

CENTRE OF TESTING SERVICE INTERNATIONAL

**OPERATE ACCORDING TO ISO/IEC 17025** 

# FCC ID TEST REPORT

# TEST REPORT NUMBER : CGZ3100626-02321/2-O



CENTRE OF TESTING SERVICE CO., LTD. Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China.





RS	TEST REPORT For FCC ID 47 CFR PART 15 OCT, 2009 S-210 Issue 7, RSS-Gen Issue 2
Report Reference No	CGZ3100626-02321/2-O
Date of issue	22 July 2010
Testing Laboratory Name	CETRE OF TESTING SERVICE CO., LTD
Address	Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China.
Testing location/ procedure	Full application of Harmonised standards
	Partial application of Harmonised standards $\Box$
	Other standard testing method $\Box$
Applicant's name	. Datel Design & Development, inc.
Address	33 N. Garden Avenue Suite 900 Clearwater, FL 33755 United States.
Test specification	
Standard	·· 47 CFR PART 15 OCT, 2009, RSS-210 Issue 7, RSS-Gen Issue 2
Test Report Form No	CTSEMC-1.0
TRF Originator	CENTRE OF TESTING SERVICE CO., LTD
Master TRF	Dated 2009-01
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Test item description	. XBOX360 WIRELESS HEADSET
Trade Mark	. /
Manufacturer	. Datel Design & Development, inc
Model/Type reference	. ER000231
Ratings	. 3.7 V, AC 120V/60Hz for Xbox
Operating Frequency	2402.00~2482.00MHz/ GFSK
Result	Positive

Compiled by:

Supervised by:

Approved by:

Kevin Liang / Manager

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**CENTRE OF TESTING SERVICE** 





# FCCID -- TEST REPORT

CGZ3100626-02321/2-O	22 July 2010 Date of issue		
ER000231			
XBOX360 WIRELESS HEADSET			
Datel Design & Development, inc.			
33 N. Garden Avenue Suite 900 Clearwater, FL 33755 United States. +(727) 431-0651 / Mr Kenneth J Tarolla			
Datel Design & Development, inc.			
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Datel Design & Development, inc.			
33 N. Garden Avenue Suite 900 Clearwater, FL 33755 United States. +(727) 431-0651 / Mr Kenneth J Tarolla			
	ER000231 XBOX360 WIRELESS HEADSET Datel Design & Development, inc. 33 N. Garden Avenue Suite 900 Clearwa +(727) 431-0651 / Mr Kenneth J Tarolla Datel Design & Development, inc. 33 N. Garden Avenue Suite 900 Clearwa +(727) 431-0651 / Mr Kenneth J Tarolla Datel Design & Development, inc. 33 N. Garden Avenue Suite 900 Clearwa		

**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	26 June 2010
Testing commenced on	27 June 2010
Testing concluded on	20 July 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 :

