



**CENTRE OF TESTING SERVICE  
INTERNATIONAL**

**OPERATE ACCORDING TO ISO/IEC 17025**

# **FCC ID TEST REPORT**

**TEST REPORT NUMBER : CGZ3100324-00906-O**



**CENTRE OF TESTING SERVICE CO., LTD.**

Building F, Dachuang industrial park, No.379, Zhongshan Dadao,  
Guangzhou, China.



<b>TEST REPORT For FCC ID</b>	
<b>47 CFR PART 15 OCT, 2009</b>	
<b>Report Reference No.</b> .....	CGZ3100324-00906-O
<b>Date of issue</b> .....	06 May 2010
<b>Testing Laboratory Name</b> .....	<b>CETRE OF TESTING SERVICE CO., LTD</b>
<b>Address</b> .....	Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China.
<b>Testing location/ procedure</b> .....	Full application of Harmonised standards <input checked="" type="checkbox"/> Partial application of Harmonised standards <input type="checkbox"/> Other standard testing method <input type="checkbox"/>
<b>Applicant's name</b> .....	Datel Design & Development, inc.
<b>Address</b> .....	33 N. Garden Avenue Suite 900 Clearwater, FL 33755 United States.
<b>Test specification</b> .....	
<b>Standard</b> .....	<b>47 CFR PART 15 OCT, 2009</b>
<b>Test Report Form No.</b> .....	CTSEMC-1.0
<b>TRF Originator</b> .....	CENTRE OF TESTING SERVICE CO., LTD
<b>Master TRF</b> .....	Dated 2009-01
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<b>Test item description</b> .....	XBOX 360 WIRELESS CONTROLLER
<b>Trade Mark</b> .....	XBOX360
<b>Manufacturer</b> .....	Datel Design & Development, inc.
<b>Model/Type reference</b> .....	AS000150(Black)/AS000147(White)
<b>Ratings</b> .....	2xStandard AA Batteries or 2xRechargeable AA Batteries
<b>Operating Frequency</b> .....	2402.00~2482.00MHz/ GFSK
<b>Result</b> .....	<b>Positive</b>

**Compiled by:**

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## FCC ID -- T E S T R E P O R T

**Test Report No. : CGZ3100324-00906-O**
06 May 2010  
Date of issue

Type / Model..... AS000150(Black)/AS000147(White)

EUT..... XBOX 360 WIRELESS CONTROLLER

**Applicant**..... Datel Design & Development, inc.

Address..... 33 N. Garden Avenue Suite 900 Clearwater, FL 33755 United States.

Telephone..... +(727) 431-0651

Fax..... /

Contact..... Mr Kenneth J Tarolla

**Manufacturer**..... Datel Design & Development, inc.

Address..... 33 N. Garden Avenue Suite 900 Clearwater, FL 33755 United States.

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**Test report holder**..... Datel Design & Development, inc.

Address..... 33 N. Garden Avenue Suite 900 Clearwater, FL 33755 United States.

Telephone..... +(727) 431-0651

Fax..... /

Contact..... Mr Kenneth J Tarolla

**Test Result** according to the standards on page 3: **Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



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## 1. TEST STANDARDS

The tests were performed according to following standards:

- 47 CFR PART 15 OCT, 2009
- ANSI C63.4-2009

## 2. SUMMARY

### 2.1 GENERAL REMARKS

Date of receipt of test sample	29 March 2010
Testing commenced on	30 March 2010
Testing concluded on	06 May 2010

### 2.2 FINAL ASSESSMENT

The FCC requirements pertaining to the technical standards and tested operation modes are

- - fulfilled.
- ☐ - **not** fulfilled.

The equipment under test

- - fulfils the FCC requirements cited on page 3.
- ☐ - **does not** fulfil the FCC requirements cited on page 3.

## 3. EQUIPMENT UNDER TEST

### 3.1 Power supply system utilised

Power supply voltage :           ■ 2xStandard AA Batteries or 2xRechargeable AA Batteries

### 3.2 Short description of the Equipment under Test (EUT)

Number of tested samples: 1  
Serial number:                   Prototype

### 3.3 EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

- ☐ - Standby
- - Test program (customer specific)

Operation mode 1: Low (2402MHz) , Mid (2442MHz), High (2482MHz)

Note: X position of EUT is the worst case, so only these test results be recorded in the test report.

---

### 3.4 EUT configuration

#### 3.4.1. Description of configuration (EUT)

Description	:	XBOX 360 WIRELESS CONTROLLER
Model Number	:	AS000150(Black)/AS000147(White)
Operation frequency	:	2402~2482MHz ISM Band
Radio Technology	:	HFSS
Modulation Technology	:	GFSK modulation
Antenna	:	Integral antenna, met requirement of FCC 15.203
Antenna Assembly Gain	:	2.0dBi (maximum)

#### 3.4.2. Tested Supporting System Details

Name	6.4 " Colour LCD Monitor
M/N	JV-A688
S/N	N/A
Manufacturer	JEJA
Power Cord	Unshielded, Detachable, 1.8m , 2Pin
Data Cable	Unshielded, Detachable, 1.8m
Certificate	By VoC

Name	XBOX 360 Console
M/N	XBOX 360
S/N	N/A
Manufacturer	Microsoft
Data Cable	Unshielded, Detachable, 1.5m
Certificate	By CoC

Name	AC/DC Adapter
M/N	HP-A1503P2
S/N	OC21S591607928
Manufacturer	Microsoft
Power Cord	Unshielded, Detachable, 1.8m , 3Pin
Certificate	By DoC

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## 4. TEST ENVIRONMENT

### 4.1 Address of the test laboratory

Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

### 4.2 Test facility

The test facility is recognized, certified, or accredited by the following organizations:

#### CNAS-Lab Code: L3394

CENTRE OF TESTING SERVICE CO., LTD has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

#### IC-Registration No.: 8374

The 3m Alternate Test Site of CENTRE OF TESTING SERVICE CO., LTD has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374 on June 24, 2009 .

#### FCC-Registration No.: 971995

CENTRE OF TESTING SERVICE CO., LTD, EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No.791995, July 21, 2009.

### 4.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35 ° C
Humidity:	25~75 %
Atmospheric pressure:	86~106 kPa

### 4.4 Definitions of symbols used in this test report

- - The black square indicates that the listed condition, standard or equipment is applicable for this report.
- - The empty square indicates that the listed condition, standard or equipment is **not** applicable for this report.

### 4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the CTS quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

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#### 4.6 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	$\pm 1.22\text{dB}$	(1)
Power disturbance	30MHz~300MHz	$\pm 1.38\text{dB}$	(1)
Radiation emission (3m)	30MHz~300MHz	$\pm 3.14\text{dB}$	(1)
	300MHz~1000MHz	$\pm 3.18\text{dB}$	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

## 5. Summary of standards and results

### 5.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Conducted Emission Test	FCC Part 15 C: 15.207 ANSI C63.4-2009	PASSED
Radiated Emission Test	FCC Part 15 C: 15.209 ANSI C63.4-2009	PASSED
Carrier Frequency Separation Test	FCC Part 15 C: 15.247 ANSI C63.4-2009	PASSED
20 dB Bandwidth Test	FCC Part 15 C: 15.247 ANSI C63.4-2009	PASSED
Number Of Hopping Frequency Test	FCC Part 15 C: 15.247 ANSI C63.4-2009	PASSED
Dwell Time Test	FCC Part 15 C: 15.247 ANSI C63.4-2009	PASSED
Maximum Peak Output Power Test	FCC Part 15 C: 15.247 ANSI C63.4-2009	PASSED
Band Edge Compliance Test	FCC Part 15 C: 15.247 ANSI C63.4-2009	PASSED
MPE ESTIMATION	FCC Part 2: 2.1093	PASSED
N/A is an abbreviation for Not Applicable.		

