



## FCC TEST REPORT

for

ThinkOptics, Inc

Remote Controller

Model Number: iWavit

Prepared for : ThinkOptics, Inc

Address : 5568 Del Oro Dr., San Jose, CA 94124, USA

Prepared By : NS Technology Co., Ltd.

Address : Chenwu Industrial Zone, Houjie Town, Dongguan City,  
Guangdong, China

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Report Number : NSE-F10075126

Date of Test : Jul. 5~Jul. 15, 2010

Date of Report : Jul. 19, 2010



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# NS Technology Co., Ltd.

<b>Applicant:</b>	ThinkOptics, Inc 5568 Del Oro Dr., San Jose, CA 94124, USA		
<b>Manufacturer:</b>	Unisen Limited No. YuanJiangYuan market road, Changping Town, Dongguan City Guangdong, China		
<b>E.U.T:</b>	Remote Controller		
<b>Model Number:</b>	iWavit		
<b>Trade Name:</b>	ThinkOptics, Inc	<b>Operating Frequency:</b>	2405MHz~2480MHz
<b>Date of Receipt:</b>	June 28, 2010	<b>Date of Test:</b>	Jul. 5~Jul. 15, 2010
<b>Test Specification:</b>	FCC Part 15 Subpart C: July. 10, 2008 ANSI C63.4:2003		
<b>Test Result:</b>	The equipment under test was found to be compliance with the requirements of the standards applied.		
<b>Issue Date: Jul. 19, 2010</b>			
Tested by:	Reviewed by:	Approved by:	
			
Jade/ Engineer	Iceman Hu / Supervisor	Steven Lee / Manager	
<b>Other Aspects:</b> None.			
Abbreviations: OK/P=passed      fail/F=failed      n.a/N=not applicable      E.U.T=equipment under tested			
This test report is based on a single evaluation of one sample of above mentioned products, It is not permitted to be duplicated in extracts without written approval of NS Technology Co., Ltd.			



# 1. GENERAL PRODUCT INFORMATION

## 1.1. Product Function

Details please refer to Technical Construction Form and User Manual.

## 1.2. Description of Device (EUT)

E.U.T.	: Remote Controller
Model No.	: iWavit
Operating Frequency	: 2405~2480MHz
Number of Channels	: 16 Channels
Type of Modulation	: DSSS
Antenna Type	: Integral
Antenna Gain	: 0dBi
System Input Voltage	: DC 3V from battery input
Temperature Range(Operating)	: 0 ~+ 40°C

## 1.3. Difference between Model Numbers

## 1.4. Independent Operation Modes

The basic operation modes are:

- 1.4.1. TX CH1 (2405MHz)
- 1.4.2. TX CH 6 (2440MHz)
- 1.4.3. TX CH11 (2480MHz)

## 1.5. Test Support System

### 1.5.1. iPod

Model Number	: A1199
Manufacturer	: Apple
Serial Number	: 6U715B28VQ5



## 2. TEST SITES

### 2.1. Test Facilities

EMC Lab : Accredited by TUV Rheinland, Germany  
Date of registration: July 28, 2003

Accredited by CNAS, China  
Registration No.: L1744  
Date of registration: November 25, 2004

Accredited by Intertek ETL SEMKO  
Registration No.: TMP-013  
Date of registration: June 11, 2005

Accredited by TUV/PS, Hong Kong  
Date of registration: December 1, 2005

Accredited by ATCB, USA  
Date of registration: August 3, 2006

Accredited by VCCI, Japan  
Member No..2115  
Registration No.: R-2527, R-3012 & C-2770  
Date of registration: March 23, 2007

Accredited by FCC, USA  
Registration No.: 502831  
Date of registration: February 9, 2009

Accredited by Industry Canada  
Registration No.: 5936A  
Date of registration: March 4, 2009

Accredited by American Association for Laboratory  
Accreditation (A2LA), USA  
Certificate No.: 2951.01  
Date of registration: March 31, 2010

Name of Firm : NS Technology Co., Ltd.

Site Location : Chenwu Industrial Zone, Houjie Town, Dongguan City,  
Guangdong, China



## 2.2. List of Test and Measurement Instruments

### 2.2.1. For radiated emission test (30MHz-1GHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESCS30	100340	May 30,10	May 30,11
Spectrum Analyzer	HP	8593E	3448U00806	May 30,10	May 30,11
Bilog Antenna	Teseq	CBL 6111D	25758	Oct. 27,09	Oct. 27,10
Signal Amplifier	Agilent	8447D	2944A10488	May 2,10	May 2,11
50Ω Coaxial Switch	ANRITSU	MP59B	6200530577	May 2,10	May 2,11

### 2.2.2. For radiated emission test (Above 1GHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	HP	8593E	3448U00806	May 30,10	May 30,11
Horn Antenna	EMCO	3117	00062558	Jan. 19,09	Jan. 19,11
Signal Amplifier	BURGEON	PEC-38-30M18G -12-SFF	NSEMC001	May 31,09	May 31,11

### 2.2.3. For Band edge compliance test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	HP	8593E	3448U00806	May 30,10	May 30,11
Horn Antenna	EMCO	3117	00062558	Jan. 19,09	Jan. 19,11
Signal Amplifier	BURGEON	PEC-38-30M18G -12-SFF	NSEMC001	May 31,09	May 31,11

### 2.2.4. For 20dB bandwidth test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Rohde&Schwarz	FSL3	101507	May 30,10	May 30,11



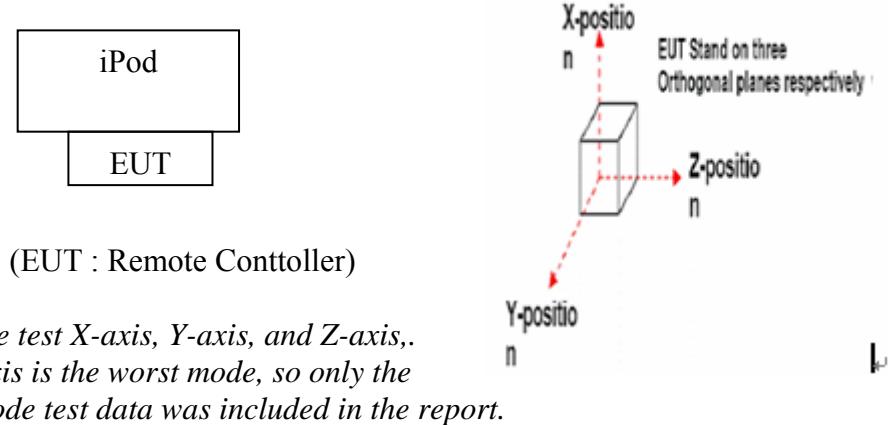
### 3. TEST SET-UP AND OPERATION MODES

#### 3.1. Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its highest possible radiated level. The test modes were adapted accordingly in reference to the Operating Instructions.

#### 3.2. Block Diagram of Test Set-up

System Diagram of Connections Between EUT and Simulators



#### 3.3. Test Operation Mode and Test Software

Refer to clause 1.4

#### 3.4. Special Accessories and Auxiliary Equipment

None.

#### 3.5. Countermeasures to Achieve EMC Compliance

None.

## 4. TEST SUMMARY

### Test items and result lists

No.	Item	Standard	Results
1	Conduction Emission Test	FCC Part15C: 15.207 ANSI C63.4-2003	N/A
2	Radiated Emission Test	FCC Part15C: 15.209 FCC Part15C: 15.249 ANSI C63.4-2003	PASS
3	Band Edge Compliance Test	FCC Part15: 15.249	PASS
4	20dB Bandwidth Test	FCC Part 15: 15.215	PASS

**Note:** N/A is an abbreviation for Not Applicable.



## 5. EMISSION TEST RESULTS

### 5.1. Radiated Emission

#### 5.1.1. Test limits

- 1) FCC part 15C section 15.209
- 2) FCC part 15C section 15.249(a)

#### 5.1.2. Test procedure

The EUT was placed on a turn table which was 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. At the frequency band of 30MHz to 1GHz, The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 to 4 m for horizontal and vertical polarizations. The broadband antenna (calibrated by dipole antenna) was used as a receiving antenna. At the frequency band of 1GHz to 25GHz, The measuring antenna moved from 1 to 4 m for horizontal and vertical polarization. The horn antenna was used as a receiving antenna.

The resolution bandwidth and video bandwidth of the test receiver was 120 kHz and 300kHz for Quasi-peak detection at frequency below 1GHz.

The resolution bandwidth and video bandwidth of the test receiver was 1MHz and 1MHz for Peak detection at frequency above 1GHz.

For Average measurement at frequency above 1GHz. The resolution bandwidth of the test receiver was 1MHz ; due to the shortest pulse width T is 116us, according the video bandwidth should not smaller than  $1/T$ , so the video bandwidth is 10Hz.

In 18GHz to 25GHz, The EUT was checked by Horn ANT . But the test result is background.

The EUT position(X. Y. Z) were checked and worse case was happened in Y position. So Y position was chose for find measurement.

The EUT was tested in Chamber Site.

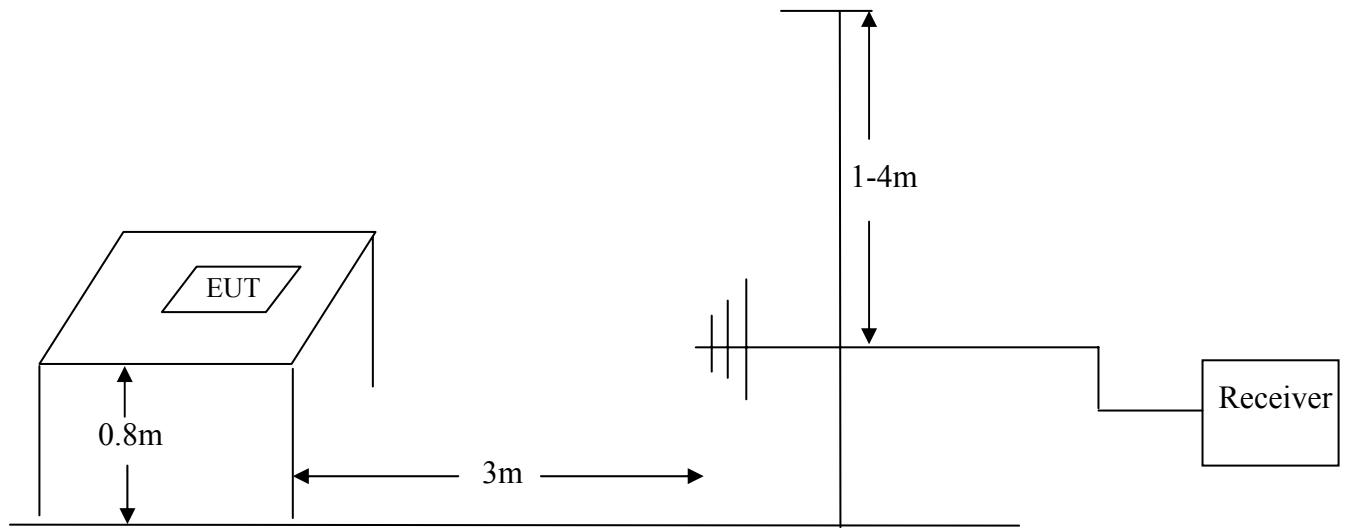
The EUT insert to the iPod. Through a wireless connection to the USB dongle. USB dongle can control the EUT's transmitting.

