



Product Service

## RF - TEST REPORT

Report Number : **68.850.10.066.01** Date of Issue: 24 September 2010

Model : **304662**

Product Type : MP10 Module

Applicant : ICON Health & Fitness Inc.

Address : 1500 S 1000 W, LOGAN, Utah 84321

Production Facility : Wanlida Group Co., Ltd.

Address : Wanlida Industry Zone, Nanjing, Fujian, China 363601

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including  
Appendices : 45

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## 2 Details about the Test Laboratory

### Details about the Test Laboratory

Company name: Jiangsu TÜV Product Service Ltd. – Shenzhen Branch  
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Fax: 86 755 8828 5299

Company name: Audix Technology (shenzhen) Co., Ltd  
Block Shenzhen, Science & Industry Park,  
Nantou, Shenzhen,  
Guangdong,  
China

Telephone: 86 755 2663 9496  
Fax: 86 755 2663 2877

### 3 Description of the Equipment Under Test

#### Description of the Equipment Under Test

Product: MP10 Module

Model no.: 304662

Serial number: NIL

Options and accessories: NIL

Rating: DC 12V, 24W  
AC Adaptor:  
Input: 100-240V, 50/60Hz, 1A  
Output: 12V DC, 2A

Antenna: Integral antenna inside enclosure of EUT, NOT accessible by end user  
Antenna Gain=1dBi

RF Transmission  
Frequency: 2412-2462MHz

Description of the EUT: NIL

#### Auxiliary Equipment and Cable Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
LCD monitor	DELL	1907FPt	7735430660P0G WD-04
Keyboard	DELL	SK-8115	E145614
Mouse	DELL	OCJ339	G0203WAZ
SD card	Kingston	SD4/4GBFE	----
VGA cable	DELL	Unshield	140cm
AC Power cable	DELL	Unshield	180cm
SD card	Kingston	SD4/4GBFE	----
Laptop	Lenovo	X61	L3-L3729 08/03



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#### 4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators



## 5 Summary of Test Results

Technical Requirements				
FCC Part 15 Subpart C				
Test Condition	Pages	Test Result		
		Pass	Fail	N/A
15.207 Conducted Emission AC Power Port	8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.247 (b) (1) Conducted peak output power	12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.247(d) Band edge compliance of RF emissions	14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.247(d) Spurious RF conducted emissions	24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.247(d) 15.209 Spurious radiated emissions	29	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.247(a)(2) 6dB bandwidth	33	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.247(e) Power spectral density	39	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 6 General Remarks

### Remarks

This submittal(s) (test report) is intended for FCC ID: OMC304662 comply with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C Rules.

### SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

Sample Received Date: 2 September 2010

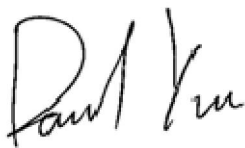
Testing Start Date: 07 September 2010

Testing End Date: 21 September 2010

- Jiangsu TÜV Product Service Ltd. – Shenzhen Branch -

Reviewed by:

Prepared by:



Paul Yu  
Assistant EMC Manager



Ken Li  
Senior EMC Project Engineer

## 7 Technical Requirement

### 7.1 Conducted Emission

#### Test Method

- 1 The EUT was placed on a table, which is 0.8m above ground plane
- 2 The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
- 3 Maximum procedure was performed to ensure EUT compliance
- 4 A EMI test receiver is used to test the emissions from both sides of AC line

#### Limit

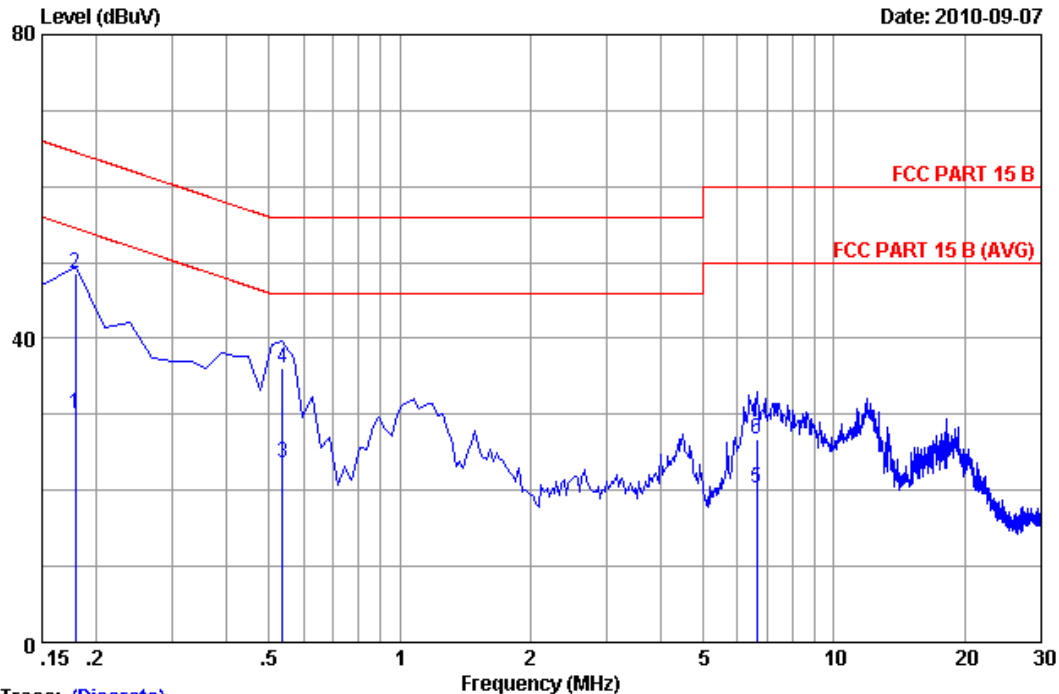
Frequency MHz	QP Limit dB $\mu$ V	AV Limit dB $\mu$ V
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Decreasing linearly with logarithm of the frequency



## Conducted Emission

Data: 3 File: D:\DATA\2010 test data\T\TUV\20100907-1.EM6 (6) Date: 2010-09-07



Trace: (Discrete)

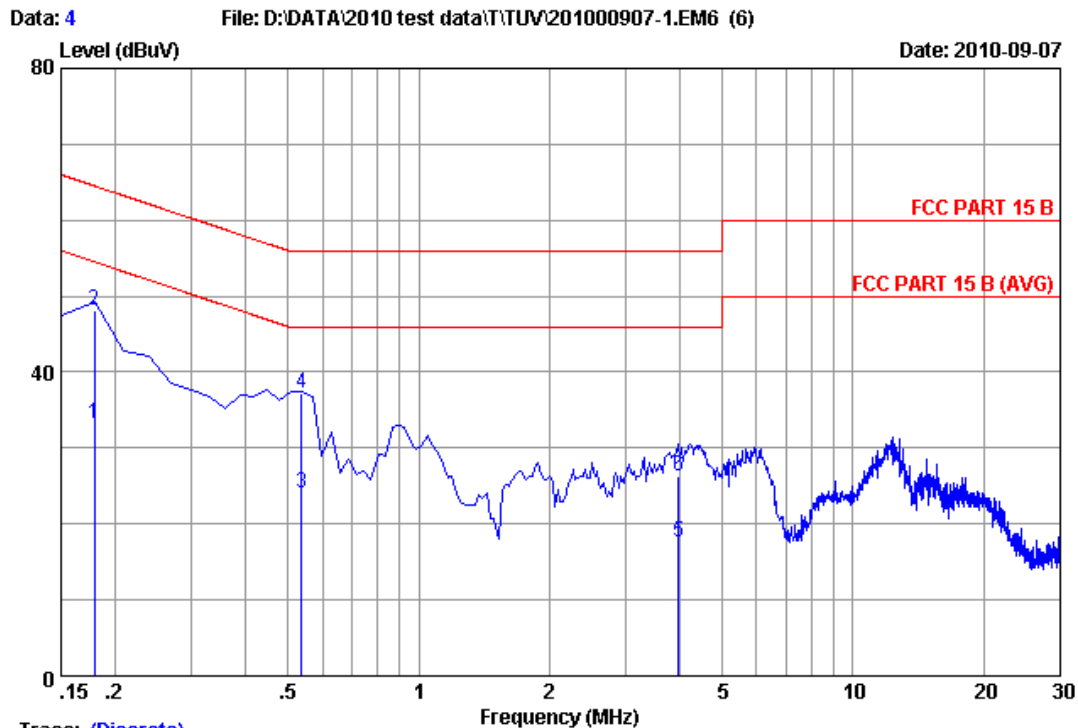
Site no : 1#conduction Data No : 3  
 Dis./Ant. : \*\* 2010 ESH2-25 NEUTRAL  
 Limit : FCC PART 15 B  
 Env./Ins. : 29.5°C/55% Engineer : Paul Tian  
 EUT : 304662  
 Power Rating : AC 120V/60Hz  
 Test Mode : WI-FI  
 Memo :

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17900	0.21	9.88	20.00	30.09	54.53	24.44	Average
2	0.17900	0.21	9.88	38.50	48.59	64.53	15.94	QP
3	0.53800	0.22	9.88	13.50	23.60	46.00	22.40	Average
4	0.53800	0.22	9.88	26.00	36.10	56.00	19.90	QP
5	6.627	0.30	9.96	9.99	20.25	50.00	29.75	Average
6	6.627	0.30	9.96	16.49	26.75	60.00	33.25	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)+Reading.

2.If the average limit is met when using a quasi-peak detector. the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

## Conducted Emission



### Trace: (Discrete)

Site no : 1#conduction Data No : 4  
 Dis./Ant. : \*\* 2010 ESH2-25 LINE  
 Limit : FCC PART 15 B  
 Env./Ins. : 29.5°C/55% Engineer : Paul Tian  
 EUT : 304662  
 Power Rating : AC 120V/60Hz  
 Test Mode : WI-FI  
 Memo :

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17900	0.22	9.88	23.00	33.10	54.53	21.43	Average
2	0.17900	0.22	9.88	38.00	48.10	64.53	16.43	QP
3	0.53800	0.24	9.88	14.00	24.12	46.00	21.88	Average
4	0.53800	0.24	9.88	27.00	37.12	56.00	18.88	QP
5	3.970	0.27	9.94	7.49	17.70	46.00	28.30	Average
6	3.970	0.27	9.94	15.99	26.20	56.00	29.80	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)+Reading.  
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

**Test Equipment List**

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Dec.18, 10
L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Mar.30, 11
L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 11
Terminator	Hubersuhner	50Ω	No. 1	May.08, 11
Terminator	Hubersuhner	50Ω	No. 2	May.08, 11
RF Cable	Fujikura	3D-2W	LISN Cable 1#	May.08, 11
Coaxial Switch	Anritsu	MP59B	M55367	May.08, 11
Passive Probe	Rohde & Schwarz	ESH2-Z3	299.7810.52	May.08, 11
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 11

## 7.2 Conducted peak output power

### Test Method

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak power detection.