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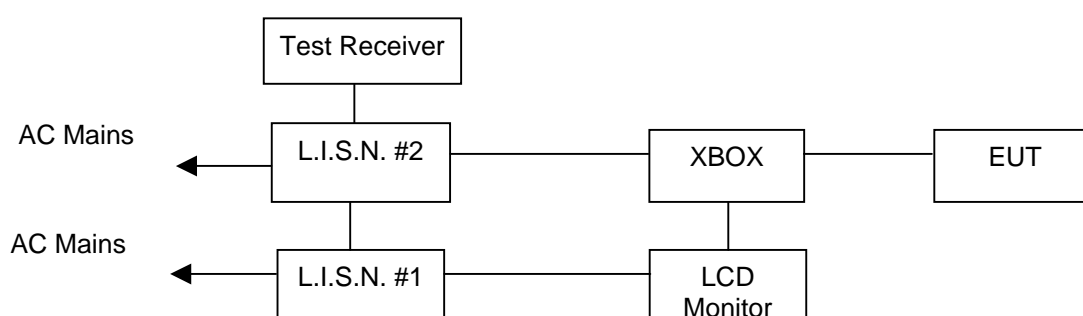
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## 6. Power Line Conducted Emission Test

### 6.1. Test Equipment

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESHS10	842884/012	2009/12
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2009/12
3	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/026	2009/12
4	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100301	2009/12
5	EMI Test Software	ROHDE & SCHWARZ	ESK1	N/A	2009/12

### 6.2. Block Diagram of Test Setup



(EUT: XBOX 360 WIRELESS CONTROLLER)

### 6.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. \* Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

### 6.4. Test Procedure

The EUT Via XBOX Power connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). This provides a 50 ohm coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs. The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#1). Power on the PC and let it work normally, we use a keyboard test soft ware, let EUT working in test mode, then test it. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC Part 15C on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS 10) is set at 10kHz.

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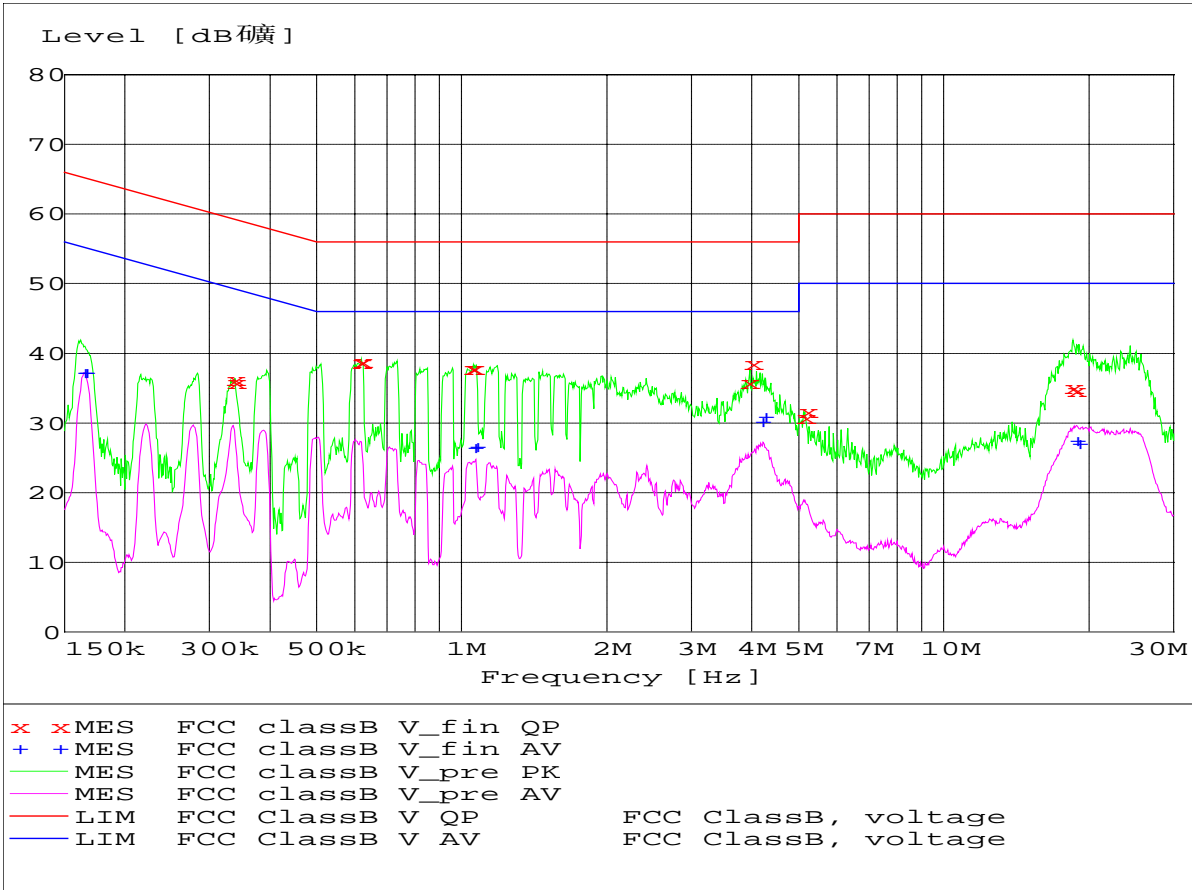


6.5. Power Line Conducted Emission Test Results

PASSED.

Channel:	TX Mode	Result:	■ - passed
Test point:	Va		□ - not passed
Frequency range:	0.15~30MHz		

EUT	XBOX 360 WIRELESS CONTROLLER
Firm Name	Datel Design & Development, inc.
Operating Condition	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	30 March~30 April 2010
Operator	Jackson
MODEL NO	AS000150(Black)/AS000147(White)



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**MEASUREMENT RESULT: "FCC classB V\_fin QP"**

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.337314	36.20	10.1	59	23.0	Va	GND
0.338663	35.80	10.1	59	23.4	Va	GND
0.616346	38.70	10.1	56	17.3	Va	GND
0.618811	38.90	10.1	56	17.1	Va	GND
1.048110	37.80	10.1	56	18.2	Va	GND
1.056512	37.90	10.1	56	18.1	Va	GND
3.928870	35.80	10.1	56	20.2	Va	GND
3.992110	38.50	10.1	56	17.5	Va	GND
5.154187	30.80	10.1	60	29.2	Va	GND
5.195503	31.70	10.1	60	28.3	Va	GND
18.490507	35.10	9.9	60	24.9	Va	GND
18.713280	34.70	9.9	60	25.3	Va	GND

**MEASUREMENT RESULT: "FCC classB V\_fin AV"**

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.164415	37.30	10.2	55	17.9	Vb	GND
0.165733	37.30	10.2	55	17.9	Vb	GND
1.060740	26.40	10.1	46	19.6	Vb	GND
1.069243	26.60	10.1	46	19.4	Vb	GND
4.188010	30.20	10.1	46	15.9	Vb	GND
4.238467	31.00	10.1	46	15.0	Vb	GND
18.788133	27.40	9.9	50	22.6	Vb	GND
19.014490	27.10	9.9	50	22.9	Vb	GND

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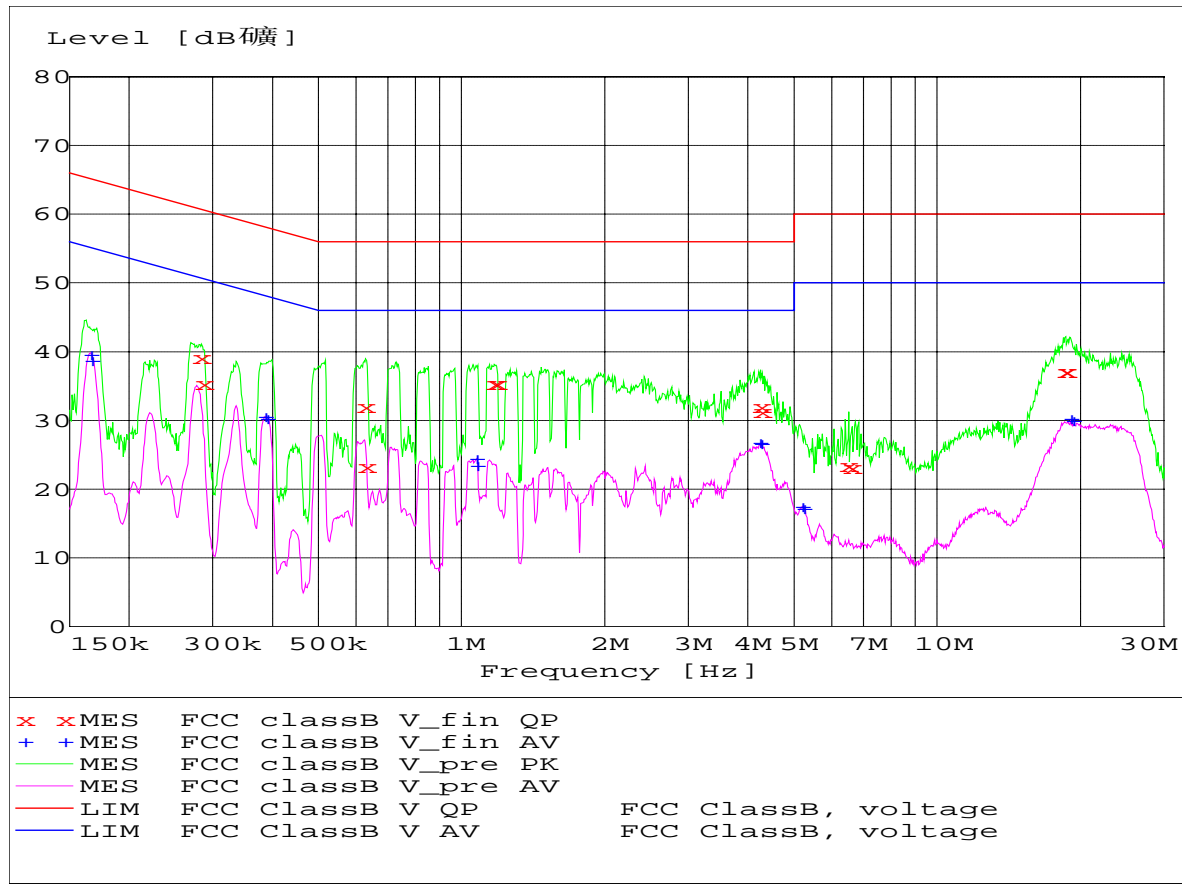
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Channel:	TX Mode	Result:	■ - passed
Test point:	Vb		□ - not passed
Frequency range:	0.15~30MHz		

