

# FCC COMPLIANCE REPORT

for

ZEN FACTORY GROUP (ASIA) LIMITED

Gamecube Wireless Controller

Model Number: RF-GGC001, MWGC01, MWGC02

Prepared for : ZEN FACTORY GROUP (ASIA) LIMITED

Address : House 15, Michelia Path, Westwood, Palm Springs,  
Yuen Long, NT, HongKong

Prepared By : NS Technology Co., Ltd.

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

Tel: +86-769-85935656

Fax: +86-769-85991080

Report Number : NSE-F09083703

Date of Test : Aug. 15~18, 2009

Date of Report : Aug. 18, 2009






## TABLE OF CONTENTS

Test Report Declaration		Page
<b>1. GENERAL PRODUCT INFORMATION</b>		<b>4</b>
1.1. Product Function		4
1.2. Description of Device (EUT)		4
1.3. Difference between Model Numbers		4
1.4. Independent Operation Modes		4
<b>2. TEST SITES</b>		<b>5</b>
2.1. Test Facilities		5
2.2. List of Test and Measurement Instruments		6
<b>3. TEST SET-UP AND OPERATION MODES</b>		<b>7</b>
3.1. Principle of Configuration Selection		7
3.2. Test Operation Mode and Test Software		7
3.3. Special Accessories and Auxiliary Equipment		7
3.4. Countermeasures to Achieve EMC Compliance		7
<b>4. TEST SUMMARY</b>		<b>8</b>
<b>5. EMISSION TEST RESULTS</b>		<b>9</b>
5.1. Radiated Emission		9
5.2. 20dB Bandwidth		25
5.3. Band Edge		29
<b>6. PHOTOGRAPHS OF TEST SET-UP</b>		<b>38</b>
6.1. Set-up for radiated measurements(30MHz to 1000MHz)		38
6.2. Set-up for radiated measurements(above 1G)		38
<b>7. PHOTOGRAPHS OF THE EUT</b>		<b>39</b>



# NS Technology Co., Ltd.

<b>Applicant:</b>	ZEN FACTORY GROUP (ASIA) LIMITED		
<b>Address:</b>	House 15, Michelia Path, Westwood, Palm Springs, Yuen Long, NT, HongKong		
<b>Manufacturer:</b>	ZHONGSHAN ETERNAL MANUFACTURING LTD.		
<b>Address:</b>	4th Floor Hongxing building, Shagang Road, West Zone, Zhongshan, Guangdong, China		
<b>E.U.T:</b>	Gamecube Wireless Controller		
<b>Model Number:</b>	RF-GGC001, MWGC01, MWGC02		
<b>Trade Name:</b>	-----	<b>Operating Frequency:</b>	2403-2480MHz
<b>Date of Receipt:</b>	Jul. 27, 2009	<b>Date of Test:</b>	Aug. 15~18, 2009
<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: Aug. 18, 2009</b>			
Tested by:	Reviewed by:	Approved by:	
 <hr/>	 <hr/>	 <hr/>	
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.	: Gamecube Wireless Controller
Model No.	: RF-GGC001
Operating Frequency	: 2403-2480MHz
Number of Channels	: 79 Channels
Type of Modulation	: GFSK
Antenna Type	: Integral
System Input Voltage	: Nominal Voltage: DC 3V
Temperature Range(Operating)	: 0 ~+ 40°C

## 1.3. Difference between Model Numbers

***Note:** The product are different only for the model number, but the others are identical.*

## 1.4. Independent Operation Modes

The basic operation modes are:

1.4.1. TX CH0 2403MHz

1.4.2. TX CH39 2441MHz

1.4.3. TX CH79 2480MHz

## 2. TEST SITES

### 2.1. Test Facilities

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

Certificated by FCC, USA  
Registration No.: 502831  
Date of registration: February 09, 2009

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

Certificated by CNAL, CHINA  
Registration No.: L1744  
Date of registration: November 25, 2004

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

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

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

Certificated by ATCB, America  
Date of registration: August 03, 2006

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, 10m Chamber)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESVS10	841431/004	Jan.19, 09	Jan.19,10
Spectrum Analyzer	HP	E7405A	MY45118807	May 31,09	May 31,10
Bilog Antenna	Teseq	CBL 6111D	25758	Oct. 15,08	Oct. 15,09
Signal Amplifier	Agilent	8447D	2944A11174	Jan.19,09	Jan.19,10
50Ω Coaxial Switch	ANRITSU	MP59B	6200530579	Jan.19,09	Jan.19,10
RF Cable	IMRO	IMRO-400	10m Cable 1#10m	Jan.19,09	Jan.19,10
RF Cable	IMRO	IMRO-400	10m Cable 1#3m	Jan.19,09	Jan.19,10
RF Cable	DRAKA	M17/84-RG223	10m Cable 3#	Jan.19,09	Jan.19,10

### 2.2.2. For radiated emission test(1GHz-18GHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	HP	8593E	3448U00806	May 31,09	May 31,10
Horn Antenna	EMCO	3117	00062558	Jan. 19,09	Jan. 19,11
Signal Amplifier	BURGEON	PEC-38-30M18 G -12-SFF	NSEMC001	May 31,09	May 31,11
RF Cable	DRAKA	M06/25-RG102	966Cable 3#24G	May 2,09	May 2,10

### 2.2.3. For 20dB bandwidth test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Rohde & Schwarz	ESPI	100302	May 31,09	May 31,10

### 2.2.4. For Band edge compliance test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESCS30	100199	May 31,09	May 31,10
Spectrum Analyzer	HP	8593E	3448U00806	May 31,09	May 31,10
Signal Amplifier	Agilent	8447D	2944A10488	May 2,09	May 2,10
Horn Antenna	EMCO	3117	00062558	Jan. 13,09	Jan. 13,11

### **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. Test Operation Mode and Test Software**

Refer to clause 1.4

#### **3.3. Special Accessories and Auxiliary Equipment**

None.

#### **3.4. Countermeasures to Achieve EMC Compliance**

None.

#### 4. TEST SUMMARY

Test items and result lists

No.	Item	Standard	Results
1	Conduction Emission Test	FCC Part15C: 15.209 ANSI C63.4-2003	N/A
2	Radiated Emission Test	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.

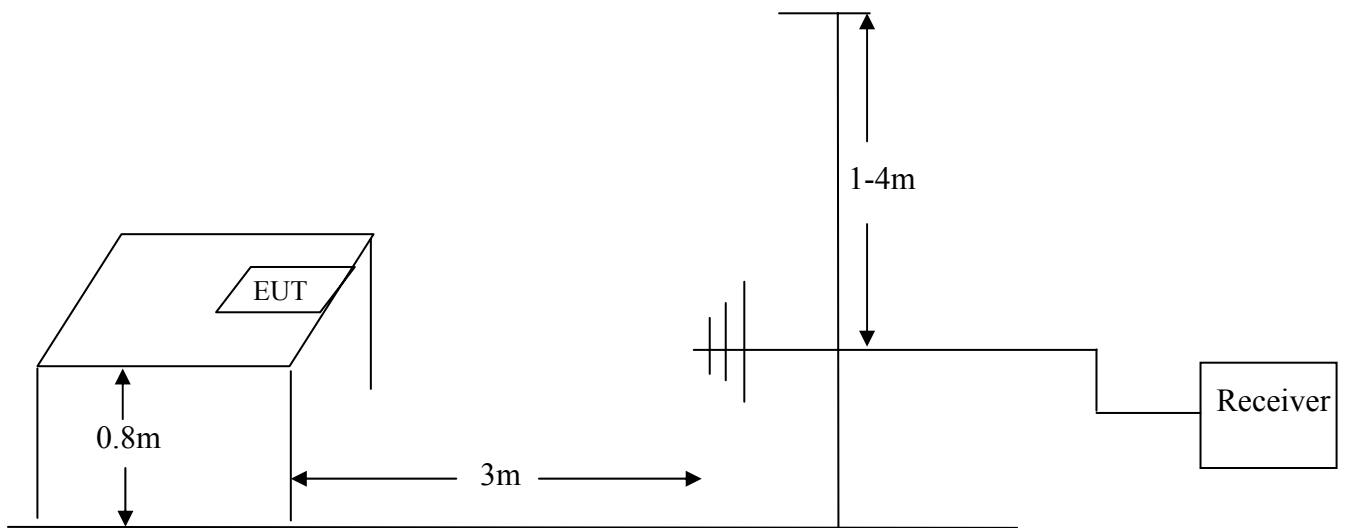
The EUT was tested in Chamber Site.

Use the new battery during the testing.

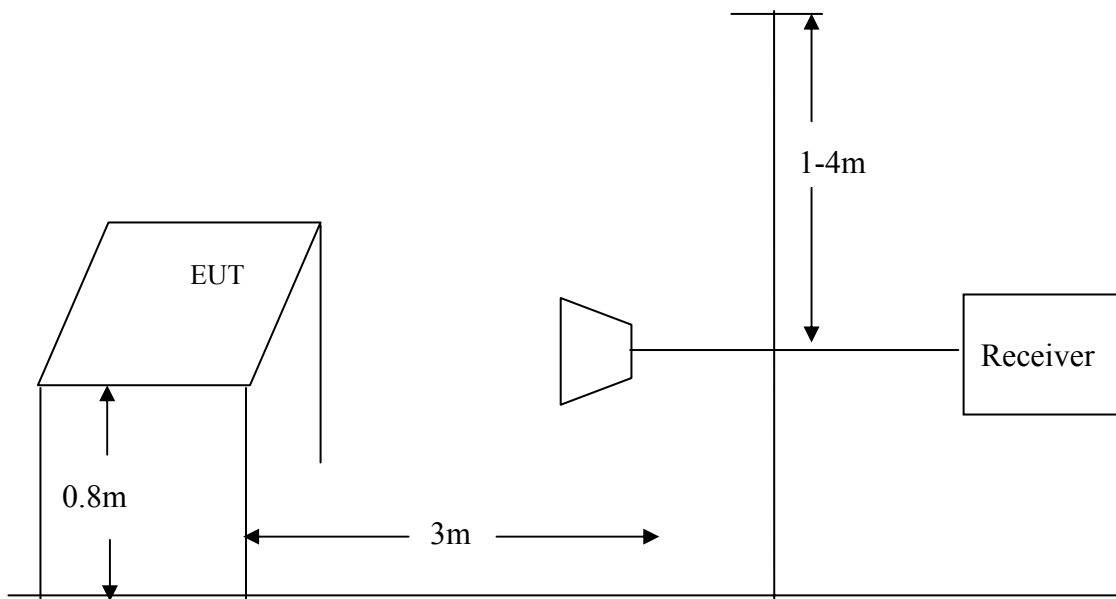


## 5.1.3. Test Setup Diagram

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



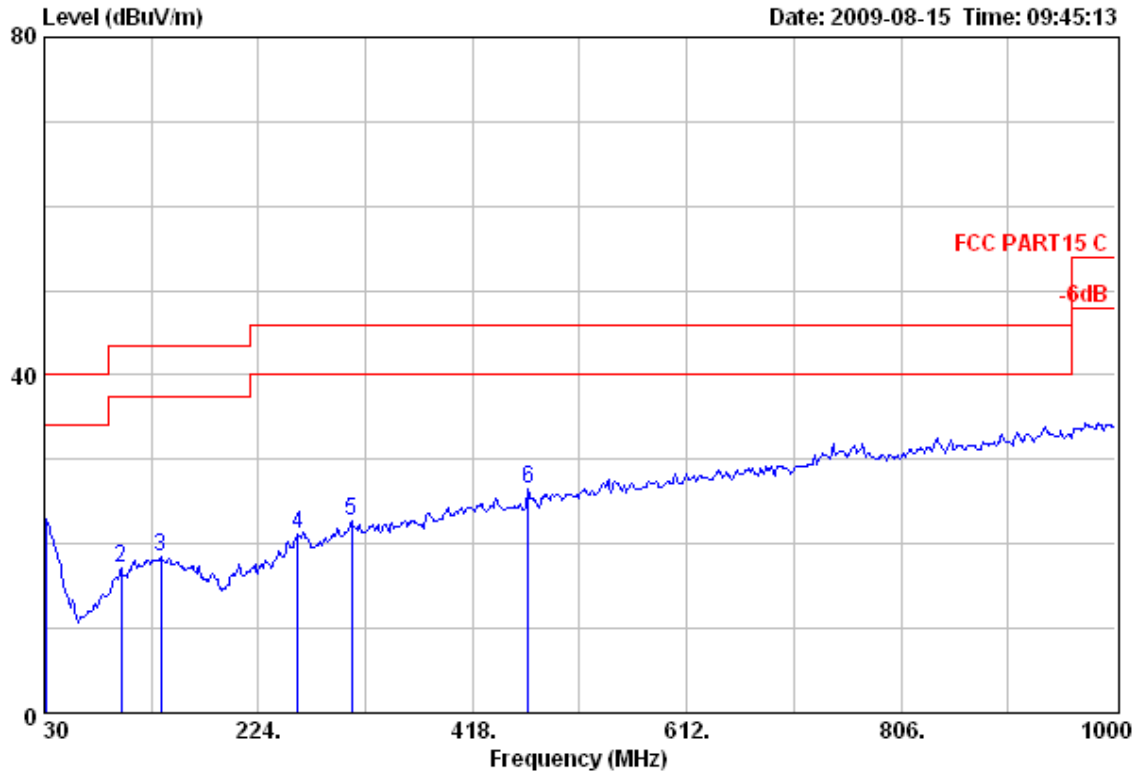
## 5.1.3.2. Frequency range: 1 GHz -25GHz



Data: 65

File: D:\Radiation 10m data\N\Nemko.EMI (114)