### Limits for conducted peak output power measurements

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

## Conducted peak output power

### IEEE 802.11b modulation (1Mbps) Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH1 2412MHz	18.88	Pass
CH6 2437MHz	18.83	Pass
CH11 2462MHz	18.70	Pass

### IEEE 802.11g modulation (6Mbps) Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH1 2412MHz	21.79	Pass
CH6 2437MHz	21.75	Pass
CH11 2462MHz	21.78	Pass



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## Test Equipment

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum Analyzer	Agilent	E4446A	US44300459	May 08 2011

## 7.3 Band edge compliance of RF emissions

### Test Method

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.4 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW and VBW to 1MHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.

The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW and VBW to 100kHz, to measure the conducted peak band edge.

### Limits

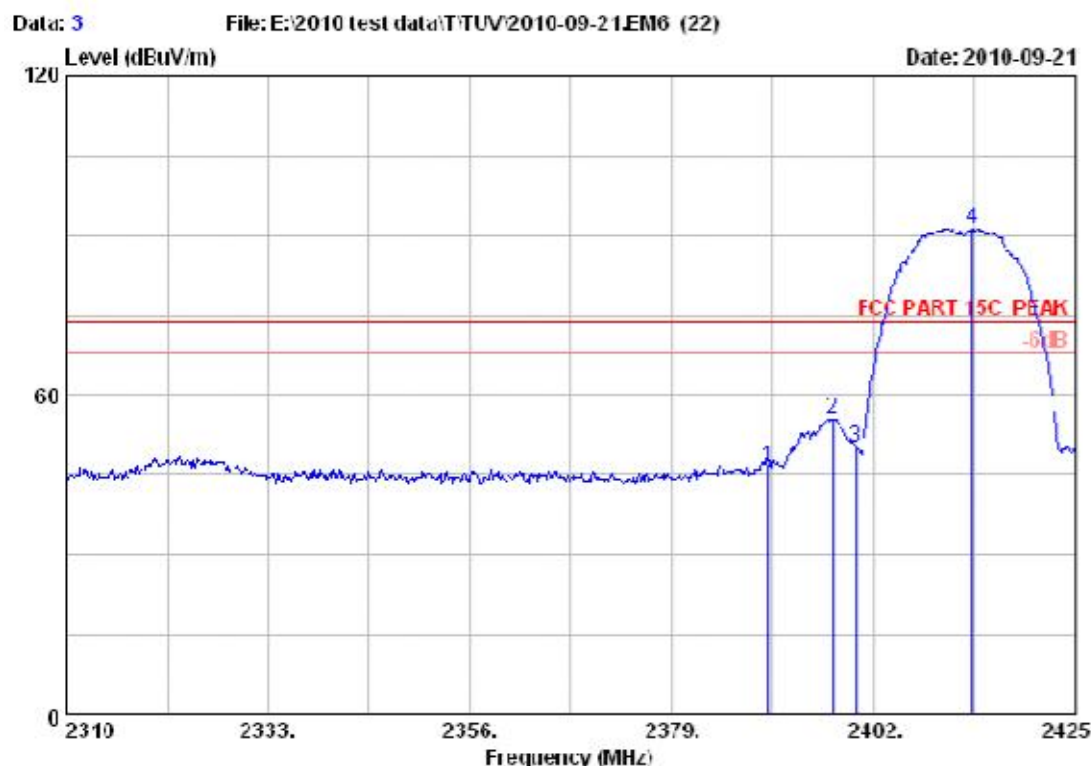
According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. 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 Section 15.205(c)).

Frequency MHz	Limit Average dBuV/m	Limit Peak dBuV/m
Below 2390 Above 2483.5	54	74

## Band edge compliance of RF emissions

### IEEE 802.11b modulation (1 Mbps) Test Result

#### Lower Edge PK plot:



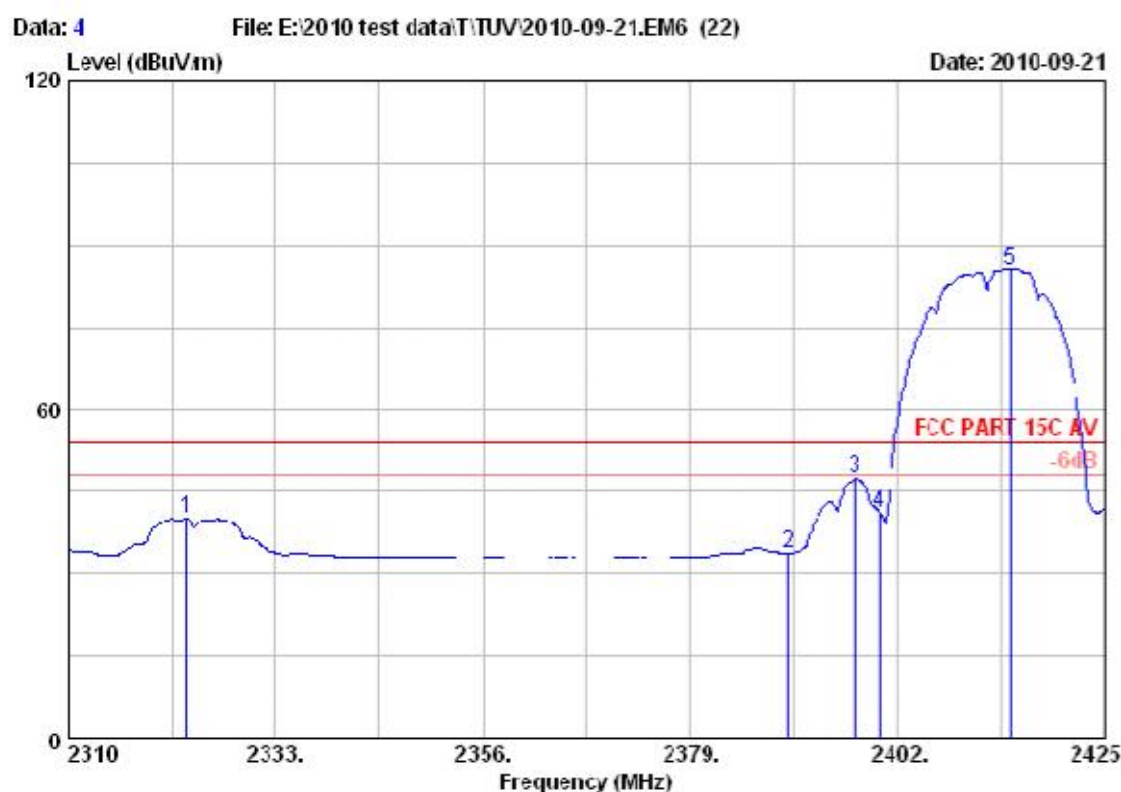
Site no.	: 3m Chamber	Data no.	: 3
Dis. / Ant.	: 3m 3115 (DS11)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK	Engineer	: Paul Tian
Env. / Ins.	: 23°C/54%		
EUT	: 3C4662		
Power	: AC 120V/60Hz		
Test mode	: 11b 2412MHz Tx		
M/N	:		

	Ant.	Cable	Amp.		Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limit	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 3390.000	29.44	7.39	36.62	46.16	46.37	74.00	27.63	Peak	
2 2097.400	29.44	7.39	36.62	55.57	55.50	74.00	10.42	Peak	
3 2400.000	29.44	7.43	36.62	49.98	50.23	74.00	23.77	Peak	
4 2413.270	29.45	7.43	36.62	91.12	51.33	74.00	-17.38	Peak	

#### Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

# Lower Edge AV plot:



Site no. : 3m Chamber Data no. : 4  
 Dis. / Ant. : 3m 0115 (0911) Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Paul Tian  
 EUT : 304662  
 Power : AC 120V/60HZ  
 Test mode : 11b 2.412MHz Tx  
 M/N :

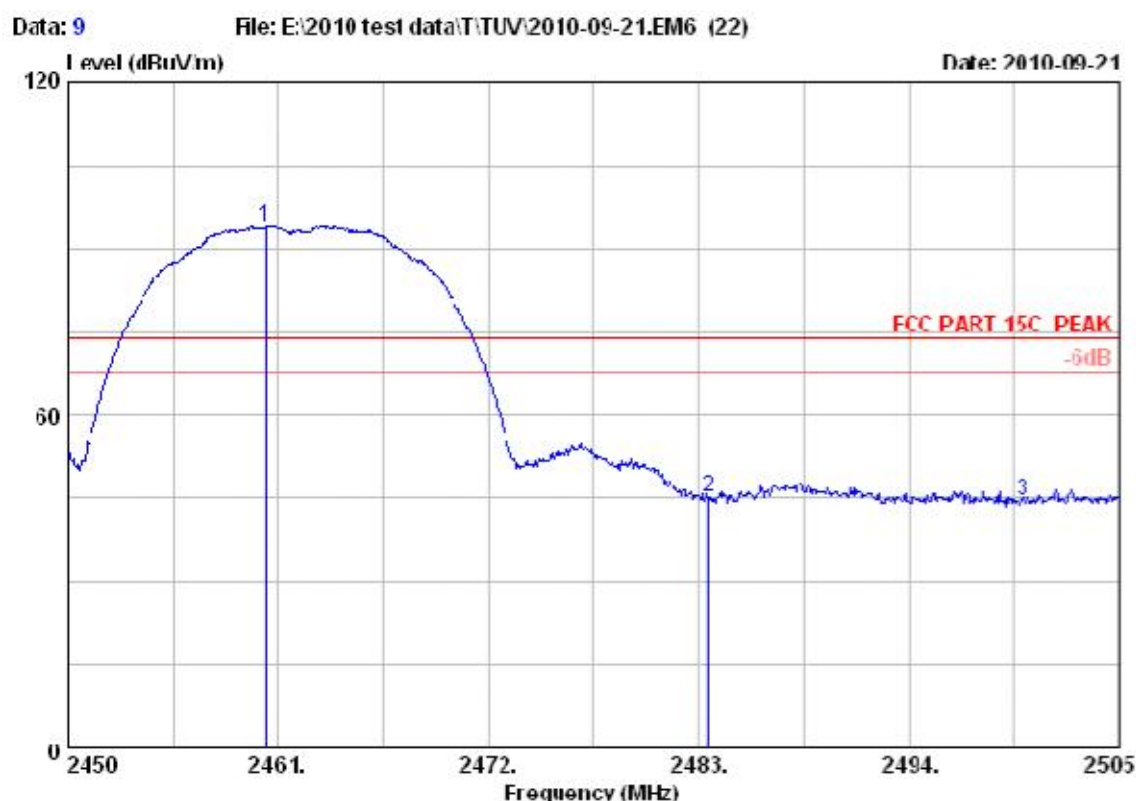
	Ant.	Cable	Amp.		Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 2322.995	29.40	7.27	36.63	40.05	40.09	54.00	13.91	Average	
2 2390.000	29.44	7.39	36.62	33.63	33.84	54.00	20.16	Average	
3 2397.400	29.44	7.39	36.62	47.22	47.43	54.00	6.57	Average	
4 2400.000	29.44	7.43	36.62	40.90	41.15	54.00	12.85	Average	
5 2414.650	29.45	7.43	36.62	85.43	35.69	54.00	-31.59	Average	

## Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



# Upper Edge PK plot:



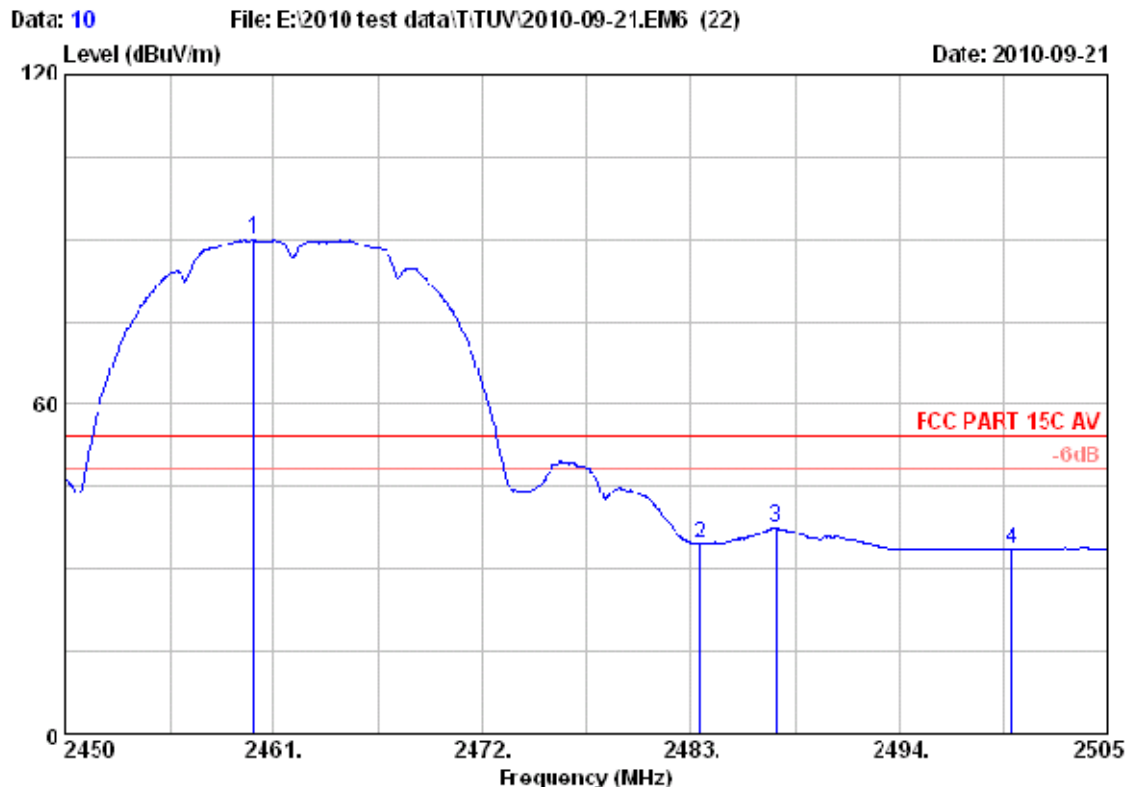
Site no. : 3m Chamber Data no. : 9  
Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23°C/54% Engineer : Paul Tian  
EUT : 304662  
Power : AC 120V/60Hz  
Test mode : 11b 2462MHz Tx  
M/N :

	Ant.	Cable	Amp.		Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBrV)	(dBrV/m)	(dBrV/m)	(dB)		
1 2460.340	29.48	7.54	36.61	93.61	94.02	74.00	-20.02	Peak	
2 2483.500	29.49	7.58	36.60	44.67	45.14	74.00	28.86	Peak	
3 2500.000	29.50	7.62	36.60	44.09	44.61	74.00	29.39	Peak	

## Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## Upper Edge AV plot:



Site no. : 3m Chamber Data no. : 10  
 Dis. / Ant. : 3m 3115 (0911) Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23 °C/54% Engineer : Paul Tian  
 EUT : 304652  
 Power : AC 120V/60Hz  
 Test mode : 11b 2462MHz Tx  
 M/N :

	Ant.	Cable	Amp.		Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 2459.900	29.48	7.54	36.61	89.49	89.90	54.00	-35.90	Average	
2 2483.500	29.49	7.58	36.60	33.95	34.42	54.00	19.58	Average	
3 2487.510	29.50	7.58	36.60	37.00	37.48	54.00	16.52	Average	
4 2500.000	29.50	7.62	36.60	32.79	33.31	54.00	20.69	Average	

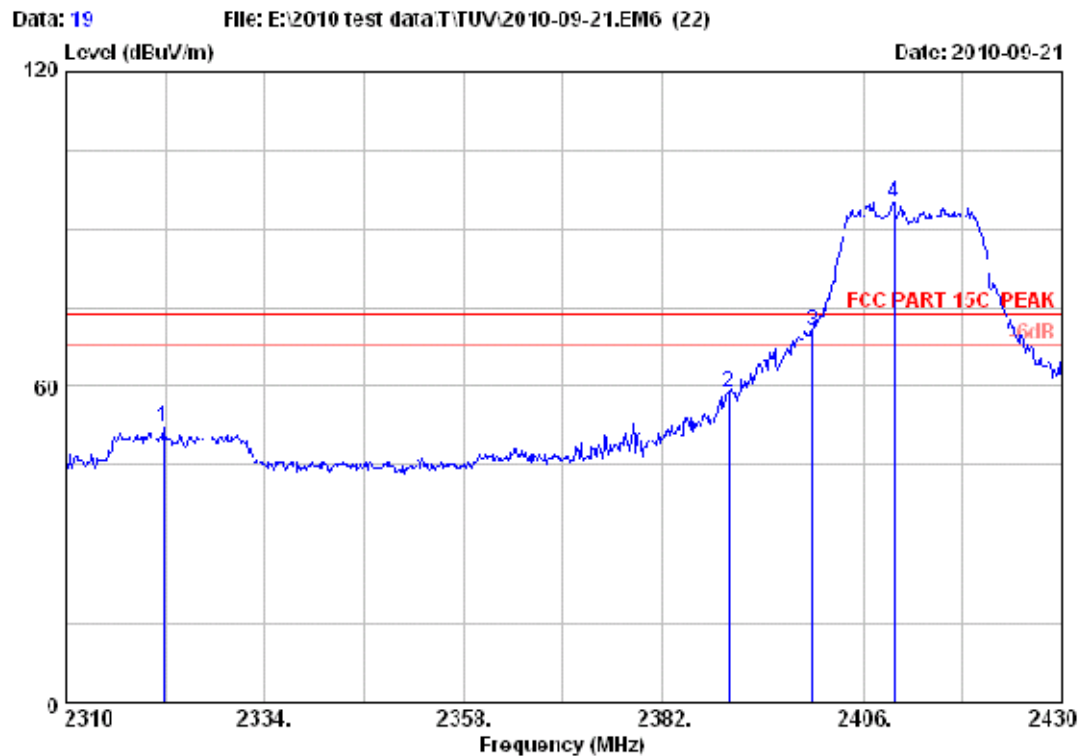
## Remarks:

1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## Band edge compliance of RF emissions

### IEEE 802.11g modulation (6 Mbps) Test Result

#### Lower Edge PK Plot:



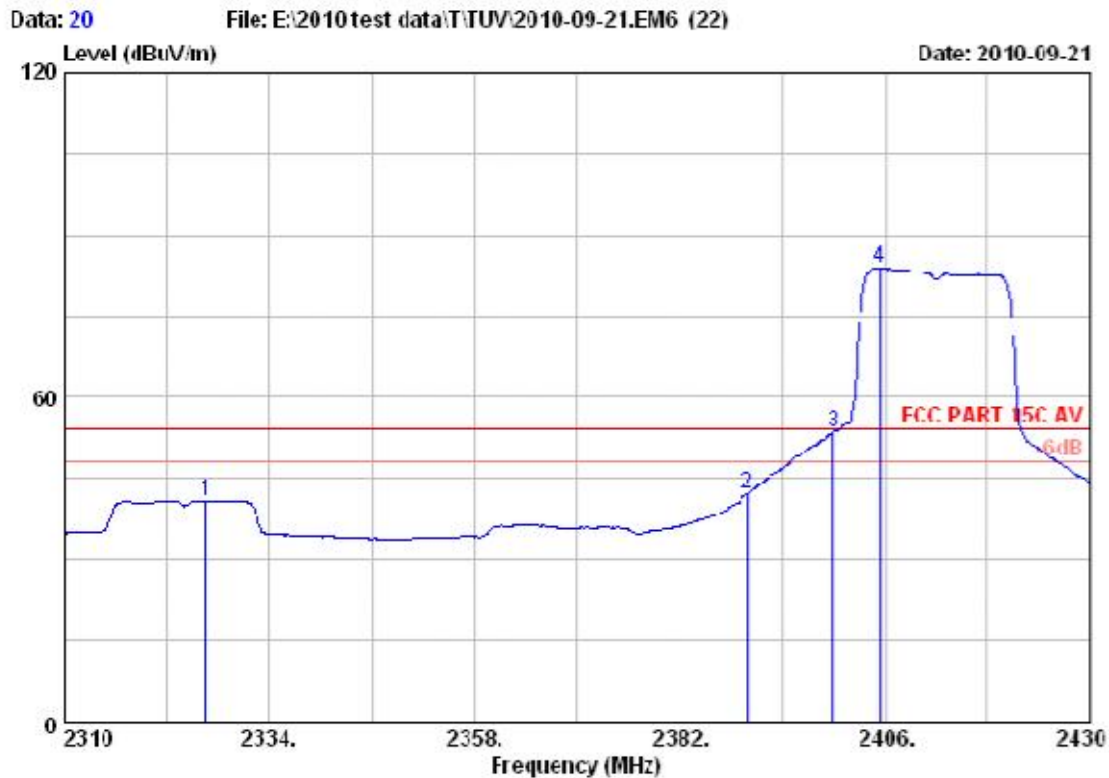
Site no.	: 3m Chamber	Data no.	: 19
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 20°C/54%	Engineer	: Paul Tian
EUT	: 304662		
Power	: AC 120V/60Hz		
Test mode	: 11g 2412MHz Tx		
N/N	:		