EUT	XBOX 360 WIRELESS CONTROLLER
Firm Name	Datel Design & Development, inc.
Operating Condition	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	30 March~30 April 2010
Operator	Jackson
MODEL NO	AS000150(Black)/AS000147(White)



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**MEASUREMENT RESULT: "FCC classB V\_fin QP"**

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.281840	39.10	10.2	61	21.6	Vb	GND
0.285236	35.30	10.2	61	25.4	Vb	GND
0.623770	32.00	10.1	56	24.0	Vb	GND
0.628770	23.30	10.1	56	32.7	Vb	GND
1.167391	35.30	10.1	56	20.7	Vb	GND
1.181456	35.30	10.1	56	20.7	Vb	GND
4.238466	31.90	10.1	56	24.1	Vb	GND
4.255420	31.30	10.1	56	24.7	Vb	GND
6.471160	23.50	10.0	60	36.5	Vb	GND
6.575320	23.10	10.0	60	36.9	Vb	GND
18.564472	37.00	9.9	60	23.0	Vb	GND
18.638730	37.10	9.9	60	22.9	Vb	GND

**MEASUREMENT RESULT: "FCC classB V\_fin AV"**

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.165078	39.60	10.2	55	15.6	Vb	GND
0.166401	38.70	10.2	55	16.4	Vb	GND
0.384810	30.50	10.1	48	17.6	Vb	GND
0.387895	30.30	10.1	48	17.8	Vb	GND
1.069240	24.40	10.1	46	21.6	Vb	GND
1.073517	23.50	10.1	46	22.5	Vb	GND
4.221579	26.80	10.1	46	19.2	Vb	GND
4.238465	26.60	10.1	46	19.4	Vb	GND
5.174810	17.50	10.1	50	32.5	Vb	GND
5.216291	17.20	10.1	50	32.8	Vb	GND
19.014495	30.20	9.9	50	19.8	Vb	GND
19.243580	30.00	9.9	50	20.0	Vb	GND

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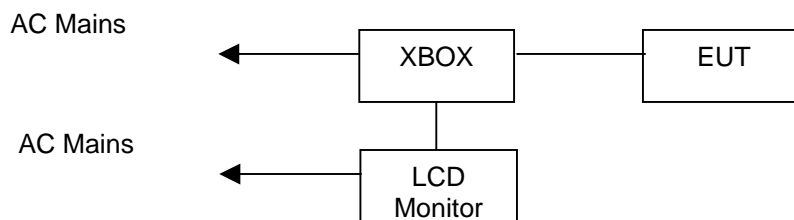
## 7. Radiated disturbance (electric field)

### 7.1. Test Equipment

Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2009/12
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2009/12
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2009/12
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2009/12
5	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2009/12

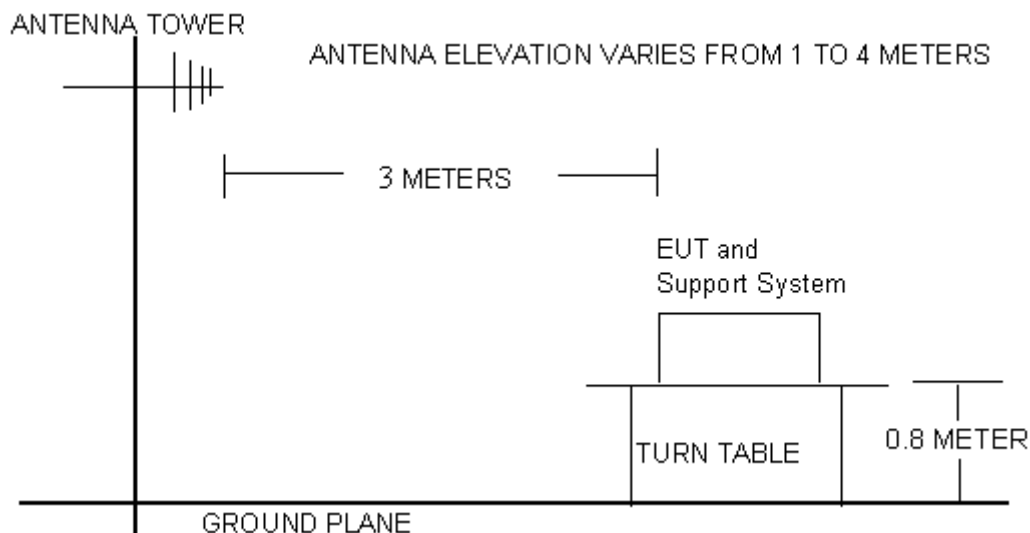
### 7.2. Block Diagram of Test Setup

#### 7.2.1 Block Diagram of connection between EUT and simulators



**(EUT: XBOX 360 WIRELESS CONTROLLER)**

### 7.2.2 Anechoic Chamber Setup Diagram



### 7.3. Radiated Emission Limit Standard: FCC 15.247

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other: 74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

- Remark:
- (1) Emission level  $\text{dB}\mu\text{V} = 20 \log$  Emission level  $\mu\text{V}/\text{m}$
  - (2) The smaller limit shall apply at the cross point between two frequency bands.
  - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

### 7.4. Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2009 on radiated emission Test.

The frequency range from 30MHz to 1000MHz and above 1GHz. is investigated. Please see the following pages.

All measurements for radiated emissions within the restricted bands were performed using a Quasi-Peak detector with 120kHz RBW below 1GHz and a Peak and Average detector with 1MHz RBW above 1GHz,





All measurements for radiated emissions within the restricted bands were performed using a Quasi-Peak detector with 300kHz VBW below 1GHz and a Peak detector with 1MHz VBW above 1GHz, A average detector with 10Hz VBW above 1GHz

Pretest x, y, z position of EUT, final, select the worst case x position test and record the test results in the report.

The test modes (TX Mode) is tested in Anechoic Chamber and all the scanning waveforms are reported on section 7.5

## **7.5.Radiated Emission Test Results**

**PASSED.**

The frequency range from 30MHz to 230MHz, 230MHz to 1000MHz and above 1GHz. is investigated. Please see the following pages.