Note: Test uncertainty:  $\pm 2.62\text{dB}$  at a level of confidence of 95%.:

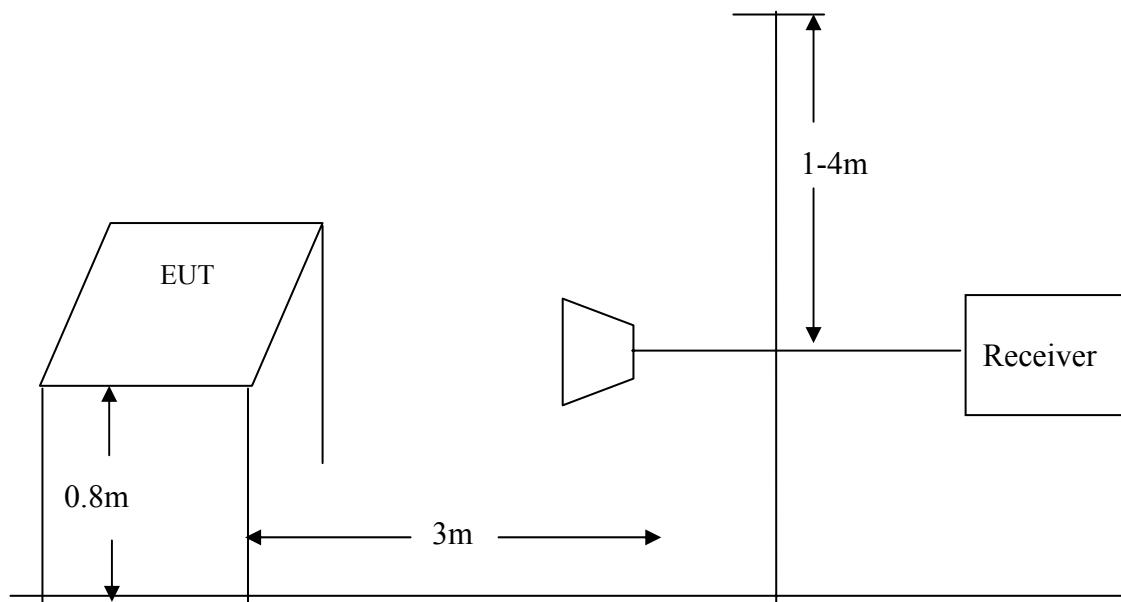


### 5.1.3. Test Setup Diagram

#### 5.1.3.1. Frequency range: 30MHz-1000MHz



#### 5.1.3.2. Frequency range: 1 GHz -25GHz

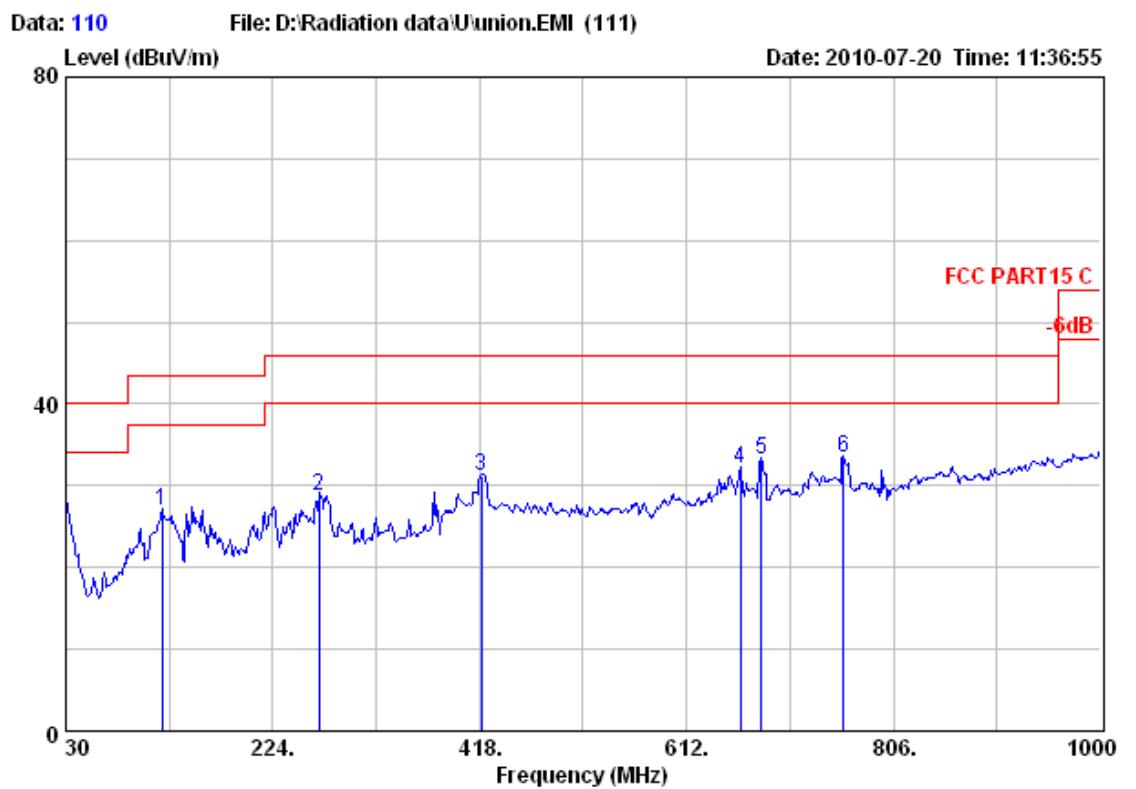


The test plots as following:



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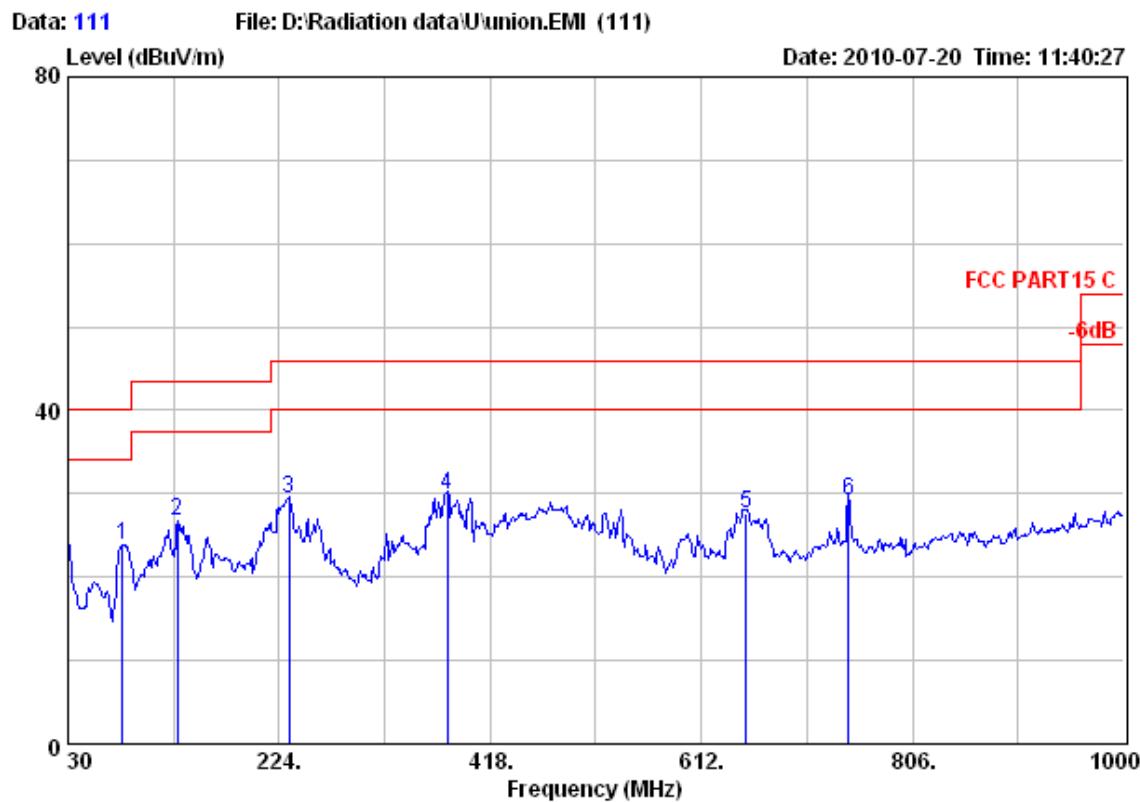
Test Site : 10m Chamber  
 Limit : FCC PART15 C  
 Dis. / Ant. : 3m 25758-3 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX Mode

Emission	Freq.	Level	Limits	Margin	Ant. Reading	Cable		Remark
						Factor	Loss	
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	(dB)	
1	120.21	26.86	43.50	16.64	14.09	11.63	1.14	QP
2	267.65	28.84	46.00	17.16	13.97	13.10	1.77	QP
3	419.94	31.21	46.00	14.79	11.88	17.10	2.23	QP
4	662.44	32.17	46.00	13.83	8.26	21.05	2.86	QP
5	681.84	33.19	46.00	12.81	9.29	21.00	2.90	QP
6	759.44	33.52	46.00	12.48	7.88	22.58	3.06	QP



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Test Site : 10m Chamber  
Limit : FCC PART15 C  
Dis. / Ant. : 3m 25758-3 Ant. Pol.: VERTICAL  
EUT : Remote Controller  
M/N : iWavit  
Power : DC 3V  
Test Engineer : Jade  
Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
Test Mode : TX Mode

Emission	Freq.	Level	Limits	Margin	Ant.		Cable	Remark
					Factor	Loss		
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	(dB)	
1	80.44	23.88	40.00	16.12	15.58	7.37	0.93	QP
2	130.88	26.78	43.50	16.72	13.55	12.02	1.21	QP
3	232.73	29.33	46.00	16.67	17.52	10.16	1.65	QP
4	378.23	29.88	46.00	16.12	11.90	15.88	2.10	QP
5	652.74	27.67	46.00	18.33	3.98	20.86	2.83	QP
6	746.83	29.16	46.00	16.84	2.88	23.26	3.02	QP



