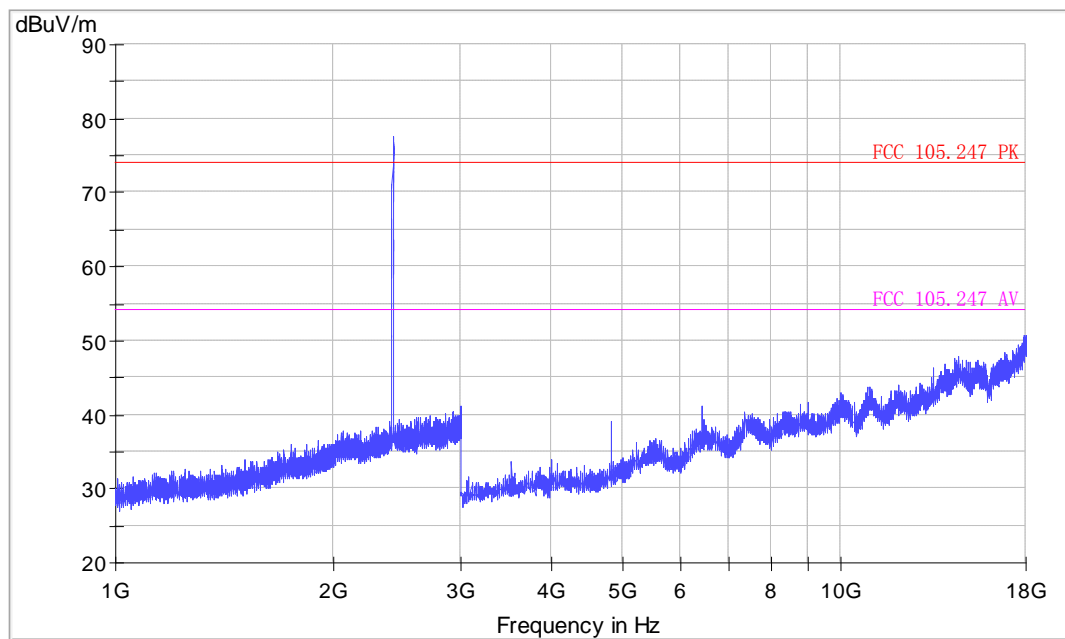
## EUT Information

EUT Model Name: V5000  
Operation mode: 11b CH1  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz





# Radiated Emission

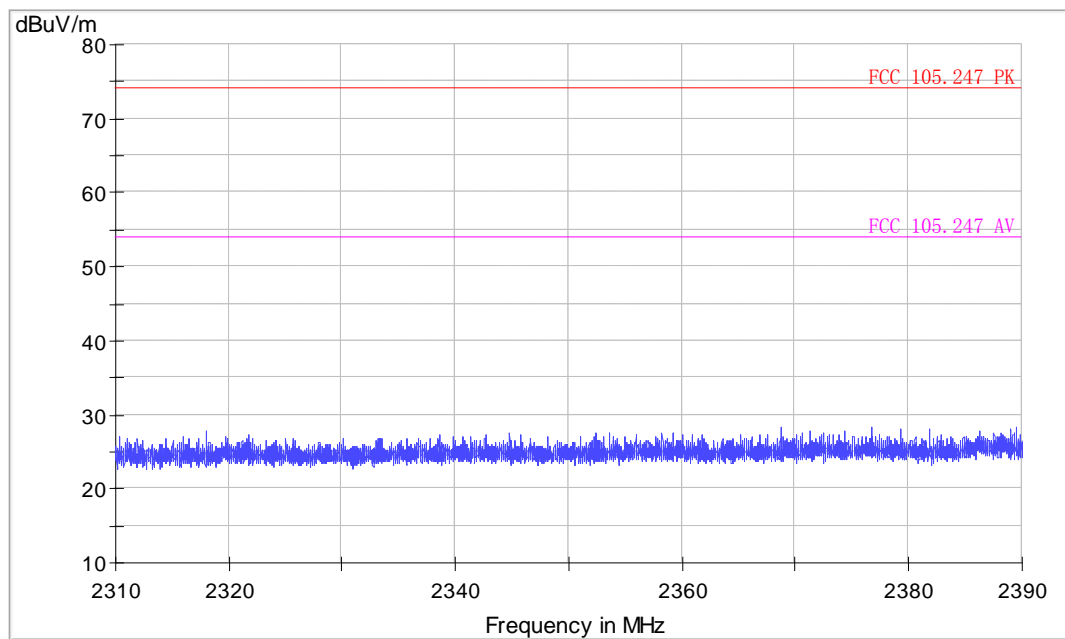
## EUT Information

EUT Model Name: V5000  
Operation mode: 11b CH1  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

FCC Electric Field Strength 2.4GHz Bandedge-PK



# Radiated Emission

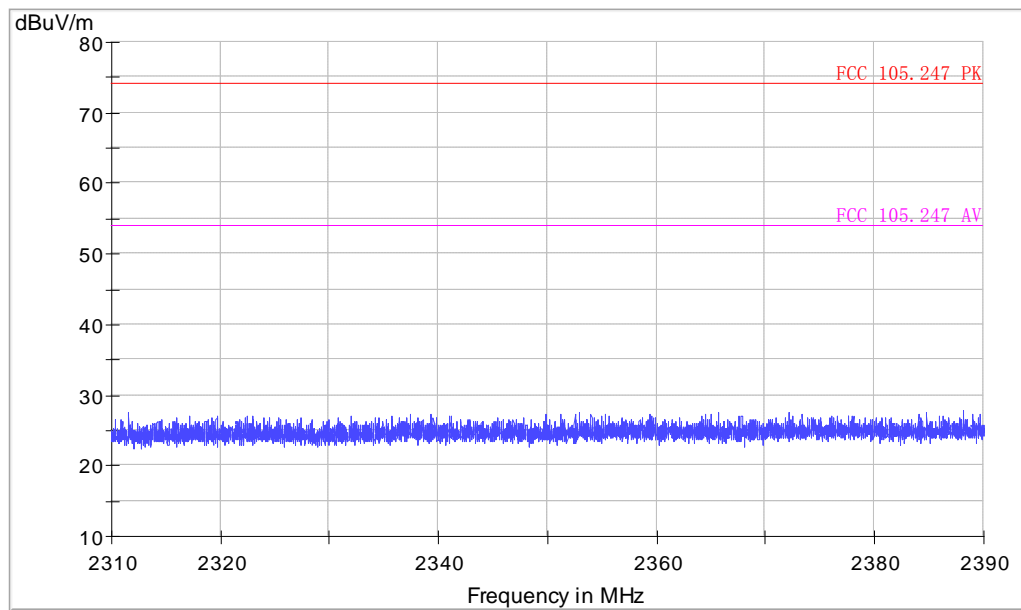
## EUT Information

EUT Model Name: V5000  
Operation mode: 11b CH1  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