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Channel:	TX Mode	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	30-230MHz and 230-1000MHz		

EUT	XBOX 360 WIRELESS CONTROLLER
Firm Name	Datel Design & Development, inc.
Operating Condition	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	30 March~30 April 2010
Operator	Jackson
MODEL NO	AS000150(Black)/AS000147(White)

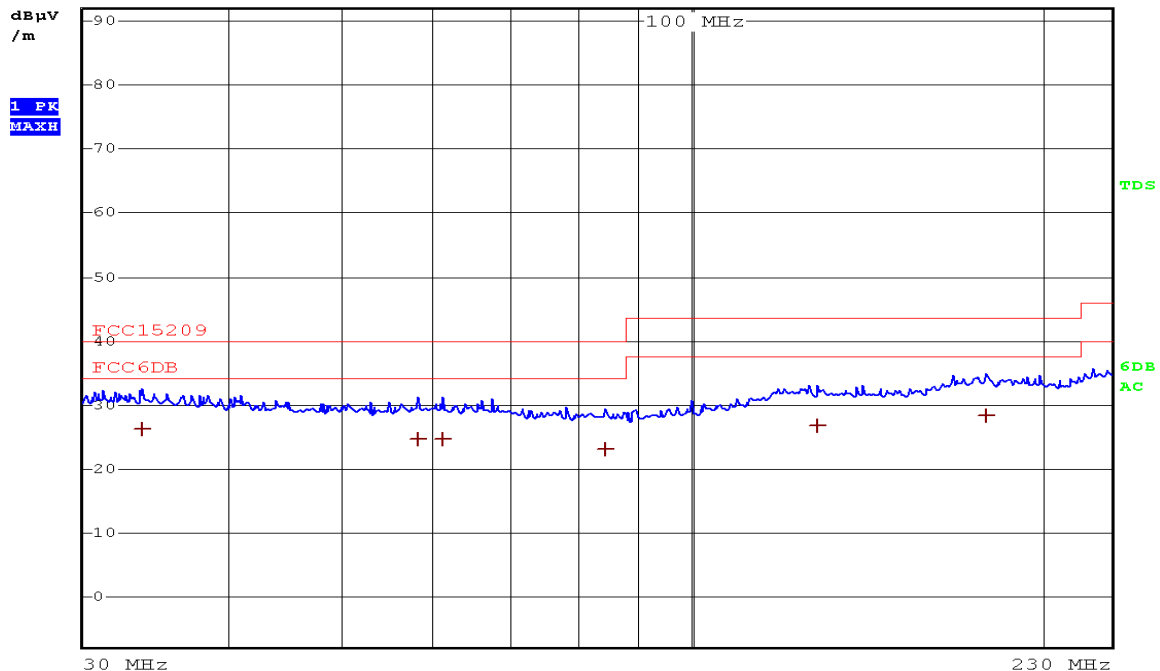


RBW 120 kHz

MT 1 s

PREAMP OFF

Att 10 dB



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15209			
Trace2:	---			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV/m	DELTA LIMIT dB	
1 Quasi Peak	33.68 MHz	26.29	-13.70	
1 Quasi Peak	58.28 MHz	24.56	-15.43	
1 Quasi Peak	61.24 MHz	24.57	-15.42	
1 Quasi Peak	84.32 MHz	23.13	-16.86	
1 Quasi Peak	128.16 MHz	26.69	-16.80	
1 Quasi Peak	179.64 MHz	28.31	-15.18	

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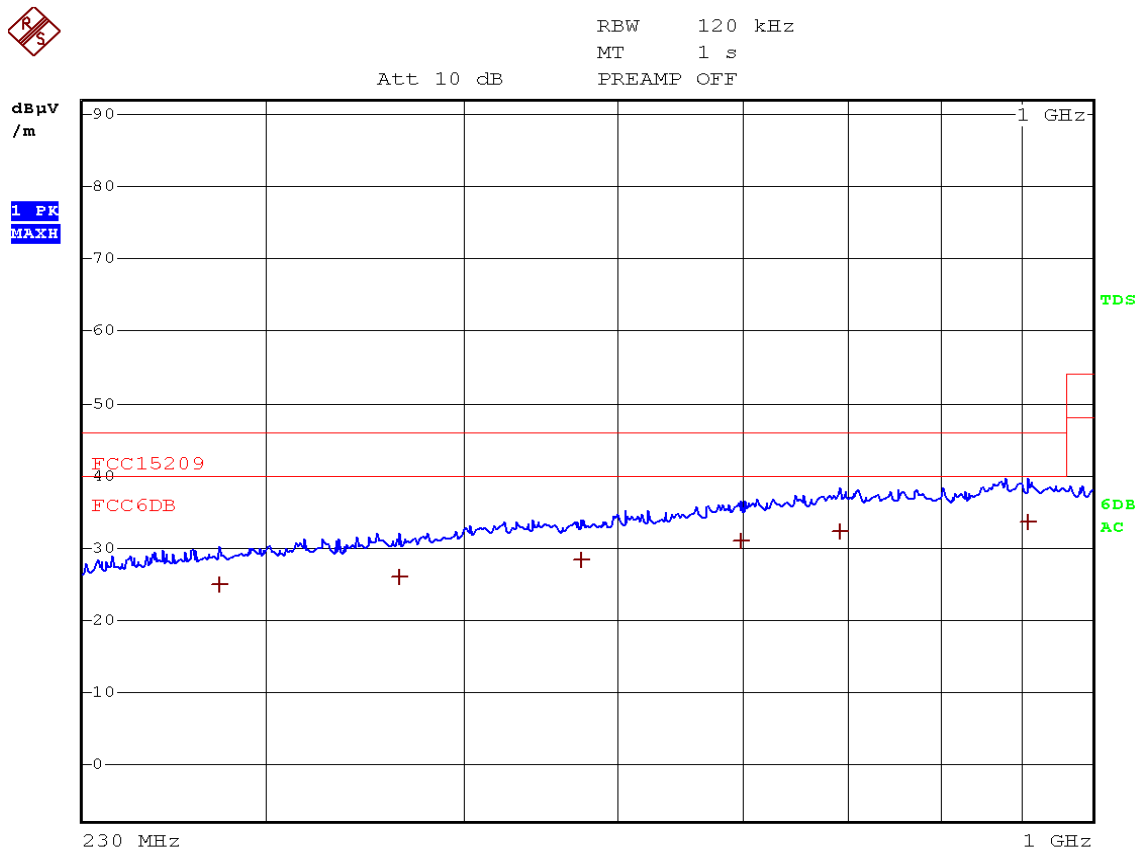
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EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15209			
Trace2:	---			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV/m	DELTA	LIMIT dB
1 Quasi Peak	280.96 MHz	24.91	-21.09	
1 Quasi Peak	364.4 MHz	26.09	-19.90	
1 Quasi Peak	475.08 MHz	28.43	-17.56	
1 Quasi Peak	598.96 MHz	31.04	-14.96	
1 Quasi Peak	693.24 MHz	32.25	-13.74	
1 Quasi Peak	910.68 MHz	33.50	-12.49	

Note: 1. Emission level=Read level + Factor  
2. Factor=Antenna factor + Cable loss



Channel:	Low 2402MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

EUT	XBOX 360 WIRELESS CONTROLLER
Firm Name	Datel Design & Development, inc.
Operating Condition	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	30 March~30 April 2010
Operator	<b>Jackson</b>
MODEL NO	AS000150(Black)/AS000147(White)

Frequency [MHz]	Result [dBμV]		Limit [dBμV]		Dlimit [dBμV]	
	Average	Peak	Average	Peak	Average	Peak
1829.7	45.0	53.5	54	74	9.0	20.5
2744.5	45.1	50.7	54	74	8.9	23.3
4804.2	44.6	49.7	54	74	9.4	24.3
7206.7	47.1	56.8	54	74	6.9	17.2
8984.5	41.0	50.0	54	74	13.0	24.0
9181.0	41.4	52.0	54	74	12.6	22.0

Note: 1. Emission level=Read level + Factor  
2. Factor=Antenna factor + Cable loss

Channel:	Mid 2442MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

Frequency [MHz]	Result [dBμV]		Limit [dBμV]		Dlimit [dBμV]	
	Average	Peak	Average	Peak	Average	Peak
1829.5	46.0	54.5	54	74	8.0	19.5
2744.5	45.0	51.7	54	74	9.0	22.3
4884.2	45.0	48.7	54	74	9.0	25.3
7326.7	43.1	56.8	54	74	10.9	17.2
8984.3	41.0	51.0	54	74	13.0	23.0
9181.2	40.4	54.0	54	74	13.6	20.0

Note: 1. Emission level=Read level + Factor  
2. Factor=Antenna factor + Cable loss

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Channel:	High 2482MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-26.5GHz		

Frequency [MHz]	Result [dBμV]		Limit [dBμV]		Dlimit [dBμV]	
	Average	Peak	Average	Peak	Average	Peak
1829.4	46.0	54.5	54	74	8.0	19.5
2744.1	45.0	51.7	54	74	9.0	22.3
4964.2	45.0	48.7	54	74	9.0	25.3
7446.7	43.1	56.8	54	74	10.9	17.2
8984.1	41.0	54.0	54	74	13.0	20.0
9181.7	41.4	53.0	54	74	12.6	21.0

Note: 1. Emission level=Read level + Factor  
2. Factor=Antenna factor + Cable loss