Date: 2009-08-15 Time: 09:45:13

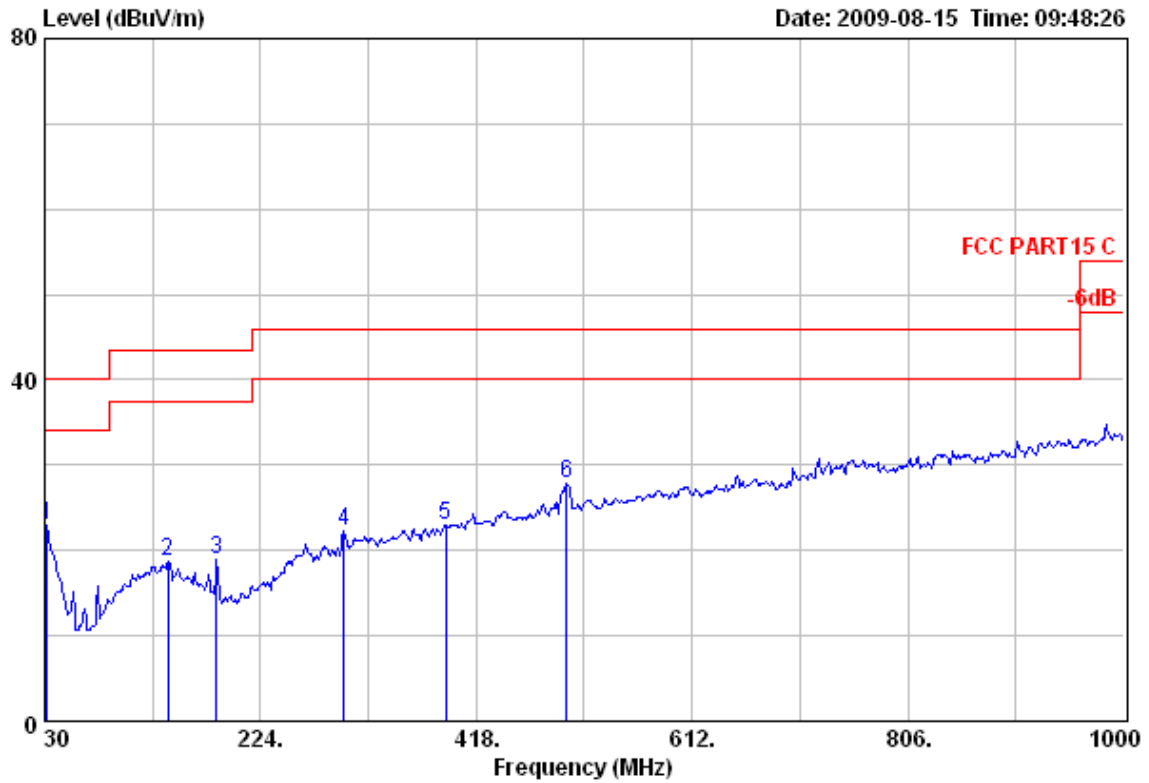


Test Site : 966 Chamber  
 Limit : FCC PART15 C  
 Dis. / Ant. : 3m 25758-3 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode

		Emission				Ant.	Cable	
	Freq.	Level	Limits	Margin	Reading	Factor	Loss	Remark
	(MHz)	(dBUV/m)	(dBUV/m)	(dB)	(dBUV)	(dB/m)	(dB)	
1	30.97	23.04	40.00	16.96	5.02	17.44	0.58	QP
2	99.84	17.11	43.50	26.39	5.65	10.40	1.06	QP
3	135.73	18.46	43.50	25.04	5.16	12.06	1.24	QP
4	259.89	21.10	46.00	24.90	5.77	13.60	1.73	QP
5	308.39	22.82	46.00	23.18	7.11	13.80	1.91	QP
6	468.44	26.53	46.00	19.47	6.39	17.81	2.33	QP

Data: 66

File: D:\Radiation 10m data\N\Nemko.EMI (114)



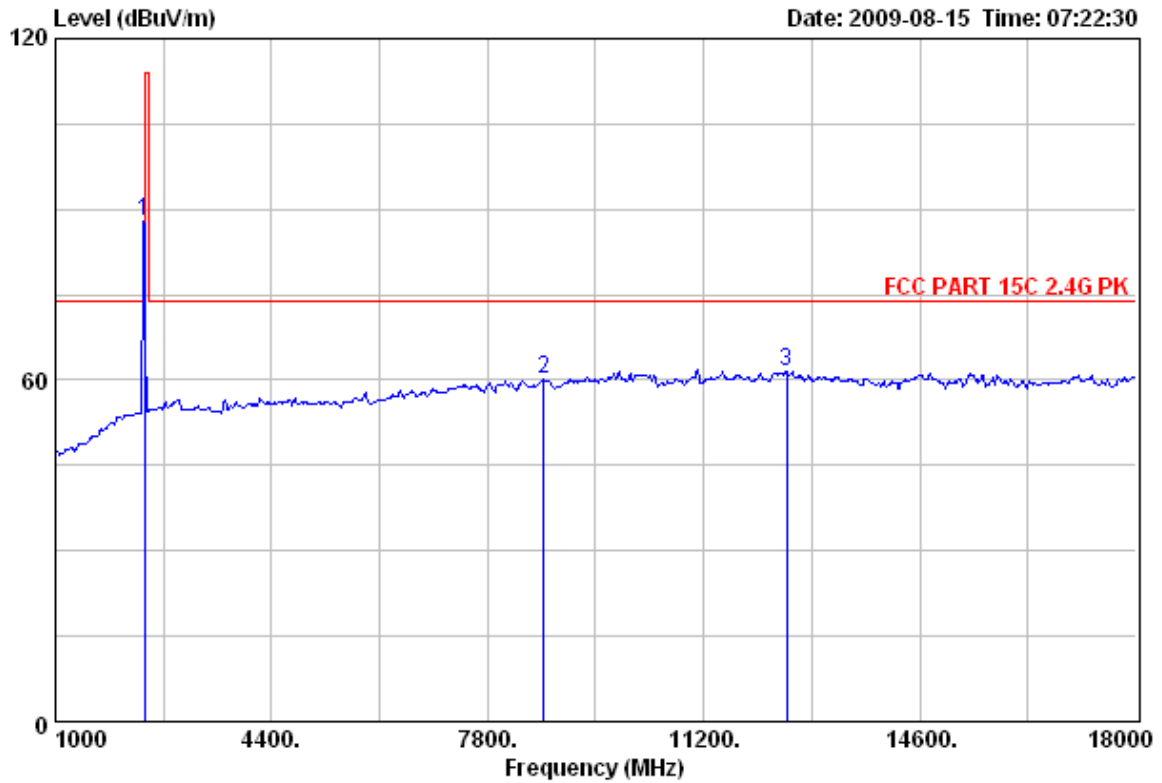
Test Site : 966 Chamber  
 Limit : FCC PART15 C  
 Dis. / Ant. : 3m 25758-3 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode

	Emission				Ant. Cable		Remark
	Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor Loss (dB/m) (dB)	
1	31.94	22.94	40.00	17.06	5.07	17.28 0.59	QP
2	140.58	18.74	43.50	24.76	5.43	12.05 1.26	QP
3	184.23	18.94	43.50	24.56	8.32	9.16 1.46	QP
4	298.69	22.26	46.00	23.74	6.90	13.48 1.88	QP
5	390.84	23.06	46.00	22.94	4.65	16.28 2.13	QP
6	499.48	27.83	46.00	18.17	6.71	18.67 2.45	QP

Data: 67

File: D:\Radiation 10m data\N\Nemko.EMI (114)

Date: 2009-08-15 Time: 07:22:30

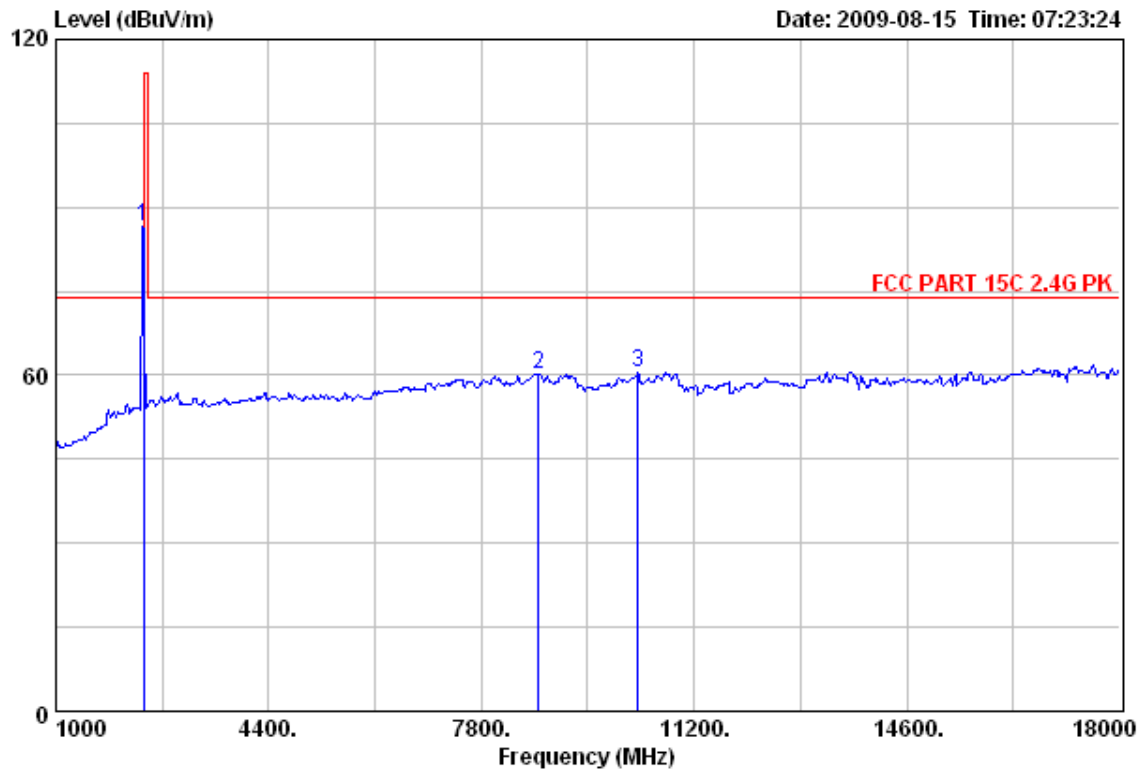


Test Site : 966 Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CHO 2403MHz

Freq. (MHz)	Emission		Margin (dB)	Reading (dBUV)	Ant. Cable		Remark
	Level (dBUV/m)	Limits (dBUV/m)			Factor (dB/m)	Loss (dB)	
1 2403.00	87.78	114.00	26.22	54.05	31.50	2.23	Peak
2 8684.00	60.07	74.00	13.93	20.48	36.97	2.62	Peak
3 312509.00	61.57	74.00	12.43	18.71	40.01	2.85	Peak

Data: 68

File: D:\Radiation 10m data\N\Nemko.EMI (114)



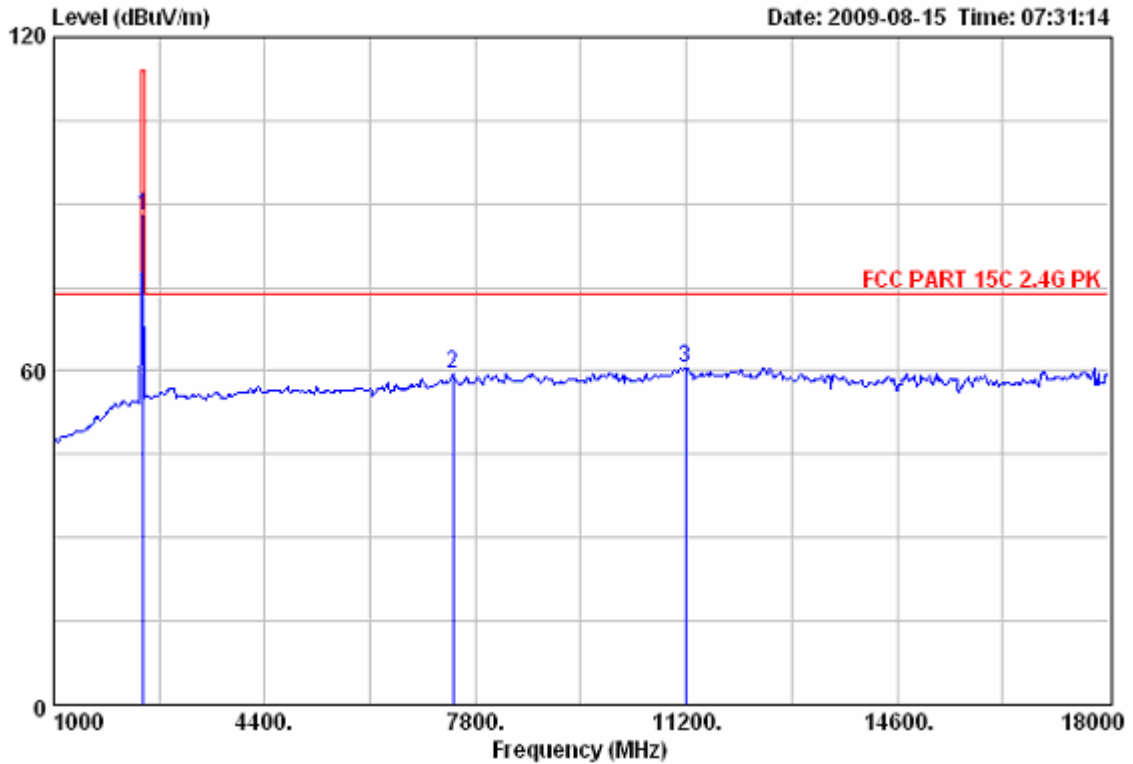
Test Site : 966 Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CHO 2403MHz