FCC Electric Field Strength 2.4GHz Bandedge-PK



11B CH6

## Radiated Emission

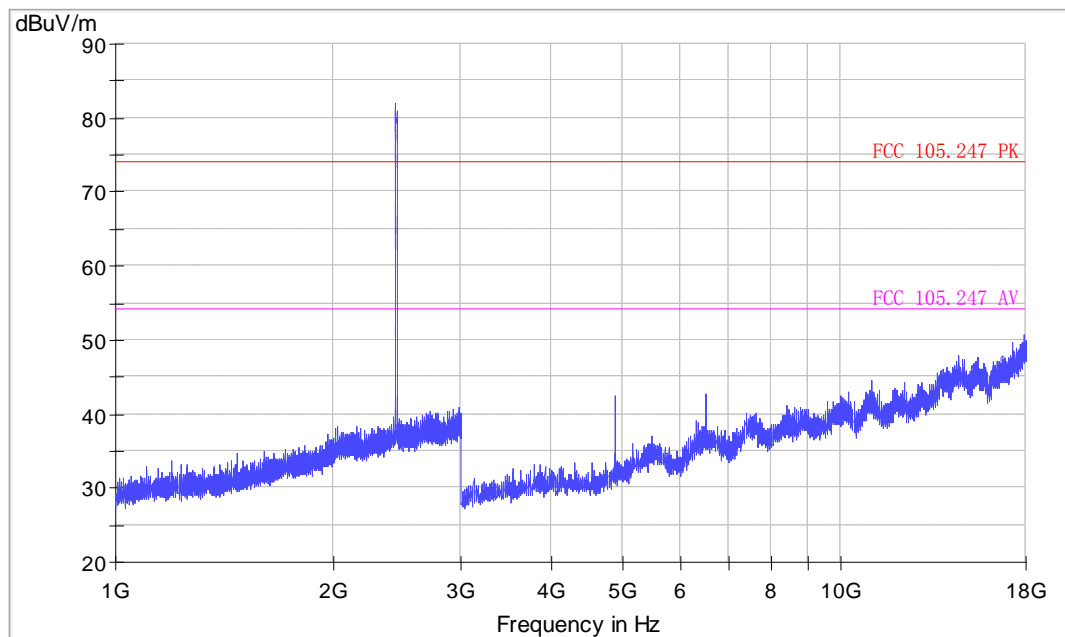
### EUT Information

EUT Model Name: V5000  
Operation mode: 11b CH6  
Test Voltage:  
Comment:

### Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



# Radiated Emission

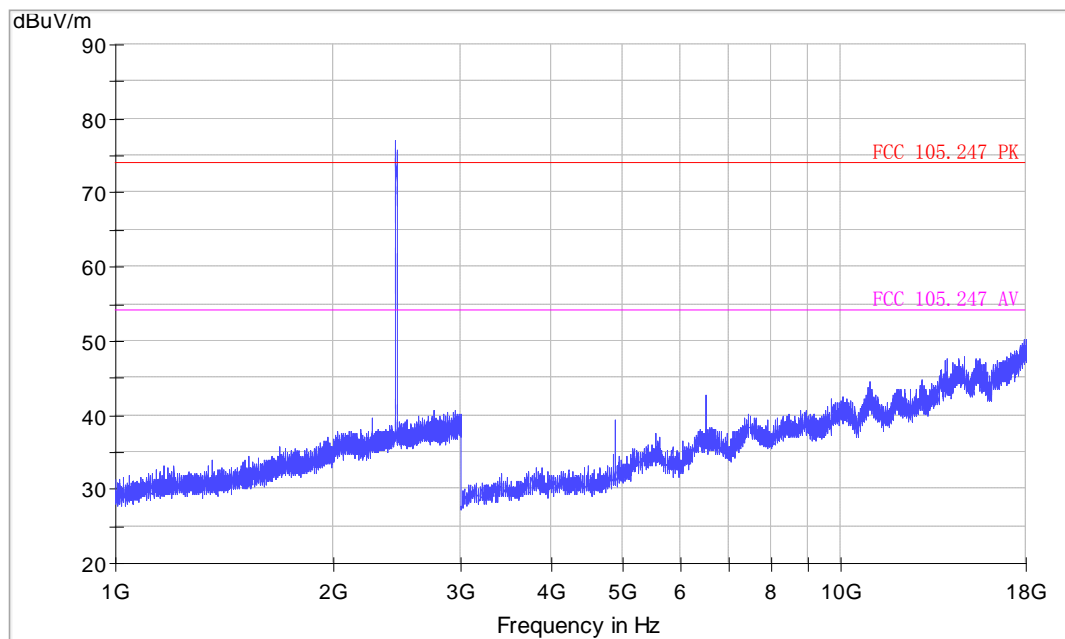
## EUT Information

EUT Model Name: V5000  
Operation mode: 11b CH6  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



11B CH11

## Radiated Emission

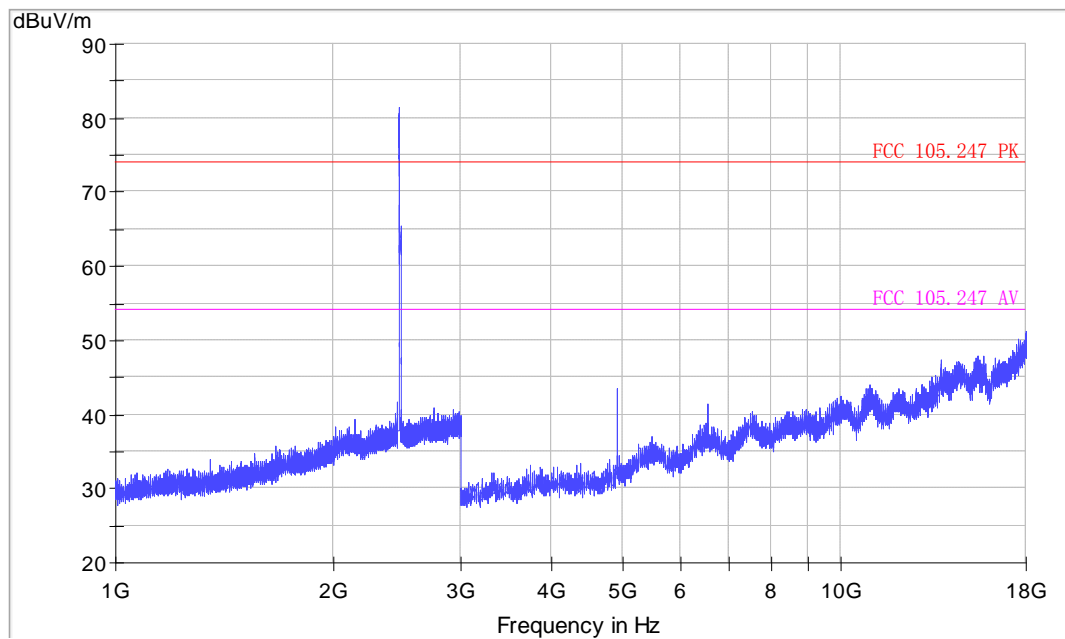
### EUT Information

EUT Model Name: V5000  
Operation mode: 11b CH11  
Test Voltage:  
Comment:

### Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



# Radiated Emission

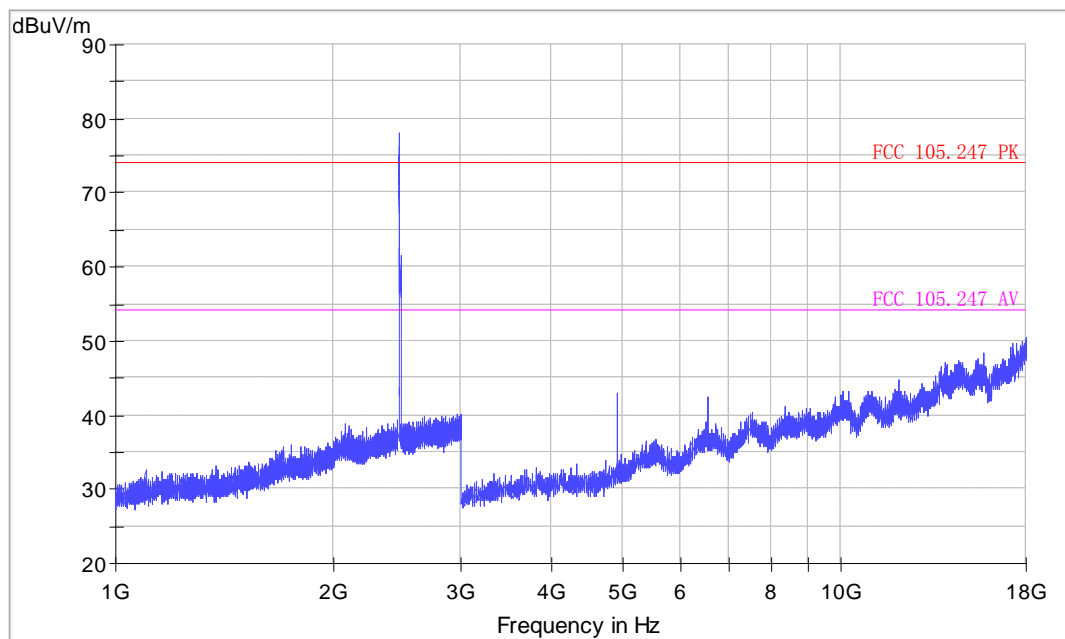
## EUT Information

EUT Model Name: V5000  
Operation mode: 11b CH11  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



# Radiated Emission

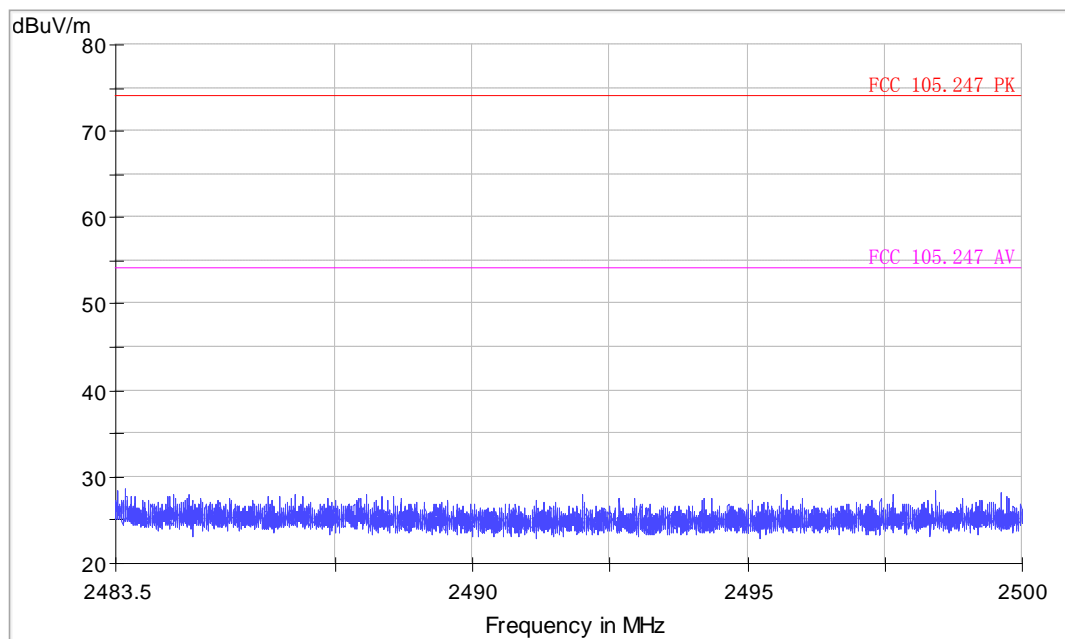
## EUT Information

EUT Model Name: V5000  
Operation mode: 11b CH11  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

FCC Electric Field Strength 2.4GHz Bandedge-PK



# Radiated Emission

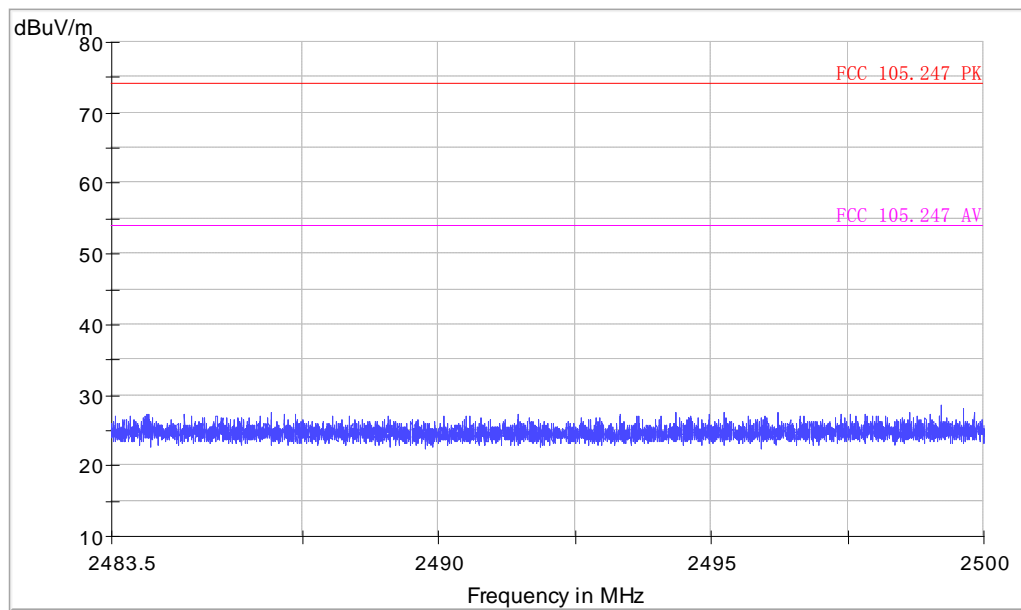
## EUT Information

EUT Model Name: V5000  
Operation mode: 11b CH11  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