■ 3.7 V, AC 120V/60Hz for Xbox

# 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:

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.
```

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# 3.4 EUT configuration

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

Description	:	XBOX360 WIRELESS HEADSET
Model Number	:	ER000231
Operation frequency	:	2402.00~2482.00MHz/ GFSK
Radio Technology	:	HFSS
Modulation Technology	:	GFSK modulation
Antenna	:	Integral antenna, met requirement of FCC 15.203
Antenna Assembly Gain	:	2dBi (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, Detachabled, 1.8m , 2Pin	
Data Cable	Unshielded, Detachabled, 1.8m	
Certificate	By VoC	
Name	XBOX 360 Console	
M/N	XBOX 360	
S/N	N/A	
Manufacturer	Microsoft	
Data Cable	Unshielded, Detachabled, 1.5m	
Certificate	By CoC	
Name	AC/DC Adapter	
M/N	HP-A1503P2	
S/N	OC21S591607928	
Manufacturer	Microsoft	
Power Cord	Unshielded, Detachabled, 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

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variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

#### **4.6 Measurement Uncertainty**

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

EMISSION				
Description of Test Item	Standard	Results		
Conducted Emission Test	FCC Part 15 C: 15.207 RSS-210 Issue 7, RSS-Gen Issue 2 ANSI C63.4-2009	PASSED		
Radiated Emission Test	FCC Part 15 C: 15.207 RSS-210 Issue 7, RSS-Gen Issue 2 ANSI C63.4-2009	PASSED		
Carrier Frequency Separation Test	FCC Part 15 C: 15.207 RSS-210 Issue 7, RSS-Gen Issue 27 ANSI C63.4-2009	PASSED		
20 dB Bandwidth Test	FCC Part 15 C: 15.207 RSS-210 Issue 7, RSS-Gen Issue 2 ANSI C63.4-2009	PASSED		
Number Of Hopping Frequency Test	FCC Part 15 C: 15.207 RSS-210 Issue 7, RSS-Gen Issue 2 ANSI C63.4-2009	PASSED		
Dwell Time Test	FCC Part 15 C: 15.207 RSS-210 Issue 7, RSS-Gen Issue 2 ANSI C63.4-2009	PASSED		
Maximum Peak Output Power Test	FCC Part 15 C: 15.207 RSS-210 Issue 7, RSS-Gen Issue 2ANSI C63.4-2009	PASSED		
Band Edge Compliance Test	FCC Part 15 C: 15.207 RSS-210 Issue 7, RSS-Gen Issue 2 ANSI C63.4-2009	PASSED		
RF Exposure Test	FCC Part 2: 2.1307(b)(1) RSS-102 Issue 3	PASSED		
Receiver Spurious Emission Test	FCC Part 15 C: 15.207 ANSI C63.4-2009	PASSED		

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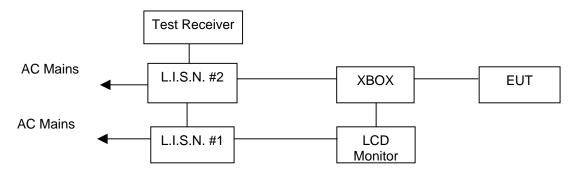


# 6. Power Line Conducted Emission Test

#### 6.1.Test Equipment

Conduc	ted 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: XBOX360 WIRELESS HEADSET)

#### 6.3. Power Line Conducted Emission Test Limits

		Maximum RF L	_ine Voltage
Freat	Jency	Quasi-Peak Level	Average Level
	,	dB(μV)	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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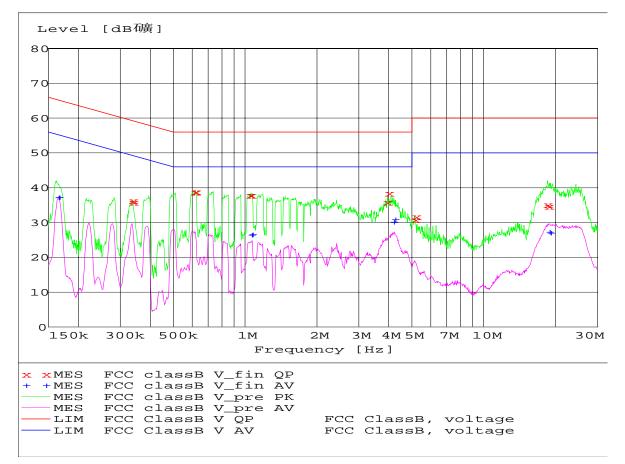




## 6.5. Power Line Conducted Emission Test Results

#### PASSED.

Channel: Test point: Frequency range:	TX Mode Va 0.15~30MHz	Result:	<ul> <li>passed</li> <li>not passed</li> </ul>
r requerity range.	0.10 000012		
EUT	XBOX360 WIRELESS	HEADSET	
Firm Name	Datel Design & Devel	opment, inc.	
Operating Condition	3.7 V, AC 120V/60Hz	for Xbox	