	Ant.	Cable	Amp.		Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBUV)	(dBUV/m)	(dBUV/m)	(dB)		
1 2321.760	29.40	7.27	36.63	52.11	52.15	74.00	21.85	Peak	
2 2390.000	29.44	7.39	36.62	53.74	58.55	74.00	15.05	Peak	
3 2400.000	29.44	7.43	36.62	71.34	70.59	74.00	3.41	Peak	
4 2409.840	29.45	7.43	36.62	94.80	95.06	74.00	-21.06	Peak	

#### Remarks:

1. Emission Level= Antenna Factor - Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

# Lower Edge AV Plot:



Site no.	: 3m Chamber	Data no.	: 20
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C AV	Engineer	: Paul Tiar
Env. / Ins.	: 23°C/54%		
EUT	: 304662		
Power	: AC 120V/60Hz		
Test mode	: 11g 2412MHz Tx		
M/N	:		

	Ant.	Cable	Amp.		Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margi	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 2326.560	29.40	7.27	36.63	40.89	40.93	54.00	13.07	Average	
2 2390.000	29.44	7.39	36.62	42.06	42.27	54.00	11.73	Average	
3 2400.000	29.44	7.43	36.62	53.32	53.57	54.00	0.43	Average	
4 2405.400	29.45	7.43	36.62	83.61	83.87	54.00	-29.87	Average	

## Remarks:

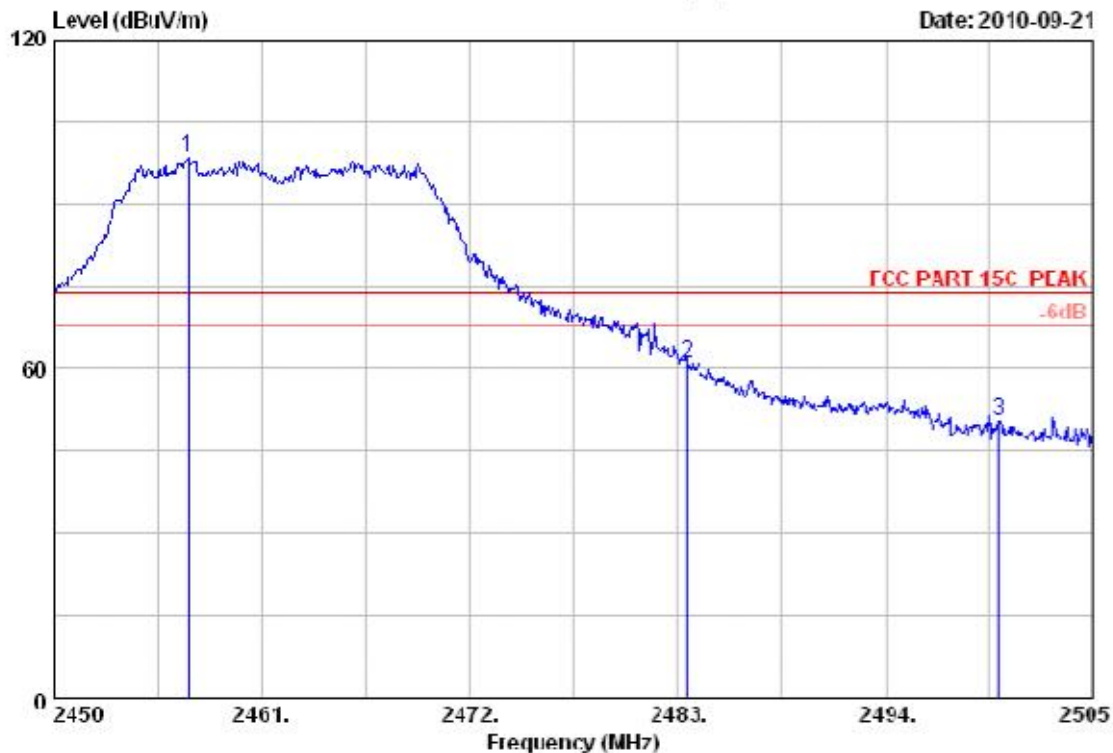
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

# Upper Edge PK Plot:

Data: 13

File: E:\2010 test data\TUV\2010-09-21.EM6 (22)

Date: 2010-09-21



Site no.	: 3m Chamber	Data no.	: 13
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK	Engineer	: Paul Tian
Env. / Ins.	: 23°C/54%		
EJT	: 304662		
Power	: AC 120V/60Hz		
Test mode	: 11g 2462MHz Tx		
M/N	:		

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			Remark
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2457.040	29.48	7.50	36.61	98.22	98.59	74.00	-24.59	Peak
2	2483.500	29.49	7.58	36.60	60.85	61.32	74.00	12.68	Peak
3	2500.000	29.50	7.62	36.60	49.88	50.40	74.00	23.60	Peak

## Remarks:

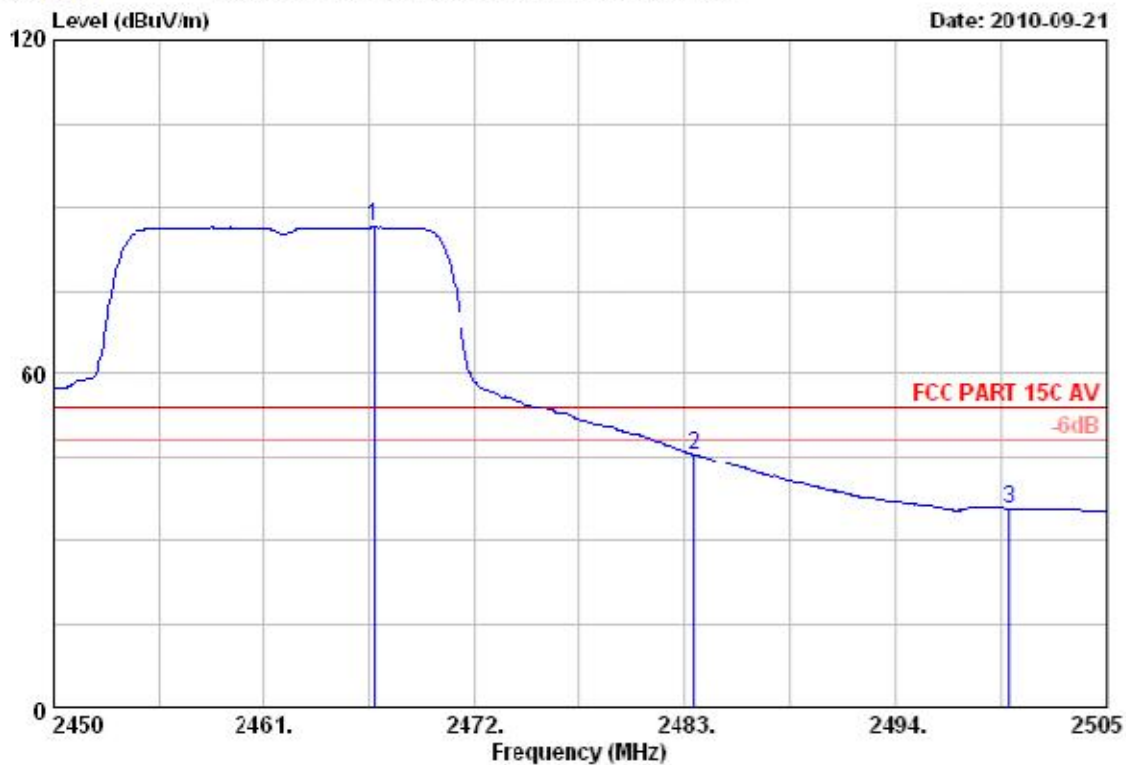
1. Emission Level= Antenna Factor + Cable Loss -Imp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

# Upper Edge AV Plot:

Data: 14

File: E:\2010 test data\TUV\2010-09-21.EM6 (22)

Date: 2010-09-21



Site no. : 3m Chamber  
Dis. / Ant. : 3m 3115(0911)  
Limit : FCC PART 15C AV  
Env. / Ins. : 23°C/54%  
EUT : 304662  
Power : AC 120V/60Hz  
Test mode : 11g 2462MHz Tx  
M/N :  
Data no. : 14  
Ant. pol. : VERTICAL  
Engineer : Paul Tian

	Ant. Freq. (MHz)	Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2466.775	29.48	7.54	36.60	86.04	86.46	54.00	-32.46	Average
2	2483.500	29.49	7.58	36.60	45.06	45.53	54.00	8.47	Average
3	2500.000	29.50	7.62	36.60	35.34	35.86	54.00	18.14	Average

## Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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## Test Equipment List

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum	Agilent	E4446A	US44300459	May 08, 2011
Amp	HP	8449B	3008A02495	May 08, 2011
Antenna	EMCO	3115	9607-4877	May 17, 2011
Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 2010
HF Cable	Hubersuhne	Sucoflex104	---	May 08, 2011

## 7.4 Spurious RF conducted emissions

### Test Method

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak power detection.

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The resolution bandwidth(RBW) and the video bandwidth (VBW) of the spectrum analyzer were respectively set to 100kHz and 100kHz.