FCC Electric Field Strength 2.4GHz Bandedge-PK





11G CH1

## Radiated Emission

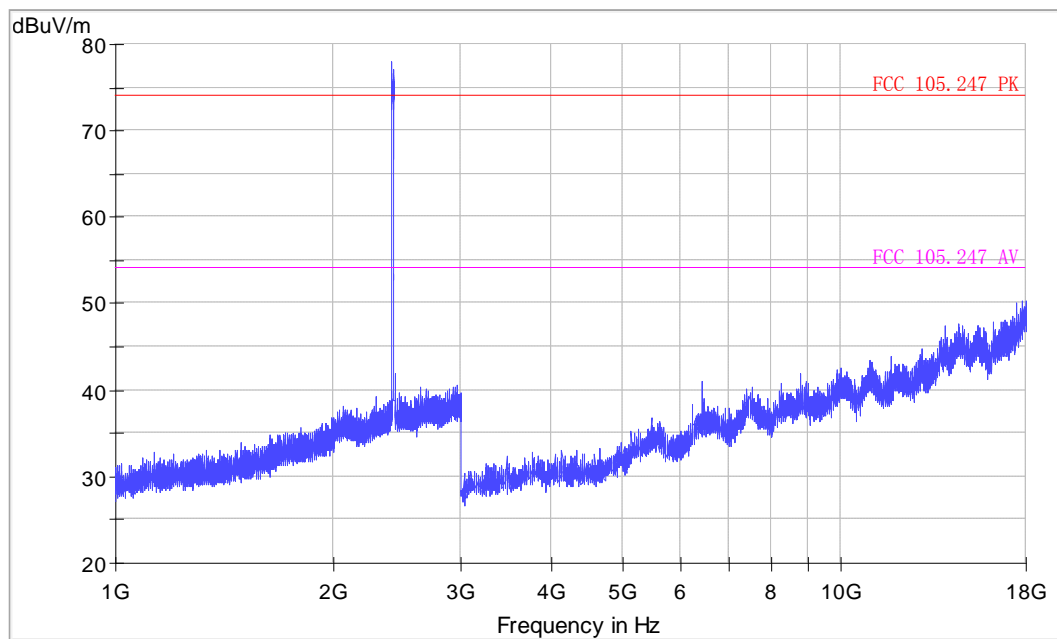
### EUT Information

EUT Model Name: V5000  
Operation mode: 11a CH1  
Test Voltage:  
Comment:

### Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



# Radiated Emission

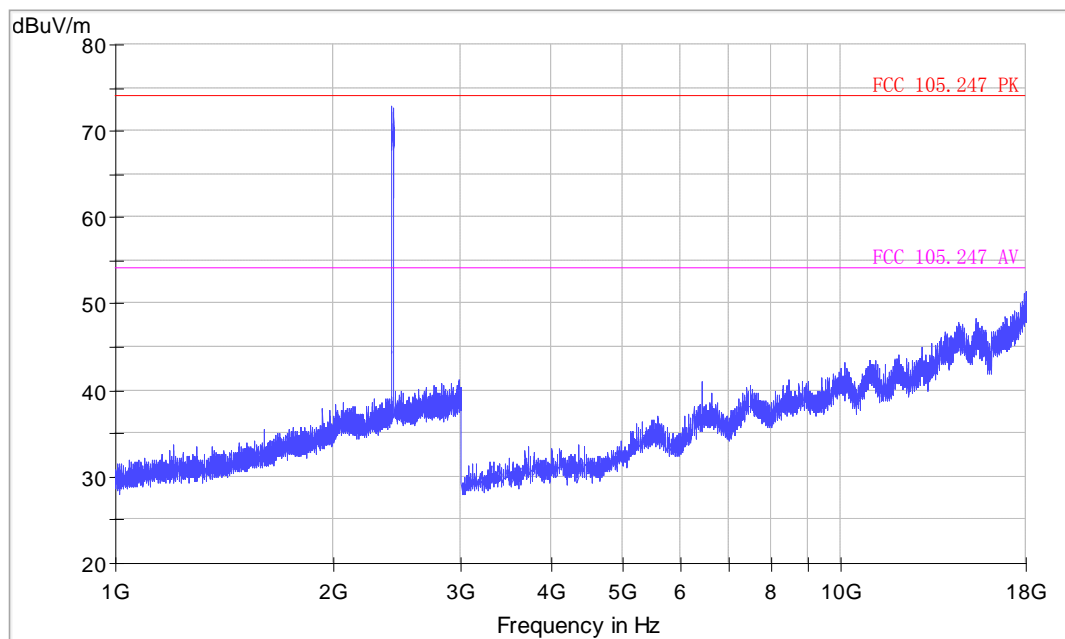
## EUT Information

EUT Model Name: V5000  
Operation mode: 11g CH1  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



# Radiated Emission

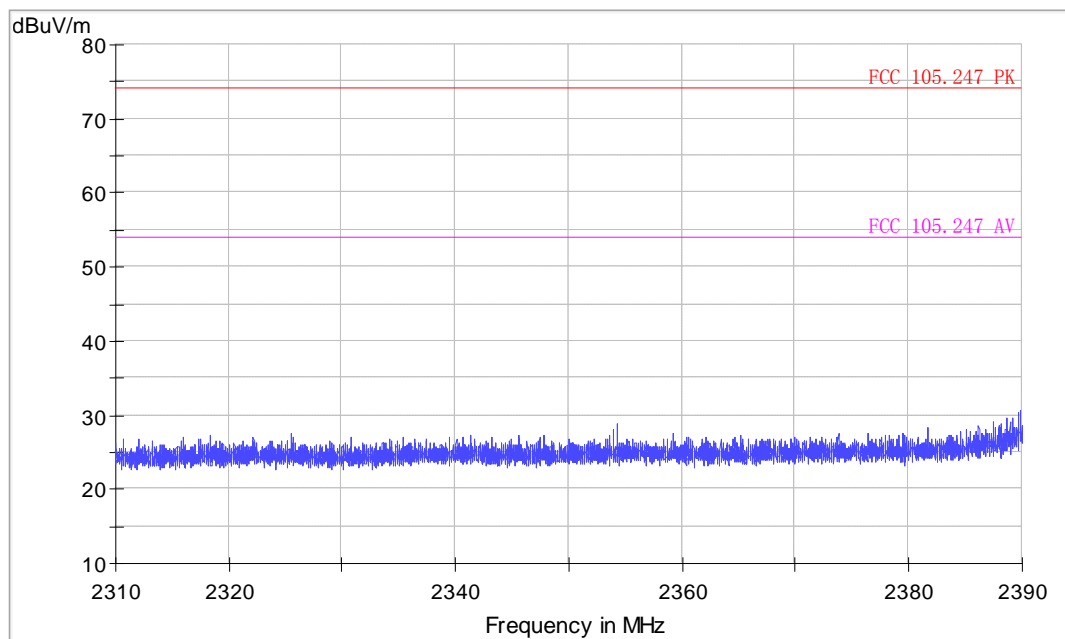
## EUT Information

EUT Model Name: V5000  
Operation mode: 11g CH1  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