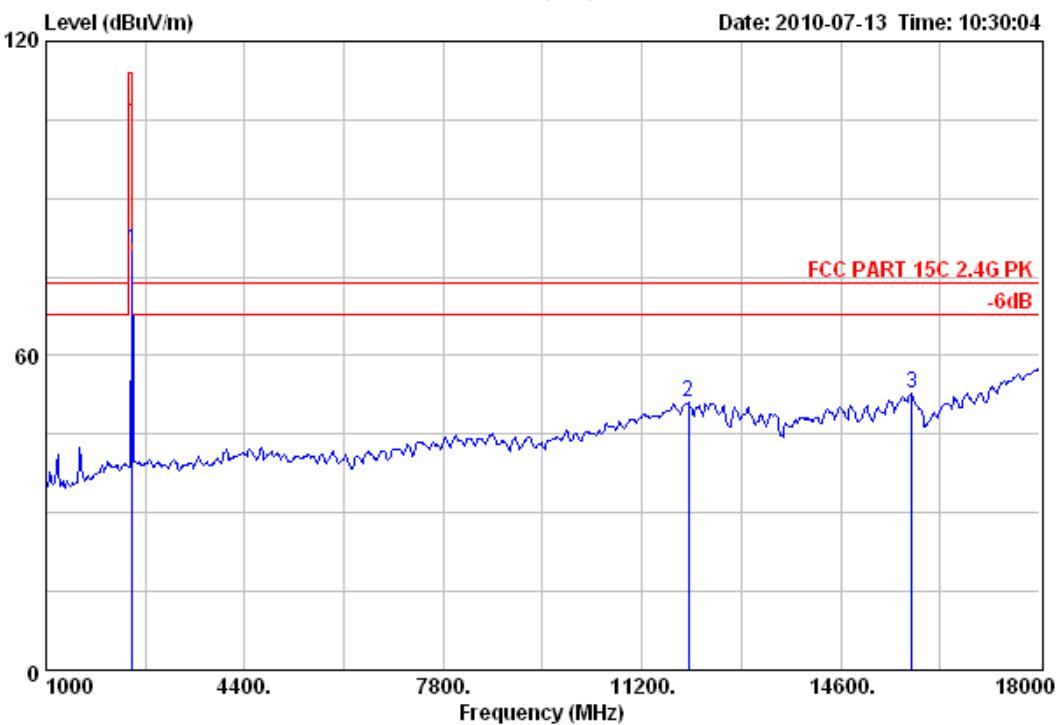
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Data: 88

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 10:30:04



Test Site : 10m Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2480MHz

Freq. (MHz)	Emission			Ant. Cable			
	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor	Loss (dB/m)	Remark
1 2480.00	80.32	114.00	33.68	46.51	31.58	2.23	Peak
211999.00	51.00	74.00	23.00	8.38	39.80	2.82	Peak
315824.00	52.68	74.00	21.32	7.47	42.16	3.05	Peak



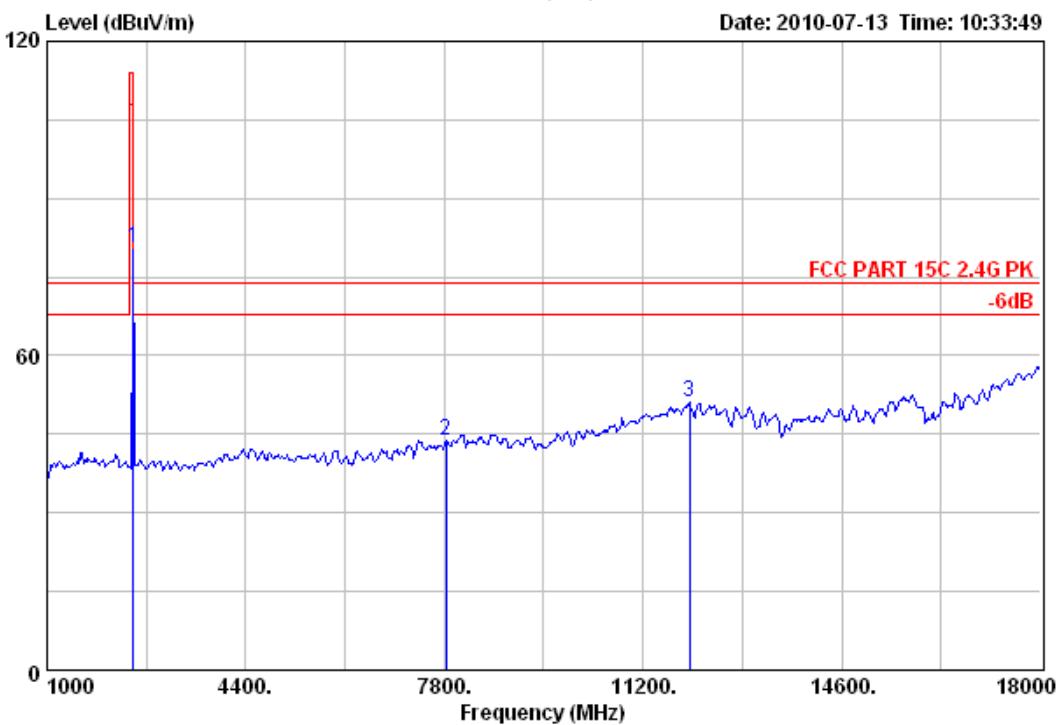
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Data: 89

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 10:33:49



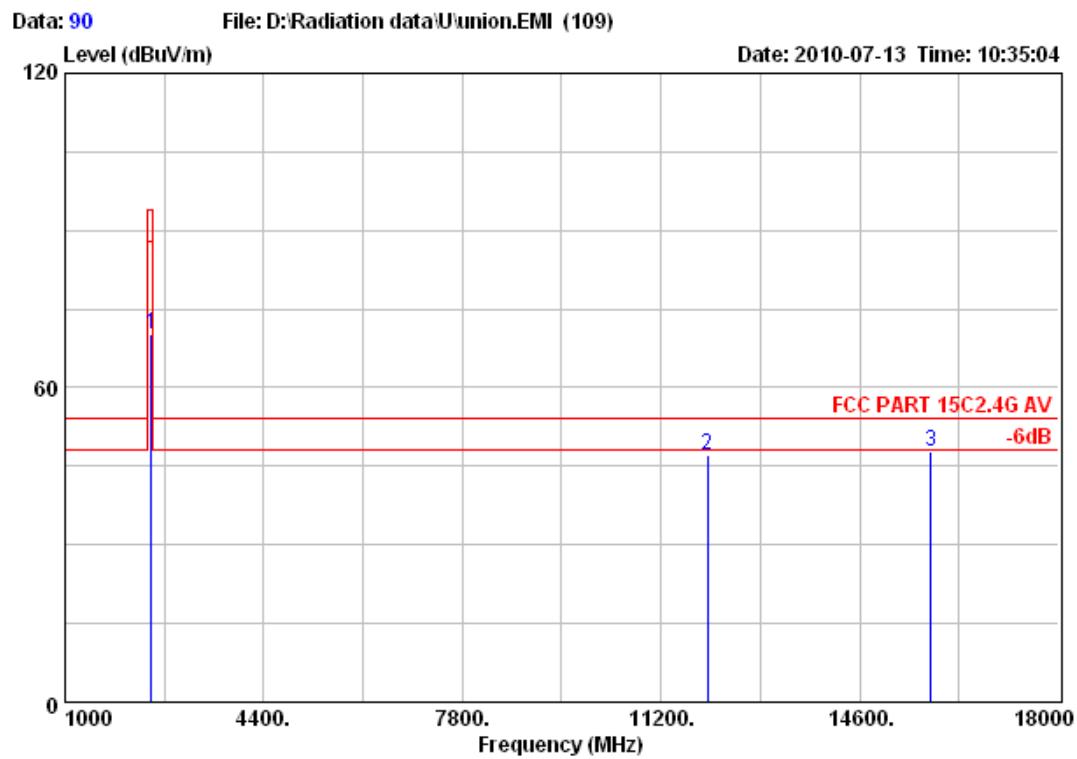
Test Site : 10m Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2480MHz

Emission				Ant.	Cable		Remark
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor	Loss (dB/m)	
1 2480.00	80.51	114.00	33.49	46.70	31.58	2.23	Peak
2 7834.00	43.86	74.00	30.14	4.36	36.94	2.56	Peak
3 11999.00	51.08	74.00	22.92	8.46	39.80	2.82	Peak



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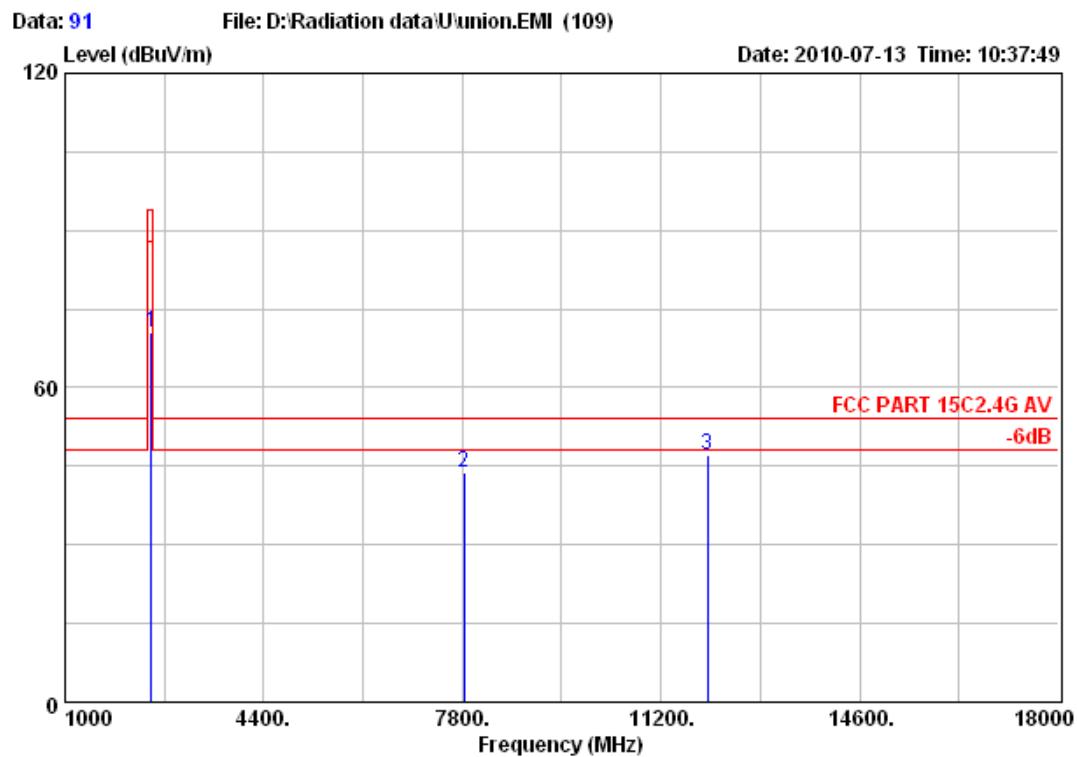
Test Site : 10m Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2480MHz

Emission				Ant.	Cable	Remark
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor (dB/m)	
1 2480.00	70.04	94.00	23.96	36.23	31.58	2.23 Average
211999.00	47.00	54.00	7.00	4.38	39.80	2.82 Average
315824.00	47.68	54.00	6.32	2.47	42.16	3.05 Average



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 Limit : FCC PART 15C 2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2480MHz