Test Condition	Ambient Temperature:	25°C Humidity: 56	5%
Test Date:	27 June 2010		
Operator	Raymond		
MODEL NO	ER000231		



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

Frequency Level Transd Limit Margin Line PE MHz dBµV dB dBµV dB 0.337414 36.40 10.1 59 22.6 Va GND 0.336663 35.50 10.1 59 23.5 Va GND Va GND 0.616146 38.30 10.1 56 17.7 0.614811 38.50 10.1 56 17.5 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	Level			it Margi		
MHz	dBµV	dB	dBµ∖	/ dB		
0.164415	37.30	10.2	55	17.7	Vb	GND
0.165733	37.30	10.2	55	17.7	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	30.10	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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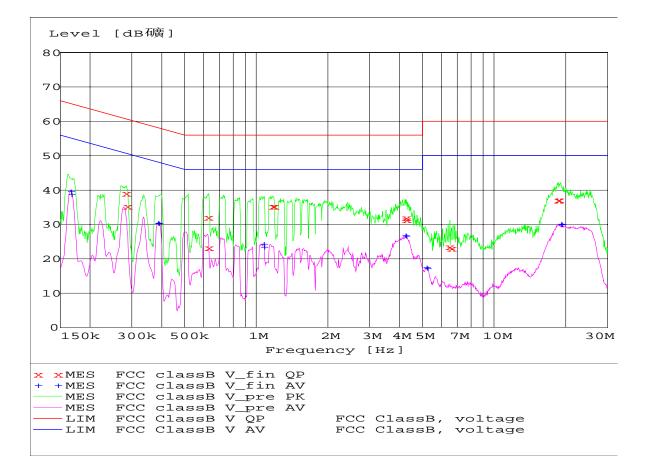
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Channel:	TX N	Node	Result:	- passed
Test point:	Vb			- not passed
Frequency range:	0.15	5~30MHz		·
EUT		XBOX360 WIRELESS HEAD	SET	
Firm Name		Datel Design & Developmer	it, inc.	
Operating Condition		3.7 V, AC 120V/60Hz for Xbo	х	
Test Condition		Ambient Temperature: 25°C	Humidity: 56	%
Test Date:		27 June 2010 ~ 20 July 2010		
Operator		Raymond		
MODEL NO		ER000231		



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CTS

# **MEASUREMENT RESULT:** "FCC classB V\_fin QP" Frequency Level Transd Limit Margin Line PE

Frequency	Level	Iransc	i Limi	t Marg	in Line	e pe
MHz	dBµV	dB	dBµ∖	/ dB		
0.282840	39.20	10.2	61	21.8	Vb	GND
0.284436	35.60	10.2	61	25.4	Vb	GND
0.623270	32.50	10.1	56	23.5	Vb	GND
0.628370	23.40	10.1	56	32.7	Vb	GND
1.167291	35.70	10.1	56	20.3	Vb	GND
1.181786	35.50	10.1	56	20.5	Vb	GND
4.238366	31.40	10.1	56	24.6	Vb	GND
4.255480	31.30	10.1	56	24.7	Vb	GND
6.471930	23.50	10.0	60	36.5	Vb	GND
6.575720	23.20	10.0	60	36.9	Vb	GND
18.566472	37.00	9.9	60	23.0	Vb	GND
18.638230	37.40	9.9	60	22.6	Vb	GND

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

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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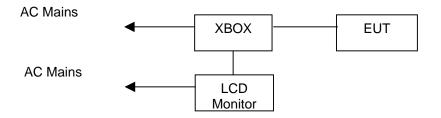
# 7. Radiated disturbance (electric field)

# 7.1.Test Equipment

Radia	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: XBOX360 WIRELESS HEADSET)

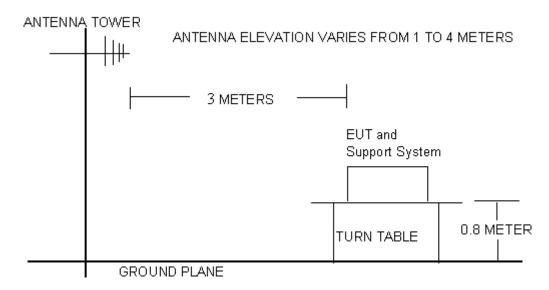
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## 7.2.2 Anechoic Chamber Setup Diagram



# 7.3.Radiated Emission Limit Standard: FCC 15.247

FRI	EQUEN	CY	DISTANCE	FIELD STREN	GTHS LIMIT
	MHz		Meters	μV/m	dB(µV)/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
A	bove 10	000	3	Other:74.0 dB(µ	
			-	54.0 dB(μV)/m	n (Average)

(1) Emission level  $dB\mu V = 20 \log Emission level \mu V/m$ Remark:

(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 a 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 C63.4-2009on 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,

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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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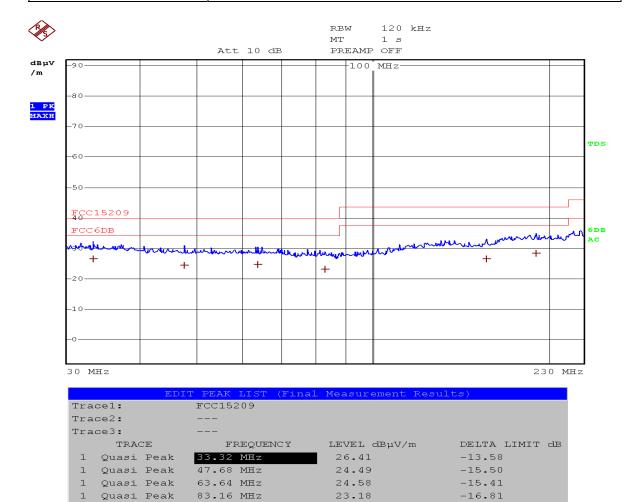
-







Channel:	TX Mode	Result:	- passed
Test point:	Horizontal		□ - not passed
Frequency range:	30-230MHz and 230-1000MH	Z	