FCC Electric Field Strength 2.4GHz Bandedge-PK



# Radiated Emission

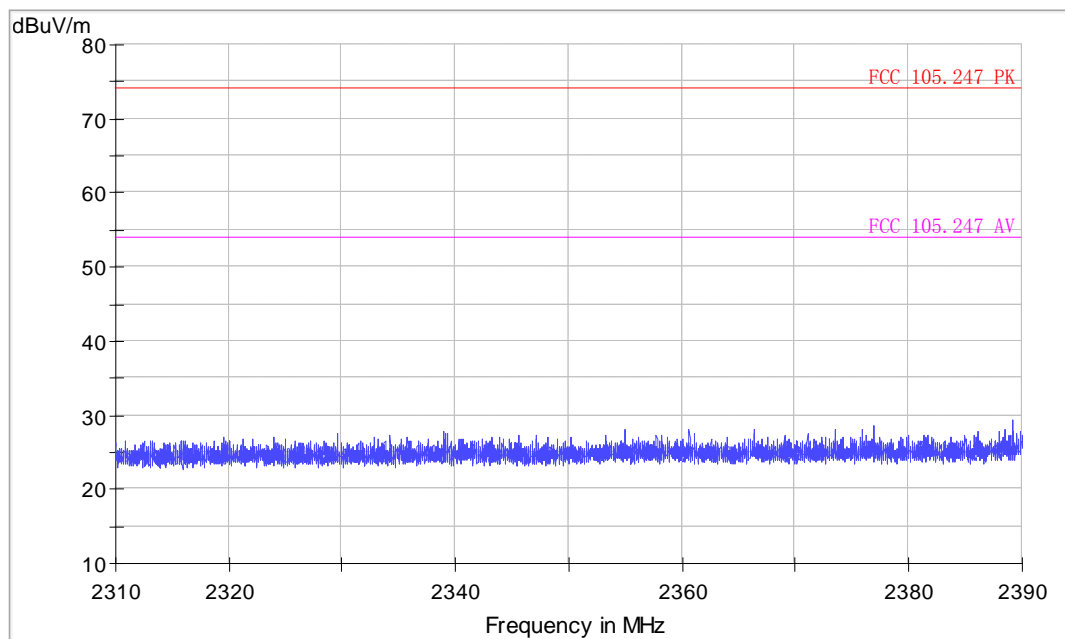
## EUT Information

EUT Model Name: V5000  
Operation mode: 11g CH1  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

FCC Electric Field Strength 2.4GHz Bandedge-PK



11G CH6

## Radiated Emission

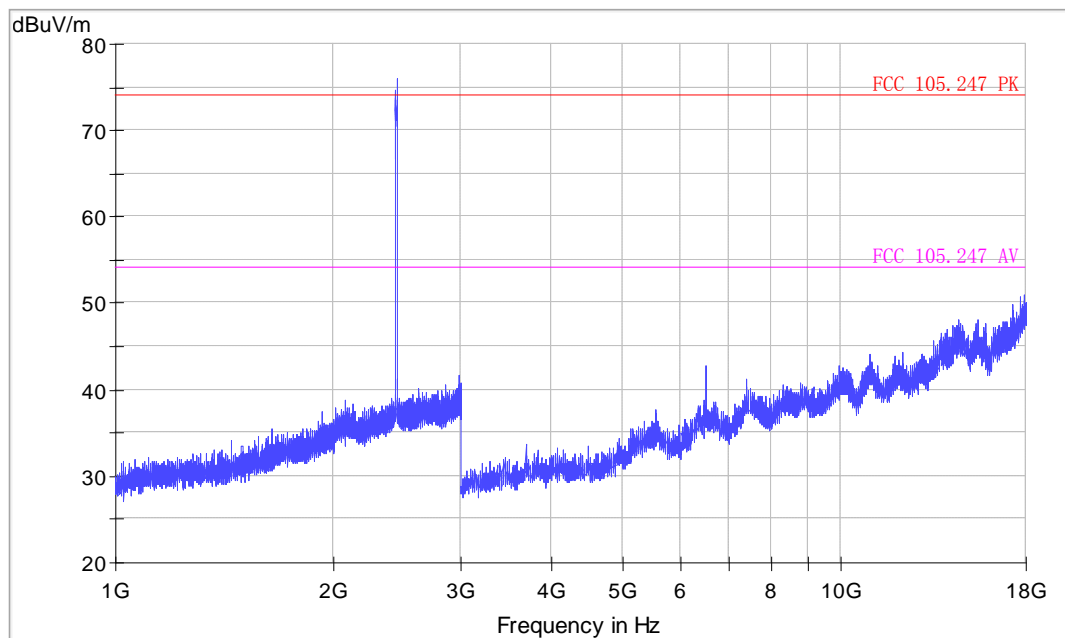
### EUT Information

EUT Model Name: V5000  
Operation mode: 11g CH6  
Test Voltage:  
Comment:

### Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



# Radiated Emission

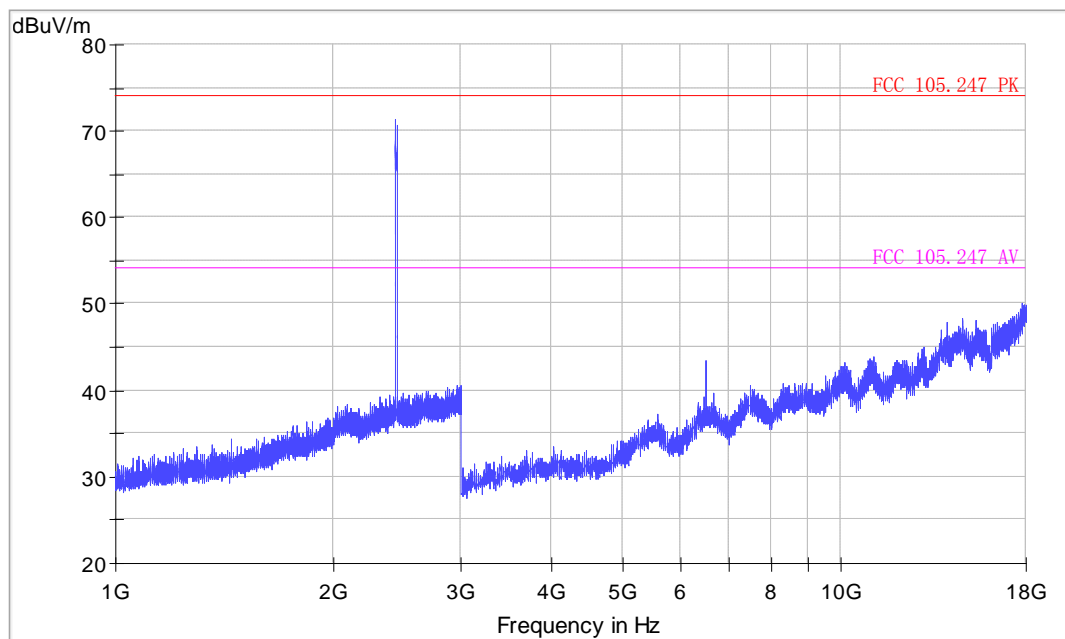
## EUT Information

EUT Model Name: V5000  
Operation mode: 11g CH6  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