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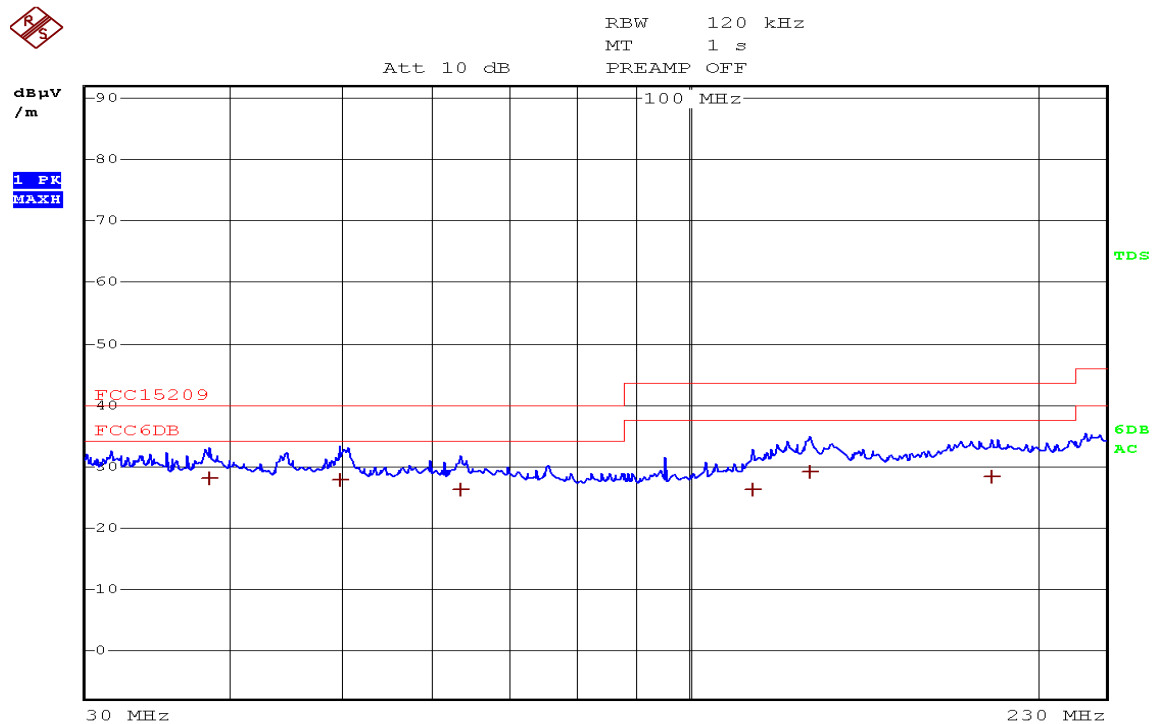
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Channel:	TX Mode	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	30-230MHz and 230-1000MHz		

EUT	XBOX 360 WIRELESS CONTROLLER
Firm Name	Datel Design & Development, inc.
Operating Condition	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	30 March~30 April 2010
Operator	Jackson
MODEL NO	AS000150(Black)/AS000147(White)



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15209			
Trace2:	---			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV/m	DELTA	LIMIT dB
1 Quasi Peak	38.36 MHz	28.17	-11.82	
1 Quasi Peak	49.96 MHz	27.71	-12.28	
1 Quasi Peak	63.48 MHz	26.32	-13.67	
1 Quasi Peak	113.68 MHz	26.31	-17.18	
1 Quasi Peak	127.48 MHz	29.18	-14.31	
1 Quasi Peak	182.88 MHz	28.38	-15.11	

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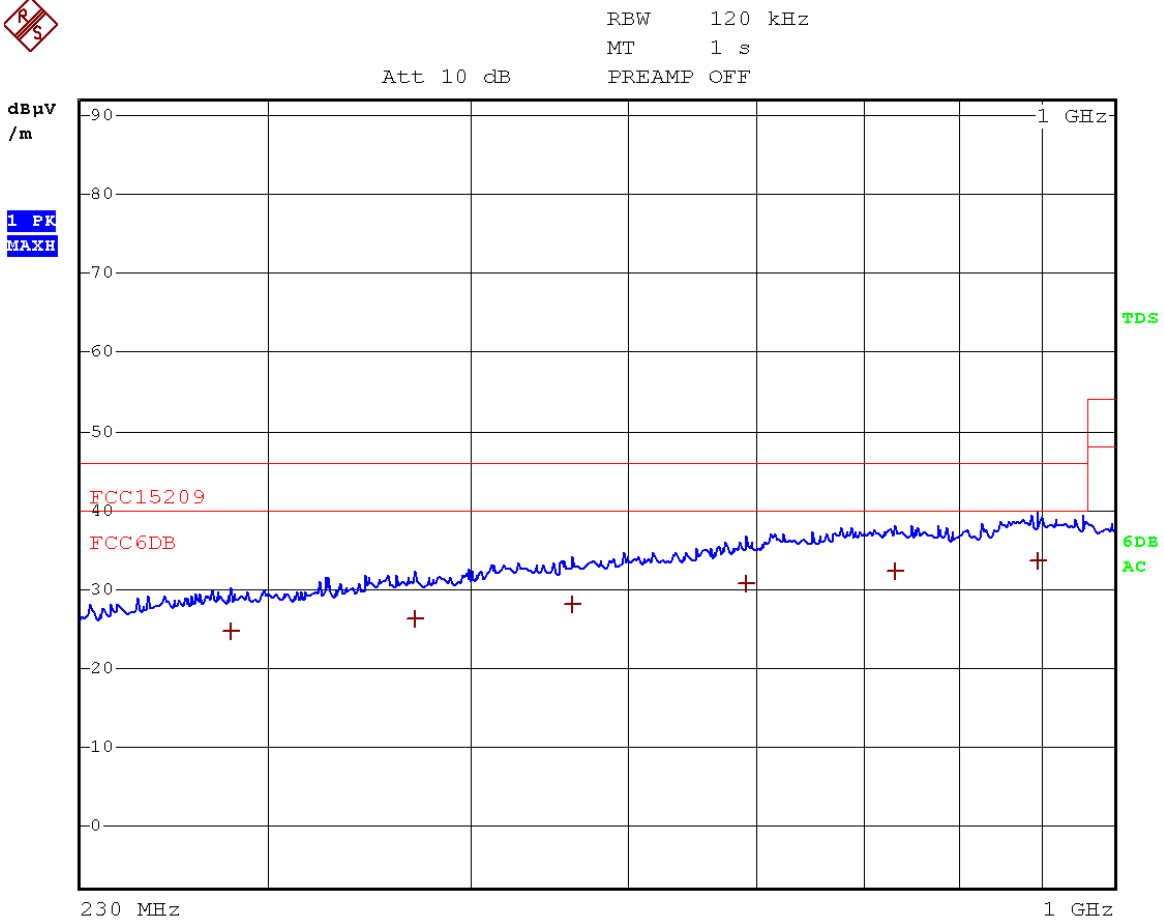
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EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15209			
Trace2:	---			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV/m	DELTA	LIMIT dB
1 Quasi Peak	285.2 MHz	24.63	-21.36	
1 Quasi Peak	369.72 MHz	26.17	-19.82	
1 Quasi Peak	463.16 MHz	28.14	-17.85	
1 Quasi Peak	592.2 MHz	30.67	-15.32	
1 Quasi Peak	731.8 MHz	32.30	-13.69	
1 Quasi Peak	895.8 MHz	33.62	-12.37	

Note: 1. Emission level=Read level + Factor  
2. Factor=Antenna factor + Cable loss



Channel:	Low 2402MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1G-26.5GHz		

EUT	XBOX 360 WIRELESS CONTROLLER
Firm Name	Datel Design & Development, inc.
Operating Condition	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	30 March~30 April 2010
Operator	<b>Jackson</b>
MODEL NO	AS000150(Black)/AS000147(White)

Frequency [MHz]	Result [dBμV]		Limit [dBμV]		Dlimit[dBμV]	
	Average	Peak	Average	Peak	Average	Peak
1829.7	45.0	53.1	54	74	9.0	20.9
2744.5	46.9	55.7	54	74	7.1	18.3
4804.2	44.7	52.2	54	74	9.3	21.8
7206.7	47.0	56.2	54	74	7.0	17.8
8984.5	41.0	50.4	54	74	13.0	23.6
9181.0	41.3	52.0	54	74	12.7	22.0

Note: 1. Emission level=Read level + Factor  
2. Factor=Antenna factor + Cable loss

Channel:	Mid 2442MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1G-26.5GHz		

Frequency [MHz]	Result [dBμV]		Limit [dBμV]		Dlimit [dBμV]	
	Average	Peak	Average	Peak	Average	Peak
1829.5	45.0	54.5	54	74	9.0	19.5
2744.5	43.0	51.7	54	74	11.0	22.3
4884.2	45.0	48.7	54	74	9.0	25.3
7326.7	46.0	56.8	54	74	8.0	17.2
8984.3	41.0	51.0	54	74	13.0	23.0
9181.2	40.4	51.0	54	74	13.6	23.0