Emission				Ant.	Cable		Remark
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor (dB)	Loss (dB/m)	
1 2480.00	70.51	94.00	23.49	36.70	31.58	2.23	Average
2 7834.00	43.86	54.00	10.14	4.36	36.94	2.56	Average
3 311999.00	47.08	54.00	6.92	4.46	39.80	2.82	Average



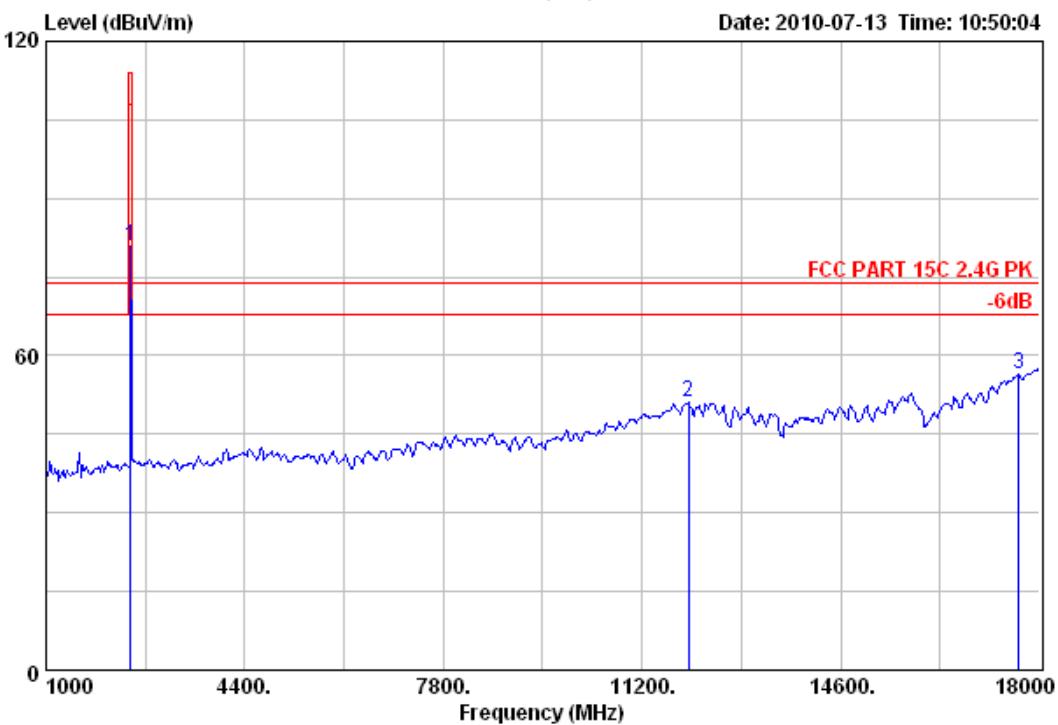
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Data: 96

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 10:50:04



Test Site : 10m Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2440MHz

Freq. (MHz)	Emission			Ant. Reading (dBuV)	Cable Factor (dB)	Loss (dB/m)	Remark
	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)				
1 2440.00	80.85	114.00	33.15	47.08	31.54	2.23	Peak
211999.00	51.00	74.00	23.00	8.38	39.80	2.82	Peak
317643.00	56.65	74.00	17.35	10.74	42.75	3.16	Peak



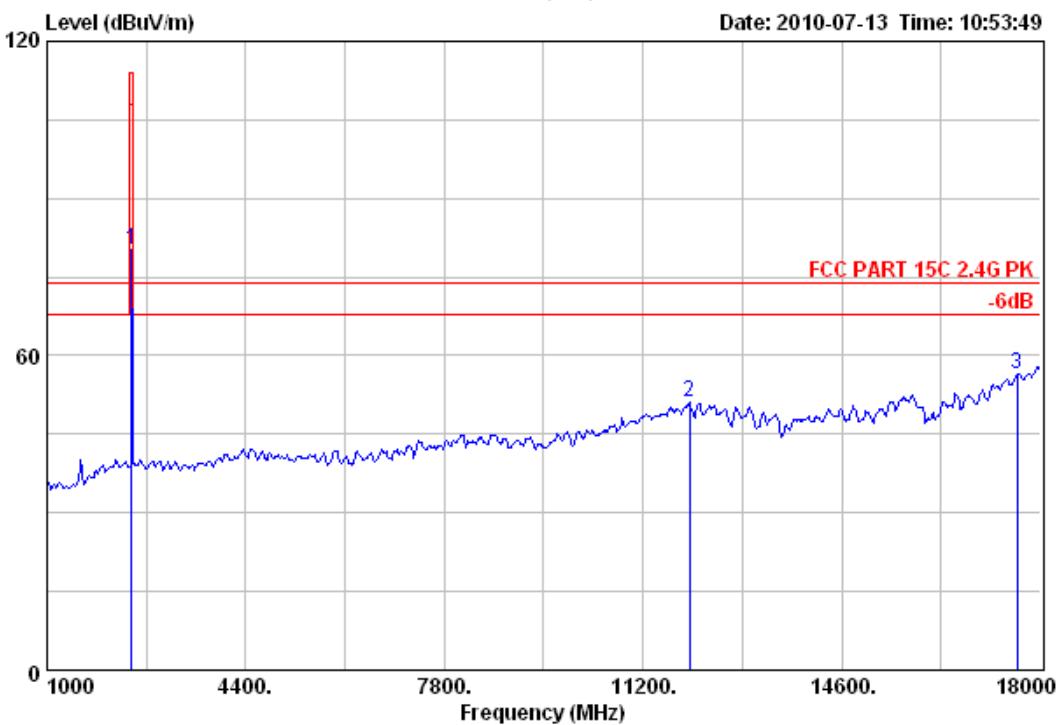
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Data: 97

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 10:53:49



Test Site : 10m Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2440MHz

Freq. (MHz)	Emission			Ant. Cable			
	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor	Loss (dB/m)	Remark
1 2440.00	80.23	114.00	33.77	46.46	31.54	2.23	Peak
211999.00	51.08	74.00	22.92	8.46	39.80	2.82	Peak
317609.00	56.38	74.00	17.62	10.51	42.71	3.16	Peak



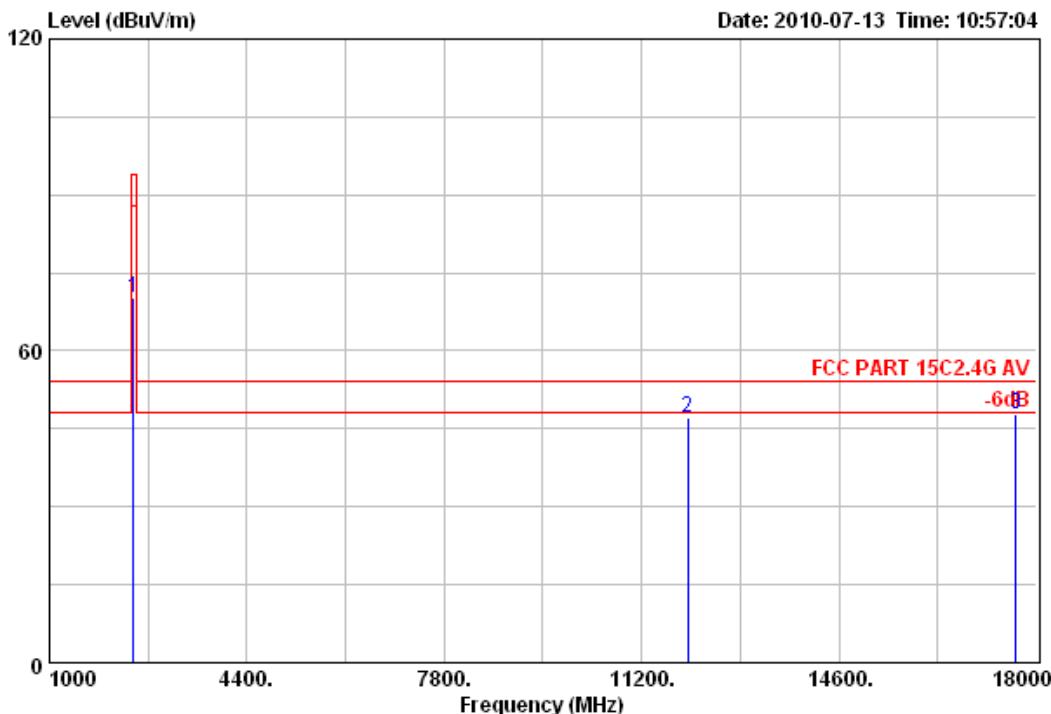
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Data: 98

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 10:57:04



Test Site : 10m Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2440MHz

Emission			Ant.	Cable	Remark	
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor (dB/m)	
1 2440.00	70.28	94.00	23.72	36.51	31.54	2.23 Average
211999.00	47.00	54.00	7.00	40.41	39.80	2.82 Average
317643.00	47.65	54.00	6.35	34.81	42.75	3.16 Average



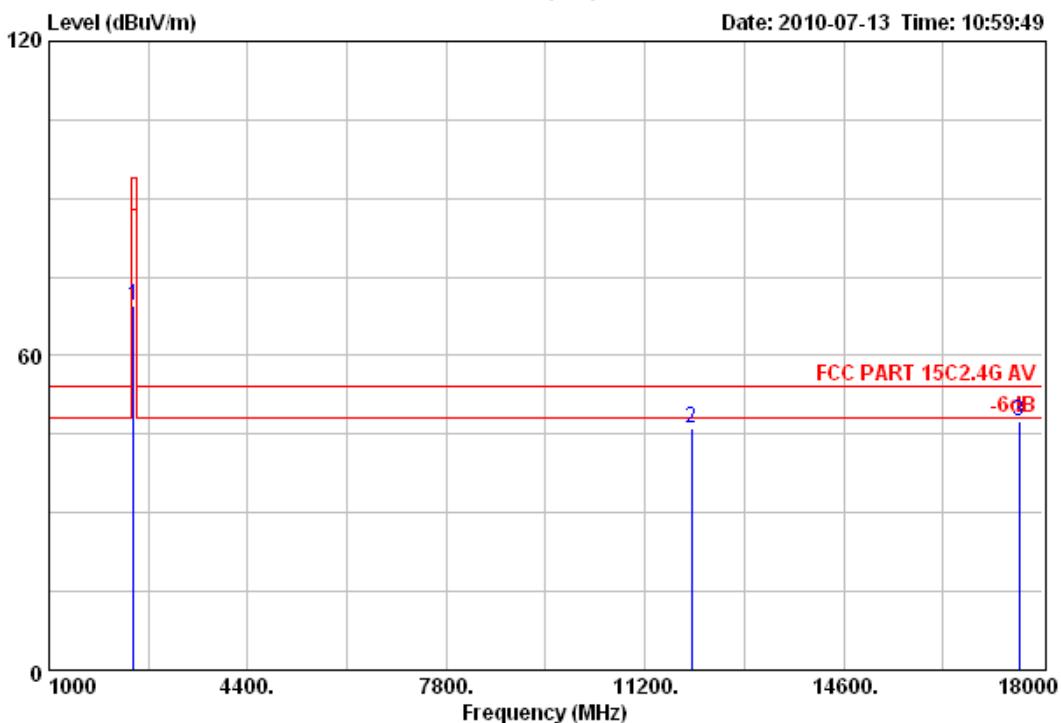
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Data: 99