11G CH11

## Radiated Emission

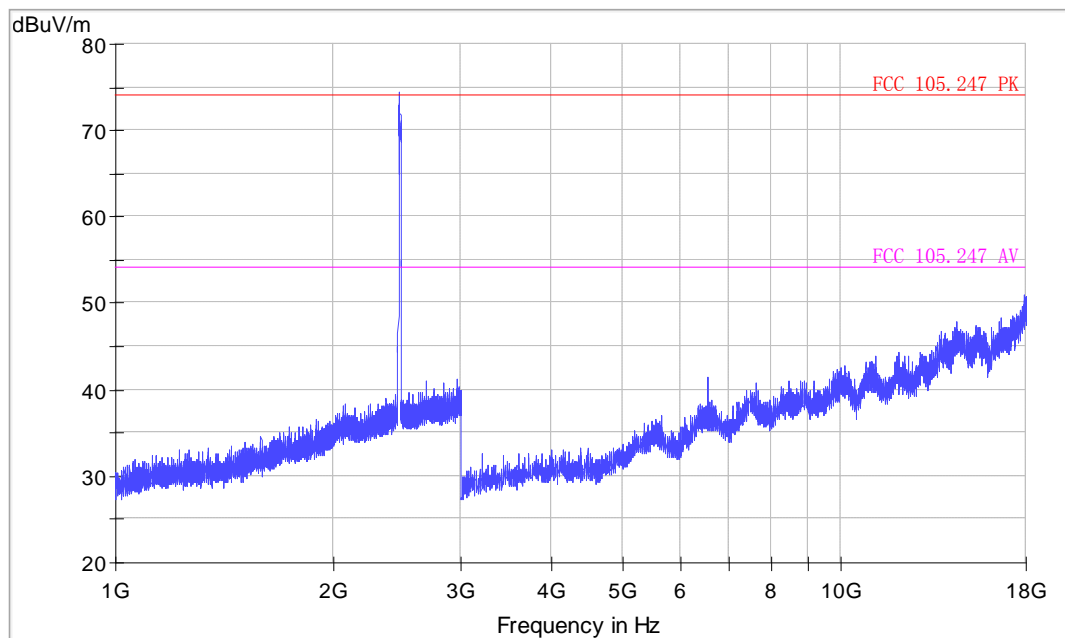
### EUT Information

EUT Model Name: V5000  
Operation mode: 11g CH11  
Test Voltage:  
Comment:

### Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



# Radiated Emission

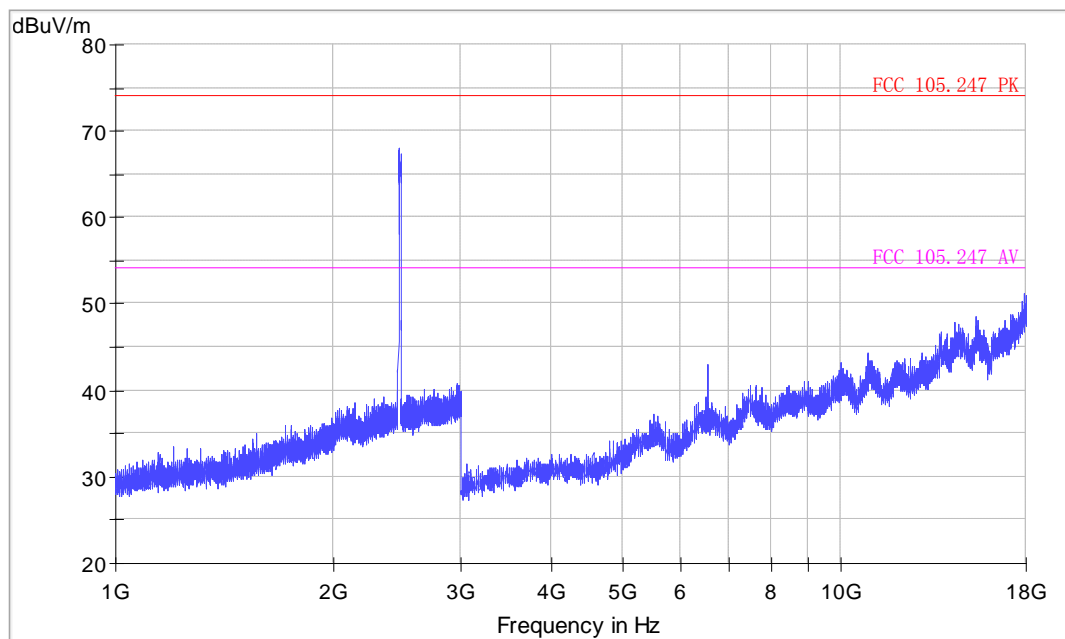
## EUT Information

EUT Model Name: V5000  
Operation mode: 11g CH11  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

FCC Electric Field Strength 1-18GHz operate on 2.4GHz





# Radiated Emission

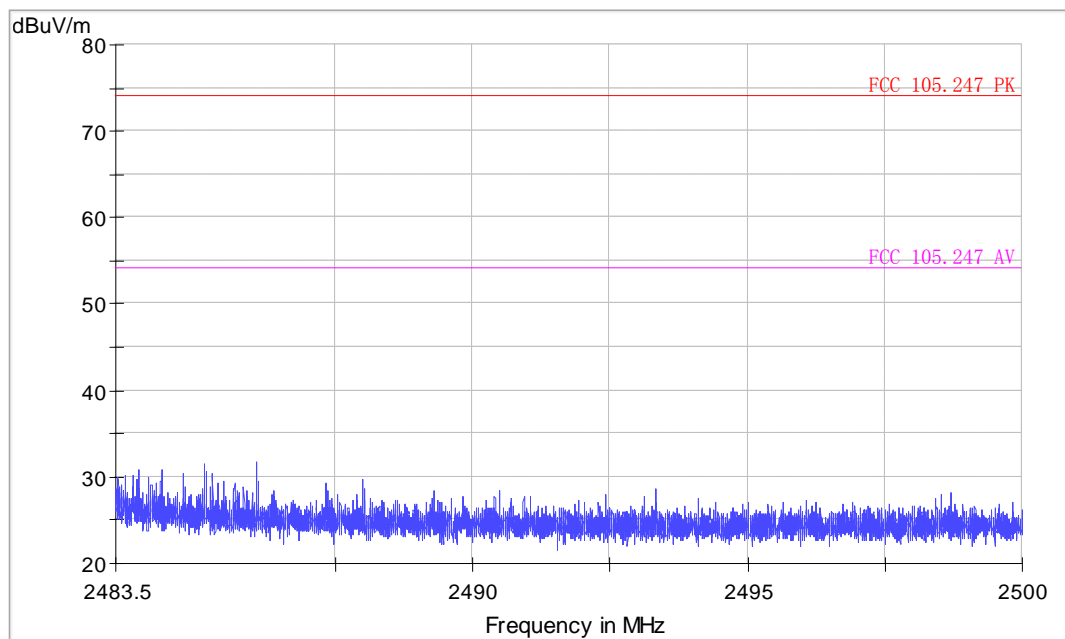
## EUT Information

EUT Model Name: V5000  
Operation mode: 11g CH11  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