Note: 1. Emission level=Read level + Factor  
2. Factor=Antenna factor + Cable loss

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Channel:	High 2482MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1G-26.5GHz		

Frequency [MHz]	Result [dBμV]		Limit [dBμV]		Dlimit [dBμV]	
	Average	Peak	Average	Peak	Average	Peak
1829.4	46.0	54.5	54	74	8.0	19.5
2744.1	45.0	51.7	54	74	9.0	22.3
4964.2	45.0	48.7	54	74	9.0	25.3
7446.7	43.1	56.8	54	74	10.9	17.2
8984.1	41.0	54.0	54	74	13.0	20.0
9181.7	41.4	53.0	54	74	12.6	21.0

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## 8. Carrier frequency separation test

### 8.1. Test Equipment

Carrier frequency separation test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	200912
2	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	200912
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	200912

### 8.2. Test Information

EUT:	XBOX 360 WIRELESS CONTROLLER
M/N:	AS000150(Black)/AS000147(White)
Firm Name:	Datel Design & Development, inc.
Power supply:	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.247
Test mode:	Transmitting, Hopping on
Test Frequency:	Low: 2402MHz Mid: 2442MHz High: 2482MHz ,
Test Date:	30 March~30 April 2010
Test By:	Jackson

### 8.3. Test Results

**PASSED.**

The testing data was attached in the next pages.

CH	Channel separation (kHz)	Limit	Conclusion
(Low)	2016	>the 20dB Bandwidth or 25kHz (whichever is greater)	PASSED
(Mid)	2000	>the 20dB Bandwidth or 25kHz (whichever is greater)	PASSED
(High)	2000	>the 20dB Bandwidth or 25kHz (whichever is greater)	PASSED

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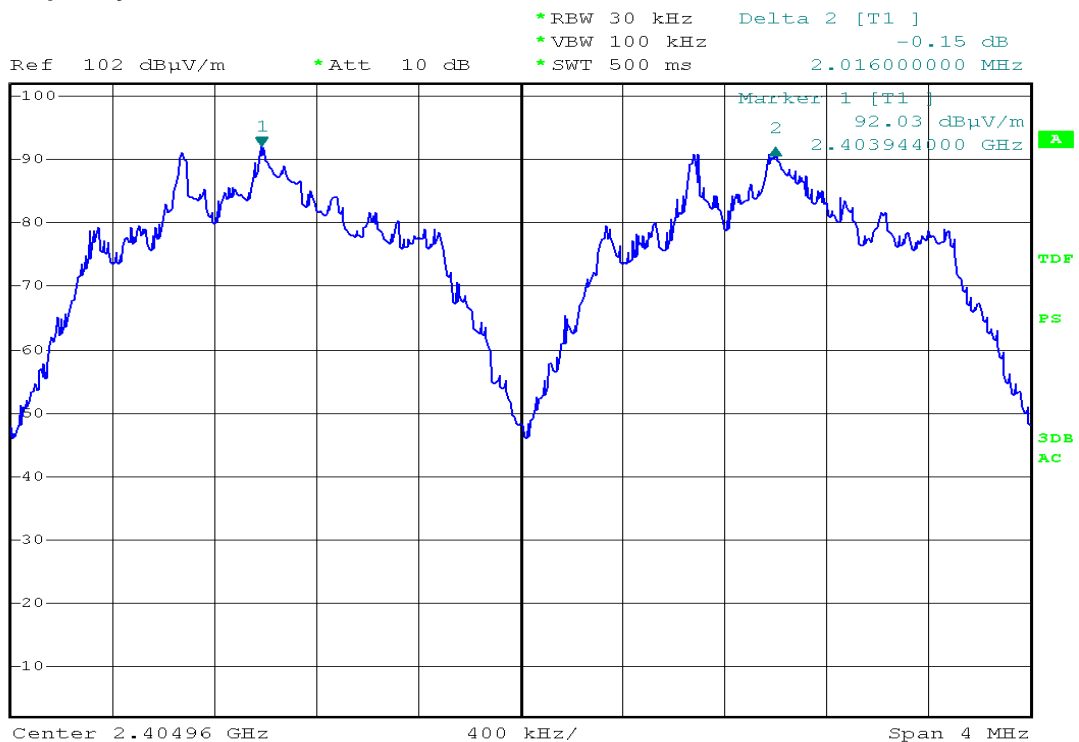
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## Test frequency: 2402MHz



## Test frequency: 2442MHz



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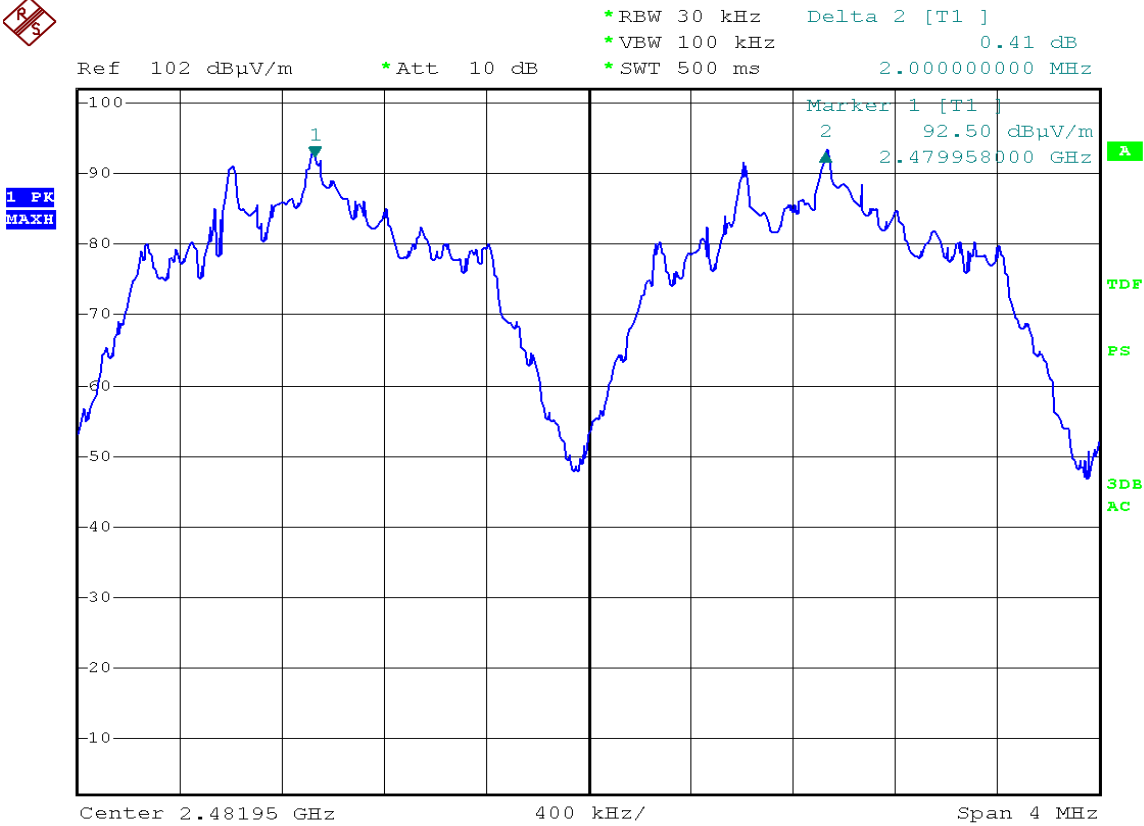
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Test frequency:2482MHz



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## 9.20 dB Bandwidth test

### 9.1. Test Equipment

20 dB Bandwidth test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	200912
2	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	200912
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	200912

### 9.2. Test Information

EUT:	XBOX 360 WIRELESS CONTROLLER
M/N:	AS000150(Black)/AS000147(White)
Firm Name:	Datel Design & Development, inc.
Power supply:	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.247
Test mode:	Transmitting, Hopping on
Test Frequency:	Low: 2402MHz Mid: 2442MHz High: 2482MHz ,
Test Date:	30 March~30 April 2010
Test By:	Jackson