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 10:59:49



Test Site : 10m Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2440MHz

Emission			Ant. Cable				
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor (dBuV)	Loss (dB/m)	Remark
-----							
1 2440.00	69.51	94.00	24.49	35.74	31.54	2.23	Average
211999.00	46.08	54.00	7.92	3.46	39.80	2.82	Average
317609.00	47.38	54.00	6.62	1.51	42.71	3.16	Average



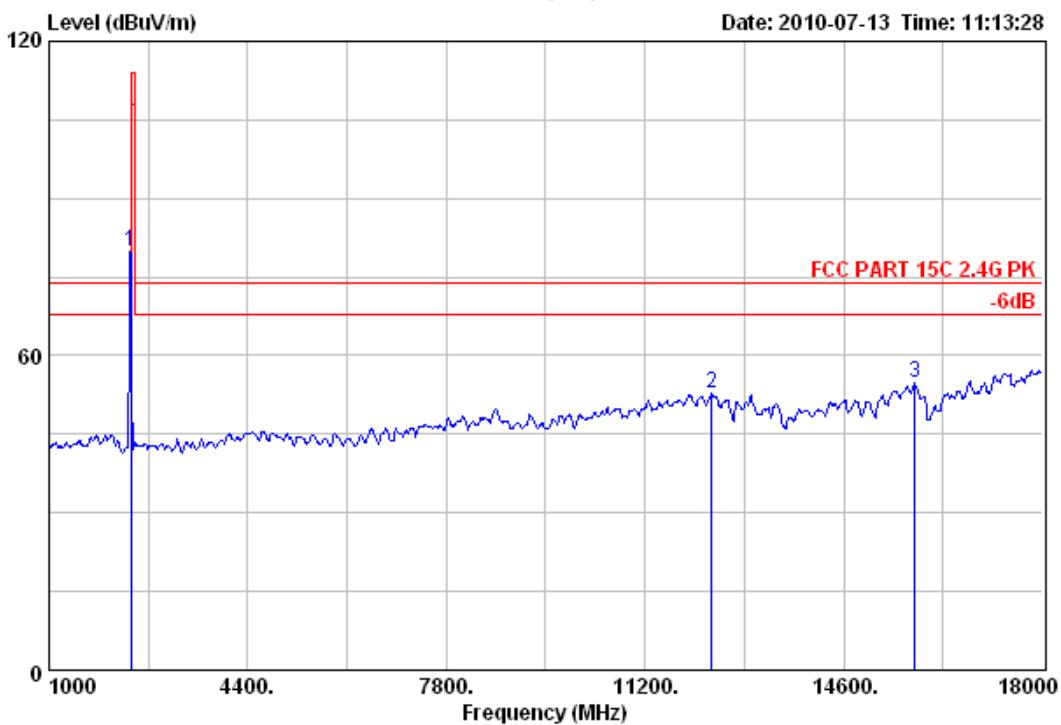
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Date: 2010-07-13 Time: 11:13:28



Test Site : 10m Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2405MHz

Emission				Ant. Cable			
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor	Loss (dB/m)	Remark
1 2405.00	80.03	114.00	33.97	46.30	31.50	2.23	Peak
21233.9.00	52.75	74.00	21.25	9.97	39.94	2.84	Peak
315824.00	54.90	74.00	19.10	9.69	42.16	3.05	Peak



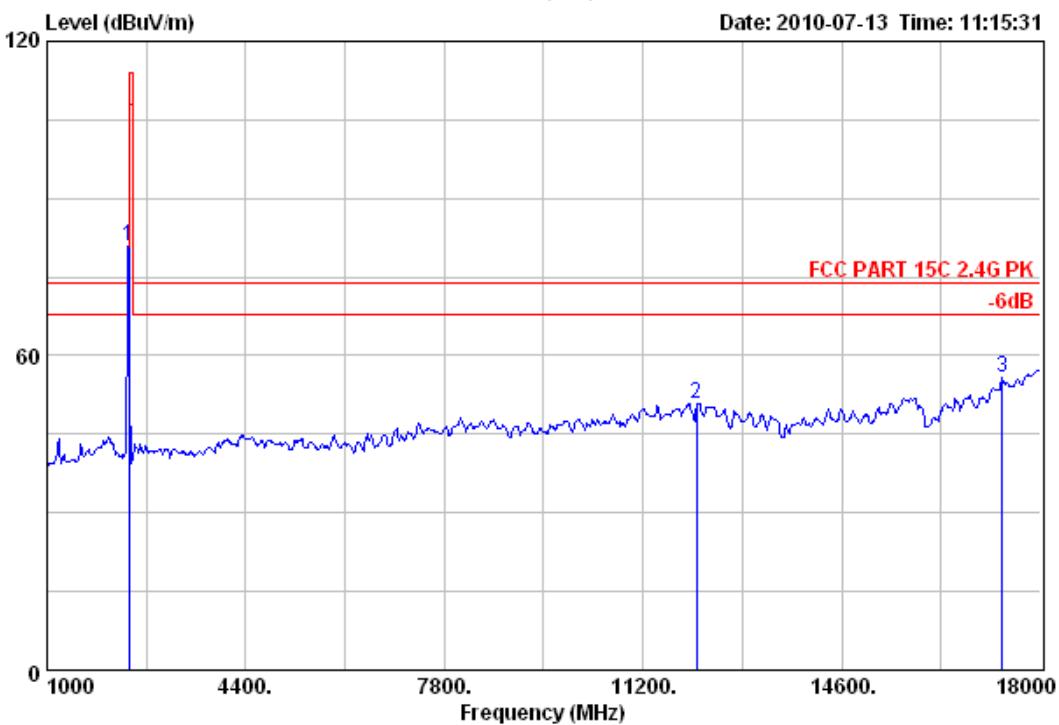
## NS Technology

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Tel: +86-769-85935656  
Fax: +86-769-85991080

Data: 105

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 11:15:31



Test Site : 10m Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2405MHz

Freq. (MHz)	Emission			Ant. Reading (dBuV)	Cable Factor (dB)	Loss (dB/m)	Remark
	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)				
1 2405.00	80.93	114.00	33.07	47.20	31.50	2.23	Peak
2 12118.00	50.97	74.00	23.03	8.29	39.85	2.83	Peak
3 17354.00	55.81	74.00	18.19	9.85	42.82	3.14	Peak

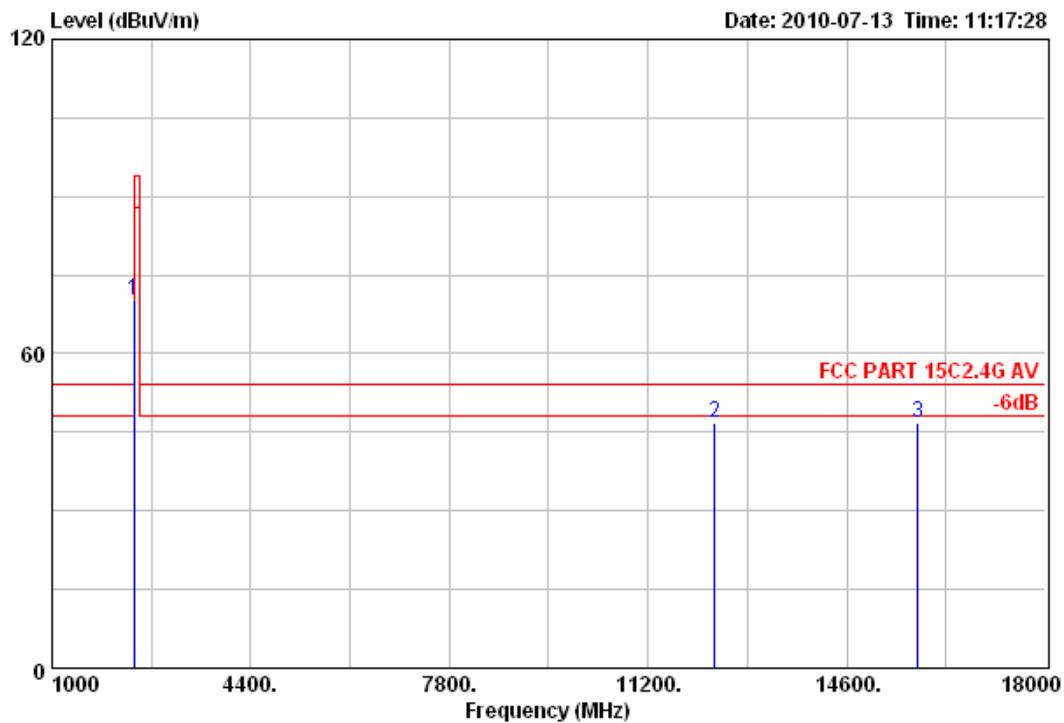


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Data: 106

File: D:\Radiation data\U\union.EMI (109)



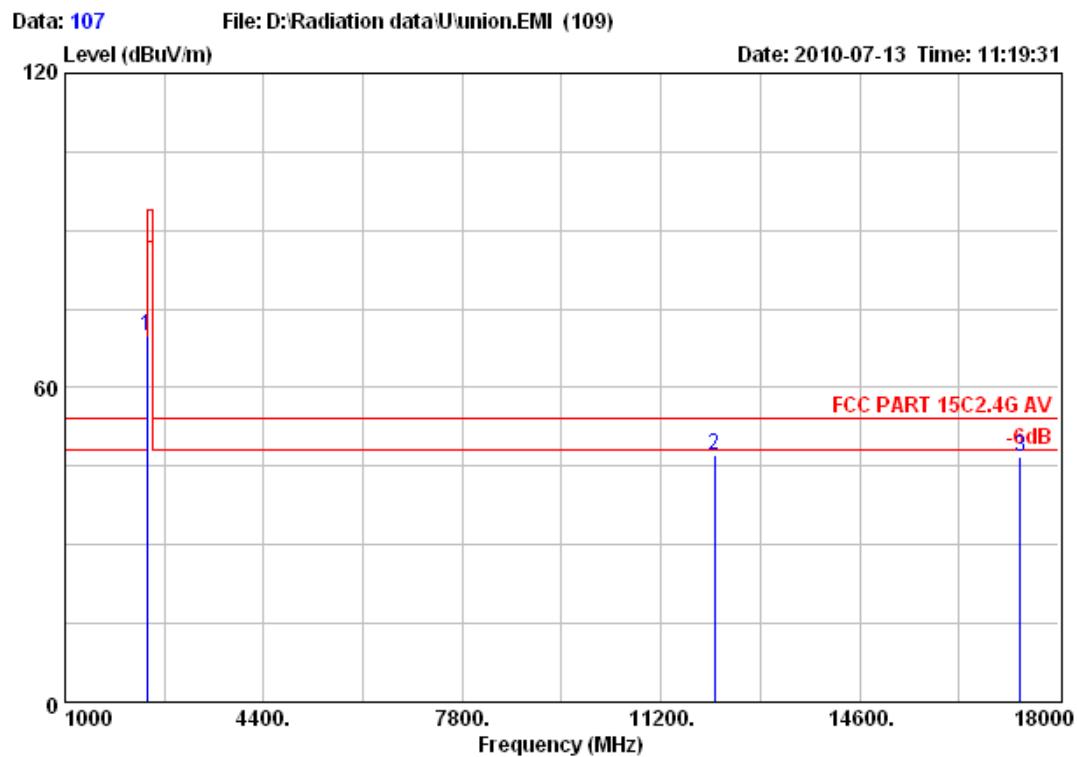
Test Site : 10m Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2405MHz

Emission				Ant.	Cable	Remark
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor (dB/m)	
1 2405.00	70.03	94.00	23.97	36.30	31.50	2.23 Average
21233.9.00	46.75	54.00	7.25	3.97	39.94	2.84 Average
31582.4.00	46.90	54.00	7.10	1.69	42.16	3.05 Average



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Test Site : 10m Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2405MHz

Emission				Ant. Cable			
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor (dBuV)	Loss (dB/m)	Remark
<hr/>							
1 2405.00	69.93	94.00	24.07	36.20	31.50	2.23	Average
212118.00	46.97	54.00	7.03	4.29	39.85	2.83	Average
317354.00	46.81	54.00	7.19	0.85	42.82	3.14	Average



## 5.2. 20dB Bandwidth

### 5.2.1. Test limits

No requirement.