FCC Electric Field Strength 2.4GHz Bandedge-PK



# Radiated Emission

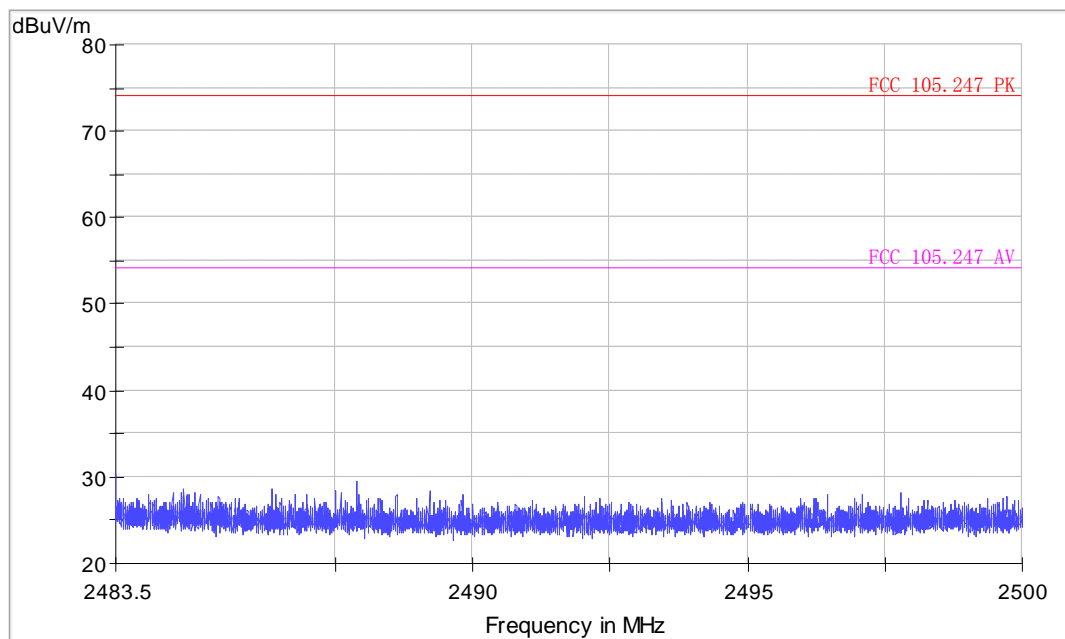
## EUT Information

EUT Model Name: V5000  
Operation mode: 11g CH11  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

FCC Electric Field Strength 2.4GHz Bandedge-PK



18-26.5GHz

No Peak found in pre-scan, only worst case result is listed in this report.

## Radiated Emission

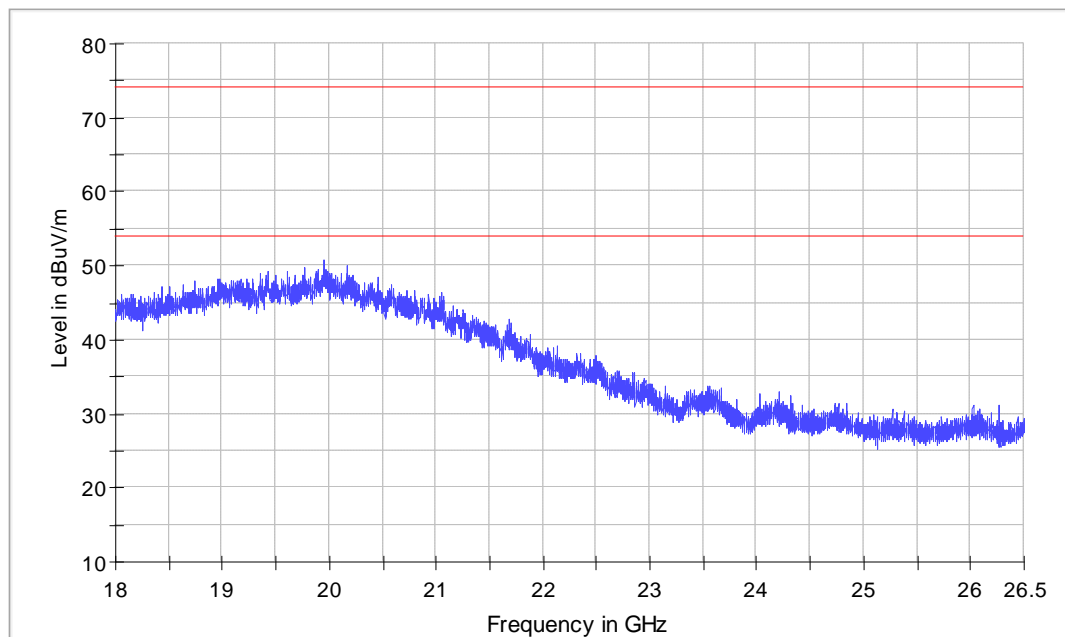
### EUT Information

EUT Model Name: V5000  
Operation mode: 802.11b  
Test Voltage:  
Comment:

### Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Horizontal  
Operator Name:  
Comment:

Electric Field Strength 18-26.5GHz



# Radiated Emission

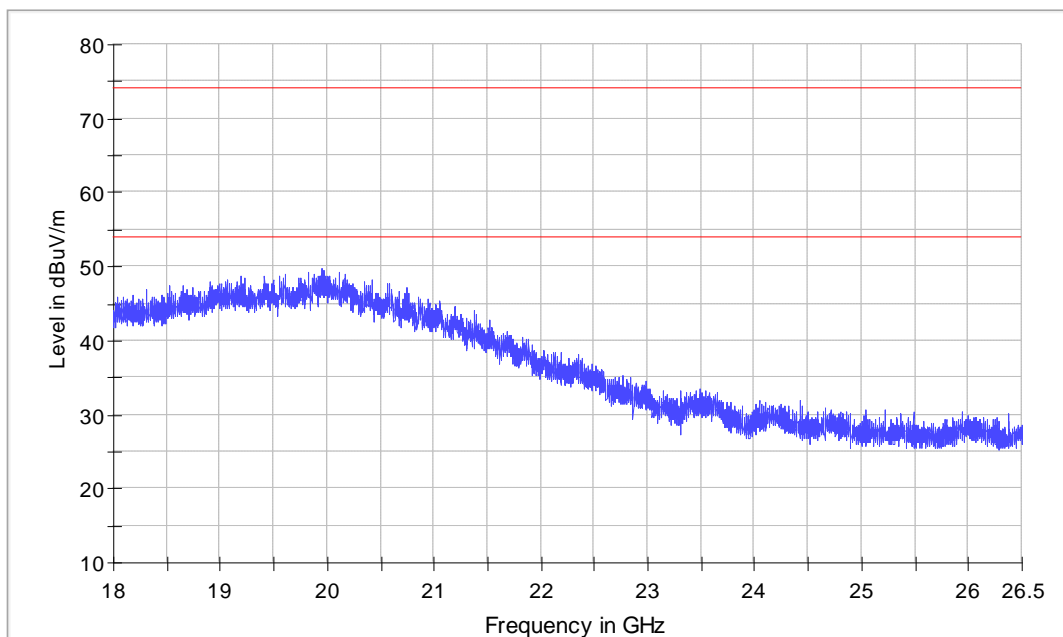
## EUT Information

EUT Model Name: V5000  
Operation mode: 802.11b  
Test Voltage:  
Comment:

## Common Information

Test Site: SMQ EMC Lab.  
Environment  
Antenna Polarization: Vertical  
Operator Name:  
Comment:

Electric Field Strength 18-26.5GHz



## 10. CONDUCTED EMISSION TEST FOR AC POWER PORT MEASUREMENT

### 10.1. Test Standard and Limit

#### 10.1.1. Test Standard

FCC Part 15 15.207

#### 10.1.2. Test Limit

Table 12 Conducted Disturbance Test Limit

Frequency	Maximum RF Line Voltage (dB $\mu$ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

\* Decreasing linearly with logarithm of the frequency

\* The lower limit shall apply at the transition frequency.

### 10.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. According to the requirements in Section 7 and 13 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.

The bandwidth of EMI test receiver is set at 9kHz.

### 10.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

## 10.4.Test Data

The emissions don't show in below are too low against the limits. Refer to the test curves.