### 9.3. Test Results

**PASSED.**

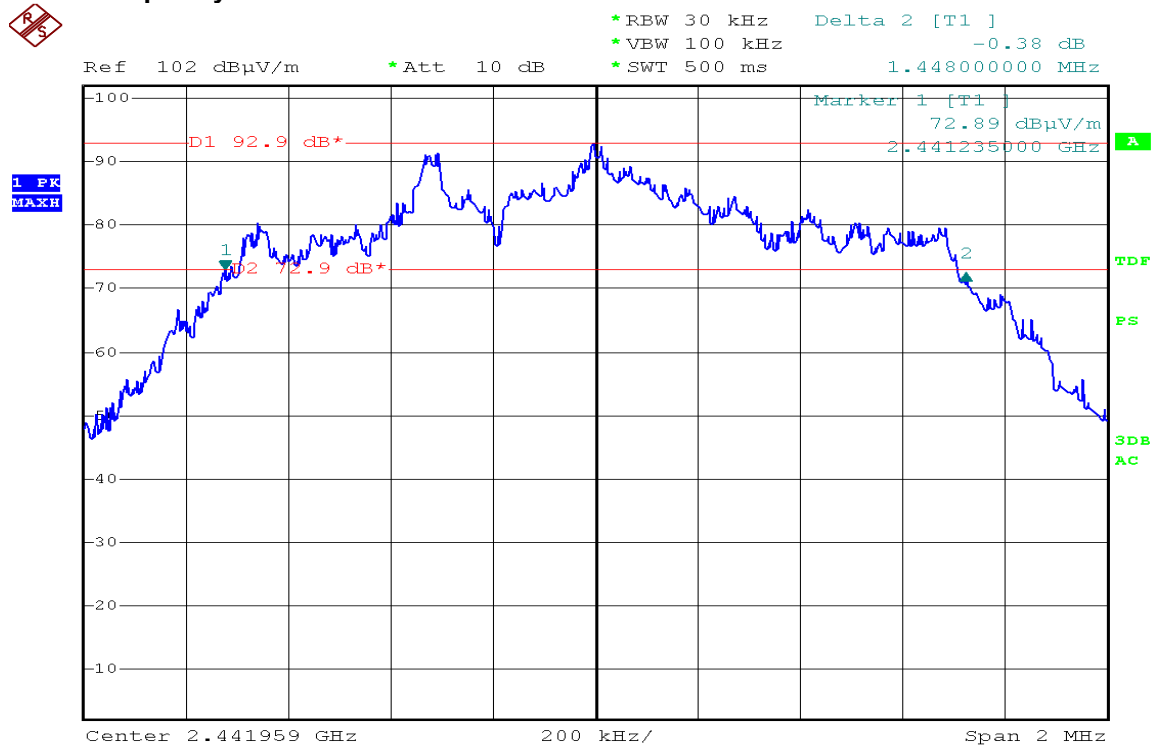
The testing data was attached in the next pages.

Channel	20dB Bandwidth (kHz)	Limit (kHz)	Conclusion
(Low)	1444	---	PASSED
(Mid)	1448	---	PASSED
(High)	1440	---	PASSED

**Test Frequency:2402MHz**



**Test Frequency:2442MHz**



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Test Frequency:2482MHz



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## 10. Number of Hopping Frequency test

### 10.1. Test Equipment

Number of Hopping Frequency test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	200912
2	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	200912
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	200912

### 10.2. Test Information

EUT:	XBOX 360 WIRELESS CONTROLLER
M/N:	AS000150(Black)/AS000147(White)
Firm Name:	Datel Design & Development, inc.
Power supply:	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.247
Test mode:	Transmitting, Hopping on
Test Frequency:	Low: 2402MHz Mid: 2442MHz High: 2482MHz ,
Test Date:	30 March~30 April 2010
Test By:	Jackson

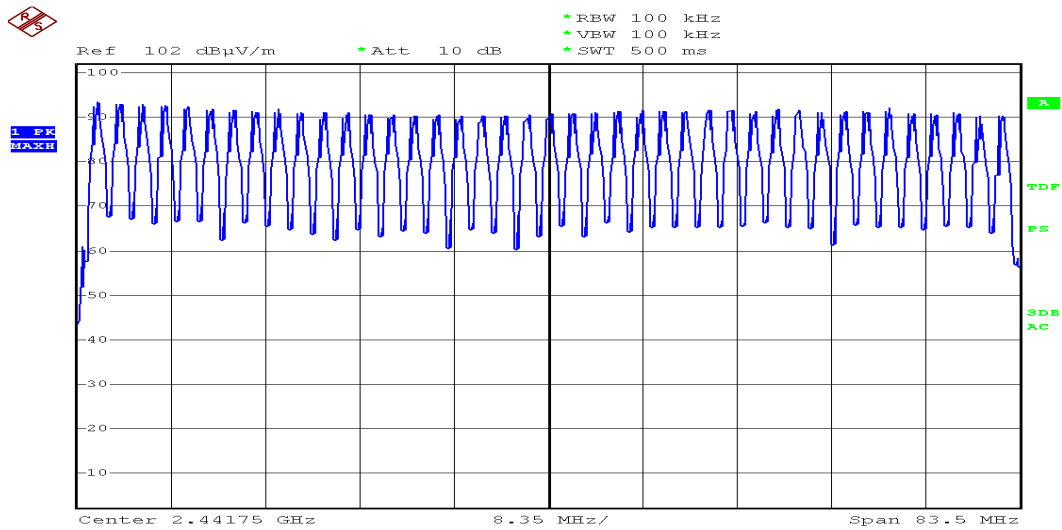
### 10.3. Test Results

**PASSED.**

The testing data was attached in the next pages.

Number of channel	Limit	Conclusion
41	$\geq 15$	PASSED





Date: 26.APR.2010 15:05:38

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## 11. Dwell time test

### 11.1. Test Equipment

Dwell time test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	200912
2	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	200912
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	200912

### 11.2. Test Information

EUT:	XBOX 360 WIRELESS CONTROLLER
M/N:	AS000150(Black)/AS000147(White)
Firm Name:	Datel Design & Development, inc.
Power supply:	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.247
Test mode:	Transmitting, Hopping off
Test Frequency:	Normal
Test Date:	30 March~April 2010
Test By:	Jackson

### 11.3. Test Results

#### PASSED.

The testing data was attached in the next pages.

This system hopping 25 hops in any 10s, and for each hop it transmit 2 pulses, each pulse dwell 380μs, so the dwell time is:

$$25/10 \times 41 \times 0.4 \times 2 \times 380 \times 10^{-6} = 311.6\text{ms}$$

dwell time	Limit	Conclusion
311.6ms	<400ms	PASSED



## 12. Maximum Peak Output power test

### 12.1. Test Equipment

Maximum Peak Output power test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	200912
2	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	200912
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	200912

### 12.2. Test Information

EUT:	XBOX 360 WIRELESS CONTROLLER
M/N:	AS000150(Black)/AS000147(White)
Firm Name:	Datel Design & Development, inc.
Power supply:	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.247
Test mode:	Transmitting, Hopping off
Test Frequency:	Low: 2402MHz Mid: 2442MHz High: 2482MHz ,
Test Date:	30 March~30 April 2010
Test By:	Jackson

### 12.3. Test Results

**PASSED.**

The testing data was attached in the next pages.



CH	Freq (MHz)	Ant. pol	Emission Level (dBμV)	Result (dBm)	Margin	Limits	
						(mW)	(dBm)
Low	2402.0	H	95.87	0.64	20.33	125	20.97
	2402.0	V	88.89	-6.34	27.31	125	20.97
Mid	2442.0	H	96.34	1.11	19.86	125	20.97
	2442.0	V	85.14	-10.09	31.06	125	20.97
High	2482.0	H	95.39	0.16	20.81	125	20.97
	2482.0	V	88.69	-6.54	27.51	125	20.97

Calculation Result =  $30 + 10\log(TP)$

$TP = (Emission\ Level * D)^2 / 30 * G$

(This formula descript in IC RSS-210 clause 11, where D is the distance in meters between the tow antennas, TP is transmitter output power in watts and G is the antenna numerical gain referenced to isotropic gain, in here  $G = 1$  supplied by customer)

Emission Level = Antenna Factor + Cable Loss + Reading.

(RBW=1MHz, VBW=1MHz peak detector.)