Freq. (MHz)	Emission		Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant.	Cable	Remark
	Level (dBuV/m)					Factor (dB/m)	Loss (dB)	
1 2403.00	86.56	114.00	27.44	52.83	31.50	2.23	Peak	
2 8718.00	60.28	74.00	13.72	20.68	36.98	2.62	Peak	
310299.00	60.64	74.00	13.36	19.75	38.17	2.72	Peak	

Data: 71

File: D:\Radiation 10m data\N\Nemko.EMI (114)

Date: 2009-08-15 Time: 07:31:14

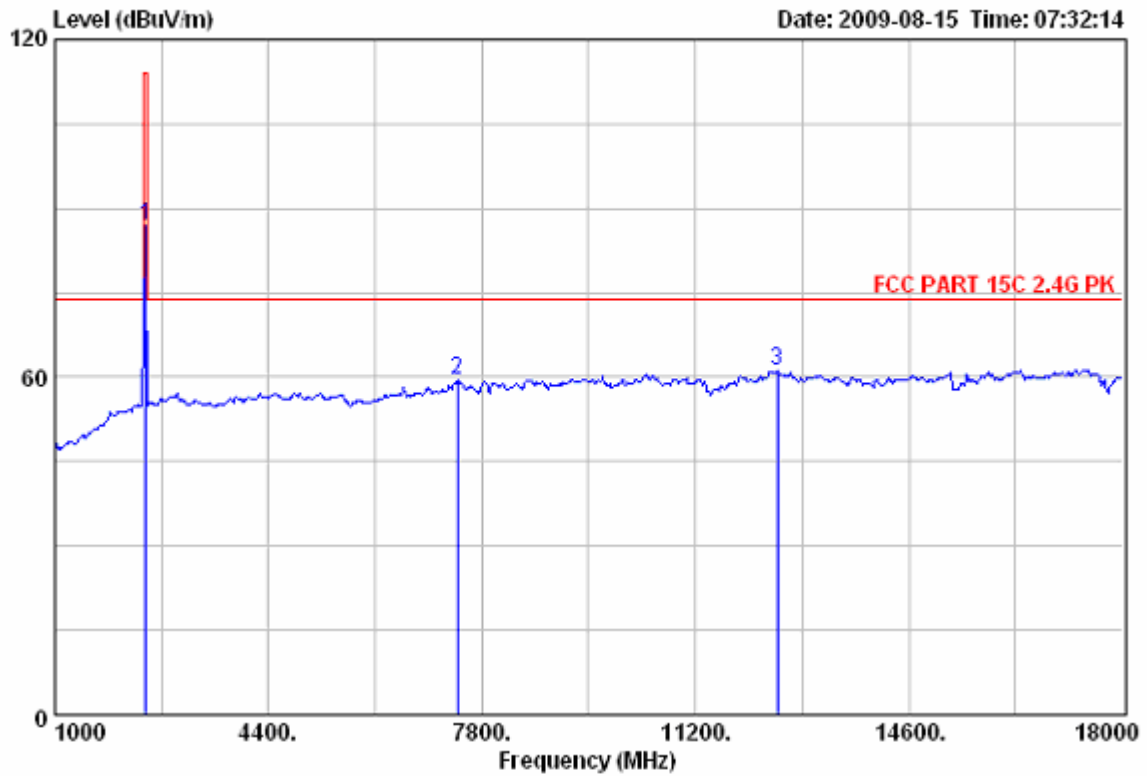


Test Site : 966 Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH39 2441MHz

	Emission			Margin	Reading	Ant.	Cable	Remark
	Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)			Factor (dB/m)	Loss (dB)	
1	2441.00	87.90	114.00	26.10	54.13	31.54	2.23	Peak
2	7443.00	59.56	74.00	14.44	20.21	36.81	2.54	Peak
3	1183.00	60.66	74.00	13.34	19.29	38.60	2.77	Peak

Data: 72

File: D:\Radiation 10m data\N\Nemko.EMI (114)



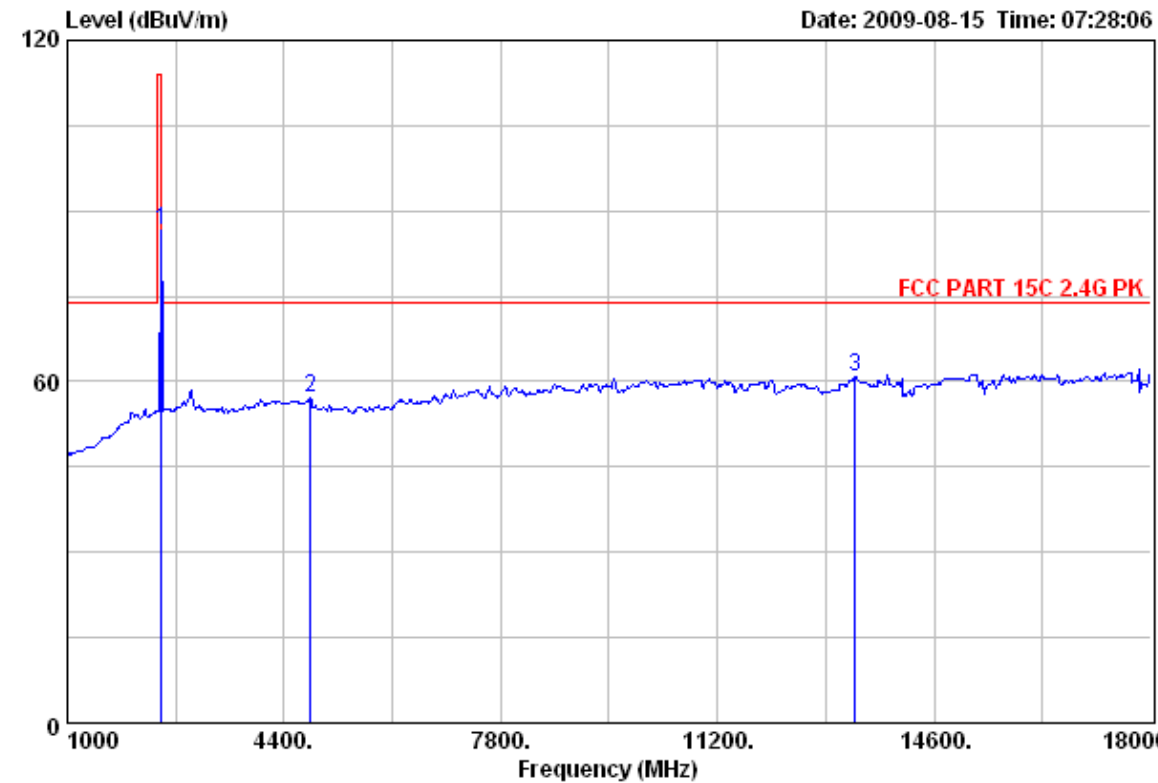
Test Site : 966 Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH39 2441MHz

Freq. (MHz)	Emission		Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Cable		Remark
	Level (dBuV/m)					Factor (dB/m)	Loss (dB)	
1 2441.00	86.76		114.00	27.24	52.99	31.54	2.23	Peak
2 7409.00	59.44		74.00	14.56	20.08	36.82	2.54	Peak
3 12509.00	61.05		74.00	12.95	18.19	40.01	2.85	Peak



Data: 70

File: D:\Radiation 10m data\N\Nemko.EMI (114)



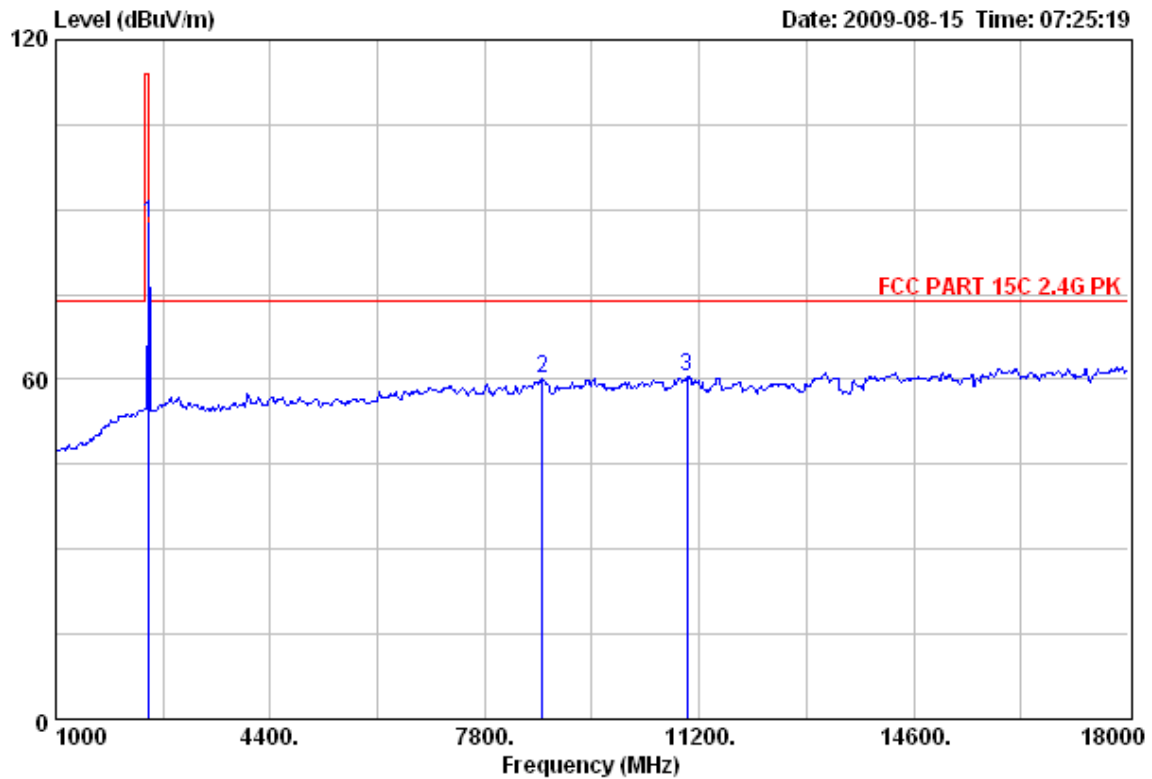
Test Site : 966 Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCO01  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH79 2480MHz

Freq. (MHz)	Emission		Margin	Reading	Ant. Cable		Remark
	Level (dBuV/m)	Limits (dBuV/m)			Factor (dB/m)	Loss (dB)	
1 2480.00	86.51	114.00	27.49	52.70	31.58	2.23	Peak
2 4808.00	57.16	74.00	16.84	20.20	34.58	2.38	Peak
3 13359.00	60.91	74.00	13.09	17.64	40.37	2.90	Peak

Data: 69

File: D:\Radiation 10m data\N\Nemko.EMI (114)

Date: 2009-08-15 Time: 07:25:19



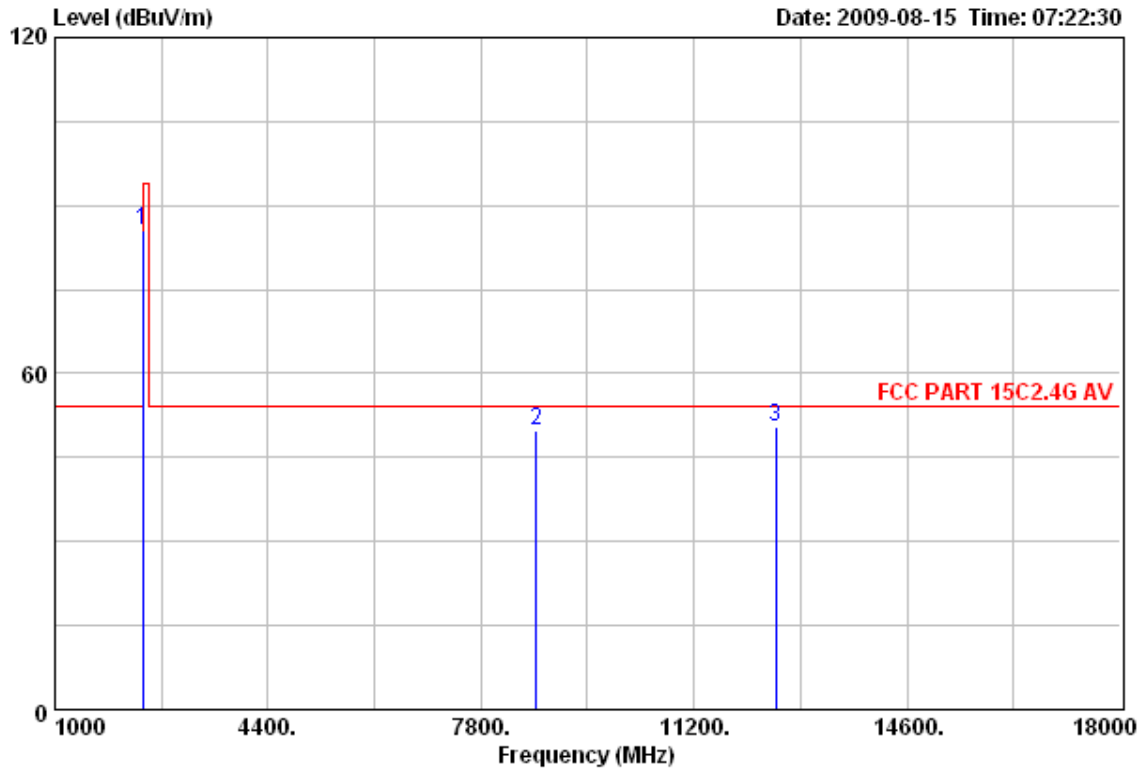
Test Site : 966 Chamber  
 Limit : FCC PART 15C 2.4G PK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH79 2480MHz