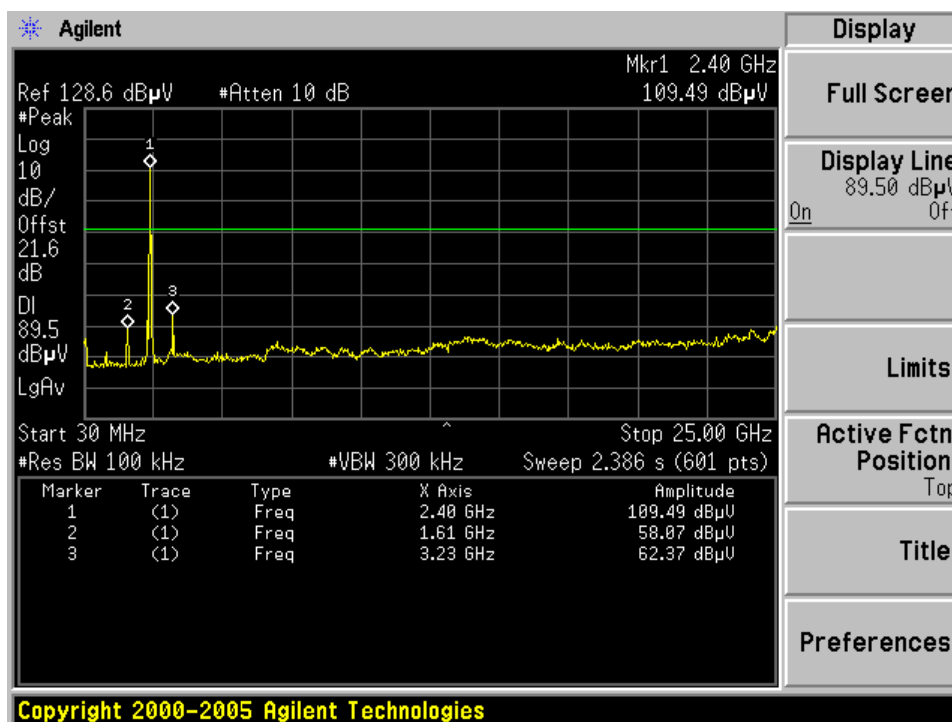
### Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20

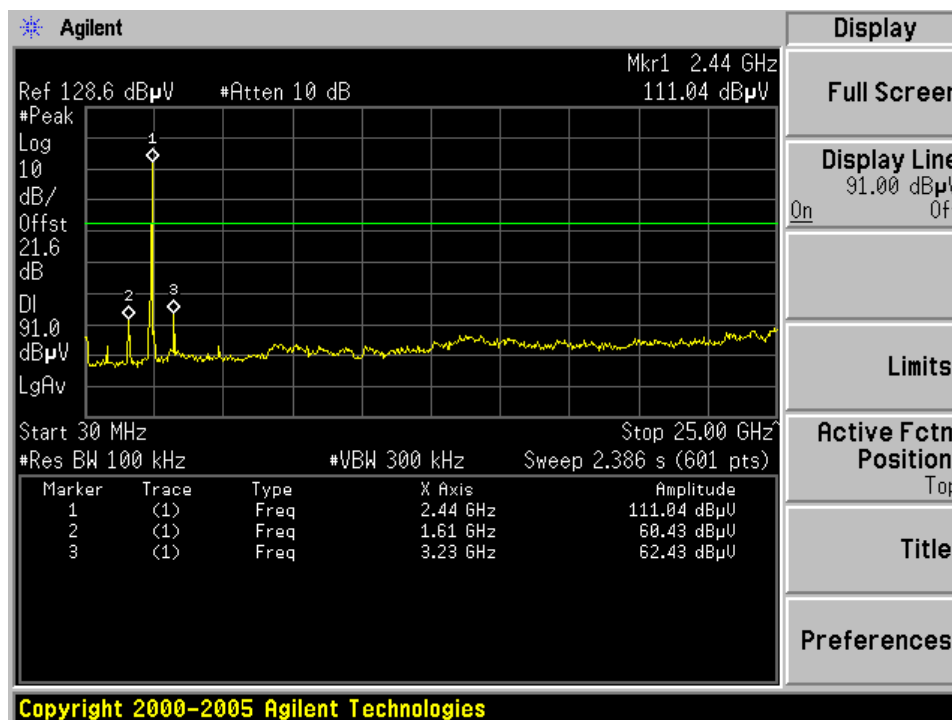


## Spurious RF conducted emissions

IEEE 802.11b modulation (1 Mbps) Test Result  
2412MHz

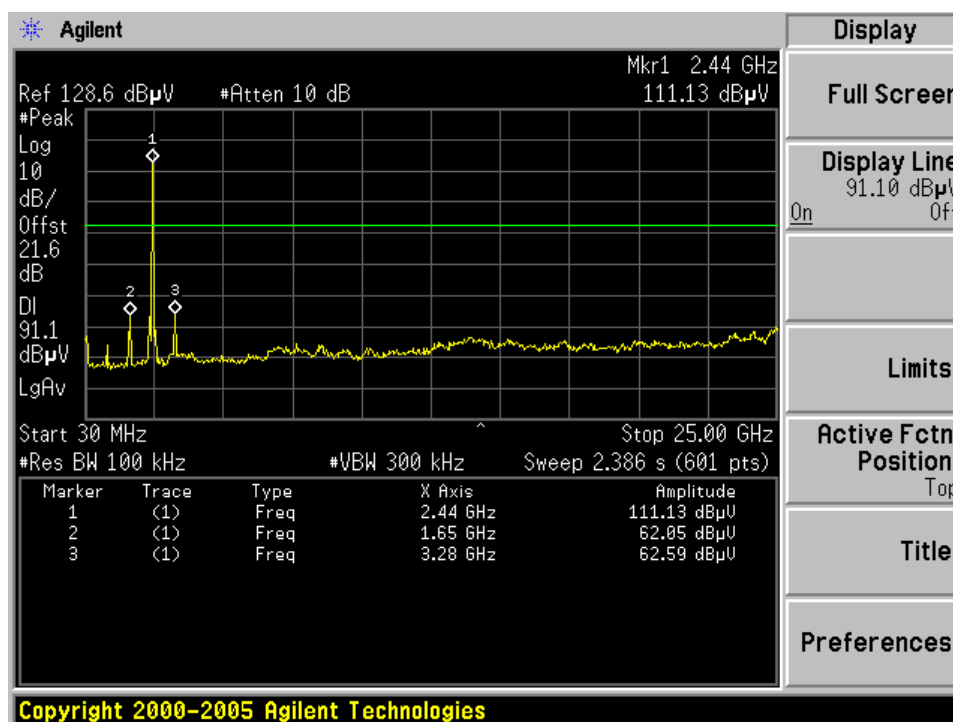


2437MHz



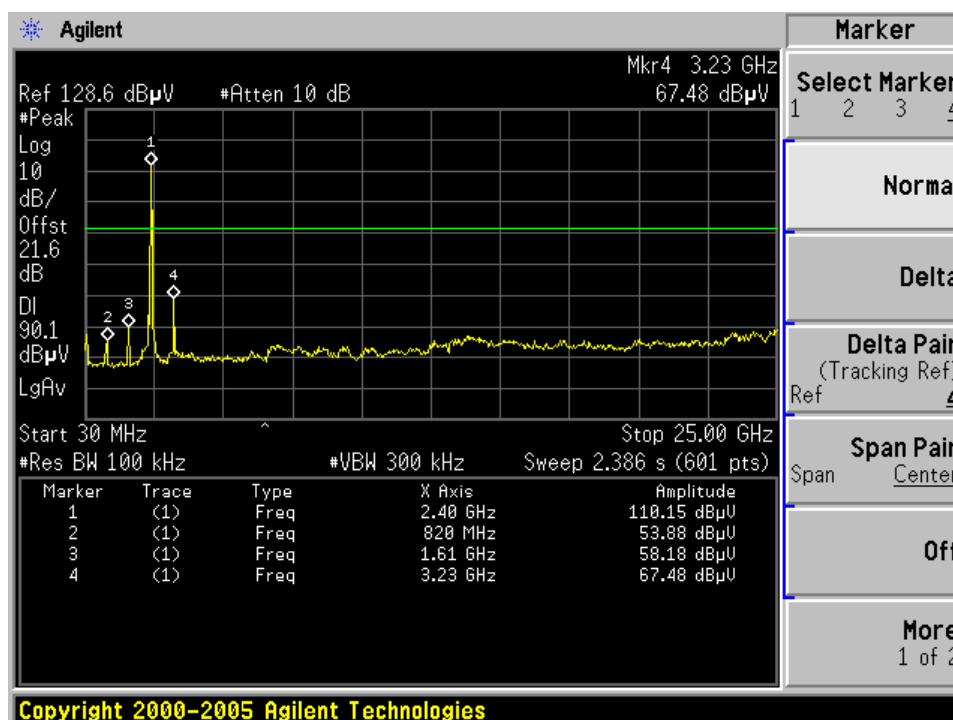
## Spurious RF conducted emissions

2462MHz



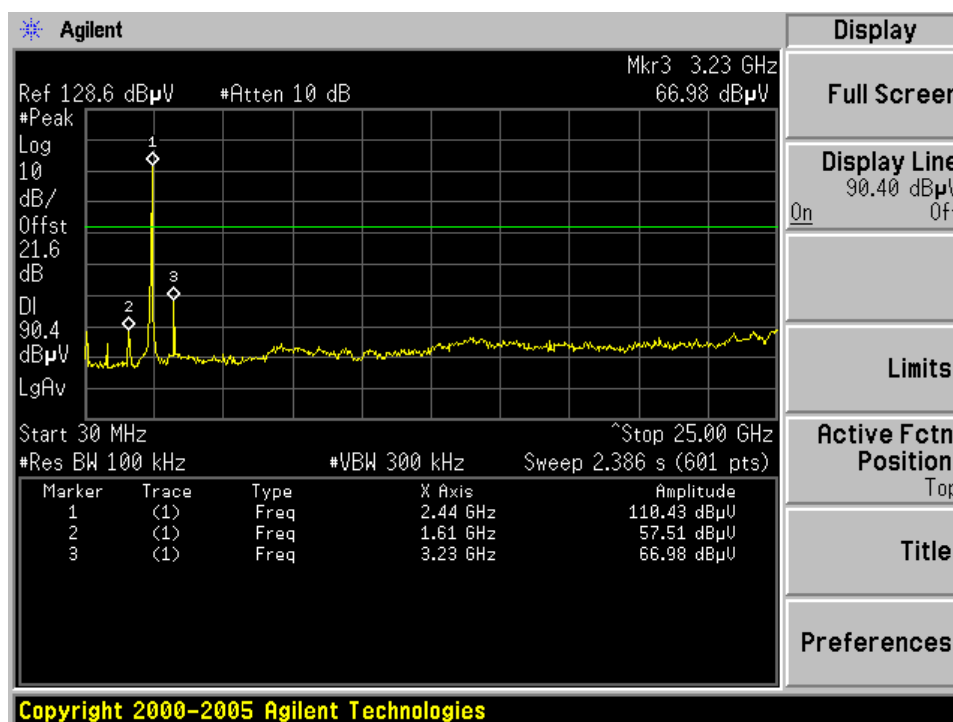
## IEEE 802.11g modulation (6 Mbps) Test Result