EUT	XBOX360 WIRELESS H	EADSET	
Firm Name	Datel Design & Develop	oment, inc.	
Operating Condition	3.7 V, AC 120V/60Hz for	<sup>·</sup> Xbox	
Test Condition	Ambient Temperature: 2	5°C Humidity: 50	6%
Test Date:	27 June 2010 ~ 20 July 2	2010	
Operator	Raymond		
MODEL NO	ER000231		



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1

1

Quasi Peak Quasi Peak

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156.92 MHz

190.36 MHz

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-16.91

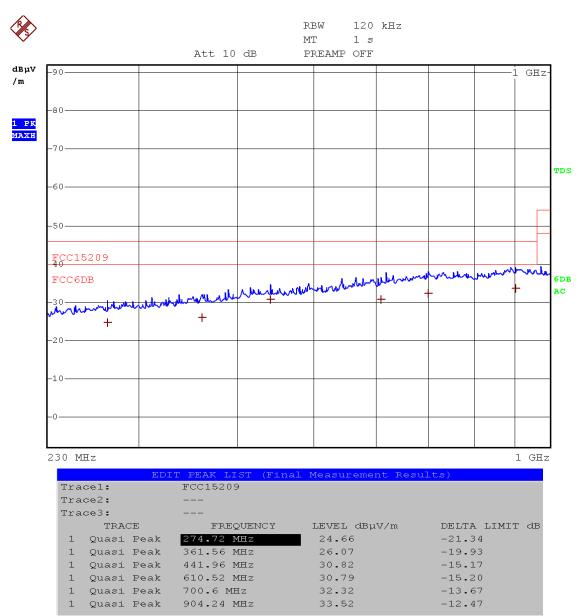
-15.17

26.59

28.33







Note: 1. Emission level=Read level + Factor

2. Factor=Antenna factor + Cable loss

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Channel:	Low 2402MHz	Result:	- passed
Test point:	Horizontal		I - not passed
Frequency range:	1GHz-26.5GHz		

EUT	XBOX360 WIRELESS HEADSET		
Firm Name	Datel Design & Development, inc.		
Operating Condition	3.7 V, AC 120V/60Hz for Xbox		
Test Condition	Ambient Temperature: 25°C Humidity: 56%		
Test Date:	27 June 2010 ~ 20 July 2010		
Operator	Raymond		
MODEL NO	ER000231		

Frequency	Result [dBµV]		Limit [	Limit [dBµV]		Dlimit [dBµV]	
[MHz]	Average	Peak	Average	Peak	Average	Peak	
1838.7	43.7	54.5	54	74	10.3	19.5	
2744.5	44.1	53.7	54	74	9.9	20.3	
4158.7	45.6	48.7	54	74	8.4	25.3	
6375.1	46.1	56.8	54	74	7.9	17.2	
7301.5	42.0	50.7	54	74	12.0	23.3	
8512.3	44.4	53.0	54	74	9.6	21.0	

Note: 1. Emission level=Read level + Factor

2. Factor=Antenna factor + Cable loss

Channel:	Mid 2442MHz	Result:	- passed
Test point:	Horizontal		□ - not passed
Frequency range:	1GHz-26.5GHz		

Frequency	Result [dBµV]		Limit [dBµV]		Dlimit [dBµV]	
[MHz]	Average	Peak	Average	Peak	Average	Peak
1828.7	43.5	53.5	54	74	10.5	20.5
2734.5	45.1	55.7	54	74	8.9	18.3
4158.4	47.1	46.7	54	74	6.9	27.3
6375.1	43.2	53.8	54	74	10.8	20.2
7301.2	44.8	54.7	54	74	9.2	19.3
8512.2	46.1	56.0	54	74	7.9	18.0

Note: 1. Emission level=Read level + Factor

2. Factor=Antenna factor + Cable loss

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Channel:	High 2482MHz	Result:	- passed
Test point:	Horizontal		- not passed
Frequency range:	1GHz-26.5GHz		

Frequency	Result [dBµV]		Limit [dBµV]		Dlimit [dBµV]	
[MHz]	Average	Peak	Average	Peak	Average	Peak
1829.3	43.4	53.5	54	74	10.6	20.5
2735.5	46.2	55.7	54	74	7.8	18.3
4134.7	44.2	43.7	54	74	9.8	30.3
6375.1	41.6	51.8	54	74	12.4	22.2
7361.5	44.7	54.7	54	74	9.3	19.3
8532.3	43.1	53.0	54	74	10.9	21.0

Note: 1. Emission level=Read level + Factor

2. Factor=Antenna factor + Cable loss

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MODEL NO

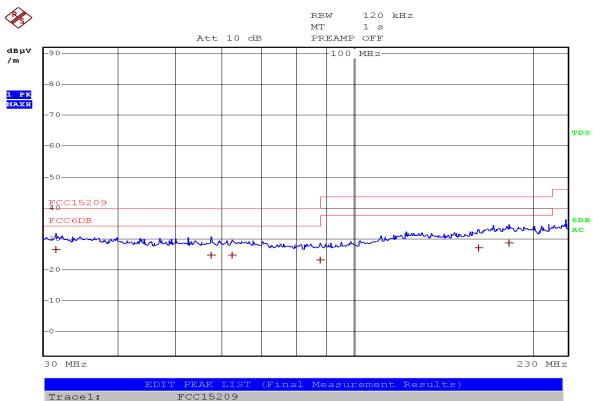


ER000231





Channel: Test point: Frequency range:	Test point: Vertical		Result:	<ul> <li>passed</li> <li>not passed</li> </ul>		
EUT	XBOX360 WIREL	XBOX360 WIRELESS HEADSET				
Firm Name	Datel Design & D	Datel Design & Development, inc.				
Operating Condition	3.7 V, AC 120V/60	3.7 V, AC 120V/60Hz for Xbox				
Test Condition Ambient Temperature: 25°C Hu				%		
Test Date:	27 June 2010 ~ 20	27 June 2010 ~ 20 July 2010				
Operator	Raymond					



Trace2:		.ce2 :						
	Tra	.ce3:						
		TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB			
	1	Quasi Peak	31.44 MHz	26.57	-13.42			
	1	Quasi Peak	57.44 MHz	24.54	-15.45			
	1	Quasi Peak	62.4 MHz	24.60	-15.40			
	1	Quasi Peak	87.8 MHz	23.10	-16.89			
	1	Quasi Peak	162.32 MHz	27.13	-16.36			
	1	Quasi Peak	182.76 MHz	28.50	-14.99			

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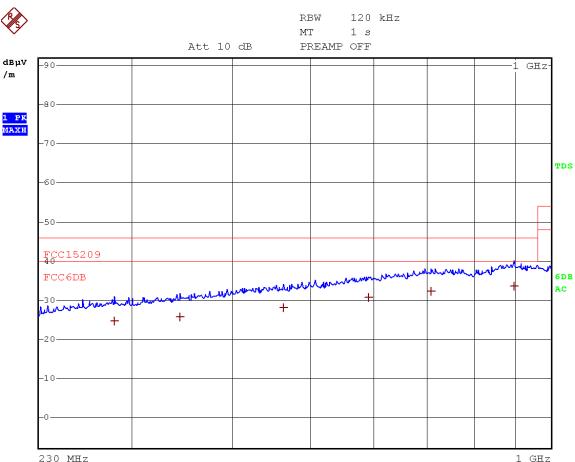
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200	

1 GHz

		EDIT	PEAK	LIST	(Final	Measurement	Result	.s)	
Tra	cel:		FCC152	209					
Tra	ce2:								
Tra	ce3:								
	TRACE		FF	REQUER	1C Y	LEVEL dBµV/n	n	DELTA LIMIT	dB
1	Quasi Pe	eak	285.6	MHz		24.59		-21.40	
1	Quasi Pe	eak .	344.88	3 MHz		25.77		-20.23	
1	Quasi Pe	eak	464.24	MHz		28.18		-17.81	
1	Quasi Pe	eak	593.04	MHz		30.72		-15.27	
1	Quasi Pe	eak	707.92	2 MHz		32.39		-13.60	
1	Quasi Pe	eak	899.88	3 MHz		33.60		-12.40	

Note: 1. Emission level=Read level + Factor

2. Factor=Antenna factor + Cable loss

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Channel:	Low 2402MHz	Result:	- passed
Test point:	Vertical		□ - not passed
Frequency range:	1G-26.5GHz		

EUT	XBOX360 WIRELESS HEADSET
Firm Name	Datel Design & Development, inc.
Operating Condition	3.7 V, AC 120V/60Hz for Xbox
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	27 June 2010 ~ 20 July 2010
Operator	Raymond
MODEL NO	ER000231

Frequency	Result [dBµV]		Limit [dBµV]		Dlimit[dBµV]	
[MHz]	Average	Peak	Average	Peak	Average	Peak
1843.7	42.7	52.5	54	74	11.3	21.5
2734.5	43.1	53.7	54	74	10.9	20.3
4134.7	41.6	41.7	54	74	12.4	32.3
6355.1	42.1	52.8	54	74	11.9	21.2
7344.5	43.0	53.7	54	74	11.0	20.3
8536.3	41.4	51.0	54	74	12.6	23.0

Note: 1. Emission level=Read level + Factor

2. Factor=Antenna factor + Cable loss

Channel:	Mid 2442MHz	Result:	- passed
Test point:	Vertical		- not passed
Frequency range:	1G-26.5GHz		

Frequency	Result	[dBµV]	Limit [	dBµV]	Dlin	nit [dBµV]
[MHz]	Average	Peak	Average	Peak	Average	Peak
1826.7	42.5	53.5	54	74	11.5	20.5
2738.5	43.1	52.7	54	74	10.9	21.3
4138.7	41.1	41.7	54	74	12.9	32.3
6395.1	42.2	52.8	54	74	11.8	21.2
7341.5	43.8	53.7	54	74	10.2	20.3
8522.3	44.1	53.0	54	74	9.9	21.0

Note: 1. Emission level=Read level + Factor

2. Factor=Antenna factor + Cable loss

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Channel:	High 2482MHz			Result:	- pass	sed		
Test point:	Vertical				🗆 - not p	bassed		
Frequency rang	e: 1G-2	6.5GHz						
Frequency	Result	[dBµV]	Lim	iit [dBµV]	Dlii	mit [dBµV]		
[MHz]	Average	Peak	Average	e Peak	Average	Peak		
1818.4	42.4	52.5	54	74	11.6	21.5		
2745.5	44.2	53.7	54	74	9.8	20.3		
4134.7	42.2	42.7	54	74	11.8	31.3		
6325.1	42.6	52.8	54	74	11.4	21.2		
7341.5	44.7	54.7	54	74	9.3	19.3		
8562.2	43.1	53.0	54	74	10.9	21.0		

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

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# 8. Carrier frequency separation test

# 8.1. Test Equipment

Carrier	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:	XBOX360 WIRELESS HEADSET	
M/N:	ER000231	
Firm Name:	Datel Design & Development, inc.	
Power supply:	3.7 V, AC 120V/60Hz for Xbox	
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:	27 June 2010 ~ 20 July 2010	