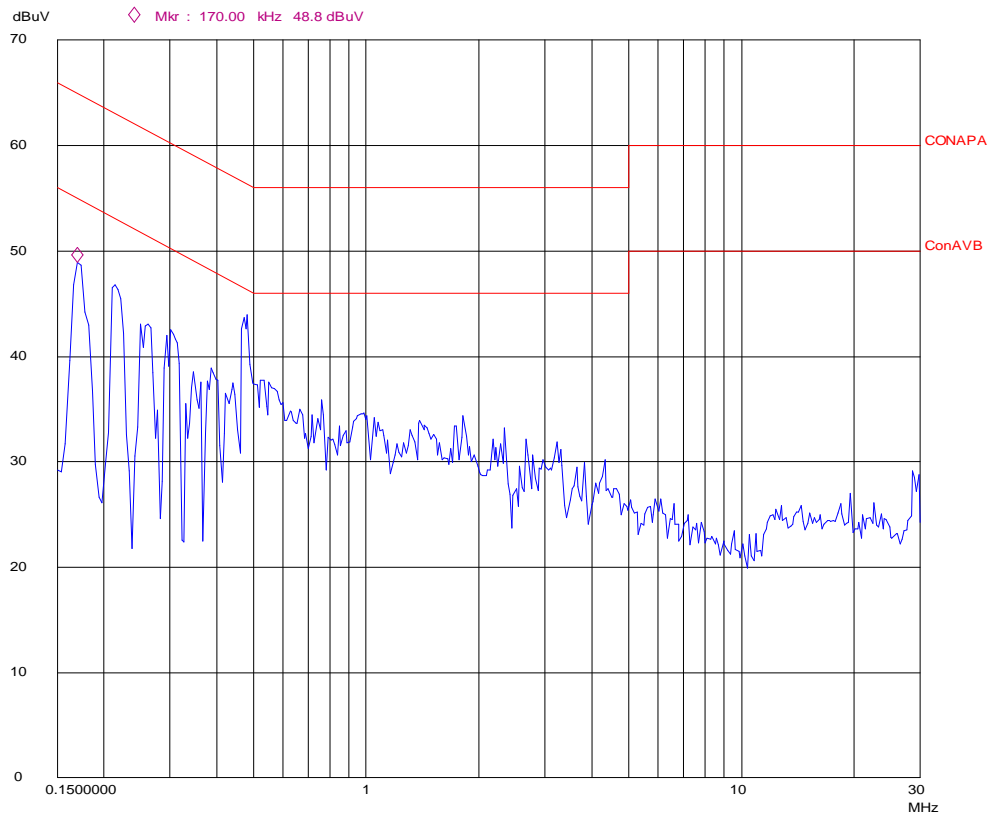
Table 13 Conducted Disturbance Test Data

Model No.: V5000								
Test mode: WIFI								
	Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
			Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V)	Limits (dB $\mu$ V)	Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V)	Limits (dB $\mu$ V)
Line	0.170	9.7	36.1	45.8	65.0	18.2	27.9	55.0
	0.214	9.7	33.8	43.5	63.0	16.6	26.3	53.0
	0.260	9.7	30.0	39.7	61.4	14.8	24.5	51.4
	0.302	9.7	29.1	38.8	60.2	14.9	24.6	50.2
	0.482	9.8	30.1	39.8	56.3	12.1	21.8	46.3
	0.550	9.9	22.4	32.2	56	5.6	15.4	46
Neutral	0.174	9.7	34.7	44.4	64.8	20.5	30.2	54.8
	0.210	9.7	34.4	44.1	63.2	17.8	27.5	53.2
	0.258	9.8	32.4	42.1	61.5	16.8	26.5	51.5
	0.294	9.8	31.4	41.1	60.4	15.9	25.6	50.4
	0.346	9.8	30.1	39.8	59.1	15.8	25.5	49.1
	0.446	9.9	24.7	34.4	56.9	10.1	19.8	46.9

REMARKS: 1. Emission level(dBuV)=Read Value(dBuV) + Correction Factor(dB)  
 2. Correction Factor(dB) =LISN Factor (dB) + Cable Factor (dB)+Limiter Factor(dB)  
 3. The other emission levels were very low against the limit.

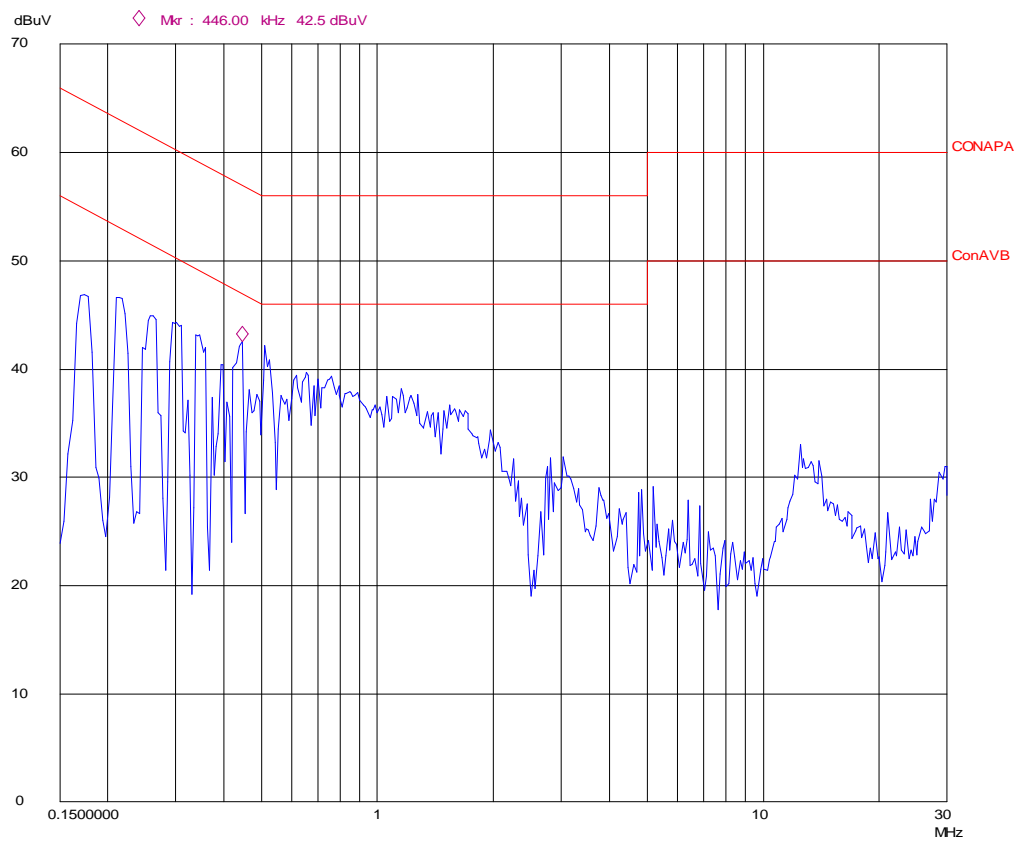
## Conducted Disturbance

EUT: V5000  
Op Cond: On with Adaptor  
Test Spec: L  
Comment: AC 120V/60Hz



## Conducted Disturbance

EUT: V5000  
Op Cond: On With adaptor  
Test Spec: N  
Comment: AC 120V/60Hz





## **11.ANTENNA REQUIREMENTS**

### **11.1.Applicable requirements**

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

### **11.2.Antenna Connector**

Antenna Connector is on the PCB within enclosure and not accessible to user.

### **11.3.Antenna Gain**

The antenna gain of EUT is less than 6 dBi.