### 5.2.2. Test procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Connect EUT RF output port to the spectrum analyzer through an RF attenuator.
3. Set SA Center Frequency = Operation frequency, RBW=100kHz, VBW=300kHz.
4. Set SA trace max hold, then view.

### 5.2.3. Test result

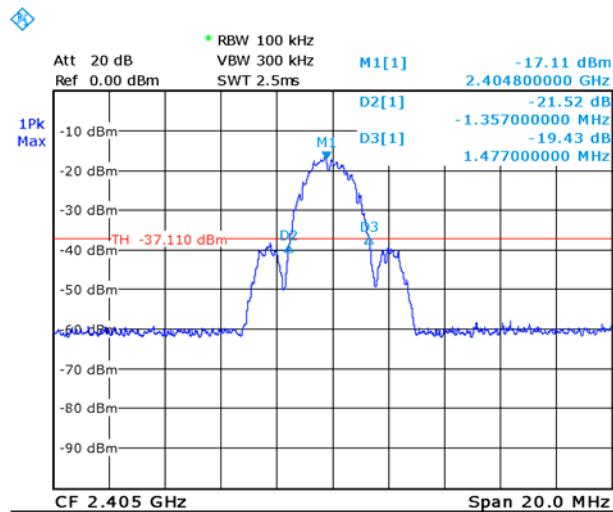
**Pass**

Test Channel	Frequency MHz	20dB bandwidth MHz
CH1	2405MHz	2.834
CH6	2440MHz	2.875
CH11	2480MHz	2.834

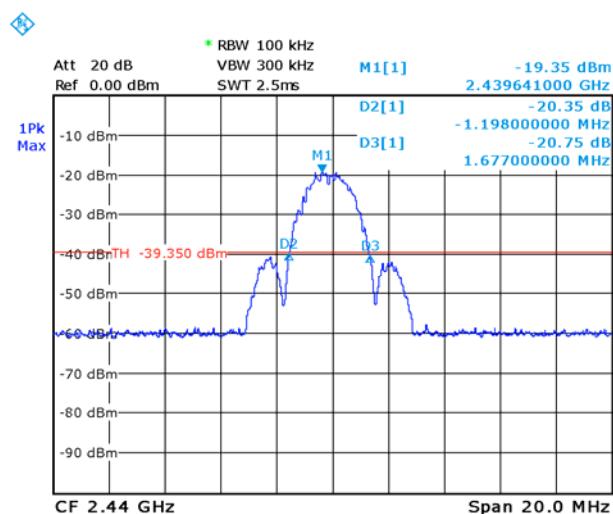
The test plots as following:



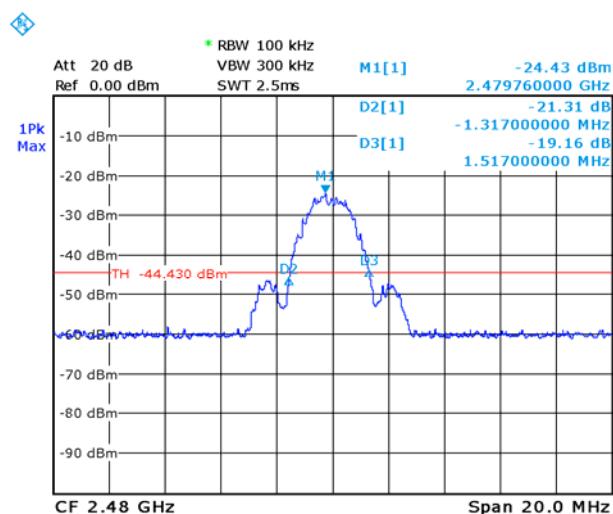
## CH1 2405MHz



## CH6 2440MHz



## CH11 2480MHz



## 5.3. Band Edge

### 5.3.1. Test limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

### 5.3.2. Test procedure

The EUT was placed on a turn table which was 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. At the frequency above 1GHz, The measuring antenna moved from 1 to 4 m for horizontal and vertical polarization. The horn antenna was used was a receiving antenna.

The resolution bandwidth and video bandwidth of the test receiver was 1MHz and 1MHz for Peak detection at frequency above 1GHz.

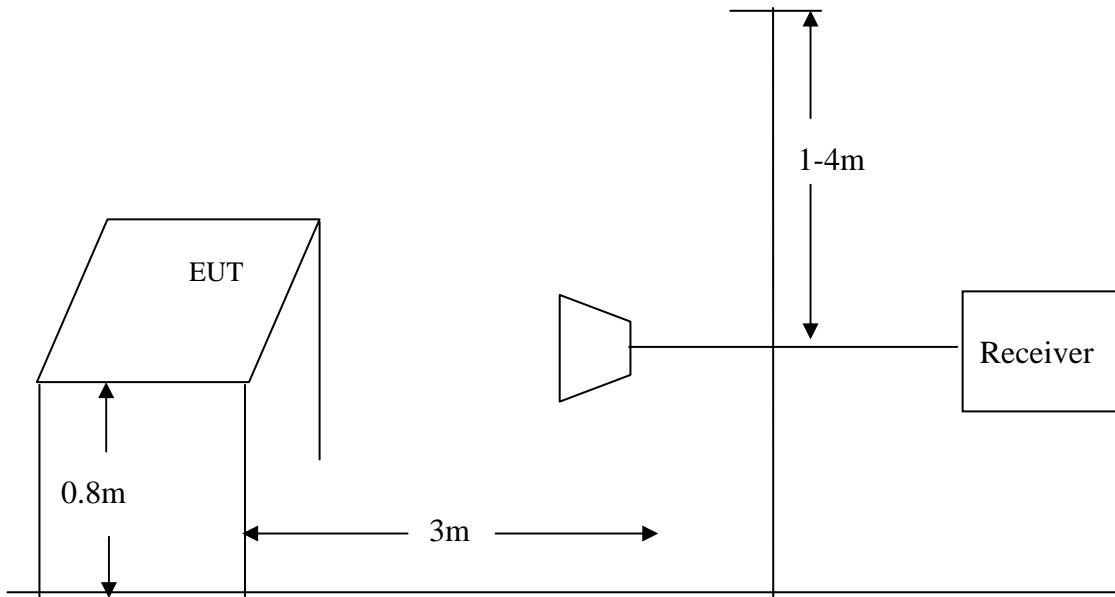
The resolution bandwidth and video bandwidth of the test receiver was 1MHz and 10Hz for Average detection at frequency above 1GHz.

The EUT position (X, Y, Z) were checked and worse case was happened in Y position. So Y position was chose for find measurement.

The EUT insert to the iPod. Through a wireless connection to the USB dongle. USB dongle can control the EUT's transmitting.

The EUT was tested in Chamber Site.

### 5.3.3. Test Setup Diagram



### 5.3.4. Test result

**PASS.**

The test plots as following:



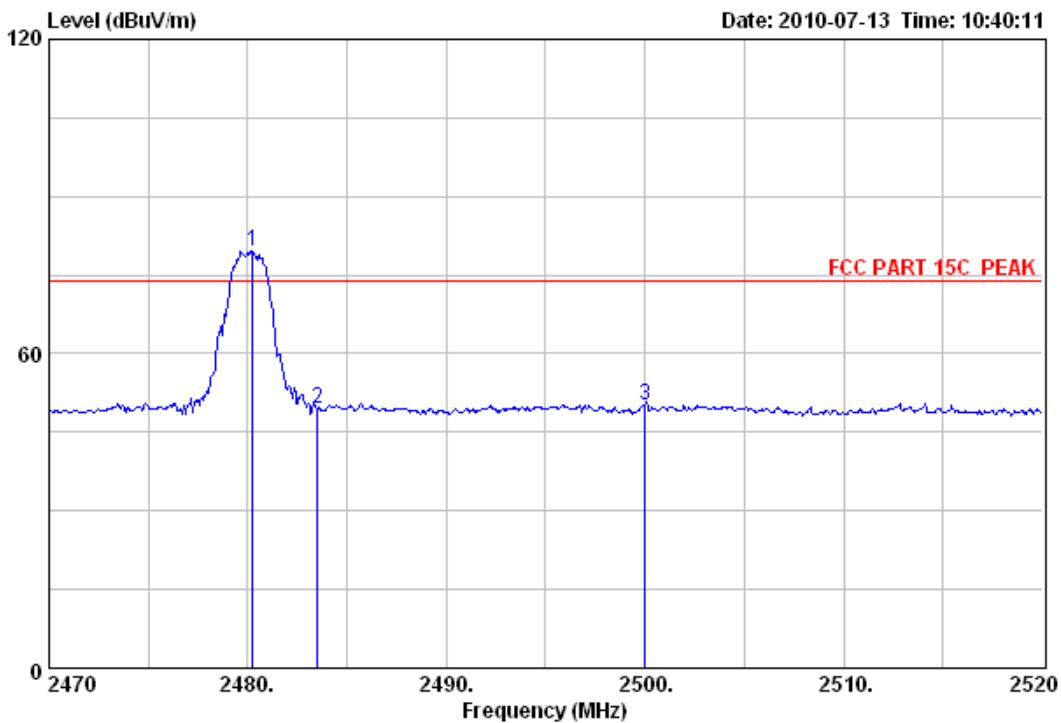
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Data: 92

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 10:40:11



Test Site : 10m Chamber  
 Limit : FCC PART 15C PEAK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2480MHz