Freq. (MHz)	Emission		Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant.	Cable	Remark
	Level (dBuV/m)					Factor (dB/m)	Loss (dB)	
1 2480.00	87.69	114.00	26.31	53.88	31.58	2.23	Peak	
2 8718.00	60.00	74.00	14.00	20.40	36.98	2.62	Peak	
311013.00	60.46	74.00	13.54	19.37	38.33	2.76	Peak	

Data: 73

File: D:\Radiation 10m data\N\Nemko.EMI (114)

Date: 2009-08-15 Time: 07:22:30

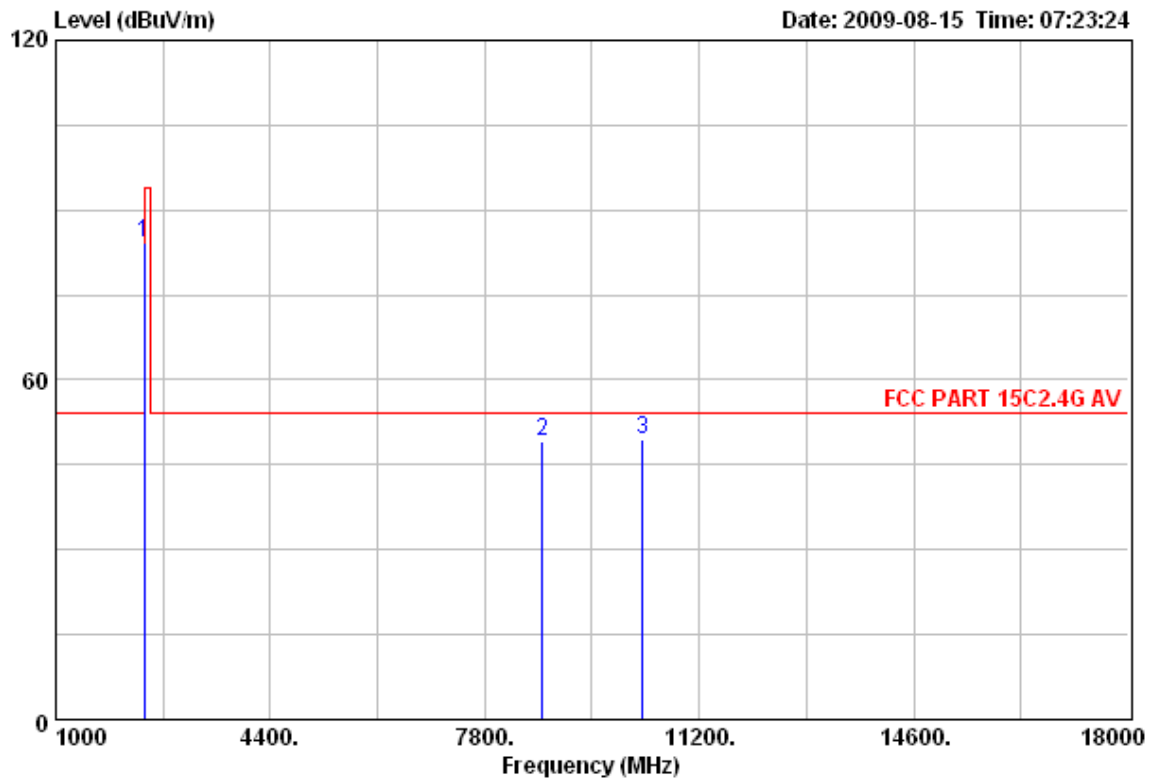


Test Site : 966 Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CHO 2403MHz

Freq. (MHz)	Emission		Limits (dBUV/m)	Margin (dB)	Reading (dBUV)	Ant.	Cable	Remark
	Level (dBUV/m)					Factor (dB/m)	Loss (dB)	
1 2403.00	85.63		94.00	8.37	51.90	31.50	2.23	Average
2 8684.00	49.84		54.00	4.16	10.25	36.97	2.62	Average
312509.00	50.32		54.00	3.68	7.46	40.01	2.85	Average

Data: 74

File: D:\Radiation 10m data\N\Nemko.EMI (114)



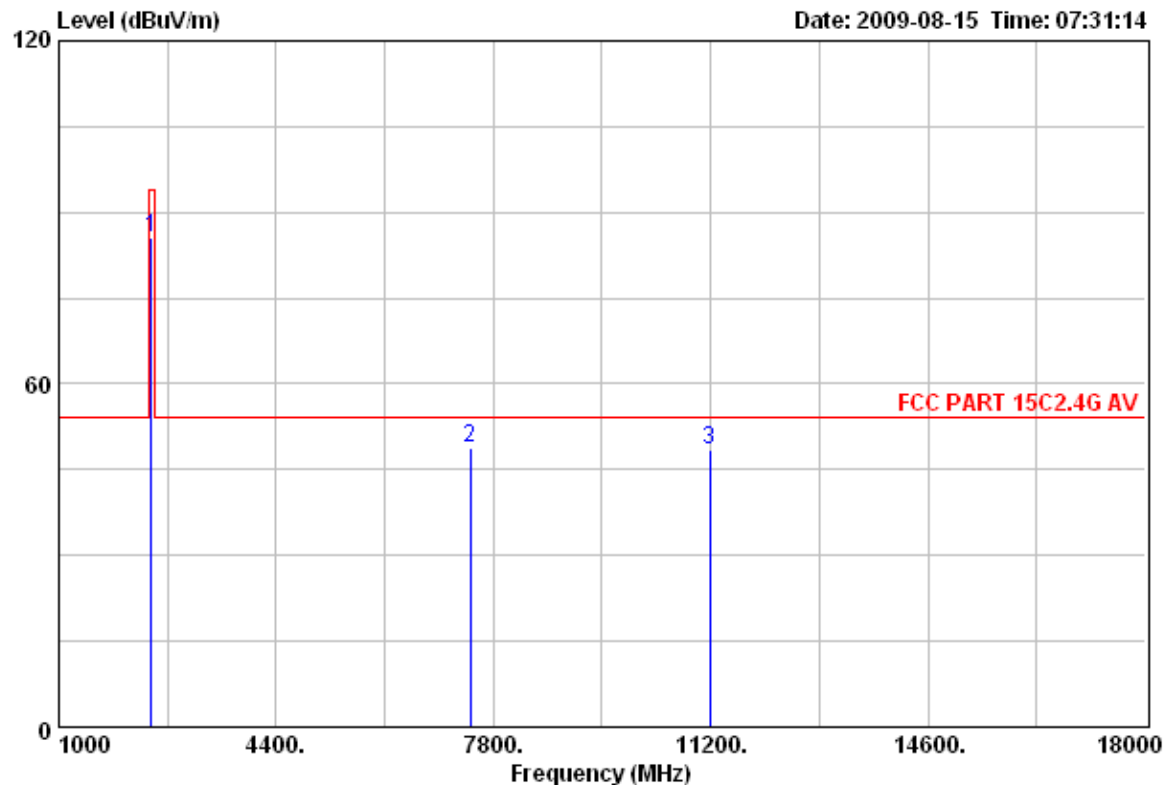
Test Site : 966 Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CHO 2403MHz

Freq. (MHz)	Emission		Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant.	Cable	Remark
	Level (dBuV/m)					Factor (dB/m)	Loss (dB)	
1 2403.00	84.37		94.00	9.63	50.64	31.50	2.23	Average
2 8718.00	49.19		54.00	4.81	9.59	36.98	2.62	Average
3 31029.00	49.63		54.00	4.37	8.74	38.17	2.72	Average



Data: 77

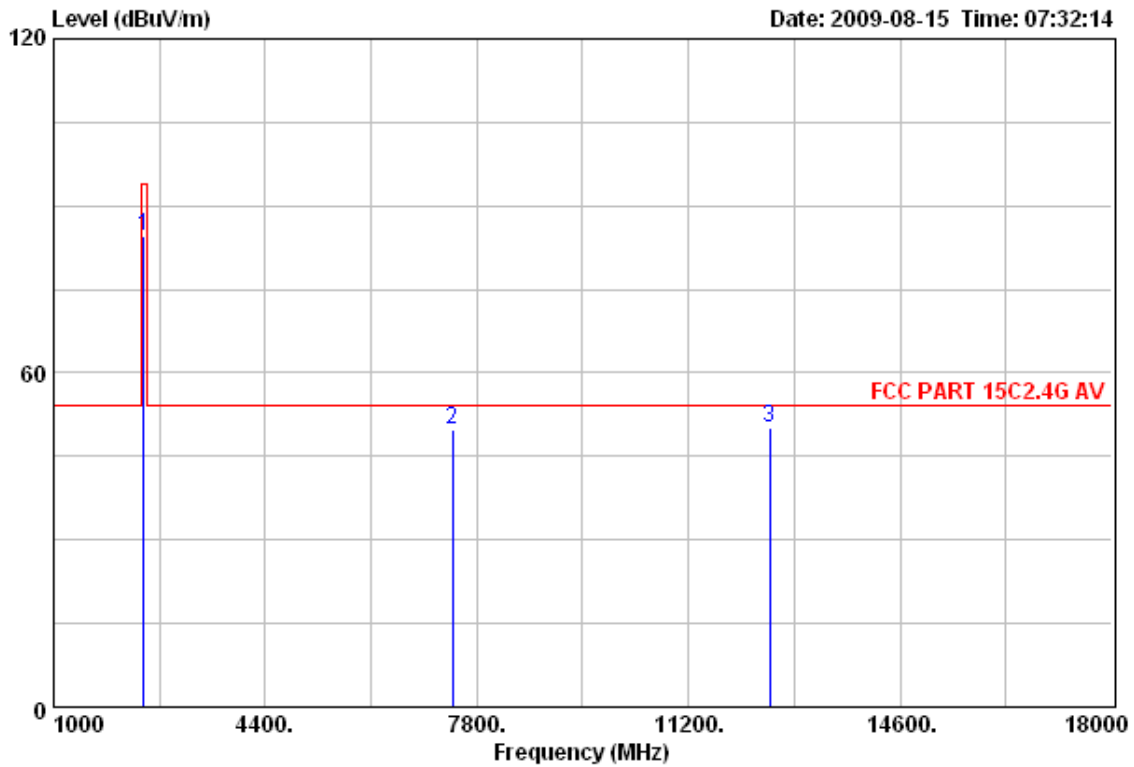
File: D:\Radiation 10m data\N\Nemko.EMI (114)



Test Site : 966 Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH39 2441MHz

Freq. (MHz)	Emission		Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
	Level (dBuV/m)	Limits (dBuV/m)					
1 2441.00	85.43	94.00	8.57	51.66	31.54	2.23	Average
2 7443.00	48.88	54.00	5.12	9.53	36.81	2.54	Average
311183.00	48.63	54.00	5.37	7.26	38.60	2.77	Average

Data: 78 File: D:\Radiation 10m data\N\Nemko.EMI (114)

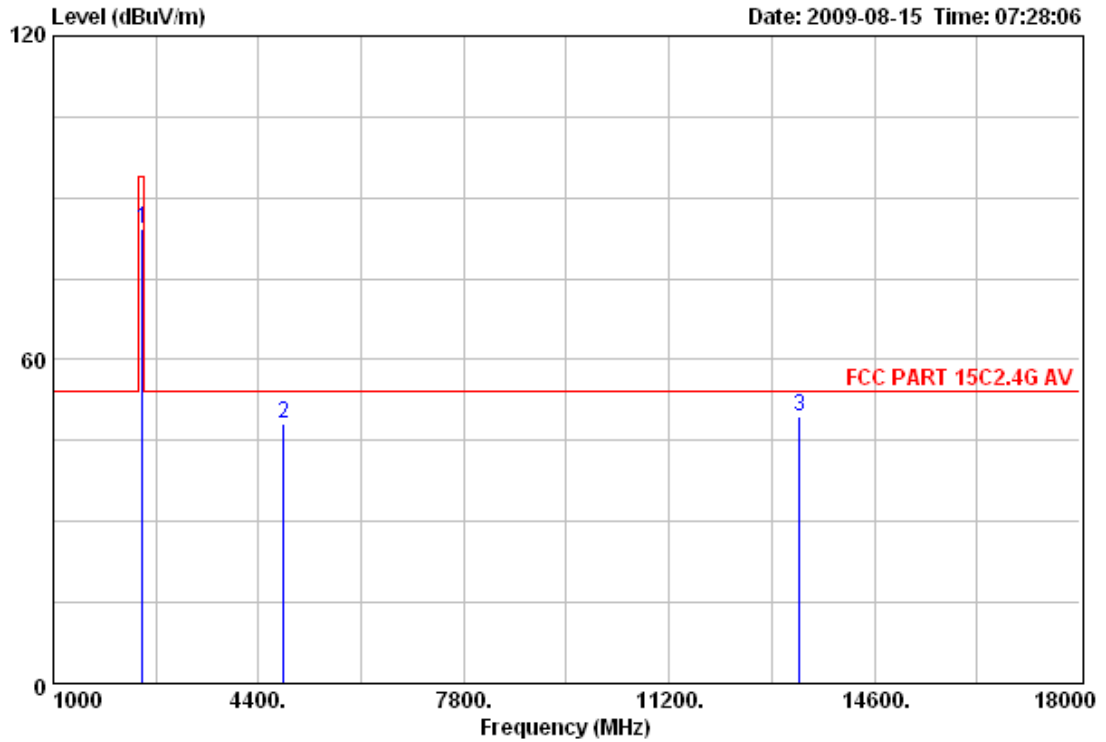


Test Site : 966 Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH39 2441MHz

Freq. (MHz)	Emission		Margin (dB)	Reading (dBuV)	Ant. Cable		Remark
	Level (dBuV/m)	Limits (dBuV/m)			Factor (dB/m)	Loss (dB)	
1 2441.00	84.61	94.00	9.39	50.84	31.54	2.23	Average
2 7409.00	49.78	54.00	4.22	10.42	36.82	2.54	Average
3 31250.00	49.99	54.00	4.01	7.13	40.01	2.85	Average