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## 13. Band Edge Compliance test

### 13.1. Test Equipment

Band Edge Compliance test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	200912
2	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	200912
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	200912

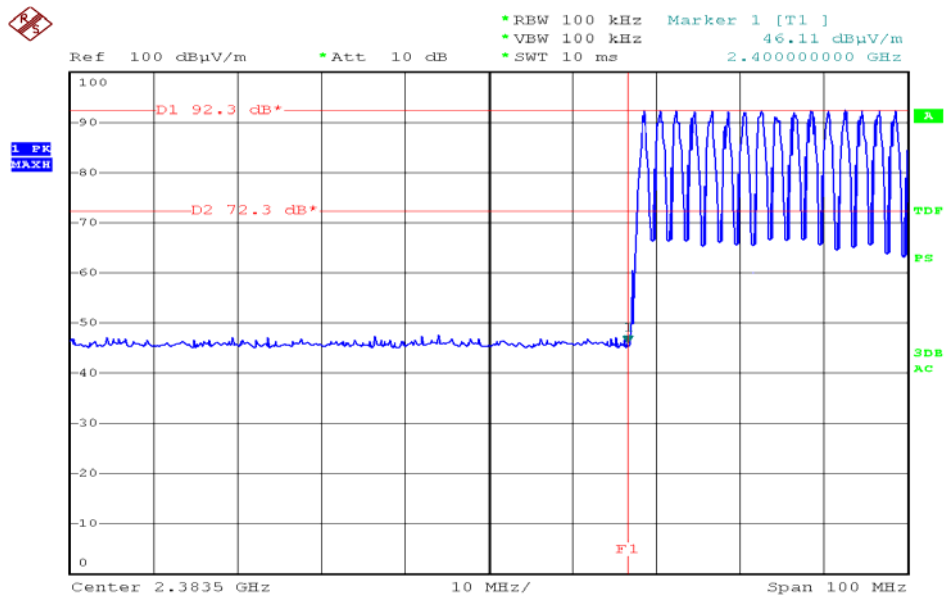
### 13.2. Test Information

EUT:	XBOX 360 WIRELESS CONTROLLER
M/N:	AS000150(Black)/AS000147(White)
Firm Name:	Datel Design & Development, inc.
Power supply:	2xStandard AA Batteries or 2xRechargeable AA Batteries
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.247
Test mode:	Transmitting, Hopping on and Hopping off
Test Frequency:	Low: 2402MHz, High: 2482MHz ,
Test Date:	30 March~06 May 2010
Test By:	Jackson

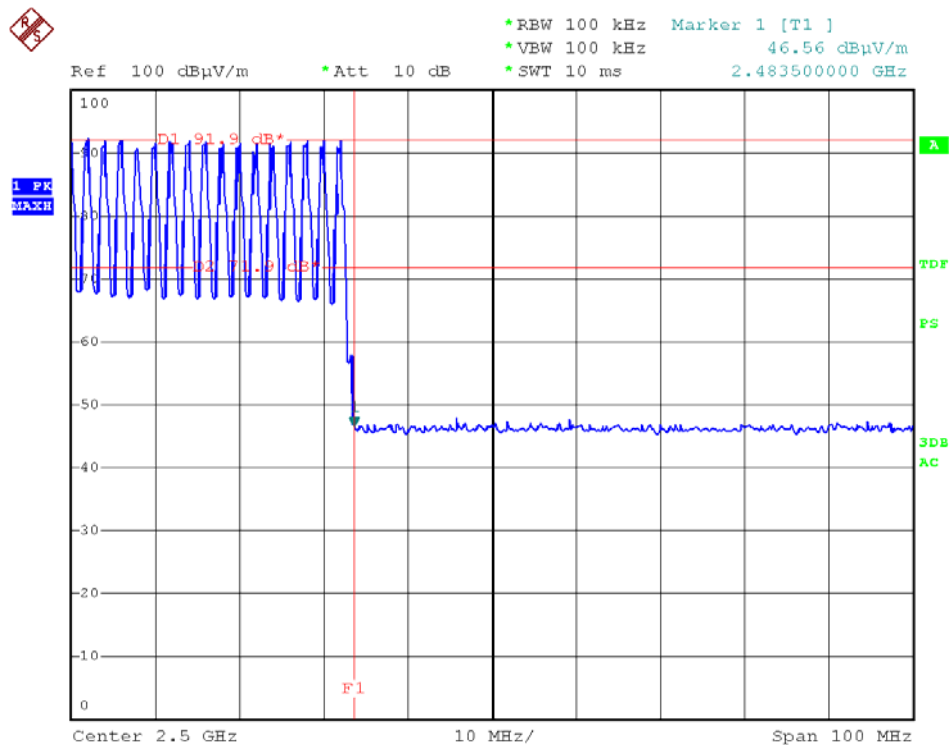
### 13.3. Test Results

**PASSED.**

The testing data was attached in the next pages.

**Test Frequency: Low (Hopping on)**

Date: 6.MAY.2010 11:10:12

**Test Frequency: High(Hopping on)**

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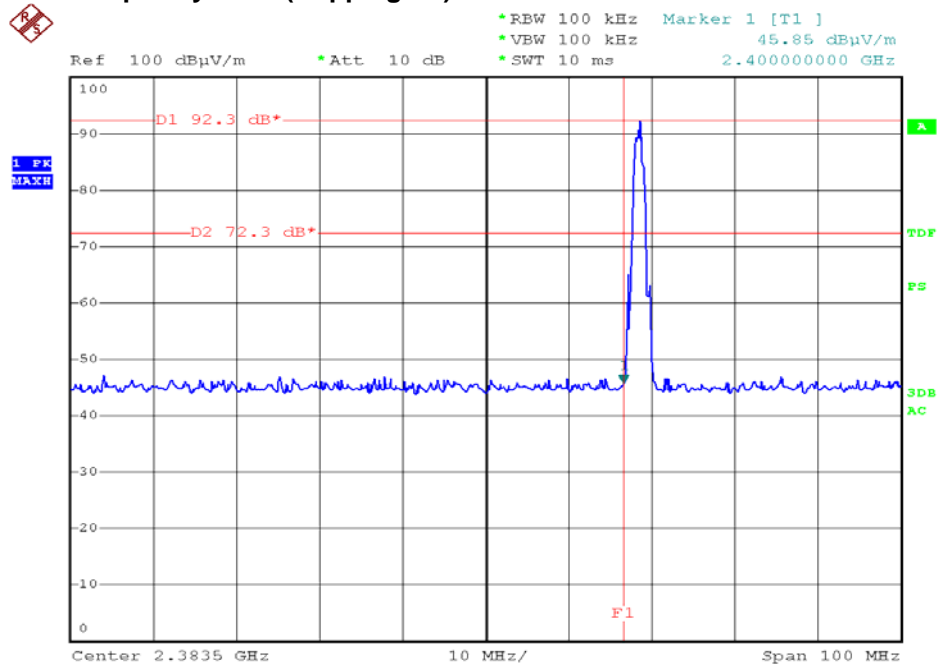
Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

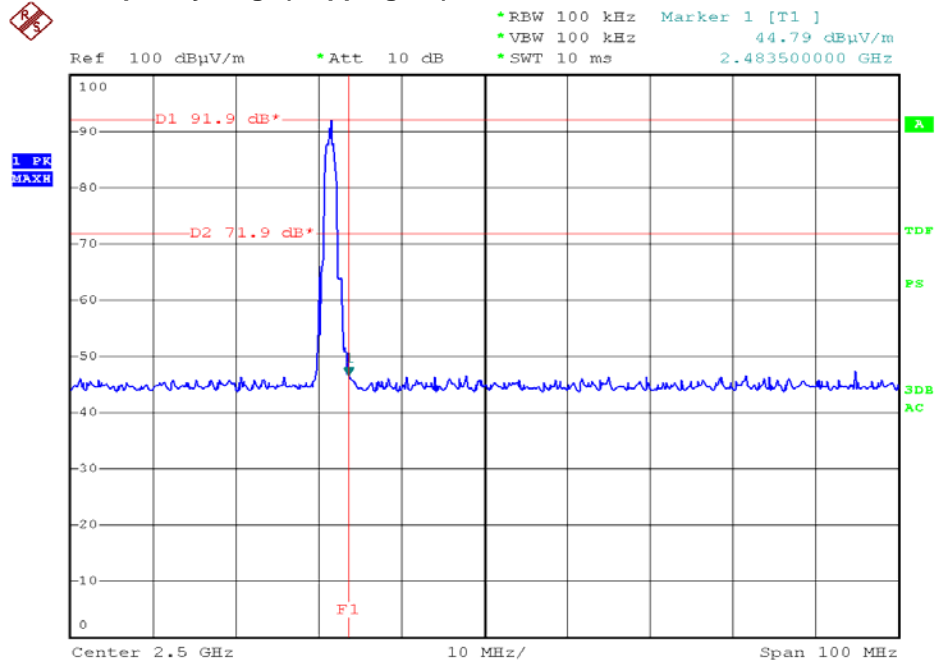
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**Test Frequency: Low (Hopping off)**

Date: 6.MAY.2010 11:03:02

**Test Frequency: High(Hopping off)**

Date: 6.MAY.2010 10:50:06

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## 14.Deviation to test specifications

[ NONE]

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