Freq. (MHz)	Emission		Margin (dB)	Reading (dBuV)	Ant. Factor	Cable Loss (dB/m)	Remark
	Level (dBuV/m)	Limits (dBuV/m)					
1 2480.25	79.59	74.00	-5.59	45.78	31.58	2.23	Peak
2 2483.50	49.40	74.00	24.60	15.59	31.58	2.23	Peak
3 2500.00	50.21	74.00	23.79	16.38	31.60	2.23	Peak



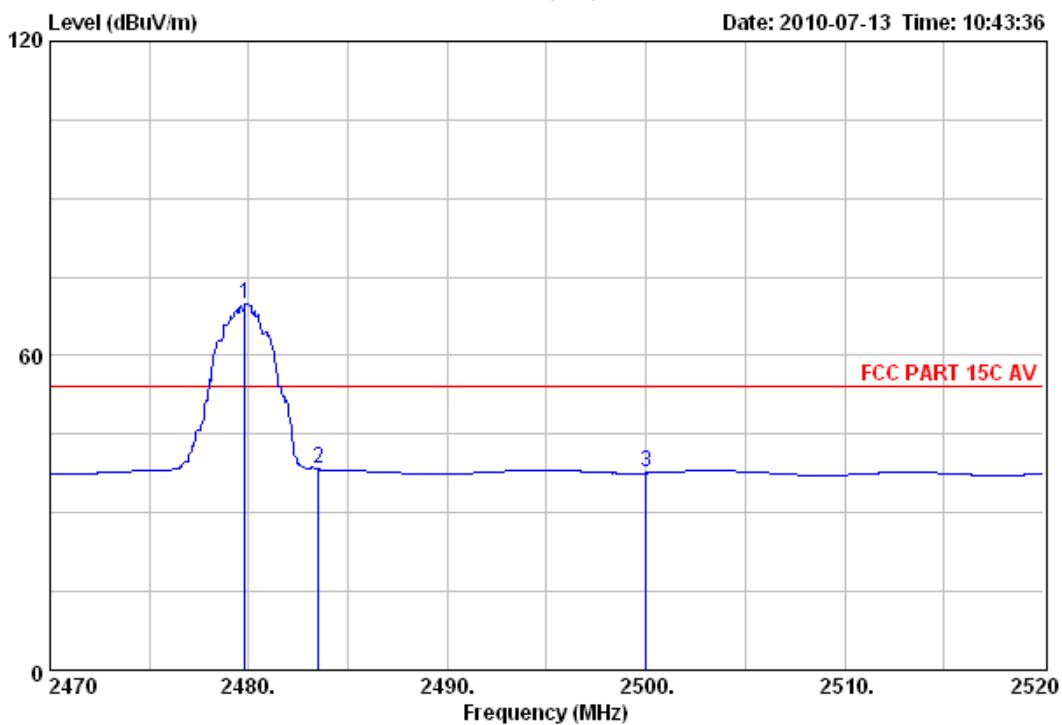
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Data: 93

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 10:43:36



Test Site : 10m Chamber  
 Limit : FCC PART 15C AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2480MHz

Emission				Ant.	Cable		
Freq.	Level	Limits	Margin	Reading	Factor	Loss	Remark
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB)	(dB/m)	(dB)
1 2479.80	69.99	54.00	-15.99	36.18	31.58	2.23	Average
2 2483.50	38.34	54.00	15.66	4.53	31.58	2.23	Average
3 2500.00	37.61	54.00	16.39	3.78	31.60	2.23	Average



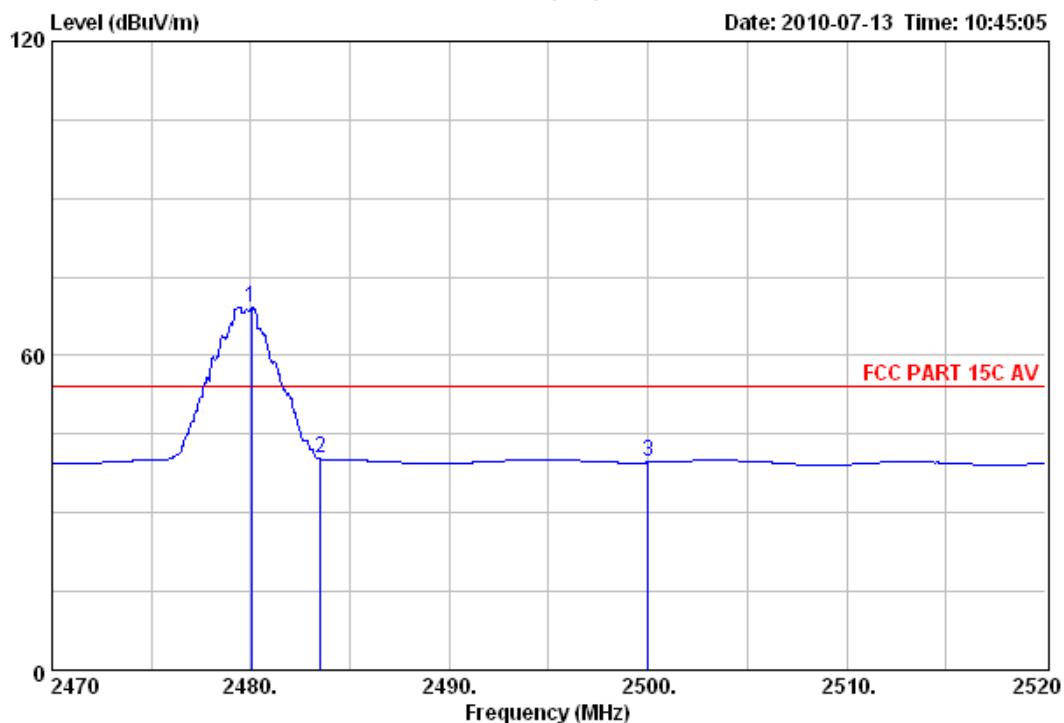
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Data: 94

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 10:45:05



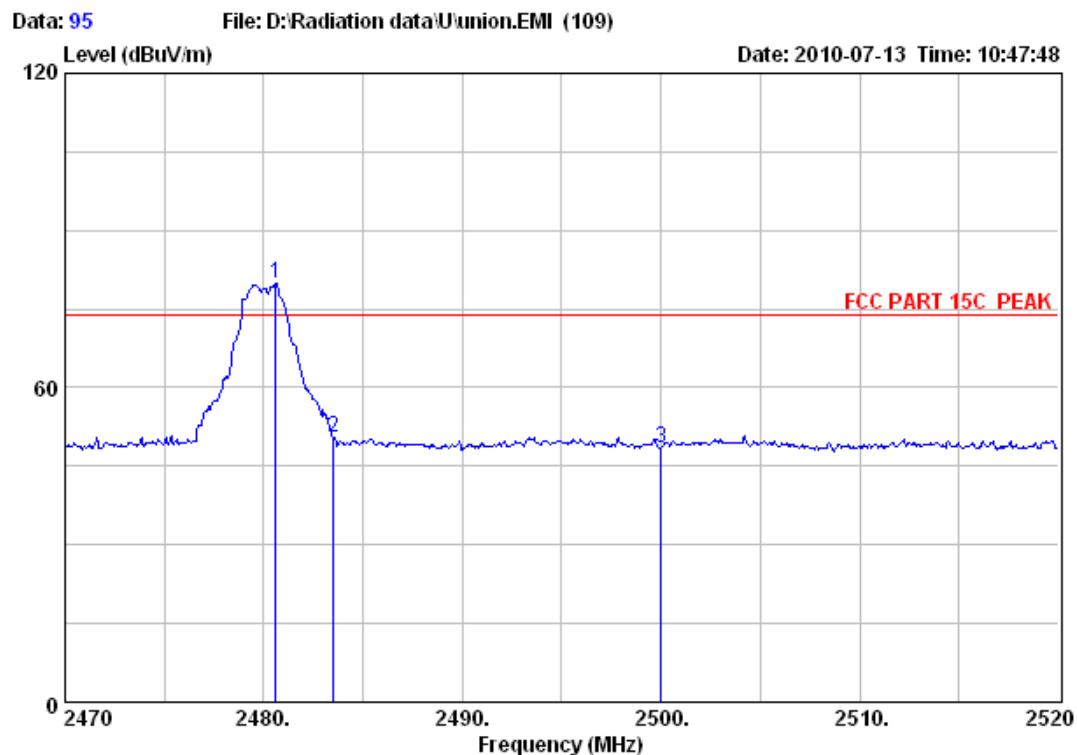
Test Site : 10m Chamber  
 Limit : FCC PART 15C AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2480MHz

Emission				Ant. Cable			
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor	Loss (dB/m)	Remark
1 2480.05	69.31	54.00	-15.31	35.50	31.58	2.23	Average
2 2483.50	40.28	54.00	13.72	6.47	31.58	2.23	Average
3 2500.00	39.65	54.00	14.35	5.82	31.60	2.23	Average



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Test Site : 10m Chamber  
 Limit : FCC PART 15C PEAK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2480MHz

Emission				Ant.	Cable	Remark	
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor (dB/m)	Loss (dB)	
1 2480.60	79.93	74.00	-5.93	46.12	31.58	2.23	Peak
2 2483.50	50.40	74.00	23.60	16.59	31.58	2.23	Peak
3 2500.00	48.45	74.00	25.55	14.62	31.60	2.23	Peak



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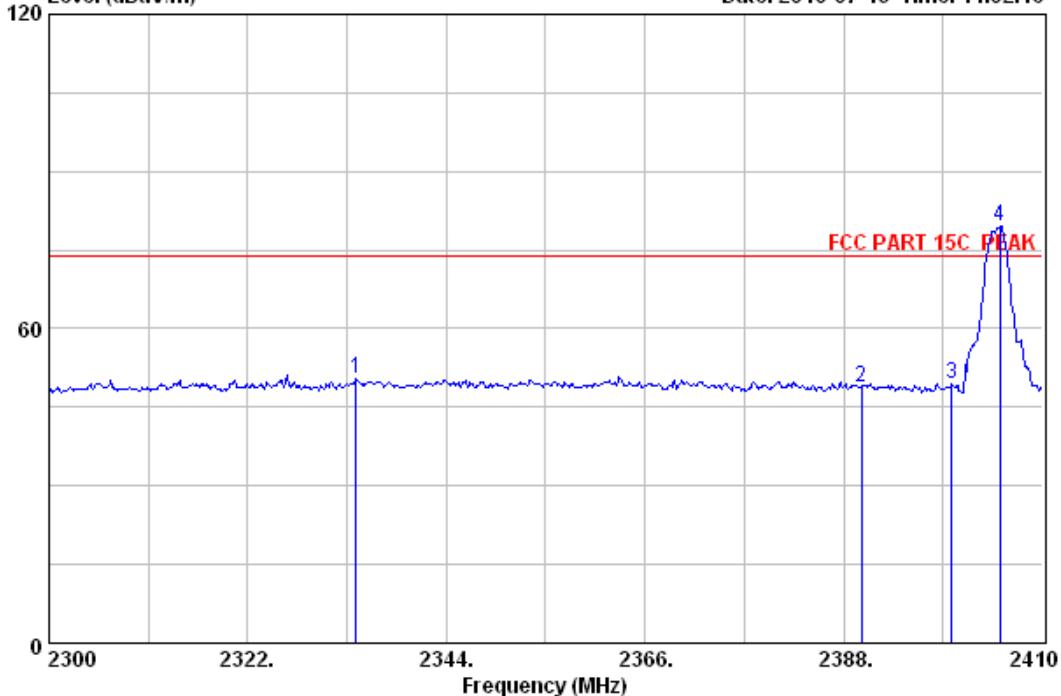
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Data: 100