Data: 76

File: D:\Radiation 10m data\N\Nemko.EMI (114)



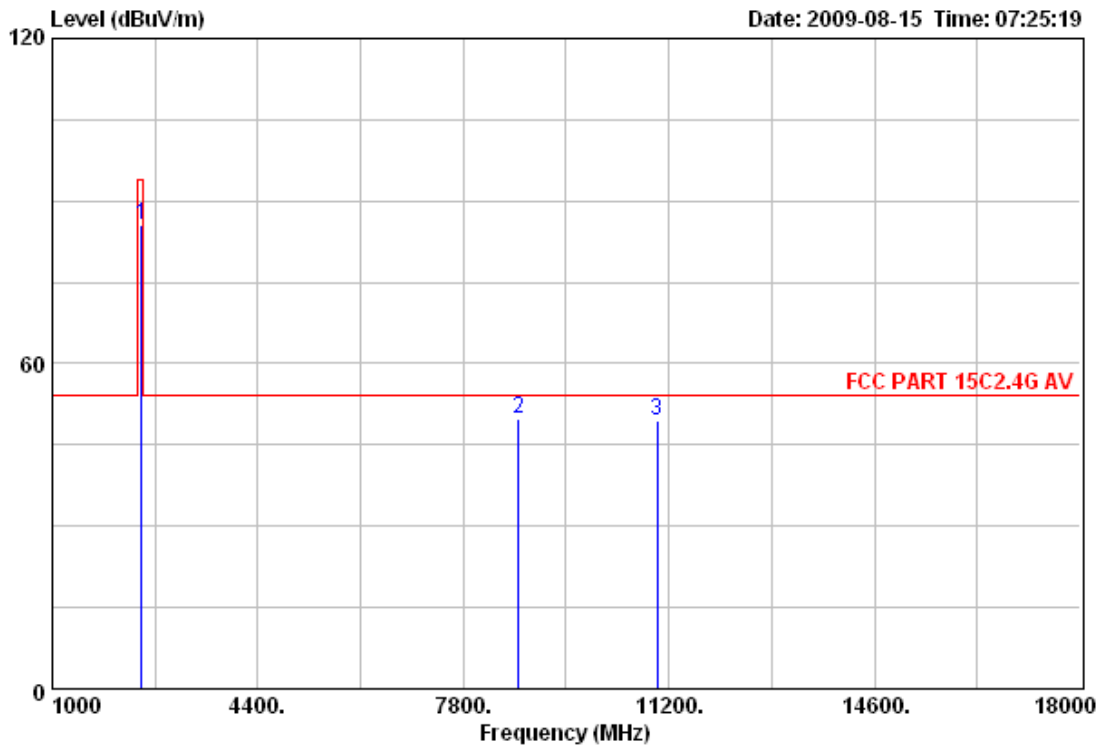
Test Site : 966 Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH79 2480MHz

Freq. (MHz)	Emission		Margin (dB)	Reading (dBuV)	Ant. Cable		Remark
	Level (dBuV/m)	Limits (dBuV/m)			Factor (dB/m)	Loss (dB)	
1 2480.00	84.26	94.00	9.74	50.45	31.58	2.23	Average
2 4808.00	48.20	54.00	5.80	11.24	34.58	2.38	Average
3 31359.00	49.62	54.00	4.38	6.35	40.37	2.90	Average

Data: 75

File: D:\Radiation 10m data\N\Nemko.EMI (114)

Date: 2009-08-15 Time: 07:25:19



Test Site : 966 Chamber  
 Limit : FCC PART 15C2.4G AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH79 2480MHz

Freq. (MHz)	Emission		Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Cable		Remark
	Level (dBuV/m)					Factor (dB/m)	Loss (dB)	
1 2480.00	85.73		94.00	8.27	51.92	31.58	2.23	Average
2 8718.00	49.85		54.00	4.15	10.25	36.98	2.62	Average
3 11013.00	49.62		54.00	4.38	8.53	38.33	2.76	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.
4. Set SA trace max hold, then view.
5. Use the new battery during the testing.

### 5.2.3. Test result

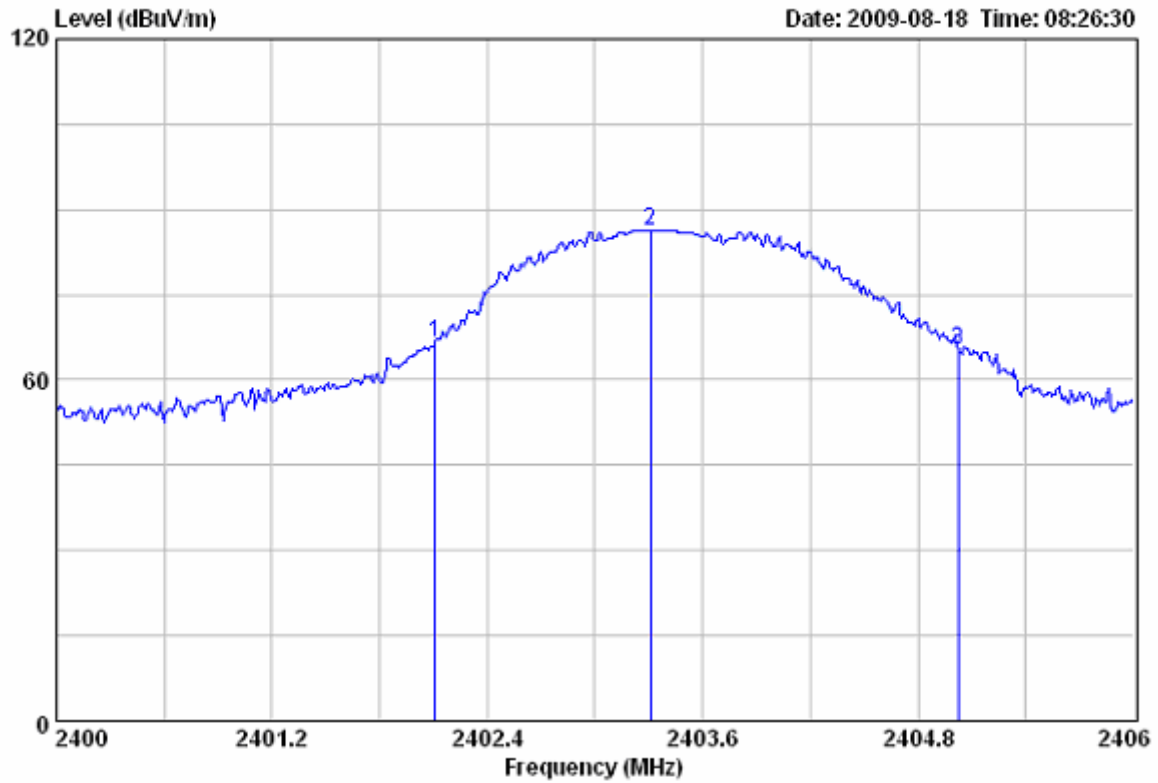
**Pass**

Test Channel	Frequency MHz	20dB bandwidth MHz
CH0	2403	2.91
CH39	2441	2.30
CH79	2480	2.69

Data: 88

File: D:\Radiation 10m data\N\Nemko.EMI (114)

Date: 2009-08-18 Time: 08:26:30

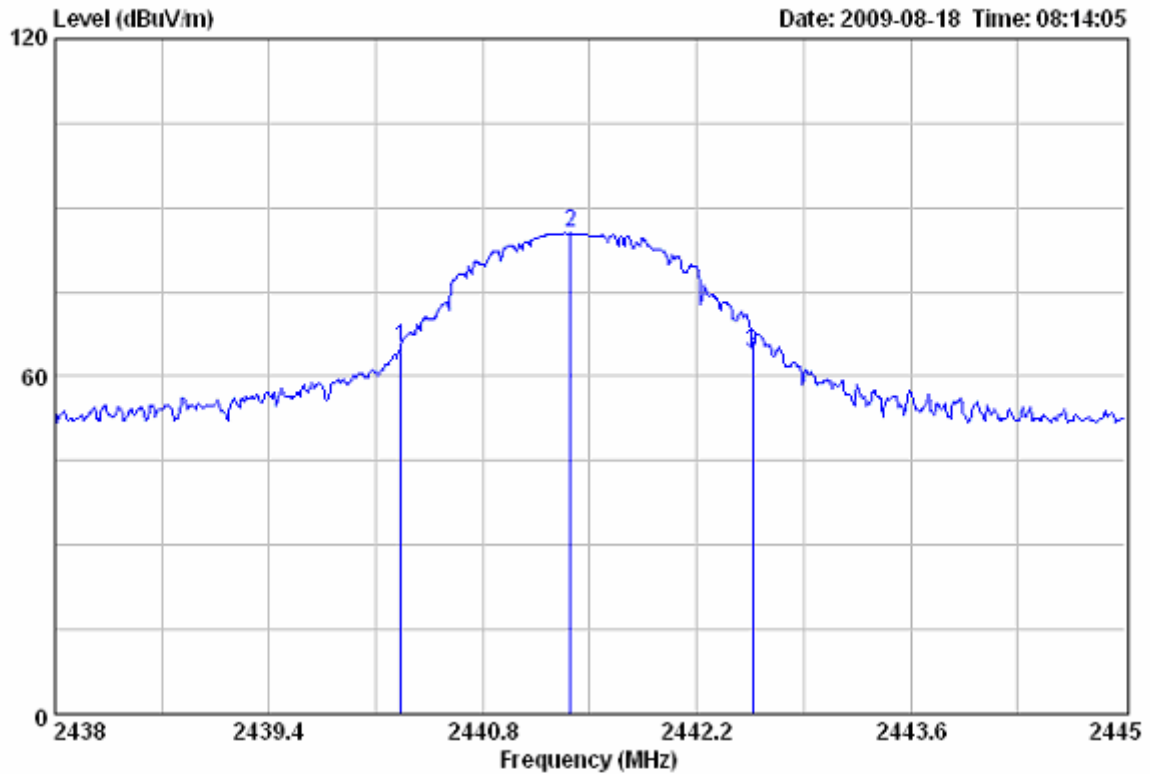


Test Site : 966 Chamber  
 Limit :  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CHO 2403MHz

Freq. (MHz)	Emission			Margin Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
	Level (dBuV/m)	Limits (dBuV/m)	(dB)				
1 2402.11	66.55	/	/	32.82	31.50	2.23	Peak
2 2403.31	86.40	/	/	52.67	31.50	2.23	Peak
3 2405.02	65.27	/	/	31.54	31.50	2.23	Peak

Data: 87

File: D:\Radiation 10m data\N\Nemko.EMI (114)



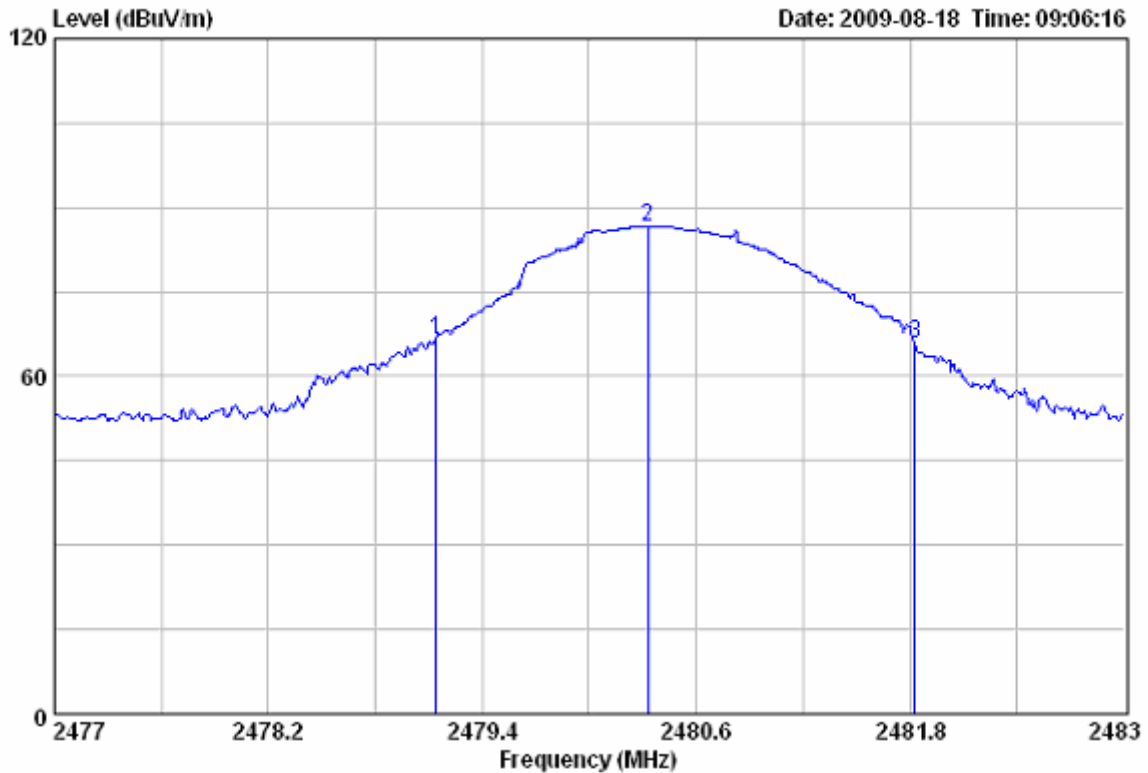
Test Site : 966 Chamber  
 Limit :  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH39 2441MHz

Freq. (MHz)	Emission		Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Cable		Remark
	Level (dBuV/m)					Factor (dB/m)	Loss (dB)	
1 2440.26	65.22	/	/	31.45	31.54	2.23		Peak
2 2441.37	85.42	/	/	51.65	31.54	2.23		Peak
3 2442.56	64.06	/	/	30.29	31.54	2.23		Peak

Data: 89

File: D:\Radiation 10m data\N\Nemko.EMI (114)

Date: 2009-08-18 Time: 09:06:16



Test Site : 966 Chamber  
 Limit :  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH79 2480MHz

Freq. (MHz)	Emission		Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
	Level (dBuV/m)	Limits (dBuV/m)					
1 2479.14	66.40	/	/	32.59	31.58	2.23	Peak
2 2480.33	86.70	/	/	52.89	31.58	2.23	Peak
3 2481.83	65.73	/	/	31.92	31.58	2.23	Peak

### 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

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was 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 emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upperband-edges of the emission:
  - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
  - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Use the new battery during the testing.