Test By:	Raymond	

## 8.3. Test Results

#### PASSED.

The testing data was attached in the next pages.

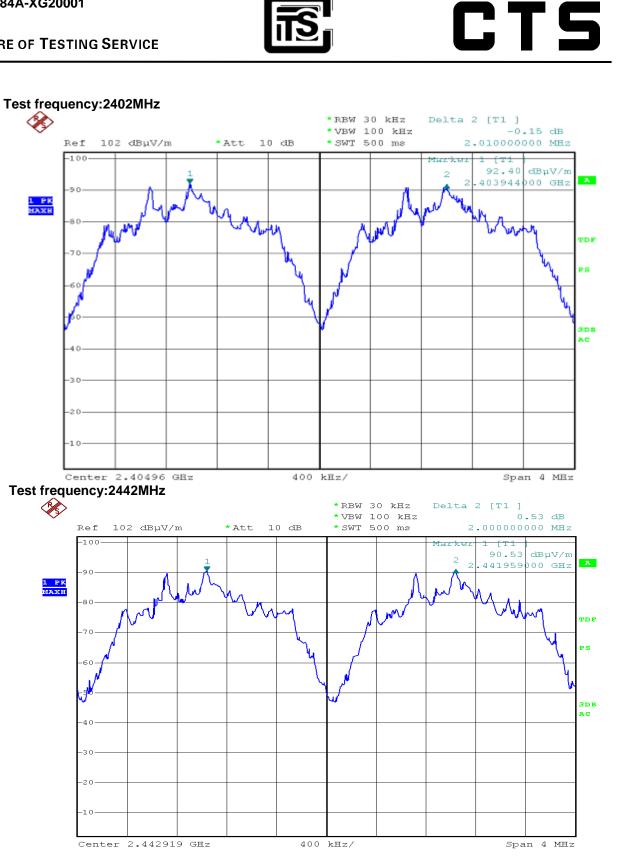
СН	Channel separation (kHz)	Limit	Conclusion
(1 ow)	2010	>the 20dB Bandwidth or 25kHz	PASSED
(Low)	2010	(whichever is greater)	PASSED
(Mid)	2000	>the 20dB Bandwidth or 25kHz	PASSED
(iviid)	2000	(whichever is greater)	PASSED
(High)	2000	>the 20dB Bandwidth or 25kHz	PASSED
(High)	2000	(whichever is greater)	FASSED

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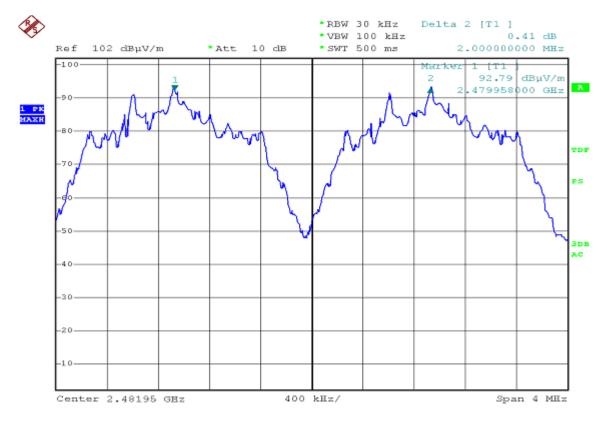
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Test frequency:2482MHz



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# 9.20 dB Bandwidth test

# 9.1. Test Equipment

20 dB I	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:	XBOX360 WIRELESS HEADSET
M/N:	ER000231
Firm Name:	Datel Design & Development, inc.
Power supply:	3.7 V, AC 120V/60Hz for Xbox
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:	27 June 2010 ~ 20 July 2010
Test By:	Raymond

# 9.3. Test Results

# PASSED.

The testing data was attached in the next pages.

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

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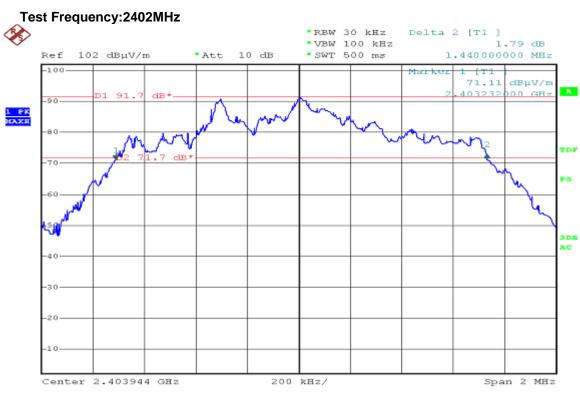
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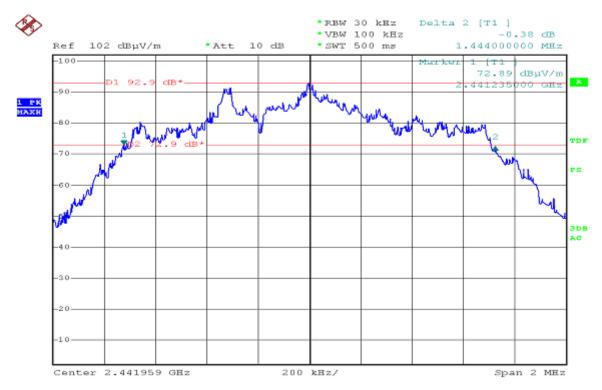
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#### Test Frequency:2442MHz



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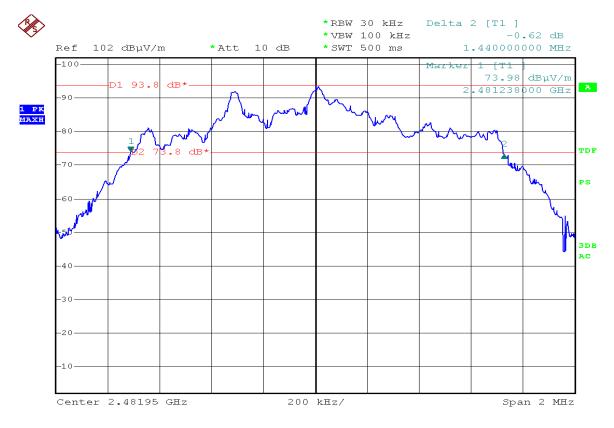
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Test Frequency:2482MHz



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# **10.Number of Hopping Frequency test**

# 10.1. Test Equipment

Numbe	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:	XBOX360 WIRELESS HEADSET
M/N:	ER000231
Firm Name:	Datel Design & Development, inc.
Power supply:	3.7 V, AC 120V/60Hz for Xbox
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:	27 June 2010 ~ 20 July 2010
Test By:	Raymond

## 10.3. Test Results

### PASSED.

The testing data was attached in the next pages.

Number of channel	Limit	Conclusion
41	>=15	PASSED

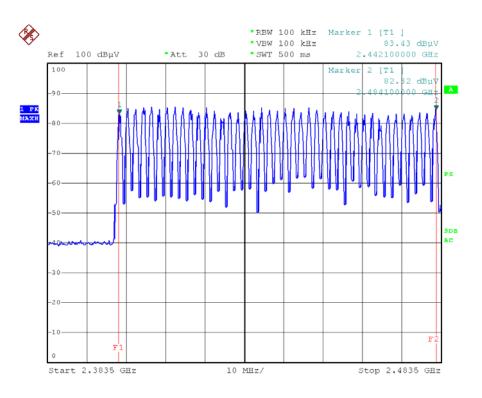
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# 11.Dwell time test

# 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:	XBOX360 WIRELESS HEADSET
M/N:	ER000231
Firm Name:	Datel Design & Development, inc.
Power supply:	3.7 V, AC 120V/60Hz for Xbox
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:	27 June 2010 ~ 20 July 2010
Test By:	Raymond

## 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  $380\mu s$ , so the dwell time is:

#### 25/10\*41\*0.4\*2\*380\*10<sup>-6</sup>=311.6ms

dwell time	Limit	Conclusion
311.6ms	<400ms	PASSED

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# 12. Maximum Peak Output power test

# 12.1. Test Equipment

Maximum Peak Output power test						
Item	tem Test Equipment Manufacturer Model No. Serial No. Last					
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:	XBOX360 WIRELESS HEADSET
M/N:	ER000231