File: D:\Radiation data\U\union.EMI (109)

Date: 2010-07-13 Time: 11:02:46

Level (dBuV/m)



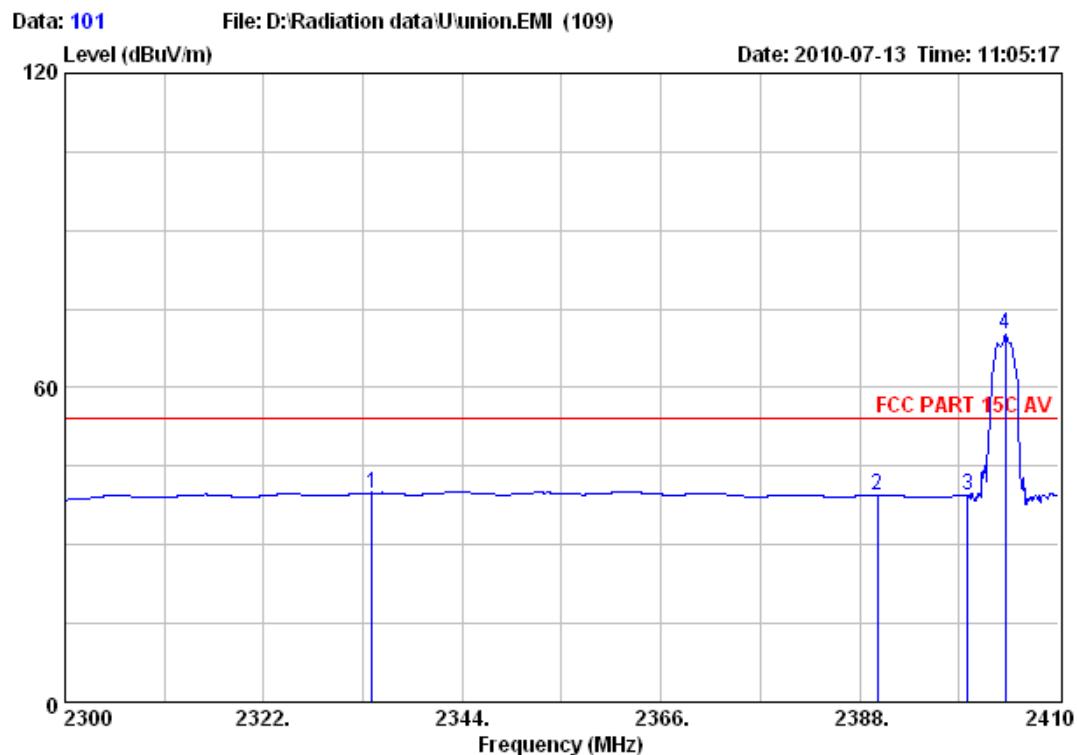
Test Site : 10m Chamber  
 Limit : FCC PART 15C PEAK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2405MHz

Freq. (MHz)	Emission		Margin (dB)	Reading (dBuV)	Ant. Cable		Remark
	Level (dBuV/m)	Limits (dBuV/m)			Factor	Loss (dB/m)	
1 2333.99	50.40	74.00	23.60	16.75	31.43	2.22	Peak
2 2390.00	48.90	74.00	25.10	15.20	31.48	2.22	Peak
3 2400.00	49.35	74.00	24.65	15.62	31.50	2.23	Peak
4 2405.27	79.62	74.00	-5.62	45.89	31.50	2.23	Peak



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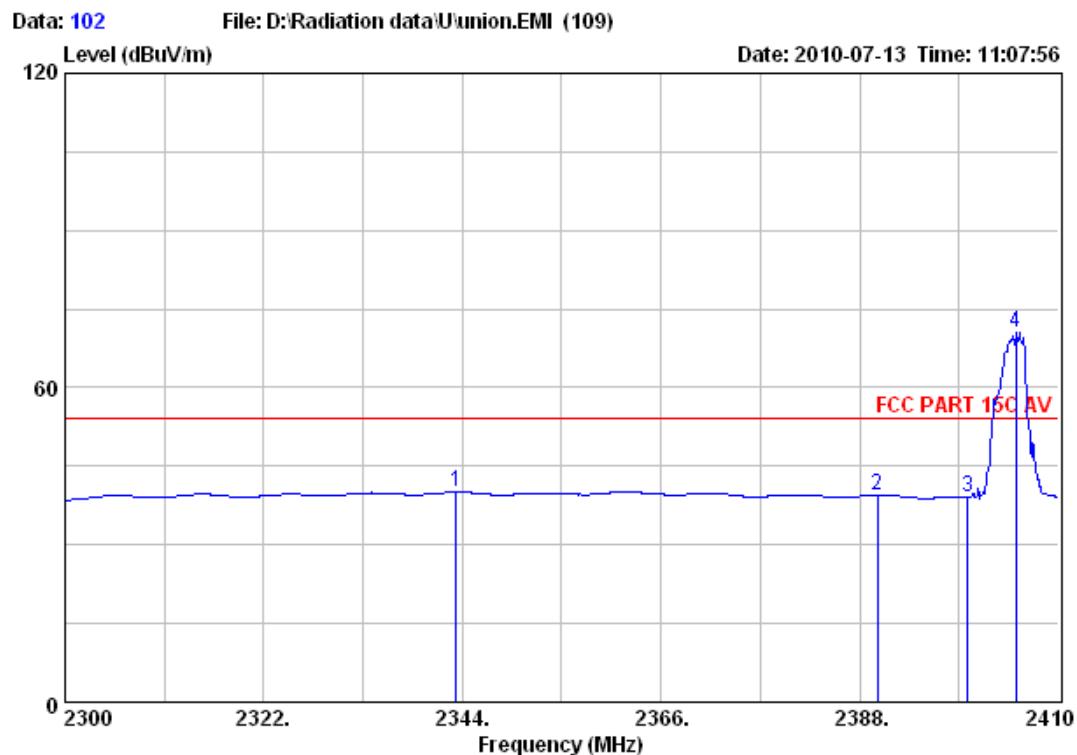
Test Site : 10m Chamber  
 Limit : FCC PART 15C AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2405MHz

Freq. (MHz)	Emission			Ant. Cable				Remark
	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor (dBuV)	Loss (dB/m)	(dB)	
1 2333.99	39.91	54.00	14.09	6.26	31.43	2.22	Average	
2 2390.00	39.56	54.00	14.44	5.86	31.48	2.22	Average	
3 2400.00	39.47	54.00	14.53	5.74	31.50	2.23	Average	
4 2404.17	70.09	54.00	-16.09	36.36	31.50	2.23	Average	



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 Limit : FCC PART 15C AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2405MHz

Freq. (MHz)	Emission		Margin (dB)	Reading (dBuV)	Ant. Cable		Remark
	Level (dBuV/m)	Limits (dBuV/m)			Factor	Loss (dB/m)	
1 2343.34	40.06	54.00	13.94	6.39	31.45	2.22	Average
2 2390.00	39.55	54.00	14.45	5.85	31.48	2.22	Average
3 2400.00	39.23	54.00	14.77	5.50	31.50	2.23	Average
4 2405.27	70.49	54.00	-16.49	36.76	31.50	2.23	Average

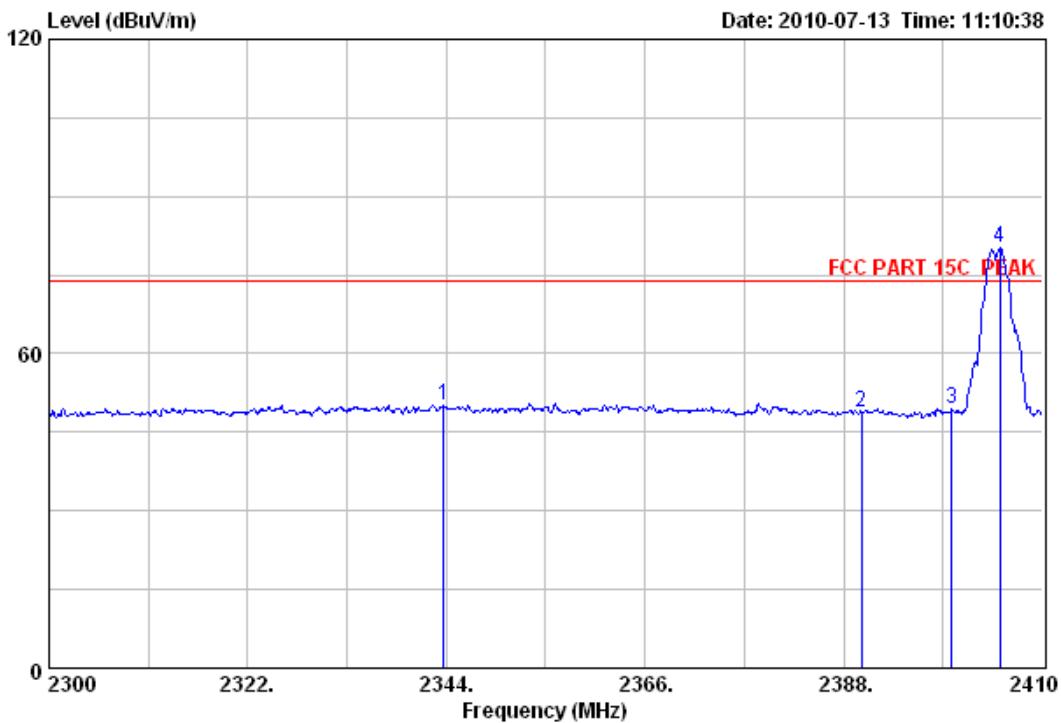


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Test Site : 10m Chamber  
 Limit : FCC PART 15C PEAK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Remote Controller  
 M/N : iWavit  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp:25.2'C Humi:56% Press:101.52kPa  
 Test Mode : TX 2405MHz

Freq. (MHz)	Emission		Margin (dB)	Reading (dBuV)	Factor	Ant. Loss (dB/m)	Cable Loss (dB)	Remark
	Level (dBuV/m)	Limits (dBuV/m)						
1 2343.67	50.00	74.00	24.00	16.33	31.45	2.22		Peak
2 2390.00	48.92	74.00	25.08	15.22	31.48	2.22		Peak
3 2400.00	49.41	74.00	24.59	15.68	31.50	2.23		Peak
4 2405.27	80.23	74.00	-6.23	46.50	31.50	2.23		Peak