2412MHz

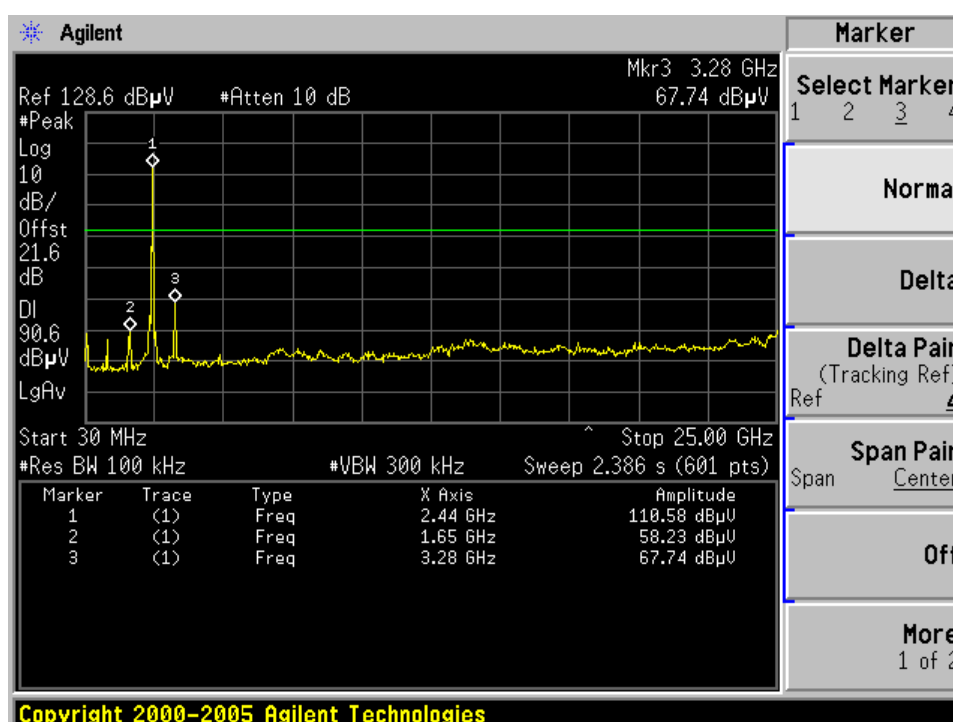


# Spurious RF conducted emissions

2437MHz



2462MHz





Product Service

## Test Equipment List

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL.DUE.DATE
Spectrum Analyzer	Agilent	E4446A	US44300459	May 08, 2011

## 7.5 Spurious radiated emissions

### Test Method

- 1 The EUT is placed on a turntable, which is 0.8m above ground plane.
- 2 The turntable shall be rotated for 360 degrees to determine the position of maximum emission level
- 3 EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4 Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5 Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

### Limit

Frequency MHz	Field Strength uV/m	Field Strength dBμV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

## Radiated Emission

### IEEE 802.11b modulation (1 Mbps) CH1 2412MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
400.540	16.41	2.92	0	19.18	38.51	Vertical	46.00	QP	Pass
600.000	19.90	4.12	0	17.20	41.22	Vertical	46.00	QP	Pass
4824.000	34.32	10.64	35.08	46.52	56.40	Vertical	74	PK	Pass
4824.000	34.32	10.64	35.08	36.37	46.25	Vertical	54	AV	Pass
7236.000	-	-	-	-	-	-	-	-	-
7236.000	-	-	-	-	-	-	-	-	-

### IEEE 802.11b modulation (1 Mbps) CH6 2437MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
4874.000	34.41	10.69	35.03	45.53	55.60	Vertical	74	PK	Pass
4874.000	34.41	10.69	35.03	35.64	45.71	Vertical	54	AV	Pass
7311.000	-	-	-	-	-	-	-	-	-
7311.000	-	-	-	-	-	-	-	-	-

### IEEE 802.11b modulation (1 Mbps) CH11 2462MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
4924.000	34.49	10.76	34.98	45.79	56.06	Vertical	74	PK	Pass
4924.000	34.49	10.76	34.98	35.68	45.95	Vertical	54	AV	Pass
7386.000	-	-	-	-	-	-	-	-	-
7386.000	-	-	-	-	-	-	-	-	-

#### Remark:

- (1) Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
- (2) If the Amp. factor is "0", means the test system did not configure with amplifier.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.

## Radiated Emission

### IEEE 802.11g modulation (6 Mbps) CH1 2412MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dBμV/m	Detector	Result
400.540	16.41	2.92	0	20.02	39.35	Vertical	46.00	QP	Pass
600.000	19.90	4.12	0	16.80	40.82	Vertical	46.00	QP	Pass
4824.000	34.32	10.64	35.08	44.88	54.76	Vertical	74	PK	Pass
4824.000	34.32	10.64	35.08	34.78	44.66	Vertical	54	AV	Pass
7236.000	-	-	-	-	-	-	-	-	-
7236.000	-	-	-	-	-	-	-	-	-

### IEEE 802.11g modulation (6 Mbps) CH6 2437MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dBμV/m	Detector	Result
4874.000	34.41	10.69	35.03	44.19	54.26	Vertical	74	PK	Pass
4874.000	34.41	10.69	35.03	35.87	45.94	Vertical	54	AV	Pass
7311.000	-	-	-	-	-	-	-	-	-
7311.000	-	-	-	-	-	-	-	-	-

### IEEE 802.11g modulation (6 Mbps) CH11 2462MHz Test Result

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Amp. Factor dB	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dBμV/m	Detector	Result
4924.000	34.49	10.76	34.98	45.80	56.07	Vertical	74	PK	Pass
4924.000	34.49	10.76	34.98	36.43	46.70	Vertical	54	AV	Pass
7386.000	-	-	-	-	-	-	-	-	-
7386.000	-	-	-	-	-	-	-	-	-

#### Remark:

- (4) Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
- (5) If the Amp. factor is "0", means the test system did not configure with amplifier.
- (6) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.

**Test Equipment List**

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum	Agilent	E4446A	US44300459	May 08, 2011
Amp	HP	8449B	3008A02495	May 08, 2011
Antenna	EMCO	3115	9607-4877	May 17, 2011
Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 2010
HF Cable	Hubersuhne	Sucoflex104	---	May 08, 2011



## 7.6 6 dB bandwidth

### Test Method

- 1 Place the EUT on the table and set it in the transmitting mode.
- 2 Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3 Mark the peak frequency and –6dB (upper and lower) frequency.

### Limit

Limit [kHz]

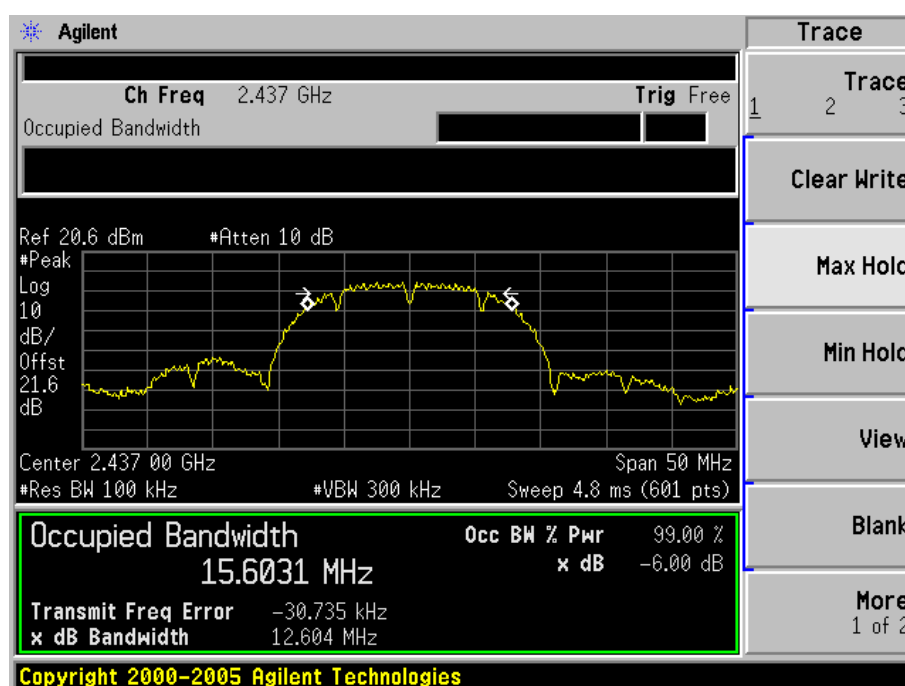
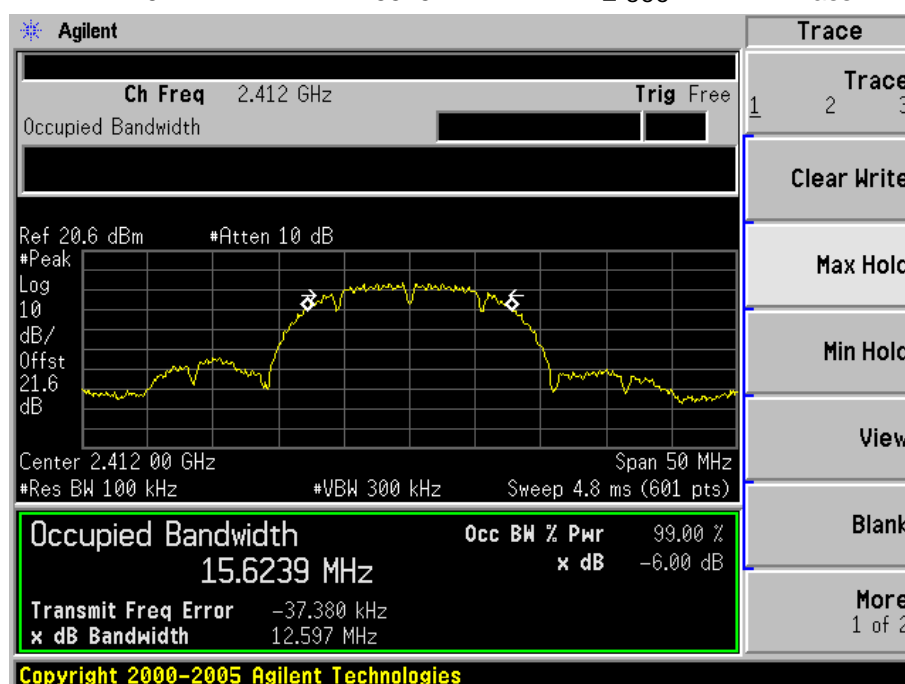
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$\geq 500$