#### 5.3.3. Test result

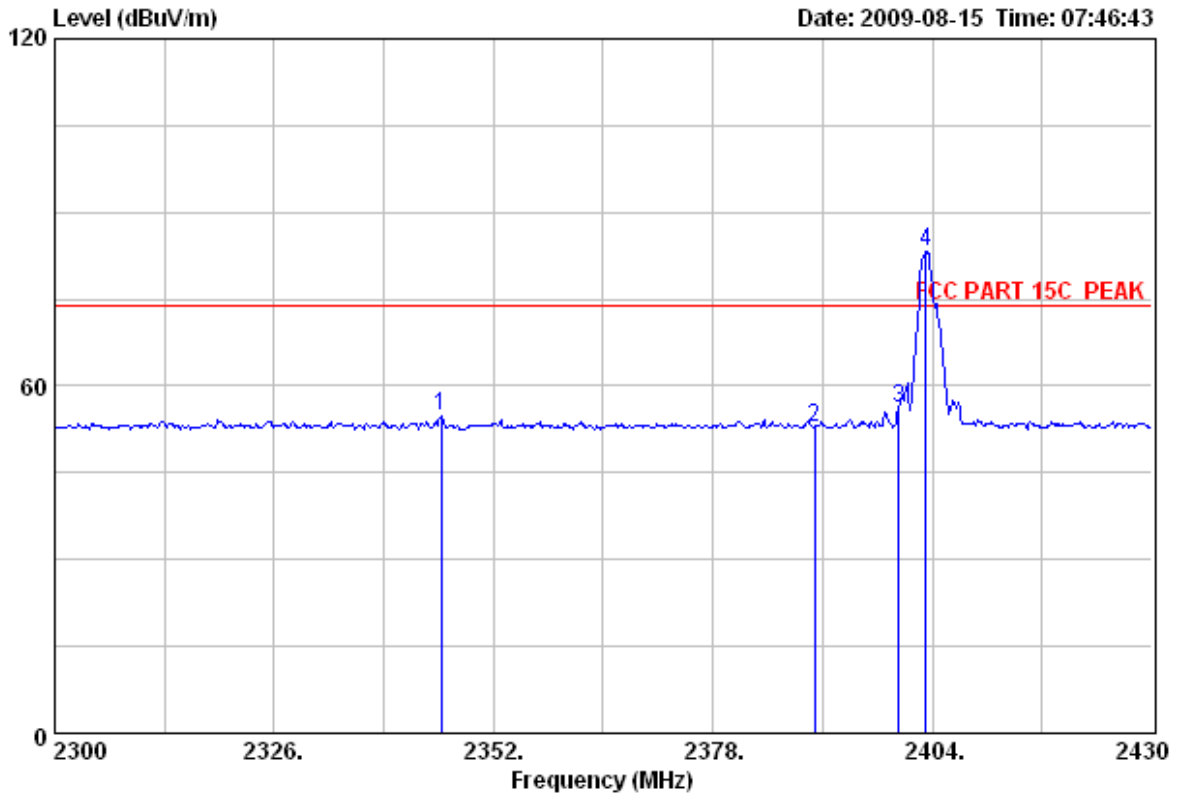
**PASS.**

The test plots as following:

Data: 79

File: D:\Radiation 10m data\N\Nemko.EMI (114)

Date: 2009-08-15 Time: 07:46:43



Test Site : 966 Chamber  
 Limit : FCC PART 15C PEAK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CHO 2403MHz

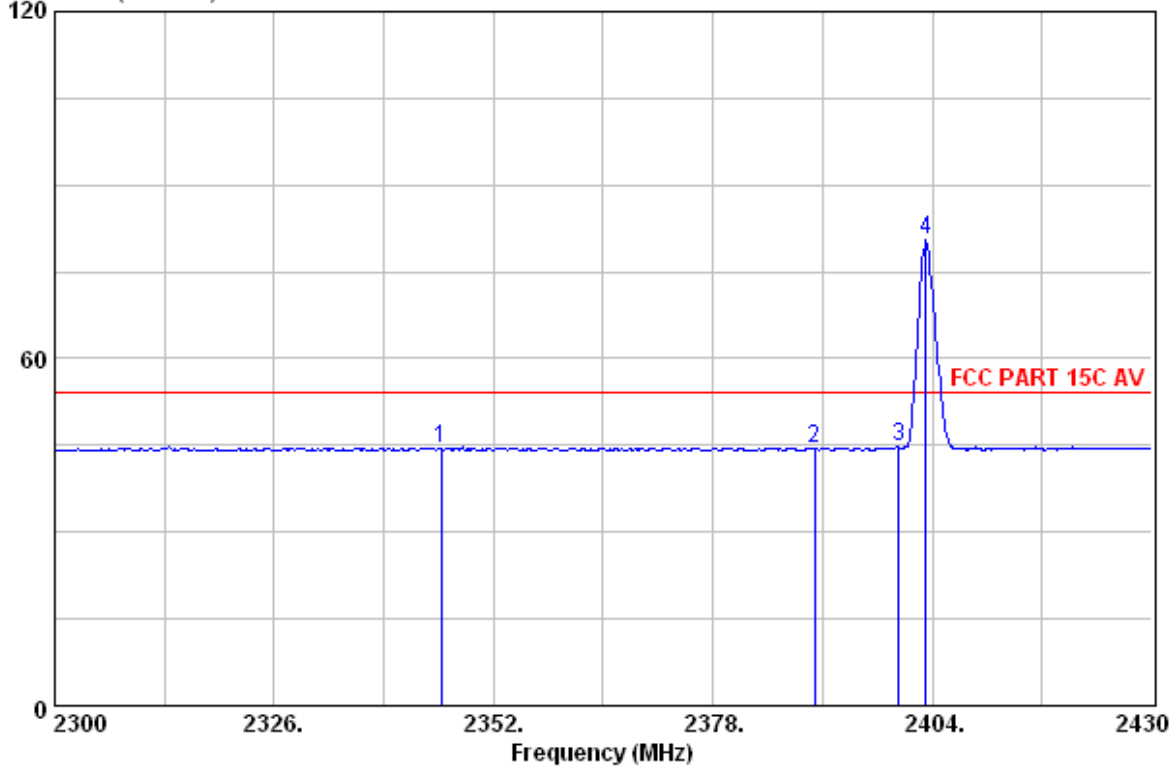
	Emission				Ant. Cable		Remark
	Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor Loss (dB/m) (dB)	
1	2345.76	54.94	74.00	19.06	21.27	31.45 2.22	Peak
2	2390.00	52.79	74.00	21.21	19.09	31.48 2.22	Peak
3	2400.00	56.11	74.00	17.89	22.38	31.50 2.23	Peak
4	2403.22	83.20	74.00	-9.20	49.47	31.50 2.23	Peak

Data: 80

File: D:\Radiation 10m data\N\Nemko.EMI (114)

Level (dBuV/m)

Date: 2009-08-15 Time: 07:49:52

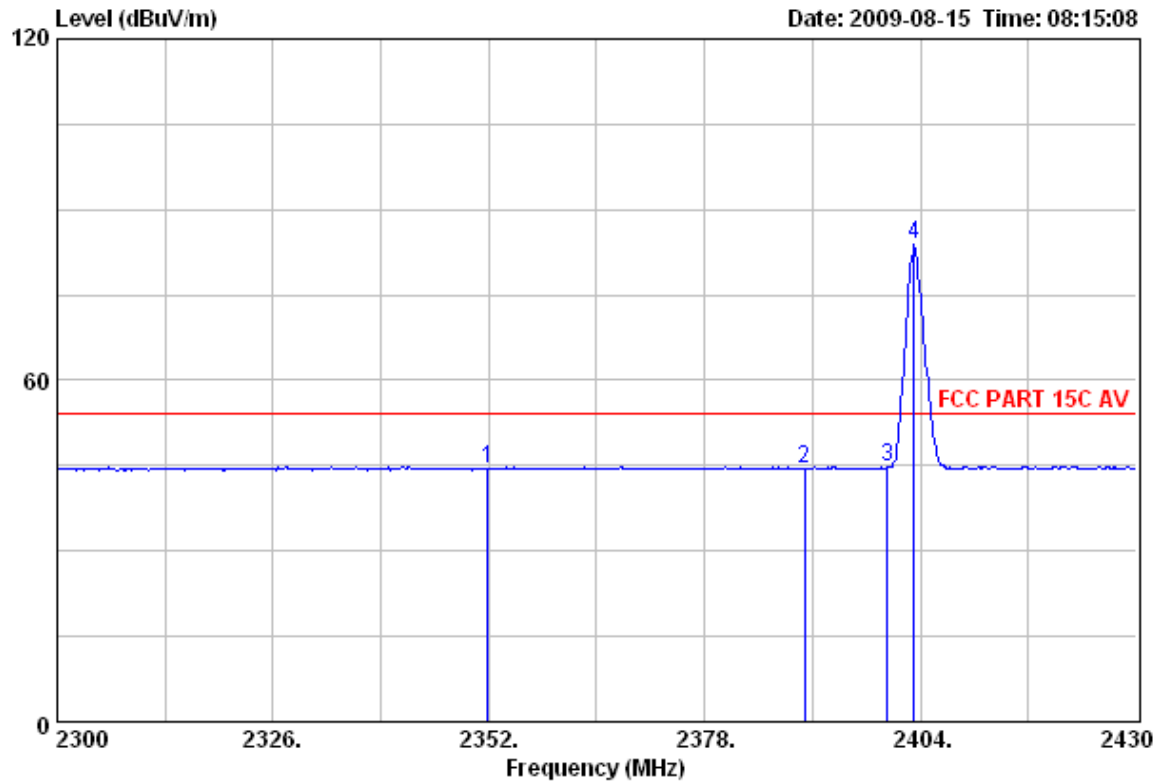


Test Site : 966 Chamber  
 Limit : FCC PART 15C AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CHO 2403MHz

Emission					Ant. Cable		Remark	
Freq.	Level	Limits	Margin	Reading	Factor	Loss		
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	(dB)		
1	2345.76	44.32	54.00	9.68	10.65	31.45	2.22	Average
2	2390.00	44.44	54.00	9.56	10.74	31.48	2.22	Average
3	2400.00	44.77	54.00	9.23	11.04	31.50	2.23	Average
4	2403.22	80.51	54.00	-26.51	46.78	31.50	2.23	Average

Data: 81

File: D:\Radiation 10m data\N\Nemko.EMI (114)



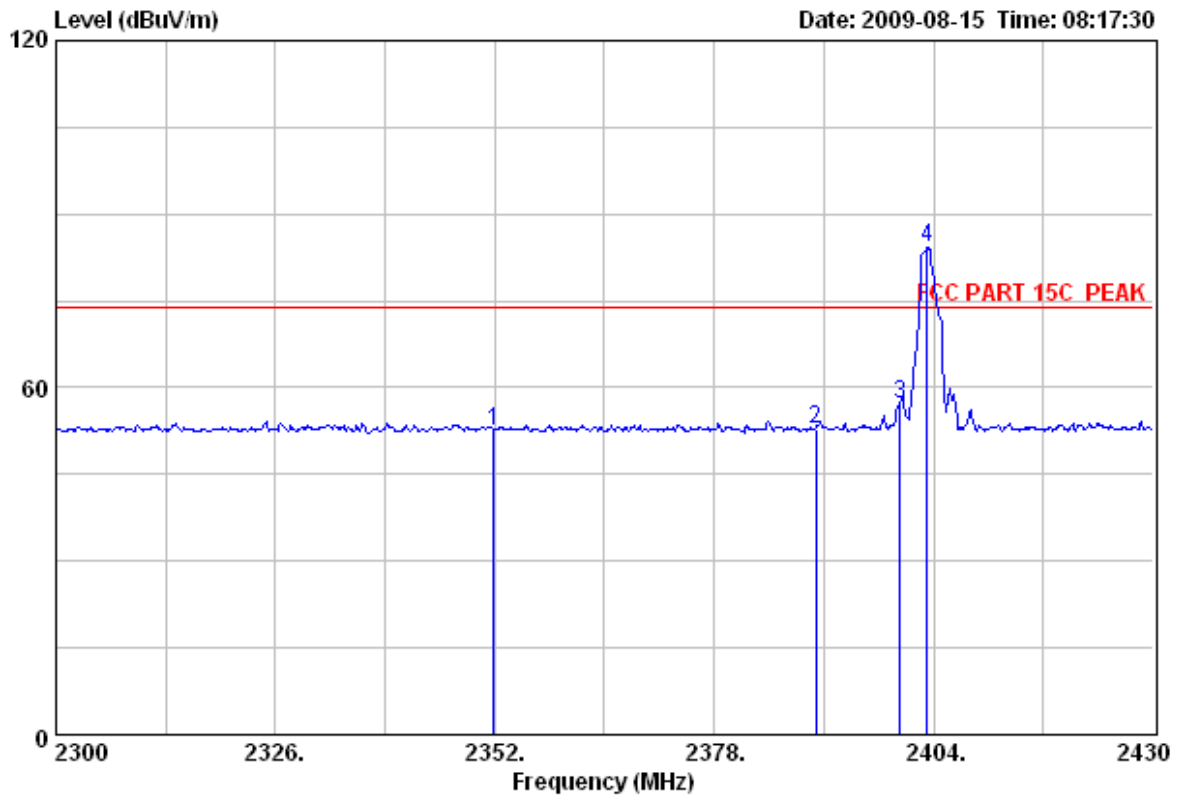
Test Site : 966 Chamber  
 Limit : FCC PART 15C AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CHO 2403MHz