Firm Name:	Datel Design & Development, inc.
Power supply:	3.7 V, AC 120V/60Hz for Xbox
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:	27 June 2010 ~ 20 July 2010
Test By:	Raymond

#### 12.3. Test Results

#### PASSED.

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СН	Freq (MHz)	Ant. pol	Emission Level	Result (dBm)	Morgin	Limits	
			(dBµV)		Margin	(mW)	
Low	2402.0	Н	94.78	0.62	20.33	125	20.97
Low	2402.0	V	88.84	-6.34	27.31	125	20.97
Mid	2442.0	Н	93.94	0.51	20.46	125	20.97
	2442.0	V	86.14	-9.16	30.13	125	20.97
High	2482.0	Н	95.35	0.49	20.48	125	20.97
	2482.0	V	89.34	-8.15.	29.12	125	20.97

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

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

(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 E	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:	XBOX360 WIRELESS HEADSET
M/N:	ER000231
Firm Name:	Datel Design & Development, inc.
Power supply:	3.7 V, AC 120V/60Hz for Xbox
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.247
Test mode:	Transmitting, Hopping on and Hopping off
	Low: 2402MHz; Mid: 2442MHz; High: 2462MHz;
Test Frequency:	High: 2482MHz
Test Date:	27 June 2010 ~ 20 July 2010
Test By:	Raymond

## 13.3. Test Results

## PASSED.

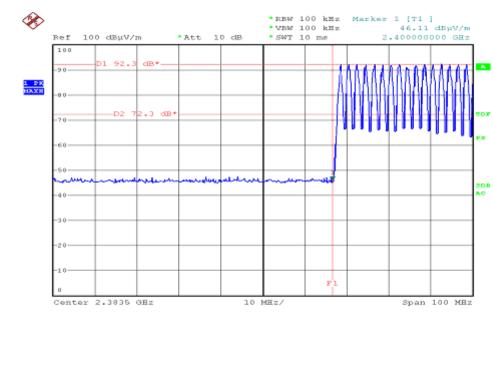
The testing data was attached in the next pages.

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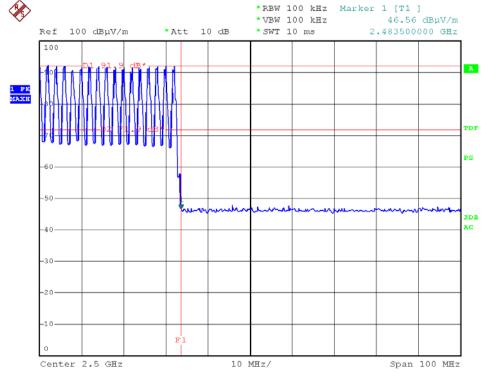
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#### Test Frequency: Low (Hopping on)





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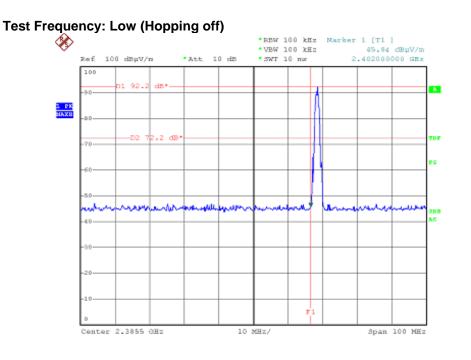
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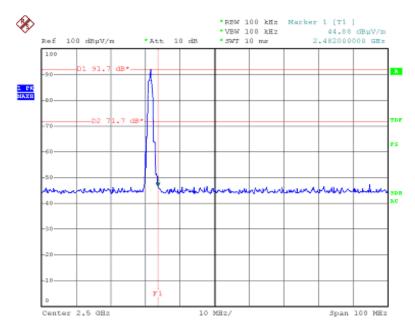








## **Test Frequency: High(Hopping off)**



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## 14. Occupied Bandwidth (99% BW) test

## 14.1. Test Equipment

Band E	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		
4	Spectrum	Agilent	E4446A	44300459	200912		

## 14.2. Test Information

EUT:	XBOX360 WIRELESS HEADSET	
M/N:	ER000231	
Firm Name:	Datel Design & Development, inc.	
Power supply:	3.7 V, AC 120V/60Hz for Xbox	
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:	2402MHz ,	
Test Date:	27 June 2010	
Test By:	Jackson	

## 14.3. Test Results

## PASSED.

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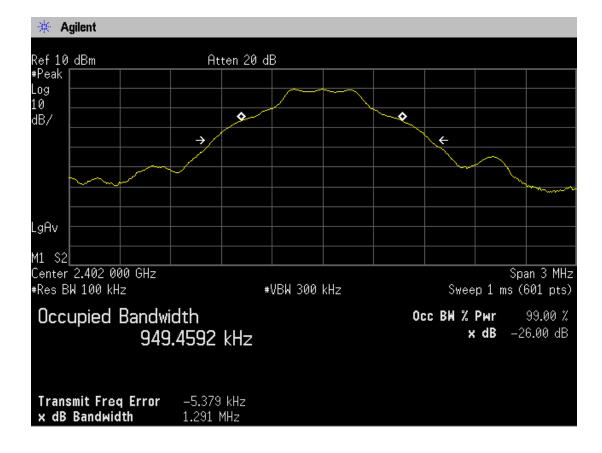
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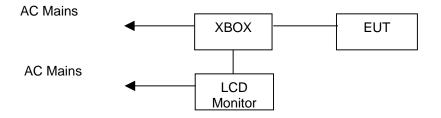
## **15. Receiver Spurious Emission Test**

## **15.1.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	

## 15.2.Block Diagram of Test Setup

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



## (EUT: XBOX360 WIRELESS HEADSET)

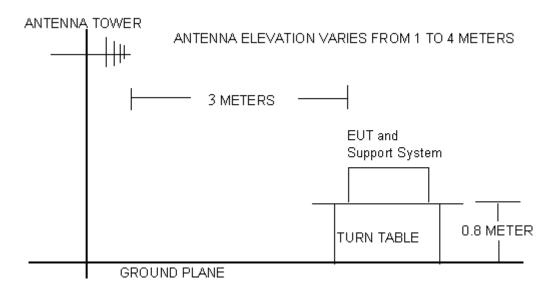
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## 15.2.2 Anechoic Chamber Setup Diagram



## 15.3.Radiated Emission Limit Standard: FCC 15.209

FRI	FREQUENCY DISTANCE		DISTANCE	FIELD STRENGTHS LIMIT	
	MHz		Meters	μV/m	dB(µV)/m
30	2	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 dB(μ 54.0 dB(μV)/n	

(1) Emission level  $dB\mu V = 20 \log Emission level \mu V/m$ Remark:

(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.

## 15.4.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 a 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 C63.4-2009on 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

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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 (Standby Mode) is tested in Anechoic Chamber and all the scanning waveforms are reported on section 15.5

## **15.5.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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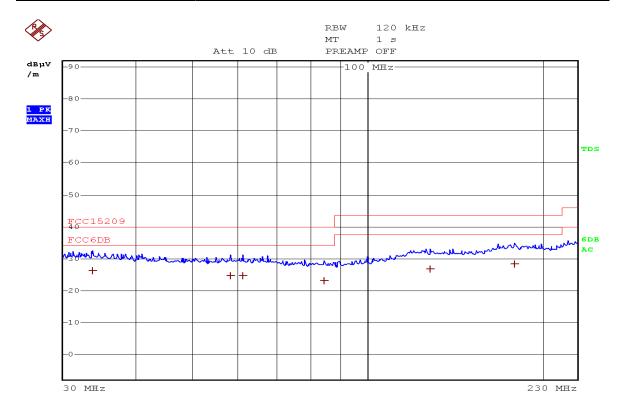
#### FCC ID: WLE-XG20001 IC: 9084A-XG20001







Test point: Horiz		vive Mode zontal 230MHz and 230-1000MHz	Result:	<ul> <li>passed</li> <li>not passed</li> </ul>	
EUT		XBOX360 WIRELESS HEAD	SET		
Firm Name		Datel Design & Developmen	it, inc.		
Operating Condition		3.7 V, AC 120V/60Hz for Xbox			
Test Condition		Ambient Temperature: 25°C Humidity: 56%			
Test Date:		27 June 2010			
Operator		Raymond			
MODEL NO		ER000231			



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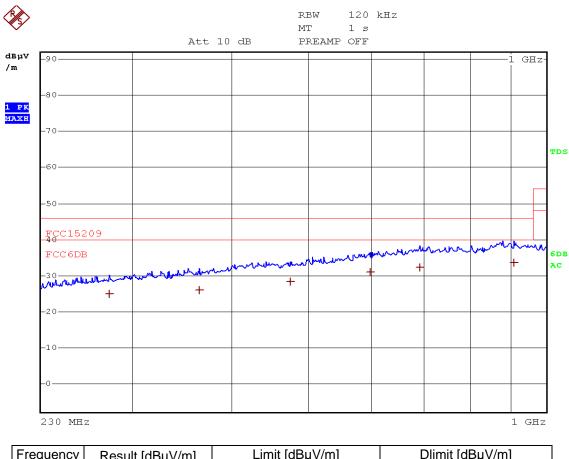
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Frequency	Result [d	Result [dBµV/m]		Limit [dBµV/m]		[dBµV/m]
[MHz]	Average	QP	Average	QP	Average	QP
33.11		29.0		40.0		11.0
64.61		30.4		43.5		13.1
125.56		27.8		43.5		15.7
199.56		30.5		43.5		13.0
312.67		32.0		43.5		11.5
767.56		29.0		46.0		17.0

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

Channel:	Receive Mode	Result:	- passed
Test point:	Horizontal		□ - not passed
Frequency range:	Above 1GHz		

Note: Test results for above 1GHz, the emissions are more than 20dB below the limit, so there are not reported.

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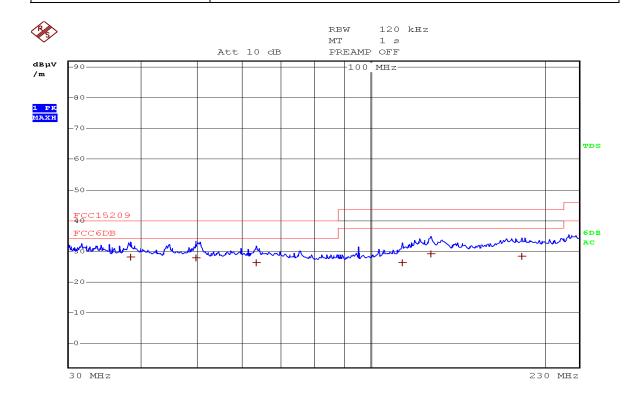
#### FCC ID: WLE-XG20001 IC: 9084A-XG20001







Channel: Test point:	Rece Vert	ive Mode ical	Result:	<ul> <li>passed</li> <li>not passed</li> </ul>	
Frequency range:	30-2	30MHz and 230-1000MHz			
EUT		XBOX360 WIRELESS HEAI	DSET		
Firm Name		Datel Design & Development, inc.			
Operating Condition		3.7 V, AC 120V/60Hz for Xbox			
Test Condition		Ambient Temperature: 25°C Humidity: 56%			
Test Date:		27 June 2010			
Operator	erator Raymond				
MODEL NO		ER000231			



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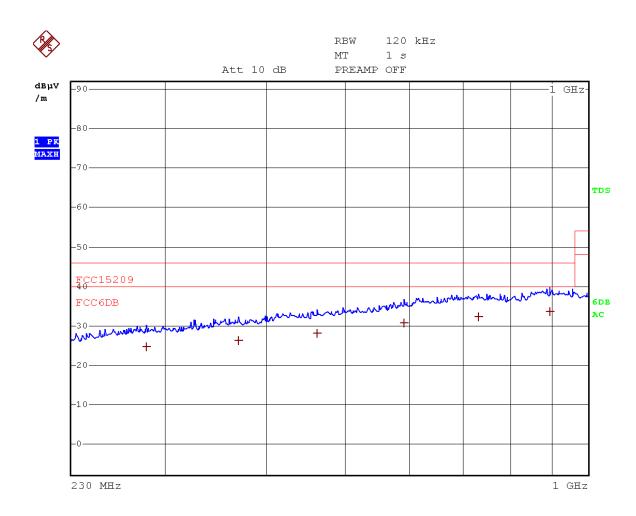
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Frequency	Result [c	dBµV/m]	Limi	t [dBµV/m]	Dlimit [	dBµV/m]
[MHz]	Average	QP	Average	QP	Average	QP
33.28		27.0		40.0		13.0
65.61		29.0		43.5		14.5
124.56		26.6		43.5		16.9
198.56		30.5		43.5		13.0
311.67		31.0		43.5		12.5
767.56		29.0		46.0		17.0

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

Channel:	Receive Mode	Result:	- passed
Test point:	Vertical		□ - not passed
Frequency range:	Above 1GHz		

# Note: Test results for above 1GHz, the emissions are more than 20dB below the limit, so there are not reported.

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## 16. Deviation to test specifications

[NONE]

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