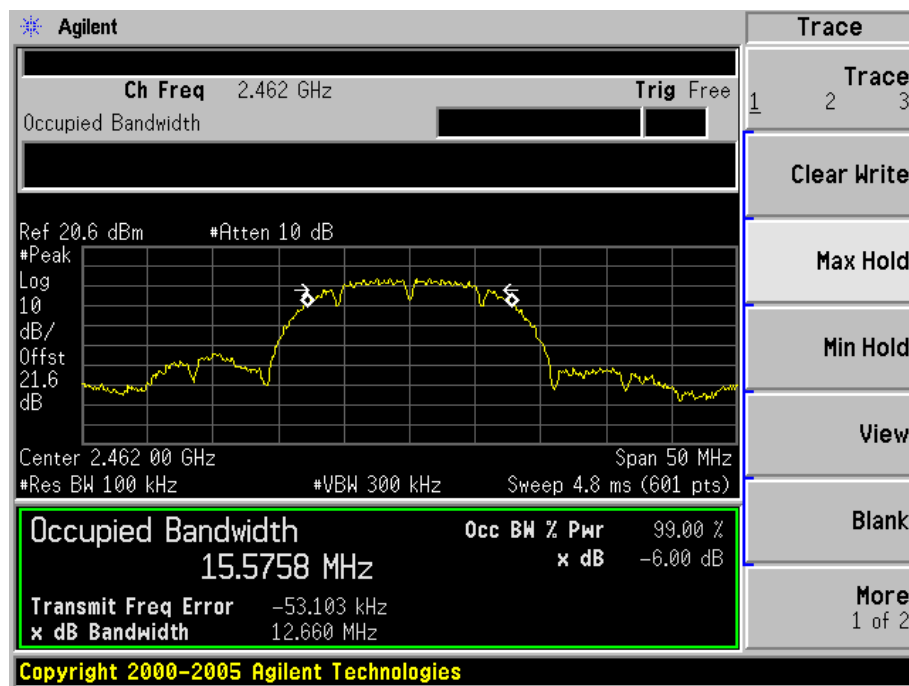
## 6 dB bandwidth

### IEEE 802.11b modulation (1Mbps) Test Result

Frequency MHz	Bandwidth kHz	Limit kHz	Result
2412	15623	≥ 500	Pass
2437	15603	≥ 500	Pass
2462	15575	≥ 500	Pass



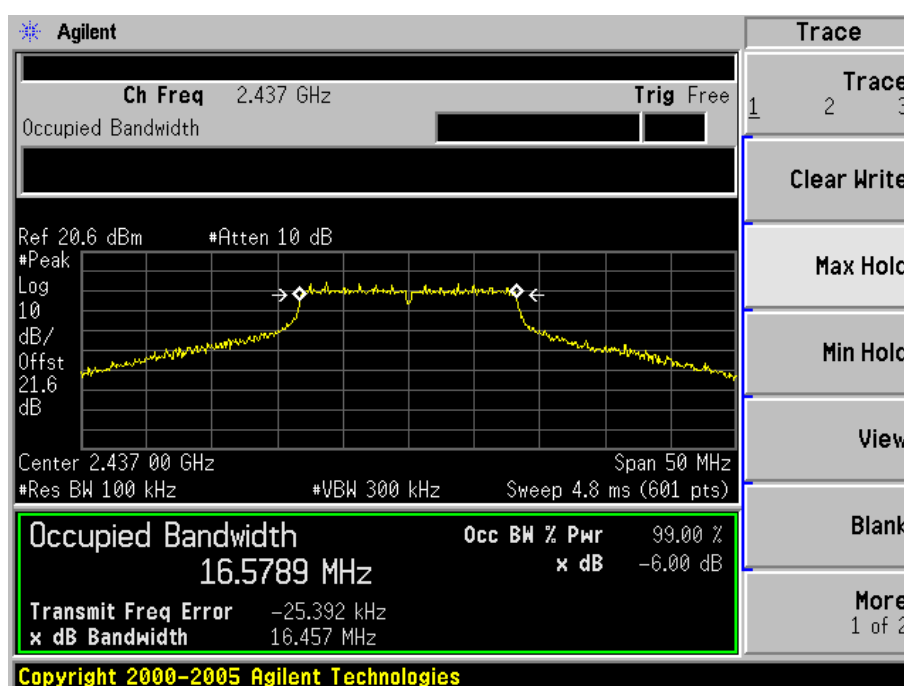
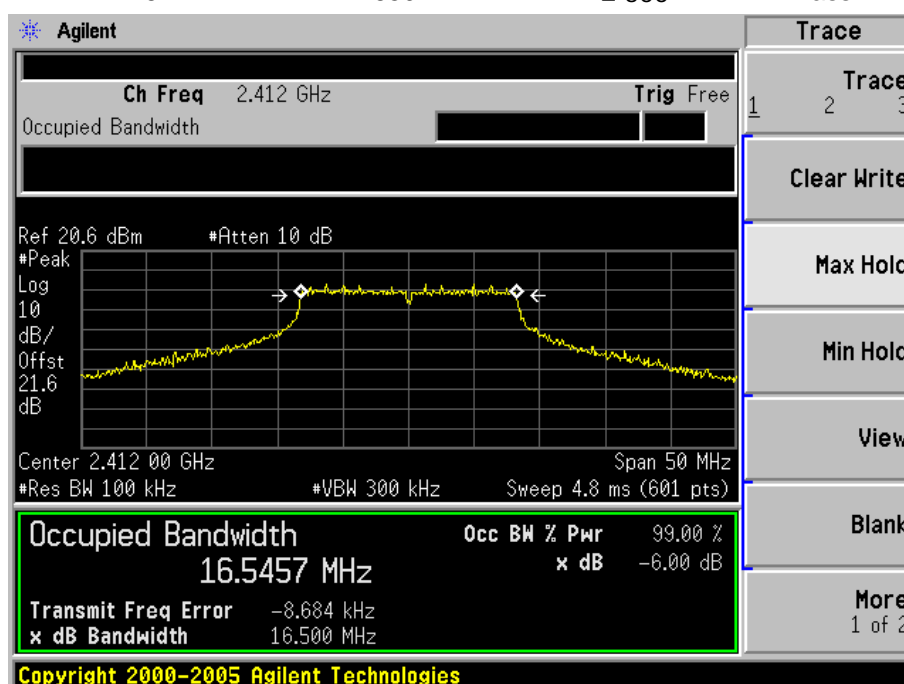
## 6 dB bandwidth



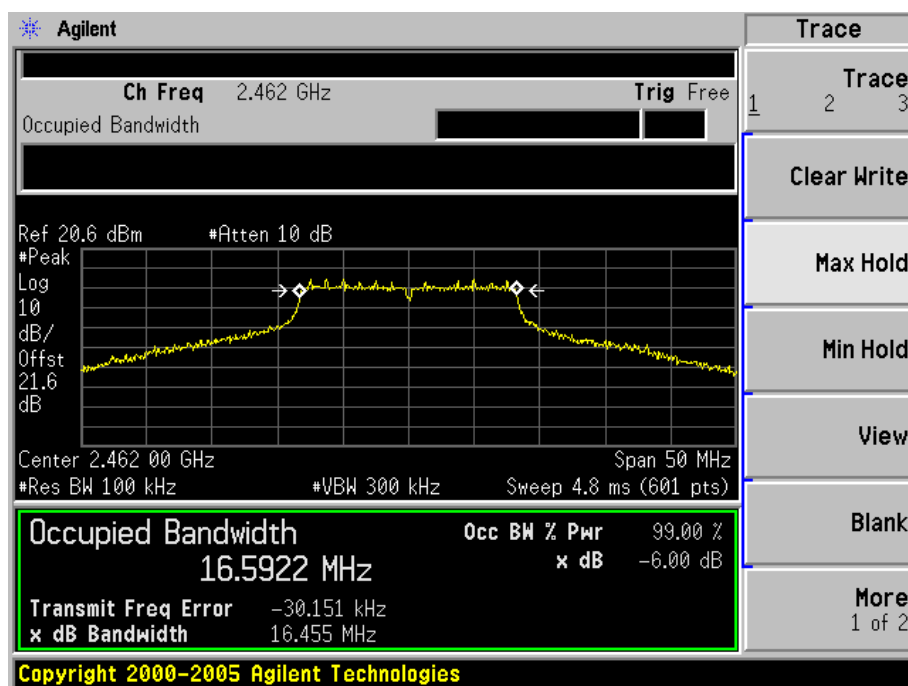
## 6 dB bandwidth

### IEEE 802.11g modulation (6Mbps) Test Result

Frequency MHz	Bandwidth kHz	Limit kHz	Result
2412	16545	$\geq 500$	Pass
2437	16578	$\geq 500$	Pass
2462	16592	$\geq 500$	Pass



## 6 dB bandwidth





Product Service

## Test Equipment

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL.DUE.DATE
Spectrum Analyzer	Agilent	E4446A	MY41440292	May 08, 2011

## 7.7 Power spectral density

### Test Method

- 1 Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 2 Set the spectrum analyzer as RBW = 3 kHz, VBW = 10 kHz, Span = 300kHz, Sweep = 100 s
- 3 Record the max reading.