Freq. (MHz)	Emission		Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
	Level (dBuV/m)							
1 2351.87	44.56		54.00	9.44	10.89	31.45	2.22	Average
2 2390.00	44.51		54.00	9.49	10.81	31.48	2.22	Average
3 2400.00	44.65		54.00	9.35	10.92	31.50	2.23	Average
4 2403.22	83.78		54.00	-29.78	50.05	31.50	2.23	Average



Data: 82

File: D:\Radiation 10m data\N\Nemko.EMI (114)

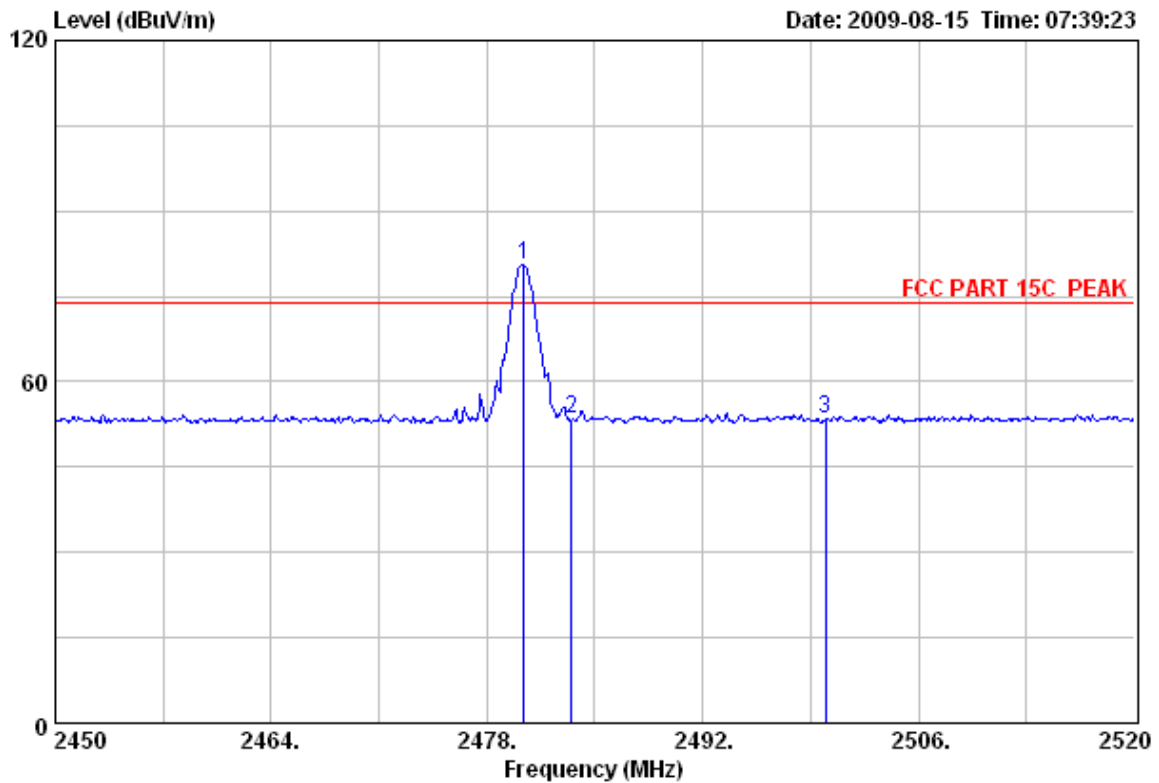


Test Site : 966 Chamber  
 Limit : FCC PART 15C PEAK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CHO 2403MHz

	Freq. (MHz)	Emission		Margin (dB)	Reading (dBuV)	Ant.	Cable	Remark
		Level (dBuV/m)	Limits (dBuV/m)			Factor (dB/m)	Loss (dB)	
1	2351.87	52.59	74.00	21.41	18.92	31.45	2.22	Peak
2	2390.00	52.86	74.00	21.14	19.16	31.48	2.22	Peak
3	2400.00	57.13	74.00	16.87	23.40	31.50	2.23	Peak
4	2403.22	84.32	74.00	-10.32	50.59	31.50	2.23	Peak

Data: 83

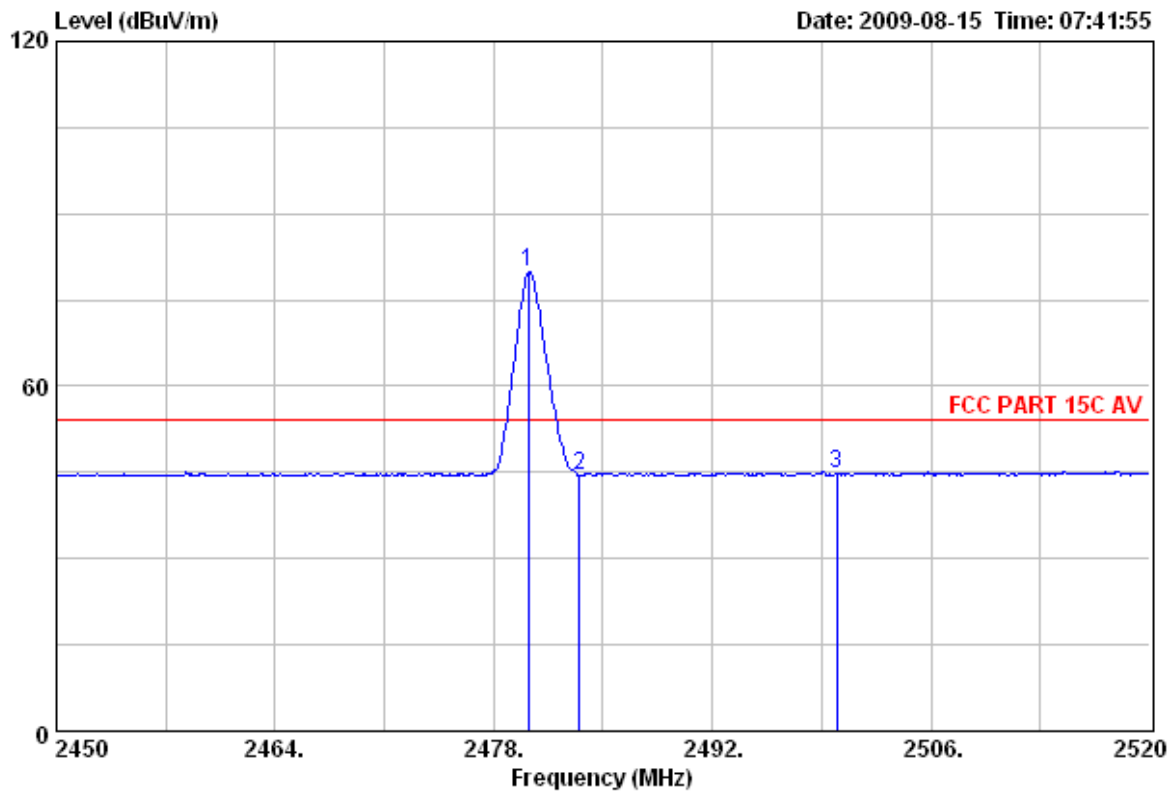
File: D:\Radiation 10m data\N\Nemko.EMI (114)



Test Site : 966 Chamber  
 Limit : FCC PART 15C PEAK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH79 2480MHz

Freq. (MHz)	Emission		Margin (dB)	Reading (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Remark
	Level (dBuV/m)	Limits (dBuV/m)					
1 2480.38	80.44	74.00	-6.44	46.63	31.58	2.23	Peak
2 2483.50	53.40	74.00	20.60	19.59	31.58	2.23	Peak
3 2500.00	53.41	74.00	20.59	19.58	31.60	2.23	Peak

Data: 84 File: D:\Radiation 10m data\N\Nemko.EMI (114)



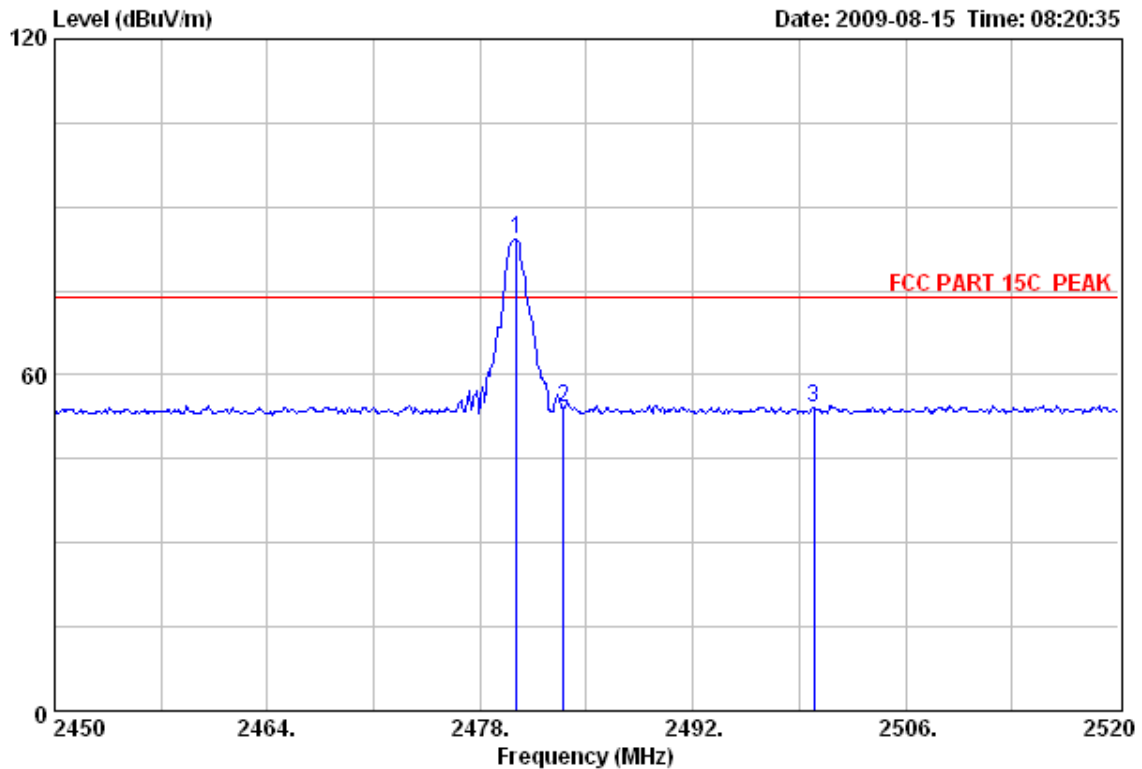
Test Site : 966 Chamber  
 Limit : FCC PART 15C AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: VERTICAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH79 2480MHz

Emission				Ant. Cable		Remark
Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor Loss (dB/m) (dB)	
1 2480.24	79.88	54.00	-25.88	46.07	31.58 2.23	Average
2 2483.50	44.55	54.00	9.45	10.74	31.58 2.23	Average
3 2500.00	44.77	54.00	9.23	10.94	31.60 2.23	Average

Data: 85

File: D:\Radiation 10m data\N\Nemko.EMI (114)

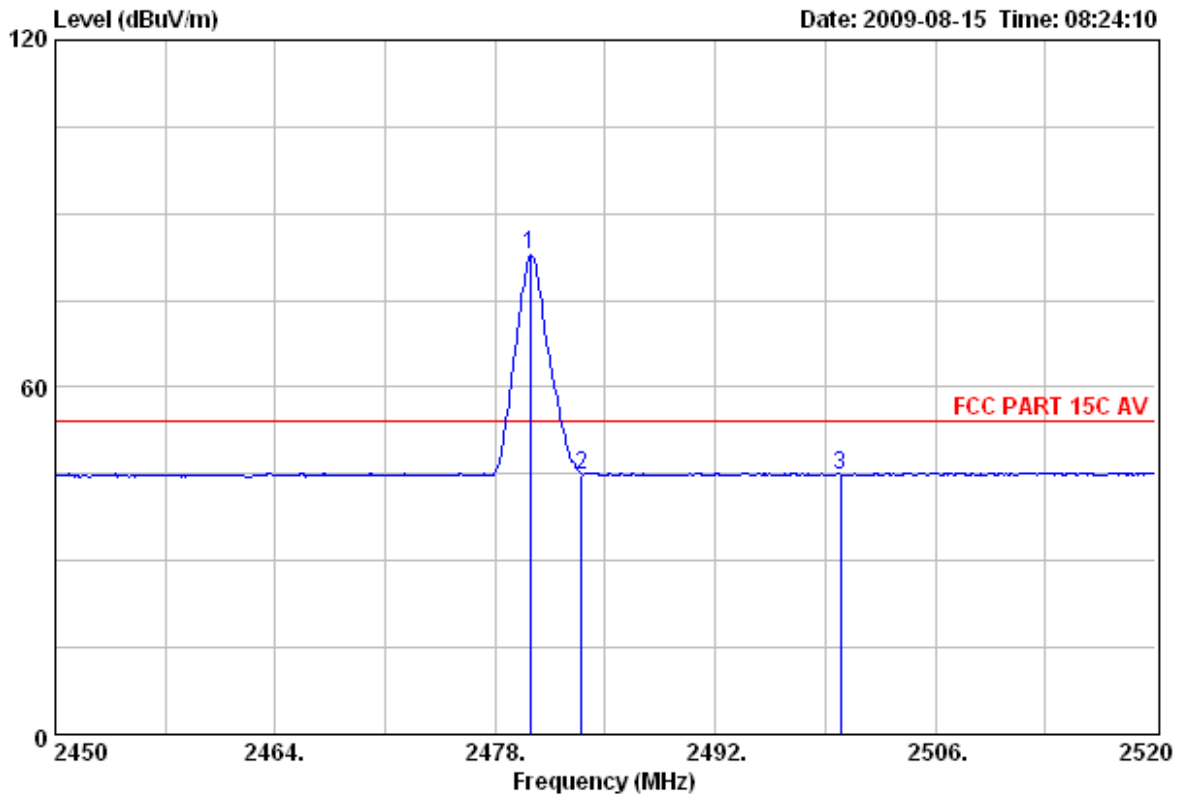
Date: 2009-08-15 Time: 08:20:35



Test Site : 966 Chamber  
 Limit : FCC PART 15C PEAK  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGCC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH79 2480MHz

	Emission				Ant. Cable		Remark
	Freq. (MHz)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor Loss (dB/m) (dB)	
1	2480.38	84.22	74.00	-10.22	50.41	31.58 2.23	Peak
2	2483.50	54.11	74.00	19.89	20.30	31.58 2.23	Peak
3	2500.00	54.10	74.00	19.90	20.27	31.60 2.23	Peak

Data: 86 File: D:\Radiation 10m data\N\Nemko.EMI (114)

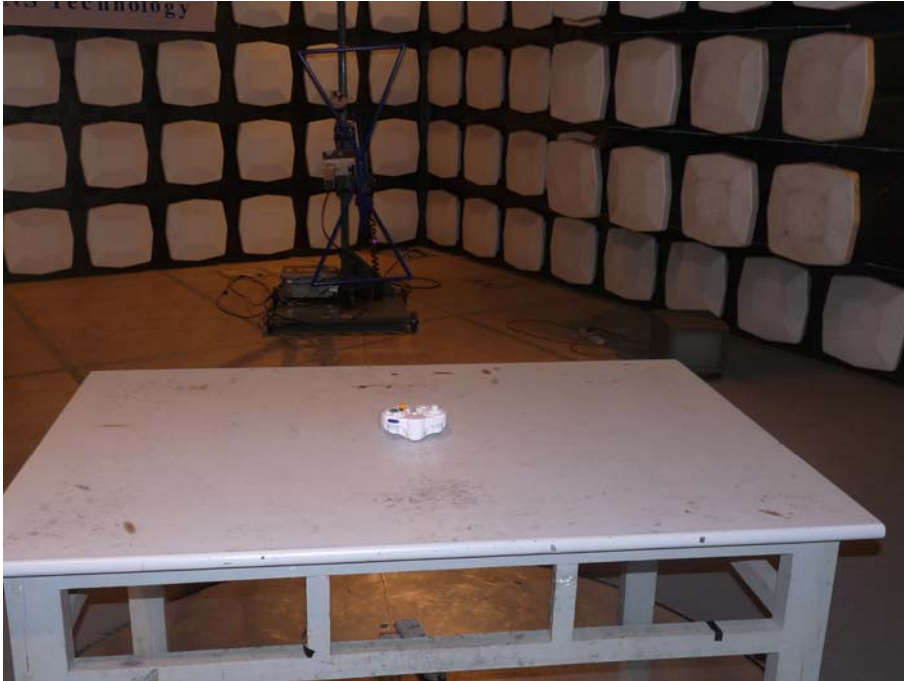


Test Site : 966 Chamber  
 Limit : FCC PART 15C AV  
 Dis. / Ant. : 3m 3117 Ant. Pol.: HORIZONTAL  
 EUT : Gamecube Wireless Controller  
 M/N : RF-GGC001  
 Power : DC 3V  
 Test Engineer : Jade  
 Comment : Temp.:25.2'C Humi.:56%  
 Test Mode : TX Mode CH79 2480MHz

Freq. (MHz)	Emission			Margin (dB)	Reading (dBuV)	Ant. Cable		Remark
	Level (dBuV/m)	Limits (dBuV/m)				Factor (dB/m)	Loss (dB)	
1 2480.24	82.76	54.00	-28.76	48.95	31.58	2.23		Average
2 2483.50	44.83	54.00	9.17	11.02	31.58	2.23		Average
3 2500.00	44.91	54.00	9.09	11.08	31.60	2.23		Average

## 6. PHOTOGRAPHS OF TEST SET-UP

### 6.1. Set-up for radiated measurements(30MHz to 1000MHz)



### 6.2. Set-up for radiated measurements(above 1G)



## 7. PHOTOGRAPHS OF THE EUT

**Figure 1**  
General Appearance of the EUT

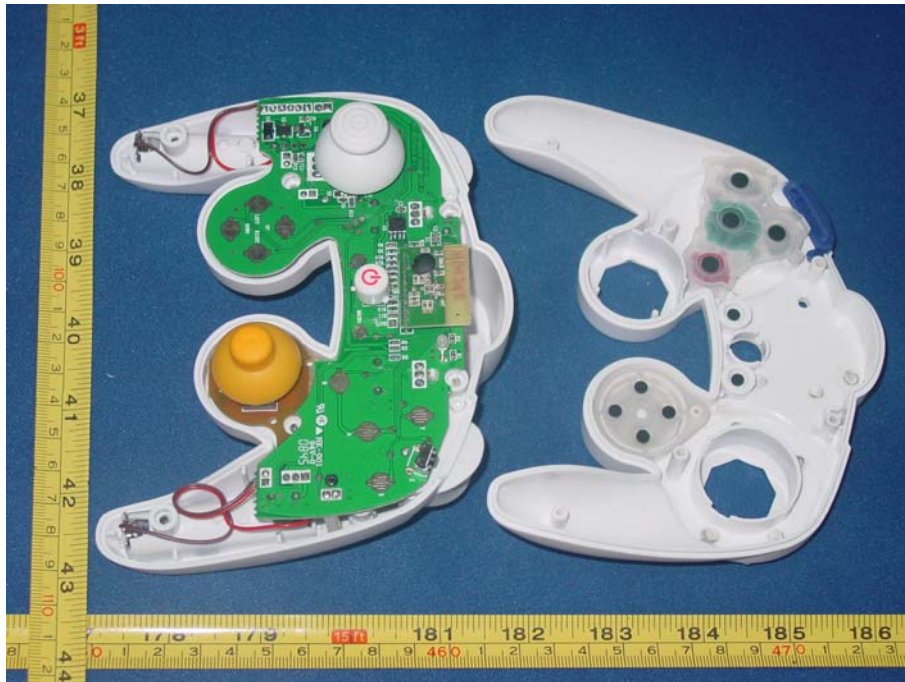


**Figure 2**  
General Appearance of the EUT

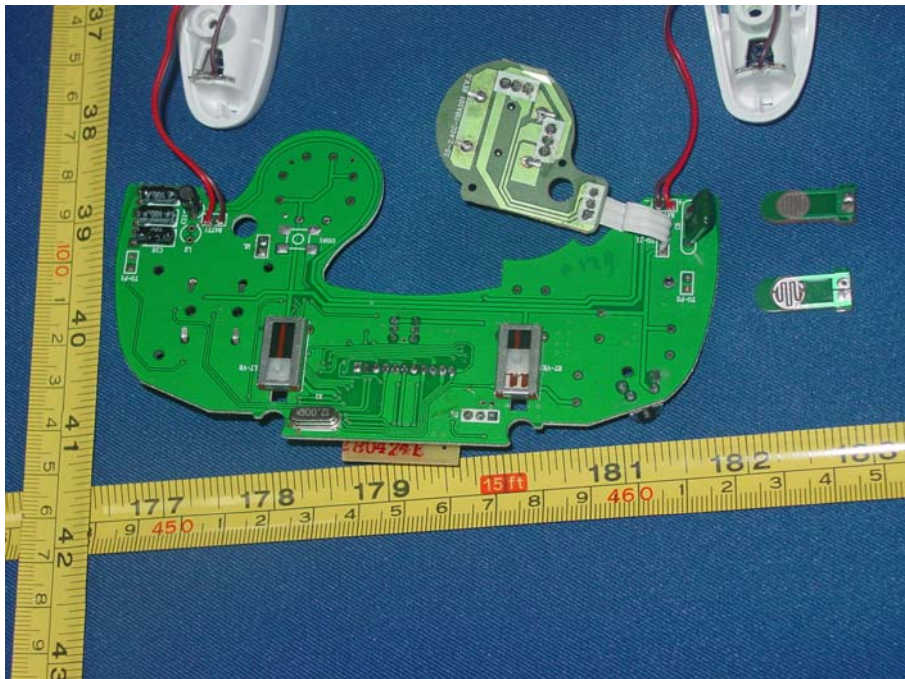




**Figure 3**  
Inside View of the EUT

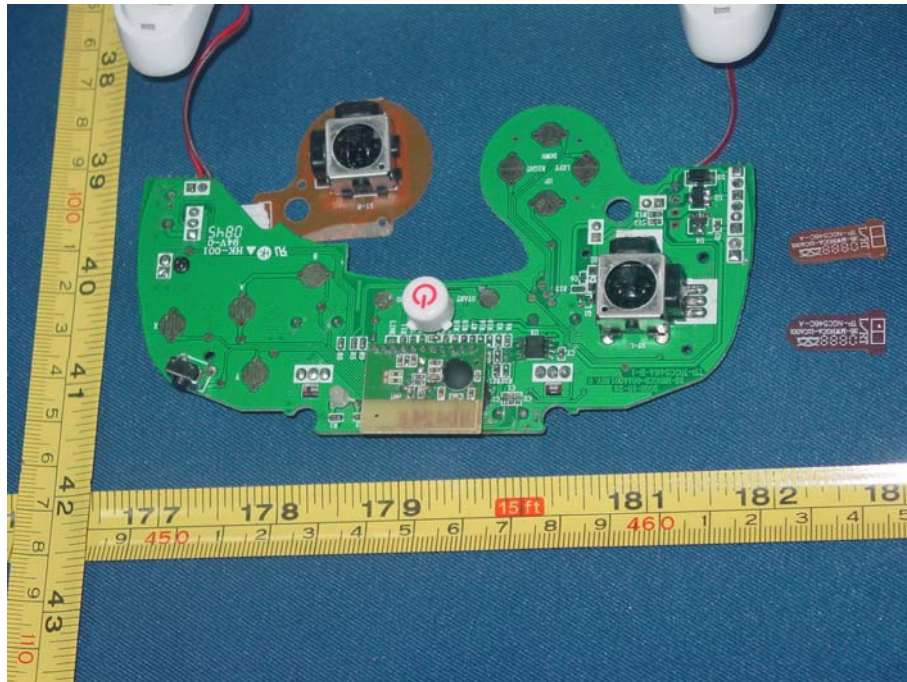


**Figure 4**  
General Appearance of the PCB

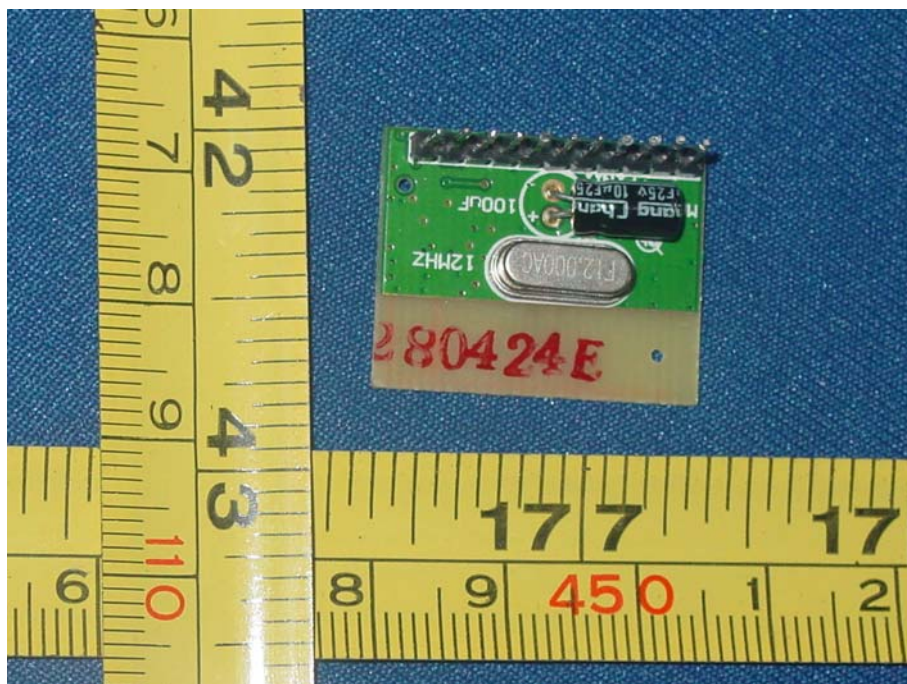




**Figure 5**  
General Appearance of the PCB



**Figure 6**  
General Appearance of the PCB



**Figure 7**  
General Appearance of the PCB