### Limit

Limit  
dBm / 3 kHz

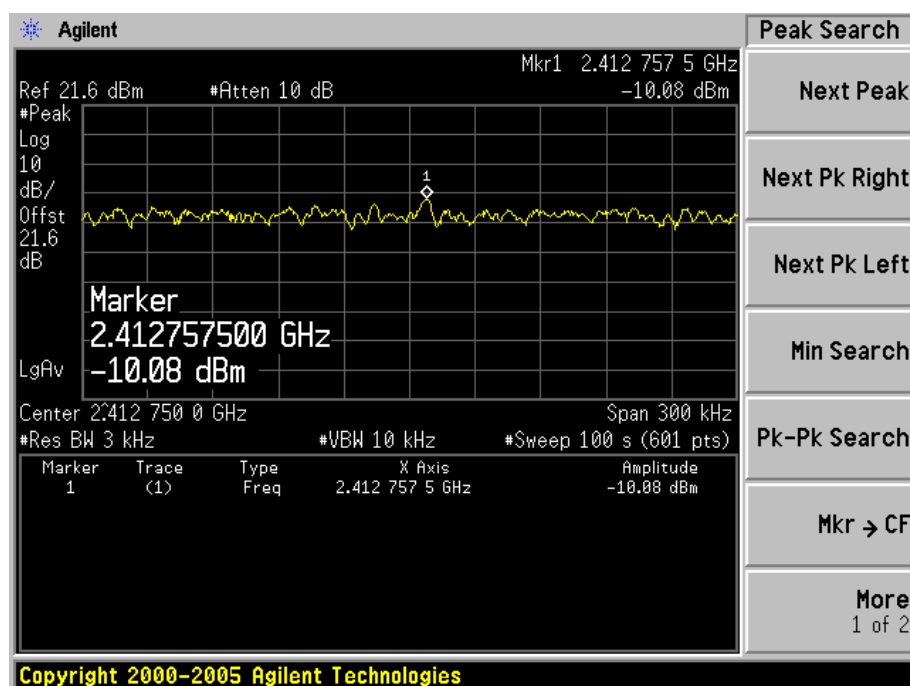
---

8

## Power spectral density

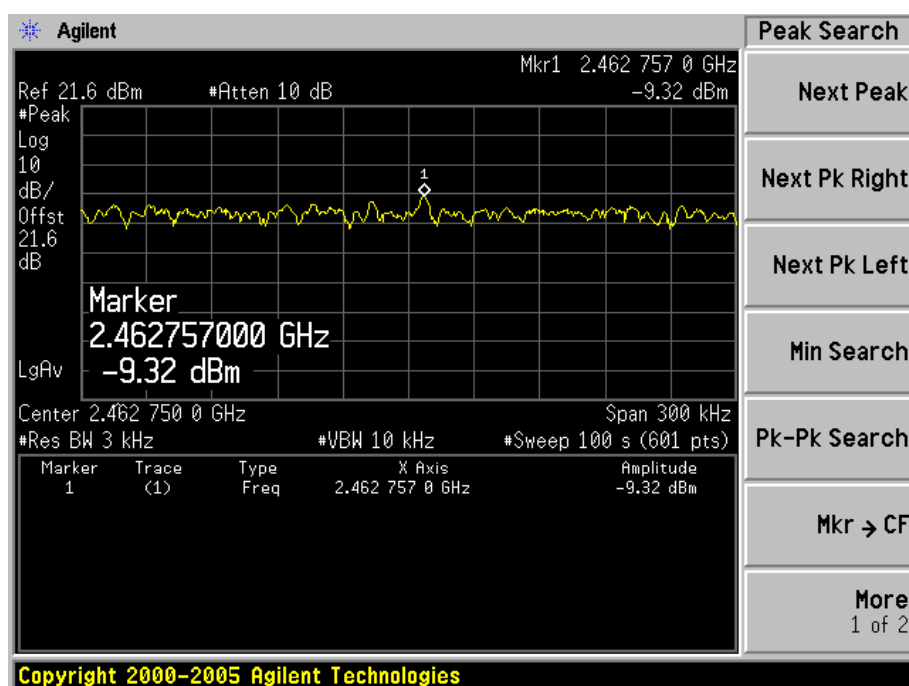
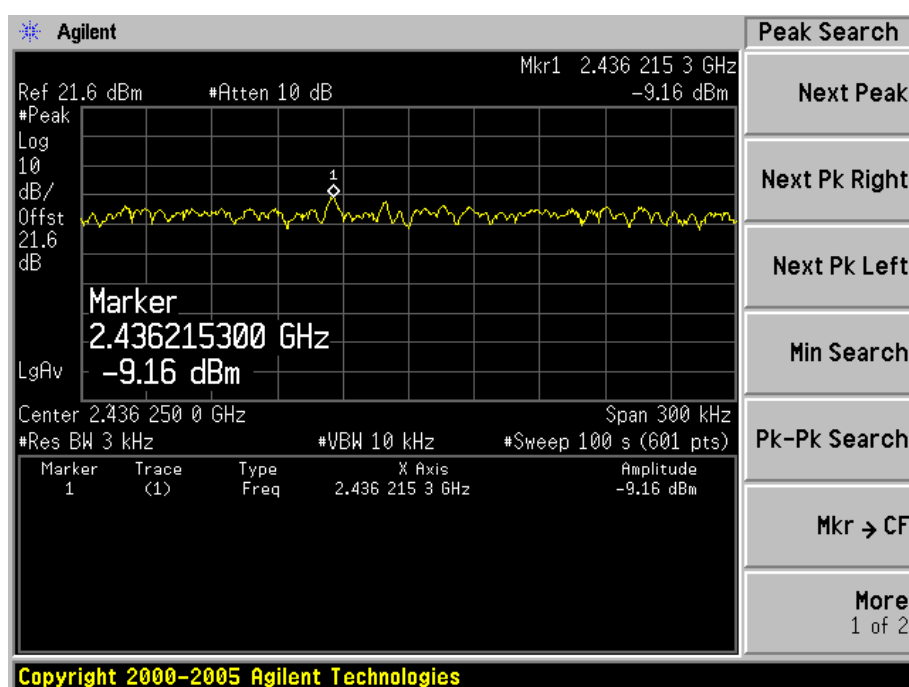
### IEEE 802.11b modulation (1Mbps) Test Result

Frequency MHz	P dBm	Result
2412	-10.08	Pass
2437	-9.16	Pass
2462	-9.32	Pass





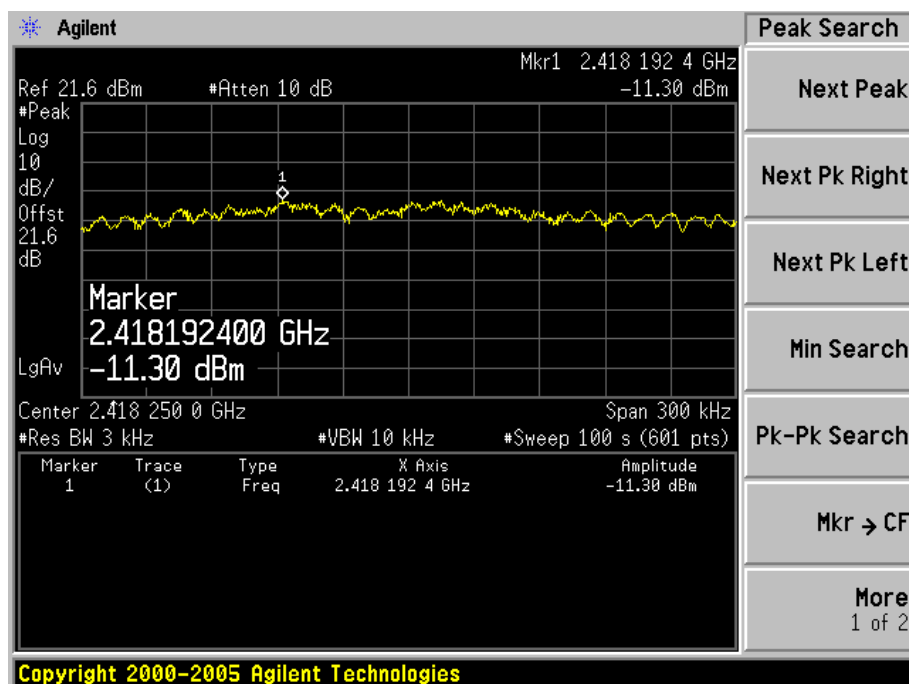
## Power spectral density



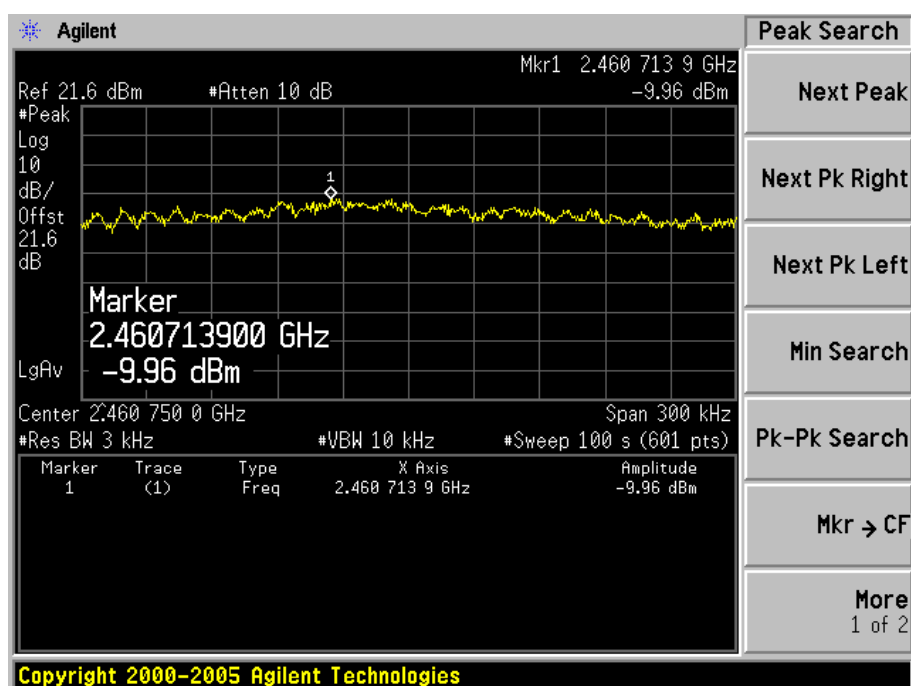
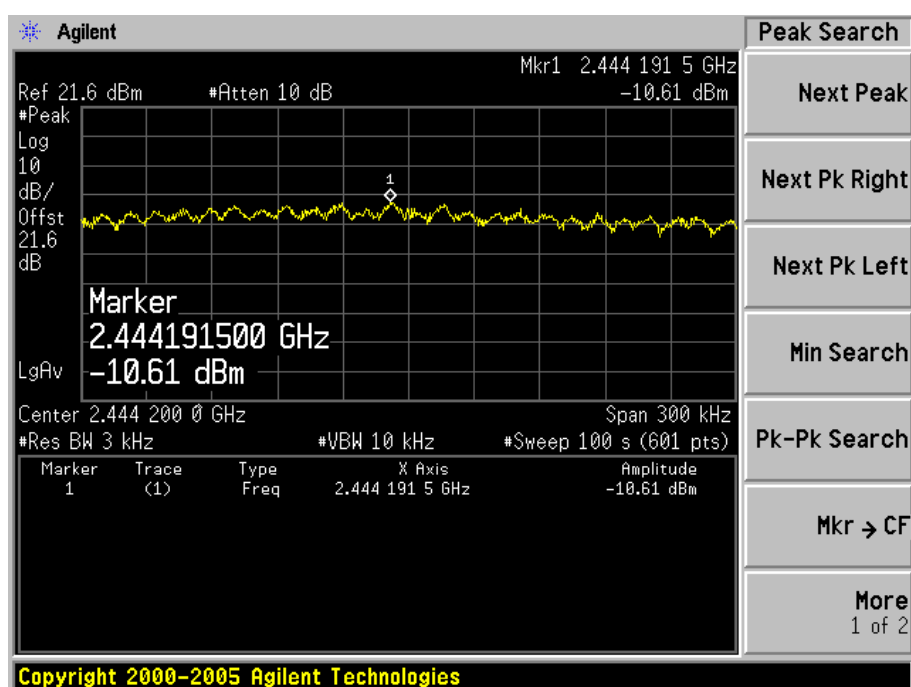
## Power spectral density

### IEEE 802.11g modulation (6Mbps) Test Result

Frequency MHz	P dBm	Result
2412	-11.30	Pass
2437	-10.61	Pass
2462	-9.96	Pass



## Power spectral density





Product Service

## Test Equipment

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL.DUE.DATE
Spectrum Analyzer	Agilent	E4407B	MY41440292	May 8, 2011

## 8 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

**System Measurement Uncertainty**

Items		Extended Uncertainty
RE	Field strength (dB $\mu$ V/m)	U=4.32dB (30MHz-25GHz)
CE	Disturbance Voltage (dB $\mu$ V)	U=2.4dB